

VIKING PUMP **MASTER CATALOG**

UPDATED 3/15/17



SCAN FOR UP-TO-DATE
CATALOG SECTIONS
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Introduction

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Some sections group models by the design or pumping principle rather than the external material of construction. To assist identification in those sections, the models which correspond to the listed external material have been highlighted.

INTERNAL GEAR PUMPS

CAST IRON, DUCTILE IRON	
Heavy Duty	144 — SERIES 495 AND 4195 (High Speed, Cast Iron)
	430 — HEAVY DUTY ASPHALT (Jacketed Cast Iron) & ELECTRICALLY HEATED ASPHALT (Cast Iron)
	628 — SERIES 4124B (Behind the Rotor, Cast Iron)
	630 — HEAVY DUTY UNIVERSAL SEAL PUMPS (Jacketed and Non-Jacketed - Cast Iron, Ductile Iron, Steel, Stainless Steel)
Mag Drive	635 — SERIES 8124A UNIVERSAL MAG DRIVE
	680 — SERIES 897, 893, 895
	685 — SERIES 855 WITH MD2 COUPLING
	845 — SERIES 823, 825, 827 (Mag Drive Pumps)
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STAINLESS STEEL	
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Mag Drive	635 — SERIES 8127A UNIVERSAL MAG DRIVE
	680 — SERIES 897, 893, 895
	845 — SERIES 823, 825, 827
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SPECIALTY PUMPS	
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	430 — SERIES 34 (Jacketed Asphalt), HEAVY DUTY ASPHALT (Jacketed Cast Iron) & ELECTRICALLY HEATED ASPHALT (Cast Iron)

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Vane	445 — SERIES LVP Vane Pump (Stainless Steel)
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HOW TO USE THIS CATALOG

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HOW TO USE THIS CATALOG

This Viking indexed catalog is organized in a convenient manner for quick referral. The table of contents on the first tab divider (Section 000) lists the organization of the catalog by section number and pump series.

In this section is:

- The Viking Sales Policy with warranty
- Viking U.S. Distributor Return Policies
- An explanation of the model numbering system
- An index of model numbers to indicate the catalog section in which they are found
- An Internal Gear Pump Displacement and Element Size Chart
- An External Gear Pump Displacement and Element Size Chart

Each section includes features, construction and mounting arrangements, specifications and dimensions.

Section 500 includes Engineering Data, including rotary pump fundamentals, a guide to selecting the proper Viking pump, and useful engineering information that applies to pumping applications. Following the Engineering Section is a list of liquids that are readily handled by Viking pumps, along with recommended pump construction, type of seal, and miscellaneous data.

* Consult www.vikingpump.com for the most current list of Viking offices and distributors.

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VIKING SALES POLICY

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VIKING SALES POLICY

VIKING PUMP

WARRANTY

Viking pumps, strainers and reducers are warranted to be free of defects in material and workmanship under normal conditions of use and service. The warranty period varies by type of product. A Viking product that fails during its warranty period under normal conditions of use and service due to a defect in material or workmanship will be repaired or replaced by Viking. At Viking's sole option, Viking may refund (in cash or by credit) the purchase price paid to it for a Viking product (less a reasonable allowance for the period of use) in lieu of repair or replacement of such Viking product. Viking's warranty is subject to certain restrictions, limitations, exclusions and exceptions. A complete copy of Viking's warranty, including warranty periods and applicable restrictions, limitations, exclusions and exceptions, is posted on Viking's website (www.vikingpump.com/warranty/warranty-info). A complete copy of the warranty may also be obtained by contacting Viking through regular mail at Viking Pump, Inc., 406 State Street, Cedar Falls, Iowa 50613, USA.

THIS WARRANTY IS AND SHALL BE VIKING'S SOLE AND EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT, ALL OF WHICH OTHER WARRANTIES ARE EXPRESSLY EXCLUDED.

THE RIGHTS AND REMEDIES UNDER THIS WARRANTY ARE AND SHALL BE THE SOLE AND EXCLUSIVE RIGHTS AND REMEDIES AGAINST VIKING. EXCEPT FOR THE SPECIFIC LIABILITIES AND OBLIGATIONS PROVIDED UNDER THIS WARRANTY, VIKING SHALL HAVE NO LIABILITY OR OBLIGATION WITH RESPECT TO ANY PRODUCT CLAIMED TO BE DEFECTIVE IN ANY MANNER.

UNDER NO CIRCUMSTANCES SHALL VIKING BE LIABLE UNDER THIS WARRANTY OR OTHERWISE FOR SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOST OR UNREALIZED SALES, REVENUES, PROFITS, INCOME, COST SAVINGS OR BUSINESS, LOST OR UNREALIZED CONTRACTS, LOSS OF GOODWILL, DAMAGE TO REPUTATION, LOSS OF PROPERTY, LOSS OF INFORMATION OR DATA, LOSS OF PRODUCTION, DOWNTIME, OR INCREASED COSTS, IN CONNECTION WITH ANY PRODUCT, EVEN IF VIKING HAS BEEN ADVISED OR PLACED ON NOTICE OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ANY ESSENTIAL PURPOSE OF ANY PRODUCT.

Cancellation Charges

If the customer has a legitimate reason for requesting cancellation of an order after it has been accepted and acknowledged, the Company's written approval of cancellation must be obtained 30 days prior to scheduled shipping date. The Company's policy will be to assess a minimum cancellation charge of \$25.00 when no work has been started, purchased materials have not been ordered, or if a stock pump or part is cancelled. On non stock items, the cancellation charge will be based on work completed and material purchased.

Company Inspection, Tests, Etc.

According to company policy, each product will pass standard factory inspection and tests prior to shipment. Hydrostatic test pressures listed in the catalog apply to standard catalogued construction. Testing is done with a fluid compatible with the materials of construction. Weepage at seals is not considered failure. Special factory inspection, tests or reports are subject to a charge which will be quoted by the Company upon request.

Return of Products

Written authorization must be obtained from the Company before any Company products or other equipment used with the Company product can be returned for credit, repair, warranty consideration or any other reason.

When the Company products have been authorized for return and credit, they are subject to inspection and if found by the factory to be in first class condition, they may be subject to a restocking charge which will not be less than 10% of the original net price, with a \$100.00 minimum restocking charge whichever is greater, per Viking return policies catalog sections 030.2 and 030.3.

Deliveries

Deliveries of the equipment will be made f.o.b. point of shipment, unless otherwise stated on the order, and therefore risk of loss will be upon the purchaser.

Shipping dates given in advance of actual shipment are estimated and deliveries will be made subject to prior order on file with us.

We will not be liable for delays resulting from fire, or other casualties, labor or transportation difficulties, delays at our usual sources of supply, or without limitation by the foregoing, any other causes beyond our control.

Transportation Company's receipt constitutes delivery after which our responsibility ceases. Claims for shortage must be made within five days after receipt of goods.

Risk of Loss

Delivery of product to a carrier (common carrier, UPS Etc.) at the Viking facility from which the product is shipped will constitute delivery to a customer. Upon delivery of product to the carrier all risk of loss or damage to such product will pass to and be borne by customer. Viking will not have any liability for any product after delivery to a carrier, including any liability for delays in transit to customer. No loss, damage or delay in transit of product after delivery to a carrier will affect Customer's obligation to pay the purchase price and other applicable charges.

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VIKING U.S. DISTRIBUTOR RETURN POLICIES

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All returns must be submitted using the Return Authorization forms (based on type of return) available on VikingConnect.

If you are not familiar with the use of this electronic return form you can locate it on VikingConnect by clicking on Resources, then Return Authorization. There are six return types to choose from. Please choose, fill out the form to completion and submit.

Important Information: All returns involving equipment that has been in service must submit a Material Safety Data Sheet (MSDS) for the liquid involved. The MSDS information should be emailed to the return coordinator at dreuther@idexcorp.com or faxed to 803-216-7730.

Returned pumps that have been in use must be flushed clean of product before returning. Any equipment received and found to be containing residual amounts of hazardous material will be returned COLLECT. All parts must be clearly marked with Viking part numbers.

Returns under any of the following five categories must be sent in as a separate return. Do not combine two or more return categories into a single shipment.

Category 1: Returns for Warranty Consideration

Any items may be returned at any time for Warranty evaluation using the electronic Return Authorization process.

Category 2: Returns for Repair Work

Any items may be returned at any time for repair estimate using the electronic Return Authorization process.

Category 3: Stock Exchanges

Each Distributor is allowed two stock exchanges per year, but no more often than once during each six-month period. Distributors will be allowed to return standard manufactured product for exchange without a restocking charge. The Distributor should submit a list of items for approval to the return coordinator. The list should be emailed to the return coordinator by using the Return form on VikingConnect. The list will be reviewed and emailed back with the items on it approved or not approved for return as noted, and a Return Authorization (RA) number assigned to use on the return. Please note the exchange policies below.

Stock is exchangeable only under the following conditions:

- A restocking order greater than 1.15 times the return must be entered before the return will be processed.
- **No** stock exchange will be allowed if the distributor is below its minimum inventory requirement as stated on Annex H on your Distributor Agreement, unless the restocking order is larger than the return and will result in an inventory total that meets or exceeds the minimum requirement. The restocking order must be reviewed and approved by the Region Manager.
- All items must be current catalog items and in saleable condition.
- Only Viking manufactured items can be returned for credit.
- Purchased items such as mechanical seals, lip seals, gaskets, packing, o-rings, cap screws, etc. cannot be returned regardless of quantity.
- Note: new parts removed from an existing pump will not be accepted as a part return.
- Returned pumps must have a serial number, and cannot be more than three years old.
- Credit for pumps is determined by the original sales price for the pump, as determined by the serial number on the pump. Pumps constructed with non-standard seals will have the seal price deducted from the credit amount.
- Credit for returned parts is determined by using list price, and multiplier, in effect 18 months prior to the date of return.

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VIKING U.S. DISTRIBUTOR RETURN POLICIES

- Parts or pumps received at Viking Pump damaged, corroded, or in otherwise un-saleable condition will be returned at the Distributor's expense, or disposed of at Viking Pump if so instructed by the Distributor.
- Each Distributor will be assigned two quarters per year to execute the stock exchange. The exchange must occur in the first month of the assigned quarter. If a Distributor misses its assigned time period, it will be required to wait for its next authorized time period. If the Distributor returns inventory only once per year the dollar return limit remains as specified below. The Director of U.S. Distribution Sales or the Vice President Marketing & Sales must approve any exceptions.

Stock exchanges are limited to 20K per return.

- Any exceptions higher than those above can only be approved by the Director of U.S. Distribution Sales or the Vice President Marketing & Sales.

Category 4: Stock Return Due to Distributor or Customer Error

Stock returns due to an ordering error by the Distributor, the customer, or for any reason not caused by Viking Pump will be accepted. All freight charges for these returned items are the responsibility of the Distributor or the customer.

- All returned goods must be current product in standard material and in saleable condition when received at Viking Pump. Pumps with special non-standard seals or other special components may be returnable, however the special component pricing may be deducted from the credit amount.
- A 20% restock charge will be assessed on the net value of the return with a \$100 minimum charge for the return.

Category 5: Stock Return Due to Viking Pump Error

Stock returns due to an error by Viking Pump will be accepted. Notify your customer service representative at Viking Pump immediately upon verifying the error so that no finance charges will accrue on that invoice.

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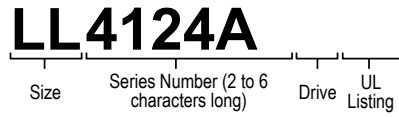
VIKING MODEL NUMBER SYSTEMS

VIKING MODEL NUMBER SYSTEMS

The model numbering systems for different pumping principles are explained below.

INTERNAL GEAR PUMPS

Viking model numbers for internal gear pumps begin with the pump size (capacity), followed by the pump series, followed by the drive unit and any UL listing. Two examples are shown below. A detailed listing of options for each section of the model number follows:



Pump Size (Capacity)

The first one or two alpha characters in the model number indicate the pump size (capacity). Note that the nominal capacities and maximum speed (RPM) are different for Heavy Duty and General Purpose pumps. Sizes are listed in order of increasing displacement per revolution.

PUMP SIZE	NOMINAL CAPACITY					
	HEAVY DUTY			GENERAL PURPOSE		
	GPM	m ³ /h	RPM	GPM	m ³ /h	RPM
C				0.5	0.11	1800
F				1.5	0.34	1800
FH				3	0.68	1800
GS	5	1.1	1800			
G	8	1.82	1800	5	1.14	1200
GG	10	2.27	1800	10	2.27	1800
H	15	3.4	1800	10	2.27	1200
HJ	20	4.5	1800	13	2.95	1200
HL/HLE	30	6.8	1800	20		1200
A	41	9.3	1700			
AS	52	11.8	1800			
AT/A TE	53	12.1	1500			
AK	75	17	1800			
AL	112	25	1800			
ALE	94	21.4	1500			
J				20	4.5	420
KS	30	6.8	520			
KE	150	34	1800			
K	75	17	780	35	7.9	420
KKE	205	47	1800			
KK	100	23	780	50	11.4	420
LQE	235	53	1200			
L/LQ	135	31	640	90	20.4	420
LL	140	32	520			
LS	200	45	640			
Q	390	88	640	200	45	350
QS	580	132	640			
M	420	95	420	280	64	280
N	600	136	350	450	102	280
R	1100	250	280			
P	1500	340	230			
RS	1600	363	250			

SERIES NUMBER BY MATERIAL OF CONSTRUCTION				PUMP SERIES	CATALOG SECTION
CAST IRON	DUCTILE IRON	STEEL	STAINLESS STEEL		
495 / 4195				Heavy Duty	144
		493 / 4193		Heavy Duty	154
			4197	Heavy Duty	164
			724 / 4724	Heavy Duty	210
			157B / 4157B 257B / 4257B	Hygienic	230
32 / 432				General Purpose	310
456 75 / 475				General Purpose	320
4624B				Abrasive	410
4924A				Ammonia	420
34 224 / 224A 4224 324A / 4324A				Jacketed Asphalt	430
32E 224E				Electrically Heated Asphalt	430
4124B				Behind the Rotor	628
124A / 4124A 124AE / 4124AE 4124B 224A / 4224A 224AE / 4224AE 4224B 324A / 4324A	126A 4126A 226A 4226A	123A 4123A 223A 4223A 323A 4323A	127A 4127A 227A 4227A 327A 4327A	Universal Seal	630
		4223AA		Universal 682	632
		4223AX		XPD 676	633
8124A		8123A	8127A	Universal Mag Drive	635
895		893	897	Mag Drive	680
855					685
825		823	827		845

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INTERNAL GEAR PUMPS (CONTD.)

Drive

The drive letter indicates the drive configuration used to operate the pump, as follows:

DRIVE LETTER	DRIVE TYPE
V	V-Belt Unit
R	Viking Reducer Unit
D	Direct Drive Unit
P	Purchased Reducer Unit
B	Bracket Mounted Unit
M	Motor Mounted Unit
E	Engine Drive Unit
S	Direct Drive (Sanitary Base)

UL Listing

Certain series may be UL Listed for specific fluids, with a letter designation, as follows:

UL LETTER	UL CLASSIFICATION	APPLICABLE SERIES
-X	Fuel Oil	432-X, 456-X, 474-X

EXTERNAL (SPUR) GEAR PUMPS

External gear pumps are found in three catalog sections, where detailed model numbering systems for each series are provided.

MODEL NO.	PUMP SERIES	CATALOG SECTION
SG-04, -05, -07, -10, -14 SG-804, -805, -807, -810, -814 GP-04, -05, -07, -10, -14 GM-05, -07, -10, -14 GD-04, -05, -07	SG Series External Gear Single & Double Pumps, Mag Drive Pumps; GP Fluid Power Pumps; GM Hydraulic Motors; SG Power Transfer Units, GD Flow Dividers (Iron)	341
CMD-E-02, -05, -12, -25, -75, -125	CMD Series External Gear Pumps	344

SG-05 pumps may be UL Listed for Fuel Oil, in which case the model number is followed by -X.

VANE PUMPS

Vane pumps are found in one catalog section, where detailed model numbering systems for the series is provided.

MODEL NO.	PUMP SERIES	CATALOG SECTION
LVP	Vane Pump	445

VIKING INTERNAL GEAR PUMP DISPLACEMENT AND ELEMENT SIZE TABLE

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For metering applications, it can be useful to know the displacement per revolution to calculate capacity at different operating speeds. That information is provided in the table below. For critical metering, actual displacement should be determined through calibration under normal operating conditions.

To aid in determining the pump size for unlabeled spare rotors or idlers, or to determine the size of a pump whose nameplate is missing, the approximate dimensions of the rotor and idler are also provided in the table below.

Pump Size	Theoretical* Displacement per Revolution		Theoretical* Displacement per 100 Revolutions		Approximate Size of Elements					
	Gal.	Liters	Gal.	Liters	Rotor O.D.		Idler O.D.		Tooth Length	
					Inches	mm	Inches	mm	Inches	mm
C	.00036	.001398	.0369	.1398936	1	25.4	3/4	19	1/4	6.3
F	.00115	.004352	.1150	.4352750	1-1/2	38.1	1-1/16	27	5/16	7.9
FH	.00209	.007918	.2092	.7918220	1-1/2	38.1	1-1/16	27	9/16	14.3
GS	.00430	.0161	.430	1.61	2-1/2	63.5	1-13/16	46	.40	10.0
G	.00538	.020359	.5379	2.035951	2-1/2	63.5	1-13/16	46	1/2	12.7
GG	.00672	.025446	.6723	2.544655	2-1/2	63.5	1-13/16	46	5/8	15.9
H	.00948	.035900	.9485	3.590072	3-3/8	85.7	2-5/8	66.7	5/8	15.9
HJ	.01328	.050264	1.328	5.026480	3-3/8	85.7	2-5/8	66.7	7/8	22.2
HL/HLE	.01898	.071839	1.898	7.183930	3-3/8	85.7	2-5/8	66.7	1-1/4	31.7
A	.02113	.08	2.1134	8.0000	4-5/8	117.5	3-3/8	85.7	3/4	19.1
AS	.03426	.129674	3.426	12.96741	4-5/8	117.5	3-3/8	85.7	1	25.4
AT/ATE	.0385	.144	3.85	14.4	4-5/8	117.5	3-3/8	85.7	1-1/8	28.6
AK	.05138	.194473	5.138	19.44733	4-5/8	117.5	3-3/8	85.7	1-1/2	38.1
AL/ALE	.06866	.259878	6.866	25.98781	4-5/8	117.5	3-3/8	85.7	2	50.8
J	.05271	.199507	5.271	19.95073	6-3/16	157	4-1/2	114.3	3/4	19
KS	.08792	.332813	8.792	33.2813	6-3/16	157	4-1/2	114.3	1-1/4	31.8
KE	.0917	.344	9.17	34.4	6-3/16	157	4-1/2	114.3	1-1/2	38.1
K	.10550	.399317	10.55	39.93175	6-3/16	157	4-1/2	114.3	1-1/2	38.1
KKE	.122	.458	12.2	45.8	6-3/16	157	4-1/2	114.3	2	50.8
KK	.14070	.532549	14.07	53.25495	6-3/16	157	4-1/2	114.3	2	50.8
LQE	.217	.815	2.17	81.5	8-1/4	209.5	6	152.4	2	50.8
L / LQ	.23730	.898180	23.73	89.81805	8-1/4	209.5	6	152.4	2	50.8
LL	.29660	1.122631	29.66	112.2631	8-1/4	209.5	6	152.4	2-1/2	63.5
LSE	0.323	1.22269	32.3	122.269	8-1/4	209.5	6	152.4	3	76.2
LS	.35595	1.347271	35.60	134.7271	8-1/4	209.5	6	152.4	3	76.2
Q	.65890	2.493936	65.89	249.3936	11	279.4	8	203.2	3	76.2
QS	.98835	3.740904	98.83	374.0904	11	279.4	8	203.2	4-1/2	114.3
M	1.09600	4.148360	109.6	414.8360	13-3/4	349.2	10	254	3	76.2
N	1.82700	6.915190	182.7	691.5190	13-3/4	349.2	10	254	5	127
R	4.27300	16.17330	427.3	1617.330	19-15/16	506.4	14-1/2	368.3	6	152.4
RS	6.0534	22.912	605.3	2291.2	19-15/16	506.4	14-1/2	368.3	8-1/2	215.9
P	7.58200	28.7010	758.2	2870.10	24	609.6	17-3/8	441.3	7	177.8

* Actual capacity may be less due to internal clearances in the pump.
Variations in fluid viscosity and discharge pressure may also affect capacity.

VIKING EXTERNAL GEAR PUMP DISPLACEMENT AND ELEMENT SIZE TABLE

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For metering applications, it can be useful to know the displacement per revolution to calculate capacity at different operating speeds. That information is provided in the table below. For critical metering, actual displacement should be determined through calibration under normal operating conditions.

To aid in determining the pump size for unlabeled spares, or to determine the size of a pump whose nameplate is missing, the approximate dimensions of the gears are also provided in the table below.

Pump Size	Theoretical Displacement		"Theoretical Displacement (per 100 rev)"		Approximate Size of Elements			
	in ³ /rev	cm ³ /rev	Gal.	Liters	Gear O.D.		Gear Length	
					Inches	mm	Inches	mm
0417	0.008	0.13	0.0035	0.0131	1.03	26	0.18	4.6
0418	0.017	0.28	0.0074	0.0279			0.18	4.6
0425	0.024	0.39	0.0104	0.0393			0.25	6.4
0435	0.033	0.54	0.0143	0.0541			0.35	8.9
0450	0.048	0.79	0.0208	0.0787			0.50	13
0470	0.067	1.10	0.0290	0.1098			0.70	18
0518	0.097	1.59	0.0420	0.1588	1.17	30	0.18	4.6
0525	0.137	2.24	0.0591	0.2237			0.25	6.4
0535	0.191	3.13	0.0827	0.3132			0.35	8.9
0550	0.273	4.47	0.1182	0.4474			0.50	13
0570	0.382	6.26	0.1655	0.6265			0.70	18
0510	0.547	8.96	0.2366	0.8956			1.0	25
0514	0.765	12.53	0.3310	1.2530			1.4	36
0519	1.038	17.00	0.4492	1.7004			1.9 ①	48
0528	1.529	25.06	0.6620	2.5059			2.8 ②	71
0729	0.410	6.72	0.1776	0.6723	1.71	43	0.29	7.4
0741	0.577	9.45	0.2497	0.9452			0.41	10
0758	0.808	13.23	0.3496	1.3234			0.58	15
0782	1.154	18.90	0.4994	1.8904			0.82	21
0711	1.615	26.47	0.6992	2.6468			1.1	28
0716	2.307	37.80	0.9987	3.7805			1.6	41
0722	3.230	52.94	1.3984	5.2935			2.2 ③	56
0732	4.614	75.61	1.9974	7.5610			3.2 ③	81
0825	3.904	63.97	1.689	6.397				
0832	4.967	81.39	2.150	8.139				
1009	2.11	34.58	0.9134	3.4577	2.40	61	0.85	22
1013	3.30	54.08	1.4286	5.4077			1.3	33
1024	6.145	100.69	2.659	10.069				
1026	6.60	108.2	2.8571	10.815			2.6	66
1027	6.838	112.05	2.960	11.205				
1420	9.24	151.4	4.0000	15.142	3.50	89	2.0	51
1436	16.5	270.4	7.1429	27.039			3.6	91
1456	25.0	409.7	10.8225	40.968			5.6	142

① 0519 size has 2 gears each shaft

② 0528 size has 2 gears on driver shaft and 3 gears on driven shaft

③ 0722 and 0732 sizes are double pumps

Section 144

Viking Heavy Duty

(Series 4195 Standard Construction)

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VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195



**MOTOR
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Series Description

Viking's Motor Speed series internal gear pumps represent a technological advance in the science of flow. Through new techniques of feeding the rotor and idler, Viking has achieved what was once considered impossible – high flow rates operating at motor speeds. The largest size (QS) operates at reduced speeds, but still faster than other pumps of similar displacement. Higher speeds mean greater value, with the ability to move more fluid with a smaller pump. It also enables close-coupling to a motor or gearmotor, which eliminates shaft misalignment and results in longer seal and bearing life by preventing wear due to misalignment.

Because the pump's maximum viscosity at motor speeds is 2,500 SSU (560 cSt), it is considered a "thin liquid" pump, for transfer of light oils, refined fuels and chemicals. It has the ability to handle thicker liquids at reduced speeds, though, to 25,000 SSU (5,500 cSt), providing versatility of application where temperatures or chemical reactions may increase viscosity.

Operating Range:

Nominal Flow	GPM	8 to 580
	m ³ /h	1.8 to 132
Pressure Range	PSI	To 250 (150 for KE-QS)
	Bar	To 17 (10 for KE-QS)
Temp. Range	°F	-40 to 350 (0 to 225 for KE-QS)
	°C	-40 to 180 (-15 to 110 for KE-QS)
Viscosity Range	SSU	28 to 15,000 (25,000 for KE-LSE, QS) (7,500 for Q)
	cSt	0.1 to to 3,300 (5,500 for KE-LSE, QS) (1,650 for Q)

Nominal Flow Rates:

Pump Size	GPM	m ³ /h	RPM
G	8	1.8	1750
GG	10	2.3	1750
H	15	3.4	1750
HJ	20	4.5	1750
HL	30	6.8	1750
AS	55	12	1750
AK	85	20	1750
AL	115	26	1750
KE	150	34	1750
KKE	205	47	1750
LQE	235	53	1150
LSE	350	80	1150
Q	460	104	750
QS	580	132	640



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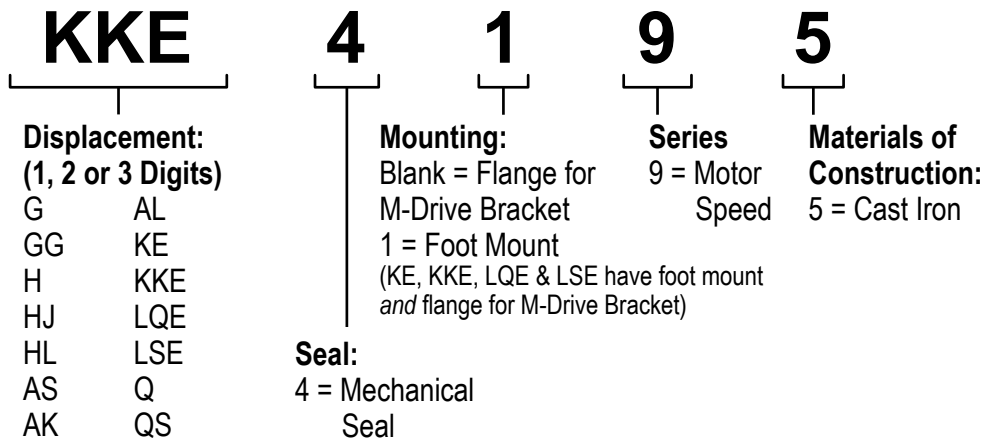
VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195

Key Features and Benefits:

- Direct drive with no gear reducer (with 60 Hz 4 pole motor to 205 GPM / 47 m³/h, 6 pole motor to 350 GPM / 80 m³/h, 8 pole motor to 460 GPM / 104 m³/h)
 - Reduces cost of installation
 - Eliminates one shaft alignment
 - Eliminates one set of couplings and coupling guard
 - Reduces footprint
 - Eliminates gearbox lubrication and maintenance
- Close-couple to C-face motor or gearmotor at flows to 350 GPM / 80 m³/h
 - Eliminates all shaft misalignment and coupling guards
 - Keeps shafts aligned for longer seal and bearing life
 - Simplifies mounting on skid frame without extra baseplate
 - Enables vertical mounting for smallest footprint (up to 350 GPM / 80 m³/h)
- Heavy duty design with sealed-for-life bearings
 - No relubrication required
 - Thrust control enables pressures to 250 PSI / 17 BAR (G-A sizes) or 150 PSI / 10 BAR (K-Q sizes)
 - Enables end clearance adjustment for viscosity or to compensate for wear over time
- Gauge ports standard on all sizes.
 - Allows easy application of gauges or transducers
- Behind-the-rotor mechanical seals with Viton® elastomers and Carbon/SiC faces as standard
 - Eliminates bracket bushing, enables use of antifriction bearing external to liquid
 - Heavy duty seal provides broad application, long life
 - Casing weep hole between seal and forward bearing enables detection of seal leakage, prevents intrusion into sealed bearing
- KE-QS sizes are available with ANSI or DIN flanges. No piping adaptors required to conform to local standards
- Opposite porting enables easy in-line mounting to almost any piping system
- Pressure lubricated idler pin lubricates the idler pin/bushing interface to extend life on thin liquids
- Static O-ring seals ensure maximum sealing capability on thin liquids (flat gaskets furnished on relief valve only on G-HL sizes)
- Hardened steel idler on KE-QS sizes provides maximum service life and helps protect against cavitation on low NPSHa applications

Model Number Key:



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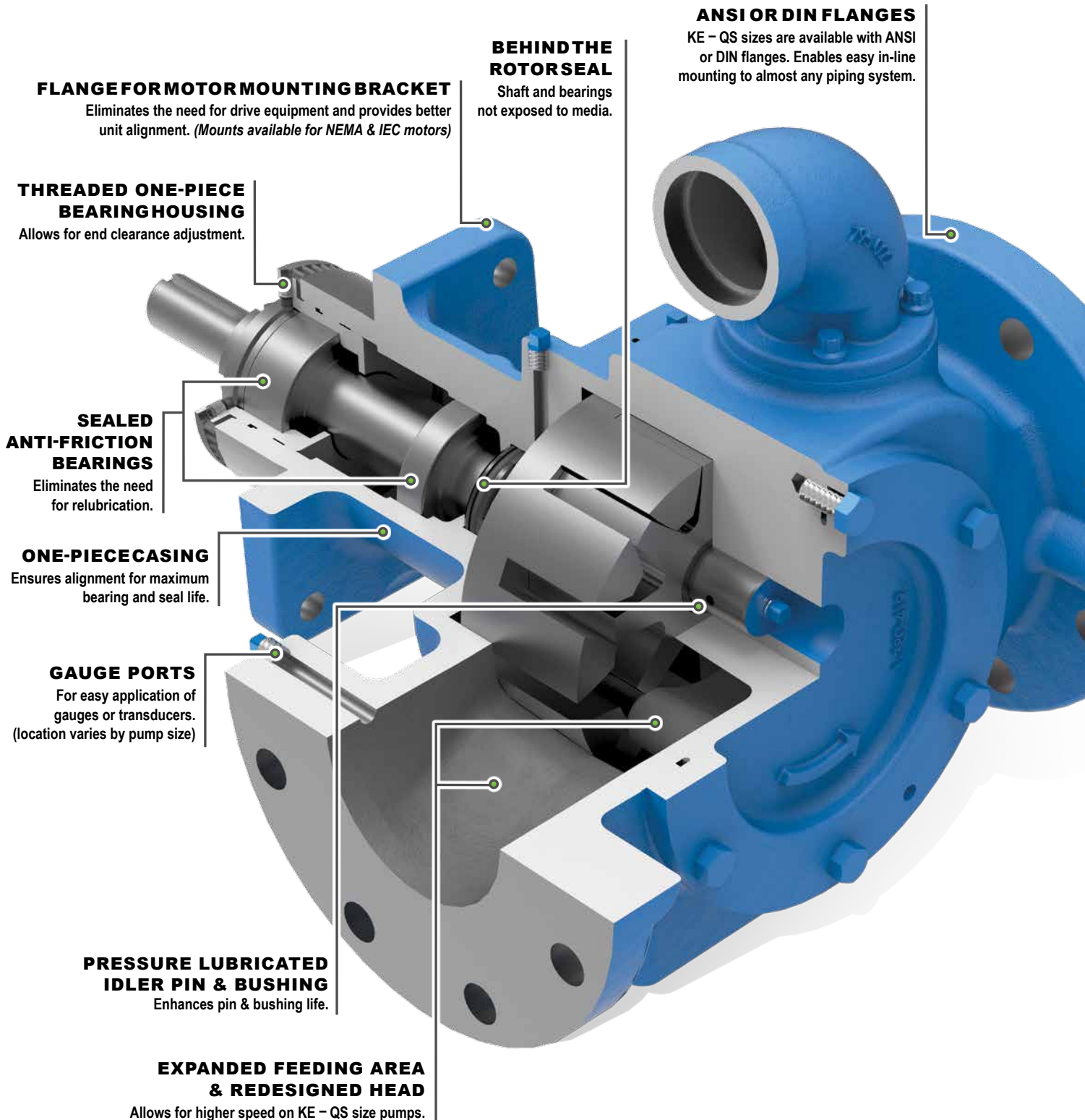
VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195



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FLANGE FOR MOTOR MOUNTING BRACKET

Eliminates the need for drive equipment and provides better unit alignment. (Mounts available for NEMA & IEC motors)

THREADED ONE-PIECE BEARING HOUSING

Allows for end clearance adjustment.

SEALED ANTI-FRICTION BEARINGS

Eliminates the need for relubrication.

ONE-PIECE CASING

Ensures alignment for maximum bearing and seal life.

GAUGE PORTS

For easy application of gauges or transducers. (location varies by pump size)

PRESSURE LUBRICATED IDLER PIN & BUSHING

Enhances pin & bushing life.

EXPANDED FEEDING AREA & REDESIGNED HEAD

Allows for higher speed on KE - QS size pumps.

BEHIND THE ROTOR SEAL

Shaft and bearings not exposed to media.

ANSI OR DIN FLANGES

KE - QS sizes are available with ANSI or DIN flanges. Enables easy in-line mounting to almost any piping system.

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VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195

Materials of Construction

Component	Standard Material
Bracket/Casing	Cast Iron, ASTM A48, Class 35B
Head	Cast Iron, ASTM A48, Class 35B
Pressure Relief Valve	Cast Iron, ASTM A48, Class 35B
Rotor Shaft	Steel, ASTM A108, Grade 1045
Rotor	Cast Iron, ASTM A48, Class 35B (G, GG, H, HJ, KE, LQE, Q) Ductile Iron, ASTM A536 Grade 60-40-18 (HL, AS, AK, AL, KKE, LSE, QS)
Idler	Powdered Metal MPIF 35, FC-0208-50 (G, GG) Powdered Metal MPIF 35, FC-0208-45 (H, HJ, HL) Ductile Iron, ASTM A536 Grade 60-40-18 (AS, AK, AL) Hardened Steel, ASTM A148, Grade 80-50 (KE, KKE, LQE, Q, QS) Hardened Steel, ASTM A148, Grade 80-40 (LSE)
Idler Pin	Hardened Steel, ASTM A108, Grade 1045
Idler Bushing	Carbon Graphite
Mechanical Seal Faces	Carbon vs. Silicon Carbide
Elastomers	Viton®
Antifriction bearings	Steel with Buna Seals

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Specifications

Footed Model	Footless Model ①	NPT Ports IN	Flange Ports ③		Nominal Pump Rating (100 SSU and Below)						Maximum Differential Pressure ④		Maximum Hydrostatic Pressure		Maximum Temperature		Approximate Shipping Weight	
			Class 125 ② IN	DIN PN-16 mm	60 Hz			50 Hz			PSI	Bar	PSI	Bar	°F	°C	Lbs	Kg.
					RPM	GPM	m³/h	RPM	GPM	m³/h								
G4195	G495	1	--	--	1750	8	1.8	1450	7	1.5	250	17	400	27	350	180	20	9
GG4195	GG495	1	--	--	1750	10	2.3	1450	8	1.9	250	17	400	27	350	180	20	9
H4195	H495	1.5	--	--	1750	15	3.4	1450	12	2.8	250	17	400	27	350	180	44	20
HJ4195	HJ495	1.5	--	--	1750	20	4.5	1450	17	3.8	250	17	400	27	350	180	44	20
HL4195	HL495	1.5	--	--	1750	30	6.8	1450	25	5.6	250	17	400	27	350	180	44	20
AS4195	AS495	2.5	--	--	1750	55	12	1450	45	10	250	17	400	27	350	180	85	39
AK4195	AK495	2.5	--	--	1750	85	19	1450	70	16	250	17	400	27	350	180	85	39
AL4195	AL495	3	--	--	1750	115	26	1450	95	22	250	17	400	27	350	180	86	39
KE4195⑤	①	--	4	100	1750	150	34	1450	125	28	150	10	300	20	225	110	132	60
KKE4195⑤	①	--	4	100	1750	205	47	1450	170	39	150	10	300	20	225	110	133	60
LQE4195⑤	①	--	4	100	1150	235	53	960	195	44	150	10	300	20	225	110	220	100
LSE4195⑤	①	--	4	100	1150	350	80	960	290	67	150	10	300	20	225	110	222	101
Q4195	--	--	6	150	750	460	104	750	460	104	150	10	300	20	225	110	443	201
QS4195	--	--	6	150	640	580	132	640	580	132	150	10	300	20	225	110	450	204

① 495 models require motor mount bracket, do not have mounting foot. KE, KKE, LQE, LSE 4195 models have both mounting flange for motor bracket and a mounting foot.

② Flange ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

③ Optional Class 250 or DIN PN-25/40.

④ If suction pressures exceed 100 PSI (7 BAR), consult factory.

⑤ These sizes can only operate in one direction (clockwise only).

NOTE: Steel rotor recommended on sizes GG, HJ & Q above 7,500 SSU / 1,600 cSt viscosity.

NOTE: Nominal flow rates taken at 100 SSU and 25 PSI.

VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195



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Mounting Options

Flange Motor Mount Units (M-Drive)

Pump and motor mounted to a flange mounting bracket with coupling.



Footed M-Drive Bracket

Sizes: G - LSE4195

See chart below for pump sizes and flange mounting brackets available by motor frame.

Pump Model Number - Mounting Flange for Motor Bracket ①	M-Drive Brackets Available			
	NEMA Motor	Footed	IEC B-14 Motor	Footed
G495	56C, 143/5TC, 182/4TC	No ③	80, 90	No ③
GG495	56C, 143/5TC, 182/4TC	No ③	80, 90	No ③
H495	56C, 143/5TC, 182/4TC, 213/5TC	No ③	90, 100/112, 132	Yes
HJ495	56C, 143/5TC, 182/4TC, 213/5TC	No ③	90, 100/112, 132	Yes
HL495	56C, 143/5TC, 182/4TC, 213/5TC	No ③	90, 100/112, 132	Yes
AS495	182/4TC, 213/5TC, 254/6TC, 284/6TC	Yes	132, 160	Yes
AK495	182/4TC, 213/5TC, 254/6TC, 284/6TC	Yes	132, 160	Yes
AL495	182/4TC, 213/5TC, 254/6TC, 284/6TC	Yes	132, 160	Yes
KE4195①	213/5TC, 254/6TC, 284/6TC	Yes	132, 160	Yes
KKE4195①	213/5TC, 254/6TC, 284/6TC	Yes	132, 160	Yes
LQE4195①	324/6TC	Yes	160, 180 ②	Yes
LSE4195①	324/6TC	Yes	160, 180 ②	Yes

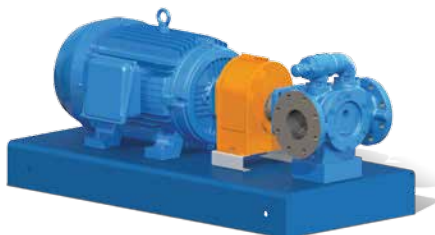
① 495 models require a motor mount bracket, they do not have a mounting foot.
KE, KKE, LQE, LSE 4195 models have both mounting flange for motor bracket and a mounting foot.

② 160, 180 only available as B5.

③ Requires footed motor.

Direct Drive (D-Drive)

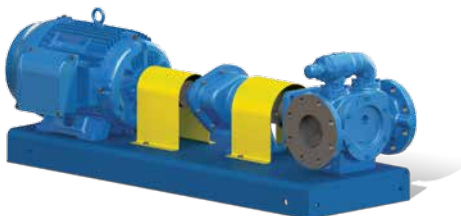
Pump and motor mounted on a base with coupling and coupling guard.



Sizes: G - Q4195

Reducer Drive (R-Drive)

Pump, Viking C-reducer and motor mounted on a base with couplings and coupling guards.



Sizes: Q & QS4195

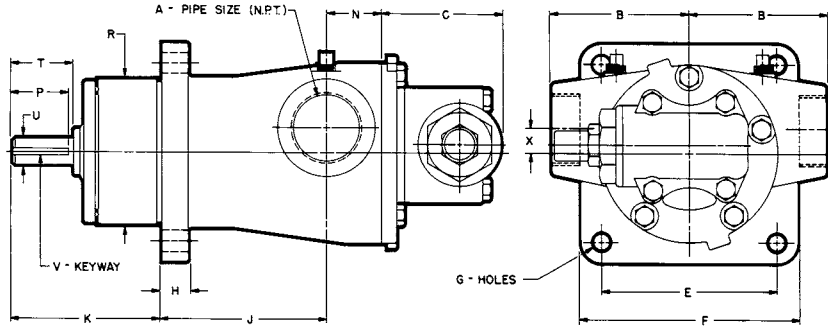
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VIKING MOTOR SPEED INTERNAL GEAR PUMPS

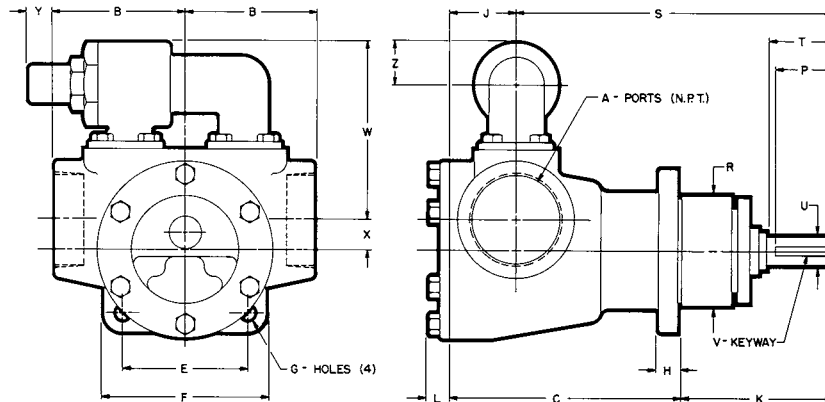
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Dimensions G - GG - H - HJ - HL 495 (Unmounted Pumps)



MODEL		A	B	C	E	F	G	H	J	K	N	P	R	T	U	V	X
G495 GG495	in	1	2.75	2.66	3.00	4.00	.41	.50	3.44	2.81	1.12	.94	2.875 2.873	1.12	.500	FLAT	.62
	mm		70	67	76	102	10	13	87	71	29	24	73	29	12.70		16
H495 HJ495 HL495	in	1½	3.75	3.28	4.75	5.88	.56	.75	4.50	4.00	1.50	1.50	3.875 3.873	1.62	.750	.19 x .09	.62
	mm		95	83	121	149	14	19	114	102	38	38	98	41	19.05		4.76 x 2.38	16

Dimensions AS - AK - AL 495 (Unmounted Pumps)



MODEL		A	B	C	E	F	G	H	J	K	L	P	R	S	T	U	V	W	X	Y	Z
AS495 AK495	in	2½	5	8.38	4.75	6.25	0.56	0.75	2	5.75	0.75	2.25	4.25 4.248	12.12	2.5	1	.25 x .12	7	1.12	1	1.72
	mm		127	213	121	159	14	19	51	146	22	57	108	308	64	25.4	6.35 x 3.18	178	29	25	40
AL495	in	3	5	8.88	4.75	6.25	0.56	0.75	2.5	5.75	0.75	2.25	4.25 4.248	12.12	2.5	1	.25 x .12	7	1.12	1	1.72
	mm		127	225	121	159	14	19	64	146	22	57	108	308	64	25.4	6.35 x 3.18	178	29	25	40

These dimensions are average and not for construction purposes. Certified prints on request.

VIKING MOTOR SPEED INTERNAL GEAR PUMPS

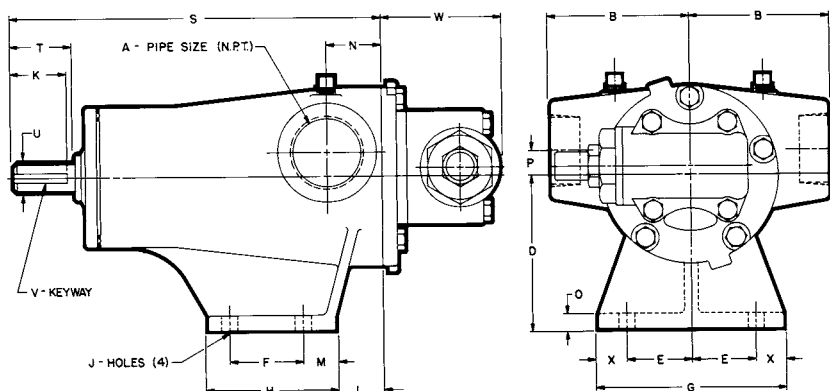
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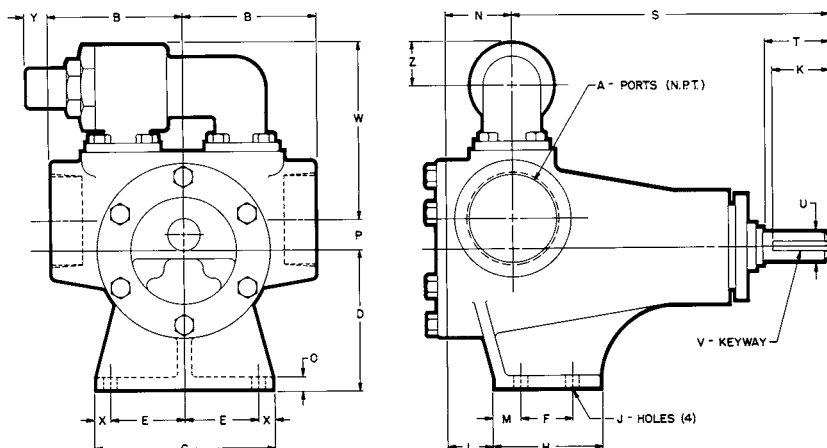
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Dimensions G - GG - H - HJ - HL 4195 (Unmounted Pumps)



MODEL		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X
G4195	in	1	2.75	2.75	1.62	1.31	4.00	2.44	.34	.94	.03	.66	1.12	.31	.62	7.31	1.12	.500	FLAT	2.66	.38
GG4195	mm		70	70	41	33	102	62	9	24	1	17	29	8	16	186	29	12.70		67	10
H4195	in	1½	3.75	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.750	.19 x .09	3.28	.75
HJ4195 HL4195	mm		95	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05		4.76 x 2.38	83	19

Dimensions AS - AK - AL 4195 (Unmounted Pumps)



MODEL		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X	Y	Z
AS4195	in	2½	5.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.50	1.000	.25 x .12	7.00	.50	1.00	1.72
	mm		127	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	25	40
AK4195	in	2½	5.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.50	1.000	.25 x .12	7.00	.50	1.00	1.72
	mm		127	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	25	40
AL4195	in	3	5.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.75	1.00	2.50	.44	1.12	12.12	2.50	1.000	.25 x .12	7.00	.50	1.00	1.72
	mm		127	133	73	51	171	102	10	57	44	25	64	11	29	308	60	25.40	6.35 x 3.18	178	13	25	40

These dimensions are average and not for construction purposes. Certified prints on request.

VIKING MOTOR SPEED INTERNAL GEAR PUMPS

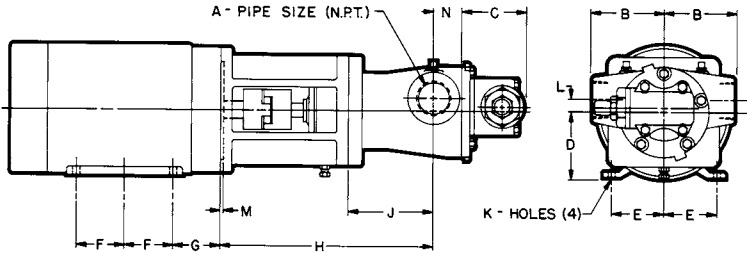
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Dimensions G - GG - H - HJ - HL 495 (M Drive)

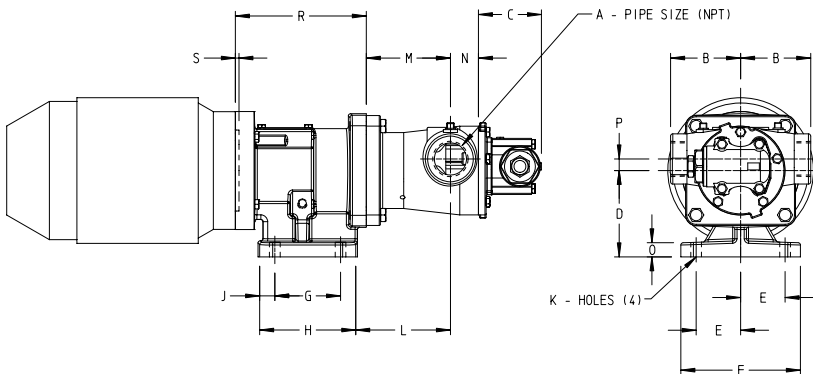


NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.

COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

MODEL	A	B	C	J	L	M	N	MOTOR FRAME	D	E	F	G	H	K	
G495M GG495M	in	2.75	2.66	3.44	.62	.19	1.12	NEMA 56C	3.50	2.44	1.50	2.56	8.88	.34 SLOT	
		mm	70	67	87	16	5	29		89	62	38	65	225	9
	in	2.75	2.66	3.44	.62	.19	1.12	NEMA 143TC	3.50	2.75	2.00	2.88	8.88	.34	
		mm	70	67	87	16	5	29		89	70	51	73	225	9
	in	2.75	2.66	3.44	.62	.19	1.12	NEMA 145TC	3.50	2.75	2.50	2.88	8.88	.34	
		mm	70	67	87	16	5	29		89	70	64	73	225	9
	in	2.75	2.66	3.44	.62	.19	1.12	NEMA 182TC	4.50	3.75	2.25	3.38	9.56	.41	
		mm	70	67	87	16	5	29		144	95	57	86	243	10
	in	2.75	2.66	3.44	.62	.19	1.12	NEMA 184TC	4.50	3.75	2.75	3.38	9.56	.41	
		mm	70	67	87	16	5	29		114	95	70	86	243	10
	G495M GG495M	in	2.75	2.66	3.44	0.62	0.19	1.12	IEC 80	3.15	2.46	1.97	1.97	4.38	0.39
			mm	69.9	67.6	87.4	15.7	4.8	28.4		80.0	62.5	50.0	50.0	111.3	10.0
in		2.75	2.66	3.44	0.62	0.19	1.12	IEC 90	3.54	2.76	1.97	2.21	8.71	0.39	
		mm	69.9	67.6	87.4	15.7	4.8	28.4		90.0	70.0	50.0	56.0	221.2	10.0
H495M HJ495M HL495M		in	3.75	3.28	4.50	.62	.19	1.50	NEMA 56C	3.50	2.44	1.50	2.56	8.88	.34 SLOT
			mm	95	83	114	16	5	38		89	62	38	65	283	9
		in	3.75	3.28	4.50	.62	.19	1.50	NEMA 143TC	3.50	2.75	2.00	2.88	8.88	.34
			mm	95	83	114	16	5	38		89	70	51	73	283	9
		in	3.75	3.28	4.50	.62	.19	1.50	NEMA 145TC	3.50	2.75	2.50	2.88	8.88	.34
			mm	95	83	114	16	5	38		89	70	64	73	283	9
		in	3.75	3.28	4.50	.62	.19	1.50	NEMA 182TC	4.50	3.75	2.25	3.38	9.56	.41
			mm	95	83	114	16	5	38		144	95	57	86	300	10
	in	3.75	3.28	4.50	.62	.19	1.50	NEMA 184TC	4.50	3.75	2.75	3.38	9.56	.41	
		mm	95	83	114	16	5	38		114	95	70	86	300	10
	in	3.75	3.28	4.50	.62	.19	1.50	NEMA 213TC	5.25	4.25	2.75	4.25	12.56	.41	
		mm	95	83	114	16	5	38		133	108	70	108	319	10
in	3.75	3.28	4.50	.62	.19	1.50	NEMA 215TC	5.25	4.25	3.50	4.25	12.56	.41		
	mm	95	83	114	16	5	38		133	108	89	108	319	10	

Dimensions H - HJ - HL 495 IEC Frame (M Drive)



Brackets are designed for IEC motors with B14 mounting face.

NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.

COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

MODEL	A	B	C	M	N	P	MOTOR FRAME	D	E	F	G	H	J	K	L	O	R	S
H495M	in	3.75	3.28	4.50	1.50	0.62	IEC 90	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.92	0.75	6.61	0.19
		mm	95.3	83.3	114.3	38.1		15.7		117.3	60.5	162.6	89.4	130.6	20.6	14.5	125.0	19.1	167.9	4.8
HJ495M	in	3.75	3.28	4.50	1.50	0.62	IEC 100/112	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.98	0.75	7.01	0.19
		mm	95.3	83.3	114.3	38.1		15.7		117.3	60.5	162.6	89.4	130.6	20.6	14.5	128.8	19.1	178.1	4.8
HL495M	in	3.75	3.28	4.50	1.50	0.62	IEC 132	5.32	2.95	7.48	4.50	6.09	0.80	0.57	5.11	0.75	8.16	0.25
		mm	95.3	83.3	114.3	38.1		15.7		135.1	74.9	190.0	114.3	154.7	20.3	14.5	129.8	19.1	207.3	6.4

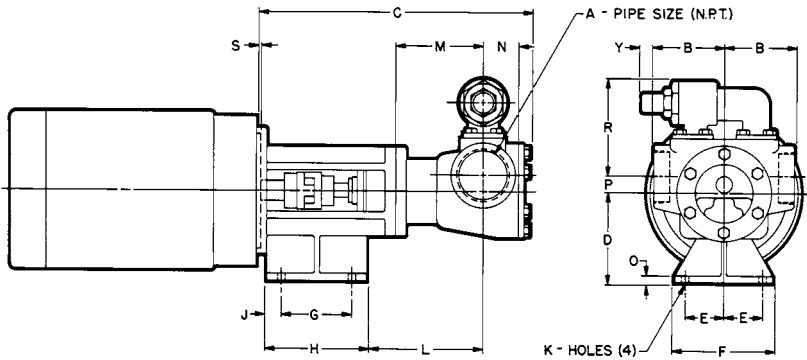
These dimensions are average and not for construction purposes. Certified prints on request.

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**VIKING MOTOR SPEED
INTERNAL GEAR PUMPS**
SERIES 495 & 4195

Dimensions AS - AK - AL 495 (M Drive)



MODEL	MOTOR FRAME		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	Y
AS495M AK495M	NEMA ①	in	2.5	5.00	① 19.06	6.25	2.75	7.00	5.00	7.00	1.00	.56	① 8.44	6.38	2.00	.50	1.12	7.00	.19	1.00
		mm		127	① 484	159	70	178	127	178	25	14	① 214	162	51	13	29	178	5	25
	IEC 132	in	2.5	5.00	18.16	6.25	2.75	7.00	5.00	7.24	1.12	0.56	7.75	6.38	2.00	0.50	1.12	7.12	0.25	6.00
		mm		127.0	461.3	158.8	69.9	177.8	127.0	183.9	28.4	14.2	196.9	162.1	50.8	12.7	28.4	180.8	6.4	152.4
	IEC 160	in	2.5	5.00	19.58	6.50	2.75	7.50	6.00	8.26	1.13	0.56	7.75	6.38	2.00	0.62	1.12	7.12	0.25	6.00
		mm		127.0	497.3	165.1	69.9	190.5	152.4	209.8	28.7	14.2	196.9	162.1	50.8	15.7	28.4	180.8	6.4	152.4
AL495M	NEMA ①	in	3	5.00	① 19.56	6.25	2.75	7.00	5.00	7.00	1.00	.56	① 8.44	6.38	2.50	.50	1.12	7.00	.19	1.00
		mm		127	① 497	159	70	178	127	178	25	14	① 214	162	64	13	29	178	5	25
	IEC 132	in	3	5.00	18.66	6.25	2.75	7.00	5.00	7.24	1.12	0.56	7.75	6.38	2.50	0.50	1.12	7.12	0.25	6.00
		mm		127.0	20.1	158.8	69.9	177.8	127.0	183.9	28.4	14.2	196.9	162.1	63.5	12.7	28.4	180.8	6.4	152.4
	IEC 160	in	3	5.00	20.08	6.50	2.75	7.50	6.00	8.26	1.13	0.56	7.75	6.38	2.50	0.62	1.12	7.12	0.25	6.00
		mm		127.0	510.0	165.1	69.9	190.5	152.4	209.8	28.7	14.2	196.9	162.1	63.5	15.7	28.4	180.8	6.4	152.4

① Dimensions are correct for 182TC through 215TC motors. For 254TC/256TC motors, add .88" to the dimensions shown.

NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.

COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

These dimensions are average and not for construction purposes. Certified prints on request.

VIKING MOTOR SPEED INTERNAL GEAR PUMPS

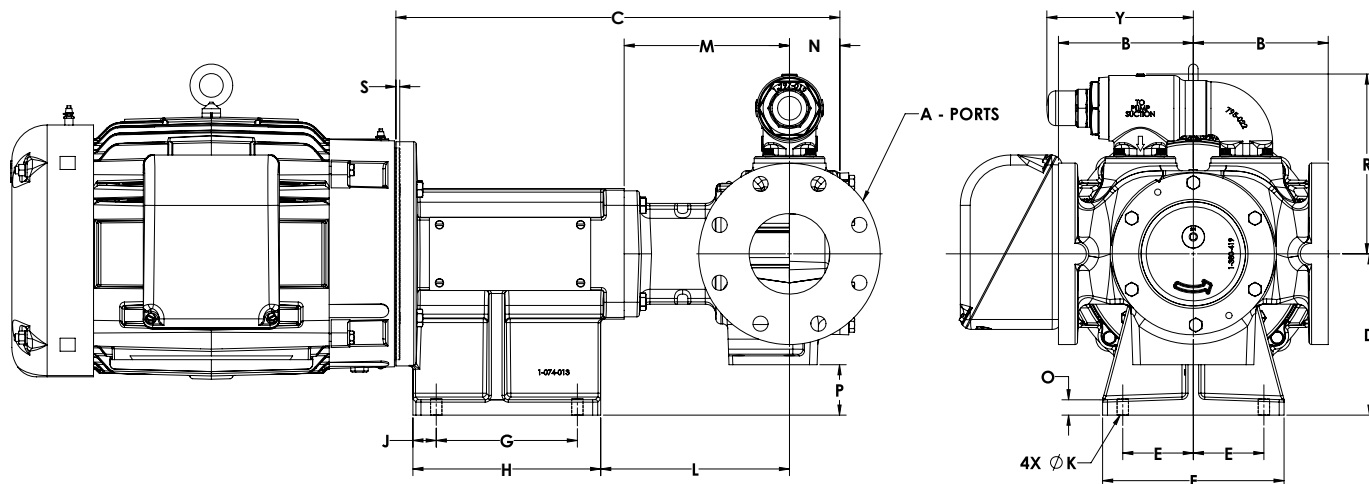
SERIES 495 & 4195



**MOTOR
SPEED**
SMALLER. FASTER. EASIER.

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Dimensions KE - KKE - LQE - LSE 4195 (Pump, M Drive, Motor)



MODEL		MOTOR	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	Y
KE4195M KKE4195M	in	NEMA	4	6.69	20.51	6.25	2.75	7.00	5.00	7.24	1.12	0.56	10.14	8.20	2.50	0.50	0.75	8.92	0.19	7.26
	mm	213/215	100	169.9	521.0	158.8	69.9	177.8	127.0	183.9	28.4	14.2	257.6	208.3	63.5	12.7	19.1	226.6	4.8	184.4
	in	NEMA	4	6.69	21.39	6.25	2.75	7.00	5.00	7.24	1.12	0.56	11.02	8.20	2.50	0.50	0.75	8.92	0.19	7.26
	mm	254/256	100	169.9	543.3	158.8	69.9	177.8	127.0	183.9	28.4	14.2	279.9	208.3	63.5	12.7	19.1	226.6	4.8	184.4
	in	NEMA	4	6.69	22.02	8.00	3.50	9.00	7.00	9.31	1.16	0.56	9.36	8.20	2.50	0.76	2.50	8.92	0.19	7.26
	mm	284/286	100	169.9	559.3	203.2	88.9	228.6	177.8	236.5	29.5	14.2	237.7	208.3	63.5	19.3	63.5	226.6	4.8	184.4
	in	IEC	4	6.69	18.08	6.25	2.75	7.00	5.00	7.24	1.12	0.56	9.58	8.20	2.50	0.50	0.75	8.92	0.25	7.26
	mm	132	100	169.9	459.2	158.8	69.9	177.8	127.0	183.9	28.4	14.2	243.3	208.3	63.5	12.7	19.1	226.6	6.4	184.4
in	IEC	4	6.69	19.40	6.50	2.75	7.50	6.00	8.26	1.13	0.56	9.57	8.20	2.50	0.62	1.00	8.92	0.25	7.26	
mm	160	100	169.9	492.8	165.1	69.9	190.5	152.4	209.8	28.7	14.2	243.1	208.3	63.5	15.7	25.4	226.6	6.4	184.4	
LQE4195M LSE4195M	in	NEMA	4	8.50	25.3	8.25	3.88	10.00	7.25	9.85	1.30	0.88	10.71	9.88	2.75	0.75	1.25	12.88	0.19	9.66
	mm	324/326	100	215.9	642.6	209.6	98.6	254.0	184.2	250.2	33.0	22.4	272.0	251.0	69.9	19.1	31.8	327.2	4.8	243.7
	in	IEC	4	8.50	21.63	7.50	3.25	9.00	7.25	9.81	1.28	0.88	10.34	9.88	2.75	0.75	0.50	12.88	0.25	9.66
	mm	160	100	215.9	549.4	190.5	82.6	228.6	184.2	249.2	32.5	22.4	262.6	251.0	69.9	19.1	12.7	327.2	6.4	243.7
	in	IEC	4	8.50	21.63	7.50	3.25	9.00	7.25	9.81	1.28	0.88	10.34	9.88	2.75	0.75	0.50	12.88	0.25	9.66
	mm	180	100	215.9	549.4	190.5	82.6	228.6	184.2	249.2	32.5	22.4	262.6	251.0	69.9	19.1	12.7	327.2	6.4	243.7

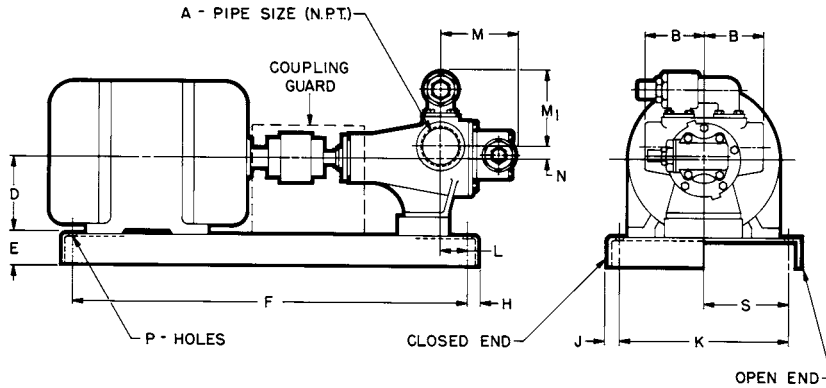
These dimensions are average and not for construction purposes. Certified prints on request.

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**VIKING MOTOR SPEED
INTERNAL GEAR PUMPS**
SERIES 495 & 4195

Dimensions G - GG - H - HJ - HL - AS - AK - AL 4195 (D DRIVE)



MODEL	MOTOR		A	B	D	E	F	H	J	K	L	M	M ₁	N	P	S
G4195D GG4195D	NEMA 56	in	1	2.75	3.50	1.50	20.50	0.75	0.75	8.50	0.38	3.81	-	0.63	0.63	4.25
		mm	25.4	69.9	88.9	38.1	520.7	19.1	19.1	215.9	9.7	96.8		16	16	108.0
	NEMA 143/145	in	1	2.75	3.50	1.50	20.50	0.75	0.75	8.50	0.38	3.81		0.63	0.63	4.25
		mm	25.4	69.9	88.9	38.1	520.7	19.1	19.1	215.9	9.7	96.8		16	16	108.0
	NEMA 182/184	in	1	2.75	4.50	1.50	20.50	0.75	0.75	8.50	0.38	3.81		0.63	0.63	4.25
		mm	25.4	69.9	114.3	38.1	520.7	19.1	19.1	215.9	9.7	96.8		16	16	108.0
NEMA 213/215	in	1	2.75	5.25	2.94	29.00	1.00	1.50	9.00	1.90	3.81	0.63	0.63	4.50		
	mm	25.4	69.9	133.4	74.7	736.6	25.4	38.1	228.6	48.3	96.8	16	16	114.3		
H4195D HJ4195D HL4195D	NEMA 56	in	1.5	3.75	4.12	1.50	20.50	0.75	0.75	8.50	-	4.78	-	0.62	0.63	4.25
		mm	38.1	95.3	104.6	38.1	520.7	19.1	19.1	215.9	-	121.4		15.7	16	108.0
	NEMA 143/145	in	1.5	3.75	4.12	1.50	20.50	0.75	0.75	8.50	-	4.78		0.62	0.63	4.25
		mm	38.1	95.3	104.6	38.1	520.7	19.1	19.1	215.9	-	121.4		15.7	16	108.0
	NEMA 182/184	in	1.5	3.75	4.12	2.94	29.00	1.00	1.50	9.00	0.25	4.78		0.62	0.63	4.50
		mm	38.1	95.3	104.6	74.7	736.6	25.4	38.1	228.6	6.4	121.4		15.7	16	114.3
	NEMA 213/215	in	1.5	3.75	4.12	2.94	29.00	1.00	1.50	9.00	0.25	4.78		0.62	0.63	4.50
		mm	38.1	95.3	104.6	74.7	736.6	25.4	38.1	228.6	6.4	121.4		15.7	16	114.3
	NEMA 254/256	in	1.5	3.75	4.12	3.25	28.75	1.00	1.00	17.00	-	4.78		0.62	0.63	8.50
		mm	38.1	95.3	104.6	82.6	730.3	25.4	25.4	431.8	-	121.4		15.7	16	215.9
AS4195D AK4195D AL4195D*	NEMA 143/145T	in	2.5	5.00	5.25	2.94	29.00	1.00	1.50	9.00	1.75	-	6.97	1.12	0.63	4.50
		mm	63.5	127	133.4	74.7	736.6	25.4	38.1	228.6	44.5	-	177	28.4	16	114.3
	NEMA 182/184	in	2.5	5.00	5.25	2.94	29.00	1.00	1.50	9.00	-	-	6.97	1.12	0.63	4.50
		mm	63.5	127	133.4	74.7	736.6	25.4	38.1	228.6	-	-	177	28.4	16	114.3
	NEMA 213/215	in	2.5	5.00	5.25	2.94	34.00	1.00	1.50	9.00	-	-	6.97	1.12	0.63	4.50
		mm	63.5	127	133.4	74.7	863.6	25.4	38.1	228.6	-	-	177	28.4	16	114.3
	NEMA 254/256	in	2.5	5.00	5.25	4.00	39.00	1.38	1.38	16.00	3.75	-	6.97	1.12	0.63	8.00
		mm	63.5	127	133.4	101.6	990.6	35.1	35.1	406.4	95.3	-	177	28.4	16	203.2
	NEMA 284/286	in	2.5	5.00	5.25	4.00	39.00	1.38	1.38	16.00	1.75	-	6.97	1.12	0.63	8.00
		mm	63.5	127	133.4	101.6	990.6	35.1	35.1	406.4	44.5	-	177	28.4	16	203.2

* 3" port on AL4195D.

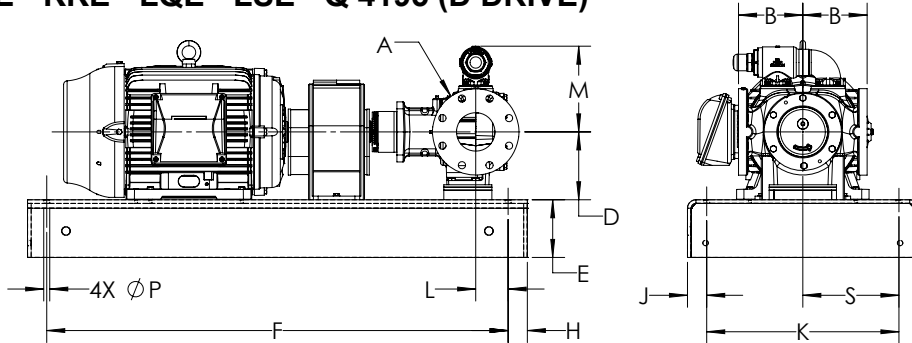
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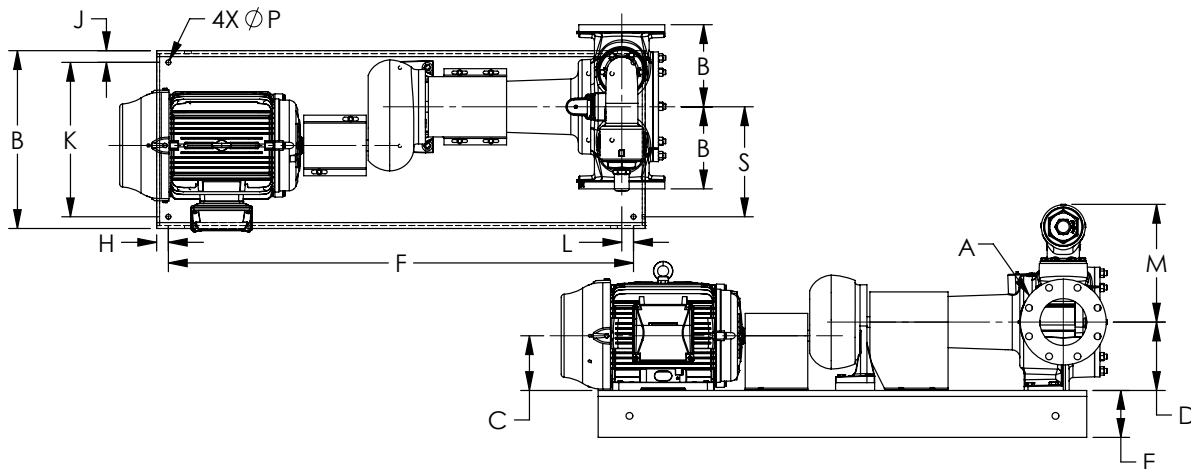
SERIES 495 & 4195

Dimensions KE - KKE - LQE - LSE - Q 4195 (D DRIVE)



MODEL	MOTOR		A	B	D	E	F	H	J	K	L	M	P	S
KE4195D KKE4195D	NEMA 213/215	in	4	6.69	5.50	4.00	37.75	2.00	2.00	14.75	3.37	8.92	0.63	7.38
		mm	101.6	169.9	139.7	101.6	958.9	50.8	50.8	374.7	85.6	226.6	16.0	187.3
	NEMA 254/256	in	4	6.69	6.25	6.00	48.00	2.00	2.00	20.00	3.37	8.92	0.63	10.00
		mm	101.6	169.9	158.8	152.4	1219.2	50.8	50.8	508.0	85.6	226.6	16.0	254.0
	NEMA 284/286	in	4	6.69	7.00	6.00	48.00	2.00	2.00	20.00	3.37	8.92	0.63	10.00
		mm	101.6	169.9	177.8	152.4	1219.2	50.8	50.8	508.0	85.6	226.6	16.0	254.0
LQE4195D LSE4195D	NEMA 284/286	in	4	6.69	7.31	6.00	48.00	2.00	2.00	20.00	3.25	12.88	0.63	10.00
		mm	101.6	169.9	185.7	152.4	1219.2	50.8	50.8	508.0	82.6	327.2	15.9	254.0
	NEMA 324/326	in	4	6.69	8.06	6.00	58.50	2.00	2.00	18.75	3.25	12.88	0.63	9.38
		mm	101.6	169.9	204.7	152.4	1485.9	50.8	50.8	476.3	82.6	327.2	15.9	238.1
	NEMA 364/365	in	4	6.69	9.06	6.00	58.50	2.00	2.00	18.75	3.25	12.88	0.63	9.38
		mm	101.6	169.9	230.1	152.4	1485.9	50.8	50.8	476.3	82.6	327.2	15.9	238.1
Q4195D	IEC 280	in	6	10.50	11.37	6.00	68.00	2.00	2.00	32.00	1.00	15.06	0.88	16.00
		mm	152.4	266.7	288.8	152.4	1727.2	50.8	50.8	812.8	25.4	382.5	22.4	406.4

Dimensions Q - QS 4195 (R DRIVE)



MODEL	MOTOR		A	B	C	D	E	F	H	J	K	L	M	P	S
Q4195R QS4195R	NEMA 254/256	in	6.00	10.50	6.25	8.75	6.00	59.50	1.50	1.50	19.75	1.50	15.06	0.63	14.07
		mm	152.4	266.7	158.8	222.3	152.4	1511.3	38.1	38.1	501.7	38.1	382.5	15.9	357.4
	NEMA 284/286	in	6.00	10.50	7.00	8.75	6.00	59.50	1.50	1.50	19.75	1.50	15.06	0.63	14.07
		mm	152.4	266.7	177.8	222.3	152.4	1511.3	38.1	38.1	501.7	38.1	382.5	15.9	357.4
	NEMA 324/326	in	6.00	10.50	8.00	8.75	6.00	68.00	2.00	2.00	20.00	1.00	15.06	0.63	14.81
		mm	152.4	266.7	203.2	222.3	152.4	1727.2	50.8	50.8	508.0	25.4	382.5	15.9	376.2

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VIKING MOTOR SPEED INTERNAL GEAR PUMPS

SERIES 495 & 4195

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

Increasing the operating speed of positive displacement pumps increases the NPSH_R (Net Positive Suction Head – Required by pump) and sound levels. These are two factors that should be considered when selecting the correct pump for the application. Below are charts for the NPSH_R and sound levels of the Motor Speed Series pumps.

NPSH_R - FEET OF LIQUID (SP. GR. 1.0)

The NPSH_R (Net Positive Suction Head – Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than NPSH_R. For a complete explanation of NPSH, refer to Viking Application Data Sheet, AD-19.

PUMP SIZE	NPSH _R AT SPEEDS INDICATED (RPM)						
	520	640	780	950	1150	1450	1750
G, GG	1.6	2.2	2.6	3.1	3.9	5.6	7.6
H, HJ, HL	2.0	2.8	3.4	4.5	6.2	9.5	13.5
AS, AK, AL	2.8	3.9	5.5	7.7	11.2	16.8	23.3
KE, KKE ①	4.4	4.9	5.7	7.0	8.9	12.8	17.9
LQE, LSE ①	7.3	9.3	10.9	13.1	16.1	--	--
Q, QS ①	6.8	9.0	12.2 ②	--	--	--	--

Note: NPSH_R in feet of liquid (Sp. Gr. 1.0) and applies for viscosities through 750 SSU.

① These pumps utilize a directional design.

② Applies to Q pump only. QS pump max speed is 640 RPM.

EXPECTED NOMINAL SOUND LEVELS FOR MOTOR SPEED PUMPS

The sound pressure level, measured in dB(A), is a measurement of the deviation in the atmospheric pressure caused by a sound wave. The measurement is taken at a distance of approximately 1 meter from the sound source. The sound pressure levels are for the pump only using a 100 SSU liquid, at 100 PSI discharge pressure, at the speeds indicated. Background noise and ancillary equipment, such as drives and motors, in the operating environment will likely cause the actual sound pressure level to deviate from the information in the table below.

Local national laws and regulations on noise exposure in the workplace should be observed during operation.

PUMP SIZE	SOUND LEVEL dB(A) AT SPEEDS INDICATED (RPM)						
	520	640	750	950	1150	1450	1750
G, GG	--	--	--	62	63	63	63
H, HJ, HL	--	--	--	68	70	75	80
AS, AK, AL	--	--	--	82	84	86	88
KE, KKE	--	--	--	84	86	87	89
LQE, LSE	--	88	89	91	93	--	--
Q, QS	91	93	94 ②	--	--	--	--

Note: Sound level readings taken in a lab environment at 100 SSU and 100 PSI.

② Applies to Q pump only. QS pump max speed is 640 RPM.

Section 154

Viking Heavy Duty

(Series 493 and 4193 – Steel Externals)

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VIKING® HEAVY DUTY PUMPS

SERIES 4193 AND 493

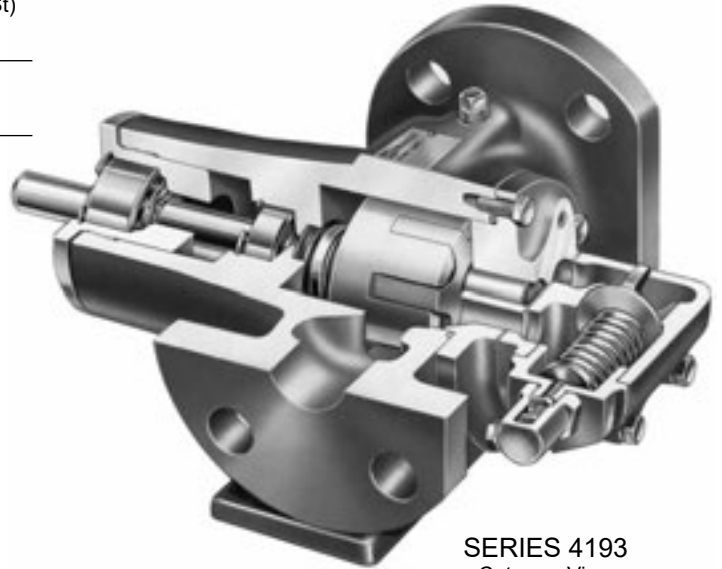
STEEL EXTERNALS

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FEATURES

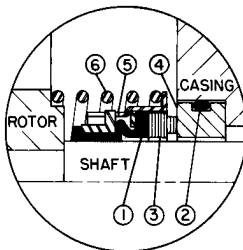
① Pressure Range	250 PSI (17 BAR) for 100 SSU (20 cSt) and above 150 PSI (10 BAR) for 38 to 100 SSU (3 cSt to 20 cSt) 100 PSI (7 BAR) for below 38 SSU (3 cSt)
① Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
① Viscosity Range	28 SSU to 15,000 SSU (0.1 cP to 3,300 cSt)

GPM up to 75
(M³/Hr up to 17)
② (Nominal Rating)



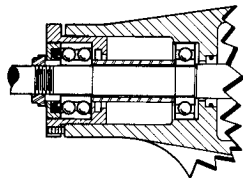
SERIES 4193
Cutaway View
10-20-30 GPM Sizes
(2-4.5-7 M³/Hr)

FEATURES



MECHANICAL SEAT

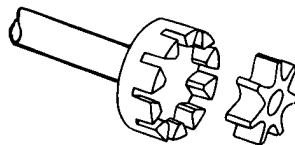
- ① Viton® Bellows
- ② Viton® O-ring
- ③ Carbon Rotating Face (Washer)
- ④ Silicon Carbide Stationary Seat
- ⑤ Steel Metal Parts
- ⑥ Stainless Steel Spring



BALL BEARINGS

(Standard Equipment)

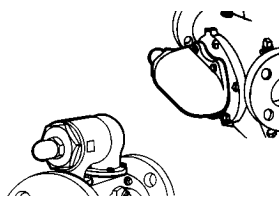
Pumps are equipped with inner casing ball bearing installed outside of mechanical seal and a radial thrust ball bearing permitting heavy-duty service up to 250 PSI (17 BAR). Bearings are "Sealed for Life".



DUCTILE IRON PARTS

(Standard Equipment)
("AS", "AK", "AL" Sizes)

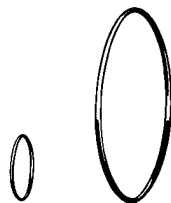
Internal pumping gears (rotor and idler) are constructed of ductile iron for added strength in handling all types of liquids up to 15,000 SSU (3,300 cSt). "HL" size rotor also furnished in ductile iron.



INTEGRAL OVER-PRESSURE RELIEF VALVE

(Standard Equipment)

Permits bypassing of liquid from discharge to suction side of pump. Prevents build up of pressure in discharge line. "GG", "HJ" and "HL" size valve mounts on pump head. "AS", "AK" and "AL" size valve mounts on pump casing.



O-RING GASKETS

(Standard Equipment)

O-Ring gaskets are used between casing and head plate and between casing and relief valve or valve plates. Flat valve gaskets furnished on "GG", "HJ" and "HL" size pumps. These gaskets provide a positive seal eliminating a chance for leakage at these points.

Viking's high-speed, heavy-duty Series 4193 and 493 steel external pumps are available in capacities up to 75 GPM. These pumps can be furnished directly connected to a 50HZ or 60 HZ motor. Series 493 is designed for vertical or horizontal flange mount installations where space is at a premium. (See pages 154.4-6) Series 4193 is designed for foot type horizontal mounting.

These pumps are built for continuous or intermittent duty for such applications as filtering, circulating, transferring, or booster service in general industrial, petrochemical and other industries.

They are furnished as standard with mechanical seal construction to minimize liquid loss and for shaft protection. The thrust control provides micrometer adjustments for accurate rotor and shaft positioning to help you keep operating with new-pump efficiency through years of heavy-duty service.

Viking's famous "gear-within-a-gear" principle has only two moving parts. It is the secret of dependable efficient operation of all positive displacement Viking rotary pumps. Positive displacement of liquid is accomplished by the meshing of rotor and idler gear teeth.

With every revolution of the pump shaft, a definite amount of liquid is drawn into the pump through the suction port.

① Values shown represent minimums or maximums. Some special construction or consideration may be required before a cataloged pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity. Certain models have restrictions in pressures and/or viscosities. See specifications, page 154.2, and performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.

② Nominal capacities based on handling thin liquids.

Metric conversions are based on US measurements and rounded to the nearest whole number.

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VIKING® HEAVY DUTY PUMPS

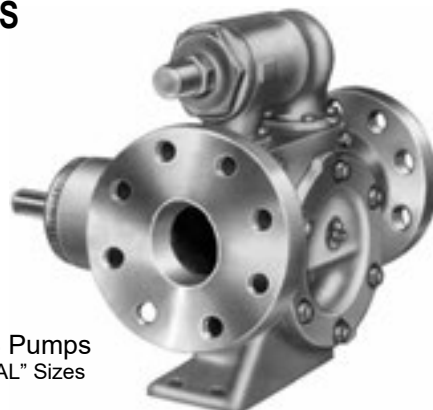
SERIES 4193

STEEL EXTERNALS

FOOT MOUNT WITH FLANGED PORTS



SERIES 4193 Pumps
“GG”, “HJ” and “HL” Sizes



SERIES 4193 Pumps
“AS”, “AK” and “AL” Sizes

Viking's positive displacement Series 4193 pump line with steel externals is ideal for refining, petrochemical and other applications requiring shock resistant construction. They are equipped with steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676. A simple, efficient, unbalanced

single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard. Other seal types and materials available on request. For handling viscosities above 15,000 SSU, refer to Series 123A pumps, Catalog Section 630.

Dimensions for Unmounted Pumps—See Page 154.7.

CONSTRUCTION—SERIES ⑤ 4193 (“GG” THROUGH “AL” SIZES)

Standard Construction Models	Casing	Head	Rotor	Idler	Rotor Shaft and Idler Pin	Idler Bushing	Internal Relief Valve
GG4193 HJ4193	Steel	Steel	⑥ Iron	⑦ ⑩ Iron	Steel	Carbon Graphite	Steel Externals
HL4193	Steel	Steel	Ductile Iron	⑩ Iron	Steel	Carbon Graphite	Steel Externals
AS4193 AK4193 AL4193	Steel	Steel	Ductile Iron	Ductile Iron	Steel	Carbon Graphite	Steel Externals

SPECIFICATION—UNMOUNTED PUMPS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ④				Maximum Pressure ①②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ③	Maximum Recommended Temperature ②		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		Inch	GPM	RPM	M ³ /hr										RPM	PSI (BAR)
GG4193	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	25	11	
HJ4193	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	50	23	
HL4193	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	50	23	
AS4193	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	100	45	
AK4193	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	100	45	
AL4193	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑨	350	177	102	46	

① Consult factory for specific recommendations.

② Standard Viton® seal from 0°F to +350°F (-18°C to +177°C). Extra clearances are required above 225°F (107°C).

③ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

④ Nominal capacities based on handling thin liquids.

⑤ Viton® elastomer used in mechanical seal of Series 4193 pumps.

⑥ When steel fitted construction is required, “GG” will have steel rotor, “HJ” will have ductile iron rotor.

⑦ “GG” size has steel idler when steel fitted construction is required.

⑧ “HJ” and “HL” have standard idlers when steel fitted.

⑨ If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

⑩ These models have ductile iron rotors; steel fitted rotors not necessary.

⑪ “GG”, “HJ” and “HL” sizes have powdered metal idler.

Metric conversions are based on US measurements and rounded to the nearest whole number.

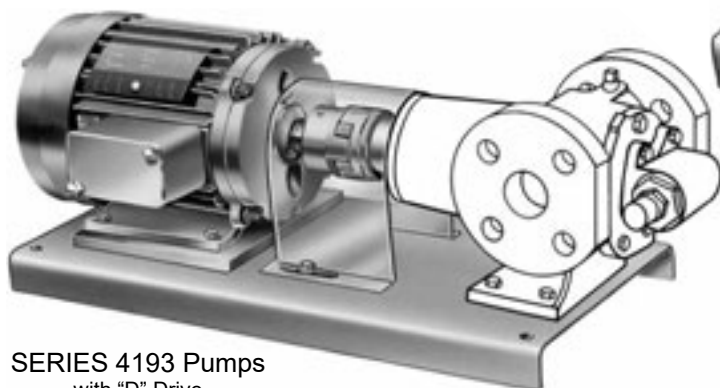
VIKING® HEAVY DUTY PUMPS

SERIES 4193

STEEL EXTERNALS

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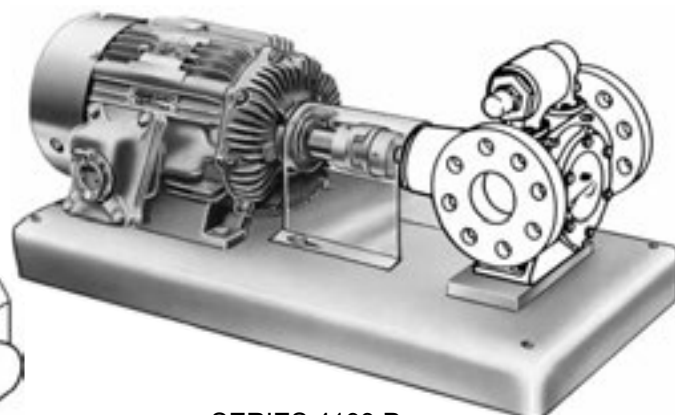
DIRECT DRIVE UNITS (“D” DRIVE)



SERIES 4193 Pumps
with “D” Drive
“GG”, “HJ” and “HL” Sizes

Series 4193 units in the “GG”, “HJ” and “HL” size (nominal rating 10, 20, 30 GPM) are designed for high-speed, heavy-duty service. The pump is connected by a flexible coupling with guard directly to a 50 HZ or 60 HZ motor. Both pump and motor mount on a sturdy formed steel base. This makes a very compact, rugged unit for heavy-duty service, handling many types of liquids up to 15,000 SSU (3,300 cSt).

The three large-size Series 4193D direct connected units all feature the 4193 high-speed pump connected by



SERIES 4193 Pumps
with “D” Drive
“AS”, “AK” and “AL” Sizes

a flexible coupling with guard to a 50 HZ or 60 HZ motor. Both pump and motor are mounted on a heavy-duty formed steel base. The three larger sizes are equipped with ductile iron pump gears (rotor and idler). O-Ring head and valve gaskets, mechanical seals and automatic pressure lubrication systems are also standard construction.

Dimensions for “D” Drive—See Page 154.8.

SPECIFICATIONS—“D” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④	Maximum Recommended Temperature ③		Approximate Shipping Weight			
		60 Hz Motor Speed		50 Hz Motor Speed			PSI (BAR)	PSI		BAR	SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		GPM	RPM	M ³ /hr	RPM										
GG4193D	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	51	23		
HJ4193D	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	75	34		
HL4193D	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	75	34		
AS4193D	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	230	104		
AK4193D	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	230	104		
AL4193D	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	235	107		

① Nominal capacities based on handling thin liquids.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C).

Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

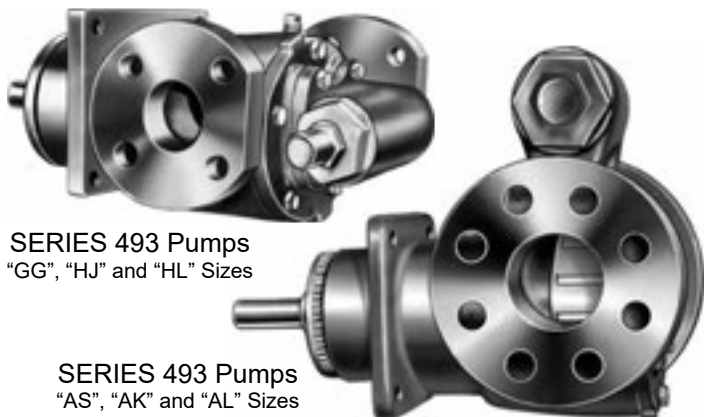
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VIKING® HEAVY DUTY PUMPS

SERIES 493

STEEL EXTERNALS

VERTICAL OR HORIZONTAL FLANGE BRACKET MOUNT



SERIES 493 Pumps
"GG", "HJ" and "HL" Sizes

SERIES 493 Pumps
"AS", "AK" and "AL" Sizes

GPM up to 75
(M³/Hr up to 17)

④ (Nominal Rating)

This Flange Bracket Mount Series 493 pump line with steel externals is ideal for refining, marine, petrochemical and other applications requiring shock resistant construction. They are equipped with steel flange-mount casing and are furnished with

① Pressure Range	250 PSI (17 BAR) for 100 SSU (20 cSt) and above 150 PSI (10 BAR) for 38 to 100 SSU (3 cSt to 20 cSt) 100 PSI (7 BAR) for below 38 SSU (3 cSt)
② Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
③ Viscosity Range	28 SSU to 15,000 SSU (0.1 cP to 3,300 cSt)

steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676. A simple, efficient, unbalanced single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard. Other seal types and materials available on request. For handling viscosities above 15,000 SSU, refer to Series 123A pumps, Catalog Section 630. Consult factory or Viking representative.

Dimensions for Unmounted Pumps—See Page 154.8 and 154.9.

CONSTRUCTION—SERIES ④ 493 ("GG" THROUGH "AL" SIZES)

Standard Construction Models	(Units only) Mounting Bracket	Casing	Head	Rotor	Idler	Rotor Shaft and Idler Pin	Idler Bushing	Internal Relief Valve
GG493 HJ493	Iron	Steel	Steel	⑥ Iron	⑦ ⑧ Iron	Steel	Carbon Graphite	Steel Externals
HL493	Iron	Steel	Steel	Ductile Iron	⑨ Iron	Steel	Carbon Graphite	Steel Externals
AS493 AK493 AL493	Iron	Steel	Steel	Ductile Iron	Ductile Iron	Steel	Carbon Graphite	Steel Externals

SPECIFICATIONS—UNMOUNTED PUMPS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ④				Maximum Pressure ⑤		Maximum Hydrostatic Pressure	Steel Fitted Construction Recommended Above This Viscosity ③	Maximum Recommended Temperature ②		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed		PSI	BAR			SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		GPM	RPM	M ³ /hr	RPM									
GG493	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	18	8
HJ493	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	40	18
HL493	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	40	18
AS493	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	80	36
AK493	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	80	36
AL493	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑨	350	177	81	37

① Consult factory for specific recommendations.

② Standard Viton® seal from 0°F to +350°F (-18°C to +177°C).

Extra clearances are required above 225°F (107°C).

③ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

④ Nominal capacities based on handling thin liquids.

⑤ Viton® elastomer used in mechanical seal of Series 4193 pumps.

⑥ When steel fitted construction is required, "GG" will have steel rotor, "HJ" will have ductile iron rotor.

⑦ "GG" size has steel idler when steel fitted construction is required.

⑧ If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

⑨ These models have ductile iron rotors; steel fitted rotors not necessary.

⑩ "GG", "HJ" and "HL" sizes have powdered metal idler.

Metric conversions are based on US measurements and rounded to the nearest whole number.

VIKING® HEAVY DUTY PUMPS

SERIES 493

STEEL EXTERNALS

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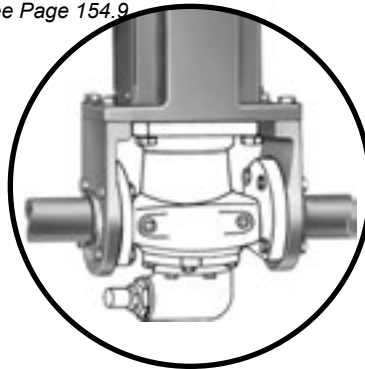
FLANGE BRACKET VERTICAL INLINE MOUNTED PUMPS (“IM” DRIVE)

Viking’s Series 493 pump line can be mounted either vertically or horizontally to electric motors. Vertical inline mounted unit described on this page comes complete with “C” flange mounting bracket and coupling between motor and pump.

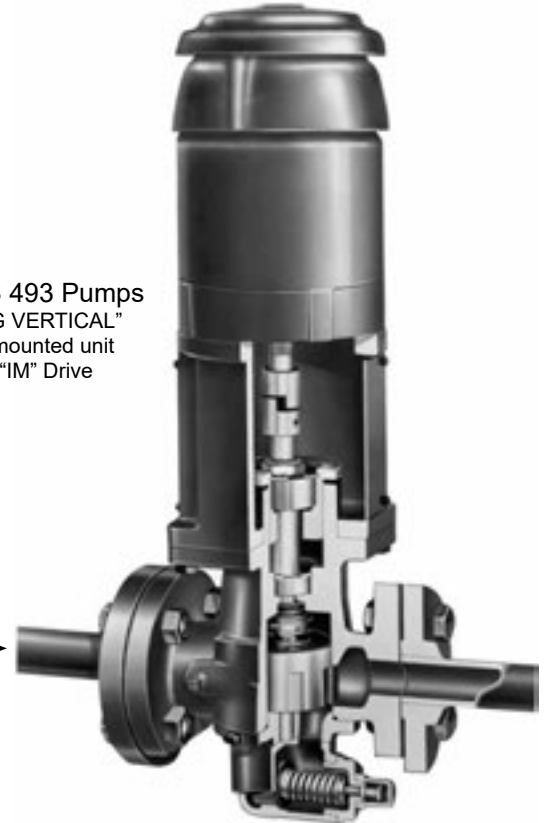
Ideal for refining, petrochemical, marine and other applications requiring shock resistant construction, these units save space and weight. They are equipped with steel casing and head and are furnished with steel, internal type, over-pressure relief valve. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with opposite 300 lb. ANSI flanged ports. They also conform to most requirements of API 676. A simple, efficient, unbalanced single mechanical seal with Viton® gaskets, carbon and Silicon Carbide faces is standard.

Dimensions for Mounted Units—See Page 154.9

Optional Pump mounting arrangement allows easy pump removal without disturbing piping or motor. Consult factory. (“IOM” Drive)



SERIES 493 Pumps
“VIKING VERTICAL”
Inline mounted unit
with “IM” Drive



SPECIFICATIONS—“IM” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④	Maximum Recommended Temperature ③		Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		SSU (cSt)	Deg. F	Deg. C	Lb.	Kg.
		Inch	GPM	RPM	M ³ /hr										RPM	PSI (BAR)
GG493IM	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	28	13
HJ493IM	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	7500 (1619)	350	177	50	22
HL493IM	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	50	22
AS493IM	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	110	50
AK493IM	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	110	50
AL493IM	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU		400	28	⑤	350	177	112	51

① Nominal capacities based on handling thin liquids.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C). Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

Metric conversions are based on US measurements and rounded to the nearest whole number.

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VIKING® HEAVY DUTY PUMPS

SERIES 493

STEEL EXTERNALS

FLANGE BRACKET HORIZONTAL MOUNTED PUMPS (“M” DRIVE)



SERIES 493 Pumps
with “M” Drive “AS”, “AK” and “AL”

SERIES 493 Pumps
with “M” Drive
“GG”, “HJ” and “HL” Sizes



For more compact horizontal mounting, the “C” face mounted Series 493 Heavy-Duty pump units in all six sizes include a combination motor “C” flange and square pump flange bracket with coupling connecting motor and pump. The three smaller units connect to a foot mounted motor, while the three larger units include a foot type bracket to mount a flange type motor.

The three larger size pumps are equipped with ductile iron pump gears (rotor and idler) and automatic lubrication system. O-Ring head gaskets and mechanical seals are standard construction. The steel used meets ASTM designation A216 Grade WCB specifications. All pumps are equipped with horizontal 300 lb. ANSI flanged ports and conform to most requirements of API 676.

Dimensions for “D” Drive—See Page 154.10 and 154.11.

SPECIFICATIONS—“M” DRIVE UNITS

Pump Model	Port Size (300 lb. ANSI Flanged)	Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid ①				Maximum Pressure ②	Maximum Hydrostatic Pressure		Steel Fitted Construction Recommended Above This Viscosity ④	Maximum Recommended Temperature ③		Approximate Shipping Weight	
		60 Hz Motor Speed		50 Hz Motor Speed			PSI	BAR		Deg. F	Deg. C	Lb.	Kg.
		Inch	GPM	RPM	M ³ /hr									RPM	PSI (BAR)
GG493M	1	10 7	1800 1200	3 2	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	28	13
HJ493M	1½	20 13	1800 1200	4.5 3	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	7500 (1619)	350	177	50	22
HL493M	1½	30 20	1800 1200	7 4.5	1500 1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	50	22
AS493M	3	35	1200	8	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	110	50
AK493M	3	50	1200	11	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	110	50
AL493M	3	75	1200	17	1000	100 (7)—below 38 SSU 150 (10)—38 to 100 SSU 250 (17)—above 100 SSU	400	28	⑤	350	177	112	51

① Nominal capacities based on handling thin liquids.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

③ Standard Viton® seal from 0°F to +350°F (-18°C to +177°C). Extra clearances are required above 225°F (107°C).

④ For viscosities above 15,000 SSU (3,300 cSt), provide details for recommendations, or see Series 123A, Catalog Section 630.

⑤ These models have ductile iron rotors; steel fitted rotors not necessary.

Metric conversions are based on US measurements and rounded to the nearest whole number.

VIKING® HEAVY DUTY PUMPS

SERIES 4193

STEEL EXTERNALS

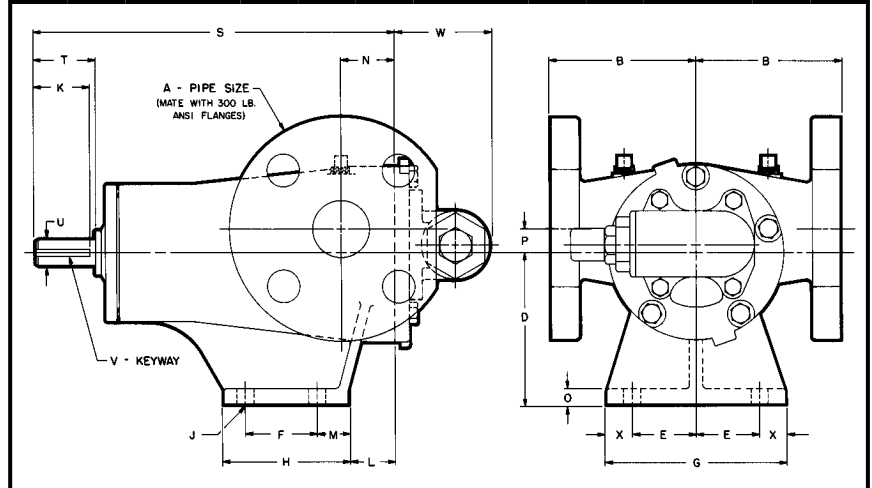
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 154.2.

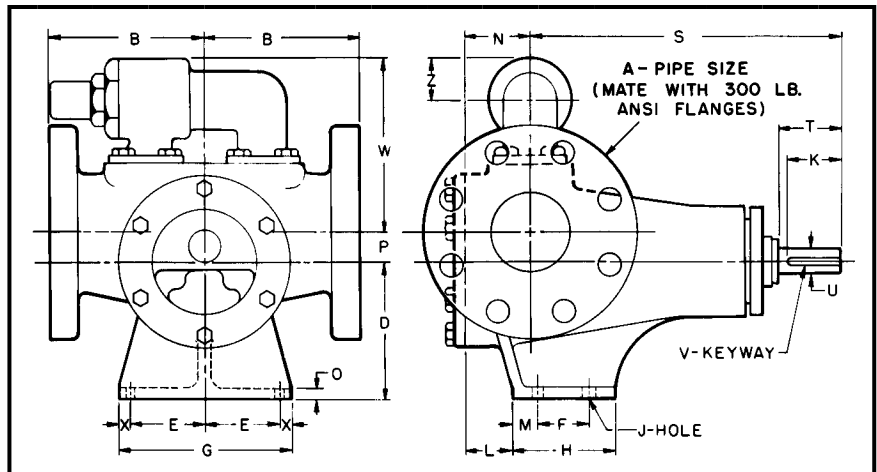
DIMENSIONS— SERIES 4193 UNMOUNTED PUMPS “GG” — “HJ” — “HL” SIZES



MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X
GG4193	in	1	4.00	2.75	1.62	1.31	4.00	2.44	.34	.94	.03	.66	1.12	.31	.62	7.31	1.12	.500	.12 x .06	2.66	.38
	mm		102	70	41	33	102	62	9	24	1	17	29	8	16	186	29	12.70	3.05 x 1.52	67	10
HJ4193	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.750	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19
HL4193	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.750	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19

For specifications, see page 154.2.

DIMENSIONS— SERIES 4193 UNMOUNTED PUMPS “AS” — “AK” — “AL” SIZES



NOTE: Models “AS” and “AK” have 2½” cored opening.

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X	Z
AS4193	in	3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.000	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AK4193	in	3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.000	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AL4193	in	3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.75	1.00	2.50	.44	1.12	12.12	2.38	1.000	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	44	25	64	11	29	308	60	25.40	6.35 x 3.18	178	13	40

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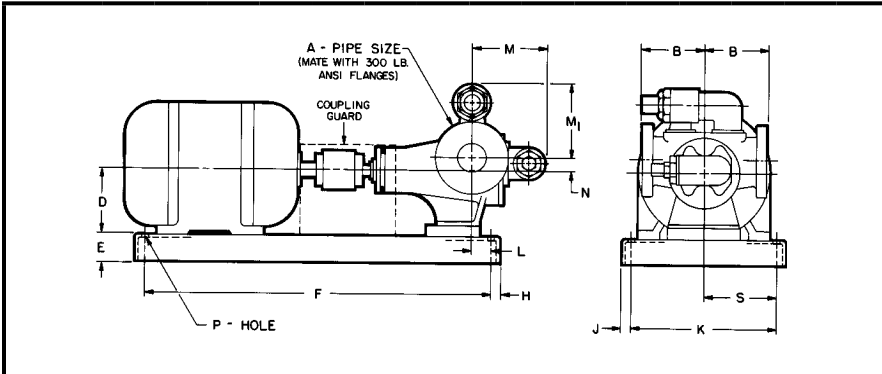
VIKING® HEAVY DUTY PUMPS

SERIES 4193 AND 493

STEEL EXTERNALS

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

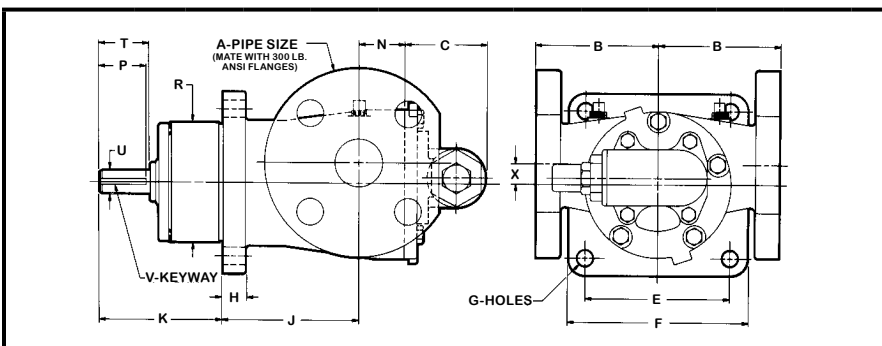


For specifications, see page 154.3.

DIMENSIONS— SERIES 4193 ("D" DRIVE) "GG"—"HJ"—"HL" "AS"—"AK"—"AL" SIZES

MODEL NO.		A	B	D	E	F	H	J	K	L	M	M ₁	N	P	S
GG4193D	in	1	4.00	① 3.50	1.50	20.50	.75	.75	8.50	.38	3.78		.62	.62	4.25
	mm		102	89	38	521	19	19	216	10	96		16	16	108
HJ4193D	in	1½	4.00	② 3.50	③ 2.12	20.50	.75	.75	8.50	0	4.34		.62	.62	4.25
	mm		102	89	54	521	19	19	216	0	110		16	16	108
HL4193D	in	1½	4.00	④ 4.50	2.94	29.00	1.00	1.50	9.00	.25	4.34		.62	.62	4.50
	mm		102	114	75	737	25	38	229	6	110		16	16	114
AS4193D	in	3	6.00	⑤ 4.50	⑥ 3.69	29.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	114	94	737	25	38	229	0		178	29	16	114
AK4193D	in	3	6.00	⑦ 5.25	2.94	34.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	133	75	864	25	38	229	0		178	29	16	114
AL4193D	in	3	6.00	⑧ 6.25	4.00	39.00	1.38	1.38	16.00	3.75		7.00	1.12	.62	8.00
	mm		152	159	102	991	35	35	406	95		178	29	16	203

- ① 56, 143T and 145T frame motors. (Available with "GG" size pump.)
 - ② 56, 143T and 145T frame motors. (Available with "HJ" or "HL" size pumps.)
 - ③ 182, 182T, 184, 184T frame motors. (Available with "HJ" thru "AL" size pumps.)
 - ④ 213, 213T, 215, 215T frame motors. (Available with "HJ" thru "AL" size pumps.)
 - ⑤ 254U, 254T, 256U, 256T frame motors. (Available with "AK" thru "AL" size pumps.)
 - ⑥ Dimension includes motor block, base height is 1½".
 - ⑦ Dimension includes motor block, base height is 2 15/16".
- NOTE:** Models "AS" and "AK" have 2½" cored opening.
NOTE: All "AS", "AK", "AL" pump sizes available with any of the three motors shown in columns.



For specifications, see page 154.4.

DIMENSIONS— SERIES 493 UNMOUNTED PUMPS "GG"—"HJ"—"HL" SIZES

MODEL NO.		A	B	C	E	F	G	H	J	K	N	P	R	T	U	V	X
GG493	in	1	4.00	2.66	3.00	4.00	.41	.62	3.44	2.81	1.12	.94	2.875 2.873	1.12	.500	.12 x .06	.62
	mm		102	67	76	102	10	16	87	71	29	24	73	29	12.70	3.05 x 1.52	16
HJ493	in	1½	4.00	2.84	4.75	5.88	.56	.75	4.50	4.00	1.50	1.50	3.875 3.873	1.62	.750	.19 x .09	.62
	mm		102	72	121	149	14	19	114	102	38	38	98	41	19.05	4.76 x 2.38	16
HL493	in	1½	4.00	2.84	4.75	5.88	.56	.75	4.50	4.00	1.50	1.50	3.875 3.873	1.62	.750	.19 x .09	.62
	mm		102	72	121	149	14	19	114	102	38	38	98	41	19.05	4.76 x 2.38	16

VIKING® HEAVY DUTY PUMPS

SERIES 493

STEEL EXTERNALS

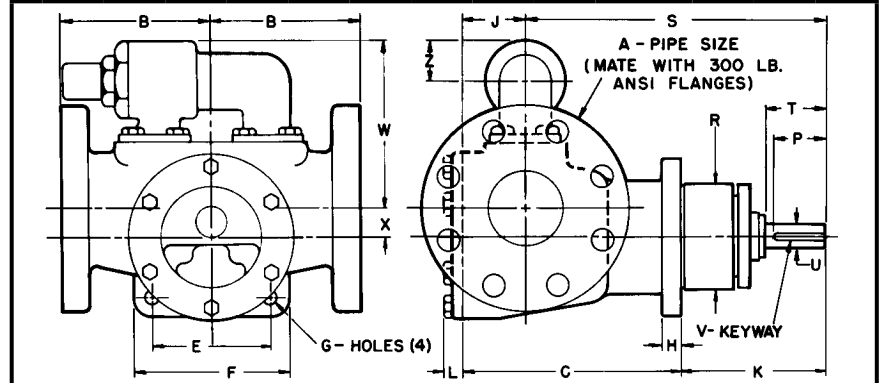
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 154.4.

DIMENSIONS— SERIES 493 UNMOUNTED PUMPS “AS” — “AK” — “AL” SIZES

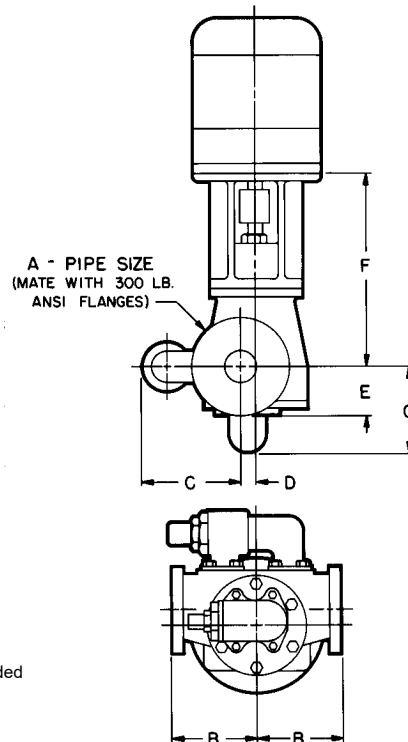


NOTE: Models “AS” and “AK” have 2½” cored opening.

MODEL NO.		A	B	C	E	F	G	H	J	K	L	P	R	S	T	U	V	W	X	Z
AS493	in	3	6.00	8.38	4.75	6.25	.56	.75	2.00	5.75	.88	2.25	4.250 4.248	12.12	2.50	1.000	.25 x .12	7.00	1.12	1.56
	mm			213					51											
AK493	in			8.38					2.00											
	mm			213					51											
AL493	in			8.88					2.50											
	mm			152					225												121	159	14	19	64	146	22	57	108	308	64	25.40	6.35 x 3.18	178	29	40

For specifications, see page 154.5.

DIMENSIONS— SERIES 493 VERTICAL FLANGE MOUNT INLINE UNITS (“IM” DRIVE) UNMOUNTED PUMPS “GG” — “HJ” — “HL” — “AS” — “AK” — “AL” SIZES



MODEL NO.		A	B	C	C ₁	D	E	MOTOR FRAME	F
GG493IM	in	1	4.00	3.78	.62	2.44	56C	8.88	
	mm						143TC	225	
	in						182TC	9.56	
	mm						184TC	243	
HL493IM	in	1½	4.00	4.34	.62	3.06	56C	11.12	
	mm						143TC	283	
	in						182TC	11.81	
	mm						184TC	300	
	in						213TC	12.56	
mm	215TC	319							
AS493IM AK493IM AL493IM	in	3	6.00	7.00	1.12	4.12	182TC	16.19	
	mm						143TC		
	in						213TC		
	mm						215TC		
	in						254TC		
mm	256TC	411							

① Dimensions are correct for 182TC through 215TC motors. For 254TC/256TC motors, add .88” to the dimensions shown.

NOTE: Models “AS” and “AK” have 2½” cored opening.
NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.
COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

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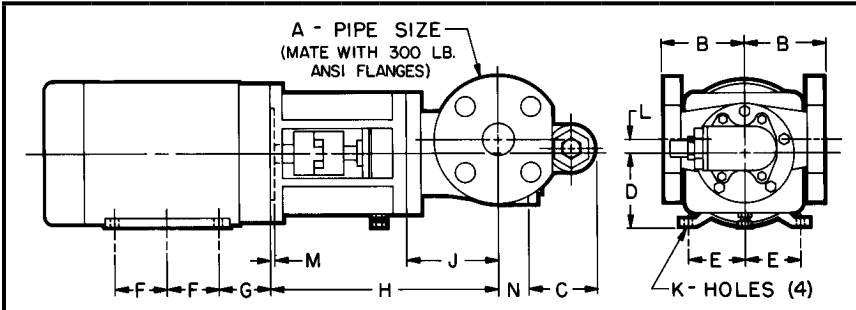
VIKING® HEAVY DUTY PUMPS

SERIES 493

STEEL EXTERNALS

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

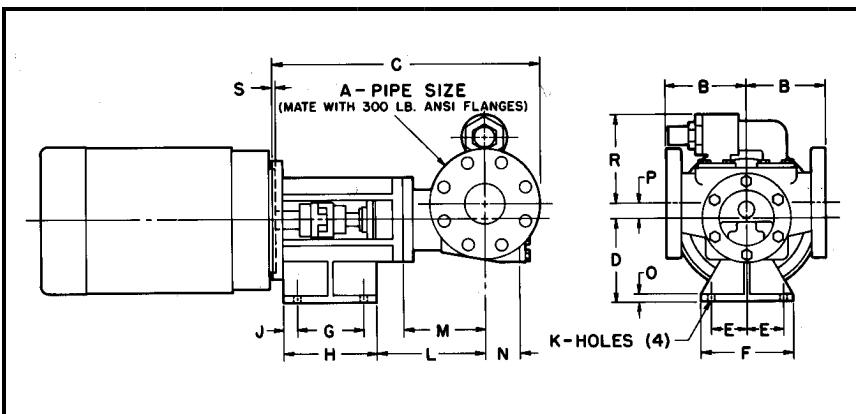


For specifications, see page 154.6.

DIMENSIONS— SERIES 493 ("M" DRIVE) — NEMA C "GG"—"HJ"—"HL" SIZES

MODEL NO.		A	B	C	J	L	M	N	MOTOR FRAME	D	E	F	G	H	K																		
GG493M	in	1	4.00	2.66	3.44	.62	.19	1.12	56C	3.50	2.44	1.50	2.56	8.88	.34 SLOT																		
	mm								62		38	65	9																				
	in								102	67	87	16	5	29	143TC	4.50	2.75	2.00	2.88	9.56	.34												
	mm														51		2.50	2.25	9														
	in														114	72	114	16	5	38	145TC	4.50	3.75	2.50	3.44	9.56	.41						
	mm																				57			2.75				2.25	9				
	in																				102	72	114	16	5	38	182TC	5.25	4.25	2.75	4.50	12.56	.41
	mm																										70			3.50				2.75	10
in	102	72	114	16	5	38	184TC	5.25	4.25	2.75	4.50	12.56	.41																				
mm							70			3.50				2.75	10																		
in	133	107	133	107	133	107	133	215TC	133	107	3.50	114	319	10																			
mm								89			114				319	10																	

NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket. COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.



For specifications, see page 154.6.

DIMENSIONS— SERIES 493 ("M" DRIVE) — NEMA C "AS"—"AK"—"AL" SIZES

① Dimensions are correct for 182TC through 215TC motors. For 254TC/256TC motors, add .88" to the dimensions shown.

NOTE: Models "AS" and "AK" have 2 1/2" cored opening. **NOTE:** Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket. COUPLING IS GUARDED WITH PLATES OVER SIDE OPENINGS ON MOUNTING BRACKET.

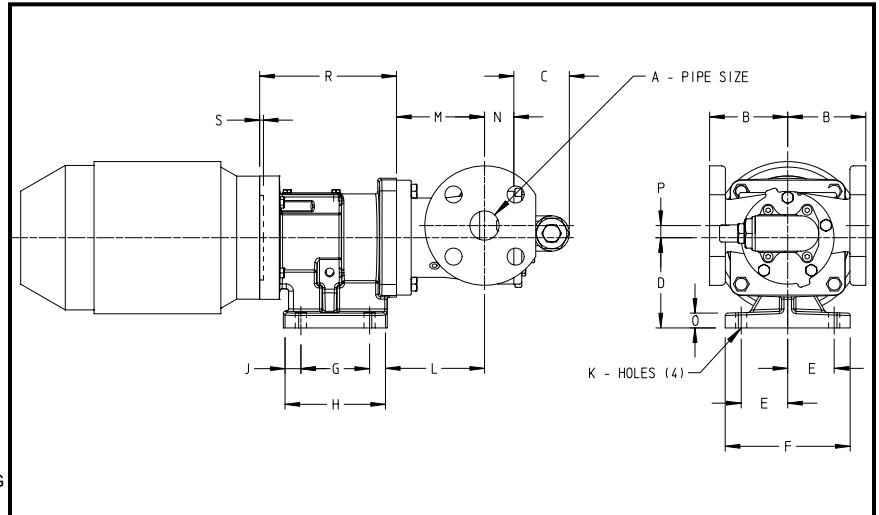
MODEL NO.		A	B	① C	D	E	F	G	H	J	K	① L	M	N	O	P	R	S
AS493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.00	.50	1.12	7.00	.19
	mm													51				
AK493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.00	.50	1.12	7.00	.19
	mm													51				
AL493M	in	3	6.00	20.31	6.25	2.75	7.00	5.00	7.00	1.00	.56	8.44	6.38	2.50	.50	1.12	7.00	.19
	mm													64				
			152	516	159	70	178	127	178	25	14	214	162	64	13	29	178	5

VIKING® HEAVY DUTY PUMPS

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For specifications, see page 154.6.

DIMENSIONS— SERIES 493 ("M" DRIVE) — IEC Frame "H"—"HL" SIZES



Brackets are designed for IEC motors with a B14 mounting face.

NOTE: Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to brackets.
NOTE: Flanges are suitable for use with 300# ANSI flanges.
 COUPLING IS GUARDED WITH A PLATE OVER THE OPENING IN THE TOP OF THE BRACKET.

MODEL NO.		A	B	C	M	N	P	MOTOR FRAME	D	E	F	G	H	J	K	L	O	R	S								
HJ493M HL493M	in	1.5	4.00	2.84	4.50	1.50	0.62	IEC 90	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.95	0.75	6.61	0.19								
	mm							125.0												167.9							
	in							IEC 100/112												117.3	60.5	162.6	89.4	130.6	20.6	4.98	7.01
	mm							128.8																				178.1	4.8
	in							IEC 132												5.32	2.95	7.48	4.50	6.09	0.80	5.11	8.16
mm	135.1	74.9	190.0	114.3	154.7	20.3	14.5	129.8	19.1	207.3	6.4																

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VIKING® HEAVY DUTY PUMPS

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head – Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R.

NPSH_R – FEET OF LIQUID (SP. GR. 1.0),
Viscosities to 750 SSU

Pump Size	Pump Speed, RPM					
	640	780	950	1150	1450	1750
GG	2.2	2.6	3.1	3.9	5.6	7.6
HJ, HL	2.8	3.4	4.5	6.2	9.5	13.5
AS, AK, AL	3.9	5.5	7.7	11.2	—	—

For a complete explanation of NPSH, see Application Data Sheet AD-19.

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure		Capacity	
In.-Hg. (Inches Mercury)	kPa* (Kilopascal)	PSI (lbf / in. ²)	kPa* (Kilopascal)	GPM (Gallons / Minute)	LPM (Litre / Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	—	—
15	51	100	690	—	—
20	68	150	1034	—	—
25	85	200	1379	—	—
—	—	250	1724	—	—

* 100 kPa = 1 bar

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg.” While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, and Engineering Service Bulletin ESB-56 for information helpful in determining suction line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying the Series 4195 and 495 pumps to such liquids as alcohols, solvents, etc.

VISCOUS LIQUIDS: Pump should not operate longer than 15 minutes of each operating cycle at 25,000 SSU and above. If continuous duty is desired, the mechanical seal should be changed to a positive-drive type seal. This recommendation applies to the “GG”, “HJ” and “HL” sizes only.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

Section 164

Viking Heavy Duty

(Series 4197 – Stainless Steel)

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VIKING® HEAVY DUTY PUMPS

SERIES 4197

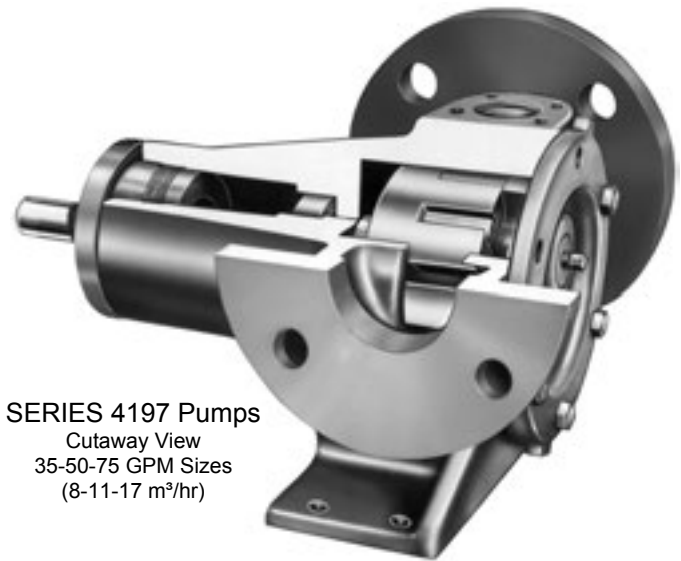
STAINLESS STEEL

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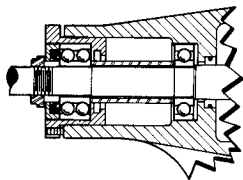
FEATURES



SERIES 4197 Pumps
Cutaway View
10-20-30 GPM Sizes
(2-4.5-7 m³/hr)

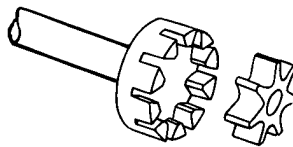


SERIES 4197 Pumps
Cutaway View
35-50-75 GPM Sizes
(8-11-17 m³/hr)



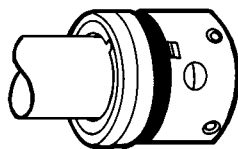
BALL BEARINGS
(Standard Equipment)

Pumps are equipped with inner casing ball bearing installed outside of mechanical seal and a radial thrust ball bearing permitting heavy-duty service up to 200 PSI (14 BAR). Bearings are "Sealed for Life".



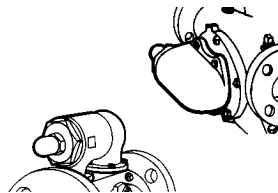
STAINLESS STEEL PUMPING ELEMENTS
(Standard Equipment)

Internal pumping gears are constructed of type 316 and type 770 Stainless Steel alloy. This allows high speed, non-galling operation, handling all types of liquids up to 25,000 SSU (5,500 cSt). PPS composite idlers are also available for thin liquid applications.



MECHANICAL SEAL
(Standard Equipment)

All Series 4197 pumps are furnished with a positive drive mechanical seal. The seal is a simple, self-adjusting, non-leak method of shaft sealing. It is especially suited for handling liquids such as alcohols, solvents, etc.



INTEGRAL RELIEF VALVE
(Standard Equipment)

Permits bypassing of liquid from discharge to suction side of pump. Prevents build up of pressure in discharge line. "GG," "HJ" and "HL" size valve mounts on pump head. "AS," "AK" and "AL" size valve mounts on pump casing.

① Pressure Range	200 PSI (14 BAR) for 750 SSU (162 cSt) and above 150 PSI (10 BAR) for 100 to 750 SSU (20 cSt to 162 cSt) 100 PSI (7 BAR) for 38 SSU to 100 SSU (3 cSt to 20 cSt) ③ 75 PSI (5 BAR) for below 38 SSU (3 cSt)
① Temperature Range	0° F to + 350°F (- 18° C to + 177°C)
① Viscosity Range	28 SSU to 25,000 SSU (0.1 cSt to 5,500 cSt)

② GPM 10-20-30-35-50-75 (m³/hr 2-4.5-7-8-11-17) (Nominal Rating)

Viking's heavy-duty Series 4197 pumps are available in capacities of 10, 20, 30, 35, 50 and 75 GPM. All are built for high-speed handling of thin liquids requiring stainless steel construction. These pumps are ideal for such liquids as solvents, alcohols and similar liquids. The three smaller size pumps can be furnished directly connected to either 1800 or 1200 RPM motors. The three larger sizes are directly connected to 1200 RPM motors. (See Series 4197D units shown on page 164.3.) All six sizes of Viking Series 4197 pumps are furnished with single mechanical seals. This seal is a simple self-adjusting, non-leak method of shaft sealing located ahead of the casing ball bearing. The Series 4197 pumps are built for continuous or intermittent duty for such applications as filtering, circulating, transferring or booster service in chemical, general industrial, petroleum and petrochemical uses.

- ① See following pages or consult factory for specific recommendations.
- ② Nominal capacities based on handling thin liquids at 1800 RPM on three small sizes, 1200 RPM on three large sizes.
- ③ Solvents, alcohols, aqueous solutions and similar liquids.

Metric conversions are based on US measurements and rounded to the nearest whole number.

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VIKING® HEAVY DUTY PUMPS

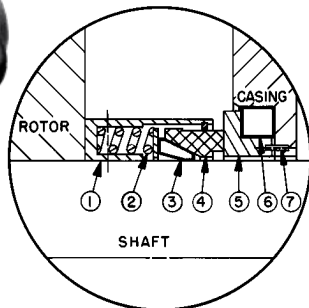
SERIES 4197

STAINLESS STEEL

UNMOUNTED PUMPS

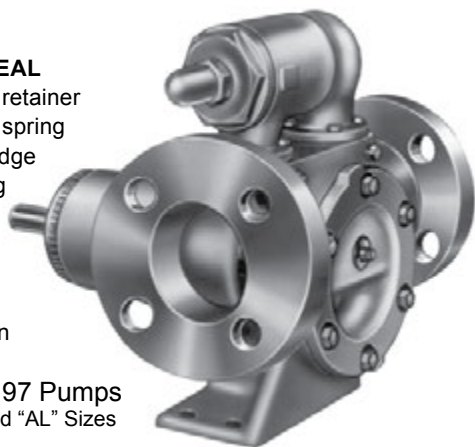


SERIES 4197 Pumps
“GG”, “HJ” and “HL” Sizes



MECHANICAL SEAL

- ① Stainless steel retainer
- ② Stainless steel spring
- ③ PTFE shaft wedge
- ④ Carbon rotating face (washer)
- ⑤ Silicon carbide stationary seat
- ⑥ PTFE seat ring
- ⑦ Anti-rotation pin



SERIES 4197 Pumps
“AS”, “AK” and “AL” Sizes

Viking’s Series 4197 heavy-duty pumps are furnished with an integral relief valve as shown in the pump photos above. Note: On the “GG”, “HJ” and “HL” sizes, the valve mounts on the pump head. The “AS”, “AK” and “AL” size valve mounts on top of the pump casing. All sizes equipped with PTFE mechanical seal with carbon rotating and silicon carbide stationary faces. An optional Viton or Kalrez / carbon versus silicon carbide

mechanical seal which is well suited for thin liquid applications is available on request. Dimensions for Unmounted Pumps—See Page 164.4.

CONSTRUCTION — SERIES 4197 (“GG” THROUGH “AL” SIZES)

Pump Construction	Casing	Head	Rotor	Idler	Rotor Shaft	Idler Pin	Idler Bushing	Shaft Sealing	Internal Relief Valve
								Mechanical Seal	
316 Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	770 Stainless Steel Alloy	Stainless Steel	Stainless Steel with Corrosion-resistant coating	Carbon Graphite	Stainless Steel, PTFE, Carbon Graphite And Silicon Carbide	Stainless Steel

SPECIFICATIONS — UNMOUNTED PUMPS

Model Numbers	150 lb. ANSI Flanged Port Size	① Nominal Pump Rating		Maximum Hydrostatic Pressure	② Maximum Pump Discharge Pressure	③ Maximum Temperature	Approximate Shipping Weight With Valve
	Inches	GPM (m ³ /hr)	RPM					PSIG (BAR)	PSIG (BAR)	Degrees	Pounds (KG)
GG4197	1	10 (3) 7 (2)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	20 (9)
HJ4197	1½	20 (4.5) 13 (3)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	50 (23)
HL4197	1½	30 (7) 20 (4.5)	1800 1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	50 (23)
AS4197	3	35 (8)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	115 (52)
AK4197	3	50 (11)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	115 (52)
AL4197	3	75 (17)	1200	400 (28)	④ 75 (5)—below 38 SSU 100 (7)—38 to 100 SSU 150 (10)—100 to 750 SSU 200 (14)—above 750 SSU	350°F (177°C)	120 (55)

① Nominal capacities based on handling thin liquids at 1800 RPM on three smaller sizes, 1200 RPM on three larger sizes.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

③ Standard PTFE seal from 0°F to +350°F. Extra clearances are required above 225°F (107°C).

Metric conversions are based on US measurements and rounded to the nearest whole number.

④ Solvents, alcohols, aqueous solutions and similar liquids.

⑤ All valves set at 100 lbs. unless otherwise ordered.

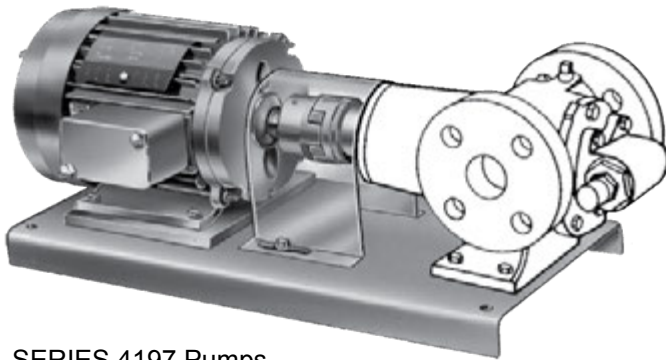
VIKING® HEAVY DUTY PUMPS

SERIES 4197

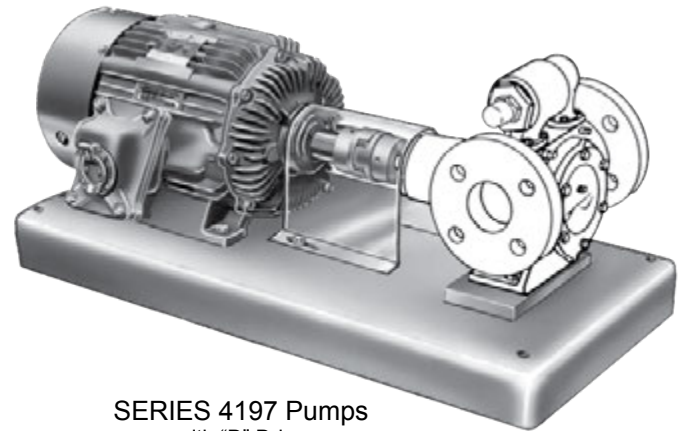
STAINLESS STEEL

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DIRECT DRIVE UNITS (“D” DRIVE)



SERIES 4197 Pumps
with “D” Drive
“GG”, “HJ” and “HL” Sizes



SERIES 4197 Pumps
with “D” Drive
“AS”, “AK” and “AL” Sizes

Viking’s Series 4197D units in the “GG”, “HJ” and “HL” size (nominal rating 10, 20, 30 GPM) are designed for high-speed, heavy-duty service. The pump is connected by a flexible coupling with guard directly to a 1200 or 1800 RPM motor. Both pump and motor mount on a sturdy formed steel base.

Viking’s three large size Series 4197D direct-connected units all feature the Series 4197 high-speed pump connected by a flexible coupling with guard to 1200 RPM motor. Both

pump and motor are mounted on a formed steel base.

These make very compact, rugged units for heavy-duty service, handling many types of liquids up to 25,000 SSU (5,500 cSt).

Dimensions for “D” Drive—See Page 164.5.

SPECIFICATIONS — “D” DRIVE UNITS

Model Numbers	150 lb. ANSI Flanged Port Size	① Nominal Pump Rating		Maximum Hydrostatic Pressure	② Maximum Pump Discharge Pressure	③ Maximum Temperature	Approximate Shipping Weight With Valve (Less Power)
		GPM (m ³ /hr)	RPM					PSIG (BAR)	Degrees	Pounds (KG)
GG4197D	1	10 (3) 7 (2)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	50 (23)
HJ4197D	1½	20 (4.5) 13 (3)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	80 (36)
HL4197D	1½	30 (7) 20 (4.5)	1800 1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	80 (36)
AS4197D	3	35 (8)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	250 (114)
AK4197D	3	50 (11)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	250 (114)
AL4197D	3	75 (17)	1200	400 (28)	④ 75—below 38 SSU 100—38 to 100 SSU 150—100 to 750 SSU 200—above 750 SSU	350°F (177°C)	270 (123)

① Nominal capacities based on handling thin liquids at 1800 RPM on three smaller sizes, 1200 RPM on three larger sizes.

② If suction pressure exceeds 100 PSIG (7 BAR), consult factory.

Metric conversions are based on US measurements and rounded to the nearest whole number.

③ Standard PTFE seal from 0°F to +350°F. Extra clearances are required above 225°F (107°C).

④ Solvents, alcohols, aqueous solutions and similar liquids.

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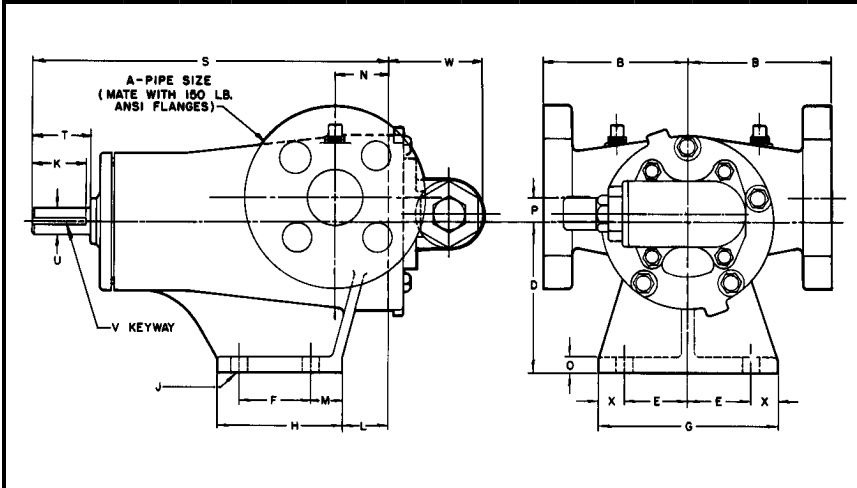
VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

DIMENSIONS

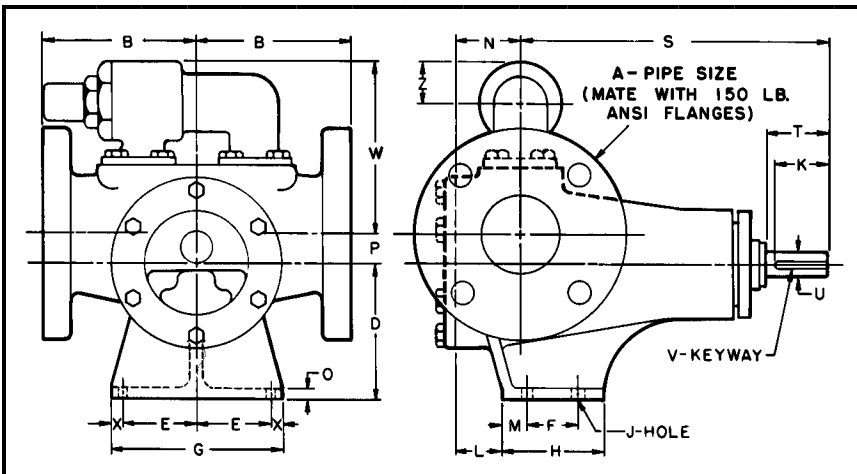
These dimensions are average and not for construction purposes. Certified prints on request.



For specifications, see page 164.2.

DIMENSIONS— SERIES 4197 UNMOUNTED PUMPS “GG”—“HJ”—“HL” SIZES

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X
GG4197	in	1	4.00	2.75	1.62	1.31	4.00	2.44	.34	.94	.03	.66	1.12	.31	.62	7.31	1.12	.50	.12 x .06	2.66	.38
	mm		102	70	41	33	102	62	9	24	1	17	29	8	16	186	29	12.70	3.05 x 1.52	67	10
HJ4197	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.75	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19
HL4197	in	1½	4.00	4.12	1.75	2.00	5.00	3.50	.41	1.50	1.25	.88	1.50	.44	.62	10.00	1.62	.75	.19 x .09	2.84	.75
	mm		102	105	44	51	127	89	10	38	32	22	38	11	16	254	41	19.05	4.76 x 2.38	72	19



For specifications, see page 164.2.

DIMENSIONS— SERIES 4197 UNMOUNTED PUMPS “AS”—“AK”—“AL” SIZES

⊙ Models “AS” and “AK” have 2½” cored openings.

MODEL NO.		A	B	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U	V	W	X	Z
AS4197	in	⊙ 3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AK4197	in	⊙ 3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.25	1.00	2.00	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	32	25	51	11	29	308	60	25.40	6.35 x 3.18	178	13	40
AL4197	in	3	6.00	5.25	2.88	2.00	6.75	4.00	.41	2.25	1.75	1.00	2.50	.44	1.12	12.12	2.38	1.00	.25 x .12	7.00	.50	1.56
	mm		152	133	73	51	171	102	10	57	44	25	64	11	29	308	60	25.40	6.35 x 3.18	178	13	40

VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

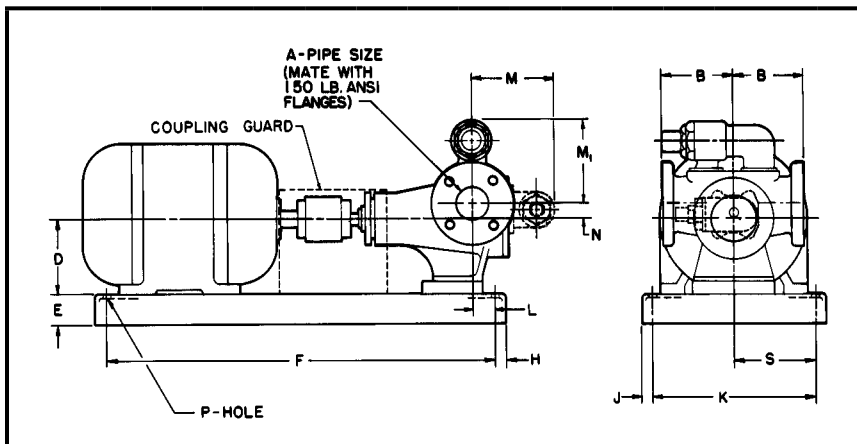
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 164.3.

DIMENSIONS— SERIES 4197 ("D" DRIVE) "GG"—"HJ"—"HL" "AS"—"AK"—"AL" SIZES



MODEL NO.		A	B	D	E	F	H	J	K	L	M	M ₁	N	P	S
GG4197D	in	1	4.00	① 3.50	1.50	20.50	.75	.75	8.50	.38	3.78		.62	.62	4.25
	mm		102	89	38	521	19	19	216	10	96		16	16	108
HJ4197D	in	1½	4.00	② 3.50	③ 2.12	20.50	.75	.75	8.50	0	4.34		.62	.62	4.25
	mm		102	89	54	521	19	19	216	0	110		16	16	108
HL4197D	in	1½	4.00	④ 4.50	2.94	29.00	1.00	1.50	9.00	.25	4.34		.62	.62	4.50
	mm		102	114	75	737	25	38	229	6	110		16	16	114
AS4197D	in	⑤ 3	6.00	⑥ 4.50	⑦ 3.69	29.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	114	94	737	25	38	229	0		178	29	16	114
AK4197D	in	⑤ 3	6.00	⑥ 5.25	2.94	34.00	1.00	1.50	9.00	0		7.00	1.12	.62	4.50
	mm		152	133	75	864	25	38	229	0		178	29	16	114
AL4197D	in	3	6.00	⑥ 6.25	4.00	39.00	1.38	1.38	16.00	3.75		7.00	1.12	.62	8.00
	mm		152	159	102	991	35	35	406	95		178	29	16	203

- ① 56, 143T and 145T frame motors. (Available with "GG" size pump.)
 - ② 56, 143T and 145T frame motors. (Available with "HJ" or "HL" size pumps.)
 - ③ 182, 182T, 184, 184T frame motors. (Available with "HJ" through "AL" size pumps.)
 - ④ 213, 213T, 215, 215T frame motors. (Available with "HJ" through "AL" size pumps.)
 - ⑤ 254U, 254T, 256U, 256T frame motors. (Available with "AK" through "AL" size pumps.)
 - ⑥ Dimension includes motor block, base height is 1½".
 - ⑦ Dimension includes motor block, base height is 2⅝".
 - ⑧ Models "AS" and "AK" have 2½" cored openings.
- NOTE: All "AS", "AK", "AL" pump sizes available with any of the three motors shown.

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VIKING® HEAVY DUTY PUMPS

SERIES 4197

STAINLESS STEEL

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head – Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R.

NPSH_R – FEET OF LIQUID (SP. GR. 1.0),
Viscosities to 750 SSU

Pump Size	Pump Speed, RPM					
	640	780	950	1150	1450	1750
GG	2.2	2.6	3.1	3.9	5.6	7.6
HJ, HL	2.8	3.4	4.5	6.2	9.5	13.5
AS, AK, AL	3.9	5.5	7.7	11.2	—	—

For a complete explanation of NPSH, see Application Data Sheet AD-19.

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure		Capacity	
In.-Hg. (Inches Mercury)	kPa* (Kilopascal)	PSI (lbf / in. ²)	kPa* (Kilopascal)	GPM (Gallons / Minute)	LPM (Litre / Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	—	—
15	51	100	690	—	—
20	68	150	1034	—	—
25	85	200	1379	—	—
—	—	250	1724	—	—

* 100 kPa = 1 bar

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg.” While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, and Engineering Service Bulletin ESB-56 for information helpful in determining suction line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying the Series 4197 pumps to such liquids as water, aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

Section 210

Viking Heavy Duty Alloy Pumps

(Series 724 and 4724)

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VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

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FEATURES



SERIES 4724 Cutaway View
Mechanical Seal, 1½, 3 and 5 GPM Sizes

① Pressure Range	200 PSI (14 BAR) for 100 SSU (21 cSt) and above (Small Pumps—"F", "FH" and "G" sizes)
	150 PSI (10 BAR) for 2500 SSU (550 cSt) and above (Large Pumps—"H" and larger sizes)
	100 PSI (7 BAR) for 100 (21 cSt)-2500 SSU (550 cSt) (Large Pumps—"H" and larger sizes)
① Temperature Range	100 PSI (7 BAR) for 38 to 100 SSU (4 to 21 cSt) (Small Pumps—"F", "FH" and "G" sizes)
	50 PSI (3 BAR) for 38 to 100 SSU (4 to 21 cSt) (Large Pumps—"H" and larger sizes)
① Viscosity Range	38 SSU to 2,000,000 SSU (4 to 440,000 cSt)



SERIES 4724 Cutaway View
Mechanical Seal, 10 to 110 GPM Sizes

② G.P.M. 1½-3-5-10-20-35-50-90-110 (m³/hr .3-.7-1-2-5-8-11-20-25) (Nominal Rating)

The 724 and 4724 Series Heavy-Duty line of 316 Stainless Steel pumps feature the foot type bracket with rotor thrust control. All wetted parts are 316 Stainless Steel. The three smaller pumps include opposite port casings, others are right angle port construction. All have revolvable casings for handy port selection and choice of either packing or mechanical seal.

The small pumps are especially useful in pilot plant service, small metering applications, accurate chemical additive processing, pumping of pharmaceuticals in small capacities and for feed and product pumps on evaporators and distillation systems. The six larger sizes meet the needs of moving corrosive liquids when greater capacities are needed in chemical and other processing plants.

In placing orders for 724 and 4724 Series pumps, please furnish the following information:

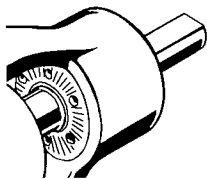
1. Liquid pumped
2. Viscosity of liquid, S.S.U.
3. Specific Gravity
4. Temperature of Liquid
5. Capacity of Pump
6. Suction lift or head
7. Discharge Pressure

① See following pages or consult factory for specific recommendations on individual pump models or sizes.

② Nominal capacities based on handling thin liquids.

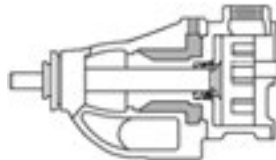
③ 300°F. maximum for small pumps; "F", "FH" & "G".

Metric conversions are based on US measurements and rounded to the nearest whole number.



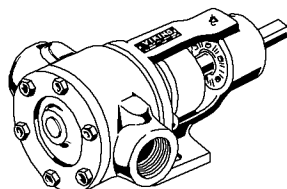
INTEGRAL THRUST BEARING

The integral thrust bearing on the series 724 and 4724 alloy pumps makes possible outstanding performance on heavy-duty applications. The positive-lock thrust control allows for accurate axial positioning of rotor and shaft.



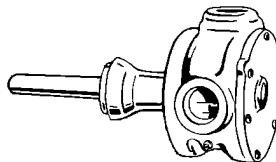
COMPLETE JACKETING (6 large size pumps)

Shaded area above shows complete jacketed areas for maintaining uniform temperature, hot or cold, surrounding packing or mechanical seal area as well as the back and front area of pump. Jacketed head plate available on request.



NO REDUCTION IN SPEED REQUIRED

The three small sizes of alloy pumps can be operated at full motor speeds. This means a saving in speed reduction equipment. Larger sizes can also be operated at full catalog speed. See units on following pages (Section 210).



ALL PARTS CONTACTING LIQUID ARE OF ALLOY CONSTRUCTION (All Sizes) (Large size illustrated)

All parts contacting liquid being pumped are of alloy construction. Mounting bracket is cast iron.

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VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

UNMOUNTED PUMPS

SERIES 724 and 4724 Pumps
“F”, “FH” and “G” Sizes



SERIES 724 and 4724 Pumps
“H” through “LL” Sizes

All 724 and 4724 Series Stainless Steel pumps of “G” size and larger are standard with integral stainless steel valve on pump head. Pumps of “G” size and larger can also be equipped with cast iron jacketed head plate if desired. Combination of plate and valve not available.

Contact factory for optional alloy materials.

Dimensions for Unmounted Pumps—See page 210.7.

CONSTRUCTION—724 AND 4724 SERIES (“F” THROUGH “LL” SIZES)

Pump Construction	Casing	Head	Bracket	Rotor	Idler	Rotor Shaft	Idler Pin	Bushings	Shaft Sealing		Internal Relief Valve
									Packed	Mechanical Seal	
316 Stainless	Stainless Steel	Stainless Steel	Iron	Stainless Steel	Stainless Steel	Stainless Steel	Coated Stainless Steel	Carbon Graphite	Standard	Stainless Steel, PTFE Carbon Graphite and Stellite	Stainless Steel

SPECIFICATIONS — UNMOUNTED PUMPS

Model Number	Port Size	Nominal Pump Rating		Motor HP Re-quired at Rated Speed Pumping 100 SSU Liquid			Maximum Hydro-static Pressure		Maximum Temperature °F. (°C.)		Maximum Recommended Discharge Pressure PSIG			Maximum Temperature Pressure of Fluids In Jackets				Approximate Shipping Weight With Valve
														Steam (Sat)		Heat Transfer Oil		
														Temp. °F. (°C.)	Pressure PSIG (BAR)	Temp. °F. (°C.)	Pressure PSIG (BAR)	
F724	F4724	½	1½ (.3)	1800	¼	¼	400 (28)	300 (149)	300 (149)	100	200	200	...	...	...	...	① 11 (5)
FH724	FH4724	¾	3 (.7)	1800	¼	½	400 (28)	300 (149)	300 (149)	100	200	200	...	...	...	...	① 12 (5.5)
G724	G4724	1	5 (1)	1200	½	1	400 (28)	300 (149)	300 (149)	100	200	200	...	...	...	...	14 (6)
H724	H4724	1½	10 (2)	1200	¾	1½	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	48 (22)	
HL724	HL4724	1½	20 (5)	1200	1	2	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	50 (23)	
K724	K4724	2	45 (10)	520	2	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	125 (57)	
KK724	KK4724	2	65 (15)	520	3	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	130 (59)	
L724	L4724	2	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	170 (77)	
LQ724	LQ4724	③ 2½	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	205 (93)	
LL724	LL4724	③ 3	110 (25)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	240 (109)	

① Relief valve not available on “F” and “FH” sizes.

② For mechanical seal pumps on applications with viscosities above 25,000 SSU (5,500 cSt), provide details for recommendation.

③ Ports are suitable for use with 150# ANSI companion flanges or flanged fittings. All others tapped for standard pipe.

④ Standard seal can be used from 0°F. to +450°F. With special construction, temperatures from -120°F. to +500°F. can be handled with “H” size and larger pumps.

⑤ For handling liquids less than 38 SSU (4 cSt), special construction features may be required. Provide details for recommendations.

⑥ Cast iron jacketed head plate available for “G” size and larger. Relief valve cannot be used on head of pump with jacketed head plate.

⑦ Idler pin on “F” and “FH” size is stellite.

Note: Heavy-Duty Universal Seal pumps are also available in 316 Stainless Steel construction; “Q” size operating up to 350 RPM, “M” and “N” sizes to 280 RPM and “R” size to 190 RPM. Refer to catalog section 630.

Metric conversions are based on US measurements and rounded to the nearest whole number.

VIKING® HEAVY DUTY ALLOY PUMPS SERIES 724 AND 4724

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VIKING HELICAL GEAR REDUCER UNITS (“R” DRIVE)

SERIES
724 AND 4724
PUMPS
with “R” Drive
“B” Reducer



Viking 724 and 4724 Series pumps are available with rugged, compact and exceptionally quiet type “A” and “B” helical gear reducers, all mounted on formed steel bases with motors. Using “A” reducers with two size pumps, “H” and “HL”, and three gear ratios from 2.76 to 1; to 4.17 to 1 and with 1200 or 1800 RPM motors, a capacity range to 17 GPM can be obtained. Using “B” reducers with four size pumps, “K” through “LL”, and eight gear ratios from 1.87 to 1; 7.65 to 1 and with 1200 or 1800 RPM motors, a capacity range to 103 GPM can be obtained.

Dimensions for “R” Drive Units-See Page 210.8.

SIZE “A” REDUCER SPECIFICATIONS AND PUMP CAPACITY TABLE

Motor RPM	Reducer Ratio	Maximum Reducer HP	Pump RPM	Pump Models and Capacity ⑥ GPM With Size “A” Reducer			
				H724R		HL724R	
				50 PSI (3 BAR)	100 PSI (7 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)
1800	2.76 to 1	5	640	5.4	4.9	10.5	10
	3.43 to 1	5	520	4.3	3.8	8.2	7.8
	4.17 to 1	3	420	3.4	3.0	6.5	6.1
1200	2.76 to 1	3	420	3.4	2.9	6.5	6.1
	3.43 to 1	3	350	2.8	2.3	5.1	4.8
	4.17 to 1	2	280	2.1	1.7	3.9	3.5

SIZE “B” HELICAL REDUCER SPECIFICATIONS AND PUMP CAPACITY TABLE

Motor RPM	Reducer Ratio	Maximum Reducer HP	Pump RPM	Pump Models and Capacity ⑦ GPM with Size “B” Reducer									
				K724R or K4724R		KK724R or KK4724R		L724R or L4724R		LQ724R or LQ4724R		LL724R or LL4724R	
				50 PSI (3 BAR)	100 PSI (7 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)
1800	4.19:1	10	420	37	34	52	50	86	82	86	82	107	103
	5.06:1	10	350	30	27	43	41	70	67	70	67	88	84
	6.27:1	7½	280	23	20	33	31	55	51	55	51	68	64
	7.65:1	5	230	18	15	27	25	44	40	44	40	55	51
1200	2.76:1	10	420	37	34	52	50	86	82	86	82	107	103
	3.40:1	10	350	30	27	43	41	70	67	70	67	88	84
	4.19:1	7½	280	23	20	33	31	55	51	55	51	68	64
	5.06:1	7½	230	18	15	27	25	44	40	44	40	55	51
	6.27:1	5	190	14	11	22	20	36	32	36	32	45	40
	7.65:1	5	155	11	8	17	15	27	24	27	24	36	31

Note: For pump speed of 520 RPM refer to Catalog Section 610 page 5 or Electric Performance Curve generator program.

SPECIFICATIONS - “R” DRIVE UNITS

Model Number	① Mech. Seal	Type of Reducer	Port Size Inches	Nominal Pump Rating		Motor HP Required At Rated Speed Pumping 100 SSU Liquid		Maximum Hydrostatic Pressure PSIG (BAR)	③ Maximum Temperature °F. (°C.)		Maximum Recommended Discharge Pressure PSIG			⑤ Maximum Temperature Pressure of Fluids In Jackets				Approximate Shipping Weight With Valve 724 & 4724 Series (Less Power) Pounds (KG)
				GPM (m/hr)	RPM	50 PSI (3 BAR)	100 PSI (7 BAR)		Packed	Mech. Seal	④ 38 to 100 SSU	100 to 2500 SSU	2500 SSU and Up	Steam (Sat)		Heat Transfer Oil		
Packed														Temp. °F. (°C.)	Pressure PSIG (BAR)	Temp. °F. (°C.)	Pressure PSIG (BAR)	
H724R	H4724R	A	1½	6 (1.5)	640	½	¾	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	125 (57)
HL724R	HL4724R	A	1½	11 (3)	640	½	1	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	130 (59)
K724R	K4724R	B	2	45 (10)	520	2	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	340 (154)
KK724R	KK4724R	B	2	65 (15)	520	3	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	345 (157)
L724R	L4724R	B	2	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	385 (175)
LQ724R	LQ4724R	B	② 2½	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	420 (191)
LL724R	LL4724R	B	② 3	110 (25)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	455 (207)

- ① For mechanical seal pumps on applications with viscosities above 25,000 SSU (5,500 cSt), provide details for recommendation.
- ② Ports are suitable for use with 150# ANSI companion flanges or flanged fittings. All others tapped for standard pipe.
- ③ With special construction, temperatures to 500°F. can be handled.
- ④ For handling liquids less than 38 SSU (4 cSt), special construction features may

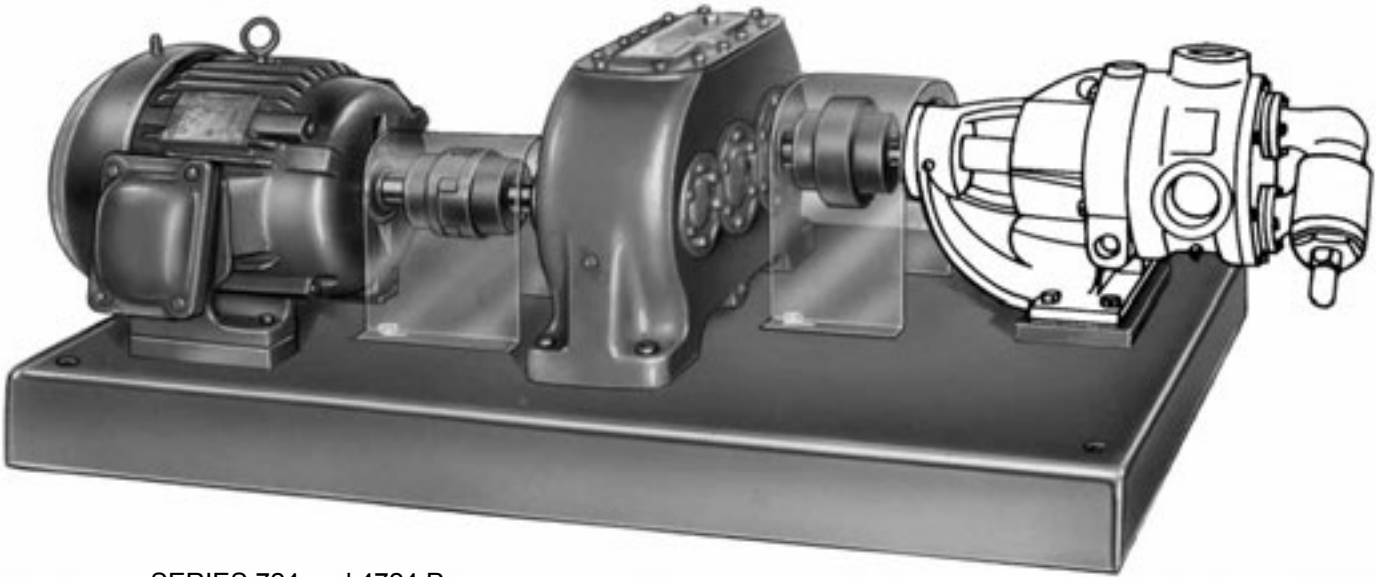
- be required. Provide details for recommendations.
- ⑤ Jacketed head plate available. Relief valve cannot be used on head of pump with jacketed head plate.
- ⑥ Capacities are based on 100 SSU liquid and 10” Mercury Vacuum.
- ⑦ Not available with “A” size reducer.

Metric conversions are based on US measurements and rounded to the nearest whole number.

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VIKING® HEAVY DUTY ALLOY PUMPS SERIES 724 AND 4724

GEAR REDUCTION UNITS (“P” DRIVE)



SERIES 724 and 4724 Pumps
with “P” Drive

Viking “P” Drive Units include “K” through “LL” size 724 and 4724 Stainless Steel pumps mounted on formed steel bases with separate heavy-duty gear reducers. Pumps, reducers and motors are connected through flexible couplings with guard and with separate reducers, eliminating radial load on either pump or motor shafts.

SPECIFICATIONS—“P” DRIVE UNITS

Model Number		Port Size	Nominal Pump Rating		Motor HP Required at Rated Speed Pumping 100 SSU Liquid		Maximum Hydrostatic Pressure	③ Maximum Temperature Degrees F.		Maximum Recommended Discharge Pressure PSIG			⑤ Maximum Temperature Pressure of Fluids In Jackets				Approximate Shipping Weight With Valve 724 & 4724 Series
													Steam (Sat)		Heat Transfer Oil		
Packed	① Mech. Seal	Inches	GPM (m/hr)	RPM	50 PSI (3 BAR)	100 PSI (7 BAR)	PSIG (BAR)	Packed	Mech. Seal	④ 38 to 100 SSU	100 to 2500 SSU	2500 SSU and Up	Temp. °F. (°C.)	Pressure PSIG (BAR)	Temp. °F. (°C.)	Pressure PSIG (BAR)	Less Reducer and Power Lbs. (KG)
K724P	K4724P	2	45 (10)	520	2	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	363 (165)
KK724P	KK4724P	2	65 (15)	520	3	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	368 (127)
L724P	L4724P	2	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	408 (185)
LQ724P	LQ4724P	② 2½	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	443 (201)
LL724P	LL4724P	② 3	110 (25)	420	5	10	400 (28)	350 (175)	350 (175)	50	400	150	365 (185)	150 (10)	450 (232)	150 (10)	478 (217)

① For mechanical seal pumps on applications with viscosities above 25,000 SSU (5,500 cSt), provide details for recommendation.

② Ports are suitable for use with 150# ANSI companion flanges or flanged fittings. All others tapped for standard pipe.

③ With special construction, temperatures to 500°F. can be handled with “H” size

and larger pumps.

④ For handling liquids less than 38 SSU (4 cSt), special construction features may be required. Provide details for recommendations.

⑤ Jacketed head plate available for “H” size and larger. Relief valve cannot be used on head of pump with jacketed head plate.

Metric conversions are based on US measurements and rounded to the nearest whole number.

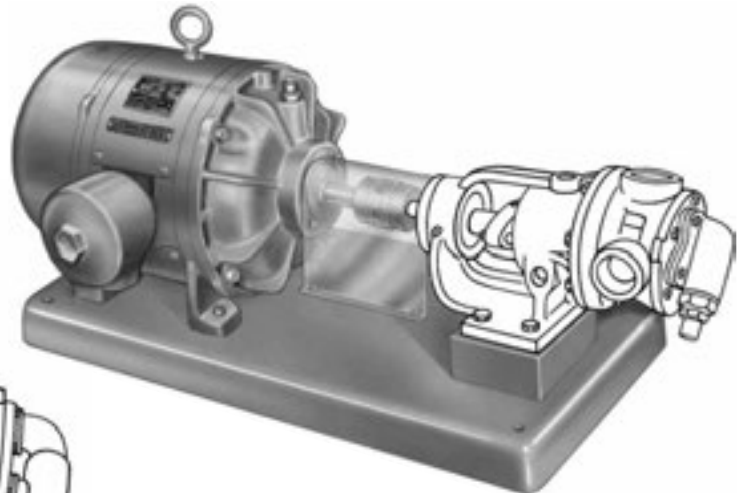
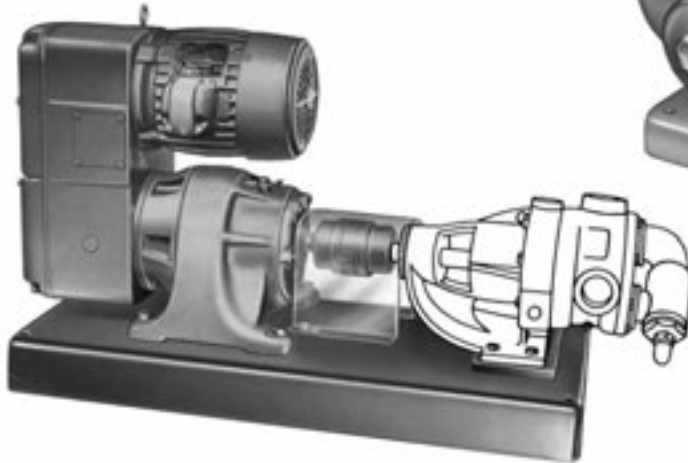
VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

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DIRECT DRIVE UNITS (“D” DRIVE)

SERIES 724 and 4724 Pumps
with “D” Drive
(vari-drive unit)
“K” through “LL” Size Pumps



SERIES 724 and 4724 Pumps
with “D” Drive
“F” through “HL” Size Pumps

The “D” drive mounting of 724 and 4724 Series pumps is specially designed for compactness and quietness of operation. In all sizes the pumps and power are mounted on formed steel bases and connected through flexible couplings with guards. As illustrated, the “K” through “LL” sizes direct connect to gearhead motors or

vari-drive units (illustrated) and the “F” and “FH” sizes direct connect to 1800 RPM motors. The “G”, “H” and “HL” pumps are direct connected to 1200 RPM motors.

Dimensions for “D” Drive Units—See Pages 210.8 and 210.9.

SPECIFICATIONS — “D” DRIVE UNITS

Model Number	Port Size	Nominal Pump Rating	Motor HP Required at Rated Speed Pumping 100 SSU Liquid			Maximum Hydrostatic Pressure	③ Maximum Temperature Degrees F.		Maximum Recommended Discharge Pressure PSIG			⑤ Maximum Temperature Pressure of Fluids In Jackets				Approximate Shipping Weight With Valve 724 & 4724 Series (Less Power) Pounds (KG)	
									④ 38 to 100 SSU	100 to 2500 SSU	2500 SSU and Up	Steam (Sat)		Heat Transfer Oil			
												Temp. °F. (°C.)	Pressure PSIG (BAR)	Temp. °F. (°C.)	Pressure PSIG (BAR)		
F724D	F4724D	½	1½ (.3)	1800	¼	¼	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	⑥ 32 (14.5)
FH724D	FH4724D	¾	3 (.7)	1800	¼	⅓	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	⑥ 34 (15)
G724D	G4724D	1	5 (1)	1200	½	1	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	45 (20)
H724D	H4724D	1½	10 (2)	1200	¾	1½	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	80 (36)
HL724D	HL4724D	1½	20 (5)	1200	1	2	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	100 (45)
K724D	K4724D	2	45 (10)	520	2	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	245 (111)
KK724D	KK4724D	2	65 (15)	520	3	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	275 (125)
L724D	L4724D	2	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	335 (152)
LQ724D	LQ4724D	② 2½	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	370 (168)
LL724D	LL4724D	② 3	110 (25)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	430 (195)

① For mechanical seal pumps on applications with viscosities above 25,000 SSU (5,500 cSt), provide details for recommendation.
 ② Ports are suitable for use with 150# ANSI companion flanges or flanged fittings. All others tapped for standard pipe.
 ③ With special construction, temperatures to 500°F. can be handled with “H” size and larger pumps.

④ For handling liquids less than 38 SSU (4 cSt), special construction features may be required. Provide details for recommendations.
 ⑤ Jacketed head plate available for “H” size and larger pumps. Relief valve cannot be used on head of pump with jacketed head plate.
 ⑥ Not available with valve on head.

Metric conversions are based on US measurements and rounded to the nearest whole number.

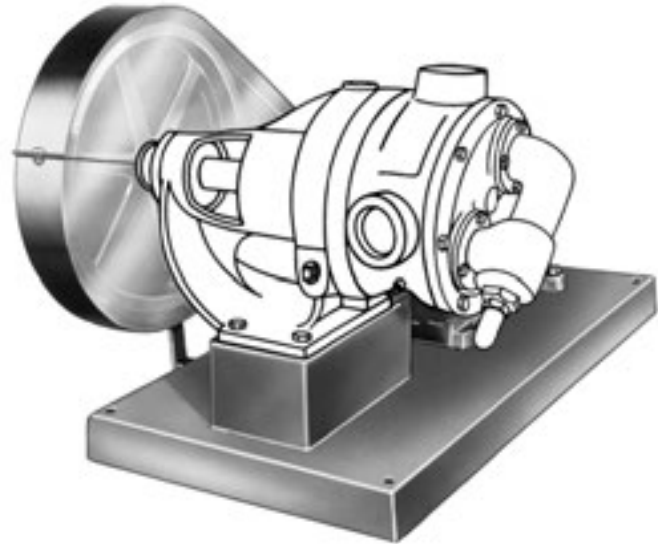
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VIKING® HEAVY DUTY ALLOY PUMPS SERIES 724 AND 4724

V-BELT DRIVE UNITS (“V” DRIVE)



SERIES 724 and 4724 Pumps
with “V” Drive
“F” through “G” Size Pumps



SERIES 724 and 4724 Pumps
with “V” Drive,
“H” through “LL” Size Pumps

The “V” Drive Heavy-Duty Units include 724 or 4724 Series pumps mounted on steel bases complete with totally guarded V-belt drive. Drive mounts on end of pump shaft. Slide rails are required on motors. Furnished as extra item. For small units, motors usually furnished with slotted feet. Maximum standard reduction

4½ to 1 on “F” thru “HL” size units, 6 to 1 maximum on “K” and larger sizes.

Dimensions for “V” Drive Units—See Page 210.10.

SPECIFICATIONS — “V” DRIVE UNITS

Packed	Model Number	Ⓛ Mech. Seal	Port Size Inches	Nominal Pump Rating		Motor HP Required at Rated Speed Pumping 100 SSU Liquid			Maximum Hydrostatic Pressure		Ⓢ Maximum Temperature Degrees F.		Ⓢ Maximum Recommended Discharge Pressure PSIG			Ⓢ Maximum Temperature Pressure of Fluids In Jackets				Approximate Shipping Weight With Valve 724 & 4724 Series (Less Power) Pounds (KG)
													Ⓛ 38 to 100 SSU	100 to 2500 SSU	2500 SSU and Up	Steam (Sat)		Heat Transfer Oil		
																Temp. °F. (°C.)	Pressure PSIG (BAR)	Temp. °F. (°C.)	Pressure PSIG (BAR)	
	F724V	F4724V	½	1½ (.3)	1800	¼	¼	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	Ⓢ 25	(11)
	FH724V	FH4724V	¾	3 (.7)	1800	¼	⅓	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	Ⓢ 27	(12)
	G724V	G4724V	1	5 (1)	1200	½	1	400 (28)	300 (149)	300 (149)	100	200	200	....	....	....	....	53	(24)
	H724V	H4724V	1½	10 (2)	1200	¾	1½	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	119	(54)	
	HL724V	HL4724V	1½	20 (5)	1200	1	2	400 (28)	375 (190)	375 (190)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	129	(59)	
	K724V	K4724V	2	45 (10)	520	2	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	270	(123)	
	KK724V	KK4724V	2	65 (15)	520	3	5	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	280	(127)	
	L724V	L4724V	2	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	320	(145)	
	LQ724V	LQ4724V	Ⓢ 2½	90 (20)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	355	(161)	
	LL724V	LL4724V	Ⓢ 3	110 (25)	420	5	10	400 (28)	350 (175)	350 (175)	50	100	150	365 (185)	150 (10)	450 (232)	150 (10)	385	(175)	

Ⓛ For mechanical seal pumps on applications with viscosities above 25,000 SSU (5,500 cSt), provide details for recommendation.

Ⓢ Ports are suitable for use with 150# ANSI companion flanges or flanged fittings. All others tapped for standard pipe.

Ⓢ With special construction, temperatures to 500°F. can be handled with “H” size and larger pumps.

Ⓢ For handling liquids in less than 38 SSU (4 cSt), special construction features may be required. Provide details for recommendations.

Ⓢ Jacketed head plate available for “H” size and larger pumps. Relief valve cannot be used on head of pump with jacketed head plate.

Ⓢ Not available with valve on head.

Metric conversions are based on US measurements and rounded to the nearest whole number.

VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

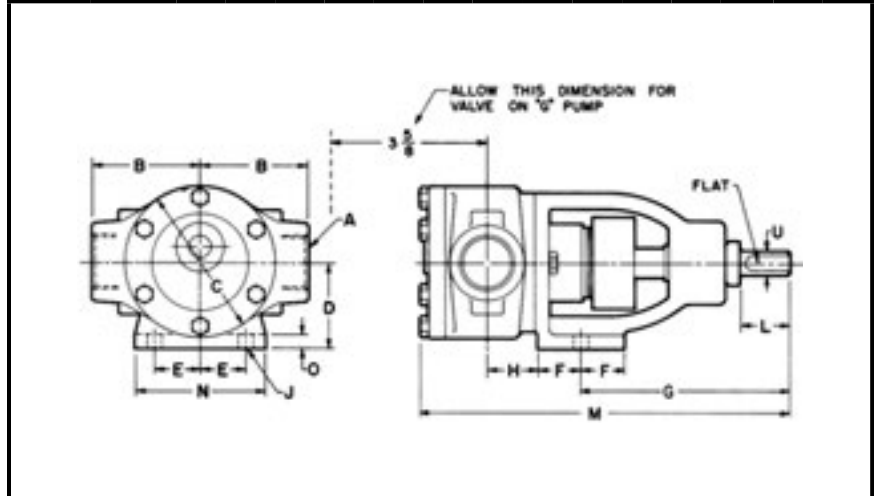
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 210.2.

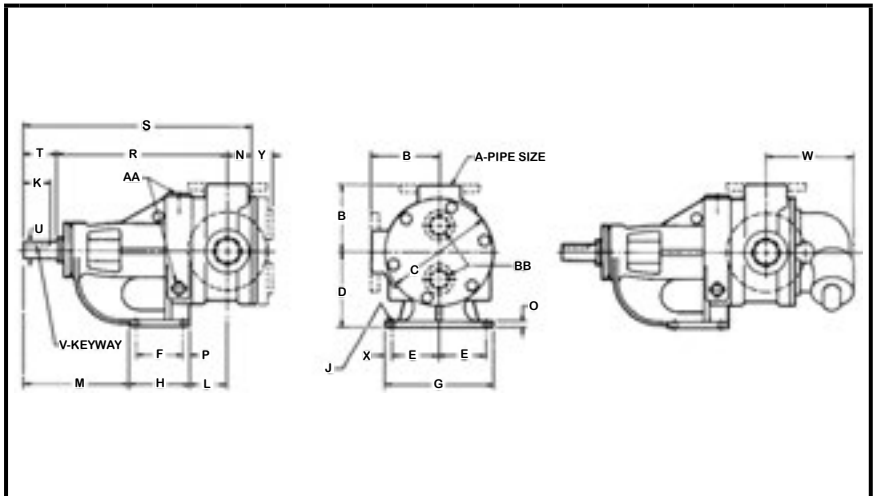
DIMENSIONS — 724 AND 4724 SERIES UNMOUNTED PUMPS “F”-“FH”-“G” SIZE



MODEL NUMBER		A	B	C	D	E	F	G	H	J	U	L	M	N	O
PACKED	SEAL														
F724	F4724	1/2	2	2 1/2	2	1 1/16	1	4 7/8	1 3/16	1 1/32	1/2	1 1/8	8 7/16	3	5/16
FH724	FH4724	3/4	2	2 1/2	2	1 1/16	1	4 7/8	1 3/16	1 1/32	1/2	1 1/8	8 7/16	3	5/16
G724	G4724	1	2 1/2	3 1/2	2	1 1/16	1	4 7/8	1 3/16	1 1/32	1/2	1 1/8	8 9/16	3	5/16

For specifications, see page 210.2.

DIMENSIONS — 724 AND 4724 SERIES UNMOUNTED PUMPS “H”-“LL” SIZE



① Ports are suitable for use with 150# ANSI (ASA) companion flanges or flanged fittings.

MODEL NO.		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W	X	Y	PIPE SIZE	
PACKED	MECH. SEAL																								AA	BB
H724	H4724	1 1/2	3 1/2	4 3/4	3 1/2	2 3/4	2 1/4	6 3/4	3 1/2	15 1/32	1 1/2	3 1/4	5 3/16	1 5/16	9/16	5/8	10 5/16	13 1/4	1 5/8	3/4	3/16 x 3/32	4 3/16	5/8	1 11/32	1/2	1/2
HL724	HL4724	1 1/2	3 1/2	4 3/4	3 1/2	2 3/4	2 1/4	6 3/4	3 1/2	15 1/32	1 1/2	3 1/4	5 3/16	1 5/16	9/16	5/8	10 5/16	13 1/4	1 5/8	3/4	3/16 x 3/32	4 3/16	5/8	1 11/32	1/2	1/2
K724	K4724	2	5 1/8	8	5 1/2	4	2 3/4	9 1/4	4	17 1/32	2	3	9 3/8	1 3/4	5/8	5/8	14 1/8	18 1/8	2 1/4	1 1/8	1/4 x 1/8	6 7/8	5/8	1 1/2	3/4	1 1/4
KK724	KK4724	2	5 1/8	8	5 1/2	4	2 3/4	9 1/4	4	17 1/32	2	3	9 3/8	1 3/4	5/8	5/8	14 1/8	18 1/8	2 1/4	1 1/8	1/4 x 1/8	6 7/8	5/8	1 1/2	3/4	1 1/4
L724	L4724	2	6 1/2	10 1/4	7	4 3/8	4	10	5 3/8	17 1/32	2	3 3/8	9 1/8	1 3/4	5/8	5/8	15 5/8	19 5/8	2 1/4	1 1/8	1/4 x 1/8	7 1/8	5/8	1 13/16	1	1
LQ724	LQ4724	① 2 1/2	7 3/16	10 1/4	7	4 3/8	4	10	5 3/8	17 1/32	2	3 3/8	9 1/8	1 3/4	5/8	5/8	15 5/8	19 5/8	2 1/4	1 1/8	1/4 x 1/8	7 1/8	5/8	1 13/16	1	1
LL724	LL4724	① 3	7 3/16	10 1/4	7	4 3/8	4	10	5 3/8	17 1/32	2	3 3/8	9 1/8	2 1/4	5/8	5/8	15 5/8	20 1/8	2 1/4	1 1/8	1/4 x 1/8	7 5/8	5/8	1 13/16	1	1

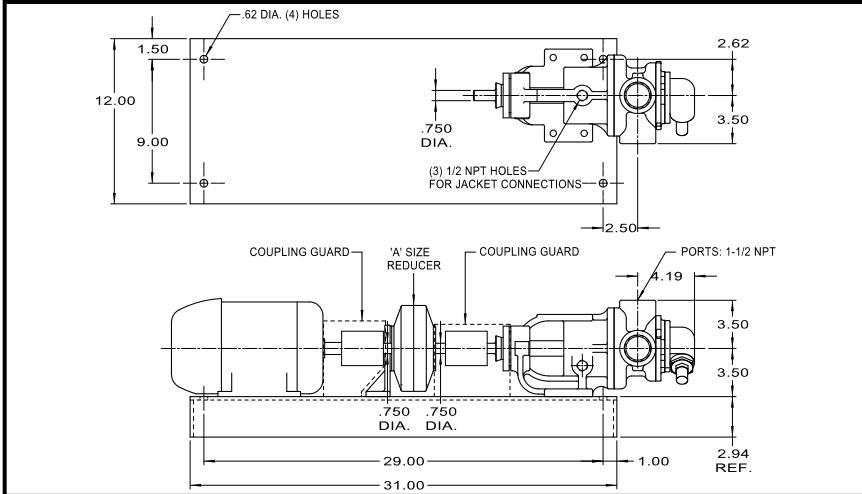
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VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

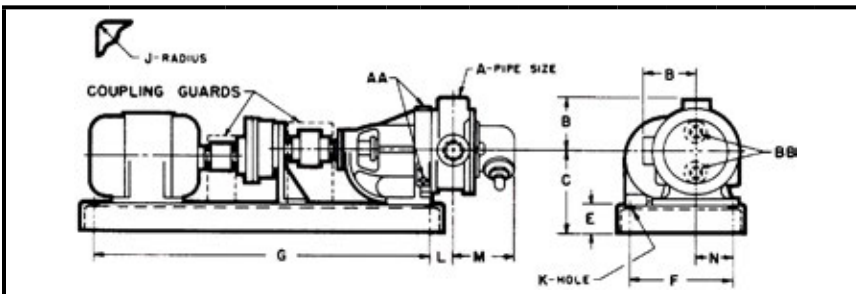
DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.



For specifications, see page 210.3.

DIMENSIONS — 724 AND 4724 SERIES ("R" DRIVE) "H"- "HL" SIZE "A" SIZE REDUCER UNIT



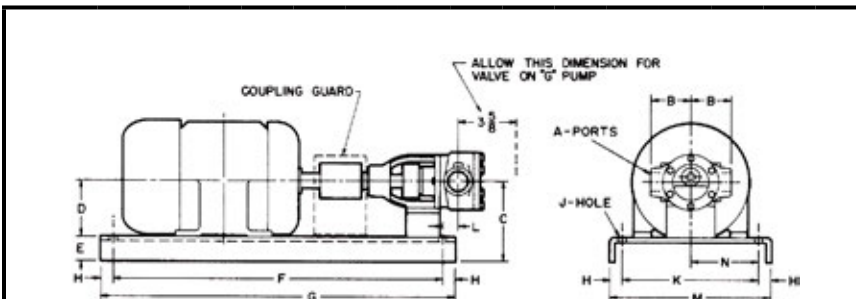
For specifications, see page 210.3.

DIMENSIONS — 724 AND 4724 SERIES ("R" DRIVE) "K"- "LL" SIZE "B" SIZE REDUCER UNIT

MODEL NUMBER													PIPE SIZE	
PACKED	SEAL	A	B	C	E	F	G	J	K	L	M	N	AA	BB
Ⓚ K724R	Ⓚ K4724R	2	5 1/8	9 1/2	4	14 1/4	48	1 3/8	5/8	2	6 7/8	4 1/4	3/4	1 1/4
Ⓚ KK724R	Ⓚ KK4724R	2	5 1/8	9 1/2	4	14 1/4	48	1 3/8	5/8	2	6 7/8	4 1/4	3/4	1 1/4
L724R	L4724R	2	6 1/2	11	4	14 1/4	48	1 3/8	5/8	2 3/8	7 1/8	4 5/8	1	1
LQ724R	LQ4724R	Ⓜ 2 1/2	7 3/16	11	4	14 1/4	48	1 3/8	5/8	2 3/8	7 1/8	4 5/8	1	1
LL724R	LL4724R	Ⓜ 3	7 3/16	11	4	14 1/4	48	1 3/8	5/8	2 3/8	7 5/8	4 5/8	1	1

Ⓚ With motor frames 184-T and smaller, these units are assembled on a shorter base with the following dimension changes: (F= 16, G = 39, L = 3, N = 5 5/8). Motor rails 1 1/8" high are required with 56, 143-T and 145-T frame motors.

Ⓜ Ports are suitable for use with 150# ANSI (ASA) companion flanges or flanged fittings. Motor frame larger than 256T requires larger base. Consult factory. Units available to accept 10 H.P., 1200 R.P.M. maximum motor.
NOTE: Motor rails 2" high are required on "L" thru "LL" size units with 184-T or 4 1/2" center height motors.



For specifications, see page 210.5.

DIMENSIONS — 724 AND 4724 SERIES ("D" DRIVE) "F"- "FH"- "G" SIZE

MODEL NUMBER														
PACKED	SEAL	A	B	C	D	E	F	G	H	J	K	L	M	N
F724D	F4724D	1/2	2	5	Ⓚ 3 1/2	1 1/2	20 1/2	22	3/4	1/2	8 1/2	15 1/16	10	4 1/4
FH724D	FH4724D	3/4	2		1 1/2	20 1/2	22	3/4	1/2	8 1/2	15 1/16	10	4 1/4	
G724D	G4724D	1	2 1/2		1 1/2	20 1/2	22	3/4	1/2	8 1/2	15 1/16	10	4 1/4	

Ⓚ For motor frames 56, 143-T, 145-T.

VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

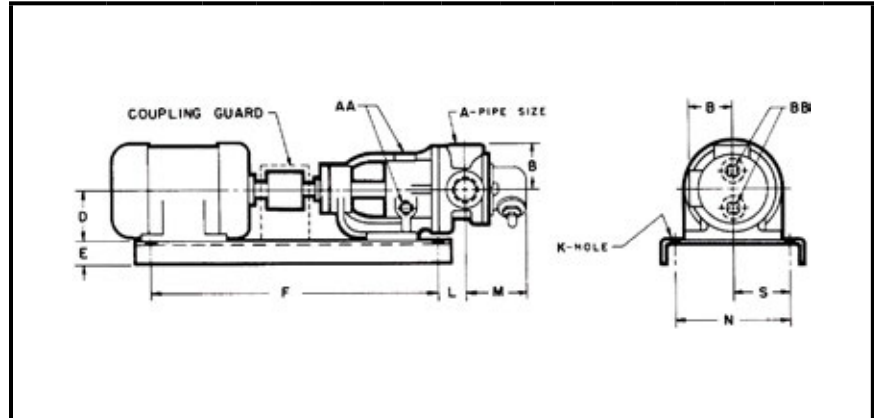
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 210.5.

DIMENSIONS — 724 AND 4724 SERIES ("D" DRIVE) "H"- "HL" SIZE

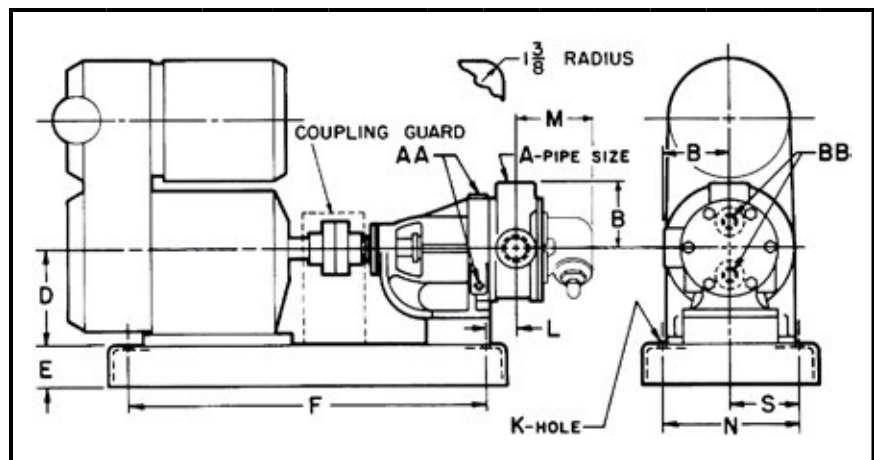


MODEL NUMBER		A	B	D	E	F	K	L	M	N	S	PIPE SIZE	
PACKED	SEAL											AA	BB
H724D OR HL724D	H4724D	1½	3½	⊕ 3½	1½	20½	½	1⅝	4¾	8½	4¼	½	¾
	OR	1½	3½	⊙ 4½	2 ¹⁵ / ₁₆	25	9/16	7/16	4¾	9	4½	½	¾
	HL4724D	1½	3½	⊙ 5¼	2 ¹⁵ / ₁₆	25	9/16	3¼	4¾	9	4½	½	¾

- ① For motor frames 56, 143T and 145T.
- ② For motor frames 182, 182T, 184 and 184T.
- ③ For motor frames 213 thru 215-T.

For specifications, see page 210.5.

DIMENSIONS — 724 AND 4724 SERIES ("D" DRIVE) "K"- "LL" SIZE



MODEL NUMBER		A	B	⊙ D	E	F	K	L	M	N	S	PIPE SIZE	
PACKED	SEAL											AA	BB
K724D	K4724D	2	5⅝		4	39	5/8	3	6⅞	16	8	¾	1¼
KK724D	KK4724D	2	5⅝		4	39	5/8	3	6⅞	16	8	¾	1¼
L724D	L4724D	2	6½		4	39	5/8	3¾	7⅞	16	8	1	1
LQ724D	LQ4724D	⊕ 2½	7¾		4	39	5/8	3¾	7⅞	16	8	1	1
LL724D	LL4724D	⊕ 3	7¾		4	39	5/8	3¾	7⅞	16	8	1	1

- ① Ports are suitable for use with 150# ANSI (ASA) companion flanges or flanged fittings.
- ② Varies with gearmotor used.

NOTE:

Pump units are normally placed on formed steel bases as shown with outside dimensions 4" x 18¾" x 41¾".

The size of the base is determined by the width of the motor and total length of the unit figured from the back of the motor foot to the end of the pump foot.

For foundation space estimates the following base dimensions can be used:

- 4" x 18¾" x 41¾" (Four 5/8" holes 16" x 39" centers)
- 4" x 17" x 50¾" (Four 5/8" holes 14¼" x 48" centers)
- 6" x 24" x 52" (Four 13/16" holes 21" x 49" centers)

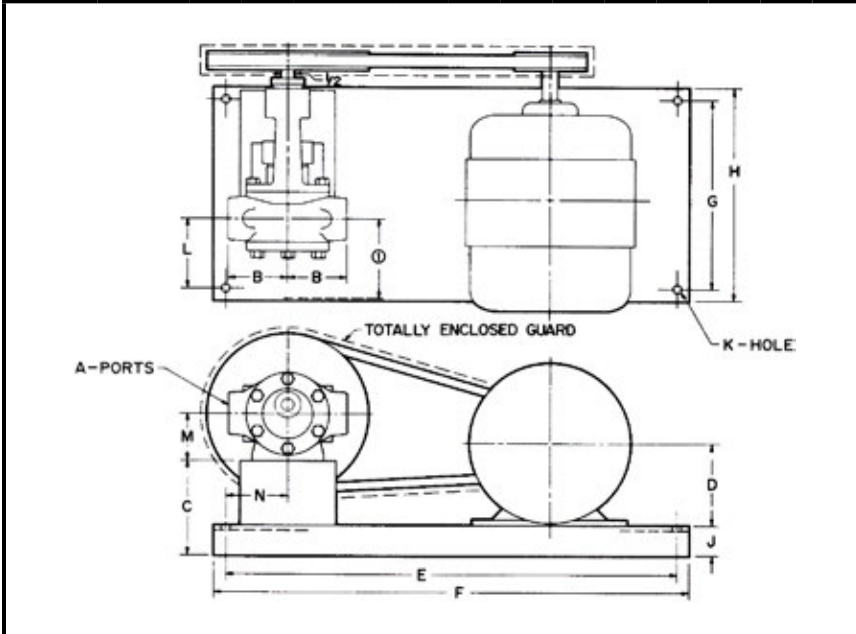
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VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.



For specifications, see page 210.6.

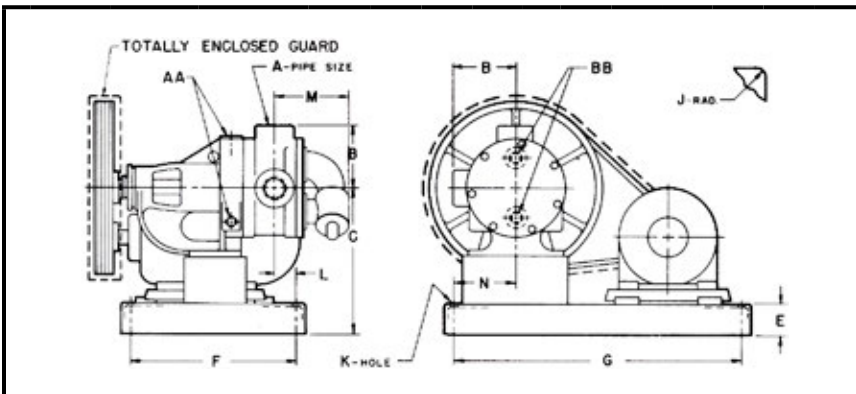
DIMENSIONS — 724 AND 4724 SERIES ("V" DRIVE) "F"-"FH"-"G" SIZE

MODEL NUMBER		A	B	C	ⓐ D	E	F	G	H	J	K	L	M	N
PACKED	SEAL													
F724V	F4724V	1/2	2											
FH724V	FH4724V	3/4	2	6 1/4		20 1/2	22	8 1/2	10	1 1/2	1/2	3 1/8	2	3
G724V	G4724V	1	2 1/2											

NOTE: Base dimension correct for all motors.

ⓐ Allow 3 5/8" for valve on "G" pump.

ⓑ Varies with motor used.



For specifications, see page 210.6.

DIMENSIONS — 724 AND 4724 SERIES ("V" DRIVE) "H"-"LL" SIZE

MODEL NUMBER		A	B	C	E	F	G	J	K	L	M	N	PIPE SIZE	
PACKED	SEAL												AA	BB
ⓐ H724V	H4724V	1 1/2	3 1/2	9 1/4	1 3/4	14 3/4	23 3/4	3/4	1/2	5	4 3/16	4 1/4	1 1/2	3/4
ⓐ HL724V	HL4724V	1 1/2	3 1/2	9 1/4	1 3/4	14 3/4	23 3/4	3/4	1/2	5	4 3/16	4 1/4	1 1/2	3/4
ⓐ K724V	K4724V	2	5 1/8	13 13/16	3 1/4	17	28 3/4	1	1/2	2 1/2	6 7/8	5 1/4	3/4	1 1/4
ⓐ KK724V	KK4724V	2	5 1/8	13 13/16	3 1/4	17	28 3/4	1	1/2	2 1/2	6 7/8	5 1/4	3/4	1 1/4
ⓐ L724V	L4724V	2	6 1/2	15 9/16	3 1/4	17	28 3/4	1	1/2	2 1/4	7 1/8	5 1/4	1	1
ⓐ LQ724V	LQ4724V	ⓐ 2 1/2	7 3/16	15 5/16	3 1/4	17	28 3/4	1	1/2	2 1/4	7 1/8	5 1/4	1	1
ⓐ LL724V	LL4724V	ⓐ 3	7 3/16	15 5/16	3 1/4	17	28 3/4	1	1/2	2 1/4	7 5/8	5 1/4	1	1

ⓐ Ports are suitable for use with 150# ANSI (ASA) companion flanges or flanged fittings.

ⓑ Base dimensions correct for all motors.

ⓒ Base dimensions correct thru frame 215T motors. Larger motors require larger base.

VIKING® HEAVY DUTY ALLOY PUMPS

SERIES 724 AND 4724

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

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Section 230

Viking Hygienic Series Internal Gear

(Series 157B / 4157B / 257B / 4257B)

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VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

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Heavy Duty, Hygienic Internal Gear Pumps for COP or CIP



Shown with Optional Wing Nuts on Head

Operating Range:

Nominal Flow	(GPM)	1 to 275
	(M ³ /hr.)	0.2 to 62
Pressure Range	(PSI)	To 150
	(Bar)	To 10
Temp. Range	(° F)	-5 to 225
	(° C)	-20 to 107
Viscosity Range	(SSU)	28 to 100,000
	(cSt)	0.1 to to 21,500

Nominal Flow Rates:

Pump Size	GPM	M ³ /Hr
H	6	1.5
HL	12	3
KS	30	7
K	40	10
KK	55	13
LQ	75	17
LL	100	22
LS	150	35
Q	185	42
QS	275	62

Series Description

Viking's Hygienic Series positive displacement pumps are designed to conform to International standards for sanitary processing of foods, beverages, fine chemicals, pharmaceuticals and personal care products where the pump will be subject to frequent cleaning, using either Clean In Place (CIP) or Clean Out of Place (COP)/Strip Clean Methods.

These pumps are available with compliance to major hygienic standards including 3-A and EHEDG Type EL, Class 1. Wetted materials comply with FDA standards to limit leaching of substances.

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VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

Key Features and Benefits:

- Splined shaft with one front-removable rotor. Faster disassembly and reassembly vs. timed pumps with two rotors. *(Patent pending)*
- One shaft seal. Half the seal replacement cost of timed pumps with two shaft seals.
- Front-loading seals. Eliminates entrapment areas in the stuffing box common to other gear pumps, simplifies maintenance. *(Patent pending)*
- Mechanical seal with Carbon/Silicon Carbide faces standard. Provides greater seal life than Carbon/Ceramic or Carbon/SS faces standard on most pumps. Many seal options available.
- Sealed bearings with food-grade grease. No oil reservoir to enable water infiltration or condensation, no oil changes.
- Five minute end clearance adjustment by rotating the bearing housing, vs. 2-4 hours shimming on most lobe or CP pumps.
- FDA conforming wetted materials. Ensures product integrity.
- All internal angles machined to a minimum radius of 1/32 inch (0.08mm). Ensures cleanability.
- All internal wetted surfaces polished to minimum Ra of 32µin / 0.8µm. Ensures cleanability.
- Wetted part material traceability available. Ensures the ability to trace the part back to original batch.
- Reversible direction of flow. Enables stripping product from the line to minimize product loss and improve cleaning efficiency.
- Flow proportional to speed regardless of system pressure. Enables more accurate batching or metering than centrifugal pumps which are highly sensitive to system pressure.
- Locating pin on casing. Ensures pump head cannot be reassembled incorrectly.
- Removable idler pin allows replacement of pin only instead of head and pin assembly. *(Patent pending)*

Standards and Options:

Seals:

- Single mechanical seal standard.
Options: double mechanical seal with flush/quench or single or double O-ring seal.

Heating / Cooling:

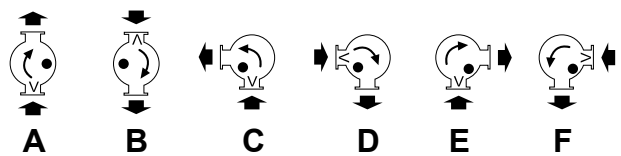
- Non-jacketed pump standard. Jacketing option for melting chocolate or other room-temperature solids prior to startup.

Porting:

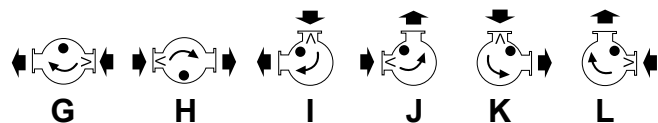
- Hygienic clamp ports conforming to ISO 2852 standard. Other hygienic ports and ANSI compatible flange ports optional.
- Standard and optional port sizes listed in specifications, page 6.
- Opposite ports standard, 90° ports optional.

The port with a casing groove (shown as V) needs to be used as the suction port for the pump's primary rotation which is clockwise from the shaft end in orientations A, B, D, E, G, H, I and L. The purpose of this suckback groove in the casing is to cause liquid to flow from the higher pressure discharge side behind the rotor to the lower pressure suction side to cool and lubricate the shaft seal, and ensure complete flushing during CIP. Due to the casing groove location, orientations C, F, J and K (counterclockwise rotation) will require a special casing.

Idler pin (shown as ●) and rotation shown is as viewed from shaft end of pump.



CIP-able Port Options
one port oriented downwards for drainability



Additional Options for COP

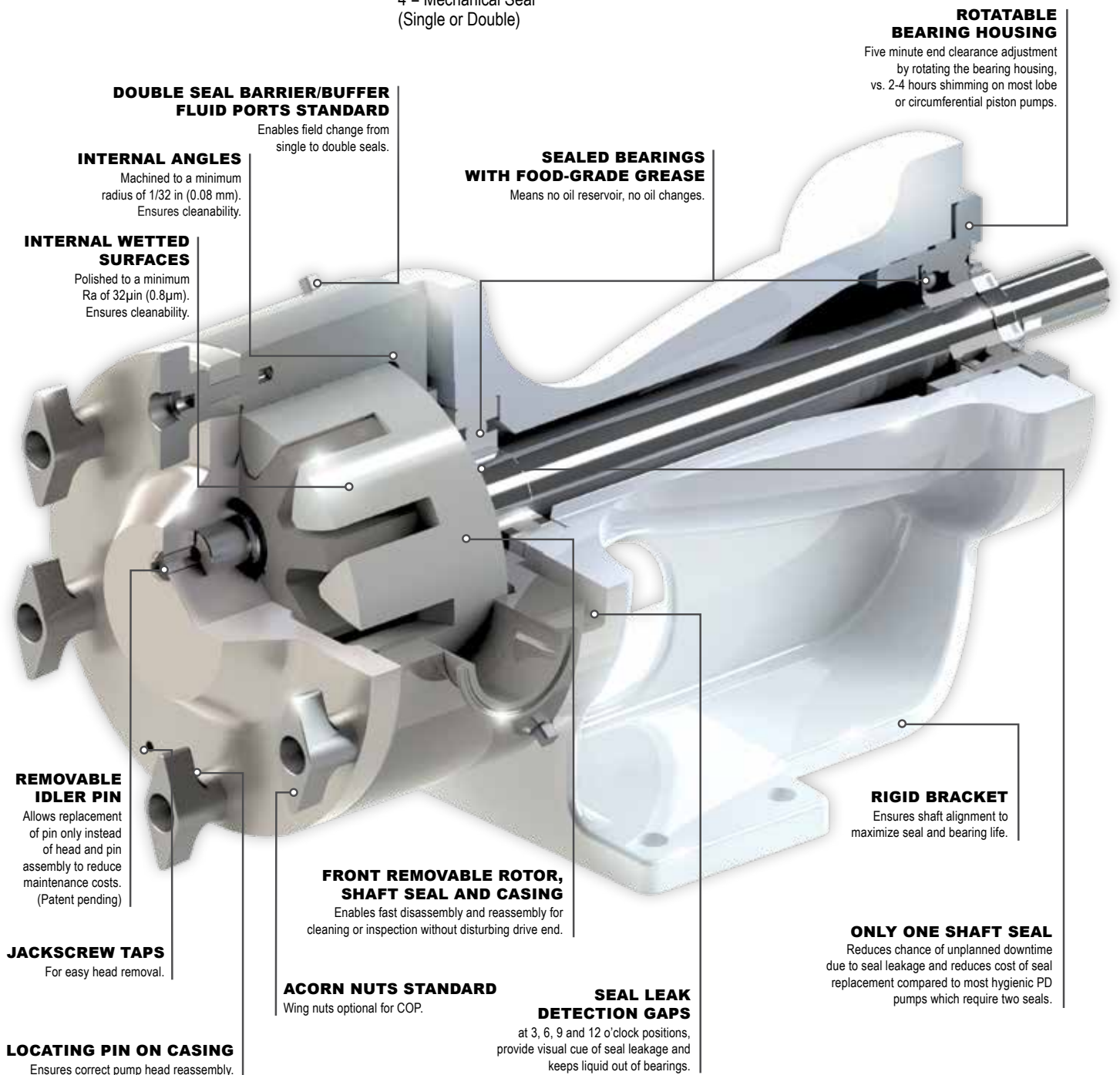
VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

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Model Number Key:

K	K	4	1	5	7	B
Size: H LQ HL LL KS LS K Q KK QS		Shaft Sealing: Blank = O-ring Seal (Single or Double) 4 = Mechanical Seal (Single or Double)	Hygienic Bracket: 1 = Not Jacketed 2 = Jacketed Bracket & Head	Basic Series Configuration	Wetted Material of Construction: 7 = Stainless Steel	Seal Location: B = Behind-the-Rotor



DOUBLE SEAL BARRIER/BUFFER FLUID PORTS STANDARD

Enables field change from single to double seals.

INTERNAL ANGLES

Machined to a minimum radius of 1/32 in (0.08 mm). Ensures cleanability.

INTERNAL WETTED SURFACES

Polished to a minimum Ra of 32µin (0.8µm). Ensures cleanability.

SEALED BEARINGS WITH FOOD-GRADE GREASE

Means no oil reservoir, no oil changes.

ROTATABLE BEARING HOUSING

Five minute end clearance adjustment by rotating the bearing housing, vs. 2-4 hours shimming on most lobe or circumferential piston pumps.

REMOVABLE IDLER PIN

Allows replacement of pin only instead of head and pin assembly to reduce maintenance costs. (Patent pending)

FRONT REMOVABLE ROTOR, SHAFT SEAL AND CASING

Enables fast disassembly and reassembly for cleaning or inspection without disturbing drive end.

RIGID BRACKET

Ensures shaft alignment to maximize seal and bearing life.

JACKSCREW TAPS

For easy head removal.

ACORN NUTS STANDARD

Wing nuts optional for COP.

SEAL LEAK DETECTION GAPS

at 3, 6, 9 and 12 o'clock positions, provide visual cue of seal leakage and keeps liquid out of bearings.

ONLY ONE SHAFT SEAL

Reduces chance of unplanned downtime due to seal leakage and reduces cost of seal replacement compared to most hygienic PD pumps which require two seals.

LOCATING PIN ON CASING

Ensures correct pump head reassembly.

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VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

Materials of Construction

Standard Component	Product Contact?	Standard Construction	Options
Casing, Head and Rotor	Yes	316 SS	—
Rotor Retainer Screw	Yes	316 SS	—
Rotor Retainer Washer	Yes	17-4 PH SS	—
Idler	Yes	770 non-galling alloy	FDA PEEK (200°F/93°C Max Temp) FDA Metal Detectable Acetal (125°F/52°C Max Temp)
Idler Bushing	Yes	FDA Carbon Graphite	Silicon Carbide ^② , Hardened Iron ^①
Idler Pin	Yes	316 Stainless Steel, Colmonoy #6 Coated	—
Single Mechanical Seal Faces	Yes	Carbon vs. Silicon Carbide	SiC vs. SiC
Double Mechanical Seal Faces	Yes	Carbon (Stationary 1) vs. Silicon Carbide (Rotary) vs. Carbon (Stationary 2)	SiC (Stationary 1) vs. SiC (Rotary) vs. Carbon (Stationary 2)
O-rings and Mechanical Seal Elastomers	Yes	FDA Buna	FDA EPDM, FDA Viton®, Others Available
Seal Hardware, including O-Ring Seal Sleeve (for O-ring shaft seal option)	Yes	316 SS	—
Seal Springs	No	304 SS	—
Shaft	No	17-4 PH SS	—
Sealed Ball Bearing	No	Steel, Buna, H1 Food Grade Grease	—
Sealed Angular Contact Thrust Bearings	No	Steel, Buna, H1 Food Grade Grease	—
Bracket	No	Cast Iron, Powder-Coated	—
Bearing Housing	No	316 SS	—
Casing Studs	No	304 SS	—
Head Nuts	No	304 SS Head Acorn Nuts	304 SS Head Wing Nuts
Head Jacket (option)	No	316 SS	—
Bracket Jacket (option) ^③	No	316 SS Tubing	—
Head Jacket O-ring	No	Aflas®	—

Viton® is a registered trademark of DuPont Performance Elastomers, L.L.C.

Aflas® is a registered trademark of the Asahi Glass Co., Ltd.

① Material option not compatible with cleaning solutions, disqualifies pump from 3A and EHEDG certifications.

② Drilled idler not possible.

③ Bracket jacket disqualifies pump from 3A certification.

VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

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Specifications (U.S. Units)

Model Number		① Standard Port Size	Optional Port Sizes Available	Max. Nominal Flow Rate & Speed with Mechanical Seals (100 SSU)		Max. Nominal Flow Rate & Speed with O-Ring Seals (100 SSU)		Max. Differential Pressure	Max. Hydrostatic Pressure	② Max. Recommended Temp for Std. Pump	Approx. Shipping Weight
③ Mech Seal	④ O-ring Seal	Inches	Inches	GPM	RPM	GPM	RPM	PSIG	PSIG	°F	lbs
H4157B	H157B	1	—	6	1150	3	500	150	400	225	40
HL4157B	HL157B	1-1/2	—	12	1150	6	500	150	400	225	42
KS4157B	KS157B	1-1/2	2	30	520	24	400	150	400	225	123
K4157B	K157B	2	2-1/2	40	520	30	400	150	400	225	125
KK4157B	KK157B	2	2-1/2, 3	55	520	40	400	150	400	225	130
LQ4157B	LQ157B	2-1/2	3	75	420	50	320	150	400	225	233
LL4157B	LL157B	3	—	100	420	70	320	150	400	225	240
LS4157B	LS157B	3	4	150	520	85	320	125	400	225	255
Q4157B	Q157B	4	6	185	350	N/A	N/A	125	400	225	615
QS4157B	QS157B	6 ⑤	—	275	350	N/A	N/A	125	400	225	677

Specifications (S.I. Units)

Model Number		① Standard Port Size	Optional Port Sizes Available	Max. Nominal Flow Rate & Speed with Mechanical Seals (100 SSU)		Max. Nominal Flow Rate & Speed with O-Ring Seals (100 SSU)		Max. Differential Pressure	Max. Hydrostatic Pressure	② Max. Recommended Temp for Std. Pump	Approx. Shipping Weight
③ Mech Seal	④ O-ring Seal	Inches	Inches	M ³ /Hr	RPM	M ³ /Hr	RPM	BarG	BarG	°C	kg
H4157B	H157B	1	—	1.5	1150	0.6	500	10	28	107	18
HL4157B	HL157B	1-1/2	—	3	1150	1.5	500	10	28	107	19
KS4157B	KS157B	1-1/2	2	7	520	5	400	10	28	107	56
K4157B	K157B	2	2-1/2	10	520	7	400	10	28	107	57
KK4157B	KK157B	2	2-1/2, 3	13	520	10	400	10	28	107	59
LQ4157B	LQ157B	2-1/2	3	17	420	12	320	10	28	107	106
LL4157B	LL157B	3	—	22	420	16	320	10	28	107	109
LS4157B	LS157B	3	4	35	520	20	320	8.5	28	107	116
Q4157B	Q157B	4	6	42	350	N/A	N/A	8.5	28	107	279
QS4157B	QS157B	6 ⑤	—	62	350	N/A	N/A	8.5	28	107	307

① Standard ports are ISO 2852 sanitary clamp. Port options include most other hygienic port types and ANSI-compatible Class 150 flanges.

② Extra clearances are required above 225°F (107°C). Higher temperatures can be handled with special construction, consult factory.

③ Mechanical seal viscosity range: Carbon/SiC 1 to 5,000 cSt (28 to 1,000,000 SSU); SiC/SiC 1 to 150,000 cSt.

④ O-ring seal viscosity range: 1 to 1,000,000 cSt.

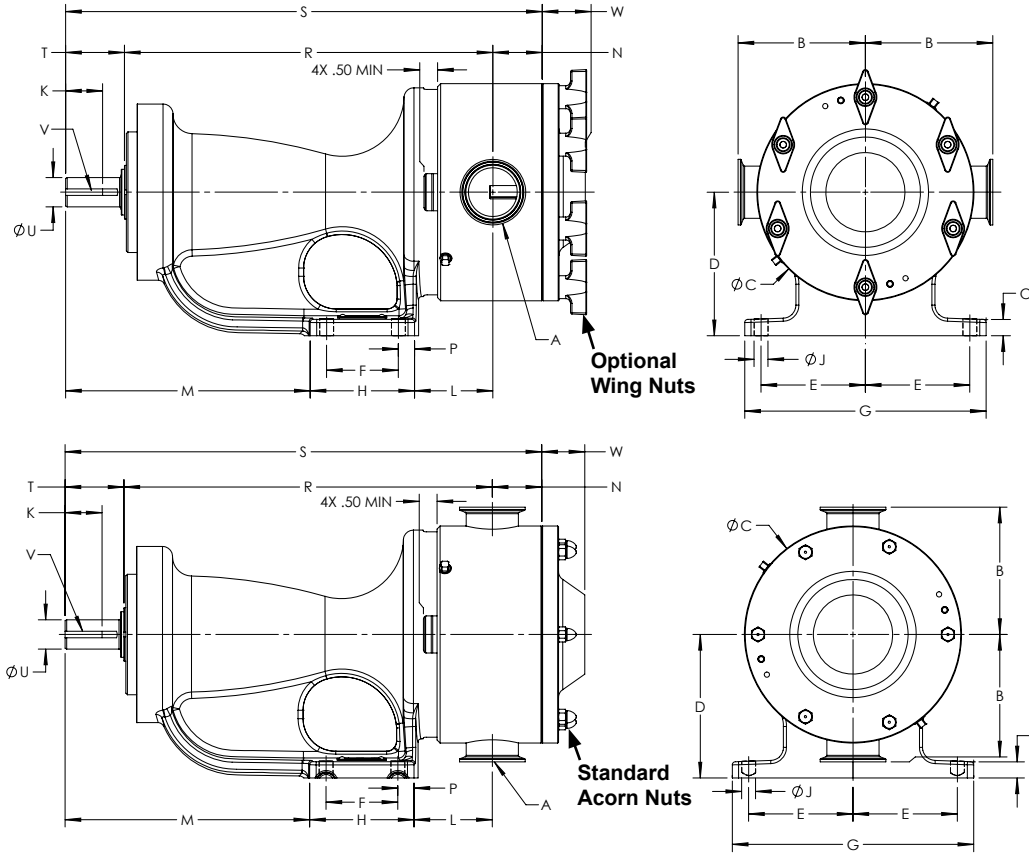
⑤ QS size pumps not available with clamp ports. ANSI-compatible flange ports only. 3A and EHEDG certifications not available on this size due to the ports.

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VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

Dimensions H Through Q 157B / 4157B



Model No.		A	B	B	C	D	E	F	G	H	J	K	L ^②	M	N	O	P	R	S	T	U ^②	V	W	
Mech. Seal	O-Ring Seal	(in) ①	(clamp) ③	(flange)																				
H4157B	H157B	1	in	3.51	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.18	0.79	0.56	0.65	10.45	12.85	1.60	0.75	.19 x .09	1.56
			mm	88.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1	85.7	131.8	20.1	14.2	15.7	265.2	326.4	41.1	19.1	4.83 x 2.29	39.6
HL4157B	HL157B	1.5	in	3.38	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.18	1.41	0.56	0.65	10.45	13.47	1.60	0.75	.19 x .09	1.56
			mm	85.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1	85.7	131.8	35.8	14.2	15.7	265.2	342.1	41.1	19.1	4.83 x 2.29	39.6
KS4157B	KS157B	1.5	in	4.88	5.50	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.15	0.62	0.62	14.24	17.52	2.13	1.12	0.25x0.12	1.65
			mm	124.0	139.7	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	29.2	14.2	15.7	362.0	445.0	54.1	28.4	6.35x3.05	41.9
K4157B	K157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.40	0.62	0.62	14.24	17.77	2.13	1.12	0.25x0.12	1.65
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	35.6	14.2	15.7	362.0	451.4	54.1	28.4	6.35x3.05	41.9
KK4157B	KK157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.90	0.62	0.62	14.24	18.27	2.13	1.12	0.25x0.12	1.65
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	48.3	14.2	15.7	362.0	464.1	54.1	28.4	6.35x3.05	41.9
LQ4157B	LQ157B	2.5	in	6.32	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.25	0.62	0.62	15.62	20.13	2.25	1.12	0.25x0.12	2.57
			mm	160.5	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	57.2	15.7	15.7	400.1	511.0	54.1	28.4	6.35x3.05	65.3
LL4157B	LL157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.75	0.62	0.62	15.62	20.63	2.25	1.12	0.25x0.12	2.57
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	69.9	15.7	15.7	400.1	523.7	54.1	28.4	6.35x3.05	65.3
LS4157B	LS157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.11	2.41	0.62	0.63	15.73	21.64	3.50	1.44	0.38x0.19	2.57
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	64.8	120.7	231.6	61.2	15.7	15.7	403.9	550.2	88.9	36.6	9.65x4.83	65.3
Q4157B	Q157B	4	Q DIMENSIONS COMING SOON																					

① Standard ports are sanitary clamp. Sanitary clamp port dimension is O.D. of pipe, not O.D. of ferrule, which is about 1/2" greater diameter. Optional flange ports suitable for use with Class 150 steel or stainless steel companion flanges or flanged fittings.

② "U" dimension on L, LL & LS equivalent to Viking Universal Seal 127A series of same size, not 127AE or B, which have 1.44" (36.6mm) diameter.

③ Clamp ports to ISO 2852 standard. Requires EHEDG - approved gaskets for EHEDG certification.

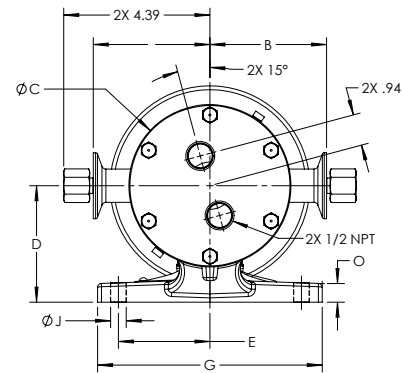
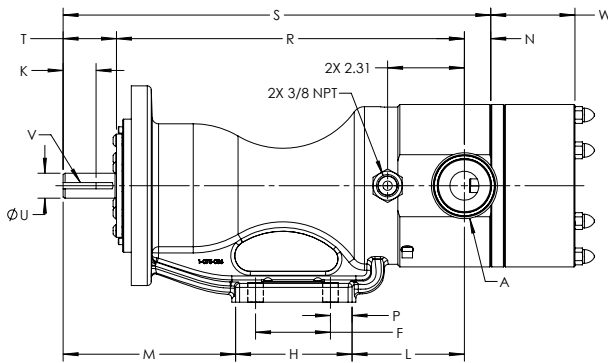
VIKING HYGIENIC SERIES INTERNAL GEAR PUMPS

SERIES 157B / 4157B / 257B / 4257B

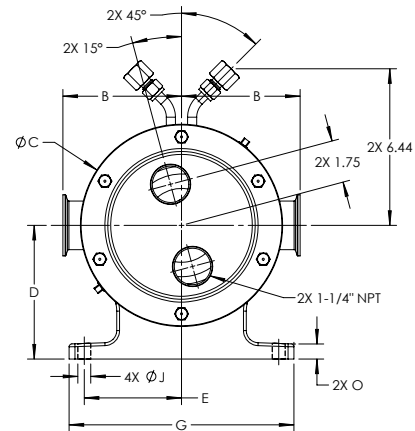
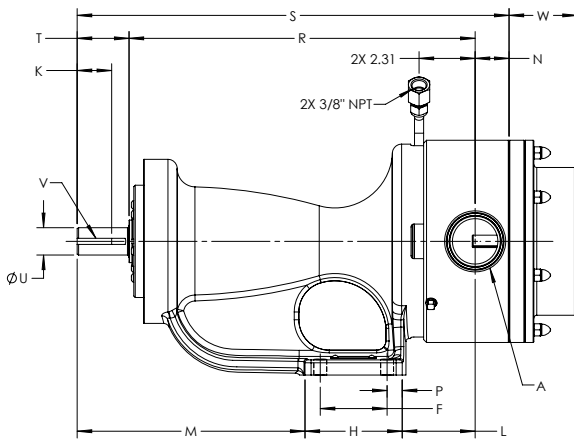
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Dimensions H Through Q 257B / 4257B

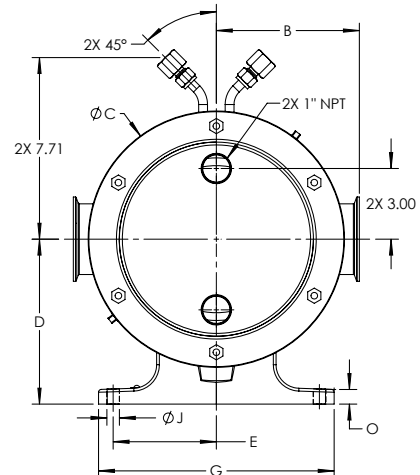
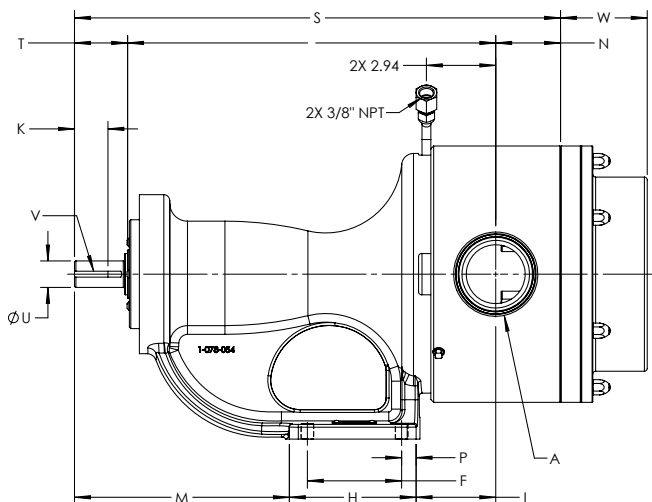
H / HL



KS / K / KK



LQ / LL / LS



Consult factory for Q & QS sizes.

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Dimensions H Through Q 257B / 4257B

Model No.		A (in) ①	B (clamp) ③	B (flange)	C	D	E	F	G	H	J	K	L ^②	M	N	O	P	R	S	T	U ②	V	W	
Mech. Seal	O-Ring Seal																							
H4157B	H157B	1	in	3.51	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.18	0.79	0.56	0.65	10.45	12.85	1.60	0.75	.19 x .09	2.53
			mm	88.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1	85.7	131.8	20.1	14.2	15.7	265.2	326.4	41.1	19.1	4.83 x 2.29	39.6
HL4157B	HL157B	1.5	in	3.38	4.00	4.88	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.18	1.41	0.56	0.65	10.45	13.47	1.60	0.75	.19 x .09	2.53
			mm	85.9	101.6	124.0	88.9	57.2	57.2	171.5	88.9	11.9	25.1	85.7	131.8	35.8	14.2	15.7	265.2	342.1	41.1	19.1	4.83 x 2.29	39.6
KS4157B	KS157B	1.5	in	4.88	5.50	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.15	0.62	0.62	14.24	17.52	2.13	1.12	0.25x0.12	2.81
			mm	124.0	139.7	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	29.2	14.2	15.7	362.0	445.0	54.1	28.4	6.35x3.05	41.9
K4157B	K157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.40	0.62	0.62	14.24	17.77	2.13	1.12	0.25x0.12	2.81
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	35.6	14.2	15.7	362.0	451.4	54.1	28.4	6.35x3.05	41.9
KK4157B	KK157B	2	in	4.88	5.25	8.32	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.37	1.90	0.62	0.62	14.24	18.27	2.13	1.12	0.25x0.12	2.81
			mm	124.0	133.4	211.3	139.7	101.6	69.9	235.0	101.6	13.5	36.1	76.2	238.3	48.3	14.2	15.7	362.0	464.1	54.1	28.4	6.35x3.05	41.9
LQ4157B	LQ157B	2.5	in	6.32	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.25	0.62	0.62	15.75	20.12	2.13	1.12	0.25x0.12	3.68
			mm	160.5	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	57.2	15.7	15.7	400.1	511.0	54.1	28.4	6.35x3.05	65.3
LL4157B	LL157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.75	0.62	0.62	15.75	20.62	2.13	1.12	0.25x0.12	3.68
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	69.9	15.7	15.7	400.1	523.7	54.1	28.4	6.35x3.05	65.3
LS4157B	LS157B	3	in	6.07	7.19	10.88	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.13	2.41	0.62	0.63	15.90	21.66	3.50	1.44	0.38x0.19	3.68
			mm	154.2	182.6	276.4	177.8	111.3	101.6	254.0	136.7	13.5	64.8	120.7	231.6	61.2	15.7	15.7	403.9	550.2	88.9	36.6	9.65x4.83	65.3
Q4157B	Q157B	4	in	Q DIMENSIONS COMING SOON																				
			mm	Q DIMENSIONS COMING SOON																				

① Standard ports are sanitary clamp. Sanitary clamp port dimension is O.D. of pipe, not O.D. of ferrule, which is about 1/2" greater diameter. Optional flange ports suitable for use with Class 150 steel or stainless steel companion flanges or flanged fittings.

② "U" dimension on L, LL & LS equivalent to Viking Universal Seal 127A series of same size, not 127AE or B, which have 1.44" (36.6mm) diameter.

③ Clamp ports to ISO 2852 standard. Requires EHEDG - approved gaskets for EHEDG certification.

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

NPSH_R tables for the Hygienic Series can be found in TR-126.

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Section 310

Viking General Purpose Pumps

(Series 32 and 432)

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VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

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Series Description

Viking General Purpose Series 32 pumps are extremely well suited for light, medium and intermittent service handling a variety of liquids. The smaller sizes “C”, “F” and “FH” are constructed for heavier duty service. Mechanical seal equipped General Purpose pump models in sizes from “C” thru “HL” shown in this section are available with Underwriters label for handling fuel oil. Model numbers for these pumps must be designated by a suffix -X. “UL” listed models can be equipped with integral relief valve. The additional sizes of unmounted General Purpose pumps are illustrated on the following page. Also for continuous service and for handling viscous liquids, see Viking’s line of heavy duty pumps, Section 630.

Viking’s unique and unusually simple pump construction makes it adaptable to many diversified installations. The pumps possess excellent vacuum characteristics and will operate and prime at suction lifts up to 25 feet, depending upon the vaporization point of volatile liquids. Because of the cushioned action in providing a continuous and steady stream of liquid without splashing, pounding, foaming or churning, the Viking pump is adaptable to an unlimited number of industrial applications.

All sizes of Viking General Purpose pumps have tapped ports except “LQ”, “LL”, “Q”, “M” and “N” sizes. These have flanged ports ready to accept companion flanges.

“K” through “N” sizes are furnished with conventional packing as standard. A cartridge style triple lip sealing option is available for the “K” through “N” sizes, contact the factory for details.

A supporting anti-friction bearing pillow block is recommended for the end of the pump shaft on all V-belt driven units.



Operating Range:

② Nominal Flow	GPM	.5 to 450	
	m ³ /h	.1 to 102	
① Pressure Range	C, F, FH	PSI	250 PSI for 100 SSU & above 100 PSI for less than 100 SSU ③
		Bar	17 BAR for 21 cSt & above 7 BAR for less than 21 cSt
	G, H, HL, K, KK, L, LQ, LL	PSI	100 PSI for 100 SSU & above 50 PSI for less than 100 SSU
		Bar	7 BAR for 21 cSt & above 3 BAR for less than 21 cSt
	Q, M, N	PSI	75 PSI for 100 SSU & above 50 PSI for less than 100 SSU
		Bar	5 BAR for 21 cSt & above 3 BAR for less than 21 cSt
① Temp. Range	°F	-60 to +450	
	°C	-51 to +232	
① Viscosity Range	SSU	31 to 250,000	
	cSt	1 to 55,000	

① See following pages or consult factory for specific recommendations on individual models or sizes.

② Nominal capacities based on handling thin liquids.

③ 150 PSI (7 BAR) handling fuel oil less than 100 SSU (21 cSt).

Nominal Flow Rates:

Pump Size	GPM	m ³ /h	RPM
C	.5	.1	1800
F	1.5	.3	1800
FH	3	.7	1800
G	5	1	1200
H	10	2	1200
HL	20	4.5	1200
K	35	8	420
KK	50	11	420
L	90	20	420
LQ	90	20	420
LL	140	32	520
Q	200	45	350
M	280	64	280
N	450	102	280

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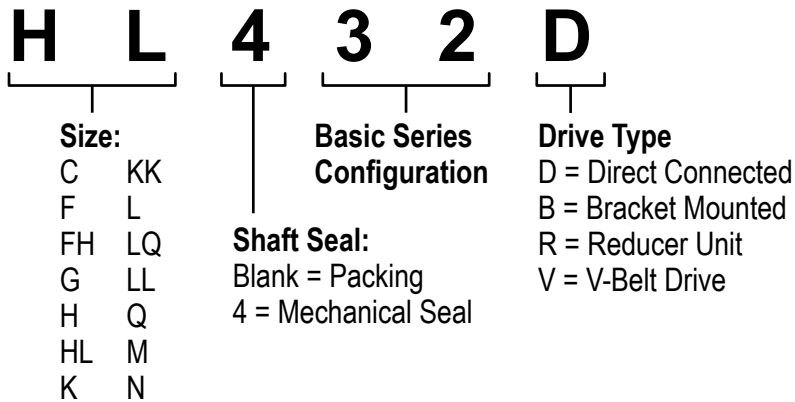
VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

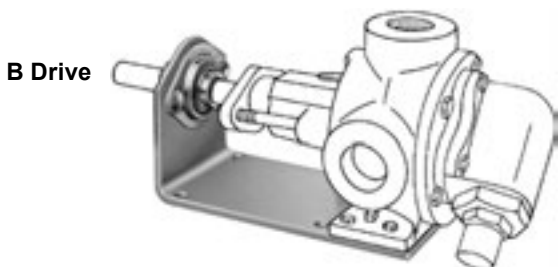
Key Features and Benefits:

- **Relief Valve on Casing or Head**
 - The integral pressure relief valve on casing or head permits by-passing of liquid from discharge back to suction side of pump. Reverse valve when reversing pump rotation on large pumps. Small pumps with relief valve built with right hand suction as standard.
- **Steam Jacketed Head**
 - Jacketed head or plate permits temperature control of the liquid being pumped. Jacketed plate available on "G" through "LL" size pumps. Jacketed head available on "Q" through "N" sizes. Relief valve not available with jacketed head or plate. For complete jacketed pumps, see Section 430.
- **Upright, Opposite & Right Angle Ports**
 - "C", "F" and "FH" size pumps furnished with upright port casings: "G" size pump with opposite port casing and "H" through "N" size pumps with right angle port casings. Right hand port determined by location of side port when facing pump from shaft end.
- **Mechanical Seal**
 - "G", "H" and "HL" sizes illustrated. All General Purpose pumps are available with packed stuffing boxes. Mechanical seals are available on "C" through "HL" size pumps as standard. The seal is a rotary type packaged unit that is simple and self-adjusting. It works WITH rather than against pressure.

Model Number Key:



Drive Types:



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Materials of Construction - Series 32 & ①432

Standard Component		Standard Material		
		C, F, FH	G, H, HL	K, KK, L, LQ, LL, Q, M, N
Casing		Iron	Iron	Iron
Head		Iron	Iron	Iron
Rotor		Steel	Iron	Iron
Rotor Shaft		Steel	Steel	Steel
Idler		Powdered Metal	Powdered Metal	Iron
Idler Pin		Nitralloy	Steel	Steel
Bushings	Series 32 Packed	Carbon Graphite	Bronze	Bronze
	Series 432 Mechanical Seal	③ Carbon Graphite	Carbon Graphite	---
Internal Relief Valve		② Iron	Iron	Iron

- ① Buna N elastomer used in Mechanical Seal of 432 Series pumps.
- ② Valve integral with pump casing. Right hand suction only.
- ③ Mechanical seal seat has bronze bushing.

Specifications - Unmounted Pumps

Model Number	⑥ Port Size	Nominal Pump Rating			Motor HP Required at Rated Speed Pumping 100 SSU Liquid			Maximum Recommended Discharge Pressure PSIG			Maximum Recommended Temperature for Cataloged Pump				Steel Fitted Construction Recommended Above This Viscosity		Maximum Hydrostatic Pressure		Approximate Shipping Weight With Valve		
		Inches	GPM	m ³ /h	RPM	25 PSI (2 BAR)	50 PSI (3 BAR)	100 PSI (7 BAR)	Less Than 100 SSU	Fuel Oil Less Than 100 SSU	100 SSU and up	Packed		Mech. Seal		SSU	cSt	PSI	BAR	Lb	KG
C32	C432	¼	½	.11	1800	¼	¼	¼	100	150	③ 250	④ 300	④ 149	④ 225	④ 107	---	---	750	50	5	2.3
F32	F432	½	1½	.34	1800	¼	¼	¼	100	150	③ 250	④ 300	④ 149	④ 225	④ 107	---	---	750	50	6	2.7
FH32	FH432	½	3	.68	1800	¼	¼	⅓	100	150	③ 250	④ 300	④ 149	④ 225	④ 107	---	---	750	50	6	2.7
G32	G432	1	5	1.1	1200	⅓	½	¾	50	---	100	300	149	225	107	① 25,000	① 5,500	400	28	15	6.8
H32	H432	1	10	2.3	1200	½	¾	1½	50	---	100	300	149	225	107	① 25,000	① 5,500	400	28	20	9.1
HL32	HL432	1½	20	4.5	1200	¾	1½	2	50	---	100	300	149	225	107	① 7,500	① 1,650	400	28	26	11.8
K32	---	1½	35	8	420	1	2	5	50	---	100	300	149	---	---	25,000	5,500	400	28	65	29.5
KK32	---	2	50	11	420	1½	3	5	50	---	100	300	149	---	---	7,500	1,650	400	28	70	31.8
L32	---	2	90	20	420	3	5	10	50	---	100	300	149	---	---	25,000	5,500	400	28	120	54.5
LQ32	---	② 2½	90	20	420	3	5	10	50	---	100	300	149	---	---	25,000	5,500	400	28	125	56.8
LL32	---	② 3	140	32	520	5	7½	15	50	---	100	300	149	---	---	7,500	1,650	400	28	135	61.3
Q32	---	② 3	200	45	350	7½	10	---	50	---	75	300	149	---	---	7,500	1,650	400	28	335	152.1
M32	---	② 4	280	63	280	10	15	---	50	---	75	300	149	---	---	25,000	5,500	400	28	500	227
N32	---	② 5	450	102	280	15	25	---	50	---	75	300	149	---	---	2,500	550	400	28	670	304.2

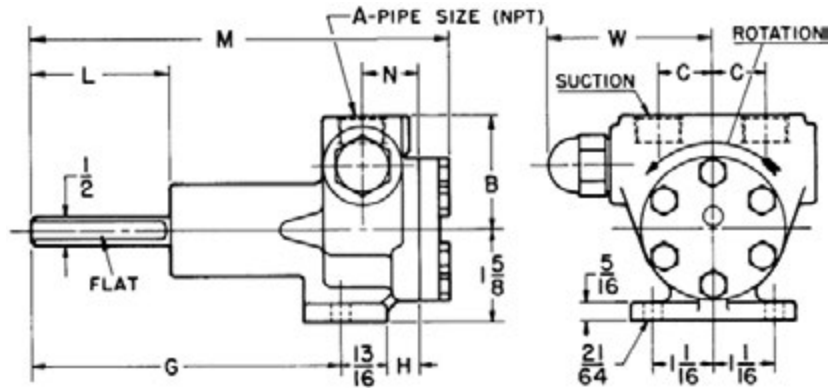
- ① Mechanical Seal pumps not recommended on applications with viscosities above 15,000 SSU (3,300 cSt).
- ② Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings. All others tapped for standard pipe.
- ③ With extra clearance, pumps can be used to 500 PSI (34 BAR) on intermittent duty.
- ④ With special construction, temperature to 500°F. can be handled with seal pumps and to 650°F. with packed pumps. Consult factory.
- ⑤ Not available in steel fitted construction.
- ⑥ Right hand port only.

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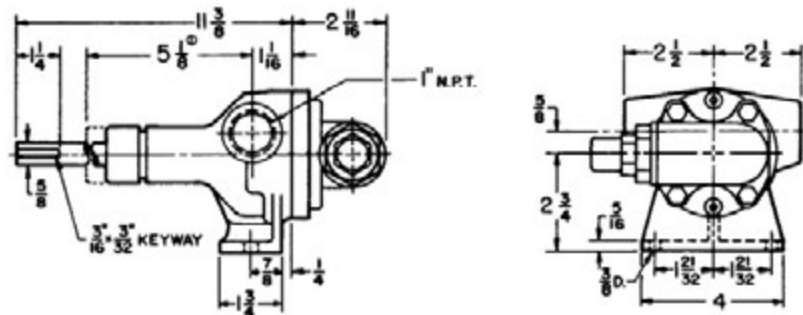
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Dimensions C - F - FH 32 & 432 (Unmounted Pumps)



MODEL NO.		A	B	C	G	H	L	M	N	W
PACKED	SEAL									
C32	C432	1/4	1 11/16	3/4	4 25/32	1 7/32	2 1/4	6 11/16	7/8	2 9/16
F32	F432	1/2	2	15/16	5	1 9/32	2	7	1	2 7/8
FH32	FH432	1/2	2	15/16	5 5/8	1 9/32	2 5/8	7 5/8	1	2 7/8

Dimensions G 32 & 432 (Unmounted Pumps)



① Minimum dimension for repacking. Assembled dimension on seal pumps 3 1/16".

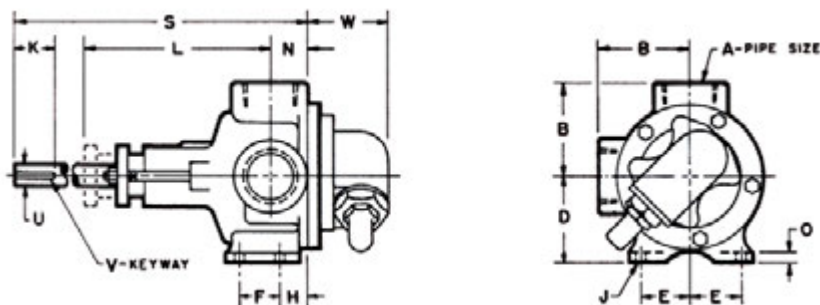
MODEL NO.	
PACKED	SEAL
G32	G432

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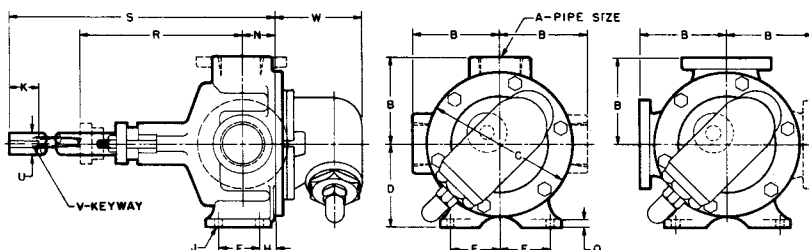
Dimensions H - HL 32 & 432 (Unmounted Pumps)



MODEL NO.		A		B	D	E	F	H	J	K	Ⓛ	N	O	S	U	V	W
PACKED	SEAL																
H32	H432	1	in	2.88	2.75	1.63	1.31	0.88	0.34	1.75	5.75	0.88	0.31	11.38	0.75	.19 x .09	2.88
			mm	73.2	69.9	41.4	33.3	22.4	8.6	44.5	146.1	22.4	7.9	289.1	19.1	4.8 x 2.3	73.2
HL32	HL432	1½	in	3.00	2.75	1.63	1.31	0.88	0.34	1.75	6.00	1.19	0.31	11.38	0.75	.19 x .09	2.88
			mm	76.2	69.9	41.4	33.3	22.4	8.6	44.5	152.4	30.2	7.9	289.1	19.1	4.8 x 2.3	73.2

Ⓛ Minimum dimension for repacking. Assembled dimension on seal pumps: 3⅞" for Model H432, 4½" for Model HL432.

Dimensions K - KK - L - LQ 32 (Unmounted Pumps)



MODEL NO.	A	B	C	D	E	F	H	J	K	N	O	Ⓜ R	S	U	V	W
K32	1½	4⅞	8	4⅞	2⅞	2¼	⅞	1⅜	3	1¼	⅞	7⅞	18¼	1⅞	¼ x ⅞	5⅞
KK32	2	4⅞	8	4⅞	2⅞	2¼	⅞	1⅜	3	1¼	⅞	7⅞	18¼	1⅞	¼ x ⅞	5⅞
L32	2	6½	10¼	6	2⅞	3	1	1⅜	3	1¼	½	9⅞	21¼	1⅞	⅜ x ⅜	5⅞
LQ32	Ⓛ 2½	7⅞	10¼	6	2⅞	3	1	1⅜	3	1¼	½	9⅞	21¼	1⅞	⅜ x ⅜	5⅞

Ⓛ Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings. All others tapped for standard pipe.

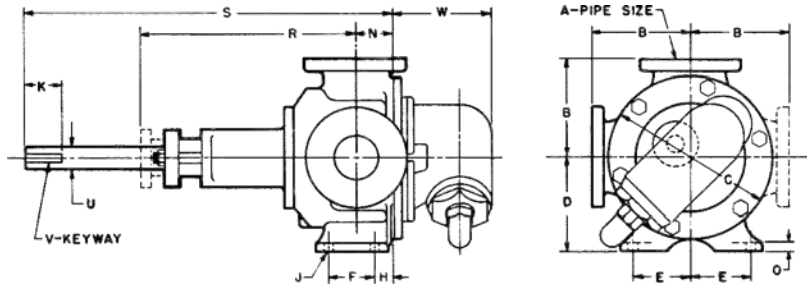
Ⓜ Minimum dimension for repacking.

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Dimensions LL - Q - M - N 32 (Unmounted Pumps)

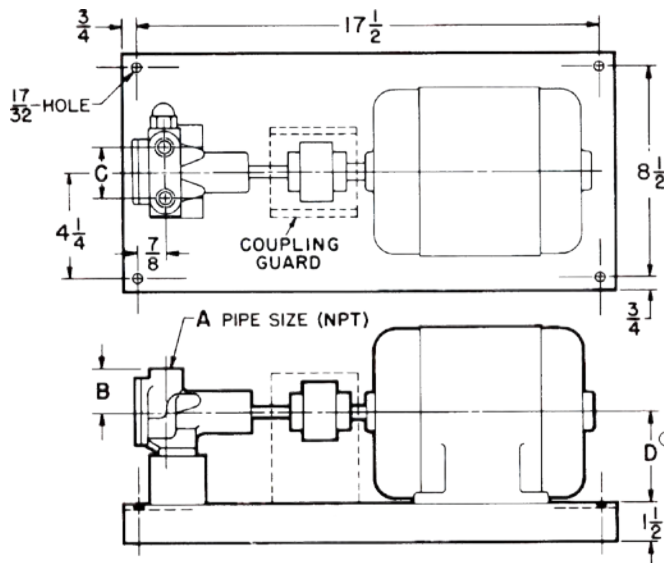


MODEL NO.	① A	B	C	D	E	F	H	J	K	N	O	② R	S	U	V	W
LL32	3	7 ¹ / ₁₆	10 ¹ / ₄	6	2 ¹ / ₈	3	1 ¹ / ₂	1 ⁵ / ₃₂	3	2 ¹ / ₄	1/2	12 ¹ / ₈	21 ¹ / ₄	1 ¹ / ₁₆	3/8 X 3/16	5 ³ / ₈
Q32	3	7 ³ / ₄	14	7 ³ / ₄	4 ¹ / ₈	4 ¹ / ₄	1 ⁵ / ₈	1 ¹ / ₁₆	5	3	5/8	13 ³ / ₈	33 ¹ / ₂	1 ¹⁵ / ₁₆	1/2 X 1/4	8 ⁷ / ₁₆
M32	4	9 ¹ / ₂	17 ¹ / ₄	9 ¹ / ₂	5	6 ¹ / ₄	1 ¹ / ₁₆	1 ¹ / ₁₆	5	4	3/4	13 ³ / ₈	34	1 ¹⁵ / ₁₆	1/2 X 1/4	8 ¹ / ₂
N32	5	9 ¹ / ₂	17 ¹ / ₄	9 ¹ / ₂	5	6 ¹ / ₄	1 ⁵ / ₈	1 ¹ / ₁₆	5	4 ¹ / ₂	1	20 ⁷ / ₈	34	2 ¹ / ₁₆	5/8 X 5/16	8 ¹ / ₂

① Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings.

② Minimum dimension for repacking.

Dimensions C - F - FH 32 & 432 (D DRIVE)



MODEL NO.		A	B	C	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL				Pounds	KG
C32D	C432D	1/4	1 ¹ / ₁₆	1 ¹ / ₂	26	11.8
F32D	F432D	1/2	2	1 ⁵ / ₈	27	12.3
FH32D	FH432D	1/2	2	1 ⁵ / ₈	29	13.2

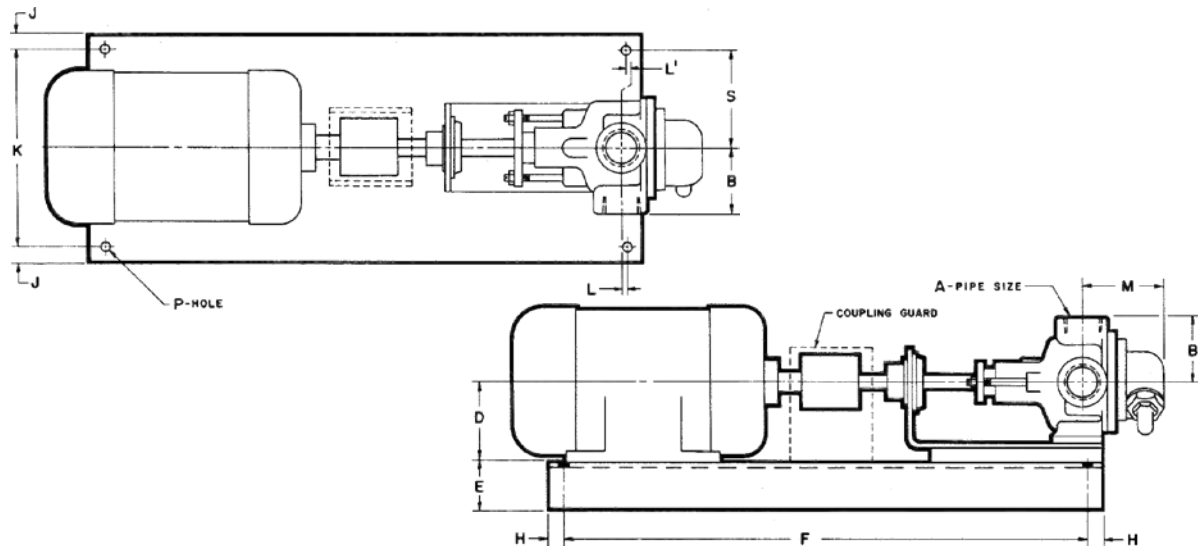
① Centerheight is 3" with 48 frame motor. Centerheight is 3¹/₂" with 56 frame motor.

VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

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Dimensions G - H - HL 32 & 432 (D DRIVE)



MODEL NO.		A	B	D	E	F	H	J	K	L	L ₁	M	P	S	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL														Pounds	KG
①G32D	①G432D	1	2½	②3½	1½	20½	¾	¾	8½		⅝	3¾	½	4¼	45	20.4
H32D	H432D	1	2⅞	②3½	1½	20½	¾	¾	8½		⅛	3¾	½	4¼	70	31.8
HL32D	HL432D	1½	3	②3½	1½	20½	¾	¾	8½	⅜		4⅞	½	4¼	75	34.1
①G32D	①G432D	1	2½	③4½	2⅞	25	1	1½	9	1		3¾	⅞	4½	45	20.4
H32D	H432D	1	2⅞	③4½	2⅞	25	1	1½	9	1⅞		3¾	⅞	4½	70	31.8
HL32D	HL432D	1	3	③4½	2⅞	25	1	1½	9	1⅞		4⅞	⅞	4½	75	34.1

① All "G" pumps are equipped with opposite ports with openings ⅝" above shaft center line. See drawing page 310.9.

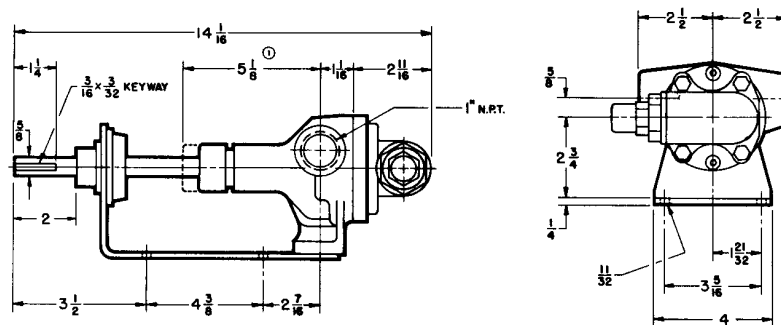
② For motor frames 56, 143T and 145T.

③ For motor frames 182, 182T, 184 and 184T.

Frame 48 (3" center line), smaller base required.

Frame 213 on up, larger base required.

Dimensions G 32 & 432 (B DRIVE)



MODEL NO.		Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL	Pounds	KG
G32B	G432B	18	8.2

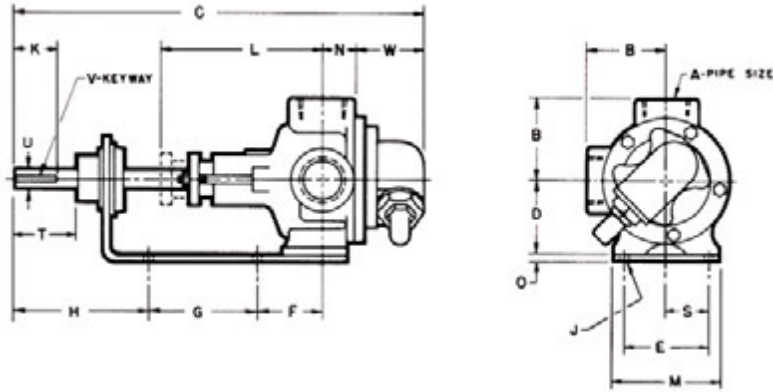
① Minimum dimension for repacking. Assembled dimension for seal pump 3⅞.

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VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

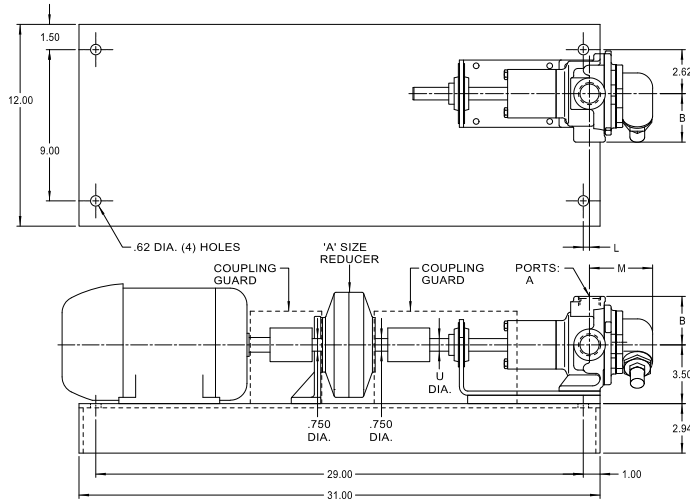
Dimensions H - HL 32 & 432 (B DRIVE)



MODEL NO.		A	B	C	D	E	F	G	H	J	K	L	M	N	O	S	T	U	V	W	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL											①									Pounds	KG
H32B	H432B	1	2 ⁷ / ₈	14 ¹ / ₄	2 ³ / ₄	3 ¹⁵ / ₁₆	2 ³ / ₄	4 ³ / ₈	3 ³ / ₄	1 ¹ / ₃₂	1 ¹ / ₄	5 ³ / ₄	4	7 ⁷ / ₈	1 ¹ / ₄	1 ²¹ / ₃₂	2 ³ / ₁₆	3 ¹ / ₄	3 ¹ / ₁₆ X 3 ¹ / ₃₂	2 ⁷ / ₈	23	10.4
HL32B	HL432B	1 ¹ / ₂	3	14	2 ³ / ₄	3 ¹⁵ / ₁₆	2 ³ / ₄	4 ³ / ₈	3 ¹ / ₂	1 ¹ / ₃₂	1 ¹ / ₄	6	4	1 ¹ / ₁₆	1 ¹ / ₄	1 ²¹ / ₃₂	2	3 ¹ / ₄	3 ¹ / ₁₆ X 3 ¹ / ₃₂	2 ⁷ / ₈	28	12.7

① Minimum dimension for repacking. Assembled dimension on seal pumps: 3⁷/₈" – for Model H432B, 4¹/₂" – for Model HL432B.

Dimensions G - H - HL 32 & 432 (R DRIVE, A REDUCER)



MODEL NO.		A	B	L	M	U	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL						Pounds	KG
① G32R	① G432R	1	2 ¹ / ₂	5 ⁵ / ₈	3 ³ / ₄	5 ⁵ / ₈	65	30
H32R	H432R	1	2 ⁷ / ₈	9 ¹ / ₁₆	3 ³ / ₄	3 ¹ / ₄	70	32
HL32R	HL432R	1 ¹ / ₂	3	1 ¹ / ₄	4 ¹ / ₁₆	3 ¹ / ₄	75	34

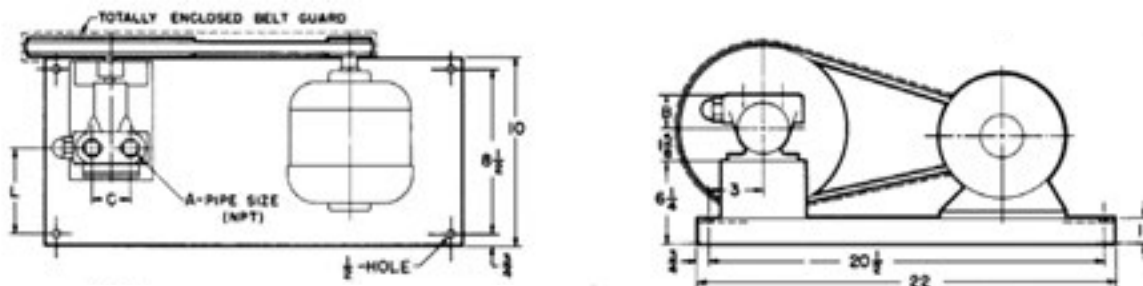
① All "G" pumps are equipped with opposite ports with openings 5⁵/₈" above shaft center line.

VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

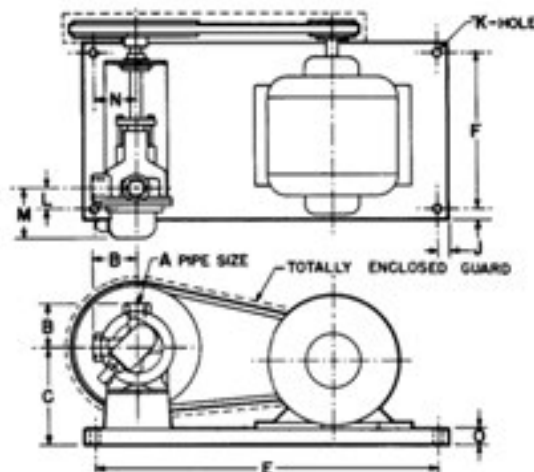
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Dimensions C - F - FH 32 & 432 (V DRIVE)



MODEL NO.		A	B	C	L	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL					Pounds	KG
C32V	C432V	1/4	1 11/16	1	4 7/8	35	16
F32V	F432V	1/2	2	1 7/8	4 15/16	40	18
FH32V	FH432V	1/2	2	1 7/8	4 15/16	45	20

Dimensions G - H - HL 32 & 432 (V DRIVE)



MODEL NO.		A	B	C	E	F	J	K	L	M	N	O	Approximate Shipping Weight With Valve (Less Power)	
PACKED	SEAL												Pounds	KG
① G32V	① G432V	1	① 2 1/2	8 3/8	18 3/4	10 1/4	3/4	1/2	1 13/16	3 3/4	2 3/4	1 1/4	65	30
H32V	H432V	1	2 7/8	8 3/8	18 3/4	10 1/4	3/4	1/2	1 1/8	3 3/4	2 3/4	1 1/4	70	32
HL32V	HL432V	1 1/2	3	8 3/8	18 3/4	10 1/4	3/4	1/2	2 3/16	4 1/16	2 3/4	1 1/4	75	34

① All "G" pumps are equipped with opposite ports with openings 5/8" above shaft center line. See drawing page 310.9.

Base shown for motor frame 56 and smaller.

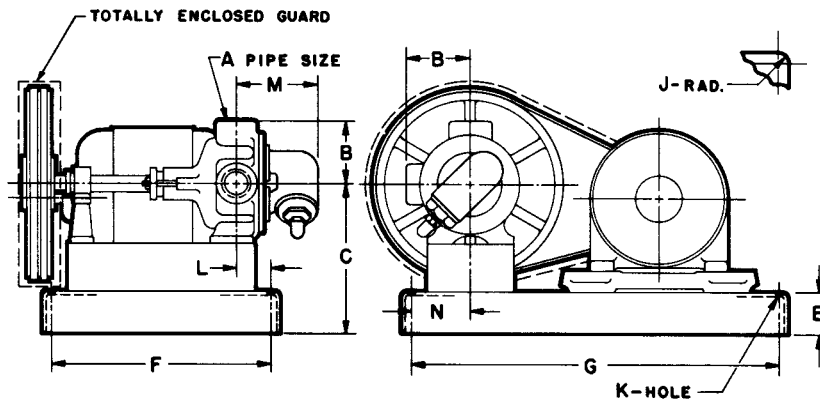
Larger Base always required with motor frames 143T, 145T, 182, 182T, 184, 184T.

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VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

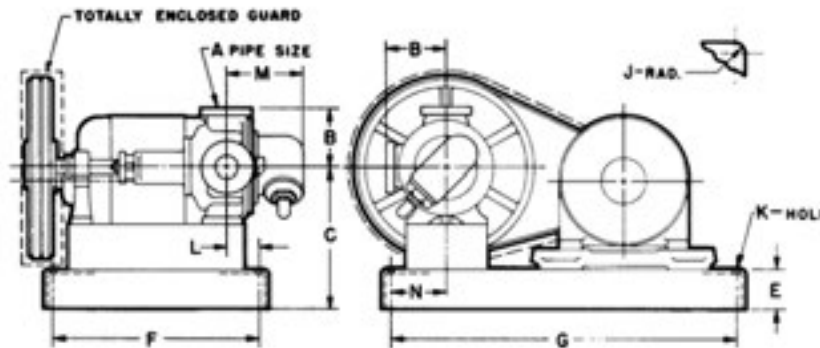
Dimensions K - KK - L - LQ 32 (V DRIVE)



MODEL NO.	A	B	C	E	F	G	J	K	L	M	N	Approximate Shipping Weight With Valve (Less Power)	
												Pounds	KG
K32V	1½	4⅞	13⅞	3¼	17	28¾	1	½	2⅞	6⅞	4⅞	210	95
KK32V	2	4⅞	13⅞	3¼	17	28¾	1	½	2⅞	6⅞	4⅞	215	98
L32V	2	6½	15½	3½	18½	31	1	⅝	1⅞	7⅞	6½	280	127
LQ32V	① 2½	7⅞	15½	3½	18½	31	1	⅝	1⅞	7⅞	6½	290	132

① Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings. All others tapped for standard pipe.

Dimensions LL - Q - M - N 32 (V DRIVE)



MODEL NO.	① A	B	C	E	F	G	J	K	L	M	N	Approximate Shipping Weight With Valve (Less Power)	
												Pounds	KG
LL 32V	3	7⅞	15½	3½	18½	31	1	⅝	1⅞	7⅞	6½	315	143
Q32V	3	7¾	② 13¾	6	27	49	1½	1⅞	2⅞	11⅞	8½	750	341
M32V	4	9½	③ 15½	6	27	49	1½	1⅞	3⅞	12½	8½	1100	500
N32V	5	9½	20½	6	27	49	1½	1⅞	3⅞	13	9½	1300	590

① Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings.

② Dimension "C" (13¾) shown is for 19" or 25" O.D. sheave (lesser reductions). Dimension "C" is 20¼" when 33.5" O.D. sheave is used (maximum reduction).

③ Dimension "C" (15½) shown is for 19" or 25" O.D. sheave (lesser reductions). Dimension "C" is 22" when 33.5" O.D. sheave is used (maximum reduction)

VIKING GENERAL PURPOSE INTERNAL GEAR PUMPS

SERIES 32 & 432

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

NPSH_R - FEED OF LIQUID (SP. GR. 1.0), Viscosities to 750 SSU

NPSH_A (Net Positive Suction Head Available) must be greater than the NPSH_R (Net Positive Suction Head Required) given in the above table.

VISCOSITY - Above chart applies to viscosities up thru 750 SSU. Consult factory or Viking representative for viscosities above 750 SSU.

For liquids other than water, divide by specific gravity.

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
C	-	-	-	-	-	-	-	-	-	-	-	1.7	1.9	2.2	2.4
F, FH	-	-	-	-	-	-	-	-	-	1.8	1.9	2.1	2.3	2.8	3.4
G	-	-	-	-	-	-	-	1.8	2.0	2.2	2.6	3.1	3.9	5.6	7.6
H, HL	-	-	-	-	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
K, KK	-	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1	24.4	-	-	-
L, LQ, LL	1.7	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	17.7	32.0	-	-	-
Q	1.9	2.1	2.3	2.7	3.3	4.2	6.1	8.4	12.7	-	-	-	-	-	-
M	2.1	2.3	2.8	3.4	4.3	6.0	9.0	12.7	-	-	-	-	-	-	-
N	2.1	2.5	3.5	4.5	6.3	9.5	15.0	29.5	-	-	-	-	-	-	-

Catalog Speed Rating*

* Limit for most models.
Some models exceed this limit.
See Viking Pump catalog for details.

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Section 320

Viking General Purpose Special Mounted Pumps

(Series 456)

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VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 456

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Series Description

The 456M units are motor mounted and answer the need for more compact, lighter weight equipment. They use the Series 456 hub type pumps with valves in casings and are mounted to NEMA "C" flange motors. Units are available with 1/4, 1/2, 1/2 or 3/4 HP, 1 ph, 1200 RPM or 1800 RPM, special shaft, open or explosion proof motors. All sizes use the mounting flange bracket with pump connected to motor through coupling. Pump can be turned in bracket to any position desired. Series 456 pump models are available with Underwriters label for handling fuel oil. Model numbers for these pumps must be designated by a suffix -X. "UL" listed models must be equipped with integral relief valve.



RELIEF VALVE (STANDARD)

Permits bypassing of liquid from discharge back to suction side of pump. Prevents building up excessive pressure in discharge line. If reversing pump at any time, valve parts must be inserted in opposite port. Pumps with relief valve are built with right hand suction as standard.



MECHANICAL SEAL

All models are furnished with mechanical seal. The seal is a rotary type packaged unit that is simple and self-adjusting.

Operating Range:

Nominal Flow ②	GPM	.5 to 3
	m ³ /h	.1 to .7
Pressure Range ①	PSI	250 PSI for 100 SSU & above 100 PSI for less than 100 SSU ③
	Bar	17 BAR for 21 cSt & above 7 BAR for less than 21 cSt
Temp. Range ①	°F	-60 to +350
	°C	-51 to +177
Viscosity Range	SSU	28 to 7,500
	cSt	.1 to 1,650

① See following pages or consult factory for specific recommendations on individual models or sizes.

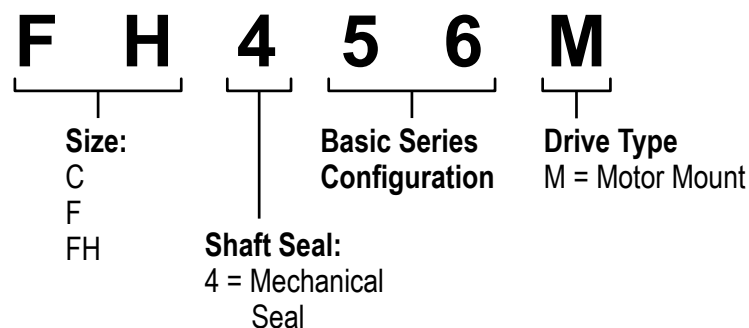
② Nominal capacities based on handling thin liquids.

③ 150 PSI (7 BAR) handling fuel oil less than 100 SSU (21 cSt).

Nominal Flow Rates:

Pump Size	GPM	m ³ /h	RPM
C	.5	.1	1800
F	1.5	.3	1800
FH	3	.7	1800

Model Number Key:



SERIES 456
Unmounted Pump
FH Size

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VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 456

Materials of Construction - 456 Series

Standard Component	Standard Material
Casing	Iron
Head	Iron
Rotor & Shaft	Steel
Idler	Steel
Idler Pin	Steel
Casing Bushing - Mechanical Seal	Carbon Graphite
Elastomer	Buna-N, Viton®
Valve Parts ②	Iron

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SERIES 456 Pump
with "M" Drive
"C", "F" and "FH" size pumps

Specifications - M Drive Units & Unmounted Pumps

Unit Model Number	Unmounted Pump Model Number	Port Size Inches	Nominal Pump Rating			Motor Horsepower Required at Rated Speed Pumping 100 SSU Liquid			Maximum Recommended Discharge Pressure PSIG			⑤ Maximum Recommended Temperature For Cataloged Pump		Maximum Hydrostatic Pressure		⑥ Approximate Shipping Weight With Valve and With Power	
												50 PSI (3 BAR)	100 PSI (7 BAR)					Less Than 100 SSU	Fuel Oil Less Than 100 SSU	100 SSU and Up	°F	°C	PSI	Bar	Lbs	Kg.
C456M	C456	¼	0.5	0.1	1800	③ ¼	③ ¼	100	150	④ 250	225	107	750	51	42	19	
F456M	F456	½	1.5	0.3	1800	③ ¼	③ ¼	100	150	④ 250	225	107	750	51	43	19.5	
FH456M	FH456	½	3	0.3	1800	③ ¼	½	100	150	④ 250	225	107	750	51	44	20	

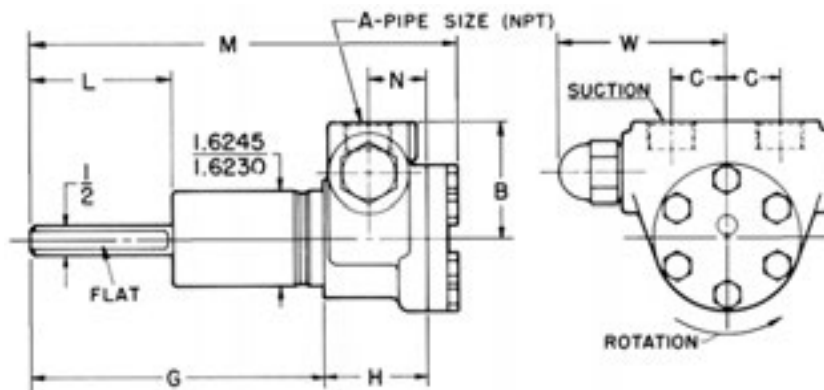
- ① Buna N or Viton® elastomer used in mechanical seal of 456 Series pumps.
- ② Valve integral with pump casing. Right hand suction only.
- ③ ¼ HP smallest readily available motor; see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector, for actual horsepower.
- ④ With extra clearance, pumps can be used to 500 PSI (34 BAR) on intermittent duty.
- ⑤ Temperatures to 350°F (180°C) can be handled with special construction.
- ⑥ Includes ½ HP, 1 PH. Tefc motor.

VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 456

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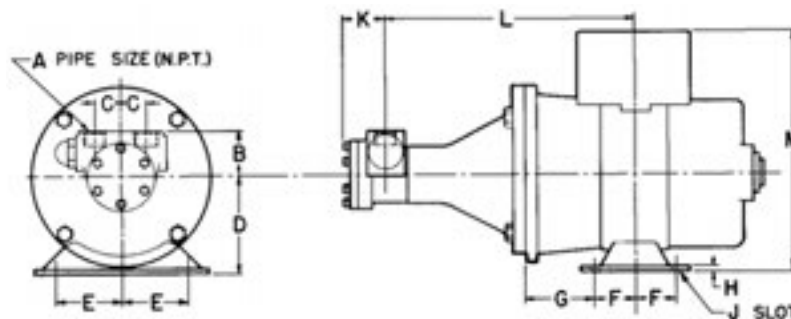
Dimensions C - F - FH 456 (Unmounted Pumps)



MODEL NO.	A		B	C	G	H	L	M	N	W
C456	¼	in	1.69	0.75	4.66	1.47	2.25	6.69	0.88	2.56
		mm	42.9	19.1	118.3	37.3	57.2	169.9	22.2	65.1
F456	½	in	2	0.94	4.59	1.84	2	7	1	2.88
		mm	50.8	23.8	116.7	46.8	50.8	177.8	25.4	73.0
FH456	½	in	2	0.94	4.97	1.84	2.38	7.38	1	2.88
		mm	50.8	23.8	126.2	46.8	60.3	187.3	25.4	73.0

NOTE: Shafts as shown on these pumps will **NOT** work on "M" drive units shown below. "G" dimension of 3½" is required.

Dimensions C - F - FH 456 (M Drive)



MODEL NO.	A		B	C	D	E	F	G	H	J	K	L	M
C456M	¼	in	1.69	0.75	3.50	2.44	1.50	2.56	0.13	0.34	1.44	8.97	9
		mm	42.9	19.1	88.9	61.9	38.1	65.1	3.2	8.7	36.5	227.8	228.6
F456M	½	in	2	0.94	3.50	2.44	1.50	2.56	0.13	0.34	1.56	9.22	9
		mm	50.8	23.8	88.9	61.9	38.1	65.1	3.2	8.7	39.7	234.2	228.6
FH456M	½	in	2	0.94	3.50	2.44	1.50	2.56	0.13	0.34	1.56	9.22	9
		mm	50.8	23.8	88.9	61.9	38.1	65.1	3.2	8.7	39.7	234.2	228.6

Ⓢ This dimension approximate. Depends on motor manufacturer, size and type of enclosure.

NOTE: Pump may be turned in bracket to any position desired.

Overall dimension of pump and motor will vary depending on motor frame, type of enclosure and manufacturer.

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VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 75 & 475

Series Description

For compactness, less weight and simplicity of mounting, Viking's line of close-coupled pumps are ideal for direct connecting to other pieces of equipment. The positive, smooth delivery of these pumps makes them preferred for many types of applications including filtering, circulating, transferring, lubricating or booster service.

The five sizes of Viking close-coupled pumps from 5 to 30 GPM are available in this unmounted type ready to connect on other equipment with standard NEMA "C" flange mounting.

All pumps are available with rotor bore to fit the shaft of a standard motor or other piece of equipment. Bores are furnished in $\frac{5}{8}$ " and $\frac{7}{8}$ ". By using a full length key between drive shaft and rotor bore, rigid and positive alignment of pump and drive shaft is assured.

This advanced design is unique in its field for it permits use of STANDARD, unmodified NEMA "C" flange ball bearing motors.

It is extremely close-coupled, reducing needed space, cutting overall weight, eliminating bases, couplings, outboard bearings or any drive equipment and at the same time saves cost.

All sizes are equipped with opposite ports. Only two casing sizes are used for all five pumps. The two smaller pumps use one casing and the three larger pumps use the other.

Pumps are built to accept a compact, integral relief valve mounted on top of casing to maintain extreme compactness.

All pumps are available with either mechanical seal suitable for 100 PSI pressure or a lip seal suitable for 50 PSI. No modification of parts are needed to convert from one seal to the other.

Operating Range:

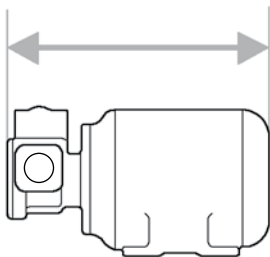
Nominal Flow ②	GPM	5 to 30
	m ³ /h	1 to 7
Pressure Range	PSI	50 PSI (Series 75) 100 PSI (Series 475)
	Bar	3 BAR (Series 75) 7 BAR (Series 475)
Temp. Range ①	°F	-20 to +350
	°C	-29 to +177
Viscosity Range ①	SSU	28 to 2,500
	cSt	.1 to 550

① See following pages or consult factory for specific recommendations on individual models or sizes.

② Nominal capacities based on handling thin liquids.

Nominal Flow Rates:

Pump Size	GPM	m ³ /h	RPM
G	5	1	1200
	7	1.5	1800
GG	7	1.5	1200
	10	2	1800
H	10	2	1200
	15	3.5	1800
HJ	13	3	1200
	20	4.5	1800
HL	20	4.5	1200
	30	7	1800



VIKING CLOSE-COUPLED PUMP FEATURES SAVE SPACE

Over-all space (length, height and width) is cut to a minimum with Viking's close-coupled pumps. Complete unmounted pump in all five sizes, 5 to 30 GPM, requires only approximately 5" of space.



NO DRIVE EQUIPMENT NEEDED

No couplings, bases, gears or outboard bearings. Standard motor shafts are keyed directly to the Viking rotor pump gear eliminating all extra drive equipment. Simple and compact.

SERIES 75 & 475
Lip and Mechanical Seal
Unmounted Pumps
"G" and "GG" sizes



VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 75 & 475

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Materials of Construction - 75 & 475 Series

Standard Component		Standard Material
Casing		Iron
Head		Iron
Rotor		Iron
Idler		Powdered Metal ①
Idler Bushing		Bronze
Shaft Sealing	Lip Seal	Buna-N
	Mechanical Seal	Buna-N, Viton®
Internal Relief Valve		Iron

① "G" and "GG" size have steel idlers.

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SERIES 475 Pump
"HL" size pump with "M" Drive

Specifications - M Drive Units & Unmounted Pumps

Unit Model Number		Unmounted Pump Model Number		Port Size	Nominal Pump Rating			Motor Horsepower Required at Rated Speed Pumping 100 SSU Liquid		① Maximum Recommended Discharge Pressure				Maximum Recommended Temperature For Cataloged Pump				Maximum Recommended Viscosity (SSU)		Shipping Weight With Valve			
Lip Seal	Mech. Seal	Lip Seal	Mech. Seal		IN	GPM	m³/h	RPM	25 PSI (2 BAR)	50 PSI (3 BAR)	Lip Seal		Mech. Seal		Lip Seal		② Mech. Seal		1800 RPM	1200 RPM	Mounted Units		Unmounted Pumps
										PSI	BAR	PSI	BAR	°F	°C	°F	°C			Lbs	Kg.	Lbs	Kg.
G75M	G475M	G75	G475	1	5	1	1200	½	¾	50	3	100	7	225	107	225	107	750	2500	③ 48	③ 22	17	8
					7	1.5	1800																
GG75M	GG475M	GG75	GG475	1	7	1.5	1200	½	¾	50	3	100	7	225	107	225	107	750	2500	③ 48	③ 22	17	8
					10	2	1800																
H75M	H475M	H75	H475	1 ½	10	2	1200	½	1	50	3	100	7	225	107	225	107	750	2500	④ 80	④ 36	24	11
					15	3.5	1800																
HJ75M	HJ475M	HJ75	HJ475	1 ½	13	3	1200	1	1 ½	50	3	100	7	225	107	225	107	750	2500	⑤ 85	⑤ 39	24	11
					20	4.5	1800																
HL75M	HL475M	HL75	HL475	1 ½	20	4.5	1200	1 ½	2	50	3	100	7	225	107	225	107	750	2500	⑤ 85	⑤ 39	26	12
					30	7	1800																

① Mechanical Seal pump will withstand a hydrostatic test pressure of 400 PSI (28 BAR). Lip Seal pump should not be subjected to hydrostatic test. Neither type pump should be used on an application having a suction pressure greater than 15 PSI (1 BAR).

② Temperatures to 350°F (180°C) can be handled with Viton® construction.

③ Includes 56C Frame Motor.

④ Includes 143TC Frame Motor.

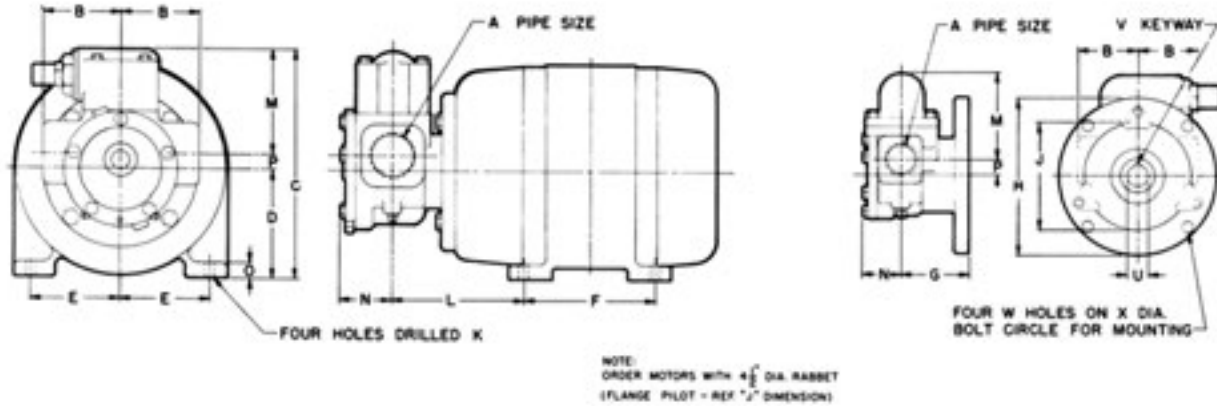
⑤ Includes 145TC Frame Motor.

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VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 75 & 475

Dimensions G - GG - H - HJ - HL 75 & 475 (M Drive Units & Unmounted Pumps)



MODEL NUMBERS				MOTOR FRAME SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	U	V	W	X
MECH. SEAL	LIP SEAL	MECH. SEAL	LIP SEAL																				
G475M OR GG475M	G75M OR GG75M	G475 OR GG475	G75 OR GG75	56C	1	2.5	7.69	3.5	2.44	3	2.81	6.5	4.5	.34 SLOT	5.38	3.56	1.56	.13	.63	.18	.47	5.88	
				143TC			7.69	3.5	2.75	4				.34	5.69			.44	.63	.88			.18
				145TC			7.69	3.5	2.75	5				.34	5.69			.44	.88	.18			
H475M HJ475M HL475M	H75M HJ75M HL75M	H475 HJ475 HL475	H75 HJ75 HL75	56C	1½	3.25	8.56	3.5	2.44	3	2.75	6.5	4.5	.34 SLOT	5.31	4.44	2.18	.13	.63	.18	.47	5.88	
				143TC			8.56	3.5	2.75	4				.34	5.63			.44	.63	.88			.18
				145TC			8.56	3.5	2.75	5				.34	5.63			.44	.88	.18			
H475M HJ475M HL475M	H75M HJ75M HL75M	H475 HJ475 HL475	H75 HJ75 HL75	182C	1½	3.25	9.56	4.5	3.75	4.5	2.75	6.5	4.5	.41	5.63	4.44	2.18	.63	.63	.88	.18	.47	5.88
				184C						5.5					5.63								

VIKING GENERAL PURPOSE SPECIAL MOUNTED INTERNAL GEAR PUMPS

SERIES 456, 75 & 475

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSHR data is not available on the pump selector.

NPSH_R - FEED OF LIQUID (SP. GR. 1.0), Viscosities to 750 SSU

PUMP SIZE	PUMP SPEED, RPM										
	230	280	350	420	520	640	780	950	1150	1450	1750
G, GG	- - -	- - -	- - -	1.8	2.0	2.2	2.6	3.1	3.9	5.6	7.6
H, HJ, HL	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5

NPSH_A (Net Positive Suction Head Available) must be greater than the NPSH_R (Net Positive Suction Head Required) given in the above table.

VISCOSITY - Above chart applies to viscosities up thru 750 SSU. Consult factory or Viking representative for viscosities above 750 SSU.

For liquids other than water, divide by specific gravity.

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Section 341

External Gear Pumps

(General Overview)

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VIKING SG SERIES EXTERNAL GEAR PRODUCTS

SECTION CONTENTS:

Single Pumps (With Shaft Seal):

See Catalog Section 341.1

Double Pumps (With Shaft Seal):

See Catalog Section 341.2

Sealless Mag Drive Pumps:

See Catalog Section 341.3

Hydraulic Pumps & Motors:

See Catalog Section 341.4

Power Transfer Units (Pump With Hydraulic Motor):

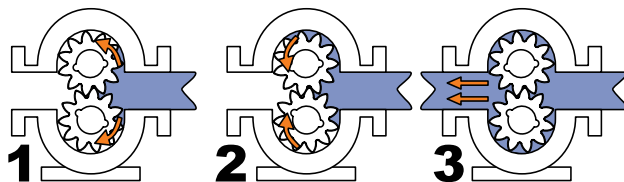
See Catalog Section 341.5

Flow Dividers:

See Catalog Section 341.6

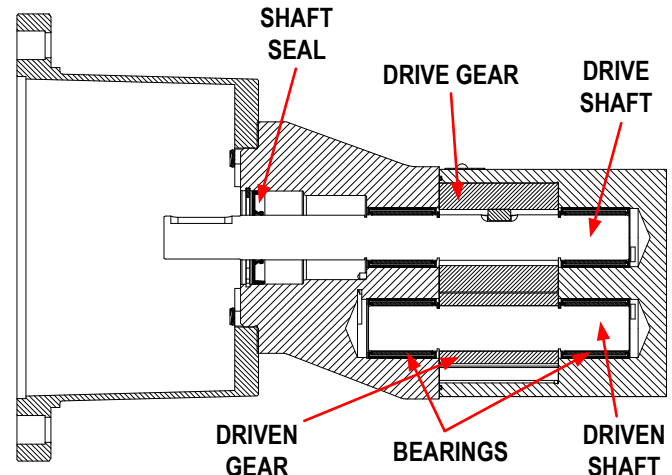
OVERVIEW

External Gear pumps use a positive displacement pumping principle in which two identical gears carry liquid around the perimeter of a casing, then discharge the liquid as the gears mesh. The drive gear is connected to a motor or other drive, and it contacts the driven gear to turn it. These pumps are ideal for clean, lubricating liquids at moderate to high pressures.



They are capable of high pressures because the two shafts are supported on both sides of gears with either anti-friction or sleeve bearings, which minimize shaft deflection. This support is beneficial even in low pressure applications by preventing damage due to temporary overpressure situations. Optional outboard bearings are available for specific applications.

Because of the gears' relatively small diameter, they have lower peripheral (rim) speeds than many types of pumps, allowing them to operate at higher speeds, which often eliminates the need for a gear reducer or gearmotor.



They may be operated at slower speeds, such as for high viscosity applications, and are excellent for metering or dispensing liquids such as adhesives, since the flow is directly proportional to speed.

Spur-type gears are used because they have no axial thrust, as compared with helical gears that continuously thrust in opposite directions, and cause wear on the pump and gears. This also minimizes axial shaft movement for longer seal life. Special venting reduces hydraulic noise from internal pressure.

To prevent liquid leakage, Viking SG pumps are available with a variety of shaft seals, as shown in Section 341.1 and 341.2, to provide the optimum seal for the application. For hazardous liquids, or to simply eliminate seal maintenance completely, they are available with sealless magnetic drives as shown in Section 341.3.

Typical applications for SG Series pumps include:

- Sealants & Polymers (Epoxy Resin, Formaldehyde Resin, Methyl Methacrylate, PVC, Polymethylene Wax, Silicones)
- Chemicals (Butylamine, Epichlorohydrin, Ethanolamine, Furfural, Ethylenediamine,)
- Heat Transfer (Ammonia, Ethylene Glycol, Freons, Heat Transfer Oils, Isobutene, Propylene Glycol)
- Fuels and Additives (Diesel, Ethanol, Fuel Oil, Gasoline, Jet Fuel, Kerosene, Mercaptans, Methanol, Propane, Naptha)
- Oils (Edible oils, Fats, Greases, Lube Oils, Mineral Oils, Synthetic Oils, Transformer Oils)

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VIKING SG SERIES EXTERNAL GEAR PRODUCTS

- Polyurethanes (MDI, TDI, PolyEther Polyol, Cyclopentane)
- Paints & Coatings (Dicyclopentadiene, Dyes, Ink Oil, Paint pigments, Urethanes, Varnish)
- Petroleum (Bitumen, Crude Oil, Propylene, Gas Oil)
- Solvents (Acetone, Toluene, Dimethylbenzene)

Another unique benefit of this technology is that the drive shaft may be extended into additional pump sections to create double pumps (Section 341.2) or even triple pumps (custom pumps – contact factory).



The external gear drive shaft also allows this technology to be used in flow dividers, which are multiple sections manifolded to a common inlet, which then equally divides the flow by the number of sections to ensure that each discharge port receives equal flow, regardless of differences in backpressure. (Section 341.6)



Viking GP Series Hydraulic Pumps are the same as their SG Series counterparts, except with reduced clearances to minimize slip on thin hydraulic fluids, to provide the high pressures needed for powering hydraulic circuits. (Section 341.4)

Viking Hydraulic Motors are similar to the GP Series pumps, but are operated as a motor in a hydraulic circuit, to drive oil cooler fans, pumps or other rotating equipment. (Section 341.4)

Viking Power Transfer Units (PTU's) are either internal or external gear pumps with an integral Viking Hydraulic Motor on a common mounting bracket, for simple application of hydraulics to drive a pump handling other liquids. (Section 341.5)



CUSTOM PUMPS

The SG series lends itself to customization to fit unique pumping needs, and Viking has developed thousands of custom pumps for end users and OEMs to satisfy difficult pumping applications.



Section 341.1

External Gear Pumps

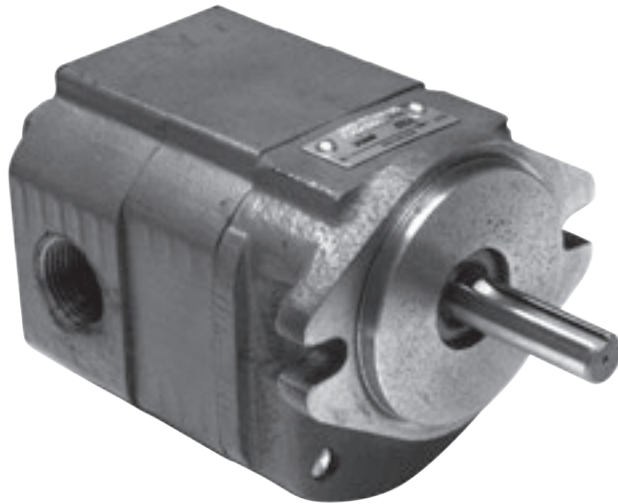
(Single Pumps with Shaft Seal)

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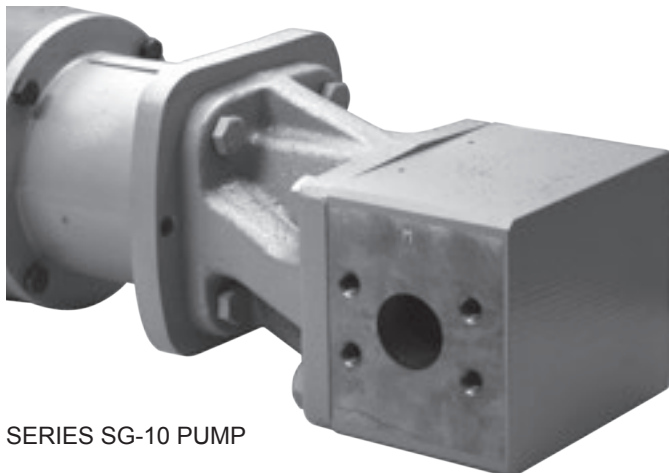
VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)



SERIES SG-04/-05 PUMP



SERIES SG-07 PUMP



SERIES SG-10 PUMP

OPERATING RANGE:

SG Pumps (Cast Iron, Lip or Mechanical Sealed)		
Displacements	No.	29
Flow Range	GPM	0.06 to 190
	M ³ /Hr	0.011 to 43
Pressure Range	PSI	to 500 Continuous, 2,500 Intermittent
	Bar	to 34 Continuous, 170 Intermittent
Temperature Range	°F	-40° to 450°
	°C	-40° to 230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

SGN Pumps (Ductile Iron, Lip or Mechanical Sealed)		
Displacements	No.	17
Flow Range	GPM	0.7 to 32
	M ³ /Hr	0.16 to 7.2
Pressure Range	PSI	to 500 Continuous, 2,500 Intermittent
	Bar	to 34 Continuous, 170 Intermittent
Temperature Range	°F	-40° to 450°
	°C	-40° to 230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

TYPICAL APPLICATIONS:

- Fuels & Fuel Oils
- Lubricants
- Chemical Metering
- Solvents
- Alcohol
- Cooking Oils
- Paints, Inks & Coatings
- Polyurethanes
- Heat Transfer Fluids

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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

SERIES DESCRIPTION

Viking SG is an extensive series of precision, industrial-duty external gear pumps that develop higher pressures than other Viking pumps, yet offer a similarly broad range of options to handle a diverse range of liquids and applications.

With 29 different displacements in five frame sizes to 190 GPM (43 M³/Hr), most applications can be closely matched to a pump operating at motor speeds, without the need for a reducer or gear motor.

These pumps were designed for greatest reliability, with standard features like spur-type gears (instead of helical gears, which thrust into pump casing and bracket) and rolling element anti-friction bearings

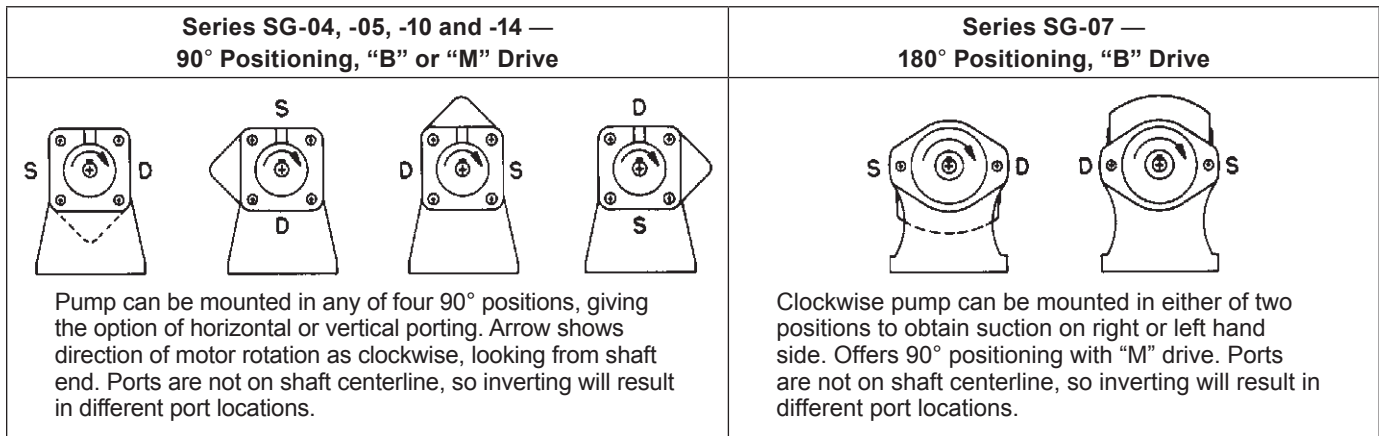
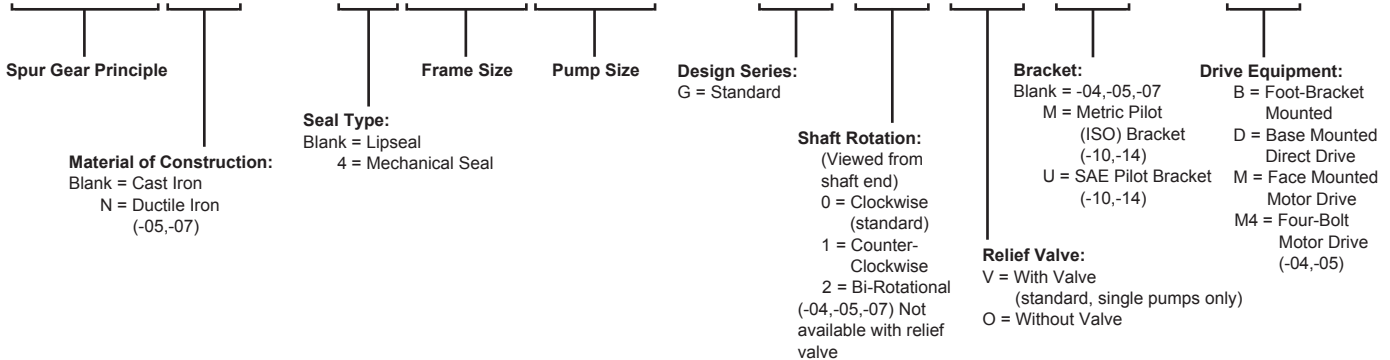
(instead of bushings, which wear every time a pump is stopped and the hydrodynamic film is lost).

Unwanted leaks are prevented by using the best sealing technology available, including single or duplex lip seals, single mechanical component seals, single or double mechanical cartridge seals with seal plans (SG-10 & -14 only), or sealless mag drive (sec. 341.3).

Installation is simple, with brackets to close couple to NEMA or IEC motors, or foot mount for speed-reduced applications. Piping is easy, with straight-through, 180° ports with the industry's broadest variety of threaded ports and flange options.

MODEL NUMBER KEY

SGN - 40518 - G 0 V U - B



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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

PUMP CONSTRUCTION AND FEATURES

NEMA and IEC motor brackets for all sizes and motors prevent misalignment. Optional foot mount shaft heights match Viking reducer shaft heights.

Outboard bearing optional with lip seal, standard with mechanical seal.

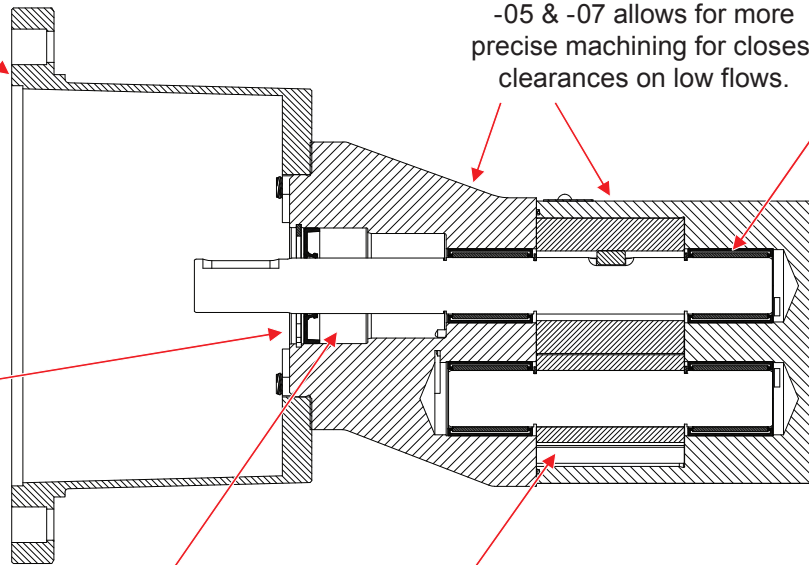
Sealing options include single lip seal, duplex lip seals with grease barrier, or single mechanical seal (all SG sizes). In addition, SG-10 and -14 offers pinned mechanical seal for high viscosity, and cartridge style single or double mechanical seals. For sealless Viking Mag Drive, see catalog section 341.3.

Two section pump (casing and bracket) on SG-10 & -14 reduces runout to keep shaft aligned for long seal life.

Three section pump (casing, bracket and head) on SG-04, -05 & -07 allows for more precise machining for closest clearances on low flows.

Antifriction needle bearings with high load carrying capacity standard for forgiving operation. Sleeve bearing options include carbon graphite for thin liquids, high temperature carbon, and silicon carbide for abrasives.

Hardened steel gears and shafts minimize wear. Spur-type gears minimize axial thrust for long seal life.



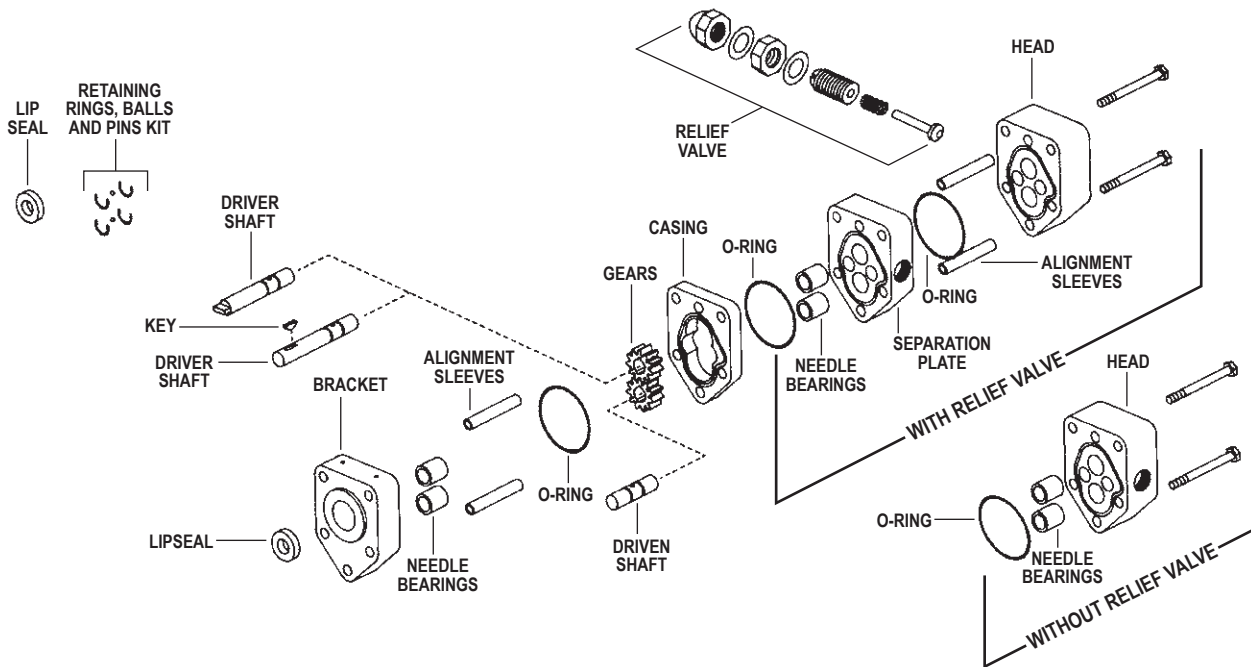
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)

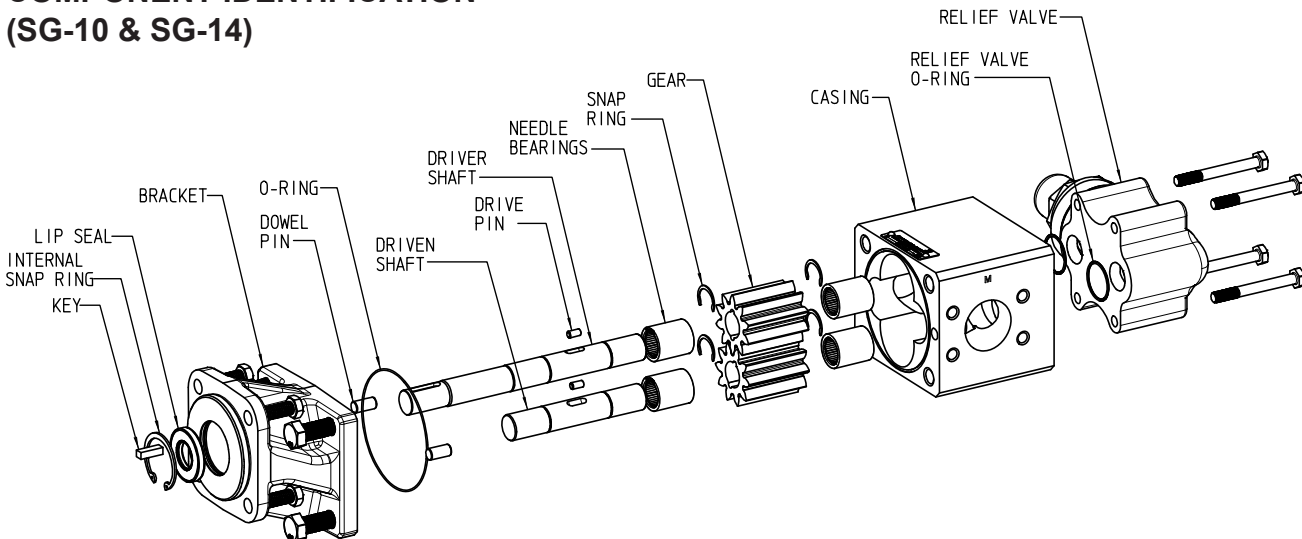


VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

COMPONENT IDENTIFICATION (SG-04, SG-05 & SG-07)



COMPONENT IDENTIFICATION (SG-10 & SG-14)





SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)

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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

MATERIALS OF CONSTRUCTION - ALL SERIES

Component	Standard - SG-04, -05, -07	Standard - SGN-05, -07	Standard - SG-10, -14	Options
Bracket	Cast Iron ASTM A823	Ductile Iron ASTM A536	Cast Iron ASTM A48	Surface Hardening (Vitek)
Casing	Cast Iron ASTM A823	Ductile Iron ASTM A536	Cast Iron ASTM A823	Surface Hardening (Vitek)
Head, Separation Plate	Cast Iron ASTM A823	Ductile Iron ASTM A536	— — —	Surface Hardening (Vitek)
Relief Valve Body	Cast Iron ASTM A823	Ductile Iron ASTM A536	Cast Iron ASTM A48	— — —
Relief Valve Poppet	Hardened Steel	Hardened Steel	Ductile Iron ASTM A536	— — —
Relief Valve Spring	Steel ASTM A229	Steel ASTM A229	Chrome Silicon Spring Steel ASTM A401	— — —
Gears	Heat Treated Steel	Heat Treated Steel	Heat Treated Steel	PPS (composite), -07 only
Shafts	Heat Treated Steel ASTM A322	Heat Treated Steel ASTM A322	Heat Treated Steel ASTM A322	— — —
Anti-Friction Needle Bearings ①	Bearing Steel	Bearing Steel	Bearing Steel	— — —
Journal Bearings	— — —	— — —	— — —	Carbon Graphite ②, High Temp Carbon Graphite, Silicon Carbide ③
Outboard Ball Bearing ④	— — —	— — —	— — —	Bearing Steel
O-Rings	Buna-N	Buna-N	Buna-N	Neoprene, Viton®, PTFE-Encapsulated, Kalrez®
Lip Seals	Buna-N	Buna-N	Buna-N	Neoprene, Viton®, PTFE
Component Mechanical Seals ⑤	Carbon/Ni-Resist	Carbon/Ni-Resist	Carbon / Silicon Carbide	Carbon / Silicon Carbide, Silicon Carbide/Silicon Carbide
Cartridge Mechanical Seals	— — —	— — —	Cartridge seals are developed to order. Options include ISC (Flowserve) single or double seals in O-ring or metal bellows design, or John Crane single or double seals in rubber bellows, O-ring or metal bellows design. Other brands may be possible.	
"B" Drive Foot Bracket	Cast Iron ASTM A48	Cast Iron ASTM A48	Cast Iron ASTM A48	— — —
"M" Drive Motor Bracket	Cast Iron ASTM A48	Cast Iron ASTM A48	Aluminum	— — —

① Needle bearings standard with lip seals.

② Carbon graphite journal bearings standard with mechanical seals.

③ Tungsten-carbide coated shafts recommended with silicon carbide journal bearings.

④ Standard with mechanical seal (SG-10, -14 only), optional with lip seal on all sizes.

⑤ Standard SG-10 & -14 seal Crane T2100 cup-type, 28-3,000 SSU (1-660 cSt). Pinned seat seal option from 28-15,000 SSU (1-3,300 cSt).

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**SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)**



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

SPECIFICATIONS

② Max. Recommended Temperature with Standard Construction: 225°F (107°C)

Pump Model ③				Port Size	⑥ Nominal Capacity at 50 Hz Motor Speeds		⑥ Nominal Capacity at 60 Hz Motor Speeds		④ Maximum Continuous Pressure		④ Maximum Intermittent Pressure		② Maximum Recommended Temperature		Approximate Shipping Weight (Pump Only)	
					1450 RPM		1750 RPM		BAR	PSI	BAR	PSI	Deg. C	Deg. F	kg.	lb.
Lip Seal		Mech. Seal ①		Inch	LPM	GPM	LPM	GPM								
SG-0417	–	SG-40417	–	3/8 ⑦	0.19	0.05	0.23	0.06	34	500	52	750	230	450	2.7	6
SG-0418	–	SG-40418	–	3/8 ⑦	0.44	0.12	0.53	0.14	34	500	86	1250	230	450	2.7	6
SG-0425	–	SG-40425	–	3/8 ⑦	0.56	0.15	0.68	0.18	34	500	103	1500	230	450	2.7	6
SG-0435	–	SG-40435	–	3/8 ⑦	0.85	0.22	1.02	0.27	34	500	121	1750	230	450	2.7	6
SG-0450	–	SG-40450	–	3/8 ⑦	1.13	0.30	1.36	0.36	34	500	138	2000	230	450	3.2	7
SG-0470	–	SG-40470	–	3/8 ⑦	1.57	0.41	1.89	0.50	34	500	103	1500	230	450	3.2	7
⑤ SG-0518	SGN-0518	SG-40518	SGN-40518	1/2 ⑦	2.2	0.58	2.6	0.7	34	500	103	1500	230	450	2.7	6
⑤ SG-0525	SGN-0525	SG-40525	SGN-40525	1/2 ⑦	3.1	0.83	3.8	1.0	34	500	170	2500	230	450	2.7	6
⑤ SG-0535	SGN-0535	SG-40535	SGN-40535	1/2 ⑦	4.4	1.16	5.3	1.4	34	500	170	2500	230	450	2.7	6
⑤ SG-0550	SGN-0550	SG-40550	SGN-40550	1/2 ⑦	6.3	1.66	7.6	2.0	34	500	170	2500	230	450	3.2	7
⑤ SG-0570	SGN-0570	SG-40570	SGN-40570	1/2 ⑦	8.8	2.32	10.6	2.8	34	500	124	1800	230	450	3.2	7
⑤ SG-0510	SGN-0510	SG-40510	SGN-40510	1/2 ⑦	12.5	3.31	15.1	4.0	34	500	86	1250	230	450	3.6	8
⑤ SG-0514	SGN-0514	SG-40514	SGN-40514	3/4 ⑦	17.6	4.64	21.2	5.6	34	500	62	900	230	450	4.1	9
⑤ SG-0519	SGN-0519	SG-40519	SGN-40519	3/4 ⑦	23.8	6.30	28.8	7.6	14	200	28	400	230	450	4.5	10
⑤ SG-0528	SGN-0528	SG-40528	SGN-40528	3/4 ⑦	35.1	9.28	42.4	11.2	7	100	14	200	230	450	5	11
SG-0729	SGN-0729	SG-40729	SGN-40729	1 ⑦	8.8	2.3	10.6	2.8	34	500	170	2500	230	450	6.4	14
SG-0741	SGN-0741	SG-40741	SGN-40741	1 ⑦	12.5	3.3	15.1	4.0	34	500	170	2500	230	450	6.8	15
SG-0758	SGN-0758	SG-40758	SGN-40758	1 ⑦	17.6	4.6	21.2	5.6	34	500	170	2500	230	450	7.7	17
SG-0782	SGN-0782	SG-40782	SGN-40782	1 ⑦	25.1	6.6	30.3	8.0	34	500	155	2250	230	450	8.2	18
SG-0711	SGN-0711	SG-40711	SGN-40711	1 ⑦	35.1	9.3	42.4	11.2	34	500	110	1600	230	450	8.6	19
SG-0716	SGN-0716	SG-40716	SGN-40716	1 ⑦	50.0	13.0	61.0	16.0	34	500	76	1100	230	450	9.1	20
SG-0722	SGN-0722	SG-40722	SGN-40722	1 1/2 x 1 1/4 ⑦	69.0	18.0	83.0	22.0	34	500	110	1600	230	450	18.6	41
SG-0732	SGN-0732	SG-40732	SGN-40732	1 1/2 x 1 1/4 ⑦	100.0	26.0	121.0	32.0	34	500	76	1100	230	450	19.5	43
SG-1009	–	SG-41009	–	1 ⑧	50.0	13.0	61.0	16.0	34	500	170	2500	230	450	20.5	45
SG-1013	–	SG-41013	–	1 1/2 ⑧	78.0	21.0	95.0	25.0	34	500	130	1900	230	450	22.1	49
SG-1026	–	SG-41026	–	2 ⑧	157.0	41.0	189.0	50.0	34	500	68	1000	230	450	24.5	54
SG-1420	–	SG-41420	–	2 ⑧	220.0	58.0	265.0	70.0	34	500	75	1100	230	450	59.1	130
SG-1436	–	SG-41436	–	3 ⑧	392.0	104.0	473.0	125.0	20	290	40	580	230	450	71.5	158
SG-1456	–	SG-41456	–	4 ⑧	597.0	158.0	719.0	190.0	13	190	26	380	230	450	85.8	189

① Carbon graphite bushings are standard when mechanical (face type) shaft seal option is specified. Needle bearings standard with lip seals.

② Standard Buna-N seals (O-Rings and shaft lip seals) can be used from -40°F to +225°F (-40°C to +107°C). With optional sealing elements of PTFE or Kalrez®, temperatures up to +450°F (+230°C) are possible. Extra clearances may be required. Contact factory for recommendations.

③ See model numbering code, page 341.1.2.

④ For maximum recommended discharge pressures when handling other viscosities and/or operating at other speeds, visit www.vikingpump.com/pumpselector.

⑤ UL 343 rating (-X) for fuel oil is available on this pump.

⑥ Nominal capacity based on 100 SSU (22 cSt) liquid at 100 PSI (7 BAR)

⑦ NPT standard. Consult factory for other port size or type options such as BSP, SAE O-Ring or other.

⑧ SAE J518 Code 61 flange with metric threaded fastener holes standard. Consult factory for other port sizes or type options such as NPT, BSP, SAE O-Ring or other.

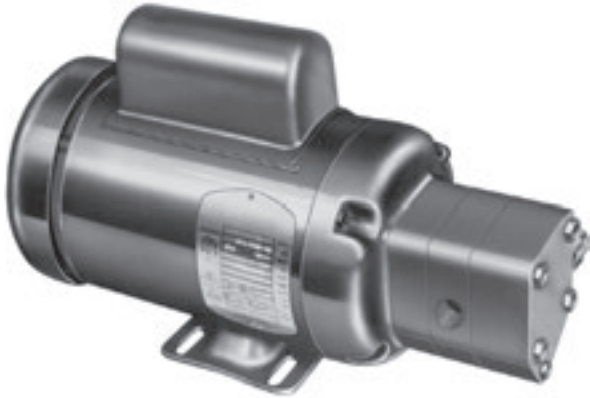
NOTE: Adapter from SAE J518 Code 61 flange or tapped port to ANSI or DIN flange available from Viking. Contact factory with desired flange face and length for quote.

Metric conversions are based on US measurements.

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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

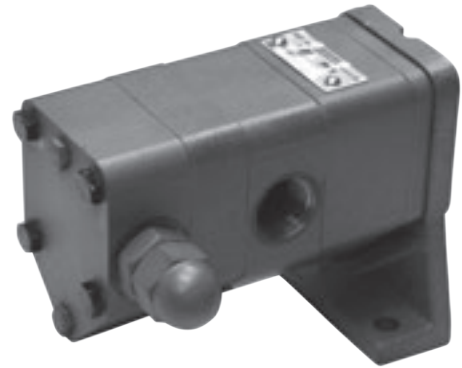
DRIVE OPTIONS



FOUR-BOLT MOTOR MOUNTED UNITS (“M4” DRIVE)

Available with either Series SG-04 or SG-05 integral pump and motor units. It helps reduce onsite assembly costs and provides maximum compactness where space is at a premium.

Dimensions for Four-Bolt Motor Mounted Units (“M4” Drive) — See Page 341.1.15.



FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps are available mounted to a foot-bracket that is machined by Viking for an accurate fit with the pump. “B” Drive required for cartridge seals on SG-10 and -14. Outboard bearing required for side loads.

Dimensions for Foot-Bracket Mounted Pumps (“B” Drive)— See Page 341.1.16-17.

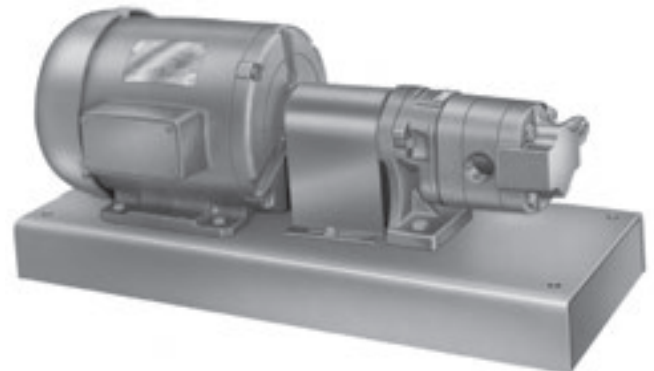


MOTOR MOUNTED UNITS (“M” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps, in combination with the NEMA “C” flange or “IEC” bracket and flexible coupling, provide an easily assembled compact pumping unit. This mounting arrangement eliminates the need for on-site coupling alignment that is normally required with a base mounted unit.

Dimensions for NEMA C-Flange Motor Mounted Units (“M” Drive) — See Page 341.1.11-12.

Dimensions for IEC Motor Mounted Units (“M” Drive) — See Page 341.1.13-14.



BASE MOUNTED UNITS (“D” DRIVE)

Series SG-04, -05, -07, -10 and -14 external gear single pumps mounted to a Viking rectangular, formed steel base provides you with a solid mounting for the drive equipment and the foot-bracket mounted pump.

NOTE: This mounting arrangement requires on-site coupling alignment.

Dimensions for Base Mounted Units (“D” Drive) — See Page 341.1.18.

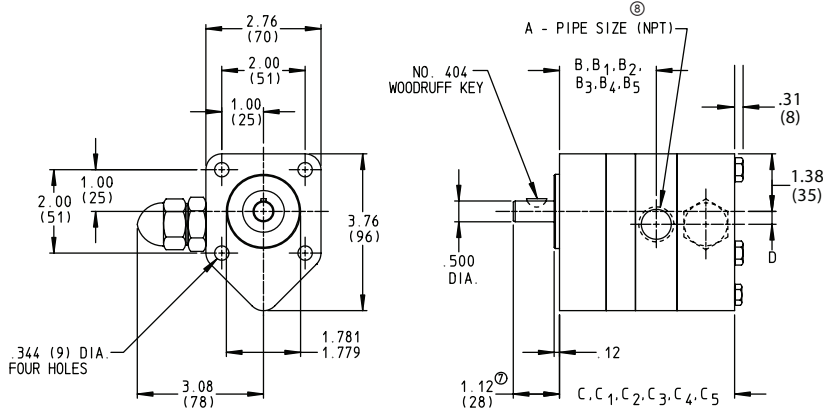
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



For NEMA "M" Drives, see page 341.1.11
For IEC "M" Drives, see page 341.1.13
For "M4" Drives, see page 341.1.15
For "B" Drives, see page 341.1.16
For "D" Drives, see page 341.1.18

NOTE: Dimensions in inches (millimeters)

MODEL NO.		A	B	① B ₁	② B ₂	③ B ₃	④ B ₄	⑤ B ₅	C	① C ₁	② C ₂	③ C ₃	④ C ₄	⑤ C ₅	D	
LIP SEAL	MECH. SEAL															
SG-0417	SG-40417	3/8	in	1.80	2.68	2.18	1.99	2.87	2.37	3.68	4.56	4.06	2.68	3.56	3.06	0.31
			mm	46	68	55	51	73	60	93	116	103	68	90	78	8
SG-0418	SG-40418	3/8	in	1.80	2.68	2.18	1.99	2.87	2.37	3.68	4.56	4.06	2.68	3.56	3.06	0.31
			mm	46	68	55	51	73	60	93	116	103	68	90	78	8
SG-0425	SG-40425	3/8	in	1.87	2.75	2.25	2.06	2.94	2.44	3.75	4.63	4.13	2.75	3.63	3.13	0.31
			mm	47	70	57	52	75	62	95	118	105	70	92	80	8
SG-0435	SG-40435	3/8	in	1.97	2.85	2.35	2.16	3.04	2.54	3.85	4.73	4.23	2.85	3.73	3.23	0.31
			mm	47	70	57	52	75	62	95	118	105	70	92	80	8
SG-0450	SG-40450	3/8	in	2.12	3.00	2.50	2.31	3.19	2.69	4.00	4.88	4.38	3.00	3.88	3.38	0.31
			mm	54	76	64	58	81	68	102	124	111	76	99	86	8
SG-0470	SG-40470	3/8	in	2.32	3.20	2.70	2.51	3.39	2.89	4.20	5.08	4.58	3.20	4.08	3.58	0.31
			mm	59	81	69	64	86	73	107	129	116	81	104	91	8
SG-0518 SGN-0518	SG-40518 SGN-40518	1/2	in	1.80	2.68	2.18	1.99	2.87	2.37	3.68	4.56	4.06	2.68	3.56	3.06	0.31
			mm	46	68	55	51	73	60	93	116	103	68	90	78	8
SG-0525 SGN-0525	SG-40525 SGN-40525	1/2	in	1.87	2.75	2.25	2.06	2.94	2.44	3.75	4.63	4.13	2.75	3.63	3.13	0.31
			mm	47	70	57	52	75	62	95	118	105	70	92	80	8
SG-0535 SGN-0535	SG-40535 SGN-40535	1/2	in	1.97	2.85	2.35	2.16	3.04	2.54	3.85	4.73	4.23	2.85	3.73	3.23	0.31
			mm	50	72	60	55	77	65	98	120	107	72	95	82	8
SG-0550 SGN-0550	SG-40550 SGN-40550	1/2	in	2.12	3.00	2.50	2.31	3.19	2.69	4.00	4.88	4.38	3.00	3.88	3.38	0.31
			mm	54	76	64	58	81	68	102	124	111	76	99	86	8
SG-0570 SGN-0570	SG-40570 SGN-40570	1/2	in	2.32	3.20	2.70	2.51	3.39	2.89	4.20	5.08	4.58	3.20	4.08	3.58	0.31
			mm	59	81	69	64	86	73	107	129	116	81	104	91	8
⑥ SG-0510 SGN-0510	⑥ SG-40510 SGN-40510	1/2	in	1.62	2.50	2.00	1.62	2.50	2.00	4.50	5.38	4.88	3.50	4.38	3.88	0.31
			mm	41	64	51	41	64	51	114	137	124	89	111	99	8
⑥ SG-0514 SGN-0514	⑥ SG-40514 SGN-40514	3/4	in	1.82	2.70	2.20	1.82	2.70	2.20	4.90	5.78	5.28	3.90	4.78	4.28	0.19
			mm	46	69	56	46	69	56	124	147	134	99	121	109	5
⑥ SG-0519 SGN-0519	⑥ SG-40519 SGN-40519	3/4	in	2.07	2.95	2.45	2.07	2.95	2.45	5.40	6.28	5.78	4.40	5.28	4.78	0.19
			mm	53	75	62	53	75	62	137	160	147	112	134	121	5
⑥ SG-0528 SGN-0528	⑥ SG-40528 SGN-40528	3/4	in	1.82	2.70	2.20	1.82	2.70	2.20	6.30	7.18	6.68	5.30	6.18	5.68	0.19
			mm	46	69	56	46	69	56	160	182	170	135	157	144	5

① These dimensions apply when the mechanical shaft seal option is selected.

② These dimensions apply when the overhung load option (outboard bearing) is selected.

③ These dimensions apply when the relief valve is deleted.

④ These dimensions apply when the relief valve is deleted and the mechanical shaft seal option is selected.

⑤ These dimensions apply when the relief valve is deleted and the overhung load option (outboard bearing) is selected.

⑥ These models have the ports in the casing. Others ported in separation plate.

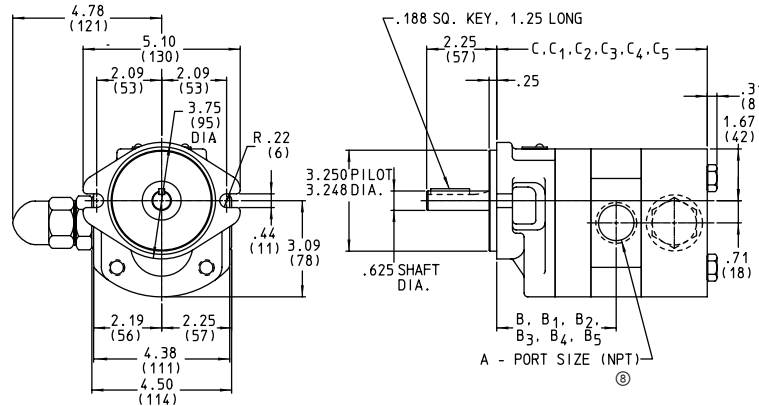
⑦ When the overhung load option (outboard bearing) is selected the pump shaft extension becomes 1.62" (41mm).

⑧ Standard ports NPT. Optional threads include BSP and SAE O-ring J1453.

NOTE: Bracket Pilot USA4F17

VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-07, SGN-07 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



For NEMA "M" Drives, see page 341.1.11
For IEC "M" Drives, see page 341.1.13
For "B" Drives, see page 341.1.16
For "D" Drives, see page 341.1.18

NOTE: Dimensions in inches (millimeters)

MODEL NO.	A		B	① B ₁	② B ₂	③ B ₃	④ B ₄	⑤ B ₅	C	① C ₁	② C ₂	③ C ₃	④ C ₄	⑤ C ₅
SG-0741 SGN-0741	⑥ 1	in	3.10	4.72	3.29	4.91	3.54	5.16	6.03	7.65	4.41	6.03	6.91	8.53
		mm	79	120	84	125	90	131	153	194	112	153	176	217
SG-0758 SGN-0758	⑥ 1	in	3.27	4.89	3.46	5.08	3.71	5.33	6.20	7.82	4.58	6.20	7.08	8.70
		mm	83	124	88	129	94	135	157	199	116	157	180	221
SG-0782 SGN-0782	⑥ 1	in	3.51	5.13	3.70	5.32	3.95	5.57	6.44	8.06	4.82	6.44	7.32	8.94
		mm	89	130	94	135	100	141	164	205	122	164	186	227
SG-0711 SGN-0711	⑥ 1	in	3.84	5.46	4.03	5.65	4.28	5.90	6.77	8.39	5.15	6.77	7.65	9.27
		mm	98	139	102	144	109	150	172	213	131	172	194	235
SG-0716 SGN-0716	⑥ 1	in	4.34	5.96	4.53	6.15	4.78	6.40	7.27	8.89	5.65	7.27	8.15	9.77
		mm	110	151	115	156	121	163	185	226	144	185	207	248
SG-0722 SGN-0722	⑦ 1½ x 1¼	in	4.28	5.90	4.28	5.90	—	—	10.42	12.04	8.80	10.42	—	—
		mm	109	150	109	150	—	—	265	306	224	265	—	—
SG-0732 SGN-0732	⑦ 1½ x 1¼	in	4.78	6.40	4.78	6.40	—	—	11.42	13.04	9.80	11.42	—	—
		mm	121	163	121	163	—	—	290	331	249	290	—	—

① These dimensions apply when the mechanical shaft seal option is selected.

② These dimensions apply when the relief valve is deleted.

③ These dimensions apply when the relief valve is deleted and the mechanical shaft seal option is selected.

④ These dimensions apply when the oversize port option (1½" NPT suction, 1¼" NPT discharge) is selected, with or without the relief valve.

⑤ These dimensions apply when the oversize port option (1½" NPT suction, 1¼" NPT discharge) and the mechanical seal option are both selected, with or without the relief valve.

⑥ Standard ports for these size pumps are 1" NPT. Oversize ports are available (1½" NPT suction, 1¼" NPT discharge) as an option on clockwise rotation pumps only. See footnotes 4 and 5 for appropriate dimensions.

⑦ Standard ports for these size pumps are 1½" NPT suction, 1¼" NPT discharge. These pumps are only available in clockwise rotation.

⑧ Standard ports NPT. Optional threads include BSP and SAE O-ring J1453.

NOTE: SG-07 bracket to SAE-A 2-bolt standard for NEMA or IEC M-drive.

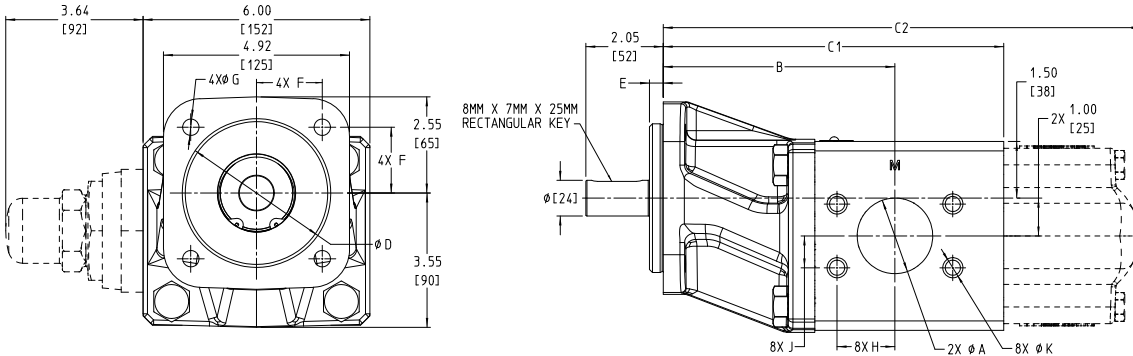
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-10 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



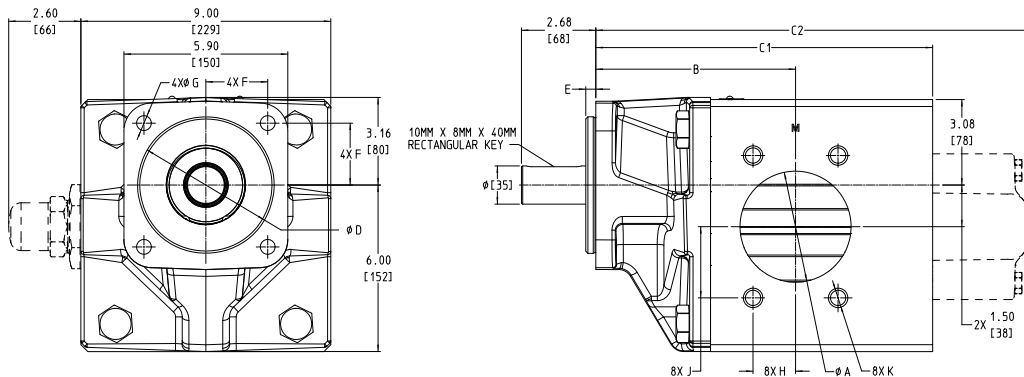
For NEMA "M" Drives, see page 341.1.12
For IEC "M" Drives, see page 341.1.14
For "B" Drives, see page 341.1.17

NOTE: Dimensions in inches (millimeters)

MODEL NO.	④		A ③	B	C1	C2	D	E	F	G	H	J	K
SG-1009 ①	U	in	1.00	5.35	7.42	10.99	4.00	0.37	1.77	0.56	0.52	1.03	M10 X 1.50 X 15
SG-1009 ②	M	mm	25	136	188	279	100	9.2	44.2	11	13	26	M10 X 1.50 X 15
SG-1013 ①	U	in	1.50	5.91	8.04	11.61	4.00	0.37	1.77	0.56	1.38	0.70	M12 X 1.75 X 19.5
SG-1013 ②	M	mm	38	150	204	295	100	9.2	44.2	11	35	18	M12 X 1.75 X 19.5
SG-1026 ①	U	in	2.00	6.13	9.01	12.58	4.00	0.37	1.77	0.56	1.53	0.84	M12 X 1.75 X 19.5
SG-1026 ②	M	mm	51	156	229	320	100	9.2	44.2	11	39	21	M12 X 1.75 X 19.5

- ① Bracket pilot to SAE-B 4-bolt standard for NEMA M-drive or foot bracket
- ② Bracket pilot to 100 mm ISO 3019-2 DIN 4x standard for IEC M-drive or foot bracket
- ③ Standard ports SAE J518 code 61 flange. Optional tapped ports on same centerline include NPT or BSP (up to 2") or SAE O-Ring J1453 (up to 2")
- ④ Bracket pilot (digit 12 in Model Number Key page 341.1.2)

DIMENSIONS – SERIES SG-14 UNMOUNTED SINGLE PUMPS (LIP AND MECHANICAL SEAL)



For NEMA "M" Drives, see page 341.1.12
For IEC "M" Drives, see page 341.1.14
For "B" Drives, see page 341.1.17

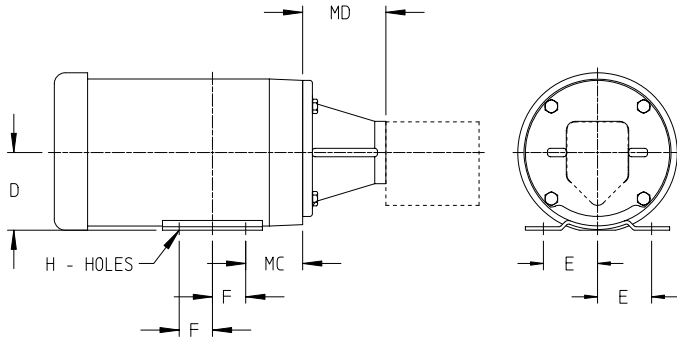
NOTE: Dimensions in inches (millimeters)

MODEL NO.	④		A ③	B	C1	C2	D	E	F	G	H	J	K
SG-1420 ①	U	in	2.00	6.10	8.53	12.16	5.00	0.49	2.25	0.56	0.84	1.53	M12 X 1.75 X 19.5
SG-1420 ②	M	mm	51	155	217	309	125	9.2	56.6	13.5	21	39	M12 X 1.75 X 19.5
SG-1436 ①	U	in	3.00	6.80	10.13	13.76	5.00	0.49	2.25	0.56	1.22	2.09	M16 X 2.00 X 28.5
SG-1436 ②	M	mm	76	173	257	350	125	9.2	56.6	13.5	31	53	M16 X 2.00 X 28.5
SG-1456 ①	U	in	4.00	7.19	12.13	15.76	5.00	0.49	2.25	0.56	1.53	2.56	M16 X 2.00 X 28.5
SG-1456 ②	M	mm	102	183	308	400	125	9.2	56.6	13.5	39	65	M16 X 2.00 X 28.5

- ① Bracket pilot SAE-C 4-bolt standard for NEMA M-drive or foot bracket
- ② Bracket pilot 125 mm ISO 3019-2 DIN 4x standard for IEC M-drive or foot bracket
- ③ Standard ports SAE J518 code 61 flange. Optional tapped ports on same centerline include NPT or BSP (up to 4") or SAE O-Ring J1453 (up to 2")
- ④ Bracket pilot (digit 12 in Model Number Key page 341.1.2)

VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

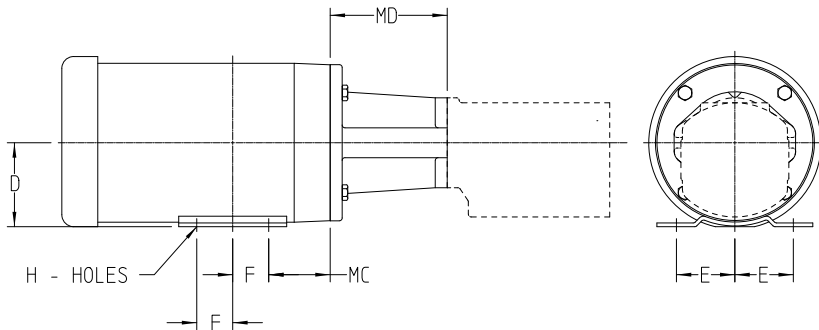
DIMENSIONS – SERIES SG-04, SG-05, SGN-05 C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA



① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

MOTOR FRAME SIZE		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	.34 (8.6) SLOT	2.56 (65.0)	3.75 (95.3)	34 (15)
143TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	3.75 (95.3)	52 (24)
145TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	3.75 (95.3)	57 (26)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.15)	.41 (10.4)	3.62 (92.0)	4.25 (108.0)	83 (38)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.62 (92.0)	4.25 (108.0)	88 (40)

DIMENSIONS – SERIES SG-07, SGN-07 – C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA



① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

MOTOR FRAME SIZE		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	.34 (8.6) SLOT	2.56 (65.0)	4.88 (124.0)	41 (19)
143TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	4.88 (124.0)	60 (27)
145TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	4.88 (124.0)	70 (32)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.15)	.41 (10.4)	3.62 (92.0)	5.59 (142.0)	108 (49)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.62 (92.0)	5.59 (142.0)	123 (56)
213TC	in (mm)	5.25 (133.4)	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.50 (114.3)	6.26 (159.0)	161 (73)
215TC	in (mm)	5.25 (133.4)	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.50 (114.3)	6.26 (159.0)	195 (88)

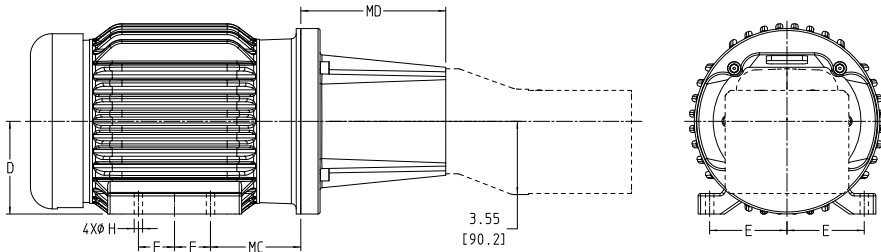
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-10 MOTOR MOUNT (“M” DRIVE) – NEMA



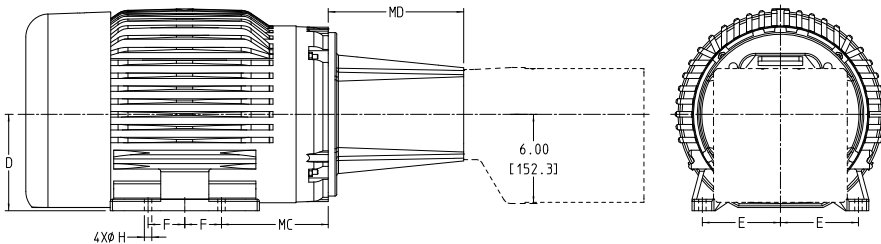
① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Pump extends below motor feet. Motor must be blocked up.

NOTE: Cartridge seals may not be used with M-Drives

MOTOR FRAME		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9) ②	2.44 (62.0)	1.50 (38.1)	.34 (8.6)	2.56 (65.0)	5.06 (128.5)	49 (22.1)
143TC	in (mm)	3.50 (88.9) ②	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	5.06 (128.5)	65 (29.7)
145TC	in (mm)	3.50 (88.9) ②	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	5.06 (128.5)	74 (33.5)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.2)	.41 (10.4)	3.38 (85.9)	5.69 (144.5)	151 (68.6)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.38 (85.9)	5.69 (144.5)	159 (71.9)
213TC	in (mm)	5.25 (133.4)	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.25 (108.0)	6.63 (168.4)	190 (86.1)
215TC	in (mm)	5.25 (133.4)	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.25 (108.0)	6.63 (168.4)	257 (116.6)
254TC	in (mm)	6.25 (158.8)	5.00 (127.0)	4.13 (104.9)	.53 (13.5)	4.75 (120.7)	7.04 (178.8)	284 (128.9)
256TC	in (mm)	6.25 (158.8)	5.00 (127.0)	5.00 (127.0)	.53 (13.5)	4.75 (120.7)	7.04 (178.8)	328 (149.0)
284TC	in (mm)	7.00 (177.8)	5.50 (139.7)	4.75 (120.7)	.53 (13.5)	4.75 (120.7)	8.11 (206.0)	432 (195.8)
286TC	in (mm)	7.00 (177.8)	5.50 (139.7)	5.50 (139.7)	.53 (13.5)	4.75 (120.7)	8.11 (206.0)	485 (220.1)

DIMENSIONS – SERIES SG-14 MOTOR MOUNT (“M” DRIVE) – NEMA



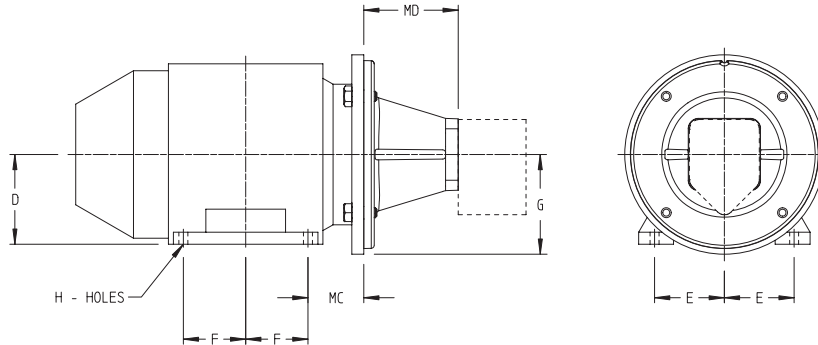
① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Pump extends below motor feet. Motor must be blocked up.

MOTOR FRAME		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
213TC	in (mm)	5.25 (133.4) ②	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.50 (114.3)	7.63 (193.8)	190 (86.1)
215TC	in (mm)	5.25 (133.4) ②	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.50 (114.3)	7.63 (193.8)	257 (116.5)
254TC	in (mm)	6.25 (158.8)	5.00 (127.0)	4.13 (104.9)	.53 (13.5)	4.75 (120.7)	7.63 (193.8)	284 (128.9)
256TC	in (mm)	6.25 (158.8)	5.00 (127.0)	5.00 (127.0)	.53 (13.5)	4.75 (120.7)	7.63 (193.8)	328 (149.0)
284TC	in (mm)	7.00 (177.8)	5.50 (139.7)	4.75 (120.7)	.53 (13.5)	4.75 (120.7)	9.12 (231.6)	432 (195.8)
286TC	in (mm)	7.00 (177.8)	5.50 (139.7)	5.50 (139.7)	.53 (13.5)	4.75 (120.7)	9.12 (231.6)	485 (220.1)
324TC	in (mm)	8.00 (203.2)	6.25 (158.8)	5.25 (133.4)	.53 (13.5)	5.25 (133.4)	9.13 (231.6)	680 (308.5)

VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

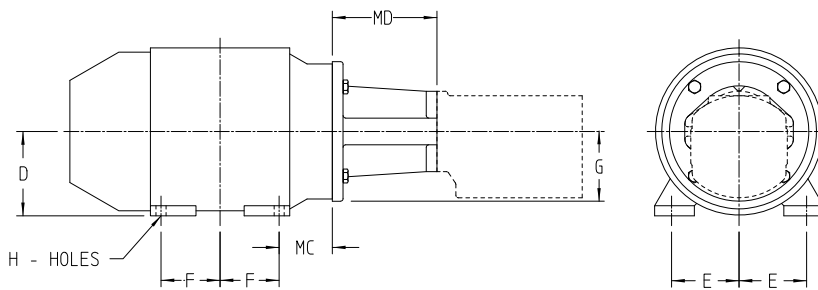
DIMENSIONS – SERIES SG-04, SG-05, SGN-05 – MOTOR MOUNT – (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 80 B35 FLANGE	in (mm)	3.15 (80)	2.46 (62.5)	1.97 (50)	3.94 (100)	0.39 (10)	1.97 (50)	3.73 (94.7)	46 (21)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	3.73 (94.7)	64 (29)

- ① Motor shipping weight listed is for a typical IEC motor.
(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

DIMENSIONS – SERIES SG-07, SGN-07 – MOTOR MOUNT (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	5.13 (130.3)	68 (31)
IEC 100 B14 FACE	in (mm)	3.94 (100)	3.15 (80)	S 2.20 (56) / L 2.76 (70)	---	0.47 (12)	2.48 (63)	5.26 (133.6)	114 (52)
IEC 112 B14 FACE	in (mm)	4.41 (112)	3.74 (95)	S 2.24 (57) / L 2.76 (70)	---	0.47 (12)	2.76 (70)	5.26 (133.6)	129 (59)

- ① Motor shipping weight listed is for a typical IEC motor.
(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

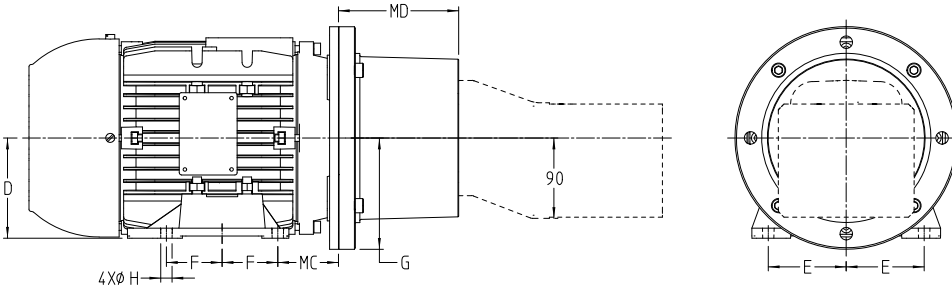
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SG-10 – MOTOR MOUNT (“M” DRIVE) – IEC B35 FRAME



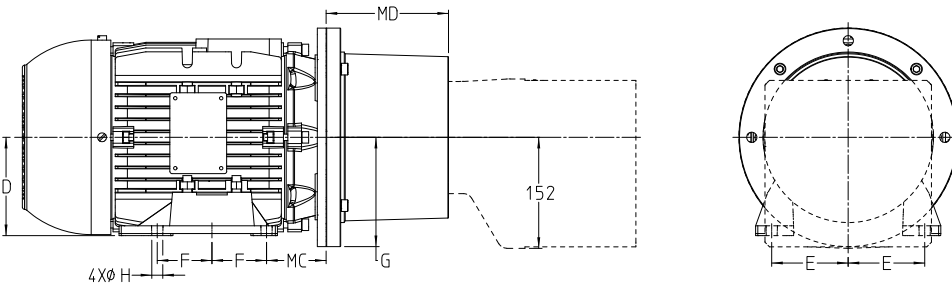
NOTE: Cartridge seals may not be used with M-Drives

MOTOR FRAME SIZE		D	E	F	G	H	MC	BELLHOUSING PN ②	MD	APPROX. DRIVE ① EQUIPMENT SHIPPING WEIGHT IN POUNDS (KG)
90	in (mm)	3.54 (90)	2.76 (70)	2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	2-085-054-720-00	4.88 (124)	63 (28.8)
100L	in (mm)	3.94 (100)	3.15 (80)	2.76 (70)	3.94 (100)	0.47 (12)	2.48 (63)	2-085-050-720-00	5.31 (135)	89 (40.5)
112M	in (mm)	4.41 (112)	3.74 (95)	2.76 (70)	4.92 (125)	0.47 (12)	2.76 (70)	2-085-050-720-00	5.31 (135)	110 (49.9)
132S/M	in (mm)	5.20 (132)	4.25 (108)	2.76 (70)	5.91 (150)	0.47 (12)	3.50 (89)	2-085-051-720-00	5.31 (135)	179 (81.3)
160L	in (mm)	6.30 (160)	5.00 (127)	4.13 (105)	6.89 (175)	0.59 (15)	4.25 (108)	2-085-052-720-00	7.40 (188)	331 (150.3)
180L	in (mm)	7.09 (180)	5.49 (139.5)	4.74 (120.5)	6.89 (175)	0.59 (15)	4.76 (121)	2-085-052-720-00	7.40 (188)	496 (225.1)
200M	in (mm)	7.87 (200)	6.26 (159)	5.26 (133.5)	7.87 (200)	0.71 (18)	5.24 (133)	2-085-053-720-00	8.03 (204)	668 (303.3)

① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Viking offers several bellhousing styles, and these dimensions only pertain to the bellhousing part numbers listed. If using a different part number, dimensions may vary.

DIMENSIONS – SG-14 – MOTOR MOUNT (“M” DRIVE) – IEC B35 FRAME



NOTE: Cartridge seals may not be used with M-Drives

MOTOR FRAME SIZE		D	E	F	G	H	MC	BELLHOUSING PN ②	MD	APPROX. DRIVE ① EQUIPMENT SHIPPING WEIGHT IN POUNDS (KG)
132	in (mm)	5.20 (132)	4.25 (108)	2.76 (70)	5.91 (150)	0.47 (12)	3.50 (89)	2-085-041-720-00	6.61 (168)	179 (81.3)
160	in (mm)	6.30 (160)	5.00 (127)	4.13 (105)	6.89 (175)	0.59 (15)	4.25 (108)	2-085-048-720-00	8.03 (204)	331 (150.3)
180	in (mm)	7.09 (180)	5.49 (139.5)	4.74 (120.5)	6.89 (175)	0.59 (15)	4.76 (121)	2-085-048-720-00	8.03 (204)	496 (225.1)
200	in (mm)	7.87 (200)	6.26 (159)	5.26 (133.5)	7.87 (200)	0.71 (18)	5.24 (133)	2-085-040-720-00	8.03 (204)	668 (303.3)
225	in (mm)	8.86 (225)	7.01 (178)	5.63 (143)	8.86 (225)	0.71 (18)	5.87 (149)	2-085-049-720-00	9.21 (234)	793 (359.9)

① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Viking offers several bellhousing styles, and these dimensions only pertain to the bellhousing part numbers listed. If using a different part number, dimensions may vary.

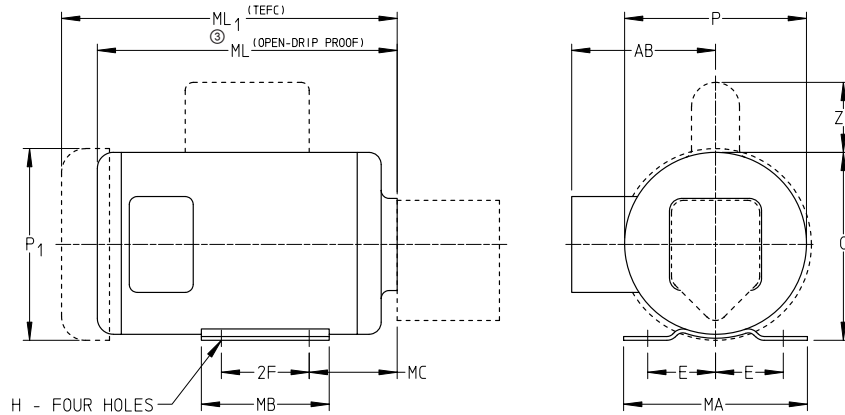


SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)

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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 FOUR-BOLT MOTOR MOUNT (“M4” DRIVE)



CLOSE-COUPLED MOTOR FRAME	② APPROX. DRIVE EQUIPMENT SHIPPING WEIGHT POUNDS (KG)	AB	D	E	2F	H	MA	MB	MC	ENCL.	O	P	P ₁	ZZ
48 "M4" Drive	25 (11.1)	4.50 (114)	3.00 (76)	2.12 (54)	2.75 (70)	.34 (9) SLOT	5.75 (146)	4.00 (102)	2.75 (70)	ODP	5.88 (149)	5.69 (145)	---	2.19 (56)
										TEFC	5.88 (149)	---	6.12 (155)	2.25 (57)
56 "M4" Drive	29 (12.9)	5.25 (133)	3.50 (89)	2.44 (62)	3.00 (76)	.34 (9) SLOT	6.50 (165)	4.50 (114)	2.62 (66)	ODP	6.88 (175)	6.62 (168)	---	2.25 (57)
										TEFC	6.88 (175)	---	7.19 (183)	

① Motor shipping weight listed is for a typical TEFC motor.

(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

② Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

③ ML and ML₁ length dependent on motor horsepower.

NOTE: Dimensions in inches (millimeters)

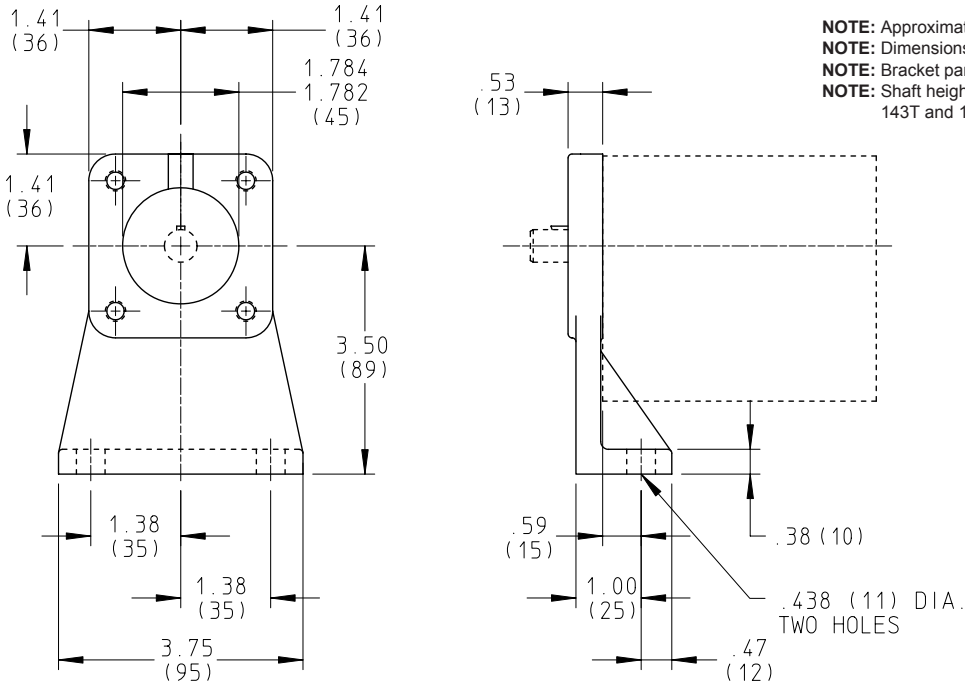
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



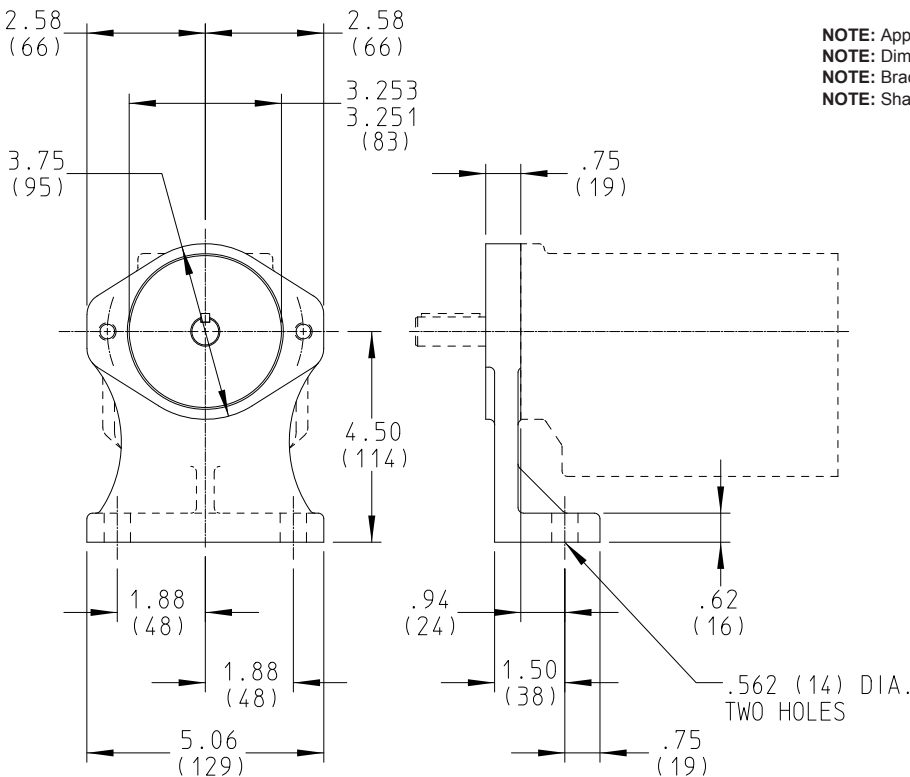
VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 FOOT BRACKET MOUNT (“B” DRIVE)



NOTE: Approximate shipping weight of foot bracket is 2¼ lbs. (0.9 kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Bracket part number is 2-070-012-100-00
NOTE: Shaft height corresponds to Viking's "A" reducer or NEMA 56, 143T and 145T motors.

DIMENSIONS – SERIES SG-07, SGN-07 – FOOT BRACKET MOUNT (“B” DRIVE)

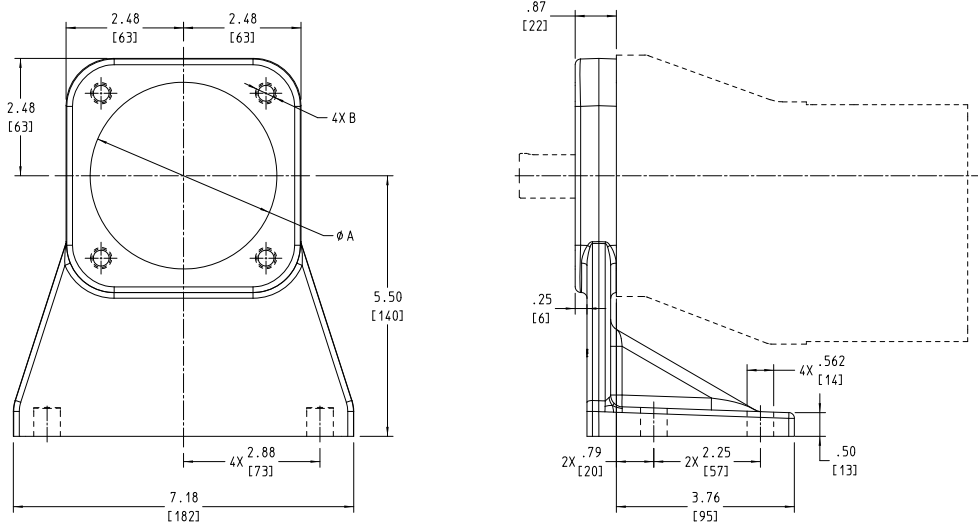


NOTE: Approximate shipping weight of foot bracket is 5 lbs. (1.9 kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Bracket part number is 2-070-200-100-00
NOTE: Shaft height corresponds to NEMA 182T and 184T motors.

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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

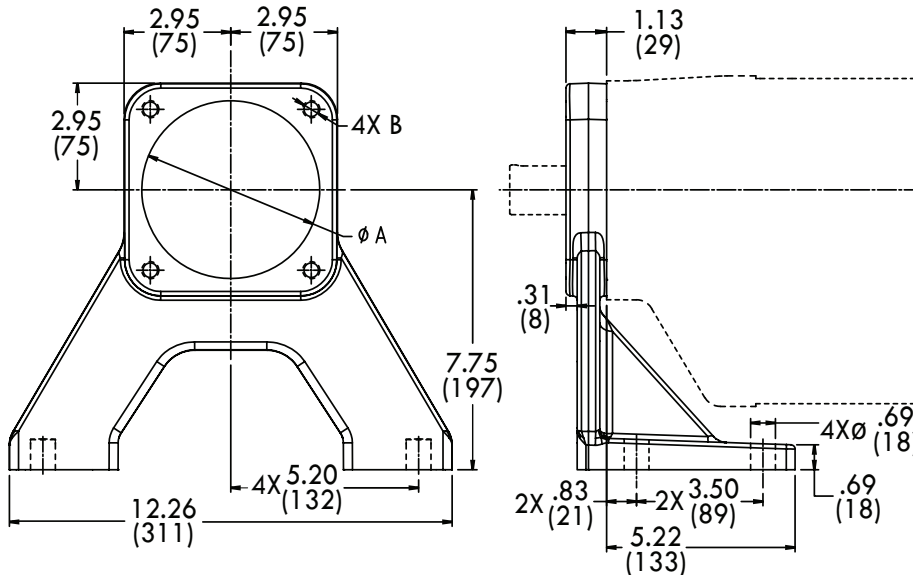
DIMENSIONS – SERIES SG-10 FOOT BRACKET MOUNT (“B” DRIVE)



NOTE: Approximate shipping weight is 11 lbs (4.8 Kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Shaft height corresponds to Viking's "B" reducer.

FOR USE WITH		A	B
PILOT: SAE B 4 BOLT ("U" BRACKET) P/N 2-070-301-100-00	in	4.00	1/2 - 13
PILOT: ISO 100MM 4 BOLT ("M" BRACKET) P/N 2-070-300-100-00	mm	100	M10 X 1.5

DIMENSIONS – SERIES SG-14 FOOT BRACKET MOUNT (“B” DRIVE)



NOTE: Approximate shipping weight is 19 lbs (8.6 Kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Shaft height corresponds to Viking's "C" reducer.

FOR USE WITH		A	B
PILOT: SAE C 4 BOLT ("U" BRACKET) P/N 2-070-400-100-00	in	5.00	1/2 - 13
PILOT: ISO 125MM 4 BOLT ("M" BRACKET) P/N 2-070-401-100-00	mm	125	M12 X 1.75

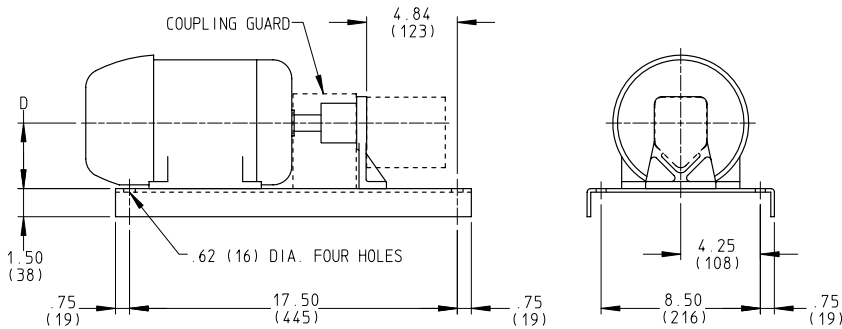
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SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 BASE-MOUNTED UNIT (“D” DRIVE)



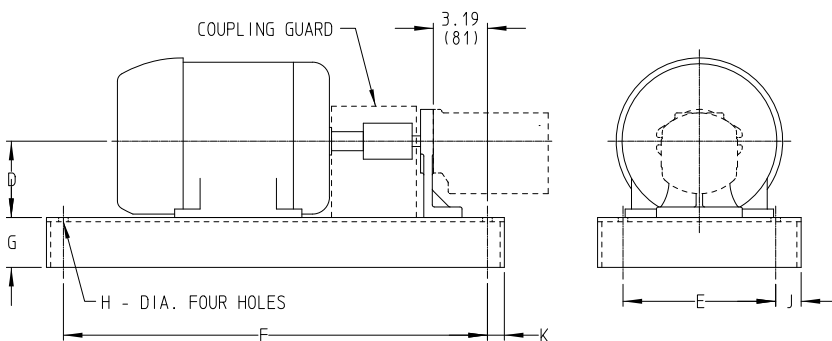
NOTE: Dimensions in inches (millimeters).

MOTOR FRAME SIZE		D	APPROX. MOTOR [Ⓢ] SHIPPING WEIGHT IN POUNDS (KG)	APPROX. DRIVE [Ⓢ] EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56	in	3.50	31 (14)	17 (8)
	mm	89		
143T	in	3.50	50 (23)	17 (8)
	mm	89		
145T	in	3.50	60 (27)	17 (8)
	mm	89		
182T	in	4.50	95 (43)	20 (9)
	mm	114		
184T	in	4.50	110 (50)	20 (9)
	mm	114		

① Motor shipping weight listed is for a typical TEFC motor. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

② Drive equipment shipping weight includes base, foot-bracket, coupling and coupling guard. For total unit shipping weight, add electric motor shipping weight, drive equipment shipping weight and the pump shipping weight shown on the pump specification chart.

DIMENSIONS – SERIES SG-07, SGN-07 BASE-MOUNTED UNIT (“D” DRIVE)



NOTE: Dimensions in inches (millimeters).

MOTOR FRAME SIZE		D	E	F	G	H	J	K	APPROX. MOTOR [Ⓢ] SHIPPING WEIGHT IN POUNDS (KG)	APPROX. DRIVE [Ⓢ] EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56									31 (14)	38 (17)
143T	in	4.50	8.50	20.50	1.50	.50	.75	.75	50 (23)	
145T	(mm)	(114)	(216)	(520)	(190)	(13)	(19)	(19)	60 (27)	
182T	in	4.50	9.00	25.00	2.94	.56	1.50	1.00	95 (43)	49 (22)
184T	(mm)	(114)	(229)	(635)	(75)	(14)	(38)	(25)	110 (50)	
213T	in	5.25	9.00	25.00	2.94	.56	1.50	1.00	145 (66)	56 (25)
215T	(mm)	(133)	(229)	(635)	(75)	(14)	(38)	(25)	179 (81)	

① Motor shipping weight listed is for a typical TEFC motor. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

② Drive equipment shipping weight includes base, foot-bracket, coupling and coupling guard. For total unit shipping weight, add electric motor shipping weight, drive equipment shipping weight and the pump shipping weight shown on the pump specification chart.



SERIES SG-04, -05, -07, -10, -14 (Cast Iron)
SGN-05, -07 (Ductile Iron)

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VIKING SG SERIES SINGLE PUMPS (WITH SHAFT SEAL)

PERFORMANCE CURVE NOTES

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is **not** the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head **Required** by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head **Available** in the system) must be greater than NPSH_R.

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

SG SERIES
NET POSITIVE SUCTION HEAD REQUIRED (NPSH_R) ①
FEET OF LIQUID (SP. GR. 1.0),
VISCOSITIES - 38 SSU TO 750 SSU

Pump Size	Pump Speed (RPM)							
	640	780	950	1150	1450	1750	2900	3450
SG-04 (all sizes)	—	—	—	—	—	9.5	11.5	13.0
SG-0518	3.2	3.2	3.2	3.2	3.2	3.2	5.0	6.2
SG-0525	3.2	3.2	3.2	3.3	3.4	3.4	5.4	6.6
SG-0535	3.3	3.4	3.4	3.5	3.6	3.7	5.8	7.1
SG-0550	3.4	3.5	3.6	3.8	4.0	4.3	6.6	8.0
SG-0570	3.6	3.9	4.1	4.4	4.9	5.5	8.2	9.8
SG-0510 ②	2.5	2.6	2.7	2.8	3.7	4.3	8.2	9.8
SG-0514 ②	2.5	2.6	2.7	2.8	3.7	4.3	9.0	11.5
SG-0519 ②	2.6	2.7	2.8	3.2	4.0	5.0	10.8	13.5
SG-0528 ②	3.0	3.2	3.4	3.9	4.9	6.2	14.0	17.5
SG-0729	3.0	3.1	3.1	3.2	3.8	4.8	11.1	15.6
SG-0741	3.0	3.1	3.1	3.2	3.8	4.8	11.3	16.0
SG-0758	3.0	3.1	3.1	3.2	3.8	4.8	11.8	16.6
SG-0782	3.0	3.1	3.1	3.2	3.8	4.8	12.8	17.6
SG-0711	3.0	3.1	3.1	3.2	3.8	5.0	15.2	20.6
SG-0716	3.0	3.1	3.1	3.2	4.5	6.5	21.0	27.6
SG-0722 ③	3.0	3.1	3.1	3.2	3.8	5.0	N/A	N/A
SG-0732 ③	3.0	3.1	3.1	3.2	4.5	6.5	N/A	N/A
SG-1009	5.5	5.8	6.3	7.0	8.4	10.3	N/A	N/A
SG-1013	5.6	6.0	6.6	7.5	9.2	11.5	N/A	N/A
SG-1026	5.8	6.2	6.9	8.0	10.1	12.8	N/A	N/A
SG-1420	6.9	7.4	8.2	9.4	11.8	15.0	N/A	N/A
SG-1436	7.0	7.7	8.7	10.2	13.3	17.5	N/A	N/A
SG-1456	7.2	8.0	9.3	11.2	15.3	20.9	N/A	N/A

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less, when measured at the pump suction port. Vacuum above 20 In.-Hg. should be avoided. (Refer to “Engineering Data” Catalog Section 510 for information helpful in determining suction line size.)

THIN LIQUIDS: Carbon graphite bushings are recommended for 28 SSU and were used to develop the 28 SSU curve data. These curves should be used when applying the SG Series pumps to such liquids as alcohols, solvents, etc. The maximum drive speed of a pump with carbon graphite bushings is 1750 RPM. For speeds above 1750 RPM and with carbon graphite bushings, special bushing lubrication passageways must be machined. This results in a slightly lower capacity. Consult factory with application details.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated by using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure	
(Inches-Mercury) In.-Hg.	(Kilopascal) kPa*	(lbf/in. ²) PSI	(Kilopascal) kPa*
1	3.4	1	6.9
5	17	25	172
10	34	50	345
15	51	100	690
20	68	150	1034
25	85	200	1379
		250	1724
		500	3448

*1 kPa = 1 bar

1 m = 3.28 feet
1 foot = 0.305 m

① - At pump suction port

② - Standard ports are in casing

③ - 1-1/2" tapped suction port standard

N/A - Not Applicable - pump not rated for speeds listed.

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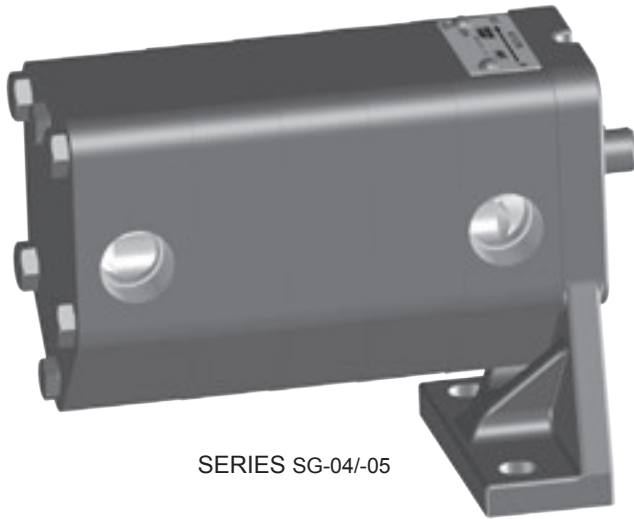
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External Gear Pumps

(Double Pumps with Shaft Seal)

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VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)



SERIES SG-04/-05



SERIES SG-07

OPERATING RANGE:

SG Pumps (Cast Iron, Lip or Mechanical Sealed)		
Displacement Combinations	No.	70
Flow Range (Per Section)	GPM	0.06 to 16 / Section
	M ³ /Hr	0.011 to 3.0 / Section
Pressure Range	PSI	to 500 Continuous, 2,500 Intermittent
	Bar	to 34 Continuous, 170 Intermittent
Temperature Range	°F	-40° to +450°
	°C	-40° to +230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

SGN Pumps (Ductile Iron, Lip or Mechanical Sealed)		
Displacement Combinations	No.	49
Flow Range	GPM	0.7 to 16 / Section
	M ³ /Hr	0.16 to 3.0 / Section
Pressure Range	PSI	to 500 Continuous, 2,500 Intermittent
	Bar	to 34 Continuous, 170 Intermittent
Temperature Range	°F	-40° to +450°
	°C	-40° to +230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

SERIES DESCRIPTION

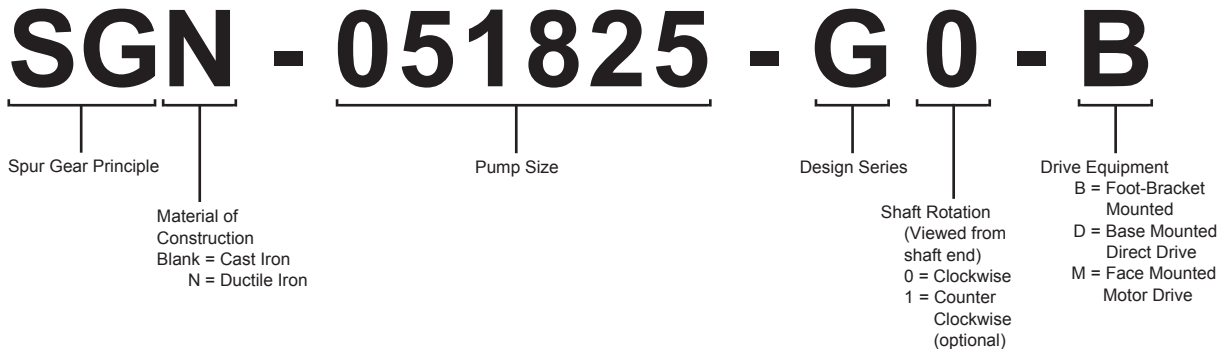
Viking SG-04, -05 and -07 Double Pumps allow two independent pumping units to be operated from a single power source to reduce equipment costs and simplify installation. System flexibility is maintained as each pumping unit can be operated at a different pressure without affecting the other. SG-10 and -14 Double Pumps are available, but not as standard product, contact factory.

Standard configuration is with separate suction and discharge ports for each section. A sleeve bearing (bushing) limits fluid flow between sections, but if two separate liquids are pumped, some mixing of liquids is to be expected. Where both liquids cannot

contact each other (such as reactive polyurethane foam components) custom pumps with seals between sections are available (contact factory). Optional configurations include a common suction port and separate discharge ports (to split one liquid source into two flow streams), or separate suction ports and a common discharge port (to blend two liquids).

These pumps are NOT furnished with pressure relief valves as standard. Some form of overpressure protection must be provided for the system (e.g. relief valve in discharge line, torque limiting device, rupture disks, etc).

MODEL NUMBER KEY

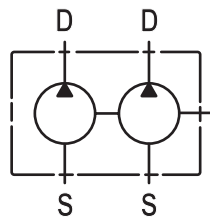
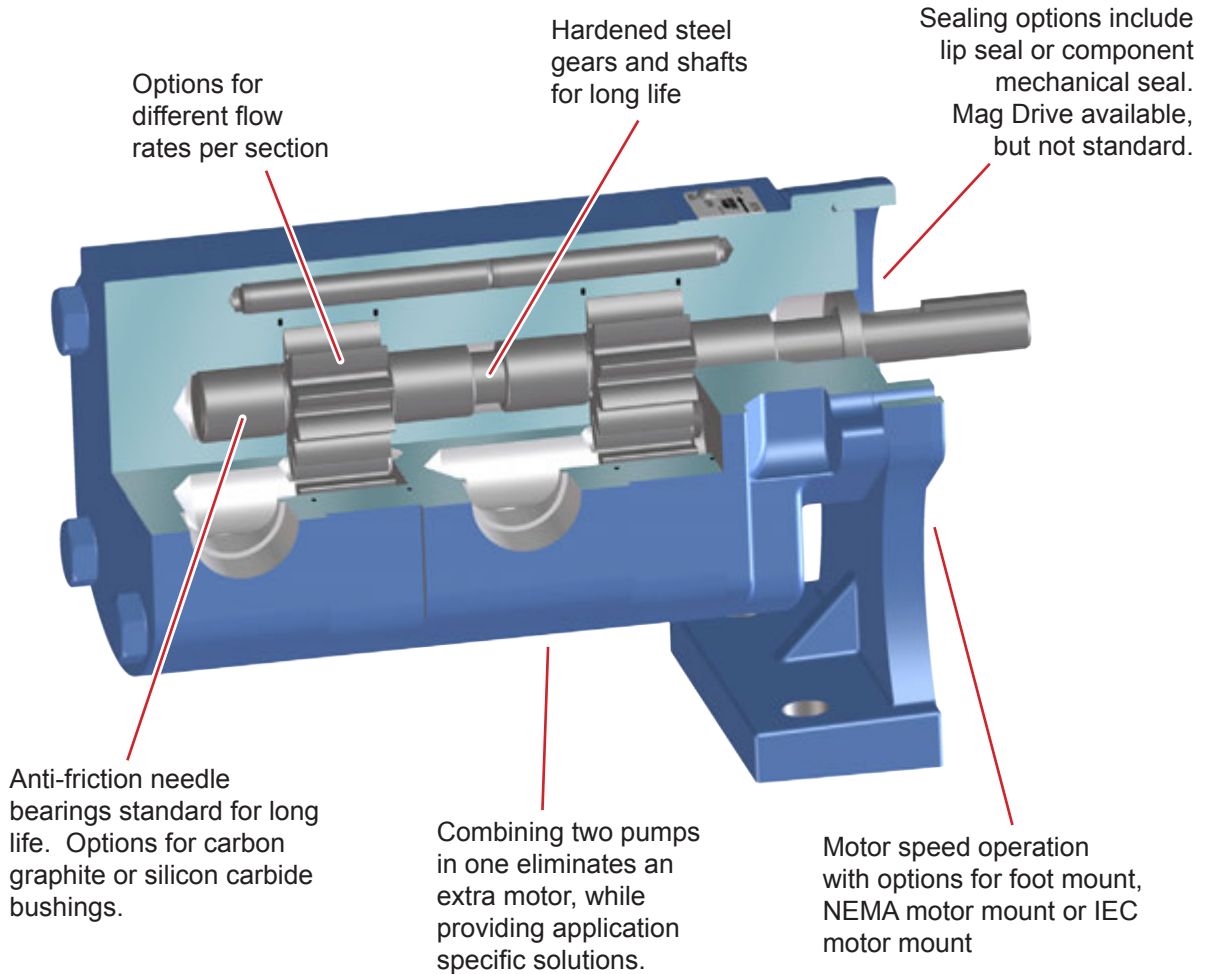


SERIES SG-04 AND SG-05 — 90° POSITIONING	SERIES SG-07 — 180° POSITIONING
<p>Pump can be mounted in any of four 90° positions, giving the option of horizontal or vertical porting. Arrow shows direction of motor rotation as clockwise, looking from shaft end. Ports are not on shaft centerline, so inverting will result in different port locations.</p>	<p>Clockwise pump can be mounted in either of two positions to obtain suction on right or left hand side. Offers 90° positioning with "M" drive. Ports are not on shaft centerline, so inverting will result in different port locations.</p>

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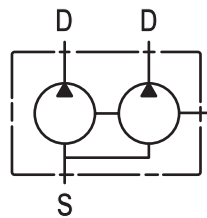
VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

PUMP CONSTRUCTION AND FEATURES



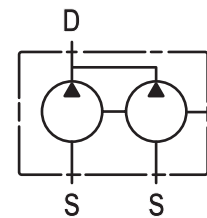
SEPARATE SUCTION & DISCHARGE PORTS
STANDARD

Separate inlet and discharge ports standard to pump two liquids or use one section for scavenge, one for pumping.



COMMON SUCTION, SEPARATE DISCHARGE PORTS
OPTIONAL

Option for common inlet / split discharge to split flows to two applications.



SEPARATE SUCTION, COMMON DISCHARGE PORT
OPTIONAL

Option for split inlet / common discharge to mix two liquids in constant proportions.

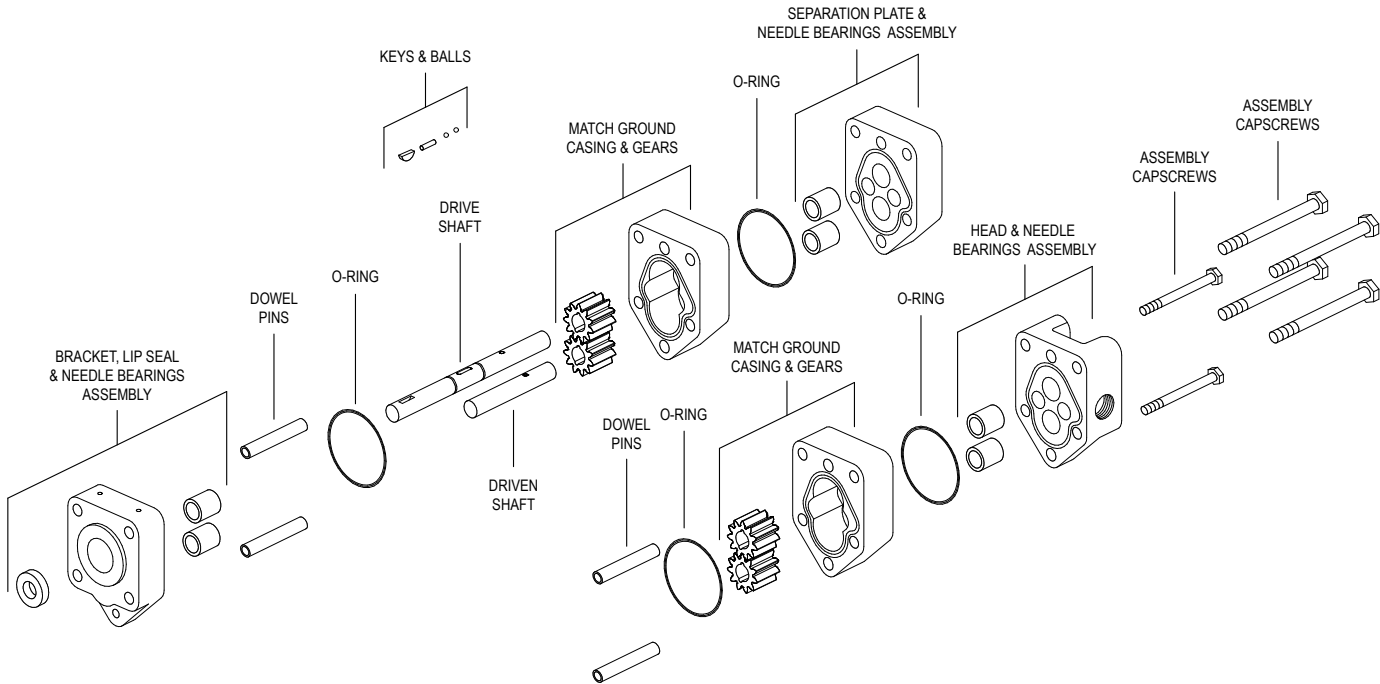
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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

COMPONENT IDENTIFICATION



MATERIALS OF CONSTRUCTION - ALL SERIES

Component	Standard - SG-04, -05, -07	Standard - SGN-05, -07	Options
Bracket	Cast Iron, ASTM A823	Ductile Iron, ASTM A536	Surface Hardening (Vitek)
Casing	Cast Iron, ASTM A823	Ductile Iron, ASTM A536	Surface Hardening (Vitek)
Head, Separation Plate	Cast Iron, ASTM A823	Ductile Iron, ASTM A536	Surface Hardening (Vitek)
Gears	Heat Treated Steel	Heat Treated Steel	— — —
Shafts	Heat Treated Steel, ASTM A322	Heat Treated Steel, ASTM A322	— — —
Anti-Friction Needle Bearings ①	Bearing Steel	Bearing Steel	— — —
Journal Bearings	— — —	— — —	Carbon Graphite ②, High Temp Carbon Graphite, Silicon Carbide ③
Outboard Ball Bearing	— — —	— — —	Bearing Steel
O-Rings	Buna-N	Buna-N	Neo., Viton®, PTFE, Kalrez®
Lip Seals	Buna-N	Buna-N	Neo., Viton®, PTFE
Component Mechanical Seals	Carbon/Ni-Resist	Carbon/Ni-Resist	Carbon / Silicon Carbide, Silicon Carbide/Silicon Carbide
"B" Drive Foot Bracket	Cast Iron, ASTM A48	Cast Iron, ASTM A48	— — —
"M" Drive Motor Bracket	Cast Iron, ASTM A48	Cast Iron, ASTM A48	— — —

- ① Needle bearings standard with lip seals.
- ② Carbon graphite Journal bearings standard with mechanical seals.
- ③ Tungsten-carbide coated shafts required with silicon carbide Journal bearings.

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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)

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VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

SPECIFICATIONS

Ⓢ Maximum Recommended Temperature with Standard Construction: 225°F (107°C) / Ⓢ Maximum Pressure: 500 PSI (34 BAR)

Pump Model ①	Port Size (NPT)	Nominal Capacity at Maximum Rated Speed 20 cSt (100 SSU) Liquid								Motor Horsepower / Kilowatts Required at 20 cSt (100 SSU)				Approximate Shipping Weight	
		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed			
		Bracket Section				Head Section				100 PSI	500 PSI	7 BAR	34 BAR		
Lip Seal Ⓢ	Inch	GPM	RPM	M ³ /Hr	RPM	GPM	RPM	M ³ /Hr	RPM	HP	HP	kW	kW	Lb.	Kg.
SG-041717	1/2	0.06	1750	0.01	1450	0.06	1750	0.01	1450	1/4	1/2	0.16	0.31	8.3	3.8
SG-041718	1/2	0.06	1750	0.01	1450	0.13	1750	0.02	1450	1/4	1/2	0.16	0.31	8.3	3.8
SG-041725	1/2	0.06	1750	0.01	1450	0.18	1750	0.03	1450	1/4	1/2	0.16	0.31	8.5	3.9
SG-041735	1/2	0.06	1750	0.01	1450	0.25	1750	0.05	1450	1/3	3/4	0.21	0.47	8.8	4.0
SG-041750	1/2	0.06	1750	0.01	1450	0.36	1750	0.07	1450	1/3	3/4	0.21	0.47	9.0	4.1
SG-041770	1/2	0.06	1750	0.01	1450	0.50	1750	0.09	1450	1/2	3/4	0.31	0.47	9.3	4.2
SG-041818	1/2	0.13	1750	0.02	1450	0.13	1750	0.02	1450	1/4	1/2	0.16	0.31	8.3	3.8
SG-041825	1/2	0.13	1750	0.02	1450	0.18	1750	0.03	1450	1/3	3/4	0.21	0.47	8.5	3.9
SG-041835	1/2	0.13	1750	0.02	1450	0.25	1750	0.05	1450	1/3	3/4	0.21	0.47	8.8	4.0
SG-041850	1/2	0.13	1750	0.02	1450	0.36	1750	0.07	1450	1/3	3/4	0.21	0.47	9.0	4.1
SG-041870	1/2	0.13	1750	0.02	1450	0.50	1750	0.09	1450	1/2	3/4	0.31	0.47	9.3	4.2
SG-042525	1/2	0.18	1750	0.03	1450	0.18	1750	0.03	1450	1/3	3/4	0.21	0.47	8.8	4.0
SG-042535	1/2	0.18	1750	0.03	1450	0.25	1750	0.05	1450	1/3	3/4	0.21	0.47	9.0	4.1
SG-042550	1/2	0.18	1750	0.03	1450	0.36	1750	0.07	1450	1/2	3/4	0.31	0.47	9.3	4.2
SG-042570	1/2	0.18	1750	0.03	1450	0.50	1750	0.09	1450	1/2	3/4	0.31	0.47	9.5	4.3
SG-043535	1/2	0.25	1750	0.05	1450	0.25	1750	0.05	1450	1/2	3/4	0.31	0.47	9.3	4.2
SG-043550	1/2	0.25	1750	0.05	1450	0.36	1750	0.07	1450	1/2	1	0.31	0.62	9.5	4.3
SG-043570	1/2	0.25	1750	0.05	1450	0.50	1750	0.09	1450	1/2	1	0.31	0.62	10.0	4.5
SG-045050	1/2	0.36	1750	0.07	1450	0.36	1750	0.07	1450	1/2	1	0.31	0.62	10.0	4.5
SG-045070	1/2	0.36	1750	0.07	1450	0.50	1750	0.09	1450	1/2	1	0.31	0.62	10.3	4.7
SG-047070	1/2	0.50	1750	0.09	1450	0.50	1750	0.09	1450	1/2	1	0.31	0.62	10.5	4.8

Pump Model ①	Port Size (NPT)	Nominal Capacity at Maximum Rated Speed 20 cSt (100 SSU) Liquid								Motor Horsepower / Kilowatts Required at 20 cSt (100 SSU)				Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed				
		Bracket Section				Head Section				100 PSI	500 PSI	7 BAR	34 BAR			
Lip Seal Ⓢ	Inch	GPM	RPM	M ³ /Hr	RPM	GPM	RPM	M ³ /Hr	RPM	HP	HP	kW	kW	Lb.	Kg.	
SG-051818	SGN-051818	1/2	0.7	1750	0.13	1450	0.7	1750	0.13	1450	1/4	3/4	0.16	0.47	8.3	3.8
SG-051825	SGN-051825	1/2	0.7	1750	0.13	1450	1.0	1750	0.19	1450	1/4	3/4	0.16	0.47	8.5	3.9
SG-051835	SGN-051835	1/2	0.7	1750	0.13	1450	1.4	1750	0.26	1450	1/4	1	0.16	0.62	8.8	4.0
SG-051850	SGN-051850	1/2	0.7	1750	0.13	1450	2.0	1750	0.38	1450	1/3	1	0.21	0.62	9.0	4.1
SG-051870	SGN-051870	1/2	0.7	1750	0.13	1450	2.8	1750	0.53	1450	1/2	1 1/2	0.31	0.93	9.3	4.2
② SG-051810	② SGN-051810	1/2	0.7	1750	0.13	1450	4.0	1750	0.91	1450	1/2	2	0.31	1.24	10.0	4.5
③ SG-051814	③ SGN-051814	1/2	0.7	1750	0.13	1450	5.6	1750	1.05	1450	3/4	3	0.47	1.86	11.0	5.0
SG-052525	SGN-052525	1/2	1.0	1750	0.19	1450	1.0	1750	0.19	1450	1/4	1	0.16	0.62	8.8	4.0
SG-052535	SGN-052535	1/2	1.0	1750	0.19	1450	1.4	1750	0.26	1450	1/3	1	0.21	0.62	9.0	4.1
SG-052550	SGN-052550	1/2	1.0	1750	0.19	1450	2.0	1750	0.38	1450	1/3	1 1/2	0.21	0.93	9.3	4.2

① See model numbering code, page 341.2.2.

② When handling liquids with viscosities above 750 SSU (162 cSt), 1/2" NPT ports in the casing must be specified for the 10 section.

③ When handling liquids with viscosities above 750 SSU (162 cSt), 3/4" NPT ports in the casing must be specified for the 14 section.

Ⓢ For maximum recommended discharge pressures when handling other viscosities and/or operating at other speeds, see performance curves at www.vikingpump.com/pumpselector.

Ⓢ Buna-N seals (O-Rings, shaft lip seals) standard, can be used from -40°F. to +225°F. (-40°C. to +107°C.) With sealing elements of other materials, temperatures up to +450°F. (+230°C.) can be tolerated.

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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

SPECIFICATIONS

Ⓢ Maximum Recommended Temperature with Standard Construction: 225°F (107°C) / Ⓢ Maximum Pressure: 500 PSI (34 BAR)

Pump Model ①	Port Size (NPT)	Nominal Capacity at Maximum Rated Speed 20 cSt (100 SSU) Liquid								Motor Horsepower / Kilowatts Required at 20 cSt (100 SSU)				Approximate Shipping Weight		
		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed		60 Hz Motor Speed		50 Hz Motor Speed				
		Brkt. Sect.		Brkt. Sect.		Head Sect.		Head Sect.		100 PSI	500 PSI	7 BAR	34 BAR			
Lip Seal Ⓢ		Inch	GPM	RPM	M ³ /Hr	RPM	GPM	RPM	M ³ /Hr	RPM	HP	HP	kW	kW	Lb.	Kg.
SG-052570	SGN-052570	½	1.0	1750	0.19	1450	2.8	1750	0.53	1450	½	1½	0.31	0.93	9.5	4.3
② SG-052510	② SGN-052510	½	1.0	1750	0.19	1450	4.0	1750	0.75	1450	½	2	0.31	1.24	10.3	4.7
③ SG-052514	③ SGN-052514	½	1.0	1750	0.19	1450	5.6	1750	1.05	1450	¾	3	0.47	1.86	11.8	5.3
SG-053535	SGN-053535	½	1.4	1750	0.26	1450	1.4	1750	0.26	1450	⅓	1½	0.21	0.93	9.3	4.2
SG-053550	SGN-053550	½	1.4	1750	0.26	1450	2.0	1750	0.38	1450	½	1½	0.31	0.93	9.5	4.3
SG-053570	SGN-053570	½	1.4	1750	0.26	1450	2.8	1750	0.53	1450	½	1½	0.31	0.93	10.0	4.5
② SG-053510	② SGN-053510	½	1.4	1750	0.26	1450	4.0	1750	0.75	1450	¾	2	0.47	1.24	10.5	4.8
③ SG-053514	③ SGN-053514	½	1.4	1750	0.26	1450	5.6	1750	1.05	1450	¾	3	0.47	1.86	11.5	5.2
SG-055050	SGN-055050	½	2.0	1750	0.38	1450	2.0	1750	0.38	1450	½	1½	0.31	0.93	10.0	4.5
SG-055070	SGN-055070	½	2.0	1750	0.38	1450	2.8	1750	0.53	1450	½	2	0.31	1.24	10.3	4.7
② SG-055010	② SGN-055010	½	2.0	1750	0.38	1450	4.0	1750	0.75	1450	¾	3	0.47	1.86	10.8	4.9
③ SG-055014	③ SGN-055014	½	2.0	1750	0.38	1450	5.6	1750	1.05	1450	¾	3	0.47	1.86	11.8	5.3
SG-057070	SGN-057070	½	2.8	1750	0.53	1450	2.8	1750	0.53	1450	¾	2	0.47	1.24	10.0	4.5
② SG-057010	② SGN-057010	½	2.8	1750	0.53	1450	4.0	1750	0.75	1450	¾	3	0.47	1.86	11.0	5.0
③ SG-057014	③ SGN-057014	½	2.8	1750	0.53	1450	5.6	1750	1.05	1450	1	3	0.62	1.86	12.0	5.5
② SG-051010	② SGN-051010	½	4.0	1750	0.75	1450	4.0	1750	0.75	1450	¾	3	0.47	1.86	11.5	5.2
②③ SG-051014	②③ SGN-051014	½	4.0	1750	0.75	1450	5.6	1750	1.05	1450	1	5	0.62	3.11	12.8	5.8
③ SG-051414	③ SGN-051414	½	5.6	1750	1.05	1450	5.6	1750	1.05	1450	1	5	0.62	3.11	13.8	6.2
SG-072929	SGN-072929	1	2.8	1750	0.53	1450	2.8	1750	0.53	1450	1	3	0.62	1.86	30.8	14.0
SG-072941	SGN-072941	1	2.8	1750	0.53	1450	4.0	1750	0.75	1450	1	3	0.62	1.86	32.0	14.5
SG-072958	SGN-072958	1	2.8	1750	0.53	1450	5.6	1750	1.05	1450	1½	5	0.93	3.11	33.5	15.2
SG-072982	SGN-072982	1	2.8	1750	0.53	1450	8.0	1750	1.50	1450	1½	5	0.93	3.11	34.5	15.7
④ SG-072911	④ SGN-072911	1	2.8	1750	0.53	1450	11.2	1750	2.10	1450	1½	5	0.93	3.11	35.8	16.2
④ SG-072916	④ SGN-072916	1	2.8	1750	0.53	1450	16.0	1750	3.00	1450	2	7½	1.24	4.66	37.0	16.8
SG-074141	SGN-074141	1	4.0	1750	0.75	1450	4.0	1750	0.75	1450	1	3	0.62	1.86	33.0	15.0
SG-074158	SGN-074158	1	4.0	1750	0.75	1450	5.6	1750	1.05	1450	1½	5	0.93	3.11	34.5	15.7
SG-074182	SGN-074182	1	4.0	1750	0.75	1450	8.0	1750	1.50	1450	1½	5	0.93	3.11	35.8	16.2
④ SG-074111	④ SGN-074111	1	4.0	1750	0.75	1450	11.2	1750	2.10	1450	1½	7½	0.93	4.66	37.0	16.8
④ SG-074116	④ SGN-074116	1	4.0	1750	0.75	1450	16.0	1750	3.00	1450	2	7½	1.24	4.66	38.0	17.5
SG-075858	SGN-075858	1	5.6	1750	1.05	1450	5.6	1750	1.05	1450	1½	5	0.93	3.11	36.5	16.6
SG-075882	SGN-075882	1	5.6	1750	1.05	1450	8.0	1750	1.50	1450	2	5	1.24	3.11	37.5	17.0
④ SG-075811	④ SGN-075811	1	5.6	1750	1.05	1450	11.2	1750	2.10	1450	2	7½	1.24	4.66	38.5	17.5
④ SG-075816	④ SGN-075816	1	5.6	1750	1.05	1450	16.0	1750	3.00	1450	2	7½	1.24	4.66	39.5	17.9
SG-078282	SGN-078282	1	8.0	1750	1.50	1450	8.0	1750	1.50	1450	2	7½	1.24	4.66	38.5	17.5
④ SG-078211	④ SGN-078211	1	8.0	1750	1.50	1450	11.2	1750	2.10	1450	2	7½	1.24	4.66	39.5	17.9
④ SG-078216	④ SGN-078216	1	8.0	1750	1.50	1450	16.0	1750	3.00	1450	3	10	1.86	6.21	40.8	18.5
④ SG-071111	④ SGN-071111	1	11.2	1750	2.10	1450	11.2	1750	2.10	1450	2	10	1.24	6.21	40.8	18.5
④ SG-071116	④ SGN-071116	1	11.2	1750	2.10	1450	16.0	1750	3.00	1450	3	10	1.86	6.21	41.8	19.0
④ SG-071616	④ SGN-071616	1	16.0	1750	3.00	1450	16.0	1750	3.00	1450	3	15	1.86	9.32	43.0	19.5

① See model numbering code, page 341.2.2.

② When handling liquids with viscosities above 750 SSU (162 cSt), ½" NPT ports in the casing must be specified for the 10 section.

③ When handling liquids with viscosities above 750 SSU (162 cSt), ¾" NPT ports in the casing must be specified for the 14 section.

④ When handling liquids with viscosities above 750 SSU (162 cSt) with "11" or "16" section pumps, consult factory for port recommendations.

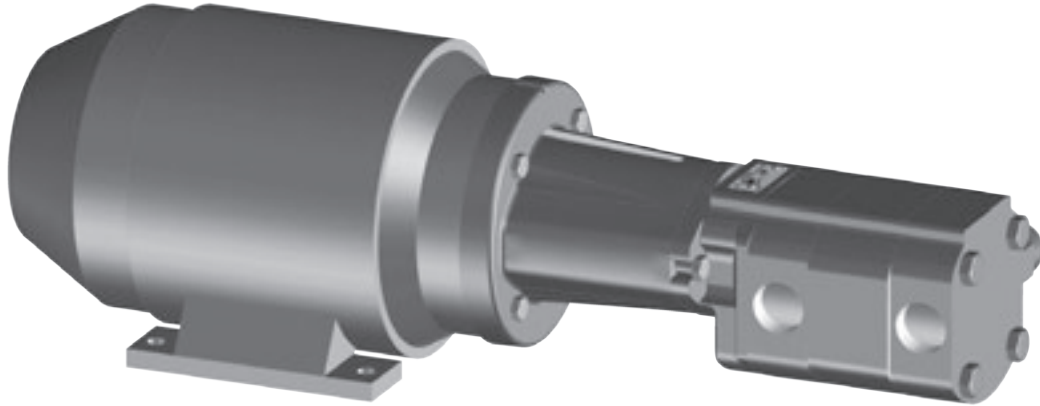
Ⓢ For maximum recommended discharge pressures when handling other viscosities and/or operating at other speeds, see performance curves at www.vikingpump.com/pumpselector.

Ⓢ Buna-N seals (O-Rings, shaft lip seals) standard, can be used from -40°F. to +225°F. (-40°C. to +107°C.) With sealing elements of other materials, temperatures up to +450°F. (+230°C.) can be tolerated.

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VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

DRIVE OPTIONS



MOTOR MOUNTED UNITS (“M” DRIVE)

Series SG-04, SG-05 and SG-07 external gear double pumps, in combination with a NEMA “C” flange or IEC bracket and flexible coupling, provide an easily assembled compact pumping unit. This mounting arrangement eliminates the need for on-site coupling alignment that is normally required with a base-mounted unit.

*Dimensions for NEMA C-Flange Motor Mounted Units (“M” Drive)—
See Page 341.2.10.*

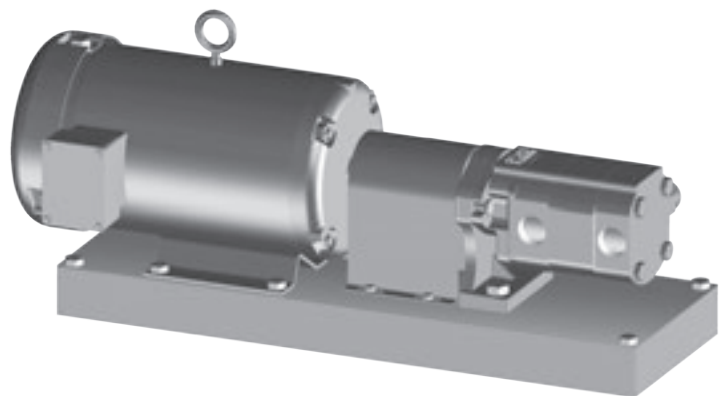
*Dimensions for IEC-Flange Motor Mounted Units (“M” Drive)—
See Page 341.2.11.*



FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

Series SG-04, SG-05 and SG-07 external gear double pumps are available mounted to a foot-bracket that is machined by Viking for an accurate fit with the pump.

*Dimensions for Foot-Bracket Mounted Pumps (“B” Drive)—
See Page 341.2.12.*



BASE MOUNTED UNITS (“D” DRIVE)

Series SG-04, SG-05 and SG-07 external gear double pumps mounted to a Viking rectangular, formed steel base provides you with a solid mounting for the drive equipment and the foot-bracket mounted pump.

NOTE: This mounting arrangement requires on-site coupling alignment.

Dimensions for Base-Mounted Units (“D” Drive)— See Page 341.2.13.

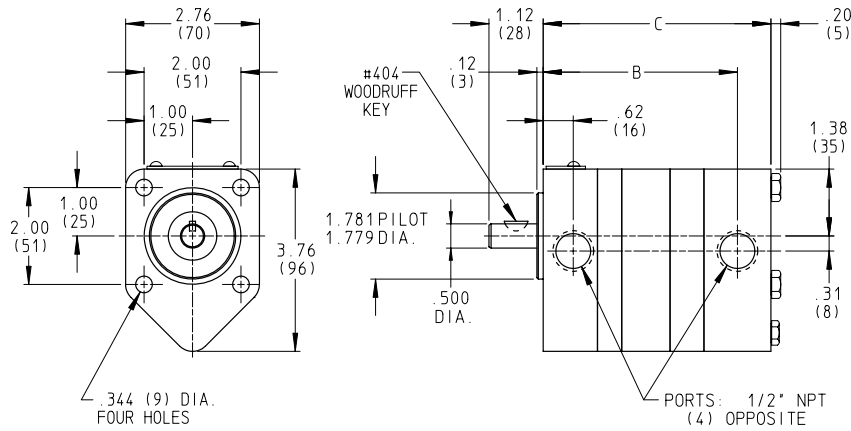
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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 UNMOUNTED DOUBLE PUMPS



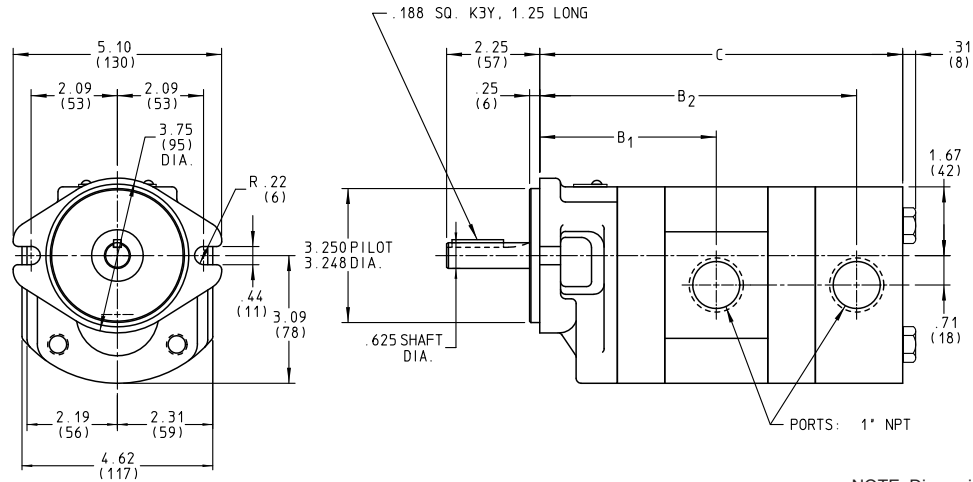
NOTE: Dimensions in inches (millimeters)

MODEL NO.				B	C
SG-041717	SG-041818	SG-051818	in	3.17	3.86
			mm	81	98
SG-041718			in	3.17	3.86
			mm	81	98
SG-041725	SG-041825	SG-051825	in	3.24	3.93
			mm	82	100
SG-041735	SG-041835	SG-051835	in	3.34	4.03
			mm	85	102
SG-041750	SG-041850	SG-051850	in	3.49	4.18
			mm	89	106
SG-041770	SG-041870	SG-051870	in	3.69	4.38
			mm	94	111
		SG-051810	in	3.99	4.68
			mm	101	119
		SG-051814	in	3.39	5.08
			mm	86	129
	SG-042525	SG-052525	in	3.31	4.00
			mm	84	102
	SG-042535	SG-052535	in	3.41	4.10
			mm	87	104
	SG-042550	SG-052550	in	3.56	4.25
			mm	90	108
	SG-042570	SG-052570	in	3.76	4.45
			mm	96	113
		SG-052510	in	4.06	4.75
			mm	103	121
		SG-052514	in	4.46	5.15
			mm	113	131
	SG-043535	SG-053535	in	3.51	4.20
			mm	89	107

MODEL NO.				B	C
SG-043550	SG-053550		in	3.66	4.35
			mm	93	110
SG-043570	SG-053570		in	3.86	4.55
			mm	98	116
		SG-053510	in	4.16	4.85
			mm	106	123
		SG-053514	in	4.56	5.25
			mm	116	133
SG-045050	SG-055050		in	3.81	4.50
			mm	97	114
SG-045070	SG-055070		in	4.01	4.70
			mm	102	119
		SG-055010	in	4.31	5.00
			mm	109	127
		SG-055014	in	4.71	5.40
			mm	120	137
SG-047070	SG-057070		in	4.21	4.90
			mm	107	124
		SG-057010	in	4.51	5.20
			mm	115	132
		SG-057014	in	4.91	5.60
			mm	125	142
		SG-051010	in	4.81	5.50
			mm	122	140
		SG-051014	in	5.21	5.90
			mm	132	150
		SG-051414	in	5.61	6.30
			mm	142	160

VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-07, SGN-07 UNMOUNTED DOUBLE PUMPS



NOTE: Dimensions in inches (millimeters)

MODEL NO.		B ₁	B ₂	C
SG-072929	in	3.42	5.96	7.08
	mm	87	151	180
SG-072941	in	3.42	6.08	7.20
	mm	87	154	183
SG-072958	in	3.42	6.25	7.37
	mm	87	159	187
SG-072982	in	3.42	6.49	7.61
	mm	87	165	193
SG-072911	in	3.42	6.82	7.94
	mm	87	173	202
SG-072916	in	3.42	7.32	8.44
	mm	87	186	214
SG-074141 SGN-074141	in	3.54	6.20	7.32
	mm	90	157	186
SG-074158 SGN-074158	in	3.54	6.37	7.49
	mm	90	162	190
SG-074182 SGN-074182	in	3.54	6.61	7.73
	mm	90	168	196
SG-074111 SGN-074111	in	3.54	6.94	8.06
	mm	90	176	205
SG-074116 SGN-074116	in	3.54	7.44	8.56
	mm	90	189	217

MODEL NO.		B ₁	B ₂	C
SG-075858 SGN-075858	in	3.71	6.54	7.66
	mm	94	166	195
SG-075882 SGN-075882	in	3.71	6.78	7.90
	mm	94	172	201
SG-075811 SGN-075811	in	3.71	7.11	8.23
	mm	94	181	209
SG-075816 SGN-075816	in	3.71	7.61	8.73
	mm	94	193	222
SG-078282 SGN-078282	in	3.95	7.02	8.14
	mm	100	178	207
SG-078211 SGN-078211	in	3.95	7.35	8.47
	mm	100	187	215
SG-078216 SGN-078216	in	3.95	7.85	8.97
	mm	100	199	228
SG-071111 SGN-071111	in	4.28	7.68	8.80
	mm	109	195	224
SG-071116 SGN-071116	in	4.28	8.18	9.30
	mm	109	208	236
SG-071616 SGN-071616	in	4.78	8.68	9.80
	mm	121	220	249

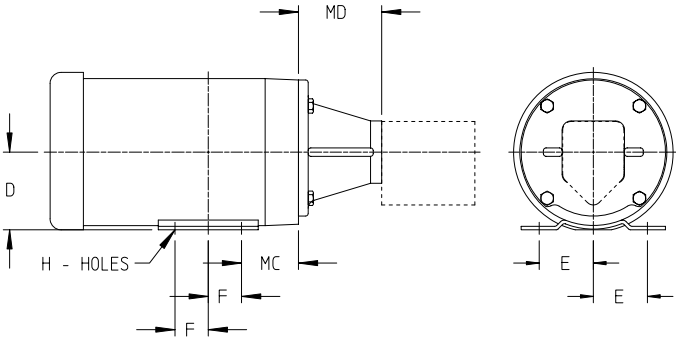
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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

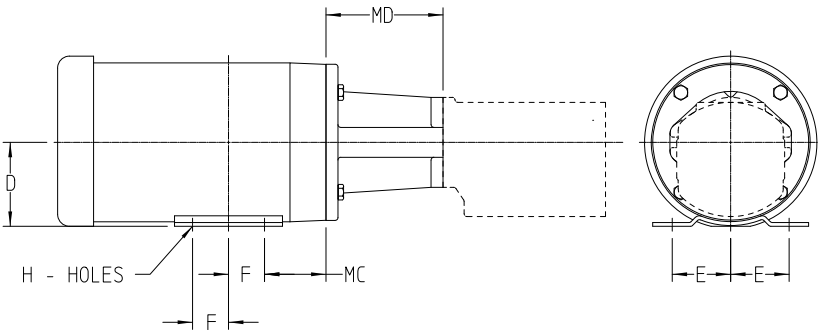
DIMENSIONS – SERIES SG-04, SG-05, SGN-05 C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA



① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

MOTOR FRAME SIZE		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	.34 (8.6) SLOT	2.56 (65.0)	3.75 (95.3)	34 (15)
143TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	3.75 (95.3)	52 (24)
145TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	3.75 (95.3)	57 (26)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.15)	.41 (10.4)	3.62 (92.0)	4.25 (108.0)	83 (38)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.62 (92.0)	4.25 (108.0)	88 (40)

DIMENSIONS – SERIES SG-07, SGN-07 – C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA

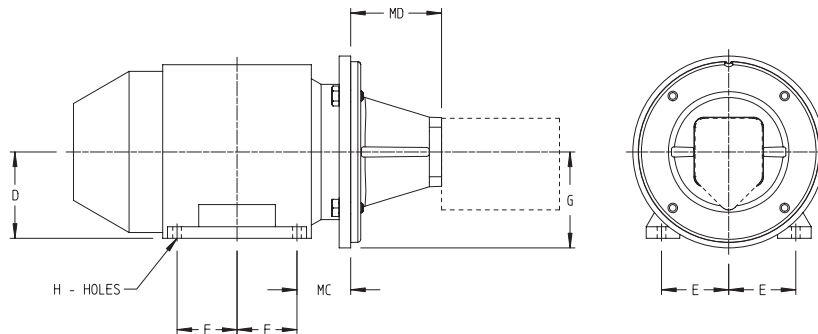


① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

MOTOR FRAME SIZE		D	E	F	H	MC	MD	APPROX. DRIVE ^① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	.34 (8.6) SLOT	2.56 (65.0)	4.88 (124.0)	41 (19)
143TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	4.88 (124.0)	60 (27)
145TC	in (mm)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	4.88 (124.0)	70 (32)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.15)	.41 (10.4)	3.62 (92.0)	5.59 (142.0)	108 (49)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.62 (92.0)	5.59 (142.0)	123 (56)
213TC	in (mm)	5.25 (133.4)	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.50 (114.3)	6.26 (159.0)	161 (73)
215TC	in (mm)	5.25 (133.4)	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.50 (114.3)	6.26 (159.0)	195 (88)

VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

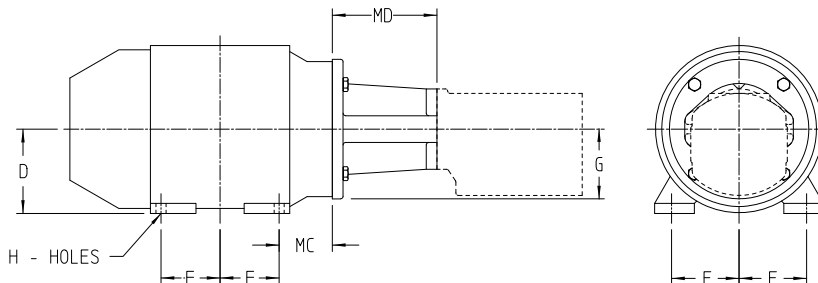
DIMENSIONS – SERIES SG-04, SG-05, SGN-05 – MOTOR MOUNT – (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 80 B35 FLANGE	in (mm)	3.15 (80)	2.46 (62.5)	1.97 (50)	3.94 (100)	0.39 (10)	1.97 (50)	3.73 (94.7)	46 (21)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	3.73 (94.7)	64 (29)

① Motor shipping weight listed is for a typical IEC motor.
(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

DIMENSIONS – SERIES SG-07, SGN-07 – MOTOR MOUNT (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	5.13 (130.3)	68 (31)
IEC 100 B14 FACE	in (mm)	3.94 (100)	3.15 (80)	S 2.20 (56) / L 2.76 (70)	---	0.47 (12)	2.48 (63)	5.26 (133.6)	114 (52)
IEC 112 B14 FACE	in (mm)	4.41 (112)	3.74 (95)	S 2.24 (57) / L 2.76 (70)	---	0.47 (12)	2.76 (70)	5.26 (133.6)	129 (59)

① Motor shipping weight listed is for a typical IEC motor.
(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

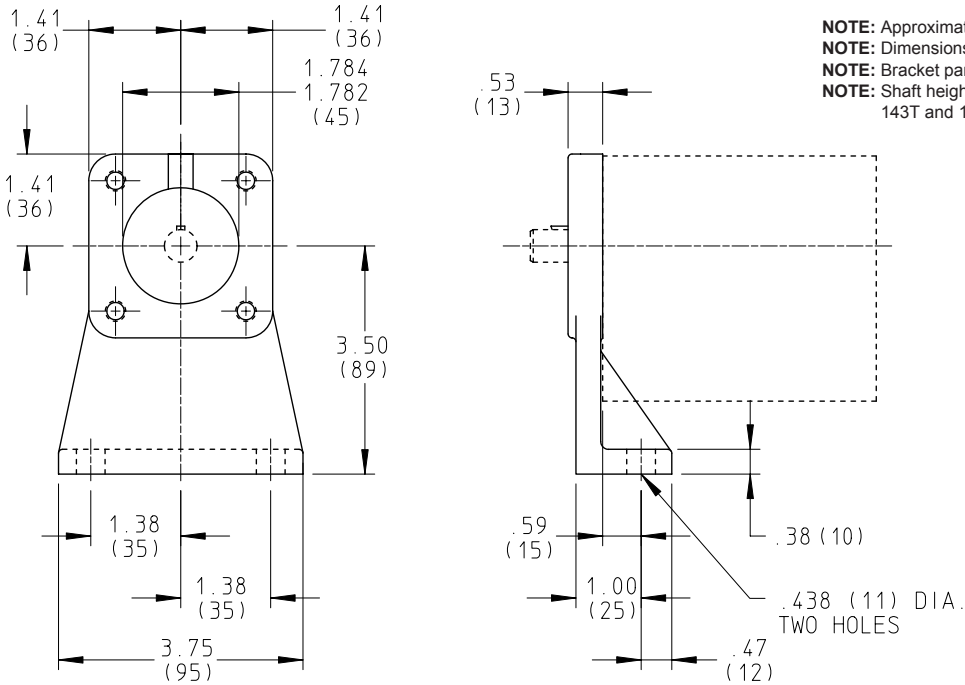
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SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)



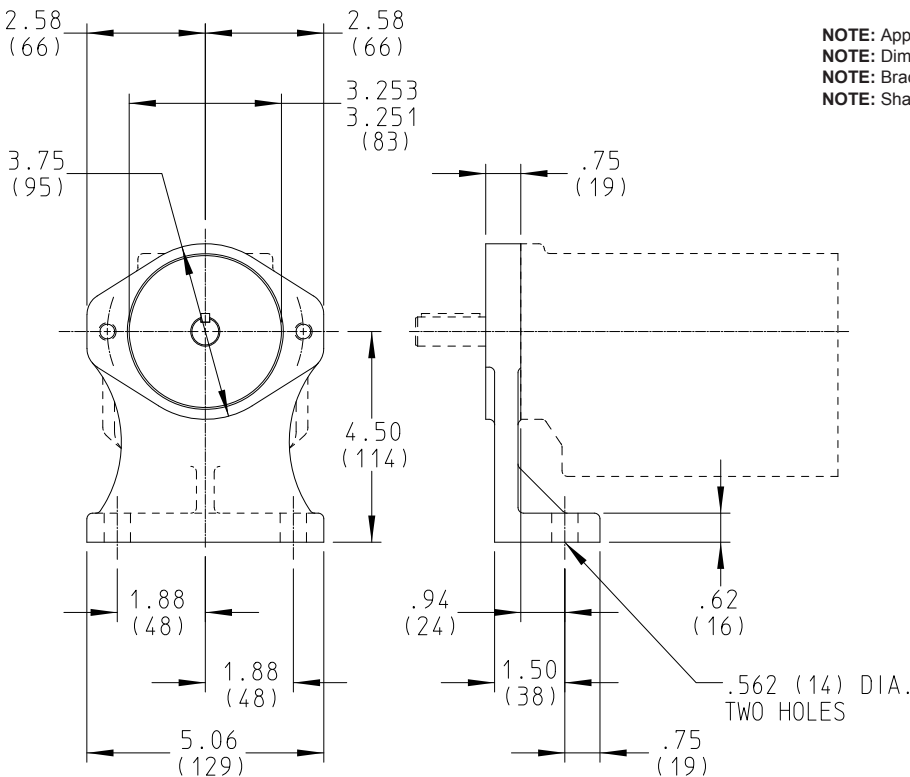
VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 FOOT BRACKET MOUNT (“B” DRIVE)



NOTE: Approximate shipping weight of foot bracket is 2¼ lbs. (0.9 kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Bracket part number is 2-070-012-100-00
NOTE: Shaft height corresponds to Viking's "A" reducer or NEMA 56, 143T and 145T motors.

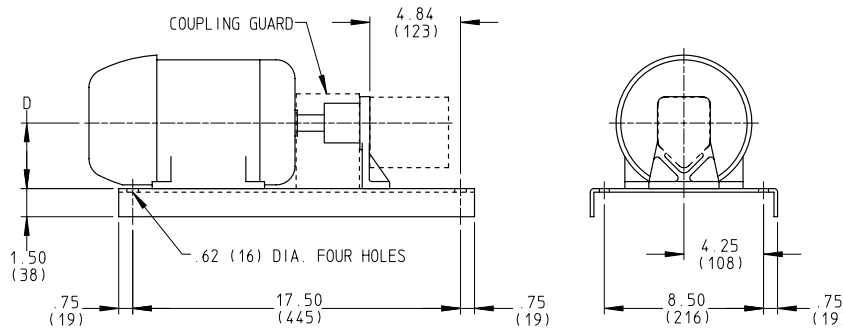
DIMENSIONS – SERIES SG-07, SGN-07 – FOOT BRACKET MOUNT (“B” DRIVE)



NOTE: Approximate shipping weight of foot bracket is 5 lbs. (1.9 kg)
NOTE: Dimensions in inches (millimeters).
NOTE: Bracket part number is 2-070-200-100-00.
NOTE: Shaft height corresponds to NEMA 182T and 184T motors.

VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

DIMENSIONS – SERIES SG-04, SG-05, SGN-05 BASE-MOUNTED UNIT (“D” DRIVE)



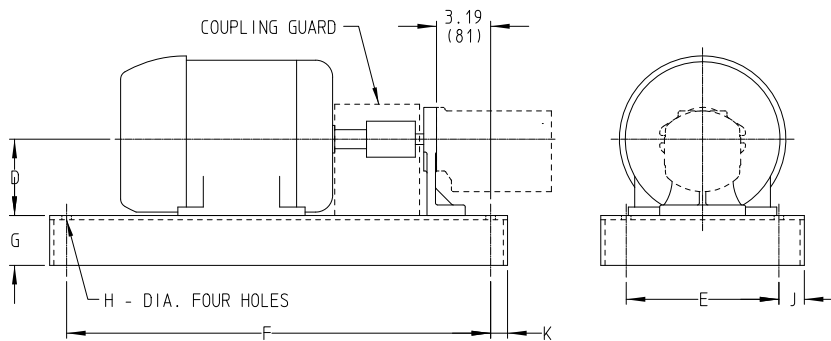
NOTE: Dimensions in inches (millimeters).

MOTOR FRAME SIZE		D	APPROX. MOTOR [Ⓢ] SHIPPING WEIGHT IN POUNDS (KG)	APPROX. DRIVE [Ⓢ] EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56	in	3.50	31 (14)	17 (8)
	mm	89		
143T	in	3.50	50 (23)	17 (8)
	mm	89		
145T	in	3.50	60 (27)	17 (8)
	mm	89		
182T	in	4.50	95 (43)	20 (9)
	mm	114		
184T	in	4.50	110 (50)	20 (9)
	mm	114		

① Motor shipping weight listed is for a typical TEFC motor. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

② Drive equipment shipping weight includes base, foot-bracket, coupling and coupling guard. For total unit shipping weight, add electric motor shipping weight, drive equipment shipping weight and the pump shipping weight shown on the pump specification chart.

DIMENSIONS – SERIES SG-07, SGN-07 BASE-MOUNTED UNIT (“D” DRIVE)



NOTE: Dimensions in inches (millimeters).

MOTOR FRAME SIZE		D	E	F	G	H	J	K	APPROX. MOTOR [Ⓢ] SHIPPING WEIGHT IN POUNDS (KG)	APPROX. DRIVE [Ⓢ] EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56	in (mm)	4.50 (114)	8.50 (216)	20.50 (520)	1.50 (190)	.50 (13)	.75 (19)	.75 (19)	31 (14)	38 (17)
143T									50 (23)	
145T									60 (27)	
182T	in (mm)	4.50 (114)	9.00 (229)	25.00 (635)	2.94 (75)	.56 (14)	1.50 (38)	1.00 (25)	95 (43)	49 (22)
184T									110 (50)	
213T	in (mm)	5.25 (133)	9.00 (229)	25.00 (635)	2.94 (75)	.56 (14)	1.50 (38)	1.00 (25)	145 (66)	56 (25)
215T									179 (81)	

① Motor shipping weight listed is for a typical TEFC motor. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

② Drive equipment shipping weight includes base, foot-bracket, coupling and coupling guard. For total unit shipping weight, add electric motor shipping weight, drive equipment shipping weight and the pump shipping weight shown on the pump specification chart.



SERIES SG-04, -05, -07 (Cast Iron)
SGN-05, -07 (Ductile Iron)

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VIKING SG SERIES DOUBLE PUMPS (WITH SHAFT SEAL)

PERFORMANCE CURVE NOTES

Printed performance curves are not available.

Performance curves for individual pump sections can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

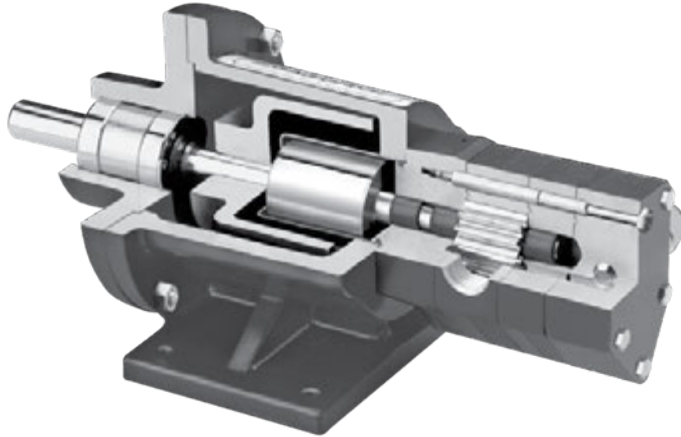
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External Gear Pumps

(Sealless Mag Drive Pumps)

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VIKING SG SERIES SEALLESS MAG DRIVE PUMPS



OPERATING RANGE:

SG8 Pumps (Cast Iron Mag Drive) and SGN8 (Ductile Iron Mag Drive)		
Displacements	No.	23 SG8 and 17 SGN8
Flow Range	GPM	0.06 to 190 (SG8) and 0.7 to 32 (SGN8)
	M ³ /Hr	0.013 to 43 (SG8) and 0.16 to 7.2 (SGN8)
Pressure Range	PSI	to 500 Continuous
	Bar	to 34 Continuous
Temperature Range	°F	-40° to 500°
	°C	-40° to 260°
Viscosity Range	SSU	28 to 250,000
	cSt	1 to 55,000

Where shaft seal leakage is not allowable, for liquids that are hard to seal, or where seal maintenance is difficult, Viking Mag Drive® sealless SG pumps are the solution. In this type of pump, a canister hermetically seals the liquid within the pump. Inner magnets are connected to the pump drive shaft inside the canister, and an outer magnet assembly rotates outside of the canister, driven by a motor or other drive, so that magnetic forces pass through the canister to the inner magnets and cause the drive shaft to rotate. This eliminates traditional dynamic shaft seals, and problems associated with them (wear, leakage, air infiltration).

A hollow drive shaft allows some liquid to flow by means of pressure differential from the high pressure side of the pump through the shaft, into the canister and back to the low pressure side of the pump. This provides magnet cooling and prevents product stagnation.

TYPICAL APPLICATIONS:

- Fuels and Additives
- Polyurethane Meter / Mix
- Adhesive & Sealant Dispensing
- Pipeline Sampling
- Chemical Metering
- Heat Transfer Oils

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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



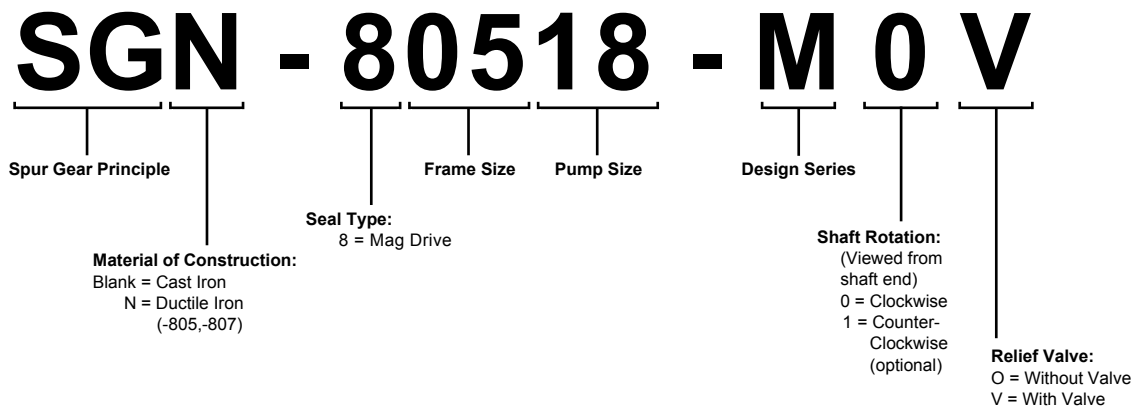
VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

MATERIALS OF CONSTRUCTION - ALL SERIES

Component	Standard - SG-804, -805, -807	Standard - SGN-805, -807	Standard - SG-810, -814	Options
Casing, Bracket, Head, Separation Plate	Cast Iron ASTM A823	Ductile Iron ASTM A536	Cast Iron ASTM A823	Surface Hardening (Vitek)
Relief Valve Body	Cast Iron ASTM A823	Ductile Iron ASTM A536	Cast Iron ASTM A48	— — —
Relief Valve Poppet	Hardened Steel	Hardened Steel	Ductile Iron ASTM A536	— — —
Relief Valve Spring	Steel ASTM A229	Steel ASTM A229	Chrome Silicon Spring Steel ASTM A401	— — —
Gears	Hardened Steel	Hardened Steel	Hardened Steel	PPS (composite) SG-807 only
Shafts	Case-Hardened Steel ASTM A322	Case-Hardened Steel ASTM A322	Case-Hardened Steel ASTM A322	Nitralloy
Anti-Friction Needle Bearings	— — —	— — —	— — —	Bearing Steel
Sleeve Bearings	Carbon Graphite	Carbon Graphite	Carbon Graphite	Silicon Carbide
O-Rings	Buna-N	Buna-N	Buna-N	Neoprene, Viton®, PTFE, Kalrez®
Canister	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel	Alloy C
Magnetic Coupling Bracket (not wetted)	Cast Iron ASTM A823	Cast Iron ASTM A823	Cast Iron ASTM A823	Aluminum SG-804,-805,-807 only
Magnets (outer magnets nickel plated, inner magnets sealed in SS canister)	① Neodymium Iron Boron	① Neodymium Iron Boron	① Neodymium Iron Boron	② Samarium Cobalt

① Maximum temperature 225°F / 107°C.
 ② Maximum temperature 500°F / 260°C.

MODEL NUMBER KEY



NOTE: Direction of rotation: clockwise is standard, counter-clockwise is optional.
 Bi-rotational is not available as Mag Drive.

NOTE: Mag Drive pumps are connected to a magnetic coupling, which is specified separately.
 Coupling options are MD-A and MD-B (SG-804,-805,-807), MD2-B (SG-810) or MD2-C (SG-814).
 Specify NEMA or IEC face mount for close-coupled or bearing carrier for long-coupled.
 See page 341.3.4 to determine the correct coupling.

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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)

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VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

SPECIFICATIONS SERIES SG-804, SG-805, SG-807, SG-810, SG-814 (CAST IRON) - SGN-805, SGN-807 (DUCTILE IRON)

Model Numbers		Port Size	Nominal Pump Rating				Maximum Continuous Pressure		② Magnetic Coupling Availability			① Maximum Hydrostatic Pressure		Approximate Shipping Weight Pump With Valve (Less Power)		Approximate Coupling Only Shipping Weight (ready to accept but less power)		
			60 Hz Motor Speed		50 Hz Motor Speed				Torque		PSIG	Bar	Lbs	KG	Lbs	KG		
Cast Iron	Ductile Iron	Inches	GPM	RPM	M ³ /Hr	RPM	PSI	Bar	Series	Ft-Lbs	Nm	PSIG	Bar	Lbs	KG	Lbs	KG	
SG-80417		3/8 ③	0.06	1750	0.011	1450	500	34	MD-A	4	5.4	1000	69	6	2.7	31	14	
SG-80418		3/8 ③	0.14	1750	0.026	1450	500	34										
SG-80425		3/8 ③	0.18	1750	0.034	1450	500	34		9	12.2	1000	69	7	3.2	31	14	
SG-80435		3/8 ③	0.27	1750	0.051	1450	500	34										
SG-80450		3/8 ③	0.36	1750	0.068	1450	500	34		9	12.2	1000	69	7	3.2	31	14	
SG-80470		3/8 ③	0.50	1750	0.094	1450	500	34										
SG-80518	SGN-80518	1/2 ③	0.70	1750	0.13	1450	500	34	MD-A	4	5.4	1000	69	6	2.7	31	14	
SG-80525	SGN-80525	1/2 ③	1	1750	0.19	1450	500	34										
SG-80535	SGN-80535	1/2 ③	1.4	1750	0.26	1450	500	34										
SG-80550	SGN-80550	1/2 ③	2	1750	0.38	1450	500	34										
SG-80570	SGN-80570	1/2 ③	2.8	1750	0.53	1450	500	34										
SG-80510	SGN-80510	1/2 ③	4	1750	0.75	1450	500	34		9	12.2	1000	69	8	3.6	31	14	
SG-80514	SGN-80514	3/4 ③	5.6	1750	1.05	1450	500	34										
SG-80519	SGN-80519	3/4 ③	7.6	1750	1.43	1450	200	14		9	12.2	1000	69	9	4.1	31	14	
SG-80528	SGN-80528	3/4 ③	11.2	1750	2.11	1450	100	7										
SG-80741	SGN-80741	1 ③	4	1750	0.75	1450	500	34		MD-A	4	5.4	1000	69	15	6.8	31	14
SG 80758	SGN 80758	1 ③	5.6	1750	1.05	1450	500	34										
SG-80782	SGN-80782	1 ③	8	1750	1.51	1450	500	34	9		12.2	1000	69	17	7.7	31	14	
SG-80711	SGN-80711	1 ③	11.2	1750	2.11	1450	500	34										
SG-80716	SGN-80716	1 ③	16	1750	3.01	1450	500	34	MD-B	15	20.3	400	28	18	8.2	31	14	
SG-80722	SGN-80722	1 1/2 x 1 1/4 ③	22	1750	4.14	1450	500	34										
SG-80732	SGN-80732	1 1/2 x 1 1/4 ③	32	1750	6.02	1450	500	34	40	54.0	400	28	19	8.6	71	32		
SG-81009		1 ④	16	1750	3.01	1450	500	34										
SG-81013		1 1/2 ④	25	1750	4.70	1450	500	34	MD2-B	32	43	700	48	41	18.6	71	32	
SG-81026		2 ④	50	1750	9.41	1450	500	34										
SG-81420		2 ④	70	1750	13.17	1450	500	34	MD2-C	40	54	350	24	130	59.1	71	32	
SG-81436		3 ④	125	1750	23.52	1450	290	20										
SG-81456		4 ④	190	1750	35.75	1450	190	13										

NOTE: Maximum temperature (standard construction) 225°F, 107°C. Higher temperatures can be handled with Samarium Cobalt magnets and optional O-ring elastomers. See page 341.3.4 for torque and temperature limits.

① Optional high pressure canisters available. Consult factory.

② See page 341.3.4 for "Selecting the correct Mag Drive coupling."

③ NPT standard. Consult factory for other port size or type options such as BSP, SAE O-Ring or other.

④ SAE J518 Code 61 flange with metric threaded fastener holes standard. Consult factory for other port sizes or type options such as NPT, BSP, SAE O-Ring or other.

Metric conversions are based on US measurements.

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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

SELECTING THE CORRECT VIKING MAG DRIVE® COUPLING

With any mag drive pump, the magnetic forces between the inner and outer magnets must meet or exceed the torque generated by the drive at the application's peak flow, speed and pressure, or the magnets will decouple, which can cause permanent loss of magnetic attraction.

Instead of offering mag drive pumps with just one torque rating, Viking allows you to select between several magnetic couplings with different torque ratings. This ensures enough torque for the application, but keeps costs down by using only as much torque as is needed.

Viking also offers two magnet materials in each of the coupling sizes. The standard Neodymium magnets are lowest cost, but are limited in temperature to 225°F (107° C). The optional Samarium Cobalt magnets range up to 500°F (260° C). Specify magnet material when ordering.

Selecting the Right Coupling

1. Find pump HP and speed from performance curves using the Pump Selector program on www.vikingpump.com
2. Calculate application torque (T), using this formula:
 $T \text{ (FT LB)} = \text{HP/SPEED} \times 5252$
3. Select temperature correction factor (TCF) from Table 1 or Table 2.
4. Divide the calculated application torque (T) by the temperature correction factor (TCF) to get the Adjusted Application Torque.
5. Select the coupling with a torque rating (from Table 3) equal to or greater than the Adjusted Application Torque (AAT). Viking couplings have a built-in service factor, so if you have calculated the AAT correctly, you can be comfortable with a coupling that is equal to your calculated torque.

Temperature Correction Factors for Standard Neodymium Magnets							
Application Temp. (°F)	68	100	125	150	175	200	225
Application Temp. (°C)	20	38	52	66	79	93	107
TC Factor	1.0	0.94	0.88	0.82	0.76	0.70	0.64

TABLE 1

Temperature Correction Factors for Optional Samarium Cobalt Magnets					
Application Temp. (°F)	175	200	300	400	500
Application Temp. (°C)	79	93	149	204	260
TC Factor	0.74	0.73	0.69	0.63	0.59

TABLE 2

Magnetic Coupling Torque Capacity		
Coupling Size 1	Torque (FT-LBS)	Nm
MD-A4	4	5.4
MD-A9	9	12.2
MD-B15	15	20.3
MD-B40	40	54.2
MD2-B14	14	19.0
MD2-B32	32	43.4
MD2-B50	50	67.8
MD2-C40	40	54.2
MD2-C90	90	122.0
MD2-C135	135	183.0
MD2-C180	180	244.0

TABLE 3

Example 1:

1. An application calls for pumping 1 GPM of 100 SSU (22 cSt) liquid at 400 PSI (27 Bar), at 100°F (38°C), with a 1750 RPM motor. From the Pump Selector program, an SG80525 is selected, providing 0.95 GPM (3.6 lpm) at 1750 RPM, with 0.35 BHP (0.26 kW).
2. Calculate torque. $T = 0.35 / 1750 \times 5252 = 1.05$
3. From Table 1, the TCF is 0.94.
4. $AAT = 1.05 / 0.94 = 1.12 \text{ FT-LB}$.
5. Select MD-A4 coupling in standard Neodymium magnet material (4 FT-LB rating >1.12 FT-LB Adjusted Application Torque)

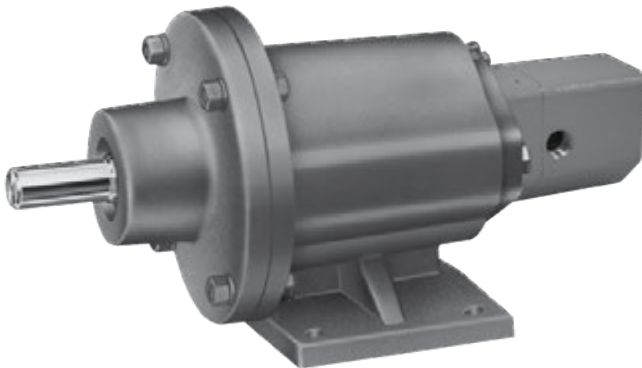


SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)

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VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

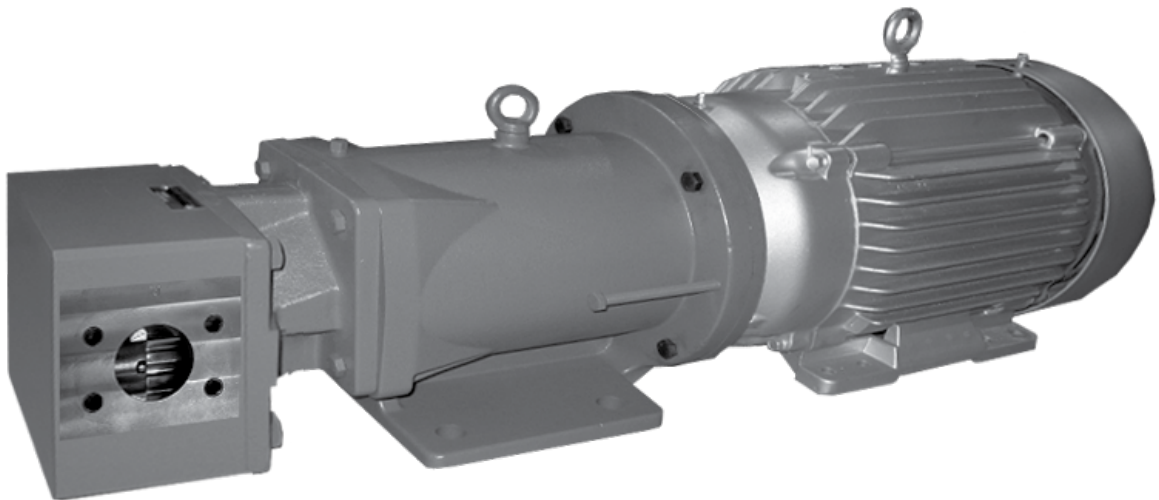
DRIVE OPTIONS



FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

Series SG-8 pumps are available with a bearing carrier mounted to the magnetic coupling to provide an external drive shaft for long-coupling to a reducer, gear motor or other drive. The 3.5” shaft height on MD-A couplings matches the shaft height on Viking “A” series reducers, as well as NEMA 56, 143 and 145 T motors. The 6.25” shaft height on MD-B couplings matches shaft height on 254/256 T motors. The MD2-B coupling for SG-810 has 5.5” shaft height matching Viking “B” reducers.

*Dimensions for Foot-Bracket Mounted Pumps (“B” Drive)—
See Pages 341.3.6 - 341.3.9.*



MOTOR MOUNTED UNITS (“M” DRIVE)

Series SG-804, -805 & -807 pumps may be close coupled to NEMA-C faced motors and SG-810 & -814 to both NEMA-C and IEC B5 flanged motors to provide an easily-assembled, compact pumping unit. This mounting arrangement eliminates the need for on-site coupling alignment that is normally required for a base-mounted unit.

*Dimensions for Motor Mounted Pumps (“M” Drive)—
See Pages 341.3.10 - 341.3.14.*

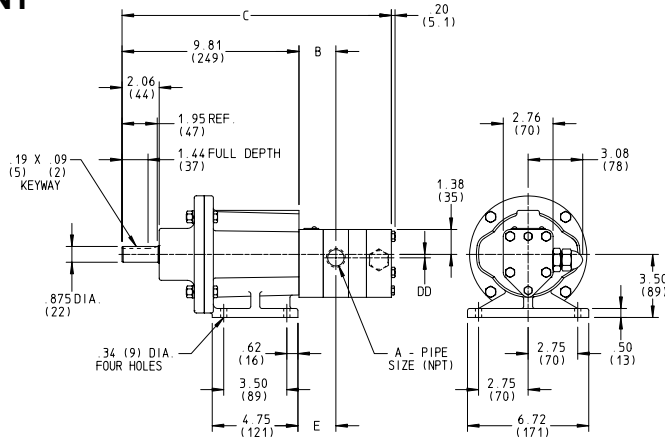
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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-804, SG-805 AND SGN-805 (MD-A_“B” DRIVE) – FOOT BRACKET MOUNT

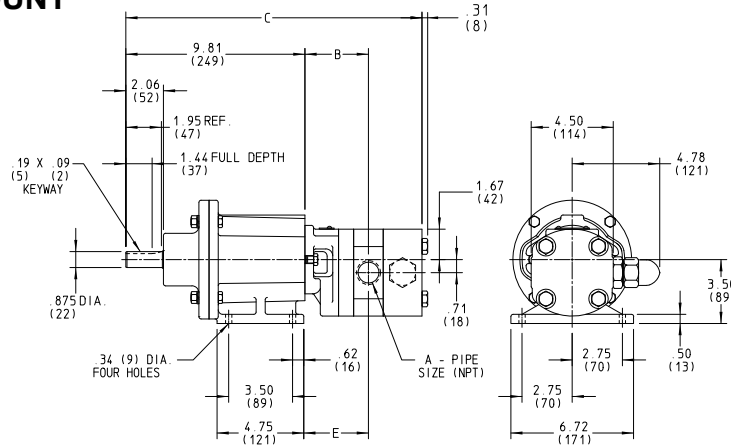


NOTE: Dimensions in inches (millimeters)

MODEL NO.	(in)	A	WITH R/V			LESS R/V			DD
			B	C	E	B	C	E	
SG-80417MD-A_B	3/8	in	2.02	13.71	2.08	2.21	12.71	2.27	0.31
		mm	51	348	53	56	323	58	8
SG-80418MD-A_B	3/8	in	2.02	13.71	2.08	2.21	12.71	2.27	0.31
		mm	51	348	53	56	323	58	8
SG-80425MD-A_B	3/8	in	2.09	13.78	2.15	2.28	12.78	2.34	0.31
		mm	53	350	55	58	325	59	8
SG-80435MD-A_B	3/8	in	2.19	13.88	2.25	2.38	12.88	2.44	0.31
		mm	56	352	57	60	327	62	8
SG-80450MD-A_B	3/8	in	2.34	14.03	2.40	2.53	13.03	2.59	0.31
		mm	59	356	61	64	331	66	8
SG-80470MD-A_B	3/8	in	2.54	14.23	2.60	2.73	13.23	2.79	0.31
		mm	65	361	66	69	336	71	8
SG-80518MD-A_B SGN-80518MD-A_B	1/2	in	2.02	13.71	2.08	2.21	12.71	2.27	0.31
		mm	51	348	53	56	323	58	8
SG-80525MD-A_B SGN-80525MD-A_B	1/2	in	2.09	13.78	2.15	2.28	12.78	2.34	0.31
		mm	53	350	55	58	325	59	8
SG-80535MD-A_B SGN-80535MD-A_B	1/2	in	2.19	13.88	2.25	2.38	12.88	2.44	0.31
		mm	56	352	57	60	327	62	8
SG-80550MD-A_B SGN-80550MD-A_B	1/2	in	2.34	14.03	2.40	2.53	13.03	2.59	0.31
		mm	59	356	61	64	331	66	8
SG-80570MD-A_B SGN-80570MD-A_B	1/2	in	2.54	14.23	2.60	2.73	13.23	2.79	0.31
		mm	65	361	66	69	336	71	8
SG-80510MD-A_B SGN-80510MD-A_B	1/2	in	1.84	14.53	1.90	1.84	13.53	1.90	0.31
		mm	47	369	48	47	344	48	8
SG-80514MD-A_B SGN-80514MD-A_B	3/4	in	2.04	14.93	2.10	2.04	13.93	2.10	0.19
		mm	52	379	53	52	354	53	5
SG-80519MD-A_B SGN-80519MD-A_B	3/4	in	2.29	15.43	2.35	2.29	14.43	2.35	0.19
		mm	58	392	60	58	367	60	5
SG-80528MD-A_B SGN-80528MD-A_B	3/4	in	2.04	16.33	2.10	2.04	15.33	2.10	0.19
		mm	52	415	53	52	389	53	5

VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-807 AND SGN-807 (MD-A_“B” DRIVE) – FOOT BRACKET MOUNT



MODEL NO.	(in) A		WITH R/V			LESS R/V		
			B	C	E	B	C	E
SG-80741MD-A_B SGN-80741MD-A_B	1	in	3.07	15.81	3.13	3.26	14.19	3.32
		mm	78	402	80	83	360	84
SG-80758MD-A_B SGN-80758MD-A_B	1	in	3.24	15.98	3.30	3.43	14.36	3.49
		mm	82	406	84	87	365	89
SG-80782MD-A_B SGN-80782MD-A_B	1	in	3.48	16.22	3.54	3.67	14.60	3.73
		mm	88	412	90	93	371	95
SG-80711MD-A_B SGN-80711MD-A_B	1	in	3.81	16.55	3.87	4.00	14.93	4.06
		mm	97	420	98	102	379	103
SG-80716MD-A_B SGN-80716MD-A_B	1	in	4.31	17.05	4.37	4.50	15.43	4.56
		mm	109	433	111	114	392	116
SG-80722MD-A_B SGN-80722MD-A_B	1½ S 1¼ D	in	4.25	20.20	4.31	4.25	18.58	4.31
		mm	108	513	109	108	472	109
SG-80732MD-A_B SGN-80732MD-A_B	1½ S 1¼ D	in	4.28	20.72	4.34	4.27	19.10	4.33
		mm	109	526	110	108	485	110

S = Suction Port
D = Discharge Port

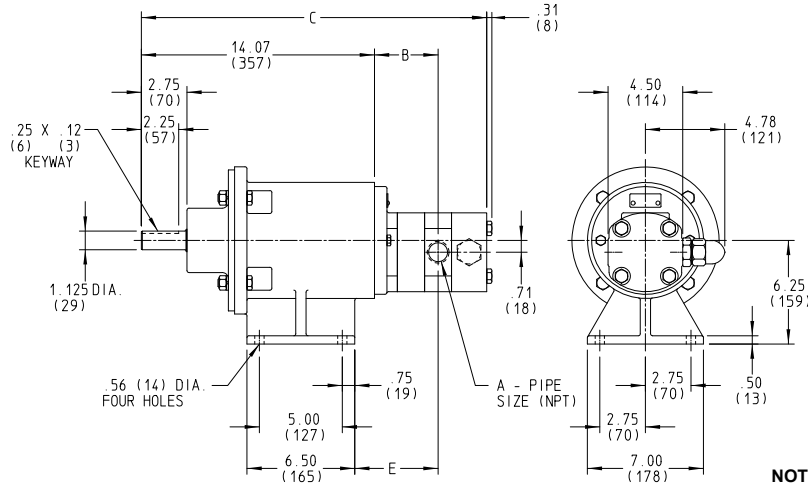
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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-807 AND SGN-807 (MD-B_“B” DRIVE) – FOOT BRACKET MOUNT



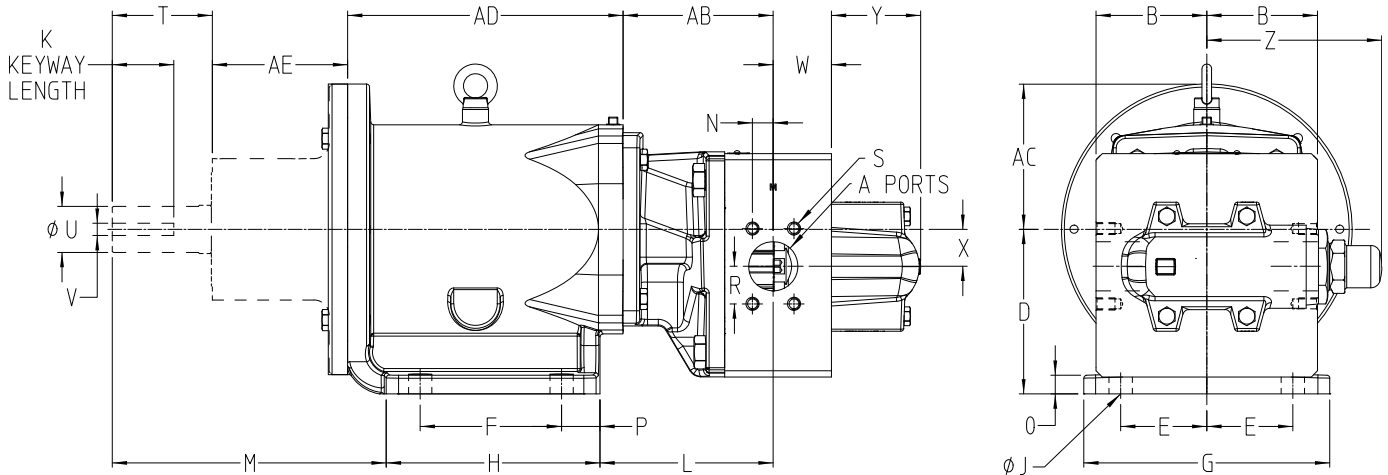
NOTE: Dimensions in inches (millimeters)

MODEL NO.	(in) A		WITH R/V			LESS R/V		
			B	C	E	B	C	E
SG-80741MD-B_B SGN-80741MD-B_B	1	in	3.07	20.07	3.13	3.26	18.45	3.32
		mm	78	510	80	83	469	84
SG-80758MD-B_B SGN-80758MD-B_B	1	in	3.24	20.24	3.30	3.43	18.61	3.49
		mm	82	514	84	87	473	89
SG-80782MD-B_B SGN-80782MD-B_B	1	in	3.48	20.48	3.54	3.67	18.86	3.73
		mm	88	520	90	93	479	95
SG-80711MD-B_B SGN-80711MD-B_B	1	in	3.81	20.81	3.87	4.00	19.19	4.06
		mm	97	529	98	102	487	103
SG-80716MD-B_B SGN-80716MD-B_B	1	in	4.31	21.30	4.37	4.50	19.68	4.56
		mm	109	541	111	114	500	116
SG-80722MD-B_B SGN-80722MD-B_B	1½ S 1¼ D	in	4.25	24.46	4.31	4.25	22.83	4.31
		mm	108	621	109	108	580	109
SG-80732MD-B_B SGN-80732MD-B_B	1½ S 1¼ D	in	4.28	24.98	4.34	4.27	23.36	4.33
		mm	109	634	110	108	593	110

S = Suction Port
D = Discharge Port

VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-810 (MD2-B_“B” DRIVE) & SERIES SG-814 (MD2-C_“B” DRIVE) FOOT BRACKET MOUNT



PUMP	AB	W ^①	W ^②	N	R	S	A-PORTS	X	Y	L ^③	L ^④	Z	B
SG-81009	5.35 (135.9)	2.07 (52.6)	2.01 (51.1)	0.51 (13.0)	1.03 (26.2)	M10 x 1.5 x 1.5	1.00"	1.00 (25.4)	3.63 (92.2)	6.42 (163.1)	6.29 (159.8)	6.63 (168.4)	3.00 (76.2)
SG-81013	5.91 (150.1)	2.13 (54.1)	2.07 (52.6)	1.90 (48.3)	0.70 (17.8)	M12 x 1.75 x 19.5	1.50"			6.98 (177.3)	6.85 (174.0)		
SG-81026	6.13 (155.7)	2.88 (73.2)	2.82 (71.6)	1.53 (38.9)	0.84 (21.3)	M12 x 1.75 x 19.5	2.00"			7.20 (182.9)	7.07 (179.6)		
SG-81420	6.10 (154.9)	2.43 (61.7)	2.37 (60.2)	0.84 (21.3)	1.53 (38.9)	M12 x 1.75 x 19.5	2.00"	1.50 (38.1)	3.63 (92.2)	---	7.04 (178.8)	7.09 (180.1)	4.50 (114.3)
SG-81436	6.80 (172.7)	2.73 (69.3)	3.27 (83.1)	1.21 (30.7)	2.09 (53.1)	M16 x 2 x 28.5	3.00"			---	7.74 (196.6)		
SG-81456	7.19 (182.6)	4.94 (125.5)	4.88 (124.0)	1.53 (38.9)	2.56 (65.0)	M16 x 2 x 28.5	4.00"			---	8.13 (206.5)		

① Less Relief Valve ③ MD2-B
② With Relief Valve ④ MD2-C

NOTE: Dimensions in inches (millimeters)

DIMENSIONS FOR "U" MODELS (in.)

Coupling	D	E	F	G	H	J	K	M	O	P	T	U	V	AC	AD	AE
MD2-B (SG-810)	5.50	2.75	4.88	7.00	6.52	0.56	2.12	7.30	0.53	0.88	2.72	1.125	0.25	4.50	9.30	2.87
MD2-C (SG-810, SG-814)	6.69	3.75	5.75	10.00	8.69	0.945	2.50	11.14	0.76	1.56	4.07	1.875	0.50	5.91	11.20	5.50

DIMENSIONS FOR "M" MODELS (mm)

Coupling	D	E	F	G	H	J	K	M	O	P	T	U	V	AC	AD	AE
MD2-B (SG-810)	145	69.9	88.9	178	130.3	14.5	46	192.3	13.5	22.1	56.0	28	8	125	216.2	77.7
MD2-C (SG-814)	170	95.3	146.0	254	220.7	24.0	63	283	19.3	35.6	103.4	48	14	150	284.5	139.7

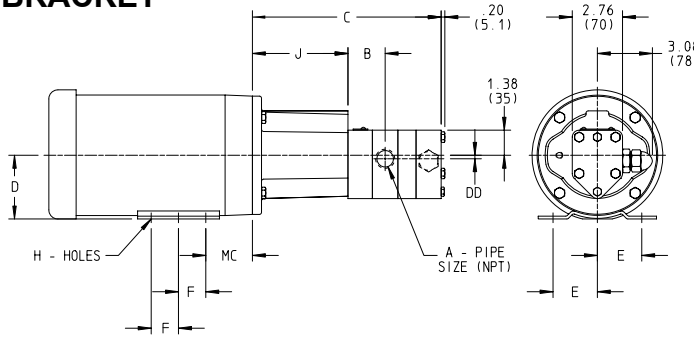
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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-804, SG-805 & SGN-805 (MD-A_“M” DRIVE) – NEMA C MOTOR MOUNT – FOOTLESS BRACKET



NOTE: Dimensions in inches (millimeters)

NOTE: Footless bracket requires footed motor.

MODEL NO.	(in) A	WITH R/V		LESS R/V		DD	
		B	C	B	C		
SG-80417MD-A_M	3/8	in	2.02	9.15	2.21	8.15	0.31
		mm	51	232	56	207	8
SG-80418MD-A_M	3/8	in	2.02	9.15	2.21	8.15	0.31
		mm	51	232	56	207	8
SG-80425MD-A_M	3/8	in	2.09	9.22	2.28	8.22	0.31
		mm	53	234	58	209	8
SG-80435MD-A_M	3/8	in	2.19	9.32	2.38	8.32	0.31
		mm	56	237	60	211	8
SG-80450MD-A_M	3/8	in	2.34	9.47	2.53	8.47	0.31
		mm	59	241	60	215	8
SG-80470MD-A_M	3/8	in	2.54	9.67	2.73	8.67	0.31
		mm	65	246	69	220	8
SG-80518MD-A_M SGN-80518MD-A_M	1/2	in	2.02	9.15	2.21	8.15	0.31
		mm	51	232	56	207	8
SG-80525MD-A_M SGN-80525MD-A_M	1/2	in	2.09	9.22	2.28	8.22	0.31
		mm	53	234	58	209	8
SG-80535MD-A_M SGN-80535MD-A_M	1/2	in	2.19	9.32	2.38	8.32	0.31
		mm	56	237	60	211	8
SG-80550MD-A_M SGN-80550MD-A_M	1/2	in	2.34	9.47	2.53	8.47	0.31
		mm	59	241	64	215	8
SG-80570MD-A_M SGN-80570MD-A_M	1/2	in	2.54	9.67	2.73	8.67	0.31
		mm	65	246	69	220	8
SG-80510MD-A_M SGN-80510MD-A_M	1/2	in	1.84	9.97	1.84	8.97	0.31
		mm	47	253	47	228	8
SG-80514MD-A_M SGN-80514MD-A_M	3/4	in	2.04	10.37	2.04	9.37	0.19
		mm	52	263	52	238	5
SG-80519MD-A_M SGN-80519MD-A_M	3/4	in	2.29	10.87	2.29	9.87	0.19
		mm	58	276	58	251	5
SG-80528MD-A_M SGN-80528MD-A_M	3/4	in	2.04	11.77	2.04	10.77	0.19
		mm	52	299	52	274	5

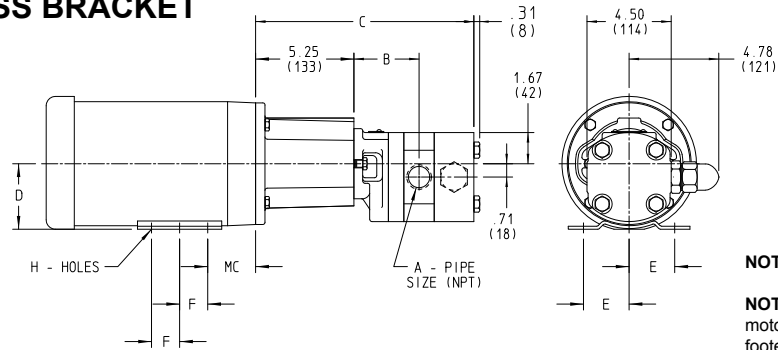
MOTOR FRAME SIZE	D	E	F	H	(in) J	MC
56C	3.50	2.44	1.50	0.34 SLOT	5.25	2.56
	89	62	38	9		65
143TC	3.50	2.75	2.00	0.34	5.25	2.88
	89	70	51	9		73
145TC	3.50	2.75	2.50	0.34	5.25	2.88
	89	70	64	9		73
182TC	4.50	3.75	2.25	0.41	5.69	3.62
	114	95	57	10		92
184TC	4.50	3.75	2.75	0.41	5.69	3.62
	114	95	70	10		92
213TC*	5.25	4.25	2.75	0.41	5.69	4.5
	133	108	70	10		114

* Motor shaft must be modified to resemble 182TC-184TC shaft length, diameter and key.

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VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-807 AND SGN-807 (MD-A “M” DRIVE) – NEMA C MOTOR MOUNT – FOOTLESS BRACKET



NOTE: Dimensions in inches (millimeters)

NOTE: Footless bracket requires footed motor. See page 341.3.11 for optional footed MD-A brackets.

MODEL NO.	(in) A		WITH R/V		LESS R/V	
			B	C	B	C
SG-80741MD-A_M SGN-80741MD-A_M	1	in	3.07	11.25	3.26	9.63
		mm	78	286	83	245
SG-80758MD-A_M SGN-80758MD-A_M	1	in	3.24	11.42	3.43	9.80
		mm	82	290	87	249
SG-80782MD-A_M SGN-80782MD-A_M	1	in	3.48	11.66	3.67	10.04
		mm	88	296	93	255
SG-80711MD-A_M SGN-80711MD-A_M	1	in	3.81	11.99	4.00	10.37
		mm	97	305	102	263
SG-80716MD-A_M SGN-80716MD-A_M	1	in	4.31	12.49	4.50	10.87
		mm	109	317	114	276
SG-80722MD-A_M SGN-80722MD-A_M	1½S 1¼D	in	4.25	15.64	4.25	15.02
		mm	108	397	108	356
SG-80732MD-A_M SGN-80732MD-A_M	1½S 1¼D	in	4.75	16.64	4.75	15.02
		mm	121	423	121	382

MOTOR FRAME SIZE	D	E	F	H	(in) J	MC
56C	3.50	2.44	1.50	0.34 SLOT	5.25	2.56
	89	62	38	9		65
143TC	3.50	2.75	2.00	0.34	5.25	2.88
	89	70	51	9		73
145TC	3.50	2.75	2.50	0.34	5.25	2.88
	89	70	64	9		73
182TC	4.50	3.75	2.25	0.41	5.69	3.62
	114	95	57	10		92
184TC	4.50	3.75	2.75	0.41	5.69	3.62
	114	85	70	10		92
213TC*	5.25	4.25	2.75	0.41	5.69	4.50
	133	108	70	10		114

* Motor shaft must be modified to resemble 182TC-184TC shaft length, diameter and key.

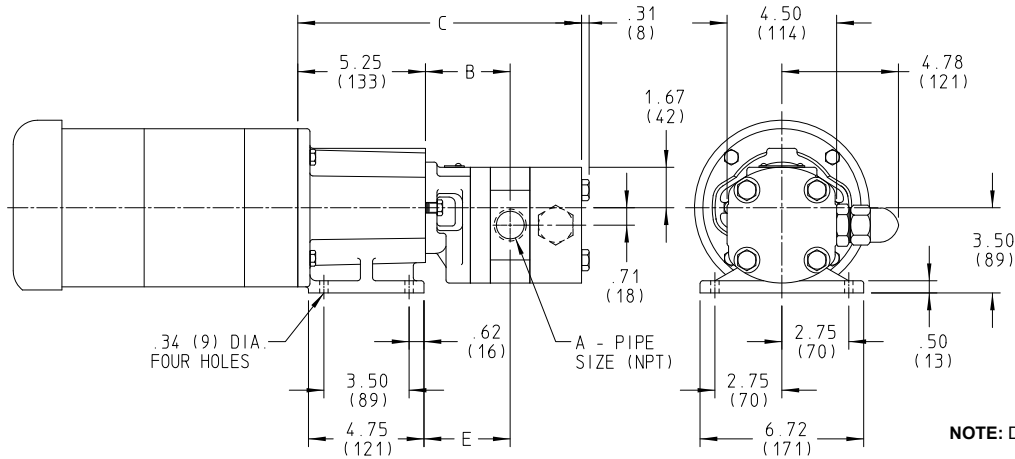
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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-807 AND SGN-807 (MD-A_“M” DRIVE) – NEMA C MOTOR MOUNT – FOOTED BRACKET



NOTE: Dimensions in inches (millimeters)

NOTE: Footed bracket requires footless motor. See pages 341.3.9 - 341.3.10 for optional footless MD-A brackets.

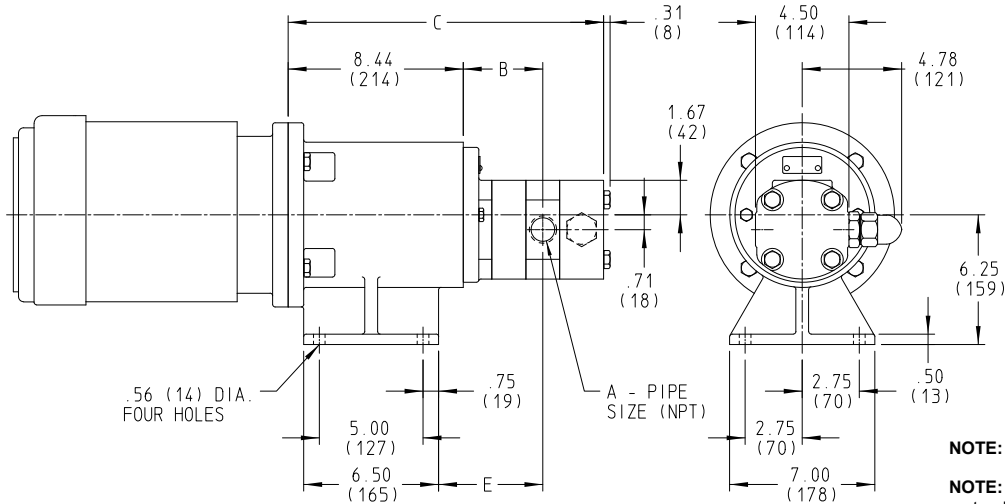
MODEL NO.	(in) A		WITH R/V			LESS R/V			MOTOR FRAME SIZE
			B	C	E	B	C	E	
SG-80741MD-A_M SGN-80741MD-A_M	1	in	3.07	11.25	3.13	3.26	9.63	3.32	56C 143TC 145TC
		mm	78	286	80	83	245	84	
SG-80758MD-A_M SGN-80758MD-A_M	1	in	3.24	11.42	3.30	3.43	9.80	3.49	
		mm	82	290	84	87	249	89	
SG-80782MD-A_M SGN-80782MD-A_M	1	in	3.48	11.66	3.54	3.67	10.04	3.73	
		mm	88	269	90	93	255	95	
SG-80711MD-A_M SGN-80711MD-A_M	1	in	3.81	11.99	3.87	4.00	10.37	4.06	
		mm	97	305	98	102	263	103	
SG-80716MD-A_M SGN-80716MD-A_M	1	in	4.31	12.49	4.37	4.50	10.87	4.56	
		mm	109	317	111	114	276	116	
SG-80722MD-A_M SGN-80722MD-A_M	1½S	in	4.25	15.64	4.31	4.25	14.02	4.31	
	1¼D	mm	108	397	109	108	356	109	
SG-80732MD-A_M SGN-80732MD-A_M	1½S	in	4.75	16.64	4.81	4.75	15.02	4.81	
	1¼D	mm	121	423	122	121	382	122	

S = Suction Port
D = Discharge Port

Footed bracket is only available for up to NEMA 145TC frame motors (4.5" rabbet) - 180TC and 210TC motor frames with 8.5" rabbet are only available with footless bracket.

VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-807 AND SGN-807 (MD-B_“M” DRIVE) – NEMA C MOTOR MOUNT – FOOTED BRACKET



NOTE: Dimensions in inches (millimeters)

NOTE: Footed bracket requires footless motor. No footless brackets available with MD-B couplings.

MODEL NO.	(in) A		WITH R/V			LESS R/V			MOTOR FRAME SIZE
			B	C	E	B	C	E	
SG-80741MD-B_M SGN-80741MD-B_M	1	in	2.60	13.97	3.79	2.80	12.35	3.98	182TC/184TC 213TC/215TC 254TC/256TC ①
		mm	66	355	96	71	314	101	
SG-80758MD-B_M SGN-80758MD-B_M	1	in	2.77	14.14	3.96	2.97	12.52	4.15	
		mm	70	359	101	75	318	105	
SG-80782MD-B_M SGN-80782MD-B_M	1	in	3.01	14.38	4.20	3.21	12.76	4.39	
		mm	76	365	107	82	324	112	
SG-80711MD-B_M SGN-80711MD-B_M	1	in	3.34	14.17	4.53	3.54	13.09	4.72	
		mm	85	374	115	90	332	120	
SG-80716MD-B_M SGN-80716MD-B_M	1	in	3.84	15.20	5.03	4.04	13.59	5.22	
		mm	98	386	128	103	345	133	
SG-80722MD-B_M SGN-80722MD-B_M	1½S 1¼D	in	3.78	18.35	4.97	3.78	16.73	4.97	
		mm	96	466	126	96	425	126	
SG-80732MD-B_M SGN-80732MD-B_M	1½S 1¼D	in	4.28	19.35	5.47	4.28	17.73	5.47	
		mm	109	491	139	109	450	139	

S = Suction Port
D = Discharge Port

Coupling will accept NEMA motor frames 182TC-256TC.

① NEMA 254TC-256TC will require shaft modification reducing shaft extension by ⅜".

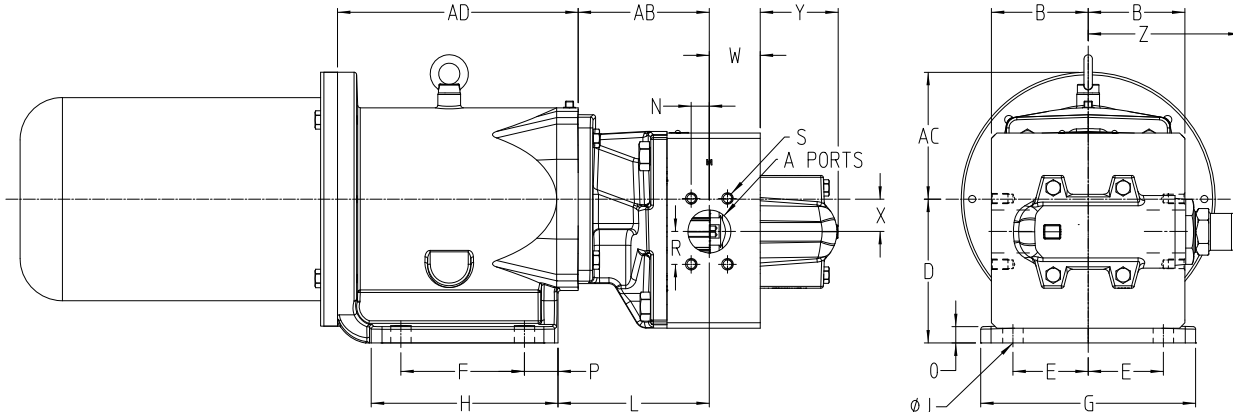
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SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)



VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

DIMENSIONS – SERIES SG-810 (MD2-B_“M” DRIVE) & SERIES SG-814 (MD2-C_“M” DRIVE) – NEMA C AND IEC MOTOR MOUNT – FOOTED BRACKET



PUMP	AB	W	N	R	S	A-PORTS	X	Y	L	Z	B
SG-81009	5.35 (135.9)	2.06 (52.3)	0.51 (13.0)	1.03 (26.2)	M10	1.00"	1.00"	3.63 (92.2)	6.42 (163.1)	6.63 (168.4)	3 (76.2)
SG-81013	5.91 (150.1)	2.13 (54.1)	1.90 (48.3)	0.70 (17.8)	M12	1.50"			6.98 (177.3)		
SG-81026	6.13 (155.7)	2.88 (73.2)	1.53 (38.9)	0.84 (21.3)	M12	2.00"			7.20 (182.9)		
SG-81420	6.10 (154.9)	2.37 (60.2)	0.84 (21.3)	1.53 (38.9)	M12	2.00"	1.50"	3.63 (92.2)	7.04 (178.8)	7.11 (180.6)	4.5 (114.3)
SG-81436	6.80 (172.7)	3.27 (83.1)	1.21 (30.7)	2.09 (53.1)	M16	3.00"			7.74 (196.6)		
SG-81456	7.19 (182.6)	4.88 (124.0)	1.53 (38.9)	2.56 (65.0)	M16	4.00"			8.13 (206.5)		

NOTE: Dimensions in inches (millimeters)

DIMENSIONS FOR "U" MODELS FOR NEMA C FACE MOTORS (in.)

Coupling	NEMA Drive	D	E	F	G	H	J	O	P	AD
MD2-B (SG-810)	182/184TC	5.50	2.75	4.25	7.00	5.78	0.56	0.53	0.78	8.92
	213/215TC	5.50	2.75	4.88	7.00	6.41	0.56	0.53	0.78	9.30
	254/256TC	6.50	2.75	5.50	7.00	7.03	0.56	0.53	0.78	9.92
MD2-C (SG-814)	213 thru 256TC	6.69	3.75	5.75	10.00	8.53	0.945	0.76	1.40	11.95
	284/286TC	6.69	3.75	5.75	10.00	8.53	0.945	0.76	1.40	12.49

DIMENSIONS FOR "M" MODELS FOR IEC B5 FLANGE MOTORS (mm)

Requires unfooted motor.

Coupling	IEC Drive	D	E	F	G	H	J	O	P	AD
MD2-B (SG-810)	100/112	145	69.9	88.9	178	127.5	14.5	13.5	19	216
	132	170	69.9	108.0	178	146.3	14.5	13.5	19	236
MD2-C (SG-814)	132	170	95.0	146.0	254	216.6	24.0	19.3	35.6	284
	160/180	203	120.0	165.0	305	235.0	24.0	19.3	35	314



SERIES SG-804, -805, -807, -810, -814 (Cast Iron)
SGN-805, -807 (Ductile Iron)

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VIKING SG SERIES SEALLESS MAG DRIVE PUMPS

PERFORMANCE CURVE NOTES

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the "Products" tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

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External Gear Pumps

(Hydraulic Pumps)

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VIKING HYDRAULIC GEAR PUMPS & MOTORS



SERIES GP-04/-05 PUMP



SERIES GP-07 PUMP



SERIES GP-10/-14 PUMP

OPERATING RANGE:

GP Pumps (Cast Iron, Lip-Sealed)		
Displacements	No.	24
Flow Range	GPM	0.06 to 190
	M ³ /Hr	0.011 to 43
Pressure Range	PSI	to 2,500
	Bar	to 170

GP Motors (Cast Iron, Lip-Sealed)		
Displacements	No.	12
Power Range	HP	1/4 to 20
	KW	0.18 to 15

Maximum Temperature	°F	to +225° (Standard) to +450° (With Optional Materials)
	°C	to +107° (Standard) to +230° (With Optional Materials)
Viscosity Range	SSU	Suitable for hydraulic oils
	cSt	

TYPICAL APPLICATIONS:

- Lubrication Equipment
- Fork Lift Trucks
- Conveyor Systems
- Transmissions
- Hydraulic Lifts
- Filtration Equipment
- Vibrators
- Garbage Compactors
- Construction Machinery
- Mobile Agricultural Equipment
- Machine Tools
- Car Wash Systems
- Hi-Lo Double Pumps for Log Splitter or Crusher Applications

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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

SERIES DESCRIPTION

Viking GP is an extensive series of fixed displacement cast iron external gear pumps for fluid power (hydraulic) applications. With 24 displacements in five frame sizes to 190 GPM (43 M³/Hr), some models offer pressures up to 2500 PSI (170 Bar). These pumps were designed for greatest reliability, with standard features like spur-type gears (instead of helical gears, which thrust into pump casing and bracket) and rolling element anti-friction bearings (instead of bushings, which wear every time a pump is stopped and the hydrodynamic film is lost).

Installation is simple, with brackets to close couple to NEMA or IEC motors, or foot mount. Piping is easy, with straight-through ports with a variety of pipe thread and flange options.

Viking offers an extensive range of options and customization for fixed or mobile OEM applications.

HYDRAULIC MOTORS

Fixed displacement, high speed hydraulic motors are available for applications requiring 500 to 4000 RPM in a variety of flow ranges. Needle bearings and high strength gears assure efficient performance and extended service life.

MODEL NUMBER KEY

GP - 05 18 - G 0 0 U - B

External Gear Principle

Use:
 P = Pump
 M = Motor (GM-05, -07, only)

Series:
 04
 05
 07
 10
 14

Pump Capacity (at 1750 RPM)

GP-04:	GP-05:	GP-07:
17 = 0.06 GPM	18 = 0.71 GPM	41 = 4.0 GPM
18 = 0.13 GPM	25 = 1.0 GPM	58 = 5.6 GPM
19 = 0.18 GPM	35 = 1.4 GPM	82 = 8.0 GPM
35 = 0.25 GPM	50 = 2.0 GPM	11 = 11.2 GPM
50 = 0.36 GPM	70 = 2.8 GPM	16 = 16.0 GPM
70 = 0.51 GPM	10 = 4.0 GPM	
	14 = 5.6 GPM	
GP-10:	GP-14:	
09 = 16.0 GPM	20 = 70.0 GPM	
13 = 25.0 GPM	36 = 125.0 GPM	
26 = 50.0 GPM	56 = 190.0 GPM	

Design Series
 A = GP-04
 G = GP-05, -07, -10, -14

Shaft Rotation (Viewed from shaft end):
 0 = Clockwise
 1 = Counter Clockwise
 2 = Bi-Rotational (GP-04, -05 & -07 only)

Relief Valve (pumps only):
 O = Without Valve
 V = With Valve

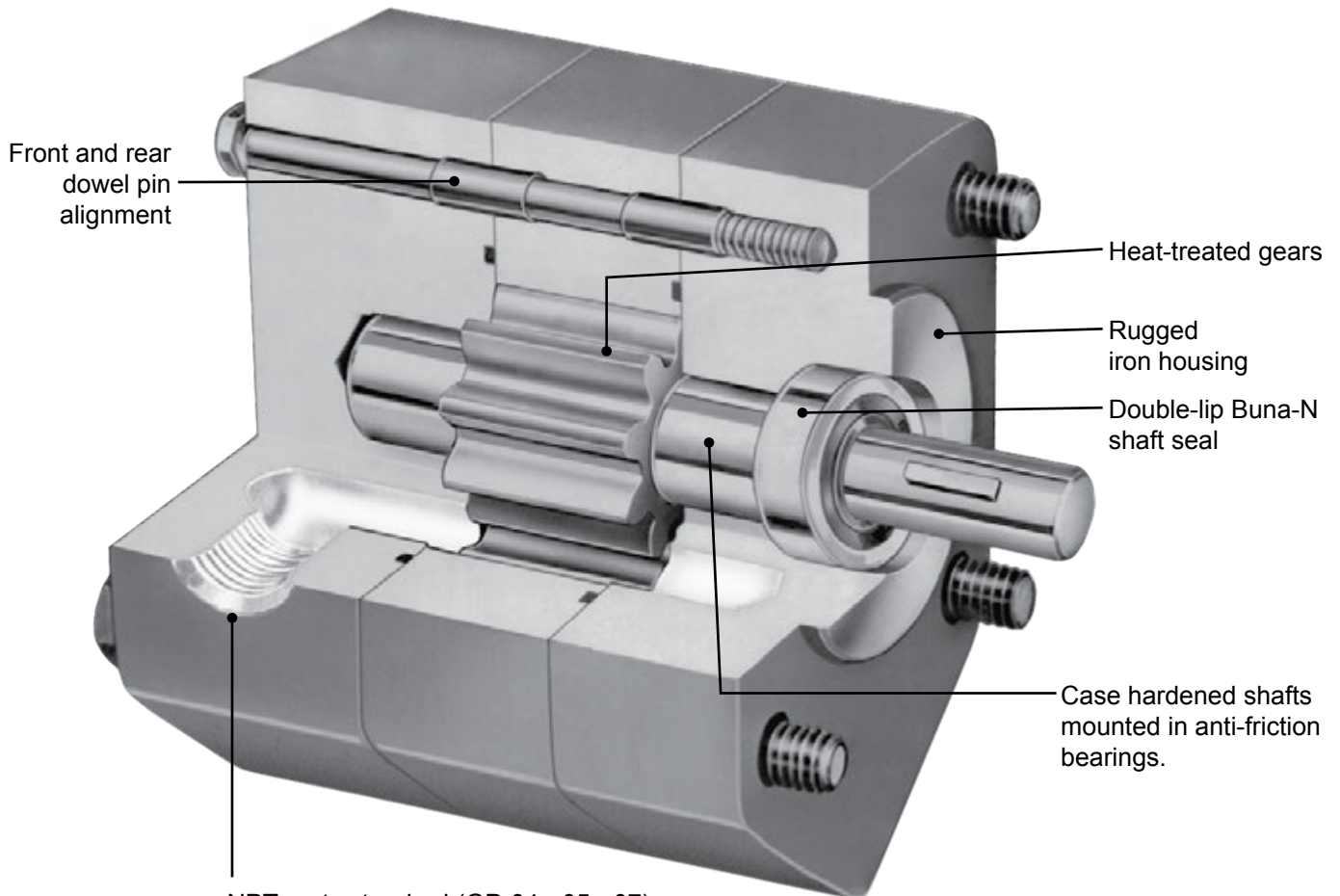
Bracket:
 M = Metric Pilot (ISO) Bracket (GP-10, -14 only)
 U = SAE Pilot Bracket (GP-10, -14 only)
 Blank = GP-04, -05 or -07

Drive Equipment:
 B = Foot Bracket Mounted
 D = Base Mounted Direct Drive (pump only)
 M = Face Mounted Motor Drive (pump only)
 M4 = Four-Bolt Motor Drive (GP-04, -05 only)

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VIKING HYDRAULIC GEAR PUMPS & MOTORS

PUMP CONSTRUCTION AND FEATURES



NPT ports standard (GP-04, -05, -07),
 SAE 4-bolt flange standard (GP-10, -14).
 SAE O-ring end ports standard (GM-05, -07).
 Optional ports include NPT, BSP or SAE O-ring.

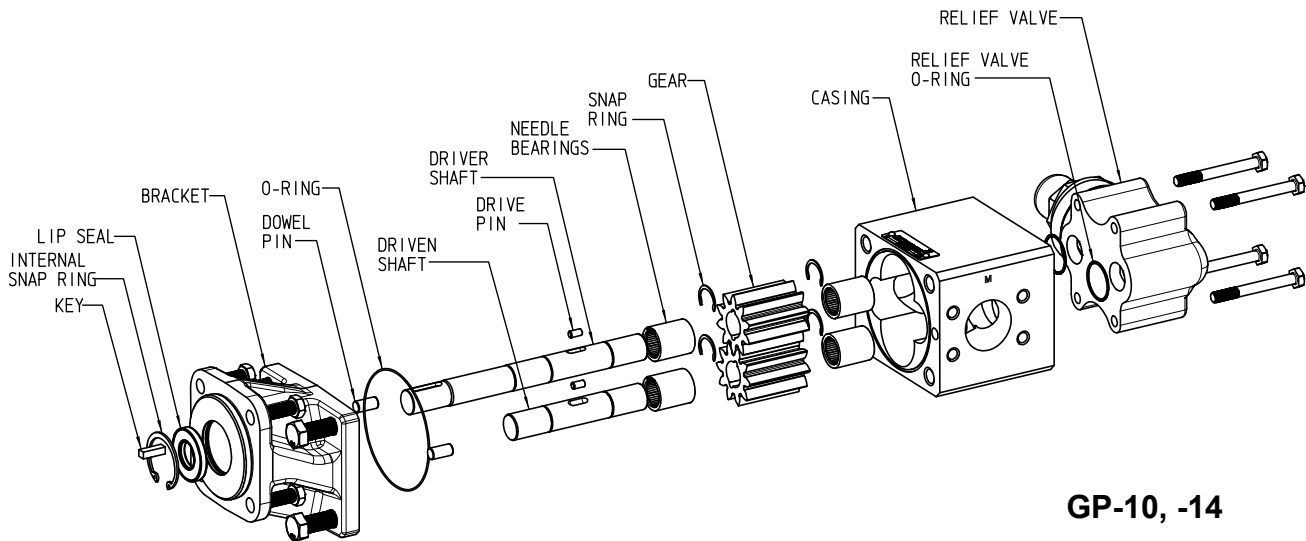
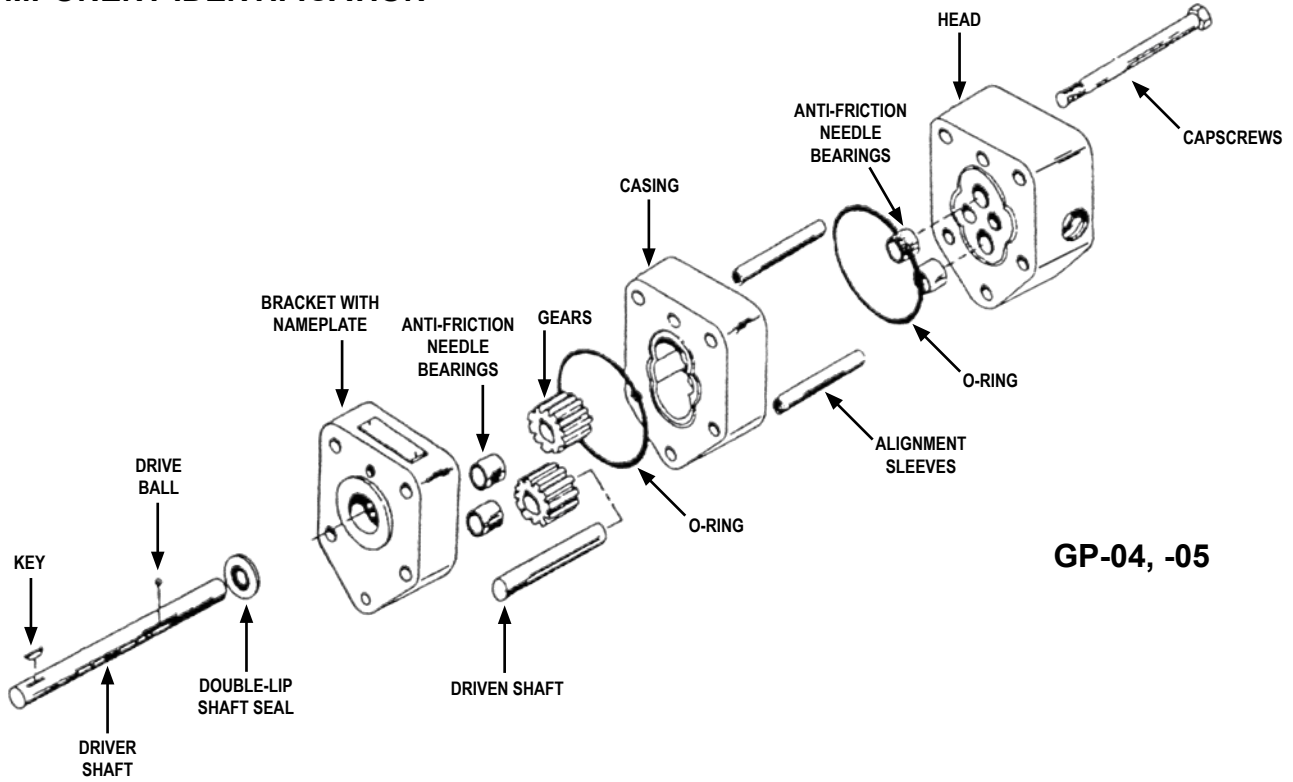
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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

COMPONENT IDENTIFICATION





SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14

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VIKING HYDRAULIC GEAR PUMPS & MOTORS

MATERIALS OF CONSTRUCTION - ALL SERIES

Component	Standard -04, -05, -07, -10, -14	Option
Casing, Bracket	Cast Iron, ASTM A823	Surface Hardening (Vitek)
Head, Separation Plate	Cast Iron, ASTM A823	Surface Hardening (Vitek)
Gears	Heat Treated Steel	---
Shafts	Hardened Steel, ASTM A322	---
Anti-Friction Needle Bearings	Bearing Steel	DU Bushings
O-Rings	Buna-N	Viton®, PTFE
Lip Seals	Buna-N	Viton®, PTFE
"B" drive foot bracket	Cast Iron, ASTM A823	---
"M" drive motor bracket	Cast Iron ASTM A823 (GP-04, -05, -07) Aluminum (GP-10, -14)	---

Viton® is a registered trademark of DuPont Performance Elastomers

SPECIFICATIONS

Size	Nominal Capacity at 1750 RPM		Theoretical Displacement		Maximum Operating Conditions				
					Pressure				Maximum Speed RPM
	GPM	LPM	in ³ /rev	cm ³ /rev	Continuous		Intermittent		
					PSI	BAR	PSI	BAR	
-0417	.06	0.23	.008	.13	750	52	750	52	3600
-0418	.14	0.53	.017	.28	1000	69	1000	69	3600
-0425	.18	0.68	.024	.39	1250	86	1500	103	4000
-0435	.27	1.02	.033	.54	1500	103	1750	121	4000
-0450	.36	1.36	.048	.79	1250	86	2000	138	4000
-0470	.50	1.89	.067	1.10	900	62	1500	103	4000
-0518	0.7	2.6	.094	1.54	1500	103	1500	103	3600
-0525	1.0	3.8	.139	2.27	2000	138	2500	172	4000
-0535	1.4	5.3	.194	3.18	1800	124	2500	172	4000
-0550	2.0	7.6	.277	4.54	1250	86	2500	172	4000
-0570	2.8	10.6	.388	6.36	900	62	1800	124	4000
-0510	4.0	15.1	.548	8.98	625	43	1250	86	3600
-0514	5.6	21.2	.761	12.47	450	31	900	62	3600
-0741	4.0	15.1	.548	8.98	2250	155	2500	172	4000
-0758	5.6	21.2	.765	12.53	1600	110	2500	172	4000
-0782	8.0	30.3	1.096	17.96	1125	77.6	2250	155	4000
-0711	11.2	42.4	1.530	25.07	800	55.1	1600	110	3600
-0716	16.0	61.0	2.192	35.92	550	37.9	1100	75.8	3600
-1009	16.0	61.0	2.112	34.60	500	34	2500	172	1750
-1013	25.0	95.0	3.299	54.06	500	34	1900	130	1750
-1026	50.0	189.0	6.599	108.14	500	34	1000	68	1750
-1420	70.0	265.0	9.240	151.42	500	34	1100	75	1750
-1436	125.0	473.0	16.500	270.39	290	20	580	40	1750
-1456	190.0	719.0	26.400	432.62	190	13	380	26	1750

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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

MOTOR SELECTION FOR HYDRAULIC PUMPS

Size	Nominal Pump			Maximum Discharge Pressure - PSIG															
	Capacity		Speed	Motor HP (KW)															
	GPM	LPM	RPM	1/8 (0.09)	1/6 (0.12)	1/4 (0.18)	1/3 (0.25)	1/2 (0.37)	3/4 (0.55)	1 (0.75)	1 1/2 (1.1)	2 (1.5)	3 (2.2)	5 (3.7)	7 1/2 (5.5)	10 (7.5)	15 (11.2)	20 (15.0)	25 (18.65)
GP-0417	.04 .06	0.15 0.23	1150 1750	400 200	500 350	750 650	— 750	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0418	.09 .13	0.34 0.49	1150 1750	200 100	400 200	500 450	— 750	— 1000	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0425	.12 .18	0.45 0.68	1150 1750	200 100	400 200	500 450	— 750	— 1000	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0435	.16 .25	0.60 0.94	1150 1750	200 100	400 200	500 450	— 750	— 1000	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0450	.24 .36	0.91 1.4	1150 1750	200 100	400 200	500 450	— 750	— 1000	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0470	.34 .51	1.3 1.9	1150 1750	200 100	400 200	500 450	— 750	— 1000	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —
GP-0518	1.4 0.7 0.5	5.3 2.6 1.9	3450 1750 1150	— — —	— — —	150 450 650	200 600 775	375 950 1350	600 1475 1500	850 1500 —	1350 — —	1500 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —
GP-0525	2.0 1.0 0.7	7.6 3.7 2.6	3450 1750 1150	— — —	— — —	70 300 500	110 400 700	200 700 1100	400 1000 1500	600 1400 2000	950 2000 2500	1350 2500 —	2000 — —	2500 — —	— — —	— — —	— — —	— — —	— — —
GP-0535	2.8 1.4 0.9	10.6 5.3 3.4	3450 1750 1150	— — —	— — —	40 200 350	75 300 450	175 450 700	300 750 1000	425 1000 1450	700 1500 2050	925 2050 2500	1450 2500 —	2500 — —	— — —	— — —	— — —	— — —	— — —
GP-0550	4.0 2.0 1.3	15.1 7.6 4.9	3450 1750 1150	— — —	— — —	40 125 250	100 175 325	190 300 550	300 700 800	475 1075 1500	650 1450 2100	1050 2100 2500	1800 2500 —	2500 — —	— — —	— — —	— — —	— — —	— — —
GP-0570	5.6 2.8 1.8	21.2 10.6 6.8	3450 1750 1150	— — —	— — —	20 100 175	60 150 225	125 400 550	200 525 750	325 800 1200	475 1050 1550	750 1550 1800	1300 1800 —	1800 — —	— — —	— — —	— — —	— — —	— — —
GP-0510	8.0 4.0 2.6	30.3 15.1 9.8	3450 1750 1150	— — —	— — —	50 100	90 150	150 225	250 350	350 500	525 725	725 1000	1050 1250	1250 —	— —	— —	— —	— —	— —
GP-0514	11.2 5.6 3.7	42.4 21.2 14.0	3450 1750 1150	— — —	— — —	50 100	50 100	100 150	150 275	240 350	375 575	500 700	750 900	900 —	— —	— —	— —	— —	— —
GP-0741	8.0 4.0 2.6	30.3 15.1 9.8	3450 1750 1150	— — —	— — —	— — —	— — —	— — —	— 275 500	100 500 750	135 700 1050	225 1100 1610	560 1850 2500	970 2500 —	1470 — —	2250 — —	2500 — —	— — —	— — —
GP-0758	11.2 5.6 3.7	42.4 21.2 14.0	3450 1750 1150	— — —	— — —	— — —	— — —	— — —	— 170 290	80 290 450	170 470 710	170 740 1080	425 1300 1900	725 1950 2500	1050 2500 —	1600 — —	2500 — —	— — —	— — —
GP-0782	16.0 8.0 5.3	60.5 30.3 20.0	3450 1750 1150	— — —	— — —	— — —	— — —	— — —	— 105 190	— 190 290	— 320 490	100 500 735	250 865 1275	450 1360 2000	675 1820 2250	1050 2250 —	1500 — —	2250 — —	— — —
GP-0711	22.4 11.2 7.4	84.8 42.4 28.0	3450 1750 1150	— — —	— — —	— — —	— — —	— — —	— 75 135	— 135 210	— 210 320	80 340 500	170 600 890	320 940 1380	480 1270 1600	780 1600 —	1080 — —	1600 — —	— — —
GP-0716	32.0 16.0 10.5	121.1 60.5 39.7	3450 1750 1150	— — —	— — —	— — —	— — —	— — —	— 50 90	— 90 140	— 140 220	50 230 335	125 410 605	230 640 940	350 860 1100	575 1100 —	800 — —	1100 — —	— — —

Instructions:

- Go to Nominal Pump Capacity column and locate the desired pump flow rate.
- Follow that row to the right to locate the desired pressure in PSI (1 bar = 14.7 PSI)
- Follow that column up to find the motor horsepower (kW) required to drive the pump.

Note that there may be several different pump sizes that meet the desired flow rate at different speeds and pressures. In general, slower speeds offer longer life and lower noise.

The above information based on 150 SSU Oil and 5" Hg suction.

Intermittent rating of pump indicated in bold italic.

GP-10 & GP-14 - Consult Factory



SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14

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VIKING HYDRAULIC GEAR PUMPS & MOTORS

HYDRAULIC MOTOR SELECTION

Instructions:

- For whatever machine will be driven, identify the maximum brake horsepower (kW) required to drive it.
- Go to the Motor HP (kW) row and locate the horsepower (kW) rating greater than or equal to what is required to drive the machine.
- Follow that column down to locate the available pressure of your hydraulic system in PSI (1 bar = 14.7 PSI).

- Follow that row to the left to find the hydraulic fluid flow rate required through the hydraulic motor. This will let you identify the motor size required.

Note that there may be several different hydraulic motor sizes that meet the desired power requirement at different pressures and flow rates. In general, lower flow rates through the pump means slower speeds, which along with lower pressures offer longer life and lower noise. Note that hydraulic motors must discharge their flow to a sump at atmospheric pressure to create flow through the motor.

Size	Nominal Motor			Differential Pressure Required - PSIG								
	Capacity		Speed	Motor HP (KW)								
	GPM	LPM	RPM	1/4 (0.18)	1/3 (.25)	1/2 (.37)	3/4 (.55)	1 (.75)	1 1/2 (1.1)	2 (1.5)	3 (2.2)	5 (3.7)
GM-0518	1.4	5.3	3450	650	825	1250	1850	2400	—	—	—	—
	0.7	2.6	1750	1050	1450	2100	—	—	—	—	—	—
	0.5	1.9	1150	1600	2250	—	—	—	—	—	—	—
GM-0525	2.0	7.6	3450	450	525	650	850	1050	1450	1850	2800	—
	1.0	3.7	1750	550	700	975	1400	1800	2650	—	—	—
	0.7	2.6	1150	750	950	1375	2050	2750	—	—	—	—
GM-0535	2.8	10.6	3450	350	400	500	650	800	1100	1400	2000	—
	1.4	5.3	1750	425	500	700	1000	1300	1900	2500	—	—
	0.9	3.4	1150	550	700	1000	1475	1950	2850	—	—	—
GM-0550	4.0	15.1	3450	300	350	425	525	625	825	1050	1450	2300
	2.0	7.6	1750	350	425	550	750	950	1325	1725	2600	—
	1.3	4.9	1150	400	500	725	1050	1375	2000	2700	—	—
GM-0570	5.6	21.2	3450	225	250	300	375	450	600	725	1000	1600
	2.8	10.6	1750	250	300	375	500	650	950	1200	1800	—
	1.8	6.8	1150	300	375	500	725	950	1375	1800	—	—
GM-0510	8.0	30.3	3450	175	200	250	300	350	450	550	750	1150
	4.0	15.1	1750	200	225	300	375	475	675	875	1275	—
	2.6	9.8	1150	225	275	350	500	625	975	1250	—	—
GM-0514	11.2	42.4	3450	160	175	200	240	275	350	430	590	875
	5.6	21.2	1750	160	185	225	300	370	510	650	940	—
	3.7	14.0	1150	175	210	280	400	500	725	950	—	—

Size	Nominal Pumps			Differential Pressure Required - PSIG							
	Capacity		Speed	Motor HP (KW)							
	GPM	LPM	RPM	1 (0.75)	2 (1.5)	3 (2.2)	5 (3.7)	7 1/2 (5.5)	10 (7.5)	15 (11.2)	20 (15.0)
GM-0741	8.3	31.4	3450	450	700	900	1350	1900	2450	—	—
	4.2	15.9	1750	550	950	1400	2200	—	—	—	—
	2.8	10.6	1150	750	1400	2000	—	—	—	—	—
GM-0758	11.7	44.3	3450	350	500	650	950	1400	1800	2550	—
	6.3	23.8	1750	400	700	1050	1650	2400	—	—	—
	4.3	16.3	1150	550	1000	1450	2400	—	—	—	—
GM-0782	17.3	65.5	3450	—	350	450	700	950	1250	1850	—
	9.1	34.4	1750	—	500	750	1150	1650	2200	—	—
	6.3	23.8	1150	—	750	1000	1700	—	—	—	—
GM-0711	23.4	88.6	3450	—	250	350	450	650	850	1300	1650
	12.3	46.6	1750	—	400	500	800	1200	1550	—	—
	8.3	31.4	1150	—	500	700	1200	—	—	—	—
GM-0716	34.1	129.1	3450	—	150	250	350	500	650	900	—
	17.6	66.6	1750	—	250	350	550	850	1100	—	—
	12	45.4	1150	—	300	500	850	—	—	—	—

The above information based on 150 SSU Oil.

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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

PUMP DRIVE OPTIONS



FOUR-BOLT MOTOR MOUNTED UNITS (“M4” DRIVE)

Integral pump and motor units help reduce onsite assembly costs and provide maximum compactness where space is at a premium. The 4-bolt mounting can be provided with AC or DC motors.

*Dimensions for Motor Mounted Units (“M4” Drive)—
 See Page 341.14.*



FOOT-BRACKET MOUNTED PUMPS (“B” DRIVE)

A sturdy cast iron bracket machined by Viking assures accurate fit with the pump or motor.

*Dimensions for Foot-Bracket Mounted Pumps and motors
 (“B” Drive)— See Page 341.15.*

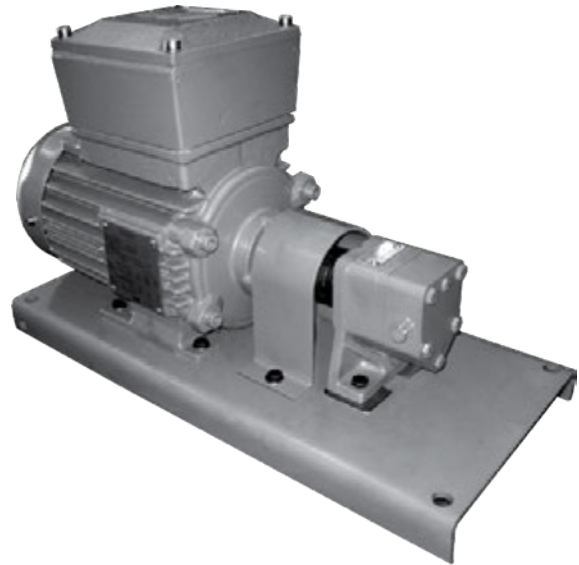


MOTOR MOUNTED UNITS (“M” DRIVE)

Viking hydraulic pumps in combination with the NEMA or IEC motor bracket and flexible coupling provide an easily assembled, compact unit. The adapter bracket is accurately machined to ensure shaft alignment.

*Dimensions for NEMA C Face-Mounted Units (“M” Drive)—
 See Page 341.14.*

*Dimensions for IEC Face-Mounted Units (“M” Drive)—
 See Page 341.14.1.*



BASE MOUNTED UNITS (“D” DRIVE)

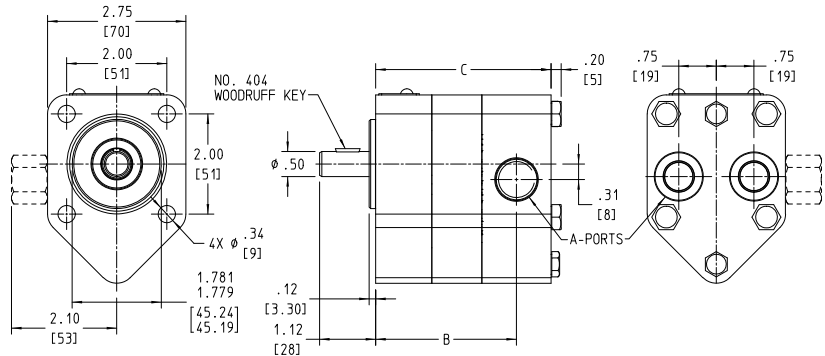
The Viking rectangular, formed steel base provides a solid mounting for the drive equipment and the foot bracket mounted pump.

Dimensions for Base-Mounted Units (“D” Drive)— See Page 341.16.

VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP-04, GP-05 UNMOUNTED PUMPS, GM-05 UNMOUNTED MOTORS

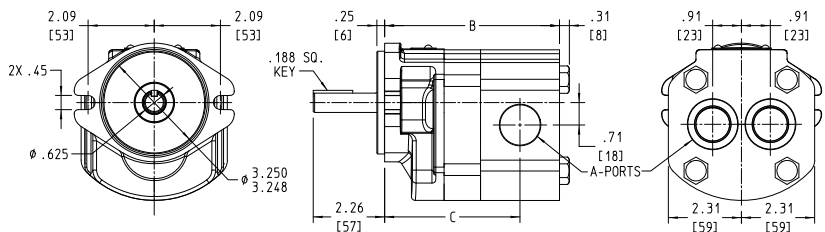
PUMP SIZE	A	B	C	D
GP-0417	3/8" NPT	1.99 (50.5)	2.68 (68.1)	3.80 (96.5)
GP-0418	3/8" NPT	1.99 (50.5)	2.68 (68.1)	3.80 (96.5)
GP-0425	3/8" NPT	2.06 (52.3)	2.75 (69.9)	3.87 (98.3)
GP-0435	3/8" NPT	2.16 (54.9)	2.85 (72.4)	3.97 (100.8)
GP-0450	3/8" NPT	2.31 (58.7)	3.00 (76.2)	4.12 (104.6)
GP-0470	3/8" NPT	2.51 (63.8)	3.20 (81.3)	4.32 (109.7)
GP-0518	3/8" NPT	1.99 (50.5)	2.68 (68.1)	3.80 (96.5)
GP-0525	3/8" NPT	2.06 (52.3)	2.75 (69.9)	3.87 (98.3)
GP-0535	3/8" NPT	2.16 (54.9)	2.85 (72.4)	3.97 (100.8)
GP-0550	3/8" NPT	2.31 (58.7)	3.00 (76.2)	4.12 (104.6)
GP-0570	1/2" NPT	2.51 (63.8)	3.20 (81.3)	4.32 (109.7)
GP-0510	1/2" NPT	2.81 (71.4)	3.50 (88.9)	4.62 (117.3)
GP-0514	1/2" NPT	3.21 (81.5)	3.90 (99.1)	5.02 (127.5)
GM-0518	SAE 6	1.99 (50.5)	2.68 (68.1)	3.80 (96.5)
GM-0525	SAE 6	2.06 (52.3)	2.75 (69.9)	3.87 (98.3)
GM-0535	SAE 6	2.16 (54.9)	2.85 (72.4)	3.97 (100.8)
GM-0550	SAE 6	2.31 (58.7)	3.00 (76.2)	4.12 (104.6)
GM-0570	SAE 6	2.51 (63.8)	3.20 (81.3)	4.32 (109.7)
GM-0510	SAE 6	2.81 (71.4)	3.50 (88.9)	4.62 (117.3)
GM-0514	SAE 6	3.21 (81.5)	3.90 (99.1)	5.02 (127.5)



Dimensions in inches (mm)
 NPT side ports standard (GP-04, -05),
 SAE O-ring end ports standard (GM-05).

DIMENSIONS – SERIES GP-07 UNMOUNTED PUMPS, GM-07 UNMOUNTED MOTORS

PUMP SIZE	A	B	C
GP-0741	3/4" NPT	4.41 (112.0)	3.29 (83.6)
GP-0758	3/4" NPT	4.58 (116.3)	3.46 (87.9)
GP-0782	3/4" NPT	4.82 (122.4)	3.70 (94.0)
GP-0711	1" NPT	5.15 (130.8)	4.03 (102.4)
GP-0716	1" NPT	5.65 (143.5)	4.53 (115.1)
GM-0741	SAE 12	4.41 (112.0)	3.29 (83.6)
GM-0758	SAE 12	4.58 (116.3)	3.46 (87.9)
GM-0782	SAE 12	4.82 (122.4)	3.70 (94.0)
GM-0711	SAE 12	5.15 (130.8)	4.03 (102.4)
GM-0716	SAE 12	5.65 (143.5)	4.53 (115.1)



Dimensions in inches (mm)
 NPT end ports standard (GP-07),
 SAE O-ring end ports standard (GM-07).
 Side ports are optional.

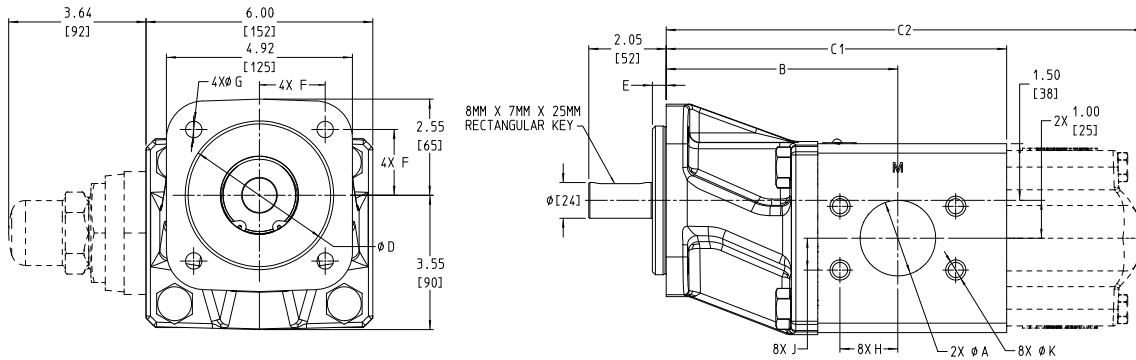
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VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP/GM-10 UNMOUNTED PUMP



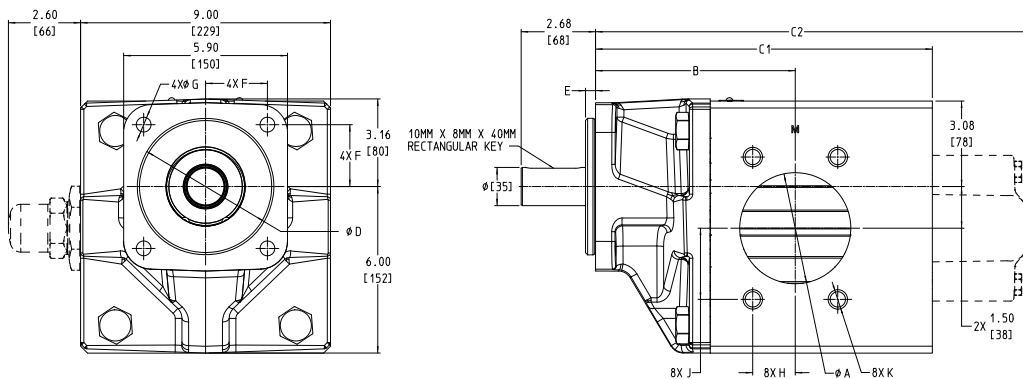
NOTE: Dimensions in inches (millimeters)

MODEL NO.	④		A ③	B	C1	C2 ⑤	D	E	F	G	H	J	K
-1009 ①	U	in	1.00	5.35	7.42	10.99	4.00	0.37	1.77	0.56	0.52	1.03	M10 X 1.50
-1009 ②	M	mm	25	136	188	279	100	9.2	44.2	11	13	26	M10 X 1.50
-1013 ①	U	in	1.50	5.91	8.04	11.61	4.00	0.37	1.77	0.56	1.38	0.70	M12 X 1.75
-1013 ②	M	mm	38	150	204	295	100	9.2	44.2	11	35	18	M12 X 1.75
-1026 ①	U	in	2.00	6.13	9.01	12.58	4.00	0.37	1.77	0.56	1.53	0.84	M12 X 1.75
-1026 ②	M	mm	51	156	229	320	100	9.2	44.2	11	39	21	M12 X 1.75

- ① Bracket pilot to SAE-B 4-bolt standard for NEMA M-drive or foot bracket
- ② Bracket pilot to 100 mm ISO 3019-2 DIN 4x standard for IEC M-drive or foot bracket
- ③ Standard ports SAE J518 code 61 flange. Optional tapped ports on same centerline include NPT or BSP (up to 2") or SAE O-Ring J1453 (up to 2")

- ④ Bracket pilot (digit 10 in Model Number Key page 341.4.2)
- ⑤ C2 dimension includes optional pressure relief valve.

DIMENSIONS – SERIES GP/GM-14 UNMOUNTED PUMP



NOTE: Dimensions in inches (millimeters)

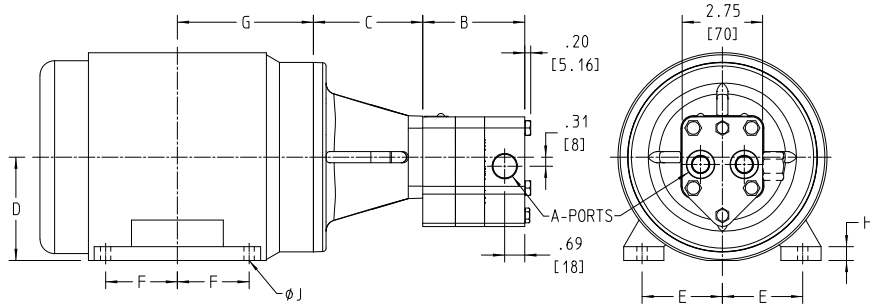
MODEL NO.	④		A ③	B	C1	C2 ⑤	D	E	F	G	H	J	K
-1420 ①	U	in	2.00	6.10	8.53	12.16	5.00	0.49	2.25	0.56	0.84	1.53	M12 X 1.75
-1420 ②	M	mm	51	155	217	309	125	9.2	56.6	13.5	21	39	M12 X 1.75
-1436 ①	U	in	3.00	6.80	10.13	13.76	5.00	0.49	2.25	0.56	1.22	2.09	M16 X 2.00
-1436 ②	M	mm	76	173	257	350	125	9.2	56.6	13.5	31	53	M16 X 2.00
-1456 ①	U	in	4.00	7.19	12.13	15.76	5.00	0.49	2.25	0.56	1.53	2.56	M16 X 2.00
-1456 ②	M	mm	102	183	308	400	125	9.2	56.6	13.5	39	65	M16 X 2.00

- ① Bracket pilot SAE-C 4-bolt standard for NEMA M-drive or foot bracket
- ② Bracket pilot 125 mm ISO 3019-2 DIN 4x standard for IEC M-drive or foot bracket
- ③ Standard ports SAE J518 code 61 flange. Optional tapped ports on same centerline include NPT or BSP (up to 4") or SAE O-Ring J1453 (up to 2")

- ④ Bracket pilot (digit 10 in Model Number Key page 341.4.2)
- ⑤ C2 dimension includes optional pressure relief valve.

VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP-04 & -05 C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA

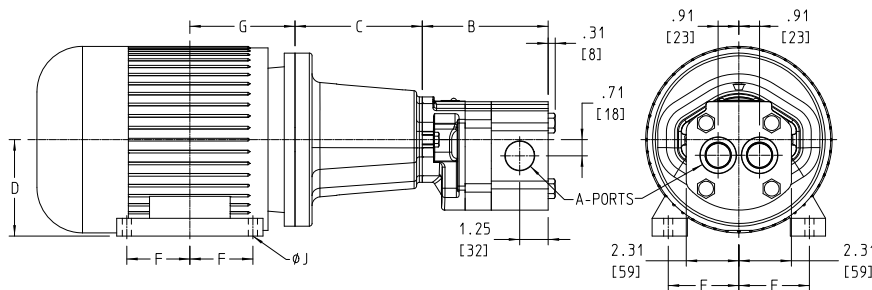


Dimensions in inches (mm)

PUMP SIZE	A	B
GP-0417	3/8" NPT	2.68 (68.1)
GP-0418	3/8" NPT	2.68 (68.1)
GP-0425	3/8" NPT	2.75 (69.9)
GP-0435	3/8" NPT	2.85 (72.4)
GP-0450	3/8" NPT	3.00 (76.2)
GP-0470	3/8" NPT	3.20 (81.3)
GP-0518	3/8" NPT	2.68 (68.1)
GP-0525	3/8" NPT	2.75 (69.9)
GP-0535	3/8" NPT	2.85 (72.4)
GP-0550	3/8" NPT	3.00 (76.2)
GP-0570	1/2" NPT	3.20 (81.3)
GP-0510	1/2" NPT	3.50 (88.9)
GP-0514	1/2" NPT	3.90 (99.1)

MOTOR FRAME SIZE	C	D	E	F	G	H	J
56C	3.75 (95.3)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	4.06 (103.1)	0.12 (3.0)	0.34 (8.6) SLOT
143TC	3.75 (95.3)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	4.88 (124.0)	0.31 (7.9)	0.34 (8.6)
145TC	3.75 (95.3)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	5.38 (136.7)	0.31 (7.9)	0.34 (8.6)
182TC	4.25 (108.0)	4.50 (114.3)	3.75 (95.3)	2.25 (57.2)	5.78 (146.8)	0.38 (9.7)	0.41 (10.4)
184TC	4.25 (108.0)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	6.28 (159.5)	0.38 (9.7)	0.41 (10.4)

DIMENSIONS – SERIES GP-07 C-FLANGE MOTOR MOUNT (“M” DRIVE) – NEMA



Dimensions in inches (mm)

PUMP SIZE	A	B
GP-0741	3/4" NPT	3.04 (112.0)
GP-0758	3/4" NPT	3.21 (116.3)
GP-0782	3/4" NPT	3.45 (28.4)
GP-0711	1" NPT	3.78 (130.8)
GP-0716	1" NPT	4.28 (143.5)

MOTOR FRAME SIZE	C	D	E	F	G	H	J
56C	4.88 (124.0)	3.50 (88.9)	2.44 (62.0)	1.50 (38.1)	4.06 (103.1)	.12 (3.0)	.34 (8.6) SLOT
143TC	4.88 (124.0)	3.50 (88.9)	2.75 (69.9)	2.00 (50.8)	4.88 (124.0)	.31 (7.9)	.34 (8.6)
145TC	4.88 (124.0)	3.50 (88.9)	2.75 (69.9)	2.50 (63.5)	5.38 (136.7)	.31 (7.9)	.34 (8.6)
182TC	5.62 (142.7)	4.50 (114.3)	3.75 (95.3)	2.25 (57.2)	5.78 (146.8)	.38 (9.7)	.41 (10.4)
184TC	5.62 (142.7)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	6.28 (159.5)	.38 (9.7)	.41 (10.4)
213TC	6.48 (164.6)	5.25 (133.4)	4.25 (108.0)	2.75 (69.9)	7.03 (178.6)	.62 (15.7)	.41 (10.4)
215TC	6.48 (164.6)	5.25 (133.4)	4.25 (108.0)	3.50 (88.9)	7.78 (197.6)	.62 (15.7)	.41 (10.4)
254TC	7.10 (180.3)	6.25 (158.8)	5.00 (127.0)	4.12 (104.6)	8.40 (213.4)	.62 (15.7)	.53 (13.5)
256TC	7.10 (180.3)	6.25 (158.8)	5.00 (127.0)	5.00 (127.0)	9.28 (235.7)	.62 (15.7)	.53 (13.5)

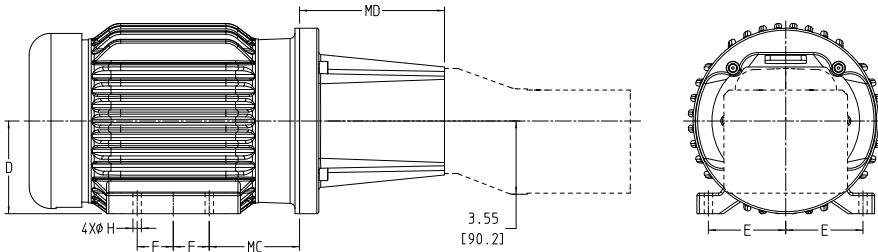
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VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP-10 MOTOR MOUNT (“M” DRIVE) – NEMA

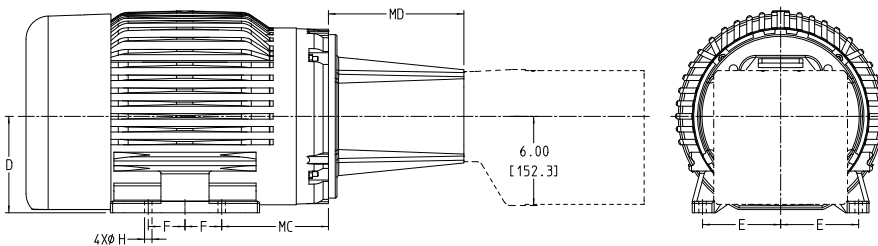


- ① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.
- ② Pump extends below motor feet. Motor must be blocked up.

NOTE: Cartridge seals may not be used with M-Drives

MOTOR FRAME		D	E	F	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
56C	in (mm)	3.50 (88.9) ②	2.44 (62.0)	1.50 (38.1)	.34 (8.6)	2.56 (65.0)	5.06 (128.5)	49 (22.1)
143TC	in (mm)	3.50 (88.9) ②	2.75 (69.9)	2.00 (50.8)	.34 (8.6)	2.88 (73.2)	5.06 (128.5)	65 (29.7)
145TC	in (mm)	3.50 (88.9) ②	2.75 (69.9)	2.50 (63.5)	.34 (8.6)	2.88 (73.2)	5.06 (128.5)	74 (33.5)
182TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.25 (57.2)	.41 (10.4)	3.38 (85.9)	5.69 (144.5)	151 (68.6)
184TC	in (mm)	4.50 (114.3)	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.38 (85.9)	5.69 (144.5)	159 (71.9)
213TC	in (mm)	5.25 (133.4)	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.25 (108.0)	6.63 (168.4)	190 (86.1)
215TC	in (mm)	5.25 (133.4)	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.25 (108.0)	6.63 (168.4)	257 (116.6)
254TC	in (mm)	6.25 (158.8)	5.00 (127.0)	4.13 (104.9)	.53 (13.5)	4.75 (120.7)	7.04 (178.8)	284 (128.9)
256TC	in (mm)	6.25 (158.8)	5.00 (127.0)	5.00 (127.0)	.53 (13.5)	4.75 (120.7)	7.04 (178.8)	328 (149.0)
284TC	in (mm)	7.00 (177.8)	5.50 (139.7)	4.75 (120.7)	.53 (13.5)	4.75 (120.7)	8.11 (206.0)	432 (195.8)
286TC	in (mm)	7.00 (177.8)	5.50 (139.7)	5.50 (139.7)	.53 (13.5)	4.75 (120.7)	8.11 (206.0)	485 (220.1)

DIMENSIONS – SERIES GP-14 MOTOR MOUNT (“M” DRIVE) – NEMA

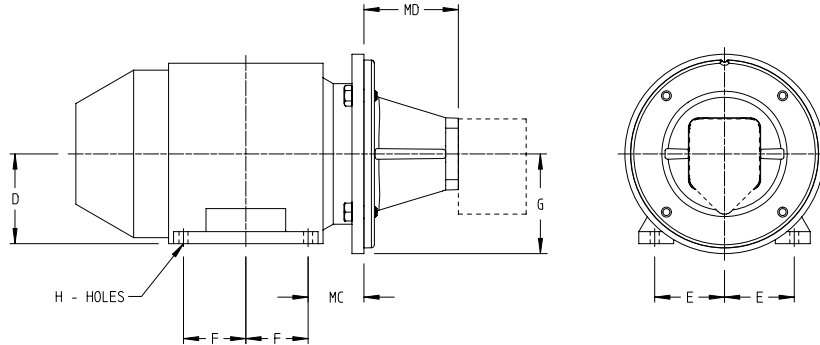


- ① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.
- ② Pump extends below motor feet. Motor must be blocked up.

MOTOR FRAME		D	E	F	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
182TC	in (mm)	4.50 (114.3) ②	3.75 (95.3)	2.25 (57.2)	.41 (10.4)	3.62 (91.9)	7.63 (193.8)	151 (68.6)
184TC	in (mm)	4.50 (114.3) ②	3.75 (95.3)	2.75 (69.9)	.41 (10.4)	3.62 (91.9)	7.63 (193.8)	159 (71.9)
213TC	in (mm)	5.25 (133.4) ②	4.25 (108.0)	2.75 (69.9)	.41 (10.4)	4.50 (114.3)	7.63 (193.8)	190 (86.1)
215TC	in (mm)	5.25 (133.4) ②	4.25 (108.0)	3.50 (88.9)	.41 (10.4)	4.50 (114.3)	7.63 (193.8)	257 (116.5)
254TC	in (mm)	6.25 (158.8)	5.00 (127.0)	4.13 (104.9)	.53 (13.5)	4.75 (120.7)	7.63 (193.8)	284 (128.9)
256TC	in (mm)	6.25 (158.8)	5.00 (127.0)	5.00 (127.0)	.53 (13.5)	4.75 (120.7)	7.63 (193.8)	328 (149.0)
284TC	in (mm)	7.00 (177.8)	5.50 (139.7)	4.75 (120.7)	.53 (13.5)	4.75 (120.7)	9.12 (231.6)	432 (195.8)
286TC	in (mm)	7.00 (177.8)	5.50 (139.7)	5.50 (139.7)	.53 (13.5)	4.75 (120.7)	9.12 (231.6)	485 (220.1)
324TC	in (mm)	8.00 (203.2)	6.25 (158.8)	5.25 (133.4)	.53 (13.5)	5.25 (133.4)	9.13 (231.6)	680 (308.5)

VIKING HYDRAULIC GEAR PUMPS & MOTORS

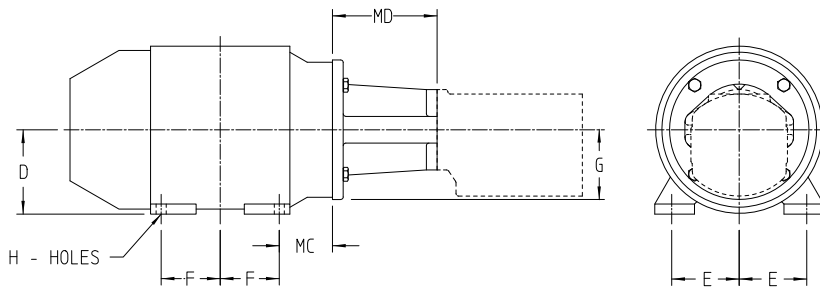
DIMENSIONS – SERIES GP-04, GP-05 – MOTOR MOUNT – (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 80 B35 FLANGE	in (mm)	3.15 (80)	2.46 (62.5)	1.97 (50)	3.94 (100)	0.39 (10)	1.97 (50)	3.73 (94.7)	46 (21)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	3.73 (94.7)	64 (29)

① Motor shipping weight listed is for a typical IEC motor.
 (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
 For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

DIMENSIONS – SERIES GP-07 – MOTOR MOUNT (“M” DRIVE) – IEC FRAME



MOTOR FRAME		D	E	F	G	H	MC	MD	APPROX. DRIVE ① EQUIP. SHIPPING WEIGHT IN POUNDS (KG)
IEC 90 B35 FLANGE	in (mm)	3.54 (90)	2.76 (70)	S 1.97 (50) / L 2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	5.13 (130.3)	68 (31)
IEC 100 B14 FACE	in (mm)	3.94 (100)	3.15 (80)	S 2.20 (56) / L 2.76 (70)	---	0.47 (12)	2.48 (63)	5.26 (133.6)	114 (52)
IEC 112 B14 FACE	in (mm)	4.41 (112)	3.74 (95)	S 2.24 (57) / L 2.76 (70)	---	0.47 (12)	2.76 (70)	5.26 (133.6)	129 (59)

① Motor shipping weight listed is for a typical IEC motor.
 (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)
 For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

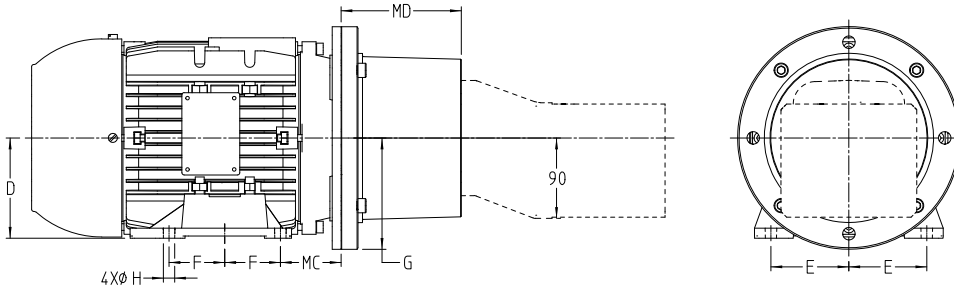
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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – GP-10 – MOTOR MOUNT (“M” DRIVE) – IEC B35 FRAME

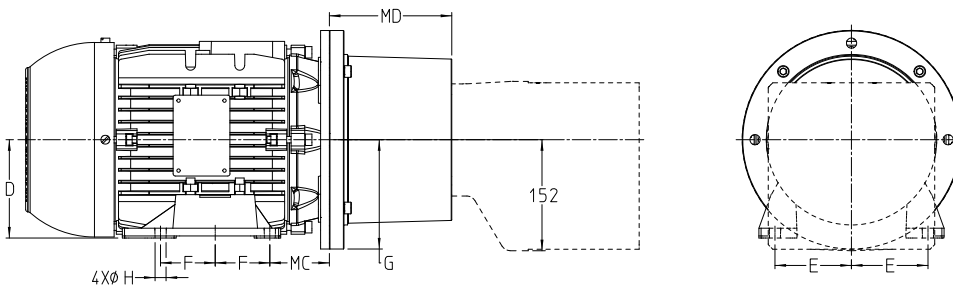


MOTOR FRAME SIZE		D	E	F	G	H	MC	BELLHOUSING PN ②	MD	APPROX. DRIVE ① EQUIPMENT SHIPPING WEIGHT IN POUNDS (KG)
90	in (mm)	3.54 (90)	2.76 (70)	2.46 (62.5)	3.94 (100)	0.39 (10)	2.20 (56)	2-085-054-720-00	4.88 (124)	63 (28.8)
100L	in (mm)	3.94 (100)	3.15 (80)	2.76 (70)	3.94 (100)	0.47 (12)	2.48 (63)	2-085-050-720-00	5.31 (135)	89 (40.5)
112M	in (mm)	4.41 (112)	3.74 (95)	2.76 (70)	4.92 (125)	0.47 (12)	2.76 (70)	2-085-050-720-00	5.31 (135)	110 (49.9)
132S/M	in (mm)	5.20 (132)	4.25 (108)	2.76 (70)	5.91 (150)	0.47 (12)	3.50 (89)	2-085-051-720-00	5.31 (135)	179 (81.3)
160L	in (mm)	6.30 (160)	5.00 (127)	4.13 (105)	6.89 (175)	0.59 (15)	4.25 (108)	2-085-052-720-00	7.40 (188)	331 (150.3)
180L	in (mm)	7.09 (180)	5.49 (139.5)	4.74 (120.5)	6.89 (175)	0.59 (15)	4.76 (121)	2-085-052-720-00	7.40 (188)	496 (225.1)
200M	in (mm)	7.87 (200)	6.26 (159)	5.26 (133.5)	7.87 (200)	0.71 (18)	5.24 (133)	2-085-053-720-00	8.03 (204)	668 (303.3)

① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Viking offers several bellhousing styles, and these dimensions only pertain to the bellhousing part numbers listed. If using a different part number, dimensions may vary.

DIMENSIONS – GP-14 – MOTOR MOUNT (“M” DRIVE) – IEC B35 FRAME



MOTOR FRAME SIZE		D	E	F	G	H	MC	BELLHOUSING PN ②	MD	APPROX. DRIVE ① EQUIPMENT SHIPPING WEIGHT IN POUNDS (KG)
132	in (mm)	5.20 (132)	4.25 (108)	2.76 (70)	5.91 (150)	0.47 (12)	3.50 (89)	2-085-041-720-00	6.61 (168)	179 (81.3)
160	in (mm)	6.30 (160)	5.00 (127)	4.13 (105)	6.89 (175)	0.59 (15)	4.25 (108)	2-085-048-720-00	8.03 (204)	331 (150.3)
180	in (mm)	7.09 (180)	5.49 (139.5)	4.74 (120.5)	6.89 (175)	0.59 (15)	4.76 (121)	2-085-048-720-00	8.03 (204)	496 (225.1)
200	in (mm)	7.87 (200)	6.26 (159)	5.26 (133.5)	7.87 (200)	0.71 (18)	5.24 (133)	2-085-040-720-00	8.03 (204)	668 (303.3)
225	in (mm)	8.86 (225)	7.01 (178)	5.63 (143)	8.86 (225)	0.71 (18)	5.87 (149)	2-085-049-720-00	9.21 (234)	793 (359.9)

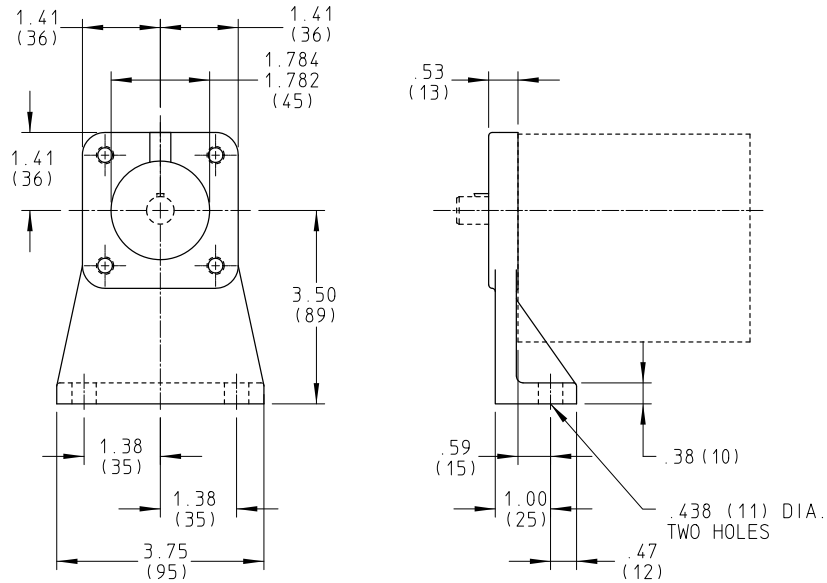
① Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

② Viking offers several bellhousing styles, and these dimensions only pertain to the bellhousing part numbers listed. If using a different part number, dimensions may vary.

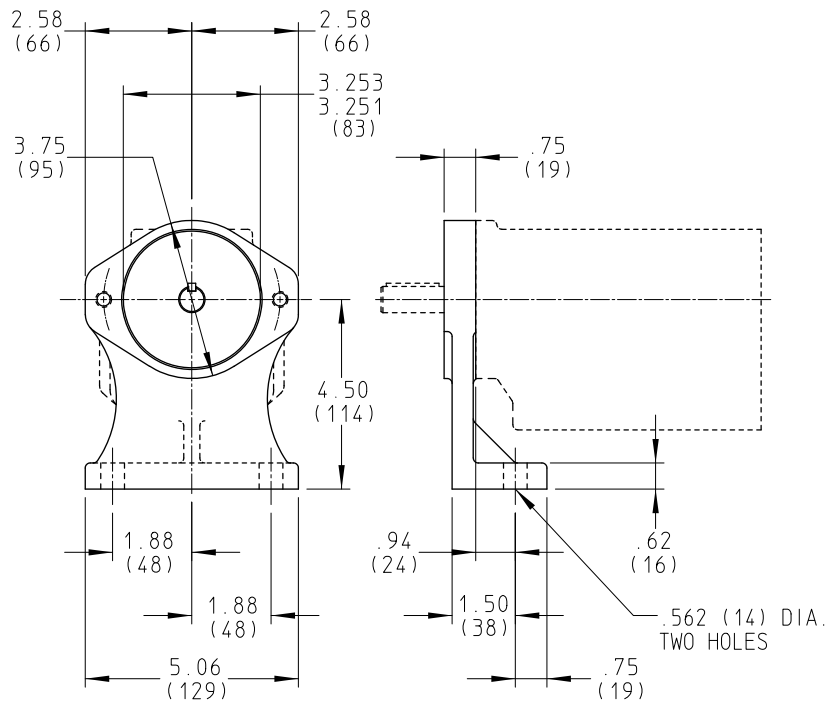
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VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP-04, -05, GM-05 FOOT BRACKET (“B” DRIVE)



DIMENSIONS – SERIES GP-07, GM-07 FOOT BRACKET (“B” DRIVE)



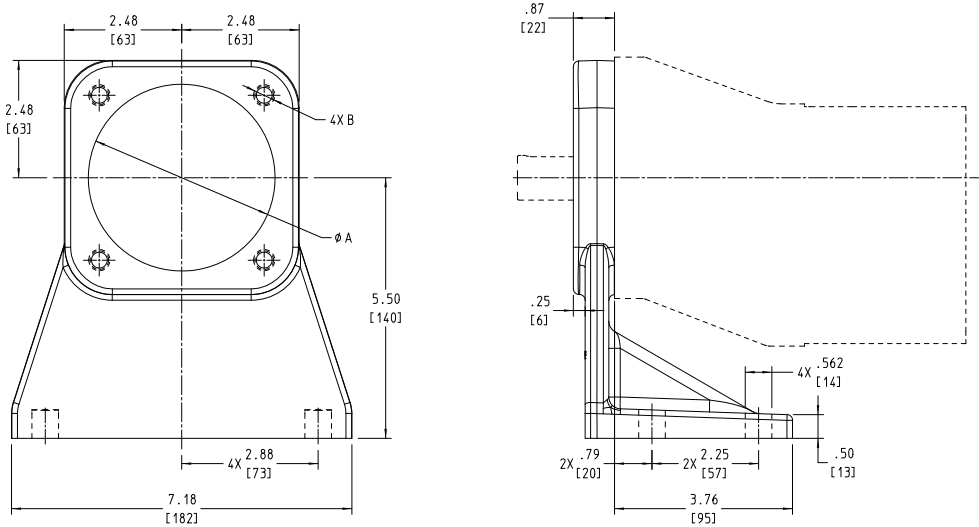
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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

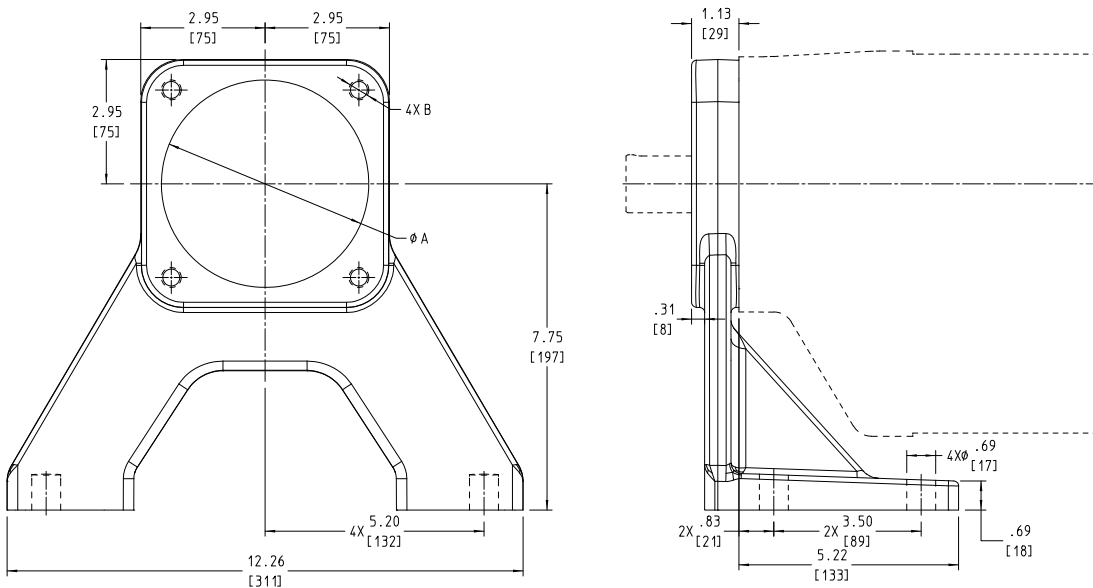
DIMENSIONS – SERIES GP-10 FOOT BRACKET (“B” DRIVE)



NOTE: Approximate shipping weight is 11 lbs (4.8 Kg)
 NOTE: Dimensions shown in parentheses are millimeters; others are inches.

FOR USE WITH		A	B
SAE B 4 BOLT	in	4.00	1/2 - 13
	mm	102	
ISO 100MM 4 BOLT	in	3.94	M10 X 1.5
	mm	100	

DIMENSIONS – SERIES GP-14 FOOT BRACKET (“B” DRIVE)

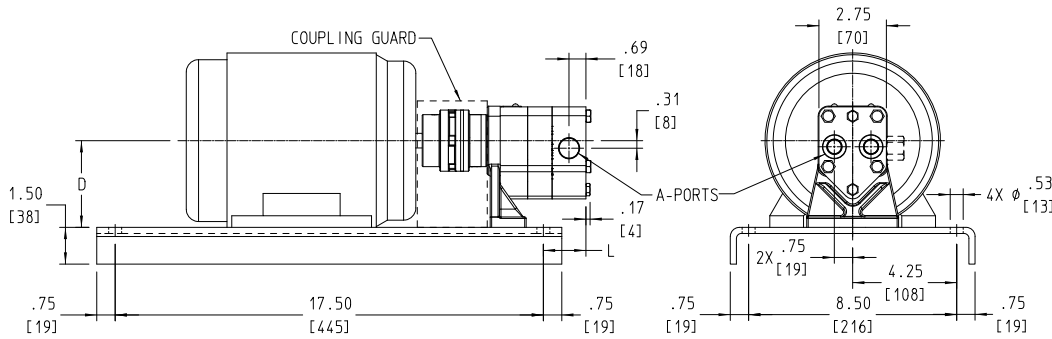


NOTE: Approximate shipping weight is 19 lbs (8.6 Kg)
 NOTE: Dimensions shown in parentheses are millimeters; others are inches.

FOR USE WITH		A	B
SAE C 4 BOLT	in	5.00	1/2 - 13
	mm	127	
ISO 125MM 4 BOLT	in	4.92	M12 X 1.75
	mm	125	

VIKING HYDRAULIC GEAR PUMPS & MOTORS

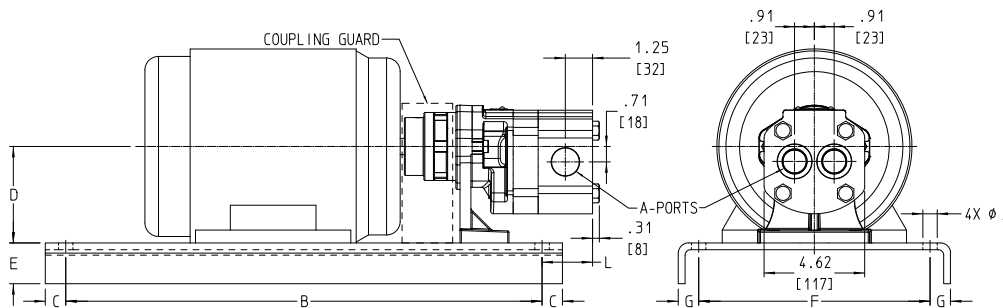
DIMENSIONS – SERIES GP-04, -05 BASE-MOUNTED UNIT (“D” DRIVE)



NOTE: Dimensions in inches (mm)

PUMP SIZE	A	D		L
		NEMA MOTOR FRAME SIZE		
		56 - 145T	182 - 184T	
GP-0417	3/8" NPT	3.50 (88.9)	4.50 (114.3)	.18 (4.6)
GP-0418	3/8" NPT			.18 (4.6)
GP-0425	3/8" NPT			.25 (6.4)
GP-0435	3/8" NPT			.35 (8.9)
GP-0450	3/8" NPT			.50 (12.7)
GP-0470	3/8" NPT			.70 (17.8)
GP-0518	3/8" NPT	3.50 (88.9)	4.50 (88.9)	.18 (4.6)
GP-0525	3/8" NPT			.25 (6.4)
GP-0535	3/8" NPT			.35 (8.9)
GP-0550	3/8" NPT			.50 (12.7)
GP-0570	1/2" NPT			.70 (17.8)
GP-0510	1/2" NPT			1.00 (25.4)
GP-0514	1/2" NPT			1.40 (35.6)

DIMENSIONS – SERIES GP-07 BASE-MOUNTED UNIT (“D” DRIVE)



NOTE: Dimensions in inches (mm)

PUMP SIZE	A	L	NEMA MOTOR FRAME SIZE 56 - 145T						NEMA MOTOR FRAME SIZE 182 - 215T						NEMA MOTOR FRAME SIZE 254T - 256T									
			B	C	D	E	F	G	J	B	C	D	E	F	G	J	B	C	D	E	F	G	J	
GP-0741	3/4" NPT	.88 (22.4)																						
GP-0758	3/4" NPT	1.04 (26.4)																						
GP-0782	3/4" NPT	1.28 (32.5)	20.50 (520.7)	.75 (19.05)	3.50 (88.9)	1.50 (38.1)	8.50 (215.9)	.75 (19.05)	.50 (12.7)	25.00 (635)	1.00 (25.4)													
GP-0711	1" NPT	1.62 (41.1)																						
GP-0716	1" NPT	2.12 (53.8)																						

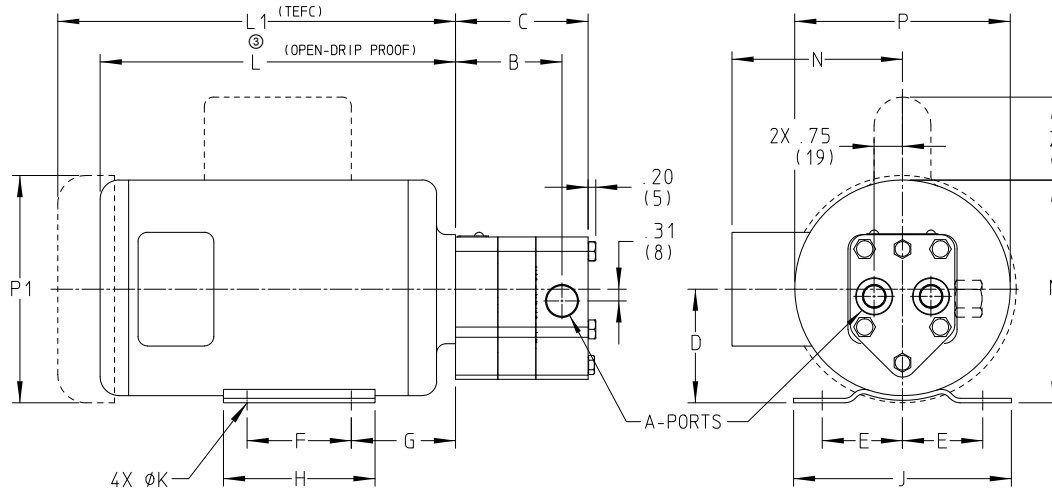
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SERIES GP-04, -05, -07, -10, -14
 SERIES GM-05, -07, -10, -14



VIKING HYDRAULIC GEAR PUMPS & MOTORS

DIMENSIONS – SERIES GP-04, -05 FOUR-BOLT MOTOR MOUNTED UNIT (“M4” DRIVE)



CLOSE-COUPLED MOTOR FRAME	② APPROX. DRIVE EQUIPMENT SHIPPING WEIGHT POUNDS (KG)	AB	D	E	2F	H	MA	MB	MC	ENCL.	O	P	P _i	ZZ
48 "M4" Drive	25 (11.1)	4.50 (114)	3.00 (76)	2.12 (54)	2.75 (70)	.34 (9) SLOT	5.75 (146)	4.00 (102)	2.75 (70)	ODP	5.88 (149)	5.69 (145)	---	2.19 (56)
										TEFC	5.88 (149)	---	6.12 (155)	2.25 (57)
56 "M4" Drive	29 (12.9)	5.25 (133)	3.50 (89)	2.44 (62)	3.00 (76)	.34 (9) SLOT	6.50 (165)	4.50 (114)	2.62 (66)	ODP	6.88 (175)	6.62 (168)	---	2.25 (57)
										TEFC	6.88 (175)	---	7.19 (183)	

① Motor shipping weight listed is for a typical TEFC motor.

(If a more accurate motor shipping weight is required, consult factory with complete motor specifications.)

For total unit shipping weight, add the electric motor shipping weight to the pump shipping weight shown on the pump specification chart.

② Drive equipment weight listed is for a typical TEFC motor, mounting bracket and couplings. (If a more accurate motor shipping weight is required, consult factory with complete motor specifications.) For total unit shipping weight, add the drive equipment shipping weight to the pump shipping weight shown on the pump specification chart.

③ L and L_i length dependent on motor horsepower.

NOTE: See page 341.4.9 for unmounted pump dimensions.

NOTE: Dimensions in inches (millimeters)

Section 341.5

External Gear Pumps

(Power Transfer Units)

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VIKING POWER TRANSFER UNITS (PTUs)

SERIES DESCRIPTION

Viking power transfer units are composed of matched positive displacement fluid transfer pumps and hydraulic (fluid power) motors. They can be either modular design (as standard) or integral design for OEM applications.

Series SG-04 and SG-05 "T" drives utilize external gear design pumps and motors while the Series 75 and 475 is made up of an internal gear pump and an external gear motor. Both series are mounted to common foot brackets.

Viking's PTU's have proven to be excellent solutions for mobile fluid transfer applications. Also for remote, limited space and/or hazardous locations.



GG475 with GM-07 Hydraulic Motor

OPERATING RANGE:

PTUs with SG Series External Gear Pumps		
Displacements	No.	15
Flow Range	GPM	0.04 to 22.4
	LPM	.15 to 85
Pressure Range	PSI	0 to 500
	Bar	0 to 34

PTUs with 75/475 Series Internal Gear Pumps		
Displacements	No.	5
Flow Range	GPM	5 to 30
	LPM	19 to 113
Pressure Range	PSI	0 to 100
	Bar	0 to 7

Temperature Range	°F	-40° to 450°
	°C	-40° to 230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

TYPICAL APPLICATIONS:

- Tank truck filling and unloading
- Mobile construction equipment liquid transfer
- Mobile fleet and heavy equipment lubrication systems
- Rail lubrication systems
- Chemical transfer in explosion hazard areas
- In-tank (submerged) pumping applications

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SERIES SG-04, SG-05, 75 AND 475



VIKING POWER TRANSFER UNITS (PTUs)

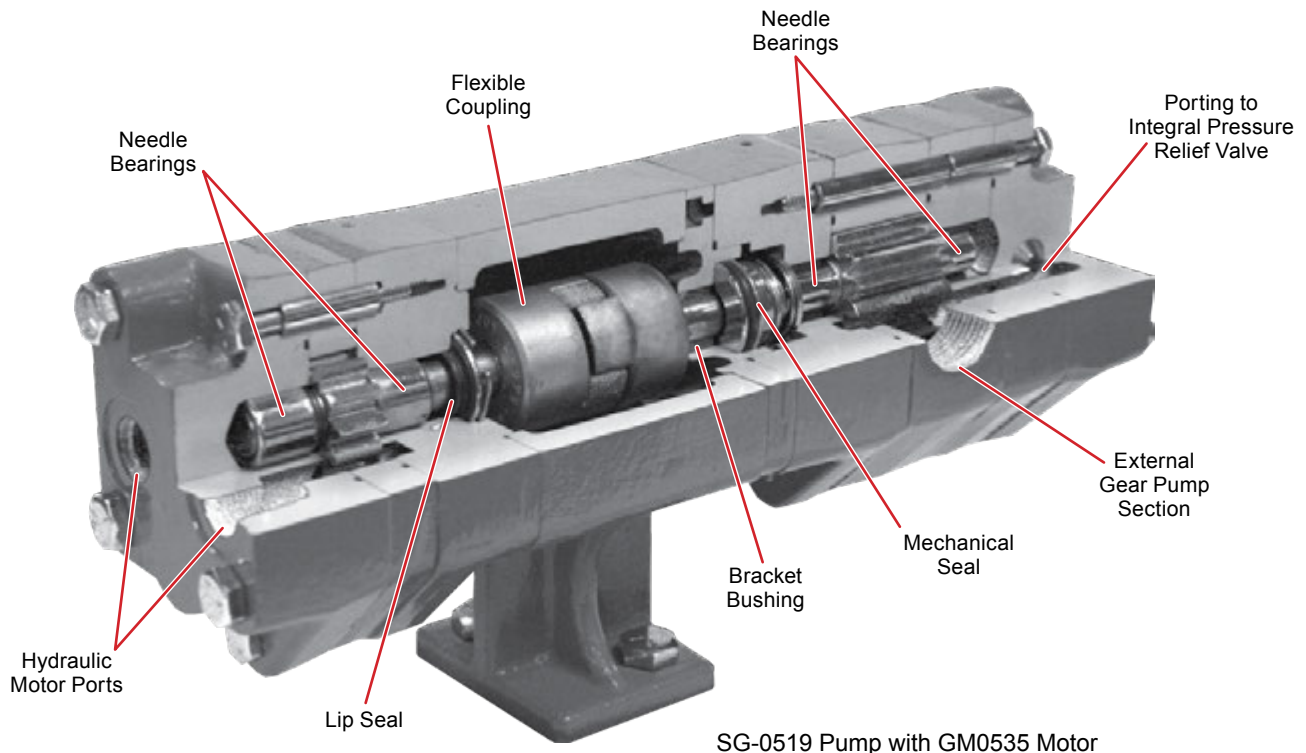
PUMP MATERIALS OF CONSTRUCTION - ALL SERIES

Component	Standard - SG-04, -05	Standard - 75 and 475 Series	Options
Bracket	Cast Iron, ASTM A823	— — —	— — —
Casing	Cast Iron, ASTM A823	Cast Iron, ASTM A823	— — —
Head, Separation Plate	Cast Iron, ASTM A823	Cast Iron, ASTM A823	— — —
Relief Valve Body	Cast Iron, ASTM A823	Cast Iron, ASTM A823	— — —
Relief Valve Poppet	Hardened Steel	Ductile Iron, ASTM A536	— — —
Relief Valve Spring	Steel, ASTM A229	Steel, ASTM A229	— — —
Drive Gear (Rotor)	Heat Treated Steel	G-HJ: Cast Iron, ASTM A48 HL: Ductile Iron, ASTM A536	— — —
Driven Gear (Idler)	Heat Treated Steel	G-GG: Steel, ASTM A216 H-HL: Cast Iron, ASTM A48	— — —
Shafts	Case-Hardened Steel, ASTM A322	— — —	— — —
Bearings	Bearing Steel ①	Bronze	Carbon Graphite
O-Rings	Buna-N	— — —	Viton®, PTFE encapsulated, Kalrez®
Lip Seals	Buna-N	Buna-N	Viton®, PTFE
Component Mechanical Seals	Carbon/Ni-Resist	Carbon/Ni-Resist	Carbon / Silicon Carbide, Silicon Carbide/Silicon Carbide

① Needle bearings standard with lip seals on SG pumps.

Note: Both offer lip seals or component mechanical seals.

Viton® and Kalrez® are registered trademarks of DuPont Performance Elastomers





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VIKING POWER TRANSFER UNITS (PTUs)

PUMP SELECTION - SERIES SG-04 AND SG-05 "T" DRIVE (US UNITS)

Pump Model	Nominal Capacity At Rated Speed (100 SSU)		
	1150 RPM	1750 RPM	3450 RPM
	GPM	GPM	GPM
SG-0417	0.04	0.06	0.12
SG-0418	0.09	0.14	0.27
SG-0425	0.12	0.18	0.36
SG-0435	0.17	0.27	0.52
SG-0450	0.24	0.36	0.7
SG-0470	0.34	0.50	1.0
SG-0518	0.47	0.7	1.4
SG-0525	0.66	1.0	2.0
SG-0535	0.9	1.4	2.8
SG-0550	1.3	2.0	4.0
SG-0570	1.8	2.8	5.6
SG-0510	2.6	4.0	8.0
SG-0514	3.7	5.6	11.2
SG-0519	5.0	7.6	15.2
SG-0528	7.3	11.2	22.4

NOTE: To select the correct hydraulic motor, go to www.vikingpump.com/pumpselector to determine the brake horsepower for the application.

EXAMPLE:

From pump selector, application requires 1/2 HP at 1750 RPM.

From motor selection table below, hydraulic motor GM-0518 could be used and would require approximately 0.7 GPM of hydraulic fluid at 2100 PSI to drive it. GM-0525 could also be used and would require approximately 1 GPM of hydraulic fluid at 975 PSI.

Hydraulic motor selection dependent on capability of power source.

MOTOR SELECTION - SERIES SG-04 AND SG-05 "T" DRIVE (US UNITS)

Motor Size	Nominal Motor		Differential Pressure Required (PSI)								
	Capacity	Speed	Motor HP								
	GPM	RPM	1/4	1/3	1/2	3/4	1	1 1/2	2	3	5
GM-0518	1.4	3450	650	825	1250	1850	2400	—	—	—	—
	0.7	1750	1050	1450	2100	—	—	—	—	—	—
	0.5	1150	1600	2250	—	—	—	—	—	—	—
GM-0525	2.0	3450	450	525	650	850	1050	1450	1850	2800	—
	1.0	1750	550	700	975	1400	1800	2650	—	—	—
	0.7	1150	750	950	1375	2050	2750	—	—	—	—
GM-0535	2.8	3450	350	400	500	650	800	1100	1400	2000	—
	1.4	1750	425	500	700	1000	1300	1900	2500	—	—
	0.9	1150	550	700	1000	1475	1950	2850	—	—	—
GM-0550	4.0	3450	300	350	425	525	625	825	1050	1450	2300
	2.0	1750	350	425	550	750	950	1325	1725	2600	—
	1.3	1150	400	500	725	1050	1375	2000	2700	—	—
GM-0570	5.6	3450	225	250	300	375	450	600	725	1000	1600
	2.8	1750	250	300	375	500	650	950	1200	1800	—
	1.8	1150	300	375	500	725	950	1375	1800	—	—
GM-0510	8.0	3450	175	200	250	300	350	450	550	750	1150
	4.0	1750	200	225	300	375	475	675	875	1275	—
	2.6	1150	225	275	350	500	625	975	1250	—	—
GM-0514	11.2	3450	160	175	200	240	275	350	430	590	875
	5.6	1750	160	185	225	300	370	510	650	940	—
	3.7	1150	175	210	280	400	500	725	950	—	—

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SERIES SG-04, SG-05, 75 AND 475



VIKING POWER TRANSFER UNITS (PTUs)

PUMP SELECTION - SERIES SG-04 AND SG-05 “T” DRIVE (METRIC UNITS)

Pump Model	Nominal Capacity At Rated Speed (100 SSU)		
	1150 RPM	1750 RPM	3450 RPM
	LPM	LPM	LPM
SG-0417	0.15	0.23	0.45
SG-0418	0.34	0.53	1.02
SG-0425	0.45	0.68	1.36
SG-0435	0.64	1.02	1.97
SG-0450	0.91	1.36	2.65
SG-0470	1.29	1.89	3.79
SG-0518	1.78	2.65	5.30
SG-0525	2.50	3.79	7.57
SG-0535	3.41	5.30	10.60
SG-0550	4.92	7.57	15.14
SG-0570	6.81	10.60	21.20
SG-0510	9.84	15.14	30.28
SG-0514	14.01	21.20	42.40
SG-0519	18.93	28.77	57.54
SG-0528	27.63	42.40	84.79

NOTE: To select the correct hydraulic motor, go to www.vikingpump.com/pumpselector to determine the brake horsepower for the application.

EXAMPLE:

From pump selector, application requires 1/2 HP at 1750 RPM.

From motor selection table below, hydraulic motor GM-0518 could be used and would require approximately 2.65 LPM of hydraulic fluid at 144.8 BAR to drive it. GM-0525 could also be used and would require approximately 3.8 LPM of hydraulic fluid at 67.2 BAR.

Hydraulic motor selection dependent on capability of power source.

MOTOR SELECTION - SERIES SG-04 AND SG-05 “T” DRIVE (METRIC UNITS)

Motor Size	Nominal Motor		Differential Pressure Required (BAR)								
	Capacity	Speed	Motor HP								
	LPM	RPM	1/4	1/3	1/2	3/4	1	1 1/2	2	3	5
GM-0518	5.3	3450	44.8	56.9	86.2	127.6	165.5	—	—	—	—
	2.7	1750	72.4	100.0	144.8	—	—	—	—	—	—
	1.9	1150	110.3	155.1	—	—	—	—	—	—	—
GM-0525	7.6	3450	31.0	36.2	44.8	58.6	72.4	100.0	127.6	193.1	—
	3.8	1750	37.9	48.3	67.2	96.5	124.1	182.7	—	—	—
	2.7	1150	51.7	65.5	94.8	141.3	189.6	—	—	—	—
GM-0535	10.6	3450	24.1	27.6	34.5	44.8	55.2	75.8	96.5	137.9	—
	5.3	1750	29.3	34.5	48.3	68.9	89.6	131.0	172.4	—	—
	3.4	1150	37.9	48.3	68.9	101.7	134.4	196.5	—	—	—
GM-0550	15.1	3450	20.7	24.1	29.3	36.2	43.1	56.9	72.4	100.0	158.6
	7.6	1750	24.1	29.3	37.9	51.7	65.5	91.4	118.9	179.3	—
	4.9	1150	27.6	34.5	50.0	72.4	94.8	137.9	186.2	—	—
GM-0570	21.2	3450	15.5	17.2	20.7	25.9	31.0	41.4	50.0	68.9	110.3
	10.6	1750	17.2	20.7	25.9	34.5	44.8	65.5	182.7	124.1	—
	6.8	1150	20.7	25.9	34.5	50.0	65.5	94.8	124.1	—	—
GM-0510	30.3	3450	12.1	13.8	17.2	20.7	24.1	31.0	37.9	51.7	79.3
	15.1	1750	13.8	15.5	20.7	25.9	32.8	46.5	60.3	87.9	—
	9.8	1150	15.5	19.0	24.1	34.5	43.1	67.2	86.2	—	—
GM-0514	42.4	3450	11.0	12.1	13.8	16.5	19.0	24.1	29.6	40.7	60.3
	21.2	1750	11.0	12.8	15.5	20.7	25.5	35.2	44.8	64.8	—
	14.0	1150	12.1	14.5	19.3	27.6	34.5	50.0	65.5	—	—



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VIKING POWER TRANSFER UNITS (PTUs)

PUMP AND GM-0741 MOTOR SELECTION - SERIES 75 AND 475 “T” DRIVE (“G” - “HL” SIZES)

Pump Size	Pump Discharge Pressure		1150 RPM								1750 RPM							
			Nominal Pump Capacity		Hydraulic Motor				Nominal Pump Capacity		Hydraulic Motor							
					Differential Pressure Required		Nominal Flow Required				Differential Pressure Required		Nominal Flow Required					
					PSI	BAR	GPM	LPM			PSI	BAR	GPM	LPM	PSI	BAR	GPM	LPM
G75 AND G475	25	1.7	5	18.9	250	17.2	2.8	10.6	7	26.5	275	19.0	4.2	15.9				
	50	3.4			325	22.4	2.9	11.0			350	24.1	4.2	15.9				
	75	5.2			425	29.3	2.9	11.0			450	31.0	4.2	15.9				
	100	6.9			550	37.9	3.0	11.4			575	39.6	4.2	15.9				
GG75 AND GG475	25	1.7	7	26.5	275	19.0	2.8	10.6	10	37.9	275	19.0	4.2	15.9				
	50	3.4			375	25.9	2.9	11.0			375	25.9	4.2	15.9				
	75	5.2			475	32.8	3.0	11.4			500	34.5	4.2	15.9				
	100	6.9			600	41.4	3.0	11.4			625	43.1	4.2	15.9				
H75 AND H475	25	1.7	10	37.9	300	20.7	2.8	10.6	15	56.8	300	20.7	4.2	15.9				
	50	3.4			475	32.8	3.0	11.4			500	34.5	4.2	15.9				
	75	5.2			700	48.3	3.0	11.4			700	48.3	4.2	15.9				
	100	6.9			825	56.9	3.0	11.4			900	62.1	4.3	16.3				
HJ75 AND HJ475	25	1.7	13	49.2	475	32.8	3.0	11.4	20	75.7	500	34.5	4.2	15.9				
	50	3.4			700	48.3	3.0	11.4			725	50.0	4.3	16.3				
	75	5.2			900	62.1	3.0	11.4			950	65.5	4.3	16.3				
	100	6.9			1200	82.8	3.1	11.7			1225	84.5	4.4	16.7				
HL75 AND HL475	25	1.7	20	75.7	500	34.5	3.0	11.4	30	113.6	550	37.9	4.2	15.9				
	50	3.4			750	51.7	3.0	11.4			775	53.4	4.3	16.3				
	75	5.2			1100	75.8	3.0	11.4			1150	79.3	4.3	16.3				
	100	6.9			1350	93.1	3.2	12.1			1400	96.5	4.5	17.0				

NOTE: 75 and 475 series PTUs shown in table above use the GM-0741 hydraulic motor. Other GM-07 motors available.

EXAMPLE:

Application requires 15 GPM (56.8 LPM) at 50 PSI (3.4 BAR).

From selection table above, an H-75 pump is selected at 1750 RPM. Hydraulic motor GM-0741 could be used and would require approximately 4.2 GPM (15.9 LPM) of hydraulic fluid at 500 PSI (34.5 BAR) to drive it.

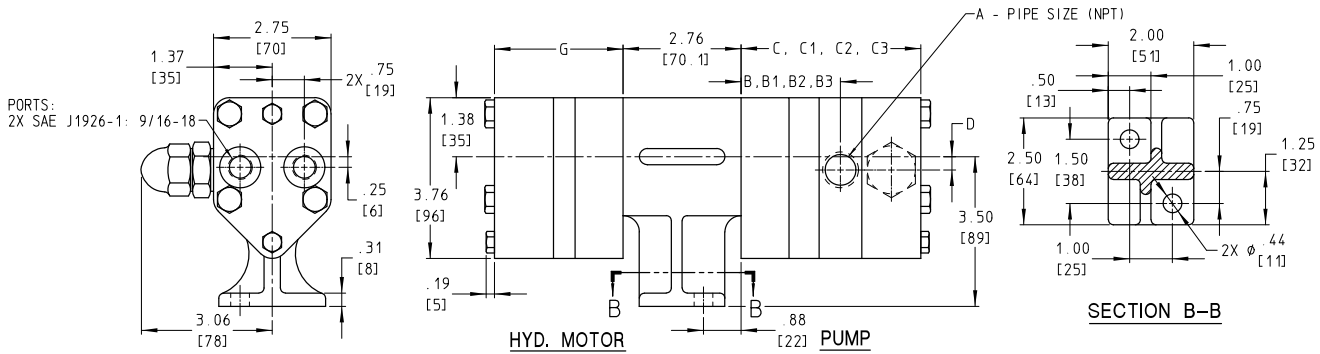
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SERIES SG-04, SG-05, 75 AND 475



VIKING POWER TRANSFER UNITS (PTUs)

DIMENSIONS – SERIES SG-04 AND SG-05 “T” DRIVE



HYDRAULIC MOTOR	
MODEL NO.	G
GM-0518	2.88
GM-0525	2.95
GM-0535	3.05
GM-0550	3.20
GM-0570	3.40
GM-0510	3.70
GM-0514	4.10

PUMP										
MODEL NO.	A	B	B ₁ ①	B ₂ ②	B ₃ ③	C	C ₁ ①	C ₂ ②	C ₃ ③	D
SG-0417	3/8	1.80	2.68	1.99	2.87	3.88	4.76	2.88	3.76	.31
SG-0418	3/8	1.80	2.68	1.99	2.87	3.88	4.76	2.88	3.76	.31
SG-0425	3/8	1.87	2.75	2.06	2.94	3.95	4.83	2.95	3.83	.31
SG-0435	3/8	1.97	2.85	2.16	3.04	4.05	4.93	3.05	3.93	.31
SG-0450	3/8	2.12	3.00	2.31	3.19	4.20	5.08	3.20	4.08	.31
SG-0470	3/8	2.32	3.20	2.51	3.39	4.40	5.28	3.40	4.28	.31
SG-0518	1/2	1.80	2.68	1.99	2.87	3.88	4.76	2.88	3.76	.31
SG-0525	1/2	1.87	2.75	2.06	2.94	3.95	7.83	2.95	3.83	.31
SG-0535	1/2	1.97	2.85	2.16	3.04	4.05	4.93	3.05	3.93	.31
SG-0550	1/2	2.12	3.00	2.31	3.19	4.20	5.08	3.20	4.08	.31
SG-0570	1/2	2.32	3.20	2.51	3.39	4.40	5.28	3.40	4.28	.31
SG-0510 ④	1/2	1.62	2.50	1.62	2.50	4.70	5.58	3.70	4.58	.31
SG-0514 ④	3/4	1.82	2.70	1.82	2.70	5.10	5.98	4.10	4.98	.19
SG-0519 ④	3/4	2.07	2.95	2.07	2.95	5.60	6.48	4.60	5.48	.19
SG-0528 ④	3/4	1.82	2.70	1.82	2.70	6.50	7.38	5.50	6.38	.19

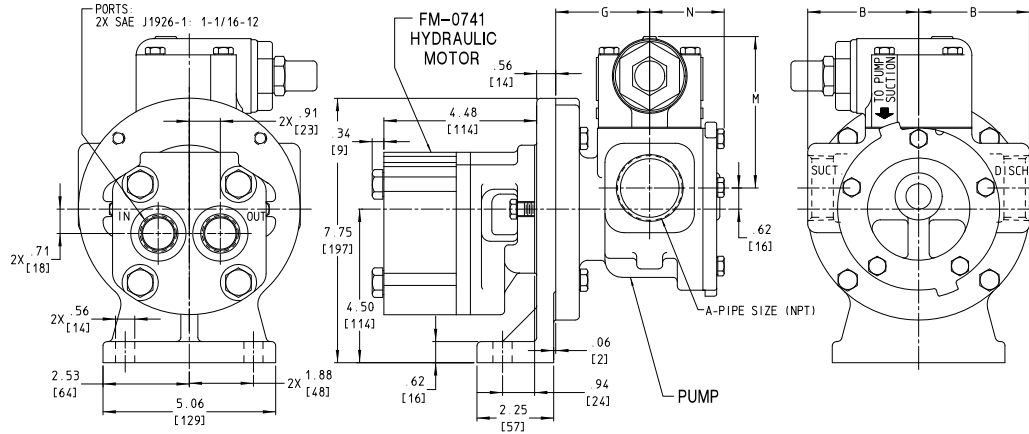
- ① These dimensions apply when the mechanical shaft seal option is selected.
- ② These dimensions apply when the relief valve is deleted.
- ③ These dimensions apply when the relief valve is deleted and the mechanical shaft seal option is selected

④ These models have the ports in the casing.

NOTE: Standard rotation for pumps is clockwise viewed from shaft end of pump. Counter-clockwise rotation available as option.

VIKING POWER TRANSFER UNITS (PTUs)

DIMENSIONS – SERIES 75 AND 475 “T” DRIVE (“G” - “HL” SIZE PUMPS)



PUMP										
MODEL NO.		A	B		G		M		N	
MECH. SEAL	LIP SEAL	in	in	mm	in	mm	in	mm	in	mm
G475 OR GG475	G75 OR GG75	1	2.50	63.5	2.81	71.4	3.56	90.4	1.56	39.6
H475 HJ475 HL475	H75 HJ75 HL75	1½	3.25	82.5	2.75	69.8	4.44	112.8	2.19	55.6

NOTE: 75 / 475 PTU drive models utilize the 5/8" shaft bore option.

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SERIES SG-04, SG-05, 75 AND 475



VIKING POWER TRANSFER UNITS (PTUs)

PERFORMANCE CURVE NOTES

Printed performance curves are not available.

Performance curves for the pump sections can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

Section 341.6

External Gear Pumps

(Flow Dividers)

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VIKING ROTARY FLOW DIVIDERS

CONCEPT

Standard Viking Rotary Flow Dividers allow one input flow stream to be split into two, three or four equal discharge streams whose total equals the input flow. Custom units can be made with up to four different, predetermined discharge flow rates whose total equal the input flow.

SERIES DESCRIPTION

Increase the versatility of your hydraulic system with Viking Rotary Gear Flow Dividers by accurately dividing one source of flow into two, three or four equal flows. Properly applied rotary gear flow dividers reduce operating costs by eliminating the need for multiple pumps and related plumbing and fittings. Each section is designed with an integral differential pressure relief valve to protect the downstream actuator and limit the amount of pressure intensification, which would otherwise occur if pressure in one of the discharge branches dropped to some level lower than the other(s). Viking positive displacement rotary gear flow dividers use less horsepower, provide a greater usable flow and viscosity range and achieve greater accuracy over conventional spool-type dividers. Unlike the spool-type, Viking flow dividers operate on the principle that horsepower IN equals horsepower OUT. Subsequently, there is no wasted horsepower and no additional heat added to the system.

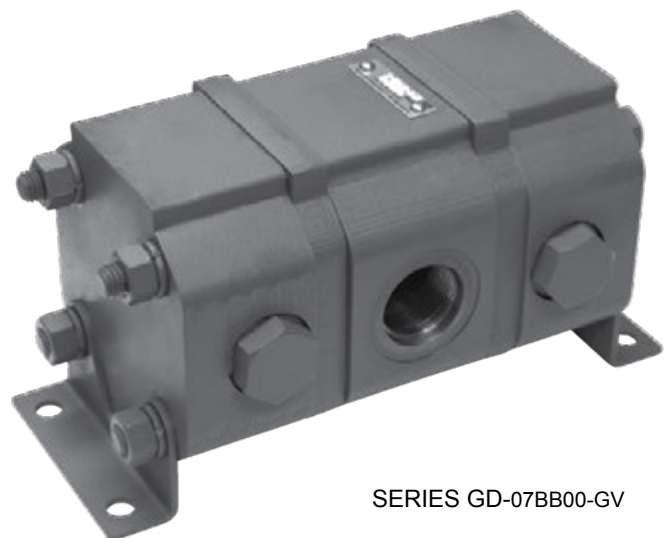
Rotary gear flow divider applications include fuel distribution systems, lube systems, forklift trucks, container handlers, cranes, manlifts and many types of multiple function machines.

OPERATING RANGE:

GD Series Flow Dividers		
Standard Displacements	No.	4
Inlet Flow Range	GPM	Up to 75 (with 4 discharge ports)
	LPM	Up to 284
Inlet Pressure Range	PSI	0 to 2,500
	Bar	0 to 170
Temperature Range	°F	-40° to 450°
	°C	-40° to 230°
Viscosity Range	SSU	28 to 1,000,000
	cSt	0.1 to 250,000

TYPICAL APPLICATIONS:

- Fluid power (synchronizing hydraulic cylinders)
- Multi-chamber combustion systems
- Multi-point lubrication systems



SERIES GD-07BB00-GV

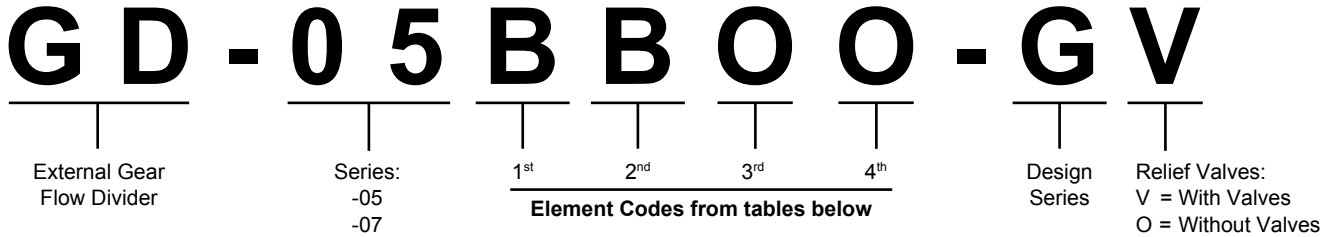
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SERIES GD-05, -07



VIKING ROTARY FLOW DIVIDERS

MODEL NUMBER KEY



Code	Element	Displacement / rev		Element Capacity at 3500 RPM	
		in ³	ml or cc	GPM	LPM
A	18	.094	1.54	1.4	5.3
B	25	.139	2.27	2.0	7.5
C	35	.194	3.18	2.8	10.6
D	50	.277	4.54	4.0	15.1
E	70	.388	6.36	5.6	21.2
F	10	.546	8.96	8.0	30.3
O	none	(3 rd or 4 th elements only)			

Code	Element	Displacement / rev (ml or cc)		Element Capacity at 3500 RPM	
		in ³	ml or cc	GPM	LPM
A	41	.546	8.96	8.0	30.3
B	58	.765	12.53	11.2	42.4
C	82	1.096	17.96	16.0	60.5
D	11	1.530	25.07	22.4	84.8
E	16	2.192	35.92	32	121.1
O	none	(3 rd or 4 th elements only)			

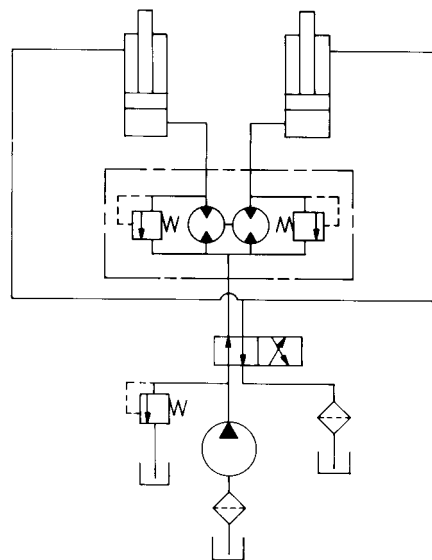
NOTES:

- Each non-"O" element = a discharge port. At least (2) required.
Sum of discharge flow rates = inlet flow rate unless otherwise noted.
- Codes in bold type indicate "standard" price list flow dividers (with same code in each section). Others require custom quotation.

APPLICATION

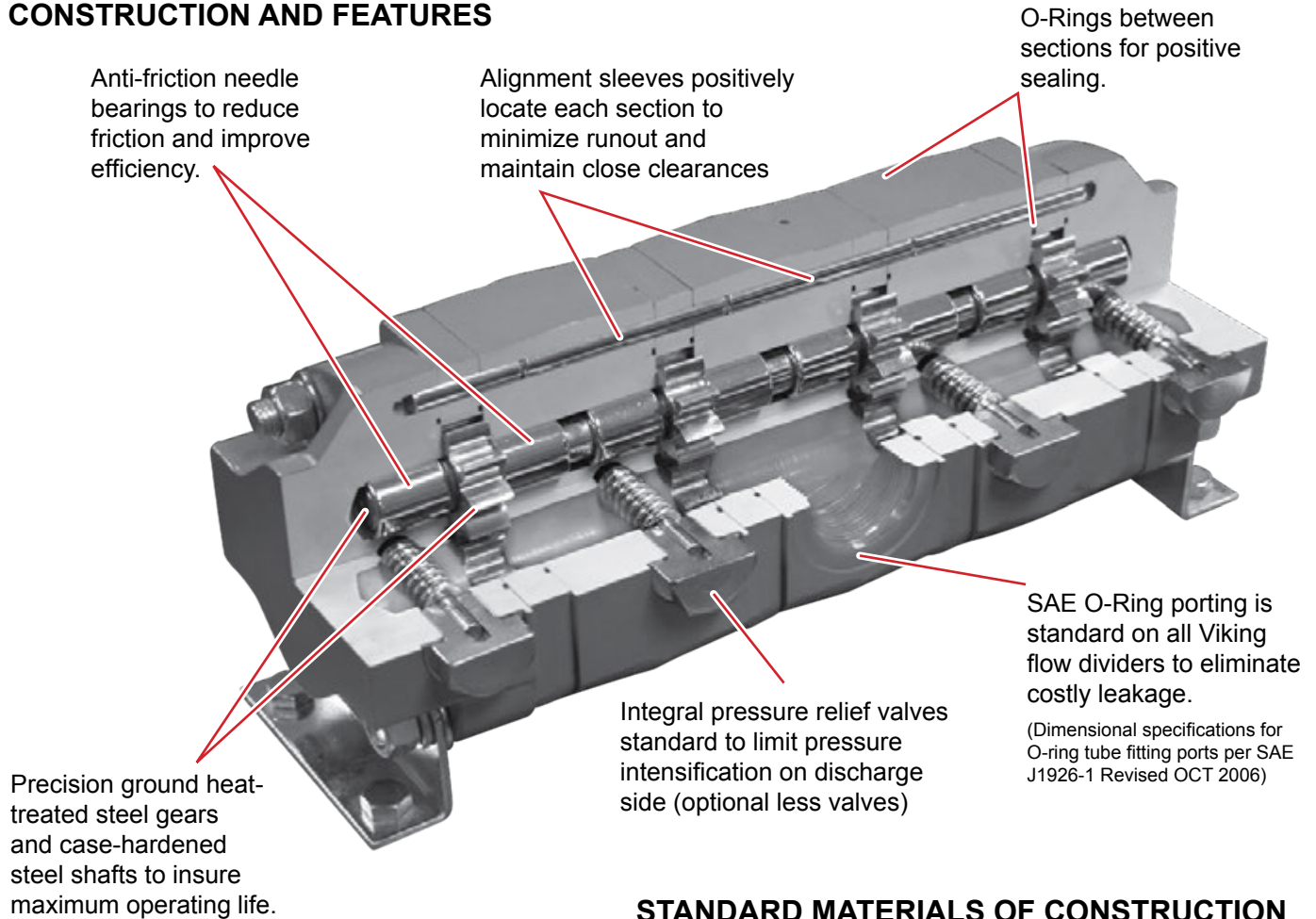
A common rotary gear flow divider application is the synchronizing of hydraulic cylinders or the elimination of manual rephasing of cylinders, as illustrated at right.

As one cylinder reaches the end of its stroke, the differential pressure between sections reaches a point sufficient to open the relief valve directing flow back to the inlet of the second section. Flow to this section continues until the cylinder completes its stroke and rephasing is accomplished. Applications such as planters, equalizing jacks, truck hoists and cultivators generally require that the cylinders be in phase.



VIKING ROTARY FLOW DIVIDERS

CONSTRUCTION AND FEATURES



STANDARD MATERIALS OF CONSTRUCTION (Others available upon request)

Component	Standard - GD-05, -07
Bracket	Cast Iron ASTM A823
Casing	Cast Iron ASTM A823
Head, Separation Plate	Cast Iron ASTM A823
Relief Valve Poppet	Hardened Steel
Relief Valve Spring	Steel ASTM A229
Gears	Heat Treated Steel
Shafts	Case-Hardened Steel ASTM A322
Anti-Friction Needle Bearings ①	Bearing Steel
O-Rings	Buna-N

① Needle bearings standard.

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SERIES GD-05, -07



VIKING ROTARY FLOW DIVIDERS

SPECIFICATIONS - STANDARD MODELS

Flow Divider Model	Number of Sections	Displacement Per Section		Inlet Flow				Maximum Differential Pressure Between Sections				Slip Per Section Per Differential Pressure (Outlet to Outlet)	
				Minimum		Maximum		Continuous		Intermittent			
		IN ³ /REV	CM ³ /REV	GPM	LPM	GPM	LPM	PSI	BAR	PSI	BAR	GPM / 100 PSI	LPM / 100 PSI
GD-05BB00-GV (with RV)	2	.139	2.27	1	3.79	5	18.93	1500	103	1500	103	.010	.0055
GD-05BB00-GO (without RV)								3000	207	3000	207		
GD-05BBB0-GV (with RV)	3	.139	2.27	1.5	5.68	7.5	28.39	1500	103	1500	103	.010	.0055
GD-05BBB0-GO (without RV)								3000	207	3000	207		
GD-05BBBB-GV (with RV)	4	.139	2.27	2	7.57	10	37.85	1500	103	1500	103	.010	.0055
GD-05BBBB-GO (without RV)								3000	207	3000	207		
GD-05EE00-GV (with RV)	2	.388	6.36	3	11.36	14	53.00	1200	83	1500	103	.034	.0187
GD-05EE00-GO (without RV)								1200	83	2400	166		
GD-05EEE0-GV (with RV)	3	.388	6.36	4.5	17.03	18*	68.14	1200	83	1500	103	.034	.0187
GD-05EEE0-GO (without RV)								1200	83	2400	166		
GD-05EEEE-GV (with RV)	4	.388	6.36	6	22.71	18*	68.14	1200	83	1500	103	.034	.0187
GD-05EEEE-GO (without RV)								1200	83	2400	166		
GD-07BB00-GV (with RV)	2	.765	12.53	6	22.71	25	94.64	1500	103	1500	103	.045	.0247
GD-07BB00-GO (without RV)								2500	172	3000	207		
GD-07BBB0-GV (with RV)	3	.765	12.53	9	34.07	37.5	141.95	1500	103	1500	103	.045	.0247
GD-07BBB0-GO (without RV)								2500	172	3000	207		
GD-07BBBB-GV (with RV)	4	.765	12.53	12	45.42	50	189.27	1500	103	1500	103	.045	.0247
GD-07BBBB-GO (without RV)								2500	172	3000	207		
GD-07DD00-GV (with RV)	2	1.530	25.07	12	45.42	50	189.27	1250	86	1500	103	.060	.0329
GD-07DD00-GO (without RV)								1250	86	2500	172		
GD-07DDD0-GV (with RV)	3	1.530	25.07	18	68.14	75	283.91	1250	86	1500	103	.060	.0329
GD-07DDD0-GO (without RV)								1250	86	2500	172		
GD-07DDDD-GV (with RV)	4	1.530	25.07	24	90.85	75*	283.91	1250	86	1500	103	.060	.0329
GD-07DDDD-GO (without RV)								1250	86	2500	172		

* Flow is limited by max inlet port size.

The above chart based on 150 SSU (33 cSt) hydraulic oil.

Maximum inlet pressure 2500 PSI (170 BAR)

Maximum outlet pressure 3500 PSI (240 BAR)

Recommended operating speed 1500 RPM to 3500 RPM

Standard integral differential pressure relief valves are fixed setting type with a standard setting of 750 PSI (51.7 BAR) or optional setting of 250 PSI (17.2 BAR) or 75 PSI (5.2 BAR).

To obtain differential pressures (inlet to outlet) greater than 750 PSI, the flow divider must be ordered less relief valve. Customer then must add pressure relief valves to each circuit to protect the system.

Contact factory for specifications on custom units.

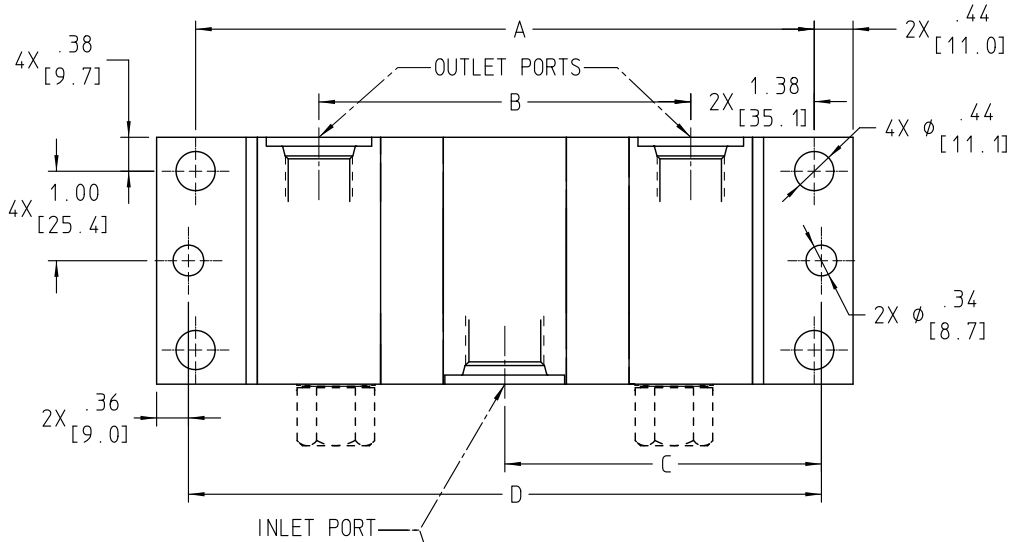
Recommended max temperature with standard Buna construction 225°F (107°C).

With optional sealing elements of PTFE or Kalrez®, temperatures up to 450°F (230°C) are possible. Extra clearance may be required. Consult factory for recommendations.

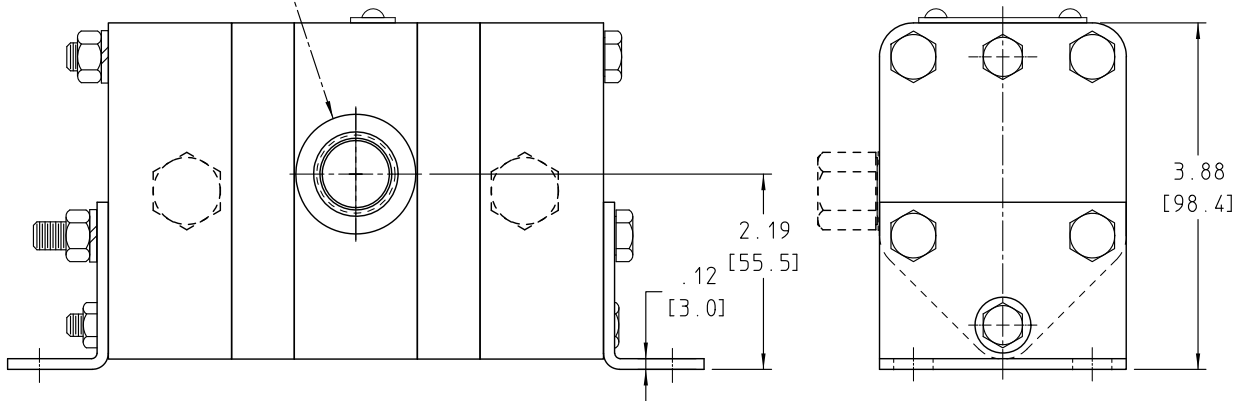
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VIKING ROTARY FLOW DIVIDERS

DIMENSIONS – SERIES GD-05



NOTE: Dimensions in inches (millimeters).



MODEL NO.	INLET PORT SIZE	OUTLET PORT SIZE	A	B	C	D
GD-05BB00-GV (with RV)	3/4 - 16 UNF	3/4 - 16 UNF	6.02	3.26	3.09	6.18
GD-05BB00-GO (without RV)	SAE O-Ring	SAE O-Ring	6.02	3.26	3.09	6.18
GD-05EE00-GV (with RV)	7/8 - 14 UNF	3/4 - 16 UNF	6.92	4.16	3.54	7.08
GD-05EE00-GO (without RV)	SAE O-Ring	SAE O-Ring	6.92	4.16	3.54	7.08

NOTE: Dimensional drawings for 3-section and 4-section flow dividers available upon request.

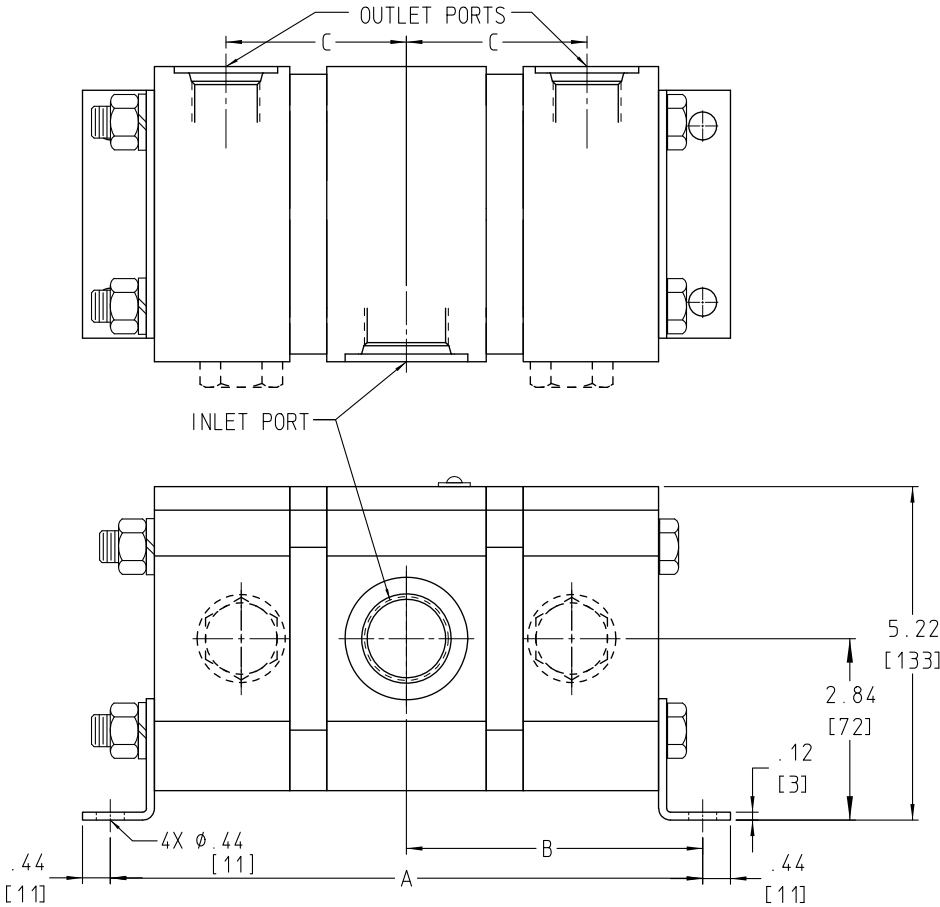
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SERIES GD-05, -07

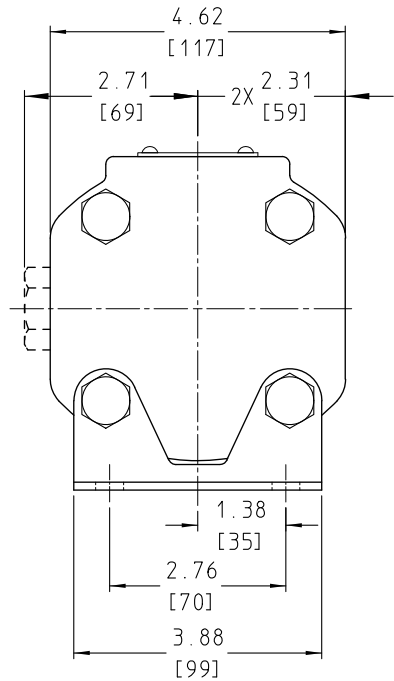


VIKING ROTARY FLOW DIVIDERS

DIMENSIONS – SERIES GD-07



NOTE: Dimensions in inches (millimeters).



MODEL NO.	INLET PORT SIZE	OUTLET PORT SIZE	A	B	C	D
GD-07BBOO-AV (with RV)	1-5/16 - 12 UN	1-1/16 - 12 UN	7.14	3.57	2.83	—
GD-07BBOO-AO (without RV)	SAE O-Ring	SAE O-Ring				
GD-07DDOO-AV (with RV)	1-5/8 - 12 UN	1-5/16 - 12 UN	8.28	4.14	3.40	—
GD-07DDOO-AV (without RV)	SAE O-Ring	SAE O-Ring				

Section 344

Viking Pump Composite Mag Drive Pumps

(Series CMD models E02, E05, E12, E15, E75 and E125)

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

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PRODUCT DESCRIPTION

The CMD Composite Mag Drive Series is a line of innovative non-metallic industrial gear pumps designed for optimal performance and simplicity of operation and maintenance. With absolutely no wetted metallic parts, the CMD Series is an ideal fit for many highly corrosive clean liquids used in the chemical processing, chemical dosing, pulp and paper and industrial water treatment industries.

APPLICATIONS

Corrosive Chemicals

PVDF fluoropolymer and ceramic wetted materials used in this series are compatible with many corrosive liquids.

Typical Applications:

- Acids
- Bases
- Coagulants
- Solvents
- Refrigerants
- Refined Fuels
- Adhesives
- Odorants
- Organics

Volatile Organic Chemicals and Organic Liquids

The use of a magnetic drive eliminates shaft sealing, the most common source of pump leakage, helping to protect employees and the environment from vapor emissions and the liquids that react to air infiltration.

Typical Applications:

- Solvents
- Refrigerants
- Refined Fuels
- Adhesives
- Odorants
- Organics



Models E02, E05, E12, E25, E75 and E125

SERIES OPERATING RANGE

Nominal Capacity	0.4 to 33 GPM	1.5 to 125 LPM
Maximum Differential Pressure	to 150 PSI	to 10 Bar
Maximum Hydrostatic Pressure	to 200 PSI	to 14 Bar
Viscosity Range	to 25,000 SSU	to 5,000 cSt
Temperature Range	-40° to 150°F	-40° to 65°C

NOMINAL FLOW RATES

Pump Model	Speed	Capacity	
	RPM	GPM	LPM
E02	1750 (1450)	0.4 (0.34)	1.5 (1.3)
E05		1.5 (1.3)	5.8 (4.9)
E12		3.2 (2.6)	12.1 (10)
E25		6.5 (5.5)	24.6 (21)
E75		20.0 (16.5)	75.0 (62.5)
E125		33.0 (26.5)	125.0 (100)



ATEX Certification available.

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

FEATURES AND BENEFITS

SIMPLIFIED OPERATION AND REDUCED MAINTENANCE

- Only 16 total fabricated parts in the CMD series pump, reducing inventory requirements.
- Front pull out design allow the pump to be easily serviced in place. Unique repair kits allows quick replacement of normal wear components without removing from the system, minimizing downtime.
- Self-aligning parts and piloted fits ensure proper assembly every time.
- Compression o-ring design adjusts internal clearances for thermal expansion or axial parts wear for longer service life.
- All wetted components are completely non-metallic for corrosion resistance in harsh environments.
- Liner provides wear protection to the casing.
- Self lubricating materials and geometry in the heavy duty bearings provide large wear areas.
- Single piece non-metallic gear/shaft assemblies.

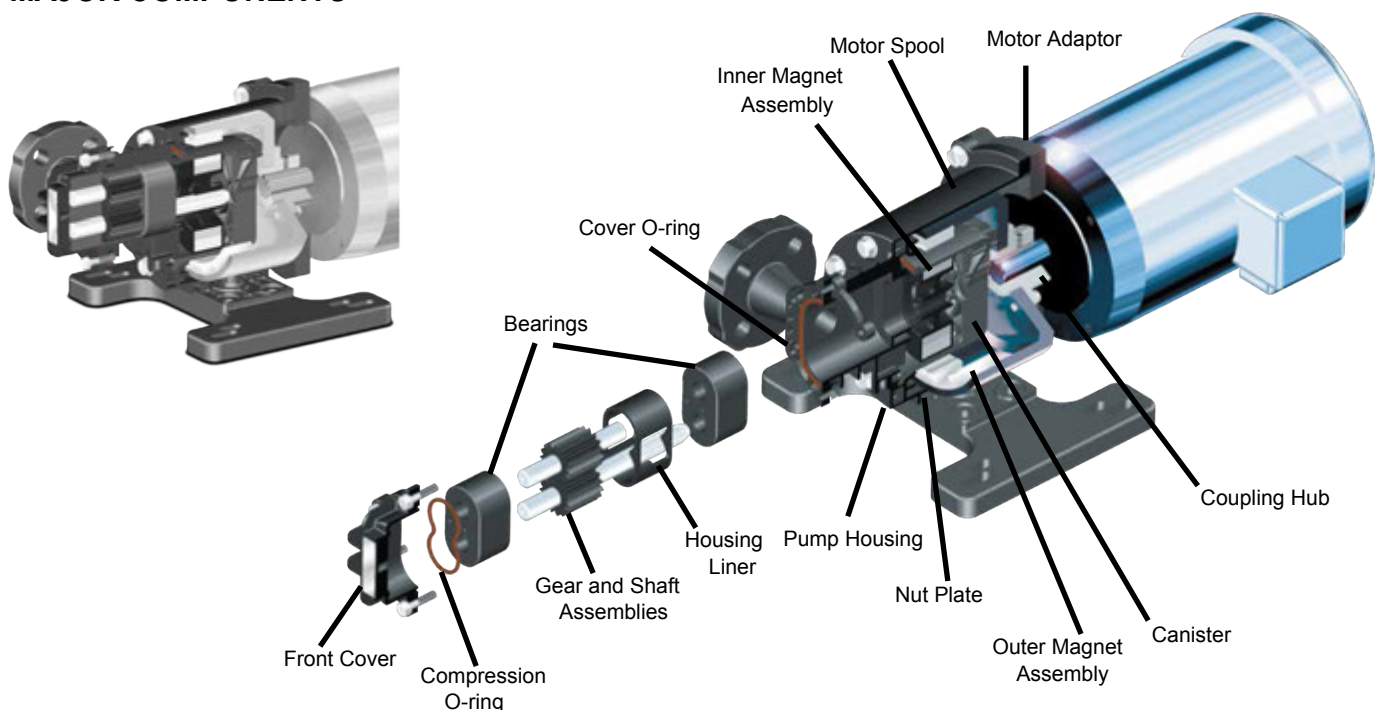
INNOVATIVE MAG DRIVE DESIGN

- Magnet will self-align with no added fasteners or axial loads induced on the drive shaft.
- The modular drive magnet comes with interchangeable magnet adapter-hubs to adapt to either standard NEMA or IEC motors for each pump size, reducing inventory.
- Non-metallic containment canister minimizes heat rise and magnet inefficiencies due to eddy current losses common to metallic pumps.

MOUNTING ADAPTABILITY

- Close-coupled motor to pump mounting eliminates the cost and potential issues associated with pump and motor alignment.
- Universal motor adapter plate mates to multiple NEMA and IEC motors.
- PTFE flange inserts act as a gasket and can be reused or replaced to ensure a proper seal.
- Universal flanges will mate with both ANSI and DIN flange connections.
- Slotted mounting holes permit easy retrofitting in existing installations.

MAJOR COMPONENTS



VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

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MODEL NOMENCLATURE

Model numbers for the Viking CMD Series Mag Drive pump include the series designator, pump size, housing material and port style, bearing material, O-ring elastomers and mounting arrangement.

CMD - E02 K L V F - X

CMD = Series:
Composite Mag Drive

Model ①

E02
E05
E12
E25
E75
E125

Primary Material:

K= PVDF / NPT
(E02, E05, E12)
M= PVDF / BSPT, ISO 7-1
(E02, E05, E12)
N= PVDF / Flange
(E25, E75, E125)

O-Rings:

V=Viton®
E= EPDM
K= Kalrez®
Grade 4079

Options: ③④

X = Complete Pump, No Options
A = Bearing Flush Port
N = Without Drive Magnet (wet end only)
B = Combination of A and N

Motor Mounting Arrangement ②

F = NEMA 56C (E02, E05, E12, E25, E75)
O = NEMA 143/5TC - 182/4C (E02, E05, E12, E25, E75, E125)
R = NEMA 182TC - 184TC (E75, E125)
W = NEMA 213TC - 215TC (E75, E125)
H = IEC 63 B34 (E02, E05, E12)
J = IEC 71 B34 (E02, E05, E12)
K = IEC 80 B14/34 (E02, E05, E12, E25, E75)
L = IEC 90 B14 (E25, E75)
P = IEC 100/112 B14 (E25, E75, E125)
Y = No Motor Mount Kit (E02, E05, E12, E25, E75, E125)

Bearings:

L= Carbon Graphite
B= Carbon-impregnated
Silicon Carbide

① U.S. Export Restriction apply to sizes E12, E25, E75 and E125.

② Motor mounting flanges are available to order. Motors are ordered separately as a line item. Customer is responsible for motor mounting. Option O 182/184C motor requires modified motor shaft and motor bolt pattern. Does not fit frames 182/184TC.

Option Y is for bare pump with drive magnet but not motor mounting hardware (magnet hub or applicable motor adaptor). This is typically used as a spare pump until a specific motor has been identified.

③ Option N is for bare pump without drive magnet and normally used as a replacement pump in an existing unit. This option can only be used in combination with a Y mounting arrangement.

④ ATEX options available. See page 6.

CONSTRUCTION

Pump Construction	Casing/Head	Canister	Gears / Shaft Assembly	Bearings	Flange Inserts	O-Rings	Inner Magnet Assembly	Outer Magnet Assembly	Reinforcement Plates
Standard Construction	Carbon-filled PVDF	Carbon-filled PVDF	Carbon filled PTFE/Alumina ceramic	Carbon Graphite	PTFE w/o-ring	Viton®	ETFE Encapsulated Neodymium	Nickel Plated Steel / Neodymium	Epoxy Coated Stainless Steel
Optional Materials	N/A	N/A	N/A	Graphite Impregnated Silicon Carbide	N/A	EPDM, Kalrez® Gr 4079	N/A	N/A	N/A

SPECIFICATIONS — UNMOUNTED PUMPS

Model Number	⑤ Ports			Nominal Pump Rating				Maximum Differential Pressure	Maximum Hydrostatic Pressure	⑥ Maximum Recommended Temperature	Approximate Shipping Weight (less motor)
	TYPE	SIZE in	1750 RPM		1450 RPM						
			GPM (LPM)	(LPM)	GPM (LPM)	(LPM)	PSIG (BAR)	PSIG (BAR)	°F. (°C.)	Pounds (KG)	
E02	NPT	ISO 7-1	1/4	0.4	(1.5)	0.34	(1.3)	150 (10)	200 (14)	150 (65)	4 (2)
E05	NPT	ISO 7-1	3/8	1.5	(5.8)	1.3	(4.9)	150 (10)	200 (14)	150 (65)	9 (5)
E12	NPT	ISO 7-1	3/4	3.2	(12.1)	2.6	(10.0)	150 (10) ⑦	200 (14)	150 (65)	10 (6)
E25	ANSI Flg	DIN Flg.	1	6.5	(24.6)	5.5	(21.0)	150 (10)	200 (14)	150 (65)	26 (12)
E75	ANSI Flg	DIN Flg.	1.5	20.0	(75.0)	16.5	(62.5)	150 (10)	200 (14)	150 (65)	44 (20)
E125	ANSI Flg	DIN Flg.	1.5	33.0	(125.0)	26.5	(100.0)	100 (7) ⑧	200 (14)	150 (65)	44 (20)

⑤ Size 02, 05, 12 available in FNPT or ISO 7-1 port. Sizes E25, E75 and E125 available with 150# ANSI compatible flange and DIN compatible ports.

⑥ Temperature is limited by the composite materials.

⑦ 150 PSI / 10 BAR with Silicon Carbide bearings; 100 PSI / 7 BAR max. pressure with Carbon Graphite bearings.

⑧ 100 PSI / 7 BAR with Silicon Carbide bearings; 80 PSI / 5.5 BAR max. pressure with Carbon Graphite bearings.

Viton® and Kalrez® are Registered Trademarks of DuPont Dow Elastomers

ETFE = Ethylene Tetrafluoroethylene

PVDF = Polyvinylidene Fluoride

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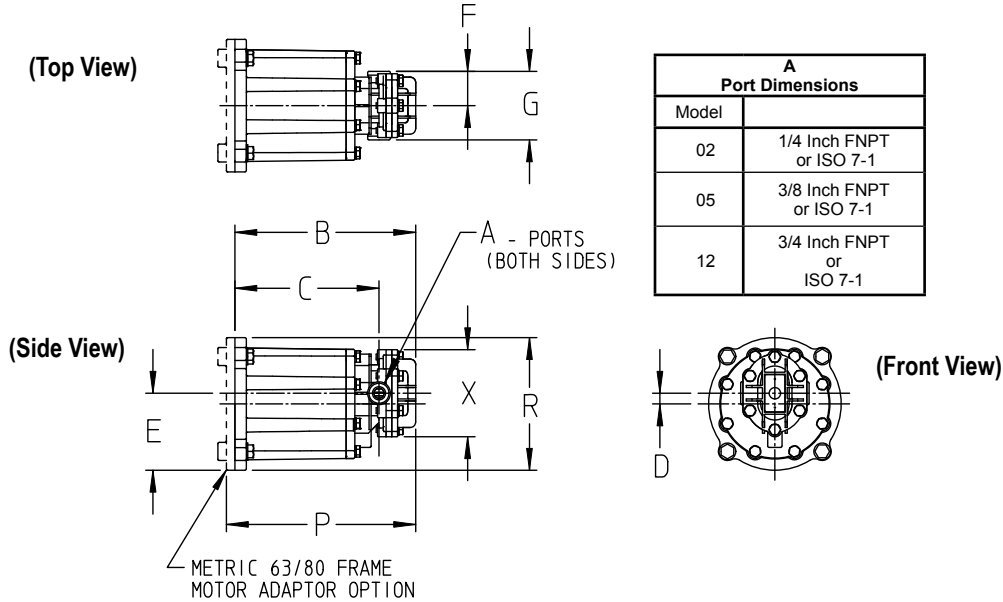
VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

DIMENSIONS -Models E02, E05, and E12

These dimensions are average and not for construction purposes. Certified prints on request. Millimeter dimensions shown in parentheses. *For specifications, see page 344.3*

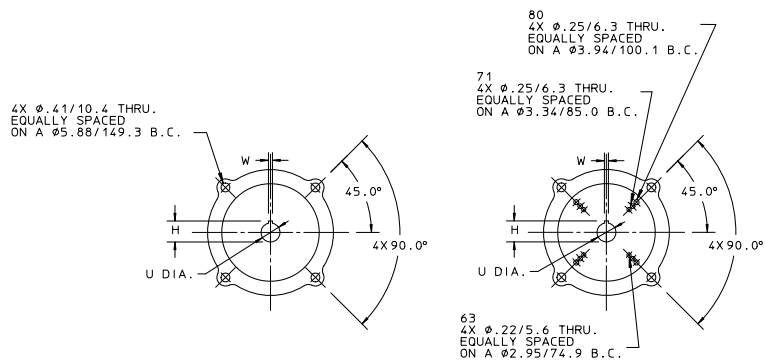


PUMP ONLY

Model		B	C	D	E	F	G	P	R	X
E02	in	7.22	6.08	0.25	3.16	1.38	2.75	7.60	5.81	3.00
	mm	183.5	154.4	6.4	80.2	34.9	69.9	193.0	147.6	76.2
E05	in	7.92	6.31	0.47	3.37	1.50	3.00	8.90	5.81	3.81
	mm	201.2	160.3	11.9	85.6	38.1	76.2	210.7	147.6	96.8
E12	in	8.54	6.63	0.47	3.37	1.88	3.75	8.93	5.81	3.81
	mm	217.0	168.3	11.9	85.6	47.6	95.3	226.6	147.6	96.8

MOTOR FLANGE

Motor Frame	U Shaft Diameter	W Key Width	H Key Height
56C	.626 (15.9)	.188 (4.7)	.71 (18.0)
140TC	.876	.188	.96
180C	(22.2)	(4.7)	(24.5)
63	.434 (11.0)	.159 (4.0)	.51 (12.9)
80	.750 (19.1)	.237 (6.0)	.865 (22.0)



56C-184C FR NEMA MOTOR MOUNTING

63-80 FR METRIC MOTOR MOUNTING

Motor Mounting Kit Part Number				
Model Number	56C	143TC-182C	63 IEC B14	80 IEC B14
E02	E02XXXF	--	E02XXXH	E02XXXX
E05	E05XXXF	E05XXXO	E05XXXH	E05XXXX
E12	E12XXXF	E12XXXK	E12XXXH	E12XXXX

Kit contains required coupling hub, motor adaptor and hardware for mounting to motor based on frame size.

Suction and discharge port is determined by shaft rotation.
 Standard motor adaptor fits NEMA 56C, 143TC, 182C, and 184C frame motors
 Does not fit frames 182/184TC.
 Metric motor adaptor option fits 63 and 80 frame motors.
 Must use foot mounted C-faced motor of specific frame sizes.

VIKING PUMP CMD

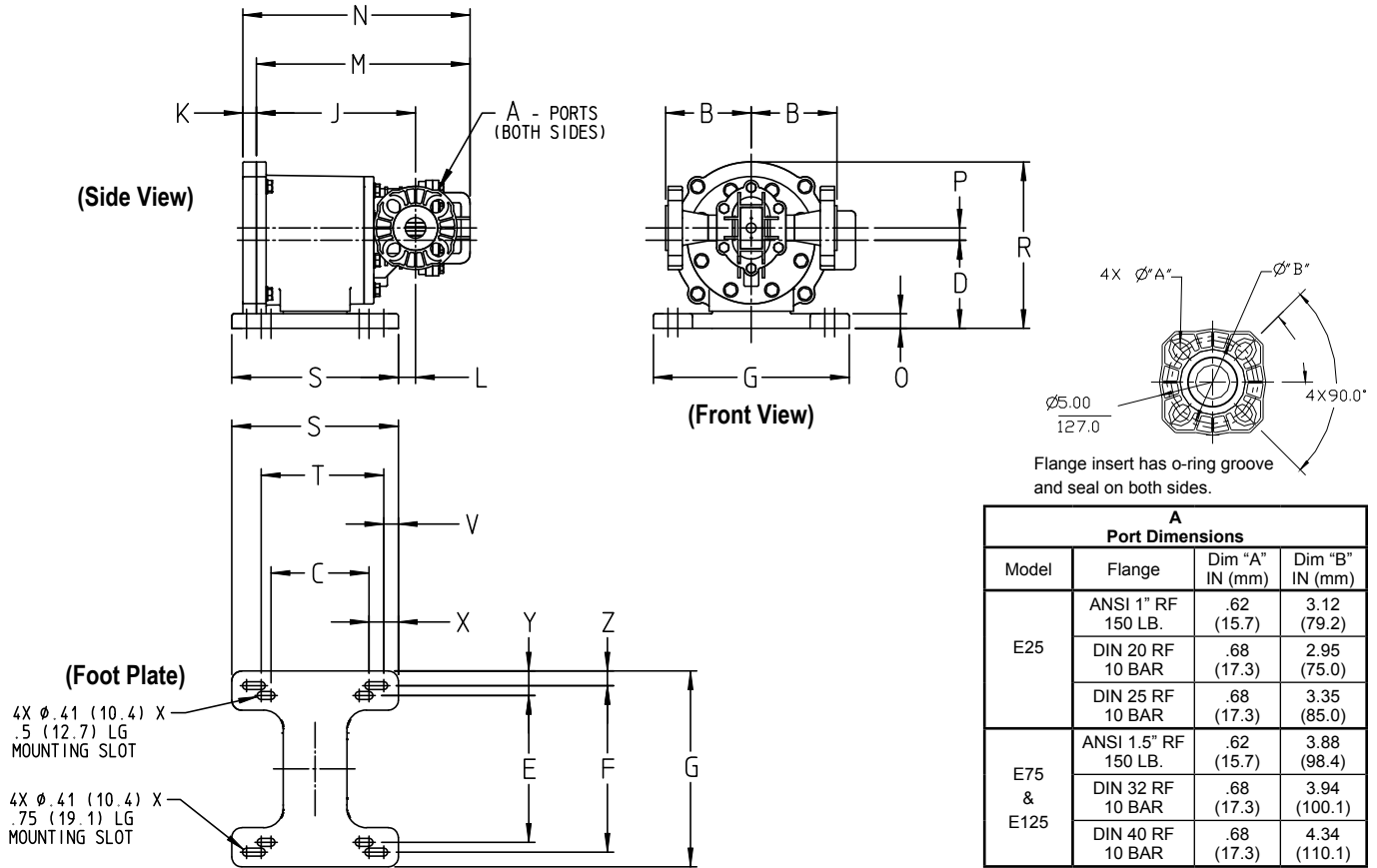
COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

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DIMENSIONS -Models E25, E75 and E125

These dimensions are average and not for construction purposes. Certified prints on request. Millimeter dimensions shown in parentheses. For specifications, see page 344.3



PUMP ONLY

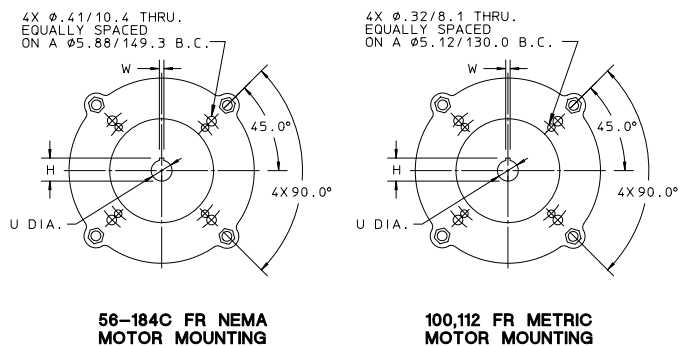
Model		B	C	D	E	F	G	J	K	L	M	N	O	P	R	S	T	V	X	Y	Z
E25	IN	4.38	2 X 5.00	4.50	2 X 7.50	2 X 8.50	10.00	8.12	0.69	0.88	10.91	11.60	0.75	0.62	8.50	8.50	2 X 6.25	2 x .75	2 x 1.50	2 x 1.25	2 X .75
	MM	111.1	127.0	114.3	190.5	215.9	254.0	206.4	17.5	22.2	277.1	294.6	19.1	15.8	215.9	215.9	158.8	19.0	38.1	31.7	19.0
E75 & E125	IN	5.00	2 X 5.00	5.38	2 X 7.50	2 X 8.50	10.00	9.50	1.00	2.25	13.77	14.77	0.75	0.93	10.12	8.50	2 x 6.25	2 x .75	2 x 1.50	2 x 1.25	2 X .75
	MM	127.1	127.0	136.5	190.5	215.9	254.0	241.3	25.4	57.1	349.6	375.0	19.1	23.6	257.2	215.9	158.8	19.0	38.1	31.7	19.0

MOTOR FLANGE

Motor Frame	U Shaft Diameter	W Key Width	H Key Height
56C	.626 (15.9)	.188 (4.7)	.71 (18.0)
140TC	.876	.188	.96
180C	(22.2)	(4.7)	(24.5)
182TC	1.13	.252	1.24
184TC	(28.6)	(6.4)	(31.5)
100	1.10	.317	1.24
112	(28.0)	(8.0)	(31.5)

Motor Mounting Kit Part Number				
Model Number	56C	143TC-182C	182TC - 184TC	100/112 IEC B14
E25	E25XXXF	E25XXXO	--	E02XXXP
E75	--	E75XXXO	E75XXXR	E05XXXP
E125	--	E125XXXP	E125XXXR	E05XXXP

Kit contains required coupling hub, motor adaptor and hardware for mounting to motor based on frame size.



© CMD E75 series only.

Suction and discharge port is determined by shaft rotation. Standard motor adaptor fits NEMA 56C, 143TC, 182C, and 184C frame motors. Does not fit frames 182/184TC.

Metric motor adaptor options fit 80, 90, 100/112 frame motors. Must use foot mounted C-faced motor of specific frame sizes. Pump mounting foot removable for use with footed motors.

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS
Series CMD Models E02, E05, E12, E25, E75 and E125

SERIES CMD PUMP MODEL STRING

This table is used to develop the model number code for the features and mounting required.

Available Model	Code	Description	CMD-E
POSITIONS 1,2,3			
PUMP SIZE	CMD	SIZE E02 - MAX. CAPACITY 0.4 GPM (1.5 LPM) 1/4"-18 FNPT / 1/4"-19 BSPT, ISO 7-1 SIZE E05 - MAX. CAPACITY 1.3 GPM (4.9 LPM) 3/8"-18 FNPT / 3/8"-19 BSPT, ISO 7-1 SIZE E12 - MAX. CAPACITY 3.2 GPM (12.1 LPM) 3/4"-14 FNPT / 3/4"-14 BSPT, ISO 7-1 SIZE E25 - MAX. CAPACITY 6.5 GPM (24.6 LPM) FLANGED 1"-150 ANSI / DIN 20/25 SIZE E75 - MAX. CAPACITY 20.0 GPM (75.0 LPM) FLANGED 1 1/2"-150# ANSI / DIN 32/40 SIZE E125 - MAX. CAPACITY 33.0 GPM (125.0 LPM) FLANGED 1 1/2"-150# ANSI / DIN 32/40	
POSITION 4	02,05 02,05	K CARBON-FILLED PVDF, FNPT M CARBON-FILLED PVDF, BSPT, ISO 7-1	
PRIMARY MATERIAL	12 12 25,75,125	<i>Export Restrictions May Apply to the following sizes listed below</i> K CARBON-FILLED PVDF, FNPT M CARBON-FILLED PVDF, BSPT, ISO 7-1 N CARBON-FILLED PVDF, FLANGED	
POSITION 5 BEARINGS	02,05,12,25,75,125 L B	CARBON SILICON CARBIDE	
POSITION 6 O-RINGS	02,05,12,25,75,125 V E K	VITON-A EPDM Kalrez Grade 4079	
POSITION 7 MOTOR MOUNTING ARRANGEMENTS	02,05,12,25,75 02,05,12,25,75 75,125 02,05,12 02,05,12 02,05,12,25,75 25,75 25,75,125 02,05,12,25,75,125 F O R W H J K L P Y	NEMA 56C (C-face, rigid base, 5/8" shaft diameter, 4x 3/8"-16 tapped holes on a 5-7/8" bolt circle) NEMA 143/5TC-182/4C (C-face, rigid base, 7/8" shaft diameter, 4x 3/8"-16 tapped holes on a 5-7/8" bolt circle) NEMA 182TC-184TC (C-face, rigid base, 1-1/8" shaft diameter, 4x 1/2"-13 tapped holes on a 7-1/4" bolt circle) NEMA 213TC-215TC (C-face, rigid base, 1-3/8" shaft diameter, 4x 1/2"-13 tapped holes on a 7-1/4" bolt circle) IEC 63 B3/B14 (rigid base, face, 11 mm motor shaft diameter, 4x M5 tapped holes on a 75 mm bolt circle) IEC 71 B3/B14 (rigid base, face, 14 mm motor shaft diameter, 4x M6 tapped holes on a 85 mm bolt circle) IEC 80 B3/B14 (rigid base, face, 19 mm motor shaft diameter, 4x M6 tapped holes on a 100 mm bolt circle) IEC 90 B3/B14 (rigid base, face, 24 mm motor shaft diameter, 4x M8 tapped holes on a 115 mm bolt circle) IEC 100/112 B3/B14 (rigid base, face, 28 mm motor shaft diameter, 4x M8 tapped holes on a 130 mm bolt circle) NO MOTOR MOUNTING KIT (Pump includes Drive Magnet)	
POSITION 8	02,05,12,25,75,125 -	DASH	
POSITION 9 OPTIONS	02,05,12,25,75,125 05,12,25,75,125 02,05,12,25,75,125 05,12,25,75,125 02,05,12,25,75,125 02,05,12,25,75,125 05,12,25,75,125 02,05,12,25,75,125	X STANDARD (COMPLETE PUMP - NO OPTIONS) A BEARING FLUSH PORT (1x 1/8" FNPT / BSPT Connection located in the center of the front cover) N PUMP WET END ONLY - WITHOUT DRIVE MAGNET (Only available in conjunction with 7th position option "Y") B COMBINATION OF 9TH POSITION OPTIONS "A" AND "N" X-ATEX Standard Pump with ATEX Directive - CE Ex II 2G T6 II 2D T6 A-ATEX Bearing Flush with ATEX Directive - CE Ex II 2G T6 II 2D T6 N-ATEX Wet End Only with ATEX Directive - CE Ex II 2G T6 II 2D T6 B-ATEX Wet End Only and Bearing Flush with ATEX Directive - CE Ex II 2G T6 II 2D T6	

VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS
Series CMD Models E02, E05, E12, E25, E75 and E125

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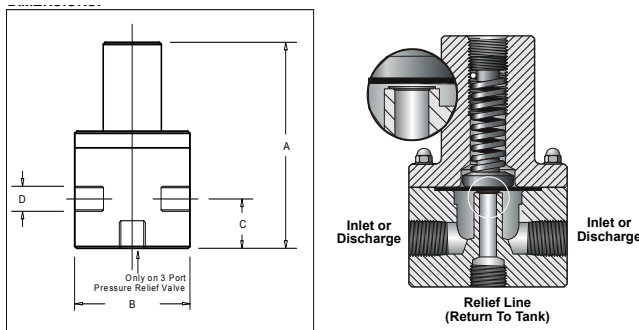
RELIEF VALVE INFORMATION

The CMD series pump is a positive displacement pump and requires some sort of over pressure protection, however, an internal relief valve is *not* provided as standard with this series.

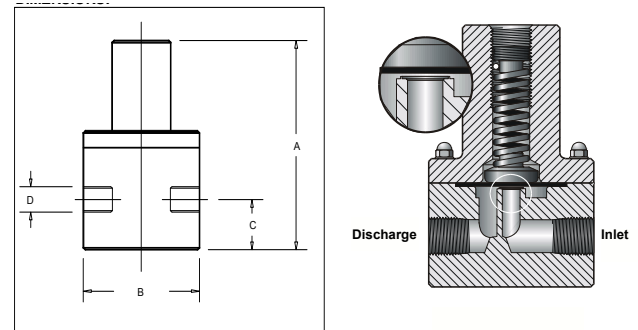
Optional third party adjustable spring loaded diaphragm in-line pressure relief valves, constructed of either PVC or PVDF, are available in two or three port configurations. These in-line valves are easily set in the field for system pressures ranging between 0 - 150 PSI. Vendor recommendation is to set the pressure valve at 15 PSI above the system pressure. This pressure relief valve should be placed as close to the pump as possible without any other valves or accessories placed between the pump and relief valve.

DIMENSIONS

THREE PORT PRESSURE RELIEF VALVE

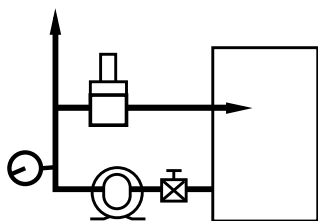


TWO PORT PRESSURE RELIEF VALVE

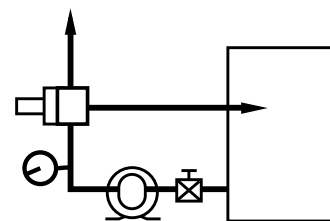


D	A	B (in)	C (in)	Ports	PN - PVC Construction	PN - PVDF Construction	Notes
1/2"	5.5	3.5	1.125	NPT	W777267-PVC	W777267-KYN	3rd bottom port option is piped as a return-to-tank line.
1"	5.8	3.5	1.25	NPT	W777259-PVC	W777259-KYN	3rd bottom port option is piped as a return-to-tank line.
1-1/2"	90	5.5	2.25	NPT	W777260-PVC	W777260-KYN	2 port straight line configuration, Discharge line would require a tee off. Line must be back to the tank.

TYPICAL PIPING EXAMPLES



Two-Port Valve Arrangement



Three-Port Valve Arrangement

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

LIQUID COMPATIBILITY GUIDE

This list is intended as a general guide. The liquid compatibility of materials and elastomers has been compiled from many sources. Although the sources are believed reliable, the rating cannot be guaranteed. In any given case many factors such as concentration, temperature and the presence of impurities or trace elements may influence material performance.

For additional information, consult the CMD series pump selection software. For specific questions, contact the factory for assistance.

Liquid List	Key: "A" Excellent "C" Questionable "X" Not Recommended							
	Wetted Parts							
	Primary Material	Shaft	Gears	Bearings & Wear Plates		O-Rings		
	PVDF	Alumina Ceramic	PTFE	Carbon Graphite	Silicon Carbide (Option)	Viton	EPDM (Option)	Kalrez
Acetaldehyde	X		A	A	A	X	A	A
Acetamide	C		A	A	A	A	A	A
Acetic Acid (Glacial)	A	A	A	A	A	X	A	A
Acetic Acid, Dilute (50% H2O)	A	A	A	A	A	X	A	A
Acetone	X	A	A	A	A	X	A	A
Acetonitrile			A	A	A	X	A	A
Acetylene Tetrachloride			A	A	A	X	X	A
Acrylonitrile	22°C		A	A	A	X	X	A
Adipic Acid	66°C		A	A	A	X	X	A
Allyl Chloride			A	A	A	X	X	A
Alum (Aluminum Ammonium Sulfate)	--		A	A	A	A	A	A
Aluminum Chloride	A	A	A	A	A	A	A	A
Aluminum Fluoride	A		A	A	A	A	A	A
Aluminum Hydroxide	A		A	A	A	X	A	A
Aluminum Nitrate	48°C		A	A	A	A	A	A
Aluminum Potassium Sulfate			A	A	A	A	A	A
Ammonia (Anhydrous)	X		A	A	A	X	A	A
Ammonia (Aqueous 30%)	X	A	A	A	A	X	A	A
Ammonium Chloride	A	A	A	A	A	A	A	A
Ammonium Fluoride			A	A	A	A	A	A
Ammonium Hydroxide	A	A	A	A	A	A	A	A
Ammonium Sulfate	A	A	A	A	A	X	A	A
Ammonium Sulfide	52°C		A	A	A	X	A	A
Aniline	38°C	A	A	A	A	X	A	A
Anthraquinone			A	A	A	A	A	A
Barium Chloride	A	A	A	A	A	A	A	A
Barium Hydroxide	A	A	A	A	A	A	A	A
Barium Sulfate	A	A	A	A	A	A	A	A
Barium Sulfide	A	A	A	A	A	A	A	A
Benzene	48°C	A	A	A	A	A	X	A
Benzene Sulfonic Acid		A	A	A	A	A	X	A
Benzoic Acid	A	A	A	A	A	A	X	A
Benzyl Alcohol		A	A	A	A	A	A	A
Benzyl Chloride				A	A	A	X	A
Borax	A	A	A	X	A	A	A	A
Boric Acid	A	A	A	A	A	A	A	A
Brine			A	X	A	A	A	A
Bromic Acid			A	X	A	X	X	A
Bromine (Dry)	A	A	A	X	A	A	X	A
Butadiene	A	A	A	A	A	A	A	A
Butane	A	A	A	A	A	A	X	A
Butanediol			A	A	A	A	A	A
n-Butyl Alcohol	A		A	A	A	A	A	A
Butyl Bromide			A	X	A	A	X	A
Butyl Chloride			A	A	A	A	X	A
Butyl Phenol			A	A	A	A	A	A
Calcium Bisulfate				A	A	A	A	A

VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

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LIQUID COMPATIBILITY GUIDE (CONT'D)

Liquid List	Key: "A" Excellent "C" Questionable "X" Not Recommended							
	Wetted Parts							
	Primary Material	Shaft	Gears	Bearings & Wear Plates		O-Rings		
	PVDF	Alumina Ceramic	PTFE	Carbon Graphite	Silicon Carbide (Option)	Viton	EPDM (Option)	Kalrez
Calcium Bisulfide	A		A	A	A	A	A	A
Calcium Carbonate	A	A	A	A	A	A	A	A
Calcium Chlorate	A	A	A	X	A	A	A	A
Calcium Chloride	A	A	A	A	A	A	A	A
Calcium Hydroxide	48°C	A	A	A	A	A	A	A
Calcium Hypochlorite	A	A	A	X	A	A	A	A
Calcium Nitrate	A	A	A	A	A	A	A	A
Calcium Oxide	A		A	A	A	A	A	A
Calcium Sulfate	A	A	A	A	A	A	A	A
Carbon Disulfide	48°C		A	A	A	A	X	A
Carbon Tetrachloride	48°C	A	A	A	A	A	A	A
Carbonic Acid	A		A	A	A	A	X	A
Caustic Potash (10 and 50%)	A	A	A	A	A	X	A	A
Caustic Soda (10 and 50%)	A	A	A	A	A	X	A	A
Chlorinated Brine			A	X	A	A	A	A
Chlorinated Phenol			A	X	A	A	A	A
Chlorine (Dry)	A		A	X	A	A	X	A
Chlorine (Wet)	A	A	A	X	A	A	X	X
Chlorine Dioxide			A	A	A	A	X	X
Chloroacetic Acid (5-1/2 Cl2)	22°C	A	A	A	A	A	A	X
Copper Chloride	A	A	A	A	A	A	A	A
Copper Cyanide	A	A	A	A	A	A	A	A
Copper Fluoride		X	A	A	A	A	A	A
Copper Nitrate	A	A	A	A	A	A	A	A
Copper Sulfate	A	A	A	A	A	A	A	A
Cyclohexane	A	A	A	A	A	A	X	A
Cyclohexanol			A	A	A	A	X	A
Cyclohexanone	X	A	A	A	A	X	X	A
Dichloroacetic Acid			A	A	A	X	A	A
Dichloroethylene			A	A	A	A	X	A
Dichloropropionic Acid			A	A	A	A	A	A
Diethyl Benzene			A	A	A	A	X	A
Diethyl Ether			A	A	A	X	X	A
Diisobutylene			A	A	A	A	A	A
Dimethylamine	22°C	A	A	A	A	X	X	A
Epichlorhydrin	X		A	A	A	X	A	A
Ethyl Acetate	X	A	A	A	A	X	A	A
Ethyl Alcohol (Ethanol)		A	A	A	A	A	A	A
Ethylamine		A	A	A	A	X	A	X
Ethyl Chloride	A	A	A	A	A	A	X	A
Ethyl Chloroacetate			A	A	A	A	A	A
Ethylene Bromide	A		A	A	A	A	X	A
Ethylene Chlorohydrin	A		A	A	A	A	A	A
Ethylene Glycol	A	A	A	A	A	A	A	A
Ethylene Oxide	A	A	A	A	A	X	X	A
Ferric Chloride	A	A	A	A	A	A	A	A
Ferric Hydroxide			A	A	A	X	A	A
Ferric Nitrate	A	A	A	A	A	A	A	A
Ferric Sulfate	A	A	A	A	A	A	A	A
Ferrous Chloride	A	A	A	A	A	A	A	A
Ferrous Hydroxide			A	A	A	X	A	A
Ferrous Nitrate			A	A	A	A	A	A
Ferrous Sulfate	A	A	A	A	A	A	A	A
Fluorine (Gaseous)	22°C		X	X	A	X	X	A
Formaldehyde (37% in H2O)	52°C	A	A	A	A	A	A	X
Freon 11		A	A	A	A	A	X	A
Freon 12	A		A	A	A	A	A	A
Freon 22	A		A	A	A	X	X	X
Fumaric Acid			A	A	A	A	A	A

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS
Series CMD Models E02, E05, E12, E25, E75 and E125

LIQUID COMPATIBILITY GUIDE (CONT'D)

Liquid List	Key: "A" Excellent "C" Questionable "X" Not Recommended							
	Wetted Parts							
	Primary Material	Shaft	Gears	Bearings & Wear Plates		O-Rings		
	PVDF	Alumina Ceramic	PTFE	Carbon Graphite	Silicon Carbide (Option)	Viton	EPDM (Option)	Kalrez
Gasoline-Unleaded	A	A	A	A	A	A	X	A
Glycerol			A	A	A	A	A	A
Glycolic Acid	A		A	A	A	A	A	A
Glycol			A	A	A	A	A	A
Heptane	A	A	A	A	A	A	X	A
Hexane	A	A	A	A	A	A	X	A
Hydrobromic Acid (50%)		C	A	A	A	A	A	A
Hydrochloric Acid (20%)	A	A	A	A	A	A	A	A
Hydrochloric Acid (Conc.)	66°C	80°C	A	A	A	A	X	A
Hydrochloric Acid (Gas)	A		A	A	A	A	X	A
Hydrocyanic Acid	A		A	A	A	A	A	A
Hydrofluoric Acid (35%)	A	X	A	X	A	X	A	A
Hydrofluoric Acid (70%)	A	X	A	X	A	X	X	A
Hydrofluoric Acid (100%)	A	X	A	X	A	X	X	A
Hydrogen Cyanide	A	A	A	A	A	A	A	A
Hydrogen Peroxide (30%)	A	A	A	X	A	A	A	A
Hydrogen Peroxide (90%)	22°C	A	A	X	A	A	X	A
Hydrogen Sulfide (Dry)	A		A	A	A	X	A	A
Hydrogen Sulfide (Wet)	A	A	A	A	A	X	A	A
Hypochlorous Acid			A	X	A	A	A	A
Iodine (Dry)	66°C		A	X	A	X	A	A
Iodine (Wet)	66°C	A	A	X	A	A	A	A
Isobutyl Alcohol			A	A	A	A	A	A
Isopropylamine			A	A	A	X	X	A
Jet Fuel - JP4	A		A	A	A	A	X	A
Lactic Acid	53°C	A	A	A	A	A	A	A
Lauric Acid		A	A	A	A	A	A	A
Lauryl Chloride			A	A	A	A	A	A
Lauryl Sulfate			A	A	A	A	A	A
Linseed Oil	A		A	A	A	A	A	A
Lithium Bromide			A	X	A	A	X	A
Lithium Hydroxide			A	X	A	X	A	A
Lubricating Oil	A		A	A	A	A	X	A
Magnesium Carbonate	A	A	A	A	A	A	X	A
Magnesium Chloride	A	A	A	A	A	A	A	A
Magnesium Hydroxide	A	A	A	A	A	A	A	A
Magnesium Nitrate	A	A	A	A	A	A	A	A
Magnesium Sulfate	A	A	A	A	A	A	A	A
Maleic Acid	A	A	A	A	A	A	X	A
Maleic Anhydride	A		A	A	A	A	X	A
Malic Acid	A		A	A	A	A	X	A
Mercuric Chloride	A	A	A	A	A	A	A	A
Methacrylic Acid			A	A	A	X	A	A
Methyl Alcohol (Methanol)	A	A	A	A	A	X	A	A
Methyl Benzoate			A	A	A	A	X	A
Methyl Bromide	A		A	A	A	A	A	A
Methyl Chloride	A		A	A	A	A	X	A
Methyl Chloroform			A	A	A	X	A	A
Methyl Ethyl Keytone (MEK)	X	A	A	A	A	X	X	A
Methyl Sulfuric Acid			A	A	A	A	A	A
Methylene Bromide			A	A	A	A	X	A
Methylene Chloride	53°C	A	A	A	A	A	X	A
Methylene Iodide			A	A	A	A	X	A
Methyl Methacrylate	53°C		A	A	A	X	X	A
Monochlorobenzene			A	A	A	A	X	A
Monoethanolamine	C		A	A	A	X	A	A
Nickel Chloride	A	A	A	A	A	A	A	A
Nickel Nitrate	A	A	A	A	A	A	A	A
Nickel Sulfate	A	A	A	A	A	A	A	A
Nitric Acid (Conc. 70%)	X	A	A	X	A	A	X	A
Nitric Acid (50%)	53°C	A	A	X	A	A	X	A

VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS
Series CMD Models E02, E05, E12, E25, E75 and E125

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LIQUID COMPATIBILITY GUIDE (CONT'D)

Liquid List	Key: "A" Excellent "C" Questionable "X" Not Recommended							
	Wetted Parts							
	Primary Material	Shaft	Gears	Bearings & Wear Plates		O-Rings		
	PVDF	Alumina Ceramic	PTFE	Carbon Graphite	Silicon Carbide (Option)	Viton	EPDM (Option)	Kalrez
Nitrous Acid	A	A	A	X	A	A	X	A
Oleic Acid	A	A	A	A	A	A	A	A
Oleum		A	A	X	A	A	X	A
Oxalic Acid	A	A	A	A	A	X	A	A
Perchloric Acid (72%)		A	A	A	A	A	X	A
Perchloric Acid (10%)		A	A	A	A	A	X	A
Perchloroethylene	A	A	A	A	A	A	X	A
Phenol (100%)	22°C	A	A	A	A	A	X	A
Phenol (10%)	A	A	A	A	A	A	X	A
Phosphoric Acid (30%)		A	A	A	A	A	A	A
Phosphoric Acid (85%)	A	A	A	A	A	A	A	A
Phosphorus Oxychloride		A	A	A	A	A	A	A
Phosphorus Pentachloride			A	A	A	A	A	A
Phosphorus Trichloride	48°C	A	A	A	A	A	A	A
Phthalic Anhydride	A	A	A	A	A	X	A	A
Potassium Aluminum Chloride			A	A	A	A	A	A
Potassium Bicarbonate	A	A	A	A	A	A	A	A
Potassium Bromate			A	A	A	A	A	A
Potassium Bromide	A	C	A	A	A	A	A	A
Potassium Carbonate	A	X		A	A	A	A	A
Potassium Chlorate	A	C	A	A	A	A	A	A
Potassium Chloride	A	A	A	A	A	A	A	A
Potassium Cyanide	A	X	A	A	A	A	A	A
Potassium Fluoride			A	A	A	A	A	A
Potassium Hydroxide (25%)	66°C	X	A	X	A	X	A	A
Potassium Hypochlorite	22°C	X		X	A	A	X	A
Potassium Nitrate	A	C	A	A	A	A	A	A
Potassium Perchlorate			A	X	A	A	X	A
Potassium Permanganate	A	A	A	A	A	A	A	A
Potassium Sulfate	A	A	A	A	A	A	A	A
Propionic Acid			A	A	A	A	A	A
Propyl Alcohol			A	A	A	A	A	A
Propylene Dichloride	A	A	A	A	A	A	X	A
Propylene Oxide	X	A	A	X	A	A	A	A
Salicylic Acid	A		A	A	A	A	A	A
Salt Brine	A		A	X	A	A	A	A
Sea Water	A	A	A	A	A	A	A	A
Silicon Tetrachloride			A	A	A	A	A	A
Silver Cyanide		A	A	A	A	X	A	A
Silver Nitrate	A		A	A	A	A	A	A
Sodium Acetate	A	A	A	A	A	X	A	A
Sodium Bicarbonate	A	A	A	A	A	A	A	A
Sodium Bisulfate	A	A	A	A	A	A	A	A
Sodium Borate (Borax)	A	A	A	A	A	A	A	A
Sodium Bromide	A	A	A	A	A	A	A	A
Sodium Carbonate	A	A	A	A	A	A	A	A
Sodium Chlorate	A	A	A	A	A	A	A	A
Sodium Chloride	A	A	A	A	A	A	A	A
Sodium Chromate	A	A	A	X	A	A	A	A
Sodium Cyanide	A	A	A	A	A	A	A	A
Sodium Dichromate	A	A	A	A	A	A	A	A
Sodium Ferrocyanide	A	A	A	A	A	A	A	A
Sodium Fluoride	A	X	A	A	A	A	A	A
Sodium Glutamate			A	A	A	A	A	A
Sodium Hydroxide	A	A	A	A	A	X	A	A
Sodium Hypochlorite	A	A	A	X	A	A	X	A
Sodium Hyposulfite			A	A	A	A	A	A
Sodium Iodide			A	A	A	A	X	A
Sodium Metasilicate			A	A	A	A	A	A
Sodium Nitrate	A	A	A	A	A	A	A	A
Sodium Nitrite	A	A	A	A	A	A	A	A

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VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS
Series CMD Models E02, E05, E12, E25, E75 and E125

LIQUID COMPATIBILITY GUIDE (CONT'D)

Liquid List	Key: "A" Excellent "C" Questionable "X" Not Recommended							
	Wetted Parts							
	Primary Material	Shaft	Gears	Bearings & Wear Plates		O-Rings		
	PVDF	Alumina Ceramic	PTFE	Carbon Graphite	Silicon Carbide (Option)	Viton®	EPDM (Option)	Kalrez®
Sodium Perchlorate			A	A	A	A	A	A
Sodium Peroxide	A	A	A	X	A	A	A	A
Sodium Persulfate			A	A	A	A	A	A
Sodium Phosphate	A	A	A	A	A	A	A	A
Sodium Silicate	A	A	A	A	A	A	A	A
Sodium Sulfate	A	A	A	A	A	A	A	A
Sodium Sulfide	A	A	A	A	A	A	A	A
Sodium Sulfite	A	A	A	A	A	A	A	A
Sodium Thiosulfate	A	A	A	A	A	A	A	A
Stannous Chloride	A	A	A	A	A	A	A	A
Stannous Fluoride			A	X	A	A	A	A
Stearic Acid	A	A	A	A	A	A	A	A
Styrene Monomer			A	A	A	A	X	A
Succinic Acid			A	A	A	X	X	A
Sulfamic Acid			A	X	A	A	X	A
Sulfur (Molten)			A	X	A	A	X	A
Sulfur Dioxide	A	A	A	X	A	A	A	A
Sulfuric Acid (60%)	66°C	A	A	A	A	A	A	A
Sulfuric Acid (Conc.)	66°C	A	A	A	A	A	X	A
Sulfuric Acid (Fuming-Oleum)	X		A	X	A	A	X	A
Sulfurous Acid	A	A	A	A	A	A	X	A
Tannic Acid	A	A	A	A	A	A	X	A
Tartaric Acid	A	A	A	A	A	A	A	A
Tetrahydrofuran	22°C	A	A	A	A	X	X	A
Thionyl Chloride			A	A	A	A	X	A
Tin Tetrachloride			A	X	A	A	X	A
Titanium Tetrachloride			A	A	A	A	X	X
Toluene	79°C	A	A	A	A	A	X	A
Tributyl Phosphate	C	A	A	A	A	X	X	A
Trichloroacetic Acid	A		A	A	A	A	A	A
Trichloroethylene	A	A	A	A	A	A	X	A
Trichloromethane			A	A	A	A	X	A
Triethylamine	48°C	A	A	A	A	A	A	A
Trioxane			A	A	A	X	X	X
Turpentine	A	A	A	A	A	A	X	A
Urea (50% H2O)	A	C	A	A	A	X	X	A
Vinyl Acetate	A	C	A	A	A	X	X	A
Vinyl Chloride (Monomer)	22°C	A	A	A	A	A	X	A
Water	A	A	A	A	A	A	A	A
Wax (Paraffin)			A	A	A	A	X	A
Xylene	A	A	A	A	A	A	X	A
Zinc Acetate			A	A	A	X	A	A
Zinc Chloride	A	C	A	A	A	A	A	A
Zinc Hydrosulfite (10%)			A	A	A	A	A	A
Zinc Nitrate			A	A	A	A	A	A
Zinc Sulfide			A	A	A	A	A	A
Zinc Sulfate	A	C	A	A	A	A	A	A

Viton® and Kalrez® are Registered Trademarks of DuPont Dow Elastomers
ETFE = Ethylene Tetrafluoroethylene
PVDF = Polyvinylidene Fluoride

VIKING PUMP CMD

COMPOSITE MAG DRIVE PUMPS

Series CMD Models E02, E05, E12, E25, E75 and E125

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com for the general public.

For authorized distributors, this program can be found listed under the "Products" tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

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Section 410

Viking Heavy-Duty Abrasive Liquid Pumps

(Series 4624B)

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VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

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Series Description

The Abrasive Liquid Series heavy duty internal gear pumps utilize hard parts in key wear areas, combined with unique designs and operating practices to reduce abrasive wear for longest life. These pumps are ideally suited for liquids with concentrations of small but hard particles, such as paints, inks and pigments; filled polyols and resins; and waste oils.

Improvements

The 4624B series pumps replaces the old style 4625 series, offering the advantage of a one-piece bearing housing for faster and easier end clearance adjustment, and adding the LS and QS sizes. The F & FH4624B pumps are identical to the old F & FH4625 pumps.

Jacketing is available by ordering a 4224B model with abrasive fitting (tungsten carbide idler pin and bushing, abrasive liquid seal with flush line).

All models are dimensionally interchangeable with the old 4625 series, except:

- The L, LQ & LL4624B sizes have a more robust 1.44" diameter shaft, while the old 4625 models used a 1.13" diameter shaft.
- The M4625 has been discontinued.
- The QS4624B provides equivalent performance, but is not dimensionally interchangeable.



K4624B

Operating Range:

Nominal Flow	GPM	0.75 to 182
	m ³ /h	0.17 to 41
Pressure Range	PSI	150
	Bar	10
Temperature Range	°F	-40 to 300
	°C	-40 to 150
Viscosity Range	SSU	38 to 250,000
	cSt	3 to 55,000

Nominal Flow Rates:

Pump Size	GPM	m ³ /h
F	0.75	0.17
FH	1.5	0.34
H	5	1.1
HL	10	2.2
K	25	5.6
KK	35	8
L / LQ	50	11
LL	65	15
LS	72	16
Q	110	25
QS	182	41

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VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

Major Design Features:

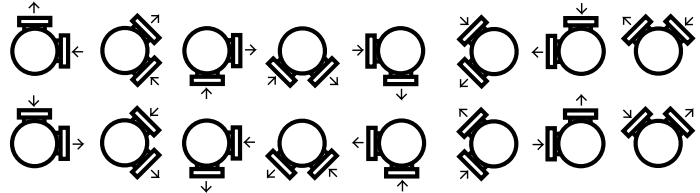
- Ultra-hard tungsten carbide idler pin and tungsten carbide idler bushing minimize wear in this key area, since a constant supply of abrasive material is flowing through the pumping elements.
- Behind-the-rotor pinned-seat mechanical seal with hard silicon carbide vs. silicon carbide seal faces, featuring external flush line from pump discharge to remove solids build-up, ensuring longest possible seal life (note: no flush line on F&FH sizes).
- The grease-lubricated bracket bushing is not contacted by the pumped liquid, for long life. The pump is re-greasable, with a lip seal at the stuffing box to retain grease and a relief fitting to prevent over-greasing.
- The grease-filled bracket helps to prevent air and moisture from reaching the seal faces, which helps limit crystallization of some air or water-reactive liquids.
- Limiting pressure ratings helps extend pump life on abrasives, by increasing film thickness between rotating parts and reduces the loads or forces within the pump.
- Limited speeds help ensure longest life by reducing fluid velocity, which reduces abrasion.
- All pumped liquid is contained in the casing area, which enables superior flushing to clean the casing.
- Positive Displacement Internal Gear pumping principle handles a broad range of viscosities with constant flow rate.
- Footed cast iron bracket provides rigid mounting to help maintain alignment, which extends seal and bearing life.
- Axial rotor thrust is controlled by double row ball or tapered roller bearings mounted in the rotatable bearing housing, which enables fast, easy end clearance adjustment.
- Can use direct drive, gear reducer or gearmotor drive, or belt-drive.
- Pressure relief valve is standard.

Revolvable Pump Casings Standard

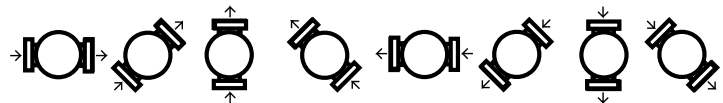
The Abrasive Liquid series pumps are equipped with casings that can be turned to eight positions (except the F & FH sizes, which cannot be rotated, and the LQ, LL & LS sizes, which cannot have any port in the 6 o'clock position). Direction of flow is reversible, so either port may be the suction or discharge. The relief valve must "point" towards the suction port in all cases. F & FH sizes have upright ports (both on top), H through Q sizes have 90° ports, and the QS size has 180° (opposite) ports standard.

Possible port configurations are illustrated at right.

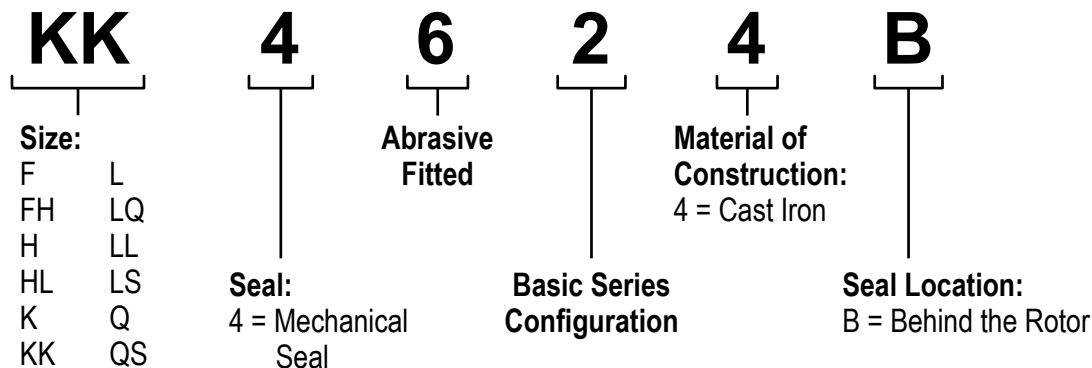
90° port options:



Opposite port options:



Model Number Key:

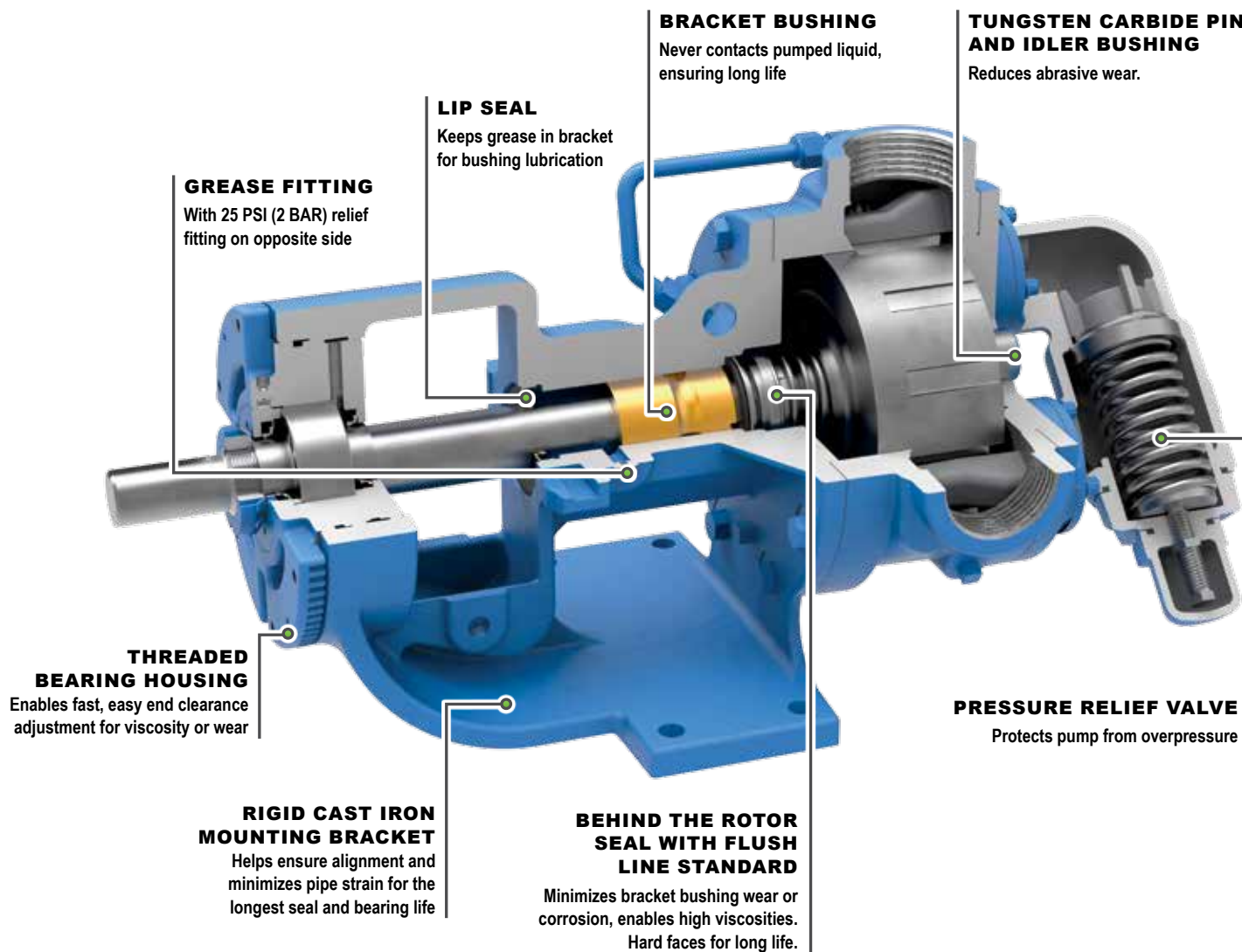


VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

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Features and Benefits:



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VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

Specifications (U.S. Units)

Model Number	Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure at Nominal Rated Speeds (PSIG)			③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4624B w/valve
			GPM	RPM		PSIG	38-100 SSU	100-750 SSU				>750 SSU
Standard	Inches								°F	SSU	Pounds
F4624B	0.5	NPT	0.75	870	400	50	100	100	250	-	6
FH4624B	0.5	NPT	1.5	870	400	50	100	100	250	-	7
H4624B	1.5	NPT	5	640	400	50	100	150	300	25,000	38
HL4624B	1.5	NPT	10	640	400	50	100	150	300	7,500	40
K4624B	2	NPT	25	280	400	50	100	150	300	25,000	105
KK4624B	2	NPT	35	280	400	50	100	150	300	75,000	110
L4624B	2	NPT	50	230	400	50	100	150	300	25,000	155
LQ4624B	2.5	Flange	50	230	400	50	100	150	300	25,000	175
LL4624B	3	Flange	65	230	400	50	100	150	300	2,500	185
LS4624B	3	Flange	72	230	400	50	100	150	300	75,000	190
Q4624B	3	Flange	110	190	400	50	100	125	300	7,500	440
QS4624B	6	Flange	182	190	400	50	100	125	300	75,000	540

Specifications (Metric Units)

Model Number	Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure at Nominal Rated Speeds (PSIG)			③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4624B w/valve
			m ³ /h	RPM		BAR	1-20 cSt	20-180 cSt				>180 cSt
Standard	Inches								°C	cSt	KG
F4624B	0.5	NPT	0.17	870	28	3.5	7	7	120	-	2.7
FH4624B	0.5	NPT	0.34	870	28	3.5	7	7	120	-	3.2
H4624B	1.5	NPT	1.1	640	28	3.5	7	10	150	5,500	17
HL4624B	1.5	NPT	2.2	640	28	3.5	7	10	150	1,650	18
K4624B	2	NPT	5.6	280	28	3.5	7	10	150	5,500	48
KK4624B	2	NPT	8	280	28	3.5	7	10	150	16,500	50
L4624B	2	NPT	11	230	28	3.5	7	10	150	5,500	70
LQ4624B	2.5	Flange	11	230	28	3.5	7	10	150	5,500	80
LL4624B	3	Flange	15	230	28	3.5	7	10	150	550	84
LS4624B	3	Flange	16	230	28	3.5	7	10	150	16,500	86
Q4624B	3	Flange	25	190	28	3.5	7	8.5	150	1,650	200
QS4624B	6	Flange	41	190	28	3.5	7	8.5	150	16,500	245

① Flange ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings. F & FH ports are upright (both on top), G through Q ports are at 90°, QS ports are at 180° (opposite).

② If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

③ Extra clearances are required above 225°F / 107°C. Higher temperatures can be handled with special construction. Consult factory.

VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

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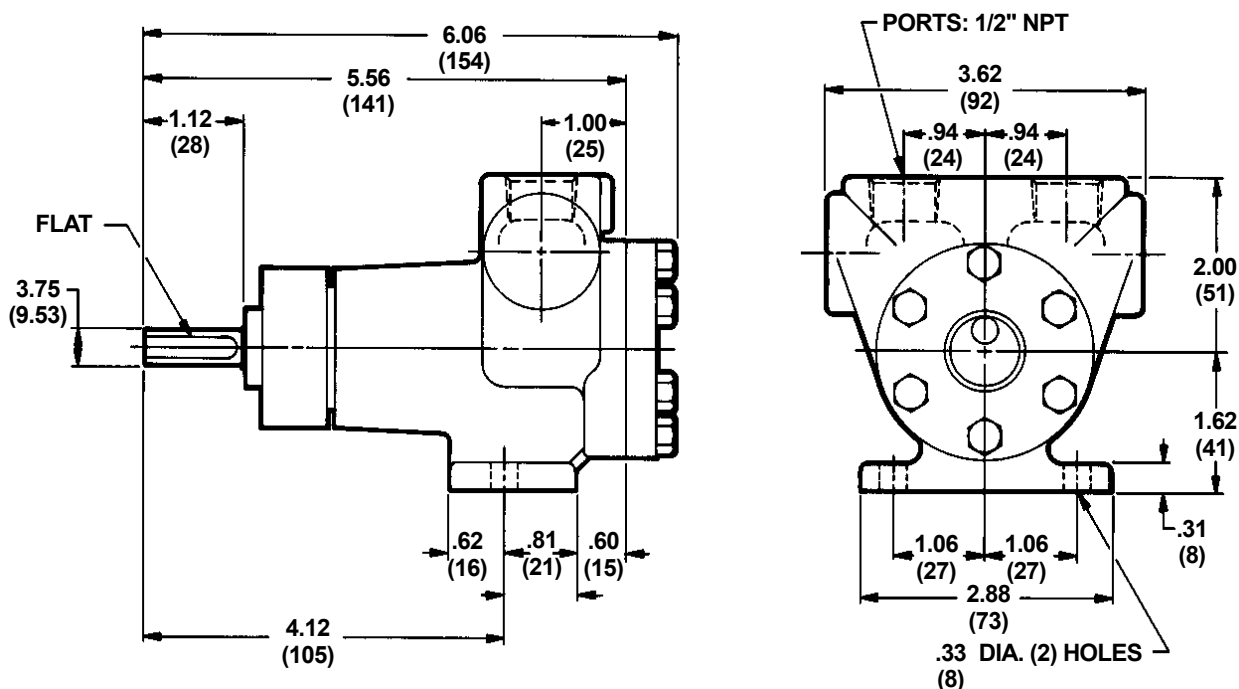
Materials of Construction

Component	Standard Material	
Casing	Cast Iron, ASTM A48, Class 35B	
Head	Cast Iron, ASTM A48, Class 35B	
Bracket	Cast Iron, ASTM A48, Class 35B	
Pressure Relief Valve	Cast Iron, ASTM A48, Class 35B	
Idler	Standard	Steel Fitted
	① Cast Iron, ASTM A48, Class 35B	② Cast Iron, ASTM A48, Class 35B
Rotor	Standard	Steel Fitted
	③ Cast Iron, ASTM A48, Class 35B	Steel, ASTM A216, Grade WCB
Rotor Shaft	Steel, ASTM A108, Grade 1045	
Idler Pin	④ Tungsten Carbide	
Idler Bushing	④ Tungsten Carbide	
Bracket Bushing (no product contact)	Bronze, ASTM B584 (B505), Alloy C93700	
Standard Mechanical Seal	Silicon Carbide vs. Silicon Carbide Faces	

- ① H and HL sizes have a powdered metal idler, MPIF 35, FC-0208-45.
- ② Q and QS sizes have a steel idler when steel rotor is used.
- ③ KK, LS and QS sizes have ductile iron rotor.
- ④ Tungsten carbide idler pins for all sizes except Q and QS, which have a tungsten carbide sleeve over a steel pin.

Dimensions F and FH 4624B Unmounted Pumps

NOTE: Dimensions shown in inches, with millimeter equivalent shown in parentheses.



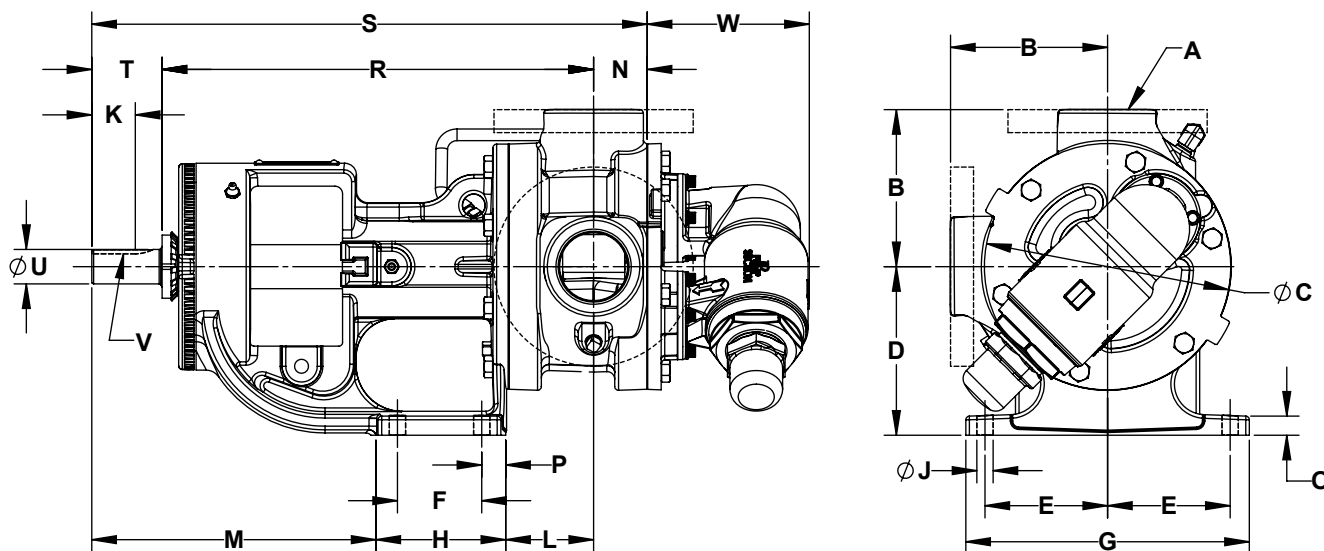
These dimensions are average and not for construction purposes. Certified prints on request.

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VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

Dimensions H through Q 4624B



U.S. Units

Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W
H4624B HL4624B	① 1.5	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19	1.19	0.56	0.62	10.44	13.25	1.62	0.75	0.19 x 0.09	2.85
K4624B KK4624B	① 2	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38	1.75	0.62	0.62	14.12	18.12	2.25	1.12	0.25 x 0.12	5.25
L4624B	① 2	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.35	1.44	0.38 x 0.19	5.43
LQ4624B	② 2.5	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.35	1.44	0.38 x 0.19	5.43
LL4624B	② 3	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.25	0.62	0.62	15.62	20.12	2.35	1.44	0.38 x 0.19	5.43
LS4624B	② 3	7.19	10.74	7.00	4.38	4.00	10.00	5.73	0.53	2.55	4.59	8.91	2.44	0.62	0.79	15.75	21.69	3.50	1.44	0.38 x 0.19	5.26
Q4624B	② 3	8.25	14.06	8.75	4.12	4.00	10.00	6.28	0.69	3.58	6.53	10.94	3.00	0.80	1.11	19.25	26.75	3.58	1.94	0.50 x 0.25	8.25

Metric Units

Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W
H4624B HL4624B	① 1.5	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8	30.2	14.2	15.7	265.2	336.5	41.1	19.0	4.83 x 2.29	72.4
K4624B KK4624B	① 2	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3	44.4	15.7	15.7	358.6	460.2	57.1	28.4	6.35 x 3.05	133.3
L4624B	① 2	165.1	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	44.4	15.7	15.7	396.7	498.3	59.7	36.6	9.65 x 4.83	137.9
LQ4624B	② 2.5	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	44.4	15.7	15.7	396.7	498.3	59.7	36.6	9.65 x 4.83	137.9
LL4624B	② 3	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6	57.1	15.7	15.7	396.7	511.0	59.7	36.6	9.65 x 4.83	137.9
LS4624B	② 3	182.6	272.8	177.8	111.3	101.6	254.0	136.7	13.5	64.8	116.6	226.3	62.0	15.7	20.1	400.0	550.9	88.9	36.6	9.65 x 4.83	133.6
Q4624B	② 3	209.5	357.1	222.2	104.6	101.6	254.0	159.5	17.5	90.9	165.9	277.9	76.2	20.3	28.2	488.9	679.4	90.9	49.3	12.70 x 6.35	209.5

① Ports are tapped for standard (NPT) pipe.

② Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

These dimensions are average and not for construction purposes. Certified prints on request.

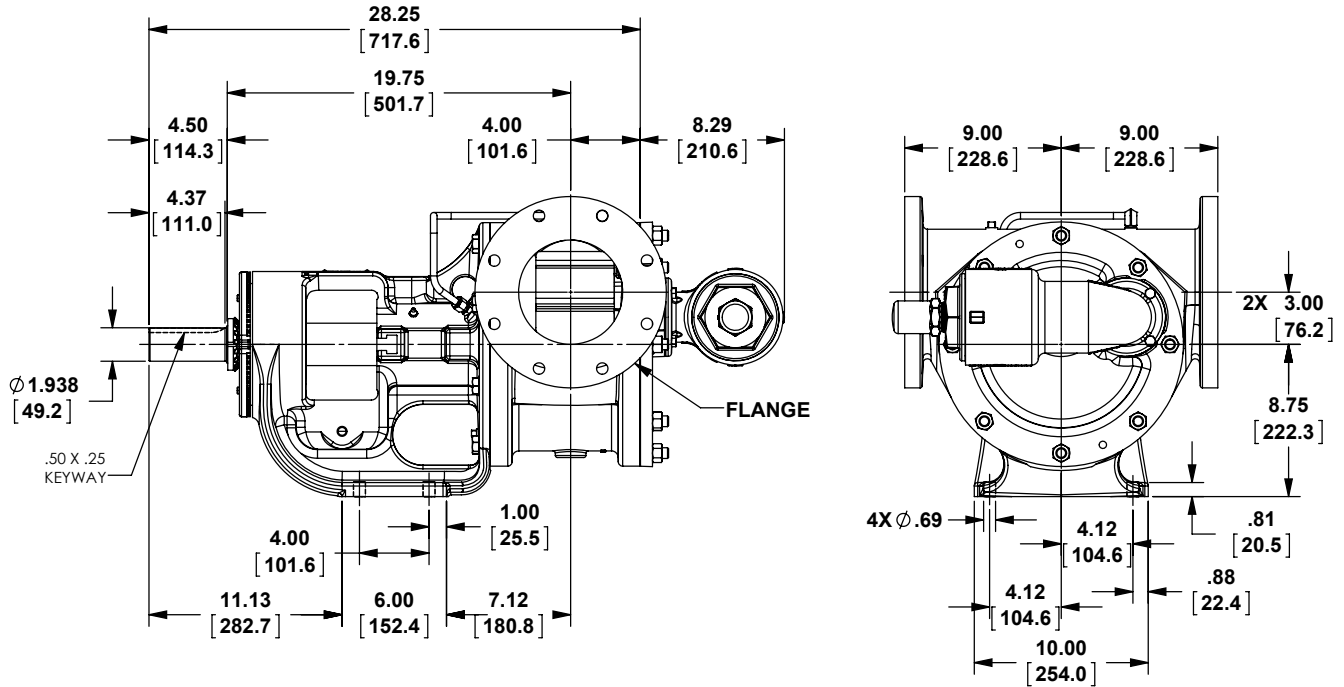
VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

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Dimensions QS 4624B

NOTE: Dimensions shown in inches, with millimeter equivalent shown in parentheses.



Ports are 6", suitable for use with Class 125 cast iron companion flanges or flange fittings.

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VIKING ABRASIVE LIQUID INTERNAL GEAR PUMPS

SERIES 4624B (Cast Iron - Replaces Series 4625 Models)

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

INLET CONDITIONS: The performance curves show "Based on 10 (or 15) In.-Hg.," which is the standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See NPSH_R table below.

FOR VISCOSITIES GREATER THAN 750 SSU (NPSH_R data not available): The performance curves are based on 10 or 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. Refer to General Catalog, Engineering Section 510 for information on determining line size.

THIN LIQUIDS: Pump capacity when handling 28 SSU liquids (solvents, etc.) is shown on the 38 SSU performance curve found in the pump selector program on www.vikingpump.com as a broken line. Pressure shown on broken line is the maximum recommended for 28 SSU liquids. It is shown as a reference for flushing cycles only; pumps should not be used for continuous duty with solvents. Horsepower required for 28 SSU is the same as 38 SSU at any given pressure.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

NPSH_R – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU

Cast Iron Series 4624B

PUMP SIZE	PUMPS SPEED, RPM											
	84	100	125	155	190	230	280	420	520	640	780	870
F, FH	-	-	1.0	-	-	-	1.3	1.6	1.7	1.8	1.9	2.0
H, HL	-	-	1.3	-	-	-	1.8	2.1	2.4	2.8	-	-
K, KK	1.5	1.6	1.7	1.8	1.9	2.1	2.3	-	-	-	-	-
L, LQ, LL, LS	1.6	1.7	1.8	2.0	2.2	2.5	-	-	-	-	-	-
Q, QS	1.7	1.9	2.1	2.3	2.7	-	-	-	-	-	-	-

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE		CAPACITY	
In.-Hg (inches of mercury)	KPa* (Kilopascals)	PSI (lb./in ²)	kPa* (Kilopascals)	GPM (US gal/minute)	LPM (Liter/Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	-	-
15	51	100	690	-	-
20	68	150	1034	-	-
25	85	200	1379	-	-
-	-	250	1724	-	-

* 100 kPa = 1 bar

Section 420

Viking Refrigeration Ammonia Pumps

(Series 4924A)

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VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

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Series Description

Viking's 4924A Series Positive Displacement (PD) pumps offer safety, reliability and high efficiency in refrigeration ammonia recirculation applications. Safety is achieved through use of a double mechanical dynamic shaft seal located between bearings for minimum possible shaft run-out, with a pressurized barrier fluid system, and O-ring type static seals where components are joined. Reliability is provided by slow speed operation and low differential pressures, which maximize bearing and seal life. And efficiency is inherent in the PD Internal Gear pumping principle, compared to centrifugal pumps. Viking pumps can usually use at least one motor size smaller than these technologies.



HL4924A

Operating Range:

Nominal Flow	GPM	10 to 60
	m ³ /h	2.3 to 13.6
Maximum Pressure	PSI	to 50
	Bar	to 3.5
Temp. Range	°F	-40 to +225
	°C	-40 to +107

Nominal Flow Rates:

Pump Size	GPM	LPM	RPM
HL	10	37.8	780
K	20	75.7	280
KK	30	113.5	280
LQ	45	170	280
LL	60	227	280

Pumping Principle

The internal Gear Positive Displacement pumping principle provides very low NPSH required, to minimize potential for flashing or cavitation. The shaft turns the rotor gear, which then turns the idler gear (mounted on the idler pin in the head). As they rotate, they create fluid cavities filled by ammonia on the suction side, then collapse those cavities to force liquid out on the discharge side. Carbon graphite shaft and idler bushings provide excellent low-viscosity gear/shaft support.

End Clearance Adjustment

The 4924A series replaced Viking's old 4925 Series Ammonia pumps. The key difference is the bearing housing on the bracket simplifies adjusting end clearance, which helps ensure optimal efficiency and can compensate for wear over time. With this design, you simply rotate the bearing housing clockwise until it stops, then back it off the distance recommended in the Technical Service Manual (TSM 420.1) to set the end clearance, and lock it down. The old style required rotating two bearing end caps and measuring end clearance with a feeler gauge, which required removal from service.

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VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

Double Dynamic Sealing

The double mechanical seals provide carbon graphite rotating faces against Ni-Resist stationary seats. Ni-Resist is a metallic face which can be replaced without concern for hairline cracks that can occur when installing ceramic or silicon carbide seals, another safety feature. The area between the inboard and outboard mechanical seals is filled with refrigeration oil supplied by a reservoir mounted above the pump. A unique flush line with valve carries ammonia from behind the rotor to the reservoir, pressurizing the barrier oil to the same pressure seen by the seal inside the pump. The outboard seal sees only oil, and provides a secondary barrier should the inboard seal begin to leak.

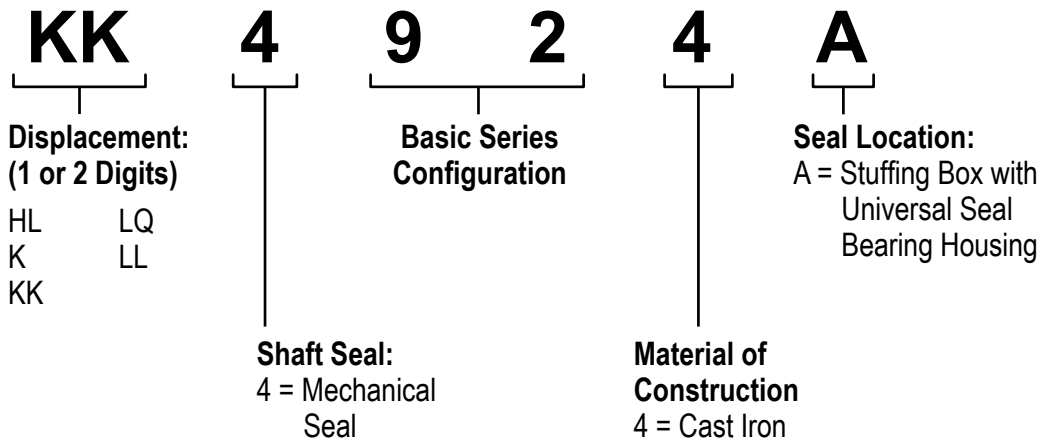
The reservoir may be filled with oil using a port on the top, or, an optional filling valve on the side of the pump permits refilling during pump operation. A sight glass allows visual inspection of oil level.

The benefit of double mechanical seals versus sealless magnetic drives is that it is inherently more efficient, requiring less power, because mag drive pumps require recirculation (slip) through the canister area to remove heat generated by eddy currents.

Pressure Relief

Positive displacement pumps must be fitted with a pressure relief device to prevent overpressure. Viking's 4924A Series pumps are supplied with a Return-To-Tank (RTT) Pressure Relief Valve (PRV) as standard, which routes ammonia from any overpressure situation back to the tank.

Model Number Key



Optional Features

(Specify these special features when ordering)

- ① **Sight Glass with Frost Shield.**
This prevents the sight glass from being covered with frost when the pumping unit is installed in a cold room.
- ② **Filling Valve.**
A filling valve can be furnished to permit easy refilling of oil reservoir without stopping pump.
- ③ **Oil Reservoir Heater.**
(Not Illustrated) An electric immersion type heater to provide adequate reservoir oil temperature if pumping unit is installed in a cold room.

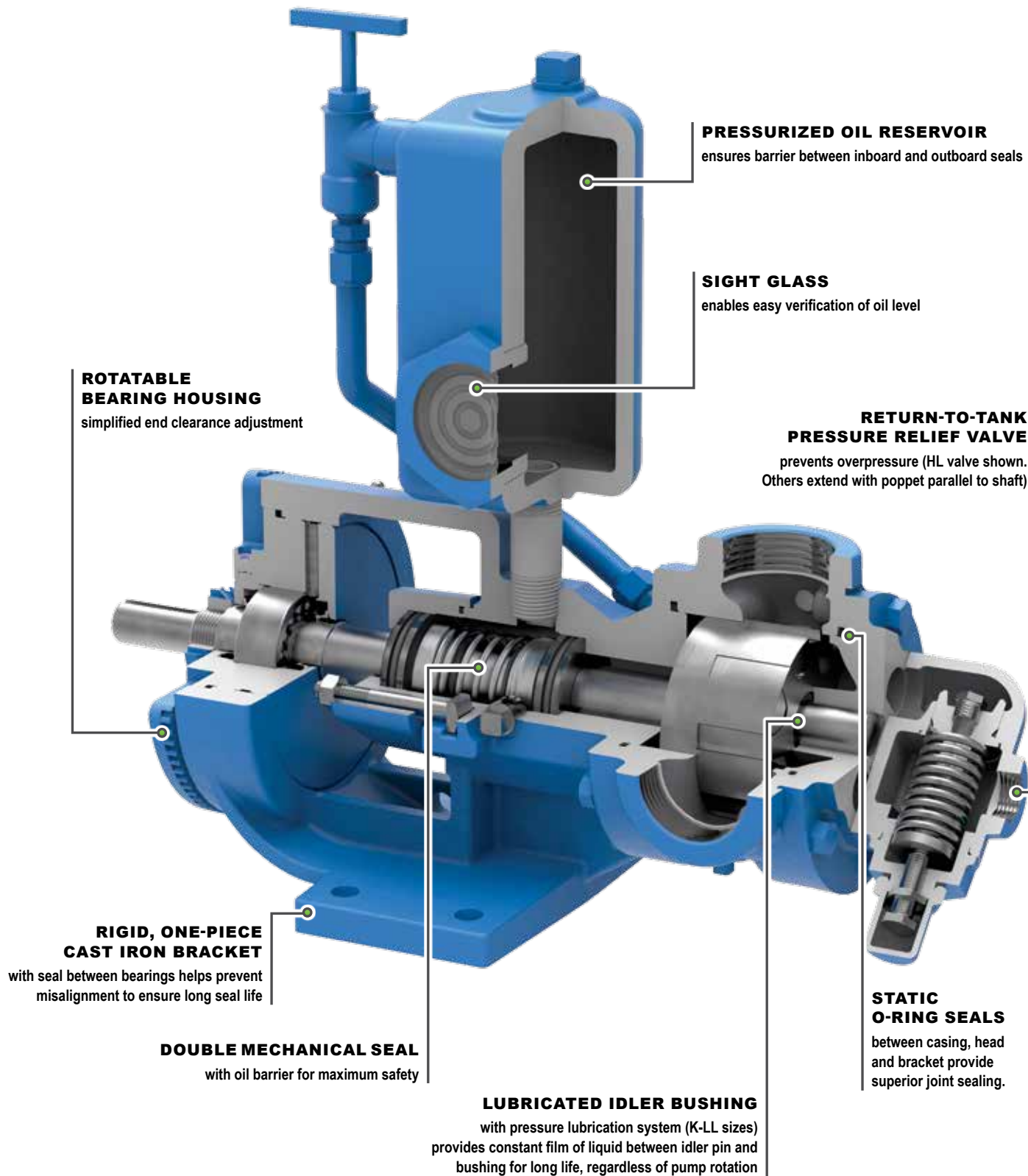


VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

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Features & Benefits



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VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

Materials of Construction

Component	Standard Material
Casing, Head and Bracket	Cast Iron ASTM A48, Class 35B
Rotor	Cast Iron, ASTM A48, Class 35B
Shaft	Steel, ASTM A108, Grade 1045
Idler ①	Cast Iron, ASTM A48, Class 35B
Idler Pin	Hardened Steel, ASTM A108 Grade 10L45
Bracket Bushing	Carbon Graphite
Idler Bushing	Carbon Graphite
Double Mechanical Seal	Carbon vs. Ni-Resist Faces, Neoprene Elastomers
Static O-Ring Seals	Buna
Return-to-Tank Relief Valve	Cast Iron ASTM A48, Class 35B

Specifications

Footed Model	Standard Port Sizes ②	Nominal Capacity		Maximum Speed	Maximum Differential Pressure		Minimum Temperature for Catalog Pump ④		Approximate Shipping Weight with PRV & Reservoir	
	Inches	GPM	LPM	RPM	PSIG	Bar	°F	°C	Lbs	Kg.
HL4924A	1.5	10	37.8	780	50	3.5	-20	-29	70	32
K4924A	2	20	75.7	280	50	3.5	-20	-29	135	62
KK4924A	2	30	113.5	280	50	3.5	-20	-29	140	64
LQ4924A	2.5 ③	45	170	280	50	3.5	-20	-29	215	98
LL4924A	3 ③	60	227	280	50	3.5	-20	-29	230	105

① HL size cast iron idler is lubrite coated.

② Suction piping recommended one size larger than pump suction port.

③ ANSI compatible Class 125 Flanged Ports, furnished with NPT companion flanges. All other models NPT ports.

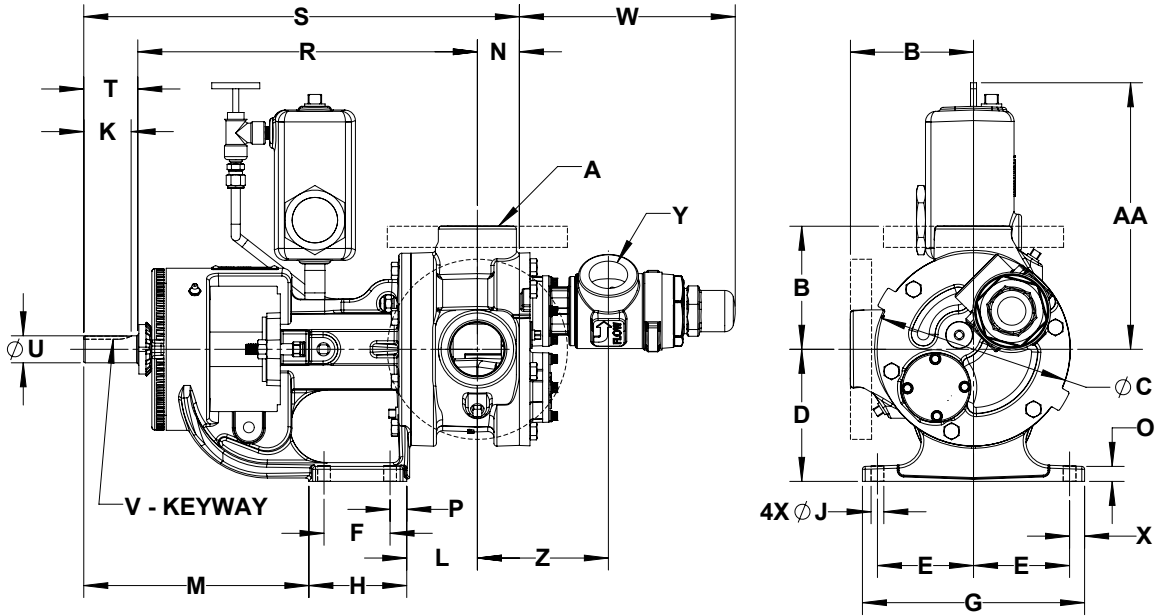
④ Pumps can be used to -40°F (-40°C) if provision is made to provide heat to oil in seal chamber.

VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

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Dimensions HL, K, KK, LQ & LL 4924A (Unmounted Pumps)



SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W ^①	X	Y	Z	AA	
HL	in	1.5	3.00	4.79	3.50	2.75	2.25	6.75	3.74	0.47	0.99	3.26	5.07	1.19	0.56	0.75	10.44	13.26	1.63	0.75	.19 x .09	3.10	0.63	0.50	0.00	10.79
	mm		76.2	121.7	88.9	69.9	57.2	171.5	95.0	11.9	25.1	82.8	128.8	30.2	14.2	19.1	265.2	336.8	41.4	19.1	4.83 x 2.29	78.7	16.0	12.7	0.0	274.1
K KK	in	2	5.12	8.06	5.50	4.00	2.75	9.25	4.08	0.53	1.42	2.94	9.37	1.75	0.62	0.70	14.14	18.14	2.25	1.12	.25 x .12	8.99	0.63	1.25	5.46	11.10
	mm		130.0	204.7	139.7	101.6	69.9	235.0	103.6	13.5	36.1	74.7	238.0	44.5	15.7	17.8	359.2	460.8	57.2	28.4	6.35 x 3.05	228.3	16.0	31.8	138.7	281.9
LQ	in	2.5	7.19	10.40	7.00	4.38	4.00	10.00	5.47	0.53	1.42	3.50	9.03	1.75	0.62	0.63	15.63	19.63	2.25	1.12	.25 x .12	9.03	0.63	1.50	5.32	10.75
	mm		182.6	264.2	177.8	111.3	101.6	254.0	138.9	13.5	36.1	88.9	229.4	44.5	15.7	16.0	397.0	498.6	57.2	28.4	6.35 x 3.05	229.4	16.0	38.1	135.1	273.1
LL	in	3	7.19	10.40	7.00	4.38	4.00	10.00	5.47	0.53	1.42	3.50	9.03	2.25	0.62	0.63	15.63	20.12	2.25	1.12	.25 x .12	9.03	0.63	1.50	6.00	10.75
	mm		182.6	264.2	177.8	111.3	101.6	254.0	138.9	13.5	36.1	88.9	229.4	57.2	15.7	16.0	397.0	511.0	57.2	28.4	6.35 x 3.05	229.4	16.0	38.1	152.4	273.1

① HL valve poppet perpendicular to shaft. See page 420.3 for example.

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VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

Performance Curve Notes

Performance Curves:

Ammonia pump performance curves are not shown on the Pump Selector on www.vikingpump.com. Use the performance curves on the following pages.

NPSH (Net Positive Suction Head):

The NPSH_R (Net Positive Suction Head Required by the pump) of the Viking Series 4924A Refrigeration Ammonia pumps is a minimum of 4'. An NPSH_A (Net Positive Suction Head – Available in the system) of more than 4' is desirable for smooth, trouble-free operation particularly at maximum speeds and/or at temperatures below -20°F (-29°C).

For a complete explanation of NPSH, refer to Viking Application Data Sheet AD-19.

The schematic at right depicts a typical accumulator, piping and pump arrangement.

SUCTION LINE SIZE:

It is recommended that the suction line size be one pipe size larger than the pump port.

INSULATION:

The suction line from the accumulator must be well insulated so that the heat pickup is held to a minimum.

REFERENCE:

Refer to Viking Application Data Sheet AD-2 and Viking Technical Service Manual TSM 420.1 for more detailed information on liquid ammonia applications.

MECHANICAL EFFICIENCY:

The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

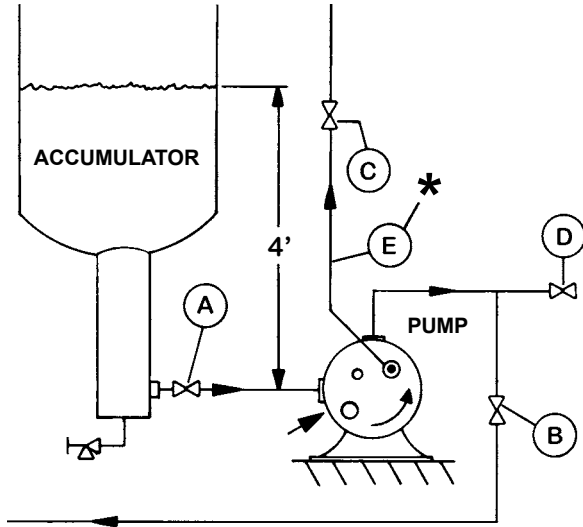
$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION:

The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE		CAPACITY	
In - Hg (Inches of Mercury)	kPa* (Kilopascals)	PSI (lb / in ²)	kPa* (Kilopascals)	GPM (US Gal / Minute)	L / min (Liter / Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	---	---
15	51	100	690	---	---
20	68	150	1034	---	---
25	85	200	1379	---	---
---	---	250	1724	---	---

* 100 kPa = 1 bar



Schematic of Piping and Valves for a Liquid Ammonia Recirculating Pump in a Refrigeration System

* This segment of line ③ between the return-to-tank pressure relief valve and the shutoff valve ③ should include a pressure relief valve vented to a safe area.

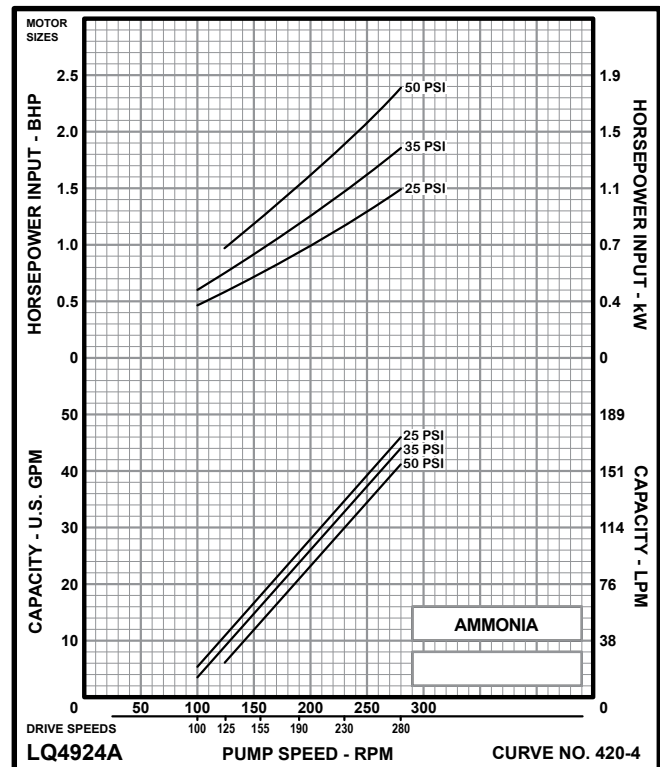
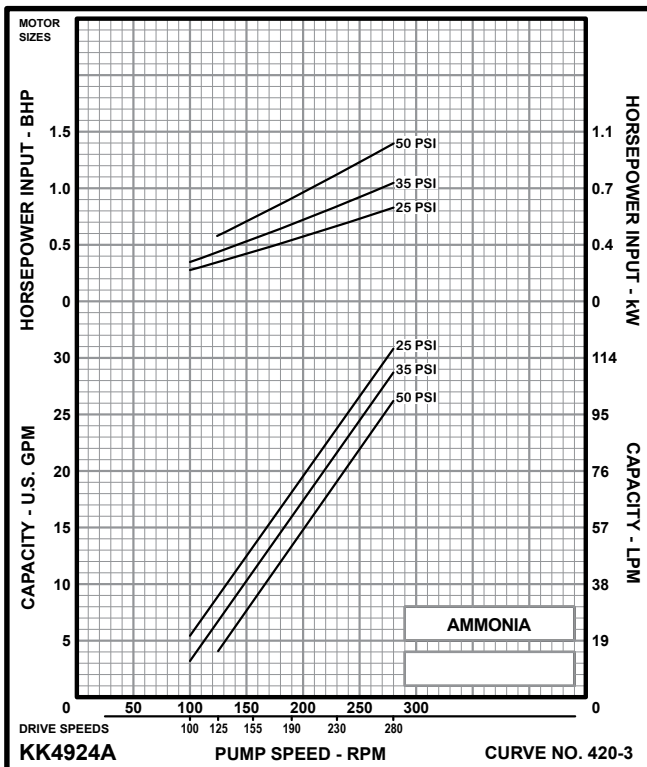
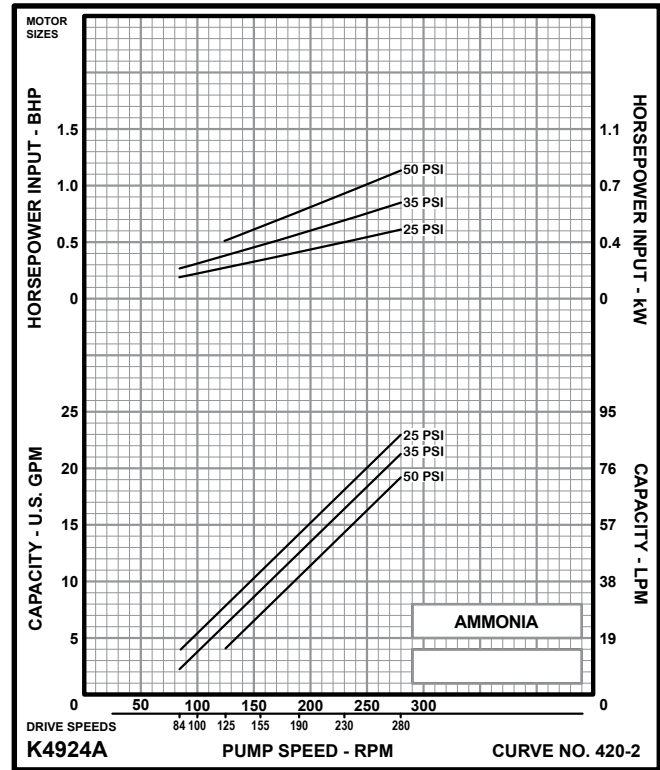
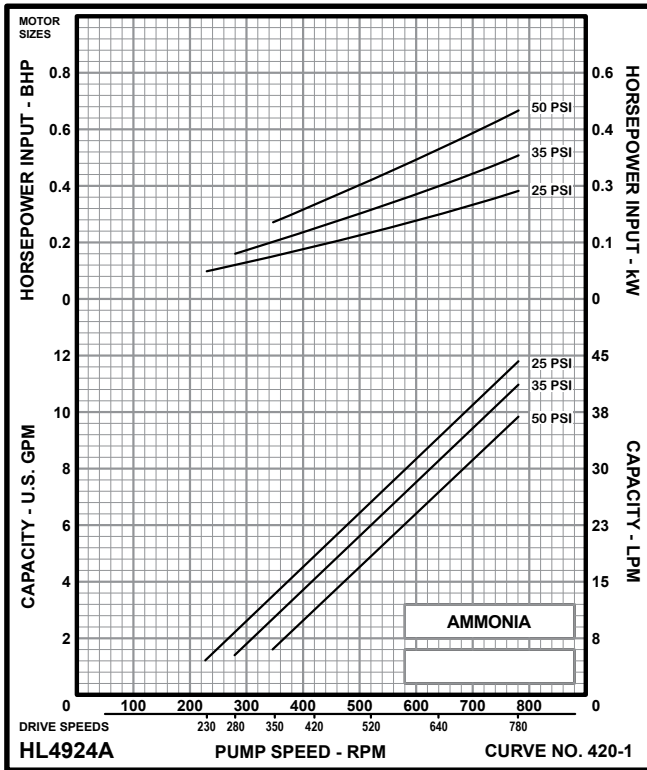
LEGEND:

- Ⓐ Inlet (suction) side shutoff valve
- Ⓑ Discharge side shutoff valve
- Ⓒ Shutoff valve in return line from the relief valve to the accumulator
- Ⓓ Vent (purge or bleed) valve
- Ⓔ Return line from pump mounted return-to-tank pressure relief valve to the accumulator

VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)

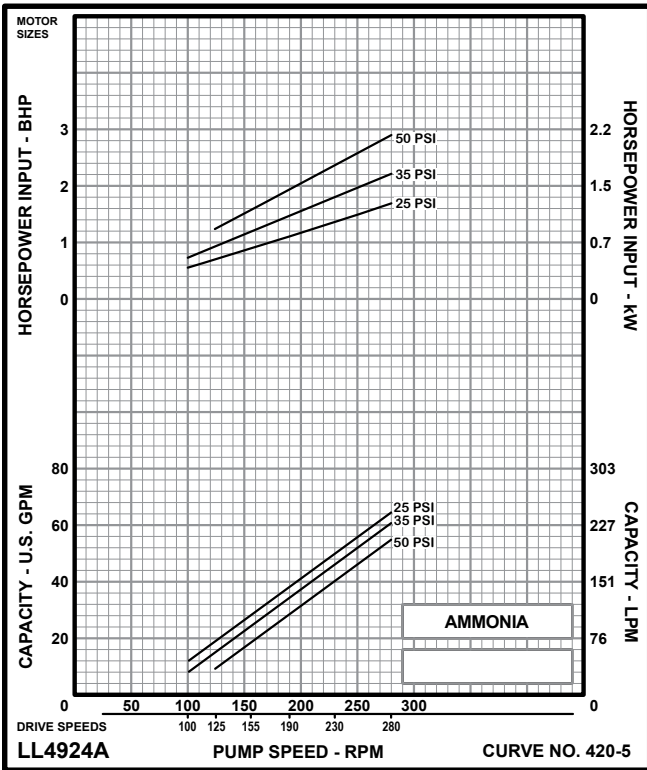
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VIKING REFRIGERATION AMMONIA INTERNAL GEAR PUMPS

SERIES 4924A (REPLACED SERIES 4925)



Section 430

Viking Jacketed Asphalt Pumps

(Series 34, 434 and 32E)

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VIKING GENERAL PURPOSE ASPHALT PUMPS SERIES 34 & 32E

See also Viking Heavy Duty Asphalt Pumps on pages 430.6 to 430.16 (Series 224A/4224A, 324A/4324A, 124E, 324E)

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General Purpose Asphalt Pumps

Viking General Purpose Asphalt Pumps are designed to handle asphalts, bitumens, pitch, tar, bunker oils, residual oils and related materials that solidify at ambient temperatures. The General Purpose models are Viking's simplest asphalt pumps, with a hydraulically-balanced rotor that eliminates the need for thrust control, but also limits the pressures to 100 PSI and less. For higher pressure options, see the Viking Heavy Duty Asphalt Pumps beginning on page 430.7, which feature an outboard thrust bearing as well as additional flow rate options.

Viking's General Purpose Asphalt Pumps offer two means of melting ambient-temperature solids to a liquid state prior to pump startup: Integral jacketing for steam or hot oil (Series 34), or electric cartridge heaters with closed-loop control systems (Series 32E, see p.430.2). The 34 and 32E series are available as packed pumps only.

For Heavy Duty Jacketed and Electrically-heated asphalt pumps, which often higher pressures and additional sizes. See section beginning at p.430.7.

Jacketed Pumps (Series 34)

Viking jacketed pumps feature complete jacketing of all external parts and extra clearances on all working parts. In addition, the rotor bearing sleeve jacket prevents these heavy viscous liquids from hardening in the seal box – affording effective shaft sealing.

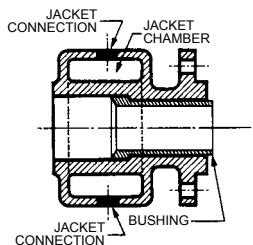
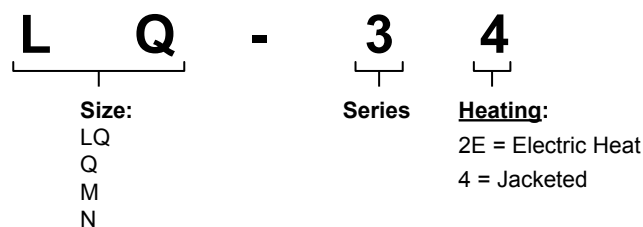
Individual chambers surround the casing, head, and rotor bearing sleeve, and each is provided with separate openings for connections with heating lines. See illustrations at left showing location of chambers and connections. Casings are furnished in right hand port construction as standard (determined by location of side port when facing shaft end of pump). Left hand port construction on special order only.

Series 34 pumps come equipped with jacketing on casing, head, and rotor bearing sleeve as standard. Pumps are available with any one, or any combination, of the three jackets, but must be so designated when ordering. A complete jacketed pump is recommended for most installations.

Operating Range:

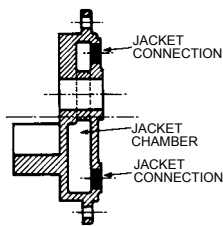
① Nominal Flow	GPM	20 to 450
	m ³ /h	4.5 to 102
① Maximum Pressure	PSI	to 100 for 100 SSU and above (LQ) to 75 for 100 SSU and above (Q, M, N)
	Bar	to 7 for 100 SSU and above (LQ) to 5.2 for 100 SSU and above (Q, M, N)
① Temperature Range	°F	-60 to +450
	°C	-50 to +232
① Viscosity Range	SSU	31 to 250,000
	cSt	1 to 55,000

Model Number Key:



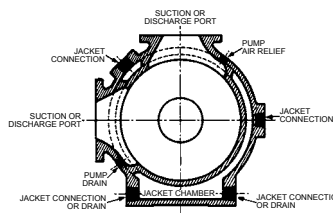
JACKETED ROTOR BEARING SLEEVE (Standard Equipment)

Jacket chamber indicated above accommodates the heating or cooling agent. All chambers are suitable for maximum steam pressures of 150 PSI or 365°F.



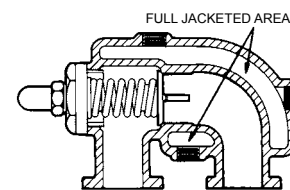
JACKETED HEAD* (Standard Equipment)

Series 34 pumps are equipped with this type of head as standard. Pumps with jacketed heads cannot be furnished with relief valve on head. Some form of pressure relief is recommended in the discharge line.



JACKETED CASING (Standard Equipment)

Complete jacketed casing section shown above. All pumps are available with right-hand ports as standard. Left-hand on special order only. All jacketed features are furnished as standard on Series 34 pumps.



JACKETED VALVE (On Request)

Jacketed valve on unjacketed head can be furnished on "LQ through "N" pumps. Note the complete jacketing of the valve. Eliminates liquid solidifying in the valve. Maximum steam pressure 150# or 365°F. Maximum heat transfer oil pressure 150#, 450°F.

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VIKING GENERAL PURPOSE ASPHALT PUMPS SERIES 34 & 32E

See also Viking Heavy Duty Asphalt Pumps on pages 430.6 to 430.16 (Series 224A/4224A, 324A/4324A, 124E, 324E)

Electrically Heated Pumps (Series 32E)

The 32E series pumps are similar to Viking's 34 Series Packed-Gland Jacketed Asphalt pumps, except instead of jacketing, they offer electric heat cartridges to enable heating without the need for piping steam or hot oil to the pump. The electrically heated pump is designed to melt the asphalt within the pump to a liquid state prior to startup. Heat cartridges located on the head, and in some sizes the casing, provide sufficient heat to melt the liquid within the pump and at the stuffing box.

The pump user may provide their own temperature control system, or Viking Pump offers a controller for its electrically heated pumps. It is a closed loop PID control providing fast, yet effective time to temperature with minimal overshoot to prevent overheating. The control system includes a thermocouple and thermowell adapter for mounting to the pump and a controller which powers all the heat cartridges on one pump (N-size requires a separate 40-amp relay). The controller has a user adjustable temperature set point, up to a preset maximum. When the set point is reached, a relay can be wired to alert the operator, or prevent a pump from being started until the asphalt is melted. It can be ordered with pre-set maximum temperature of either 150°F, 250°F, 350°F or 450°F; or 65°C, 120°C, 175°C or 230°C. See specifications below for number of cartridge heaters and wattages by pump size.

Electric Heat Specifications

Heat cartridges (pre-installed on pump)

All heaters are 240 VAC, 1 phase, 50/60 Hz

Pump Size	Head Cartridges	Watts/ Cartridge (Head)	Casing Cartridges	Watts/ Cartridge (Casing)	Total Watts
LQ32E	2	350	2	250	1200
Q32E	3	500	0	-	1500
M32E	3	450	2	450	2250
N32E	2	900	2	350	2500

Materials:

Incoloy® outer sheath, PFA moisture seal, Brass NPT fitting

Leads:

Two - fiberglass-insulated leads rated to 842°F/450°C for temperature resistance (H-QS sizes, 36" lead length) (N size, 72" lead length) in flexible stainless steel hose for abrasion resistance. Two leads extend 12" past end of SS hose. Normal practice is to wire all cartridges to local junction box at pump, with one cable to controller.

Agency Approvals:

UL, CSA, VDE, CE

Control System (accessory not included with pump)

Thermocouple:

Type J thermocouple with thermowell in weather-resistant housing with ½" MNPT fitting to mount in pump.

Controller Specifications:

Enclosure:

1/16 DIN, NEMA 4X / IP66 for panel mount

Mains power:

240 VAC, 1 phase

Heater Output:

15A NO-ARC, Form A

Control Algorithm:

PID, with pre-set bandwidths

Set point Achieved Relay Output:

Mechanical relay, 5A, Form A

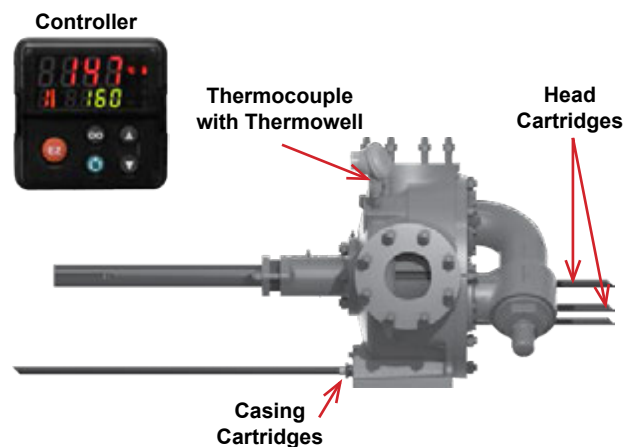
Agency Approvals:

UL, CSA, CE, RoHS, W.E.E.E., FM

N-size pump requires a separate 40-amp relay, available from Viking.

WARNING: Use National Electric Code (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors, heaters or peripheral devices. Failure to do so may result in damage to the equipment and property, and/or injury or loss of life.

Electrically heated pumps should always be insulated, and if possible, use spacers between the pump foot and baseplate to minimize heat loss. Approximate time to temperature is 3 hours for a 300 degree temperature rise.



VIKING GENERAL PURPOSE ASPHALT PUMPS SERIES 34 & 32E

See also Viking Heavy Duty Asphalt Pumps on pages 430.6 to 430.16 (Series 224A/4224A, 324A/4324A, 124E, 324E)

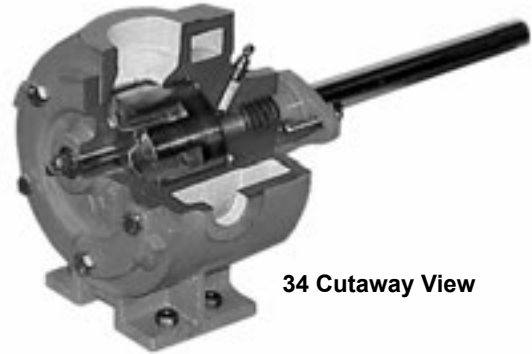
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Pressure Relief Valves

Series 34 pumps feature a jacketed head without relief valve standard. A jacketed relief valve can be furnished on a non-jacketed head on LQ through N sizes.

Series 32E pumps feature a non-jacketed relief valve standard. The heat cartridges in the head supply sufficient heat to melt asphalt in the relief valve as long as the pump is insulated. A plain head option is available.

All positive displacement pumps should have some form of pressure relief, whether in the pump or downstream of the pump, to prevent overpressure situations.



34 Cutaway View

Materials of Construction - Series 34 & 32E

Pump Construction	Casing	Head	Rotor	Idler	Rotor Shaft	Idler Pin	Bushings	Shaft Seal	Internal Relief Valve (optional on 34, standard on 32E)
								Packed	
Standard Construction	Iron	Iron	Iron	Iron	Steel	Hardened Steel	Bronze	Standard	Iron
Steel Fitted	Iron	Iron	Steel	① Iron	Steel	Hardened Steel	Bronze	Standard	Iron

Specifications - Unmounted Pumps

Jacketed Models	Electric Heat Models	Port Size	Nominal Pump Rating			Maximum Recommended Discharge Pressure for 100 SSU and Above		③ Maximum Recommended Temperature for Cataloged Pump		Steel Fitted Construction Recommended Above This Viscosity		Maximum Hydrostatic Pressure		Approximate Shipping Weight (Pump Only)	
						PSI	Bar	°F	°C	SSU	cPs	PSIG	Bar	LBs	KGs
Packed	Packed	Inches	GPM	m³/h	RPM										
④ LQ34	LQ32E	② 2½	90	20	420	100	6.9	450	232	25,000	5500	400	27.6	180	82
Q34	Q32E	② 3	200	45	350	75	5.2	450	232	7,500	1650	400	27.6	350	160
M34	M32E	② 4	280	64	280	75	5.2	450	232	25,000	5500	400	27.6	530	240
N34	N32E	② 5	450	102	280	75	5.2	450	232	2,500	550	400	27.6	750	340

Specifications - Pump Jacketing

Model Number	Maximum Temperature/Pressure Of Fluid in Jackets							
	Steam (Saturated)				Heat Transfer Oil			
	Temperature		Pressure		Temperature		Pressure	
	Packed	°F	°C	PSIG	Bar	°F	°C	PSIG	Bar
④ LQ34	365	185	150	10.4	450	232	150	10.4
Q34	365	185	150	10.4	450	232	150	10.4
M34	365	185	150	10.4	450	232	150	10.4
N34	365	185	150	10.4	450	232	150	10.4

① "Q" Size has steel idler when steel fitted construction is required.

② Ports are suitable for use with 125# ANSI cast or ductile iron or 150# ANSI steel companion flanged fittings. All other tapped for standard pipe (NPT).

③ For use at higher temperatures, consult factory for recommended materials of construction.

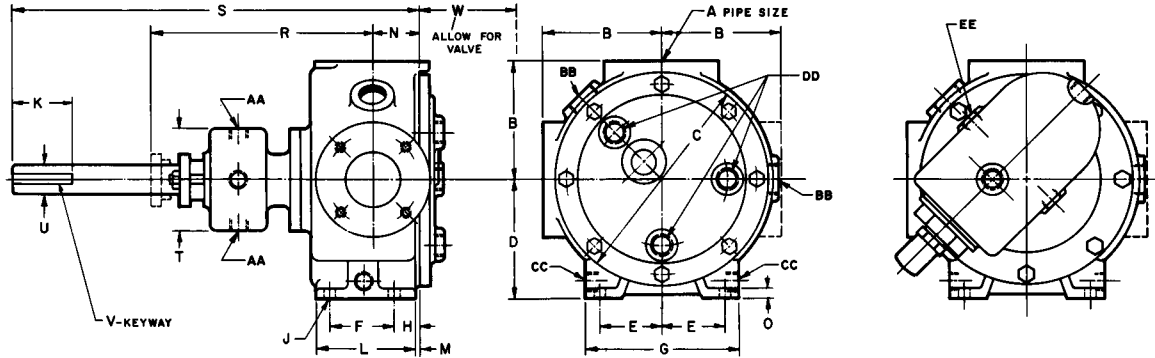
④ "LQ" size has two-piece jacketed head construction

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VIKING GENERAL PURPOSE ASPHALT PUMPS SERIES 34 & 32E

See also Viking Heavy Duty Asphalt Pumps on pages 430.6 to 430.16 (Series 224A/4224A, 324A/4324A, 124E, 324E)

Dimensions LQ - Q - M - N 34 (Unmounted Pumps)



Jacketed Head Standard

Optional Jacketed Relief Valve Shown

MODEL NO.		A	B	C	D	E	F	G	H	J	K	L	M	N	O	② R	S	T	U	V	W	JACKET CONNECTIONS (N.P.T.)				
																						AA	BB	CC	DD	EE
LQ34	in	①	7.19	10.25	6.00	2.88	3.00	7.00	1.00	.47	3.00	4.62	.12	1.75	.62	11.62	21.25	5.50	1.44	.38 x .19	7.88	3/4	1 1/2	3/4	③ 1	1
	mm	2 1/2	183	260	152	73	76	178	25	12	76	117	3	44	16	295	540	140	37	200						
Q34	in	①	8.00	14.00	7.75	4.12	4.25	10.00	1.62	.75	5.00	6.50	.25	3.00	.62	13.88	33.50	6.75	1.94	.50 x .25	10.62	3/4	1 1/2	1	1 1/4	1
	mm	3	203	356	197	105	108	254	41	19	127	165	6	76	16	353	851	171	49	270						
M34	in	①	9.50	17.25	9.50	5.00	6.25	12.00	1.44	.75	5.00	8.69	.19	4.00	.75	13.38	34.00	6.75	1.94	.50 x .25	10.25	3/4	1 1/2	1	1 1/2	1
	mm	4	241	438	241	127	159	305	37	19	127	221	5	102	19	340	864	171	49	260						
N34	in	①	9.50	17.25	9.50	5.00	6.25	12.00	1.62	.75	5.00	8.50	.19	4.50	.75	18.12	34.00	8.50	2.44	.62 x .31	10.25	3/4	2	1 1/2	1 1/2	1
	mm	5	241	438	241	127	159	305	41	19	127	216	5	114	19	460	864	216	62	260						

① Ports are suitable for use with 125# ANSI cast iron flanges or 150# steel or ductile iron companion flanges or flanged fittings. All others are tapped for standard pipe (NPT).

② Minimum dimension for repacking.

③ LQ 34 heads have two jacket openings only (near vertical centerline). "Q", "M", and "N" head jacket opening per drawing.

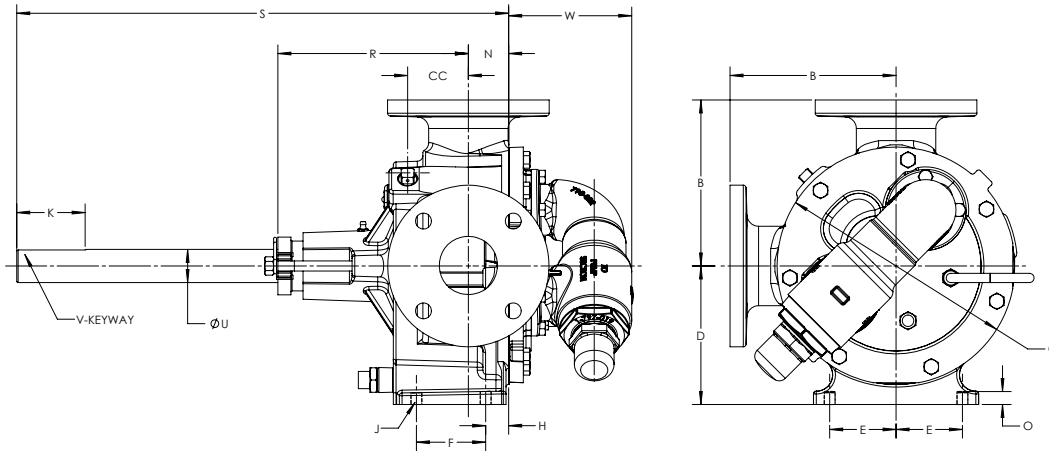
④ "LQ" size has two-piece jacketed head construction

VIKING GENERAL PURPOSE ASPHALT PUMPS SERIES 34 & 32E

See also Viking Heavy Duty Asphalt Pumps on pages 430.6 to 430.16 (Series 224A/4224A, 324A/4324A, 124E, 324E)

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Dimensions LQ - Q - M - N 32E (Unmounted Pumps)



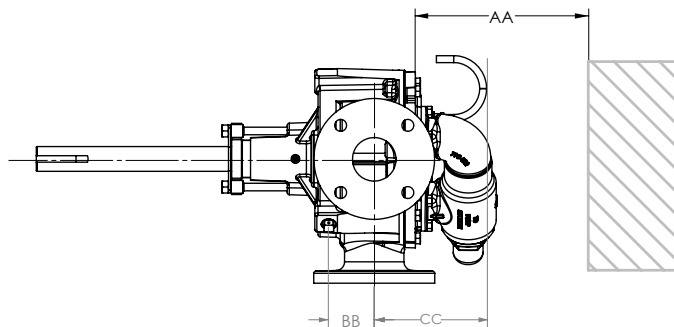
MODEL NO.		① A	B	C	CC	D	E	F	H	J	K	N	O	② R	S	U	V	W
LQ32E	in	2½	7.19	10.25	2.63	6.00	2.88	3.00	1.00	.47	3.00	1.75	.50	9.88	21.25	1.44	.375 x .19	5.38
	mm		183	260	67	152	73	76	25	12	76	44	13	251	552	37		137
Q32E	in	3	7.75	14.00	3	7.75	4.13	4.25	1.63	.69	5.00	3.00	.63	13.88	33.50	1.94	.50 x .25	8.19
	mm		197	356	76	197	105	108	41	18	127	76	16	353	851	49		208
M32E	in	4	9.50	17.25	2.75	9.50	5.00	6.25	1.44	.69	5.00	4.00	.75	13.38	34.00	1.94	.50 x .25	8.5
	mm		241	438	70	241	127	159	37	18	127	102	19	340	864	49		216
N32E	in	5	9.50	17.25	5.25	9.50	5.00	6.25	1.63	.69	5.00	4.50	1	20.88	34.00	2.44	.625 x .3125	8.25
	mm		241	438	133	241	127	159	41	18	127	114	25	530	864	62		216

① Ports are suitable for use with 125# ANSI cast iron flanges or 150# steel or ductile iron companion flanges or flanged fittings.

② Minimum dimension for repacking.

③ LQ 34 heads have two jacket openings only, (near vertical centerline). "Q", "M", and "N" head jacket opening per drawing.

Dimensions LQ - Q - M - N 32E (Electrically Heated – Non Jacketed)



HEAT CARTRIDGE LOCATIONS:

Model	Temp Probe to Port Center Line (BB)		Head Heater to Port Center Line (CC)		Required to Remove Heater (AA)	
	Inch	mm	Inch	mm	Inch	mm
LQ32E	2.54	64.5	5.75	146.1	7.00	177.8
Q32E	2.85	72.4	8.25	209.6	9.25	234.95
M32E	2.64	67.1	8.25	209.6	9.25	234.95
N32E	5.05	128.2	8.25	209.6	9.25	234.95

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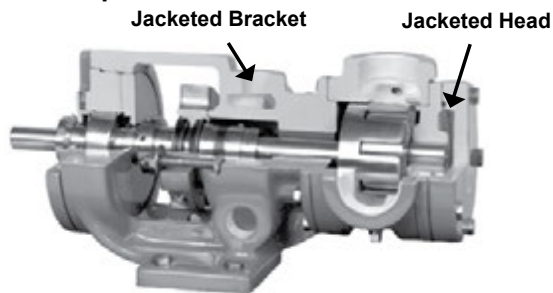
VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron) SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Heavy-Duty, Foot-Mounted Internal Gear Pumps

The cast iron Universal Seal pump is commonly used for asphalt applications. It can be heated by utilizing jacketing for steam/hot oil or built-in electric heat cartridges.

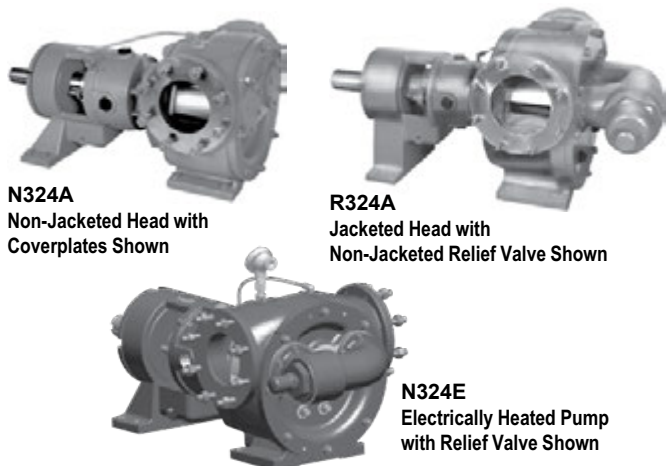
Jacketed Pumps



Standard-Jacketed Pump Cutaway – H4224A

Jacketing

Jacketed pumps provide a cavity, or jacket, on the external wall of the pump through which steam or heat transfer liquid can be passed. The heat transfer medium flows in a closed loop back to the boiler or heater. Standard jacketed pumps include jacketing on the head and bracket, and are used for melting asphalt prior to startup. This series includes models 224A, 224AE, 4224A, 4224AE, 324A and 4324A.



Electrically Heated Pumps

The electrically heated pump is specifically designed to heat the asphalt within the pump, prior to start-up. Heat cartridges located on the bracket or casing heat the area behind the rotor and stuffing box. The design also uses heat cartridges installed in the head to quickly melt asphalt throughout the casing.

Porting and Sealing

A variety of opposite and 90° port configurations are available, including top suction with bottom or side discharge designs typically mounted at the bottom of a tank or reactor.

The Universal Seal design allows the use of packing, component seals or cartridge seals.

Relief Valve Configurations

Jacketed pumps are provided with a jacketed head with no relief valve as standard. Integral relief valves in jacketed and non-jacketed configurations are available on the “L” through “N” sizes,

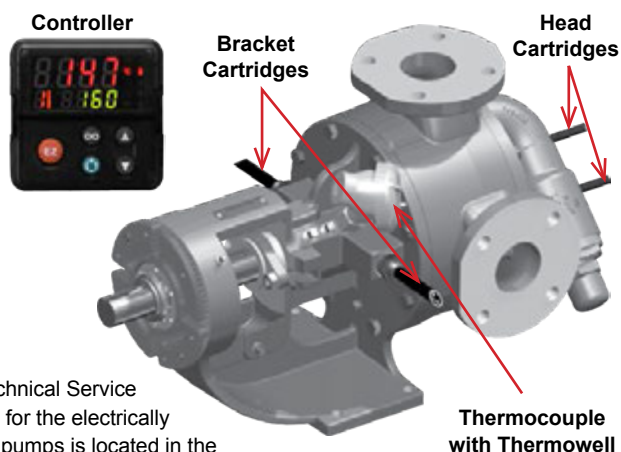
① Pressure Range	To 200 PSI (14 Bar)
① Temperature Range	to +450°F (to +232°C)
① Viscosity Range	31 SSU to 2,000,000 SSU (1 cP to 440,000 cPs.)
① Flow Range	to 1,600 GPM (to 364 m³/h)

① Values shown represent minimums or maximums. Some special construction or consideration may be required before a cataloged pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity.

Metric conversions are based on US measurements and rounded to the nearest whole number.

Controlling Electrically Heated Pumps

Viking Pump offers a controller for its electrically heated pumps. It is a closed loop PID control providing fast, yet effective time to temperature with minimal overshoot to prevent overheating. The control system includes a thermocouple and thermowell adapter for mounting, and a controller which powers all the heat cartridges on one pump. (N-size requires a 40-amp relay) The controller has a user-adjustable temperature set point, up to a preset maximum. When the set point is reached, a relay can be wired to alert the operator, or prevent a pump from being started until the asphalt is melted. It can be ordered with present maximum temperature of either 150°F, 250°F, 350°F or 450°F; or 65°C, 120°C, 175°C or 230°C. See specifications on page 2 for number of cartridge heaters and wattages by pump size.



NOTE:

The Technical Service Manual for the electrically heated pumps is located in the Universal Seal manuals: TSM 630.1 (H-LL sizes), TSM 630.2 (LS-QS sizes) and TSM 630.3 (N-RS sizes)

but require a non-jacketed valve-type head. Electrically heated pumps are provided with a non-jacketed relief valve as standard.

The “N” size pump is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve. A jacketed head, or a jacketed relief valve with a non-jacketed valve-type head, is available as an option.

The “R” size pump is standard with a jacketed bracket, a jacketed head and non-jacketed relief valve. For the “RS” size contact the factory for assistance with jacketing options.

The “RS” size is not available with relief valve.

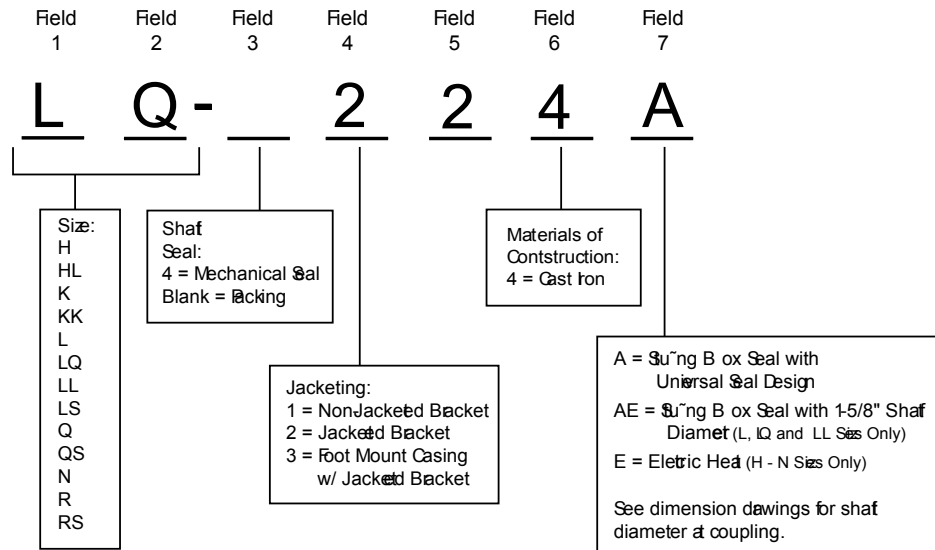
VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)

SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

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Model Number Key



Note on Field 4 that only the N, R and RS sizes are the foot mount casing with jacketed bracket (3). All other sizes are available with a jacketed (2) bracket. The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the R size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. There are relief valve options available on those pump models designed to accept a relief valve. Options include a jacketed relief valve for the N pump (only available with the non-jacketed head). A non-jacketed relief valve is available for the R pump.

Note that on L, LQ and LL pumps with the "AE" designation at the end of the model number will have 1 5/8" shaft as standard, the L, LQ and LL pumps ending in "A" or "E" will have a 1 7/16" shaft standard. The "AE" designation, i.e., LQ224AE is dimensionally interchangeable with a LQ224A or LQ225 except that the "AE" model has a 1-7/16" shaft at the drive end versus 1-1/8" for the other models. The "AE" version is recommended in severe-duty applications or those where stress corrosion may be encountered. (Dimensional drawings are located on pages 430.10-430.11).

Electric Heat Specifications

Heat cartridges (pre-installed on pump)

All heaters are 240 VAC, 1 phase, 50/60 Hz

Pump Size	Head Cartridges	Watts/Cartridge (Head)	Bracket/Casing Cartridges	Watts/Cartridge (bracket/casing)	Total Watts
H124E	1	75	2	100	275
HL124E	1	75	2	100	275
K124E	3	130	2	150	690
KK124E	3	130	2	150	690
L124E	2	350	2	250	1200
LQ124E	2	350	2	250	1200
LL124E	2	375	2	250	1250
LS124E	2	375	2	250	1250
Q124E	3	500	2	350	2200
QS124E	3	500	2	350	2200
N324E	2	900	2 ⊕	350	2500

⊕ Heat cartridges are located in the casing.

Materials: Incoloy® outer sheath, PFA moisture seal, Brass NPT fitting

Leads: Two - fiberglass-insulated leads rated to 842°F/450°C for temperature resistance (H-QS sizes, 36" lead length) (N size, 72" lead length) in flexible stainless steel hose for abrasion resistance. Two leads extend 12" past end of SS hose. Normal practice is to wire all cartridges to local junction box at pump, with one cable to controller.

Agency Approvals: UL, CSA, VDE, CE

Control System (accessory not included with pump)

Thermocouple

Type J thermocouple with thermowell in weather-resistant housing with 1/2" MNPT fitting to mount in pump.

Controller

Enclosure: 1/16 DIN, NEMA 4X / IP66 for panel mount

Mains power: 240 VAC, 1 phase

Heater Output: 15A NO-ARC, Form A

Control Algorithm: PID, with pre-set bandwidths

Set point Achieved Relay Output: Mechanical relay, 5A, Form A

Agency Approvals: UL, CSA, CE, RoHS, W.E.E.E., FM

N-size pump requires a separate 40-amp relay.

WARNING: Use National Electric Code (NEC) or other country-specific standard wiring and safety practices when wiring and connecting this controller to a power source and to electrical sensors, heaters or peripheral devices. Failure to do so may result in damage to the equipment and property, and/or injury or loss of life.

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VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E
 See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Materials of Construction - All Series

Specifications

Note: Sizes HL, K, KK, LQ, LS & N show two different max speed and pressure options. Use higher speed on clean asphalt only.

Model			Ports		Nominal Pump Rating (750 SSU and below)			Maximum Hydrostatic Pressure		④ Maximum Discharge Pressure		⑤⑥ Maximum Recommended Temperature for Standard Pump				Steel Fitted Recommended Above		Approximate Shipping Weight with Valve		
Jacketed Pumps		Electric Heat										Packed		Packed		Packed		Mechanical Seal		SSU	cSt	lbs.	kG
Packed	Stuffing Box Mechanical Seal	Packed	In.	mm	GPM	m ³ /hr	RPM	PSIG	BAR	PSIG	BAR	Packed		Mechanical Seal		SSU	cSt	lbs.	kG	
												F	C	F	C					
H224A	H4224A	H124E	②1.5	38	15	3.4	1750	400	28	200	14	450	232	Consult Factory			25,000	5,500	42	19
HL224A	HL4224A	HL124E	②1.5	38	30	6.8	1750	400	28	200	14	450	232				7,500	1,650	45	21
HL224A	HL4224A	HL124E	②1.5	38	50	11	2900	400	28	125	9	450	232				7,500	1,650	45	21
K224A	K4224A	K124E	②2	50	75	17	780	400	28	200	14	450	232				25,000	5,500	110	50
K224A	K4224A	K124E	②2	50	90	20	950	400	28	125	9	450	232				25,000	5,500	110	50
KK224A	KK4224A	KK124E	②2	50	100	23	780	400	28	200	14	450	232				25,000	5,500	115	52
KK224A	KK4224A	KK124E	②2	50	120	27	950	400	28	125	9	450	232				25,000	5,500	115	52
L224A/AE	L4224A/AE	L124E	②2	50	135	30	640	400	28	200	14	450	232				25,000	5,500	165	75
L224A	L4224A	L124E	②2	50	210	48	950	400	28	125	9	450	232				25,000	5,500	165	75
LQ224A/AE	LQ4224A/AE	LQ124E	③2.5	65	135	30	640	400	28	200	14	450	232				25,000	5,500	185	84
LQ224A	LQ4224A	LQ124E	③2.5	65	210	48	950	400	28	125	9	450	232				25,000	5,500	185	84
LL224A/AE	LL4224A/AE	LL124E	③3	75	140	32	520	400	28	200	14	450	232				2,500	550	195	88
LS224A	LS4224A	LS124E	③3	75	200	45	640	400	28	200	14	450	232				75,000	16,500	200	91
LS224A	LS4224A	LS124E	③3	75	230	52	720	400	28	125	9	450	232				75,000	16,500	200	91
Q224A	Q4224A	Q124E	④4	100	300	68	520	400	28	200	14	450	232				7,500	1,650	455	206
QS224A	QS4224A	QS124E	④6	150	500	114	520	400	28	200	14	450	232				75,000	16,500	555	252
N324A	N4324A	N324E	④6	150	600	136	350	400	28	200	14	450	232				75,000	16,500	810	376
N324A	N4324A	N324E	④6	150	685	155	420	400	28	125	9	450	232				75,000	16,500	810	376
R324A	R4324A	---	④8	200	1100	250	280	400	28	200	14	450	232				25,000	5,500	1435	650
RS324A	RS4324A	---	④10	254	1600	364	280	400	28	125	9	450	232				25,000	5,500	1580	718

- ① Port sizes are inch standard, not metric design or size. See p. 630.16 for other port size options.
- ② Ports are tapped for standard (NPT) pipe.
- ③ Ports are suitable for use with 125# ANSI cast iron flanges or flanged fittings.
- ④ For maximum recommended discharge pressures when handling other viscosities and/or other speeds, see performance curves, which can be electronically generated with

- the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory.
- ⑤ Higher temperatures can be handled with special construction, consult factory.
- ⑥ Consult factory for maximum temperatures for mechanical seals.
- ⑦ H and HL sizes available with tapped ports only due to interference between the bracket heat cartridge and flange.

Construction —
Series 224A, 4224A, 224AE, 4224AE, 124E, 324A, 4324A & 324E (all sizes)

Pump Construction	Casing	Head & Jacketed Head Plate	Bracket	Rotor	Pressure Relief Valve	Idler	Rotor Shaft	Idler Pin	Shaft Sealing		Bushings
									Packed	Mech. Seal	Idler
Standard Construction	Cast Iron ASTM A48, Class 35B	Cast Iron ASTM A48, Class 35B	Cast Iron ASTM A48, Class 35B	① Cast Iron ASTM A48, Class 35B	Cast Iron ASTM A48, Class 35B	③ Cast Iron ASTM A48 Class 35B	Steel ASTM A108, Grade 1045	Hardened Steel ASTM A108, Grade 10L45	Standard	Consult Factory	Bronze ASTM B584 (B505), Alloy C93700
Steel Fitted				④ Steel ASTM A108, Grade 1045		② Iron			Standard		

NOTE: Jacketed pump sizes H through M, relief valve cannot be used on pump with jacketed head plate or jacketed head. The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve. The R is standard with a jacketed bracket, jacketed head, and non-jacketed relief valve. RS size relief valve not available. Contact factory for jacketing options.

- ① KK, LS, QS, N and RS sizes have ductile iron rotor, ASTM A536 Grade 60-40-18.
- ② Steel fitted Q and QS sizes have steel idler.
- ③ H and HL sizes have powdered metal idler, MPIF Std 35 FC-0208-50.
- ④ Material specification for HL steel rotor is AISI 8620, LS steel rotor is ASTM A148 80-50.

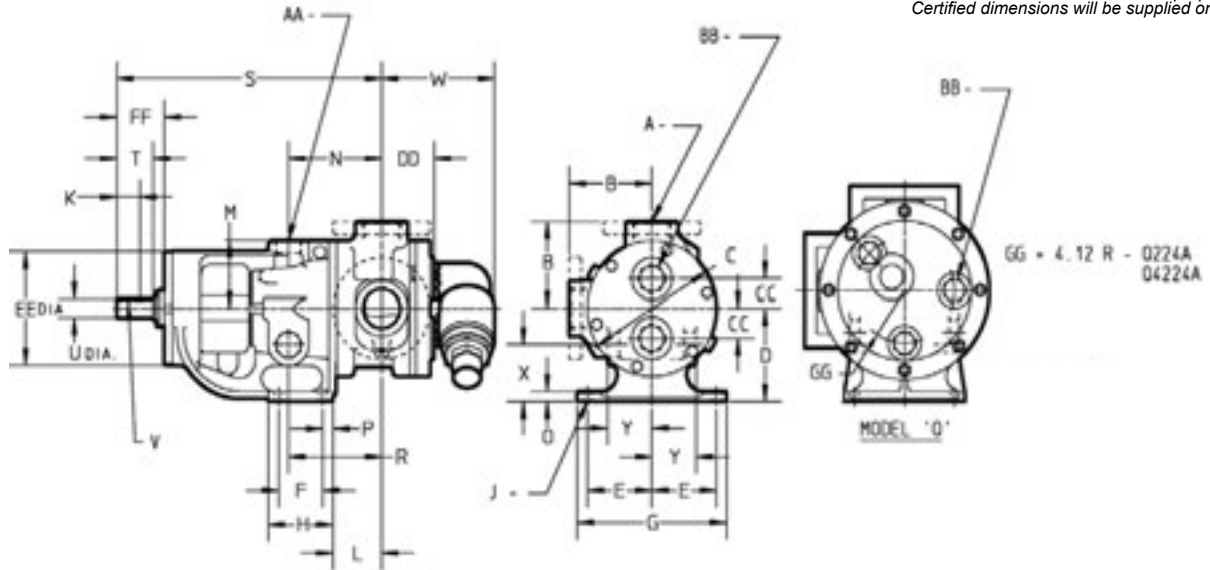
VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

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Dimensions - H through Q Sizes – Cast Iron Construction – Jacketed Pumps

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.



NOTE: Dimensions “R” through “FF” on next page

Model Number		A (in)		B	C	D	E	F	G	H	J	③ K	L	M	N	O
Packed	Stuffing Box Seal															
H224A HL224A	H4224A HL4224A	①1.5	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	2.38	4.00	0.56
			mm	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	60.5	101.6	14.2
K224A KK224A	K4224A KK4224A	①2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	4.00	5.75	0.62
			mm	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	101.6	146.0	15.7
L224A L224AE	L4224A L4224AE	①2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2	3.38	5.12	6.56	0.62
			mm	165.1	260.3	177.8	111.3	101.6	254	136.7	13.5	50.8	85.9	130.0	166.6	15.7
LQ224A LQ224AE	LQ4224A LQ4224AE	②2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	50.8	85.9	130.0	166.6	15.7
LL224A LL224AE	LL4224A LL4224AE	②3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	50.8	85.9	130.0	166.6	15.7
LS224A	LS4224A	②3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	5.12	7.40	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	64.8	120.6	130.0	188.0	15.7
Q224A	Q4224A	②4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	7.00	7.62	0.75
			mm	209.5	355.6	222.2	104.6	101.6	254	152.4	17.5	90.9	168.1	177.8	193.5	19.0

① Port(s) tapped for standard (NPT) pipe.

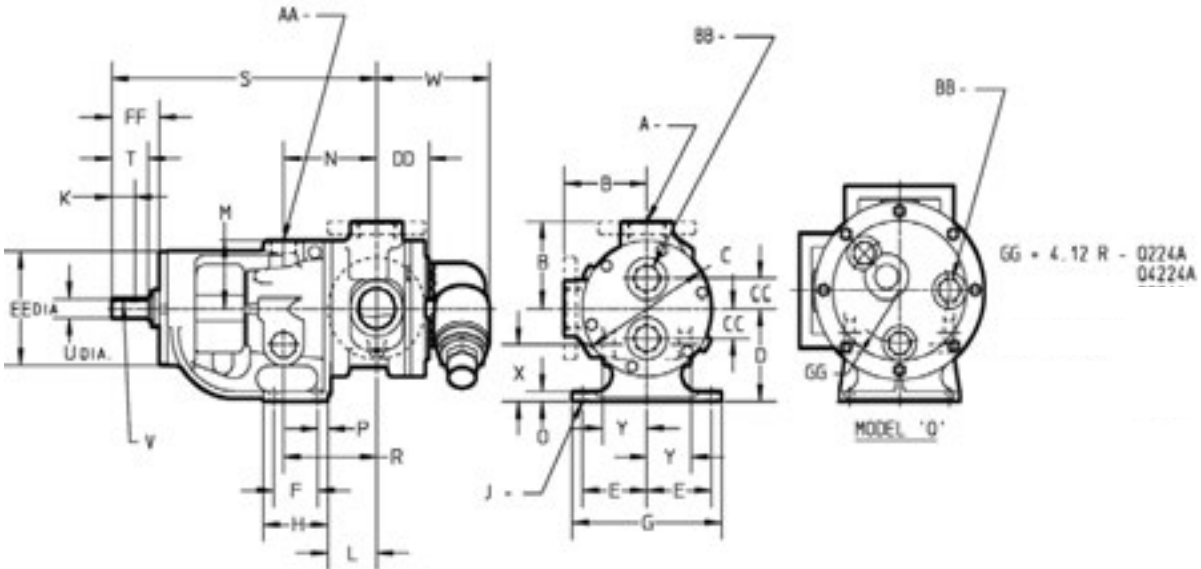
② Port(s) suitable for use with 125# ANSI cast iron companion flanges or flanged fittings.

③ “K” dimension for Cast Iron L, LQ and LL sizes is for “A” models. “K” dimension for L, LQ and LL size 224AE and 4224AE pumps is 1.44” (36.6mm).

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VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E
 See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Dimensions - H through Q Sizes – Cast Iron Construction – Jacketed Pumps (Cont'd)



Model Number			P	R	S	⑥ T	⑦ U	⑧ V	W	X	Y	⑤ AA	⑤ BB	CC	DD	EE	FF
Packed	Stuffing Box Seal																
H224A	H4224A	in	0.62	4.00	12.06	1.62	0.75	.19 X .09	4.04	1.80	1.83	0.75	0.50	0.94	2.41	5.75	2.30
HL224A	HL4224A	mm	15.7	101.6	306.3	41.1	19.0	4.83 X 2.29	102.6	45.7	46.5	19.0	12.7	23.9	61.2	146.0	58.4
K224A	K4224A	in	0.62	5.75	16.38	2.25	1.12	.25 X .12	7.00	3.38	2.75	1.25	1.25	1.75	3.25	6.75	2.92
KK224A	KK4224A	mm	15.7	146.0	416.0	57.1	28.4	6.35 X .05	177.8	85.9	69.8	31.7	31.7	44.4	82.5	171.4	74.2
L224A	L4224A	in	0.62	6.56	17.88	2.25	1.12	.38 X .19	7.18	4.62	3.25	1.25	1	3.00	3.81	6.75	2.93
L224AE	L4224AE	mm	15.7	166.6	454.2	57.1	28.4	9.65 X .83	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LQ224A	LQ4224A	in	0.62	6.56	17.88	2.25	1.12	.38 X .19	7.18	4.62	3.25	1.25	1	3.00	3.81	6.75	2.93
LQ224AE	LQ4224AE	mm	15.7	166.6	454.2	57.1	28.4	9.65 X .83	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LL224A	LL4224A	in	0.62	6.56	17.88	2.25	1.12	.38 X .19	7.18	4.62	3.25	1.25	1	3.00	4.31	6.75	2.93
LL224AE	LL4224AE	mm	15.7	166.6	454.2	57.1	28.4	9.65 X .83	182.4	117.3	82.5	31.7	25.4	76.2	109.5	171.4	74.4
LS224A	LS4224A	in	0.62	7.00	19.25	3.50	1.44	.38 X .19	7.72	4.40	3.30	1.25	1	3.00	4.50	7.00	4.03
		mm	15.7	177.8	488.9	88.9	36.58	9.65 X .83	196.1	111.8	83.8	31.7	25.4	76.2	114.3	177.8	102.4
Q224A	Q4224A	in.	1.00	6.62	23.75	4.50	1.94	.50 X .25	11.25	5.50	4.50	1.5	1.25	---	4.57	8.38	5.35
		mm	25.4	168.1	603.2	114.3	49.3	12.70 X .35	285.7	139.7	114.3	38.1	31.7	---	116.1	212.8	135.9

⑤ Ports for steam or hot oil jacketing are inch standard NPT threads. Metric (mm) equivalents are for information only, and do not indicate a metric thread size.
 ⑥ "T" dimension show for Cast Iron sizes L, LQ and LL is for "A" models. Dimension for L, LQ and LL size 224AE and 4224AE pumps is 2.35" (59.7 mm).
 ⑦ "U" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "U" dimension for L, LQ and LL size 224AE and 4224AE pumps is 1.44" (36.6 mm).
 ⑧ "V" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "V" dimension for L, LQ and LL size 224AE and 4224AE pumps is 0.38 X 0.19" (9.65 X 4.83 mm).

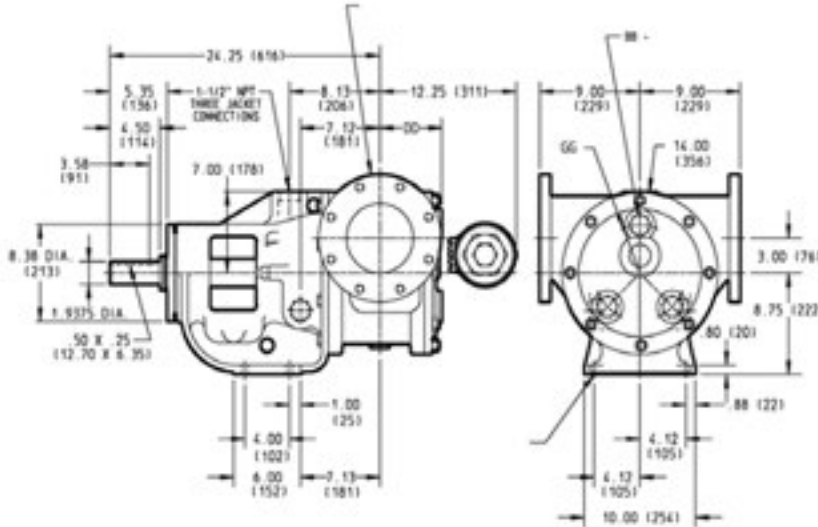
VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

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Dimensions - QS Size – Jacketed Series 224A and 4224A

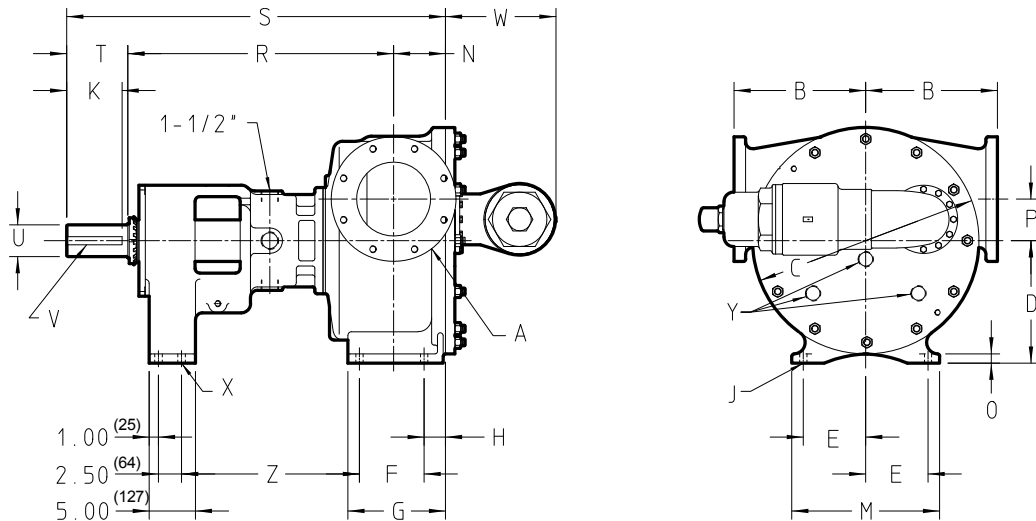
Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.



Other Dimensions	
BB*	1.25 (31.75)
DD	5.57 (141.48)
GG	4.12 (105)

* Ports for steam or hot oil jacketing are inch standard NPT threads. Metric (mm) equivalents are for information only, and do not indicate a metric thread size.

Dimensions - N, R & RS Sizes – Jacketed Series 324A and 4324A



Model Number		A (in)	B	C	D	E	F	G	H	J	K	M	N	O	P	R	S	T	U	V	W	X	Y	Z	
N324A	N4324A	6	in	9.75	17.25	9.50	5.00	6.25	8.69	1.62	0.69	4.50	12.00	4.50	1.00	3.00	26.00	36.50	6.00	2.44	.62x.31	8.63	0.69	n.a.	18.94
			mm	24.6	438.1	241.3	127.0	158.7	220.7	41.1	17.5	114.3	304.8	114.3	25.4	76.2	660.4	927.1	152.4	62.0	15.74 x7.87	219.2	17.5	n.a.	481.0
R324A	R4324A	8	in	14.25	24.50	13.25	6.75	7.00	10.56	2.31	0.78	6.00	16.00	5.62	1.00	4.50	28.75	41.00	6.62	3.44	.88x.44	12.00	0.69	1.25	19.25
			mm	361.9	622.3	336.5	171.4	177.8	268.2	58.7	19.8	152.4	406.4	142.7	25.4	114.3	730.2	1041	168.1	87.4	22.35 x11.18	304.8	17.5	31.7	488.9
RS324A	RS4324A	10	in	14.25	24.5	13.25	6.75	7.00	13.12	4.81	0.88	6.00	16.46	8.12	1.30	4.50	28.55	43.49	6.62	3.44	.88x.44	12.00	0.88	1.25	19.25
			mm	361.9	622.30	336.5	171.4	177.8	333.24	122.17	22.35	152.4	418.08	206.24	33.02	114.3	725.17	1104.64	168.1	87.4	22.35 x11.18	304.8	22.35	31.7	488.9

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve. The R size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. RS contact factory for jacketing options.

© Ports are suitable for use with 125# ANSI cast iron (324A/4324A)

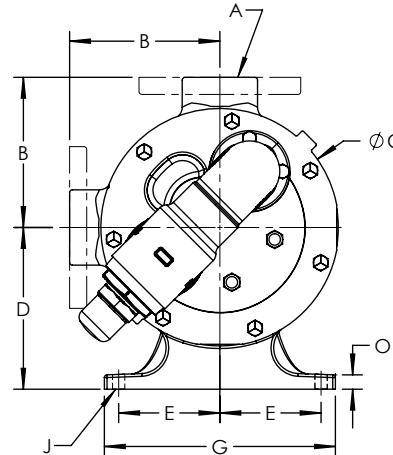
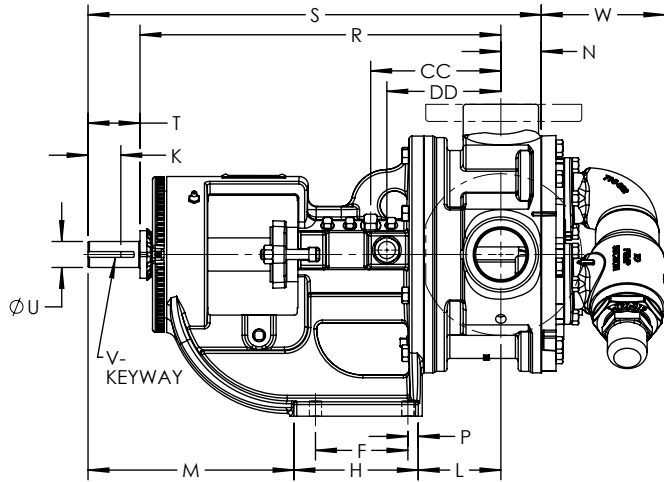
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VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E
 See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Dimensions - H through Q Sizes – Electrically Heated – Non Jacketed

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.

See drawing on Page 430.15 for cartridge heater and thermocouple port location.



Model Number	A (in)		B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W	CC	DD
Packed																							③	④
H124E HL124E	① 1.5	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85	2.84	2.40
		mm	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8	30.2	14.2	15.7	265.2	336.5	41.1	19.0	4.83 x 2.29	72.4	72.14	60.96
K124E KK124E	① 2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.0	0.53	1.42	3.00	9.38	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	6.38	4.88	4.14
		mm	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3	44.4	15.7	15.7	358.6	460.2	57.1	28.4	6.35 x 3.05	162.0	123.95	105.16
L124E	① 2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.00	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.25	1.12	.25 x .12	5.43	5.62	4.92
		mm	165.1	260.3	177.8	111.3	101.6	254.0	136.7	13.5	50.8	85.9	231.6	44.4	15.7	15.7	396.7	498.3	57.1	28.7	6.35 x 3.05	137.9	142.75	124.97
LQ124E	② 2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.00	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.25	1.12	.25 x .12	5.43	5.62	4.92
		mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	50.8	85.9	231.6	44.4	15.7	15.7	396.7	498.3	57.1	28.7	6.35 x 3.05	137.9	142.75	124.97
LL124E	② 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.00	3.38	9.12	2.25	0.62	0.62	15.62	20.12	2.25	1.12	.25 x .12	5.43	5.62	4.92
		mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	50.8	85.9	231.6	57.1	15.7	15.7	396.7	511.0	57.1	28.7	6.35 x 3.05	137.9	142.75	124.97
LS124E	② 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.12	2.44	0.62	0.62	15.75	21.69	3.50	1.44	.38 x .19	5.43	6.25	6.09
		mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	64.8	120.6	231.6	62.0	15.7	15.7	400.0	550.9	88.9	36.6	9.65 x 4.83	137.9	158.75	154.7
Q124E	② 4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	11.12	3.00	0.75	1.00	19.25	26.75	4.50	1.94	.50 x .25	8.25	7.33	5.83
		mm	209.5	355.6	222.2	104.6	101.6	254.0	152.4	17.5	90.9	168.1	282.4	76.2	19.0	25.4	488.9	679.4	114.3	49.3	12.7 x 6.35	209.5	186.18	148.08

- ① Ports are tapped for standard (NPT) pipe. Other thread standards available.
- ② Ports are suitable for use with Class 125 ANSI cast iron companion flanges.
- ③ Port centerline to thermocouple port
- ④ Port centerline to bracket heat cartridge.

VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

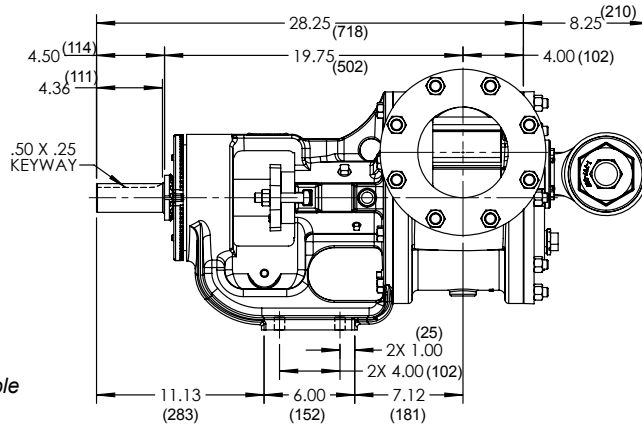
See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

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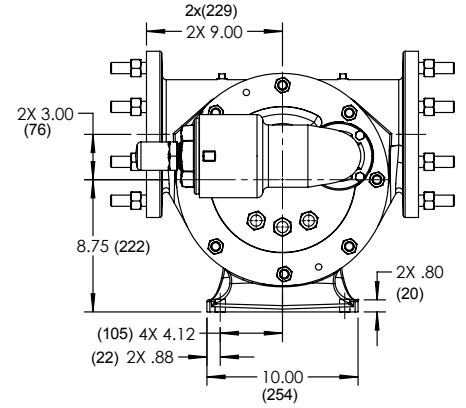
Dimensions - QS Size – Electrically Heated Asphalt Pump
Series 124E

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.

Dimensions in inches (mm)



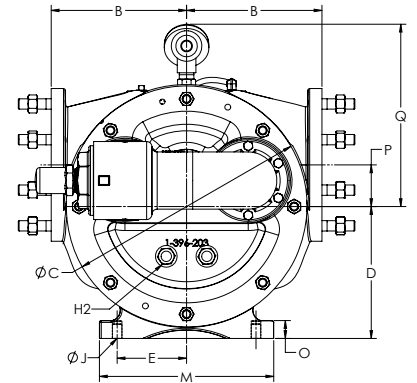
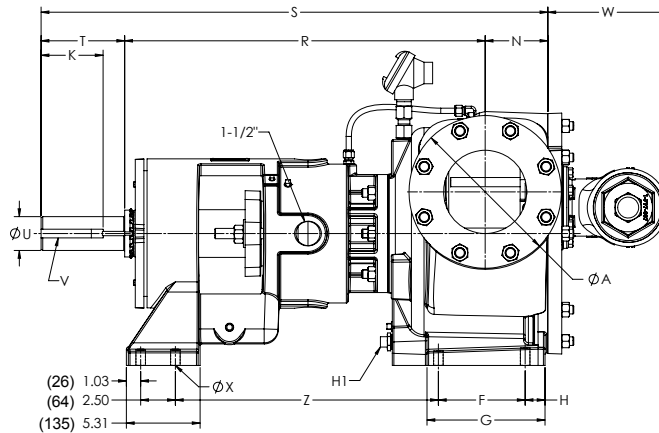
See drawing on Page 430.15 for cartridge heater and thermocouple location.



Dimensions - N Size – Electrically Heated Asphalt Pump
Series 324E

Dimensions given are for guidance only and should not be used for installation purposes. Certified dimensions will be supplied on request.

Dimensions in inches (mm)



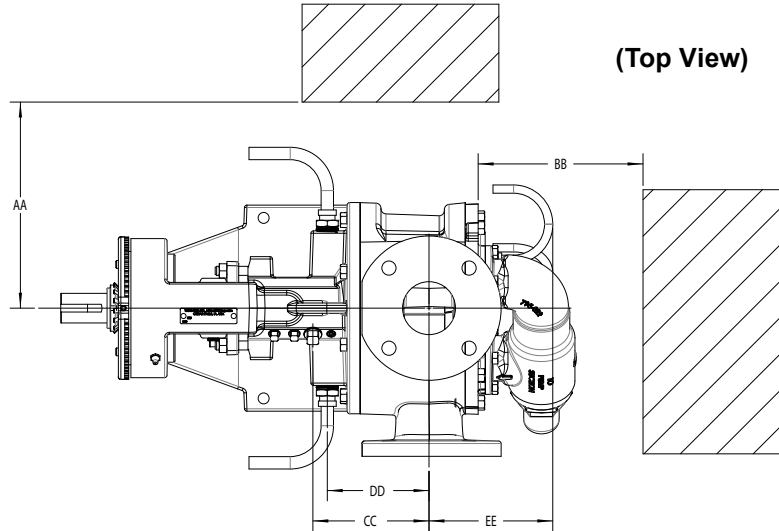
Model Number	A (in)	B	C	D	E	F	G	H	H1	H2	J	K	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
N324E N324EH	①	in	9.75	17.25	9.50	5.00	6.25	8.69	1.62	0.75	0.69	4.50	12.00	4.50	1.00	3.00	13.11	26.00	36.50	6.00	2.44	.62 x.31	8.63	0.69	N/A	18.94
	6	mm	247.7	438.1	241.3	127.0	158.7	220.7	41.1	19	17.5	114.3	304.8	114.3	25.4	76.2	333	660.4	927.1	152.4	62.0	15.74 x7.87	219.2	17.5	N/A	481.0

① Ports are suitable for use with 125# ANSI cast iron.

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VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E
 See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Dimensions - K through QS Sizes – Electrically Heated – Non Jacketed



Model	Bracket Heater to Port Center Line (DD)		Temp Probe to Port Center Line (CC)		Head Heater to Port Center Line (EE)		Required to Remove Heater			
	Inch	mm	Inch	mm	Inch	mm	(AA)		(BB)	
							Inch	mm	Inch	mm
H124E HL124E	2.40	60.96	2.84	72.14	5.66	143.76	8.13	206.50	7.75	196.85
K124E KK124E	4.14	105.16	4.88	123.95	5.66	143.76	8.13	206.50	7.75	196.85
L124E	4.92	124.97	5.62	142.75	5.71	145.03	7.00	177.80	6.25	158.75
LQ124E					5.75	146.05			6.75	171.45
LL124E					6.25	158.75			6.50	165.10
LS124E	6.09	154.69	6.25	158.75	6.44	163.58	9.25	234.95	7.75	196.85
Q124E	5.83	148.08	7.33	186.18	8.25	209.55			7.75	196.85
QS124E	6.33	160.78	7.83	198.88	9.25	234.95				

Optional Casings - Standard-Jacketed* Pumps

Model Number		Standard Jacketed Pumps' Standard Ports [†]	Standard Jacketed Pumps Optional Ports
Packed	Stuffing Box Seal		
H224A	H4224A	1.5" ①	1.5" ②Ⓡ, 2" ②Ⓡ
HL224A	HL4224A		
K224A	K4224A	2" ①	2" ②Ⓡ, 2.5" ②ⓈⓇ, 3" ②Ⓡ, 4" ②Ⓡ
KK224A	KK4224A	2" ①	2" ②Ⓡ, 2.5" ②Ⓡ, 3" ②Ⓡ, 4" ②Ⓡ
L224A/AE	L4224A/AE	2" ①	-----
LQ224A/AE	LQ4224A/AE	2.5" ②	3" ②Ⓡ, 4" ②Ⓡ, 6" ②Ⓡ
LL224A/AE	LL4224A/AE	3" ②	4" ②Ⓡ, 5" ②Ⓡ
LS224A	LS4224A	3" ②	4" ②Ⓡ
Q224A	Q4224A	4" ②	3" ②Ⓡ, 5" ②Ⓡ, 6" ②Ⓡ
QS224A	QS4224A	6" ②Ⓢ	6" ②Ⓢ
N324A	N4324A	6" ②Ⓢ	5" ②Ⓢ
R324A	R4324A	8" ②Ⓢ	6" ②Ⓢ
RS324A	RS4324A	10" ②Ⓢ	

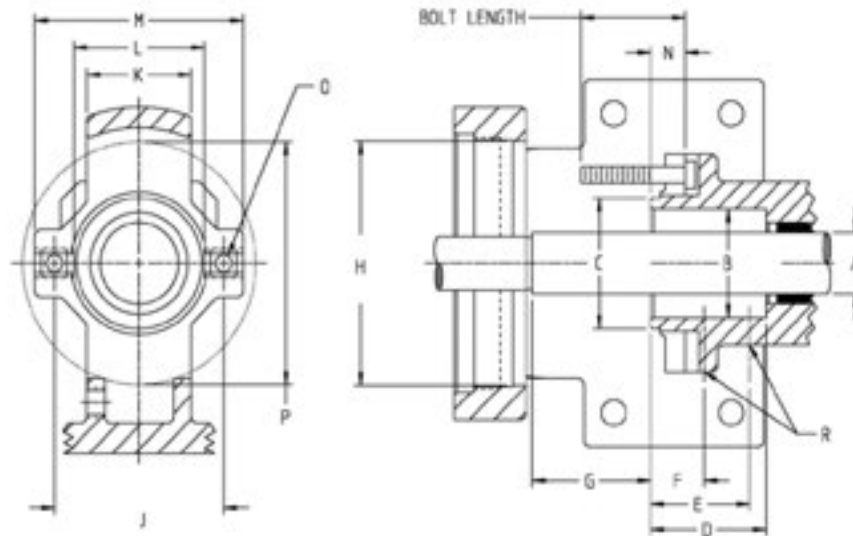
- ① Port(s) tapped for standard (NPT) pipe.
 - ② Port(s) suitable for use with 125# ANSI cast iron companion flanges or flanged fittings.
 - Ⓢ Non-Rotatable Ports at 90 degree angle, contact factory for available orientation (right hand or left hand).
 - Ⓡ Opposite Ports
 - Ⓢ 90° port arrangement for Right Hand inlet (viewed from shaft end).
- Contact factory for flange details (e.g. Flat face or raised face flanges).
- * Standard-Jacketed pumps have a jacketed bracket and head, but the casing is not jacketed. They have the series designations 224A/4224A & AE. Also the N324A, and N4324A, are standard with a jacketed bracket and non-jacketed head and relief valve, while the R324A, and R4324A, are standard with a jacketed bracket and jacketed head and non-jacketed relief valve. For the RS324A and RS4324A, contact the factory for jacketing options.
- Additional jacketed casings, including fully-jacketed casing, available in steel. See Universal Seal Catalog Section 630.

VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E

See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

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Stuffing Box Seal Chamber Dimensions



Pump Size		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
H & HL	In	1.12	2.00	2.41	2.22	1.90	1.03	2.27	4.50	3.00 to 3.50	2.00	2.50	4.00	0.66	5/16	4.47	1/8
	mm	28.6	50.8	61.2	56.4	48.3	26.2	57.7	114.3	76.2 to 88.9	50.8	63.5	101.6	16.8	7.9	113.5	3.2
K & KK	In	1.44	2.31①	3.00	3.13	2.25	1.25	3.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.38	7/16	5.25	1/4
	mm	36.5	58.7①	76.2	79.5	57.1	31.7	76.2	133.3	88.9 to 114.3	63.5	76.2	127.0	9.7	11.1	133.3	6.3
L, LQ, & LL (A)	In	1.44	2.31①	3.00	3.13	2.25	1.25	4.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.44	7/16	5.25	1/4
	mm	36.5	58.7①	76.2	79.5	57.1	31.7	101.6	133.3	88.9 to 114.3	63.5	76.2	127.0	11.2	11.1	133.3	6.3
L, LQ, & LL (AE)	In	1.62	2.375	3.00	3.13	2.25	1.16	3.52	5.25	3.50 to 4.50	3.00	3.00	5.00	0.46	7/16	5.25	1/4
	mm	41.3	60.3	76.2	79.5	57.1	29.5	89.4	133.3	88.9 to 114.3	76.2	76.2	127.0	11.7	11.1	133.3	6.3
LS	In	1.62	2.375	2.80	2.70	2.25	1.16	3.52	5.25	3.25 to 4.50	3.00	2.80	5.00	0.46	7/16	5.25	1/4
	mm	41.3	60.3	71.1	68.6	57.1	29.5	89.4	133.3	82.5 to 114.3	76.2	71.1	127.0	11.7	11.1	133.3	6.3
Q & QS	In	2.44	3.42	4.50	4.00	2.50	1.53	4.10	6.75	5.50 to 6.25	3.20	4.50	7.20	0.56	5/8	6.75	1/4
	mm	61.9	87.0	114.3	101.6	63.5	38.9	104.1	171.4	139.7 to 158.7	81.3	114.3	182.9	14.2	15.9	171.4	6.3
N	In	3.44	4.69	-	5.56	1.65	-	4.91	8.81	6.75	-	-	-	-	3/4②	9.00	1/4
	mm	87.3	119.3	-	141.2	41.9	-	124.7	223.8	171.4	-	-	-	-	19.0②	228.6	6.3
R	In	4.50	5.75	-	5.56	1.53	-	4.79	9.81	7.75	-	-	-	-	3/4②	9.81	1/4
	mm	114.3	146.1	-	141.2	38.9	-	121.7	249.2	196.8	-	-	-	-	19.0②	249.2	6.3
RS	In	4.50	5.75	-	5.56	1.53	-	4.79	9.81	7.75	-	-	-	-	3/4②	9.81	1/4
	mm	114.3	146.1	-	141.2	38.9	-	121.7	249.2	196.8	-	-	-	-	19.0②	249.2	6.3

① Bracket is counter bored to a diameter of 2.687 inches (68.25 mm), 0.12 inches (3.05 mm) deep from stuffing box face.

② Studs are used in place of cap screws.

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VIKING HEAVY DUTY ASPHALT PUMPS (Cast Iron)
SERIES 224A, 224AE, 4224A, 4224AE, 324A, 4324A, 124E, 324E
 See also Viking General Purpose Asphalt Pumps on pages 430.1 to 430.5 (Series 34 & 32E)

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program is located at www.vikingpump.com/pumpselector.

NPSH_R - Feet of Liquid S.G. 1.0

PUMP SIZE	PUMP SPEED [RPM]														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
H, HL					1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
K, KK		1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1				
L, LQ, LL, LS	1.7	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8					
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1	8.4	12.7						
N	2.1	2.5	3.5	4.5	6.3	9.5	15.0								
R, RS	2.7	3.2	4.2	5.8	8.2	11.9									

1. NPSH_A (Net Positive Suction Head *Available*) must be greater than the NPSH_R (Net Positive Suction Head *Required*) given in the above table.
2. VISCOSITY - Above chart applies to viscosities up thru 750 SSU. Consult factory or Viking representative for viscosities above 750 SSU.
3. For liquids other than water, divide by specific gravity.

Section 445

Viking Stainless Steel Vane Pump

(Series LVP)

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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

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PRODUCT DESCRIPTION

Rotary vane pumps are used for liquid transfer in applications ranging from chemicals to LP gas. Vanes extend from slots on the rotor, sweeping liquid through a cam-shaped cavity. They offer the benefit of very low slip and high mechanical efficiency.

Viking's LVP series of stainless steel vane pumps is an industrial design which provides smooth flow at pressures higher than typically seen in a vane pump. It is offered in 3 frame sizes that include 6 capacities, all rated to 200 PSI/14 Bar differential pressure. The design is standard with hardened casing, PEEK® vanes and push rods that work together to maximize pump life. A hard chrome-oxide coated shaft runs in silicon carbide bushings that further reduce maintenance and life cycle costs. When maintenance is required, installation of repair parts is a simple process. Vanes, push rods, mechanical seals and bushings are all readily accessible for easy replacement.



MODEL LVP41057U
US Inch Design
with ANSI Flange Ports

UNMOUNTED PUMPS	UNITS
LVP40017, LVP41017	Units are designated by the unmounted pump model numbers followed by a letter indicating drive style: M - Motor Mount - Close Coupled D - Direct Drive R - Viking Reducer Drive P - Commercial Reducer Drive (Examples: LVP40237U - P)
LVP40027, LVP41027	
LVP41057	
LVP41087	
LVP41197	
LVP41237	



MODEL LVP41017U
US Inch Design
with ANSI Flange Ports

SERIES OPERATING RANGE ^①

Nominal Capacity	20 to 160 GPM	4.3 to 36 m ³ /h
Maximum Differential Pressure	to 200 PSI	to 14 Bar
Maximum Hydrostatic Pressure	to 300 PSI	to 21 Bar
Viscosity Range	28 to 2,300 SSU	0.1 to 500 cSt
Temperature Range (standard)	0° to +275°F	-18° to +135°C
Temperature Range (with optional construction)	0° to +350°F	-18° to +177°C

NOMINAL FLOW RATES ^②

Pump Model	Speed	Capacity	
	RPM	GPM	m ³ /h
LVP40017 LVP41017	1750	20	4
LVP40027 LVP41027	1750	40	9
LVP41057	1150	80	15
LVP41087	950	100	23
LVP41197	520	125	29
LVP41237	520	160	36

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① Metric capacity conversions are based on US GPM and rounded to the nearest whole number.

② RPM and flow based on 60 Hz motor speeds.

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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

FEATURES AND BENEFITS

- Pump design provides superior vacuum capability and volumetric efficiency. **Provides application flexibility and reduces life-cycle costs.**
- Bi-directional pumping design eliminates cost of second pump, piping, and valving needed for loading/unloading or line stripping. **Provides application flexibility and reduces system costs.**
- Combination of Hardened 316 stainless steel casing, PEEK® vanes and push rods, and carbon construction provides broad chemical compatibility. **Enhances application flexibility.**
- High efficiency pump with self-priming, short-term dry-run-capabilities that handles entrained gases. **Provides non-pulsing, low-shear flow.**
- Pressure capabilities to 14 Bar (200 PSI), even on the thinnest liquids. **Permits standardizing on single pump for multiple liquids and applications.**
- LVP series' vane replacement is a 20 minute service item and does not require rotor and shaft removal or detachment of pump from system. **Reduces scheduled downtime, and lowers cost of ownership.**
- Better design with fewer parts reduces maintenance, and commonality of many parts between frame sizes reduces parts stocking needs. **Provides better parts availability and lower cost of ownership.**
- Interchangeable discs may be reversed instead of replaced when worn. **Doubles useful life of parts, for reduced life-cycle cost.**
- Raised-face flange ports, one-piece casing and bracket, and elastomeric O-ring seals on head, relief valve, and seal gland provides improved sealing reliability. **Reduces downtime and cleanup, minimizes chemical exposure.**
- 62 Rockwell C surfaced-hardened stainless steel casing. **Extends casing and vane life, lowering life-cycle costs.**
- PEEK® plastic vanes and push rods. All non-metallic components minimize damage potential that is created by use of metal push rods and metal embedded plastic vanes. **Extends pump life and lowers life-cycle cost.**

- Hard silicon carbide sleeve bearing, standard. **Extends pressure capability, minimizes wear, and lowers life-cycle costs.**
- Hard chrome oxide coated shaft. **Contributes to industry leading pressure capabilities of 200 PSI (14 Bar) and extends pump life, lowering life-cycle costs.**
- Gauge ports standard for easy application of gauges or transducers. **Simplifies installation of local or remote monitoring systems.**
- Top-mounted, adjustable pressure relief valve standard. **Eliminates cost of return-to-tank system. Protects pump from over-pressure.**
- Rotatable casing with motor mount option on two smallest models [to 40 GPM (9 m³/h)]. **Permits horizontal or vertical porting for easier installation.**
- DIN or ANSI standard, opposite porting, allows easy-to-pipe, simple connection to local-standard piping, eliminating adapter leak points. **Reduces costs of installation and maintenance.**
- Motor speed operation up to 80 GPM @ 60-Hz (23 m³/h @ 50Hz) eliminates speed reducer and one shaft alignment, coupling and guard. **Reduces footprint and system cost. Allows quicker, easier installation.**

APPLICATIONS

The LVP series is designed for thin, corrosive industrial liquids, flammable liquids which require corrosion protection and applications where pressures or vacuum requirements exceed other pumps' capabilities.

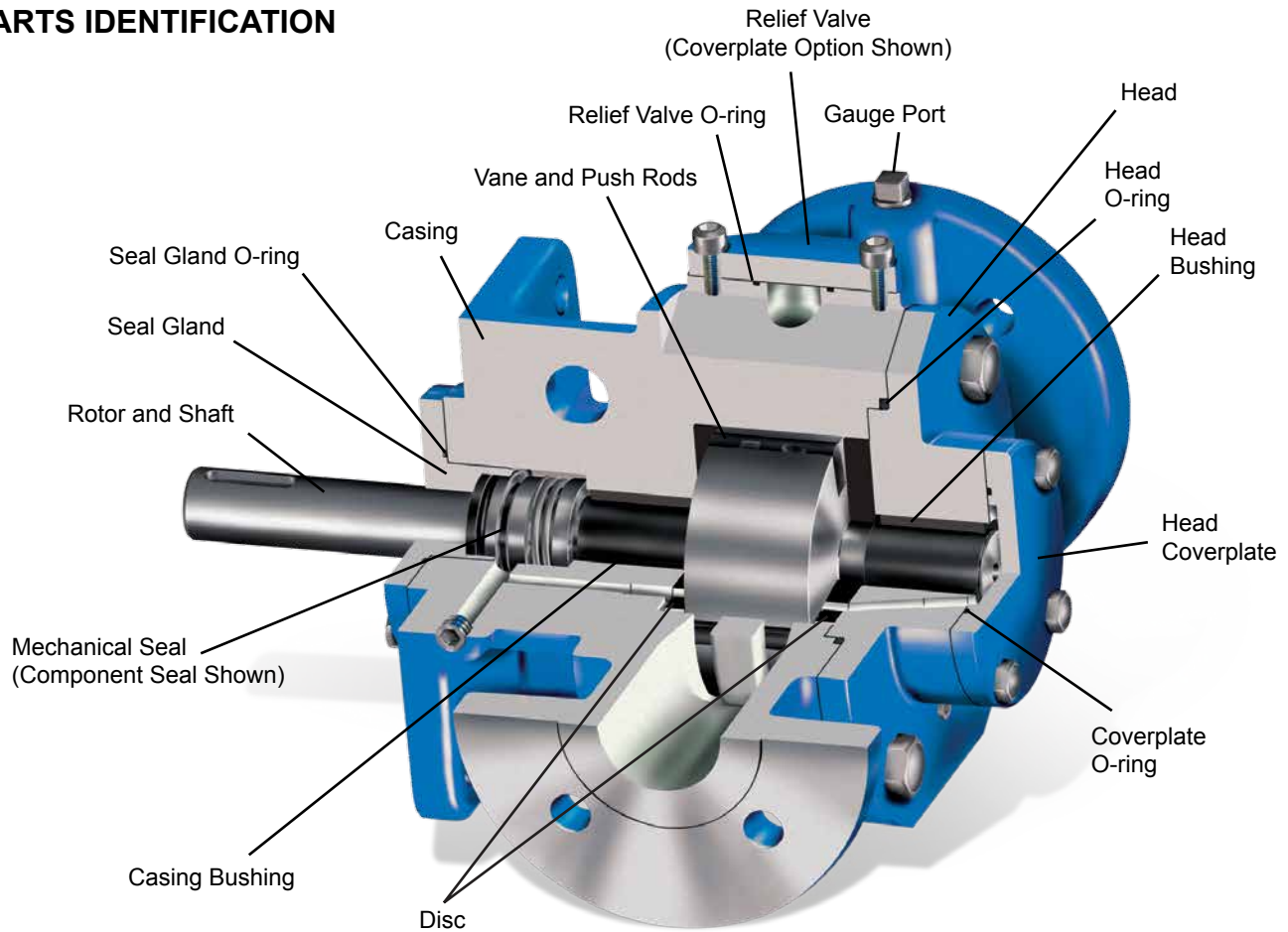
Typical Applications:

- Acids and Alkalis
- Aqueous Solutions
- LPG
- Long suction or discharge line applications
- Refined Fuels
- Alcohols and Solvents
- Hexane, Pentane
- Monomers
- Reactor vessel ingredient metering
- Vacuum vessel service

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PARTS IDENTIFICATION



MODEL NUMBERING SYSTEM

Model numbers for the Viking LVP Series Vane Pump begin with the series designator, seal technology, mounting arrangement and the displacement. The last

number of the series indicates the material of construction for the external components. This is followed by the design standard and drive unit designation.

LVP 4 1 23 7 U - R

LVP = Series

Shaft Sealing:

4 = Mechanical Seal

Mounting Arrangement:

0 = Motor Mount ^①

1 = Footed

Design Standard:

U = Inch

Material of Construction:

7 = 316 Stainless Steel Casing, Head, Rotor, Shaft

Drive Configuration:

M = Motor Mount

D = Direct Drive

R = Reducer Drive

P = Purchased Reducer

Pump Displacement Sizes and Nominal Capacities: ^②

01 Capacity of 20 GPM / 4 m³/h.

02 Capacity of 40 GPM / 9 m³/h.

05 Capacity of 80 GPM / 18 m³/h.

08 Capacity of 100 GPM / 23 m³/h.

19 Capacity of 125 GPM / 29 m³/h.

23 Capacity of 160 GPM / 36 m³/h.

^① Motor Mount available on Displacement sizes 01 and 02 only. ANSI flanged pumps will direct mount to Nema frames 56C, 143/145TC and 182/184TC. DIN flanged pumps will direct mount to IEC B14 frames 90,100,112 and 132. Specify motor frame when ordering.

^② Capacities based on cataloged 60 Hz motor speeds. Metric capacity conversions are based on US GPM and rounded to the nearest whole number.

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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

PUMP CONSTRUCTION

Component	Standard Construction 0° to +275°F (-18° to +135°C)	PTFE Seal Construction 0° to +275°F (-18° to +135°C)	High Temp Construction ① 0° to +350°F (-18° to +177°C)
Casing	Hardened 316 Stainless Steel (ASTM A743 Grade CF8M)	Hardened 316 Stainless Steel (ASTM A743 Grade CF8M)	Hardened 316 Stainless Steel (ASTM A743 Grade CF8M)
Head, Bracket, Relief Valve	316 Stainless Steel (ASTM A743 Grade CF8M)	316 Stainless Steel (ASTM A743 Grade CF8M)	316 Stainless Steel (ASTM A743 Grade CF8M)
Rotor & Shaft Assembly	316 Stainless Steel (ASTM A276)	316 Stainless Steel (ASTM A276)	316 Stainless Steel (ASTM A276)
Shaft Coating (Bushing Area)	Chrome Oxide	Chrome Oxide	Chrome Oxide
Vanes	PEEK® ②	PEEK® ②	High Temperature Carbon Graphite
Push Rods	PEEK® ②	PEEK® ②	Torlon®
Discs	Carbon Graphite	Carbon Graphite	Carbon Graphite
Bushings ③	Silicon Carbide	Silicon Carbide	Carbon Graphite ④
Mechanical Seal	Viton®, Carbon / SiC	PTFE, Carbon / SiC	Viton®, Carbon / SiC
O-rings	Viton®	PTFE	Viton®
Foot Plate ⑤	Stainless Steel	Stainless Steel	Stainless Steel

① Additional operating clearances are needed for temperatures above 275°F. See ES-2.2 for clearance recommendations for higher temperatures.

② The maximum temperature rating for PEEK® material is 275°F.

③ The maximum temperature rating for bushings varies by pump size. Silicon carbide bushings are rated to at least 275°F, and carbon graphite bushings are rated to at least 350°F. See ESB-3 for maximum temperature limit of bushings.

④ Pressures should be limited to 125 PSI when using carbon graphite bushings.

⑤ Foot plate for displacements 01 and 02 is 304 Stainless Steel, ASTM A351 Grade CF-8 (18-8). Foot plate for displacements 05, 08, 19 and 23 is Hardened 316 Stainless Steel (ASTM A 743, Grade CF8M).

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Viton® - Registered Trademark of DuPont Performance Elastomers.

PUMP SPECIFICATIONS - UNMOUNTED PUMPS

Pump Model	Port Size ②		Nominal Capacity at Maximum Rated Speed 22 cSt (100 SSU) Liquid				Max. Pressure ①		Maximum Hydrostatic Pressure		Maximum Recommended Temperature ③		Approximate Shipping Weight ④	
	Inch	DIN Flange	60 Hz Motor Speed		50 Hz Motor Speed ④									
			GPM	RPM	m³/h	RPM	PSI	BAR	PSI	BAR	Deg. F	Deg. C	Lb.	Kg.
LVP40017 LVP41017	1.5	40	20	1750	4	1450	200	14	300	21	275	135	80	36
LVP40027 LVP41027	1.5	40	40	1750	9	1450	200	14	300	21	275	135	80	36
LVP41057	2	50	80	1150	15	950	200	14	300	21	275	135	140	64
LVP41087	2	50	100	950	23	950	200	14	300	21	275	135	140	64
LVP41197	3	80	125	520 ⑤	29	520 ⑤	200	14	300	21	275	135	215	98
LVP41237	3	80	160	520 ⑤	36	520 ⑤	200	14	300	21	275	135	215	98

Viscosity Range: 28 to 2,300 SSU (0.1 to 500 cSt)

① See performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector, for maximum discharge pressures at other viscosities or other speeds. Pressure should be limited to 125 PSI when using carbon graphite bushings.

② Opposite ports suitable for 150# ANSI steel or stainless steel companion flanges or flanged fittings standard, DIN-compatible flanges optional.

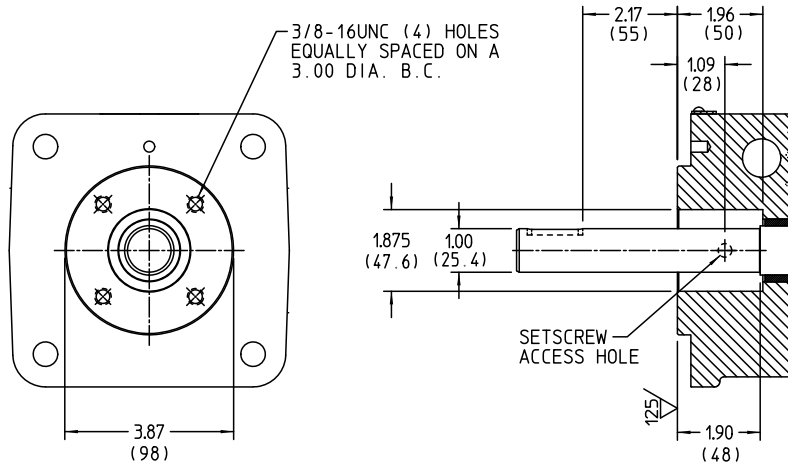
③ Based on standard construction, higher temperatures to 350°F (177°C) can be handled with special construction.

④ Metric conversions are based on US measurements and rounded to the nearest whole metric number.

⑤ 520 RPM is reduced speed.

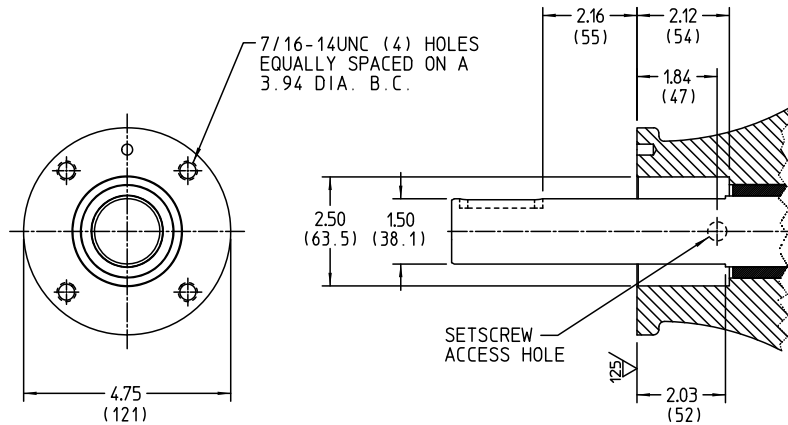
MECHANICAL SEALS

STANDARD STUFFING BOX DIMENSION - DISPLACEMENT SIZES 01 AND 02



* Cartridge seals may not be used on motor-mounted pumps. Use with foot-mount only.

STANDARD STUFFING BOX DIMENSION - DISPLACEMENT SIZES 05, 08, 19 AND 23



Seal Options	Faces	Elastomers
FlowServe Type 52 component single mechanical (standard)	CG/SiC	Viton®
PTFE component single mechanical	CG/SiC	PTFE

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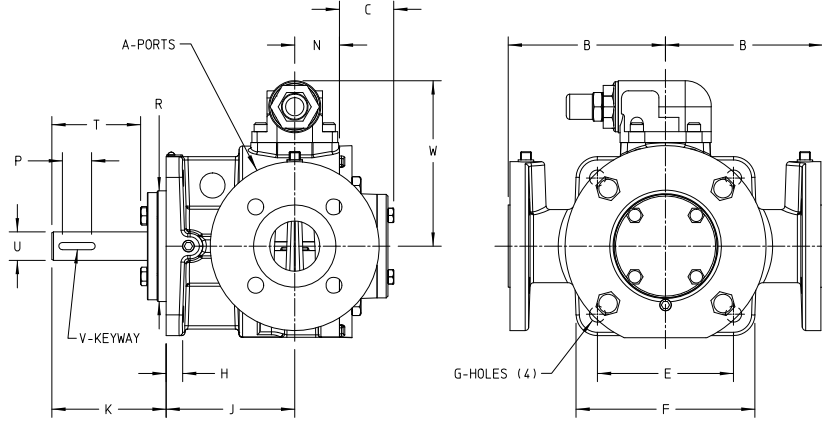
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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

DIMENSIONS PUMP ONLY FOR M-DRIVE MOTOR MOUNT - DISPLACEMENT SIZES 01 & 02



MODEL NO.		① A	B	C	E	F	G	H	J	K	N	P	R	T	② U	② V
LVP40017	IN	1.50	5.50	1.90	4.75	6.25	0.56	0.62	4.50	4.00	1.56	1.02	3.875/3.873	3.11 / *1.63	1.00	.25 X .12
LVP40027	mm	40	140	48	121	159	14	16	114	102	40	26	98.43/98.37	79 / *41	25.4	6.4 X 3.2

* T dimension when using a cartridge seal.

① Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

② 1 inch shaft is used with both ANSI and DIN flanges.

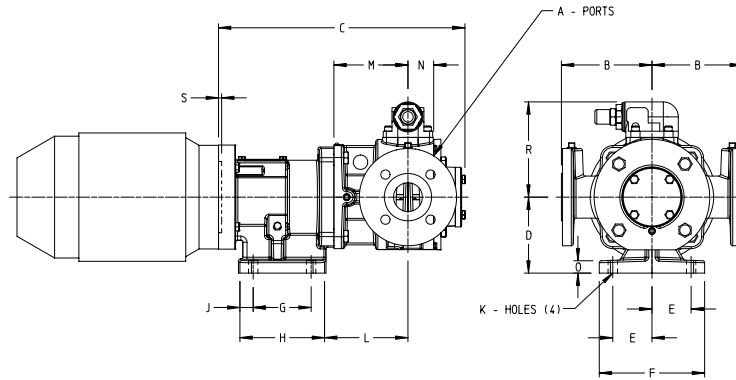
VIKING

Series LVP

STAINLESS STEEL VANE PUMP

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DIMENSIONS FOR IEC MOTOR MOUNT UNIT - DISPLACEMENT SIZES 01 & 02



MODEL NO		① A	B	M	N	R	MOTOR FRAME	C	D	E	F	G	H	J	K	L	O	S
LVP40017U-M LVP40027U-M	IN	1.5	5.50	4.5	1.56	5.79	IEC 90	14.57	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.83	0.75	0.19
	mm	40	139.7	114.3	39.6	147.1		370.08	117.34	60.5	162.6	89.4	130.6	20.6	14.5	122.68	19.0	4.8
	IN	1.5	5.50	4.5	1.56	5.79	IEC 100/112	14.97	4.62	2.38	6.40	3.52	5.14	0.81	0.57	4.98	0.75	0.19
	mm	40	139.7	114.3	39.6	147.1		380.24	117.34	60.5	162.6	89.4	130.6	20.6	14.5	126.5	19.0	4.8
	IN	1.5	5.50	4.5	1.56	5.79	IEC 132	16.12	5.32	2.95	7.48	4.50	6.09	0.80	0.57	5.00	0.75	0.25
	mm	40	139.7	114.3	39.6	147.1		409.4	135.13	74.9	190.0	114.3	154.7	20.3	14.5	127.0	19.0	6.4

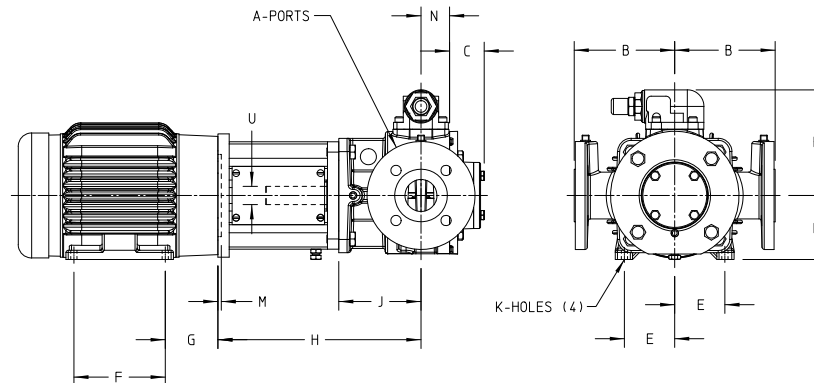
Brackets are designed for IEC motors with a B14 mounting face (non-footed motor).

① Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

Jaw type coupling with straight jaws recommended to facilitate assembly of motor and pump to bracket.

Coupling is guarded with a plate over the opening in the top of the bracket. IEC brackets prior to 11/08 are different dimension - consult factory for drawing.

DIMENSIONS FOR NEMA MOTOR MOUNT UNIT - DISPLACEMENT SIZES 01 & 02



MODEL NO.		A	B	C	J	M	N	R	U	MOTOR FRAME	D	E	F	G	H	K	
LVP40017U-M LVP40027U-M	IN	1.50	5.50	1.90	4.50	0.19	1.56	5.79	1.00	56C	3.50	2.44	3.00	2.56	11.12	.34 SLOT	
										143TC		2.75	4.00			0.34	
										145TC			5.00				
										182TC	4.50	3.75	4.50	3.44	11.81	0.41	
										184TC			5.50				
										213TC			4.31				12.56
										215TC								7.00

Bracket not footed. Use footed NEMA C motor.

Ports are ANSI B16.5 Compatible 150# class raised face flanges.

These dimensions are average and not for construction purposes. Certified prints on request.

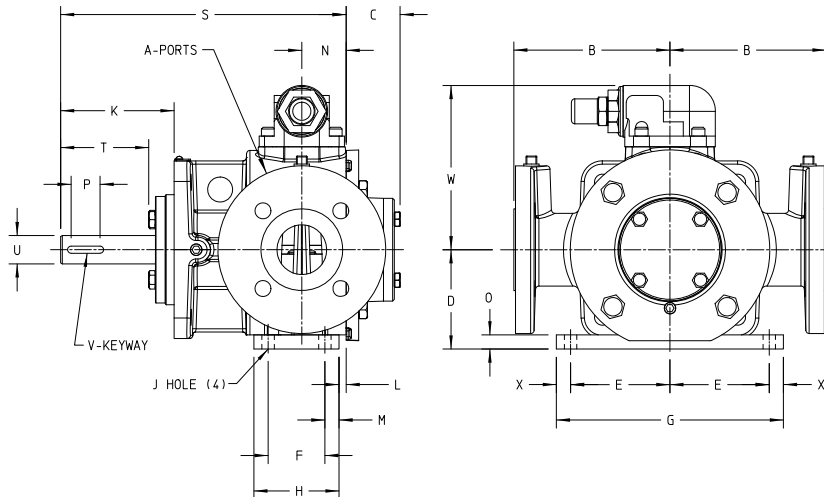
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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

DIMENSIONS FOOTED PUMP ONLY - DISPLACEMENT SIZES 01 & 02



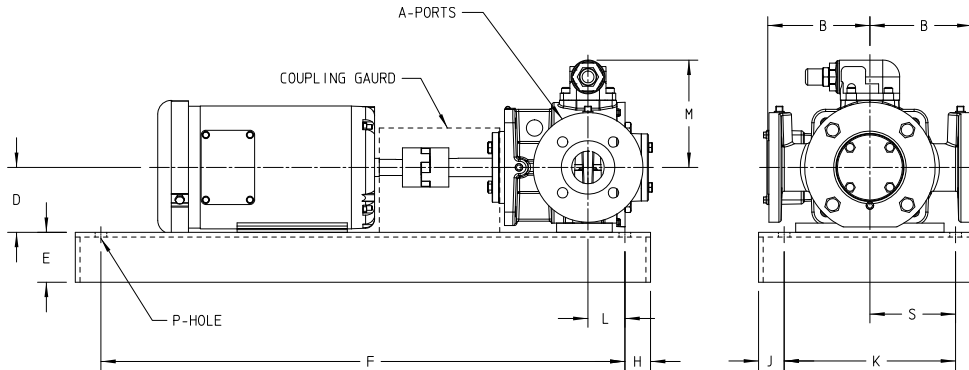
MODEL NO.		① A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	S	T	② U	② V	W	X
LVP41017	IN	1.50	5.50	1.90	3.50	3.50	2.00	8.00	3.00	0.44	4.00	0.25	0.50	1.56	0.50	1.02	10.06	3.11 / *1.63	1.00	.25 X .12	5.79	0.50
LVP41027	mm	40	140	48	89	89	51	203	76	11	102	6	13	40	13	26	256	79 / *41	25.4	6.4 X 3.2	147	13

* T dimension when using a cartridge seal.

① Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

② 1 inch shaft is used with both ANSI and DIN flanges.

DIMENSIONS FOR "D" DIRECT DRIVE UNIT - DISPLACEMENT SIZES 01 & 02



MODEL NO.	MOTOR FRAME		③ A	B	D	E	F	H	J	K	L	M	P	S
LVP41017U-D LVP41027U-D	56 -143T -145T	IN	1.50	5.50	3.50	2.94	29.00	1.00	1.50	9.00	2.38	5.79	0.62	4.50
	182T - 184T				*4.50									
	213T - 215T				*5.25									
	90	mm	40	140	90	75	737	25	38	229	60	147	16	114
	100				*100									
112	*112													
132	*132													

* Dimension includes a block under the pump foot.

③ Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

These dimensions are average and not for construction purposes. Certified prints on request.

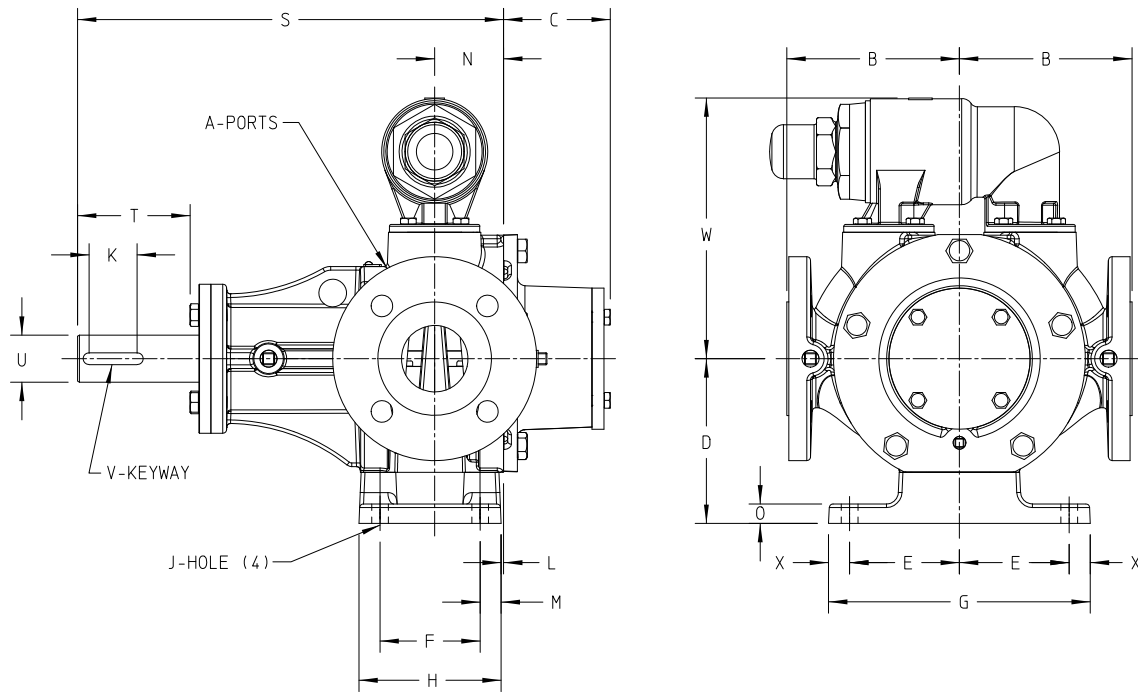
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Series LVP

STAINLESS STEEL VANE PUMP

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DIMENSIONS PUMP ONLY - DISPLACEMENT SIZES 05, 08, 19 & 23



MODEL NO.		ⓐ A	B	C	D	E	F	G	H	J	K	L	M	N	O	S	T	ⓑ U	ⓒ V	W	X
LVP41057 LVP41087	IN	2.00	5.50	3.40	5.25	3.50	3.19	8.34	4.53	0.53	1.53	0.08	0.67	2.20	0.62	13.58	3.59 / *2.06	1.50	.38 X .19	8.31	0.67
	mm	50	140	86	133	89	81	212	115	13	39	2	17	56	16	345	91 / *52	38.1	9.5 X 4.8	211	17
LVP41197 LVP41237	IN	3.00	7.25	3.40	6.10	4.25	4.24	9.72	5.46	0.53	3.03	0.46	0.61	3.04	0.62	16.76	5.09 / *3.56	1.50	.38 X .19	9.28	0.61
	mm	80	184	86	155	108	108	247	139	13	77	12	15	77	16	426	129 / *90	38.1	9.5 X 4.8	236	15

* T dimension when using a cartridge seal

ⓐ Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

ⓑ 1.5 inch shaft is used with both ANSI and DIN flanges.

These dimensions are average and not for construction purposes. Certified prints on request.

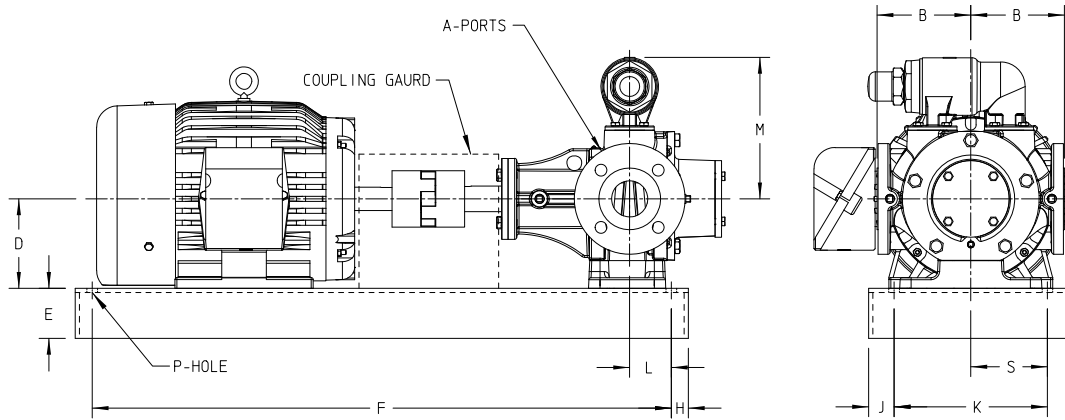
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VIKING

Series LVP

STAINLESS STEEL VANE PUMP

DIMENSIONS FOR FOOTED "D" DIRECT DRIVE - DISPLACEMENT SIZES 05 & 08

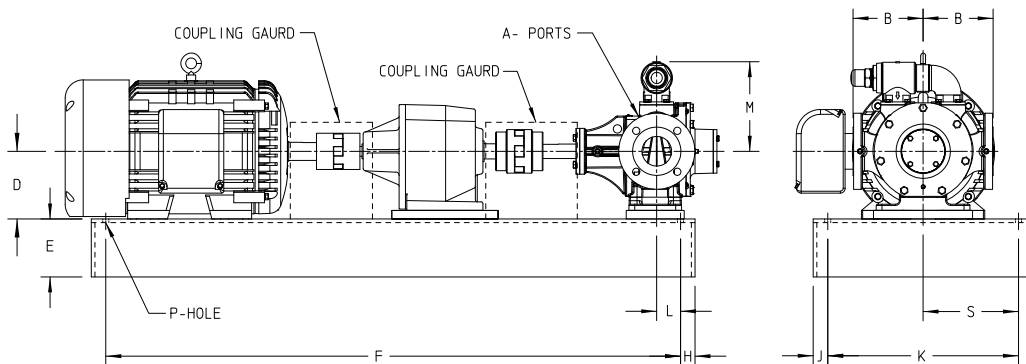


MODEL NO.	MOTOR FRAME		⊙ A	B	D	E	F	H	J	K	L	M	P	S
LVP41057U-D LVP41087U-D	213T - 215T	IN	2.00	5.50	5.25	2.94	34.00	1.00	1.50	9.00	2.45	8.31	0.62	4.50
	254T - 256T				*6.25	4.00	39.00	1.38	1.38	16.00	2.45	8.31	0.62	8.00
	284T - 286T				*7.00									
	132	mm	50	140	*133.4	75	864	25	38	229	62	211	16	114
	160				*180	102	991	35	35	406	62	211	16	203
	180				*200									

* Dimension includes a block under the pump foot.

⊙ Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

DIMENSIONS FOR FOOTED "R" REDUCER DRIVE - DISPLACEMENT SIZES 19 & 23



MODEL NO.	MOTOR FRAME		⊙ A	B	D	E	F	H	J	K	L	M	P	S
LVP41197U-R LVP41237U-R	254T - 256T	IN	3.00	7.25	*6.50	6.00	59.50	1.50	1.50	19.75	2.47	9.28	0.62	9.88
	284T - 286T				*7.00									
	324T - 326T				*8.00									
	160	mm	80	184	*161	152	1511	38	38	502	63	236	16	251
	180				*180									
	200				*200									

* Dimension includes blocks under the pump and reducer.

Blocks are used under the reducer, pump and motor are on the 254T - 256T frame sizes.

⊙ Inch ports are standard ANSI B16.5 - compatible 150# raised face flanges. Metric dimension is for optional DIN 2501 - compatible PN 16/25/40 raised face flanges.

These dimensions are average and not for construction purposes. Certified prints on request.

PERFORMANCE CURVE NOTES

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com for the general public.

INLET CONDITIONS: The performance curves show “Based on 0 (or 10) In.-Hg.” which is Viking’s standard test condition for this pump series. See the NPSH tables provided on the performance curve for vacuum capability.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head-Required by the pump) is provided on the chart below (Table 1). NPSH_A (Net Positive Suction Head-Available in the system) must be greater than NPSH_R.

NPSH_R requirements, based on viscosity and speed are listed on each performance curve.

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

THIN LIQUIDS: The 1 cSt (28 SSU) curves should be used when applying these pumps to such liquids as aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum			Pressure			Capacity		
In-Hg (Inches-Mercury)	kPa* (Kilopascal)	Bar	PSI (Lbf/in ²)	kPa* (Kilopascal)	Bar	GPM (Gal./min.)	L/min. (Liter/min.)	m ³ /hr
1	3.4	.034	1	6.9	.068	1.00	3.8	.23
5	17	.17	25	172	1.72	.26	1	.06
10	34	.34	50	345	3.45	4.403	16.667	1
15	51	.51	100	690	6.90			
20	68	.68	150	1034	10.30			
25	85	.85	200	1379	13.80			
			250	1724	17.25			

* 100 kPa = 1 bar

TABLE 1

PUMP SIZE	PUMP SPEED [RPM]														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
01									4.7	5.3	6.1	7.3	9.0	12.3	16.4
02									4.7	5.3	6.1	7.3	9.0	12.3	16.4
05							6.2	6.9	8.0	9.8	12.4	16.3	21.9		
08							9.8	11.0	13.0	16.0	20.3	26.9			
19			3.2	3.4	3.8	4.5	5.9	8.0	12.5						
23			3.9	4.3	5.0	6.2	8.8	12.6	20.8						

← Catalog Speed Rating

1. NPSHA (Net Positive Suction Head Available) must be greater than the NPSHR (Net Positive Suction Head Required) given in the above table.
2. VISCOSITY - Above chart applies to viscosities up thru 100 SSU. Consult factory or Viking representative for viscosities above 100 SSU.
3. For liquids other than water, divide by specific gravity.

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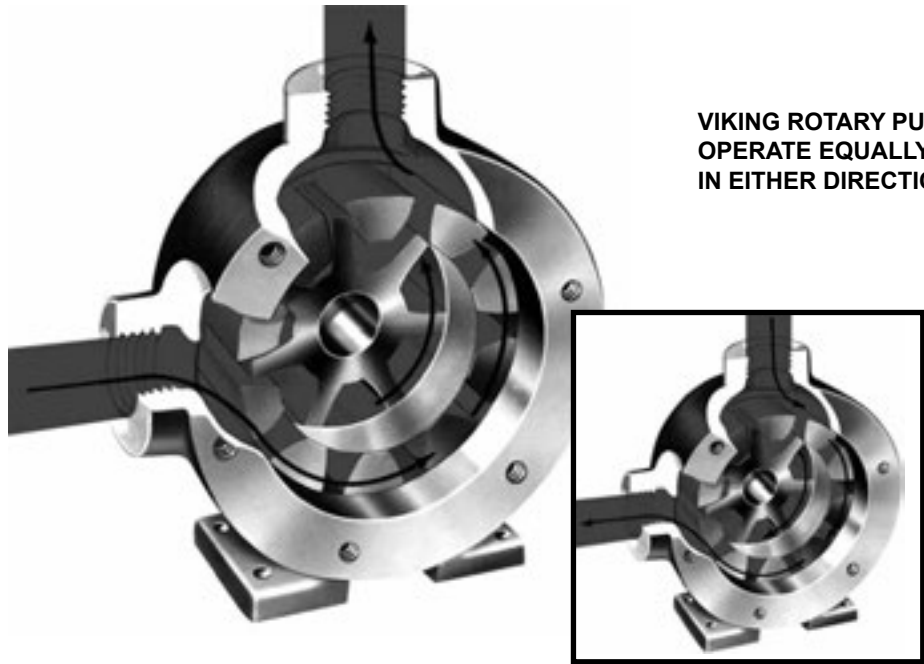
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Viking Engineering Data

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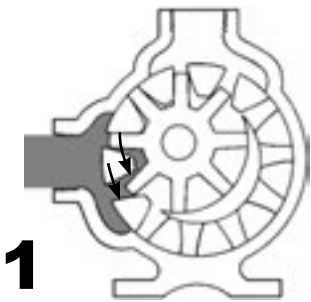
VIKING ENGINEERING DATA



**VIKING ROTARY PUMPS
OPERATE EQUALLY WELL
IN EITHER DIRECTION!**

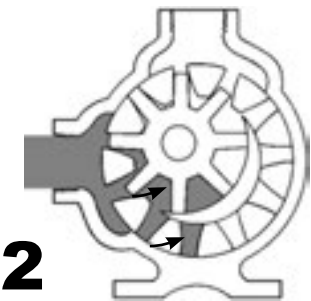
POSITIVE DISPLACEMENT PRINCIPLE AND HOW IT WORKS

Viking's simple "gear-within-a-gear" principle has only two moving parts. It is the secret of dependable, efficient operation of all positive displacement Viking Rotary Pumps. The positive displacement of liquid is accomplished by the complete filling of the spaces between the teeth of the rotor and idler gears. The only limiting factor to peak performance in a Viking Pump, as with all rotary pumps, is that the liquid pumped must be comparatively clean.

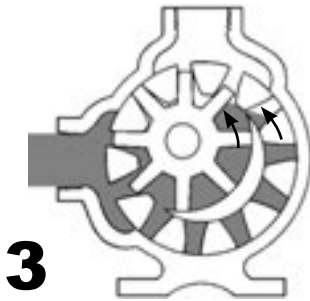


The colored portion at left indicates the liquid as it enters the suction port area of the casing and the area between the rotor teeth and corresponding concave area between the idler teeth. The two black arrows indicate the pump rotation and progress of the liquid.

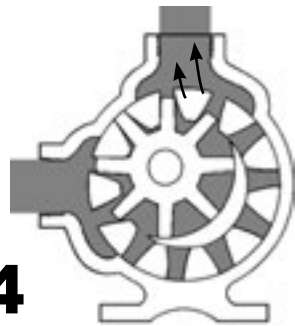
With every revolution of the pump shaft, a definite amount of liquid enters the pump through the suction port. This liquid fills the spaces between the teeth of the rotor and the idler. The crescent on the pump head splits the flow of liquid as it is moved smoothly toward the discharge port. The idler gear, which carries the liquid between its teeth and the inside surface of the crescent, rotates on the pin supported by the pump head. The rotor gear, which carries the liquid between its teeth, travels between the casing and the outside surface of the crescent and is connected to the pump shaft. The four schematic drawings at right give a graphic illustration of flow characteristics through the pump.



Notice the progress of the liquid through the pump and between the teeth of the "gear-within-a-gear" principle. Also, note how the crescent shape on the head divides the liquid and acts as a seal between the suction and discharge ports.



This illustration shows the pump in a nearly flooded condition just previous to the liquid being forced into the discharge port area. Notice how the gear design of the idler and rotor form locked pockets for the liquid so as to guarantee absolute volume control.



This view shows the pump in a completely flooded condition and in the process of discharging the liquid through the discharge port. The rotor and idler teeth mesh, forming a seal equidistant between the discharge and suction ports, forcing liquid out the discharge port.

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ROTARY PUMP FUNDAMENTALS

INTRODUCTION

Before discussing terms used in pumping, first let us consider how a pump “lifts” liquids (See Figure 1). Any liquid at rest in an open container at sea level is subject to atmospheric (absolute) pressure of approximately 14.7 pounds per square inch (psi) which is the same as 0 psi gage pressure. When a pump, located above the liquid level and having a pipe connected to the suction port and extending down into the liquid, is started, the air in the suction line between the liquid and the pump is removed by the pump. This reduces the pressure inside the pump to a point below atmospheric pressure. The atmospheric pressure on the liquid outside the pipe, being greater than the absolute pressure inside the pipe, causes the liquid to rise inside the pipe. If the pump would remove all of the air from the suction line, the liquid inside the pipe could rise to a height of 34 feet (equal to 14.7 psi) for a liquid with a specific gravity of 1.00. In actual practice, this height will be less than 34 feet due to the frictional resistance encountered by the liquid traveling through the pipe and the vapor pressure of the liquid at the pumping temperature (to be discussed later). Pressures below atmospheric are spoken of as vacuum and referred to in units of inches of mercury (in. Hg.)

Definitions

Terms used in this bulletin are discussed here to help one more clearly understand the subject matter.

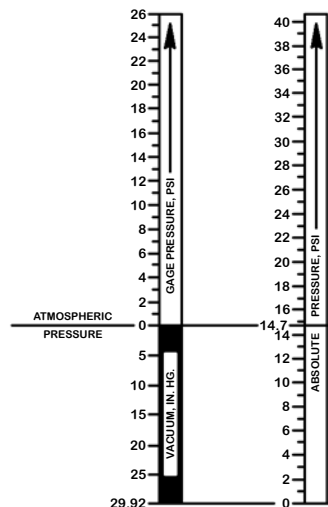


FIG. 1 - Pressure and Vacuum Diagram

HEAD

Units of Measuring Head — For rotary pumps, the common unit of measurement is pound per square inch (psi). For a suction lift, the value is referred to as inches of mercury (in. Hg.). Vertical distance in feet often enters

into the figuring of head, so the following conversions are given:

$$\text{psi} = .49 \times \text{in. Hg.} \\ = \frac{\text{Head in feet} \times \text{specific gravity}}{2.31}$$

$$\text{in. Hg.} = 2.04 \times \text{psi} \\ = \text{Head in feet} \times \text{specific gravity} \times .88$$

$$\text{Head in feet} = \frac{\text{psi} \times 2.31}{\text{Specific Gravity}} \\ = \frac{\text{in. Hg.}}{\text{Specific Gravity} \times .88}$$

Head in feet in the above conversions means head in feet of the liquid pumped. Specific gravity is the weight of any volume of a liquid divided by the weight of an equal volume of water.

Static Suction Lift — is the vertical distance in feet (expressed in psi) between the liquid level of the source of supply and the centerline of the pump when the pump is located *above* the liquid level of the source of supply. See Figure 2, (A).

Static Suction Head — is the vertical distance in feet (expressed in psi) between the liquid level of the source of supply and the centerline of the pump when the pump is located *below* the liquid level of the source of supply. See Figure 2, (B).

Friction Head — is the pressure (expressed in psi) required to overcome frictional resistance of a piping system to a liquid flowing through it. See Figure 2, (D).

Velocity Head — is the energy of the liquid (expressed in psi) due to its rate of flow through the pipe. It can usually be ignored because of its small value compared to the total head value.

Total Suction Lift — is the total pressure *below* atmospheric (expressed in in. Hg. or psi) at the suction port when the pump is in operation and equals:

1. Static suction lift plus the frictional head or
 2. Frictional head minus the static suction head (if frictional head is greater than static suction head)
- See Figure 3.

Total Suction Head — is the total pressure above atmospheric (expressed in psi) at the suction port when the pump is in operation and is equal to the static suction head minus frictional head.

Static Discharge Head — is the vertical distance in feet (expressed in psi) between the centerline of the pump and the point of free delivery of the liquid. See Figure 2, (A), (B), and (C).

Total Discharge Head — is the sum of the frictional head in the discharge line (discharge frictional head) and the static discharge head. See Figure 3.

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VIKING ENGINEERING DATA

ROTARY PUMP FUNDAMENTALS

Total Static Head — is the sum of the static suction lift and the static discharge head or the difference between the static discharge head and the static suction head. See Figure 2, (A), (B) and (C).

Total Dynamic Head — is the sum of the total discharge head and total suction lift or the difference between the total discharge head and total suction head. See Figure 3.

Net Positive Suction Head (NPSH) — is the pressure in feet of liquid absolute measured at the pump suction port, less the vapor pressure. For additional discussion on NPSH, see Application Data Sheet AD-19.

VAPOR PRESSURE*

Vapor Pressure and Units — All liquids will boil or vaporize with the proper combination of temperature and pressure. As the pressure is reduced, boiling will occur at a lower temperature. For example, water boils at atmospheric pressure at sea level (14.7 psi) at 212°F. At an elevation of 10,000 feet the atmospheric pressure is reduced to 10.0 psi and water will boil at 193°F. As boiling takes place, vapor is given off by the liquid.

For most common liquids at room temperature, boiling occurs at pressures below atmospheric pressure. As the pressure on liquids in the suction line is decreased (vacuum increased), a pressure is reached at which the liquid boils. This pressure is known as the vapor pressure of the liquid. If the pressure in the suction line is further decreased (vacuum increased), both vapor and liquid will enter the pump and the capacity of the pump will be reduced. In addition, the vapor bubbles in the pump, when entering the pressure or discharge side of the pump, will be collapsed by the pressure resulting in noise and vibration. The rapid formation of vapor in the suction line and suction port along with their sudden collapse is called cavitation.

For liquids which evaporate readily, such as gasoline, cavitation may occur with only a few inches mercury vacuum while for liquids which do not evaporate readily, such as lubricating oils, cavitation may not occur until a vacuum of 18 inches mercury or higher is reached.

Effect on Pump and Installation — The theoretical height to which a liquid can be lifted at any temperature is the difference between atmospheric pressure and the vapor pressure of the liquid at that temperature, when both values of pressure are expressed in feet of the liquid.

The suction lift practical for actual pumping installations is considerably below the theoretical value given above. Figure 4 has been prepared to show the theoretical suction lift of water and the maximum recommended for water at various temperatures. As elevations above sea level increase, atmospheric pressure decreases and the maximum suction lifts permitted are reduced.

* For additional discussion on Vapor Pressure, see Application Data Sheet AD-19.

As mentioned before, when cavitation occurs in the handling of any liquid, capacity is reduced and the pump may be expected to be noisy and vibrate. With cavitation, the higher the discharge pressure, the more noisy the pump will be.

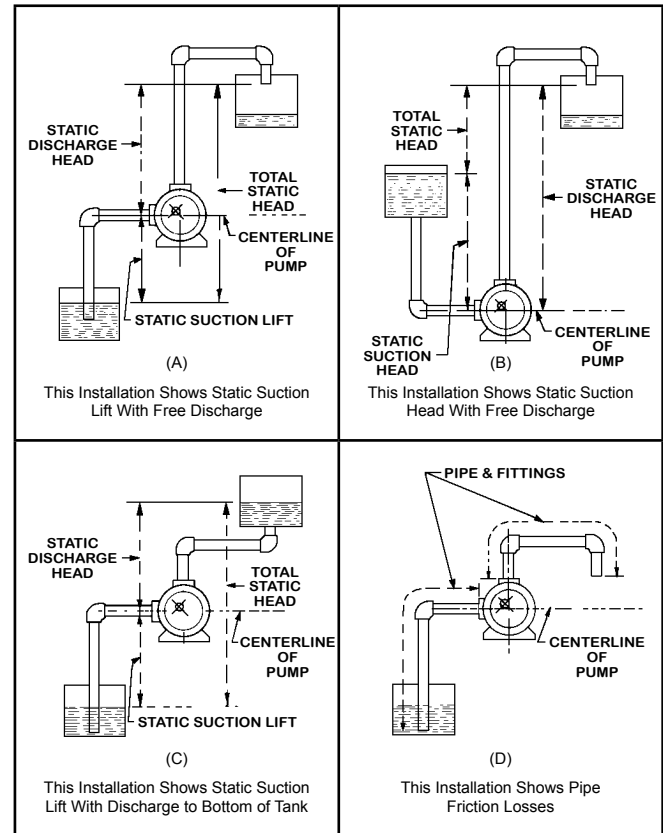


FIG. 2 - Installations Showing Various Suction and Discharge Conditions

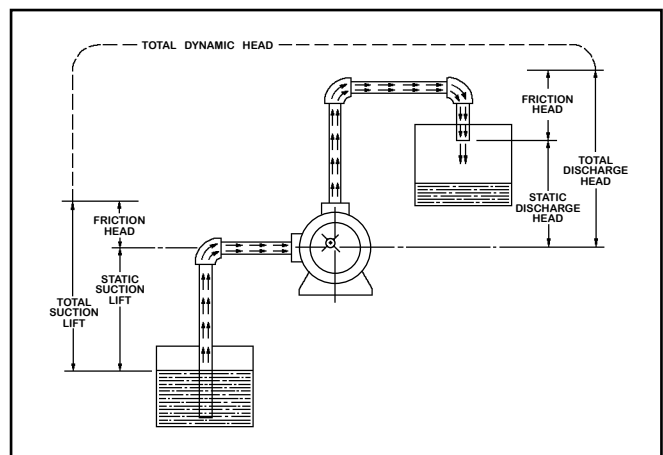


FIG. 3 - Typical Installation Showing Total Dynamic Head

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ROTARY PUMP FUNDAMENTALS

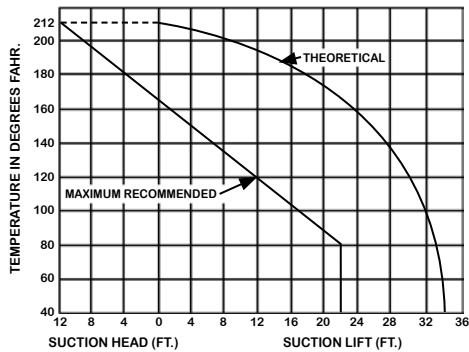


FIG. 4 - Theoretical and Maximum Recommended Suction Lift for Water at Various Temperatures °F.

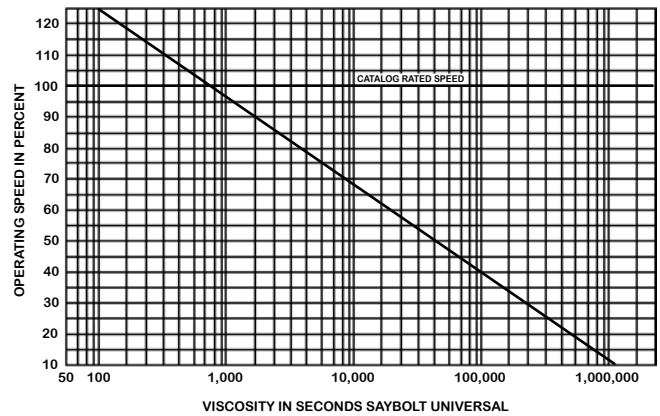


FIG. 5 - Percentage of Rated Speed for Viscous Liquids

VISCOSITY

Viscosity and Units — Viscosity may be defined as the resistance of a fluid to flow. In the United States the most widely used instrument for measuring viscosity is the Saybolt Universal viscosimeter. In this instrument, adopted by the American Society for Testing Materials, the time required for a given quantity of fluid to flow through a capillary tube is measured. This time, in seconds, gives a result in terms of Seconds Saybolt Universal (SSU). For high viscosities, a Saybolt Furool viscosimeter is used that gives a result in terms of Seconds Saybolt Furool (SSF). $SSF \times 10 = SSU$. Conversions from other viscosity units to SSU are shown in Figure 6 on the following page.

Effect on Pump Installation — The viscosity of the liquid is a very important factor in the selection of a pump. It is the determining factor in frictional head, motor size required and speed reduction necessary. Frequently, for high viscosity liquids, it is more economical to use a large pump operating at a reduced speed since the original higher total installation cost is more than offset by reduced maintenance and subsequent longer life of the unit. Figure 5 shows the percentage of rated speed used for pumping liquids of various viscosities.

Compared to other types of pumps, the rotary pump is best able to handle high viscosity liquids. The following tabulation shows the approximate maximum viscosity liquids that can be handled with various type pumps:

Centrifugal.....	3,000 SSU
Reciprocating.....	5,000 SSU
Rotary.....	2,000,000 SSU

The theoretical maximum allowable static suction lift is equal to 14.7 psi minus the frictional head. If the frictional head is high, an increase in suction piping size and port size will reduce the frictional head and allow a greater static suction lift. On high viscosity liquids, the reduction of pump speed will also reduce frictional head and allow a greater static suction lift.

Under some conditions, with high viscosity liquids, it may be better to relocate the pump to obtain a static suction head rather than to have a static suction lift. This relocation will help guarantee filling of the tooth spaces of the idler and rotor during the time they are exposed to the suction port and result in improved pump performance.

For additional discussion on Viscosity and its effect on Pump Selection, see Application Data Sheet AD-3.

CAPACITY

Capacity Units — The capacity is measured in terms of US gallons per minute or gpm.

HORSEPOWER AND EFFICIENCY

Horsepower and Units — The work required to drive the pump or the power input is designated as brake horsepower or P_{in} . Power output or P_{out} may be computed by the formula:

$$P_{out} = \frac{\text{gals. per min.} \times \text{total dynamic head in psi}}{1715}$$

Friction in the pump is the main loss of power so that the power output is always less than the power input.

Pump efficiency is defined as power output divided by power input or:

$$\text{Efficiency} = \frac{P_{out}}{P_{in}}$$

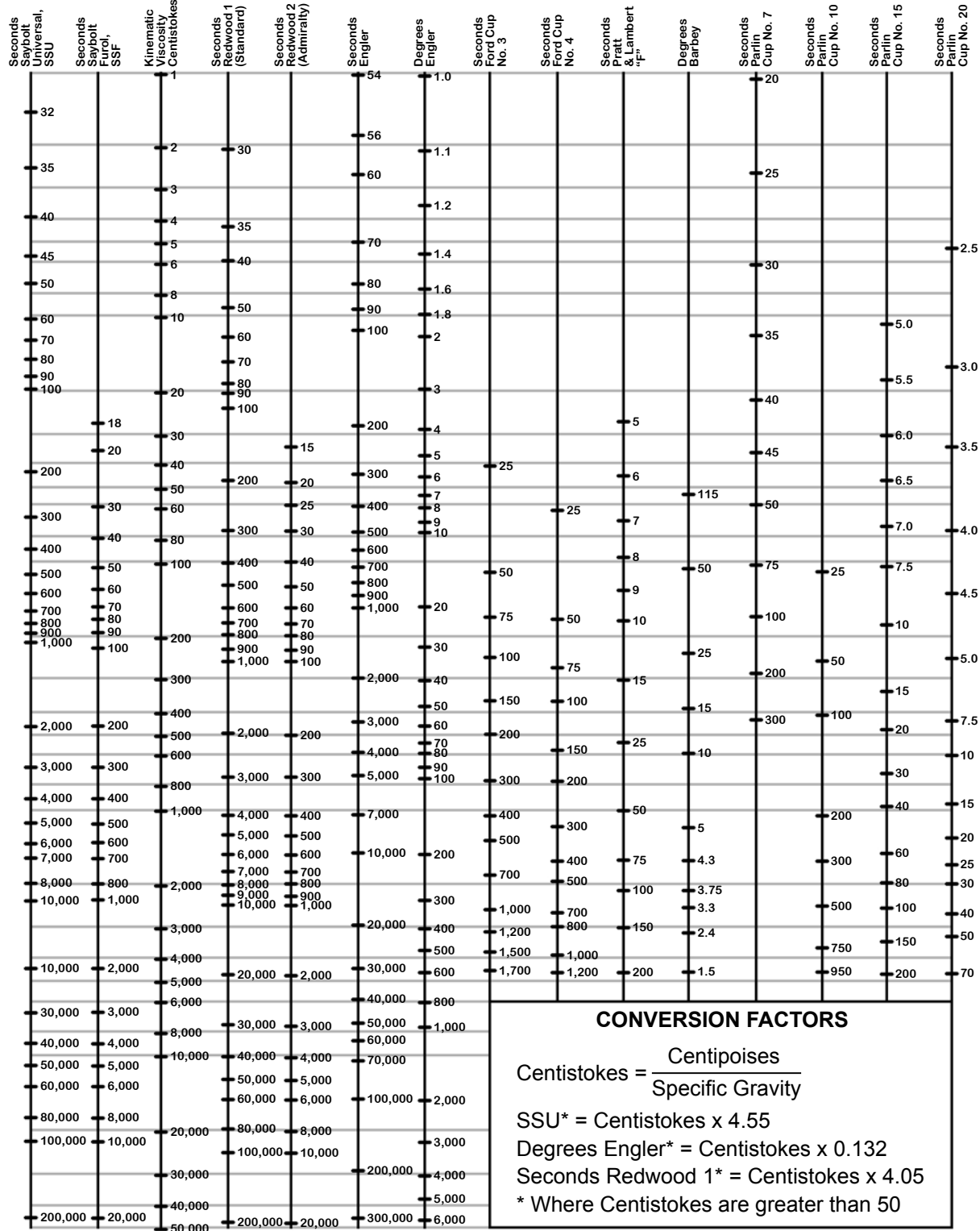
$$P_{in} = \frac{\text{gals. per min.} \times \text{total dynamic head in psi}}{1715 \times \text{Efficiency}}$$

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VIKING ENGINEERING DATA

ROTARY PUMP FUNDAMENTALS

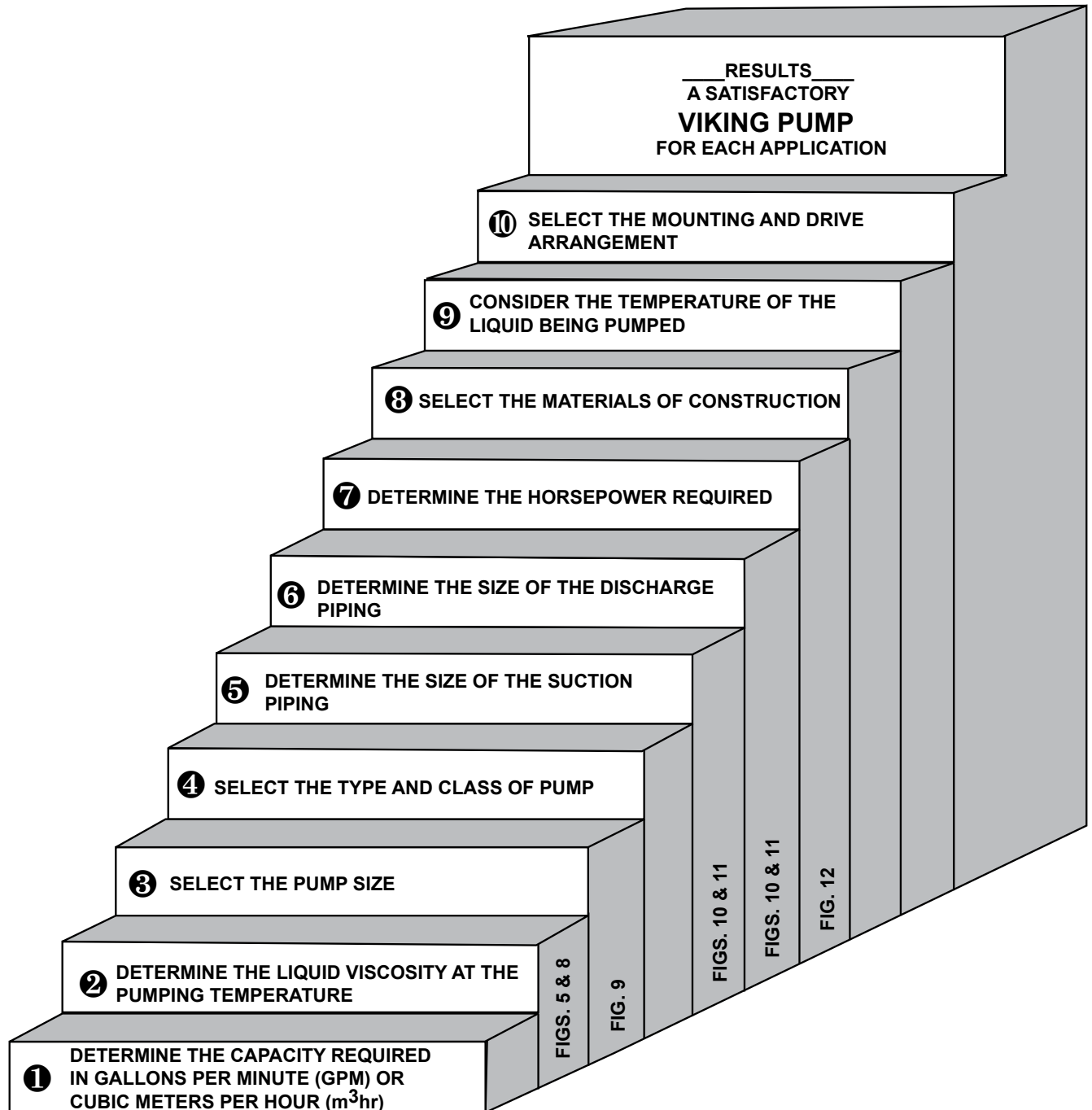
FIG. 6 - VISCOSITY CONVERSION CHART



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SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS



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VIKING ENGINEERING DATA

SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

FOREWORD

The purpose of this section “Selecting the Correct Viking Pump in 10 Easy Steps” is to provide a means of systematically arriving at the proper final pump selection with a minimum of effort. Reference to the terms defined in the “Introduction” will aid in understanding this section. Consult the factory when in doubt on any point in the selection of a pump.

To aid in following the explanation, an example problem is given below. The example problem will be followed through each of the “Ten Easy Steps” and the selection of the proper pump for the application will be given.

Example: (See FIG. 7)

A canning factory desires to add syrup to a cooking kettle at the rate of 448 pounds of syrup per minute. The syrup must be taken from a basement storage tank and delivered to the cooking kettle located on the third floor. The basement temperature will reach a minimum of 60°F. at which temperature the syrup will have a viscosity of 3,000 SSU. The specific gravity of the syrup at 60°F. is 1.36. For a liquid of this viscosity, the pump would usually be located in the basement below the storage tank, however, space limitations prevent this and the pump must be located on the first floor. The desired piping arrangement and dimensions are shown on Figure 7. Select the proper size pipe and pump unit for this application.

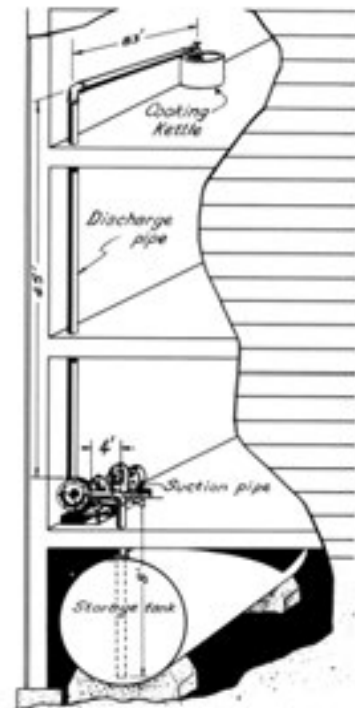


FIG. 7 - Installation for Example Problem

STEP 1

Determine the Capacity Required in Gallons Per Minute

Since desired capacity is not always known in terms of gallons per minute, a few common conversions are listed below:

$$\begin{aligned} \text{US gpm} &= .7 \times \text{barrels per hour (bph)} \\ &= .0292 \times \text{bbls. per day (bpd)} \\ &= \frac{\text{pounds per hour}}{\text{specific gravity} \times 500} \\ &= 1.2 \times \text{Imperial GPM} \end{aligned}$$

One barrel is considered to contain 42 US or 35 Imperial Gallons. For other volumetric conversions, see Page 22.

Example:

The capacity required in gallons per minute is given by the formula:

$$\text{US GPM} = \frac{\text{pounds per hour}}{\text{specific gravity} \times 500}$$

$$\text{US GPM} = \frac{448 \times 60}{1.36 \times 500}$$

$$\text{US GPM} = 40$$

STEP 2

Determine the Liquid Viscosity at the Pumping Temperature (Lowest)

Viscosities of some common liquids are listed in Figure 8 to aid in the viscosity determination of the liquid pumped. For conversion to SSU from other units of viscosity measurement, refer to Figure 6.

If it is impossible to determine the liquid viscosity, a sample of the material may be sent to Viking Pump, Inc., Cedar Falls, Iowa, where an accurate viscosity determination will be made in the laboratory. A minimum of one pint of liquid is needed for this purpose. In submitting a sample, always specify the temperature at which the liquid will be pumped.

Example:

The viscosity, in SSU, of the syrup is given.
SSU = 3,000

STEP 3

Select the Pump Size

When the capacity required in gpm and the viscosity in SSU at the pumping temperature are known, the proper size pump can be selected from Figure 9.

Note: Figure 9 is presented as an illustrative example, only.

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SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

FIG. 8 - APPROXIMATE VISCOSITIES & SPECIFIC GRAVITIES OF COMMON LIQUIDS

LIQUID	Specific Gravity	Temp., °F.	Viscosity SSU	Temp., °F.	LIQUID	Specific Gravity	Temp., °F.	Viscosity SSU	Temp., °F.	LIQUID	Specific Gravity	Temp., °F.	Viscosity SSU	Temp., °F.
Asphalt Virgin*	1.03	60	7,500	250	No. 2 Fuel Oil*	.88	60	43	70	Rosin	.98	60	1,500	100
Blended RC-1, MC-1 or SC-1*	1.0	60	2,000	300	No. 3 Fuel Oil*	.88	60	37	100	Sesame	.92	60	600	130
RC-3, MC-3 or SC-3*	1.0	60	3,700	100	No. 5A Fuel Oil*	.88	60	40	100	Soya Bean	.94	60	190	100
RC-5, MC-5 or SC-5*	1.0	60	1,100	122	No. 5B Fuel Oil*	.88	60	36	130	Turpentine	.86	60	110	130
Gasoline	.71	70	9,000	122	No. 6 Fuel Oil*	.88	60	90	100	Syrups				
Glucose*	1.4	60	3,700	140	SAE No. 10*	.91	60	250	100	Corn*	1.43	100	250,000	100
Glycerine	1.25	70	4,500	180	SAE No. 30*	.91	60	175	130	Sugar	1.29	60	30,000	130
Glycol:			7,500	150	SAE No. 50*	.91	60	200	100	(60 Brix)	1.30	60	230	70
Propylene	1.04	70	3,000	70	SAE No. 70*	.91	60	105	130	(62 Brix)	1.31	60	90	100
Triethylene	1.13	70	800	100	SAE No. 90 (Trans.)*	.91	60	490	100	(64 Brix)	1.32	60	300	70
Diethylene	1.12	70			SAE No. 140 (Trans.)*	.91	60	220	130	(66 Brix)	1.34	60	110	100
Ethylene	1.13	70			SAE No. 250 (Trans.)*	.91	60	1,300	100	(68 Brix)	1.35	60	450	70
Milk	1.03	70			Vegetable Castor	.97	60	90	210	(70 Brix)	1.36	60	150	100
Molasses "A"	1.43	60	12,000	100	China Wood	.94	160	2,700	100	(72 Brix)	1.37	60	650	70
"B"	1.45	60	4,500	130	Coconut	.93	60	140	210	(74 Brix)	1.38	60	200	100
"C"	1.48	60	33,000	100	Corn	.92	60	400	130	(76 Brix)	1.39	60	1,000	70
(Blackstrap)			9,000	130	Cotton Seed	.90	60	1,300	100	Tar			400	100
Petroleum			130,000	100	Linseed, Raw	.93	60	160	210	Coke Oven*	1.12	60	2,700	70
Crude (Penn.)*	.82	60	40,000	130	Olive	.92	60	1,300	100	Gas House*	1.24	60	650	100
Crude (Texas)	.85	60	60	100	Palm	.92	60	500	130	Road RT-2*	1.07	60	1,000	100
Crude (Okla.)*	.87	60	130	60	Peanut	.92	60	1,400	70	RT-6*	1.09	60	150,000	70
Crude (Wyo. Mont.)*	.87	60	60	100				600	100	RT-10*	1.14	60	11,000	100
Crude (Calif.)*	.85	60	400	60				140	130	Water	1.0	60	250	122
No. 1 Fuel Oil*	.88	60	120	100				50	212				60	212
			180	100				100	130				1,500	122
			2,600	60				140	100				110	212
			380	100				90	130				40,000	122
			37	70				200	100				300	212
			34	100				110	130				32	70

* Values given are average values and the actual viscosity may be greater or less than the value given.

It includes some of the Pump sizes which cover the entire capacity range that can be handled by Viking Pumps.

Viking's varied product line occasionally offers an alternate choice of pump sizes depending upon the application and the type of pump desired.

Refer to the Viking Pump Selector Program, located at www.vikingpump.com/pumpselector, for complete performance data and specifications on particular pump models, series and sizes.

- Locate the capacity required along the left edge of the chart.
- Locate the viscosity of the liquid along the bottom edge of the chart.
- Follow the capacity line horizontally and the viscosity line vertically until they intersect.
- The zone in which these lines intersect denotes the correct size pump for the application.
- If the point of intersection of the capacity and viscosity lines lies to the right of the solid vertical line A-A, a steel fitted pump or one of equal strength must be used. Intersection points to the left of the line A-A indicate a pump of standard construction may be used.

Following the example below, using Figure 9 on Page 10, the intersection of 40 GPM and 3,000 SSU falls in the zone of a K size pump.

Example: (Dotted Line)
Viscosity, SSU **3,000**
Capacity, GPM **40**
Basic Pump Size **K**

STEP 4

Select the Type and Class of Pump

After the pump size has been determined, the choice of a type of pump will depend on several factors.

To serve the needs of all industries and pump users, Viking pumps are grouped by types to serve the numerous needs of the users. These pump types, together with pressure limitations are to be found in the catalog.

As the name implies, General Purpose pumps are used for normal duty operation and where pressures are not excessive. For continuous duty at higher pressures, the Heavy-Duty pump fulfills the job.

The liquid handled is often instrumental in the selection of a type of pump. Milk should be handled by a Sanitary pump, propane by an LP Gas pump, etc.

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VIKING ENGINEERING DATA

SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

PUMP SIZE SELECTION DIAGRAM

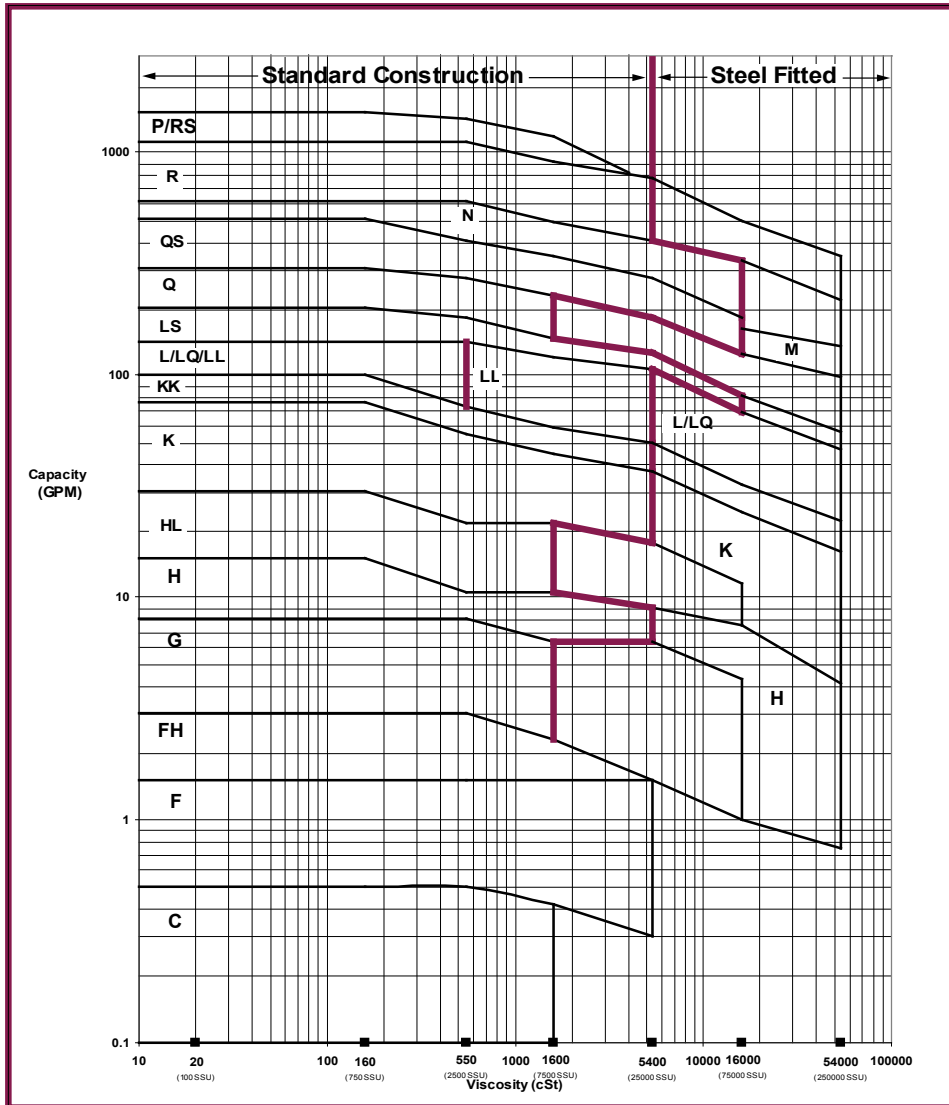


FIG. 9

VIKING MODEL NUMBER SYSTEM

The Viking Model Number System hinges on a number of basic letters which stand for the pump size or capacity.

These letters are as follows and most appear in the chart above.

Pump Letter Size	C	F	FH	G	GG	H	HJ	HL	AS	AK	AL	K	KK	L or LQ	LL	LS	Q	M	QS	N	R	P	RS
GPM	1/2	1 1/2	3	5	10	15	20	30	50	50	75	75	100	135	140	200	300	420	500	600	1100	1500	1600
RPM	1800	1800	1800	1200	1800	1800	1800	1800	1800	1200	1200	780	780	640	520	640	520	420	520	350	280	230	280

NOTE: Nominal capacities and rated speeds may vary depending upon pump series.

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SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

For clean liquids of low to medium viscosities at low to medium temperatures, the mechanical seal pumps are desirable. Packed pumps with special packing are usually recommended for applications involving high temperatures, high viscosities. Pumps with special wear resistant features are available for handling liquids containing abrasive particles.

Insurance Underwriters or city or state law requirements may determine the choice of an Underwriters Approved pump when handling flammable liquids.

Example:

Two types of pumps could be selected, the General Purpose or the Heavy-Duty. For long life and continuous duty, the Heavy-Duty pump would be the choice. The final decision, in this case, need not be made until the total discharge head is calculated.

STEP 5

Determine the Size of the Suction Piping

The use of ample size suction piping is a prime requirement of a good installation. This is especially true for viscous liquids, previously discussed under the heading "Viscosity."

When considering the suction side of a pump installation, reference is often made to Net Positive Suction Head (NPSH) which was defined in the fundamentals section.

NPSH is the energy that forces liquid into the pump.

Determining the Net Positive Suction Head *Available* (NPSHa) on an existing pumping system involves measuring the absolute pressure at the suction port by means of a gage and subtracting the liquid's vapor pressure at the pumping temperature. To calculate NPSHa for an existing or proposed installation, determine the absolute pressure above the source of liquid, add the suction head or subtract the suction lift, subtract the piping friction losses and the liquid's vapor pressure. Remember all measurements and calculations are expressed in feet of liquid pumped.

For a given pump with specific operating conditions a minimum value of NPSH is required to assure desirable full flow operation. This is referred to as the Net Positive Suction Head *Required* (NPSHr) for the pump and can be determined only by closely controlled testing.

If the NPSHa on a proposed installation does not exceed the NPSHr, the pump may operate in a "starved" condition or will cavitate, as discussed previously. The effects of such a condition may vary from a slight reduction in expected capacity to serious vibration, extremely noisy operation and/or abnormal wear.

Many Viking pumps are called upon to operate with marginal suction conditions and do so successfully. Frequently it is possible to obtain pumps with oversize ports to aid in reducing NPSHr.

Determining NPSHr values for Viking pumps, over the wide range of speeds and viscosities they are used for, is a large undertaking and a great deal of NPSHr data has been and continues to be, accumulated. However, the following discussion is intended as a general guideline and refers to allowable vacuum gage readings in in. Hg. which is in keeping with rotary pump application traditions.

Since many pump application problems are related to the suction side of the pump, it is always good to practice to pay particular attention to this portion of the proposed installation. Feel free to contact your Viking distributor, Viking sales representative or the factory for answers to questions you may have regarding this matter.

For ideal pumping conditions, the total suction lift should never exceed 15 in. Hg. when pumping non-volatile liquids (See "Vapor Pressure"). For volatile liquids, the total suction lift should never exceed 10 in. Hg., becoming less as the vapor pressure of the liquid increases.

Considering non-volatile liquids, the static suction lift, in psi, must first be subtracted from the allowable 15 in. Hg. (7.4 PSI)* to obtain the *allowable PSI friction head for the suction line (A)*.

Referring to Figure 10, determine if the flow of liquid in the suction piping will be laminar or turbulent by following the capacity line horizontally and the viscosity line vertically until they intersect.

For laminar flow, disregard friction losses for fittings and valves. Divide the *allowable PSI friction head for suction line (A)* by the total length of suction pipe to obtain the *maximum allowable loss in PSI per foot of suction pipe for laminar flow (B)*. From Figure 10, select the pipe size having a per foot friction loss less than the *maximum allowable loss per foot of suction pipe for laminar flow (B)*.

For turbulent flow, assume the suction port size as the proper size suction pipe and determine the equivalent lengths of straight pipe for the valves and fittings from Figure 11. Add these values to the length of straight suction pipe to obtain the *total equivalent length of straight suction pipe (C)*. Divide the *allowable PSI friction head for suction line (A)* by the *total equivalent length of straight suction pipe (C)* to obtain the *maximum allowable PSI loss per foot of suction pipe for turbulent flow (D)*. If the *maximum allowable PSI loss per foot of suction pipe for turbulent flow (D)* is greater than the value given in Figure 10, the correct size suction pipe has been selected. If the *maximum allowable PSI loss per foot of suction pipe for turbulent flow (D)* is less than the value given in Figure 10, repeat the above process for the next larger pipe size until the *maximum allowable PSI loss per foot of suction pipe for turbulent flow (D)* becomes greater than the value given in Figure 10 for the pipe size checked.

*See * on page 510.12

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SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

**FRICITION LOSS IN STANDARD VALVES AND FITTINGS
TABLE GIVES EQUIVALENT LENGTHS IN FEET OF STRAIGHT PIPE**

TYPE OF FITTING	NOMINAL PIPE DIAMETER													
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	
Gate Valve (open)	.35	.50	.60	.80	1.2	1.2	1.4	1.7	2.3	2.8	3.5	4.5	5.7	
Globe Valve (open)	17	22	27	38	44	53	68	80	120	140	170	220	280	
Angle Valve (open)	8	12	14	18	22	28	33	42	53	70	84	120	140	
Standard Elbow	1.5	2.2	2.7	3.6	4.5	5.2	6.5	8.0	11.0	14	16	21	26	
Medium Sweep Elbow	1.3	1.8	2.3	3.0	3.6	4.6	5.5	7.0	9.0	12.0	14.0	18.0	22.0	
Long Sweep Elbow	1.0	1.3	1.7	2.3	2.8	3.5	4.3	5.2	7.0	9.0	11.0	14.0	17.0	
Tee (straight thru)	1.0	1.3	1.7	2.3	2.8	3.5	4.3	5.2	7.0	9.0	11.0	14.0	17.0	
Tee (right angle flow)	3.2	4.5	5.7	7.5	9.0	12.0	14.0	16.0	22.0	27.0	33.0	43.0	53.0	
Return Bend	3.5	5.0	6.0	8.5	10.0	13.0	15.0	18.0	24.0	30.0	37.0	50.0	63.0	

For other values, see page 26.

FIG. 11

STEP 6

Example:

Since sugar syrup may be considered non-volatile, a total suction lift of 15 in. Hg. (7.4 PSI) may be used. Considering a minimum amount of syrup in the storage tank, the static suction lift is eight feet of syrup. This equals $\frac{8 \times 1.36}{2.31}$ or 4.7 PSI. The allowable PSI friction head is then 7.4 PSI – 4.7 PSI, or 2.7 PSI. Referring to figure 10, for 40 GPM and 3,000 SSU, the flow is indicated to be laminar and no losses need to be taken into account for the valves and fittings. The allowable friction head (A) divided by the total length of suction pipe is equal to $\frac{2.7}{12}$ or .225 PSI per foot of suction pipe (B), the maximum allowable loss per foot of suction pipe. From figure 10, for 40 GPM and 3,000 SSU, the pipe size having a per foot friction loss less than .225 PSI is 3 inch which has a loss of .111 PSI per foot of pipe (Loss equals .082 times the specific gravity of the syrup 1.36 or .111 PSI per foot).

“K” size pumps are furnished as standard with casings featuring 2 inch tapped ports so it will be necessary to use a 3 inch x 2 inch reducing coupling at the pump suction port with the remainder of the piping being 3 inch size.

Having determined the size of the suction pipe, the total suction lift may be determined by adding the static suction lift and friction head or:

Static suction lift 4.7 PSI
Friction head (.111 PSI per foot x 12 feet)... 1.33 PSI
Total suction lift 6.03 PSI

This value is less than the allowable 7.4 PSI Total Suction lift illustrating that the selection of 3 inch suction pipe is correct.

The total suction lift will be used later to help determine the horsepower required to drive this pump.

* For a static suction head (pump below the liquid source) the value of the static suction head should be added to the 15 in. Hg. or 7.4 PSI allowable.

Determine the Size of the Discharge Piping

The method of selection of the proper size discharge pipe is much the same as the method used in the selection of the proper size suction pipe. In the choice of the suction pipe size, the maximum allowable vacuum (15 in. Hg. or 7.4 PSI for non-volatile liquids) is used as the basis of calculations. For the discharge pipe, the maximum allowable discharge pressure value for the type of pump selected (See Step 4) is used as the basis of calculations.

The static discharge head, in PSI, is first subtracted from the maximum allowable discharge pressure to obtain the *allowable PSI friction head for the discharge line (E)*.

Since the suction and discharge pipe may be of different size, it is again necessary to determine if the flow will be laminar or turbulent in the discharge piping. Proceed as in Step 5, using first a pipe size equal to the discharge port size.

For laminar flow, disregard losses for fittings and valves. Divide the *allowable PSI friction head for discharge line (E)* by the total length of discharge pipe to obtain the *maximum allowable PSI loss per foot of discharge pipe for laminar flow (F)*. If the *calculated maximum allowable loss (F)* is less than the value given in Figure 10 for the discharge port size, check larger pipe sizes until the pressure loss value given is less than (F).

For turbulent flow, using a pipe size equal to the discharge port size, determine the equivalent lengths of straight pipe for the valves and fittings from Figure 11. Add these values to the length of straight discharge pipe to obtain the *total equivalent length of straight discharge pipe (G)*. Divide the *allowable PSI friction head for discharge line (E)* by the *total equivalent length of straight discharge pipe (G)* to obtain the *maximum allowable PSI loss per foot of discharge pipe*

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SELECTING THE CORRECT VIKING PUMP — IN 10 EASY STEPS

FIG. 10 (Continued)

PRESSURE LOSSES FROM PIPE FRICTION

(New Schedule 40 Steel Pipe)

Loss in Pounds Per Square Inch Per Foot of Pipe*

GPM	PIPE SIZE	VISCOSITY, SSU												
		15,000	20,000	25,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000	150,000	250,000
120	3	1.2	1.6	2.0	2.5	3.2	4.0	4.9	5.8	2.5	7.5	8.0		
	4	.40	.53	.70	.84	1.1	1.4	1.7	2.0	2.2	2.5	2.8	4.0	7.0
	6	.080	.10	.13	.15	.21	.26	.31	.36	.41	.47	.52	.80	1.3
	8	.023	.035	.045	.055	.072	.090	.11	.13	.14	.16	.18	.23	.45
140	3	1.4	1.9	2.4	2.9	3.8	4.7	5.8	6.8	7.6	8.5	9.5		
	4	.47	.62	.81	.99	1.3	1.6	2.0	2.3	2.5	2.8	3.2	4.7	8.1
	6	.091	.12	.15	.18	.25	.30	.36	.42	.48	.55	.60	.81	1.5
	8	.031	.042	.052	.063	.085	.10	.13	.15	.17	.19	.21	.31	.52
150	3	1.5	2.0	2.5	3.1	4.0	5.1	6.1	7.1	8.1	9.1			
	4	.51	.68	.88	1.0	1.4	1.7	2.1	2.4	2.7	3.2	3.5	5.1	8.8
	6	.099	.13	.16	.19	.26	.32	.38	.46	.51	.57	.65	.99	1.6
	8	.033	.045	.055	.066	.090	.11	.13	.16	.18	.21	.23	.33	.55
160	4	.55	.71	.92	1.1	1.5	1.8	2.3	2.6	3.0	3.4	3.6	5.5	9.2
	6	.10	.14	.18	.21	.28	.35	.41	.48	.55	.62	.70	1.0	1.8
	8	.036	.048	.060	.072	.096	.12	.14	.17	.19	.21	.24	.36	.60
	10	.015	.020	.025	.030	.039	.049	.058	.070	.079	.090	.099	.15	.25
180	4	.61	.80	1.0	1.3	1.7	2.1	2.5	2.9	3.2	3.7	4.1	6.1	10.0
	6	.12	.16	.20	.23	.31	.40	.47	.55	.61	.70	.79	1.2	2.0
	8	.040	.052	.068	.080	.11	.13	.16	.19	.21	.24	.28	.40	.68
	10	.017	.022	.027	.033	.044	.055	.066	.077	.088	.099	.11	.17	.27
200	4	.70	.90	1.2	1.4	1.9	2.3	2.8	3.2	3.6	4.2	4.5	7.0	
	6	.13	.18	.22	.26	.35	.45	.51	.60	.70	.78	.85	1.3	2.2
	8	.045	.060	.075	.090	.12	.15	.18	.21	.24	.28	.30	.45	.75
	10	.018	.025	.030	.036	.048	.060	.071	.085	.098	.11	.12	.18	.30
250	4	.85	1.1	1.5	1.8	2.3	2.8	3.5	4.0	4.5	5.2	5.8	8.5	
	6	.17	.22	.28	.32	.44	.55	.64	.75	.86	1.0	1.1	1.7	2.8
	8	.056	.074	.092	.11	.15	.18	.22	.26	.30	.34	.37	.56	.92
	10	.023	.030	.038	.046	.060	.075	.090	.10	.12	.14	.15	.23	.38
300	4	1.0	1.3	1.8	2.1	2.8	3.5	4.2	4.7	5.4	6.2	7.0	10.0	
	6	.20	.26	.33	.40	.51	.65	.78	.90	1.0	1.2	1.3	2.0	3.3
	8	.068	.090	.11	.13	.18	.22	.27	.31	.35	.40	.45	.68	1.1
	10	.028	.036	.045	.055	.062	.090	.11	.13	.15	.17	.18	.28	.45
400	4	1.4	1.8	2.3	2.8	3.7	4.6	5.5	6.4	7.3	8.2	9.1		
	6	.26	.35	.45	.51	.70	.88	1.0	1.2	1.4	1.6	1.8	2.6	4.5
	8	.090	.12	.15	.18	.24	.30	.36	.41	.47	.54	.60	.90	1.5
	10	.037	.048	.060	.073	.096	.12	.15	.17	.19	.22	.25	.37	.60
450	4	1.5	2.0	2.6	3.1	4.2	5.0	6.0	7.0	8.0	9.0	10.0		
	6	.30	.40	.50	.60	.80	1.0	1.2	1.4	1.6	1.8	2.0	3.0	5.0
	8	.10	.14	.17	.20	.28	.34	.40	.46	.54	.61	.68	1.0	1.7
	10	.042	.055	.070	.082	.11	.14	.16	.19	.22	.25	.28	.42	.70
500	4	1.7	2.3	2.9	3.5	4.6	5.7	7.0	8.0	9.0	10.0			
	6	.33	.44	.55	.66	.87	1.0	1.3	1.5	1.8	2.0	2.2	3.3	5.5
	8	.11	.15	.19	.23	.30	.37	.45	.51	.60	.66	.74	1.1	1.9
	10	.046	.060	.075	.091	.12	.15	.18	.21	.25	.28	.30	.46	.75
600	4	2.0	2.8	3.5	4.2	5.5	6.9	8.3	9.5					
	6	.40	.51	.65	.80	1.0	1.3	1.5	1.8	2.1	2.4	2.6	4.0	6.5
	8	.13	.18	.23	.27	.36	.45	.54	.63	.72	.81	.90	1.3	2.3
	10	.055	.072	.090	.11	.15	.18	.22	.25	.29	.32	.37	.55	.90
750	6	.50	.65	.82	1.0	1.3	1.6	2.0	2.3	2.5	2.9	3.2	5.0	8.2
	8	.17	.22	.28	.34	.45	.55	.65	.79	.90	.98	1.1	1.7	2.8
	10	.070	.090	.11	.14	.18	.23	.27	.32	.37	.41	.46	.70	1.1
	12	.032	.043	.055	.066	.090	.11	.14	.16	.18	.20	.23	.32	.55
800	6	.52	.70	.89	1.0	1.4	1.6	2.1	2.3	2.7	3.1	3.5	5.2	8.9
	8	.18	.24	.30	.36	.48	.60	.71	.84	.95	1.0	1.2	1.8	3.0
	10	.072	.096	.12	.15	.19	.25	.29	.34	.40	.45	.50	.72	1.2
	12	.035	.046	.060	.070	.096	.12	.15	.17	.18	.21	.25	.35	.60
1000	6	.65	.86	1.1	1.3	1.7	2.2	2.6	3.0	3.5	3.9	4.5	6.5	
	8	.23	.30	.37	.45	.60	.74	.90	1.0	1.1	1.3	1.5	2.3	3.7
	10	.091	.12	.15	.18	.25	.30	.36	.42	.49	.55	.61	.91	1.5
	12	.045	.059	.075	.090	.12	.15	.18	.21	.24	.27	.30	.45	.75
1050	6	.70	.90	1.1	1.3	1.8	2.3	2.7	3.1	3.6	4.1	4.7	7.0	
	8	.24	.31	.40	.47	.62	.80	.94	1.0	1.2	1.3	1.5	2.4	4.0
	10	.098	.13	.16	.20	.26	.32	.39	.45	.51	.59	.65	.98	1.6
	12	.047	.061	.080	.095	.13	.16	.19	.22	.25	.29	.31	.47	.80

* For liquids with a specific gravity other than 1.00, multiply the value from the above table by the specific gravity of the liquid. For old pipe, add 20% to the above values. Figures to right of dark line are laminar flow. Figures to left of dark line are turbulent flow.

To convert the above values to kPa (kilopascals) per metre of pipe, multiply by 22.6. To convert the above values to kg per cm² per metre of pipe, multiply by 0.23.

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for turbulent flow (H). If the maximum allowable PSI loss per foot of discharge pipe for turbulent flow (H) is greater than the value given in Figure 10, the proper size pipe has been selected. If the maximum allowable PSI loss per foot of discharge pipe for turbulent flow (H) is less than the value in Figure 10, select the pipe size for which the value given in Figure 10 is less than (H).

Example:

In step 4 a heavy duty pump was tentatively selected. This pump has a maximum allowable total dynamic head of 200 PSI for viscous liquids. The static discharge head, in PSI, equals $\frac{45 \times 1.36}{2.31}$ or 26.4 PSI. The maximum total discharge head equals total dynamic head less the total suction lift, 200 PSI – 6.03 PSI or 193.97 PSI. The maximum allowable PSI discharge line friction loss is then 193.7 – 26.4 or 167.57 PSI. Assuming the discharge pipe size to be the same as the pump port size (2 inch for “K” pumps), for a first trial, and referring to figure 10, a flow of 40 GPM and 3,000 SSU is found to be laminar and no losses need to be considered for valves and fittings. The allowable PSI friction head (E) divided by the total length of discharge pipe is equal to $\frac{167.57}{128}$ or 1.3 PSI per foot of discharge pipe (F).

Again referring to figure 10, we find that the pressure per foot of 2 inch pipe is .544 PSI (.4 times the specific gravity, 1.36 equals .544 PSI per foot). Since this value is substantially below the 1.3 PSI loss per foot allowable, consideration may be given to more economical 1½ inch pipe with a PSI friction loss per foot of 1.49 (1.1 times specific gravity 1.36 equals 1.49 PSI per foot). Since this value of pressure drop per foot of pipe is higher than the allowable 1.3 PSI, selection of 2 inch pipe for the discharge line appears to be proper.

The total discharge head for 2 inch pipe is equal to the static discharge head plus the friction head or:

Static discharge head.....26.4 PSI
Friction head (.544 PSI per foot x 128 feet) ...69.5 PSI
Total discharge head95.9 PSI

Note here that if a general purpose pump had been selected in step 4 instead of a heavy-duty, the total dynamic head, which equals the total discharge head plus the total suction lift or 95.9 + 6.03 = 101.93 PSI, would have slightly exceeded the maximum allowable total head for general purpose pumps. NOTE: for a 2½ inch discharge line, the total discharge head would equal 128 x .19 x 1.36 + 26.4 or 59.4 PSI and the total dynamic head would have been 59.4 + 6.03 PSI or 65.43 PSI.

Selection of the more expensive 2½ inch discharge line would permit consideration of a more economical general purpose pump and perhaps the use of a drive with less horsepower resulting from the reduced total dynamic head. The use of a 2½ inch discharge line would require a 2 x 2½ increaser in the pump discharge

port. Horsepower requirements will be discussed in step 7.

STEP 7

Determine the Horsepower* Required

To determine brake horsepower (P_{in}) required by a pump per the formula on Page 510.5, it is necessary to know the capacity in GPM, the total dynamic head in PSI and the pump efficiency. The capacity and head or differential pressure are determined by the application. The pump or mechanical efficiency cannot be calculated until after the brake horsepower has been determined by laboratory tests. Since it is necessary to test a pump before the mechanical efficiency can be determined, it is more logical to present the actual horsepower data in the form of performance curves rather than to provide mechanical efficiency values which then require additional calculations.

Viking catalogs a series of performance curves based on extensive tests of all pump models. These curves plot brake horsepower and pump capacity against pump speed at several pressures and for up to 8 different viscosities ranging from 38 SSU (No. 2 Fuel Oil) through 250,000 SSU. Horsepower for viscosities between those shown on the performance curves can be taken from the nearest higher viscosity curve or can be determined by averaging the values from the curves with viscosities immediately above and below that of the application. The performance curves can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.

For those occasions when it is desirable to calculate the mechanical efficiency of a pump for a specific application, use the following formula:

$$\text{M.E. in \%} = \frac{(\text{Diff. Press., PSI})(\text{Cap., GPM})(100)}{(\text{Horsepower, BHP})(1715)}$$

There are times when it is convenient to be able to quickly arrive at a “ballpark” figure for horsepower. For an application involving viscosities in the range of 100 to 2500 SSU and pressures above 50 PSI, this can be done by multiplying the differential pressure in PSI by the capacity in GPM and dividing by 1000. It can be seen by looking at the formula on Page 510.5 that if an efficiency of approximately 58% is used, the value below the line comes out to be 1000 (1715 x 0.58). This formula for estimating horsepower is strictly a convenience for use on a limited number of applications; for exact values it is necessary to refer to the performance curves.

For some applications it is desirable to be able to determine the torque** requirements of the pump; this is

* See definitions on Page 510.5.

** Torque is a turning or twisting force; applying a 10 pound force perpendicular to the end of a 12 inch long crank or wrench results in a torque or twisting force of 120 inch pounds being applied to a shaft or bolt. A torque of 36 inch pounds (3 foot pounds) applied at a speed of 1750 RPM produces 1 horsepower.

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particularly true when selecting variable speed drive equipment. With the pump speed and horsepower known, torque in inch pounds can be determined from the formula:

$$T (\text{"#s}) = \frac{\text{HP} \times 63,000}{\text{RPM}}$$

To illustrate, a 1 horsepower motor operating at 1750 RPM delivers a torque of 36 inch pounds $\left(\frac{1 \times 63,000}{1750}\right)$

With constant pressure and viscosity, the torque requirements of a Viking pump increase only slightly with speed.

An important consideration to keep in mind when figuring horsepower is the fact that almost all Viking pumps are cataloged complete with a safety relief valve. Viking safety relief valves, be they internal, return-to-tank or in-line, are to be used only for protection against excessive pressure buildup caused by a closed discharge line or from unexpectedly high viscosity.

The Viking safety relief valve is strictly a *safety* device which relieves excess pressure and thus prevents damage to the pump, the piping system, the drive equipment or the motor. The safety relief valve should *not* be used as a pressure or flow control device.

The Viking safety relief valve is of the adjustable spring-loaded poppet type. The pump builds up pressure under the poppet until it starts to lift from the valve seat (this is the cracking point or pressure at which there is first flow through the valve). As the pressure buildup continues, the poppet lifts further from the seat until all of the liquid is flowing or bypassing through the valve – no liquid is going into the discharge line. This pressure – in Viking terminology - is the safety relief valve setting; more frequently referred to as the “valve setting”. The pressure spread between the cracking point and the complete bypass pressure or valve setting is a function of the setting, of the flow through the valve and of the liquid viscosity.*

The safety relief valve is not expected to function during normal operation of the pump. Therefore, it is generally not necessary to consider the valve setting pressure when making horsepower determinations. The additional horsepower required to develop the pressure to open the safety relief valve – since it is required very infrequently and only for very short periods of time – can normally be provided by the drive furnished with the pump. If there are extenuating circumstances, such as frequent safety relief valve operation, an unusually viscous liquid, a very low operating pressure, a valve being used at the upper end of its capacity range or specs that spell out that the motor should not be overloaded at the relief valve setting, then, of course, they should be taken into account when determining horsepower.

Example:

A liquid viscosity of 3,000 SSU at the lowest pumping temperature was given as part of the application information with the problem (also see Step 2); the pump

* For more information on relief valves, ask for ESB-31

PERFORMANCE CURVE FOR A MODEL K124 VIKING PUMP HANDLING 2500 SSU LIQUID

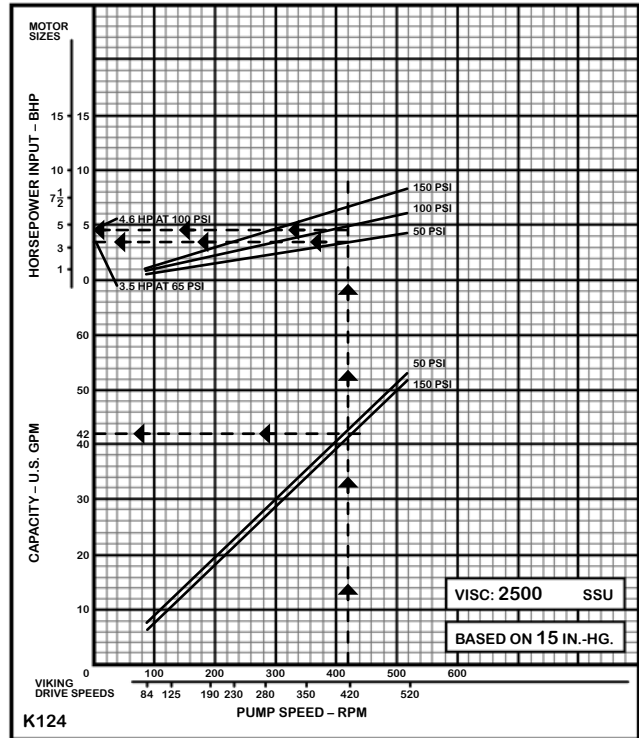


FIG. 12

size (“K”) was determined in Step 3; the *total* dynamic head of 101.93 (102) PSI was determined in Step 6 and to provide the best possible service life consider the 124 heavy-duty series pump. With this information in hand, the horsepower required can be determined from Figure 12. Since the 3,000 SSU is a maximum figure and not the normal operating viscosity and since the actual horsepower difference between a pump handling 3,000 SSU and 2500 SSU is very slight, there is no hesitation in using the performance data based on 2500 SSU. If there was a possibility that the viscosity could go significantly higher or if the *normal* viscosity was 3,000 SSU, then the conservative approach would be to use the horsepower from the performance curve for 7500 SSU. The 2500 SSU curve, see Figure 12, shows that the K124 operating at a pump speed of 420 RPM* will deliver about 42 GPM and at 100 PSI discharge** will require approximately 4.6 brake horsepower. A 5 HP motor would be used. The mechanical efficiency of the pump

* The 420 RPM speed was selected since this is the nearest AGMA gear head motor speed that will give at least 40 GPM. Viking reducer and V-belt drives have been standardized on the AGMA speeds.

** All performance curves in the pump selector are based on an indicated vacuum in inches of mercury. The pressure lines shown on the curves are for discharge port gage readings. The actual total dynamic head or differential across the pump is the sum of the vacuum and discharge pressure. For the curve in Figure 12, the vacuum (15" Hg) can be expressed as -7.35 PSIG. This, when combined with the 100 PSI, gives a total dynamic head across the pump of 107.35 (107) PSI. This is greater than the 102 PSI in the example and is thus conservative; therefore, it is logical to use the 100 PSI pressure line to determine the horsepower.

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would be determined as follows using the formula discussed earlier:

$$\text{M.E. \%} = \frac{\text{PSI (102)} \times \text{GPM (42)} \times 100}{\text{BHP (4.6)} \times 1715}$$

$$\text{M.E.} = 54\%$$

In Step 6 when a 2½" diameter discharge line was considered instead of a 2" line, the *total* dynamic head was determined to be 65.43 (65) PSI. From Figure 12 the horsepower is shown to be 3.5; a 5 HP motor would still be required.

From the above discussion it can be seen that the use of larger pipe, while involving a greater initial expense, would require considerably less electrical energy over the operating life of the pump. Also, since the pump would be operating at a lower *total* dynamic head or differential pressure, it would have a longer service life with less maintenance. Another consideration, which is well to keep in mind, is that with the larger pipe it would be relatively easy to increase the flow rate or to increase the viscosity of the liquid pumped without extensive changes to the system.

In summary, the use of generously-sized suction and discharge lines is highly recommended as a means of lowering the overall cost per gallon of liquid pumped.

STEP 8

Select the Materials of Construction

A choice of the proper materials of construction of a pump for handling a specific liquid is important and often quite complicated. In the selection of materials of construction, factors that must be considered, other than consideration of the liquid itself, are temperature, contamination, concentration of the liquid, etc. Each of these variables may play a vital role in a choice of materials of construction.

Section 520 of the Viking catalog includes a comprehensive listing of a wide variety of liquids that are handled by Viking pumps, including information about the liquids, recommendations about material of construction selection as well as pump types and special pump features that have been found desirable for the specific liquid. In addition, the catalog contains information about materials of construction and features that are available on specific pump models or pump model series. You are directed to these sources for answers to questions you may have regarding selection of pump materials of construction.

Recommendations given in Section 520 are to be appraised as general since the variables mentioned above may alter the choice of materials. All of the recommendations, however, have been successfully used in actual installations.

The final choice is usually left up to the customer since selection of materials with the most rapid corrosion rate will normally result in low first cost and high maintenance cost or eventual pump replacement. Conversely,

selection of materials with low corrosion rates will normally result in high first cost and low maintenance cost. In addition, the contamination of the customer's product or process when using materials with rapid corrosion rates may be objectionable and may dictate the use of materials with lower rates of corrosion.

When new liquids are encountered, the materials presently used in handling or storing the liquid may be a guide to the proper materials of pump construction.

Corrosion tests on possible materials of construction can be made for any liquid in the Viking chemical laboratory but these tests are very expensive and due to liquid aeration etc., the tests are not entirely conclusive. However, without any previous knowledge of proper materials of construction, these facilities should then be utilized. A minimum of one pint of liquid is required for a corrosion test.

Many liquids that are pumped or can be pumped are not listed. When not familiar with a liquid, the selection of the proper materials of construction should be a factory choice since a vast amount of proper material data has been collected over a period of years of successful pump operation.

Example: a pump of **Standard Construction** should be considered for this application.

STEP 9

Consider the Temperature of the Liquid Pumped

Although rotary pumps can successfully handle liquids up to viscosities of 2,000,000 SSU, the liquids are often heated prior to pumping for reasons such as 1) higher allowable speeds for greater capacities 2) desirability of a specific temperature of liquid in a heat transfer process and 3) lower power requirements. Conversely, pumps are often required to handle low temperature liquids, particularly in refrigeration or air conditioning equipment. In either case, special consideration must be given to pump construction at extreme temperature conditions.

Extreme sub-zero temperatures cause reduction of strength and brittleness in some metals. For these reasons, the factory should always be consulted on all low temperature installations.

Temperature ranges within which standard pumps with no modifications may be used are listed throughout the Viking catalog in specification charts. These temperature ranges may vary with the size and pump model.

Temperatures in excess of those listed in specification charts require varying amounts of extra clearances applied to the internal parts of the pump to avoid scoring, galling, and other mechanical failures.

For temperatures above 300°F. special gaskets and packing materials are required.

Bronze bushings with proper operating clearances are suitable for operation up to 450°F.

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Carbon graphite bushings are recommended for use with high temperature, low viscosity liquids such as heat transfer oils. Because of the low expansion rate of the carbon graphite, there is an operating temperature above which it is necessary to use special interference fits at assembly. This temperature varies depending on pump size. See Engineering Service Bulletin ESB-3 for specifics.

Special idler pin materials are recommended for operation above 450°F.

Viking Cast Iron parts have been found satisfactory for operation up to 650°F.

For operation above 650°F. or when required by various safety codes and specifications, Viking pumps are available with steel externals to resist thermal shock or comply with such codes or specifications.

Steel relief valve springs are considered suitable for operation up to 350°F. For temperatures above 350°F. stainless steel or other special spring materials are recommended.

The heating or cooling of liquids that are being pumped is often accomplished by circulating steam or hot or cold liquids through external jackets provided as standard features or options on many Viking pumps. Consult the specific section of the general catalog for further information regarding the availability of jacketing features on the pump you are interested in using.

Provisions can be made for the operation of mechanical seals at temperatures in excess of those listed in the catalog specification charts. This may involve special materials, different seal configurations, different seal locations on the pump or special provisions for cooling the seal to an acceptable operating temperature. For additional discussion on Temperature considerations, see Application Data Sheet AD-5.

Example:

Since the operating temperature is below 200°F., no special consideration need to given to temperature.

STEP 10

Select the Mounting and Drive Arrangement

When a pump is to become a component part of another piece of equipment, the unmounted pump is usually the selection made.

Adaptation to an existing drive, desirability of quietness of operation, operation without undue maintenance and speed desired are but a few of the factors that may enter into the choice of a mounting arrangement.

The drive arrangements available with Viking pumps are listed below.

1. Unmounted Pump — Refer to pump model number only.

2. Direct Connected — coupled to standard electric motor, gear head motor, variable speed motor or other driven (type “D” drive).
3. Viking Reducer Drive — coupled to standard electric motor with a Viking helical gear speed reducer (type “R” drive).
4. Commercial Reducer Drive — coupled to driver by means of a Commercial speed reducer (Type “P” drive).
5. V-Belt Drive — connected to driver by V-Belt(s) and sheaves (type “V” drive).
6. Motor Mounted — coupled and mounted directly to flanged faced electric motor (type “M” drive).
7. Bracket Drive — pump mounted on bracket type sub-base complete with outboard shaft bearing. (Type “B” drive) This type of drive unit may be used to build direct or V-Belt units on small general purpose pump units.

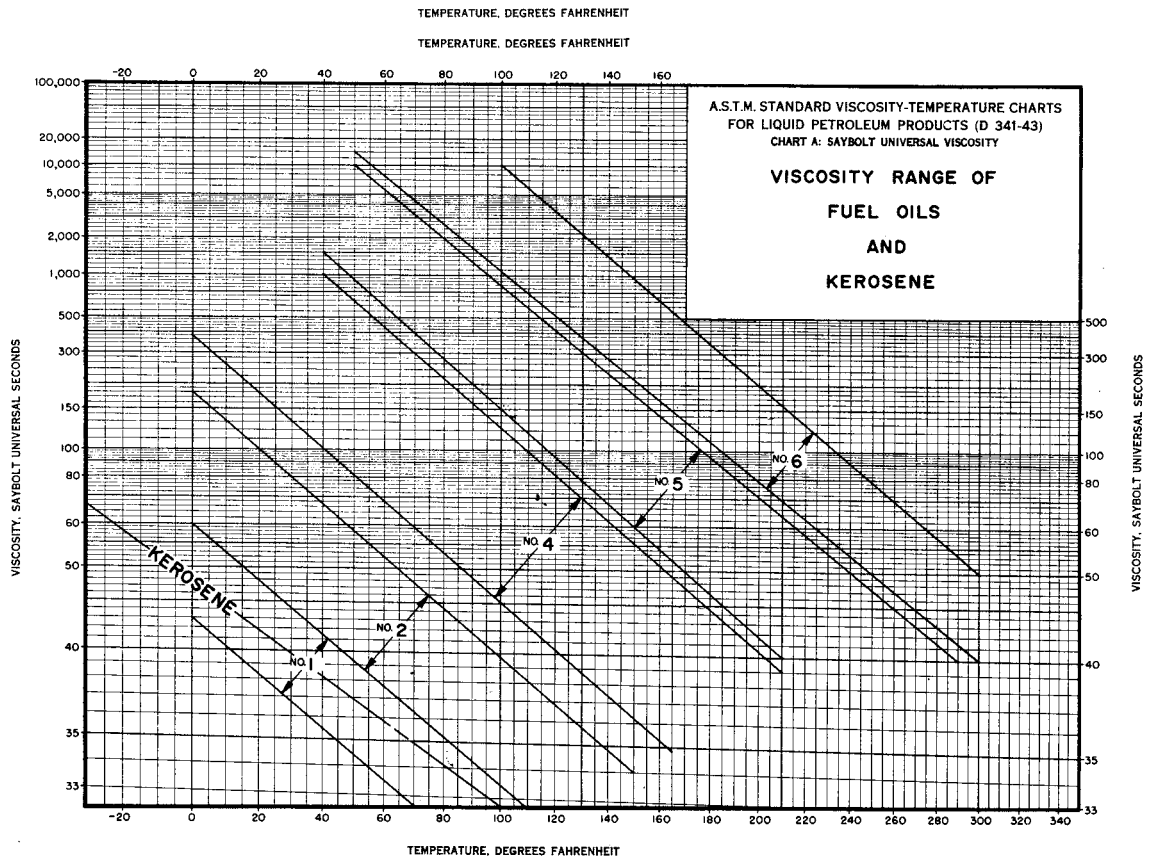
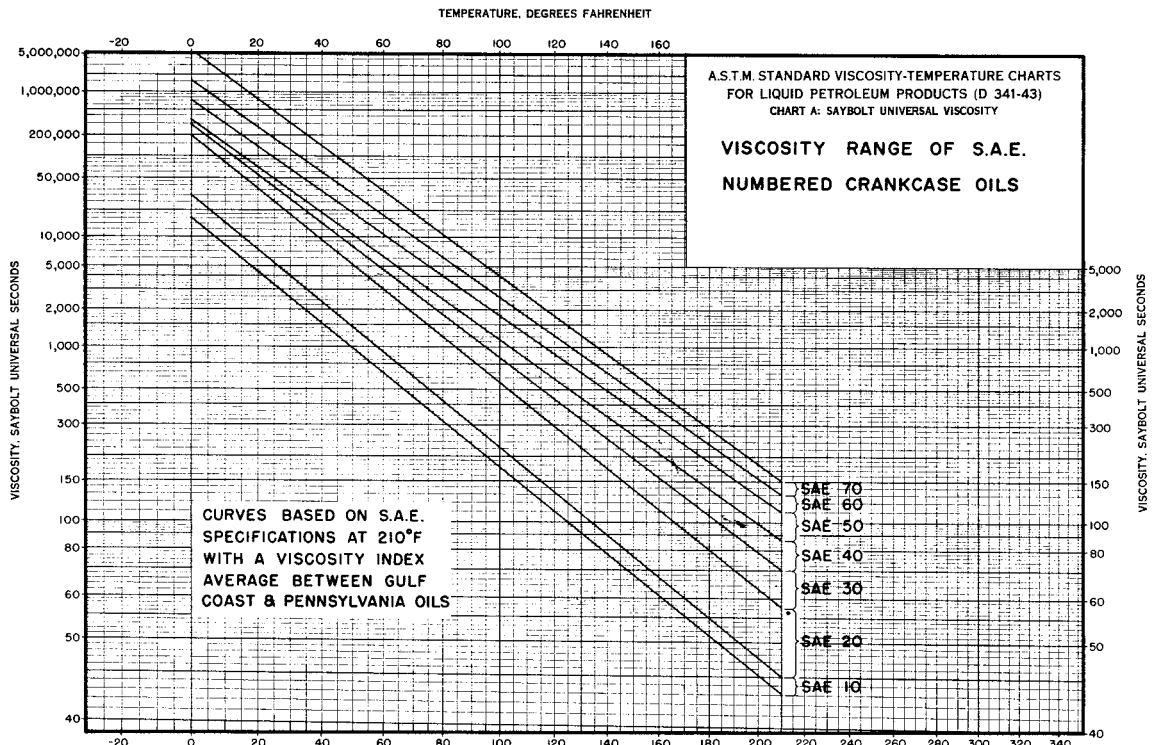
Example: The K125 Heavy-Duty pump should be mounted with a drive arrangement that will give a shaft speed of 420 RPM and that can transmit 5 horsepower.

Of the several drive arrangements listed above that could be used with this unit — “D”, “R”, “P” and “V” — the Viking Reducer or “R” type is the most popular and would be the first choice for the example. The model number of the unit would be K125R.

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USEFUL ENGINEERING INFORMATION

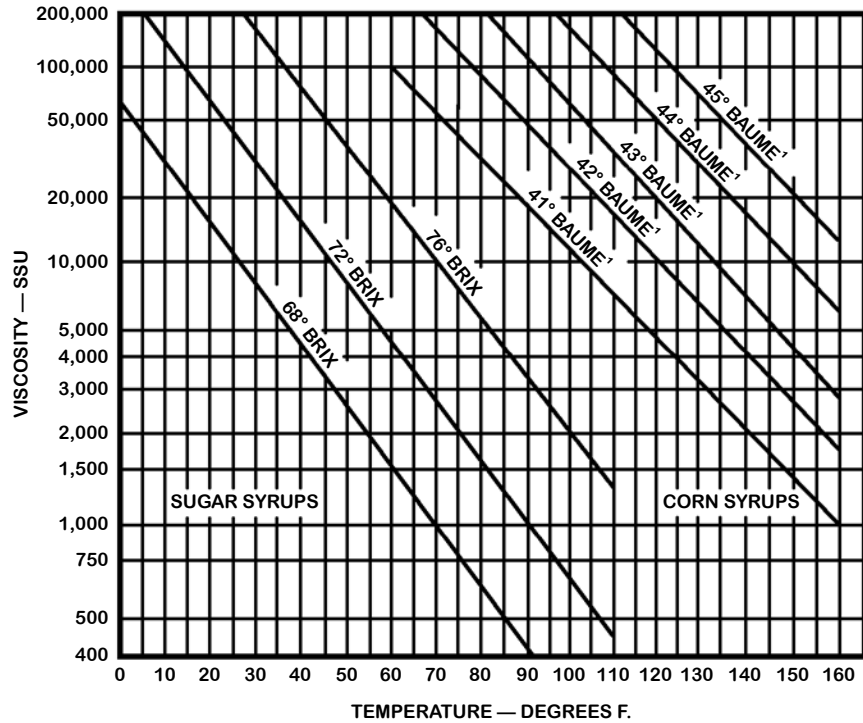


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USEFUL ENGINEERING INFORMATION

**VISCOSITY - TEMPERATURE CHART
SUGAR AND CORN SYRUPS**



CONVERSION FACTORS

Multiply → By → To Obtain	Multiply → By → To Obtain
Atmospheres 14.7 PSI	Foot Pounds / Minute 3.03 x 10 ⁻⁵ Horsepower
Atmospheres 33.9 Feet of Water	Gallons (U.S.) 231 Cubic Inches
Atmospheres 29.9 Inches of Mercury	Gallons (U.S.) 0.833 Imperial Gallons
Bar 1.0197 Kilograms / Sq. Centimeter	Gallons (U.S.) 128 Ounces (Fluid)
Bar 14.5038 PSI	Gallons (U.S.) 3.785 Liters
Barrels (Oil) 42.0 U.S. Gallons	Gallons (U.S.) 0.0038 Cubic Meters
Barrels (Oil) 35.0 Imperial Gallons	Gallons (Imperial) 277.3 Cubic Inches
Centimeters 0.39 Inches	Gallons (Imperial) 1.2 U.S. Gallons
Centipoises 0.01 Poises	Gallons (Imperial) 154 Ounces (Fluid)
Centistokes 0.01 Stokes	Gallons (Imperial) 4.546 Liters
Cubic Centimeters 1.0 Milliliters	Gallons (Imperial) 0.0045 Cubic Meters
Cubic Centimeters 0.061 Cubic Inches	U.S. Gallons of Water 8.33 Pounds of Water
Cubic Centimeters 0.000264 U.S. Gallons	Imperial Gallons of Water 10.02 Pounds of Water
Cubic Centimeters 0.000218 Imperial Gallons	Horsepower 33000 Foot Pounds / Minute
Cubic Feet 7.48 U.S. Gallons	Horsepower 746 Watts
Cubic Feet 6.23 Imperial Gallons	Inches 2.54 Centimeters
Cubic Feet 1728 Cubic Inches	Inches of Mercury 1.133 Feet of Water
Cubic Feet 28.32 Liters	Inches of Mercury 0.49 PSI
Cubic Feet Water 62.4 Pounds	Inches of Mercury 0.0334 Atmospheres
Cubic Feet Water 998.8 Ounces	Inches of Water 0.074 Inches of Mercury
Cubic Inches 0.00433 U.S. Gallons	Inches of Water 0.036 PSI
Cubic Inches 0.00364 Imperial Gallons	Kilograms / Sq. Centimeter 0.9807 Bar
Cubic Inches 16.39 Cubic Centimeters	Kilograms / Sq. Centimeter 14.23 PSI
Cubic Inches 0.00058 Cubic Feet	Kilowatts 1.341 Horsepower
Cubic Inches 0.0164 Liters	Liters 1000 Cubic Centimeters
Cubic Meters 264 U.S. Gallons	Liters 0.264 U.S. Gallons
Cubic Meters 220 Imperial Gallons	Liters 0.220 Imperial Gallons
Cubic Meters 35.3 Cubic Feet	Liters 33.8 Ounces (Fluid)
Cubic Meters 1.308 Cubic Yards	Meters 39.37 Inches
Cubic Yards 27 Cubic Feet	Milliliters 0.06 Cubic Inches
Cubic Yards 0.765 Cubic Meters	Ounces (Fluid) 1.805 Cubic Inches
Drams (Fluid) 3.7 Milliliters	Pounds of Water 0.12 U.S. Gallons of Water
Feet 30.48 Centimeters	Pounds of Water 0.10 Imperial Gallons of Water
Feet of Water 0.0295 Atmospheres	PSI 2.31 Feet of Water
Feet of Water 0.433 PSI	PSI 2.04 Inches of Mercury
Feet of Water 0.883 Inches of Mercury	PSI 0.068 Atmospheres
Foot Pounds 5.05 x 10 ⁻⁷ Horsepower Hours	PSI 0.06895 Bar

To Obtain ← By ← Divide

To Obtain ← By ← Divide

VIKING ENGINEERING DATA

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USEFUL ENGINEERING INFORMATION

COMPARATIVE EQUIVALENTS OF LIQUID MEASURES AND WEIGHTS

MEASURES AND WEIGHTS FOR COMPARISON	MEASURE AND WEIGHT EQUIVALENTS OF ITEMS IN FIRST COLUMN						
	U.S. GALLON	IMPERIAL GALLON	CUBIC INCH	CUBIC FOOT	CUBIC METER	LITER	POUNDS OF WATER
U.S. GALLON	1.	.833	231.	.1337	.00378	3.785	8.33
IMPERIAL GALLON	1.20	1.	277.27	.1604	.00454	4.542	10.
CUBIC INCH	.0043	.00358	1.	.00057	.000016	.0163	.0358
CUBIC FOOT	7.48	6.235	1728.	1.	.02827	28.312	62.355
CUBIC METER	264.17	220.05	61023.	35.319	1.	1000.	2200.54
LITER	.26417	.2200	61.023	.0353	.001	1.	2.2005
POUNDS OF WATER	.12	.1	27.72	.016	.00045	.454	1.

Frequently Used Material Of Construction	pH Ratings
300 Series Stainless	pH 14.0
	13.0
	12.0
All Iron	11.0
	10.0
	9.0
Bronze and/or Iron	8.0
	pH 7.0
	6.0
All Bronze	5.0
	4.0
	3.0
300 Series Stainless	2.0
	1.0

↑ INCREASING ALKALINITY
← NEUTRAL
↓ INCREASING ACIDITY

THE NUMBER OF GALLONS IN ROUND VERTICAL TANKS

Depth of Liquid in Feet	DIAMETER IN FEET OF ROUND TANKS OR CISTERNS																	
	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	25	
5	725	1060	1440	1875	2308	2925	3550	4237	4960	5765	6698	7520	9516	11750	14215	16918	18358	
6	870	1270	1728	2250	2855	3510	4260	5084	5952	6918	8038	9024	11419	14100	17059	20302	22030	
7	1015	1480	2016	2625	3330	4095	4970	5931	6944	8071	9378	10528	13322	16450	19902	23680	25701	
8	1160	1690	2304	3000	3805	4680	5680	6778	7936	9224	10718	12032	15225	18800	22745	27070	29372	
9	1305	1900	2592	3375	4280	5265	6390	7625	8928	10377	12058	13536	17128	21150	25588	30454	33043	
10	1450	2110	2880	3750	4755	5850	7100	8472	9920	11530	13398	15040	19031	23500	28431	33838	36714	
11	1595	2320	3168	4125	5230	6435	7810	9319	10912	12683	14738	16544	20934	25850	31274	37222	40385	
12	1740	2530	3456	4500	5705	7020	8520	10166	11904	13836	16078	18048	22837	28200	34117	40606	44056	
13	1885	2740	3744	4875	6180	7605	9230	11013	12896	14989	17418	19552	24740	30550	36960	43990	47727	
14	2030	2950	4032	5250	6655	8190	9940	11860	13888	16142	18758	21056	26643	32900	39803	47374	51398	
15	2175	3160	4320	5625	7130	8775	10650	12707	14880	17295	20098	22260	28546	35250	42646	50758	55069	
16	2320	3370	4608	6000	7605	9360	11360	13554	15872	18448	21438	24064	30449	37600	45489	54142	58740	
17	2465	3580	4896	6375	8080	9945	12070	14401	16864	19601	22778	25568	32352	39950	48332	57520	62411	
18	2610	3790	5184	6750	8535	10530	12780	15248	17856	20754	24118	27072	34255	42300	51175	60910	66082	
19	2755	4000	5472	7125	9010	11115	13490	16095	18848	21907	25458	28576	36158	44650	54018	64294	69753	
20	2900	4210	5760	7500	9490	11700	14200	16942	19840	23060	26798	30080	38062	47000	56861	67678	73424	

LOSS IN PSI PRESSURE PER 100 FEET OF SMOOTH BORE RUBBER HOSE

Data is for liquid having viscosity of 38 SSU

U.S. GPM	ACTUAL INSIDE DIAMETER IN INCHES											
	1/2	5/8	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	
1 1/2	2.8	0.7	0.5									
2 1/2	7.6	2.1	1.1									
5	28.5	9.6	4.0	1.1	0.4	0.2						
10	101.0	33.8	14.0	4.1	1.2	0.5	0.2					
15	70.0	30.0	8.9	2.5	1.1	0.4	0.1				
20	112.0	53.0	14.0	4.3	1.8	0.7	0.2				
25	79.0	22.0	6.5	2.9	1.0	0.3				
30	112.0	31.0	9.2	4.0	1.4	0.4	0.1			
35	147.0	41.0	12.0	5.3	1.8	0.5	0.2			
40	53.0	15.0	6.7	2.4	0.6	0.3			
45	66.0	19.0	8.4	3.0	0.8	0.4			
50	80.0	24.0	10.0	3.6	1.0	0.5			
60	101.0	35.0	14.0	5.1	1.4	0.6			
70	45.0	19.0	6.6	1.8	0.8			
80	58.0	24.0	8.6	2.3	1.1			
90	71.0	30.0	11.0	3.0	1.4	0.3		
100	88.0	37.0	12.5	3.5	1.7	0.4	0.1	
125	132.0	55.0	20.0	5.3	2.5	0.6	0.2	
150	183.0	78.0	27.0	7.5	3.5	0.7	0.3	
175	100.0	37.0	10.0	4.6	1.1	0.4	
200	133.0	46.0	13.0	5.9	1.4	0.5	
250	70.0	19.0	9.1	2.1	0.7	
300	95.0	27.0	12.0	2.9	1.0	
350	126.0	36.0	17.0	4.0	1.3	
400	46.0	21.0	5.1	1.7	
450	57.0	26.0	6.3	2.1	
500	70.0	32.0	7.4	2.6	
1000	116.0	27.0	9.6	

EXAMPLE: What pressure is required at intake end of a 150 ft. line of 1 1/2 in. hose joined in 50 ft. lengths with shank coupling? A delivery of 50 gal. of No. 2 fuel oil per minute is desired. Consulting the table we find the hose

required 10 PSI per 100 ft. or 15 PSI for the 150 ft. Adding 5% for each of three sets of couplings, we have a total of 17.25 PSI.

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VIKING ENGINEERING DATA

USEFUL ENGINEERING INFORMATION

CONVERTING PRESSURE INTO FEET HEAD OF WATER

Pounds Per Square Inch	Feet Head	Pounds Per Square Inch	Feet Head	Pounds Per Square Inch	Feet Head
1	2.31	40	92.36	170	392.52
2	4.62	50	115.45	180	415.61
3	6.93	60	138.54	190	438.90
4	9.24	70	161.63	200	461.78
5	11.54	80	184.72	225	519.51
6	13.85	90	207.81	250	577.24
7	16.16	100	230.90	275	643.03
8	18.47	110	253.98	300	692.69
9	20.78	120	277.07	325	750.41
10	23.09	125	288.62	350	808.13
15	34.63	130	300.16	375	865.89
20	46.18	140	323.25	400	922.58
25	57.72	150	346.34	500	1154.48
30	69.27	160	369.43	1,000	2308.

CONVERTING FEET HEAD OF WATER INTO PRESSURE

Feet Head	Pounds Per Square Inch	Feet Head	Pounds Per Square Inch	Feet Head	Pounds Per Square Inch
1	.43	60	25.99	200	86.62
2	.87	70	30.32	225	97.45
3	1.30	80	34.65	250	108.27
4	1.73	90	38.98	275	119.10
5	2.17	100	43.31	300	129.93
6	2.60	110	47.64	325	140.75
7	3.03	120	51.97	350	151.58
8	3.40	130	56.30	400	173.24
9	3.90	140	60.63	500	216.55
10	4.33	150	64.96	600	259.85
20	8.66	160	69.29	700	303.16
30	12.99	170	73.63	800	346.47
40	17.32	180	77.96	900	389.78
50	21.65	190	83.29	1,000	433.09

EQUIVALENT VALUES OF PRESSURE

Inches of Mercury	Feet of Water	Pounds Per Square Inch	Inches of Mercury	Feet of Water	Pounds Per Square Inch	Inches of Mercury	Feet of Water	Pounds Per Square Inch
1	1.13	0.49	11	12.45	5.39	21	23.78	10.3
2	2.26	0.98	12	13.57	5.87	22	24.88	10.8
3	3.39	1.47	13	14.70	6.37	23	26.00	11.28
4	4.52	1.95	14	15.82	6.86	24	27.15	11.75
5	5.65	2.44	15	16.96	7.35	25	28.26	12.25
6	6.78	2.93	16	18.09	7.84	26	29.40	12.73
7	7.91	3.42	17	19.22	8.33	27	30.52	13.23
8	9.04	3.91	18	20.35	8.82	28	31.65	13.73
9	10.17	4.40	19	21.75	9.31	29	32.80	14.22
10	11.30	4.89	20	22.60	9.80	29.929	33.947	14.6969

ATMOSPHERIC PRESSURE, BAROMETER READING AND EQUIVALENT HEAD OF WATER AT DIFFERENT ALTITUDES

Altitude Above Sea Level Feet	Atmospheric Pressure Pounds Per Square Inch	Barometer Reading Inches of Mercury	Equivalent Head of Water Feet
0	14.7	29.929	33.95
1000	14.2	28.8	32.7
2000	13.6	27.7	31.6
3000	13.1	26.7	30.2
4000	12.6	25.7	29.1
5000	12.1	24.7	27.9
6000	11.7	23.8	27.0
7000	11.2	22.9	25.9
8000	10.8	22.1	24.9
9000	10.4	21.2	24.0
10000	10.0	20.4	23.1

For feet head of liquid — Divide feet head of water by specific gravity of liquid pumped.

APPROXIMATE COMPARISON OF VACUUM AND ABSOLUTE PRESSURES AT SEA LEVEL

Vacuum in Inches Mercury	Vacuum in MM. Mercury	Absolute Pressure in Lbs. Per Sq. In.	Absolute Pressure in Inches Mercury	Absolute Pressure in MM. of Mercury	Absolute Pressure in Inches Water	Absolute Pressure in Feet Water	Feet Suction Lift	Atmospheres
0	0.0	14.7	29.9	759.5	407	33.9	0.00	1.00
2	50.8	13.7	27.9	709	380	31.6	2.27	0.93
4	101.6	12.7	25.9	658	352	29.4	4.53	0.86
6	152.4	11.7	23.8	605	324	27.1	6.80	0.79
8	203.2	10.8	22.0	559	299	24.9	9.07	0.73
10	254.0	9.78	19.9	505	271	22.6	11.34	0.66
12	304.8	8.79	17.9	455	243	20.3	13.61	0.60
14	355.6	7.81	15.9	404	216	18.1	15.88	0.53
16	406.4	6.83	13.9	353	189	15.8	18.14	0.46
18	457.2	5.84	11.9	302	162	13.5	20.41	0.40
20	508.0	4.86	9.9	251	135	11.2	22.68	0.33
22	558.8	3.88	7.9	201	107	8.95	24.95	0.26
24	609.6	2.89	5.9	150	80	6.69	27.22	0.197
26	660.4	1.91	3.9	99	53	4.42	29.48	0.13
28	711.2	0.92	1.9	48	26	2.15	31.75	0.063
29.9	759.5	0.00	0.0	00	00	0.00	33.91	0.00

VIKING ENGINEERING DATA

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USEFUL ENGINEERING INFORMATION

METRIC - ENGLISH CAPACITY UNITS

Liters Per Minute	Gallons Per Minute	Cubic Meters Per Hour	Gallons Per Minute
1	0.264	0.1	0.44
2	0.528	0.2	0.88
3	0.792	0.3	1.32
4	1.056	0.4	1.76
5	1.32	0.5	2.20
6	1.58	0.6	2.64
7	1.85	0.7	3.08
8	2.11	0.8	3.52
9	2.38	0.9	3.96
10	2.64	1.0	4.4
25	6.6	1.5	6.6
50	13.2	2.0	8.8
75	19.8	4.0	17.6
100	26.4	6.0	26.4
200	52.8	8.0	35.2
300	79.2	10	44
400	106	20	88
500	132	30	132
600	158	40	176
700	185	50	220
800	211	60	264
900	238	70	308
1,000	264	80	352
2,000	528	90	396
3,000	792	100	440
4,000	1056	200	880
5,000	1320	300	1320
7,500	1980	400	1760
10,000	2640	500	2200

DEGREES FAHRENHEIT TO DEGREES CENTIGRADE

°F	°C	°F	°C	°F	°C	°F	°C
-60	-51	130	54	410	210	700	371
-50	-46	140	60	420	215	710	376
-40	-40	150	65	430	221	720	382
-30	-34	160	71	440	226	730	387
-20	-29	170	76	450	232	740	393
-10	-23	180	83	460	238	750	399
0	-17.7	190	88	470	243	760	404
5	-15.0	200	93	480	249	770	410
10	-12.2	210	99	490	254	780	415
15	- 9.4	212	100	500	260	790	421
20	- 6.6	220	104	510	265	800	426
25	- 3.9	230	110	520	271	810	432
30	- 1.1	240	115	530	276	820	438
35	1.6	250	121	540	282	830	443
40	4.4	260	127	550	288	840	449
45	7.1	270	132	560	293	850	454
50	9.9	280	138	570	299	860	460
55	12.6	290	143	580	304	870	465
60	15.6	300	149	590	310	880	471
65	18.2	310	154	600	315	890	476
70	21.0	320	160	610	321	900	482
75	23.8	330	165	620	326	910	487
80	26.8	340	171	630	332	920	493
85	29.3	350	177	640	338	930	498
90	32.1	360	182	650	343	940	504
95	34.9	370	188	660	349	950	510
100	38	380	193	670	354	960	515
110	43	390	199	680	360	970	520
120	49	400	204	690	365	980	526

METRIC - ENGLISH PRESSURE UNITS

Kilograms Per Square Centimeter	Pounds Per Square Inch
0.1	1.42
0.2	2.85
0.3	4.27
0.4	5.69
0.5	7.11
0.6	8.54
0.7	9.96
0.8	11.38
0.9	12.81
1.0	14.2
1.5	21.3
2	28.5
3	42.7
4	56.9
5	71.1
6	85.4
7	99.6
8	114
9	128
10	142
15	213
20	285
30	427
40	569
50	712
100	1423

PROPERTIES OF SATURATED STEAM

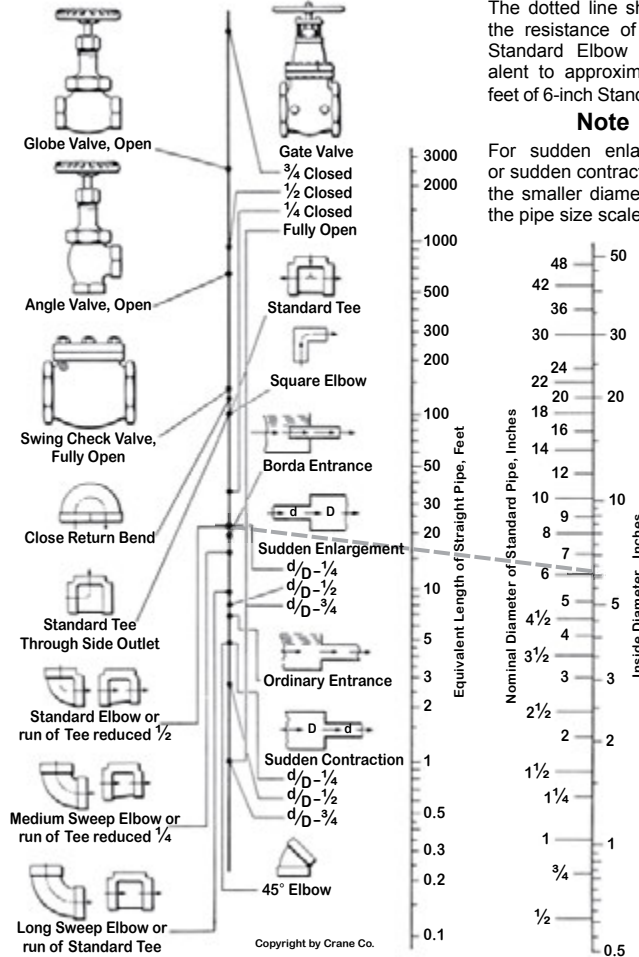
Pressure - Pounds Per Square Inch		Degrees F. Temperature	Specific Volume Cubic Feet Per Pound
Absolute	Gauge		
14.696	0.0	212.00	26.80
50.0	35.3	281.01	8.515
55.0	40.3	287.07	7.787
60.0	45.3	292.71	7.175
65.0	50.3	297.97	6.655
70.0	55.3	302.92	6.206
75.0	60.3	307.60	5.816
80.0	65.3	312.03	5.472
85.0	70.3	316.25	5.168
90.0	75.3	320.27	4.896
95.0	80.3	324.12	4.652
100.0	85.3	327.81	4.432
105.0	90.3	331.36	4.232
110.0	95.3	334.77	4.049
115.0	100.3	338.07	3.882
120.0	105.3	341.25	3.728
125.0	110.3	344.33	3.587
130.0	115.3	347.32	3.455
135.0	120.3	350.21	3.333
140.0	125.3	353.02	3.220
150.0	135.3	358.42	3.015
160.0	145.3	363.53	2.834
170.0	155.3	368.41	2.675
180.0	165.3	373.06	2.532
190.0	175.3	377.51	2.404
200.0	185.3	381.79	2.288

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VIKING ENGINEERING DATA

USEFUL ENGINEERING INFORMATION

RESISTANCE OF VALVES AND FITTINGS TO FLOW OF FLUIDS



Example

The dotted line shows that the resistance of a 6-inch Standard Elbow is equivalent to approximately 16-feet of 6-inch Standard Pipe.

Note

For sudden enlargements or sudden contractions, use the smaller diameter, *d*, on the pipe size scale.

STANDARD PIPE DATA

All Dimensions and Weights are Nominal

Size Inches	Diameters		Thick- ness Inches	Length of Pipe Per Sq. Ft. of		Length of Pipe Con- taining One Cu. Ft. Feet	Weight Per Ft. Plain Ends Pounds	Weight of Water per Ft. Pounds
	External Inches	Internal Inches		External Surface Feet	Internal Surface Feet			
1/8	.405	.269	.068	9.431	14.199	2533.775	.244	.025
1/4	.540	.364	.088	7.073	10.493	1383.789	.424	.045
3/8	.675	.493	.091	5.658	7.747	754.360	.567	.083
1/2	.840	.622	.109	4.547	6.141	473.906	.850	.132
3/4	1.050	.824	.113	3.637	4.635	270.034	1.130	.231
1	1.315	1.049	.133	2.904	3.641	166.618	1.678	.375
1 1/4	1.660	1.380	.140	2.301	2.767	96.275	2.272	.65
1 1/2	1.900	1.610	.145	2.010	2.372	70.733	2.717	.88
2	2.375	2.067	.154	1.608	1.847	42.913	3.652	1.45
2 1/2	2.875	2.469	.203	1.328	1.547	30.077	5.793	2.07
3	3.500	3.068	.216	1.091	1.245	19.479	7.575	3.20
4	4.500	4.026	.237	.848	.948	11.312	10.790	5.50
5	5.563	5.047	.258	.686	.756	7.198	14.617	8.67
6	6.625	6.065	.280	.576	.629	4.984	18.974	12.51
8	8.625	7.981	.322	.442	.478	2.878	28.554	21.70
10	10.750	10.020	.365	.355	.381	1.826	10.483	34.20

EXTRA STRONG PIPE DATA

All Dimensions and Weights are Nominal

Size Inches	Diameters		Thick- ness Inches	Length of Pipe Per Sq. Ft. of		Length of Pipe Con- taining One Cu. Ft. Feet	Weight Per Ft. Plain Ends Pounds	Weight of Water per Ft. Pounds
	External Inches	Internal Inches		External Surface Feet	Internal Surface Feet			
1/8	.405	.215	.095	9.431	17.766	3966.392	.314	.016
1/4	.540	.302	.119	7.073	12.648	2010.290	.535	.031
3/8	.675	.423	.126	5.658	9.030	1040.689	.738	.061
1/2	.840	.546	.147	4.547	6.995	615.017	1.087	.102
3/4	1.050	.742	.154	3.637	5.147	333.016	1.473	.188
1	1.315	.957	.179	2.904	3.991	200.193	2.171	.312
1 1/4	1.660	1.278	.191	2.301	2.988	112.256	2.996	.56
1 1/2	1.900	1.500	.200	2.010	2.546	81.487	3.631	.77
2	2.375	1.939	.218	1.608	1.969	48.766	5.022	1.28
2 1/2	2.875	2.323	.276	1.328	1.644	33.976	7.661	1.87
3	3.500	2.900	.300	1.091	1.317	21.801	10.252	2.86
4	4.500	3.826	.337	.848	.998	12.525	14.983	4.98
5	5.563	4.813	.375	.686	.793	7.915	20.778	7.88
6	6.625	5.761	.432	.576	.663	5.524	28.573	11.29
8	8.625	7.625	.500	.442	.500	3.154	43.388	19.78
10	10.750	9.750	.500	.355	.391	1.929	54.735	32.35

Section 605

Orange Peel[®] – Rotating Shaft Guards

(Type MCG Polyethylene Guards)

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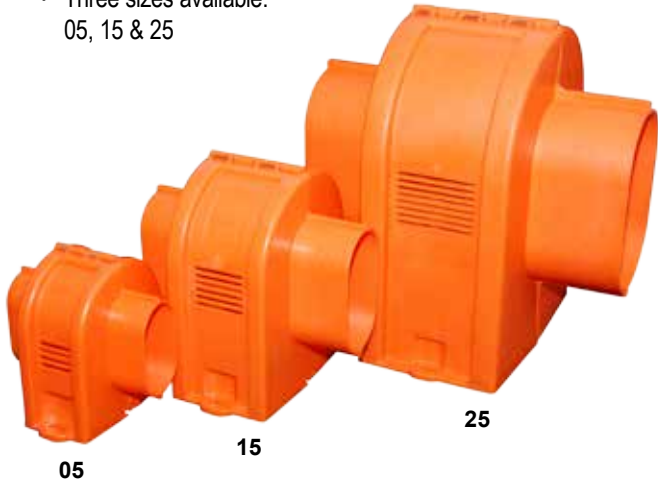
ORANGE PEEL® - ROTATING SHAFT GUARDS TYPE MCG POLYETHYLENE GUARDS

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FEATURES

- **Close-coupled Coupling Guard**

- Three sizes available:
05, 15 & 25



- **Safety:**

- Comply with OSHA, ASME and ANSI standards
- These guards are molded safety orange
- Non-sparking
- Molded ANSI warning labels

- **Ease of Installation:**

- Measure using trim lines, cut and fit hardware
- Saves installation time and expense

- **Low Installation Cost:**

- Less expensive than custom designed guards

- **Easy Coupling Access:**

- Guards are hinged at the top allowing easy access to coupling for inspection or maintenance

- **Each Guard Includes:**

- 2 molded halves assembled with a 304/A2 SS pin
- 4 optional snap-fit end cap halves
- 2 fender washers 304/A2 SS
- Installation manual

- **Construction:**

- Durable and ideal for harsh environments
- -40°F to +170°F (-40°C to +77°C)
- High impact polyethylene
- Stainless steel hardware
- Radial vents
- Optional risers available (sold separately)
- Stainless steel hardware



Guard Size	Viking Part Number	Orange Peel Number	Risers (Steel)	Orange Peel Number	Viking Part Number	Risers (Stainless)	Orange Peel Number	Viking Part Number
MCG05	2-292-L22-925-00	2924200	1.5" Steel	2924219	2-773-085-200-00	1.5" Stainless	2924218	2-773-086-610-00
			3.0" Steel	2924222	2-773-087-200-00	3.0" Stainless	2924221	2-773-088-610-00
			4.5" Steel	2924225	2-773-089-200-00	4.5" Stainless	2924224	2-773-090-610-00
MCG15	2-292-L23-925-00	2924201	2.0" Steel	2924228	2-773-091-200-00	2.0" Stainless	2924218	2-773-092-610-00
			4.0" Steel	2924231	2-773-093-200-00	4.0" Stainless	2924221	2-773-094-610-00
			6.0" Steel	2924234	2-773-095-200-00	6.0" Stainless	2924224	2-773-096-610-00
MCG25	2-292-L24-925-00	2924202	3.0" Steel	2924220	2-773-097-200-00	3.0" Stainless	2924229	2-773-098-610-00
			6.0" Steel	2924223	2-773-099-200-00	6.0" Stainless	2924232	2-773-100-610-00
			9.0" Steel	2924226	2-773-101-200-00	9.0" Stainless	2924235	2-773-102-610-00

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ORANGE PEEL® - ROTATING SHAFT GUARDS TYPE MCG POLYETHYLENE GUARDS

NEMA MOTOR QUICK SELECTIONS:

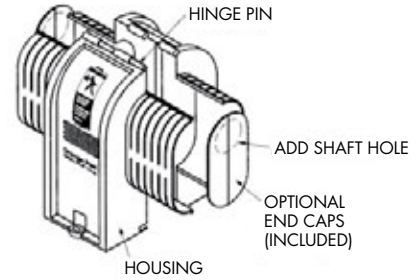
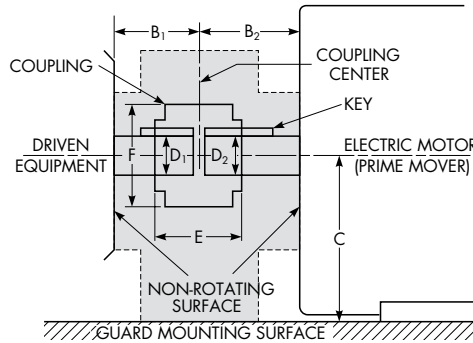
Quick selections are based on the manufacturer's catalog; close-coupled coupling diameter and width, with straight bored hubs. Verify all selection dimensions. Maximum RPM is 3600.

Check B, C, D, E & F Selection Dimensions.

Features: Standard polyethylene guards provide safety compliance, economy and maintenance convenience.

By trimming the guard extensions, MCG Coupling Guards can accommodate a wide range of equipment and shaft coupling types.

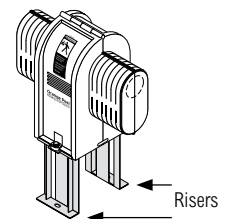
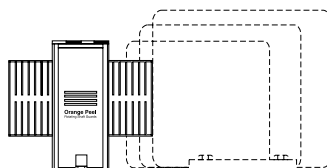
Guards are supplied with molded ISO safety labels.



Motor			Guard Selection		Dimensions (in) / Coupling Size								Optional Riser	
Frame	Shaft Dia	C	ANSI Safety Orange Part Number	Coupling Reference	B Max	B Min	C Max	C Min	D Max	E Max	F Max	Height	Part Number	
48	0.500	3.00	2924200		4.25	2.00	5.25	3.00	1.38	3.50	4.00	1.50	2924218	
56	0.625	3.50	Size 05	Rexnord Wrapflex	Sizes:	5R	-	-	-	-	-	3.00	2924221	
143T	0.875	3.50		Falk Steelflex	Sizes:	1020	1030	-	-	-	-	4.50	2924224	
145T	0.875	3.50		Lovejoy Jaw	Sizes:	70	75	90	95	99	100	1.50 ①	2924227 ①	
182T	1.125	4.50		Woods Sureflex	Sizes:	3	4	5	6	-	-	3.00 ①	2924230 ①	
184T	1.125	4.50		Martin Chain	Sizes:	4012	4016	-	-	-	-	4.50 ①	2924233 ①	
213T	1.375	5.25		Rexnord Omega	Sizes:	E2	-	-	-	-	-	-	-	
215T	1.375	5.25		-	-	-	-	-	-	-	-	-	-	
182T	1.125	4.50	2924201		6.25	2.91	7.50	4.50	2.13	5.00	6.38	2.00	2924219	
184T	1.125	4.50	Size 15	Rexnord Wrapflex	Sizes:	10	20	-	-	-	-	4.00	2924222	
213T	1.375	5.25		Falk Steelflex	Sizes:	1040	1050	1060	-	-	-	6.00	2924225	
215T	1.375	5.25		Lovejoy Jaw	Sizes:	110	150	190	-	-	-	2.00 ①	2924228 ①	
254T	1.625	6.25		Woods Sureflex	Sizes:	7	8	9	-	-	-	4.00 ①	2924231 ①	
256T	1.625	6.25		Rexnord Viva	Sizes:	110	125	130	-	-	-	6.00 ①	2924234 ①	
284T	1.875	7.00		Martin Chain	Sizes:	5016	5018	6018	6020	-	-	-	-	
284TS	1.625	7.00		AGMA Gear	Sizes:	10	15	-	-	-	-	-	-	
286T	1.875	7.00		Rexnord Omega	Sizes:	E4	E5	E10	-	-	-	-	-	
286TS	1.625	7.00		-	-	-	-	-	-	-	-	-	-	
284T	1.875	7.00	2924202		9.25	4.19	11.50	7.00	3.88	7.25	9.63	3.00	2924220	
284TS	1.625	7.00	Size 25	Rexnord Wrapflex	Sizes:	30	40	-	-	-	-	6.00	2924223	
286T	1.875	7.00		Falk Steelflex	Sizes:	1070	1080	1090	-	-	-	9.00	2924226	
286TS	1.625	7.00		Lovejoy Jaw	Sizes:	225	226	-	-	-	-	3.00 ①	2924229 ①	
324T	2.125	8.00		Woods Sureflex	Sizes:	10	11	-	-	-	-	6.00 ①	2924232 ①	
324TS	1.875	8.00		Rexnord Viva	Sizes:	170	190	215	245	-	-	9.00 ①	2924235 ①	
326T	2.125	8.00		Martin Chain	Sizes:	6022	8018	8020	10018	-	-	-	-	
326TS	1.875	8.00		AGMA Gear	Sizes:	20	25	30	-	-	-	-	-	
				Rexnord Omega	Sizes:	E20	E30	E40	-	-	-	-	-	
364T	2.375	9.00												
364TS	1.875	9.00												
365T	2.375	9.00												
365TS	1.875	9.00												
404T	2.875	10.00												
404TS	2.125	10.00												
405T	2.875	10.00												
405TS	2.125	10.00												
444T	3.375	11.00												
444TS	2.375	11.00												
445T	3.375	11.00												
445TS	2.375	11.00												

Guard with Motor Frame Sizes:

Guards for larger frame motors may require guard accessories or an alternative guard design. Please follow MCG guard selection procedure on pages 4-5.



① 304/A2 Stainless Steel.



ORANGE PEEL® - ROTATING SHAFT GUARDS TYPE MCG POLYETHYLENE GUARDS

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IEC MOTOR QUICK SELECTIONS:

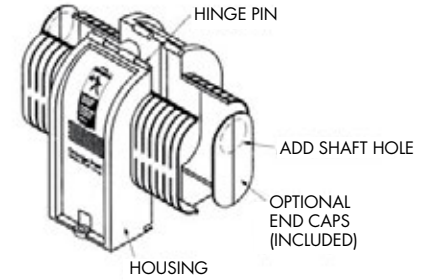
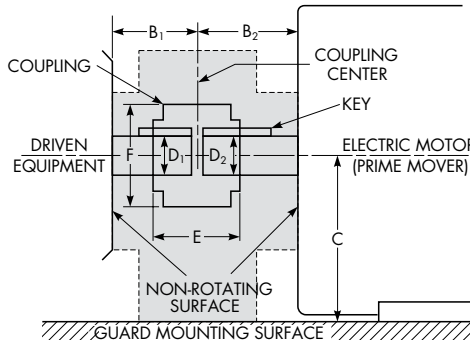
Quick selections are based on the manufacturer's catalog; close-coupled coupling diameter and width, with straight bored hubs. Verify all selection dimensions. Maximum RPM is 3600.

Check B, C, D, E & F Selection Dimensions.

Features: Standard polyethylene guards provide safety compliance, economy and maintenance convenience.

By trimming the guard extensions, MCG Coupling Guards can accommodate a wide range of equipment and shaft coupling types.

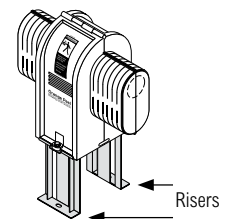
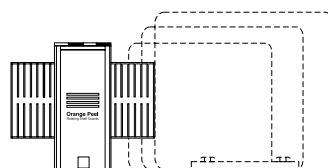
Guards are supplied with molded ISO safety labels.



Motor			Guard Selection		Dimensions (mm) / Coupling Size							Optional Riser		
Frame	Shaft Dia	C	ANSI Safety Orange Part Number	Coupling Reference	B Max	B Min	C Max	C Min	D Max	E Max	F Max	Height	Part Number	
71	14	71	2924200 Size 05		108	51	133	71	38	89	102	38	2924218	
80	19	80		Rexnord Wrapflex	Sizes: 5	-	-	-	-	-	-	76	2924221	
90S	24	90		Falk Steelflex	Sizes: 1020	1030	-	-	-	-	-	114	2924224	
90L	24	90		KTR Curved Jaw	Sizes: 14	19	24	28	-	-	-	38 ①	2924227 ①	
100L	28	100		Woods Sureflex	Sizes: 3	4	5	6	-	-	-	76 ①	2924230 ①	
112M	28	112		Flender N-Eupex	Sizes: 68	80	95	100	-	-	-	114 ①	2924233 ①	
132S	38	132		-	-	-	-	-	-	-	-	-	-	
132M	38	132		-	-	-	-	-	-	-	-	-	-	
112M	28	112		2924201 Size 15		159	74	191	112	55	127	162	51	2924219
132S	38	132			Rexnord Wrapflex	Sizes: 10	20	-	-	-	-	-	102	2924222
132M	38	132	Falk Steelflex		Sizes: 1040	1050	1060	-	-	-	-	152	2924225	
160M	42	160	KTR Curved Jaw		Sizes: 38	42	-	-	-	-	-	51 ①	2924228 ①	
160L	42	160	Woods Sureflex		Sizes: 7	8	9	-	-	-	-	102 ①	2924231 ①	
180M	48	180	Flender N-Eupex		Sizes: 110	125	140	160	-	-	-	152 ①	2924234 ①	
180L	48	180	Rexnord Viva		Sizes: 110	125	130	-	-	-	-	-	-	
200L	55	200	Flender Gear		Sizes: 1	1.5	-	-	-	-	-	-	-	
180M	48	180	2924202 Size 25			235	106	292	178	100	184	245	76	2924220
180L	48	180			Rexnord Wrapflex	Sizes: 30	40	-	-	-	-	-	152	2924223
200L	55	200		Falk Steelflex	Sizes: 1070	1080	1090	-	-	-	-	229	2924226	
225S	60	225		KTR Curved Jaw	Sizes: 48	55	65	-	-	-	-	76 ①	2924229 ①	
225M	60	225		Woods Sureflex	Sizes: 10	11	-	-	-	-	-	152 ①	2924232 ①	
250M	70	250		Flender N-Eupex	Sizes: 180	200	225	-	-	-	-	229 ①	2924235 ①	
280S	75	280		Rexnord Viva	Sizes: 170	190	215	245	-	-	-	-	-	
280M	75	280		Flender Gear	Sizes: 2	2.5	3	-	-	-	-	-	-	
315S	80	315 ②		-	-	-	-	-	-	-	-	-	-	
315M	90	315 ②		-	-	-	-	-	-	-	-	-	-	
355M	100	355 ②	-	-	-	-	-	-	-	-	-	-		
355L	100	355 ②	-	-	-	-	-	-	-	-	-	-		
400M	100	400 ②	-	-	-	-	-	-	-	-	-	-		
400L	100	400 ②	-	-	-	-	-	-	-	-	-	-		

Guard with Motor Frame Sizes:

Guards for larger frame motors may require guard accessories or an alternative guard design. Please follow MCG guard selection procedure on pages 4-5.



① 304/A2 Stainless Steel.
② Riser required.

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ORANGE PEEL® - ROTATING SHAFT GUARDS TYPE MCG POLYETHYLENE GUARDS

PRODUCT SELECTION:

1. Determine application dimensions.

- A _____
- B₁ _____ (trimming dimension)
- B₂ _____ (trimming dimension)
- C _____
- D1 _____
- D2 _____
- E _____
- F _____
- RPM _____

Considerations:

- Install and operate Orange Peel products in conformance with applicable local and national safety codes, and as stated in the supplied Orange Peel Installation and Maintenance Manual.
- The user must make a determination of guard size and suitability for a specific use.
- If application dimensions are preliminary, leave allowances in your selection. Maintain design clearances for couplings that are not symmetrical.
- Allowable temperature range is -40°F to 170°F (-40°C to 77°C), up to 200°F (94°C) intermittent.
- Etched safety labels are molded into the guard halves.
- High-vibratory applications may need additional guard support.

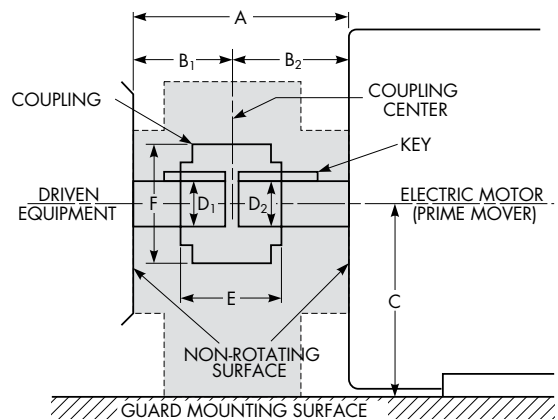
2. Compare application dimensions to guard sizing dimensions in the product selection tables.

If the application dimension exceeds the sizing dimension, select the next largest size.

See Quick Selection tables on pages 2-3.

Application dimension:

- Select the smallest guard size where application dimension E is less than E max.
- Verify that application Dimension F is less than F max. Maximum RPM is 3600.
- Verify that application Dimension A falls between the A max and A min.
- Verify that application Dimensions B1 and B2 fall between B max and B min. The coupling guard can be mounted off center, if clearances permit. Coupling hubs can be overhung to increase application Dimension B.
- Verify that application Dimension C falls between C max and C min. If not, verify that application Dimension C is less than C max w/riser, and add appropriate riser to the guard selection. (Part numbers are shown on page 5.)
- Verify that application Dimensions D1 and D2 are less than D max w/key. Coupling hubs can protrude into the guard extensions, if the diameter is less than D max w/o key.



Product Selection Table (in)

Guard Size	A ① Max	A ② Min	B ① Max	B ② Min	C Max	C Min	C Max with Riser	D Max w/Key	D Min w/o Key	E Max	F Max	ANSI Safety Orange	
												Guard Part No.	Weight (lb)
05	8.5	4.00	4.25	2.00	5.25	3.00	6.75 8.25 9.75	1.38	1.75	3.5	4.00	2924200	1.3
15	12.5	5.81	6.25	2.91	7.5	4.5	9.5 11.5 13.5	2.13	2.63	5.00	6.38	2924201	3.1
25	18.5	8.38	9.25	4.19	11.5	7.00	14.5 17.5 20.5	3.88	4.88	7.25	9.63	2924202	8.1

Product Selection Table (mm)

Guard Size	A ① Max	A ② Min	B ① Max	B ② Min	C Max	C Min	C Max with Riser	D Max w/Key	D Min w/o Key	E Max	F Max	ANSI Safety Orange	
												Guard Part No.	Weight (kg)
05	216	102	108	51	133	71	171 210 248	38	44	89	102	2924200	0.59
15	318	148	159	74	191	112	241 292 343	55	67	127	162	2924201	1.41
25	470	213	235	106	292	178	368 445 521	100	124	184	245	2924202	3.69

① Includes maximum allowable gaps.

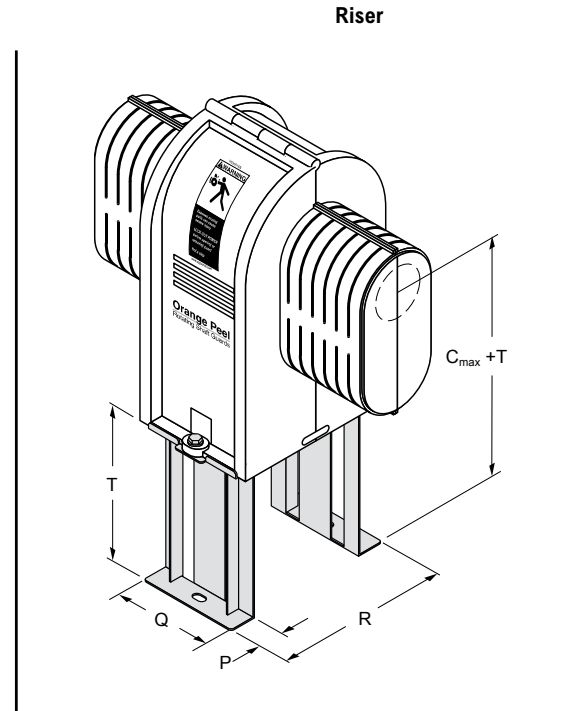
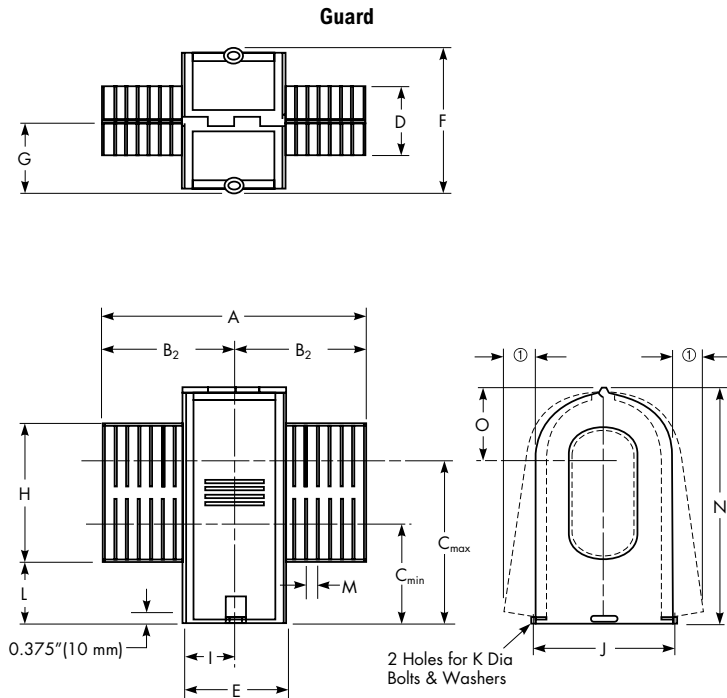
② Without end caps (with end caps, add 0.375"/10 mm per side, allow 0.750" hub to machine clearance).



ORANGE PEEL® - ROTATING SHAFT GUARDS
TYPE MCG POLYETHYLENE GUARDS

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PRODUCT SELECTION & DIMENSIONS:



Notes:

- Guard includes 2 molded halves, assembled with a 304/A2 SS pin, 4 optional snap-fit end cap halves, (2) 304/A2 SS fender washers and installation manual.
- Riser mounting slot is in the same location as the guard.
- Nominal material thickness is 0.13" (3.3 mm) Size 05, 0.16" (4.1 mm) Size 15, 0.19" (4.8 mm) Size 25.
- Polyethylene guards cannot be painted.
- ① Requires a side clearance in each direction for guard removal or installation. Guard bottom can be removed, if mounted on a solid surface.

Optional Riser:

Guard Size	Height Adder (T)		Part Number		Weight	
	(in)	(mm)	Steel	304 SS	(lb)	(kg)
05	1.5	38	2924218	2924227	0.7	0.3
	3	76	2924221	2924230	1	0.5
	4.5	114	2924224	2924233	1.4	0.6
15	2	51	2924219	2924228	0.9	0.4
	4	102	2924222	2924231	1.3	0.6
	6	152	2924225	2924234	1.9	0.9
25	3	76	2924220	2924229	1.8	0.8
	6	152	2924223	2924232	2.8	1.3
	9	229	2924226	2924235	3.6	1.6

Guard Dimensions (in)

Guard Size	A	B	C [Ⓜ] Max	C Min	C Max + T			D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
05	8.00	4.00	5.25	3.00	6.75	8.25	9.75	2.75	4.00	7.38	3.69	5.50	2.00	6.00	0.31	1.37	0.50	8.57	3.32	1.50	4.00	7.44
15	12.00	6.00	7.50	4.50	9.50	11.50	13.50	3.75	5.81	9.94	4.97	7.20	2.91	8.56	0.31	2.40	0.50	12.02	4.52	1.50	5.81	9.94
25	18.00	9.00	11.50	7.00	14.50	17.50	20.50	6.00	8.38	13.62	6.81	10.63	4.19	12.25	0.31	3.94	0.50	18.13	6.63	2.00	8.38	12.56

Guard Dimensions (mm)

Guard Size	A	B	C [Ⓜ] Max	C Min	C Max + T			D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
05	203	102	133	71	171	210	248	70	102	188	94	140	51	154	8	35	12.5	218	84	38	102	189
15	305	152	191	112	241	292	343	95	148	252	126	183	74	217	8	61	12.5	305	115	38	148	252
25	457	229	292	178	368	445	521	152	213	346	173	270	106	311	8	100	12.5	461	168	51	213	319

Ⓜ Add Riser (T), to increase C max dimension.

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Section 610

Viking Helical Gear Reducers

(Sizes "A", "B", and "C")

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VIKING HELICAL GEAR REDUCERS

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SIZES A, B AND C

Gear Ratio Range: (varies by reducer size)	1.87:1 to 7.95:1
--	------------------

Output Speeds (with 1750 rpm input)	950 to 220 rpm
-------------------------------------	----------------

Reducer Horsepower Range:	1.4 HP (.1 kW) to 49.8 HP (37.2 kW)
---------------------------	-------------------------------------

THREE SIZES

Viking's helical gear reducers are available in three basic sizes, each size offering several gear ratios.



"A" Size Reducer
(mounting bracket on input side)



"B" Size Reducer
(mounting bracket on output side)

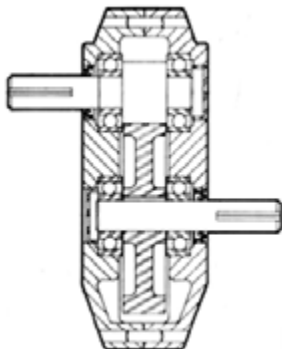


"C" Size Reducer
(mounting bracket on output side)



UNIVERSAL MOUNTING

Each size has one or more mounting brackets which match the reducer's output (slow speed) shaft height to the drive shaft height on one or more Viking pumps. Adjustment slots on the brackets allow you to swivel the reducer's input (high speed) shaft height to adapt to a variety of motors or other prime movers. These mounting brackets assure no radial load on the reducer, drive or driven shafts.



SIMPLE, ROBUST DESIGN

All ratios are fully interchangeable in each gearbox. All three reducers contain a hardened steel pinion and gear supported by precision ball bearings.

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VIKING HELICAL GEAR REDUCERS

SIZES A, B AND C

SELECTING THE CORRECT VIKING HELICAL GEAR REDUCER

1. Determine the actual horsepower requirements of the application from the pump curve or specifications for other driven equipment.
2. Determine the “equivalent horsepower” for the application by multiplying the actual horsepower to be transmitted by the appropriate service factor, which can be obtained from the Service Factor Table on page 4. This service factor takes into account the length of service per day, the load classification (uniform, moderate shock, heavy shock), and the type of drive. A table of driven load classifications is included to help you determine the service factor to use.
3. Find the reducer from the Horsepower Tables on pages 4 and 5 which most closely matches your speed requirements. Make sure the equivalent horsepower (kW) for a given input speed and ratio is less than or equal to the maximum recommended horsepower (kW) shown in the chart on the “MAXIMUM REDUCER HP / KW” lines.
4. Select the correct reducer bracket to match the driven load’s shaft height. For Viking Pumps, refer to the table “Shaft Center Height for Common Viking Pumps” on the following page, but always verify shaft height on the actual pump’s dimensional drawing. For certain pumps, a set of Pump and Reducer Mounting Pads are required to match the pump shaft height to the reducer shaft height, as listed below:
 - For General Purpose “L,” “LQ” and “LL” pumps with 6” shaft height, use Pump and Reducer Mounting Pads, Part No. 2-773-008-200 (2-Req’d) under the 5-1/2” reducer bracket for “B” reducer units.
 - For Heavy Duty “L,” “LQ,” “LL” and “LS” pumps with 7” shaft height, use Pump and Reducer Mounting Pads, Part No. 2-773-011-200 (2-Req’d) under the pump, and the 7-3/4” reducer bracket for “C” reducer units.
 - For “Q” and “QS” Heavy Duty pumps with 8-3/4” shaft height, use Pump and Reducer Mounting Pads, Part No. 2-773-010-200 (2-Req’d) under the 7-3/4” reducer bracket for “C” reducer units.
 - For “M” Heavy Duty pumps with 10” shaft height, use Pump and Reducer Mounting Pads, Part No. 2-773-009-200 (2-Req’d), and the 9-1/2” reducer bracket for “C” reducer units.
5. Check the Specifications table to ensure that the shaft center height of your driver falls within the Input Shaft Center Height Min / Max range.

Example:

A Viking K125 requires a 7 HP driver at 420 rpm to deliver the desired output of 40 gpm at 200 psi on 100 SSU fluid (from the pump curve), and is driven 24 hours per day. Using the Service Factor table, multiply the service factor (in this case, 1.25) times the horsepower required (7 HP) for a reducer horsepower requirement of 8.75 HP.

Looking at the Specifications Table, using a 1750 rpm motor, the desired 420 RPM output speed requires a reducer gear ratio of about 4.2:1. Reviewing the Horsepower tables, the “A” size reducer’s Maximum Reducer HP at 3.1 is insufficient. The “B” size reducer offers a Maximum Reducer HP of 11 HP, which exceeds the 8.75 HP required, so select the “B” reducer with 4.19:1 ratio, P/N 3-551-003-419.

Because the pump has a 5-1/2” shaft height, select the “B” reducer bracket with matching output shaft height, P/N 2-074-008-100. Check that the driver shaft height is within the min/max input shaft height range (2.12” to 8.88”) of this reducer bracket. The selected driver, a 213T frame motor with 5-1/4” shaft height, is within the allowable range.

VIKING HELICAL GEAR REDUCERS

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SIZES A, B AND C

SPECIFICATIONS: HELICAL GEAR REDUCERS AND BRACKETS

Reducer Size	Viking Reducer Part No.	Gear Ratio	Output Speeds (RPM)				Approx. Shipping Wt. (lbs./ Kg)	¹ Viking Reducer Bracket Part No.	Output Shaft Center Height (In.)	Approx. Shipping Wt. (lbs./ Kg)
			@ 950 RPM Input	@ 1450 RPM Input	@1150 RPM Input	@1750 RPM Input				
A	3-551-049-224	2.24:1	420	640	520	780	21 / 9.5	2-074-020-100	3-1/2	6 / 2.7
	3-551-050-276	2.76:1	350	520	420	640				
	3-551-051-343	3.43:1	280	420	350	520				
	3-551-052-417	4.17:1	230	350	280	420				
B	3-551-054-187	1.87:1	520	780	640	950	37 / 16.8	2-074-010-100	4-5/8	9 / 4.1
	3-551-055-224	2.24:1	420	640	520	780		2-074-008-100	5-1/2	10 / 4.5
	3-551-001-276	2.76:1	350	520	420	640				
	3-551-002-340	3.40:1	280	420	350	520				
	3-551-003-419	4.19:1	230	350	280	420				
	3-551-004-506	5.06:1	190	280	230	350				
	3-551-005-627	6.27:1	155	230	190	280				
3-551-007-765	7.65:1	125	190	155	230	2-074-007-100	7	11 / 5.0		
C	3-551-056-221	2.21:1	420	640	520	780	94 / 42.6	2-074-011-100	7-3/4	19 / 8.6
	3-551-032-280	2.80:1	350	520	420	640				
	3-551-008-331	3.31:1	280	420	350	520				
	3-551-009-421	4.21:1	230	350	280	420				
	3-551-010-508	5.08:1	190	280	230	350				
	3-551-011-624	6.24:1	155	230	190	280		2-074-012-100	9-1/2	24 / 10.9
3-551-012-795	7.95:1	120	180	145	220					

- Any "B" size reducer bracket may be used with any "B" size reducer, and any "C" size reducer bracket may be used with any "C" size reducer.
- Shows adjustment range of input (high speed) shaft, allowing the gear reducer to be matched to various drivers. Range will change when using Pump and Reducer Mounting Pads.

SHAFT CENTER HEIGHT FOR COMMON VIKING PUMPS

Pump Size	Shaft Centerline Height (inches)	
	Gen. Purpose Pumps Series 32, 432, 34	Heavy Duty Pumps – Series 125, 4125, 225, 4225, 335, 4335, 123, 4123, 333, 4333, 127, 4127, 337, 4337, 724, ¹ 4724 ¹ , 124A, 4124A, 126A, 4126A, 123A, 4123A, 127A, 4127A, 827, 823, 825
C, F, FH	1-5/8	
G, GG	2-3/4	2-3/4 ¹
H, HJ, HL	2-3/4	3-1/2
AS, AK, AL		5-1/4
J	4-5/8	
K, KK	4-5/8	5-1/2
L, LQ, LL, LS	6	7
Q, QS	7-3/4	8-3/4
M	9-1/2	10
N	9-1/2	9-1/2
R		13-1/4

1. G724 and G4724 are 2"

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VIKING HELICAL GEAR REDUCERS

SIZES A, B AND C

SERVICE FACTOR TABLE

POWER SOURCE ^{1,3}	CLASSIFICATION OF DRIVEN LOAD ^{2,3}	INTERMITTENT UP TO 3 HOURS PER DAY	8 TO 10 HOURS PER DAY	24 HOURS PER DAY
Electric Motor, Steam Turbine, or Hydraulic Motor	Uniform	0.8	1.0	1.25
	Moderate Shock	1.0	1.25	1.5
	Heavy Shock	1.5	1.75	2.0
MULTI-CYLINDER Internal Combustion Engine	Uniform	1.0	1.25	1.5
	Moderate Shock	1.25	1.5	1.75
	Heavy Shock	1.75	2.0	2.25

1. For applications driven by single cylinder engines, refer to factory for other service factors.
2. Rotary Pump applications are classified as Uniform Loads.
3. Use of belt or chain type drives to either reducer input or output shaft is not recommended.

DRIVEN LOAD CLASSIFICATIONS

(Excerpted from AGMA Information Sheet 922-A96 ©1996)

Key: U = Uniform Load; M = Moderate Shock; H = Heavy Shock

APPLICATION	LOAD CLASSIFICATION	APPLICATION	LOAD CLASSIFICATION
Pumps, Rotary and Centrifugal	U	Fans, Cooling Tower	M
Pumps, Reciprocating	M	Feeders, Apron, Belt, Screw	U
Agitators	U	Feeders, Reciprocating	M
Blowers	U	Generators	U
Compressors, Centrifugal & Lobe	U	Hammer Mills	M
Compressors, Reciprocating	M	Machine Tools	M
Cranes and Hoists	M	Mills, Rotary	M
Crushers, Ore and Stone	H	Mixers, Concrete, Drum Type	M
Elevators	M	Printing Presses	U
Fans, Centrifugal, Forced Draft	U	Sewage Disposal Bar Screens	U

VIKING "A" SIZE HELICAL REDUCER HORSEPOWER TABLE

HIGH SPEED SHAFT INPUT RPM ¹	VIKING GEAR REDUCER RATIOS "A" SIZE				
	2.24 to 1	2.76 to 1	3.43 to 1	4.17 to 1	
1750	780	640	520	420	Low Speed Shaft RPM
	6.1 / 4.6	4.9 / 3.7	3.8 / 2.8	3.1 / 2.3	Maximum Reducer HP / KW
1450	640	520	420	350	Low Speed Shaft RPM
	5.2 / 3.9	4.2 / 3.1	3.2 / 2.4	2.7 / 2.0	Maximum Reducer HP / KW
1150	520	420	350	280	Low Speed Shaft RPM
	4.3 / 3.2	3.4 / 2.5	2.6 / 1.9	2.2 / 1.6	Maximum Reducer HP / KW
950	420	350	280	230	Low Speed Shaft RPM
	3.6 / 2.7	2.9 / 2.2	2.2 / 1.6	1.8 / 1.3	Maximum Reducer HP / KW
870	390	320	260	210	Low Speed Shaft RPM
	3.3 / 2.5	2.7 / 2.0	2.0 / 1.5	1.7 / 1.3	Maximum Reducer HP / KW
720	320	260	210	175	Low Speed Shaft RPM
	2.8 / 2.1	2.2 / 1.6	1.7 / 1.3	1.4 / 1.0	Maximum Reducer HP / KW

VIKING HELICAL GEAR REDUCERS

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SIZES A, B AND C

VIKING “B” SIZE HELICAL REDUCER HORSEPOWER TABLE

HIGH SPEED SHAFT INPUT RPM ¹	VIKING GEAR REDUCER RATIOS “B” SIZE								
	1.87 to 1	2.24 to 1	2.76 to 1	3.40 to 1	4.19 to 1	5.06 to 1	6.27 to 1	7.65 to 1	
1750	950	780	640	520	420	350	280	230	Low Speed Shaft RPM
	19.0 / 14.2	17.0 / 12.7	15.0 / 11.2	13.0 / 9.7	11.0 / 8.2	9.5 / 7.1	7.6 / 5.7	6.4 / 4.8	Maximum Reducer HP / KW
1450	780	640	520	420	350	280	230	190	Low Speed Shaft RPM
	17.3 / 12.9	15.5 / 11.6	13.4 / 10.0	11.6 / 8.7	9.9 / 7.4	8.5 / 6.3	6.4 / 4.8	5.4 / 4.0	Maximum Reducer HP / KW
1150	640	520	420	350	280	230	190	155	Low Speed Shaft RPM
	16.5 / 12.3	14.0 / 10.4	11.6 / 8.7	10.1 / 7.5	8.5 / 6.3	7.3 / 5.4	5.3 / 4.0	4.4 / 3.3	Maximum Reducer HP / KW
950	520	420	350	280	230	190	155	125	Low Speed Shaft RPM
	15.5 / 11.6	12.8 / 9.5	10.1 / 7.5	9.0 / 6.7	7.6 / 5.7	6.0 / 4.5	4.3 / 3.2	3.7 / 2.8	Maximum Reducer HP / KW
870	470	390	320	260	210	175	140	115	Low Speed Shaft RPM
	13.7 / 10.2	11.3 / 8.4	9.3 / 6.9	8.5 / 6.3	7.2 / 5.4	5.6 / 4.2	4.0 / 3.0	3.4 / 2.5	Maximum Reducer HP / KW
720	390	320	260	210	175	140	115	95	Low Speed Shaft RPM
	11.7 / 8.7	9.6 / 7.2	7.8 / 5.8	7.5 / 5.6	6.1 / 4.6	4.7 / 3.5	3.4 / 2.5	2.8 / 2.1	Maximum Reducer HP / KW

VIKING “C” SIZE HELICAL REDUCER HORSEPOWER TABLE

HIGH SPEED SHAFT INPUT RPM ¹	VIKING GEAR REDUCER RATIOS “C” SIZE							
	2.21 to 1	2.80 to 1	3.31 to 1	4.21 to 1	5.08 to 1	6.24 to 1	7.95 to 1	
1750	780	640	520	420	350	280	220	Low Speed Shaft RPM
	49.8 / 37.2	43.5 / 32.5	39.0 / 29.1	32.4 / 24.2	26.6 / 19.8	19.7 / 14.7	18.0 / 13.4	Maximum Reducer HP / KW
1450	640	520	420	350	280	230	180	Low Speed Shaft RPM
	45.3 / 33.8	36.6 / 27.3	32.8 / 24.6	27.2 / 20.3	22.3 / 16.6	16.7 / 12.5	15.2 / 11.3	Maximum Reducer HP / KW
1150	520	420	350	280	230	190	145	Low Speed Shaft RPM
	40.1 / 29.9	30.0 / 22.4	26.8 / 20.0	22.2 / 16.6	18.2 / 13.6	13.8 / 10.3	12.6 / 9.4	Maximum Reducer HP / KW
950	420	350	280	230	190	155	120	Low Speed Shaft RPM
	29.1 / 21.7	24.7 / 18.4	22.1 / 16.5	18.3 / 13.7	15.0 / 11.2	11.4 / 8.5	10.4 / 7.8	Maximum Reducer HP / KW
870	400	320	260	215	175	140	110	Low Speed Shaft RPM
	28.4 / 21.2	22.7 / 16.9	20.3 / 15.1	16.8 / 12.5	13.8 / 10.3	10.6 / 7.9	9.6 / 7.2	Maximum Reducer HP / KW
720	330	260	215	175	140	115	90	Low Speed Shaft RPM
	24.1 / 18.0	19.0 / 14.2	17.0 / 12.7	14.1 / 10.5	11.5 / 8.6	8.9 / 6.6	8.1 / 6.0	Maximum Reducer HP / KW

1. For input speeds higher than 1750 RPM, consult the factory.

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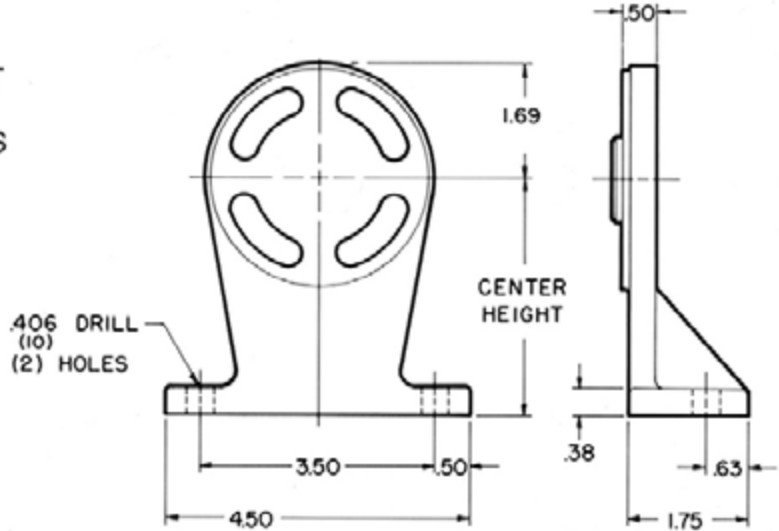
VIKING HELICAL GEAR REDUCERS

SIZES A, B AND C

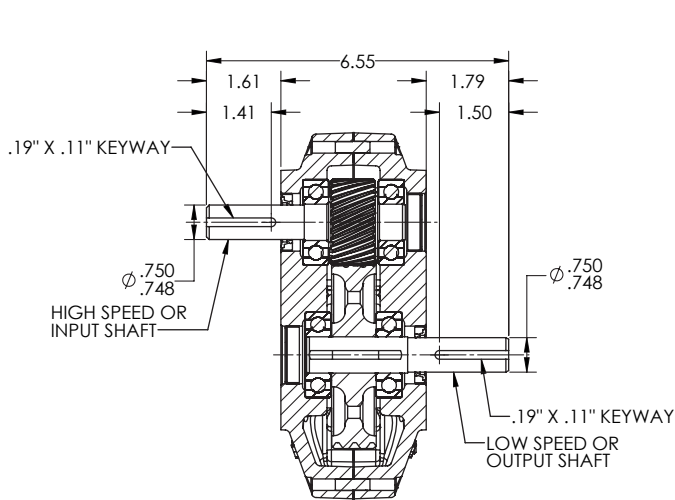
DIMENSIONS "A" SIZE REDUCER BRACKET

NOTE: VIKING BRACKET MOUNTS ON OUTPUT SHAFT SIDE OF REDUCER. HOLES ARE DRILLED IN BOTH SIDES OF REDUCER.

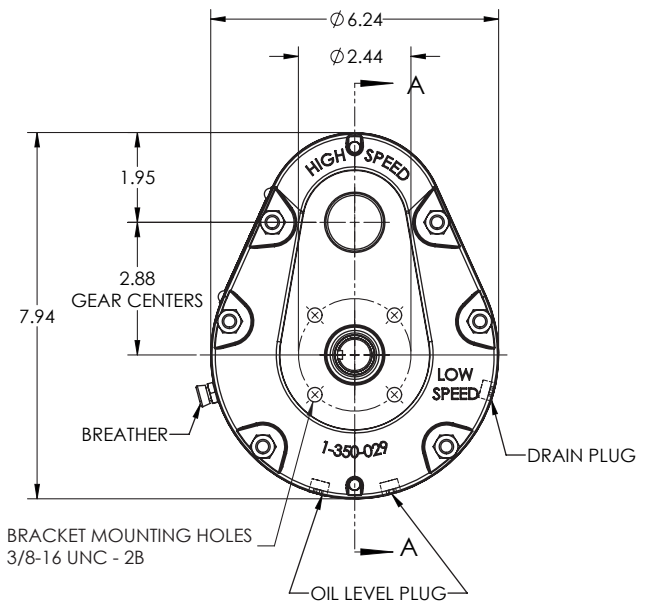
VIKING NUMBER	CENTER HEIGHT
2-074-020-100	3.50



DIMENSIONS "A" SIZE VIKING HELICAL GEAR REDUCER



SECTION A-A

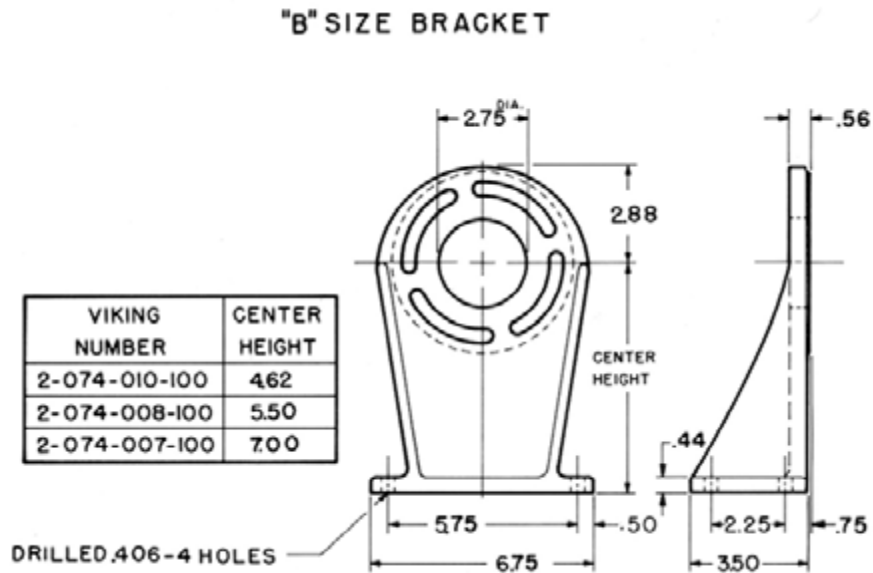


VIKING HELICAL GEAR REDUCERS

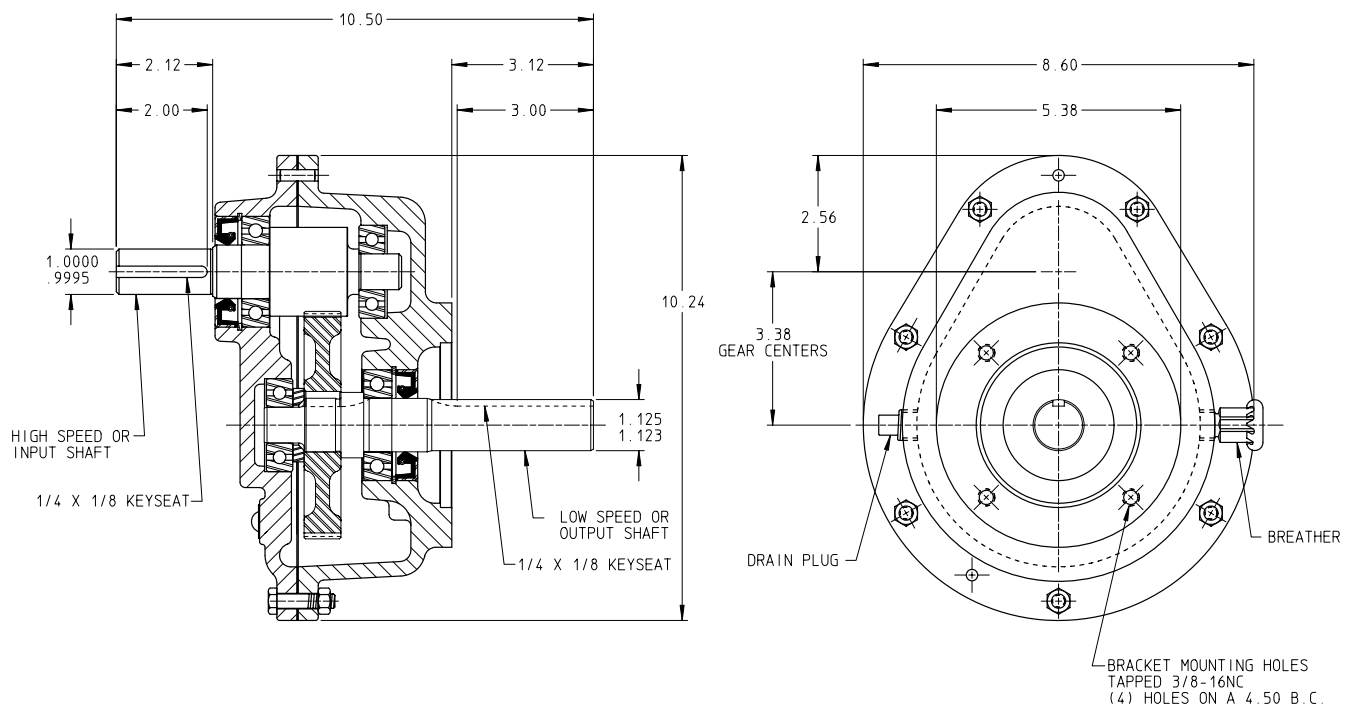
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SIZES A, B AND C

DIMENSIONS "B" SIZE REDUCER BRACKET



DIMENSIONS "B" SIZE VIKING HELICAL GEAR REDUCER

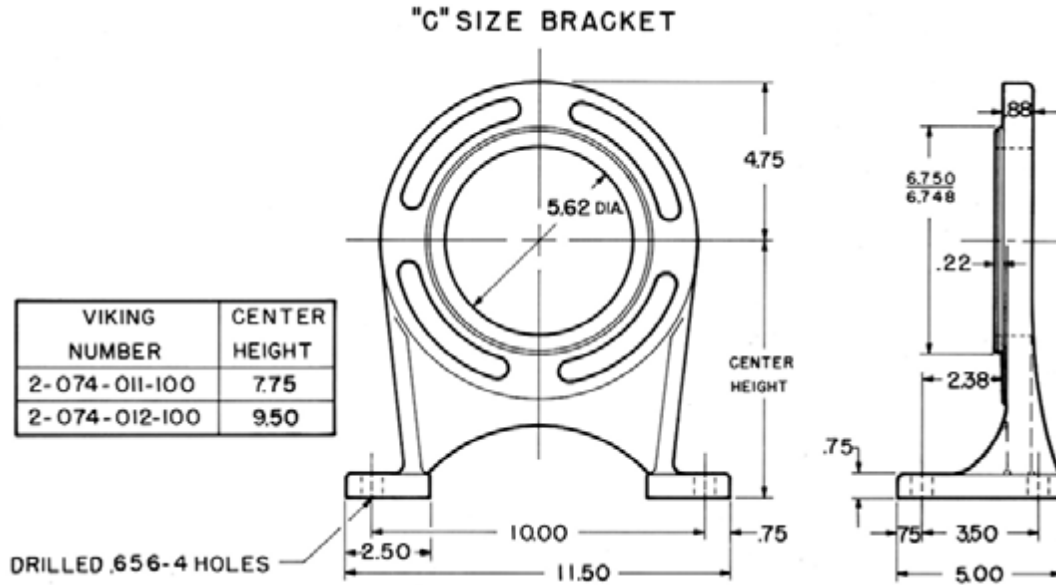


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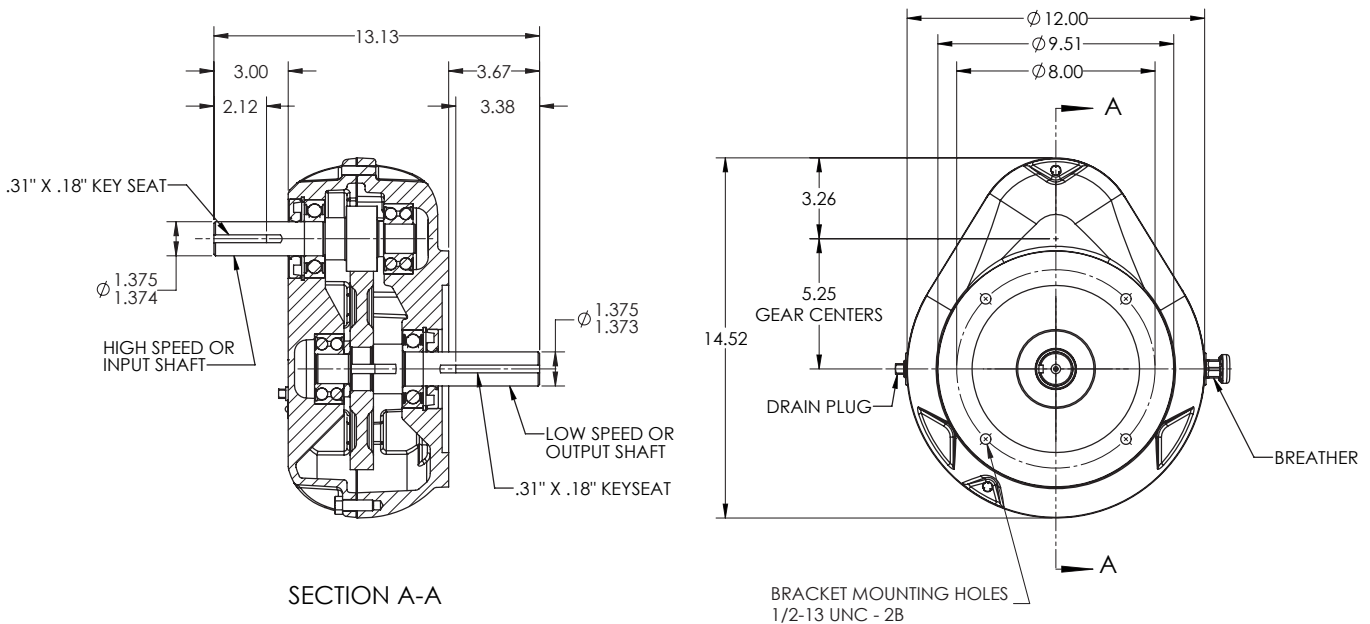
VIKING HELICAL GEAR REDUCERS

SIZES A, B AND C

DIMENSIONS "C" SIZE REDUCER BRACKET



DIMENSIONS "C" SIZE VIKING HELICAL GEAR REDUCER

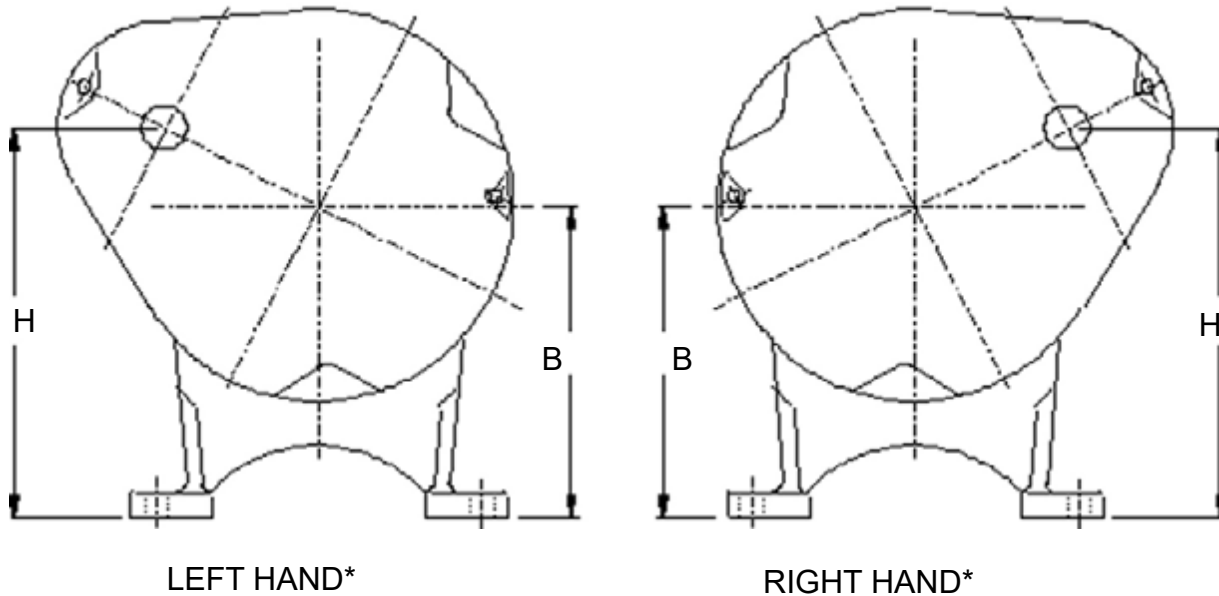


VIKING HELICAL GEAR REDUCERS

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SIZES A, B AND C

INPUT SHAFT CENTER HEIGHT MIN/MAX



*Viewed from input shaft end
 B – Output shaft center height (Centerline of mounting bracket)
 H – Input shaft center height

Size	Mounting Bracket Part No.	Output Shaft Center Height [in.]	Left Hand		Right Hand	
			Input Shaft Center Height [in.]		Input Shaft Center Height [in.]	
			Max.	Min.	Max.	Min.
A	2-074-020-100	3-1/2	4-1/2	2-3/8	4-1/2	2-3/8
B	2-074-010-100	4-5/8	6-1/8	2-5/8	6-5/8	3-1/8
	2-074-008-100	5-1/2	7-1/8	3-5/8	7-3/8	3-7/8
	2-074-007-100	7	9-3/8	6	8	4-5/8
C	2-074-011-100	7-3/4	10-1/2	5-1/2	10	5
	2-074-012-100	9-1/2	12-1/8	7-1/4	11-3/4	6-3/4

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VIKING HELICAL GEAR REDUCERS

SIZES A, B AND C

APPLICATION DATA SHEET

COMPANY _____ DATE _____
 NAME _____ TITLE _____
 ADDRESS _____ CITY _____ STATE _____
 COUNTRY _____ POSTAL CODE _____
 PHONE _____ FAX _____ EMAIL _____

PRIME MOVER

() Electric Motor; () Gasoline Engine; () Diesel Engine; () Steam Engine; () Turbine;
 Number of Cylinders _____; Normal Operating Speed _____ RPM;
 Speed Range: (Min.) _____ RPM; (Max.) _____ RPM;
 Normal Rating _____ HP at _____ RPM;
 Maximum Overload Capacity _____ HP at _____ RPM;
 Special Features _____

DRIVEN EQUIPMENT

Description _____
 Character of Load: () Smooth; () Moderate Shock; () Heavy Shock;
 Daily Operating Period: () Not to exceed 3 hours; () 8 to 10 hours; () 24 hours;
 Rotation: () Continuously One Direction; () Reversing Service;
 Actual Starting Load _____ HP; How Frequent _____
 Actual Normal Operating Load _____ HP; _____ HP at Min RPM; _____ HP at Max RPM;
 Actual Max. Peak Load _____ HP; How Frequent _____
 Cycle of Operation _____
 Special Features, Unusual Operating Conditions (Fumes, Dust, Temperature, Moisture, etc.) _____

CONNECTION TO REDUCER

INPUT SHAFT

OUTPUT SHAFT

() Flexible Coupling _____ Type _____ Size _____ () Flexible Coupling _____ Type _____ Size
 () Chain Drive _____ Pitch Diameter _____ () Chain Drive _____ Pitch Diameter
 () V-Belt _____ Pitch Diameter _____ () V-Belt _____ Pitch Diameter
 () Flat Belt _____ Pulley O.D. _____ () Flat Belt _____ Pulley O.D.
 () Gear _____ Pitch Diameter _____ () Gear _____ Pitch Diameter
 () Number & Size Belts _____ Belt Width _____

SPEED REDUCER

Quantity Required _____; Size _____ "A" _____ "B" _____ "C"
 Input Speed _____ RPM; Output Speed _____ RPM; Ratio Desired _____ to 1;
 Mounting: () Horizontal; () Vertical, Input Shaft Up; () Vertical, Output Shaft Up;
 () Other (Please describe and attach sketch) _____
 Location: () Inside; () Outside; Ambient Temperature Range _____ °F / °C?
 () Overhung Load on Low Speed Shaft; () Overhung Load on High Speed Shaft
 _____ Desired Direction of Overhung Load (please attach sketch);
 Special Features _____

COMMENTS _____

Section 615

Viking In-Line Helical

Gear Reducers

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Viking In-Line Helical Gear Reducers

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Gear Ratio Range: (varies by reducer size) From 2.63:1 to 38.0:1 (Varies by reducer size)

Output Speeds (with 1750 rpm input) 46 – 665 rpm

Reducer Horsepower Range: .5 HP (.37 kW) to 350 HP (261 kW)

Major Design Features

Features:

- Available in eleven sizes and a variety of ratios, all double reduction
- Compact design
- Universal mounting
 - solid input shaft
 - hollow input shaft with NEMA C or IEC Flange Mount Option
- High efficiency
- Low noise levels
- Gears in hardened and case-hardened steel
- Input and output shafts in high-strength steel
- Sizes 12, 22 and 32 with unpainted aluminum housings
- Sizes 36 – 100 with painted cast iron housings
- Sizes 12 – 41 come factory filled with synthetic lubricant and are “lubed for life.”



Size 32 Solid Shaft, input end



Size 32 Solid Shaft, output end



Size 22 NEMA C, input end



Size 22 NEMA C, output end

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Viking In-Line Helical Gear Reducers

Viking In-Line helical gear reducers are available in 11 sizes and offer many ratios within each size range. All sizes and ratios offer a choice of a solid high speed input shaft or a hollow input shaft combined with a choice of NEMA C or IEC flange adaptors.

Sizes 12, 22, & 32 have aluminum housings (and aluminum flanges if NEMA C or IEC). They are shipped unpainted. Sizes 36 –100 have cast iron housings and are painted.

Sizes 12, 22, 32, 36 & 41 are supplied with lifetime lubrication (synthetic gear lubricant suitable for ambient temperatures 32 to 122°F (0 to 50°C), and do not have oil filling or oil level plugs. Sizes 51 – 100 require filling with the proper lubricant before start-up. (See TSM 615, Table 1 and Table 2.)

Additional ratios in all sizes may be available beyond those shown in this catalog section. Please consult factory for additional information.

SELECTING THE CORRECT VIKING IN-LINE HELICAL GEAR REDUCER

1. Determine the actual horsepower requirements of the application from the pump performance curve, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector, or specifications from other equipment.
2. Determine the “equivalent horsepower” for the application by multiplying the actual horsepower to be transmitted by the appropriate service factor, which can be obtained from the Service Factor Table on page 3. This service factor takes into account length of service per day, the load classification (uniform, moderate shock, heavy shock), and the type of drive. A table of driven load classifications is included to help you determine the service factor to use.
3. Find the reducer from the horsepower tables on pages 4 thru 14 which most closely matches your speed requirements. Make sure the application’s equivalent horsepower (kW) for a given input speed and ratio is less than or equal to the maximum recommended horsepower (kW) shown in the chart on the “MAXIMUM REDUCER HORSEPOWER / kW” lines.

Example:

A Viking K124A requires a 7.3 HP driver at 390 rpm to deliver the desired output of 40 gpm at 200 psi on 7500 SSU fluid (from the pump curve generated from the pump selector program, located on www.vikingpump.com/pumpselector), and is driven 24 hours per day. Using the Service Factor table, multiply the service factor (in this case 1.25) times the horsepower required (7.3 HP) for a reducer requirement of 9.13 HP.

Looking at the Specifications tables using a 1750 rpm motor, the desired 390 RPM output speed requires a gear ratio of about 4.5:1. Reviewing the Horsepower tables, we find that the Size 36 reducer with a 4.62:1 ratio (giving a 379 rpm output speed) and a 11.2 HP rating most closely meets the requirements.

Important Ordering Information:

When ordering a reducer with solid shaft input all that is required is the part number of the reducer as is provided in the pages that follow. i.e. 3-551-XXX-YYY-**00**.

When ordering a reducer with NEMA C-flange or IEC flange motor mount, you must specify the motor frame size in the last two digits of the part number. i.e: 3-551-XXX-YYY-**56** for 56C frame, or 3-551-XXX-YYY-**21** for 213TC-215TC frame motor, or 3-551-XXX-YYY-**13** for IEC 132 frame motor. The available motor flange sizes are listed at the bottom of each reducer size specification table.

Special note: Use **-10** as last two digits for IEC frames 100 and 112 as they are dimensionally interchangeable.

Viking In-Line Helical Gear Reducers

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SERVICE FACTOR TABLE

POWER SOURCE	CLASSIFICATION OF DRIVEN LOAD*	INTERMITTENT UP TO 3 HOURS per DAY	8 – 10 HOURS per DAY	24 HOURS per DAY
Electric Motor, Steam Turbine, or Hydraulic Motor	Uniform	0.8	1.0	1.25
	Moderate Shock	1.0	1.25	1.5
	Heavy Shock	1.5	1.75	2.0
Multi-cylinder Internal Combustion Engine	Uniform	1.0	1.25	1.5
	Moderate Shock	1.25	1.5	1.75
	Heavy Shock	1.75	2.0	2.25

* Rotary Pump applications are classified as Uniform Loads.

DRIVEN LOAD CLASSIFICATIONS

(excerpted from AGMA Information Sheet 922-A96©1996)

Key: U = Uniform Load; M = Moderate Shock Load; H = Heavy Shock Load

APPLICATION	LOAD CLASSIFICATION	APPLICATION	LOAD CLASSIFICATION
Pumps, Rotary and Centrifugal	U	Fans, Cooling Tower	M
Pumps, Reciprocating	M	Feeders, Apron, Belt, Screw	U
Agitators	U	Feeders, Reciprocating	M
Blowers	U	Generators	U
Compressors, Centrifugal & Lobe	U	Hammer Mills	M
Compressors, Reciprocating	M	Machine Tools	M
Cranes and Hoists	M	Mills, Rotary	M
Crushers, Ore and Stone	H	Mixers, Concrete, Drum Type	M
Elevators	M	Printing Presses	U
Fans, Centrifugal, Forced Draft	U	Sewage Disposal Bar Screens	U

REDUCER WEIGHT

Reducer weights are shown on specification page for each reducer. The weights are approximate and are given in Lbs. (Kg). Basic frame sizes are shown but other frame sizes are included. For example, 145TC is actually for the 143TC and 145TC. Complete list is shown below.

145TC = 143TC and 145TC	71 IEC = 63 IEC and 71 IEC
184TC = 182TC and 184TC	90 IEC = 80 IEC and 90 IEC
215TC = 213TC and 215TC	
256TC = 254TC and 256TC	
286TC = 284TC and 286TC	

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Viking In-Line Helical Gear Reducers

SPECIFICATIONS: SIZE 12

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.		Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft Nema C flg. IEC flg.	3-551-120-028-00 3-551-12C-028-(frame size) 3-551-12E-028-(frame size)	2.77	632 / 3.4 (2.5)	523 / 3.0 (2.2)	415 / 2.5 (1.8)	343 / 1.9 (1.4)
Solid Shaft Nema C flg. IEC flg.	3-551-120-032-00 3-551-12C-032-(frame size) 3-551-12E-032-(frame size)	3.21	547 / 3.1 (2.3)	453 / 2.6 (1.9)	359 / 2.1 (1.5)	297 / 1.7 (1.3)
Solid Shaft Nema C flg. IEC flg.	3-551-120-037-00 3-551-12C-037-(frame size) 3-551-12E-037-(frame size)	3.65	479 / 2.9 (2.1)	397 / 2.5 (1.8)	315 / 2.1 (1.6)	260 / 1.6 (1.2)
Solid Shaft Nema C flg. IEC flg.	3-551-120-043-00 3-551-12C-043-(frame size) 3-551-12E-043-(frame size)	4.31	406 / 2.6 (2.0)	336 / 2.2 (1.6)	267 / 1.7 (1.3)	220 / 1.4 (1.1)
Solid Shaft Nema C flg. IEC flg.	3-551-120-049-00 3-551-12C-049-(frame size) 3-551-12E-049-(frame size)	4.87	359 / 2.5 (1.8)	298 / 2.2 (1.6)	236 / 1.8 (1.3)	195 / 1.4 (1.0)
Solid Shaft Nema C flg. IEC flg.	3-551-120-056-00 3-551-12C-056-(frame size) 3-551-12E-056-(frame size)	5.60	313 / 2.2 (1.7)	259 / 1.9 (1.4)	205 / 1.5 (1.1)	170 / 1.2 (.91)
Solid Shaft Nema C flg. IEC flg.	3-551-120-062-00 3-551-12C-062-(frame size) 3-551-12E-062-(frame size)	6.23	281 / 2.2 (1.6)	233 / 1.9 (1.4)	185 / 1.6 (1.2)	152 / 1.2 (.89)
Solid Shaft Nema C flg. IEC flg.	3-551-120-076-00 3-551-12C-076-(frame size) 3-551-12E-076-(frame size)	7.62	230 / 1.9 (1.4)	190 / 1.7 (1.2)	151 / 1.4 (1.0)	125 / 1.1 (.82)
Solid Shaft Nema C flg. IEC flg.	3-551-120-088-00 3-551-12C-088-(frame size) 3-551-12E-088-(frame size)	8.83	198 / 1.7 (1.2)	164 / 1.4 (1.0)	130 / 1.1 (.82)	108 / .90 (.67)
Solid Shaft Nema C flg. IEC flg.	3-551-120-101-00 3-551-12C-101-(frame size) 3-551-12E-101-(frame size)	10.1	174 / 1.6 (1.2)	144 / 1.4 (1.0)	114 / 1.2 (.90)	94 / .95 (.71)
Solid Shaft Nema C flg. IEC flg.	3-551-120-119-00 3-551-12C-119-(frame size) 3-551-12E-119-(frame size)	11.9	147 / 1.4 (1.1)	122 / 1.2 (.90)	97 / 1.0 (.70)	80 / .76 (.60)
Solid Shaft Nema C flg. IEC flg.	3-551-120-134-00 3-551-12C-134-(frame size) 3-551-12E-134-(frame size)	13.4	131 / 1.4 (1.0)	108 / 1.2 (.89)	86 / .99 (.74)	71 / .74 (.55)
Solid Shaft Nema C flg. IEC flg.	3-551-120-154-00 3-551-12C-154-(frame size) 3-551-12E-154-(frame size)	15.4	114 / 1.2 (.88)	94 / 1.0 (.80)	75 / .80 (.60)	62 / .64 (.48)
Solid Shaft Nema C flg. IEC flg.	3-551-120-172-00 3-551-12C-172-(frame size) 3-551-12E-172-(frame size)	17.2	102 / 1.1 (.82)	84 / .99 (.74)	67 / .83 (.62)	55 / .62 (.45)
Solid Shaft Nema C flg. IEC flg.	3-551-120-184-00 3-551-12C-184-(frame size) 3-551-12E-184-(frame size)	18.4	95 / 1.05 (.79)	79 / .90 (.70)	63 / .70 (.60)	52 / .57 (.43)
Solid Shaft Nema C flg. IEC flg.	3-551-120-206-00 3-551-12C-206-(frame size) 3-551-12E-206-(frame size)	20.6	85 / 1.0 (.75)	70 / .87 (.65)	56 / .70 (.52)	46 / .53 (.39)
Solid Shaft Nema C flg. IEC flg.	3-551-120-232-00 3-551-12C-232-(frame size) 3-551-12E-232-(frame size)	23.2	75 / .90 (.67)	63 / .75 (.56)	50 / .59 (.44)	41 / .49 (.37)

Size 12 Approx. weights Pre-filled with oil	Weights – Lbs. (Kg)			
	Solid Shaft	56C & 71 IEC	145TC & 90 IEC	184TC & 112 IEC
	10 (4.8)	13 (6)	15 (7)	24 (11)

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SPECIFICATIONS: SIZE 22

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm	
Solid Shaft Nema C flg. IEC flg.	3-551-220-027-00 3-551-22C-027-(frame size) 3-551-22E-027-(frame size)	2.72	643 / 7.7 (5.7)	533 / 6.7 (5.0)	423 / 5.7 (4.2)	349 / 4.3 (3.2)
Solid Shaft Nema C flg. IEC flg.	3-551-220-037-00 3-551-22C-037-(frame size) 3-551-22E-037-(frame size)	3.71	472 / 6.3 (4.7)	391 / 5.5 (4.1)	310 / 4.6 (3.4)	256 / 3.5 (2.6)
Solid Shaft Nema C flg. IEC flg.	3-551-220-048-00 3-551-22C-048-(frame size) 3-551-22E-048-(frame size)	4.77	367 / 5.4 (4.0)	304 / 4.5 (3.3)	241 / 3.6 (2.7)	199 / 2.7 (2.0)
Solid Shaft Nema C flg. IEC flg.	3-551-220-056-00 3-551-22C-056-(frame size) 3-551-22E-056-(frame size)	5.60	313 / 4.8 (3.6)	259 / 4.0 (3.0)	205 / 3.2 (2.4)	170 / 2.6 (1.9)
Solid Shaft Nema C flg. IEC flg.	3-551-220-061-00 3-551-22C-061-(frame size) 3-551-22E-061-(frame size)	6.09	287 / 4.5 (3.4)	238 / 3.7 (2.7)	189 / 2.9 (2.1)	156 / 2.2 (1.6)
Solid Shaft Nema C flg. IEC flg.	3-551-220-071-00 3-551-22C-071-(frame size) 3-551-22E-071-(frame size)	7.08	247 / 4.7 (3.5)	205 / 4.1 (3.0)	162 / 3.4 (2.5)	134 / 2.6 (1.9)
Solid Shaft Nema C flg. IEC flg.	3-551-220-087-00 3-551-22C-087-(frame size) 3-551-22E-087-(frame size)	8.68	202 / 4.2 (3.1)	167 / 3.6 (2.7)	132 / 3.1 (2.3)	109 / 2.3 (1.7)
Solid Shaft Nema C flg. IEC flg.	3-551-220-096-00 3-551-22C-096-(frame size) 3-551-22E-096-(frame size)	9.65	181 / 3.7 (2.8)	150 / 3.1 (2.3)	119 / 2.5 (1.9)	98 / 2.1 (1.5)
Solid Shaft Nema C flg. IEC flg.	3-551-220-111-00 3-551-22C-111-(frame size) 3-551-22E-111-(frame size)	11.1	158 / 3.4 (2.6)	131 / 2.8 (2.1)	104 / 2.3 (1.7)	86 / 1.9 (1.4)
Solid Shaft Nema C flg. IEC flg.	3-551-220-124-00 3-551-22C-124-(frame size) 3-551-22E-124-(frame size)	12.4	141 / 3.3 (2.5)	117 / 2.9 (2.1)	93 / 2.4 (1.8)	77 / 1.8 (1.3)
Solid Shaft Nema C flg. IEC flg.	3-551-220-145-00 3-551-22C-145-(frame size) 3-551-22E-145-(frame size)	14.5	121 / 2.9 (2.2)	100 / 2.4 (1.8)	79 / 1.9 (1.5)	66 / 1.6 (1.2)
Solid Shaft Nema C flg. IEC flg.	3-551-220-158-00 3-551-22C-158-(frame size) 3-551-22E-158-(frame size)	15.8	111 / 2.9 (2.1)	92 / 2.5 (1.8)	73 / 2.1 (1.5)	60 / 1.5 (1.1)
Solid Shaft Nema C flg. IEC flg.	3-551-220-181-00 3-551-22C-181-(frame size) 3-551-22E-181-(frame size)	18.1	97 / 2.6 (1.9)	80 / 2.1 (1.6)	64 / 1.7 (1.3)	52 / 1.4 (1.0)
Solid Shaft Nema C flg. IEC flg.	3-551-220-200-00 3-551-22C-200-(frame size) 3-551-22E-200-(frame size)	20.0	88 / 2.5 (1.8)	73 / 2.0 (1.5)	57 / 1.6 (1.2)	47 / 1.2 (.89)
Solid Shaft Nema C flg. IEC flg.	3-551-220-215-00 3-551-22C-215-(frame size) 3-551-22E-215-(frame size)	21.5	81 / 2.3 (1.7)	67 / 1.9 (1.4)	53 / 1.5 (1.1)	44 / 1.2 (.90)

Size 22 Approx. weights Pre-filled with oil	Weights – Lbs. (Kg)			
	Solid Shaft	56C & 71 IEC	145TC & 90 IEC	184TC & 112 IEC
	16 (7.2)	18 (8)	20 (9)	29 (13)

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SPECIFICATIONS: SIZE 32

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
	Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft Nema C flg. IEC flg.	3-551-320-029-00 3-551-32C-029-(frame size) 3-551-32E-029-(frame size)	2.88	608 / 11.6 (8.6)	503 / 10.0 (7.4)	399 / 8.4 (6.2)	330 / 6.3 (4.7)
Solid Shaft Nema C flg. IEC flg.	3-551-320-037-00 3-551-32C-037-(frame size) 3-551-32E-037-(frame size)	3.74	468 / 10.5 (7.8)	388 / 8.7 (6.5)	307 / 6.8 (5.0)	254 / 5.1 (3.8)
Solid Shaft Nema C flg. IEC flg.	3-551-320-050-00 3-551-32C-050-(frame size) 3-551-32E-050-(frame size)	4.95	354 / 8.0 (5.9)	293 / 6.6 (4.9)	232 / 5.3 (3.9)	192 / 3.9 (2.9)
Solid Shaft Nema C flg. IEC flg.	3-551-320-057-00 3-551-32C-057-(frame size) 3-551-32E-057-(frame size)	5.66	313 / 7.8 (5.8)	259 / 6.5 (4.8)	205 / 5.1 (3.8)	170 / 4.2 (3.2)
Solid Shaft Nema C flg. IEC flg.	3-551-320-063-00 3-551-32C-063-(frame size) 3-551-32E-063-(frame size)	6.26	280 / 6.4 (4.7)	232 / 5.5 (4.1)	184 / 4.6 (3.4)	152 / 3.5 (2.6)
Solid Shaft Nema C flg. IEC flg.	3-551-320-072-00 3-551-32C-072-(frame size) 3-551-32E-072-(frame size)	7.16	244 / 7.2 (5.4)	202 / 6.2 (4.6)	161 / 5.3 (3.9)	133 / 4.0 (3.0)
Solid Shaft Nema C flg. IEC flg.	3-551-320-085-00 3-551-32C-085-(frame size) 3-551-32E-085-(frame size)	8.48	206 / 6.2 (4.7)	171 / 5.2 (3.9)	136 / 4.1 (3.1)	112 / 3.4 (2.6)
Solid Shaft Nema C flg. IEC flg.	3-551-320-093-00 3-551-32C-093-(frame size) 3-551-32E-093-(frame size)	9.30	188 / 6.1 (4.5)	156 / 5.3 (3.9)	124 / 4.5 (3.3)	102 / 3.4 (2.5)
Solid Shaft Nema C flg. IEC flg.	3-551-320-112-00 3-551-32C-112-(frame size) 3-551-32E-112-(frame size)	11.2	156 / 5.3 (3.9)	129 / 4.4 (3.3)	103 / 3.5 (2.6)	85 / 2.9 (2.2)
Solid Shaft Nema C flg. IEC flg.	3-551-320-123-00 3-551-32C-123-(frame size) 3-551-32E-123-(frame size)	12.3	142 / 5.2 (3.8)	118 / 4.5 (3.3)	93 / 3.8 (2.8)	77 / 2.8 (2.0)
Solid Shaft Nema C flg. IEC flg.	3-551-320-141-00 3-551-32C-141-(frame size) 3-551-32E-141-(frame size)	14.1	124 / 4.6 (3.4)	103 / 3.8 (2.8)	82 / 3.0 (2.3)	67 / 2.5 (1.9)
Solid Shaft Nema C flg. IEC flg.	3-551-320-156-00 3-551-32C-156-(frame size) 3-551-32E-156-(frame size)	15.6	112 / 4.5 (3.3)	93 / 3.8 (2.8)	74 / 3.1 (2.3)	61 / 2.3 (1.7)
Solid Shaft Nema C flg. IEC flg.	3-551-320-182-00 3-551-32C-182-(frame size) 3-551-32E-182-(frame size)	18.2	96 / 3.9 (2.9)	80 / 3.2 (2.4)	63 / 2.5 (1.9)	52 / 2.1 (1.6)
Solid Shaft Nema C flg. IEC flg.	3-551-320-201-00 3-551-32C-201-(frame size) 3-551-32E-201-(frame size)	20.1	87 / 3.8 (2.8)	72 / 3.1 (2.3)	87 / 2.4 (1.8)	87 / 1.8 (1.3)
Solid Shaft Nema C flg. IEC flg.	3-551-320-229-00 3-551-32C-229-(frame size) 3-551-32E-229-(frame size)	22.9	76 / 3.3 (2.5)	63 / 2.7 (2.1)	50 / 2.2 (1.6)	41 / 1.8 (1.3)

Size 32 Approx. weights Pre-filled with oil	Weights – Lbs. (Kg)		
	Solid Shaft	145TC & 90 IEC	184TC & 112 IEC
	24 (11)	24 (11)	33 (15)

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SPECIFICATIONS: SIZE 36

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
	Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft	3-551-360-027-00	2.69	651 / 16.2 (12.1)	539 / 13.8 (10.3)	427 / 11.4 (8.5)	353 / 8.6 (6.4)
Nema C flg.	3-551-36C-027-(frame size)					
IEC flg.	3-551-36E-027-(frame size)					
Solid Shaft	3-551-360-035-00	3.49	501 / 13.7 (10.2)	415 / 11.5 (8.5)	330 / 9.3 (6.9)	272 / 7.0 (5.2)
Nema C flg.	3-551-36C-035-(frame size)					
IEC flg.	3-551-36E-035(frame size)					
Solid Shaft	3-551-360-046-00	4.62	379 / 11.2 (8.4)	314 / 9.2 (6.8)	249 / 7.1 (5.3)	206 / 5.3 (3.9)
Nema C flg.	3-551-36C-046-(frame size)					
IEC flg.	3-551-36E-046-(frame size)					
Solid Shaft	3-551-360-053-00	5.28	331 / 9.9 (7.4)	275 / 8.2 (6.2)	218 / 6.5 (4.9)	180 / 5.4 (4.0)
Nema C flg.	3-551-36C-053-(frame size)					
IEC flg.	3-551-36E-053-(frame size)					
Solid Shaft	3-551-360-058-00	5.85	299 / 8.9 (6.6)	248 / 7.3 (5.4)	197 / 5.6 (4.1)	162 / 4.2 (3.1)
Nema C flg.	3-551-36C-058-(frame size)					
IEC flg.	3-551-36E-058-(frame size)					
Solid Shaft	3-551-360-068-00	6.78	258 / 13.5 (10.0)	214 / 11.3 (8.4)	170 / 9.1 (6.7)	140 / 6.8 (5.0)
Nema C flg.	3-551-36C-068-(frame size)					
IEC flg.	3-551-36E-068-(frame size)					
Solid Shaft	3-551-360-080-00	8.03	218 / 11.6 (8.7)	181 / 9.6 (7.2)	143 / 7.6 (5.7)	118 / 6.3 (4.7)
Nema C flg.	3-551-36C-080-(frame size)					
IEC flg.	3-551-36E-080-(frame size)					
Solid Shaft	3-551-360-088-00	8.80	199 / 11.2 (8.3)	165 / 9.1 (6.7)	131 / 7.0 (5.2)	108 / 5.3 (3.96)
Nema C flg.	3-551-36C-088-(frame size)					
IEC flg.	3-551-36E-088-(frame size)					
Solid Shaft	3-551-360-106-00	10.6	165 / 9.6 (7.2)	137 / 8.0 (6.0)	108 / 6.3 (4.7)	90 / 5.2 (3.9)
Nema C flg.	3-551-36C-106-(frame size)					
IEC flg.	3-551-36E-106-(frame size)					
Solid Shaft	3-551-360-117-00	11.7	150 / 8.4 (6.3)	124 / 6.8 (5.0)	98 / 5.3 (3.9)	81 / 4.0 (3.0)
Nema C flg.	3-551-36C-117-(frame size)					
IEC flg.	3-551-36E-117-(frame size)					
Solid Shaft	3-551-360-133-00	13.3	132 / 7.4 (5.5)	109 / 6.0 (4.4)	86 / 4.6 (3.4)	71 / 3.5 (2.6)
Nema C flg.	3-551-36C-133-(frame size)					
IEC flg.	3-551-36E-133-(frame size)					
Solid Shaft	3-551-360-148-00	14.8	118 / 6.6 (4.9)	98 / 5.4 (4.0)	78 / 4.2 (3.1)	64 / 3.1 (2.3)
Nema C flg.	3-551-36C-148-(frame size)					
IEC flg.	3-551-36E-148-(frame size)					
Solid Shaft	3-551-360-172-00	17.2	102 / 6.7 (5.0)	84 / 5.6 (4.2)	67 / 4.4 (3.3)	55 / 3.7 (2.7)
Nema C flg.	3-551-36C-172-(frame size)					
IEC flg.	3-551-36E-172-(frame size)					
Solid Shaft	3-551-360-190-00	19.0	92 / 5.2 (3.8)	76 / 4.2 (3.1)	60 / 3.2 (2.3)	50 / 2.4 (1.8)
Nema C flg.	3-551-36C-190-(frame size)					
IEC flg.	3-551-36E-190-(frame size)					

Size 36 Approx. weights Pre-filled with oil	Weights – Lbs. (Kg)			
	Solid Shaft	145TC & 90 IEC	184TC & 112 IEC	215TC
	56 (26)	46 (21)	55 (25)	60(27)

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SPECIFICATIONS: SIZE 41

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.		Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft	3-551-410-027-00	2.69	651 / 23.5 (17.5)	539 / 19.1 (14.2)	427 / 14.8 (11.0)	353 / 11.1 (8.2)
Nema C flg.	3-551-41C-027-(frame size)					
IEC flg.	3-551-41E-027-(frame size)					
Solid Shaft	3-551-410-036-00	3.61	485 / 18.3 (13.6)	402 / 14.9 (11.1)	319 / 11.5 (8.5)	263 / 8.6 (6.4)
Nema C flg.	3-551-41C-036-(frame size)					
IEC flg.	3-551-41E-036-(frame size)					
Solid Shaft	3-551-410-047-00	4.66	375 / 14.3 (10.6)	311 / 11.6 (8.6)	247 / 9.0 (6.7)	204 / 6.9 (5.15)
Nema C flg.	3-551-41C-047-(frame size)					
IEC flg.	3-551-41E-047-(frame size)					
Solid Shaft	3-551-410-060-00	5.95	294 / 11.2 (8.3)	244 / 9.1 (6.7)	193 / 7.0 (5.2)	160 / 5.3 (3.9)
Nema C flg.	3-551-41C-060-(frame size)					
IEC flg.	3-551-41E-060-(frame size)					
Solid Shaft	3-551-410-064-00	6.36	275 / 13.9 (10.3)	228 / 12.0 (8.9)	181 / 10.0 (7.4)	149 / 7.6 (5.6)
Nema C flg.	3-551-41C-064-(frame size)					
IEC flg.	3-551-41E-064-(frame size)					
Solid Shaft	3-551-410-071-00	7.07	247 / 12.9 (9.6)	205 / 11.2 (8.3)	163 / 9.5 (7.0)	134 / 7.1 (5.3)
Nema C flg.	3-551-41C-071-(frame size)					
IEC flg.	3-551-41E-071-(frame size)					
Solid Shaft	3-551-410-086-00	8.64	202 / 11.6 (8.6)	168 / 10.0 (7.4)	133 / 8.4 (6.2)	110 / 6.3 (4.7)
Nema C flg.	3-551-41C-086-(frame size)					
IEC flg.	3-551-41E-086-(frame size)					
Solid Shaft	3-551-410-096-00	9.60	182 / 10.5 (7.8)	151 / 9.1 (6.7)	120 / 7.6 (5.6)	99 / 5.7 (4.2)
Nema C flg.	3-551-41C-096-(frame size)					
IEC flg.	3-551-41E-096-(frame size)					
Solid Shaft	3-551-410-112-00	11.2	157 / 9.7 (7.2)	129 / 8.4 (6.2)	103 / 7.1 (5.3)	85 / 5.3 (3.9)
Nema C flg.	3-551-41C-112-(frame size)					
IEC flg.	3-551-41E-112-(frame size)					
Solid Shaft	3-551-410-124-00	12.4	141 / 8.9 (6.6)	117 / 7.7 (5.7)	93 / 6.5 (4.8)	77 / 4.8 (3.5)
Nema C flg.	3-551-41C-124-(frame size)					
IEC flg.	3-551-41E-124-(frame size)					
Solid Shaft	3-551-410-142-00	14.2	123 / 8.1 (6.0)	102 / 6.9 (5.1)	81 / 5.7 (4.2)	67 / 4.3 (3.2)
Nema C flg.	3-551-41C-142-(frame size)					
IEC flg.	3-551-41E-142-(frame size)					
Solid Shaft	3-551-410-158-00	15.8	111 / 7.4 (5.5)	92 / 6.3 (4.7)	73 / 5.2 (3.8)	60 / 3.8 (2.8)
Nema C flg.	3-551-41C-158-(frame size)					
IEC flg.	3-551-41E-158-(frame size)					
Solid Shaft	3-551-410-178-00	17.8	98 / 7.0 (5.2)	81 / 5.8 (4.3)	65 / 4.6 (3.4)	53 / 3.4 (2.5)
Nema C flg.	3-551-41C-178-(frame size)					
IEC flg.	3-551-41E-178-(frame size)					
Solid Shaft	3-551-410-198-00	19.8	88 / 6.3 (4.7)	73 / 5.2 (3.8)	58 / 4.1 (3.0)	48 / 3.1 (2.3)
Nema C flg.	3-551-41C-198-(frame size)					
IEC flg.	3-551-41E-198-(frame size)					
Solid Shaft	3-551-410-226-00	22.6	77 / 5.7 (4.2)	64 / 4.7 (3.5)	51 / 3.6 (2.6)	42 / 2.7 (2.0)
Nema C flg.	3-551-41C-226-(frame size)					
IEC flg.	3-551-41E-226-(frame size)					
Solid Shaft	3-551-410-250-00	25.0	70 / 5.2 (3.8)	58 / 4.2 (3.1)	46 / 3.3 (2.4)	38 / 2.4 (1.8)
Nema C flg.	3-551-41C-250-(frame size)					
IEC flg.	3-551-41E-250-(frame size)					
Solid Shaft	3-551-410-283-00	28.3	62 / 4.6(3.4)	51 / 3.7 (2.7)	41 / 2.9 (2.1)	34 / 2.1 (1.5)
Nema C flg.	3-551-41C-283-(frame size)					
IEC flg.	3-551-41E-283-(frame size)					
Solid Shaft	3-551-410-314-00	31.4	56 / 4.1 (3.0)	46 / 3.4 (2.5)	37 / 2.6 (1.9)	30 / 1.9 (1.4)
Nema C flg.	3-551-41C-314-(frame size)					
IEC flg.	3-551-41E-314-(frame size)					

Size 41 Approx. weights Pre-filled with oil	Weights – Lbs. (Kg)			
	Solid Shaft	145TC & 90 IEC	184TC & 112 IEC	215TC & 132 IEC
	66 (31)	71 (32)	77 (35)	79 (36)

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SPECIFICATIONS: SIZE 51

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm	
Solid Shaft Nema C flg. IEC flg.	3-551-510-026-00 3-551-51C-026-(frame size) 3-551-51E-026-(frame size)	2.63	665 / 39.8 (29.7)	551 / 32.4 (24.1)	437 / 25.0 (18.6)	361 / 18.8 (14.0)
Solid Shaft Nema C flg. IEC flg.	3-551-510-033-00 3-551-51C-033-(frame size) 3-551-51E-033-(frame size)	3.31	529 / 32.9 (24.5)	438 / 26.8 (20.0)	347 / 20.7 (15.4)	287 / 15.5 (11.5)
Solid Shaft Nema C flg. IEC flg.	3-551-510-045-00 3-551-51C-045-(frame size) 3-551-51E-045-(frame size)	4.45	393 / 25.0 (18.6)	326 / 20.4 (15.2)	258 / 15.7 (11.7)	213 / 11.8 (8.8)
Solid Shaft Nema C flg. IEC flg.	3-551-510-056-00 3-551-51C-056-(frame size) 3-551-51E-056-(frame size)	5.63	311 / 20.1 (15.0)	257 / 16.4 (12.2)	204 / 12.6 (9.4)	169 / 9.5 (7.0)
Solid Shaft Nema C flg. IEC flg.	3-551-510-070-00 3-551-51C-070-(frame size) 3-551-51E-070-(frame size)	6.99	250 / 23.3 (17.3)	207 / 20.1 (15.0)	164 / 17.0 (12.6)	136 / 12.7 (9.4)
Solid Shaft Nema C flg. IEC flg.	3-551-510-078-00 3-551-51C-078-(frame size) 3-551-51E-078-(frame size)	7.75	222 / 21.2 (15.8)	187 / 18.3 (13.6)	148 / 15.4 (11.4)	123 / 11.6 (8.6)
Solid Shaft Nema C flg. IEC flg.	3-551-510-088-00 3-551-51C-088-(frame size) 3-551-51E-088-(frame size)	8.79	199 / 20.1 (15.0)	165 / 17.4 (13.0)	131 / 14.7 (10.9)	108 / 11.0 (8.2)
Solid Shaft Nema C flg. IEC flg.	3-551-510-098-00 3-551-51C-098-(frame size) 3-551-51E-098-(frame size)	9.75	179 / 18.1 (13.5)	149 / 15.7 (11.7)	118 / 13.3 (9.9)	97 / 10.0 (7.4)
Solid Shaft Nema C flg. IEC flg.	3-551-510-118-00 3-551-51C-118-(frame size) 3-551-51E-118-(frame size)	11.8	148 / 16.9 (12.6)	122 / 13.9 (10.3)	97 / 11.0 (8.2)	80 / 8.3 (6.2)
Solid Shaft Nema C flg. IEC flg.	3-551-510-131-00 3-551-51C-131-(frame size) 3-551-51E-131-(frame size)	13.1	134 / 14.8 (11.0)	111 / 12.4 (9.2)	88 / 9.9 (7.3)	72 / 7.4 (5.5)
Solid Shaft Nema C flg. IEC flg.	3-551-510-150-00 3-551-51C-150-(frame size) 3-551-51E-150-(frame size)	15.0	117 / 13.8 (10.3)	97 / 11.2 (8.3)	77 / 8.7 (6.5)	63 / 6.5 (4.8)
Solid Shaft Nema C flg. IEC flg.	3-551-510-166-00 3-551-51C-166-(frame size) 3-551-51E-166-(frame size)	16.6	105 / 12.4 (9.2)	87 / 10.1 (7.5)	69 / 7.8 (5.8)	57 / 5.9 (4.4)
Solid Shaft Nema C flg. IEC flg.	3-551-510-189-00 3-551-51C-189-(frame size) 3-551-51E-189-(frame size)	18.9	93 / 10.9 (8.1)	77 / 8.9 (6.6)	61 / 6.9 (5.1)	50 / 5.2 (3.8)
Solid Shaft Nema C flg. IEC flg.	3-551-510-210-00 3-551-51C-210-(frame size) 3-551-51E-210-(frame size)	21.0	83 / 9.8 (7.3)	69 / 8.0 (5.9)	55 / 6.2 (4.6)	45 / 5.2 (3.8)
Solid Shaft Nema C flg. IEC flg.	3-551-510-234-00 3-551-51C-234-(frame size) 3-551-51E-234-(frame size)	23.4	75 / 8.8 (6.5)	62 / 7.2 (5.3)	49 / 5.6 (4.1)	41 / 4.2 (3.1)
Solid Shaft Nema C flg. IEC flg.	3-551-510-259-00 3-551-51C-259-(frame size) 3-551-51E-259-(frame size)	25.9	68 / 7.9 (5.9)	56 / 6.5 (4.8)	44 / 5.0 (3.7)	37 / 3.8 (2.8)
Solid Shaft Nema C flg. IEC flg.	3-551-510-298-00 3-551-51C-298-(frame size) 3-551-51E-298-(frame size)	29.8	59 / 6.9 (5.1)	49 / 5.7 (4.2)	39 / 4.4 (3.2)	32 / 3.3 (2.4)
Solid Shaft Nema C flg. IEC flg.	3-551-510-330-00 3-551-51C-330-(frame size) 3-551-51E-330-(frame size)	33.0	53 / 6.2 (4.6)	44 / 5.1 (3.8)	35 / 3.9 (2.9)	29 / 3.0 (2.2)

Size 51 Approx. weights	Weights – Lbs. (Kg)				
	Solid Shaft	184TC & 112 IEC	215TC & 132 IEC	256TC & 160 IEC	286TC & 180 IEC
	99 (45)	117(53)	119 (54)	128 (58)	133 (61)

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Viking In-Line Helical Gear Reducers

SPECIFICATIONS: SIZE 61

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.		Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft	3-551-610-028-00	2.82	621 / 50.8 (37.9)	514 / 41.8 (31.2)	408 / 32.8 (24.4)	337 / 24.6 (18.3)
Nema C flg.	3-551-61C-028-(frame size)					
IEC flg.	3-551-61E-028-(frame size)					
Solid Shaft	3-551-610-037-00	3.70	473 / 40.2 (30.0)	392 / 33.8 (25.2)	311 / 27.4 (20.4)	258 / 20.6 (15.3)
Nema C flg.	3-551-61C-037-(frame size)					
IEC flg.	3-551-61E-037-(frame size)					
Solid Shaft	3-551-610-046-00	4.56	384 / 33.7 (25.1)	318 / 28.6 (21.3)	252 / 23.5 (17.5)	208 / 17.6 (13.1)
Nema C flg.	3-551-61C-046-(frame size)					
IEC flg.	3-551-61E-046-(frame size)					
Solid Shaft	3-551-610-060-00	6.00	292 / 26.9 (20.0)	242 / 22.5 (16.7)	192 / 18.0 (13.4)	158 / 13.5 (10.0)
Nema C flg.	3-551-61C-060-(frame size)					
IEC flg.	3-551-61E-060-(frame size)					
Solid Shaft	3-551-610-067-00	6.74	260 / 43.6 (32.5)	215 / 38.1 (28.4)	171 / 33.6 (25.0)	141 / 24.5 (18.2)
Nema C flg.	3-551-61C-067-(frame size)					
IEC flg.	3-551-61E-067-(frame size)					
Solid Shaft	3-551-610-075-00	7.48	234 / 43.3 (32.3)	194 / 36.2 (27.0)	154 / 29.1 (21.7)	127 / 21.9 (16.3)
Nema C flg.	3-551-61C-075-(frame size)					
IEC flg.	3-551-61E-075-(frame size)					
Solid Shaft	3-551-610-088-00	8.84	198 / 36.9 (27.5)	164 / 30.9 (23.0)	130 / 24.8 (18.5)	107 / 18.6 (13.8)
Nema C flg.	3-551-61C-088-(frame size)					
IEC flg.	3-551-61E-088-(frame size)					
Solid Shaft	3-551-610-098-00	9.82	178 / 35.5 (26.4)	148 / 28.9 (21.5)	117 / 22.3 (16.6)	97 / 16.7 (12.4)
Nema C flg.	3-551-61C-098-(frame size)					
IEC flg.	3-551-61E-098-(frame size)					
Solid Shaft	3-551-610-109-00	10.9	161 / 31.9 (23.8)	133 / 26.0 (19.4)	106 / 20.1 (15.0)	87 / 15.0 (11.1)
Nema C flg.	3-551-61C-109-(frame size)					
IEC flg.	3-551-61E-109-(frame size)					
Solid Shaft	3-551-610-121-00	12.1	145 / 28.7 (21.4)	120 / 23.4 (17.4)	95 / 18.1 (13.5)	78 / 13.6 (10.1)
Nema C flg.	3-551-61C-121-(frame size)					
IEC flg.	3-551-61E-121-(frame size)					
Solid Shaft	3-551-610-143-00	14.3	122 / 24.3 (18.1)	101 / 19.8 (13.2)	80 / 15.3 (11.4)	66 / 11.5 (8.5)
Nema C flg.	3-551-61C-143-(frame size)					
IEC flg.	3-551-61E-143-(frame size)					
Solid Shaft	3-551-610-159-00	15.9	110 / 21.9 (16.3)	91 / 17.8 (13.2)	72 / 13.7 (10.2)	60 / 10.3 (7.6)
Nema C flg.	3-551-61C-159-(frame size)					
IEC flg.	3-551-61E-159-(frame size)					
Solid Shaft	3-551-610-177-00	17.7	99 / 19.6 (14.6)	82 / 16.0 (11.9)	65 / 12.4 (9.2)	54 / 9.3 (6.9)
Nema C flg.	3-551-61C-177-(frame size)					
IEC flg.	3-551-61E-177-(frame size)					
Solid Shaft	3-551-610-196-00	19.6	89 / 17.7 (13.2)	74 / 14.4 (10.7)	59 / 11.2 (8.3)	48 / 8.4 (6.2)
Nema C flg.	3-551-61C-196-(frame size)					
IEC flg.	3-551-61E-196-(frame size)					
Solid Shaft	3-551-610-224-00	22.4	78 / 15.5(11.5)	65 / 12.6 (9.4)	51 / 9.8 (7.3)	42 / 7.3 (5.4)
Nema C flg.	3-551-61C-224-(frame size)					
IEC flg.	3-551-61E-224-(frame size)					
Solid Shaft	3-551-610-248-00	24.8	71 / 14.0 (10.4)	58 / 11.9 (8.8)	46 / 8.8 (6.5)	38 / 6.6 (4.9)
Nema C flg.	3-551-61C-248-(frame size)					
IEC flg.	3-551-61E-248-(frame size)					
Solid Shaft	3-551-610-274-00	27.4	64 / 12.7 (9.4)	53 / 10.3 (7.6)	42 / 8.0 (5.9)	35 / 6.0 (4.4)
Nema C flg.	3-551-61C-274-(frame size)					
IEC flg.	3-551-61E-274-(frame size)					
Solid Shaft	3-551-610-304-00	30.4	58 / 11.4 (8.5)	48 / 9.3 (6.9)	38 / 7.2 (5.3)	31 / 5.4 (4.0)
Nema C flg.	3-551-61C-304-(frame size)					
IEC flg.	3-551-61E-304-(frame size)					
Solid Shaft	3-551-610-342-00	34.2	51 / 9.2 (6.8)	42 / 7.6 (5.6)	34 / 6.0 (4.4)	28 / 4.5 (3.3)
Nema C flg.	3-551-61C-342-(frame size)					
IEC flg.	3-551-61E-342-(frame size)					
Solid Shaft	3-551-610-380-00	38.0	46 / 9.2 (6.8)	38 / 7.5 (5.6)	30 / 5.8 (4.3)	25 / 4.3 (3.2)
Nema C flg.	3-551-61C-380-(frame size)					
IEC glf.	3-551-60E-304-(frame size)					

Weights found on page 11

Viking In-Line Helical Gear Reducers

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SPECIFICATION: SIZE 70

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm	
Solid Shaft 3-551-700-046-00	4.57	383 / 95.3 (71.0)	317 / 79.4 (59.2)	252 / 63.5 (47.3)	208 / 47.6 (35.5)	
Solid Shaft 3-551-700-059-00	5.85	299 / 83.2 (62.0)	248 / 68.5 (51.1)	197 / 53.9 (40.2)	162 / 40.4 (30.1)	
Solid Shaft 3-551-700-063-00	6.25	280 / 80.3 (59.9)	232 / 67.2 (50.1)	184 / 54.2 (40.4)	152 / 40.7 (30.3)	
Solid Shaft 3-551-700-075-00	7.46	235 / 67.4 (50.2)	194 / 56.5 (42.1)	154 / 45.6 (34.0)	127 / 34.2 (25.5)	
Solid Shaft 3-551-700-080-00	8.00	219 / 68.0 (50.7)	181 / 55.3 (41.2)	144 / 42.7 (31.8)	119 / 32.0 (23.8)	
Solid Shaft 3-551-700-095-00	9.52	184 / 54.5 (40.6)	152 / 45.6 (34.0)	121 / 36.7 (27.3)	100 / 27.6 (20.5)	
Solid Shaft 3-551-700-102-00	10.2	171 / 53.3 (39.8)	142 / 43.4 (32.3)	113 / 33.5 (25.0)	93 / 25.1 (18.7)	
Solid Shaft 3-551-700-112-00	11.2	156 / 46.2 (34.4)	129 / 38.7 (28.8)	103 / 31.2 (23.2)	85 / 23.4 (17.4)	
Solid Shaft 3-551-700-130-00	13.0	135 / 41.8 (31.1)	111 / 34.0 (25.3)	88 / 26.3 (19.6)	73 / 19.7 (14.7)	
Solid Shaft 3-551-700-141-00	14.1	124 / 38.6 (28.8)	103 / 31.7 (23.6)	82 / 24.8 (18.5)	67 / 18.6 (13.8)	
Solid Shaft 3-551-700-153-00	15.3	114 / 35.5 (26.4)	95 / 28.9 (21.5)	75 / 22.3 (16.6)	62 / 16.7 (12.4)	
Solid Shaft 3-551-700-167-00	16.7	105 / 31.7 (23.6)	87 / 25.8 (19.2)	69 / 19.9 (14.8)	57 / 14.9 (11.1)	
Solid Shaft 3-551-700-193-00	19.3	91 / 28.2 (21.0)	75 / 22.4 (16.7)	60 / 17.7 (13.2)	49 / 13.3 (9.9)	
Solid Shaft 3-551-700-229-00	22.9	76 / 23.7 (17.6)	63 / 19.3 (14.4)	50 / 14.9 (11.1)	41 / 11.2 (8.3)	
Solid Shaft 3-551-700-277-00	27.7	63 / 19.6 (14.6)	52 / 16.0 (11.9)	42 / 12.3 (9.1)	34 / 9.3 (6.9)	
Solid Shaft 3-551-700-347-00	34.7	50 / 15.7 (11.7)	42 / 12.8 (9.5)	33 / 9.8 (7.3)	27 / 7.4 (5.5)	

Size 70 Approx. weights	Weights – Lbs. (Kg)
	Solid Shaft
	238 (106)

Reducer Weight - Size 61 (Specifications on Page 10)

Size 61 Approx. weights	Weights – Lbs. (Kg)				
	Solid Shaft	184TC & 112 IEC	215 TC & 132 IEC	256TC & 160 IEC	286TC & 180 IEC
	145 (66)	150 (68)	157 (71)	161 (73)	165 (75)

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Viking In-Line Helical Gear Reducers

SPECIFICATION: SIZE 80

Output Speed/Maximum Horsepower (kW) at Given Input Speed						
	Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm
Solid Shaft	3-551-800-056-00	5.64	310 / 143 (107)	257 / 122 (91.0)	204 / 101 (75.3)	168 / 76.3 (56.9)
Solid Shaft	3-551-800-061-00	6.11	286 / 134 (100)	237 / 115 (85.8)	188 / 96.1 (71.7)	155 / 72.1 (53.7)
Solid Shaft	3-551-800-070-00	7.04	249 / 124 (92.5)	206 / 102 (76.1)	163 / 81.4 (60.7)	135 / 61.0 (45.5)
Solid Shaft	3-551-800-076-00	7.63	229 / 116 (86.5)	190 / 96.9 (72.2)	150 / 78.1 (58.2)	125 / 58.6 (43.7)
Solid Shaft	3-551-800-089-00	8.86	197 / 102 (76.1)	164 / 82.9 (61.8)	130 / 64.0 (47.7)	107 / 48.0 (35.8)
Solid Shaft	3-551-800-096-00	9.60	182 / 100 (74.6)	151 / 81.1 (60.5)	120 / 62.6 (46.7)	99 / 46.9 (35.0)
Solid Shaft	3-551-800-111-00	11.1	158 / 81.6 (61.8)	131 / 66.5 (49.6)	104 / 51.3 (38.2)	86 / 38.5 (28.7)
Solid Shaft	3-551-800-120-00	12.0	146 / 79.6 (59.3)	121 / 64.9 (48.4)	96 / 50.1 (37.3)	79 / 37.5 (27.9)
Solid Shaft	3-551-800-138-00	13.8	127 / 65.7 (49.0)	105 / 53.5 (39.9)	83 / 41.3 (30.8)	69 / 31.0 (23.1)
Solid Shaft	3-551-800-149-00	14.9	117 / 64.1 (47.8)	97 / 52.2 (38.9)	77 / 40.3 (30.0)	64 / 30.2 (22.5)
Solid Shaft	3-551-800-167-00	16.7	105 / 54.3 (40.5)	87 / 44.2 (33.0)	68 / 34.1 (25.4)	57 / 25.6 (19.1)
Solid Shaft	3-551-800-181-00	18.1	97 / 52.8 (39.3)	80 / 43.0 (32.0)	64 / 33.3 (24.8)	52 / 24.9 (18.5)
Solid Shaft	3-551-800-205-00	20.5	85 / 44.8 (33.4)	71 / 36.5 (27.2)	56 / 28.1 (21.0)	46 / 21.1 (15.7)
Solid Shaft	3-551-800-222-00	22.2	79 / 43.0 (32.0)	65 / 35.1 (26.1)	52 / 27.1 (20.2)	43 / 20.3 (15.1)
Solid Shaft	3-551-800-240-00	24.0	73 / 38.2 (28.5)	60 / 31.1 (23.2)	48 / 24.0 (17.9)	40 / 18.0 (13.4)
Solid Shaft	3-551-800-259-00	25.9	68 / 36.9 (27.5)	56 / 30.0 (22.3)	44 / 23.2 (17.3)	37 / 17.4 (13.0)
Solid Shaft	3-551-800-313-00	31.3	56 / 30.5 (22.7)	46 / 24.9 (18.5)	37 / 19.2 (14.3)	30 / 14.4 (10.7)

Size 80 Approx. Weights	Weights – Lbs. (Kg)
	Solid Shaft
	339 (154)

Viking In-Line Helical Gear Reducers

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SPECIFICATIONS: SIZE 90

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm	
Solid Shaft 3-551-900-052-00	5.17	338 / 214 (159)	280 / 184 (137)	222 / 153 (114)	184 / 115 (85.8)	
Solid Shaft 3-551-900-056-00	5.60	312 / 203 (151)	259 / 175 (130)	205 / 147 (110)	170 / 110 (82.0)	
Solid Shaft 3-551-900-068-00	6.76	259 / 180 (134)	214 / 155 (116)	170 / 130 (97.0)	141 / 97.7 (72.8)	
Solid Shaft 3-551-900-073-00	7.32	239 / 172 (128)	198 / 148 (110)	157 / 124 (92.5)	130 / 92.7 (69.1)	
Solid Shaft 3-551-900-083-00	8.33	210 / 159 (118)	174 / 137 (102)	138 / 115 (85.8)	114 / 86.0 (64.1)	
Solid Shaft 3-551-900-090-00	9.02	194 / 149 (111)	161 / 128 (95.5)	127 / 108 (80.5)	105 / 80.7 (60.2)	
Solid Shaft 3-551-900-104-00	10.4	169 / 138 (103)	140 / 117 (87.3)	111 / 97.4 (72.6)	91 / 72.7 (54.2)	
Solid Shaft 3-551-900-112-00	11.2	156 / 130 (97)	129 / 112 (83.5)	103 / 93.7 (69.9)	85 / 70.2 (52.3)	
Solid Shaft 3-551-900-128-00	12.8	137 / 120 (89)	113 / 99.8 (74.4)	90 / 79.4 (59.2)	74 / 59.5 (44.3)	
Solid Shaft 3-551-900-139-00	13.9	126 / 112 (83)	104 / 94.6 (70.5)	83 / 76.7 (57.2)	68 / 57.5 (42.9)	
Solid Shaft 3-551-900-160-00	16.0	109 / 100 (74)	90 / 81.7 (60.9)	72 / 63.0 (47.0)	59 / 47.3 (35.3)	
Solid Shaft 3-551-900-173-00	17.3	101 / 97.1 (72.4)	83 / 79.4 (59.2)	66 / 61.6 (45.9)	55 / 46.2 (34.4)	
Solid Shaft 3-551-900-187-00	18.7	94 / 85.8 (64.0)	78 / 69.9 (52.1)	61 / 53.9 (40.2)	51 / 40.4 (30.1)	
Solid Shaft 3-551-900-202-00	20.2	87 / 84.5 (63.0)	72 / 68.8 (51.3)	57 / 53.1 (39.6)	47 / 39.8 (29.7)	
Solid Shaft 3-551-900-229-00	22.9	76 / 70.1 (52.3)	63 / 57.1 (42.6)	50 / 44.0 (32.8)	41 / 33.0 (24.6)	
Solid Shaft 3-551-900-248-00	24.8	71 / 68.8 (51.3)	58 / 56.0 (41.7)	46 / 43.3 (32.3)	38 / 32.4 (24.1)	
Solid Shaft 3-551-900-272-00	27.2	64 / 52.3 (39.0)	53 / 42.6 (31.7)	42 / 32.9 (24.5)	35 / 24.7 (18.4)	
Solid Shaft 3-551-900-294-00	29.4	60 / 51.9 (38.7)	49 / 42.3 (31.5)	39 / 32.6 (24.3)	32 / 24.5 (18.2)	
Solid Shaft 3-551-900-351-00	35.1	50 / 39.8 (29.6)	41 / 32.4 (24.1)	33 / 25.0 (18.6)	27 / 18.8 (14.0)	

Size 90 Approx. weights	Weights – Lbs. (Kg)
	Solid Shaft
	601 (273)

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Viking In-Line Helical Gear Reducers

SPECIFICATIONS: SIZE 100

Output Speed / Maximum Horsepower (kW) at Given Input Speed						
Viking Part No.	Ratio	1750 rpm	1450 rpm	1150 rpm	950 rpm	
Solid Shaft 3-551-100-049-00	4.92	356 / 359 (267)	295 / 309 (230)	234 / 259 (193)	193 / 194 (144)	
Solid Shaft 3-551-100-053-00	5.33	328 / 339 (252)	272 / 292 (217)	216 / 244 (182)	178 / 183 (136)	
Solid Shaft 3-551-100-065-00	6.52	268 / 300 (223)	222 / 258 (192)	176 / 215 (160)	146 / 161 (120)	
Solid Shaft 3-551-100-071-00	7.07	247 / 279 (208)	205 / 239 (178)	163 / 200 (149)	134 / 150 (112)	
Solid Shaft 3-551-100-083-00	8.35	210 / 253 (188)	174 / 217 (161)	138 / 181 (135)	114 / 136 (101)	
Solid Shaft 3-551-100-090-00	9.05	193 / 240 (179)	160 / 206 (153)	127 / 172 (128)	105 / 129 (96.2)	
Solid Shaft 3-551-100-101-00	10.1	173 / 220 (167)	143 / 192 (143)	114 / 161 (120)	94 / 121 (90.2)	
Solid Shaft 3-551-100-109-00	10.9	160 / 207 (154)	133 / 179 (133)	105 / 151 (112)	87 / 113 (84.3)	
Solid Shaft 3-551-100-125-00	12.5	140 / 194 (144)	116 / 167 (124)	92 / 139 (103)	76 / 104 (77.5)	
Solid Shaft 3-551-100-135-00	13.5	130 / 182 (135)	107 / 156 (116)	85 / 130 (97.0)	70 / 98.0 (73.1)	
Solid Shaft 3-551-100-152-00	15.2	115 / 170 (126)	95 / 143 (106)	76 / 115 (85.8)	63 / 86.7 (76.7)	
Solid Shaft 3-551-100-165-00	16.5	106 / 159 (118)	88 / 136 (101)	70 / 113 (84.3)	58 / 85.0 (63.4)	
Solid Shaft 3-551-100-187-00	18.7	94 / 138 (103)	77 / 117 (87.2)	61 / 94.8 (70.7)	51 / 71.1 (53.0)	
Solid Shaft 3-551-100-202-00	20.2	87 / 128 (95.5)	72 / 110 (82.0)	57 / 92.6 (69.0)	47 / 69.4 (51.7)	
Solid Shaft 3-551-100-222-00	22.2	79 / 107 (79.8)	65 / 89.7 (66.9)	52 / 72.2 (53.8)	43 / 54.1 (40.3)	
Solid Shaft 3-551-100-241-00	24.1	73 / 107 (79.8)	60 / 90.1 (67.2)	48 / 72.9 (54.3)	39 / 54.7 (40.8)	
Solid Shaft 3-551-100-296-00	29.6	59 / 74 (55.2)	49 / 62.1 (46.3)	39 / 50.0 (37.3)	32 / 37.5 (27.9)	

Size 100 Approx. weights	Weights – Lbs. (Kg)
	Solid Shaft
	900 (409)

Viking In-Line Helical Gear Reducers

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REPAIR PARTS

Special tools and training are required to repair multi-reduction gearboxes. Replacement of gears, shafts and bearings, combined with labor makes repairs impractical.

Repair parts for in-line reducers are limited to a seal kit consisting of oil seals and gaskets. The table below lists the part number for the repair kit for each reducer size and configuration.

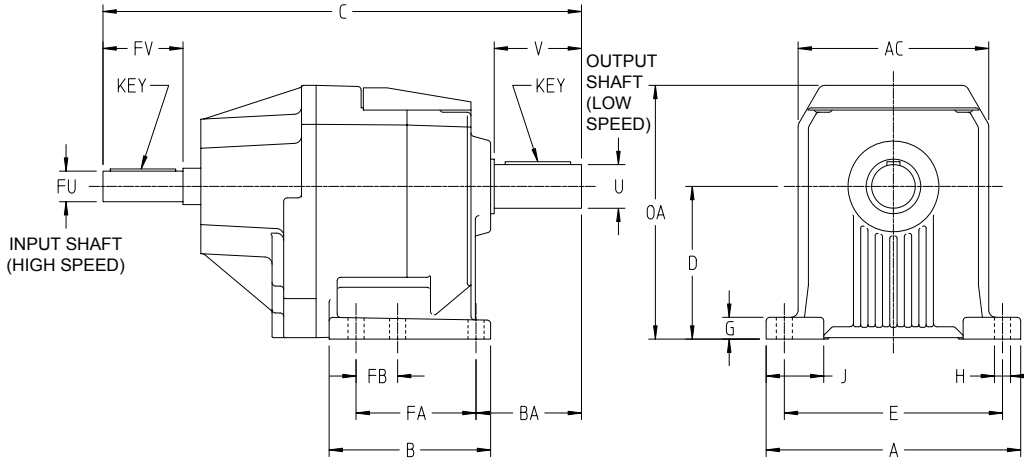
Size	Input Shaft	Repair Kit No.
12	Solid Shaft	3-462-ILINE12-001
	56C	3-462-ILINE12-002
	143/145TC	3-462-ILINE12-003
	182/184TC	3-462-ILINE12-004
	63 IEC	3-462-ILINE12-005
	71 IEC	3-462-ILINE12-006
	80 IEC	3-462-ILINE12-007
	90 IEC	3-462-ILINE12-008
	100/112 IEC	3-462-ILINE12-009
22	Solid Shaft	3-462-ILINE22-001
	56C	3-462-ILINE22-002
	143/145 TC	3-462-ILINE22-003
	182/184 TC	3-462-ILINE22-004
	63 IEC	3-462-ILINE22-005
	71 IEC	3-462-ILINE22-006
	80 IEC	3-462-ILINE22-007
	90 IEC	3-462-ILINE22-008
	100/112 IEC	3-462-ILINE22-009
32	Solid Shaft	3-462-ILINE32-001
	143/145 TC	3-462-ILINE32-002
	182/184 TC	3-462-ILINE32-003
	80 IEC	3-462-ILINE32-004
	90 IEC	3-462-ILINE32-005
	100/112 IEC	3-462-ILINE32-006
36	Solid Shaft	3-462-ILINE36-001
	143/145 TC	3-462-ILINE36-002
	182/184 TC	3-462-ILINE36-003
	213/215 TC	3-462-ILINE36-004
	80 IEC	3-462-ILINE36-005
	90 IEC	3-462-ILINE36-006
	100/112 IEC	3-462-ILINE36-007
	132 IEC	3-462-ILINE36-008

Size	Input Shaft	Repair Kit No.
41	Solid Shaft	3-462-ILINE41-001
	143/145 TC	3-462-ILINE41-002
	182/184 TC	3-462-ILINE41-003
	213/215TC	3-462-ILINE41-004
	80 IEC	3-462-ILINE41-005
	90 IEC	3-462-ILINE41-006
	100/112 IEC	3-462-ILINE41-007
	132 IEC	3-462-ILINE41-008
51	Solid Shaft	3-462-ILINE51-001
	182/184 TC	3-462-ILINE51-002
	213/215 TC	3-462-ILINE51-003
	254/256 TC	3-462-ILINE51-004
	284/286 TC	3-462-ILINE51-005
	100/112 IEC	3-462-ILINE51-006
	132 IEC	3-462-ILINE51-007
	160 IEC	3-462-ILINE51-008
	180 IEC	3-462-ILINE51-009
61	Solid Shaft	3-462-ILINE61-001
	182/184 TC	3-462-ILINE61-002
	213/215TC	3-462-ILINE61-003
	254/256 TC	3-462-ILINE61-004
	284/286 TC	3-462-ILINE61-005
	100/112 IEC	3-462-ILINE61-006
	132	3-462-ILINE61-007
	160	3-462-ILINE61-008
180	3-462-ILINE61-009	
70	Solid Shaft	3-462-ILINE70-001
80	Solid Shaft	3-462-ILINE80-001
90	Solid Shaft	3-462-ILINE90-001
100	Solid Shaft	3-462-ILINE100-001

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Viking In-Line Helical Gear Reducers

Solid Input Shaft Model Dimensions



Size		A	AC	B	BA	C	D	E	FA	FB	G	H	J	OA	V	FV
12	in	5.12	3.74	4.21	2.28	9.90	3.35	4.33	3.43	1.46	.59	.35	1.46	5.55	1.56	1.57
	mm	130	95	107	58	251	85	110	87	37	15	9	37	14	40	40
22	in	6.10	4.33	5.39	2.71	12.75	① 3.94	5.12	4.23	1.87	.67	.43	1.77	6.54	2.00	1.57
	mm	155	110	137	68.8	324	100	130	107.5	47.5	17	11	45	166	50.8	40
32	in	7.48	5.12	6.14	3.07	14.09	4.33	6.30	5.12	2.36	.79	.43	2.09	7.13	2.38	1.57
	mm	190	130	156	78	358	110	160	130	60	20	11	53	181	60	40
36	in	8.07	5.91	6.61	3.58	16.32	② 4.53	6.69	5.12	n.a.	.63	.55	1.97	8.11	2.71	1.97
	mm	205	150	168	91	414.5	115	170	130	n.a.	16	14	50	206	69	50
41	in	8.50	6.10	7.30	3.52	16.71	5.12	7.09	5.88	n.a.	.71	.55	2.40	8.70	2.71	1.97
	mm	216	155	185.5	89.5	424.5	130	180	149.5	n.a.	18	14	61	221	69	50
51	in	10.63	7.28	7.87	4.13	17.75	6.10	8.86	6.14	n.a.	.87	.71	2.95	10.94	3.12	1.97
	mm	270	185	200	105	450.9	155	225	156	n.a.	22	18	75	278	80	50
61	in	11.81	8.27	9.13	4.36	20.37	7.68	9.84	7.09	n.a.	.98	.71	3.15	12.44	3.38	2.36
	mm	300	210	232	111	517	195	250	180	n.a.	25	18	80	316	86	60
70	in	13.78	10.31	8.74	5.71	25.89	8.27	11.81	6.50	n.a.	1.18	.87	3.35	13.74	4.72	4.33
	mm	350	262	222	145	657.5	210	300	165	n.a.	30	22	85	349	120	110
80	in	17.32	12.60	10.91	6.81	28.29	9.84	14.57	8.27	n.a.	1.38	1.02	4.33	16.54	5.51	4.33
	mm	440	320	277	173	718.5	250	370	210	n.a.	35	26	110	420	140	110
90	in	20.47	14.76	13.35	8.27	36.63	11.81	17.32	9.84	n.a.	1.57	1.30	5.51	19.49	6.69	5.51
	mm	520	375	339	210	930.5	300	440	250	n.a.	40	33	140	495	170	140
100	in	22.05	17.32	15.31	10.04	40.37	13.58	19.29	11.42	n.a.	1.77	1.30	6.30	22.44	8.27	5.51
	mm	560	440	389	255	1025	345	490	290	n.a.	45	33	160	570	210	140

Size		U	Key	FU	Key
12	in	.750	.19x.19x1.38	.625	.19x.19x1.38
22	in	1.000	.25x.25x1.75	.750	.19x.19x1.38
32	in	1.125	.25x.25x2.16	.750	.19x.19x1.38
36	in	1.375	.31x.31x2.38	1.000	.25x.25x1.75
41	in	1.375	.31x.31x2.38	1.000	.25x.25x1.75
51	in	1.562	.38x.38x2.88	1.000	.25x.25x1.75
61	in	2.000	.50x.50x3.16	1.125	.25x.25x2.16
70	mm	60	18x11x90	42	12x8x90
80	mm	80	22x14x110	42	12x8x90
90	mm	90	25x14x140	60	18x11x120
100	mm	100	28x16x180	60	18x11x120

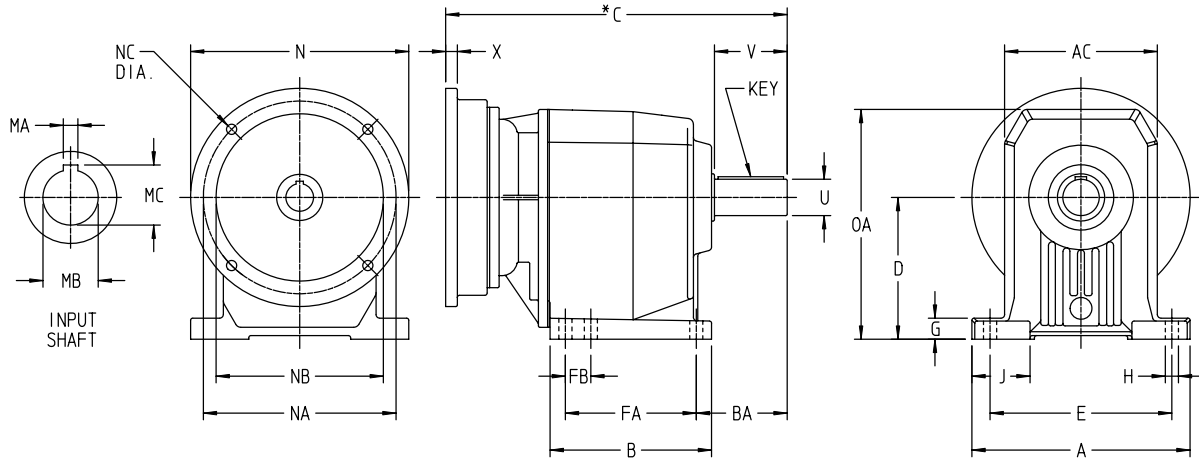
① The input shaft centerline is .08" lower than the output shaft centerline. Dimension D is to the output shaft centerline.

② The input shaft centerline is .13" lower than the output shaft centerline. Dimension D is to the output shaft centerline.

Viking In-Line Helical Gear Reducers

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NEMA "C" Face Model Dimensions



Size		A	AC	B	BA	D	E	FA	FB	G	H	J	OA	V	U	KEY
12	in	5.12	3.74	4.21	2.28	3.35	4.33	3.43	1.46	.59	.35	1.46	5.55	1.56	0.750	.19x.19x1.38
	mm	130	95	107	58	85	110	87	37	15	9	37	141	40	n.a.	n.a.
22	in	6.10	4.33	5.39	2.71	① 3.94	5.12	4.23	1.87	.67	.43	1.77	6.54	2.00	1.000	.25x.25x1.75
	mm	155	110	137	68.8	100	130	107.5	47.5	17	11	45	166	50.8	n.a.	n.a.
32	in	7.48	5.12	6.14	3.07	4.33	6.30	5.12	2.36	.79	.43	2.09	7.13	2.38	1.125	.25x.25x2.16
	mm	190	130	156	78	110	160	130	60	20	11	53	181	60	n.a.	n.a.
36	in	8.07	5.91	6.61	3.58	② 4.53	6.69	5.12	n.a.	.63	.55	1.97	8.11	2.71	1.375	.31x.31x2.38
	mm	205	150	168	93.5	115	170	130	n.a.	16	14	50	206	69	n.a.	n.a.
41	in	8.50	6.10	7.30	3.52	5.12	7.09	5.88	n.a.	.71	.55	2.40	8.70	2.71	1.375	.31x.31x2.38
	mm	216	155	185.5	89.5	130	180	149.5	n.a.	18	14	61	221	69	n.a.	n.a.
51	in	10.63	7.28	7.87	4.13	6.10	8.86	6.14	n.a.	.87	.71	2.95	10.94	3.12	1.562	.38x.38x2.88
	mm	270	185	200	105	155	225	178	n.a.	22	18	75	278	80	n.a.	n.a.
61	in	11.81	8.27	9.13	4.36	7.68	9.84	7.09	n.a.	.98	.71	3.15	12.44	3.38	2.000	.50x.50x3.16
	mm	300	210	232	111	195	250	180	n.a.	25	18	80	316	86	n.a.	n.a.

NEMA FRAME		N	NA	NB	NC	X	MA	MB	MC
56C	in	6.496	5.875	4.50	.39	.47	.188	.625	.71
143TC, 145TC	in	6.496	5.875	4.50	.39	.47	.188	.875	.96
182TC, 184TC	in	8.996	7.250	8.50	.55	.63	.250	1.125	1.24
213TC, 215TC	in	8.996	7.250	8.50	.55	.63	.312	1.375	1.52
254TC, 256TC	in	13.780	7.250	8.500	.55	.75	.375	1.625	1.80
284TC, 286TC	in	13.780	9.000	10.500	.55	.75	.500	1.875	2.10

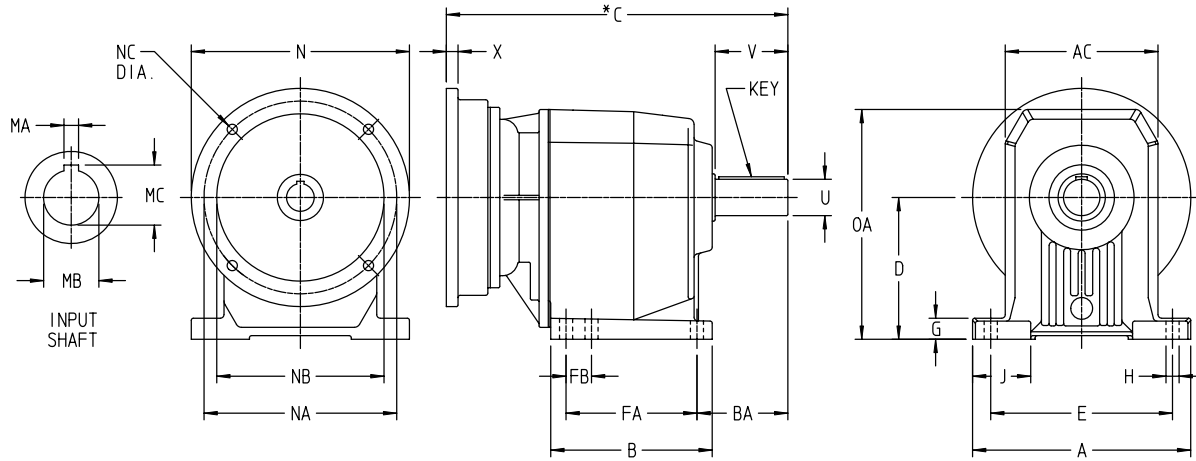
* See Page 19 for "C" Dimensions

- ① The input C-Flange adapter centerline is .08" lower than the output shaft centerline. Dimension D is to the output shaft centerline.
- ② The input C-Flange adapter centerline is .13" lower than the output shaft centerline. Dimension D is to the output shaft centerline.

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Viking In-Line Helical Gear Reducers

IEC Flange Model Dimensions



Size		A	AC	B	BA	D	E	FA	FB	G	H	J	OA	V	U	KEY
12	in	5.12	3.74	4.21	2.28	3.35	4.33	3.43	1.46	.59	.35	1.46	5.55	1.56	0.750	.19x.19x1.38
	mm	130	95	107	58	85	110	87	37	15	9	37	141	40	n.a.	n.a.
22	in	6.10	4.33	5.39	2.71	① 3.94	5.12	4.23	1.87	.67	.43	1.77	6.54	2.00	1.000	.25x.25x1.75
	mm	155	110	137	68.8	100	130	107.5	47.5	17	11	45	166	50.8	n.a.	n.a.
32	in	7.48	5.12	6.14	3.07	4.33	6.30	5.12	2.36	.79	.43	2.09	7.13	2.38	1.125	.25x.25x2.16
	mm	190	130	156	78	110	160	130	60	20	11	53	181	60	n.a.	n.a.
36	in	8.07	5.91	6.61	3.68	② 4.53	6.69	5.12	n.a.	.63	.55	1.97	8.11	2.71	1.375	.31x.31x2.38
	mm	205	150	168	93.5	115	170	130	n.a.	16	14	50	206	69	n.a.	n.a.
41	in	8.50	6.10	7.30	3.52	5.12	7.09	5.88	n.a.	.71	.55	2.40	8.70	2.71	1.375	.31x.31x2.38
	mm	216	155	185.5	89.5	130	180	149.5	n.a.	18	14	61	221	69	n.a.	n.a.
51	in	10.63	7.28	7.87	4.13	6.10	8.86	6.14	n.a.	.87	.71	2.95	10.94	3.12	1.562	.38x.38x2.88
	mm	270	185	200	105	155	225	156	n.a.	22	18	75	278	80	n.a.	n.a.
61	in	11.81	8.27	9.13	4.36	7.68	9.84	7.09	n.a.	.98	.71	3.15	12.44	3.38	2.000	.50x.50x3.16
	mm	300	210	232	111	195	250	180	n.a.	25	18	80	316	86	n.a.	n.a.

IEC FRAME **		N	NA	NB	NC	X	MA	MB	MC
63	mm	140	115	95	M8x19	16	4	11	12.8
71	mm	160	130	110	M8x16	16	5	14	16.3
80	mm	200	165	130	M10x12	16	6	19	21.8
90	mm	200	165	130	M10x12	16	8	24	27.3
100/112	mm	250	215	180	M12x16	16	8	28	31.3
132	mm	300	265	230	14	16	10	38	41.3
160	mm	350	300	250	18	19	12	42	45.3
180	mm	350	300	250	18	19	14	48	51.8

* See page 19 for "C" dimensions

** IEC flange must be B5

① The input C-Flange adapter centerline is .08" lower than the output shaft centerline. Dimension D is to the output shaft centerline.

② The input C-Flange adapter centerline is .13" lower than the output shaft centerline. Dimension D is to the output shaft centerline.

Viking In-Line Helical Gear Reducers

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“C” Dimensions

NEMA C-Face Models (from page 17)

Size		56C /143TC /145TC	182/184TC	213/215TC	254/256 TC	284/286 TC
12	in	10.41	10.95	n.a.	n.a.	n.a.
	mm	264.5	278			
22	in	11.57	12.10	n.a.	n.a.	n.a.
	mm	293.8	307.3			
32	in	12.89	13.39	n.a.	n.a.	n.a.
	mm	327.5	340			
36	in	13.62	14.15	15.56	n.a.	n.a.
	mm	346	359.5	395.4		
41	in	14.04	14.57	16.02	n.a.	n.a.
	mm	356.5	370	407		
51	in	15.03	15.56	16.80	19.83	20.01
	mm	381.8	395.3	426.8	503.8	508.3
61	in	17.11	17.65	18.89	21.37	21.56
	mm	434.7	448.2	479.7	542.8	547.6

IEC Flange Models (from page 18)

Size		63	71	80	90	100	112	132	160	180
12	in	9.63	9.63	10.39	10.39	10.79	10.79	n.a.	n.a.	n.a.
	mm	244.5	244.5	264	264	274	274			
22	in	10.75	10.75	11.52	11.52	11.91	11.91	n.a.	n.a.	n.a.
	mm	273	273	292.5	292.5	302.5	302.5			
32	in	12.11	12.11	12.88	12.88	13.27	13.27	n.a.	n.a.	n.a.
	mm	307.5	307.5	327	327	337	337			
36	in	12.84	12.84	13.60	13.60	14.00	14.00	n.a.	n.a.	n.a.
	mm	326	326	345.5	345.5	355.5	355.5			
41	in	n.a.	13.25	14.02	14.02	14.41	14.41	15.85	n.a.	n.a.
	mm		336.5	356	356	366	366	402.5		
51	in	n.a.	14.27	15.04	15.04	15.43	15.43	16.87	18.86	18.86
	mm		362.5	382	382	392	392	428.5	479	479
61	in	n.a.	n.a.	16.54	16.54	16.89	16.89	18.37	20.35	20.35
	mm			420	420	429	429	466.5	517	517

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Section 616

Gearmotors & Speed Reducers

60 Hz Motors

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Gear Ratio Range:	From 2.1:1 to 45.9:1 (varies by reducer size)
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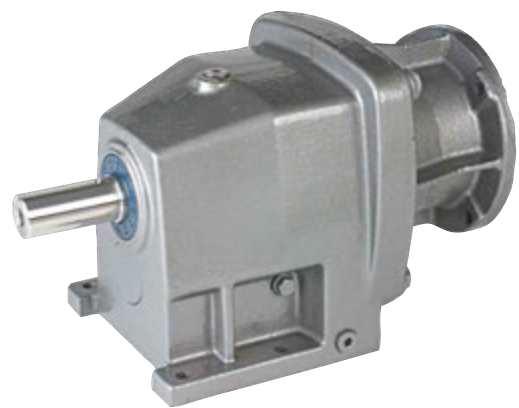
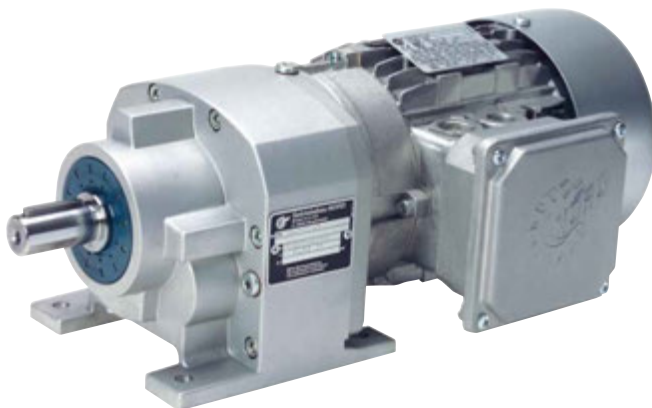
Output Speeds: (with 1750 rpm input)	819 to 36 rpm (varies by reducer size)
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Reducer Horsepower Range:	0.5 HP to 200 HP
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Major Design Features

Features:

- Two Nord reducers series available: Helical In-Line & Nordbloc.1®
- 31 different sizes available: Helical In-Line, 17 sizes and Nordbloc.1®, 14 sizes
 - All sizes available with a variety of ratios, double & triple reduction
- Universal Mounting
 - Solid input shaft
 - Flange mount C face with compact coupling design (NEMA or IEC)
 - Integral Gearmotor Design in IE1 and IE2 (varies by size)
- Modular design, up to 98.5% efficient
- Heavy Duty Unicase™ one piece housing
- Gears are case-hardened steel designed and manufactured to AGMA Class 13
- Autovent™ Breather
- Quadrilip™ Sealing System
- Helical In-Line sizes SK02 – SK103, class 35 grey cast iron with stainless steel paint
- Nordbloc.1® sizes SK072.1 – SK672.1 corrosion resistant alloy (unpainted), SK772.1 – SK973.1 class 35 grey cast iron with stainless steel paint
- All units come factory filled with Mobil SHC630 synthetic oil



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Gearmotors & Speed Reducers 60 Hz Motors



QUADRILIP™ shaft seal system – consists of 2 spring compression lips, 1 trash guard lip and 1 collector grease pack – keeps contaminants out and lubricant inside the gear case.

AUTOVENT™ breather seals dirt and moisture out while allowing the gear case to breathe during startup and cool down.

Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture and corrosion resistance.

Primer paint covers all exterior surfaces of the housing, providing excellent base corrosion protection.

Housing interior seal coating locks in casting sand, fills in processing blemishes eliminating leak paths, and protects against moisture damage to inside of gear case.

Outside diameter of oil seals is nitrile rubber. Direct connection of seal to housing eliminates bolt-on covers and centers the seal, eliminating the potential for leakage.

Shaft material is wear - resistant, high carbon steel that provides stable non-grooving surface for oil seal contact.

**HELICAL IN-LINE
STANDARD FEATURES**

UNICASE™

UNICASE™ one-piece housing is torsionally stiff, machined in one pass, has extreme accuracy, and eliminates the split case leakage path.

NORDBLOC.1® units are filled at the factory with the proper quantity and type of lubrication. Oil fill before shipping prevents damage from dry start-ups.

QUADRILIP™ shaft seal system – consists of 2 spring compression lips, 1 trash guard lip and 1 collector grease pack – keeps contaminants out and lubricant inside the gear case.

AUTOVENT™ breather seals dirt and moisture out while allowing the gear case to breathe during startup and cool down.

UNICASE™ one-piece housing is torsionally stiff, machined in one pass, has extreme accuracy, & eliminates the split case leakage path.

Housing interior seal coating locks in casting sand, fills in processing blemishes eliminating leak paths, and protects against moisture damage to inside of gear case.

Outside diameter of oil seals is nitrile rubber . Direct connection of seal to housing eliminates bolt-on covers and centers the seal, eliminating the potential for leakage.

Our oversized bearing design provides additional bearing capacity to handle larger load forces. This design allows for larger overhung and axial load capacity as well an increased bearing life.

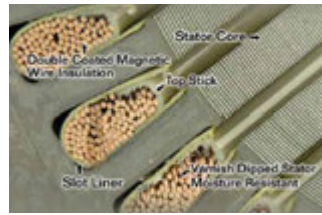
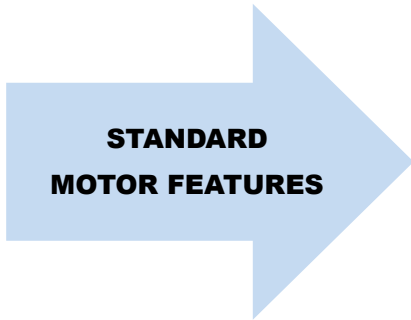
Shaft material is wear - resistant, high carbon steel that provides stable non-grooving surface for oil seal contact.

**NORDBLOC.1®
STANDARD FEATURES**

Nordbloc.1® is a registered trademark of NORD Gear Corporation



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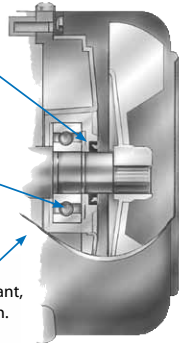
Inverter duty winding protection, Class H magnet wire insulation, double coated wire, and voltage spike protection.

End bell to stator connections are sealed to keep out moisture.

Shaft lip seal prevents contaminants from entering.

Bearing grease has superior resistance to washout, rust and corrosion.

Corrosion-resistant, non-sparking fan.



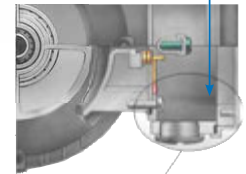
Die cast aluminum rotor coated to prevent corrosion.

Corrosion-resistant aluminum alloy construction.

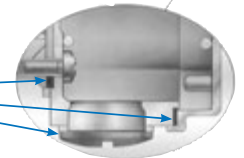
Threaded cable entry allows the power feed line to be sealed.

Shaft lip seal excludes speed reducer lubricant, allowing motor to be mounted in any position.

Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture resistance.



Conduit box connections and lid have gaskets to ensure a water tight seal.



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Gearmotors & Speed Reducers

60 Hz Motors



**Additional options may be available beyond those shown in this catalog section.
Please consult factory for additional information.**

SELECTING THE CORRECT NORD REDUCER OR GEARMOTOR

1. Determine the actual horsepower or kW requirements of the application from the pump performance curve, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com, or specifications from other equipment.
2. Based on the horsepower or kW requirement, go to the closest higher HP or kW page.

Example:

For a 7.1 HP requirement, go to the 7.5 HP catalog page. Then find the reducer which most closely matches your speed requirements.

3. Make sure the service factor for the reducer selected is greater than the service factor from the Service Factor Table on page 6. The Service Factor Table provides different service factors based on the length of service per day, the load classification (uniform, moderate, shock, heavy shock) and the type of drive. A table of driven load classifications is also included on page 616.6 to help determine the service factor to use.

4. Next, determine the part number of the Nord reducer or gearmotor. Part numbers can be created from the catalog pages (examples below).

Note: the “-“ is required between each field.

Examples:

- a. **Reducer:** 510 RPM output speed, solid input shaft.
Part # = **SK92-W-3.51**

- b. **Reducer:** 528 RPM output speed, 184TC frame motor.
Part # = **SK572.1-N180TC-3.27**

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM	Service Factor	1 Reducer Model #	2 Input Option (Choose One)	3 Gear Ratio	4 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
						60Hz (rpm)	12Hz (rpm)
510	2.3	SK92		3.51		510	102
418	3.2	SK102		4.28	-1	418	84
342	2.9	SK102		5.23		342	68
315	1.8	SK92	-W-	5.68		315	63
287	2.6	SK102		6.24		287	57
267	1.7	SK92		6.7	-2	267	53
239	2.2	SK102	-315M	7.5		239	48
180	2.2	SK102	-315MH	9.96		180	36
170	1.4	SK92		10.5		170	34
151	1.9	SK102		11.88		151	30
125	1.7	SK102		14.29	-4	125	25
108	1.5	SK102		16.63		108	22

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- 315M- Integral 4-Pole TEFC Standard Gear Motor
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM	Service Factor	1 Reducer Model #	2 Input Option (Choose One)	3 Gear Ratio	4 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
						60Hz (rpm)	12Hz (rpm)
658	1.7	SK372.1		2.62		658	132
618	2	SK22		2.79	-1	618	124
603	1.5	SK372.1	-W-	2.86		603	121
591	2.7	SK572.1		2.92	-2	591	118
583	1.7	SK12*		2.96		583	117
553	1.6	SK372.1	-N180TC-	3.12		553	111
528	2.7	SK572.1		3.27	-3	528	106
509	1.6	SK12*	-100LA-	3.39		509	102
503	1.6	SK372.1	-112MH-	3.43	-4	503	101
489	1.8	SK22		3.53		489	98

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N180TC- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 100LA- Integral 4-Pole TEFC Standard Gear Motor
- 112MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)



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- c. Gearmotor: 125 RPM output speed, 230/460V - 60 Hz.
 Part # = **SK102-315MA-14.29-1**

		Part Number					
		SKxxx	-xx-	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
510	2	SK92		3.51		510	102
418	2.8	SK102		4.28	-1	418	84
342	2.5	SK102		5.23		342	68
315	1.6	SK92	-W-	5.68		315	63
287	2.3	SK102		6.24		287	57
267	1.5	SK92		6.7	-2	267	53
239	1.9	SK102		7.5		239	48
180	1.9	SK102	-315MA-	9.96		180	36
151	1.7	SK102		11.88		151	30
125	1.5	SK102		14.29	-4	125	25
108	1.3	SK102		16.63		108	22

¹ Reducer Input Options	² Voltage Code
-W- Solid Shaft Input Reducer	-1 230/460V, 60 Hz, 3 Ph
-315MA- Integral 4-Pole TEFC Standard Gear Motor	-2 575V, 60 Hz, 3 Ph
	-4 400V, 50 Hz, 3 Ph
	(For more options, contact Viking Pump)

5. If ordering a reducer with a NEMA motor adaptor, you have the option to buy a Nord motor with it. The Nord Motor parts numbers are available at the bottom of the 60 Hz catalog pages (up to 20 HP)

Example:

20 HP
60 Hz Motors | 39 RPM to 583 RPM

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** Optional NORD NEMA C-Face TEFC Motor				Weight (LBS)
(can be used with reducer with NEMA C-Face adaptor input)				
Efficiency	Part Number		² Voltage Code	
IE2	EE	SK160LH/4-256TCTW	-	198.4

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Gearmotors & Speed Reducers

60 Hz Motors



SERVICE FACTOR TABLE

POWER SOURCE	CLASSIFICATION OF DRIVEN LOAD*	INTERMITTENT UP TO 3 HOURS per DAY	8 – 10 HOURS per DAY	24 HOURS per DAY
Electric Motor, Steam Turbine, or Hydraulic Motor	Uniform	0.8	1.0	1.25
	Moderate Shock	1.0	1.25	1.5
	Heavy Shock	1.5	1.75	2.0
Multi-cylinder Internal Combustion Engine	Uniform	1.0	1.25	1.5
	Moderate Shock	1.25	1.5	1.75
	Heavy Shock	1.75	2.0	2.25

* Rotary Pump applications are classified as Uniform Loads.

DRIVEN LOAD CLASSIFICATIONS (excerpted from AGMA Information Sheet 922-A96 ©1996)

Key: U = Uniform Load; M = Moderate Shock Load; H = Heavy Shock Load

APPLICATION	LOAD CLASSIFICATION	APPLICATION	LOAD CLASSIFICATION
Pumps, Rotary and Centrifugal	U	Fans, Cooling Tower	M
Pumps, Reciprocating	M	Feeders, Apron, Belt, Screw	U
Agitators	U	Feeders, Reciprocating	M
Blowers	U	Generators	U
Compressors, Centrifugal & Lobe	U	Hammer Mills	M
Compressors, Reciprocating	M	Machine Tools	M
Cranes and Hoists	M	Mills, Rotary	M
Crushers, Ore and Stone	H	Mixers, Concrete, Drum Type	M
Elevators	M	Printing Presses	U
Fans, Centrifugal, Forced Draft	U	Sewage Disposal Bar Screens	U



Gearmotors & Speed Reducers

0.5 HP

60 Hz Motors | 37 RPM to 819 RPM



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		Part Number					
		SKxxx	-XX-	x.xx	-X		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
819	6.9	SK072.1*		2.1		819	164
741	8	SK172.1		2.32		741	148
738	6.7	SK072.1*		2.33		738	148
691	7.8	SK172.1		2.49		691	138
669	6.9	SK072.1*		2.57		669	134
632	8	SK172.1		2.72		632	126
604	6.7	SK072.1*		2.85		604	121
589	7.8	SK172.1		2.92		589	118
583	7.6	SK02		2.95		583	117
534	8	SK172.1		3.22		534	107
524	6.7	SK072.1*		3.28		524	105
509	7.3	SK02		3.38		509	102
497	7.5	SK172.1		3.46		497	99
480	6.5	SK072.1*		3.58		480	96
454	7.5	SK172.1		3.79		454	91
442	6.6	SK02	-W-	3.89	-1	442	88
439	5.5	SK072.1*		3.92		439	88
412	7.5	SK172.1		4.17		412	82
408	6	SK02		4.22		408	82
399	5.6	SK072.1*	-N56C-	4.31	-2	399	80
372	7.5	SK172.1		4.62		372	74
361	5.4	SK072.1*		4.77		361	72
357	5.8	SK02		4.82		357	71
335	7.8	SK172.1	-71L-	5.14	-3	335	67
324	5	SK072.1*		5.31		324	65
313	4.8	SK072.1*		5.5		313	63
309	5	SK02		5.57	-4	309	62
298	6.4	SK172.1		5.77		298	60
289	4.5	SK072.1*		5.96		289	58
282	4.5	SK02		6.1		282	56
267	6.2	SK172.1		6.43		267	53
262	3.9	SK072.1*		6.57		262	52
250	4.3	SK02		6.89		250	50
243	5.6	SK172.1		7.08		243	49
238	3.7	SK072.1*		7.23		238	48
221	3.9	SK02		7.8		221	44
220	5.1	SK172.1		7.83		220	44
215	3.3	SK072.1*		8		215	43
210	3.7	SK02		8.19		210	42
197	4.9	SK172.1		8.72		197	39
193	3	SK072.1*		8.91		193	39
185	3.4	SK02		9.28		185	37

		Part Number					
		SKxxx	-XX-	x.xx	-X		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
176	4.2	SK172.1		9.79		176	35
173	3.1	SK02		9.95		173	35
172	2.7	SK072.1*		10		172	34
159	3.8	SK172.1		10.83		159	32
153	2.9	SK02		11.27		153	31
151	3.6	SK172.1		11.39		151	30
149	2.1	SK072.1*		11.56		149	30
143	3.5	SK172.1		12.06		143	29
134	2.7	SK02		12.82		134	27
130	1.7	SK072.1*		13.2		130	26
127	3	SK172.1		13.54		127	25
119	1.7	SK072.1*		14.4		119	24
118	6.3	SK372.1		14.57		118	24
109	2.6	SK172.1		15.76		109	22
108	2.2	SK02		15.95		108	22
103	4.5	SK12	-W-	16.73	-1	103	21
99	1.5	SK072.1*		17.35		99	20
92	4.2	SK12		18.79		92	18
90	1.4	SK072.1*		19.2	-2	90	18
84	2	SK172.1	-N56C-	20.37		84	17
81	3.8	SK12		21.28		81	16
77	2	SK172.1		22.42		77	15
74	1.6	SK02	-71L-	23.13	-3	74	15
73	4.4	SK373.1		23.41		73	15
71	1.8	SK02		24.39		71	14
69	1.8	SK172.1		24.8		69	14
66	3.9	SK373.1		25.94	-4	66	13
62	1.6	SK172.1		27.62		62	12
59	2.1	SK12		29.15		59	12
58	3.4	SK373.1		29.77		58	12
57	2.9	SK372.1		30.11		57	11
55	2.6	SK12		31.19		55	11
52	2.9	SK373.1		33.2		52	10
51	2.7	SK372.1		33.84		51	10
49	2.1	SK12		35.07		49	10
46	2.6	SK373.1		37.23		46	9
45	2.3	SK12		38.31		45	9
41	2.3	SK373.1		42.46		41	8
40	1.9	SK372.1		43.26		40	8
38	3.4	SK572.1		45.77		38	8
37	3.1	SK22		45.9		37	7

* SK072.1 is not available with a solid shaft input -W-

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N56C- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 71L- Integral 4-Pole TEFC Standard Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	71L	N56C
SK072.1	N/A	14	9
SK02	26	32	29
SK172.1	15	18	15
SK12	31	36	33
SK372.1	24	29	22
SK373.1	26	30	24
SK572.1	40	46	40
SK573.1	42	47	42
SK22	64	56	60

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency		Part Number		(LBS)
IE1	Standard	SK71L/4-56C	- 2 Voltage Code	13.9

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Gearmotors & Speed Reducers

0.75 HP

60 Hz Motors | 37 RPM to 737 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
737	5.9	SK172.1		2.32		737	147
687	5.5	SK172.1		2.49		687	137
629	5.4	SK172.1		2.72		629	126
586	5.5	SK172.1		2.92		586	117
580	5	SK02		2.95		580	116
531	5.4	SK172.1		3.22		531	106
506	4.8	SK02		3.38		506	101
494	5	SK172.1		3.46		494	99
451	5	SK172.1		3.79		451	90
440	4.4	SK02		3.89		440	88
410	5	SK172.1		4.17		410	82
405	3.9	SK02		4.22	-1	405	81
370	5	SK172.1		4.62		370	74
355	3.8	SK02	-W-	4.82		355	71
333	5.2	SK172.1		5.14		333	67
307	3.3	SK02		5.57	-2	307	61
296	4.3	SK172.1		5.77		296	59
280	3	SK02	-N56C-	6.1		280	56
266	4.1	SK172.1		6.43		266	53
248	2.8	SK02		6.89	-3	248	50
242	3.7	SK172.1		7.08		242	48
219	2.6	SK02	-80S-	7.8		219	44
218	3.4	SK172.1		7.83		218	44
209	2.5	SK02		8.19	-4	209	42
196	3.2	SK172.1		8.72		196	39
184	2.2	SK02		9.28		184	37
175	2.8	SK172.1		9.79		175	35
172	2.1	SK02		9.95		172	34
160	4	SK12		10.7		160	32
158	2.5	SK172.1		10.83		158	32
152	1.9	SK02		11.27		152	30
150	2.4	SK172.1		11.39		150	30
142	2.3	SK172.1		12.06		142	28
133	1.7	SK02		12.82		133	27

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
132	4.9	SK372.1		12.96		132	26
128	3.6	SK12		13.39		128	26
126	2	SK172.1		13.54		126	25
117	4.2	SK372.1		14.57		117	23
109	1.7	SK172.1		15.76		109	22
107	1.4	SK02		15.95		107	21
104	3.7	SK372.1		16.5		104	21
102	2.9	SK12		16.73		102	20
93	3.5	SK372.1		18.4		93	19
92	3.3	SK373.1		18.63		92	18
91	2.7	SK12		18.79		91	18
83	3.3	SK373.1		20.52	-1	83	17
80	2.5	SK12		21.28		80	16
75	3	SK373.1	-W-	22.74		75	15
74	2.8	SK372.1		23		74	15
73	2.9	SK373.1		23.41	-2	73	15
69	3.2	SK22		24.73		69	14
66	2.4	SK372.1	-N56C-	25.85		66	13
59	1.4	SK12		29.15		59	12
58	3.2	SK22		29.31	-3	58	12
57	2.3	SK373.1		29.77		57	11
55	1.7	SK12	-80S-	31.19		55	11
52	1.9	SK373.1		33.2	-4	52	10
51	1.8	SK372.1		33.84		51	10
49	4	SK573.1		34.8		49	10
48	3.3	SK572.1		35.65		48	10
46	1.7	SK373.1		37.23		46	9
45	1.5	SK12		38.31		45	9
41	3.4	SK573.1		42.18		41	8
40	2.8	SK572.1		42.38		40	8
39	3.3	SK573.1		43.4		39	8
38	3.2	SK672.1		44.55		38	8
37	2.2	SK572.1		45.77		37	7

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 80S- Integral 4-Pole TEFC Standard Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	80S	N56C
SK02	26	35	29
SK172.1	15	27	15
SK12	31	40	33
SK372.1	24	33	22
SK373.1	26	34	24
SK572.1	40	50	40
SK573.1	42	51	42
SK22	64	60	60
SK672.1	53	62	51

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency	Part Number			(LBS)
IE1	Standard	SK80S/4-56C	-	2 Voltage Code
				17.6



Gearmotors & Speed Reducers

1 HP

60 Hz Motors | 36 RPM to 711 RPM



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		Part Number						Part Number							
		SKxxx	-XX-	x.xx	-X			SKxxx	-XX-	x.xx	-X				
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)		4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
711	4.3	SK172.1		2.32		711	142	152	1.8	SK172.1		10.83		152	30
663	4	SK172.1		2.49		663	133	146	1.4	SK02		11.27		146	29
607	3.9	SK172.1		2.72		607	121	145	1.7	SK172.1		11.39		145	29
565	4	SK172.1		2.92		565	113	143	3.8	SK372.1		11.55		143	29
559	3.6	SK02		2.95		559	112	137	1.7	SK172.1		12.06		137	27
512	3.9	SK172.1		3.22		512	102	127	3.6	SK372.1		12.96		127	25
488	3.5	SK02		3.38		488	98	123	2.6	SK12		13.39		123	25
477	3.6	SK172.1		3.46		477	95	122	1.5	SK172.1		13.54		122	24
435	3.6	SK172.1		3.79		435	87	113	3	SK372.1		14.57		113	23
424	3.1	SK02		3.89		424	85	100	2.7	SK372.1		16.5		100	20
396	3.6	SK172.1		4.17		396	79	99	2.1	SK12		16.73		99	20
391	2.8	SK02		4.22		391	78	90	2.5	SK372.1		18.4		90	18
357	3.6	SK172.1		4.62	-1	357	71	89	2.3	SK373.1		18.63	-1	89	18
342	2.7	SK02	-W-	4.82		342	68	88	2	SK12	-W-	18.79		88	18
321	3.7	SK172.1		5.14		321	64	80	2.4	SK373.1		20.52		80	16
296	2.4	SK02		5.57		296	59	78	1.8	SK12		21.28		78	16
286	3.1	SK172.1		5.77	-2	286	57	73	2.1	SK373.1		22.74	-2	73	15
270	2.2	SK02	-N56C-	6.1		270	54	72	2	SK372.1	-N56C-	23		72	14
257	3	SK172.1		6.43		257	51	70	2.1	SK373.1		23.41		70	14
239	2	SK02		6.89	-3	239	48	69	4.2	SK573.1		23.79	-3	69	14
233	2.7	SK172.1		7.08		233	47	67	2.3	SK22		24.73		67	13
228	4.9	SK372.1		7.23		228	46	64	1.9	SK373.1		25.94		64	13
227	3.9	SK12	-80L-	7.28		227	45	62	3.7	SK573.1	-80L-	26.77		62	12
212	1.9	SK02	-80LH-	7.8	-4	212	42	61	3.4	SK572.1	-80LH-	27	-4	61	12
211	2.4	SK172.1		7.83		211	42	57	3	SK572.1		28.91		57	11
210	3.8	SK12		7.85		210	42	56	2.3	SK22		29.31		56	11
201	4.7	SK372.1		8.22		201	40	55	1.6	SK373.1		29.77		55	11
193	3.5	SK12		8.56		193	39	53	3.3	SK573.1		30.93		53	11
189	2.3	SK172.1		8.72		189	38	50	1.4	SK373.1		33.2		50	10
178	1.6	SK02		9.28		178	36	47	2.9	SK573.1		34.8		47	9
176	4.5	SK372.1		9.4		176	35	46	2.4	SK572.1		35.65		46	9
171	3.2	SK12		9.65		171	34	43	2.7	SK573.1		38.02		43	9
169	2	SK172.1		9.79		169	34	39	2	SK572.1		42.38		39	8
166	1.5	SK02		9.95		166	33	38	2.4	SK573.1		43.4		38	8
161	4.2	SK372.1		10.28		161	32	37	3.3	SK673.1		44.85		37	7
154	2.9	SK12		10.7		154	31	36	1.6	SK572.1		45.77		36	7

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N56C- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 80L- Integral 4-Pole TEFC Standard Gear Motor
- 80LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	80L	N56C
SK02	26	32	29
SK172.1	15	31	15
SK12	31	36	33
SK372.1	24	35	22
SK373.1	26	30	24
SK572.1	40	52	40
SK573.1	42	53	42
SK22	64	56	60
SK672.1	53	64	51
SK673.1	55	66	53

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency	Part Number		2 Voltage Code	(LBS)
IE1	Standard	SK80L/4-56C		-
IE2	EE	SK80LH/4-56C	-	19.8

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Gearmotors & Speed Reducers

1.5 HP



60 Hz Motors | 37 RPM to 716 RPM

4-Pole 1750 RPM	Output Speed (rpm)	Service Factor	Part Number				5:1 Inverter Duty (Constant Torque)	
			SKxxx	-xx-	x.xx	-x	60Hz (rpm)	12Hz (rpm)
			1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)			
716	2.9	SK172.1		2.32		716	143	
667	2.7	SK172.1		2.49		667	133	
610	2.6	SK172.1		2.72		610	122	
568	2.7	SK172.1		2.92		568	114	
563	2.4	SK02		2.95		563	113	
516	2.6	SK172.1		3.22		516	103	
491	2.3	SK02		3.38		491	98	
480	2.4	SK172.1		3.46		480	96	
438	2.4	SK172.1		3.79		438	88	
427	2.1	SK02		3.89		427	85	
417	4.4	SK12		3.98		417	83	
398	2.4	SK172.1		4.17		398	80	
397	4.8	SK372.1		4.18		397	79	
393	1.9	SK02		4.22		393	79	
384	4	SK12		4.32		384	77	
370	4.1	SK12		4.49		370	74	
359	2.4	SK172.1		4.62	-1	359	72	
356	4.7	SK372.1		4.66	-1	356	71	
344	1.8	SK02	-W-	4.82		344	69	
337	3.7	SK12		4.93		337	67	
323	2.5	SK172.1		5.14	-2	323	65	
317	4.7	SK372.1		5.24	-2	317	63	
298	1.6	SK02	-N140TC-	5.57		298	60	
288	2.1	SK172.1		5.77		288	58	
287	3.3	SK12		5.79	-3	287	57	
279	4.2	SK372.1		5.95	-3	279	56	
272	1.5	SK02	-90S-	6.1		272	54	
258	2	SK172.1	-90SH-	6.43		258	52	
254	3	SK12		6.53	-4	254	51	
252	3.8	SK372.1		6.58	-4	252	50	
241	3.8	SK372.1		6.89		241	48	
234	1.8	SK172.1		7.08		234	47	
230	3.6	SK372.1		7.23		230	46	
228	2.6	SK12		7.28		228	46	
212	1.6	SK172.1		7.83		212	42	
211	2.6	SK12		7.85		211	42	
202	3.4	SK372.1		8.22		202	40	
194	2.4	SK12		8.56		194	39	
190	1.6	SK172.1		8.72		190	38	
177	3.1	SK372.1		9.4		177	35	
172	2.2	SK12		9.65		172	34	
161	2.9	SK372.1		10.28		161	32	
155	1.9	SK12		10.7		155	31	
152	4.5	SK22		10.89		152	30	
144	2.6	SK372.1		11.55		144	29	

4-Pole 1750 RPM	Output Speed (rpm)	Service Factor	Part Number				5:1 Inverter Duty (Constant Torque)	
			SKxxx	-xx-	x.xx	-x	60Hz (rpm)	12Hz (rpm)
			1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)			
136	4.2	SK22		12.2		136	27	
128	2.4	SK372.1		12.96		128	26	
124	1.7	SK12		13.39		124	25	
114	2	SK372.1		14.57		114	23	
113	3.6	SK22		14.69		113	23	
101	1.8	SK372.1		16.5		101	20	
101	3.8	SK572.1		16.46		101	20	
99	3.1	SK22		16.75		99	20	
95	3.8	SK573.1		17.42		95	19	
90	1.7	SK372.1		18.4		90	18	
89	1.6	SK373.1		18.63		89	18	
86	3.5	SK573.1		19.22		86	17	
85	3.2	SK572.1		19.57		85	17	
83	2.2	SK22		20.03		83	17	
81	1.4	SK372.1		20.62		81	16	
78	3.1	SK573.1		21.32	-1	78	16	
76	3	SK572.1	-W-	21.85		76	15	
73	1.4	SK373.1		22.74		73	15	
71	1.4	SK373.1		23.41	-2	71	14	
70	2.8	SK573.1		23.79	-2	70	14	
68	2.7	SK572.1	-N140TC-	24.58		68	14	
67	1.5	SK22		24.73		67	13	
62	2.5	SK573.1		26.77	-3	62	12	
61	2.3	SK572.1		27	-3	61	12	
58	2	SK22	-90S-	28.8		58	12	
57	2	SK572.1	-90SH-	28.91		57	11	
55	3.3	SK32		30.43	-4	55	11	
54	2.2	SK573.1		30.93		54	11	
53	1.8	SK572.1		31.28		53	11	
51	2.9	SK672.1		32.58		51	10	
50	1.8	SK32		33.05		50	10	
48	2	SK573.1		34.8		48	10	
46	2.4	SK672.1		35.75		46	9	
45	2.5	SK32		37.23		45	9	
44	1.8	SK573.1		38.02		44	9	
43	1.8	SK32		38.76		43	9	
42	3.4	SK773.1		39.06		42	8	
40	2.4	SK673.1		41.54		40	8	
39	1.7	SK573.1		42.18		39	8	
38	3.1	SK773.1		43.43		38	8	
37	1.6	SK672.1		44.55		37	7	

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- N140TC-
- 90S- Integral 4-Pole TEFC Standard Gear Motor
- 90SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	90S	N140TC
SK02	26	44	37
SK172.1	15	36	15
SK12	31	49	42
SK372.1	24	42	22
SK373.1	26	43	24
SK572.1	40	58	40
SK573.1	42	60	42
SK22	64	64	69
SK672.1	53	71	51
SK673.1	55	73	51

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)			Weight
Efficiency	Part Number		(LBS)
IE2	EE	SK90SH/4-145TC	- 2 Voltage Code
			26.5



Gearmotors & Speed Reducers 2 HP

60 Hz Motors | 37 RPM to 716 RPM



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		Part Number					
		SKxxx	-XX -	X.XX	-X		
		1	2	3	4		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					60Hz (rpm)	12Hz (rpm)
716	2.2	SK172.1		2.32		716	143
667	2	SK172.1		2.49		667	133
634	4	SK372.1		2.62		634	127
610	2	SK172.1		2.72		610	122
580	3.7	SK372.1		2.86		580	116
568	2	SK172.1		2.92		568	114
563	1.8	SK02		2.95		563	113
532	3.7	SK372.1		3.12		532	106
516	2	SK172.1		3.22		516	103
491	1.8	SK02		3.38		491	98
484	3.7	SK372.1		3.43		484	97
480	1.8	SK172.1		3.46		480	96
439	3.7	SK372.1		3.78		439	88
438	1.8	SK172.1		3.79		438	88
427	1.6	SK02		3.89		427	85
398	1.8	SK172.1		4.17		398	80
397	3.6	SK372.1	-W-	4.18	-1	397	79
393	1.4	SK02		4.22		393	79
370	3.1	SK12		4.49		370	74
359	1.8	SK172.1		4.62		359	72
356	3.5	SK372.1	-N140TC-	4.66	-2	356	71
344	1.4	SK02		4.82		344	69
337	2.7	SK12		4.93		337	67
323	1.9	SK172.1		5.14		323	65
317	3.6	SK372.1	-90L- -90LH-	5.24	-3	317	63
288	1.6	SK172.1		5.77		288	58
287	2.5	SK12		5.79		287	57
279	3.1	SK372.1		5.95		279	56
258	1.5	SK172.1		6.43	-4	258	52
254	2.3	SK12		6.53		254	51
252	2.8	SK372.1		6.58		252	50
242	4.3	SK22		6.86		242	48
241	2.9	SK372.1		6.89		241	48
230	2.7	SK372.1		7.23		230	46
228	2	SK12		7.28		228	46
219	3.8	SK22		7.57		219	44
211	1.9	SK12		7.85		211	42
202	2.6	SK372.1		8.22		202	40
196	3.6	SK22		8.48		196	39
194	1.8	SK12		8.56		194	39
177	2.4	SK372.1		9.4		177	35
172	1.6	SK12		9.65		172	34
165	4	SK572.1		10.04		165	33
161	2.2	SK372.1		10.28		161	32
155	1.5	SK12		10.7		155	31

		Part Number					
		SKxxx	-XX -	X.XX	-X		
		1	2	3	4		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					60Hz (rpm)	12Hz (rpm)
152	3.4	SK22		10.89		152	30
148	3.9	SK572.1		11.25		148	30
144	1.9	SK372.1		11.55		144	29
136	3.1	SK22		12.2		136	27
131	3.7	SK572.1		12.68		131	26
128	1.8	SK372.1		12.96		128	26
121	3.4	SK572.1		13.67		121	24
114	1.5	SK372.1		14.57		114	23
113	2.7	SK22		14.69		113	23
108	3.9	SK672.1		15.35		108	22
101	2.8	SK572.1		16.46		101	20
99	2.4	SK22		16.75		99	20
96	3.7	SK672.1		17.25		96	19
95	2.9	SK573.1		17.42		95	19
90	3.4	SK672.1		18.41		90	18
89	3.9	SK32		18.67		89	18
86	2.6	SK573.1	-W-	19.22	-1	86	17
85	2.4	SK572.1		19.57		85	17
83	1.7	SK22		20.03		83	17
81	3.4	SK672.1	-N140TC-	20.62		81	16
80	3.7	SK32		20.7	-2	80	16
78	2.4	SK573.1		21.32		78	16
76	2.2	SK572.1		21.85		76	15
72	3.2	SK32	-90L- -90LH-	23.12	-3	72	14
70	2.1	SK573.1		23.79		70	14
68	2	SK572.1		24.58		68	14
66	2.3	SK673.1		25.19		66	13
61	2.6	SK32		27.24	-4	61	12
60	2.2	SK673.1		27.61		60	12
58	1.5	SK22		28.8		58	12
57	2.2	SK672.1		29.08		57	11
55	2.4	SK32		30.43		55	11
54	2	SK673.1		30.92		54	11
53	1.9	SK32		31.16		53	11
51	2.2	SK672.1		32.58		51	10
49	2.1	SK673.1		34.12		49	10
48	1.5	SK573.1		34.8		48	10
46	1.8	SK672.1		35.75		46	9
45	2	SK673.1		37.23		45	9
42	2.5	SK773.1		39.06		42	8
41	3	SK43		40.98		41	8
40	1.8	SK673.1		41.54		40	8
38	2.3	SK773.1		43.43		38	8
37	1.7	SK673.1		44.85		37	7

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 90L- Integral 4-Pole TEFC Standard Gear Motor
- 90LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	90L	N140TC
SK02	26	49	37
SK172.1	15	44	15
SK12	31	53	42
SK372.1	24	46	22
SK373.1	26	47	24
SK572.1	40	63	40
SK573.1	42	64	42
SK22	64	73	69
SK672.1	53	75	51
SK673.1	55	77	53
SK32	88	97	93
SK773.1	97	105	93
SK43	154	163	159

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number		2 Voltage Code	(LBS)
IE2	EE	SK90LH/4-145TC	-	30.9

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Gearmotors & Speed Reducers 3 HP



60 Hz Motors | 37 RPM to 651 RPM

		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-XX-	x.xx	-x		
4-Pole 1750 RPM	①	②	③	④			
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
651	2.7	SK372.1		2.62		651	130
596	2.5	SK372.1		2.86		596	119
576	2.8	SK12*		2.96		576	115
546	2.6	SK372.1		3.12		546	109
503	2.6	SK12*		3.39		503	101
497	2.6	SK372.1		3.43		497	99
451	2.5	SK372.1		3.78		451	90
428	2.3	SK12*		3.98		428	86
408	2.5	SK372.1		4.18		408	82
395	2.1	SK12*		4.32		395	79
380	2.1	SK12*		4.49		380	76
369	2.6	SK22		4.62		369	74
366	2.4	SK372.1		4.66		366	73
346	1.9	SK12*		4.93		346	69
329	2.4	SK22		5.18		329	66
325	2.4	SK372.1		5.24		325	65
294	1.7	SK12*		5.79	-1	294	59
287	2.1	SK372.1		5.95	-1	287	57
271	4	SK572.1	-W-	6.3		271	54
262	2.8	SK22		6.51		262	52
261	1.5	SK12*		6.53	-2	261	52
259	1.9	SK372.1		6.58	-2	259	52
249	3	SK22	-N180TC-	6.86		249	50
247	2	SK372.1		6.89		247	49
236	1.9	SK372.1		7.23	-3	236	47
234	1.4	SK12*		7.28		234	47
228	3.7	SK572.1	-100L-	7.49		228	46
225	2.6	SK22	-100LH-	7.57		225	45
209	3.5	SK572.1		8.15	-4	209	42
207	1.7	SK372.1		8.22		207	41
201	2.4	SK22		8.48		201	40
191	3.3	SK572.1		8.92		191	38
181	1.6	SK372.1		9.4		181	36
170	3.2	SK572.1		10.04		170	34
166	1.5	SK372.1		10.28		166	33
157	2.3	SK22		10.89		157	31
152	1.8	SK572.1		11.25		152	30
148	2.4	SK372.1		11.55		148	30
140	1.6	SK22		12.2		140	28
134	4	SK572.1		12.68		134	27
125	2.2	SK572.1		13.67		125	25
124	1.5	SK672.1		13.7		124	25
117	3.4	SK32		14.55		117	23
116	3.9	SK22		14.69		116	23
113	1.9	SK32		15.03		113	23

		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-XX-	x.xx	-x		
4-Pole 1750 RPM	①	②	③	④			
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
111	3.1	SK572.1		15.38		111	22
105	1.8	SK32		16.25		105	21
102	3.4	SK22		16.75		102	20
102	1.5	SK32		16.66		102	20
99	2.7	SK672.1		17.25		99	20
98	3.3	SK573.1		17.42		98	20
93	3.9	SK672.1		18.41		93	19
91	2.8	SK32		18.67		91	18
89	2.4	SK573.1		19.22		89	18
87	3.7	SK572.1		19.57		87	17
84	2.9	SK772.1		20.31		84	17
82	3.4	SK32		20.7		82	16
80	3.9	SK573.1		21.32		80	16
79	2.6	SK773.1		21.49		79	16
78	1.7	SK572.1		21.85		78	16
75	3.4	SK673.1		22.82		75	15
74	3.7	SK32		23.12	-1	74	15
73	2.4	SK672.1	-W-	23.41	-1	73	15
72	2.2	SK573.1		23.79		72	14
70	3.2	SK772.1		24.41		70	14
69	2	SK572.1		24.58	-2	69	14
68	2.3	SK673.1	-N180TC-	25.19	-2	68	14
67	1.9	SK773.1		25.39		67	13
65	1.9	SK672.1		26.23	-3	65	13
64	2.6	SK32		26.57	-3	64	13
63	2.2	SK32	-100L-	27.24	-100LH-	63	13
62	1.5	SK673.1		27.61		62	12
60	2.3	SK773.1		28.63	-4	60	12
59	1.5	SK672.1		29.08		59	12
58	2.8	SK42		29.29		58	12
56	2.8	SK42		30.46		56	11
55	1.4	SK673.1		30.92		55	11
52	1.5	SK672.1		32.58		52	10
50	1.4	SK673.1		34.12		50	10
49	2.7	SK872.1		35.08		49	10
48	2.8	SK42		35.25		48	10
46	1.4	SK673.1		37.23		46	9
44	1.7	SK773.1		39.06		44	9
43	3.4	SK873.1		39.68		43	9
42	2	SK43		40.98		42	8
41	2.3	SK42		41.29		41	8
40	2.6	SK872.1		42.67		40	8
39	1.6	SK773.1		43.43		39	8
37	3	SK873.1		45.53		37	7

* SK12 is not available with NEMA adaptor -N180TC-

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-100L-	Integral 4-Pole TEFC Standard Gear Motor
-100LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph <i>(For more options, contact Viking Pump)</i>

Weights (lb)

	W	100L	N180TC
SK12	31	62	N/A
SK372.1	24	72	24
SK572.1	40	46	42
SK573.1	42	47	44
SK22	64	82	77
SK672.1	53	84	53
SK673.1	55	86	60
SK32	88	106	101
SK772.1	93	110	97
SK773.1	97	114	101
SK42	143	139	148
SK43	154	172	168
SK872.1	192	186	196
SK873.1	196	191	201
SK52	207	203	212

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)			Weight
Efficiency	Part Number		(LBS)
IE2	EE	SK100LH/4-182TC - ² Voltage Code	19.8



Gearmotors & Speed Reducers

5 HP

60 Hz Motors | 38 RPM to 658 RPM



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		Part Number					
		SKxxx	-XX -	x.xx	-X		
		(1)	(2)	(3)	(4)		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					60Hz (rpm)	12Hz (rpm)
658	1.7	SK372.1		2.62		658	132
618	2	SK22		2.79		618	124
603	1.5	SK372.1		2.86		603	121
591	2.7	SK572.1		2.92		591	118
583	1.7	SK12*		2.96		583	117
553	1.6	SK372.1		3.12		553	111
528	2.7	SK572.1		3.27		528	106
509	1.6	SK12*		3.39		509	102
503	1.6	SK372.1		3.43		503	101
489	1.8	SK22		3.53		489	98
460	5.9	SK32		3.75		460	92
456	1.5	SK372.1		3.78		456	91
450	2.7	SK572.1		3.83		450	90
435	1.7	SK22		3.97		435	87
413	1.5	SK372.1		4.18		413	83
409	2.6	SK572.1		4.22		409	82
389	5.1	SK32		4.43		389	78
374	2.9	SK672.1		4.61		374	75
373	1.6	SK22	-W-	4.62	-1	373	75
370	1.5	SK372.1		4.66		370	74
368	2.6	SK572.1		4.69		368	74
341	2.9	SK672.1	-N180TC-	5.06	-2	341	68
333	1.5	SK22		5.18		333	67
330	2.5	SK572.1		5.23		330	66
329	1.5	SK672.1		5.24		329	66
327	5.9	SK32	-100LA-	5.28	-3	327	65
314	3.9	SK32	-112MH-	5.5		314	63
309	2.9	SK672.1		5.59		309	62
303	5.1	SK32		5.7		303	61
298	1.8	SK22		5.79	-4	298	60
293	2.5	SK572.1		5.88		293	59
282	2.7	SK672.1		6.12		282	56
274	2.5	SK572.1		6.3		274	55
265	1.7	SK22		6.51		265	53
256	4.3	SK32		6.74		256	51
251	1.8	SK22		6.86		251	50
245	1.6	SK32		7.05		245	49
237	7.2	SK42		7.28		237	47
230	2.3	SK572.1		7.49		230	46
228	1.6	SK22		7.57		228	46
225	2.5	SK672.1		7.68		225	45
218	4	SK32		7.9		218	44
212	2.1	SK572.1		8.15		212	42
206	3.5	SK32		8.36		206	41
203	2.5	SK672.1		8.48		203	41
199	2.3	SK672.1		8.66		199	40
193	2	SK572.1		8.92		193	39
186	2.5	SK672.1		9.25		186	37

		Part Number					
		SKxxx	-XX -	x.xx	-X		
		(1)	(2)	(3)	(4)		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					60Hz (rpm)	12Hz (rpm)
176	3.2	SK32		9.8		176	35
172	1.9	SK572.1		10.04		172	34
169	5.5	SK42		10.2		169	34
166	2.5	SK672.1		10.37		166	33
153	1.8	SK572.1		11.25		153	31
152	2	SK672.1		11.38		152	30
147	2.9	SK32		11.71		147	29
140	4.7	SK42		12.28		140	28
137	2	SK672.1		12.56		137	27
136	1.5	SK572.1		12.68		136	27
126	2	SK672.1		13.7		126	25
120	3.9	SK42		14.38		120	24
119	2.2	SK32		14.55		119	24
115	1.6	SK32		15.03		115	23
114	4	SK42		15.12		114	23
112	1.9	SK672.1		15.35		112	22
110	2	SK772.1		15.62		110	22
106	1.9	SK32	-W-	16.25	-1	106	21
104	2.2	SK672.1		16.66		104	21
100	1.5	SK672.1		17.25		100	20
97	3.2	SK42	-N180TC-	17.71	-2	97	19
93	2	SK772.1		18.46		93	19
92	1.6	SK32		18.67		92	18
88	4.7	SK52		19.6		88	18
85	2	SK772.1	-100LA-	20.31	-3	85	17
83	1.5	SK32	-112MH-	20.7		83	17
80	1.7	SK773.1		21.49		80	16
79	2.4	SK42		21.87		79	16
73	3	SK873.1		23.49		73	15
72	3.9	SK52		23.92	-4	72	14
70	1.7	SK42		24.67		70	14
68	1.6	SK773.1		25.39		68	14
67	3	SK873.1		25.69		67	13
65	3.5	SK52		26.46		65	13
63	2.9	SK873.1		27.57		63	13
59	1.7	SK42		29.29		59	12
57	1.7	SK42		30.46		57	11
54	2.6	SK873.1		32.24		54	11
53	1.9	SK52		32.56		53	11
49	1.7	SK42		35.25		49	10
48	2.3	SK873.1		35.63		48	10
45	2.1	SK52		38.45		45	9
44	1.6	SK872.1		38.77		44	9
43	2.1	SK873.1		39.68		43	9
41	3	SK973.1		42.51		41	8
40	1.6	SK872.1		42.67		40	8
38	1.8	SK873.1		45.53		38	8

* SK12 is not available with NEMA adapter -N180TC-

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N180TC- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 100LA- Integral 4-Pole TEFC Standard Gear Motor
- 112MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	100LA	112MH	N180TC
SK12	31	68	88	N/A
SK372.1	24	62	84	24
SK572.1	40	78	100	42
SK22	64	88	109	77
SK672.1	53	90	111	53
SK32	88	112	132	101
SK772.1	93	117	137	97
SK773.1	97	120	142	101
SK42	143	146	166	148
SK43	154	179	199	168
SK872.1	192	193	214	196
SK873.1	196	197	219	201
SK52	207	209	230	212
SK63	328	331	352	333

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number		2 Voltage Code	(LBS)
IE2	EE	SK112MH/4-184TC	-	83.6

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Gearmotors & Speed Reducers

7.5 HP

60 Hz Motors | 40 RPM to 652 RPM



4-Pole 1750 RPM	Part Number				5:1 Inverter Duty (Constant Torque)			
	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)		Gear Ratio	2 Voltage Code (Gear Motors Only)	
							60Hz (rpm)	12Hz (rpm)
652	3.4	SK672.1		2.66		652	130	
607	3.4	SK672.1		2.86		607	121	
586	4.8	SK32		2.96		586	117	
565	3.4	SK672.1		3.07		565	113	
524	3.3	SK672.1		3.31		524	105	
485	3.3	SK672.1		3.58		485	97	
463	4	SK32		3.75		463	93	
447	3.3	SK672.1		3.88		447	89	
411	3.2	SK672.1		4.22		411	82	
392	3.4	SK32		4.43		392	78	
376	3.2	SK672.1		4.61		376	75	
343	3.1	SK672.1		5.06		343	69	
329	3.9	SK32		5.28		329	66	
315	2.6	SK32		5.5		315	63	
310	2.8	SK672.1		5.59	-1	310	62	
304	3.4	SK32	-W-	5.7		304	61	
283	2.7	SK672.1		6.12		283	57	
257	2.9	SK32		6.74	-2	257	51	
238	4.8	SK42		7.28		238	48	
226	2.2	SK672.1	-N210TC-	7.68		226	45	
220	2.7	SK32		7.9		220	44	
214	2.6	SK772.1		8.12	-3	214	43	
208	2.3	SK32		8.36		208	42	
205	2	SK672.1	-132S-	8.48		205	41	
204	4.1	SK42	-132SH-	8.5		204	41	
200	1.6	SK672.1		8.66	-4	200	40	
193	2.4	SK772.1		8.97		193	39	
188	1.9	SK672.1		9.25		188	38	
177	2.1	SK32		9.8		177	35	
174	2.2	SK772.1		10		174	35	
170	3.7	SK42		10.2		170	34	
167	1.8	SK672.1		10.37		167	33	
164	2.1	SK772.1		10.6		164	33	
157	2	SK772.1		11.06		157	31	
154	4	SK872.1		11.24		154	31	
152	1.4	SK672.1		11.38		152	30	
149	1.9	SK772.1		11.67		149	30	
148	2	SK32		11.71		148	30	
141	3.2	SK42		12.28		141	28	
139	3.8	SK872.1		12.48		139	28	

4-Pole 1750 RPM	Part Number				5:1 Inverter Duty (Constant Torque)			
	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)		Gear Ratio	2 Voltage Code (Gear Motors Only)	
							60Hz (rpm)	12Hz (rpm)
138	1.4	SK672.1		12.56		138	28	
133	1.7	SK772.1		13.07		133	27	
127	1.4	SK672.1		13.7		127	25	
126	3.5	SK872.1		13.79		126	25	
121	2.6	SK42		14.38		121	24	
119	1.5	SK32		14.55		119	24	
115	2.7	SK42		15.12		115	23	
114	3.1	SK872.1		15.18		114	23	
111	1.4	SK772.1		15.62		111	22	
104	1.5	SK772.1		16.66		104	21	
102	2.9	SK872.1		16.96		102	20	
98	2.2	SK42		17.71		98	20	
97	1.8	SK42		17.92		97	19	
94	1.4	SK772.1		18.46		94	19	
93	2.7	SK872.1		18.67	-1	93	19	
89	3.2	SK52	-W-	19.6		89	18	
81	1.8	SK42		21.5		81	16	
80	2.8	SK52		21.68	-2	80	16	
79	1.6	SK42		21.87		79	16	
75	2.2	SK872.1	-N210TC-	23.02		75	15	
73	2.6	SK52		23.92		73	15	
72	2.3	SK52		24.07	-3	72	14	
68	2	SK872.1		25.44		68	14	
67	1.6	SK42	-132S-	25.88		67	13	
66	2.3	SK52	-132SH-	26.46		66	13	
63	3.1	SK972.1		27.66	-4	63	13	
62	1.9	SK872.1		28		62	12	
60	2.3	SK52		28.85		60	12	
57	1.8	SK873.1		30.47		57	11	
56	3.8	SK63		30.91		56	11	
54	1.7	SK873.1		32.24		54	11	
52	2.8	SK972.1		33.36		52	10	
49	1.5	SK873.1		35.63		49	10	
48	1.3	SK52		36.03		48	10	
47	2.5	SK972.1		37.19		47	9	
45	1.4	SK52		38.45		45	9	
44	1.4	SK873.1		39.68		44	9	
43	1.5	SK52		40.37		43	9	
41	2.2	SK972.1		42.76		41	8	
40	2.8	SK63		43.43		40	8	

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N210TC- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 132S- Integral 4-Pole TEFC Standard Gear Motor
- 132SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	132S	N210TC
SK672.1	53	141	57
SK32	88	163	101
SK772.1	93	168	105
SK42	143	196	179
SK872.1	192	244	196
SK873.1	196	248	201
SK52	207	260	212
SK972.1	278	330	283
SK973.1	282	344	287
SK63	328	381	333

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK132SH/4-213TC	-	2 Voltage Code 97



Gearmotors & Speed Reducers 10 HP

60 Hz Motors | 38 RPM to 652 RPM



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		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
652	2.6	SK672.1		2.66		652	130
607	2.6	SK672.1		2.86		607	121
586	3.6	SK32		2.96		586	117
565	2.5	SK672.1		3.07		565	113
524	2.5	SK672.1		3.31		524	105
485	2.4	SK672.1		3.58		485	97
463	3	SK32		3.75		463	93
447	2.5	SK672.1		3.88		447	89
411	2.4	SK672.1		4.22		411	82
392	2.5	SK32		4.43		392	78
376	2.4	SK672.1		4.61		376	75
343	2.3	SK672.1		5.06		343	69
329	2.9	SK32	-W-	5.28		329	66
315	2	SK32		5.5	-1	315	63
310	2.1	SK672.1		5.59		310	62
304	2.6	SK32		5.7		304	61
302	4.8	SK42	-N210TC-	5.75	-2	302	60
283	2	SK672.1		6.12		283	57
280	4.2	SK42		6.19		280	56
262	2.2	SK772.1		6.63		262	52
261	4.3	SK42	-132M-	6.65	-3	261	52
257	2.2	SK32	-132MH-	6.74		257	51
238	3.6	SK42		7.28		238	48
227	2	SK772.1		7.63		227	45
226	1.7	SK672.1		7.68	-4	226	45
224	3.6	SK872.1		7.73		224	45
220	2	SK32		7.9		220	44
214	1.9	SK772.1		8.12		214	43
208	1.7	SK32		8.36		208	42
205	1.5	SK672.1		8.48		205	41
204	3.1	SK42		8.5		204	41
196	3.2	SK872.1		8.87		196	39
193	1.8	SK772.1		8.97		193	39
188	3.6	SK872.1		9.24		188	38
177	1.6	SK32		9.8		177	35
174	1.7	SK772.1		10		174	35
170	2.8	SK42		10.2		170	34
166	3.2	SK872.1		10.44		166	33

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
164	1.6	SK772.1		10.6		164	33
157	1.5	SK772.1		11.06		157	31
154	3	SK872.1		11.24		154	31
148	1.5	SK32		11.71		148	30
141	2.4	SK42		12.28		141	28
139	2.9	SK872.1		12.48		139	28
129	3.4	SK52		13.45		129	26
126	2.6	SK872.1		13.79		126	25
124	3.3	SK52		14		124	25
121	2	SK42		14.38		121	24
115	2	SK42		15.12		115	23
114	2.4	SK872.1		15.18		114	23
102	2.2	SK872.1	-W-	16.96	-1	102	20
100	4.5	SK63		17.37		100	20
98	1.6	SK42		17.71		98	20
97	2.6	SK52		17.81		97	19
93	2	SK872.1	-N210TC-	18.67	-2	93	19
89	2.4	SK52		19.6		89	18
84	3.8	SK63		20.77		84	17
80	2.1	SK52		21.68		80	16
79	3.1	SK972.1	-132M-	21.99	-3	79	16
75	1.7	SK872.1	-132MH-	23.02		75	15
73	1.9	SK52		23.92		73	15
72	1.7	SK52		24.07	-4	72	14
68	1.5	SK872.1		25.44		68	14
66	3	SK63		26.28		66	13
63	2.3	SK972.1		27.66		63	13
60	1.7	SK52		28.85		60	12
57	2.3	SK972.1		30.29		57	11
56	2.8	SK63		30.91		56	11
52	2.1	SK972.1		33.36		52	10
48	2.5	SK63		36.11		48	10
47	1.9	SK972.1		37.19		47	9
46	2.1	SK973.1		37.36		46	9
41	1.7	SK972.1		42.76		41	8
40	2.1	SK63		43.43		40	8
38	2.9	SK73		45.66		38	8

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N210TC- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 132M- Integral 4-Pole TEFC Standard Gear Motor
- 132MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	132M	N210TC
SK672.1	53	165	57
SK32	88	187	101
SK772.1	93	192	105
SK42	143	221	179
SK872.1	192	268	196
SK873.1	196	272	201
SK52	207	284	212
SK972.1	278	354	283
SK973.1	282	344	287
SK63	328	406	364
SK73	551	584	525

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK132MH/4-215TC	-	2 Voltage Code
				121.3

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Gearmotors & Speed Reducers 15 HP

60 Hz Motors | 39 RPM to 586 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Service Factor				60Hz (rpm)	12Hz (rpm)
	586	3.3	SK42			586	117
	567	2.6	SK772.1*			567	113
	551	3.2	SK42			551	110
	506	3.1	SK42			506	101
	493	2.3	SK772.1*			493	99
	461	2.3	SK772.1*			461	92
	455	3	SK42			455	91
	400	2	SK772.1*			400	80
	386	2.8	SK42			386	77
	376	2	SK772.1*			376	75
	370	3.3	SK42			370	74
	347	3.2	SK42			347	69
	331	2.5	SK42	-W-		331	66
	329	1.8	SK772.1*		-1	329	66
	322	3.5	SK872.1			322	64
	313	3.4	SK872.1			313	63
	308	3.3	SK42	-N250TC-		308	62
	286	2.9	SK42		-2	286	57
	276	3.9	SK52			276	55
	269	3.1	SK872.1			269	54
	267	1.5	SK772.1*	-160M-		267	53
	266	2.9	SK42	-160MH-	-3	266	53
	243	2.4	SK42			243	49
	230	3.4	SK52			230	46
	229	2.8	SK872.1			229	46
	208	2.1	SK42		-4	208	42
	200	2.5	SK872.1			200	40
	192	2.5	SK872.1			192	38
	174	1.9	SK42			174	35
	170	2.2	SK872.1			170	34
	167	2.8	SK52			167	33
	157	2.1	SK872.1			157	31
	144	1.6	SK42			144	29
	142	2	SK872.1			142	28
	132	2.3	SK52			132	26
	131	3.2	SK972.1			131	26
	128	1.8	SK872.1			128	26

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Service Factor				60Hz (rpm)	12Hz (rpm)
	126	2.3	SK52			126	25
	125	3.1	SK972.1			125	25
	117	1.6	SK872.1			117	23
	112	2.9	SK972.1			112	22
	104	1.5	SK872.1			104	21
	102	3.1	SK63			102	20
	100	2.6	SK972.1			100	20
	99	1.8	SK52			99	20
	98	2.8	SK62			98	20
	95	1.4	SK872.1			95	19
	90	1.6	SK52			90	18
	85	2.6	SK63	-W-		85	17
	82	1.4	SK52		-1	82	16
	81	2.4	SK63			81	16
	80	2.1	SK972.1			80	16
	79	2.1	SK973.1	-N250TC-		79	16
	76	1.6	SK972.1		-2	76	15
	69	1.9	SK973.1			69	14
	67	2	SK63			67	13
	65	1.8	SK973.1	-160M-		65	13
	64	1.6	SK972.1	-160MH-	-3	64	13
	62	2.3	SK72			62	12
	58	1.5	SK972.1			58	12
	57	1.7	SK973.1		-4	57	11
	55	1.7	SK973.1			55	11
	54	1.6	SK72			54	11
	53	1.4	SK972.1			53	11
	50	1.5	SK973.1			50	10
	49	1.7	SK63			49	10
	47	2.2	SK73			47	9
	45	3.8	SK83			45	9
	44	1.7	SK82			44	9
	41	1.4	SK63			41	8
	40	1.5	SK72			40	8
	39	1.9	SK73			39	8

* SK772.1 is not available with NEMA adapter -N250TC-

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N250TC- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 160M- Integral 4-Pole TEFC Standard Gear Motor
- 160MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	160M	N250TC
SK772.1	93	232	N/A
SK42	143	260	201
SK872.1	192	308	227
SK52	207	324	265
SK972.1	278	394	314
SK973.1	282	384	318
SK63	328	445	386
SK72	529	602	531
SK73	551	624	553
SK82	935	842	827
SK83	787	860	844

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK160MH/4-254TCTW	-	2 Voltage Code 160.9



Gearmotors & Speed Reducers

20 HP

60 Hz Motors | 39 RPM to 583 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
583	2.5	SK42		3.02		583	117
555	3.3	SK872.1		3.18		555	111
548	2.4	SK42		3.21		548	110
503	2.3	SK42		3.5		503	101
478	3	SK872.1		3.69		478	96
452	2.2	SK42		3.89		452	90
438	2.8	SK872.1		4.03		438	88
431	3.4	SK52		4.08		431	86
384	2.1	SK42		4.58		384	77
382	3.2	SK52		4.61		382	76
377	2.9	SK872.1		4.68		377	75
367	2.5	SK42	-W-	4.79		367	73
346	3.3	SK52		5.08	-1	346	69
345	2.4	SK42		5.1		345	69
329	1.9	SK42		5.35		329	66
321	2.6	SK872.1	-N250TC-	5.5		321	64
314	2.6	SK52		5.6	-2	314	63
312	2.5	SK872.1		5.66		312	62
306	2.4	SK42		5.75		306	61
304	3.1	SK52	-160L-	5.79	-3	304	61
289	3	SK52	-160LH-	6.09		289	58
284	2.1	SK42		6.19		284	57
274	2.9	SK52		6.42		274	55
269	2.3	SK872.1		6.57	-4	269	54
265	2.2	SK42		6.65		265	53
245	3.5	SK972.1		7.19		245	49
242	1.8	SK42		7.28		242	48
229	2.6	SK52		7.7		229	46
228	2.1	SK872.1		7.73		228	46
209	3.3	SK972.1		8.45		209	42
207	1.6	SK42		8.5		207	41
199	2.3	SK52		8.83		199	40
191	1.9	SK872.1		9.24		191	38
188	3.3	SK972.1		9.4		188	38
173	1.4	SK42		10.2		173	35
171	3	SK972.1		10.35		171	34

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
169	1.7	SK872.1		10.44		169	34
166	2.1	SK52		10.58		166	33
157	1.5	SK872.1		11.24		157	31
153	2.7	SK972.1		11.54		153	31
152	3.3	SK62		11.59		152	30
141	1.5	SK872.1		12.48		141	28
137	2.5	SK972.1		12.86		137	27
131	1.7	SK52		13.45		131	26
130	2.4	SK972.1		13.56		130	26
126	1.7	SK52		14		126	25
125	2.3	SK972.1		14.16		125	25
111	2.4	SK62	-W-	15.8		111	22
104	3	SK72		16.86	-1	104	21
101	2.3	SK63		17.37		101	20
100	2	SK972.1		17.65		100	20
98	3.4	SK73	-N250TC-	18		98	20
97	2.1	SK62		18.14	-2	97	19
90	1.8	SK972.1		19.72		90	18
85	1.9	SK63		20.77		85	17
81	2.6	SK72	-160L-	21.64	-3	81	16
80	1.8	SK63	-160LH-	21.98		80	16
79	1.5	SK973.1		22.42		79	16
75	2.6	SK73		23.34		75	15
69	1.5	SK973.1		25.51	-4	69	14
67	1.5	SK63		26.28		67	13
66	3	SK82		26.62		66	13
62	2.2	SK73		28.32		62	12
61	1.7	SK72		28.63		61	12
57	1.4	SK63		30.91		57	11
55	2.5	SK82		32.12		55	11
54	3.2	SK83		32.52		54	11
53	1.9	SK73		33.24		53	11
47	1.6	SK73		37.63		47	9
45	2.8	SK83		39.08		45	9
40	2.5	SK83		44.38		40	8
39	1.5	SK73		45.66		39	8

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N250TC- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 160L- Integral 4-Pole TEFC Standard Gear Motor
- 160LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (lb)

	W	160L	N250TC
SK42	143	298	201
SK872.1	192	345	227
SK52	207	362	265
SK972.1	278	431	314
SK973.1	282	421	318
SK63	328	483	386
SK72	529	639	531
SK73	551	662	553
SK82	935	880	827
SK83	787	897	844

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK160LH/4-256TCTW	-	2 Voltage Code 198.4

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Gearmotors & Speed Reducers

25 HP

60 Hz Motors | 40 RPM to 633 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor					60Hz (rpm)	12Hz (rpm)
633	3.2	SK52		2.78		633	127
583	2	SK42*		3.02		583	117
550	2.6	SK872.1**		3.18		550	110
548	1.9	SK42*		3.21		548	110
545	2.9	SK52		3.23		545	109
526	5	SK972.1		3.33		526	105
518	2.9	SK52		3.4		518	104
503	1.9	SK42*		3.5		503	101
480	2.8	SK52		3.67		480	96
474	2.3	SK872.1**		3.69		474	95
468	4.8	SK972.1		3.74		468	94
452	1.8	SK42*		3.89		452	90
434	2.2	SK872.1**		4.03		434	87
431	2.7	SK52		4.08	-1	431	86
384	4.3	SK972.1	-W-	4.56		384	77
382	2.6	SK52		4.61		382	76
374	2.3	SK872.1**		4.68		374	75
367	2	SK42*		4.79	-2	367	73
346	2.7	SK52	-N280TC-	5.08		346	69
345	1.9	SK42*		5.1		345	69
333	3.7	SK972.1		5.25	-3	333	67
329	1.5	SK42*		5.35		329	66
318	2.1	SK872.1**		5.5		318	64
314	2.1	SK52	-180MX- -180MH-	5.6		314	63
309	2	SK872.1**		5.66	-4	309	62
306	1.9	SK42*		5.75		306	61
304	2.5	SK52		5.79		304	61
289	2.4	SK52		6.09		289	58
284	3.3	SK972.1		6.17		284	57
274	2.3	SK52		6.42		274	55
266	1.8	SK872.1**		6.57		266	53
265	1.7	SK42*		6.65		265	53
262	3.3	SK972.1		6.68		262	52
243	3.1	SK972.1		7.19		243	49
242	2.1	SK52		7.27		242	48
229	2	SK52		7.7		229	46
226	1.7	SK872.1**		7.73		226	45
207	2.7	SK972.1		8.45		207	41

		Part Number					
		SKxxx	-XX -	X.XX	-X		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Service Factor					60Hz (rpm)	12Hz (rpm)
200	3.4	SK62		8.78		200	40
199	1.9	SK52		8.83		199	40
197	1.5	SK872.1**		8.87		197	39
189	1.5	SK872.1**		9.24		189	38
186	2.6	SK972.1		9.4		186	37
169	2.4	SK972.1		10.35		169	34
167	2.9	SK62		10.55		167	33
166	1.6	SK52		10.58		166	33
152	2.6	SK62		11.59		152	30
136	2	SK972.1		12.86		136	27
131	1.4	SK52		13.45		131	26
129	1.9	SK972.1		13.56		129	26
126	2.2	SK62		13.92	-1	126	25
124	1.9	SK972.1	-W-	14.16		124	25
123	2.8	SK72		14.33		123	25
111	1.9	SK62		15.8	-2	111	22
110	1.7	SK972.1		15.84		110	22
104	2.4	SK72	-N280TC-	16.86		104	21
101	1.8	SK63		17.37		101	20
99	1.6	SK972.1		17.65	-3	99	20
98	2.7	SK73		18		98	20
97	1.7	SK62	-180MX- -180MH-	18.14		97	19
89	1.4	SK972.1		19.72	-4	89	18
85	2.4	SK73		20.62		85	17
84	3.8	SK83		21.04		84	17
81	2.1	SK72		21.64		81	16
80	1.4	SK63		21.98		80	16
75	2.1	SK73		23.34		75	15
72	3.2	SK83		24.42		72	14
63	2.9	SK83		28.03		63	13
62	1.7	SK73		28.32		62	12
61	1.4	SK72		28.63		61	12
54	2.6	SK83		32.52		54	11
53	1.5	SK73		33.24		53	11
45	3.1	SK93		39.54		45	9
40	2	SK83		44.38		40	8

* SK42 is only available with solid input shaft - W- for this HP

** SK872.1 is not available with NEMA adapter -N280TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N280TC-	NEMA C-Face Input Reducer (no motor)
-180MX-	Integral 4-Pole TEFC Standard Gear Motor
-180MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	180M	N280TC
SK42	143	N/A	N/A
SK872.1	192	398	N/A
SK52	207	415	285
SK972.1	278	484	336
SK973.1	282	474	340
SK63	328	536	386
SK72	529	692	583
SK73	551	714	608
SK83	787	950	844
SK93	1182	1345	1270



Gearmotors & Speed Reducers

30 HP

60 Hz Motors | 40 RPM to 635 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
635	2.6	SK52		2.78		635	127
584	1.7	SK42*		3.02		584	117
552	2.2	SK872.1**		3.18		552	110
550	1.6	SK42*		3.21		550	110
546	2.5	SK52		3.23		546	109
527	4.2	SK972.1		3.33		527	105
519	2.5	SK52		3.4		519	104
504	1.6	SK42*		3.5		504	101
481	2.4	SK52		3.67		481	96
476	2	SK872.1**		3.69		476	95
469	4	SK972.1		3.74		469	94
454	1.5	SK42*	-W-	3.89	-1	454	91
435	1.8	SK872.1**		4.03		435	87
433	2.3	SK52		4.08		433	87
387	3.8	SK62		4.56		387	77
385	3.6	SK972.1	-N280TC-	4.56	-2	385	77
383	2.1	SK52		4.61		383	77
375	1.9	SK872.1**		4.68		375	75
368	1.7	SK428	-180LX-	4.79	-3	368	74
347	2.2	SK52	-180LH-	5.08		347	69
346	1.6	SK42*		5.1		346	69
334	3.1	SK972.1		5.25		334	67
319	1.7	SK872.1**		5.5		319	64
315	1.7	SK52		5.6	-4	315	63
310	1.7	SK872.1**		5.66		310	62
307	1.6	SK42*		5.75		307	61
305	2	SK52		5.79		305	61
290	2	SK52		6.09		290	58
285	1.4	SK42*		6.19		285	57
284	2.8	SK972.1		6.17		284	57
278	2.5	SK62		6.35		278	56
275	1.9	SK52		6.42		275	55
267	1.5	SK872.1**		6.57		267	53
265	1.4	SK42*		6.65		265	53
263	2.8	SK972.1		6.68		263	53

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
244	2.6	SK972.1		7.19		244	49
243	1.8	SK52		7.27		243	49
233	3.4	SK62		7.56		233	47
229	1.7	SK52		7.7		229	46
208	2.3	SK972.1		8.45		208	42
201	2.8	SK62		8.78		201	40
200	1.6	SK52		8.83		200	40
187	2.2	SK972.1		9.4		187	37
170	2	SK972.1		10.35		170	34
167	2.4	SK62		10.55		167	33
152	2.2	SK62	-W-	11.59	-1	152	30
141	2.7	SK72		12.52		141	28
136	1.7	SK972.1		12.86		136	27
129	1.6	SK972.1		13.56		129	26
127	1.8	SK62	-N280TC-	13.92	-2	127	25
124	1.5	SK972.1		14.16		124	25
123	2.3	SK72		14.33		123	25
112	1.6	SK63		15.8		112	22
111	1.4	SK972.1	-180LX-	15.84	-3	111	22
105	2	SK72	-180LH-	16.86		105	21
102	1.5	SK63		17.37		102	20
98	2.3	SK73		18		98	20
97	1.4	SK62		18.14	-4	97	19
86	2	SK73		20.62		86	17
84	3.1	SK83		21.04		84	17
82	1.7	SK72		21.64		82	16
81	1.5	SK72		21.72		81	16
76	1.8	SK73		23.34		76	15
72	2.7	SK83		24.42		72	14
63	2.4	SK83		28.03		63	13
62	1.5	SK73		28.32		62	12
54	2.2	SK83		32.52		54	11
45	1.9	SK83		39.08		45	9
40	1.7	SK83		44.38		40	8

* SK42 is only available with solid input shaft - W- for this HP

** SK872.1 is not available with NEMA adapter -N280TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N280TC-	NEMA C-Face Input Reducer (no motor).
-180LX-	Integral 4-Pole TEFC Standard Gear Motor
-180LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	180L	N280TC
SK42	143	N/A	N/A
SK872.1	192	398	N/A
SK52	207	415	285
SK972.1	278	484	336
SK973.1	282	474	340
SK63	328	536	386
SK72	529	692	583
SK73	551	692	608
SK83	787	950	844
SK93	1182	1345	1270

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Gearmotors & Speed Reducers

40 HP



60 Hz Motors | 40 RPM to 640 RPM

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Service Factor				60Hz (rpm)	12Hz (rpm)
	640	2	SK52*			640	128
	599	4.1	SK62			599	120
	551	1.9	SK52*			551	110
	539	3.7	SK62			539	108
	535	3.2	SK972.1**			535	107
	524	1.9	SK52*			524	105
	485	1.8	SK52*			485	97
	478	3.4	SK62			478	96
	476	3	SK972.1**			476	95
	455	3.2	SK62		-1	455	91
	440	2.9	SK62	-W-		440	88
	436	1.7	SK52*			436	87
	390	2.9	SK62		-2	390	78
	386	1.6	SK52*	-N320TC-		386	77
	350	1.7	SK52*			350	70
	339	2.4	SK972.1**			339	68
	336	2.2	SK62		-3	336	67
	318	3.2	SK72			318	64
	307	1.5	SK52*	-200L-		307	61
	292	1.5	SK52*	-200LH-		292	58
	288	2.1	SK972.1**		-4	288	58
	280	1.9	SK62			280	56
	277	1.5	SK52*			277	55
	266	2.1	SK972.1**			266	53
	256	3.9	SK72			256	51
	248	2	SK972.1**			248	50
	245	1.3	SK52*			245	49
	235	2.6	SK62			235	47
	231	1.3	SK52*			231	46

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM	Output Speed (rpm)	Service Factor				60Hz (rpm)	12Hz (rpm)
	217	3.6	SK72			217	43
	211	1.7	SK972.1**			211	42
	203	2.1	SK62			203	41
	189	1.6	SK972.1**			189	38
	188	3.1	SK72			188	38
	172	1.5	SK972.1**			172	34
	169	1.8	SK62			169	34
	164	2.7	SK72			164	33
	154	1.7	SK62			154	31
	142	2	SK72		-1	142	28
	138	1.3	SK972.1**	-W-		138	28
	128	1.4	SK62			128	26
	125	2.9	SK82		-2	125	25
	124	1.8	SK72	-N320TC-		124	25
	107	2.5	SK82			107	21
	106	1.5	SK72			106	21
	99	1.7	SK73		-3	99	20
	86	1.5	SK73			86	17
	85	2.4	SK83	-200L-		85	17
	76	1.3	SK73	-200LH-		76	15
	73	2	SK83		-4	73	15
	66	2.8	SK93			66	13
	64	1.8	SK83			64	13
	57	2.4	SK93			57	11
	55	1.6	SK83			55	11
	47	3.3	SK103			47	9
	46	1.4	SK83			46	9
	45	1.9	SK93			45	9
	40	2.8	SK103			40	8

* SK52 is only available with a solid shaft input -W- for this HP

** SK972.1 is not available with NEMA adapter -N320TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N320TC-	NEMA C-Face Input Reducer (no motor)
-200L-	Integral 4-Pole TEFC Standard Gear Motor
-200LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	200L	N320TC
SK52	207	N/A	N/A
SK972.1	278	641	N/A
SK62	377	697	465
SK72	529	849	617
SK82	935	1089	891
SK83	787	1107	908
SK93	1182	1502	1303
SK103	1830	1985	1887



Gearmotors & Speed Reducers

50 HP

60 Hz Motors | 39 RPM to 635 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
635	1.6	SK52*		2.78		635	127
594	3.3	SK62		2.97		594	119
546	1.5	SK52*		3.23		546	109
535	3	SK62		3.3		535	107
530	2.5	SK972.1**		3.33		530	106
519	1.5	SK52*		3.4	-1	519	104
481	1.4	SK52*		3.67		481	96
474	2.7	SK62	-W-	3.72		474	95
472	2.4	SK972.1**		3.74		472	94
451	2.5	SK62		3.91		451	90
436	2.3	SK62	-N320TC-	4.05		436	87
433	1.4	SK52*		4.08		433	87
387	2.2	SK972.1**		4.56	-2	387	77
387	2.3	SK62		4.56		387	77
347	1.3	SK52*		5.08		347	69
336	1.9	SK972.1**	-225S-	5.25		336	67
334	1.8	SK62	-225SH-	5.29		334	67
315	2.5	SK72		5.6		315	63
286	1.7	SK972.1**		6.17		286	57
278	1.5	SK62		6.35	-4	278	56
275	2.1	SK72		6.42		275	55
264	1.7	SK972.1**		6.68		264	53
254	3.1	SK72		6.95		254	51
245	1.6	SK972.1**		7.19		245	49
233	2	SK62		7.56		233	47
216	2.8	SK72		8.19		216	43
209	1.4	SK972.1**		8.45		209	42

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
201	1.7	SK62		8.78		201	40
187	2.5	SK72		9.46		187	37
171	3.3	SK82		10.33		171	34
167	1.5	SK62		10.55		167	33
163	2.1	SK72		10.84		163	33
152	1.3	SK62		11.59	-1	152	30
149	3	SK82		11.84		149	30
141	1.6	SK72	-W-	12.52		141	28
124	2.3	SK82		14.29		124	25
123	1.4	SK72		14.33		123	25
107	2	SK82	-N320TC-	16.56		107	21
98	1.4	SK73		18	-2	98	20
92	3.2	SK93		19.12		92	18
84	1.9	SK83		21.04		84	17
83	4.7	SK103	-225S-	21.19		83	17
77	2.6	SK93	-225SH-	22.97		77	15
72	1.6	SK83		24.42		72	14
70	3.9	SK103		25.3		70	14
65	2.2	SK93		27.05	-4	65	13
63	1.4	SK83		28.03		63	13
60	3.3	SK103		29.62		60	12
56	1.9	SK93		31.25		56	11
54	1.3	SK83		32.52		54	11
47	2.6	SK103		37.9		47	9
45	1.5	SK93		39.54		45	9
39	2.2	SK103		45.25		39	8

* SK52 is only available with a solid shaft input -W- for this HP

** SK972.1 is not available with NEMA adapter -N320TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N320TC-	NEMA C-Face Input Reducer (no motor).
-225S-	Integral 4-Pole TEFC Standard Gear Motor
-225SH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	225S	N320TC
SK52	207	N/A	N/A
SK972.1	278	713	N/A
SK62	377	770	465
SK72	529	922	617
SK82	935	1162	891
SK83	787	1180	908
SK93	1182	1574	1303
SK103	1830	2057	1887

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Gearmotors & Speed Reducers 60 HP

60 Hz Motors | 39 RPM to 596 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM							
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
596	2.7	SK62		2.97		596	119
536	2.5	SK62		3.3		536	107
476	2.3	SK62		3.72		476	95
453	2.1	SK62		3.91		453	91
437	1.9	SK62		4.05		437	87
430	2.7	SK72		4.12		430	86
388	1.9	SK62		4.56		388	78
365	2.5	SK72		4.85		365	73
335	1.5	SK62		5.29		335	67
316	2.1	SK72		5.6	-1	316	63
286	2.9	SK82		6.19		286	57
276	1.8	SK72		6.42		276	55
255	2.6	SK72		6.95		255	51
240	3.5	SK82		7.39		240	48
234	1.7	SK62	-W-	7.56		234	47
216	2.4	SK72		8.19		216	43
202	1.4	SK62		8.78	-2	202	40
201	3.1	SK82		8.82		201	40
187	2.1	SK72	-N360TC-	9.46		187	37
171	2.8	SK82		10.33		171	34
163	1.8	SK72		10.84		163	33
149	2.5	SK82		11.84		149	30
143	3.5	SK92	-225M-	12.39		143	29
141	1.3	SK72	-225MH	12.52		141	28
124	1.9	SK82		14.29	-4	124	25
123	3.1	SK92		14.36		123	25
107	2.7	SK92		16.47		107	21
93	2.6	SK93		19.12		93	19
84	3.9	SK103		21.19		84	17
77	2.2	SK93		22.97		77	15
72	1.4	SK83		24.42		72	14
70	3.3	SK103		25.3		70	14
65	1.9	SK93		27.05		65	13
60	2.8	SK103		29.62		60	12
57	1.6	SK93		31.25		57	11
47	2.2	SK103		37.9		47	9
45	1.3	SK93		39.54		45	9
39	1.8	SK103		45.25		39	8

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N360TC- NEMA C-Face Input Reducer (no motor).
- 225M- Integral 4-Pole TEFC Standard Gear Motor
- 225MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (lb)

	W	225M	N360TC
SK62	377	842	498
SK72	529	994	650
SK82	935	1235	1012
SK92	787	1623	1400
SK93	1182	1647	1424
SK103	1830	2130	2083



Gearmotors & Speed Reducers

75 HP

60 Hz Motors | 39 RPM to 617 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
617	3.6	SK82	-W-	2.89	-1	617	123
492	3.6	SK82		3.62		492	98
402	3.3	SK82		4.43		402	80
337	3	SK82		5.29		337	67
288	2.3	SK82		6.19		288	58
241	2.8	SK82	7.39	241	48		
202	2.5	SK82	8.82	202	40		
173	2.2	SK82	10.33	173	35		
151	2	SK82	-N360TC-	11.84	-2	151	30
144	2.9	SK92		12.39		144	29
125	1.5	SK82	14.29	125	25		
124	2.5	SK92	14.36	124	25		
108	2.1	SK92	-250M- -250MH	16.47	-4	108	22
93	2.1	SK93		19.12		93	19
84	3.1	SK103	21.19	84	17		
78	1.8	SK93	22.97	78	16		
70	2.6	SK103	25.3	70	14		
66	1.5	SK93	27.05	66	13		
60	2.3	SK103	29.62	60	12		
57	1.3	SK93	31.25	57	11		
47	1.8	SK103	37.9	47	9		
39	1.5	SK103	45.25	39	8		

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N360TC- NEMA C-Face Input Reducer (no motor)
- 250M- Integral 4-Pole TEFC Standard Gear Motor
- 250MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (lb)

	W	250M	N360TC
SK82	935	1641	1012
SK92	787	2029	1400
SK93	1182	2053	1424
SK103	1830	2536	2083

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Gearmotors & Speed Reducers 100 HP

60 Hz Motors | 47 RPM to 619 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM							
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
619	2.7	SK82		2.89		619	124
494	2.7	SK82		3.62		494	99
404	2.5	SK82		4.43		404	81
342	5.1	SK102		5.23		342	68
338	2.3	SK82		5.29		338	68
315	3.2	SK92		5.68		315	63
289	1.7	SK82		6.19		289	58
287	4.6	SK102		6.24		287	57
267	2.9	SK92		6.7	-1	267	53
242	2.1	SK82		7.39		242	48
238	3.8	SK102		7.5		238	48
230	2	SK92	-W-	7.78		230	46
203	1.9	SK82		8.82		203	41
180	3.8	SK102		9.96	-2	180	36
173	1.7	SK82		10.33		173	35
170	2.4	SK92	-280S-	10.5		170	34
151	3.3	SK102	-280SH-	11.88		151	30
144	2.1	SK92		12.39		144	29
125	2.9	SK102		14.29		125	25
109	1.6	SK92		16.47	-4	109	22
108	2.6	SK102		16.63		108	22
94	1.6	SK93		19.12		94	19
92	2.2	SK102		19.37		92	18
84	2.4	SK103		21.19		84	17
78	1.3	SK93		22.97		78	16
71	2	SK103		25.3		71	14
60	1.7	SK103		29.62		60	12
47	1.3	SK103		37.9		47	9

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 280S- Integral 4-Pole TEFC Standard Gear Motor
- 280SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (lb)

	W	280S
SK82	935	2026
SK92	787	2414
SK93	1182	2439
SK102	1810	2902
SK103	1830	2922



Gearmotors & Speed Reducers

125 HP

60 Hz Motors | 60 RPM to 509 RPM



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		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
Output Speed (rpm)	Service Factor						
509	3.2	SK92	-W-	3.51	-1	509	102
341	4.1	SK102		5.23		341	68
314	2.5	SK92		5.68		314	63
286	3.7	SK102		6.24		286	57
267	2.3	SK92		6.7		267	53
238	3	SK102		7.5		238	48
230	1.6	SK92		7.78		230	46
179	3	SK102		9.96		179	36
170	1.9	SK92		10.5		170	34
150	2.7	SK102		11.88		150	30
144	1.7	SK92	-280M- -280MH-	12.39	-2	144	29
125	2.3	SK102		14.29		125	25
124	1.5	SK92		14.36		124	25
108	1.3	SK92		16.47		108	22
107	2.1	SK102		16.63		107	21
92	1.7	SK102		19.37		92	18
84	1.9	SK103	-4	21.19	-4	84	17
71	1.6	SK103		25.3		71	14
60	1.4	SK103		29.62		60	12

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- 280M- Integral 4-Pole TEFC Standard Gear Motor
- 280MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	280M
SK92	787	2525
SK102	1810	3012
SK103	1830	3032

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Gearmotors & Speed Reducers 150 HP

60 Hz Motors | 71 RPM to 509 RPM



		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
509	2.7	SK92	-W-	3.51	-1	509	102
342	3.4	SK102		5.23		342	68
315	2.1	SK92		5.68		315	63
287	3.1	SK102		6.24		287	57
267	1.9	SK92		6.7		267	53
238	2.5	SK102		7.5		238	48
230	1.3	SK92		7.78		230	46
180	2.5	SK102		9.96		180	36
170	1.6	SK92		10.5		170	34
151	2.2	SK102		11.88		151	30
144	1.4	SK92	-315S- -315SH-	12.39	-2	144	29
125	1.9	SK102		14.29		125	25
108	1.7	SK102		16.63		108	22
92	1.5	SK102		19.37		92	18
84	1.6	SK103		21.19		84	17
71	1.3	SK103		25.3		71	14

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315S- Integral 4-Pole TEFC Standard Gear Motor
- 315SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	315S
SK92	787	2900
SK102	1810	3387
SK103	1830	3407



Gearmotors & Speed Reducers 175 HP

60 Hz Motors | 108 RPM to 510 RPM



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		Part Number					
		SKxxx	-XX -	.X.XX	-X		
		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM						60Hz (rpm)	12Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
510	2.3	SK92	-W-	3.51	-1	510	102
418	3.2	SK102		4.28		418	84
342	2.9	SK102		5.23		342	68
315	1.8	SK92		5.68		315	63
287	2.6	SK102		6.24		287	57
267	1.7	SK92		6.7		267	53
239	2.2	SK102	-315M- -315MH-	7.5	-2	239	48
180	2.2	SK102		9.96		180	36
170	1.4	SK92		10.5		170	34
151	1.9	SK102		11.88		151	30
125	1.7	SK102		14.29	-4	125	25
108	1.5	SK102		16.63		108	22

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315M- Integral 4-Pole TEFC Standard Gear Motor
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (lb)

	W	315M
SK92	787	3076
SK102	1810	3563

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Gearmotors & Speed Reducers 200 HP

60 Hz Motors | 108 RPM to 510 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1750 RPM		Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					60Hz (rpm)	12Hz (rpm)
510	2	SK92	-W-	3.51	-1	510	102
418	2.8	SK102		4.28		418	84
342	2.5	SK102		5.23		342	68
315	1.6	SK92		5.68		315	63
287	2.3	SK102		6.24		287	57
267	1.5	SK92	-315MA-	6.7	-2	267	53
239	1.9	SK102		7.5		239	48
180	1.9	SK102		9.96		180	36
151	1.7	SK102		11.88		151	30
125	1.5	SK102		14.29		125	25
108	1.3	SK102		16.63	-4	108	22

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315MA- Integral 4-Pole TEFC Standard Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

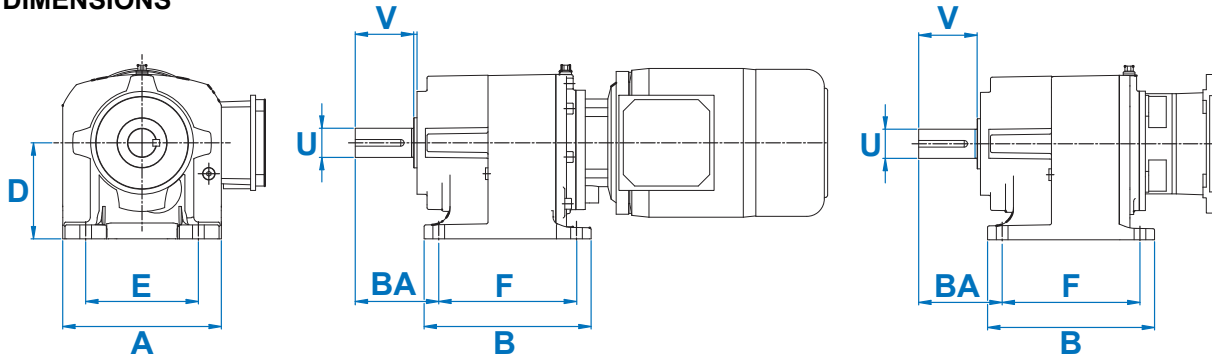
Weights (lb)

	W	315MA
SK92	787	3407
SK102	1810	3894



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BASIC DIMENSIONS



NORDBLOC.1

Size		A	B	BA	D	E	F	U	V
SK 072.1	in	4.09	4.29	1.89	2.56	3.35	3.74	0.750	1.57
	mm	103.9	109.0	48.0	65.0	85.1	95.0	19.1	39.9
SK 172.1	in	5.51	5.31	2.28	2.95	4.33	4.33	0.750	1.57
	mm	140.0	134.9	57.9	74.9	110.0	110.0	19.1	39.9
SK 372.1	in	5.91	6.30	2.95	3.54	4.33	5.12	1.000	1.97
SK 373.1	mm	150.1	160.0	74.9	89.9	110.0	130.0	25.4	50.0
SK 572.1	in	7.48	7.87	3.54	4.53	5.31	6.50	1.375	2.75
SK 573.1	mm	190.0	199.9	89.9	115.1	134.9	165.1	34.9	69.9
SK 672.1	in	8.27	9.25	3.93	5.15	5.91	7.68	1.375	2.75
SK 673.1	mm	210.1	235.0	99.8	130.8	150.1	195.1	34.9	69.9
SK 772.1	in	9.33	9.65	4.57	5.51	6.69	8.07	1.625	3.15
SK 773.1	mm	237.0	245.1	116.1	140.0	169.9	205.0	41.3	80.0
SK 872.1	in	11.81	12.20	5.55	7.09	8.46	10.24	2.125	3.94
SK 873.1	mm	300.0	309.9	141.0	180.1	214.9	260.1	54.0	100.1
SK 972.1	in	13.70	14.37	6.33	8.86	9.84	12.20	2.375	4.77
SK 973.1	mm	348.0	365.0	160.8	225.0	249.9	309.9	60.3	121.2

NORD IN-LINE

Size		A	B	BA	D	E	F	U	V
SK 02	in	5.12	5.28	1.97	3.39	4.33	2.36	0.75	1.66
SK 03	mm	130	134.1	50	86.1	110	59.9	19.1	42.2
SK 12	in	5.32	5.47	3.27	4.02	4.13	2.44	1	2.32
SK 13	mm	135.1	138.9	83.1	102.1	104.9	62	25.4	58.9
SK 22	in	7.28	6.89	3.3	4.92	6.3	3.15	1.25	2.95
SK 23	mm	184.9	175	83.8	125	160	80	31.8	74.9
SK 32	in	8.27	8.43	3.88	6.1	7.28	4.72	1.625	3.49
SK 33	mm	210.1	214.1	98.6	154.9	184.9	119.9	41.3	88.6
SK 42	in	8.47	9.41	5.08	6.89	6.89	4.72	1.875	3.74
SK 43	mm	215.1	239	129	175	175	119.9	47.6	95
SK 52	in	10.24	11.14	5.18	8.35	8.66	5.91	2.25	4.24
SK 53	mm	260.1	283	131.6	212.1	220	150.1	57.2	107.7
SK 62	in	12.99	13.58	6.34	9.84	10.24	11.61	2.5	5.24
SK 63	mm	329.9	344.9	161	249.9	260.1	294.9	63.5	133.1
SK 72	in	15.75	15.16	7.04	11.02	12.8	12.99	3	5.74
SK 73	mm	400.1	385.1	178.8	279.9	325.1	329.9	76.2	145.8
SK 82	in	17.72	18.58	8.52	12.4	14.17	15.75	3.5	6.99
SK 83	mm	450.1	471.9	216.4	315	359.9	400.1	88.9	177.5
SK 92	in	21.65	21.26	10.67	15.35	17.32	17.72	4.25	8.82
SK 93	mm	549.9	540	271	389.9	439.9	450.1	108	224
SK 102	in	23.62	24.61	12.76	17.72	18.9	19.88	5.25	10.39
SK 103	mm	599.9	625.1	324.1	450.1	480.1	505	133.4	263.9

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Section 617

Gearmotors & Speed Reducers

50 Hz Motors

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Gear Ratio Range: From 2,1:1 to 45,77:1 (varies by reducer size)

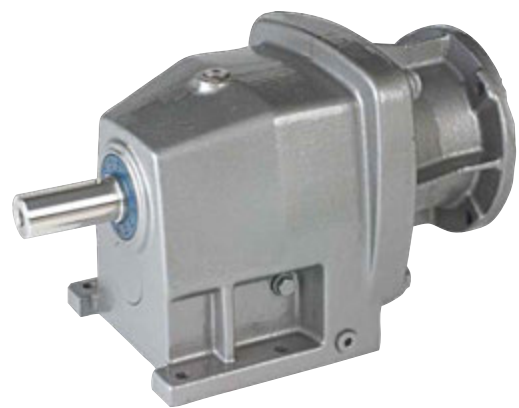
Output Speeds: (with 1400 rpm input) 655 to 29 rpm (varies by reducer size)

Reducer Kilowatt Range: 0,37 KW to 160 KW

Major Design Features

Features:

- Two Nord reducers series available: Helical In-Line & Nordbloc.1®
- 31 different sizes available: Helical In-Line, 17 sizes and Nordbloc.1®, 14 sizes
 - All sizes available with a variety of ratios, double & triple reduction
- Universal Mounting
 - Solid input shaft
 - Flange mount C face with compact coupling design (NEMA or IEC)
 - Integral Gearmotor Design in IE1 and IE2 (varies by size)
- Modular design, up to 98.5% efficient
- Heavy Duty Unicase™ one piece housing
- Gears are case-hardened steel designed and manufactured to AGMA Class 13
- Autovent™ Breather
- Quadrilip™ Sealing System
- Helical In-Line sizes SK02 – SK103, class 35 grey cast iron with stainless steel paint
- Nordbloc.1® sizes SK072.1 – SK672.1 corrosion resistant alloy (unpainted), SK772.1 – SK973.1 class 35 grey cast iron with stainless steel paint
- All units come factory filled with Mobil SHC630 synthetic oil



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Gearmotors & Speed Reducers

50 Hz Motors



QUADRILIP™ shaft seal system – consists of 2 spring compression lips, 1 trash guard lip and 1 collector grease pack – keeps contaminants out and lubricant inside the gear case.

AUTOVENT™ breather seals dirt and moisture out while allowing the gear case to breathe during startup and cool down.

Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture and corrosion resistance.

Primer paint covers all exterior surfaces of the housing, providing excellent base corrosion protection.

Housing interior seal coating locks in casting sand, fills in processing blemishes eliminating leak paths, and protects against moisture damage to inside of gear case.

Outside diameter of oil seals is nitrile rubber. Direct connection of seal to housing eliminates bolt-on covers and centers the seal, eliminating the potential for leakage.

Shaft material is wear - resistant, high carbon steel that provides stable non-grooving surface for oil seal contact.

**HELICAL IN-LINE
STANDARD FEATURES**

UNICASE™

UNICASE™ one-piece housing is torsionally stiff, machined in one pass, has extreme accuracy, and eliminates the split case leakage path.

QUADRILIP™ shaft seal system – consists of 2 spring compression lips, 1 trash guard lip and 1 collector grease pack – keeps contaminants out and lubricant inside the gear case.

AUTOVENT™ breather seals dirt and moisture out while allowing the gear case to breathe during startup and cool down.

NORDBLOC.1™ units are filled at the factory with the proper quantity and type of lubrication. Oil fill before shipping prevents damage from dry start-ups.

UNICASE™ one-piece housing is torsionally stiff, machined in one pass, has extreme accuracy, & eliminates the split case leakage path.

Housing interior seal coating locks in casting sand, fills in processing blemishes eliminating leak paths, and protects against moisture damage to inside of gear case.

Outside diameter of oil seals is nitrile rubber. Direct connection of seal to housing eliminates bolt-on covers and centers the seal, eliminating the potential for leakage.

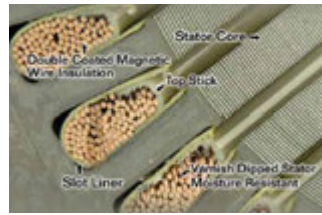
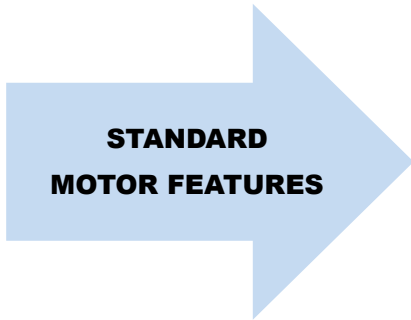
Our oversized bearing design provides additional bearing capacity to handle larger load forces. This design allows for larger overhung and axial load capacity as well as an increased bearing life.

Shaft material is wear - resistant, high carbon steel that provides stable non-grooving surface for oil seal contact.

**NORDBLOC.1®
STANDARD FEATURES**



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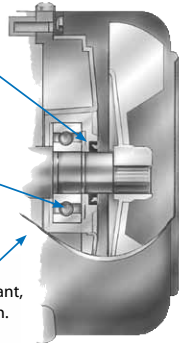
Inverter duty winding protection, Class H magnet wire insulation, double coated wire, and voltage spike protection.

End bell to stator connections are sealed to keep out moisture.

Shaft lip seal prevents contaminants from entering.

Bearing grease has superior resistance to washout, rust and corrosion.

Corrosion-resistant, non-sparking fan.



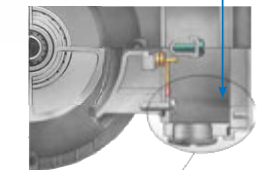
Die cast aluminum rotor coated to prevent corrosion.

Corrosion-resistant aluminum alloy construction.

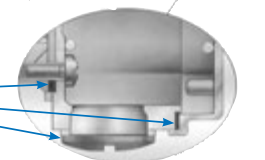
Threaded cable entry allows the power feed line to be sealed.

Shaft lip seal excludes speed reducer lubricant, allowing motor to be mounted in any position.

Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture resistance.



Conduit box connections and lid have gaskets to ensure a water tight seal.



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Gearmotors & Speed Reducers

50 Hz Motors



**Additional options may be available beyond those shown in this catalog section.
Please consult factory for additional information.**

SELECTING THE CORRECT NORD REDUCER OR GEARMOTOR

1. Determine the actual horsepower or kW requirements of the application from the pump performance curve, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com, or specifications from other equipment.
2. Based on the horsepower or kW requirement, go to the closest higher HP or kW page.

Example:

For a 2,7 kW requirement, go to the 3 kW catalog page. Then find the reducer which most closely matches your speed requirements.

3. Make sure the service factor for the reducer selected is greater than the service factor from the Service Factor Table on page 6. The Service Factor Table provides different service factors based on the length of service per day, the load classification (uniform, moderate, shock, heavy shock) and the type of drive. A table of driven load classifications is also included on page 6 to help determine the service factor to use.

4. Next, determine the part number of the Nord reducer or gearmotor. Part numbers can be created from the catalog pages (examples below).

Note: the “-” is required between each field.

Examples:

- a. **Reducer:** 408 RPM output speed, solid input shaft.
Part # = **SK92-W-3.51**

- b. **Reducer:** 454 RPM output speed, IEC90 frame motor.
Part # = **SK172.1-IEC90-2.92**

		Part Number					
		SKxxx	-xx-	x.xx	-x	5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM		1	2	3	4	50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
408	1.8	SK92	-W-	3.51	-1	408	82
334	2.6	SK102		4.28		334	67
273	2.3	SK102		5.23		273	55
252	1.4	SK92		5.68		252	50
229	2	SK102		6.24	-2	229	46
213	1.4	SK92	-IEC315	6.7		213	43
191	1.8	SK102		7.5		191	38
144	1.8	SK102		9.96		144	29
121	1.5	SK102	-315MH-	11.88	-4	121	24
100	1.4	SK102		14.29		100	20

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC315- IEC C-Face Input Reducer (no motor).
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

		Part Number					
		SKxxx	-xx-	x.xx	-x	5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM		1	2	3	4	50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
572	1.8	SK172.1		2.32		572	114
533	1.6	SK172.1		2.49		533	107
507	3.2	SK372.1		2.62		507	101
488	1.6	SK172.1		2.72		488	98
464	3	SK372.1		2.86		464	93
454	1.6	SK172.1	-IEC90-	2.92	-3	454	91
450	1.4	SK02		2.95		450	90
425	3	SK372.1		3.12		425	85
412	1.6	SK172.1		3.22		412	82
392	1.4	SK02	-90LH-	3.38		392	78

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC90- IEC C-Face Input Reducer (no motor).
- 90LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3Ph
- 2 575V, 60 Hz, 3Ph
- 3 208-230/460V, 60 Hz, 3Ph
- 4 400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)



Gearmotors & Speed Reducers

50 Hz Motors



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c. Gearmotor: 121 RPM output speed, 400V - 50 Hz.
 Part # = **SK102-315MH-11.88-4**

		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x	50Hz (rpm)	10Hz (rpm)
4-Pole 1400 RPM		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
408	1.8	SK92		3.51		408	82
334	2.6	SK102	-W-	4.28	-1	334	67
273	2.3	SK102		5.23		273	55
252	1.4	SK92		5.68		252	50
229	2	SK102		6.24		229	46
213	1.4	SK92	-IEC315-	6.7	-2	213	43
191	1.8	SK102		7.5		191	38
144	1.8	SK102		9.96		144	29
121	1.5	SK102	-315MH-	11.88	-4	121	24
100	1.4	SK102		14.29		100	20

<p>¹ Reducer Input Options</p> <ul style="list-style-type: none"> -W- Solid Shaft Input Reducer -IEC315- IEC C-Face Input Reducer (no motor). -315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor 	<p>² Voltage Code</p> <ul style="list-style-type: none"> -1 230/460V, 60 Hz, 3 Ph -2 575V, 60 Hz, 3 Ph -4 400V, 50 Hz, 3 Ph <p><i>(For more options, contact Viking Pump)</i></p>
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Gearmotors & Speed Reducers

50 Hz Motors



SERVICE FACTOR TABLE

POWER SOURCE	CLASSIFICATION OF DRIVEN LOAD*	INTERMITTENT UP TO 3 HOURS per DAY	8 – 10 HOURS per DAY	24 HOURS per DAY
Electric Motor, Steam Turbine, or Hydraulic Motor	Uniform	0.8	1.0	1.25
	Moderate Shock	1.0	1.25	1.5
	Heavy Shock	1.5	1.75	2.0
Multi-cylinder Internal Combustion Engine	Uniform	1.0	1.25	1.5
	Moderate Shock	1.25	1.5	1.75
	Heavy Shock	1.75	2.0	2.25

* Rotary Pump applications are classified as Uniform Loads.

DRIVEN LOAD CLASSIFICATIONS (excerpted from AGMA Information Sheet 922-A96 ©1996)

Key: U = Uniform Load; M = Moderate Shock Load; H = Heavy Shock Load

APPLICATION	LOAD CLASSIFICATION	APPLICATION	LOAD CLASSIFICATION
Pumps, Rotary and Centrifugal	U	Fans, Cooling Tower	M
Pumps, Reciprocating	M	Feeders, Apron, Belt, Screw	U
Agitators	U	Feeders, Reciprocating	M
Blowers	U	Generators	U
Compressors, Centrifugal & Lobe	U	Hammer Mills	M
Compressors, Reciprocating	M	Machine Tools	M
Cranes and Hoists	M	Mills, Rotary	M
Crushers, Ore and Stone	H	Mixers, Concrete, Drum Type	M
Elevators	M	Printing Presses	U
Fans, Centrifugal, Forced Draft	U	Sewage Disposal Bar Screens	U



Gearmotors & Speed Reducers

0.37 KW

50 Hz Motors | 30 RPM to 655 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1400 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
655	5.5	SK072.1*		2.1		655	131
592	6.4	SK172.1		2.32		592	118
590	5.4	SK072.1*		2.33		590	118
552	6.2	SK172.1		2.49		552	110
535	5.5	SK072.1*		2.57		535	107
505	6.4	SK172.1		2.72		505	101
483	5.4	SK072.1*		2.85		483	97
471	6.2	SK172.1		2.92		471	94
466	6.1	SK02		2.95		466	93
427	6.4	SK172.1		3.22		427	85
419	5.4	SK072.1*		3.28		419	84
407	5.9	SK02		3.38		407	81
397	6	SK172.1		3.46		397	79
384	5.2	SK072.1*		3.58	-1	384	77
363	6	SK172.1		3.79		363	73
353	5.3	SK02	-W-	3.89		353	71
351	4.4	SK072.1*		3.92		351	70
329	6	SK172.1		4.17	-2	329	66
326	4.8	SK02		4.22		326	65
319	4.5	SK072.1*	-IEC71-	4.31		319	64
297	6	SK172.1		4.62		297	59
288	4.3	SK072.1*		4.77	-3	288	58
285	4.6	SK02		4.82		285	57
268	6.2	SK172.1	-71L-	5.14		268	54
259	4	SK072.1*		5.31	-4	259	52
250	3.8	SK072.1*		5.5		250	50
247	4	SK02		5.57		247	49
238	5.1	SK172.1		5.77		238	48
231	3.6	SK072.1*		5.96		231	46
225	3.6	SK02		6.1		225	45
213	5	SK172.1		6.43		213	43
209	3.1	SK072.1*		6.57		209	42
200	3.4	SK02		6.89		200	40
194	4.5	SK172.1		7.08		194	39
190	3	SK072.1*		7.23		190	38
177	3.1	SK02		7.8		177	35
176	4.1	SK172.1		7.83		176	35
172	2.6	SK072.1*		8		172	34
168	3	SK02		8.19		168	34

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1400 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
158	3.9	SK172.1		8.72		158	32
154	2.4	SK072.1*		8.91		154	31
148	2.7	SK02		9.28		148	30
141	3.4	SK172.1		9.79		141	28
138	2.5	SK02		9.95		138	28
127	3	SK172.1		10.83		127	25
122	2.3	SK02		11.27		122	24
121	2.9	SK172.1		11.39		121	24
119	1.7	SK072.1*		11.56		119	24
114	2.8	SK172.1		12.06		114	23
107	2.2	SK02		12.82		107	21
104	1.4	SK072.1*		13.2		104	21
101	2.4	SK172.1		13.54		101	20
95	1.4	SK072.1*		14.4	-1	95	19
94	5	SK372.1		14.57		94	19
87	2	SK172.1	-W-	15.76		87	17
86	1.8	SK02		15.95		86	17
82	3.6	SK12		16.73	-2	82	16
74	3.4	SK12		18.79		74	15
67	1.6	SK172.1	-IEC71-	20.37		67	13
65	3	SK12		21.28		65	13
62	1.6	SK172.1		22.42	-3	62	12
59	1.3	SK02		23.13		59	12
58	3.5	SK373.1	-71L-	23.41		58	12
57	1.4	SK02		24.39		57	11
55	1.4	SK172.1		24.8	-4	55	11
53	3.1	SK373.1		25.94		53	11
50	1.3	SK172.1		27.62		50	10
47	1.7	SK12		29.15		47	9
46	2.7	SK373.1		29.77		46	9
44	2	SK12		31.19		44	9
42	2.3	SK373.1		33.2		42	8
41	2.2	SK372.1		33.84		41	8
39	1.7	SK12		35.07		39	8
37	2	SK373.1		37.23		37	7
36	1.8	SK12		38.31		36	7
33	4.2	SK573.1		42.18		33	7
32	1.5	SK372.1		43.26		32	6
30	2.7	SK572.1		45.77		30	6

* SK072.1 is not available with a solid shaft input -W-

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC71- IEC C-Face Input Reducer (no motor).
- 71L- Integral 4-Pole TEFC Standard Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (kg)

	W	71L	IEC71
SK072.1	N/A	9	4
SK02	12	14	14
SK172.1	7	10	7
SK12	14	16	16
SK372.1	11	13	10
SK373.1	12	14	11
SK572.1	18	21	18
SK573.1	19	21	19
SK22	29	25	27

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Gearmotors & Speed Reducers

0.55 KW



50 Hz Motors | 30 RPM to 589 RPM

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		①	②	③	④		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)
						50Hz (rpm)	10Hz (rpm)
	589	4.7	SK172.1		2.32		589 118
	549	4.4	SK172.1		2.49		549 110
	503	4.3	SK172.1		2.72		503 101
	468	4.4	SK172.1		2.92		468 94
	464	4	SK02		2.95		464 93
	424	4.3	SK172.1		3.22		424 85
	404	3.8	SK02		3.38		404 81
	395	4	SK172.1		3.46		395 79
	360	4	SK172.1		3.79		360 72
	352	3.5	SK02		3.89	-1	352 70
	328	4	SK172.1		4.17		328 66
	324	3.1	SK02	-W-	4.22		324 65
	296	4	SK172.1		4.62		296 59
	284	3	SK02		4.82	-2	284 57
	266	4.2	SK172.1		5.14		266 53
	245	2.6	SK02	-IEC80-	5.57		245 49
	236	3.4	SK172.1		5.77		236 47
	224	2.4	SK02		6.1	-3	224 45
	212	3.3	SK172.1		6.43		212 42
	198	2.2	SK02	-80SH-	6.89		198 40
	194	3	SK172.1		7.08		194 39
	175	2	SK02		7.8	-4	175 35
	174	2.7	SK172.1		7.83		174 35
	167	2	SK02		8.19		167 33
	156	2.6	SK172.1		8.72		156 31
	147	1.8	SK02		9.28		147 29
	140	2.2	SK172.1		9.79		140 28
	138	1.7	SK02		9.95		138 28
	128	3.2	SK12		10.7		128 26
	126	2	SK172.1		10.83		126 25
	122	1.5	SK02		11.27		122 24

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		①	②	③	④		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)
						50Hz (rpm)	10Hz (rpm)
	120	1.9	SK172.1		11.39		120 24
	114	1.8	SK172.1		12.06		114 23
	106	1.4	SK02		12.82		106 21
	105	3.9	SK372.1		12.96		105 21
	102	2.9	SK12		13.39		102 20
	101	1.6	SK172.1		13.54		101 20
	94	3.4	SK372.1		14.57		94 19
	87	1.4	SK172.1		15.76		87 17
	83	3	SK372.1		16.5		83 17
	82	2.3	SK12		16.73	-1	82 16
	74	2.8	SK372.1		18.4		74 15
	73	2.2	SK12		18.79		73 15
	66	2.6	SK373.1	-W-	20.52		66 13
	64	2	SK12		21.28	-2	64 13
	60	2.4	SK373.1		22.74		60 12
	59	2.2	SK372.1	-IEC80-	23		59 12
	58	2.3	SK373.1		23.41		58 12
	55	2.6	SK22		24.73	-3	55 11
	53	2	SK373.1		25.94		53 11
	46	1.8	SK373.1	-80SH-	29.77		46 9
	44	3.6	SK573.1		30.93		44 9
	42	1.5	SK373.1		33.2	-4	42 8
	41	1.4	SK372.1		33.84		41 8
	39	3.2	SK573.1		34.8		39 8
	38	2.6	SK572.1		35.65		38 8
	37	1.4	SK373.1		37.23		37 7
	36	3	SK573.1		38.02		36 7
	33	2.7	SK573.1		42.18		33 7
	32	2.2	SK572.1		42.38		32 6
	31	2.6	SK573.1		43.4		31 6
	30	1.8	SK572.1		45.77		30 6

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC80-	IEC C-Face Input Reducer (no motor).
-80SH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	80SH	IEC80
SK02	12	17	17
SK172.1	7	12	7
SK12	14	19	19
SK372.1	11	15	10
SK373.1	12	16	11
SK572.1	18	23	18
SK573.1	19	23	19
SK22	29	28	31



Gearmotors & Speed Reducers

0.75 KW

50 Hz Motors | 29 RPM to 568 RPM



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4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
568	3.4	SK172.1		2.32		568	114
530	3.2	SK172.1		2.49		530	106
485	3.1	SK172.1		2.72		485	97
452	3.2	SK172.1		2.92		452	90
447	2.9	SK02		2.95		447	89
409	3.1	SK172.1		3.22		409	82
390	2.8	SK02		3.38		390	78
381	2.9	SK172.1		3.46		381	76
348	2.9	SK172.1		3.79		348	70
339	2.5	SK02		3.89		339	68
316	2.9	SK172.1		4.17		316	63
312	2.2	SK02		4.22		312	62
285	2.9	SK172.1	-W-	4.62		285	57
273	2.2	SK02		4.82		273	55
256	3	SK172.1		5.14	-2	256	51
236	1.9	SK02		5.57		236	47
228	2.5	SK172.1	-IEC80-	5.77		228	46
216	1.8	SK02		6.1		216	43
206	2.4	SK172.1		6.43	-3	206	41
191	1.6	SK02		6.89		191	38
186	2.2	SK172.1	-80LH-	7.08		186	37
182	3.1	SK12		7.28		182	36
170	1.5	SK02		7.8	-4	170	34
169	1.9	SK172.1		7.83		169	34
168	3	SK12		7.85		168	34
161	3.8	SK372.1		8.22		161	32
154	2.8	SK12		8.56		154	31
151	1.8	SK172.1		8.72		151	30
142	1.3	SK02		9.28		142	28
141	3.6	SK372.1		9.4		141	28
137	2.6	SK12		9.65		137	27
135	1.6	SK172.1		9.79		135	27
129	3.4	SK372.1		10.28		129	26

4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
123	2.3	SK12		10.7		123	25
122	1.4	SK172.1		10.83		122	24
116	1.4	SK172.1		11.39		116	23
114	3	SK372.1		11.55		114	23
110	1.4	SK172.1		12.06		110	22
101	2.9	SK372.1		12.96		101	20
98	2	SK12		13.39		98	20
90	2.4	SK372.1		14.57		90	18
80	2.2	SK372.1		16.5		80	16
79	1.7	SK12		16.73		79	16
72	2	SK372.1		18.4	-1	72	14
71	1.8	SK373.1		18.63		71	14
70	1.6	SK12	-W-	18.79		70	14
64	1.9	SK373.1		20.52		64	13
62	1.4	SK12		21.28	-2	62	12
58	1.7	SK373.1	-IEC80-	22.74		58	12
56	1.7	SK373.1		23.41		56	11
55	3.4	SK573.1		23.79		55	11
54	1.8	SK22		24.73	-3	54	11
51	1.5	SK373.1	-80LH-	25.94		51	10
50	3	SK573.1		26.77		50	10
49	2.7	SK572.1		27	-4	49	10
46	2.4	SK572.1		28.91		46	9
45	1.8	SK22		29.31		45	9
44	1.3	SK373.1		29.77		44	9
42	2.6	SK573.1		30.93		42	8
38	2.3	SK573.1		34.8		38	8
37	1.9	SK572.1		35.65		37	7
34	2.2	SK573.1		38.02		34	7
31	2	SK573.1		42.18		31	6
30	1.9	SK573.1		43.4		30	6
29	1.3	SK572.1		45.77		29	6

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC80- IEC C-Face Input Reducer (no motor).
- 80LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3Ph
 - 2 575V, 60 Hz, 3Ph
 - 3 208-230/460V, 60 Hz, 3Ph
 - 4 400V, 50 Hz, 3Ph
- (For more options, contact Viking Pump)*

Weights (kg)

	W	80LH	IEC80
SK02	12	18	17
SK172.1	7	16	7
SK12	14	20	19
SK372.1	11	19	10
SK373.1	12	20	11
SK572.1	18	27	18
SK573.1	19	27	19
SK22	29	29	31
SK672.1	24	32	23
SK673.1	25	33	24

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Gearmotors & Speed Reducers 1.1 KW

50 Hz Motors | 30 RPM to 572 RPM



		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
572	2.3	SK172.1		2.32		572	114
533	2.2	SK172.1		2.49		533	107
488	2	SK172.1		2.72		488	98
454	2.2	SK172.1		2.92		454	91
450	1.9	SK02		2.95		450	90
412	2	SK172.1		3.22		412	82
392	1.8	SK02		3.38		392	78
384	1.9	SK172.1		3.46		384	77
350	1.9	SK172.1		3.79		350	70
341	1.7	SK02		3.89		341	68
333	3.5	SK12		3.98		333	67
318	1.9	SK172.1		4.17		318	64
317	3.8	SK372.1		4.18		317	63
314	1.5	SK02		4.22		314	63
307	3.2	SK12		4.32	-1	307	61
296	3.3	SK12	-W-	4.49		296	59
287	1.9	SK172.1		4.62		287	57
284	3.8	SK372.1		4.66	-2	284	57
275	1.4	SK02		4.82		275	55
269	3	SK12	-IEC90-	4.93		269	54
258	2	SK172.1		5.14		258	52
253	3.8	SK372.1		5.24	-3	253	51
238	1.3	SK02		5.57		238	48
230	1.7	SK172.1	-90SH-	5.77		230	46
229	2.6	SK12		5.79		229	46
223	3.4	SK372.1		5.95	-4	223	45
206	1.6	SK172.1		6.43		206	41
203	2.4	SK12		6.53		203	41
202	3	SK372.1		6.58		202	40
193	3	SK372.1		6.89		193	39
187	1.4	SK172.1		7.08		187	37
184	2.9	SK372.1		7.23		184	37
182	2	SK12		7.28		182	36
170	1.3	SK172.1		7.83		170	34
169	2	SK12		7.85		169	34
162	2.7	SK372.1		8.22		162	32
155	1.9	SK12		8.56		155	31
152	1.3	SK172.1		8.72		152	30
142	2.5	SK372.1		9.4		142	28

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
138	1.8	SK12		9.65		138	28
129	2.3	SK372.1		10.28		129	26
124	1.5	SK12		10.7		124	25
122	3.6	SK22		10.89		122	24
115	2	SK372.1		11.55		115	23
109	3.4	SK22		12.2		109	22
102	1.9	SK372.1		12.96		102	20
99	1.4	SK12		13.39		99	20
91	1.6	SK372.1		14.57		91	18
90	2.9	SK22		14.69		90	18
81	3	SK572.1		16.46		81	16
79	2.5	SK22		16.75		79	16
76	3	SK573.1		17.42		76	15
72	1.4	SK372.1		18.4		72	14
71	1.3	SK373.1		18.63	-1	71	14
69	2.8	SK573.1	-W-	19.22		69	14
68	2.6	SK572.1		19.57		68	14
66	1.8	SK22		20.03	-2	66	13
65	1.3	SK373.1		20.52		65	13
62	2.5	SK573.1	-IEC90-	21.32		62	12
61	2.4	SK572.1		21.85		61	12
56	2.2	SK573.1		23.79	-3	56	11
54	2.2	SK572.1		24.58		54	11
50	2	SK573.1	-90SH-	26.77		50	10
49	2.7	SK32		27.24		49	10
46	1.6	SK572.1		28.91	-4	46	9
44	2.6	SK32		30.43		44	9
43	1.8	SK573.1		30.93		43	9
42	2	SK32		31.16		42	8
41	2.3	SK672.1		32.58		41	8
40	1.4	SK32		33.05		40	8
38	1.6	SK573.1		34.8		38	8
37	1.9	SK672.1		35.75		37	7
36	2.2	SK673.1		37.23		36	7
35	1.4	SK573.1		38.02		35	7
34	2.7	SK773.1		39.06		34	7
32	1.9	SK673.1		41.54		32	6
31	1.4	SK573.1		42.18		31	6
30	1.8	SK673.1		44.85		30	6

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC90- IEC C-Face Input Reducer (no motor).
- 90SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3Ph
- 2 575V, 60 Hz, 3Ph
- 3 208-230/460V, 60 Hz, 3Ph
- 4 400V, 50 Hz, 3Ph
(For more options, contact Viking Pump)

Weights (kg)

	W	90SH	IEC90
SK02	12	23	17
SK172.1	7	16	7
SK12	14	25	19
SK372.1	11	19	10
SK373.1	12	20	11
SK572.1	18	27	18
SK573.1	19	27	19
SK22	29	34	31
SK672.1	24	32	23
SK673.1	25	33	24
SK32	40	45	42
SK773.1	44	46	46



Gearmotors & Speed Reducers

1.5 KW

50 Hz Motors | 30 RPM to 572 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
						5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM						50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
572	1.8	SK172.1		2.32		572	114
533	1.6	SK172.1		2.49		533	107
507	3.2	SK372.1		2.62		507	101
488	1.6	SK172.1		2.72		488	98
464	3	SK372.1		2.86		464	93
454	1.6	SK172.1		2.92		454	91
450	1.4	SK02		2.95		450	90
425	3	SK372.1		3.12		425	85
412	1.6	SK172.1		3.22		412	82
392	1.4	SK02		3.38		392	78
387	3	SK372.1		3.43		387	77
384	1.4	SK172.1		3.46		384	77
351	3	SK372.1		3.78		351	70
350	1.4	SK172.1		3.79		350	70
341	1.3	SK02		3.89		341	68
318	1.4	SK172.1		4.17	-1	318	64
317	2.9	SK372.1	-W-	4.18		317	63
296	2.5	SK12		4.49		296	59
287	1.4	SK172.1		4.62	-2	287	57
284	2.8	SK372.1		4.66		284	57
269	2.2	SK12	-IEC90-	4.93		269	54
258	1.5	SK172.1		5.14		258	52
253	2.9	SK372.1		5.24	-3	253	51
230	1.3	SK172.1		5.77		230	46
229	2	SK12	-90LH-	5.79		229	46
223	2.5	SK372.1		5.95	-4	223	45
203	1.8	SK12		6.53		203	41
202	2.2	SK372.1		6.58		202	40
194	3.4	SK22		6.86		194	39
193	2.3	SK372.1		6.89		193	39
184	2.2	SK372.1		7.23		184	37
182	1.6	SK12		7.28		182	36
175	3	SK22		7.57		175	35
169	1.5	SK12		7.85		169	34
162	2	SK372.1		8.22		162	32
156	2.9	SK22		8.48		156	31
155	1.4	SK12		8.56		155	31
142	1.9	SK372.1		9.4		142	28
138	1.3	SK12		9.65		138	28
132	3.2	SK572.1		10.04		132	26
129	1.8	SK372.1		10.28		129	26

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
						5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM						50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
122	2.7	SK22		10.89		122	24
118	3.1	SK572.1		11.25		118	24
115	1.5	SK372.1		11.55		115	23
109	2.5	SK22		12.2		109	22
105	3	SK572.1		12.68		105	21
102	1.4	SK372.1		12.96		102	20
97	2.7	SK572.1		13.67		97	19
90	2.2	SK22		14.69		90	18
86	2.6	SK572.1		15.38		86	17
81	2.2	SK572.1		16.46		81	16
79	1.9	SK22		16.75		79	16
77	3	SK672.1		17.25		77	15
76	2.3	SK573.1		17.42		76	15
72	2.7	SK672.1		18.41		72	14
71	3.1	SK32		18.67		71	14
69	2	SK573.1		19.22	-1	69	14
68	1.9	SK572.1	-W-	19.57		68	14
66	1.4	SK22		20.03		66	13
65	2.7	SK672.1		20.62	-2	65	13
64	3	SK32		20.7		64	13
62	1.9	SK573.1	-IEC90-	21.32		62	12
61	1.8	SK572.1		21.85		61	12
58	2.6	SK32		23.12	-3	58	12
56	1.7	SK573.1		23.79		56	11
54	1.6	SK572.1	-90LH-	24.58		54	11
53	1.8	SK673.1		25.19	-4	53	11
50	1.5	SK573.1		26.77		50	10
49	2	SK32		27.24		49	10
48	1.8	SK673.1		27.61		48	10
46	1.8	SK672.1		29.08		46	9
44	1.9	SK32		30.43		44	9
43	1.6	SK673.1		30.92		43	9
42	1.5	SK32		31.16		42	8
41	1.8	SK672.1		32.58		41	8
39	1.7	SK673.1		34.12		39	8
37	1.4	SK672.1		35.75		37	7
36	1.6	SK673.1		37.23		36	7
34	2	SK773.1		39.06		34	7
33	2.4	SK43		40.98		33	7
32	1.4	SK673.1		41.54		32	6
30	1.8	SK773.1		43.43		30	6

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC90-	IEC C-Face Input Reducer (no motor).
-90LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3Ph
-2	575V, 60 Hz, 3Ph
-3	208-230/460V, 60 Hz, 3Ph
-4	400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	90LH	IEC90
SK02	12	25	17
SK172.1	7	18	7
SK12	14	27	19
SK372.1	11	21	10
SK373.1	12	22	11
SK572.1	18	29	18
SK573.1	19	29	19
SK22	29	36	31
SK672.1	24	34	23
SK673.1	25	35	24
SK32	40	47	42
SK773.1	44	48	46
SK42	65	62	60

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Gearmotors & Speed Reducers 2.2 KW

50 Hz Motors | 30 RPM to 520 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
520	2.2	SK372.1		2.62		520	104
476	2	SK372.1		2.86		476	95
460	2.2	SK12		2.96		460	92
436	2	SK372.1		3.12		436	87
402	2	SK12		3.39		402	80
397	2	SK372.1		3.43		397	79
360	2	SK372.1		3.78		360	72
342	1.8	SK12		3.98		342	68
326	2	SK372.1		4.18		326	65
316	1.7	SK12		4.32		316	63
304	1.7	SK12		4.49		304	61
295	2	SK22		4.62		295	59
292	1.9	SK372.1		4.66		292	58
276	1.5	SK12		4.93	-1	276	55
263	1.9	SK22	-W-	5.18		263	53
260	1.9	SK372.1		5.24		260	52
235	2.4	SK22		5.79		235	47
229	1.7	SK372.1		5.95	-2	229	46
216	3.2	SK572.1	-IEC100-	6.3		216	43
209	2.2	SK22		6.51		209	42
207	1.5	SK372.1		6.58	-3	207	41
199	2.4	SK22		6.86		199	40
198	1.6	SK372.1	-100LH-	6.89		198	40
189	1.5	SK372.1		7.23		189	38
182	3	SK572.1		7.49	-4	182	36
180	2	SK22		7.57		180	36
167	2.8	SK572.1		8.15		167	33
166	1.4	SK372.1		8.22		166	33
161	1.9	SK22		8.48		161	32
153	2.6	SK572.1		8.92		153	31
145	1.3	SK372.1		9.4		145	29
136	2.6	SK572.1		10.04		136	27
126	1.8	SK22		10.89		126	25
122	2.3	SK572.1		11.25		122	24
112	1.7	SK22		12.2		112	22
107	2	SK572.1		12.68		107	21
100	1.8	SK572.1		13.67		100	20
99	2.7	SK672.1		13.7		99	20

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
94	3	SK32		14.55		94	19
93	1.4	SK22		14.69		93	19
90	2.2	SK32		15.03		90	18
89	1.8	SK572.1		15.38		89	18
84	2.5	SK32		16.25		84	17
83	1.5	SK572.1		16.46		83	17
82	2	SK32		16.66		82	16
79	2	SK672.1		17.25		79	16
78	1.6	SK573.1		17.42		78	16
74	1.8	SK672.1		18.41		74	15
73	2.2	SK32		18.67		73	15
71	1.4	SK573.1		19.22		71	14
69	1.3	SK572.1		19.57		69	14
67	2.6	SK772.1		20.31	-1	67	13
66	2	SK32	-W-	20.7		66	13
64	1.3	SK573.1		21.32		64	13
63	2.2	SK773.1		21.49	-2	63	13
62	3.2	SK42		21.87		62	12
60	1.3	SK673.1	-IEC100-	22.82		60	12
59	1.8	SK32		23.12		59	12
58	1.7	SK672.1		23.41	-3	58	12
56	2.2	SK42		24.41		56	11
55	2.3	SK42	-100LH-	24.67		55	11
54	2	SK773.1		25.39		54	11
52	1.5	SK672.1		26.23	-4	52	10
50	1.8	SK772.1		26.86		50	10
48	1.8	SK773.1		28.63		48	10
46	2.2	SK42		29.29		46	9
45	2.2	SK42		30.46		45	9
43	1.7	SK773.1		31.83		43	9
39	2.2	SK872.1		35.08		39	8
38	2.2	SK42		35.25		38	8
35	2.2	SK872.1		38.77		35	7
34	1.6	SK43		40.98		34	7
33	1.8	SK42		41.29		33	7
32	2	SK872.1		42.67		32	6
31	1.3	SK773.1		43.43		31	6
30	2.4	SK873.1		45.53		30	6

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC100- IEC C-Face Input Reducer (no motor).
- 100LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3Ph
 - 2 575V, 60 Hz, 3Ph
 - 3 208-230/460V, 60 Hz, 3Ph
 - 4 400V, 50 Hz, 3Ph
- (For more options, contact Viking Pump)

Weights (kg)

	W	100LH	IEC100
SK12	14	35	26
SK372.1	11	25	11
SK572.1	18	33	19
SK573.1	19	38	20
SK22	29	44	35
SK672.1	24	38	24
SK673.1	25	39	25
SK32	40	55	46
SK773.1	44	52	50
SK42	65	70	67
SK43	70	85	76
SK872.1	87	85	89
SK873.1	89	87	91



Gearmotors & Speed Reducers 3 KW



50 Hz Motors | 30 RPM to 526 RPM

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4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-XX-	x.xx	-X	50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
526	1.4	SK372.1		2.62		526	105
494	1.6	SK22		2.79		494	99
472	2.2	SK572.1		2.92		472	94
466	5.7	SK32		2.96		466	93
442	1.3	SK372.1		3.12		442	88
422	2.2	SK572.1		3.27		422	84
407	1.3	SK12		3.39		407	81
402	1.3	SK372.1		3.43		402	80
391	1.4	SK22		3.53		391	78
368	4.7	SK32		3.75		368	74
360	2.2	SK572.1		3.83		360	72
348	1.4	SK22		3.97		348	70
327	2	SK572.1		4.22		327	65
311	4.1	SK32		4.43		311	62
299	2.3	SK672.1		4.61		299	60
298	1.3	SK22		4.62		298	60
294	2	SK572.1		4.69	-1	294	59
272	2.3	SK672.1		5.06		272	54
264	2	SK572.1	-W-	5.23		264	53
261	4.7	SK32		5.28		261	52
251	3.1	SK32		5.5	-2	251	50
247	2.3	SK672.1		5.59		247	49
242	4.1	SK32	-IEC100-	5.7		242	48
238	1.4	SK22		5.79		238	48
234	2	SK572.1		5.88		234	47
225	2.2	SK672.1	-100AH-	6.12		225	45
219	2	SK572.1		6.3		219	44
212	1.4	SK22		6.51	-4	212	42
205	3.4	SK32		6.74		205	41
201	1.4	SK22		6.86		201	40
196	1.3	SK32		7.05		196	39
190	5.8	SK42		7.28		190	38
184	1.8	SK572.1		7.49		184	37
182	1.3	SK22		7.57		182	36
180	2	SK672.1		7.68		180	36
174	3.2	SK32		7.9		174	35
170	1.7	SK572.1		8.15		170	34
165	2.8	SK32		8.36		165	33
162	2	SK672.1		8.48		162	32
159	1.8	SK672.1		8.66		159	32
154	1.6	SK572.1		8.92		154	31
149	2	SK672.1		9.25		149	30
141	2.6	SK32		9.8		141	28
138	1.5	SK572.1		10.04		138	28

4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-XX-	x.xx	-X	50Hz (rpm)	10Hz (rpm)
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
135	4.4	SK42		10.2		135	27
133	2	SK672.1		10.37		133	27
122	1.6	SK672.1		11.38		122	24
118	2.3	SK32		11.71		118	24
112	3.8	SK42		12.28		112	22
110	1.6	SK672.1		12.56		110	22
101	1.6	SK672.1		13.7		101	20
96	3.1	SK42		14.38		96	19
95	1.8	SK32		14.55		95	19
92	1.3	SK32		15.03		92	18
91	3.2	SK42		15.12		91	18
90	1.5	SK672.1		15.35		90	18
88	1.6	SK772.1		15.62		88	18
85	1.5	SK32		16.25		85	17
83	1.8	SK672.1		16.66		83	17
79	7.1	SK63		17.37		79	16
78	2.6	SK42		17.71	-1	78	16
74	1.6	SK772.1		18.46		74	15
70	3.8	SK52	-W-	19.6		70	14
68	1.6	SK772.1		20.31		68	14
66	6	SK63		20.77	-2	66	13
64	3.4	SK52		21.68		64	13
63	1.9	SK42	-IEC100-	21.87		63	13
62	5.7	SK63		21.98		62	12
58	3.1	SK52		23.92	-3	58	12
57	1.4	SK42	-100AH-	24.41		57	11
56	1.4	SK42		24.67		56	11
54	2.4	SK873.1		25.69	-4	54	11
53	4.7	SK63		26.28		53	11
52	2.8	SK52		26.46		52	10
50	2.3	SK873.1		27.57		50	10
47	1.4	SK42		29.29		47	9
46	2.2	SK873.1		30.47		46	9
45	4.5	SK63		30.91		45	9
43	2	SK873.1		32.24		43	9
42	1.5	SK52		32.56		42	8
39	1.4	SK42		35.25		39	8
38	1.8	SK873.1		35.63		38	8
36	1.7	SK52		38.45		36	7
35	1.3	SK872.1		38.77		35	7
34	1.7	SK873.1		39.68		34	7
33	2.4	SK973.1		42.51		33	7
32	3.3	SK63		43.43		32	6
30	1.4	SK873.1		45.53		30	6

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC100-	IEC C-Face Input Reducer (no motor).
-100AH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3Ph
-2	575V, 60 Hz, 3Ph
-3	208-230/460V, 60 Hz, 3Ph
-4	400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	100AH	IEC100
SK12	14	35	26
SK372.1	11	28	11
SK572.1	18	36	19
SK22	29	44	35
SK672.1	24	41	24
SK673.1	25	42	25
SK32	40	55	46
SK773.1	44	55	50
SK42	65	70	67
SK43	70	85	76
SK872.1	87	88	89
SK873.1	89	90	91
SK52	94	99	96
SK63	149	154	151

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Gearmotors & Speed Reducers

5.5 KW

50 Hz Motors | 32 RPM to 521 RPM



		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor				50Hz (rpm)	10Hz (rpm)
	521	2.7	SK672.1		2.66	521	104
	485	2.7	SK672.1		2.86	485	97
	468	3.8	SK32		2.96	468	94
	452	2.7	SK672.1		3.07	452	90
	419	2.6	SK672.1		3.31	419	84
	388	2.6	SK672.1		3.58	388	78
	370	3.2	SK32		3.75	370	74
	357	2.6	SK672.1		3.88	357	71
	328	2.6	SK672.1		4.22	328	66
	313	2.7	SK32		4.43	313	63
	300	2.6	SK672.1		4.61	300	60
	274	2.5	SK672.1		5.06	274	55
	263	3.1	SK32	-W-	5.28	263	53
	252	2	SK32		5.5	252	50
	248	2.2	SK672.1		5.59	248	50
	243	2.7	SK32		5.7	243	49
	226	2.2	SK672.1	-IEC132-	6.12	226	45
	206	2.3	SK32		6.74	206	41
	190	3.8	SK42		7.28	190	38
	181	1.8	SK672.1	-132SH-	7.68	181	36
	176	2.2	SK32		7.9	176	35
	171	2	SK772.1		8.12	171	34
	166	1.8	SK32		8.36	166	33
	164	1.6	SK672.1		8.48	164	33
	163	3.3	SK42		8.5	163	33
	160	1.3	SK672.1		8.66	160	32
	154	1.9	SK772.1		8.97	154	31
	150	1.5	SK672.1		9.25	150	30
	142	1.7	SK32		9.8	142	28
	139	1.8	SK772.1		10	139	28
	136	3	SK42		10.2	136	27
	134	1.4	SK672.1		10.37	134	27

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor				50Hz (rpm)	10Hz (rpm)
	131	1.7	SK772.1		10.6	131	26
	126	1.6	SK772.1		11.06	126	25
	123	3.2	SK872.1		11.24	123	25
	119	1.5	SK772.1		11.67	119	24
	118	1.6	SK32		11.71	118	24
	113	2.6	SK42		12.28	113	23
	111	3	SK872.1		12.48	111	22
	106	1.4	SK772.1		13.07	106	21
	101	2.8	SK872.1		13.79	101	20
	97	2	SK42		14.38	97	19
	92	2.2	SK42		15.12	92	18
	91	2.5	SK872.1		15.18	91	18
	82	2.3	SK872.1	-W-	16.96	82	16
	78	1.8	SK42		17.71	78	16
	74	2.2	SK872.1		18.67	74	15
	71	2.6	SK52		19.6	71	14
	65	1.4	SK42	-IEC132-	21.5	65	13
	64	2.2	SK52		21.68	64	13
	63	1.3	SK42		21.87	63	13
	60	1.8	SK872.1	-132SH-	23.02	60	12
	58	2	SK52		23.92	58	12
	54	1.6	SK872.1		25.44	54	11
	53	1.8	SK52		26.46	53	11
	50	2.5	SK972.1		27.66	50	10
	48	1.8	SK52		28.85	48	10
	46	2.4	SK972.1		30.29	46	9
	45	3	SK63		30.91	45	9
	43	1.4	SK873.1		32.24	43	9
	42	2.2	SK972.1		33.36	42	8
	38	2	SK972.1		37.19	38	8
	33	1.9	SK973.1		42.51	33	7
	32	2.2	SK63		43.43	32	6

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC132- IEC C-Face Input Reducer (no motor)
- 132SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3Ph
 - 2 575V, 60 Hz, 3Ph
 - 3 208-230/460V, 60 Hz, 3Ph
 - 4 400V, 50 Hz, 3Ph
- (For more options, contact Viking Pump)*

Weights (kg)

	W	132SH	IEC132
SK22	29	74	35
SK672.1	24	64	26
SK32	40	85	55
SK773.1	44	78	132
SK42	65	100	81
SK872.1	87	111	103
SK873.1	89	113	105
SK52	94	129	110
SK972.1	126	150	142
SK973.1	121	145	137
SK62	171	186	172
SK63	149	184	165



Gearmotors & Speed Reducers

7.5 KW

50 Hz Motors | 30 RPM to 521 RPM



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4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
521	2	SK672.1		2.66		521	104
485	2	SK672.1		2.86		485	97
468	2.9	SK32		2.96		468	94
452	2	SK672.1		3.07		452	90
419	2	SK672.1		3.31		419	84
388	1.9	SK672.1		3.58		388	78
370	2.4	SK32		3.75		370	74
357	2	SK672.1		3.88		357	71
328	1.9	SK672.1		4.22		328	66
313	2	SK32		4.43		313	63
300	1.9	SK672.1		4.61		300	60
274	1.8	SK672.1		5.06		274	55
263	2.3	SK32		5.28	-1	263	53
252	1.6	SK32	-W-	5.5		252	50
248	1.7	SK672.1		5.59		248	50
243	2	SK32		5.7	-2	243	49
241	3.8	SK42	-IEC132-	5.75		241	48
226	1.6	SK672.1		6.12		226	45
224	3.4	SK42		6.19	-3	224	45
209	3.4	SK42		6.65		209	42
206	1.8	SK32	-132MH-	6.74		206	41
190	2.9	SK42		7.28		190	38
182	1.6	SK772.1		7.63	-4	182	36
181	1.4	SK672.1		7.68		181	36
179	2.9	SK872.1		7.73		179	36
176	1.6	SK32		7.9		176	35
171	1.5	SK772.1		8.12		171	34
166	1.4	SK32		8.36		166	33
163	2.5	SK42		8.5		163	33
156	2.6	SK872.1		8.87		156	31
154	1.4	SK772.1		8.97		154	31
150	2.9	SK872.1		9.24		150	30
142	1.3	SK32		9.8		142	28
139	1.4	SK772.1		10		139	28

4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
136	2.2	SK42		10.2		136	27
133	2.6	SK872.1		10.44		133	27
131	3.3	SK52		10.58		131	26
123	2.4	SK872.1		11.24		123	25
113	1.9	SK42		12.28		113	23
111	2.3	SK872.1		12.48		111	22
103	2.7	SK52		13.45		103	21
101	2	SK872.1		13.79		101	20
99	2.6	SK52		14		99	20
97	1.6	SK42		14.38		97	19
92	1.6	SK42		15.12	-1	92	18
91	1.9	SK872.1		15.18		91	18
82	1.8	SK872.1	-W-	16.96		82	16
80	3.6	SK63		17.37		80	16
78	2	SK52		17.81	-2	78	16
74	1.6	SK872.1		18.67		74	15
71	1.9	SK52	-IEC132-	19.6		71	14
67	3	SK63		20.77		67	13
64	1.7	SK52		21.68	-3	64	13
63	2.8	SK63		21.98		63	13
60	1.4	SK872.1	-132MH-	23.02		60	12
58	1.5	SK52		23.92		58	12
53	2.4	SK63		26.28	-4	53	11
50	1.8	SK972.1		27.66		50	10
48	1.4	SK52		28.85		48	10
46	1.8	SK972.1		30.29		46	9
45	2.2	SK63		30.91		45	9
42	1.7	SK972.1		33.36		42	8
38	2	SK63		36.11		38	8
37	1.7	SK973.1		37.36		37	7
33	1.4	SK972.1		42.76		33	7
32	1.7	SK63		43.43		32	6
30	2.3	SK73		45.66		30	6

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC132- IEC C-Face Input Reducer (no motor)
- 132MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3Ph
 - 2 575V, 60 Hz, 3Ph
 - 3 208-230/460V, 60 Hz, 3Ph
 - 4 400V, 50 Hz, 3Ph
- (For more options, contact Viking Pump)*

Weights (kg)

	W	132MH	IEC132
SK672.1	24	75	26
SK32	40	92	55
SK42	65	107	81
SK872.1	87	122	103
SK873.1	89	124	105
SK52	94	136	110
SK972.1	126	161	142
SK973.1	121	156	137
SK62	171	193	172
SK63	149	191	165
SK73	250	272	251

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Gearmotors & Speed Reducers

11 KW

50 Hz Motors | 31 RPM to 468 RPM



		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
4-Pole 1400 RPM		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
468	2.6	SK42		3.02		468	94
453	2	SK772.1*		3.12		453	91
440	2.6	SK42		3.21		440	88
404	2.5	SK42		3.5		404	81
394	1.8	SK772.1*		3.59		394	79
368	1.8	SK772.1*		3.84		368	74
364	2.4	SK42		3.89		364	73
320	1.6	SK772.1*		4.42		320	64
308	2.2	SK42		4.58		308	62
300	1.6	SK772.1*		4.71		300	60
296	2.6	SK42		4.79	-1	296	59
277	2.6	SK42		5.1		277	55
264	2	SK42	-W-	5.35		264	53
263	1.4	SK772.1*		5.38		263	53
257	2.8	SK872.1		5.5		257	51
250	2.7	SK872.1	-IEC160-	5.66		250	50
246	2.6	SK42		5.75		246	49
228	2.3	SK42		6.19		228	46
220	3.1	SK52		6.42	-3	220	44
215	2.5	SK872.1		6.57		215	43
212	2.3	SK42		6.65		212	42
194	1.9	SK42		7.28	-4	194	39
184	2.7	SK52		7.7		184	37
183	2.2	SK872.1		7.73		183	37
166	1.7	SK42		8.5		166	33
160	2.5	SK52		8.83		160	32
154	2	SK872.1		9.24		154	31
139	1.5	SK42		10.2		139	28
136	1.8	SK872.1		10.44		136	27
134	2.2	SK52		10.58		134	27
126	1.7	SK872.1		11.24		126	25
115	1.3	SK42		12.28		115	23

		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
4-Pole 1400 RPM		1	2	3	4		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
114	1.6	SK872.1		12.48		114	23
105	1.8	SK52		13.45		105	21
102	1.4	SK872.1		13.79		102	20
101	1.8	SK52		14		101	20
100	2.5	SK972.1		14.16		100	20
94	1.3	SK872.1		15.18		94	19
90	2.3	SK972.1		15.84		90	18
82	2.5	SK63		17.37		82	16
80	2	SK972.1		17.65		80	16
79	1.4	SK52		17.81		79	16
78	2.2	SK62		18.14	-1	78	16
72	1.9	SK972.1		19.72		72	14
68	2	SK63	-W-	20.77		68	14
65	1.9	SK63		21.98		65	13
64	1.7	SK972.1		21.99		64	13
63	1.7	SK973.1		22.42		63	13
61	1.3	SK972.1	-IEC160-	23.19		61	12
55	1.5	SK973.1		25.51		55	11
54	1.6	SK63		26.28	-3	54	11
52	1.4	SK973.1		27.22		52	10
51	1.3	SK972.1		27.66		51	10
50	1.8	SK72		28.63	-4	50	10
46	1.5	SK63		30.91		46	9
44	2.7	SK82		32.12		44	9
43	1.3	SK72		33.04		43	9
42	2	SK73		33.24		42	8
39	1.4	SK63		36.11		39	8
38	1.8	SK73		37.63		38	8
36	3	SK83		39.08		36	7
35	1.4	SK82		40.45		35	7
32	2.6	SK83		44.38		32	6
31	1.5	SK73		45.66		31	6

* SK772.1 is not available with IEC adapter -IEC160-

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC160- IEC C-Face Input Reducer (no motor).
- 160MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3Ph
 - 2 575V, 60 Hz, 3Ph
 - 3 208-230/460V, 60 Hz, 3Ph
 - 4 400V, 50 Hz, 3Ph
- (For more options, contact Viking Pump)

Weights (kg)

	W	160MH	IEC160
SK772.1	42	114	N/A
SK42	65	138	91
SK872.1	87	149	113
SK873.1	89	151	115
SK52	94	167	120
SK972.1	126	188	152
SK973.1	121	183	147
SK62	171	224	197
SK63	149	222	175
SK73	250	303	276
SK82	424	402	375
SK83	357	410	383



Gearmotors & Speed Reducers

15 KW

50 Hz Motors | 32 RPM to 466 RPM



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4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
Output Speed (rpm)	Service Factor	1	2	3	4	50Hz (rpm)	10Hz (rpm)
		Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
466	2	SK42		3.02		466	93
444	2.6	SK872.1		3.18		444	89
438	1.9	SK42		3.21		438	88
402	1.8	SK42		3.5		402	80
382	2.4	SK872.1		3.69		382	76
361	1.8	SK42		3.89		361	72
350	2.2	SK872.1		4.03		350	70
344	2.7	SK52		4.08		344	69
307	1.7	SK42		4.58		307	61
305	2.6	SK52		4.61	-1	305	61
301	2.3	SK872.1		4.68		301	60
293	2	SK42	-W-	4.79		293	59
276	2.6	SK52		5.08		276	55
263	1.5	SK42		5.35	-2	263	53
256	2	SK872.1		5.5		256	51
251	2	SK52	-IEC160-	5.6		251	50
249	2	SK872.1		5.66		249	50
244	1.9	SK42		5.75	-3	244	49
243	2.5	SK52		5.79		243	49
231	2.4	SK52	-160LH-	6.09		231	46
227	1.7	SK42		6.19		227	45
219	2.3	SK52		6.42	-4	219	44
215	1.8	SK872.1		6.57		215	43
212	1.8	SK42		6.65		212	42
196	2.8	SK972.1		7.19		196	39
194	2.2	SK52		7.27		194	39
183	2	SK52		7.7		183	37
182	1.7	SK872.1		7.73		182	36
167	2.6	SK972.1		8.45		167	33
166	1.3	SK42		8.5		166	33
159	1.8	SK52		8.83		159	32

4-Pole 1400 RPM		Part Number				5:1 Inverter Duty (Constant Torque)	
		SKxxx	-xx-	x.xx	-x		
Output Speed (rpm)	Service Factor	1	2	3	4	50Hz (rpm)	10Hz (rpm)
		Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
153	1.5	SK872.1		9.24		153	31
150	2.6	SK972.1		9.4		150	30
137	2.4	SK972.1		10.35		137	27
135	1.4	SK872.1		10.44		135	27
133	1.7	SK52		10.58		133	27
122	2.2	SK972.1		11.54		122	24
110	2	SK972.1		12.86		110	22
105	1.4	SK52		13.45		105	21
104	1.9	SK972.1		13.56		104	21
101	2.2	SK62		13.92	-1	101	20
100	1.8	SK972.1		14.16		100	20
89	1.9	SK62	-W-	15.8		89	18
83	2.4	SK72		16.86		83	17
81	1.8	SK63		17.37	-2	81	16
80	1.6	SK972.1		17.65		80	16
78	1.7	SK62	-IEC160-	18.14		78	16
72	1.4	SK972.1		19.72		72	14
68	2.4	SK73		20.62	-3	68	14
65	2	SK72		21.64		65	13
64	1.4	SK63	-160LH-	21.98		64	13
60	2	SK73		23.34		60	12
53	2.4	SK82		26.62	-4	53	11
50	1.8	SK73		28.32		50	10
49	1.4	SK72		28.63		49	10
44	2	SK82		32.12		44	9
43	2.6	SK83		32.52		43	9
42	1.5	SK73		33.24		42	8
38	1.3	SK73		37.63		38	8
36	2.2	SK83		39.08		36	7
32	2	SK83		44.38		32	6

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC160-	IEC C-Face Input Reducer (no motor).
-160LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3Ph
-2	575V, 60 Hz, 3Ph
-3	208-230/460V, 60 Hz, 3Ph
-4	400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	160LH	IEC160
SK42	65	167	91
SK872.1	87	174	113
SK52	94	196	120
SK972.1	126	213	152
SK973.1	121	208	147
SK62	171	253	197
SK63	149	251	175
SK72	240	322	266
SK73	250	332	276
SK82	424	431	375
SK83	357	439	383

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Gearmotors & Speed Reducers

18.5 KW



50 Hz Motors | 32 RPM to 506 RPM

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
506	2.6	SK52		2.78		506	101
466	1.6	SK42*		3.02		466	93
440	2	SK872.1		3.18		440	88
438	1.5	SK42*		3.21		438	88
436	2.3	SK52		3.23		436	87
420	4	SK972.1		3.33		420	84
414	2.3	SK52		3.4		414	83
402	1.5	SK42*		3.5		402	80
384	2.2	SK52		3.67		384	77
379	1.8	SK872.1		3.69	-1	379	76
374	3.8	SK972.1		3.74		374	75
361	1.4	SK42*	-W-	3.89		361	72
347	1.8	SK872.1		4.03		347	69
344	2.2	SK52		4.08	-2	344	69
307	1.4	SK42*		4.58		307	61
305	2	SK52	-IEC180-	4.61		305	61
299	1.8	SK872.1		4.68		299	60
293	1.6	SK42*		4.79	-3	293	59
276	2.2	SK52		5.08		276	55
266	3	SK972.1	-180MH-	5.25		266	53
254	1.7	SK872.1		5.5		254	51
251	1.7	SK52		5.6	-4	251	50
247	1.6	SK872.1		5.66		247	49
244	1.5	SK42*		5.75		244	49
243	2	SK52		5.79		243	49
231	1.9	SK52		6.09		231	46
227	2.6	SK972.1		6.17		227	45
219	1.8	SK52		6.42		219	44
212	1.4	SK42*		6.65		212	42
209	2.6	SK972.1		6.68		209	42
194	1.7	SK52		7.27		194	39

		Part Number					
		SKxxx	-xx -	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
183	1.6	SK52		7.7		183	37
181	1.4	SK872.1		7.73		181	36
166	2.2	SK972.1		8.45		166	33
160	2.7	SK62		8.78		160	32
159	1.5	SK52		8.83		159	32
149	2	SK972.1		9.4		149	30
135	1.9	SK972.1		10.35		135	27
134	2.3	SK62		10.55		134	27
133	1.3	SK52		10.58		133	27
122	2	SK62		11.59	-1	122	24
109	1.6	SK972.1		12.86		109	22
103	1.5	SK972.1	-W-	13.56		103	21
101	1.8	SK62		13.92		101	20
99	1.5	SK972.1		14.16	-2	99	20
98	2.2	SK72		14.33		98	20
89	1.5	SK62	-IEC180-	15.8		89	18
88	1.4	SK972.1		15.84	-3	88	18
83	1.9	SK72		16.86		83	17
81	1.4	SK63	-180MH-	17.37		81	16
79	1.3	SK972.1		17.65		79	16
78	2.2	SK73		18	-4	78	16
68	1.9	SK73		20.62		68	14
67	3	SK83		21.04		67	13
65	1.7	SK72		21.64		65	13
60	1.7	SK73		23.34		60	12
58	2.6	SK83		24.42		58	12
50	2.3	SK83		28.03		50	10
43	2	SK83		32.52		43	9
36	1.8	SK83		39.08		36	7
32	1.6	SK83		44.38		32	6

* SK42 is not available with IEC adapter -IEC180-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC180-	IEC C-Face Input Reducer (no motor).
-180MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3Ph
-2	575V, 60 Hz, 3Ph
-3	208-230/460V, 60 Hz, 3Ph
-4	400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	180MH	IEC180
SK42	65	182	N/A
SK872.1	87	188	113
SK52	94	211	120
SK972.1	126	227	115
SK62	171	268	197
SK63	149	266	175
SK72	240	337	266
SK73	250	347	276
SK83	357	454	383
SK93	536	633	562



Gearmotors & Speed Reducers

22 KW

50 Hz Motors | 32 RPM to 508 RPM



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		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
508	2	SK52		2.78		508	102
467	1.4	SK42*		3.02		467	93
441	1.8	SK872.1		3.18		441	88
440	1.3	SK42*		3.21		440	88
436	2	SK52		3.23		436	87
421	3.4	SK972.1		3.33		421	84
415	2	SK52		3.4		415	83
403	1.3	SK42*		3.5		403	81
384	1.9	SK52		3.67		384	77
380	1.6	SK872.1		3.69	-1	380	76
375	3.2	SK972.1		3.74		375	75
348	1.4	SK872.1	-W-	4.03		348	70
346	1.8	SK52		4.08	-2	346	69
309	3	SK62		4.56		309	62
308	2.9	SK972.1	-IEC180-	4.56		308	62
306	1.7	SK52		4.61		306	61
300	1.5	SK872.1		4.68	-3	300	60
294	1.4	SK42*		4.79		294	59
277	1.8	SK52	-180LH-	5.08		277	55
276	1.3	SK42*		5.1		276	55
267	2.5	SK972.1		5.25	-4	267	53
255	1.4	SK872.1		5.5		255	51
252	1.4	SK52		5.6		252	50
248	1.4	SK872.1		5.66		248	50
245	1.3	SK42*		5.75		245	49
244	1.6	SK52		5.79		244	49
232	1.6	SK52		6.09		232	46
227	2.2	SK972.1		6.17		227	45
222	2	SK62		6.35		222	44
220	1.5	SK52		6.42		220	44

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
210	2.2	SK972.1		6.68		210	42
195	2	SK972.1		7.19		195	39
194	1.4	SK52		7.27		194	39
186	2.7	SK62		7.56		186	37
183	1.4	SK52		7.7		183	37
166	1.8	SK972.1		8.45		166	33
161	2.2	SK62		8.78		161	32
160	1.3	SK52		8.83		160	32
150	1.8	SK972.1		9.4		150	30
136	1.6	SK972.1		10.35	-1	136	27
134	1.9	SK62	-W-	10.55		134	27
122	1.8	SK62		11.59		122	24
113	2.2	SK72		12.52	-2	113	23
109	1.4	SK972.1		12.86		109	22
103	1.3	SK972.1	-IEC180-	13.56		103	21
101	1.4	SK62		13.92		101	20
98	1.8	SK72		14.33	-3	98	20
90	1.3	SK63	-180LH-	15.8		90	18
84	1.6	SK72		16.86		84	17
78	1.8	SK73		18	-4	78	16
69	1.6	SK73		20.62		69	14
67	2.5	SK83		21.04		67	13
66	1.4	SK72		21.64		66	13
61	1.4	SK73		23.34		61	12
58	2.2	SK83		24.42		58	12
50	1.9	SK83		28.03		50	10
43	1.8	SK83		32.52		43	9
36	2	SK93		39.54		36	7
32	1.4	SK83		44.38		32	6

* SK42 is not available with IEC adapter -IEC180-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC180-	IEC C-Face Input Reducer (no motor).
-180LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3Ph
-2	575V, 60 Hz, 3Ph
-3	208-230/460V, 60 Hz, 3Ph
-4	400V, 50 Hz, 3Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	180LH	IEC180
SK42	65	200	N/A
SK872.1	87	219	113
SK52	94	229	120
SK972.1	126	258	115
SK62	171	286	197
SK63	149	284	175
SK72	240	355	266
SK73	250	365	276
SK83	357	472	383
SK93	536	651	562

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Gearmotors & Speed Reducers 30 KW

50 Hz Motors | 31 RPM to 512 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
512	1.6	SK52*		2.78		512	102
479	3.3	SK62		2.97		479	96
440	1.5	SK52*		3.23		440	88
431	3	SK62		3.3		431	86
428	2.6	SK972.1		3.33		428	86
419	1.5	SK52*		3.4		419	84
388	1.4	SK52*		3.67	-1	388	78
382	2.7	SK62		3.72		382	76
380	2.4	SK972.1	-W-	3.74		380	76
364	2.6	SK62		3.91	-2	364	73
352	2.3	SK62		4.05		352	70
348	1.4	SK52*		4.08		348	70
312	2.3	SK62	-IEC200-	4.56		312	62
308	1.3	SK52*		4.61	-3	308	62
280	1.4	SK52*		5.08		280	56
271	1.9	SK972.1	-200LH-	5.25		271	54
268	1.8	SK62		5.29		268	54
254	2.6	SK72		5.6	-4	254	51
230	1.7	SK972.1		6.17		230	46
224	1.5	SK62		6.35		224	45
221	2.2	SK72		6.42		221	44
212	1.7	SK972.1		6.68		212	42
205	3.1	SK72		6.95		205	41
198	1.6	SK972.1		7.19		198	40

		Part Number					
		SKxxx	-xx-	x.xx	-x		
		1	2	3	4		
4-Pole 1400 RPM		Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor					50Hz (rpm)	10Hz (rpm)
188	2	SK62		7.56		188	38
174	2.9	SK72		8.19		174	35
169	1.4	SK972.1		8.45		169	34
162	1.7	SK62		8.78		162	32
151	1.3	SK972.1		9.4		151	30
150	2.5	SK72		9.46		150	30
135	1.4	SK62		10.55	-1	135	27
131	2.2	SK72	-W-	10.84		131	26
123	1.4	SK62		11.59		123	25
114	1.6	SK72		12.52	-2	114	23
100	2.3	SK82		14.29		100	20
99	1.4	SK72	-IEC200-	14.33		99	20
86	2	SK82		16.56		86	17
79	1.4	SK73		18	-3	79	16
68	1.9	SK83		21.04		68	14
58	1.6	SK83	-200LH-	24.42		58	12
53	2.2	SK93		27.05	-4	53	11
51	1.4	SK83		28.03		51	10
46	1.9	SK93		31.25		46	9
44	1.3	SK83		32.52		44	9
38	2.6	SK103		37.9		38	8
36	1.5	SK93		39.54		36	7
31	2.2	SK103		45.25		31	6

* SK52 is only available with solid shaft input -W- for this KW

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC200- IEC C-Face Input Reducer (no motor).
- 200LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (kg)

	W	200LH	IEC200
SK52	94	N/A	N/A
SK972.1	126	260	173
SK62	171	356	211
SK72	240	425	280
SK73	250	435	290
SK82	424	534	389
SK83	357	542	397
SK93	536	721	576
SK103	830	940	795



Gearmotors & Speed Reducers

37 KW

50 Hz Motors | 31 RPM to 508 RPM



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		Part Number					
		SKxxx	-XX-	x.xx	-X		
4-Pole 1400 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
508	1.3	SK52*		2.78		508	102
475	2.6	SK62		2.97		475	95
428	2.4	SK62		3.3		428	86
424	2	SK972.1**		3.33	-1	424	85
379	2.2	SK62		3.72		379	76
377	1.9	SK972.1**	-W-	3.74		377	75
360	2	SK62		3.91		360	72
348	1.8	SK62		4.05		348	70
309	1.8	SK972.1**		4.56		309	62
268	1.5	SK972.1**	-IEC225-	5.25	-2	268	54
267	1.4	SK62		5.29		267	53
252	2	SK72		5.6		252	50
228	1.4	SK972.1**		6.17		228	46
220	1.7	SK72	-225SH-	6.42		220	44
211	1.4	SK972.1**		6.68		211	42
203	2.5	SK72		6.95	-4	203	41
196	1.3	SK972.1**		7.19		196	39
186	1.6	SK62		7.56		186	37
173	2.2	SK72		8.19		173	35

		Part Number					
		SKxxx	-XX-	x.xx	-X		
4-Pole 1400 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
161	1.4	SK62		8.78		161	32
150	2	SK72		9.46		150	30
137	2.6	SK82		10.33		137	27
130	1.7	SK72		10.84		130	26
119	2.4	SK82		11.84	-1	119	24
113	1.3	SK72	-W-	12.52		113	23
99	1.8	SK82		14.29		99	20
86	1.6	SK82		16.56		86	17
74	2.6	SK93		19.12		74	15
67	1.5	SK83	-IEC225-	21.04	-2	67	13
66	3.8	SK103		21.19		66	13
62	2	SK93		22.97		62	12
58	1.3	SK83		24.42		58	12
56	3.1	SK103	-225SH-	25.3		56	11
52	1.8	SK93		27.05		52	10
48	2.6	SK103		29.62	-4	48	10
45	1.5	SK93		31.25		45	9
38	2	SK103		37.9		38	8
31	1.8	SK103		45.25		31	6

* SK52 is only available with a solid shaft input -W- for this KW

** SK972.1 is not available with IEC adapter -IEC225-

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-IEC225-	IEC C-Face Input Reducer (no motor).
-225SH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (kg)

	W	225SH	IEC225
SK52	94	N/A	N/A
SK972.1	126	324	N/A
SK62	171	421	226
SK72	240	490	295
SK73	250	500	305
SK82	424	599	404
SK83	357	607	412
SK93	536	786	591
SK103	830	1005	810

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Gearmotors & Speed Reducers

45 KW

50 Hz Motors | 31 RPM to 476 RPM



		Part Number						
		SKxxx	-xx-	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	476	2.2	SK62		2.97		476	95
	428	2	SK62		3.3		428	86
	380	1.8	SK62		3.72		380	76
	362	1.7	SK62		3.91		362	72
	349	1.5	SK62		4.05		349	70
	344	2.2	SK72		4.12		344	69
	310	1.5	SK62		4.56		310	62
	292	2	SK72		4.85		292	58
	252	1.7	SK72		5.6		252	50
	228	2.3	SK82		6.19		228	46
	220	1.4	SK72		6.42	-1	220	44
	204	2	SK72		6.95		204	41
	192	2.8	SK82	-W-	7.39		192	38
	187	1.4	SK62		7.56		187	37
	173	1.9	SK72		8.19		173	35
	161	2.5	SK82		8.82		161	32
	150	1.7	SK72	-IEC225-	9.46	-2	150	30
	137	2.2	SK82		10.33		137	27
	130	1.4	SK72		10.84		130	26
	119	2	SK82		11.84		119	24
	114	2.8	SK92	-225MH-	12.39		114	23
	99	1.5	SK82		14.29	-4	99	20
	98	2.5	SK92		14.36		98	20
	86	2.2	SK92		16.47		86	17
	74	2	SK93		19.12		74	15
	67	3.1	SK103		21.19		67	13
	62	1.8	SK93		22.97		62	12
	56	2.6	SK103		25.3		56	11
	52	1.5	SK93		27.05		52	10
	48	2.2	SK103		29.62		48	10
	46	1.3	SK93		31.25		46	9
	38	1.8	SK103		37.9		38	8
	31	1.4	SK103		45.25		31	6

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC225- IEC C-Face Input Reducer (no motor).
- 225MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (kg)

	W	225MH	IEC225
SK62	171	461	226
SK72	240	530	295
SK82	424	639	404
SK83	357	647	412
SK93	536	826	591
SK103	830	1045	810



Gearmotors & Speed Reducers

55 KW

50 Hz Motors | 38 RPM to 493 RPM



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		Part Number						
		SKxxx	-xx-	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	493	2.9	SK82		2.89		493	99
	393	2.9	SK82		3.62		393	79
	321	2.6	SK82		4.43		321	64
	269	2.4	SK82		5.29	-1	269	54
	230	1.8	SK82	-W-	6.19		230	46
	193	2.2	SK82		7.39		193	39
	162	2.0	SK82		8.82		162	32
	138	1.8	SK82		10.33		138	28
	121	1.6	SK82	-IEC250-	11.84	-2	121	24
	115	2.3	SK92		12.39		115	23
	99	2.0	SK92		14.36		99	20
	86	1.7	SK92		16.47		86	17
	74	1.7	SK93	-250MH-	19.12		74	15
	67	2.5	SK103		21.19		67	13
	62	1.4	SK93		22.97	-4	62	12
	56	2.0	SK103		25.3		56	11
	48	1.8	SK103		29.62		48	10
	38	1.4	SK103		37.9		38	8

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC250- IEC C-Face Input Reducer (no motor).
- 250MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (kg)

	W	250MH	IEC250
SK82	424	769	459
SK92	575	945	635
SK93	536	956	646
SK103	830	1175	865

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Gearmotors & Speed Reducers

75 KW

50 Hz Motors | 48 RPM to 495 RPM



		Part Number						
		SKxxx	-xx -	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	495	2.2	SK82		2.89		495	99
	395	2.2	SK82		3.62		395	79
	323	2	SK82		4.43		323	65
	273	4.1	SK102		5.23		273	55
	270	1.8	SK82		5.29		270	54
	252	2.6	SK92		5.68		252	50
	231	1.4	SK82		6.19		231	46
	229	3.7	SK102		6.24	-1	229	46
	213	2.3	SK92		6.7		213	43
	194	1.7	SK82	-W-	7.39		194	39
	190	3	SK102		7.5		190	38
	184	1.6	SK92		7.78		184	37
	162	1.5	SK82	-IEC280-	8.82	-2	162	32
	144	3	SK102		9.96		144	29
	138	1.4	SK82		10.33		138	28
	136	1.9	SK92		10.5		136	27
	121	2.6	SK102	-280SH-	11.88		121	24
	115	1.7	SK92		12.39		115	23
	100	1.5	SK92		14.36	-4	100	20
	87	1.3	SK92		16.47		87	17
	86	2	SK102		16.63		86	17
	75	1.3	SK93		19.12		75	15
	74	1.8	SK102		19.37		74	15
	67	1.9	SK103		21.19		67	13
	57	1.6	SK103		25.3		57	11
	48	1.4	SK103		29.62		48	10

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC280- IEC C-Face Input Reducer (no motor).
- 280SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (kg)

	W	280SH	IEC280
SK82	424	884	459
SK92	575	1060	635
SK93	536	1071	646
SK102	821	1281	856
SK103	830	1290	865



Gearmotors & Speed Reducers

90 KW

50 Hz Motors | 57 RPM to 407 RPM



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		Part Number						
		SKxxx	-xx-	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	407	2.6	SK92	-W-	3.51	-1	407	81
	272	3.3	SK102		5.23		272	54
	251	2	SK92		5.68		251	50
	228	3	SK102		6.24		228	46
	213	1.8	SK92		6.7		213	43
	190	2.4	SK102	7.5	190	38		
	184	1.3	SK92	-IEC280-	7.78	-2	184	37
	143	2.4	SK102		9.96		143	29
	136	1.5	SK92		10.5		136	27
	120	2.2	SK102		11.88		120	24
	115	1.4	SK92		12.39		115	23
	100	1.8	SK102	-280MH-	14.29	-4	100	20
	86	1.7	SK102		16.63		86	17
	74	1.4	SK102		19.37		74	15
	67	1.5	SK103		21.19		67	13
	57	1.3	SK103		25.3		57	11

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC280- IEC C-Face Input Reducer (no motor).
- 280MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (kg)

	W	280MH	IEC280
SK92	575	1160	635
SK102	821	1381	856
SK103	830	1390	865

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Gearmotors & Speed Reducers

110 KW

50 Hz Motors | 67 RPM to 407 RPM



		Part Number						
		SKxxx	-xx -	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	407	2.2	SK92		3.51		407	81
	273	2.7	SK102		5.23		273	55
	252	1.7	SK92	-W-	5.68	-1	252	50
	229	2.5	SK102		6.24		229	46
	213	1.5	SK92		6.7		213	43
	190	2.0	SK102	-IEC315-	7.5	-2	190	38
	144	2.0	SK102		9.96		144	29
	136	1.3	SK92		10.5		136	27
	121	1.8	SK102		11.88		121	24
	100	1.5	SK102	-315SH-	14.29	-4	100	20
	86	1.4	SK102		16.63		86	17
	67	1.3	SK103		21.19		67	13

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC315- IEC C-Face Input Reducer (no motor).
- 315SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (kg)

	W	315SH	IEC315
SK92	575	1295	715
SK102	821	1516	936
SK103	830	1525	945



Gearmotors & Speed Reducers

132 KW

50 Hz Motors | 100 RPM to 408 RPM



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		Part Number						
		SKxxx	-xx-	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	408	1.8	SK92	-W-	3.51	-1	408	82
	334	2.6	SK102		4.28		334	67
	273	2.3	SK102		5.23		273	55
	252	1.4	SK92		5.68		252	50
	229	2	SK102	-IEC315-	6.24	-2	229	46
	213	1.4	SK92		6.7		213	43
	191	1.8	SK102		7.5		191	38
	144	1.8	SK102	-315MH-	9.96	-4	144	29
	121	1.5	SK102		11.88		121	24
	100	1.4	SK102		14.29		100	20

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC315- IEC C-Face Input Reducer (no motor).
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)*

Weights (kg)

	W	315MH	IEC315
SK92	575	1450	715
SK102	821	1671	936

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Gearmotors & Speed Reducers 160 KW

50 Hz Motors | 121 RPM to 408 RPM



		Part Number						
		SKxxx	-xx -	x.xx	-x			
		1	2	3	4	5:1 Inverter Duty (Constant Torque)		
4-Pole 1400 RPM	Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	50Hz (rpm)	10Hz (rpm)
	408	1.6	SK92	-W-	3.51	-1	408	82
	334	2.2	SK102		4.28		334	67
	273	2	SK102		5.23		273	55
	252	1.3	SK92		5.68		252	50
	229	1.8	SK102	-IEC315-	6.24	-2	229	46
	191	1.5	SK102		7.5		191	38
	144	1.5	SK102	-315RH-	9.96	-4	144	29
	121	1.4	SK102		11.88		121	24

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- IEC315- IEC C-Face Input Reducer (no motor).
- 315RH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

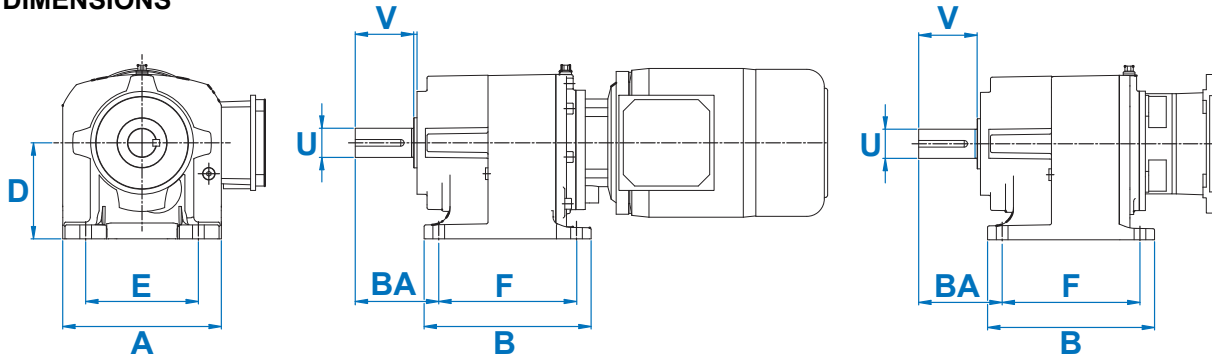
Weights (kg)

	W	315RH	IEC315
SK92	575	1450	715
SK102	821	1671	936



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BASIC DIMENSIONS



NORDBLOC.1

Size		A	B	BA	D	E	F	U	V
SK 072.1	in	4.09	4.29	1.89	2.56	3.35	3.74	0.750	1.57
	mm	103.9	109.0	48.0	65.0	85.1	95.0	19.1	39.9
SK 172.1	in	5.51	5.31	2.28	2.95	4.33	4.33	0.750	1.57
	mm	140.0	134.9	57.9	74.9	110.0	110.0	19.1	39.9
SK 372.1	in	5.91	6.30	2.95	3.54	4.33	5.12	1.000	1.97
SK 373.1	mm	150.1	160.0	74.9	89.9	110.0	130.0	25.4	50.0
SK 572.1	in	7.48	7.87	3.54	4.53	5.31	6.50	1.375	2.75
SK 573.1	mm	190.0	199.9	89.9	115.1	134.9	165.1	34.9	69.9
SK 672.1	in	8.27	9.25	3.93	5.15	5.91	7.68	1.375	2.75
SK 673.1	mm	210.1	235.0	99.8	130.8	150.1	195.1	34.9	69.9
SK 772.1	in	9.33	9.65	4.57	5.51	6.69	8.07	1.625	3.15
SK 773.1	mm	237.0	245.1	116.1	140.0	169.9	205.0	41.3	80.0
SK 872.1	in	11.81	12.20	5.55	7.09	8.46	10.24	2.125	3.94
SK 873.1	mm	300.0	309.9	141.0	180.1	214.9	260.1	54.0	100.1
SK 972.1	in	13.70	14.37	6.33	8.86	9.84	12.20	2.375	4.77
SK 973.1	mm	348.0	365.0	160.8	225.0	249.9	309.9	60.3	121.2

NORD IN-LINE

Size		A	B	BA	D	E	F	U	V
SK 02	in	5.12	5.28	1.97	3.39	4.33	2.36	0.75	1.66
SK 03	mm	130	134.1	50	86.1	110	59.9	19.1	42.2
SK 12	in	5.32	5.47	3.27	4.02	4.13	2.44	1	2.32
SK 13	mm	135.1	138.9	83.1	102.1	104.9	62	25.4	58.9
SK 22	in	7.28	6.89	3.3	4.92	6.3	3.15	1.25	2.95
SK 23	mm	184.9	175	83.8	125	160	80	31.8	74.9
SK 32	in	8.27	8.43	3.88	6.1	7.28	4.72	1.625	3.49
SK 33	mm	210.1	214.1	98.6	154.9	184.9	119.9	41.3	88.6
SK 42	in	8.47	9.41	5.08	6.89	6.89	4.72	1.875	3.74
SK 43	mm	215.1	239	129	175	175	119.9	47.6	95
SK 52	in	10.24	11.14	5.18	8.35	8.66	5.91	2.25	4.24
SK 53	mm	260.1	283	131.6	212.1	220	150.1	57.2	107.7
SK 62	in	12.99	13.58	6.34	9.84	10.24	11.61	2.5	5.24
SK 63	mm	329.9	344.9	161	249.9	260.1	294.9	63.5	133.1
SK 72	in	15.75	15.16	7.04	11.02	12.8	12.99	3	5.74
SK 73	mm	400.1	385.1	178.8	279.9	325.1	329.9	76.2	145.8
SK 82	in	17.72	18.58	8.52	12.4	14.17	15.75	3.5	6.99
SK 83	mm	450.1	471.9	216.4	315	359.9	400.1	88.9	177.5
SK 92	in	21.65	21.26	10.67	15.35	17.32	17.72	4.25	8.82
SK 93	mm	549.9	540	271	389.9	439.9	450.1	108	224
SK 102	in	23.62	24.61	12.76	17.72	18.9	19.88	5.25	10.39
SK 103	mm	599.9	625.1	324.1	450.1	480.1	505	133.4	263.9

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Section 628

Viking Heavy-Duty
Behind the Rotor Seal Pumps

(Series 4124B & 4224B)

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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

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Series Description

The "B Series" heavy duty internal gear pumps include both 4124B (non-jacketed) and 4224B (jacketed) models with Behind-The-Rotor (BTR) dynamic shaft seals. By locating the mechanical seal immediately behind the rotor, this offers several advantages over traditional heavy-duty internal gear pumps with stuffing box seals:

- The grease-lubricated bracket bushing has no contact with the pumped liquid, ensuring longest possible life. The pump is re-greasable, with a lip seal at the stuffing box to retain grease and a relief fitting to prevent over-greasing.
- The grease-filled bracket helps to prevent air and moisture from reaching the seal faces, which can reduce crystallization of some air or water-reactive liquids.
- All pumped liquid is contained in the casing area, which enables superior flushing to clean the casing.
- The optional abrasive liquid mechanical seal enables viscosities to 250,000 SSU (55,000 cSt), providing an alternative to packed gland pumps or to pumps with cartridge seals to handle higher viscosities.
- Hard material options (tungsten carbide idler pin and idler bushing, abrasive liquid seal with flush line) enable the same abrasion-resistant design found in the 4624B abrasive liquid pumps, but with jacketed bracket and head.

Operating Range:

Nominal Flow		GPM	8 to 500
		m ³ /h	1.8 to 114
Pressure Range		PSI	200
		Bar	14
Temp. Range		°F	-60 to 650
		°C	-51 to 343
Viscosity Range	Standard Seal	SSU	15,000
		cSt	3,300
	Abrasive Liquid Seal	SSU	250,000
		cSt	55,000

Nominal Flow Rates:

Pump Size	GPM	m ³ /h
G	8	1.8
H	15	3.4
HL	30	6.8
AK	67	15
K	75	17
KK	100	23
L/LQ	135	31
LL	140	32
LS	200	45
Q	300	68
QS	500	114



K4124B



Q4224B

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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

Major Design Features:

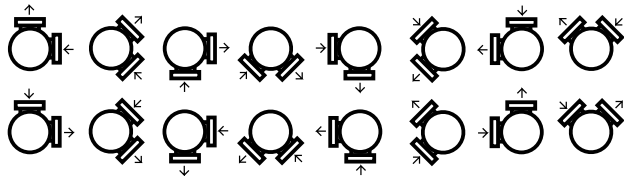
- Positive Displacement Internal Gear pumping principle handles a broad range of viscosities with constant flow rate.
- Footed cast iron bracket provides rigid mounting to help maintain alignment, which extends seal and bearing life.
- Axial rotor thrust is controlled by double row ball or tapered roller bearings mounted in the rotatable bearing housing, which enables fast, easy end clearance adjustment.
- Can use direct drive, gear reducer or gearmotor drive, or belt-drive.
- Pressure relief valve standard on non-jacketed (4124B) pumps, optional on jacketed (4224B) models.
- Jacketed models (4224B) enable heating to liquefy ambient temperature solids prior to startup using steam or other heat transfer fluid, with jacketed bracket and head.

Revolvable Pump Casings Standard

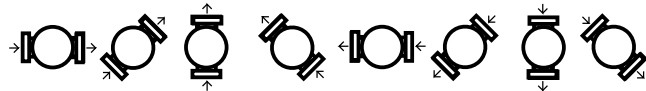
All “B Series” pumps are equipped with casings that can be turned to eight positions (except the LQ, LL & LS sizes, which cannot have any port in the 6 o’clock position). Direction of flow is reversible, so any port may be either suction or discharge. The relief valve must “point” towards the suction port in all cases. G through Q sizes have 90° ports standard, QS size has 180° (opposite) ports standard.

Possible port configurations are illustrated at right.

90° port options:



Opposite port options:



Materials of Construction

Component	Standard Material	
Casing	Cast Iron, ASTM A48, Class 35B	
Head	Cast Iron, ASTM A48, Class 35B	
Bracket	Cast Iron, ASTM A48, Class 35B	
Idler	Standard	Steel Fitted
	① Cast Iron, ASTM A48, Class 35B	② Cast Iron, ASTM A48, Class 35B
Rotor	Standard	Steel Fitted
	③ Cast Iron, ASTM A48, Class 35B	Steel, ASTM A216, Grade WCB
Rotor Shaft	Steel, ASTM A108, Grade 1045	
Idler Pin	Hardened Steel, ASTM A108, Grade 1045	
Idler Bushing	Carbon Graphite	
Bracket Bushing (no product contact)	Bronze, ASTM B584 (B505), Alloy C93700	
Pressure Relief Valve	Cast Iron, ASTM A48, Class 35B	
Standard Mechanical Seal	Carbon vs. Silicon Carbide Faces, Viton® Elastomers	
Optional Abrasive Liquid Seal	Silicon Carbide vs. Silicon Carbide Faces, Viton® Elastomers	

① G, H and HL sizes have a powdered metal idler: Powdered Metal MPIF 35, FC-0208-50 (G) , Powdered Metal MPIF 35, FC-0208-45 (H, HL)

② Q and QS sizes have a steel idler when pump is steel fitted.

③ AK, KK, LS and QS sizes have ductile iron rotor.

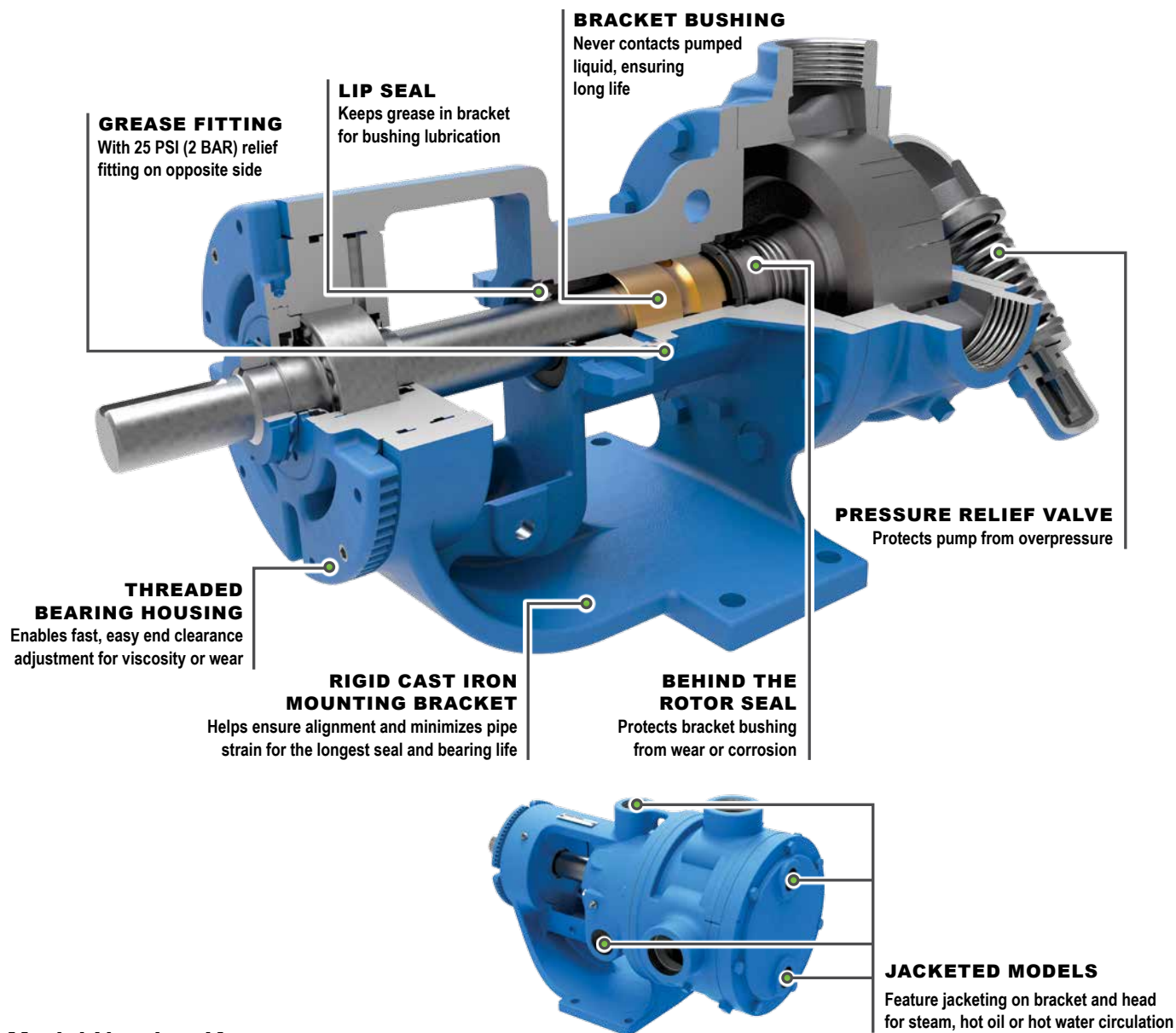
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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

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Features and Benefits:



Model Number Key:

KK

Size:
G L
H LQ
HL LL
AK LS
K Q
KK QS

4

Seal:
4 = Mechanical Seal

1

Jacketing:
1 = No Jacketing
2 = Jacketed

2

Basic Series Configuration

4

Material of Construction:
4 = Cast Iron

B

Seal Location:
B = Behind the Rotor

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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

Specifications (U.S. Units)

Model Number		Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure for 100 SSU liquid at rated speed	③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4124B w/valve	Approximate Shipping Weight, 4224B
				GPM	RPM		PSIG	PSIG				°F	SSU	Pounds	Pounds
Standard	Jacketed	Inches									
G4124B	N/A	1	NPT	8	1750	400	200	350	7,500	22	N/A
H4124B	H4224B	1-1/2	NPT	15	1750	400	200	350	25,000	38	42
HL4124B	HL4224B	1-1/2	NPT	30	1750	400	200	350	7,500	40	45
AK4124B	N/A	2	NPT	67	1450	400	200	350	25,000	78	N/A
K4124B	K4224B	2	NPT	75	780	400	200	350	25,000	105	120
KK4124B	KK4224B	2	NPT	100	780	400	200	350	75,000	110	125
L4124B	L4224B	2	NPT	135	640	400	200	350	25,000	155	175
LQ4124B	LQ4224B	2-1/2	Flange	135	640	400	200	350	25,000	175	190
LL4124B	LL4224B	3	Flange	140	520	400	200	350	2,500	185	200
LS4124B	LS4224B	3	Flange	200	640	400	200	350	75,000	190	210
Q4124B	Q4224B	4	Flange	300	520	400	200	350	7,500	440	480
QS4124B	QS4224B	6	Flange	500	520	400	200	350	75,000	540	580

Specifications (Metric Units)

Model Number		Port Size	① Port Type	Nominal Pump Rating (100 SSU & below)		Maximum Hydrostatic Pressure	② Maximum Discharge Pressure for 100 SSU liquid at rated speed	③ Maximum Recommended Temperature for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight, 4124B w/valve	Approximate Shipping Weight, 4224B
				m ³ /h	RPM		BAR	BAR				°C	cSt	KG	KG
Standard	Jacketed	Inches									
G4124B	N/A	1	NPT	1.8	1750	28	14	177	1,650	10	N/A
H4124B	H4224B	1-1/2	NPT	3.4	1750	28	14	177	5,500	17	19
HL4124B	HL4224B	1-1/2	NPT	7	1750	28	14	177	1,650	18	20
AK4124B	N/A	2	NPT	15	1450	28	14	177	5,500	35	N/A
K4124B	K4224B	2	NPT	18	780	28	14	177	5,500	48	54
KK4124B	KK4224B	2	NPT	23	780	28	14	177	16,500	50	57
L4124B	L4224B	2	NPT	31	640	28	14	177	5,500	70	79
LQ4124B	LQ4224B	2-1/2	Flange	31	640	28	14	177	5,500	80	86
LL4124B	LL4224B	3	Flange	32	520	28	14	177	550	84	91
LS4124B	LS4224B	3	Flange	45	640	28	14	177	16,500	86	95
Q4124B	Q4224B	4	Flange	68	520	28	14	177	1,650	200	218
QS4124B	QS4224B	6	Flange	114	520	28	14	177	16,500	245	265

① Flange ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings. G through Q ports are at 90°, QS ports are at 180° (opposite).

② For maximum recommended discharge pressures at different viscosities, see performance curves, which can be generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

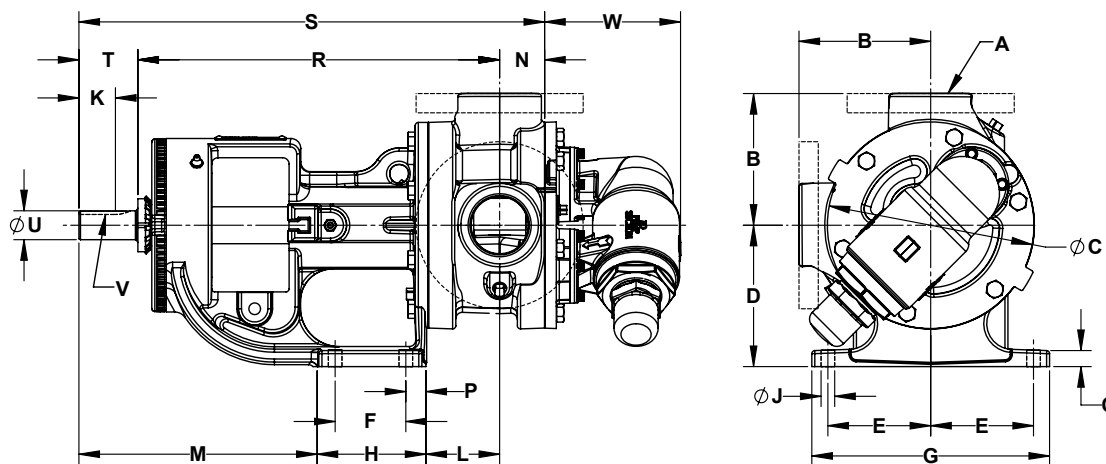
③ Extra clearances are required above 225°F / 107°C, based on standard Viton seal. Higher temperatures can be handled with special construction. Consult factory.

VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

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Dimensions G through Q 4124B (Non-Jacketed)



U.S. Units (Dimensions in inches)

Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W
G4124B	① 1	2.50	3.66	2.75	1.62	1.31	4.00	2.38	0.34	0.57	1.21	4.87	1.09	0.31	0.63	7.34	9.55	1.12	0.50	.12 x .06	2.71
H4124B HL4124B	① 1.5	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85
AK4124B	① 2	4.50	6.62	5.25	2.88	2.00	6.75	4.13	0.41	1.67	2.72	8.84	2.00	0.44	1.11	13.19	17.69	2.50	1.00	.25 x .12	4.77
K4124B KK4124B	① 2	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	5.25
L4124B	① 2	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.25	1.12	0.38 x 0.19	5.43
LQ4124B	② 2.5	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	1.75	0.62	0.62	15.62	19.62	2.25	1.12	0.38 x 0.19	5.43
LL4124B	② 3	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12	2.25	0.62	0.62	15.62	20.12	2.25	1.12	0.38 x 0.19	5.43
LS4124B	② 3	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.59	9.12	2.44	0.62	0.79	15.75	21.69	3.5	1.44	.38 x .19	5.26
Q4124B	② 4	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.53	10.94	3	0.80	1.11	19.25	26.75	4.5	1.94	.50 x .25	8.29

Metric Units (Dimensions in millimeters, except "A" dimension in inches - no metric equivalent)

Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W
G4124B	① 1	63.5	93.0	69.9	41.1	33.3	101.6	60.5	8.8	14.5	30.7	123.7	27.7	7.9	16.0	186.4	242.6	28.4	12.7	3.05 x 1.52	68.8
H4124B HL4124B	① 1.5	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8	30.2	14.2	15.7	265.2	336.5	41.1	19	4.83 x 2.29	72.4
AK4124B	① 2	114.3	168.1	133.4	73.2	50.8	171.5	104.9	10.4	42.4	69.1	224.5	50.8	11.2	28.2	335.0	449.3	63.5	25.4	6.35 x 3.05	121.2
K4124B KK4124B	① 2	130	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3	44.4	15.7	15.7	358.6	460.2	57.1	28.4	6.35 x 3.05	133.3
L4124B	① 2	165.1	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	231.6	44.4	15.7	15.7	396.7	498.3	59.7	36.6	9.65 x 4.83	137.9
LQ4124B	② 2.5	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	231.6	44.4	15.7	15.7	396.7	498.3	59.7	36.6	9.65 x 4.83	137.9
LL4124B	② 3	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	231.6	57.1	15.7	15.7	396.7	511	59.7	36.6	9.65 x 4.83	137.9
LS4124B	② 3	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	64.8	116.6	231.6	62	15.7	20.1	400	550.9	88.9	36.6	9.65 x 4.83	133.6
Q4124B	② 4	209.5	355.6	222.2	104.6	101.6	254	152.4	17.5	90.9	165.9	277.9	76.2	20.3	28.2	488.9	679.4	114.3	49.3	12.70 x 6.35	210.6

① Ports are tapped for standard (NPT) pipe.

② Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

These dimensions are average and not for construction purposes. Certified prints on request.

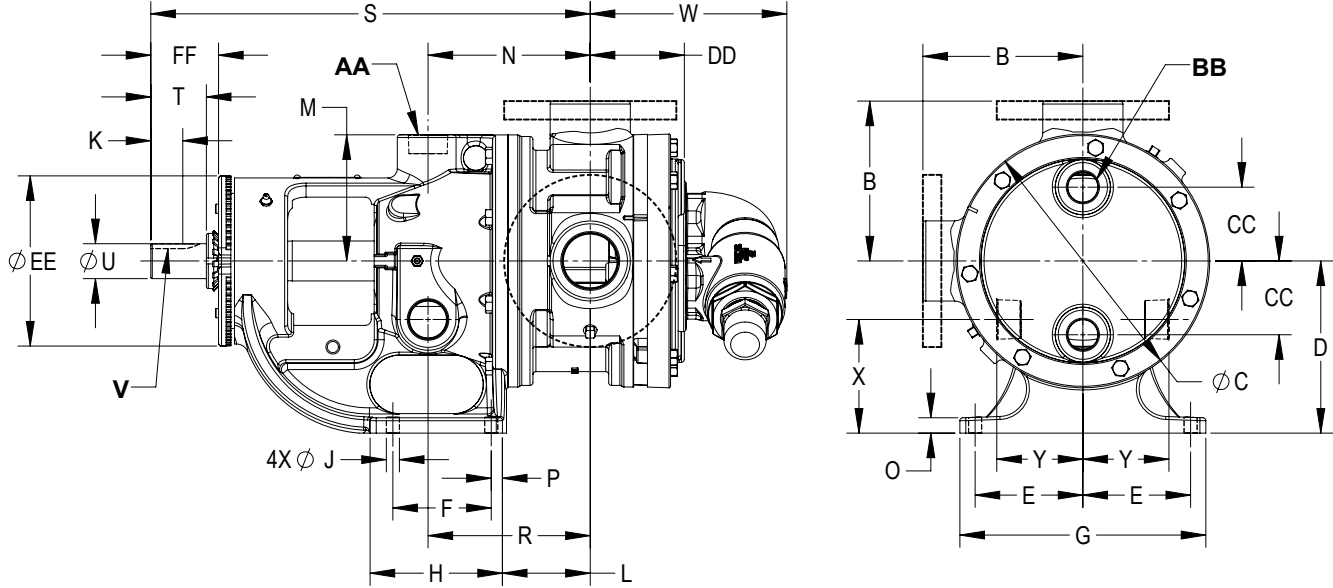
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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

Dimensions H through Q 4224B (Jacketed) - U.S. Units

Dimensions in inches



Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O
H4224B HL4224B	① 1.5	3	4.75	3.5	2.75	2.25	6.75	3.5	0.47	0.99	3.38	2.38	4	0.56
K4224B KK4224B	① 2	5.12	8	5.5	4	2.75	9.25	4	0.53	1.42	3	4	5.75	0.62
L4224B	① 2	6.5	10.25	7	4.38	4	10	5.38	0.53	1.42	3.38	5.12	6.56	0.62
LQ4224B	② 2.5	7.19	10.25	7	4.38	4	10	5.38	0.53	1.42	3.38	5.12	6.56	0.62
LL4224B	② 3	7.19	10.25	7	4.38	4	10	5.38	0.53	1.42	3.38	5.12	6.56	0.62
LS4224B	② 3	7.19	10.25	7	4.38	4	10	5.38	0.53	2.55	4.59	5.12	7.4	0.62
Q4224B	② 4	8.25	14	8.75	4.12	4	10	6	0.69	3.58	6.62	7	7.62	0.75

Model Number	P	R	S	T	U	V	W	X	Y	AA	BB	CC	DD	EE	FF
H4224B HL4224B	0.62	4	12.06	1.62	0.75	.19 x .09	4.04	1.8	1.83	0.75	0.5	0.94	2.41	5.75	2.3
K4224B KK4224B	0.62	5.75	16.38	2.25	1.12	.25 x .12	7	3.38	2.75	1.25	1.25	1.75	3.25	6.75	2.92
L4224B	0.62	6.56	17.88	2.35	1.44	0.38 x 0.19	7.18	4.62	3.25	1.25	1	3	3.81	6.75	2.93
LQ4224B	0.62	6.56	17.88	2.35	1.44	0.38 x 0.19	7.18	4.62	3.25	1.25	1	3	3.81	6.75	2.93
LL4224B	0.62	6.56	17.88	2.35	1.44	0.38 x 0.19	7.18	4.62	3.25	1.25	1	3	4.31	6.75	2.93
LS4224B	0.79	7	19.25	3.5	1.44	.38 x .19	7.72	4.4	3.3	1.25	1	3	4.5	7	4.03
Q4224B	1.3	6.62	23.75	4.5	1.94	.50 x .25	11.25	5.5	4.5	1.5	1.25	---	4.57	8.38	5.35

① Ports are tapped for standard (NPT) pipe.

② Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

These dimensions are average and not for construction purposes. Certified prints on request.

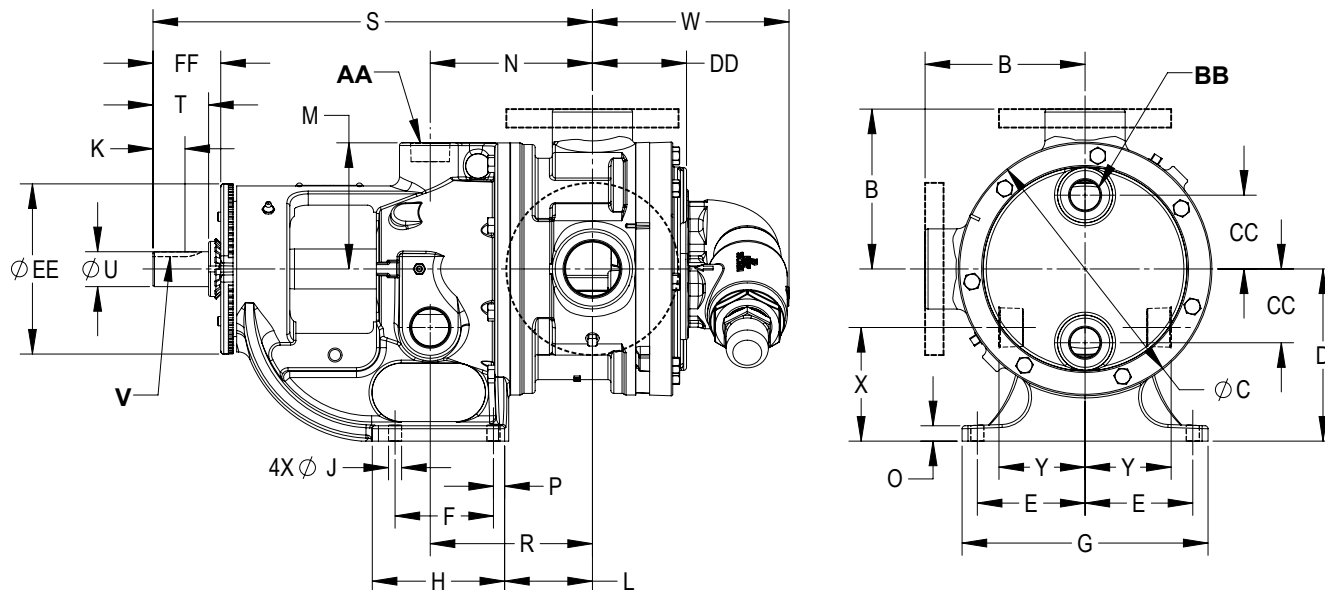
VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

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Dimensions H through Q 4224B (Jacketed) - Metric Units

Dimensions in millimeters (except "A" dimension in inches - no metric equivalent)



Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O
H4224B HL4224B	① 1.5	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	60.5	101.6	14.2
K4224B KK4224B	① 2	130	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	101.6	146	15.7
L4224B	① 2	165.1	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	130	166.6	15.7
LQ4224B	② 2.5	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	130	166.6	15.7
LL4224B	② 3	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	130	166.6	15.7
LS4224B	② 3	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	64.8	116.6	130	188	15.7
Q4224B	② 4	209.5	355.6	222.2	104.6	101.6	254	152.4	17.5	90.9	168.1	177.8	193.5	19

Model Number	P	R	S	T	U	V	W	X	Y	AA	BB	CC	DD	EE	FF
H4224B HL4224B	15.7	101.6	306.3	41.1	19	4.83 x 2.29	102.6	45.7	46.5	19	12.7	23.9	61.2	146	58.4
K4224B KK4224B	15.7	146	416	57.1	28.4	6.35 x 3.05	177.8	85.9	69.8	31.7	31.7	44.4	82.5	171.4	74.2
L4224B	15.7	166.6	454.2	59.7	36.6	9.65 x 4.83	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LQ4224B	15.7	166.6	454.2	59.7	36.6	9.65 x 4.83	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LL4224B	15.7	166.6	454.2	59.7	36.6	9.65 x 4.83	182.4	117.3	82.5	31.7	25.4	76.2	109.5	171.4	74.4
LS4224B	20.1	177.8	488.9	88.9	36.58	9.65 x .83	196.1	111.8	83.8	31.7	25.4	76.2	114.3	177.8	102.4
Q4224B	33	168.1	603.2	114.3	49.3	12.70 x .35	285.7	139.7	114.3	38.1	31.7	---	116.1	212.8	135.9

① Ports are tapped for standard (NPT) pipe.

② Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

These dimensions are average and not for construction purposes. Certified prints on request.

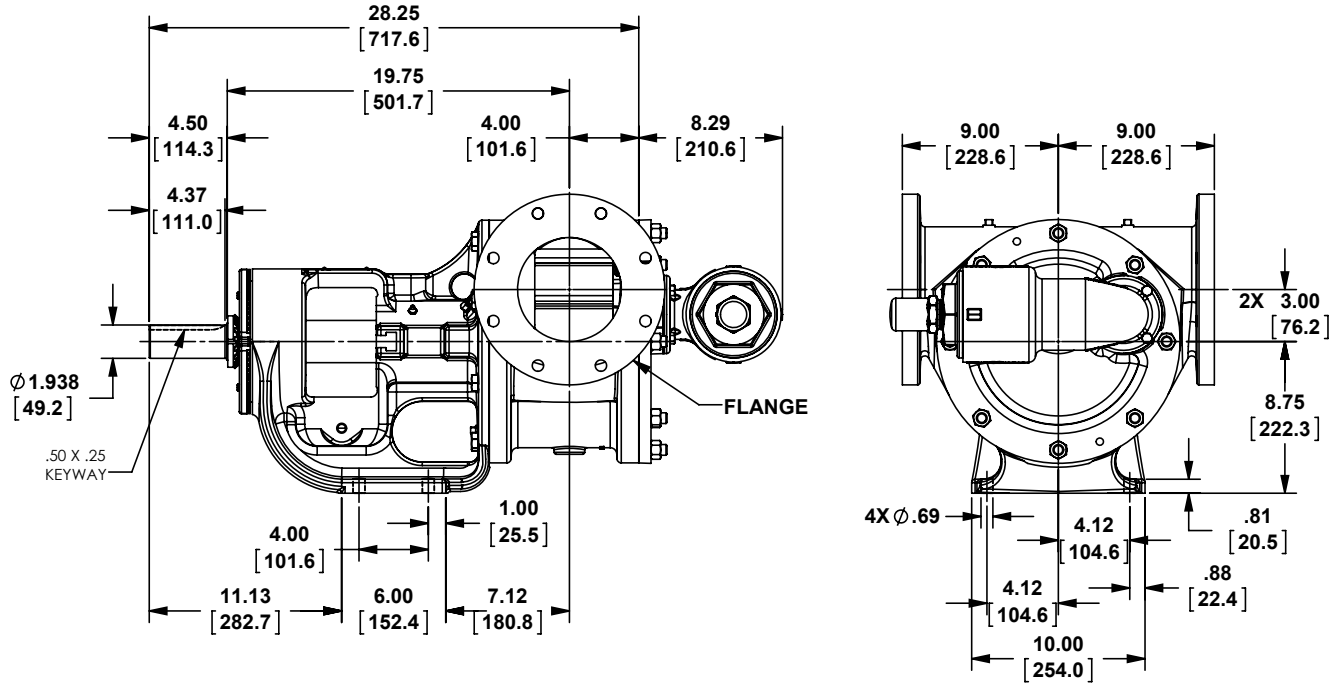
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VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

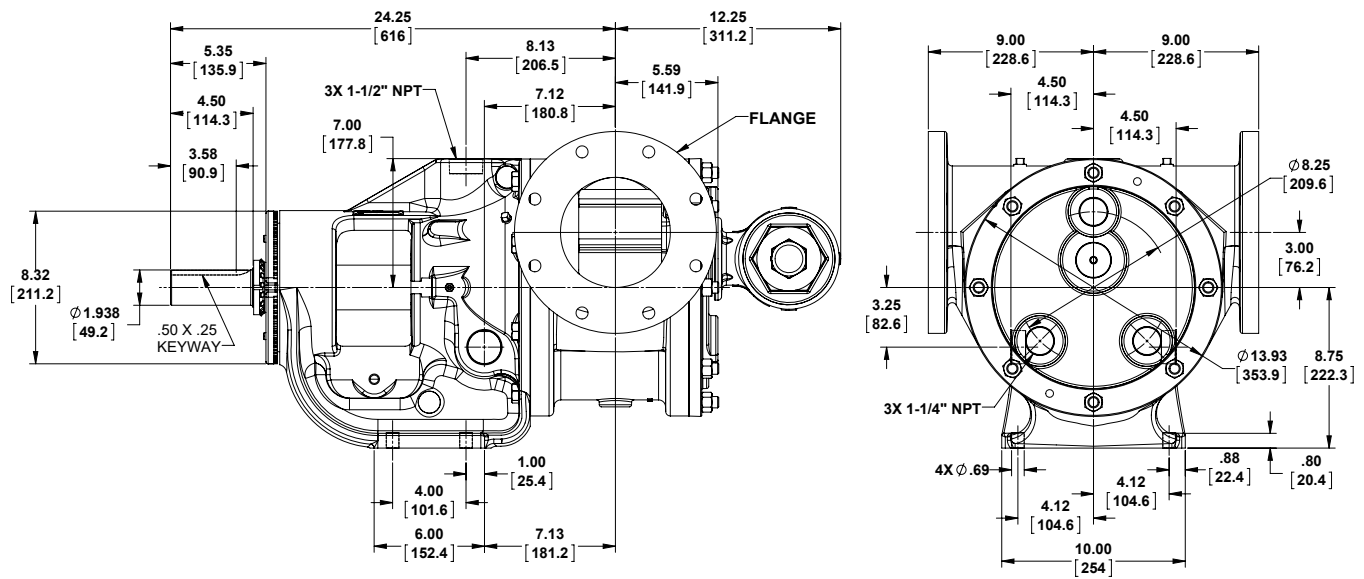
Dimensions QS 4124B (Non-Jacketed)

Dimensions shown in inches with millimeter equivalent shown in parentheses



Dimensions QS 4224B (Jacketed)

Dimensions shown in inches with millimeter equivalent shown in parentheses



NOTE: QS4124B / 4224B flanges are 6", suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings. They are studded, not through-bolt.

VIKING BEHIND THE ROTOR SEAL INTERNAL GEAR PUMPS

SERIES 4124B & 4224B (Cast Iron)

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.,” which is the standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See NPSH_R table below.

FOR VISCOSITIES GREATER THAN 750 SSU (NPSH_R data not available): The performance curves are based on 10 or 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. Refer to General Catalog, Engineering Section 510 for information on determining line size.

THIN LIQUIDS: pump capacity when handling 28 SSU liquids (solvents, etc.) is shown on the 38 SSU performance curve as a broken line. Pressure shown on broken line is maximum recommended for 28 SSU liquid. Horsepower for 28 SSU is same as 38 SSU at any given pressure. Carbon graphite idler bushings must be used handling 28 SSU liquids.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

NPSH_R – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU

Cast Iron Series 4124B and 4224B

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
G	-	-	-	-	-	-	-	1.8	2.0	2.2	2.6	3.1	3.9	5.6	7.6
H, HL	-	-	-	-	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
AK	-	-	1.6	1.7	1.8	2.0	2.3	2.7	3.2	3.9	5.5	7.7	11.2	17	-
K, KK	-	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1	-	-	-	-
L	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	-	-	-	-	-
LQ	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	-	-	-	-	-
LL	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	-	-	-	-	-	-
LS	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	-	-	-	-	-
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1	8.4	12.7	-	-	-	-	-	-

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE		CAPACITY	
In.-Hg (inches of mercury)	KPa* (Kilopascals)	PSI (lb./in ²)	kPa* (Kilopascals)	GPM (US gal/minute)	LPM (Liter/Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345		
15	51	100	690		
20	68	150	1034		
25	85	200	1379		
		250	1724		

* 100 kPa = 1 bar

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Section 630

Viking Universal Seal Pumps

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VIKING UNIVERSAL SEAL PUMPS

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
 126A, 4126A, 226A and 4226A (Ductile Iron)
 123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
 127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Heavy-Duty, Foot-Mounted Internal Gear Pumps With Multiple Seal Options



Standard Pump (shown: KK124A)



Jacketed Pump (shown: KK4224A)

Operating Range^①:

Cast Iron Series: 124A/AE, 4124A/AE, 324A, 4324A, 224A/AE, 4224A/AE		
Ductile Iron Series: 126A, 4126A, 226A & 4226A		
Nominal Flow	(GPM)	8 - 1600
	(m ³ /h)	1.8 - 364
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range	(°F)	-60°F to +650°F
	(°C)	-51°C to +343°C
Viscosity Range	(SSU)	28 SSU to 2,000,000 SSU
	(cSt)	0.1 cSt to 440,000 cSt

Steel Externals Series: 123A, 4123A, 323A, 4323A, 223A & 4223A		
Nominal Flow	(GPM)	15 - 1600
	(m ³ /h)	3.4 - 364
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range	(°F)	-20°F to +800°F
	(°C)	-29°C to +427°C
Viscosity Range	(SSU)	28 SSU to 2,000,000 SSU
	(cSt)	0.1 cSt to 440,000 cSt

Nominal Flow Rates:

Pump Size	Cast Iron, Ductile Iron*		Steel Externals		Stainless Steel	
	GPM	m ³ /h	GPM	m ³ /h	GPM	m ³ /h
G	8	1.8	—	—	—	—
H	15	3.4	15	3.4	10	2.3
HL	30	6.8	30	6.8	20	4.5
AK	67	15	—	—	—	—
AL	90	20	—	—	—	—
K	80	18	75	17.0	45	10
KK	100	23	100	23	65	15
L/LQ	135	31	135	31	90	20
LL	140	32	140	32	110	25
LS	200	45	200	45	160	36
Q	300	68	300	68	200	45
QS	500	114	500	114	320	73
M	420	95	—	—	—	—
N	600	136	600	136	600	136
R	1100	250	1100	250	1100	250
RS	1600	364	1600	364	1600	364

Stainless Steel Series: 127A, 4127A, 327A, 4327A, 227A & 4227A		
Nominal Flow	(GPM)	10-1600
	(m ³ /h)	2.3 - 364
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range	(°F)	-120°F to +500°F
	(°C)	-84°C to +260°C
Viscosity Range	(SSU)	28 SSU to 2,000,000 SSU
	(cSt)	0.1 cSt to 440,000 cSt

① Refer to Specification Tables 630.9 and 630.15 for individual model information. Special construction needed to achieve some operating limits.

* G, AK, AL, M, N, R & RS in cast iron only, not ductile iron.

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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
 126A, 4126A, 226A and 4226A (Ductile Iron)
 123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
 127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Series Description

The Universal Seal pumps are designed for a broad range of applications requiring continuous duty at pressures up to 200 psi. Even higher pressures are possible with high fluid viscosities at reduced operating speeds (consult factory).

This Series features 16 different sizes with flows to 1,600 GPM (364 m³/h), with four materials of construction options. They are applied to both thin and thick liquids, and operate equally well in either direction. They are also capable of operating under suction lift conditions.

This series has the broadest range of sealing options of all pumps built by Viking. The stuffing box on all sizes accepts packing, numerous component single mechanical seals, or a wide variety of cartridge seals.

The Universal Seal series is Viking Pump's most versatile series of internal gear pumps due to the availability of many design and material options. A summary of the major design features and available options appears to the right.



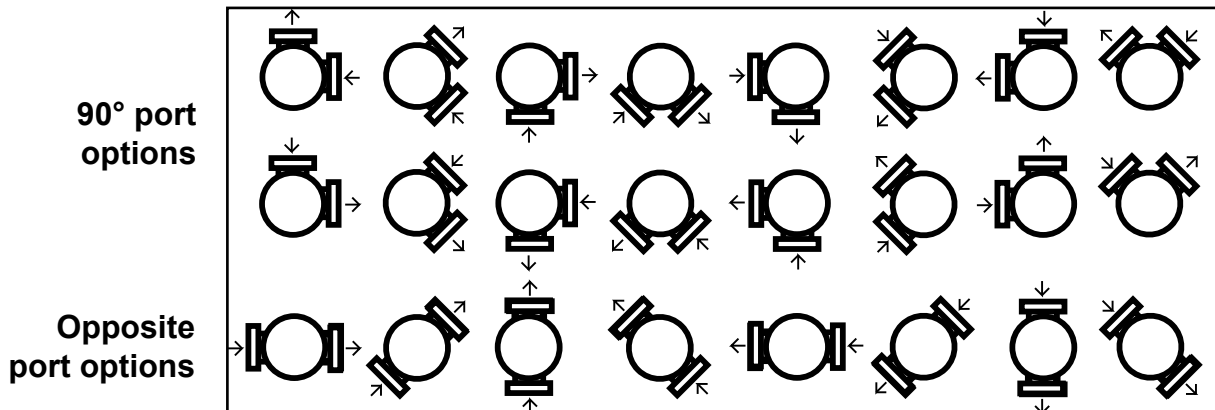
Viking Universal Seal series pumps carry a three year limited warranty. See catalog section 000 for details.

Major Design Features & Options

- Positive Displacement, Internal Gear pumping principle.
- Axial rotor thrust is controlled by double row ball or tapered roller bearings. Radial shaft loads are controlled using bushings.
- Rotatable bearing housing provides easy rotor end clearance adjustment to compensate for viscosity or wear.
- Series designed with an enlarged bearing housing. Used in conjunction with a spacer coupling permits easy cartridge seal installation and removal in place without removing the head and rotor/shaft.
- Seal options include packing, single component seals, cartridge lip seals and cartridge single and double mechanical seals. Various seal flush plans are available.
- Comes in four materials of construction: Cast Iron, Ductile Iron, Steel Externals and Stainless Steel.
- Numerous material options are available for bushings, idler pins, shafts, rotors, idlers and elastomers.
- Series can be direct driven, gear reducer driven or V-belt driven.
- The series is available in a jacketed version. Pumps come with an internal relief valve on standard design, jacketed head or jacket plate is provided on jacketed models.
- Gear and pump geometry has been optimized based on more than 100 years of experience.

Revolvable Pump Casings Standard on G through M Sizes

All Universal Seal pumps are equipped with pump casings that can be positioned to meet common piping configurations. G through M sizes have standard 90° ports and QS has standard opposite ports, all of which can be turned to any of eight positions (LQ, LL, and LS sizes will not allow a port at the 6 o'clock position). N, R and RS sizes have non-rotatable opposite ports as standard. Direction of flow is reversible so any given port can be used as suction or discharge. The relief valve must "point" to the suction port in all cases. Typical port configurations are shown below. See Optional Casings tables for available port options.

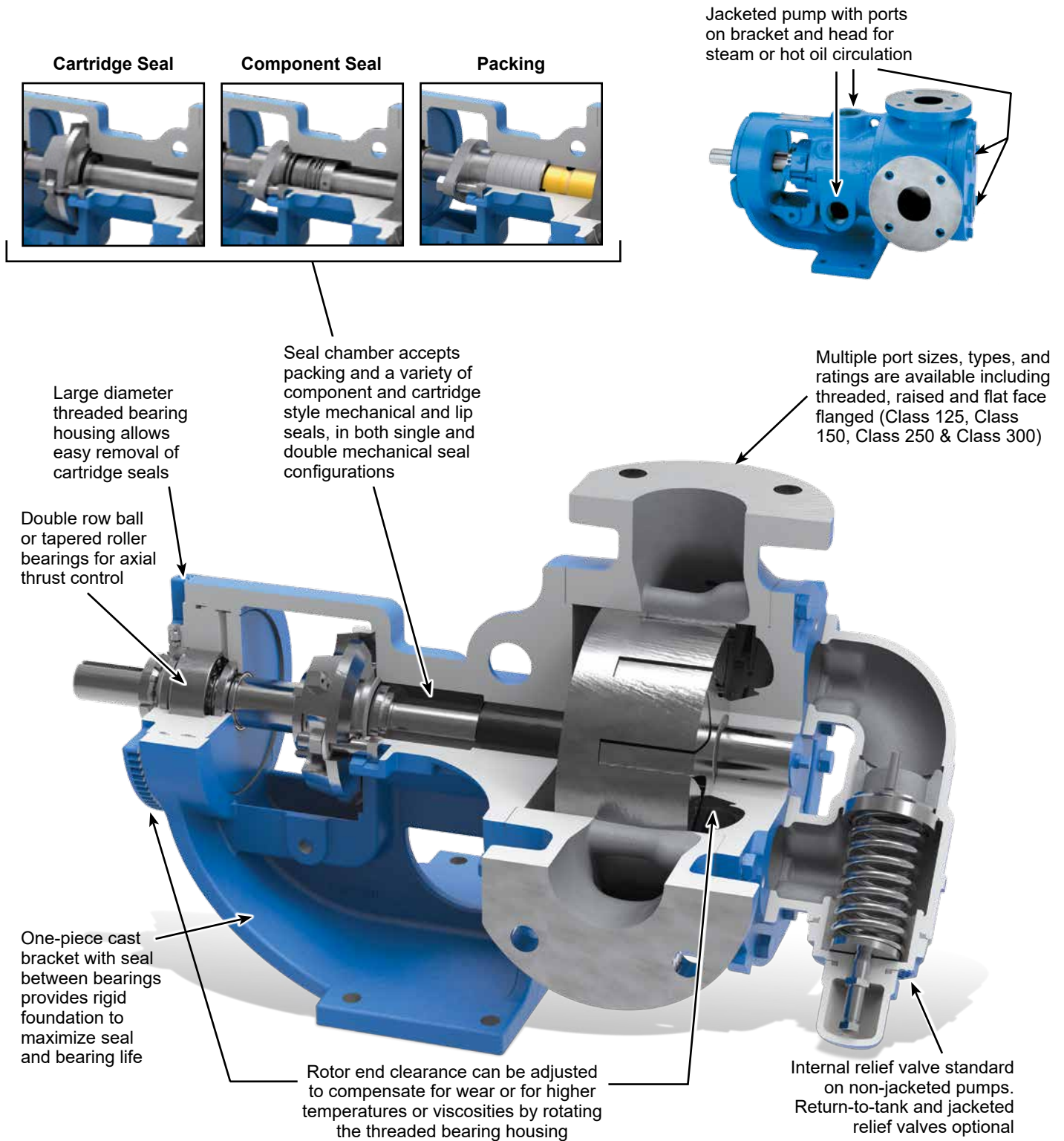


VIKING UNIVERSAL SEAL PUMPS

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
 126A, 4126A, 226A and 4226A (Ductile Iron)
 123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
 127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Pump Construction and Features



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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Model Number Key

Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8
L	Q	4	1	2	4	A	E
Size:		Shaft Seal:		Basic Series Configuration	Material of Construction:		Primary Shaft Diameter
G	LL	4 = Mechanical Seal			3 = Steel Externals		(L, LQ and LL Sizes in Cast Iron Only):
H	LS	Blank = Packing			4 = Cast Iron		Blank = 1-7/16"
HL	Q				6 = Ductile Iron		E = 1-5/8"
AK	QS				7 = Stainless Steel		(See dimension drawings for shaft diameter at coupling)
AL	M		Jacketing:			Seal Location:	
K	N		1 = No Jacketing			A = Stuffing Box Seal with Universal Seal Design	
KK	R		2 = Jacketed				
L	RS		3* = Foot Mount Casing w/ Jacketed Bracket				
LQ							

* Note on Field 4 that only the N through RS sizes are foot mount with jacketed bracket (3).

The N size is standard with a jacketed bracket, non-jacketed head and non-jacketed relief valve. A jacketed head (without relief valve) or jacketed relief valve option (with non-jacketed head) is available. The R size is standard with a jacketed bracket, jacketed head and non-jacketed relief valve. The RS size is standard with a jacketed bracket and jacketed head, but is provided less valve as standard because a full bypass relief valve for the RS is not available. An R size relief valve is available as an option for the RS pump, providing pressure relief to 1,100 GPM, but this does not provide full bypass protection. Contact factory for details.

The model numbering scheme is illustrated in the table below, with the cast iron, non-jacketed series pumps.

Model Number Scheme, Cast Iron Pumps	
Packed	Stuffing Box Seal
G124A	G4124A
H124A	H4124A
HL124A	HL4124A
AK124A	AK4124A
AL124A	AL4124A
K124A	K4124A
KK124A	KK4124A
L124A, L124AE	L4124 A, L4124AE
LQ124A, LQ124AE	LQ4124A, LQ4124AE
LL124A, LL124AE	LL4124A, LL4124AE
LS124A	LS4124A
Q124A	Q4124A
QS124A	QS4124A
M124A	M4124A
N324A	N4324A
R324A	R4324A
RS324A	RS4324A

Note that on L, LQ and LL pumps with the "AE" designation at the end of the model number will have 1-5/8" shaft as standard, the L, LQ and LL pumps ending in "A" will have a 1-7/16" shaft standard as illustrated in the chart below. The "AE" designation, i.e., LQ124AE is dimensionally interchangeable with a LQ124A or LQ125 (obsolete) except that the "AE" model has a 1-5/8" shaft at the drive end versus 1-7/16" for the other models. The "AE" version is recommended in severe-duty applications or those where stress corrosion may be encountered. (Dimensional drawings are located on pages 12,13 and 18,19).

Model Sizes L, LQ, LL	Shaft Seal Dimension	"U" Coupling Dimension
124A, 4124A 224A, 4224A	1-7/16"	1-1/8"
124AE, 4124AE 224AE, 4224AE	1-5/8"	1-7/16"

VIKING UNIVERSAL SEAL PUMPS

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

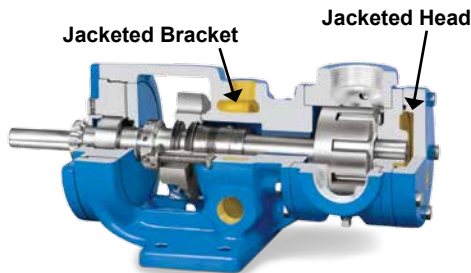
Standard-Jacketed and Fully-Jacketed Pumps

Jacketing

Jacketed pumps provide a cavity, or jacket, on the external wall of the pump through which steam or heat transfer liquid can be passed to control the temperature of the fluid in the pump. The heat transfer medium flows in a closed loop back to the boiler or heater. Applications include “melting” ambient temperature solids like asphalt which solidify in the pump when it cools, and maintaining precise temperature control in processes like manufacturing polymers and epoxy resins.

Standard-Jacketed Pumps

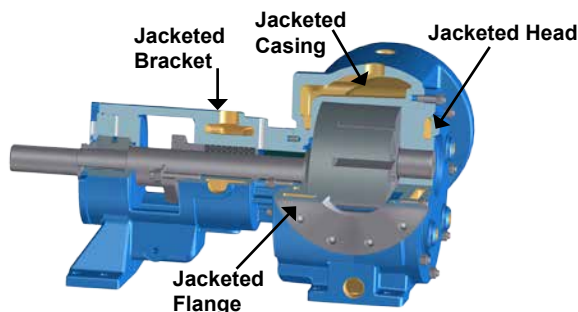
Standard-Jacketed pumps include series 224A, 4224A, 224AE, 4224AE; 226A and 4226A; 223A and 4223A; and 227A and 4227A. They feature jacketing on the head and bracket only, and are typically used for melting ambient temperature solids.



Standard-Jacketed Pump Cutaway – H4224A

Fully-Jacketed Pumps

Pumps with a Fully-Jacketed Option use the Standard-Jacketed pumps' series designation, but replace the standard casing with a jacketed casing, in addition to the jacketed head and bracket. Available for steel and stainless steel models, the jacketed casing provides heat transfer surface area around the perimeter of the rotor, in the inlet and discharge throat areas, and in many sizes into the flanges. Fully jacketed pumps are typically used in applications where precisely maintaining a uniform, predetermined temperature is critical, in extreme environments, and to provide faster startup of cold processes to improve production efficiency.



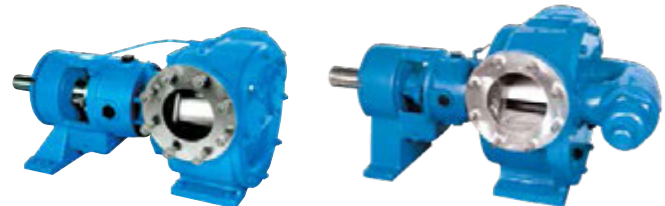
Fully-Jacketed Pump Cutaway – N323A

Relief Valve Configurations

Jacketed pumps are provided with a jacketed head with no relief valve as standard. Integral pressure relief valves in jacketed and non-jacketed configurations are available on “L” through “N” sizes, but require a non-jacketed valve-type head.

The “N” 324A, 4324A, 323A, 4323A, 327A and 4327A pumps are standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve. A jacketed head, or a jacketed relief valve with non-jacketed valve-type head, is available as an option.

The “R” 324A, 4324A, 323A, 4323A, 327A and 4327A pumps are standard with a jacketed bracket, a jacketed head and a non-jacketed relief valve. For “RS” models contact the factory for assistance with jacketing options.



N4324A
Non-Jacketed Head with
Coverplates Shown

R4323A
Jacketed Head with
Non-Jacketed Relief
Valve Shown

Porting and Sealing

A variety of opposite and 90° port configurations are available, including top suction with bottom or side discharge designs typically mounted at the bottom of a tank or reactor.

Jacketed port options for steam or heat transfer liquid include threaded, flanged and weld neck configurations. Viking will provide custom welded steam or hot oil flange connections upon request.

The Universal Seal design allows the use of packing, component seals or cartridge seals. Seal Plans, including API plan 53 and 54, are available.

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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Standard Materials of Construction - All Series

Component		Cast Iron Non-Jacketed Series 124A/AE, 4124A/AE, Jacketed Series 224A, 4224A, 224AE, 4224AE, 324A, 4324A	Ductile Iron Non-Jacketed Series 126A, 4126A Jacketed Series 226A & 4226A	Steel Externals Non-Jacketed Series 123A, 4123A, 323A, 4323A Jacketed Series 223A, 4223A	Stainless Steel & Other Alloys Non-Jacketed Series 127A, 4127A, 327A, 4327A Jacketed Series 227A, 4227A
Casing		Cast Iron ASTM A48, Class 35B	Ductile Iron ASTM A536 Grade 60-40-18	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M
Head		Cast Iron ASTM A48, Class 35B	Ductile Iron ASTM A536 Grade 60-40-18	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
Head Plate for Jacketed Models		Cast Iron ASTM A48, Class 35B	Steel ASTM A216, Grade WCB	Steel ASTM A216, Grade WCB	Cast Iron ASTM A48, Class 35B
Bracket		Cast Iron ASTM A48, Class 35B	Ductile Iron ASTM A536 Grade 60-40-18	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M
Idler		②③ Cast Iron ASTM A48 Class 35B	②③ Cast Iron ASTM A48 Class 35B	②③ Cast Iron ASTM A48 Class 35B	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
Rotor	Standard	① Cast Iron ASTM A48, Class 35B	① Cast Iron ASTM A48, Class 35B	① Cast Iron ASTM A48, Class 35B	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
	Steel Fitted	④ Steel ASTM A148, Grade 80-40	④ Steel ASTM A148, Grade 80-40	④ Steel ASTM A148, Grade 80-40	
Rotor Shaft		⑤ Steel ASTM A108, Grade 1045	⑤ Steel ASTM A108, Grade 1045	⑤ Steel ASTM A108, Grade 1045	Stainless Steel ASTM A276 Type XM-19 or 316 condition B ⑥
Idler Pin		Hardened Steel ASTM A108, Grade 1045	Hardened Steel ASTM A108, Grade 1045	Hardened Steel ASTM A108, Grade 1045	Hard Coated Stainless Steel ASTM A276 Type 316 Colmony # 6 Coated
Idler Bushing	Packed	Bronze ASTM B584 (B505), Alloy C93700	Bronze ASTM B584 (B505), Alloy C93700	Bronze ASTM B584 (B505), Alloy C93700	Carbon Graphite
	Mech. Seal	Carbon Graphite	Carbon Graphite	Carbon Graphite	
Bracket Bushing	Packed	Bronze ASTM B584 (B505), Alloy C93700	Bronze ASTM B584 (B505), Alloy C93700	Bronze ASTM B584 (B505), Alloy C93700	Carbon Graphite
	Mech. Seal	Carbon Graphite	Carbon Graphite	Carbon Graphite	
Internal Pressure Relief Valve ⑦		Cast Iron ASTM A48, Class 35B	⑤ Ductile Iron ASTM A536 Grade 60-40-18	⑦ Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M

① AK, AL, KK, LS, QS, N and RS sizes have ductile iron rotor, ASTM A536 Grade 60-40-18.

② Steel fitted Q and QS sizes have steel idler.

③ G, H and HL sizes have powdered metal idler -
G: MPIF 35, FC-0208-50, H and HL: MPIF 35 FC-0208-45

④ Material specification for HL steel rotor is AISI 8620,
LS steel rotor is ASTM A148 80-50.

⑤ RS relief valve not available. Contact factory for options.

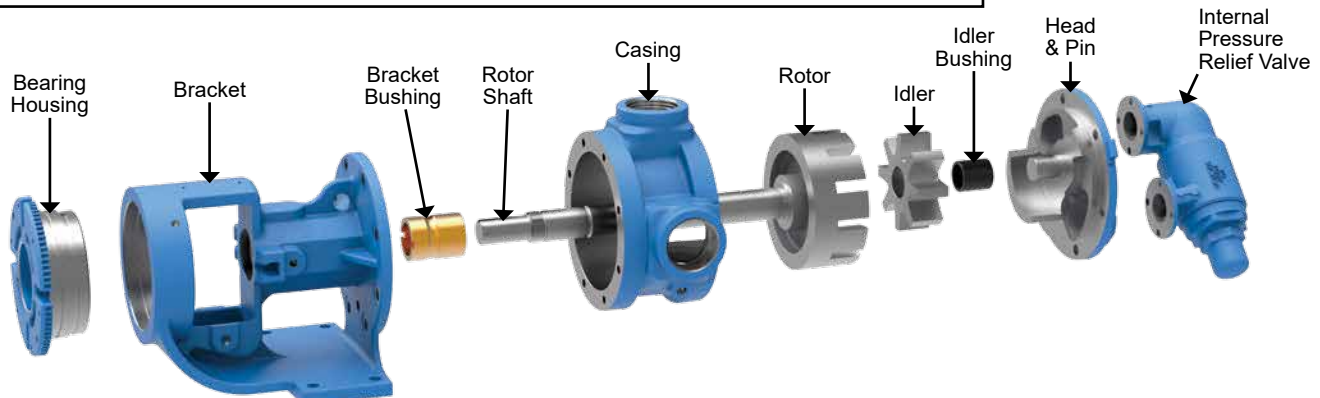
⑥ N, R, RS shafts are Colmony #6 coated.

⑦ LQ-LS relief valve bodies are stainless steel.

⑧ H and HL size relief valves are steel.

⑨ L, LQ, LL and LS sizes, including "A", "AE", "E" and "B" models, are high strength steel ASTM A434 Type 4140 Grade BC or equivalent.

Numerous material options, coatings and treatments available to satisfy specific application needs.



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**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Special Materials and Options Selection Guidelines

For High Viscosities - Above 2,500 SSU (550 cSt)

- Steel fitted construction recommended on Cast Iron, Ductile Iron and Steel Externals pumps above the following viscosities, according to pump size:

Viscosity	Pump Size																
	G	H	HL	AK	AL	K	KK	L	LQ	LL	LS	Q	QS	M	N	R	RS
SSU	7,500	25,000	7,500	25,000	25,000	25,000	75,000	25,000	25,000	2,500	75,000	7,500	75,000	25,000	75,000	25,000	75,000
cSt	1,650	5,500	1,650	5,500	5,500	5,500	16,500	5,500	5,500	550	16,500	1,650	16,500	5,500	16,500	5,500	16,500

- Extra clearances, depending on viscosity. Contact factory for clearance specifications.
- Special Sealing – Buna N or Viton® Type 1 component seals good up to 15,000 SSU (3,300 cSt).
PTFE Type 9 seals good up to 25,000 SSU (5,500 cSt).
Packed gland good up to 2,000,000 SSU (440,000 cSt).
Cartridge triple lip seals available to 2,000,000 SSU (440,000 cSt).
- Larger ports may be required depending on suction conditions.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- For viscosities over 250,000 SSU (55,000 cSt), contact factory for additional pump construction and operation recommendations.

For low viscosities or non-lubricating liquids – Below 100 SSU (20 cSt)

- Carbon graphite bushings.
- Cast iron idler for iron or steel pumps, or 770 non-galling stainless alloy idler for stainless steel pumps.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For high temperatures – Above 225°F (107°C)

- High temperature elastomers – Buna up to 225°F (107°C); Viton® up to 350°F (177°C); PTFE up to 450°F (232°C); Kalrez® up to 550°F (288°C); Grafoil up to 700°F (371°C). High temp packing in excess of 500°F (260°C).
- High temperature relief valve above 350°F (177°C).
- High temperature bushings recommended depending on temperature, size and specific material. See ESB-3 for recommendations.
- Additional operating clearances may be required depending on temperature, size and specific material. See ES-2 for recommendations.
- For temperatures above 450°F (232°C), special materials and sealing requirements may be needed. Contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For abrasive or dirty liquids

- If possible, filter or strain out the abrasives present.
- Wear resistant bushings - hardened cast iron, tungsten carbide or Colmonoy coated.
- Abrasive-resistant idler pin - tungsten carbide or Colmonoy plus TC filler coated pins.
- Hardened or hard-coated shafting.
- Abrasive-resistant seals.
- For high concentrations of abrasives or particle sizes greater than 250 microns (0.010 in), contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- Consult factory for specific recommendations.

Viton® and Kalrez® are registered trademarks of E.I. du Pont de Nemours and Company.

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
 126A, 4126A, 226A and 4226A (Ductile Iron)
 123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
 127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Typical Product Configuration By Size



G (G4124A shown)



H & HL (H4124A shown)



AK & AL (AK4124A shown)



K & KK (K123 shown)



L (L124A shown)



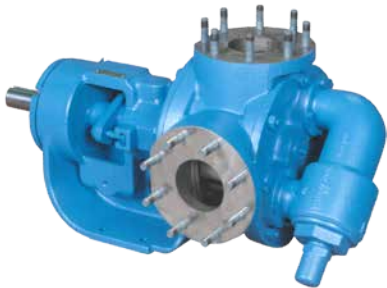
LQ (LQ4124A shown)



LL (LL4126A shown)



LS (LS124A shown)



Q (Q124A shown)



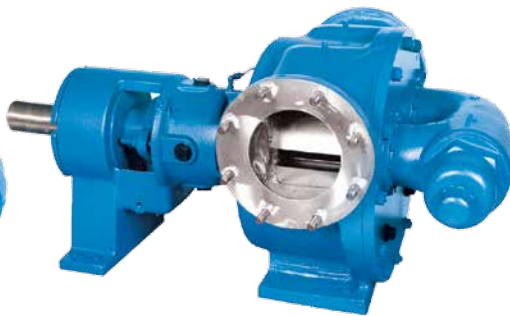
QS (QS4124A shown)



M (M4124A shown)



N (N4324A shown)



R (R324A shown)



RS (RS4327A shown)

Note: Ports shown are not necessarily the standard configuration.

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**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Specifications (U.S. Units) – Non-Jacketed Pumps

Model Number		Standard Port Size	Nominal Pump Rating (100 SSU and below)		Maximum Hydrostatic Pressure	① Maximum Discharge Pressure for 100 SSU liquid at rated speed	② Maximum Recommended Temperature for Standard Pump (°F)		Steel Fitted Recommended Above	Approximate Shipping Weight with Valve					
Packed	Stuffing Box Seal	Inches	GPM	RPM	PSIG	PSIG	Packed	Mech Seal	SSU	Pounds					
G124A	G4124A	①	8	1750	400	200	450	225	7,500	25					
H124A	H4124A	① ½	15	1750	400	200	450	225	25,000	38					
H126A	H4126A	① ½	15	1750						38					
H123A	H4123A	① ½	15	1750						43					
H127A	H4127A	① ½	10	1150						48					
HL124A	HL4124A	① ½	30	1750						400	200	450	225	7,500	40
HL126A	HL4126A	① ½	30	1750	40										
HL123A	HL4123A	① ½	30	1750	45										
HL127A	HL4127A	① ½	20	1150	50										
AK124A	AK4124A	②	67	1450	400	200	450	225	25,000						82
AL124A	AL4124A	②	90	1450	400	200	450	225	25,000	85					
K124A	K4124A	②	80	780	400	200	450	225	25,000	105					
K126A	K4126A	②	80	780						105					
K123A	K4123A	②	80	780						120					
K127A	K4127A	②	50	520						125					
KK124A	KK4124A	②	100	780						400	200	450	225	75,000	110
KK126A	KK4126A	②	100	780	110										
KK123A	KK4123A	②	100	780	125										
KK127A	KK4127A	②	65	520	130										
L124A/AE	L4124A/AE	②	135	640	400	200	450	225	25,000						155
L126A	L4126A	②	135	640						155					
LQ124A/AE	LQ4124A/AE	② ½	135	640						400	200	450	225	25,000	175
LQ126A	LQ4126A	② ½	135	640											175
LQ123A	LQ4123A	② ½	135	640											185
LQ127A	LQ4127A	② ½	90	420	205										
LL124A/AE	LL4124A/AE	③	140	520	400	200	450	225	2,500						185
LL126A	LL4126A	③	140	520						185					
LL123A	LL4123A	③	140	520						195					
LL127A	LL4127A	③	110	420						240					
LS124A	LS4124A	③	200	640						400	200	450	225	75,000	190
LS126A	LS4126A	③	200	640	190										
LS123A	LS4123A	③	200	640	200										
LS127A	LS4127A	③	160	520	220										
Q124A	Q4124A	④	300	520	400	200	450	225	7,500						440
Q126A	Q4126A	④	300	520						440					
Q123A	Q4123A	④	300	520						450					
Q127A	Q4127A	④	200	350						460					
QS124A	QS4124A	⑥	500	520						400	200	450	225	75,000	540
QS126A	QS4126A	⑥	500	520	540										
QS123A	QS4123A	⑥	500	520	550										
QS127A	QS4127A	⑥	320	350	560										
M124A	M4124A	④	420	420	400	200	450	225	25,000						600
N324A	N4324A	⑥	600	350	400	200	450	225	75,000	810					
N323A	N4323A	⑥	600	350						810					
N327A	N4327A	⑥	600	350						810					
R324A	R4324A	⑧	1100	280						400	200	450	225	25,500	1435
R323A	R4323A	⑧	1100	280											1435
R327A	R4327A	⑧	1100	280	1435										
RS324A	RS4324A	⑩	1600	280	400	125	450	225	75,000						2000
RS323A	RS4323A	⑩	1600	280											2500
RS327A	RS4327A	⑩	1600	280						2500					

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
② Extra clearances are required above 225°F. Higher temperatures can be handled with special construction, consult factory.

③ Ports are tapped for standard (NPT) pipe. Other thread standards available.
④ Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.
⑤ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Specifications (Metric Units) – Non-Jacketed Pumps

Model Number		Standard Port Size	Nominal Pump Rating (100 SSU and below)		Maximum Hydrostatic Pressure	① Maximum Discharge Pressure for 20 cSt liquid at rated speed	② Maximum Recommended Temperature for Standard Pump (°C)		Steel Fitted Recommended Above	Approximate Shipping Weight with Valve					
Packed	Stuffing Box Seal	Inches Ⓞ	m³/h	RPM	BAR	BAR	Packed	Mech Seal	cSt	KG					
G124A	G4124A	Ⓞ1	1.8	1750	28	14	232	107	1,650	11					
H124A	H4124A	Ⓞ1 ½	2.8	1450	28	14	232	107	5,500	17					
H126A	H4126A	Ⓞ1 ½	2.8	1450						17					
H123A	H4123A	Ⓞ1 ½	2.8	1450						20					
H127A	H4127A	Ⓞ1 ½	1.9	950						22					
HL124A	HL4124A	Ⓞ1 ½	5.6	1450	28	14	232	107	1,650	18					
HL126A	HL4126A	Ⓞ1 ½	5.6	1450						18					
HL123A	HL4123A	Ⓞ1 ½	5.6	1450						20					
HL127A	HL4127A	Ⓞ1 ½	3.7	950						23					
AK124A	AK4124A	Ⓞ2	15	1450	28	14	232	107	5,500	37					
AL124A	AL4124A	Ⓞ2	20	1450	28	14	232	107	5,500	39					
K124A	K4124A	Ⓞ2	18	780	28	14	232	107	5,500	48					
K126A	K4126A	Ⓞ2	18	780						48					
K123A	K4123A	Ⓞ2	18	780						54					
K127A	K4127A	Ⓞ2	11	520						57					
KK124A	KK4124A	Ⓞ2	23	780	28	14	232	107	16,500	50					
KK126A	KK4126A	Ⓞ2	23	780						50					
KK123A	KK4123A	Ⓞ2	23	780						57					
KK127A	KK4127A	Ⓞ2	15	520						59					
L124A/AE	L4124A/AE	Ⓞ2	31	640	28	14	232	107	5,500	70					
L126A	L4126A	Ⓞ2	31	640						70					
LQ124A/AE	LQ4124A/AE	Ⓞ2 ½	31	640						28	14	232	107	5,500	80
LQ126A	LQ4126A	Ⓞ2 ½	31	640											80
LQ123A	LQ4123A	Ⓞ2 ½	31	640	84										
LQ127A	LQ4127A	Ⓞ2 ½	20	420	93										
LL124A/AE	LL4124A/AE	Ⓞ3	32	520	28	14	232	107	550	84					
LL126A	LL4126A	Ⓞ3	32	520						84					
LL123A	LL4123A	Ⓞ3	32	520						89					
LL127A	LL4127A	Ⓞ3	25	420						109					
LS124A	LS4124A	Ⓞ3	45	640	28	14	232	107	16,500	86					
LS126A	LS4126A	Ⓞ3	45	640						86					
LS123A	LS4123A	Ⓞ3	45	640						91					
LS127A	LS4127A	Ⓞ3	36	520						100					
Q124A	Q4124A	Ⓞ4	68	520	28	14	232	107	1,650	200					
Q126A	Q4126A	Ⓞ4	68	520						200					
Q123A	Q4123A	Ⓞ4	68	520						204					
Q127A	Q4127A	Ⓞ4	45	350						209					
QS124A	QS4124A	Ⓞ6	114	520	28	14	232	107	16,500	245					
QS126A	QS4126A	Ⓞ6	114	520						245					
QS123A	QS4123A	Ⓞ6	114	520						250					
QS127A	QS4127A	Ⓞ6	73	350						254					
M124A	M4124A	Ⓞ4	95	420	28	14	232	107	5,500	600					
N324A	N4324A	Ⓞ6	136	350	28	14	232	107	16,500	367					
N323A	N4323A	Ⓞ6	136	350						367					
N327A	N4327A	Ⓞ6	136	350						367					
R324A	R4324A	Ⓞ8	250	280	28	14	232	107	5,500	651					
R323A	R4323A	Ⓞ8	250	280						651					
R327A	R4327A	Ⓞ8	250	280						651					
RS324A	RS4324A	Ⓞ10	364	280	28	9	232	107	16,500	907					
RS323A	RS4323A	Ⓞ10	364	280						1140					
RS327A	RS4327A	Ⓞ10	364	280						1140					

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 3.5 BAR, consult factory. Higher pressures possible with factory approval based on application details.

② Extra clearances are required for temperatures above 107°C. Higher temperatures can be handled with special construction. Consult factory.

③ Ports are tapped for standard (NPT) pipe.

④ Ports are suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

⑤ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

⑥ Port sizes are inch standard, not metric design or size.

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**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Optional Casings for Different Port Configurations – Non Jacketed Pumps

Model Number		Standard Ports †	Optional Casings							
Packed	Stuffing Box Seal									
H124A	H4124A	1.5"①	1.5"②Ⓡ	1.5"③Ⓡ	2"②Ⓡ					
H126A	H4126A	1.5"①	1.5"⑤Ⓡ	2"⑤Ⓡ						
H123A	H4123A	1.5"④	1.5"⑥Ⓡ	2"④Ⓡ	2"⑤Ⓡ					
H127A	H4127A	1.5"④	1.5"⑥Ⓡ	2"④Ⓡ	2"⑤Ⓡ					
HL124A	HL4124A	1.5"①	1.5"②Ⓡ	1.5"③Ⓡ	2"②Ⓡ					
HL126A	HL4126A	1.5"①	1.5"⑤Ⓡ	2"⑤Ⓡ						
HL123A	HL4123A	1.5"④	1.5"⑥Ⓡ	2"④Ⓡ	2"⑤Ⓡ					
HL127A	HL4127A	1.5"④	1.5"⑥Ⓡ	2"④Ⓡ	2"⑤Ⓡ					
K124A	K4124A	2"①	2"②Ⓡ	2"③Ⓡ	2.5"①Ⓞ	2.5"②Ⓡ	3"②Ⓡ	4"②Ⓡ		
K126A	K4126A	2"①	2"⑥Ⓡ	3"⑥Ⓡ	4"⑥Ⓡ					
K123A	K4123A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑤Ⓡ	3"④Ⓡ	3"⑤Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
K127A	K4127A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑤Ⓡ	3"④Ⓡ	3"⑤Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
KK124A	KK4124A	2"①	2"②Ⓡ	2"③Ⓡ	2.5"①Ⓞ	2.5"②Ⓡ	3"②Ⓡ	4"②Ⓡ		
KK126A	KK4126A	2"①	2"⑥Ⓡ	3"⑥Ⓡ	4"⑥Ⓡ					
KK123A	KK4123A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑤Ⓡ	3"④Ⓡ	3"⑤Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
KK127A	KK4127A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑤Ⓡ	3"④Ⓡ	3"⑤Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
L124A/AE	L4124A/AE	2"①	2"Ⓡ							
L126A	L4126A	2"①								
LQ124A/AE	LQ4124A/AE	2.5"②	2.5"③Ⓡ	3"②Ⓡ	4"②Ⓡ	6"②Ⓡ*	Side 5"②Ⓡ, Top 6"②			
LQ126A	LQ4126A	2.5"④	3"⑥Ⓡ	4"⑥Ⓡ						
LQ123A	LQ4123A	2.5"④	2.5"⑥Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ	6"④Ⓡ			
LQ127A	LQ4127A	2.5"④	2.5"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LL124A/AE	LL4124A/AE	3"②	3"③Ⓡ	4"②Ⓡ	5"②Ⓡ*					
LL126A	LL4126A	3"④								
LL123A	LL4123A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LL127A	LL4127A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LS124A	LS4124A	3"②	3"③Ⓡ	4"②Ⓡ*						
LS126A	LS4126A	3"④								
LS123A	LS4123A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LS127A	LS4127A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ	4"⑥Ⓞ	6"④Ⓡ			
Q124A	Q4124A	4"②	4"③Ⓡ	3"②Ⓡ	5"②Ⓡ	6"②Ⓞ	Side 4"②Ⓡ, Top 8"②		Side 4"②ⓇL, Top 8"②	Side 6"②Ⓡ, Top 8"②
Q126A	Q4126A	4"④								
Q123A	Q4123A	4"④	4"⑥Ⓡ	5"④Ⓡ	5"⑥Ⓡ	6"④Ⓡ*	6"⑥Ⓡ*	6"④Ⓞ	6"⑥Ⓞ	
Q127A	Q4127A	4"④		3"④Ⓡ	4"⑥Ⓡ	5"④Ⓡ	6"④Ⓡ*	6"④Ⓞ	6"④Ⓞ	6"⑥Ⓞ
QS124A	QS4124A	6"②Ⓞ								
QS126A	QS4126A	6"④Ⓞ								
QS123A	QS4123A	6"④Ⓞ	6"④Ⓡ	6"⑥Ⓞ						
QS127A	QS4127A	6"④Ⓞ	6"④Ⓡ	6"⑥Ⓞ						
M124A	M4124A	4"②	6"②Ⓡ	6"②Ⓞ						
N324A	N4324A	6"②Ⓞ	5"②ⓇN							
N323A	N4323A	6"④Ⓞ								
N327A	N4327A	6"④Ⓞ								
R324A	R4324A	8"②Ⓞ	6"②ⓇN							
R323A	R4323A	8"④Ⓞ								
R327A	R4327A	8"④Ⓞ								
RS324A	RS4324A	10"④Ⓞ								
RS3233A	RS4323A	10"④Ⓞ								
RS327	RS4327A	10"④Ⓞ								

† Standard port configuration is 90° which may be rotated (H-Q) or opposite (QS-R) with right hand inlet viewed from the shaft end. 90° ports may be rotated.

① Port(s) tapped for standard (NPT) pipe.

② Port(s) suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

③ Port(s) suitable for use with Class 250 ANSI cast iron companion flanges or flanged fittings.

④ Port(s) suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

⑤ Port(s) suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

Ⓡ 90° port arranged for Right Hand inlet (viewed from shaft end)

Ⓢ 90° port arranged for Left Hand inlet (viewed from shaft end)

Ⓡ Non-Rotatable Ports at 90 degree angle, contact factory for available orientation (right hand or left hand)

Ⓞ Opposite Ports

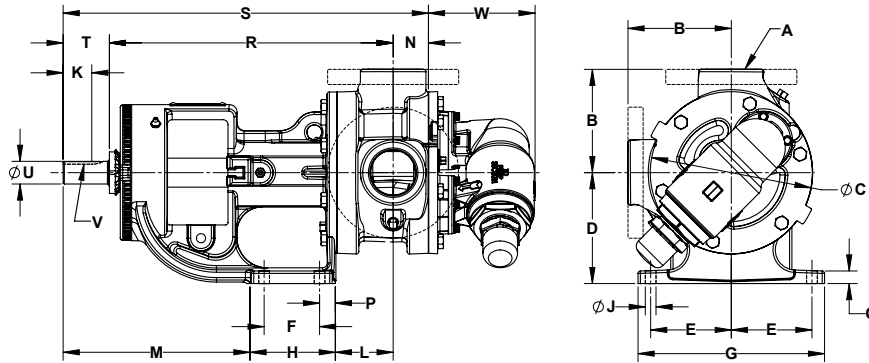
* Core smaller than port size

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VIKING UNIVERSAL SEAL PUMPS

**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Dimensions - G through Q & M Sizes – All Materials of Construction – Non Jacketed



NOTE: Dimensions "N" through "W" on next page

Model Number		A (in)		B	C	D	E	F	G	H	J	K	L	M
Packed	Stuffing Box Seal													
G124A	G4124A	① 1	in	2.50	5.28	2.75	1.62	1.31	4.00	2.38	0.34	0.57	1.21	4.87
			mm	64	134.1	70	41	33	102	60.4	9	14.5	30.73	123.7
H124A HL124A	H4124A HL4124A	① 1.5	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19
			mm	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8
H123A HL123A	H4123A HL4123A	③ 1.5	in	4.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19
			mm	101.6	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8
H127A HL127A	H4127A HL4127A	③ 1.5	in	4.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19
			mm	101.6	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8
AK124A AL124A	AK4124A AL4124A	① 2	in	4.50	6.75	5.25	2.88	2.00	6.75	4.03	0.41	1.67	2.82	8.84
			mm	114	171.4	133	73	51	171	102	10	42.4	71.6	224.5
K124A KK124A	K4124A KK4124A	① 2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
			mm	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3
K126A KK126A	K4126A KK4126A	① 2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
			mm	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3
K123A KK123A	K4123A KK4123A	③ 2	in	5.25	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
			mm	133.3	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3
K127A KK127A	K4127A KK4127A	③ 2	in	5.25	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
			mm	133.3	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	238.3
L124A/AE L126A	L4124A/AE L4126A	① 2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 ④	3.38	9.12
			mm	165.1	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1 ④	85.9	231.6
LQ124A/AE LQ126A	LQ4124A/AE LQ4126A	② 2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 ④	3.38	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1 ④	85.9	231.6
LQ123A LQ127A	LQ4123A LQ4127A	③ 2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6
LL124A/AE LL126A	LL4124A/AE LL4126A	② 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 ④	3.38	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1 ④	85.9	231.6
LL123A LL127A	LL4123A LL4127A	③ 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	36.1	85.9	231.6
LS124A LS126A	LS4124A LS4126A	② 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	64.8	120.6	231.6
LS123A LS127A	LS4123A LS4127A	③ 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.12
			mm	182.6	260.3	177.8	111.3	101.6	254.0	136.7	13.5	64.8	120.6	231.6
Q124A Q126A	Q4124A Q4126A	② 4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	11.12
			mm	209.5	355.6	222.2	104.6	101.6	254.0	152.4	17.5	90.9	168.1	282.4
Q123A Q127A	Q4123A Q4127A	③ 4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	11.12
			mm	209.5	355.6	222.2	104.6	101.6	254.0	152.4	17.5	90.9	168.1	282.4
M124A	M4124A	② 4	in	9.50	17.35	10.00	5.00	6.00	12.00	8.53	0.69	3.50	7.75	8.10
			mm	241	440.7	254	127	152	305	216.7	18	88.9	197	206

① Ports are tapped for standard (NPT) pipe. Other thread standards available.

② Ports are suitable for use with Class 125 ANSI cast iron (cast iron pumps) or Class 150 ANSI steel companion flanges or flanged fittings (ductile iron pumps).

③ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

④ "K" dimension for Cast Iron L, LQ and LL sizes is for "A" models. "K" dimension for L, LQ and LL size 124AE and 4124AE pumps is 1.30" (33.0 mm).

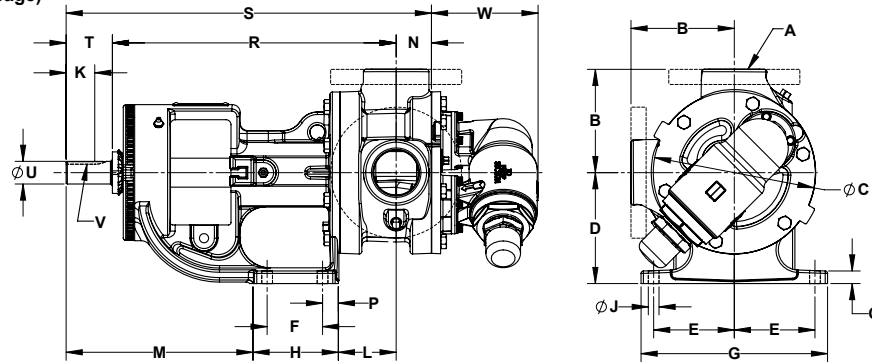
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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - G through Q & M Sizes – All Materials of Construction – Non Jacketed

(Continued from previous page)



NOTE: Dimensions "A" through "M" on previous page

Model Number			N	O	P	R	S	T	U	V	W
Packed	Stuffing Box Seal										
G124A	G4124A	in	1.09	0.31	0.63	7.40	9.55	1.06	0.50	.12 x .06	2.71
		mm	28	8	16.0	187.9	142.6	26.9	13	3.05 x 1.52	68.8
H124A HL124A H126A HL126A	H4124A HL4124A H4126A HL4126A	in	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85
		mm	30.2	14.2	15.7	265.2	336.5	41.1	19.0	4.83 x 2.29	72.4
H123A HL123A H127A HL127A	H4123A HL4123A H4127A HL4127A	in	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85
		mm	30.2	14	15.7	265.2	336.5	41.1	19.0	4.83 x 2.29	72.4
AK124A AL124A	AK4124A AL4124A	in	2.00	0.44	1.00	13.19	17.69	2.50	1.00	.25 x .12	4.83
		mm	50.8	11	25	335	449	64	25.4	6.35 x 3.18	122.7
K124A KK124A K126A KK126A	K4124A KK4124A K4126A KK4126A	in	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	5.25
		mm	44.4	15.7	15.7	358.6	460.2	57.1	28.4	6.35 x 3.05	133.3
K123A KK123A K127A KK127A	K4123A KK4123A K4127A KK4127A	in	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	5.25
		mm	44.4	15.7	15.7	358.6	460.2	57.1	28.4	6.35 x 3.05	133.3
L124A/AE L126A	L4124A/AE L4126A	in	1.75	0.62	0.62	15.62	19.62	2.25 ④	1.12 ⑤	.25 x .12 ⑥	5.43
		mm	44.4	15.7	15.7	396.7	498.3	57.1 ④	28.7 ⑤	6.35 x 3.05 ⑥	137.9
LQ124A/AE LQ126A LQ123A LQ127A	LQ4124A/AE LQ4126A LQ4123A LQ4127A	in	1.75	0.62	0.62	15.62	19.62	2.25 ④	1.12 ⑤	.25 x .12 ⑥	5.43
		mm	44.4	15.7	15.7	396.7	498.3	57.1 ④	28.7 ⑤	6.35 x 3.05 ⑥	137.9
		in	1.75	0.62	0.62	15.62	19.62	2.25	1.12	.25 x .12	5.43
		mm	44.4	15.7	15.7	396.7	498.3	57.1	28.7	6.35 x 3.05	137.9
LL124A/AE LL126A LL123A LL127A	LL4124A/AE LL4126A LL4123A LL4127A	in	2.25	0.62	0.62	15.62	20.12	2.25 ④	1.12 ⑤	.25 x .12 ⑥	5.43
		mm	57.1	15.7	15.7	396.7	511.0	57.1 ④	28.7 ⑤	6.35 x 3.05 ⑥	137.9
		in	2.25	0.62	0.62	15.62	20.12	2.25	1.12	.25 x .12	5.43
		mm	57.1	15.7	15.7	396.7	511.0	57.1	28.7	6.35 x 3.05	137.9
LS124A LS126A LS123A LS127A	LS4124A LS4126A LS4123A LS4127A	in	2.44	0.62	0.62	15.75	21.69	3.50	1.44	.38 x .19	5.43
		mm	62.0	15.7	15.7	400.0	550.9	88.9	36.6	9.65 x 4.83	137.9
Q124A Q126A Q123A Q127A	Q4124A Q4126A Q4123A Q4127A	in	3.00	0.75	1.00	19.25	26.75	4.50	1.94	.50 x .25	8.25
		mm	76.2	19.0	25.4	488.9	679.4	114.3	49.3	12.70 x 6.35	209.5
M124A	M4124A	in	4.00	1.00	1.52	20.13	28.38	4.25	1.94	.50 x .25	8.61
		mm	101.6	25.4	38.6	511.3	720.9	108	49.21	12.70 x 6.35	218.7

④ "T" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. dimension for L, LQ and LL size 124AE and 4124AE pumps is 2.35" (59.7 mm).

⑤ "U" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "U" dimension for L, LQ and LL size 124AE and 4124AE pumps is 1.44" (36.6 mm).

⑥ "V" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "V" dimension for L, LQ and LL size 124AE and 4124AE pumps is 0.38 x 0.19" (9.65 x 4.83 mm).

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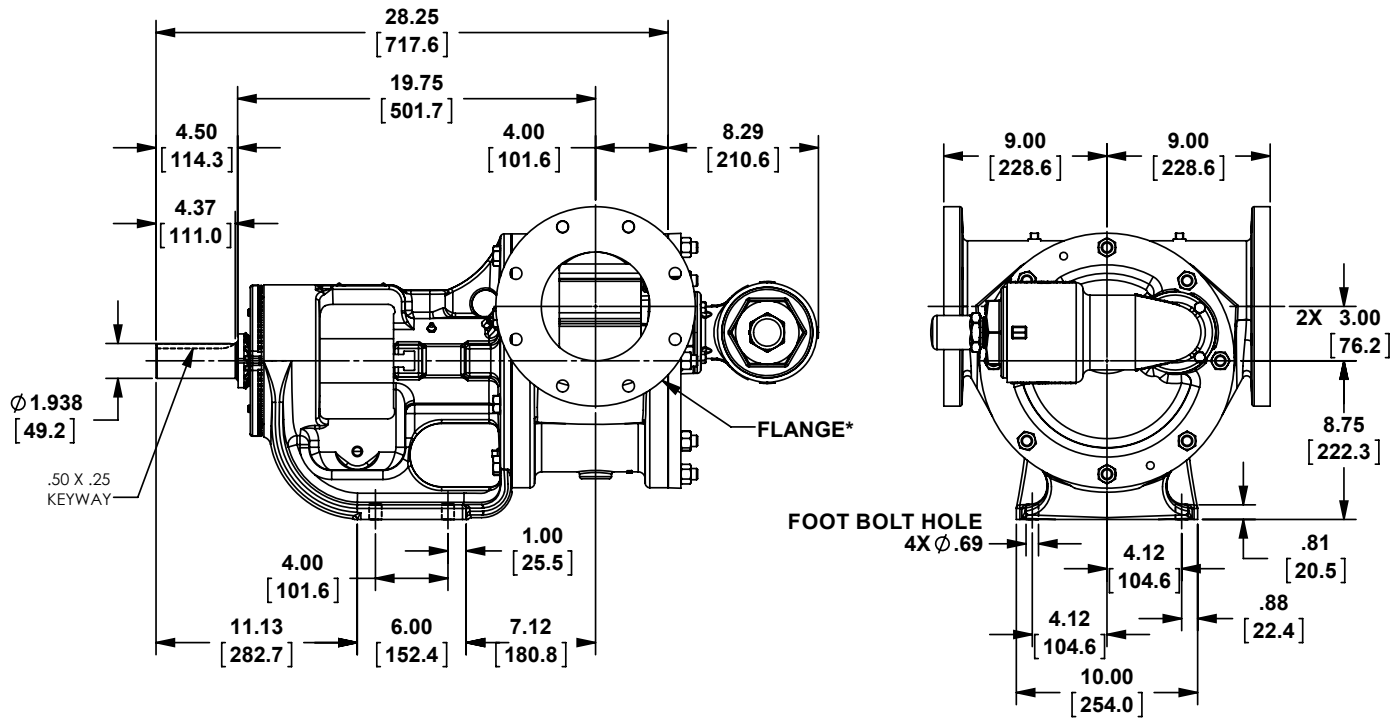
VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
 126A, 4126A, 226A and 4226A (Ductile Iron)
 123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
 127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - QS Size – All Materials of Construction – Non-Jacketed

Series 124A, 4124A, 126A, 4126A, 123A, 4123A, 127A & 4127A

Dimensions in
inches [mm]



* 124A/4124A ports suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

126A/4126A, 123A/4123A, 127A/4127A ports suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

For N, R & RS size pumps, see jacketed pump dimensional drawings on page 630.21.

VIKING UNIVERSAL SEAL PUMPS

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**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Specifications (U.S. Units) – Jacketed Pumps

Model Number		⊕ Standard Port Size	Nominal Pump Rating (100 SSU and below)		Max. Hydrostatic Pressure	① Max. Discharge Pressure for 100 SSU Liquid at rated speed	② Max. Recommended Temp. for Standard Pump (°F)		Steel Fitted Recommended Above	Approx. Shipping Weight with Valve					
Packed	Stuffing Box Seal		Inches	GPM			RPM	PSIG			PSIG	⑦ Mech Seal			
H224A	H4224A	⊕1 ½	15	1750	400	200	450	450	25,000	42					
H226A	H4226A	⊕1 ½	15	1750						42					
H223A	H4223A	⊕1 ½	15	1750						42					
H227A	H4227A	⊕1 ½	10	1150						47					
HL224A	HL4224A	⊕1 ½	30	1750	400	200	450	450	7,500	45					
HL226A	HL4226A	⊕1 ½	30	1750						45					
HL223A	HL4223A	⊕1 ½	30	1750						45					
HL227A	HL4227A	⊕1 ½	20	1150						52					
K224A	K4224A	⊕2	80	780	400	200	450	450	25,000	120					
K226A	K4226A	⊕2	80	780						120					
K223A	K4223A	⊕2	80	780						120					
K227A	K4227A	⊕2	50	520						125					
KK224A	KK4224A	⊕2	100	780	400	200	450	450	25,000	125					
KK226A	KK4226A	⊕2	100	780						125					
KK223A	KK4223A	⊕2	100	780						125					
KK227A	KK4227A	⊕2	65	520						130					
L224A/AE	L4224A/AE	⊕2	135	640	400	200	450	450	25,000	175					
L226A	L4226A	⊕2	135	640						175					
LQ224A/AE	LQ4224A/AE	⊕2 ½	135	640						400	200	450	450	25,000	190
LQ226A	LQ4226A	⊕2 ½	135	640											190
LQ223A	LQ4223A	⊕2 ½	135	640	190										
LQ227A	LQ4227A	⊕2 ½	90	420	210										
LL224A/AE	LL4224A/AE	⊕3	140	520	400	200	450	450	2,500	200					
LL226A	LL4226A	⊕3	140	520						200					
LL223A	LL4223A	⊕3	140	520						210					
LL227A	LL4227A	⊕3	110	420						255					
LS224A	LS4224A	⊕3	200	640	400	200	450	450	75,000	210					
LS226A	LS4226A	⊕3	200	640						210					
LS223A	LS4223A	⊕3	200	640						210					
LS227A	LS4227A	⊕3	160	520						230					
Q224A	Q4224A	⊕4	300	520	400	200	450	450	7,500	480					
Q226A	Q4226A	⊕4	300	520						480					
Q223A	Q4223A	⊕4	300	520						490					
Q227A	Q4227A	⊕4	200	350						500					
QS224A	QS4224A	⊕6	500	520	400	200	450	450	75,000	580					
QS226A	QS4226A	⊕6	500	520						580					
QS223A	QS4223A	⊕6	500	520						590					
QS227A	QS4227A	⊕6	320	350						600					
M224A	M4224A	⊕4	420	420	400	200	450	450	25,000	975					
N324A	N4324A	⊕6	600	350	400	200	225	225	75,000	810					
N323A	N4323A	⊕6	600	350						810					
N327A	N4327A	⊕6	600	350						810					
R324A	R4324A	⊕8	1100	280	400	200	225	225	25,500	1435					
R323A	R4323A	⊕8	1100	280						1435					
R327A	R4327A	⊕8	1100	280						1435					
RS324A	RS4324A	⊕10	1600	280	400	125	225	225	75,500	2000					
RS323A	RS4323A	⊕10	1600	280						2500					
RS327A	RS4327A	⊕10	1600	280						2500					

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the "R" size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. "RS" size contact factory for jacketing options.

- ① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
- ② Higher temperatures can be handled with special construction and/or extra clearances, consult factory.
- ③ Ports are tapped for standard (NPT) pipe. Other thread standards available.
- ④ Ports are suitable for use with Class 125 ANSI cast iron flanges or flanged fittings.
- ⑤ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.
- ⑥ See p. 630.16 for other port size options.
- ⑦ Temperature based on PTFE seal as standard. Lower temperature limits may be required when using other seal elastomers.

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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Specifications (Metric Units) – Jacketed Pumps

Model Number		ⓐ Standard Port Size	Nominal Pump Rating (22 cSt and below)		Max. Hydrostatic Pressure	① Max Discharge Pressure for 22 cSt Liquid at rated speed	② Max Recommended Temp. for Standard Pump (°C)		Steel Fitted Recommended Above	Approx. Shipping Weight with Valve					
Packed	Stuffing Box Seal		Inches	m ³ /h			RPM	BAR			Packed	⑦ Mech Seal			
H224A	H4224A	ⓐ1 ½	3.4	1450	28	14	232	232	5,500	19					
H226A	H4226A	ⓐ1 ½	3.4	1450						19					
H223A	H4223A	ⓐ1 ½	3.4	1450						19					
H227A	H4227A	ⓐ1 ½	2.3	950						21					
HL224A	HL4224A	ⓐ1 ½	6.8	1450	28	14	232	232	1,650	20					
HL226A	HL4226A	ⓐ1 ½	6.8	1450						20					
HL223A	HL4223A	ⓐ1 ½	6.8	1450						20					
HL227A	HL4227A	ⓐ1 ½	4.5	950						24					
K224A	K4224A	ⓐ2	18	780	28	14	232	232	5,500	54					
K226A	K4226A	ⓐ2	18	780						54					
K223A	K4223A	ⓐ2	18	780						54					
K227A	K4227A	ⓐ2	11	520						57					
KK224A	KK4224A	ⓐ2	23	780	28	14	232	232	5,500	57					
KK226A	KK4226A	ⓐ2	23	780						57					
KK223A	KK4223A	ⓐ2	23	780						57					
KK227A	KK4227A	ⓐ2	15	520						59					
L224A/AE	L4224A/AE	ⓐ2	31	640	28	14	232	232	5,500	79					
L226A	L4226A	ⓐ2	31	640						79					
LQ224A/AE	LQ4224A/AE	ⓐ2 ½	31	640						28	14	232	232	5,500	86
LQ226A	LQ4226A	ⓐ2 ½	31	640											86
LQ223A	LQ4223A	ⓐ2 ½	31	640	86										
LQ227A	LQ4227A	ⓐ2 ½	20	420	95										
LL224A/AE	LL4224A/AE	ⓐ3	32	520	28	14	232	232	550	91					
LL226A	LL4226A	ⓐ3	32	520						91					
LL223A	LL4223A	ⓐ3	32	520						95					
LL227A	LL4227A	ⓐ3	25	420						116					
LS224A	LS4224A	ⓐ3	45	640	28	14	232	232	16,500	95					
LS226A	LS4226A	ⓐ3	45	640						95					
LS223A	LS4223A	ⓐ3	45	640						95					
LS227A	LS4227A	ⓐ3	36	520						104					
Q224A	Q4224A	ⓐ4	68	520	28	14	232	232	1,650	218					
Q226A	Q4226A	ⓐ4	68	520						218					
Q223A	Q4223A	ⓐ4	68	520						222					
Q227A	Q4227A	ⓐ4	45	350						227					
QS224A	QS4224A	ⓐ6	114	520	28	14	232	232	16,500	265					
QS226A	QS4226A	ⓐ6	114	520						265					
QS223A	QS4223A	ⓐ6	114	520						268					
QS227A	QS4227A	ⓐ6	73	350						272					
M224A	M4224A	ⓐ4	95	420	28	14	232	232	5,500	442					
N324A	N4324A	ⓐ6	136	350	28	14	107	107	16,500	367					
N323A	N4323A	ⓐ6	136	350						367					
N327A	N4327A	ⓐ6	136	350						367					
R324A	R4324A	ⓐ8	250	280	28	14	107	107	5,500	651					
R323A	R4323A	ⓐ8	250	280						651					
R327A	R4327A	ⓐ8	250	280						651					
RS324A	RS4324A	ⓐ10	364	280	28	9	107	107	16,500	907					
RS323A	RS4323A	ⓐ10	364	280						1140					
RS327A	RS4327A	ⓐ10	364	280						1140					

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the "R" size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. "RS" contact factory for jacketing options.

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

② Higher temperatures can be handled with special construction and/or extra clearances. Consult factory.

③ Ports are tapped for standard (NPT) pipe. Other thread standards available.

④ Ports are suitable for use with Class 125 ANSI cast iron flanges or flanged fittings.

⑤ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

⑥ Port sizes are inch standard, not metric design or size. See p.630.16 for other port size options.

⑦ Temperature based on PTFE seal as standard. Lower temperature limits may be required when using other seal elastomers.

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**SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)**

Optional Casings - Standard-Jacketed* and Fully-Jacketed* Pumps

Model Number		Standard Jacketed Pumps' Standard Ports†	Standard Jacketed Pumps Optional Ports	Fully-Jacketed Casings
Packed	Stuffing Box Seal			
H224A	H4224A	1.5"①	1.5"②Ⓡ, 2"②Ⓡ	
H226A	H4226A	1.5"①		
H223A	H4223A	1.5"①		2"④Ⓡ
H227A	H4227A	1.5"③	2"③Ⓡ	2"④Ⓡ
HL224A	HL4224A	1.5"①	1.5"②Ⓡ, 2"②Ⓡ	
HL226A	HL4226A	1.5"①		
HL223A	HL4223A	1.5"②		2"④Ⓡ
HL227A	HL4227A	1.5"③	2"③Ⓡ	2"④Ⓡ
K224A	K4224A	2"①	2"②Ⓡ, 2.5"②ⓇⓈ, 3"②ⓇⓈ, 4"②ⓇⓈ	
K226A	K4226A	2"③		
K223A	K4223A	2"③	4"③Ⓡ	3"③Ⓡ; 4"③Ⓡ; 3"④Ⓡ; 3"④Ⓢ
K227A	K4227A	2"③	4"③Ⓡ	3"③Ⓡ; 4"③Ⓡ; 3"④Ⓡ; 3"④Ⓢ
KK224A	KK4224A	2"①	2"②Ⓡ, 2.5"②ⓇⓈ, 3"②ⓇⓈ, 4"②ⓇⓈ	
KK226A	KK4226A	2"③		
KK223A	KK4223A	2"③	4"③Ⓡ	3"③Ⓡ; 4"③Ⓡ; 3"④Ⓡ; 3"④Ⓢ
KK227A	KK4227A	2"③	4"③Ⓡ	3"③Ⓡ; 4"③Ⓡ; 3"④Ⓡ; 3"④Ⓢ
L224A/AE	L4224A/AE	2"①		
L226A	L4226A	2"③		
LQ224A/AE	LQ4224A/AE	2.5"②	3"②Ⓡ, 4"②Ⓡ, 6"②Ⓡ	
LQ226A	LQ4226A	2.5"③		
LQ223A	LQ4223A	2.5"③	3"③Ⓡ	3"③Ⓡ; 3"④Ⓡ; 4"④Ⓡ
LQ227A	LQ4227A	2.5"③	3"③Ⓡ	3"③Ⓡ; 3"④Ⓡ; 4"④Ⓡ
LL224A/AE	LL4224A/AE	3"②	4"②Ⓡ, 5"②Ⓡ	
LL226A	LL4226A	3"③		
LL223A	LL4223A	3"③		
LL227A	LL4227A	3"③		
LS224A	LS4224A	3"②	4"②Ⓡ	
LS226A	LS4226A	3"③		
LS223A	LS4223A	3"③	4"③Ⓡ	4"③Ⓡ; 6"③Ⓡ; 4"④Ⓡ
LS227A	LS4227A	3"③	4"③Ⓡ	4"③Ⓡ; 6"③Ⓡ; 4"④Ⓡ
Q224A	Q4224A	4"②	3"②Ⓡ, 5"②Ⓡ, 6"②Ⓡ	
Q226A	Q4226A	4"③		
Q223A	Q4223A	4"③		4"③Ⓡ; 4"④Ⓡ
Q227A	Q4227A	4"③		4"③Ⓡ; 4"④Ⓡ
QS224A	QS4224A	6"②	6"②Ⓢ	
QS226A	QS4226A	6"③		
QS223A	QS4223A	6"③		6"③Ⓡ; 6"④Ⓡ
QS227A	QS4227A	6"②		6"③Ⓡ; 6"④Ⓡ
M224A	M4224A	4"②	6"②Ⓡ	6"②Ⓡ
N324A	N4324A	6"②	5"②Ⓢ	5"②Ⓢ; 6"②Ⓢ
N323A	N4323A	6"③		6"③Ⓢ; 8"④Ⓡ
N327A	N4327A	6"③		6"③Ⓡ; 8"④Ⓡ
R324A	R4324A	8"②	6"②Ⓢ	
R323A	R4323A	8"③		8"③Ⓡ
R327A	R4327A	8"③		8"③Ⓡ
RS324A	RS4324A	10"②		
RS323A	RS4323A	10"③		
RS327A	RS4327A	10"③		

*Standard port configuration is 90° which may be rotated (H-Q) or opposite (QS). with right hand inlet viewed from the shaft end.

- ① Port(s) tapped for standard (NPT) pipe.
- ② Port(s) suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.
- ③ Port(s) suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.
- ④ Port(s) suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings
- Ⓢ Non-Rotatable Ports at 90 degree angle, contact factory for available orientation (right hand or left hand)
- Ⓡ Opposite Ports

Contact factory for flange details (e.g. Flat face or raised face flanges)

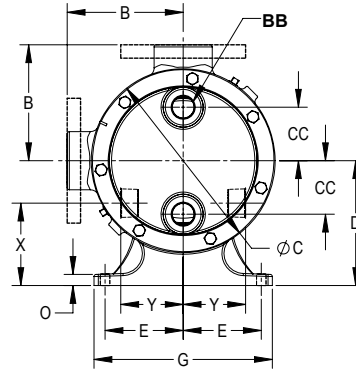
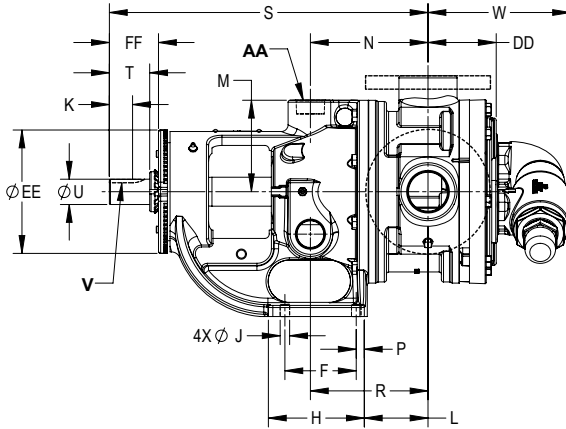
* Standard-Jacketed Pumps have a jacketed bracket and head, but the casing is not jacketed. They have the series designations 224A/4224A & AE, 226A/4226A, 223A/4223A, and 227A/4227A. Also the N324A, N4324A, N323A, N4323A, N327A and N4327A are standard with a jacketed bracket and non-jacketed head and Relief Valve, while the R324A, R4324A, R323A, R4323A, N327A, and R4327A are standard with a jacketed bracket and jacketed head and non-jacketed Relief Valve. Fully-Jacketed pumps use the Standard-Jacketed Pumps' series designation, but substitute a Fully-Jacketed Casing from the list above instead of the Standard-Jacketed Pumps' non-jacketed casing.

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - H through Q & M Sizes – All Materials of Construction – Jacketed Pumps



NOTE: Dimensions "P" through "FF" on next page

Model Number		A (in)		B	C	D	E	F	G	H	J	K	L	M	N	O
Packed	Stuffing Box Seal															
H224A HL224A H226A HL226A	H4224A HL4224A H4226A HL4226A	⊙1.5	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	2.38	4.00	0.56
			mm	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	60.5	101.6	14.2
H223A HL223A H227A HL227A	H4223A HL4223A H4227A HL4227A	⊙1.5	in	4.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	2.38	4.00	0.56
			mm	101.6	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	60.5	101.6	14.2
K224A KK224A K226A KK226A	K4224A KK4224A K4226A KK4226A	⊙2	in	5.12	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	4.00	5.75	0.62
			mm	130.0	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	101.6	146.0	15.7
K223A KK223A K227A KK227A	K4223A KK4223A K4227A KK4227A	⊙2	in	5.25	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	4.00	5.75	0.62
			mm	133.3	203.2	139.7	101.6	69.8	234.9	101.6	13.5	36.1	76.2	101.6	146.0	15.7
L224A/AE L226A	L4224A/AE L4226A	⊙2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 [Ⓢ]	3.38	5.12	6.56	0.62
			mm	165.1	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1 [Ⓢ]	85.9	130.0	166.6	15.7
LQ224A/AE LQ226A	LQ4224A/AE LQ4226A	⊙2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 [Ⓢ]	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1 [Ⓢ]	85.9	130.0	166.6	15.7
LQ223A LQ227A	LQ4223A LQ4227A	⊙ 2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	130.0	166.6	15.7
LL224A/AE LL226A	LL4224A/AE LL4226A	⊙3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42 [Ⓢ]	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1 [Ⓢ]	85.9	130.0	166.6	15.7
LL223A LL227A	LL4223A LL4227A	⊙ 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	5.12	6.56	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	36.1	85.9	130.0	166.6	15.7
LS224A LS226A LS223A LS227A	LS4224A LS4226A LS4223A LS4227A	⊙3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	5.12	7.40	0.62
			mm	182.6	260.3	177.8	111.3	101.6	254	136.7	13.5	64.8	120.6	130.0	188.0	15.7
Q224A Q226A Q223A Q227A	Q4224A Q4226A Q4223A Q4227A	⊙ 4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	7.00	7.62	0.75
		⊙ 4	mm	209.5	355.6	222.2	104.6	101.6	254	152.4	17.5	90.9	168.1	177.8	193.5	19.0
M224A	M4224A	⊙ 4	in	9.50	17.35	10.00	5.00	6.00	12.00	8.64	0.69	3.50	7.65	8.63	8.32	1.00
			mm	241.3	440.7	254.0	127.0	152.4	304.8	219.5	17.5	88.9	194.31	219.2	211.3	25.4

① Ports tapped for standard (NPT) pipe. Other thread standards available.

② Ports are suitable for use with Class 125 ANSI cast iron (cast iron pumps) or Class 150 ANSI steel companion flanges or flanged fittings (ductile iron pumps).

③ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

④ "K" dimension for Cast Iron L, LQ and LL sizes is for "A" models. "K" dimension for L, LQ and LL size 224AE and 4224AE pumps is 1.30" (33.0 mm).

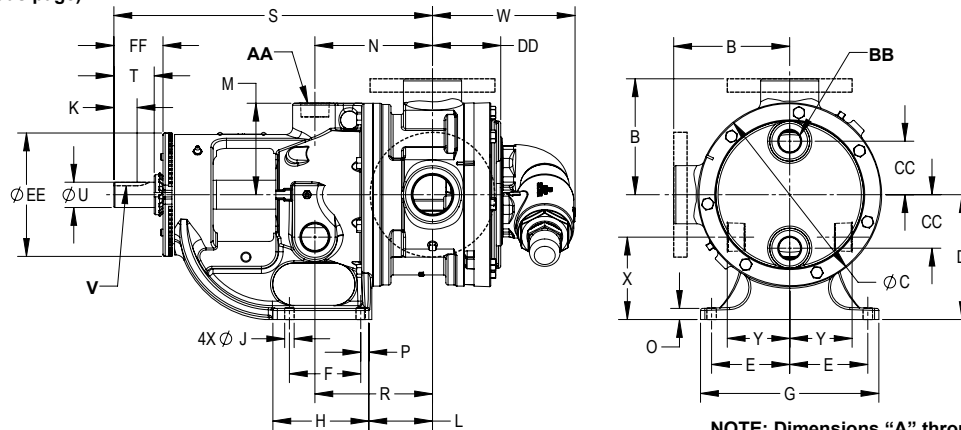
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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - H through Q & M Sizes – All Materials of Construction – Jacketed Pumps

(Continued from previous page)



NOTE: Dimensions "A" through "O" on previous page

Model Number			P	R	S	T	U	V	W	X	Y	⊕ AA	⊕ BB	CC	DD	EE	FF
Packed	Stuffing Box Seal																
H224A HL224A H226A HL226A	H4224A HL4224A H4226A HL4226A	in	0.62	4.00	12.06	1.62	0.75	.19 X .09	4.04	1.80	1.83	0.75	0.50	0.94	2.41	5.75	2.30
		mm	15.7	101.6	306.3	41.1	19.0	4.83 X 2.29	102.6	45.7	46.5	19.0	12.7	23.9	61.2	146.0	58.4
H223A HL223A H227A HL227A	H4223A HL4223A H4227A HL4227A	in	0.62	4.00	12.06	1.62	0.75	.19 X .09	4.04	1.80	1.83	0.75	0.50	0.94	2.41	5.75	2.30
		mm	15.7	101.6	306.3	41.1	19.0	4.83 X .29	102.6	45.7	46.5	19.0	12.7	23.9	61.2	146.0	58.4
K224A KK224A K226A KK226A	K4224A KK4224A K4226A KK4226A	in	0.62	5.75	16.38	2.25	1.12	.25 X .12	7.00	3.38	2.75	1.25	1.25	1.75	3.25	6.75	2.92
		mm	15.7	146.0	416.0	57.1	28.4	6.35 X 3.05	177.8	85.9	69.8	31.7	31.7	44.4	82.5	171.4	74.2
K223A KK223A K227A KK227A	K4223A KK4223A K4227A KK4227A	in	0.62	5.75	16.38	2.25	1.12	.25 X .12	7.00	3.38	2.75	1.25	1.25	1.75	3.25	6.75	2.92
		mm	15.7	146.0	416.0	57.1	28.4	6.35 X 3.05	177.8	85.9	69.8	31.7	31.7	44.4	82.5	171.4	74.2
L224A/AE L226A	L4224A/AE L4226A	in	0.62	6.56	17.88	2.25 [⊕]	1.12 [⊗]	.25 X .12 [⊕]	7.18	4.62	3.25	1.25	1	3.00	3.81	6.75	2.93
		mm	15.7	166.6	454.2	57.1 [⊕]	28.4 [⊗]	6.35 X 3.05 [⊕]	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LQ224A/AE LQ226A	LQ4224A/AE LQ4226A	in	0.62	6.56	17.88	2.25 [⊕]	1.12 [⊗]	.25 X .12 [⊕]	7.18	4.62	3.25	1.25	1	3.00	3.81	6.75	2.93
		mm	15.7	166.6	454.2	57.1 [⊕]	28.4 [⊗]	6.35 X 3.05 [⊕]	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LQ223A LQ227A	LQ4223A LQ4227A	in	0.62	6.56	17.88	2.25	1.12	.25 X .12	7.18	4.62	3.25	1.25	1	3.00	3.81	6.75	2.93
		mm	15.7	166.6	454.2	57.1	28.4	6.35 X 3.05	182.4	117.3	82.5	31.7	25.4	76.2	96.8	171.4	74.4
LL224A/AE LL226A	LL4224A/AE LL4226A	in	0.62	6.56	17.88	2.25 [⊕]	1.12 [⊗]	.25 X .12 [⊕]	7.18	4.62	3.25	1.25	1	3.00	4.31	6.75	2.93
		mm	15.7	166.6	454.2	57.1 [⊕]	28.4 [⊗]	6.35 X 3.05 [⊕]	182.4	117.3	82.5	31.7	25.4	76.2	109.5	171.4	74.4
LL223A LL227A	LL4223A LL4227A	in	0.62	6.56	17.88	2.25	1.13	.25 X .12	7.18	4.62	3.25	1.25	1	3.00	4.31	6.75	2.93
		mm	15.7	166.6	454.2	57.1	28.4	6.35 X 3.05	182.4	117.3	82.5	31.7	25.4	76.2	109.5	171.4	74.4
LS224A LS226A LS223A LS227A	LS4224A LS4226A LS4223A LS4227A	in	0.62	7.00	19.25	3.50	1.44	.38 X .19	7.72	4.40	3.30	1.25	1	3.00	4.50	7.00	4.03
		mm	15.7	177.8	488.9	88.9	36.58	9.65 X .83	196.1	111.8	83.8	31.7	25.4	76.2	114.3	177.8	102.4
Q224A Q226A Q223A Q227A	Q4224A Q4226A Q4223A Q4227A	in.	1.00	6.62	23.75	4.50	1.94	.50 X .25	11.25	5.50	4.50	1.5	⊕ 1.25	---	4.57	8.38	5.35
		mm	25.4	168.1	603.2	114.3	49.3	12.70 X .35	285.7	139.7	114.3	38.1	⊕ 31.7	---	116.1	212.8	135.9
M224A	M4224A	in.	1.62	6.96	24.38	4.25	1.94	.50 x .25	8.61	5.50	6.00	1.50	1.50	4.33	5.88	8.38	4.96
		mm	41.1	176.8	619.3	107.9	49.3	12.70 X .35	218.7	139.7	152.4	38.1	38.1	100.0	149.4	212.8	126.0

⊕ Ports for steam or hot oil jacketing are inch standard NPT threads. Metric (mm) equivalents are for information only, and do not indicate a metric thread size.
 ⊕ "T" dimension show for Cast Iron sizes L, LQ and LL is for "A" models. Dimension for L, LQ and LL size 224AE and 4224AE pumps is 2.35" (59.7 mm).
 ⊗ "U" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "U" dimension for L, LQ and LL size 224AE and 4224AE pumps is 1.44" (36.6 mm).
 ⊕ "V" dimension shown for Cast Iron sizes L, LQ and LL is for "A" models. "V" dimension for L, LQ and LL size 224AE and 4224AE pumps is 0.38 x 0.19" (9.65 x 4.83 mm).
 ⊕ "BB" Dimension for Q223A and Q227A is 1"(25.4 mm).

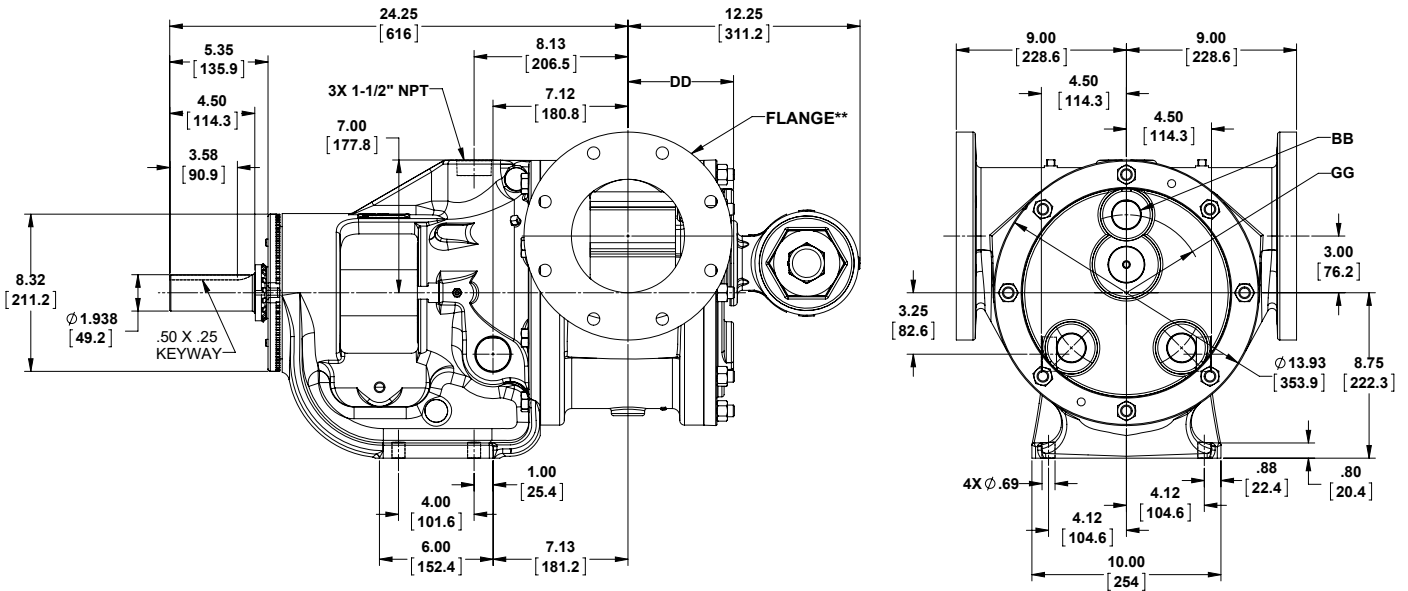
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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - QS Size – All Materials of Construction – Jacketed

Series 224A, 4224A, 226A, 4226A, 223A, 4223A, 227A & 4227A



Model Number		BB*	DD	GG
Packed	Mechanical Seal			
QS224A	QS4224A	1.25 (31.75)	5.57 (141.48)	4.12 (105)
QS226A	QS4226A			
QS223A	QS4223A	1 (25.4)	6.06 (152.93)	3.75 (95.25)
QS227A	QS4227A			

* Ports for steam or hot oil jacketing are inch standard NPT threads.
Metric (mm) equivalents are for information only, and do not indicate a metric thread size.

** 224A/4224A ports suitable for use with Class 125 ANSI cast iron companion flanges or flanged fittings.

226A/4226A, 223A/4223A, 227A/4227A ports suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

For N, R & RS size pumps, see jacketed pump dimensional drawings on page 630.21.

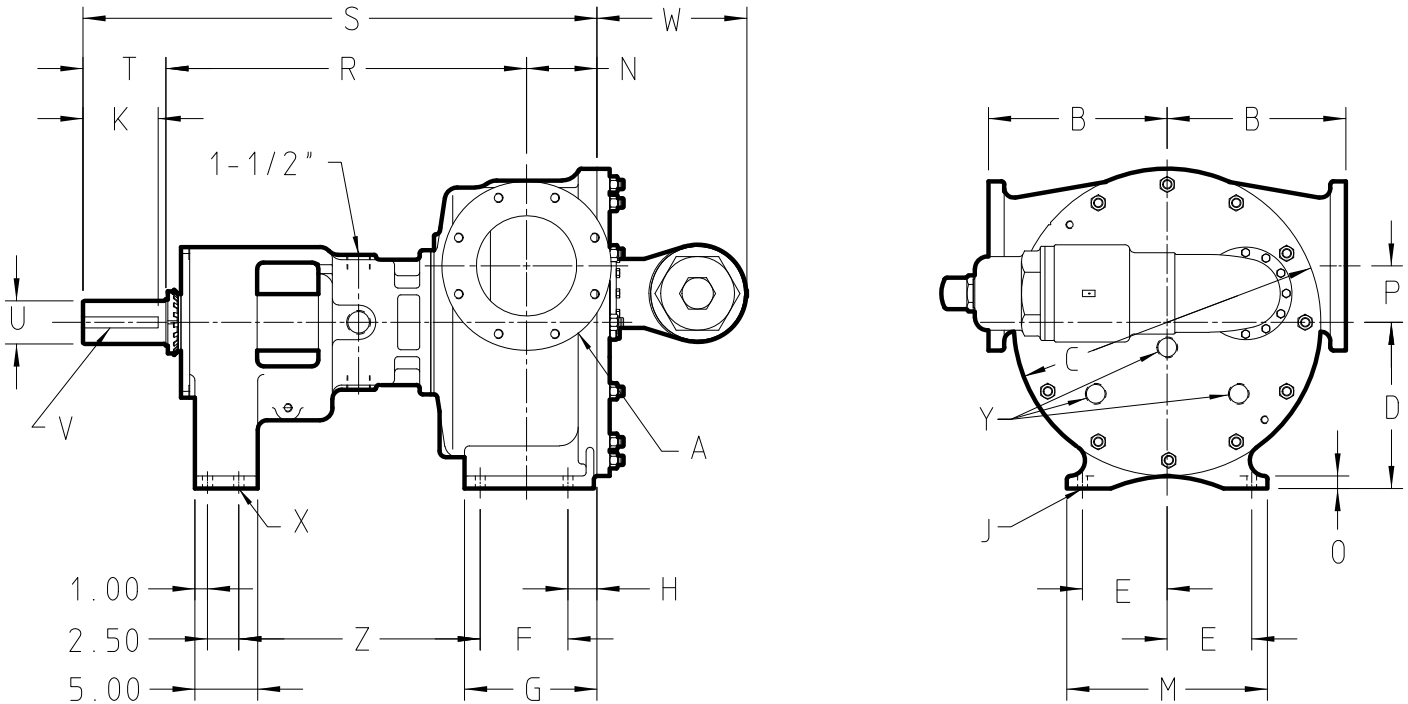
VIKING UNIVERSAL SEAL PUMPS

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - N, R & RS Sizes – All Materials of Construction – Jacketed Bracket

Series 324A, 4324A, 323A, 4323A, 327A & 4327A



Model Number		A (in)	B	C	D	E	F	G	H	J	K	M	N	O	P	R	S	T	U	V	W	X	Y	Z	
Packed	N324A	6	in	9.75	17.25	9.50	5.00	6.25	8.69	1.62	0.69	4.50	12.00	4.50	1.00	3.00	26.00	36.50	6.00	2.44	.62x.31	8.63	0.69	N/A	18.94
	N323A		mm	247.7	438.1	241.3	127.0	158.7	220.7	41.1	17.5	114.3	304.8	114.3	25.4	76.2	660.4	927.1	152.4	62.0	15.74 x7.87	219.2	17.5	N/A	481.0
	N327A																								
Stuffed	R324A	8	in	14.25	24.50	13.25	6.75	7.00	10.56	2.31	0.78	6.00	16.00	5.62	1.00	4.50	28.75	41.00	6.62	3.44	.88x.44	12.00	0.69	1.25	19.25
	R323A		mm	361.9	622.3	336.5	171.4	177.8	268.2	58.7	19.8	152.4	406.4	142.7	25.4	114.3	730.2	1041	168.1	87.4	22.35 x11.18	304.8	17.5	31.7	488.9
	R327A																								
Stuffed	RS324A	10	in	14.25	24.5	13.25	6.75	7.00	13.12	4.81	0.88	6.00	16.46	8.12	1.30	4.50	28.55	43.49	6.62	3.44	.88x.44	12.00	0.88	1.25	19.25
	RS4324A		mm	361.9	622.30	336.5	171.4	177.8	333.24	122.17	22.35	152.4	418.08	206.24	33.02	114.3	725.17	1104.64	168.1	87.4	22.35 x11.18	304.8	22.35	31.7	488.9

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the "R" size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. "RS" contact factory for jacketing options.

© Ports are suitable for use with Class 125 ANSI cast iron (324A/4324A) or Class 150 ANSI steel or stainless steel companion flanges or flanged fittings (323A/4323A & 327A/4327A).

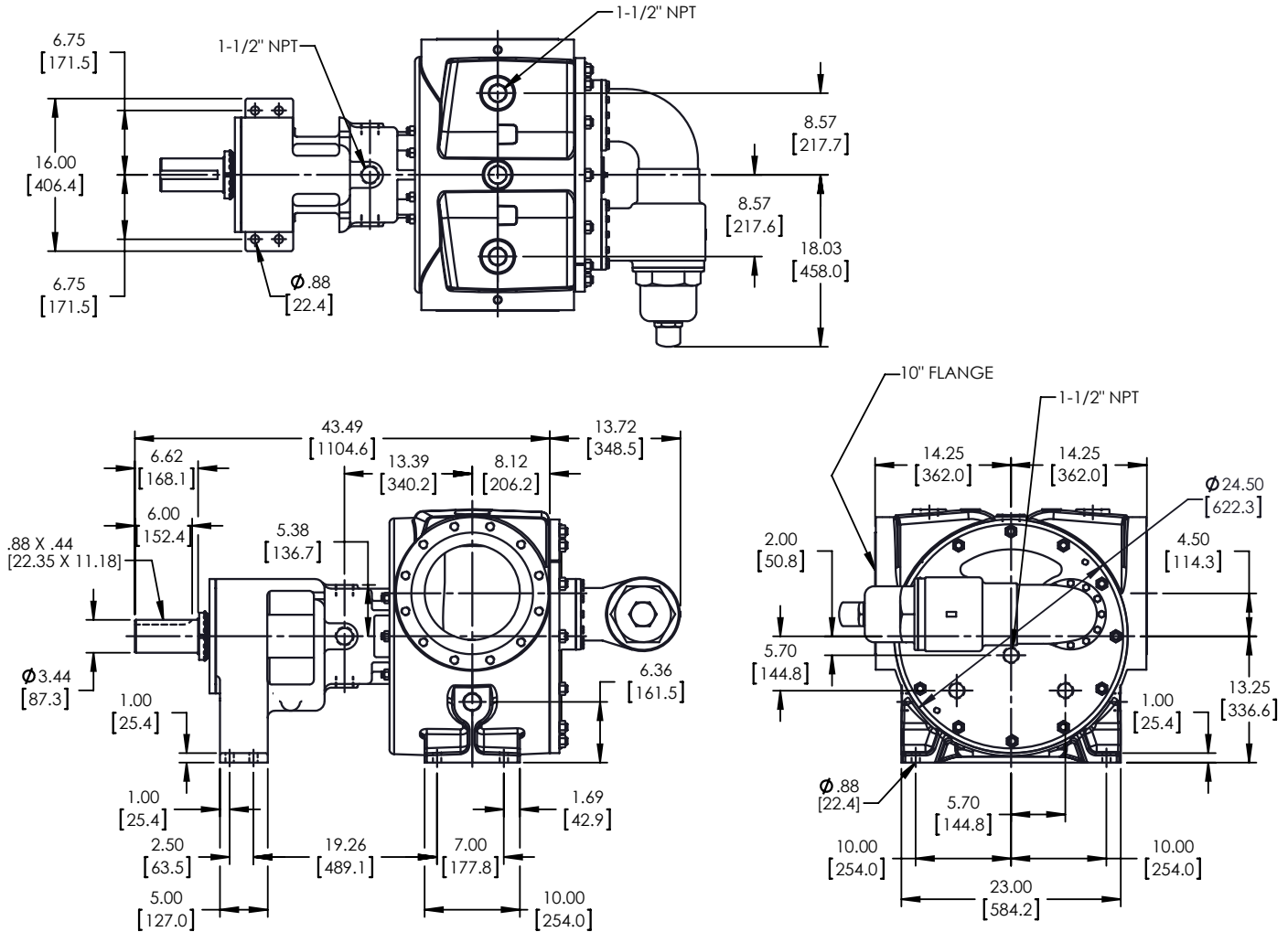
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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Dimensions - RS Size – All Materials of Construction – Jacketed Bracket

Series 323A, 4323A, 327A & 4327A



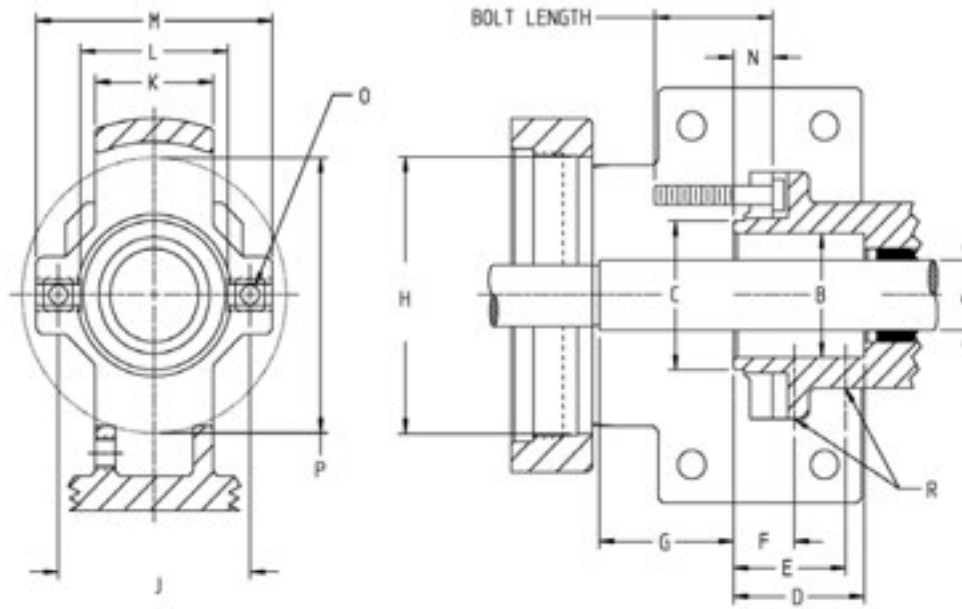
NOTE: RS size pumps in steel and stainless steel are only available with a jacketed casing, as shown, while RS cast iron pumps are only available with a non-jacketed casing.

VIKING UNIVERSAL SEAL PUMPS

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SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Stuffing Box Seal Chamber Dimensions



Pump Size		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
G	In	0.75	1.63	2.12	1.91	1.38	0.57	1.72	3.87	2.74 to 3.12	1.64	2.24	3.62	1.00	5/16	3.87	1/8
	mm	19.0	41.4	53.8	48.5	38.1	14.5	43.7	98.3	69.6 to 79.2	41.6	56.9	91.9	25.4	7.9	98.3	3.2
H & HL	In	1.12	2.00	2.41	2.22	1.90	1.03	2.27	4.50	3.00 to 3.50	2.00	2.50	4.00	0.66	5/16	4.47	1/8
	mm	28.6	50.8	61.2	56.4	48.3	26.2	57.7	114.3	76.2 to 88.9	50.8	63.5	101.6	16.8	7.9	113.5	3.2
AK & AL	In	1.44	2.31	2.69	2.75	2.25	1.24	3.03	5.25	3.14 to 4.56	2.50	3.00	5.00	0.47	7/16	6.15	1/4
	mm	36.5	58.7	68.3	69.9	57.1	31.5	76.9	133.3	79.8 to 115.8	63.5	76.2	127.0	11.9	11.1	156.2	6.3
K & KK	In	1.44	2.31Ⓞ	3.00	3.13	2.25	1.25	3.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.38	7/16	5.25	1/4
	mm	36.5	58.7Ⓞ	76.2	79.5	57.1	31.7	76.2	133.3	88.9 to 114.3	63.5	76.2	127.0	9.7	11.1	133.3	6.3
L, LQ, & LL (A)	In	1.44	2.31Ⓞ	3.00	3.13	2.25	1.25	4.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.44	7/16	5.25	1/4
	mm	36.5	58.7Ⓞ	76.2	79.5	57.1	31.7	101.6	133.3	88.9 to 114.3	63.5	76.2	127.0	11.2	11.1	133.3	6.3
L, LQ, & LL (AE)	In	1.62	2.375	3.00	3.13	2.25	1.16	3.52	5.25	3.50 to 4.50	3.00	3.00	5.00	0.46	7/16	5.25	1/4
	mm	41.3	60.3	76.2	79.5	57.1	29.5	89.4	133.3	88.9 to 114.3	76.2	76.2	127.0	11.7	11.1	133.3	6.3
LS	In	1.62	2.375	2.80	2.70	2.25	1.16	3.52	5.25	3.25 to 4.50	3.00	2.80	5.00	0.46	7/16	5.25	1/4
	mm	41.3	60.3	71.1	68.6	57.1	29.5	89.4	133.3	82.5 to 114.3	76.2	71.1	127.0	11.7	11.1	133.3	6.3
Q & QS	In	2.44	3.42	4.50	4.00	2.50	1.53	4.10	6.75	5.50 to 6.25	3.20	4.50	7.20	0.56	5/8	6.75	1/4
	mm	61.9	87.0	114.3	101.6	63.5	38.9	104.1	171.4	139.7 to 158.7	81.3	114.3	182.9	14.2	15.9	171.4	6.3
M	In	2.44	3.44	—	3.97	2.50	1.53	4.16	6.75	5.44 to 6.26	3.28	4.50	7.20	0.72	5/8	7.37	1/4
	mm	61.9	87.3	—	100.8	63.5	38.9	105.7	171.4	138.2 to 159.0	83.3	114.3	182.9	18.3	15.9	187.2	6.3
N	In	3.44	4.69	—	5.56	1.65	—	4.91	8.81	6.75	—	—	—	—	3/4Ⓞ	9.00	1/4
	mm	87.3	119.3	—	141.2	41.9	—	124.7	223.8	171.4	—	—	—	—	19.0Ⓞ	228.6	6.3
R & RS	In	4.50	5.75	—	5.56	1.53	—	4.79	9.81	7.75	—	—	—	—	3/4Ⓞ	9.81	1/4
	mm	114.3	146.1	—	141.2	38.9	—	121.7	249.2	196.8	—	—	—	—	19.0Ⓞ	249.2	6.3

Ⓞ Bracket is counter bored to a diameter of 2.687 inches (68.25 mm), 0.12 inches (3.05 mm) deep from stuffing box face.

Ⓜ Studs are used in place of cap screws.

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VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

INLET CONDITIONS: The performance curves show "Based on 10 (or 15) In.-Hg.," which is the standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See NPSH_R table below.

FOR VISCOSITIES GREATER THAN 750 SSU (NPSH_R data not available): The performance curves are based on 10 or 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size

be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. Refer to General Catalog, Engineering Section 510 for information on determining line size.

THIN LIQUIDS: pump capacity when handling 28 SSU liquids (solvents, etc.) is shown on the 38 SSU performance curve as a broken line. Pressure shown on broken line is maximum recommended for 28 SSU liquid. Horsepower for 28 SSU is same as 38 SSU at any given pressure. Carbon graphite bushings must be used handling 28 SSU liquids.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

Mechanical

$$\text{Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

NPSH_R – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU

Cast Iron Series 124A/AE, 4124A/AE, 324A, 4324A, 224A/AE, and 4224A/AE

Ductile Iron Series 126A, 4126A, 226A and 4226A

Steel Externals Series 123A, 4123A, 323A, 4323A, 223A and 4223A

Stainless Steel Series 127A, 4127A, 327A, 4327A, 227A and 4227A

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
G	—	—	—	—	—	—	—	1.8	2.0	2.2	2.6	3.1	3.9	5.6	7.6
H, HL	—	—	—	—	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2 ^①	9.5	13.5
AK, AL	—	—	1.6	1.7	1.8	2.0	2.3	2.7	3.2	3.9	5.5	7.7	11.2	—	—
K, KK	—	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4 ^①	6.3	9.1	—	—	—	—
L	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	—	—	—	—	—
LQ	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0 ^①	7.3	10.8	—	—	—	—	—
LL	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0 ^①	7.3	—	—	—	—	—	—
LS	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3 ^①	10.8	—	—	—	—	—
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1 ^①	8.4	12.7	—	—	—	—	—	—
M	2.1	2.3	2.8	3.4	4.3	6.0	9.0	12.7	—	—	—	—	—	—	—
N^②	2.1	2.3	3.5	4.5	6.3	9.5	15.0	—	—	—	—	—	—	—	—
R^②	6.1	7.1	8.3	10.1	12.1	15.2	—	—	—	—	—	—	—	—	—
RS^②	7.0	8.5	10.4	13.1	17.2	22.4	—	—	—	—	—	—	—	—	—

① Maximum Speed for Stainless Steel Models

② Ductile Iron not available in N and R sizes

VIKING UNIVERSAL SEAL PUMPS

SERIES 124A, 4124A, 124AE, 4124AE, 224A, 4224A, 224AE, 4224AE, 324A, and 4324A (Cast Iron)
126A, 4126A, 226A and 4226A (Ductile Iron)
123A, 4123A, 223A and 4223A, 323A, 4323A (Steel Externals)
127A, 4127A, 227A and 4227A, 327A, 4327A (Stainless Steel)

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Performance Curve Notes Cont'd

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE		CAPACITY	
In.-Hg (inches of mercury)	KPa* (Kilopascals)	PSI (lb./in ²)	kPa* (Kilopascals)	GPM (US gal/minute)	LPM (Liter/Minute)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345		
15	51	100	690		
20	68	150	1034		
25	85	200	1379		
		250	1724		

* 100 kPa = 1 bar

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Section 632

Viking Universal 682 Pumps

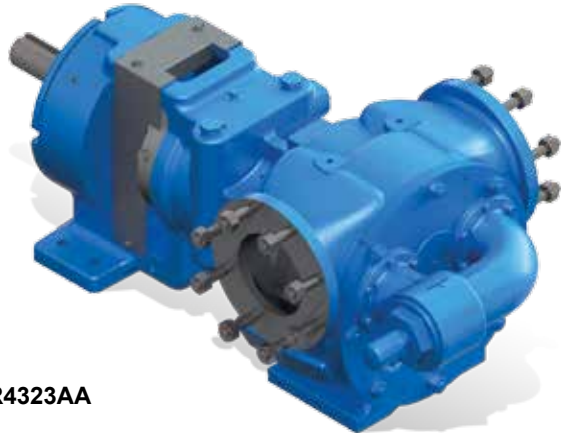
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VIKING UNIVERSAL 682 PUMPS

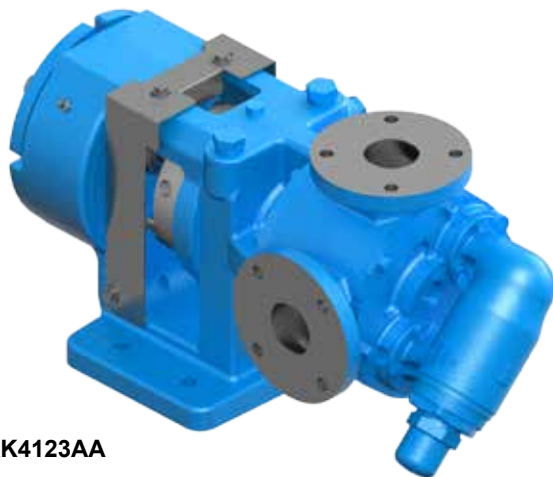
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SERIES 4223AA & 4323AA (Steel Externals)

Heavy-Duty, Foot-Mounted Internal Gear Pumps With API 682 Seals



R4323AA



KK4123AA

Operating Range:

Steel Externals Series 4223AA & 4323AA		
Nominal Flow	(GPM)	15 - 1600
	(M ³ /hr.)	3.4 - 364
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range	(°F)	-20°F to +400°F
	(°C)	-29°C to +205°C
Viscosity Range	(SSU)	28 SSU to 35,000 SSU
	(cSt)	0.1 cSt to 7,700 cSt

Note: Lower temperatures available with special materials.
Higher pressures available with factory approval.
Higher viscosities (to 2,000,000 SSU / 440,000 cSt) available with cartridge lip seals that fit API 682 dimensions, but are not API 682 compliant.

Nominal Flow Rates:

Pump Size	Steel Externals Series	
	GPM	M ³ /hr
H	15	3.4
HL	30	6.8
K	75	17
KK	100	23
LQ	135	31
LL	140	32
LS	200	45
Q	300	68
QS	500	113
N	600	136
R	1100	250
RS	1600	364

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VIKING UNIVERSAL 682 PUMPS

SERIES 4223AA & 4323AA (Steel Externals)

Series Description

The Universal 682 Series with API 682 seals is a complete series of pumps that offers the flexibility and adaptability of the Universal Seal series, and combines it with a bracket that accepts API 682-compliant cartridge seals.

For those seeking compliance with API Standard 676 for Positive Displacement pumps, Viking offers three options:

1. Universal Seal Series pumps with steel externals (Series 4123A, 4223A & 4323A, found in catalog Section 630) comply with most key requirements of API 676, but take exceptions to a number of specifications, including that they offer cartridge seals, but not API 682 cartridge seals.
2. Universal 682 Seal Series (4223AA & 4323AA, found in this catalog Section 632) offers all of the features, benefits and options of the Universal Seal Series pumps with steel externals, but features a larger bracket that enables use of API-682-compliant cartridge seals. This is the most versatile model available with the widest choice of options, yet offers the ability to use most brands and styles of API 682 seals and API seal plans.
3. The Universal XPD 676 Series (4223AX, 4323AX, found in catalog Section 633), is designed to be in full compliance with the API 676 standard, including API 682-compliant seals. These are Viking's most robust pumps, period. But full compliance actually limits the options available, so consider the AA models if the pump must be significantly customized to the application.

Key Features & Benefits

- Jacketed bracket with API 682 seal chamber standard
- Dual tapered roller-type thrust bearings with 25,000 hour L-10 life standard
- All Universal Seal Displacements (H, HL, K, KK, LQ, LL, LS, Q, QS, N, R & RS)
- All Universal Seal head options (Plain Head or With Relief Valve). Note: Standard is less valve. Integral relief valve not allowed by API 676 unless specified by user.
- All Universal Seal flange options (Class 150 or 300 Flat Face or Raised Face)
- All Universal Seal porting options (90° or opposite porting, rotatable to any position)
- All Universal Seal jacketing options (jacketed casing, jacketed head, jacketed relief valve)
- All Universal Seal material options (standard steel, low temperature steel, NACE-compliant steel), various bushing and gasketing or O-ring options
- Reversible direction of flow for line stripping
- Drain Port Option (NPT or welded flange adapter)

A full list of deviations from the API 676 specification is found in TR-701.



Viking Universal series pumps carry a three year limited warranty. See catalog section 000 for details.

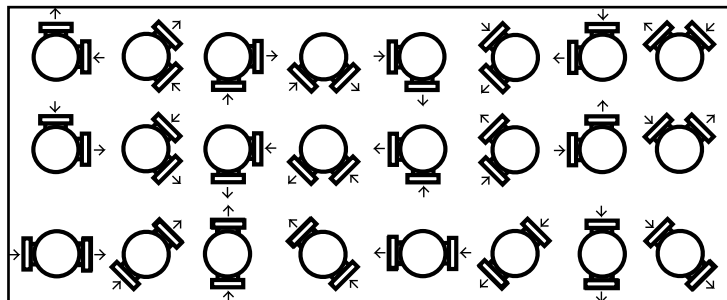
Revolvable Pump Casings Standard on H through Q Sizes

Universal 682 Seal Pumps are equipped with pump casings that can be positioned to meet common piping configurations. H through Q sizes have standard 90° ports which can be turned to any of eight positions, except where limited by the flange size. Direction of flow is reversible so any given port can be used as suction or discharge. Typical port configurations are shown below. See Optional Casings tables for available port options.

90° port options

Opposite port options

(Not available in all sizes)



VIKING UNIVERSAL 682 PUMPS

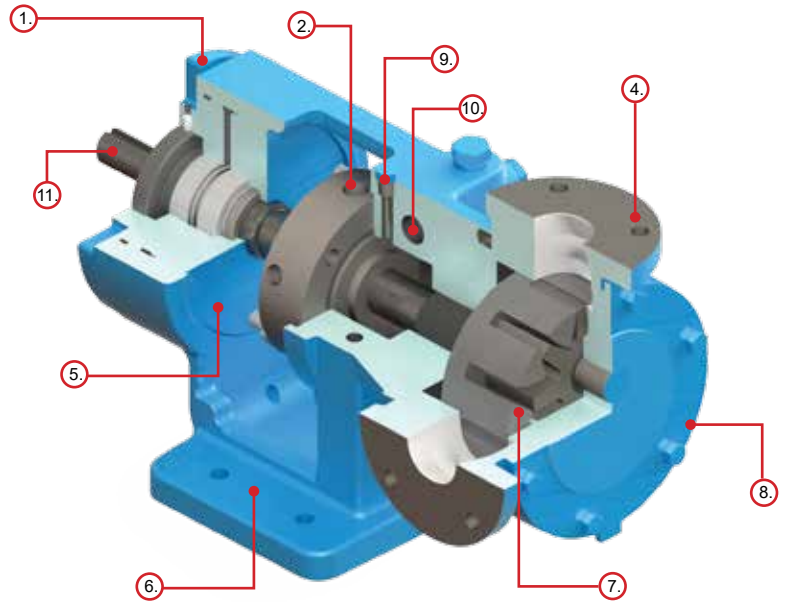
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SERIES 4223AA & 4323AA (Steel Externals)

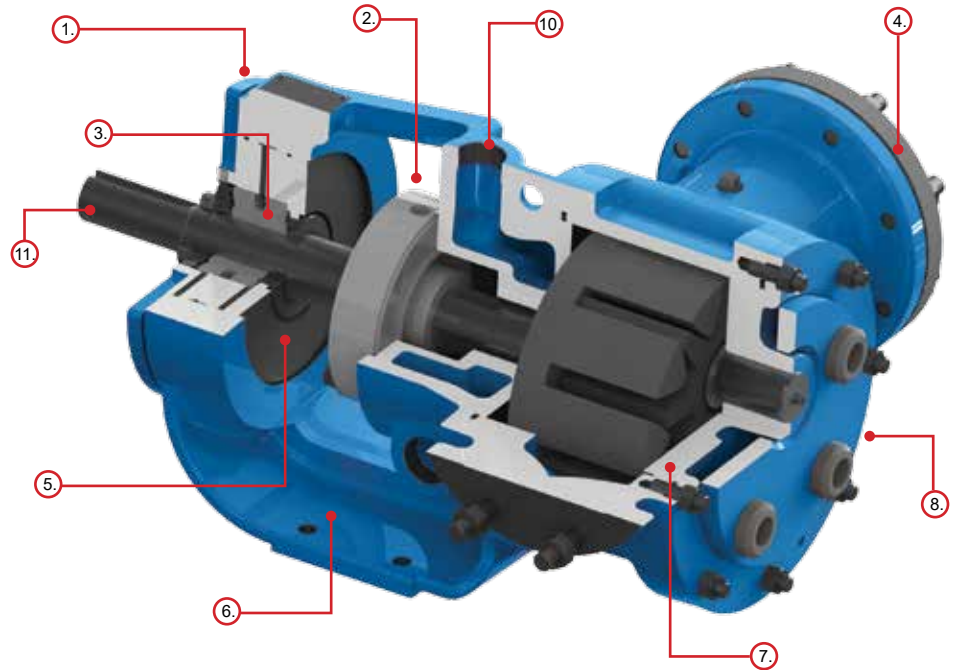
Pump Construction and Features

1. Large diameter threaded bearing housing allows easy removal of cartridge seals.
2. Seal chamber accepts most brands of cartridge seals conforming to API 682, Plan 13 standard, other seal plans available.
3. Tapered roller thrust bearings provide minimum 25,000 hour L-10 life at maximum flow, pressure and viscosity.
4. Multiple port sizes, types, and ratings are available including threaded, raised and flat face flanged (Class 150 & Class 300).
5. Bearing housing protected by lip seals standard, with labyrinth seal option
6. One-piece cast bracket provides rigid foundation to maximize seal and bearing life.
7. Rotor end clearance can be adjusted to compensate for wear or for higher temperatures or viscosities by rotating the threaded bearing housing (1).
8. Plain head standard. Optional Head Jacket (shown).
9. Seal chamber venting port for start-up and draining pump prior to maintenance.
10. Jacketed bracket enables heating or cooling. Option casing and head jacketing.
11. Rectangular keyways transmit more torque.

KK4223AA



QS4223AA

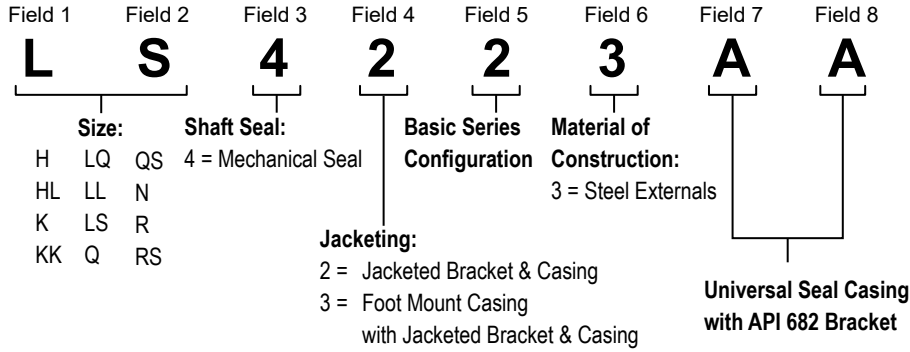


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VIKING UNIVERSAL 682 PUMPS

SERIES 4223AA & 4323AA (Steel Externals)

Model Number Key

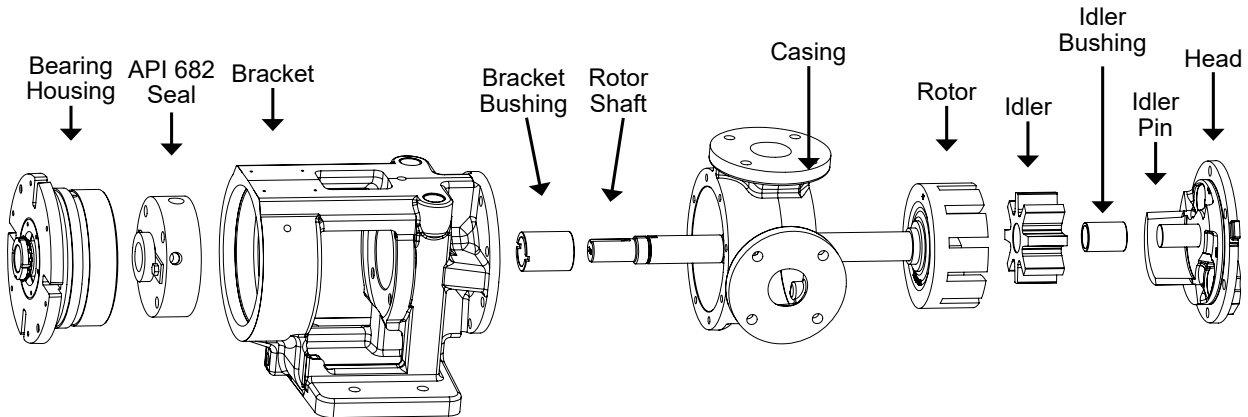


Materials of Construction

Component	Steel Externals Jacketed Series 223AA, 4223AA	
Casing	Steel | ASTM A216, Grade WCB	
Head	Steel | ASTM A216, Grade WCB	
Optional Head Jacket Plate	Steel | ASTM A216, Grade WCB	
Bracket	⑤ Steel | ASTM A216, Grade WCB	
Idler	② ③ Cast Iron | ASTM A48 Class 35B	
Rotor	Standard	① Cast Iron | ASTM A48, Class 35B
	Steel Fitted	④ Steel | ASTM A148, Grade 80-40
Rotor Shaft	⑤ Steel | ASTM A108, Grade 1045	
Idler Pin	Hardened Steel | ASTM A108, Grade 1045	
Idler Bushing	Carbon Graphite	
Bracket Bushing	Carbon Graphite	
Mechanical Seal	SS gland, Carbon / SiC / Viton®	

- ① KK, LS, QS, N and RS sizes have ductile iron rotor, ASTM A536 Grade 60-40-18.
- ② Steel fitted Q and QS sizes have steel idler.
- ③ H and HL sizes have powdered metal idler, MPIF Std 35 FC-0208-50.
- ④ Material specification for HL steel rotor is AISI 8620, LS steel rotor is ASTM A148 80-50.
- ⑤ Traceability standard.

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VIKING UNIVERSAL 682 PUMPS

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SERIES 4223AA & 4323AA (Steel Externals)

Specifications

U.S. Units:

Model Number	⑤ Standard Port Size	Nominal Pump Rating (100 SSU and below)		Max. Hydrostatic Pressure	① Max. Discharge Pressure for 100 SSU Liquid at rated speed	② Max. Recommended Temp. for Standard Pump (°F)	Steel Fitted Recommended Above	Approx. Shipping Weight with Valve
	Inches	GPM	RPM	PSIG	PSIG	④ Mech Seal	SSU	Pounds
H4223AA	③ 1 ½	15	1750	400	200	350	25,000	170
HL4223AA	③ 1 ½	30	1750	400	200	350	7,500	170
K4223AA	③ 2	80	780	400	200	350	25,000	215
KK4223AA	③ 2	100	780	400	200	350	75,000	215
LQ4223AA	③ 2 ½	135	640	400	200	350	25,000	345
LL4223AA	③ 3	140	520	400	200	350	2,500	350
LS4223AA	③ 3	200	640	400	200	350	75,000	360
Q4223AA	③ 4	300	520	400	200	350	7,500	640
QS4223AA	③ 6	500	520	400	200	350	75,000	700
N4323AA	③ 6	600	350	400	200	225	75,000	1015
R4323AA	③ 8	1100	280	400	200	225	25,000	2050
RS4323AA	③ 10	1600	280	400	125	225	75,000	2450

NOTE: H-N size pumps are standard with a jacketed bracket and plain head. R size pumps are standard with a jacketed bracket and jacketed head. RS size pumps are standard with a jacketed bracket, jacketed casing and jacketed head.

- ① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
- ② Higher temperatures can be handled with special construction and/or extra clearances, consult factory.
- ③ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.
- ④ Temperature based on Viton® seal as standard. Lower temperature limits may be required when using other seal elastomers
- ⑤ See page 632.11 for other port size options.

Metric Units:

Model Number	⑤ ⑥ Standard Port Size	Nominal Pump Rating (22 cSt and below)		Max. Hydrostatic Pressure	① Max Discharge Pressure for 22 cSt Liquid at rated speed	② Max Recommended Temp. for Standard Pump (°C)	Steel Fitted Const. Recommended Above	Approx. Shipping Weight with Valve
	Inches	M³/hr	RPM	BAR	BAR	④ Mech Seal	cSt	KG
H4223AA	③ 1 ½	3.4	1450	28	14	180	5,500	77
HL4223AA	③ 1 ½	6.8	1450	28	14	180	1,650	77
K4223AA	③ 2	18	780	28	14	180	5,500	98
KK4223AA	③ 2	23	780	28	14	180	16,500	98
LQ4223AA	③ 2 ½	31	640	28	14	180	5,500	156
LL4223AA	③ 3	32	520	28	14	180	550	159
LS4223AA	③ 3	45	640	28	14	180	16,500	163
Q4223AA	③ 4	68	520	28	14	180	1,650	290
QS4223AA	③ 6	114	520	28	14	180	16,500	318
N4323AA	③ 6	136	350	28	14	107	16,500	460
R4323AA	③ 8	250	280	28	14	107	5,500	930
RS4323AA	③ 10	364	280	28	9	107	16,500	1111

NOTE: H-N size pumps are standard with a jacketed bracket and plain head. R size pumps are standard with a jacketed bracket and jacketed head. RS size pumps are standard with a jacketed bracket, jacketed casing and jacketed head.

- ① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
- ② Higher temperatures can be handled with special construction and/or extra clearances. Consult factory.
- ③ Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.
- ④ Temperature based on Viton® seal as standard. Lower temperature limits may be required when using other seal elastomers.
- ⑤ See page 632.7 for other port size options.
- ⑥ Port sizes are inch standard, not metric design or size.

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VIKING UNIVERSAL 682 PUMPS

SERIES 4223AA & 4323AA (Steel Externals)

Optional Casings for Different Port Configurations

Model Number	Standard Ports †	Non-Jacketed Casing Options						Jacketed Casing Options	
H4123AA	1.5"①	1.5"②®	2"①®	2"②®				2"②®	
HL4123AA	1.5"①	1.5"②®	2"①®	2"②®				2"②®	
K4123AA	2"①	2"②®	2.5"①®	2.5"②®	3"①®	3"②®	4"①®	4"②®	3"①®; 4"①®; 3"②®; 3"②®
KK4123AA	2"①	2"②®	2.5"①®	2.5"②®	3"①®	3"②®	4"①®	4"②®	3"①®; 4"①®; 3"②®; 3"②®
LQ4123AA	2.5"①	2.5"②®	3"②®	4"①®	4"②®	6"①®			3"①®; 3"②®; 4"②®
LL4123AA	3"①	3"②®	4"①®	4"②®					
LS4123AA	3"①	3"②®	4"①®	4"②®					4"①®; 6"①®; 4"②®
Q4123AA	4"①	4"②®	5"①®	5"②®	6"①®*	6"②®*	6"①®	6"②®	4"①®; 4"②®
QS4123AA	6"①◎	6"①®	6"②◎						6"①®; 6"②◎
N4323AA	6"①◎								6"①®; 8"②◎
R4323AA	8"①◎								8"①◎
RS4323AA	10"①◎								

† Standard port configuration is 90° which may be rotated (H-Q) or opposite (QS-RS) with right hand inlet viewed from the shaft end. 90° ports may be rotated.

① Port(s) suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

② Port(s) suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

® 90° port arranged for Right Hand inlet (viewed from shaft end)

Ⓛ 90° port arranged for Left Hand inlet (viewed from shaft end)

Ⓝ Non-Rotatable Ports at 90 degree angle, contact factory for available orientation (right hand or left hand)

◎ Opposite Ports

* Core smaller than port size

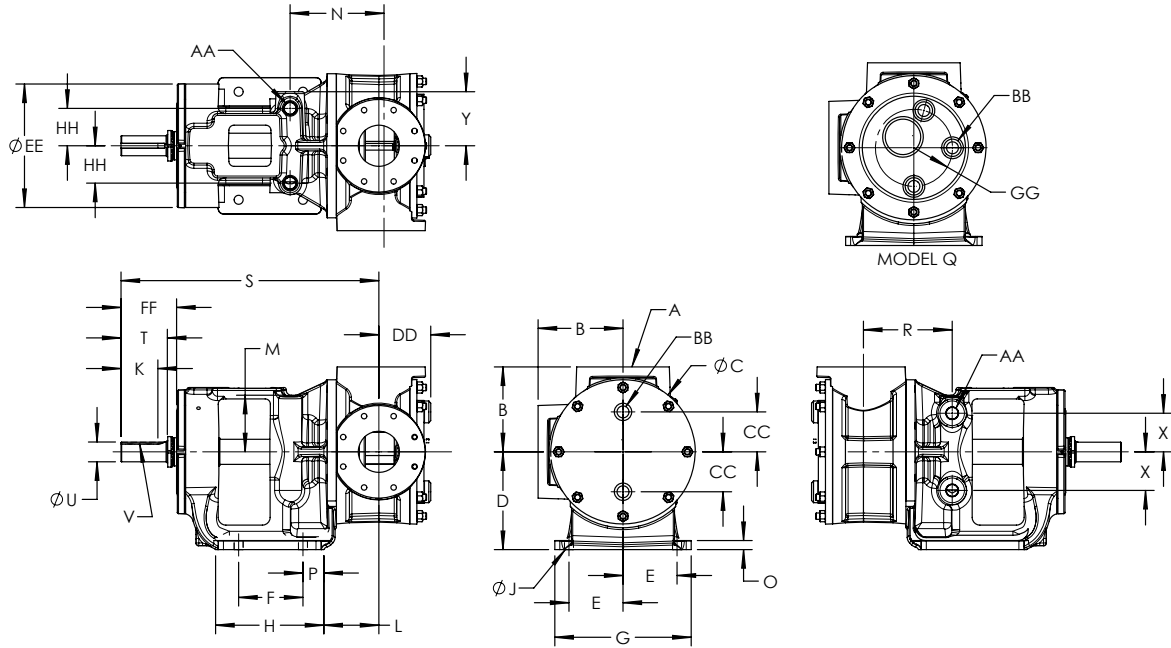
Contact factory for flange details (e.g. Flat face or raised face flanges)

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SERIES 4223AA & 4323AA (Steel Externals)

Dimensions - H through Q Sizes – All Materials of Construction



Model Number	A (in)		B	C	D	E	F	G	H	J	K	L	M	N	O
H4223AA HL4223AA	① 1.5	in	4.00	4.75	6.00	4.25	5.00	11.00	8.63	0.47	0.99	3.83	3.83	5.95	0.94
		mm	101.6	120.7	152.4	108.0	127.0	279.4	219.2	11.9	25.1	97.3	97.3	151.1	23.9
K4223AA KK4223AA	① 2	in	5.25	8.00	6.50	4.38	3.50	11.00	7.74	0.53	1.42	3.00	4.00	6.02	0.94
		mm	133.4	203.2	165.1	111.3	88.9	279.4	196.6	13.5	36.1	76.2	101.6	152.9	23.9
LQ4223AA	① 2.5	in	7.19	10.25	7.00	5.00	5.00	12.50	8.39	0.53	1.42	3.38	4.34	7.01	0.81
		mm	182.6	260.4	177.8	127.0	127.0	317.5	213.1	13.5	36.1	85.9	110.2	178.1	20.6
LL4223AA	① 3	in	7.19	10.25	7.00	5.00	5.00	12.50	8.39	0.53	1.42	3.38	4.34	7.01	0.81
		mm	182.6	260.4	177.8	127.0	127.0	317.5	213.1	13.5	36.1	85.9	110.2	178.1	20.6
LS4223AA	① 3	in	7.19	10.25	7.00	5.00	5.00	12.50	8.39	0.53	1.42	4.55	4.34	8.18	0.81
		mm	182.6	260.4	177.8	127.0	127.0	317.5	213.1	13.5	36.1	115.6	110.2	207.8	20.6
Q4223AA	① 4	in	8.25	14.00	9.50	5.25	6.25	13.25	10.52	0.69	3.58	5.35	5.50	8.63	1.08
		mm	209.6	355.6	241.3	133.4	158.8	336.6	267.2	17.5	90.9	135.9	139.7	219.2	27.4

Model Number		P	R	S	T	U	V	X	Y	② AA	③ BB	CC	DD	EE	FF	GG	HH
H4223AA HL4223AA	in	1.61	5.95	16.91	1.59	0.75	.19 x .09	2.38	3.63	3/4"	1/2"	0.94	2.41	8.38	2.30		2.38
	mm	40.9	151.1	429.5	40.4	19.1		60.5	92.2			23.9	61.2	212.9	58.4		60.5
K4223AA KK4223AA	in	2.00	6.02	18.58	2.29	1.125	.25 x .12	2.63	3.62	3/4"	1-1/4"	1.75	3.25	8.43	2.92		2.41
	mm	50.8	152.9	471.9	58.2	28.6		66.8	91.9			44.5	82.6	214.1	74.2		61.2
LQ4223AA	in	1.38	7.01	22.98	2.25	1.12	.25 x .12	3.00	4.25	1"	1"	3.00	3.81	8.43	2.93		2.75
	mm	35.1	178.1	583.7	57.2	28.4		76.2	108.0			76.2	96.8	214.1	74.4		69.9
LL4223AA	in	1.38	7.01	22.98	2.25	1.12	.25 x .12	3.00	4.25	1"	1"	3.00	4.31	8.43	2.93		2.75
	mm	35.1	178.1	583.7	57.2	28.4		76.2	108.0			76.2	109.5	214.1	74.4		69.9
LS4223AA	in	1.38	8.18	24.15	3.55	1.44	.38 x .19	3.00	4.25	1"	1"	3.00	4.5	8.43	4.03		2.75
	mm	35.1	207.8	613.4	90.2	36.6		76.2	108.0			76.2	114.3	214.1	102.4		69.9
Q4223AA	in.	2.03	8.63	25.06	4.50	1.94	.50 x .25	3.75	5.25	1"	1-1/4"		4.57	12.09	5.35	3.75	3.63
	mm	51.6	219.2	636.5	114.3	49.3		95.3	133.4				116.1	307.1	135.9	95.3	92.2

① Ports are suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

② Ports for steam or hot oil jacketing are inch standard NPT threads. Metric (mm) equivalents are for information only, and do not indicate a metric thread size.

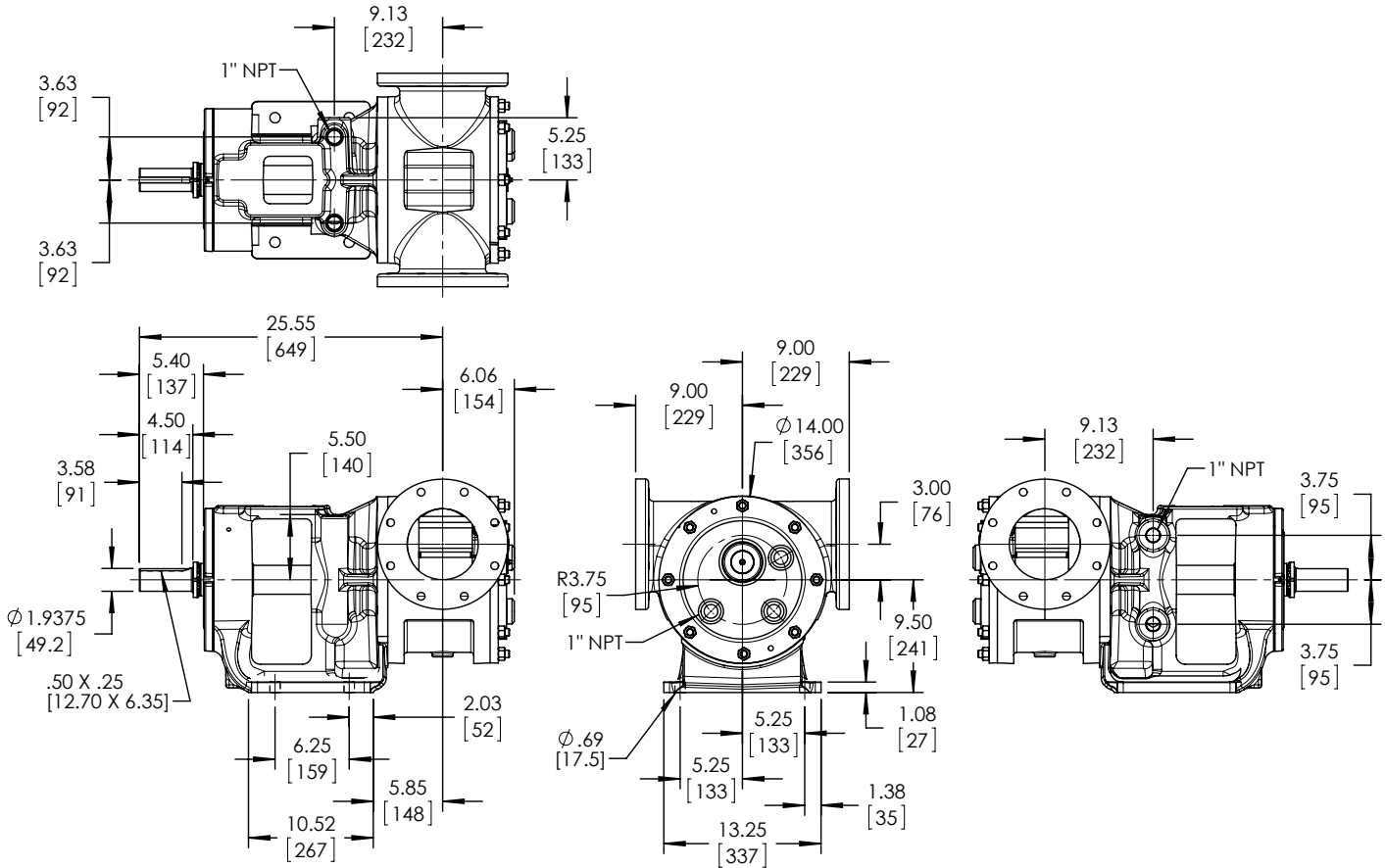
③ "BB" Dimension for Q223A and Q227A is 1"(25.4 mm).

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VIKING UNIVERSAL 682 PUMPS

SERIES 4223AA & 4323AA (Steel Externals)

Dimensions - QS Size – All Materials of Construction



Model Number	BB*	DD	GG
Mechanical Seal			
QS4223AA	1 (25.4)	6.06 (152.93)	3.75 (95.25)

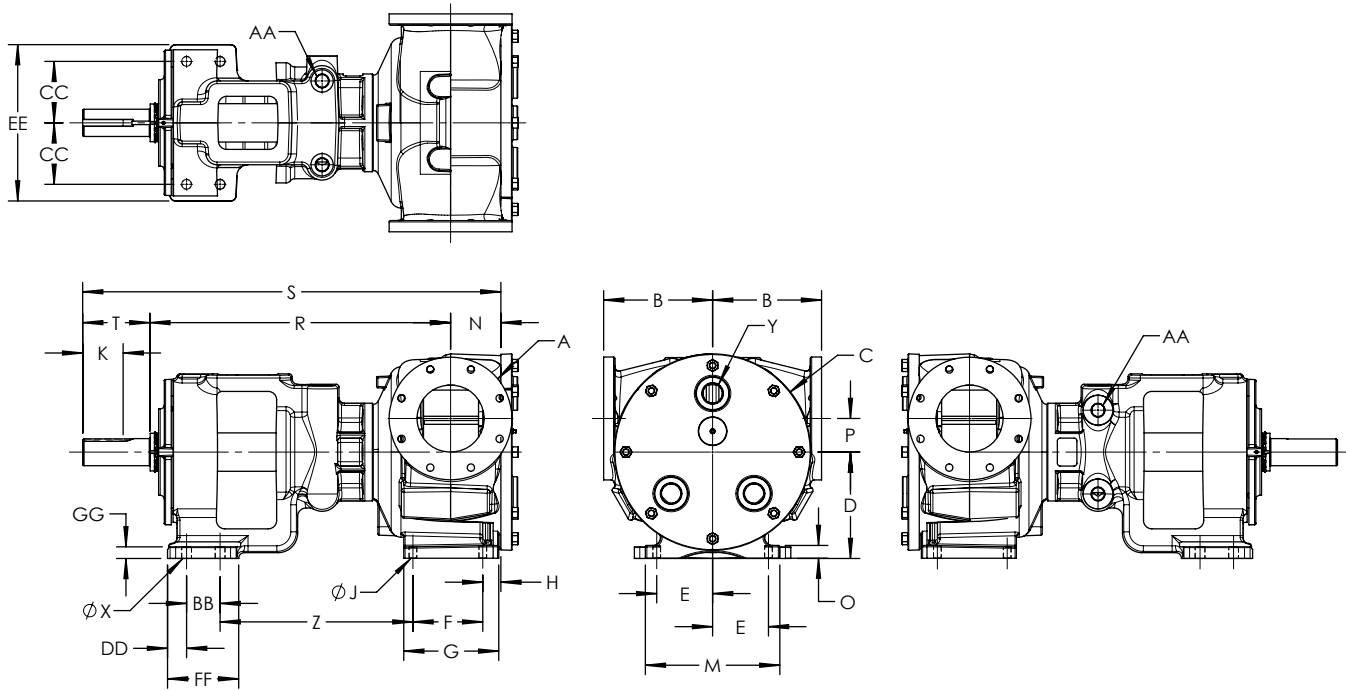
* Ports for steam or hot oil jacketing are inch standard NPT threads. Metric (mm) equivalents are for information only, and do not indicate a metric thread size.

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SERIES 4223AA & 4323AA (Steel Externals)

Dimensions - N, R & RS, Sizes – All Materials of Construction



Model Number	A (in)		B	C	D	E	F	G	H	J	K	M	N	O	P	R	S	T	U	V	X	Y	Z
N4324AA N4323AA N4327AA	① 6	in	9.75	17.25	9.50	5.00	6.25	8.69	1.62	0.69	4.50	12.00	4.50	1.00	3.00	26.00	36.50	6.00	2.44	.62 x .31	0.69	N/A	18.94
		mm	247.7	438.1	241.3	127.0	158.7	220.7	41.1	17.5	114.3	304.8	114.3	25.4	76.2	660.4	927.1	152.4	62.0	15.74 x 7.87	17.5	N/A	481.0
R4324AA R4323AA R4327AA	① 8	in	14.25	24.50	13.25	6.75	7.00	10.56	2.31	0.78	6.00	16.00	5.62	1.00	4.50	28.75	41.00	6.62	3.44	.88 x .44	0.69	1.25	19.25
		mm	361.9	622.3	336.5	171.4	177.8	268.2	58.7	19.8	152.4	406.4	142.7	25.4	114.3	730.2	1041	168.1	87.4	22.35 x 11.18	17.5	31.7	488.9
RS4324AA RS4323AA RS4327AA	① 10	in	14.25	24.5	13.25	6.75	7.00	13.12	4.81	0.88	6.00	16.46	8.12	1.30	4.50	28.55	43.49	6.62	3.44	.88 x .44	0.88	1.25	19.25
		mm	361.9	622.30	336.5	171.4	177.8	333.24	122.17	22.35	152.4	418.08	206.24	33.02	114.3	725.17	1104.64	168.1	87.4	22.35 x 11.18	22.35	31.7	488.9

Model Number		AA	BB	CC	DD	EE	FF	GG
N4324AA N4323AA N4327AA	in	1	3.00	5.50	1.46	14.00	6.37	1.19
	mm	---	76.2	139.7	37.1	355.6	161.8	30.2
R4324AA R4323AA R4327AA	in	1.5	3.25	7.75	2.01	19.00	7.17	1.20
	mm	---	82.6	196.9	51.1	482.6	182.1	30.5
RS4324AA RS4323AA RS4327AA	in	1.5	3.25	7.75	2.01	19.00	7.17	1.20
	mm	---	82.6	196.9	51.1	482.6	182.1	30.5

① Ports are suitable for use with Class 150 ANSI steel or stainless steel companion flanges or flanged fittings.

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VIKING UNIVERSAL 682 PUMPS

SERIES 4223AA & 4323AA (Steel Externals)

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.,” which is the standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See NPSH_R table below.

FOR VISCOSITIES GREATER THAN 750 SSU (NPSH_R data not available): The performance curves are based on 10 or 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size

be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. Refer to General Catalog, Engineering Section 510 for information on determining line size.

THIN LIQUIDS: pump capacity when handling 28 SSU liquids (solvents, etc.) is shown on the 38 SSU performance curve as a broken line. Pressure shown on broken line is maximum recommended for 28 SSU liquid. Horsepower for 28 SSU is same as 38 SSU at any given pressure. Carbon graphite bushings must be used handling 28 SSU liquids.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

NPSH_R – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU

Steel Externals Series 4223A and 4323A

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
H, HL	-	-	-	-	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2 ^①	9.5	13.5
K, KK	-	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4 ^①	6.3	9.1	-	-	-	-
L	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	-	-	-	-	-
LQ	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0 ^①	7.3	10.8	-	-	-	-	-
LL	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0 ^①	7.3	-	-	-	-	-	-
LS	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3 ^①	10.8	-	-	-	-	-
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1 ^①	8.4	12.7	-	-	-	-	-	-
N ^②	2.1	2.3	3.5	4.5	6.3	9.5	15.0	-	-	-	-	-	-	-	-
R ^②	2.7	3.2	4.2	5.8	8.2	11.9	-	-	-	-	-	-	-	-	-

① Maximum Speed for Stainless Steel Models

② Ductile Iron not available in N and R sizes

VIKING UNIVERSAL 682 PUMPS

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SERIES 4223AA & 4323AA (Steel Externals)

Performance Curve Notes Cont'd

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE			CAPACITY		
In.-Hg (inches of mercury)	KPa* (Kilopascals)	PSI (lb./in ²)	kPa* (Kilopascals)	BAR	GPM (US gal/minute)	LPM (Liter/Minute)	M ³ /hr
1	3.4	1	6.9	0.07	1	3.8	0.23
5	17	25	172	1.7	0.26	1	0.06
10	34	50	345	3.4	4.4	16.7	1
15	51	100	690	6.9			
20	68	150	1034	10.3			
25	85	200	1379	13.8			
		250	1724	17.2			

* 100 kPa = 1 bar

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Section 633
Viking XPD 676 Pumps

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**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

SERIES 4223AX, 4323AX, 4127AX, 4327AX

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Heavy-Duty, Foot-Mounted Internal Gear Pumps Offering Full Compliance with API 676 Design Standards for rotary positive displacement pumps in petroleum, chemical, and gas industry services.

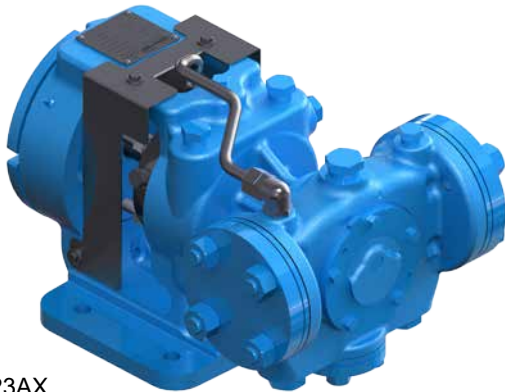
Series Description

The Universal XPD 676 Series Internal Gear pumps are designed and manufactured to comply fully with the current version of American Petroleum Institute's design standard for positive displacement pumps, API 676. Applications include oil and gas and petrochemical industries where exceptional reliability is required.

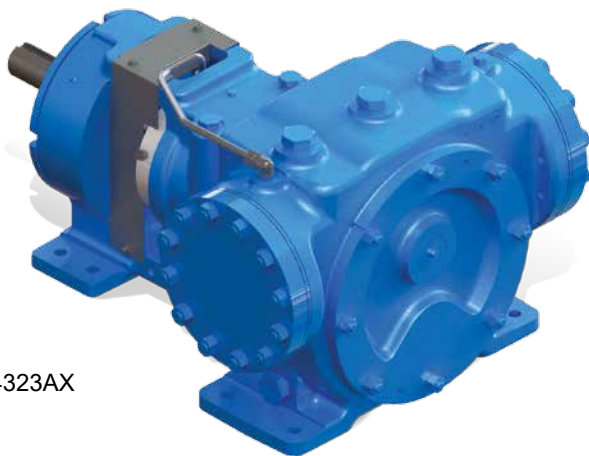
Operating Range:

Steel Externals Series 4223AX & 4323AX Stainless Steel Series 4127AX & 4327AX		
Nominal Flow	(GPM)	15 - 1100
	(M ³ /hr.)	3.4 - 250
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range	(°F)	-20°F to +400°F
	(°C)	-29°C to +205°C
Viscosity Range	(SSU)	28 SSU to 35,000 SSU
	(cSt)	0.1 cSt to 7,700 cSt

Note: Lower temperatures available with special materials.
Higher pressures available with factory approval.



HL4323AX



N4323AX

Nominal Flow Rates:

Pump Size	Flow Rates - Steel	
	GPM	M ³ /hr
HL	30	6.8
KK	100	23
LS	200	45
Q	300	68
QS	500	114
N	600	136
R	1100	250

Pump Size	Flow Rates - Stainless Steel	
	GPM	M ³ /hr
HL	20	4.5
KK	65	15
LS	160	36
Q	200	45
QS	320	73
N	600	136
R	1100	250

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VIKING UNIVERSAL XPD 676 PUMPS - FULL COMPLIANCE with API 676 STANDARDS

SERIES 4223AX, 4323AX, 4127AX, 4327AX

Features Required by API 676 that are standard in XPD 676 series

A few of the key features that are required for full compliance include:

- API 682 Seal. Viking's seal chamber will accept almost any customer-specified brands and types of API 682-compliant Category 1, 2 or 3 cartridge mechanical seals, and can provide API seal plans to meet application requirements. Standard seal is a category 2 single mechanical seal. Carbon vs. silicon carbide with API Plan 13.
- 3mm corrosion allowance above Maximum Allowable Working Pressure (MAWP). The XPD 676 has an additional 3mm corrosion allowance built into all pressure containing components over and above our standard steel Universal Seal series pumps.
- 25,000 hour L-10 life on tapered roller bearings. Standard on all sizes at maximum speed and pressure.
- Steel castings to be normalized and tempered. Standard.
- High Strength Bolting. XPD 676 features high strength fasteners stamped with manufacturer's symbol and material codes, studs on some sizes. Threaded holes are drilled and tapped to minimum 1.5X stud diameter with minimum metal around the bottom of threaded holes at least 0.5X stud diameter plus 3mm corrosion allowance, per the specification.
- Casing drain and seal chamber vent. XPD 676 has cast-in casing drain with ANSI Class 300 RF flange and seal chamber vent to completely drain the casing before maintenance.
- Mounting surfaces flat and parallel. The mounting feet of XPD 676 pumps are machined to 6.3µm Ra, with flatness tolerance of 25µm. The upper surface is machined parallel to the foot, and where the pump has both bracket and casing feet (N & R sizes), the feet are machined flat and parallel, in the same plane within 150 µm/m (0.002 in./ft) of distance between the mounting surfaces after the pump is assembled.
- Rectangular keyways. Viking cuts rectangular keyways with required fillets and includes the key with each pump. Tapered shaft extension on shafts larger than 2.5". Viking tapers the shaft extension on the "R" size for easy removal of the coupling half.
- Non-Destructive Evaluation of castings and post-weld evaluation of any necessary weld repairs using mag particle (MT) testing
- Certified hydrostatic testing to 1.5X MACP
- Certified performance testing in accordance with Section 3.6 of the Hydraulic Institute pump standards, at the specified viscosity (from 28 to 25,000 SSU), with data including speed, discharge pressure, suction pressure, power, and capacity.
- Packaging for long term storage, including corrosion inhibitor applied to exposed metal parts and metal port covers to protect internals from corrosion and contaminants

- Documentation to include, at a minimum:
 - Certified dimensional outline drawing
 - Allowable flange loadings
 - Cross-sectional drawing and bill of material
 - Mechanical seal drawing & bill of material
 - Performance curve
 - Certified hydrostatic test data
 - Material certifications (traceability)
 - Weld procedure specification (WPS)
 - Weld maps
 - Non-destructive testing procedures
 - Performance test procedures
 - Performance test data
 - Data sheets applicable to proposals, purchase & as-built
 - Installation manual
 - Operation & Maintenance manual
 - Spare parts recommendations & price list
 - List of drawings & submittals
 - Shipping list
- There are many more requirements of the API 676 specification, and Viking has designed this pump to comply with all of them, as standard.

Additional Features & Benefits

Besides the features required by the API 676 standard, Viking offers many additional features and benefits that our customers commonly request, including:

- Jacketing to melt ambient-temperature solids like bitumen before startup. The XPD 676 features jacketed bracket and casing as standard, with option for jacketed head.
- Opposite ports with reversible direction of flow are standard, for easy in-line piping and the ability to transfer product in either direction or strip a line of product.
- O-Ring seals on head and casing joints instead of gaskets for maximum sealing effectiveness.
- Optional labyrinth seals on bearing housing for longest bearing life by minimizing contamination (lip seals standard).
- Grease lubrication standard, enabling re-greasing of pump during operation, without the need for shutdown.
- End clearance is easily adjusted to compensate for wear over time or for higher temperatures or viscosities, by simply rotating the threaded bearing housing.



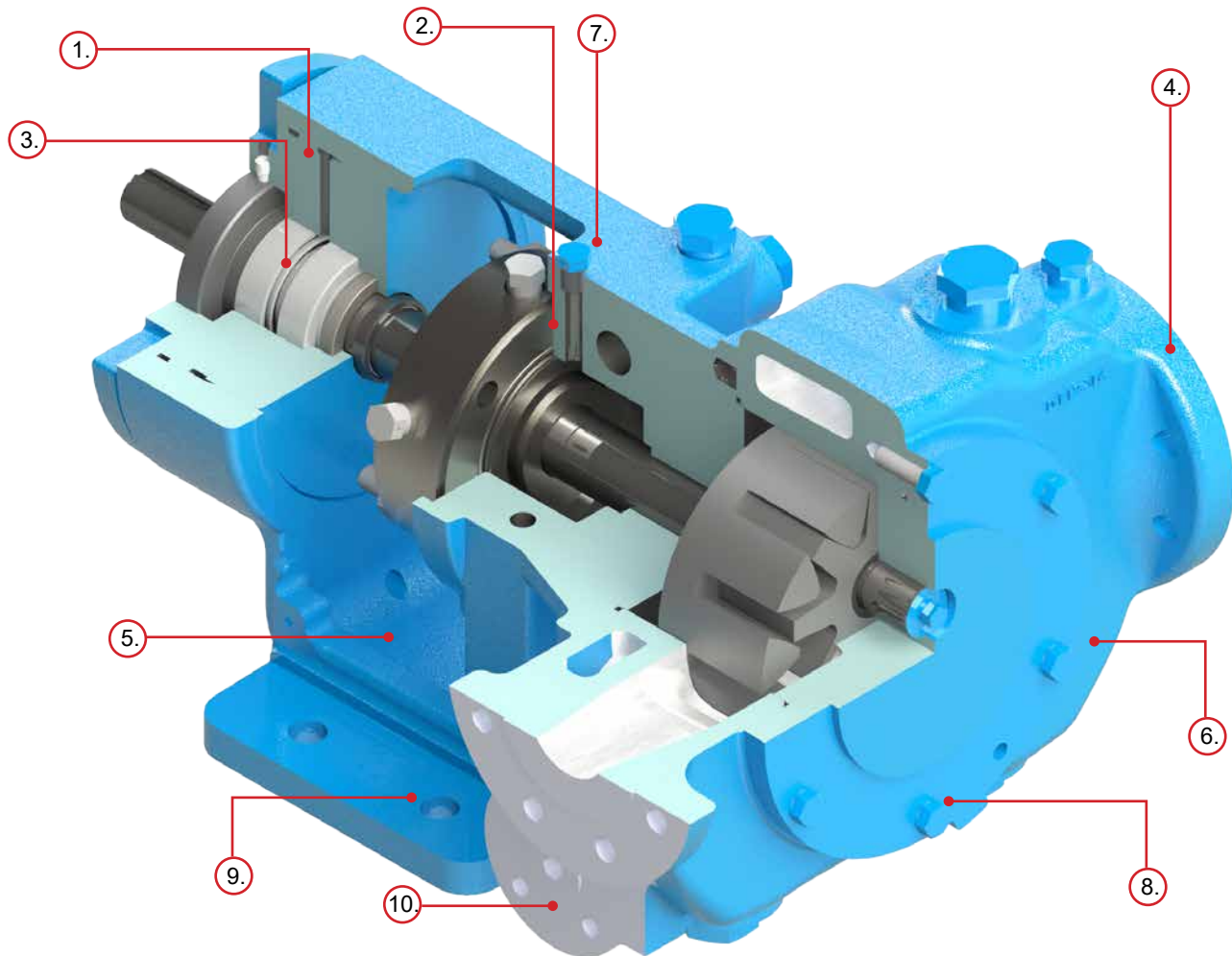
Viking XPD 676 pumps carry a five year limited warranty.

**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

SERIES 4223AX, 4323AX, 4127AX, 4327AX

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Pump Construction and Features



1. Large diameter threaded bearing housing allows easy removal of cartridge seals.

2. Seal chamber accepts most brands of cartridge seals conforming to API 682. API Seal Plan 13 provided as standard. Other plans available.

3. Tapered roller thrust bearings provide minimum 25,000 hour L-10 life at maximum flow, pressure and viscosity.

4. Class 300 Raised Face flanges standard.

5. One-piece cast bracket provides rigid foundation to maximize seal and bearing life.

6. Non-jacketed head standard. Optional Head Jacket available.

7. Seal chamber venting port for start-up and draining pump prior to maintenance.

8. High strength fasteners have material grade and manufacturer's identification symbols applied.

9. Mounting surfaces flat and parallel for superior alignment.

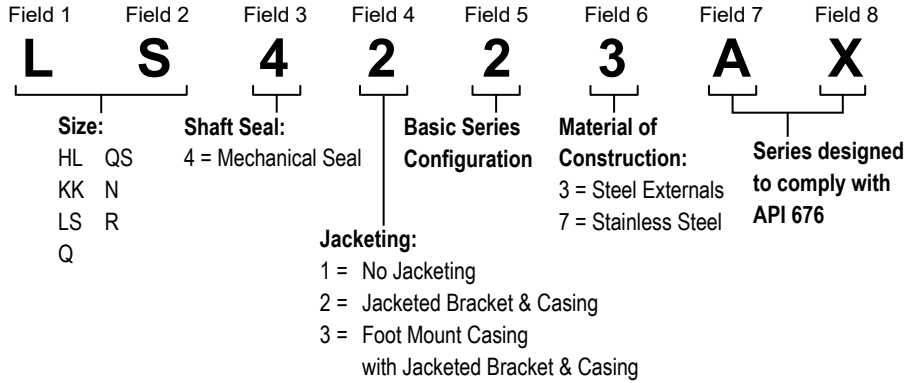
10. Casing drain cast-in with ANSI Class 300 Raised Face Flange to completely drain casing before maintenance.

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VIKING UNIVERSAL XPD 676 PUMPS - FULL COMPLIANCE with API 676 STANDARDS

SERIES 4223AX, 4323AX, 4127AX, 4327AX

Model Number Key



Materials of Construction

Component	Series: 4223AX and 4323AX	Series: 4127AX and 4327AX
Casing	⑦ Steel | ASTM A216, Grade WCC, normalized and tempered	Stainless Steel | ASTM A 743, Grade CF8M
Head	⑦ Steel | ASTM A216, Grade WCC, normalized and tempered	Stainless Steel | ASTM A 743, Grade CF8M, Case Hardened
Optional Plate for Head Jacket	Steel | ASTM A216, Grade WCC, normalized and tempered	Cast Iron | ASTM A48, Class 35B
Bracket	⑦ Steel | ASTM A216, Grade WCC, normalized and tempered	Stainless Steel | ASTM A 743, Grade CF8M
Idler	②③ Cast Iron | ASTM A48 Class 35B	Stainless Steel | ASTM A 743, Grade CF8M, Case Hardened
Rotor	Standard	① Cast Iron | ASTM A48, Class 35B
	Steel Fitted	④ Steel | ASTM A148, Grade 80-40
Rotor Shaft	⑥⑦ Steel | ASTM A108, Grade 1045	⑧ Stainless Steel | ASTM A276 Type XM-19 or 316 condition B
Idler Pin	⑤ Hardened Steel | ASTM A108, Grade 1045	Hard Coated Stainless Steel | ASTM A276 Type 316 Colmonoy # 6 Coated
Idler Bushing	⑥ Carbon Graphite	Carbon Graphite
Bracket Bushing	⑥ Carbon Graphite	Carbon Graphite

① KK, LS, QS and N sizes have ductile iron rotor, ASTM A536 Grade 60-40-18.

② Steel fitted Q and QS sizes have steel idler.

③ HL size has powdered metal idler, MPIF Std 35 FC-0208-50.

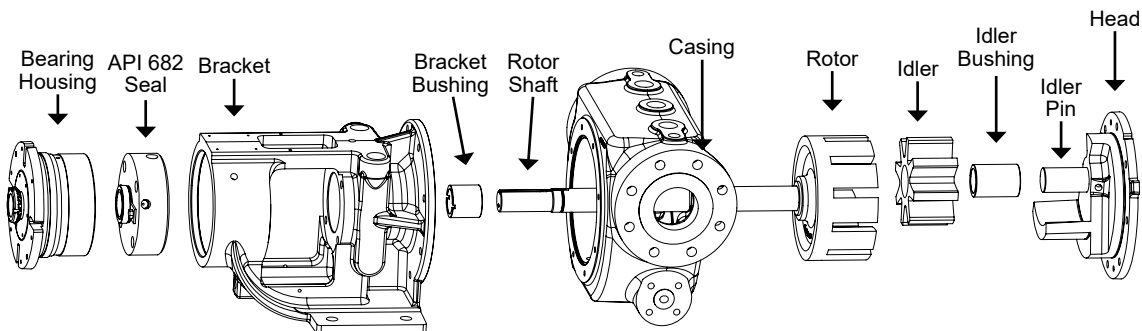
④ Material specification for HL steel rotor is AISI 8620, LS steel rotor is ASTM A148 80-50.

⑤ N & R size have hardened steel/ ASTM A322, Grade 8620

⑥ Numerous material options, coatings and treatments available to satisfy specific application needs.

⑦ Traceability standard.

⑧ N, R, RS shafts are Colmonoy #6 coated.



**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

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SERIES 4223AX, 4323AX, 4127AX, 4327AX

Specifications – Jacketed Steel Pumps

U.S. Units:

Model Number	Standard Port Size	Nominal Pump Rating (100 SSU)		Maximum Hydrostatic Pressure	① Maximum Discharge Pressure for 100 SSU Liquid at rated speed	② Maximum Recommended Temp. for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight
	Inches	GPM	RPM	PSIG	PSIG	(°F)	SSU	Pounds
HL4223AX	③ 1 ½	30	1750	400	200	350	7,500	170
KK4223AX	③ 2	100	780	400	200	350	25,000	215
LS4223AX	③ 3	200	640	400	200	350	75,000	360
Q4223AX	③ 4	300	520	400	200	350	7,500	640
QS4223AX	③ 6	500	520	400	200	350	75,000	700
N4323AX	③ 6	600	350	400	200	225	75,000	1015
R4323AX	③ 8	1100	280	400	200	225	25,000	2050

NOTE: H-N size pumps are standard with a jacketed bracket, jacketed casing and non jacketed head. R size pump is standard with a jacketed bracket, jacketed casing and jacketed head.

- ① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
- ② Higher temperatures can be handled with special construction and/or extra clearances, consult factory. Temperature based on Viton seal as standard. Lower temperature limits may be required when using other seal elastomers.
- ③ Ports are suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

Metric Units:

Model Number	④ Standard Port Size	Nominal Pump Rating (22 cSt)		Max. Hydrostatic Pressure	① Maximum Discharge Pressure for 22 cSt Liquid at rated speed	② Maximum Recommended Temp. for Standard Pump	Steel Fitted Recommended Above	Approximate Shipping Weight
	Inches	M ³ /hr	RPM	BAR	BAR	(°C)	cSt	KG
HL4223AX	③ 1 ½	6.8	1450	28	14	180	1,650	77
KK4223AX	③ 2	23	780	28	14	180	5,500	98
LS4223AX	③ 3	45	640	28	14	180	16,500	163
Q4223AX	③ 4	68	520	28	14	180	1,650	290
QS4223AX	③ 6	113	520	28	14	180	16,500	318
N4323AX	③ 6	136	350	28	14	107	16,500	460
R4323AX	③ 8	248	280	28	14	107	5,500	930

NOTE: H-N size pumps are standard with a jacketed bracket, jacketed casing and non jacketed head. R size pump is standard with a jacketed bracket, jacketed casing and jacketed head.

- ① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.
- ② Higher temperatures can be handled with special construction and/or extra clearances. Consult factory. Temperature based on Viton seal as standard. Lower temperature limits may be required when using other seal elastomers.
- ③ Ports are suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.
- ④ Port sizes are inch standard, not metric design or size.

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VIKING UNIVERSAL XPD 676 PUMPS - FULL COMPLIANCE with API 676 STANDARDS

SERIES 4223AX, 4323AX, 4127AX, 4327AX

Specifications – Non-Jacketed Stainless Steel Pumps

U.S. Units:

Model Number	Standard Port Size	Nominal Pump Rating (100 SSU)		Maximum Hydrostatic Pressure	① Maximum Discharge Pressure for 100 SSU Liquid at rated speed	② Maximum Recommended Temp. for Standard Pump	Approximate Shipping Weight
	Inches	GPM	RPM	PSIG	PSIG	(°F)	Pounds
HL4127AX	③ 1 ½	20	1150	400	200	350	170
KK4127AX	③ 2	65	520	400	200	350	215
LS4127AX	③ 3	160	520	400	200	350	360
Q4127AX	③ 4	200	350	400	200	350	640
QS4127AX	③ 6	320	350	400	200	350	700
N4327AX	③ 6	600	350	400	200	225	1015
R4327AX	③ 8	1100	280	400	200	225	2050

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

② Higher temperatures can be handled with special construction and/or extra clearances, consult factory. Temperature based on Viton seal as standard. Lower temperature limits may be required when using other seal elastomers.

③ Ports are suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

Metric Units:

Model Number	④ Standard Port Size	Nominal Pump Rating (22 cSt)		Maximum Hydrostatic Pressure	① Maximum Discharge Pressure for 22 cSt Liquid at rated speed	② Maximum Recommended Temp. for Standard Pump	Approximate Shipping Weight
	Inches	M ³ /hr	RPM	BAR	BAR	(°C)	KG
HL4127AX	③ 1 ½	4.5	1150	28	14	180	77
KK4127AX	③ 2	15	520	28	14	180	98
LS4127AX	③ 3	36	520	28	14	180	163
Q4127AX	③ 4	45	350	28	14	180	290
QS4127AX	③ 6	73	350	28	14	180	318
N4327AX	③ 6	136	350	28	14	107	460
R4327AX	③ 8	248	280	28	14	107	930

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

③ Ports are suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fittings.

④ Port sizes are inch standard, not metric design or size.

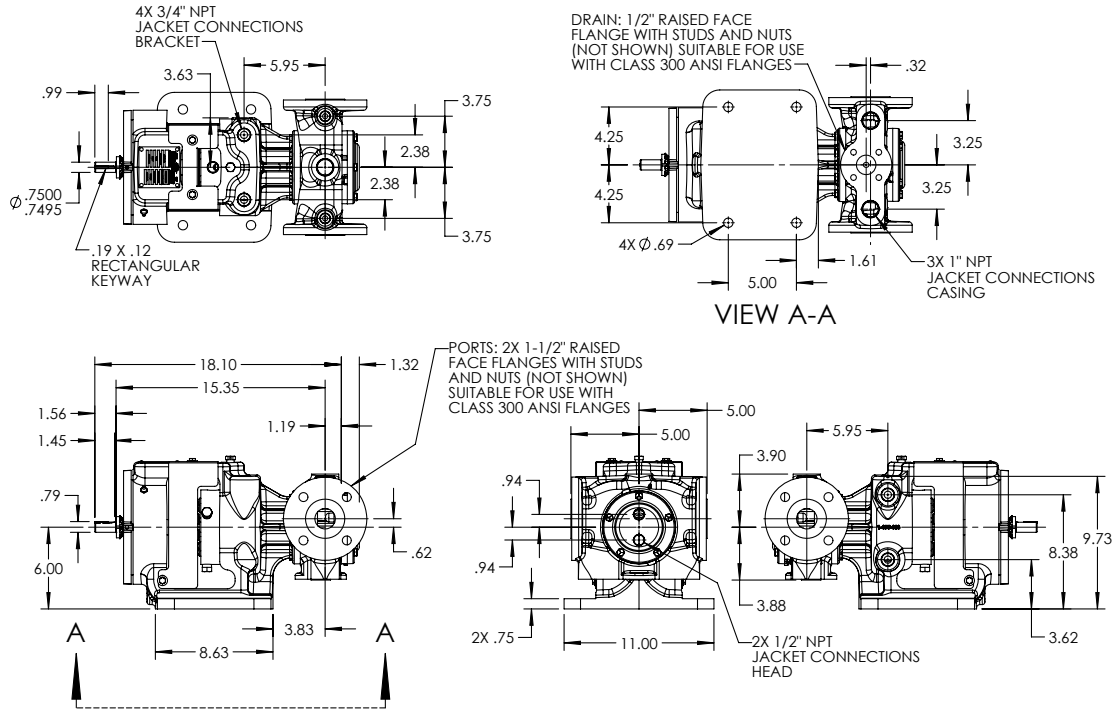
② Higher temperatures can be handled with special construction and/or extra clearances. Consult factory. Temperature based on Viton seal as standard. Lower temperature limits may be required when using other seal elastomers.

**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

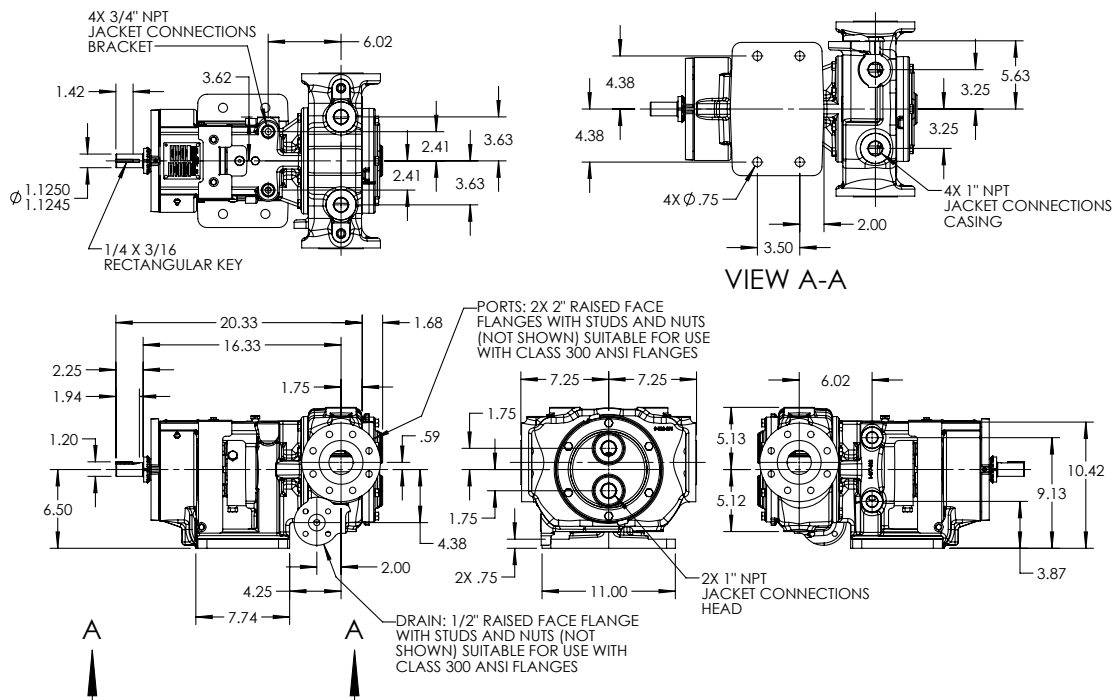
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SERIES 4223AX, 4323AX, 4127AX, 4327AX

Dimensions - HL4223AX



Dimensions - KK4223AX



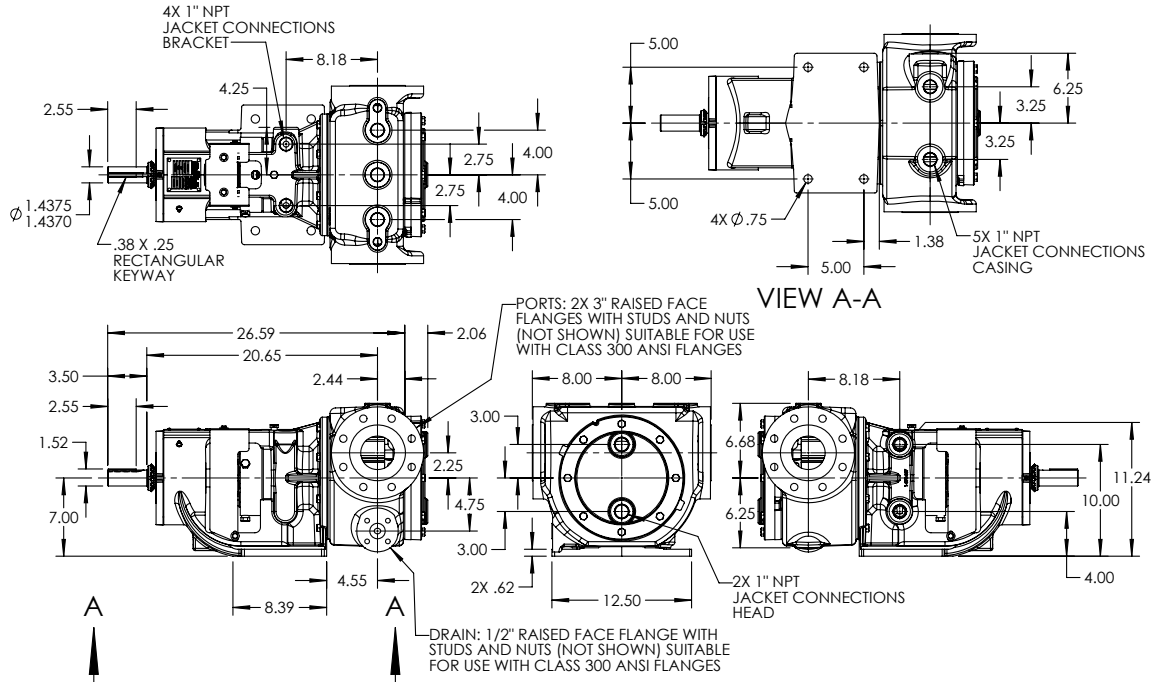
Note: All dimensional drawings shown with optional jacketed head.

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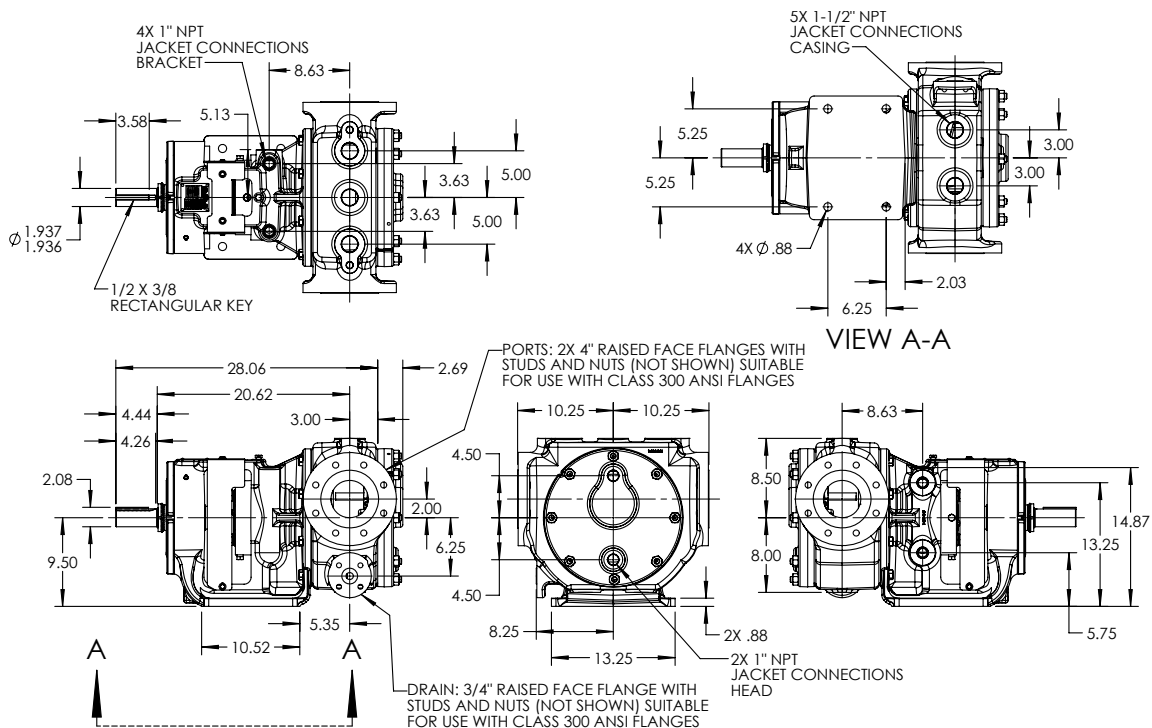
**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

SERIES 4223AX, 4323AX, 4127AX, 4327AX

Dimensions - LS4223AX



Dimensions - Q4223AX



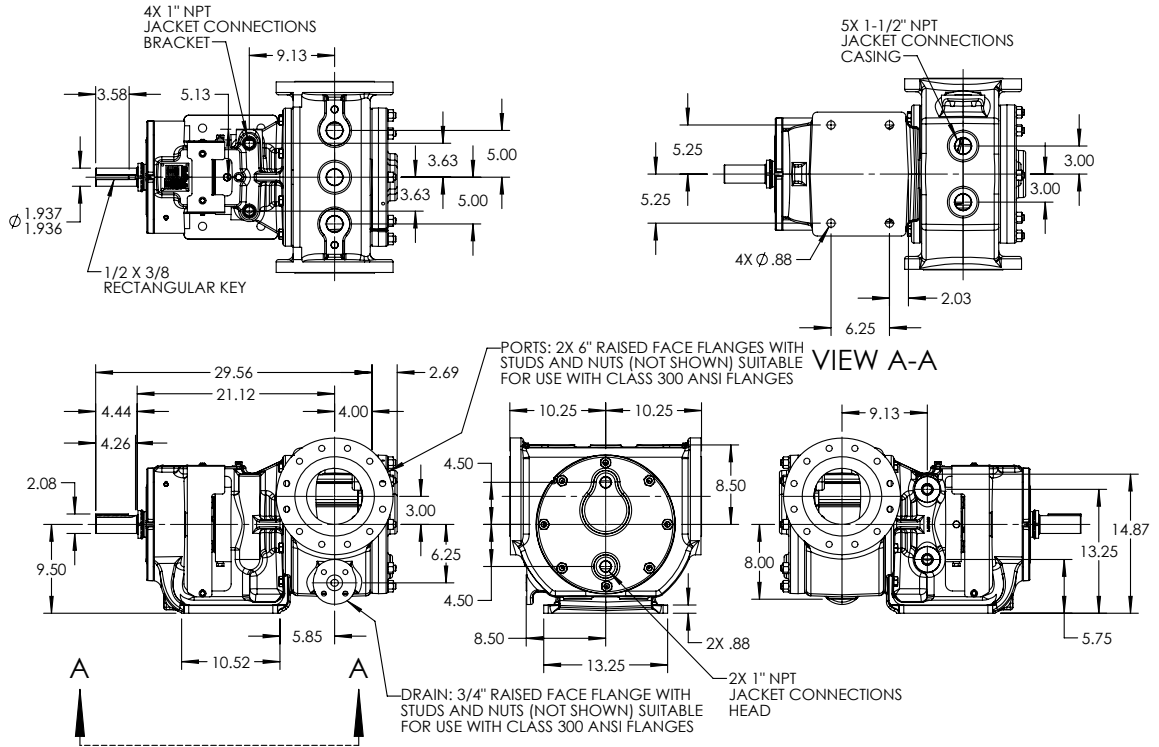
Note: All dimensional drawings shown with optional jacketed head.

**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

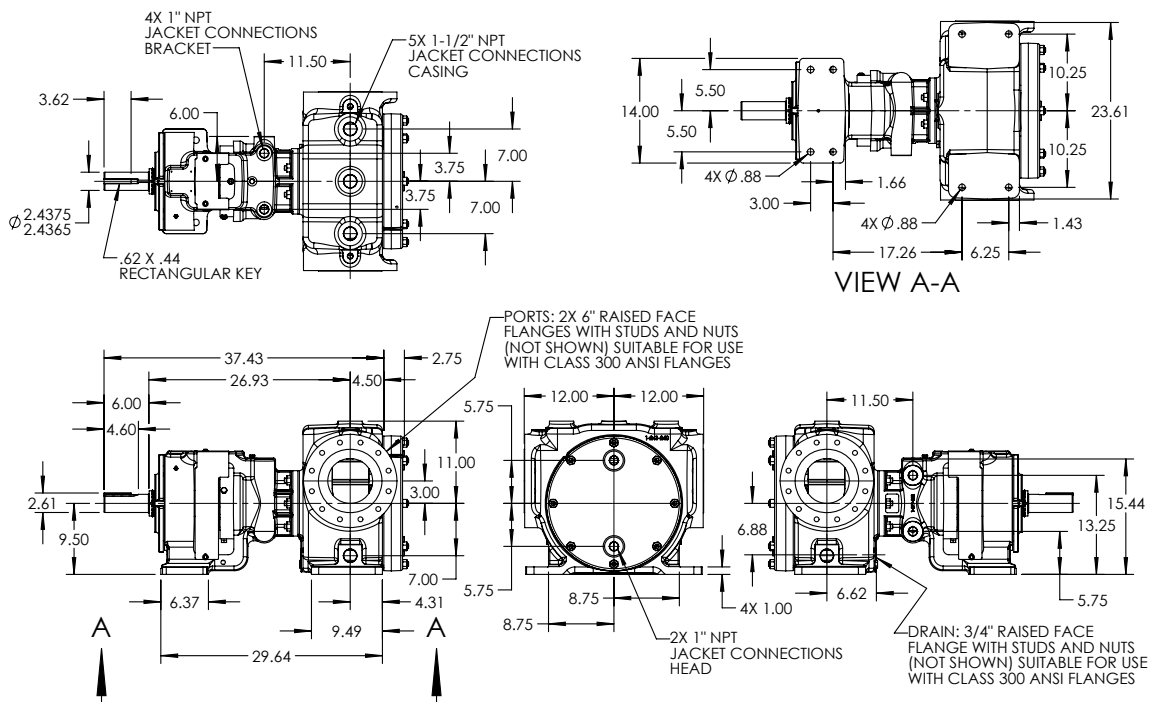
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SERIES 4223AX, 4323AX, 4127AX, 4327AX

Dimensions - QS4223AX



Dimensions - N4323AX



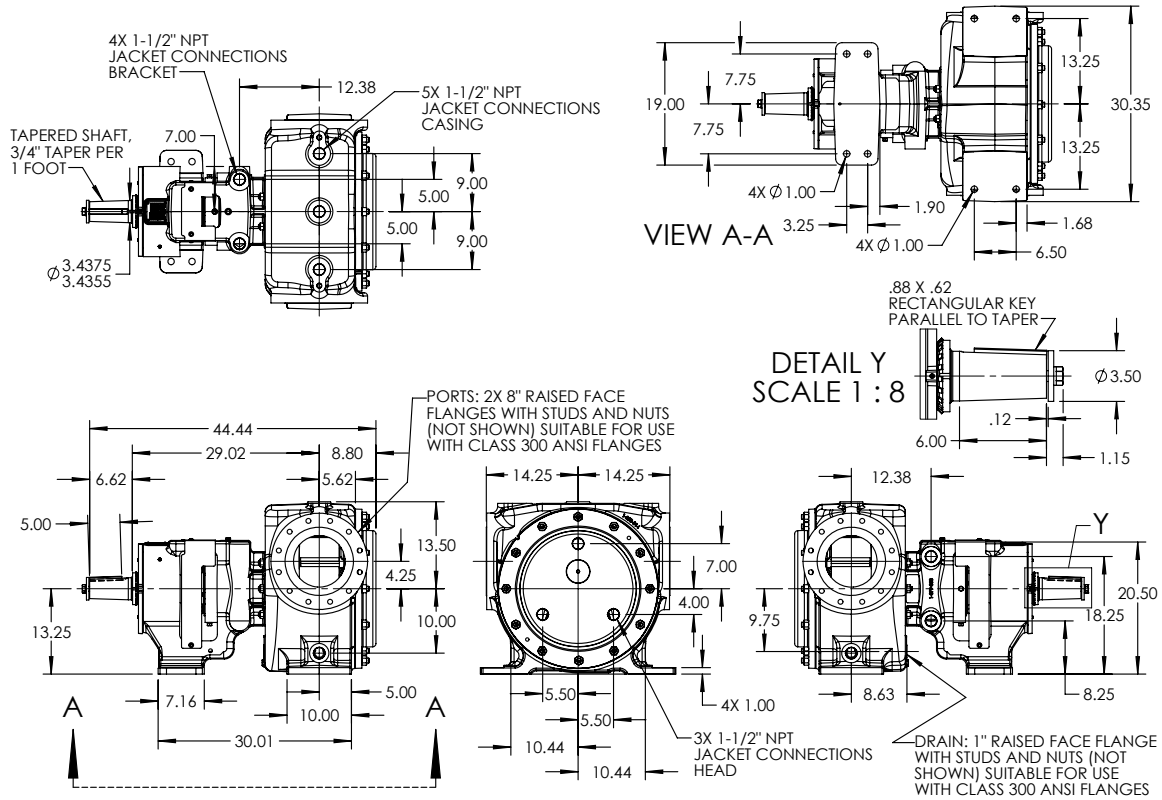
Note: All dimensional drawings shown with optional jacketed head.

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**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

SERIES 4223AX, 4323AX, 4127AX, 4327AX

Dimensions - R4323AX



Note: All dimensional drawings shown with optional jacketed head.

For stainless steel model dimensions, contact factory.

**VIKING UNIVERSAL XPD 676 PUMPS -
FULL COMPLIANCE with API 676 STANDARDS**

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SERIES 4223AX, 4323AX, 4127AX, 4327AX

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

NPSH_R data is not available on the pump selector.

INLET CONDITIONS: The performance curves show "Based on 10 (or 15) In.-Hg.," which is the standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head – Available in the system) must be greater than the NPSH_R. For a complete explanation of NPSH, see Application Data Sheet AD-19.

FOR VISCOSITIES UP TO 750 SSU – See NPSH_R table below.

FOR VISCOSITIES GREATER THAN 750 SSU (NPSH_R data not available): The performance curves are based on 10 or 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size

be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. Refer to General Catalog, Engineering Section 510 for information on determining line size.

THIN LIQUIDS: pump capacity when handling 28 SSU liquids (solvents, etc.) is shown on the 38 SSU performance curve as a broken line. Pressure shown on broken line is maximum recommended for 28 SSU liquid. Horsepower for 28 SSU is same as 38 SSU at any given pressure. Carbon graphite bushings must be used handling 28 SSU liquids.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

**NPSH_R – FEET OF LIQUID (Specific Gravity 1.0), Viscosities up to 750 SSU
Steel Externals Series 4223AX and 4323AX**

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
HL	-	-	-		1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
KK	-	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1	-	-	-	-
LS	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	-	-	-	-	-
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1	8.4	12.7	-	-	-	-	-	-
N	2.1	2.3	3.5	4.5	6.3	9.5	15.0	-	-	-	-	-	-	-	-
R	2.7	3.2	4.2	5.8	8.2	11.9	-	-	-	-	-	-	-	-	-

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

VACUUM		PRESSURE			CAPACITY		
In.-Hg (inches of mercury)	KPa* (Kilopascals)	PSI (lb./in ²)	kPa* (Kilopascals)	BAR	GPM (US gal/minute)	LPM (Liter/Minute)	M ³ /hr
1	3.4	1	6.9	0.07	1	3.8	0.23
5	17	25	172	1.7	0.26	1	0.06
10	34	50	345	3.4	4.4	16.7	1
15	51	100	690	6.9			
20	68	150	1034	10.3			
25	85	200	1379	13.8			
		250	1724	17.2			

* 100 kPa = 1 bar

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Section 635

Viking Universal Mag Drive

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VIKING UMD INTERNAL GEAR PUMPS

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

UNIVERSAL MAG DRIVE

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Heavy-Duty, Foot-Mounted Sealless Internal Gear Pumps



Model H8124A



Model K8124A

The Universal Mag Drive is the ideal sealing technology within Viking's Universal Seal Series of pumps. It is dimensionally interchangeable with Viking bracket styled heavy duty and Universal Seal pumps, allowing an easy upgrade from packed or mechanical seals to sealless technology. The Universal Mag Drive's hermetic, static sealed canister provides the highest level of liquid containment available by eliminating traditional dynamic shaft seals. It also eliminates housekeeping issues and downtime due to seal failure. This product is designed to handle a broad range of applications requiring continuous duty at pressures up to 200 PSI (14 Bar).

Nominal Flow Rates:

Pump Size	Cast Iron, Ductile Iron & Steel Externals Series		Stainless Steel Series	
	GPM	M ³ /hr	GPM	M ³ /hr
H	15	3.4	15	3.4
HL	30	6.8	30	6.8
K	80	18	80	18
KK	100	23	100	23
L/LQ	135	31	135	31
LL	170	39	170	39
LS	200	45	200	45
Q	300	68	300	68
QS	500	114	500	114

Operating Range^①:

Cast Iron Series 8124A		
Nominal Flow	(GPM)	15-500
	(M ³ /hr.)	3.4-114
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range ^②	(°F)	-60°F to +500°F
	(°C)	-51°C to +260°C
Viscosity Range	(SSU)	28 SSU to 250,000 SSU
	(cSt)	0.1 cSt to 55,000 cSt

Steel Externals Series 8123A		
Nominal Flow	(GPM)	15-500
	(M ³ /hr.)	3.4-114
Pressure Range	(PSI)	To 200 PSI
	(Bar)	To 14 Bar
Temp. Range ^②	(°F)	-20°F to +500°F
	(°C)	-29°C to +260°C
Viscosity Range	(SSU)	28 SSU to 250,000 SSU
	(cSt)	0.1 cSt to 55,000 cSt

Stainless Steel Series 8127A		
Nominal Flow	(GPM)	15-500
	(M ³ /hr.)	3.4-114
Pressure Range	(PSI)	To 150 PSI
	(Bar)	To 10 Bar
Temp. Range ^②	(°F)	-120°F to +500°F
	(°C)	-84°C to +260°C
Viscosity Range	(SSU)	28 SSU to 250,000 SSU
	(cSt)	0.1 cSt to 55,000 cSt

① Refer to Specification Tables 635.7 for individual model information.

② Samarium cobalt magnets required for temperatures over 225° F (107°C)

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VIKING UMD INTERNAL GEAR PUMPS

UNIVERSAL
MAG DRIVE

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Series Description

The Universal Mag Drive provides the product durability and the flexibility of options customers expect from the Viking heavy duty pumps with the added benefit of providing a direct drop-in replacement that has a dimensionally interchangeable footprint with the Viking bracket styled heavy duty and Universal Seal counterpart. This magnetically driven series pumps eliminate the need for complex shaft seals traditionally associated with hazardous, hard-to-seal, or expensive liquids. These pumps are ideal for applications like caustics, isocyanates, adhesives, solvents and mercaptans.

This Series features 9 different sizes with flows to 500 GPM (114 M³/Hr), with three materials of construction options. They may be applied to both thin and thick liquids, and operate in either direction. They are also capable of operating under suction lift conditions.

The Universal Mag Drive series continues the tradition of most robust series of internal gear pumps built by Viking Pump. A summary of the major design features and available options appears to the right.



Viking Universal Seal series pumps carry a three year limited warranty. See catalog section 000 for details.

Major Design Features & Options

- Positive displacement, internal gear pumping principle.
- Gear and pump geometry has been optimized based on more than 90 years of experience. These pumps are designed to provide exceptional reliability and freedom from down time and maintenance.
- Drop in foot print allows direct replacement of a Viking Universal Seal pump without re-piping.
- Foot-mounted design.
- Comes in three materials of construction: Cast Iron, Steel Externals and Stainless Steel.
- Optional material are available for bushings, idler pins, shafts, rotors, idlers and elastomers.
- Available with 90° ports, which can be rotated in 90° degree increments, or with 180° ports (Check individual sizes).
- Ports are threaded or flanged (Flat Faced or Raised Faced). Jacketed casing available in steel and stainless steel.
- Pumps come with an adjustable internal pressure relief valve on standard design. Jacketed pressure relief valves are available in steel and stainless.
- The pump operates in either direction, allowing one pump to be used for both loading and unloading. There is a slight reduction in capacity at viscosities less than 100 SSU with counter-clockwise rotation.
- Adjustable end clearance for fluid viscosity or temperature by use of head shims.
- Static O-rings at key points assures liquid containment.
- ATEX Conformity. Pumps conforming to ATEX hazard prevention requirements are available
- Short-term Run-dry Capability. Unlike many mag-drive pumps, the Viking Universal Mag Drive series may be run dry for short periods, such as for clear lines when unloading, or in the case of accidental empty tank situations.

Revolvable Pump Casings Standard on H through LS Sizes

All Universal Mag Drive pumps are equipped with pump casings that can be positioned to meet common piping configurations. H through Q sizes have standard 90° ports which can be turned to any of four positions. The QS size has standard 180° ports with an option of 90° ports allowing you to achieve any of four positions, like the other sizes. Optional opposite ports are available on other sizes and materials. Direction of flow is reversible so any given port can be used as suction or discharge. The relief valve must “point “ to the suction port in all cases.

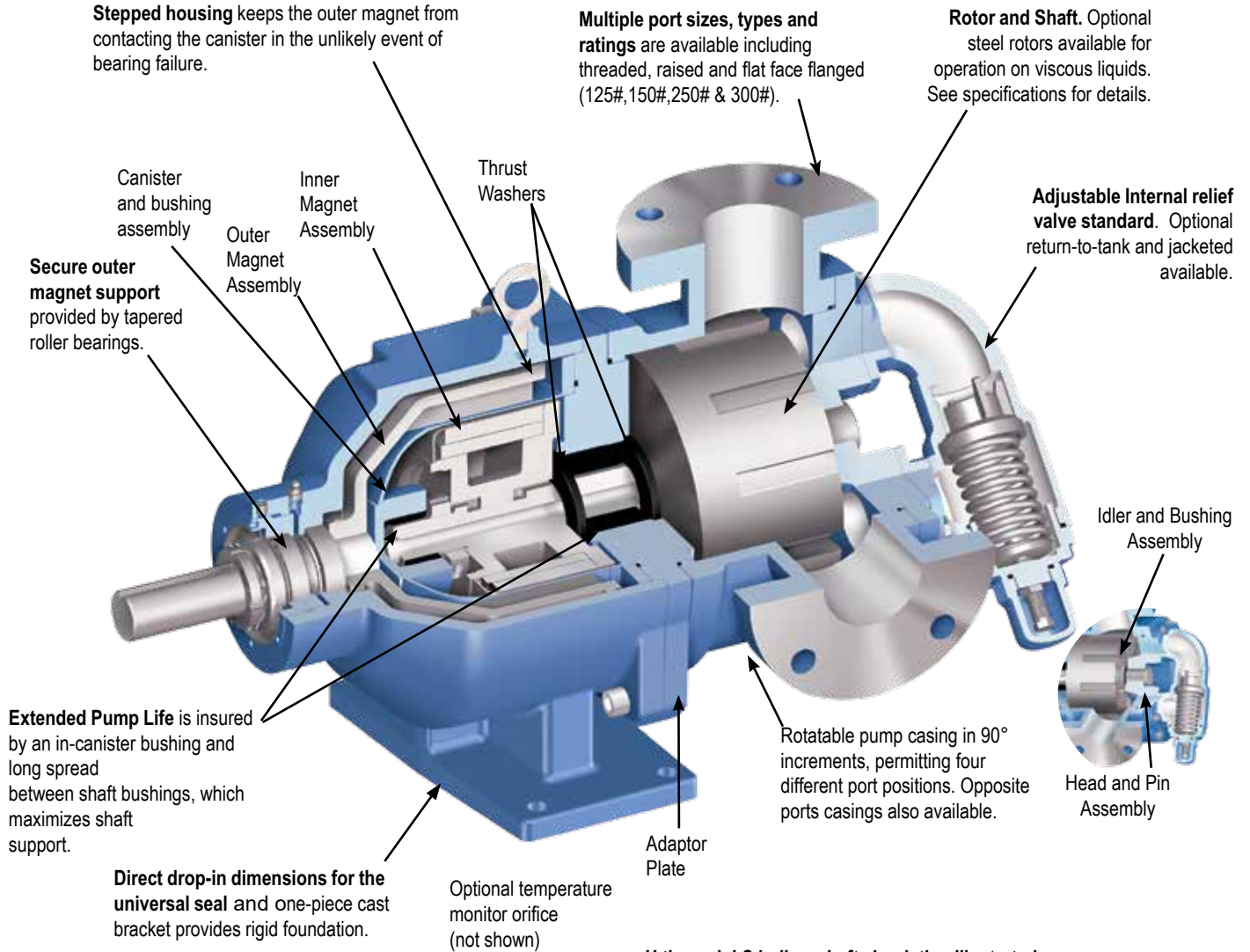
**VIKING UMD
INTERNAL GEAR PUMPS**

**UNIVERSAL
MAG DRIVE**

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

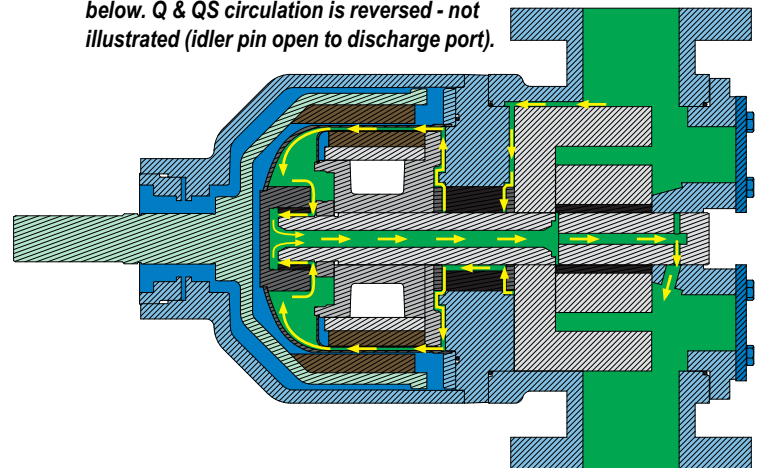
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Pump Construction and Features



Positive Cooling Flow (indicated by small arrows) minimizes potential for thermal product degradation and to cool the magnet area. Pressure differential from the discharge side causes a cooling flow between the pump shaft and bushing, and the canister and magnet through the shaft interior and hollow idler pin back to the pump suction. This cooling flow is reversed when the pump's direction of flow is reversed.

H through LS hollow shaft circulation illustrated below. Q & QS circulation is reversed - not illustrated (idler pin open to discharge port).



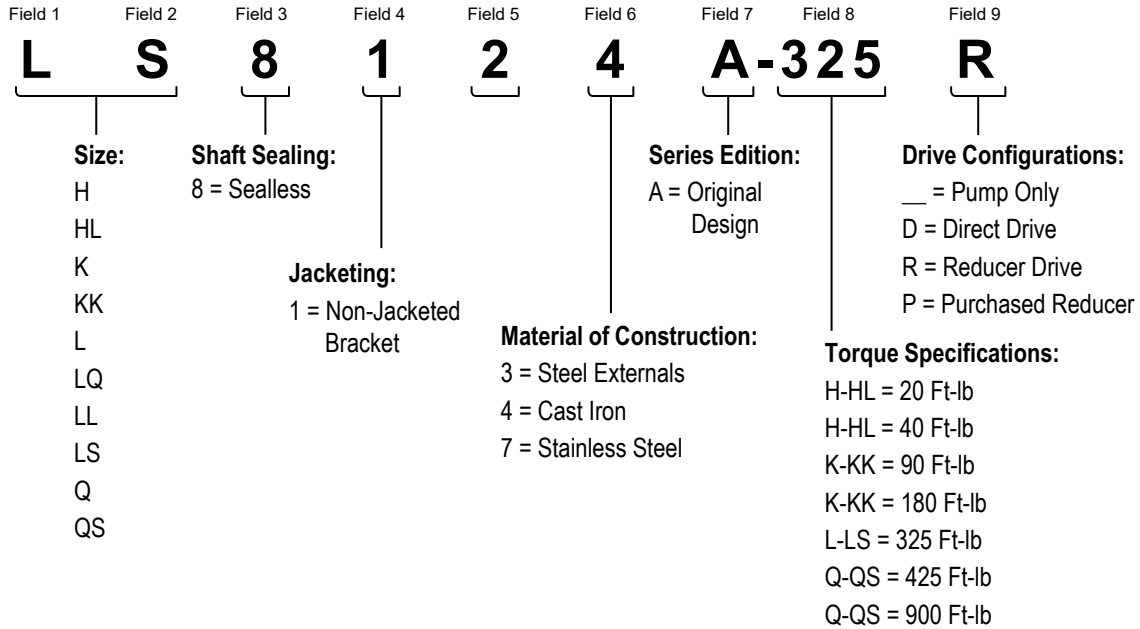
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**VIKING UMD
INTERNAL GEAR PUMPS**

**UNIVERSAL
MAG DRIVE**

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Model Number Key



Model numbers for the Universal Mag Drive series, begin with the displacement, followed by the pump series. The last number of the series indicates the material of construction for the external components. This is followed by the coupling and drive unit designations.

Neodymium iron boron magnets are the standard. For application temperatures over 225°F (107°C), Samarium Cobalt magnets are available in all sizes.

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Materials of Construction - All Series

Component		Cast Iron Series 8124A	Steel Externals Series 8123A	Stainless Steel Series 8127A
Casing		Cast Iron ASTM A48, Class 35B	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M
Head		Cast Iron ASTM A48, Class 35B	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
Bracket		Cast Iron ASTM A48, Class 35B	Cast Iron ASTM A48, Class 35B	Cast Iron ASTM A48, Class 35B
Idler		② Cast Iron ASTM A48 Class 35B	② Cast Iron ASTM A48 Class 35B	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
		Consult Factory	Consult Factory	Non-Galling Stainless and PPS Composite
Rotor	Standard	① Cast Iron ASTM A48, Class 35B	① Cast Iron ASTM A48, Class 35B	Stainless Steel ASTM A 743, Grade CF8M Case Hardened
	Optional Material	Steel ASTM A148, Grade 80-50	Steel ASTM A148, Grade 80-50	NA
Rotor Shaft	Standard	Steel ASTM A108, Grade 1045	Steel ASTM A108, Grade 1045	Hard Coated Stainless Steel ASTM A276 Type 316 Hard Coated
	Optional Material	Hardened Steel ASTM A108, Grade 1045	Hardened Steel ASTM A108, Grade 1045	NA
Idler Pin		Hardened Steel ASTM A108, Grade 1045	Hardened Steel ASTM A108, Grade 1045	Hard Coated Stainless Steel ASTM A276 Type 316 Hard Coated
Idler Bushing	Standard	Carbon Graphite	Carbon Graphite	Carbon Graphite
	Optional Material	Hardened Cast Iron, Silicon Carbide	Hardened Cast Iron, Silicon Carbide	Silicon Carbide
Internal Pressure Relief Valve		Cast Iron ASTM A48, Class 35B	Steel ⑤ ASTM A216, Grade WCB	Stainless Steel ASTM A 743, Grade CF8M
Canister		316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
Canister Bushing	Standard	Carbon Graphite	Carbon Graphite	Carbon Graphite
	Optional Material	Hardened Cast Iron, Siliconized Graphite	Hardened Cast Iron, Siliconized Graphite	Siliconized Graphite
Thrust Washers	Standard	④ Hardened Cast Iron	④ Hardened Cast Iron	④ Silicon Carbide
	Optional Material	Silicon Carbide	Silicon Carbide	NA
Coupling Magnets	Standard	Neodymium Iron Boron	Neodymium Iron Boron	Neodymium Iron Boron
	Optional Material	Samarium Cobalt	Samarium Cobalt	Samarium Cobalt
O-rings	Standard	Buna N	Buna N	PTFE (Derivative) Encapsulated
	Optional Materials	Viton®, PTFE (Derivative) Encapsulated, Kalrez®	Viton®, PTFE (Derivative) Encapsulated, Kalrez®	Viton®, Kalrez®
Adaptor Plate		Cast Iron ASTM A48, Class 35B	Steel ASTM A216, Grade WCB	Stainless Steel ASTM A743, Grade CF8M
Adaptor Bushing	Standard	Carbon Graphite	Carbon Graphite	Carbon Graphite
	Optional Materials	Hardened Cast Iron, Silicon Carbide	Hardened Cast Iron, Silicon Carbide	Silicon Carbide

- ① KK, LS and QS sizes have ductile iron rotor, ASTM A536 Grade 60-40-18.
- ② H and HL sizes have powdered metal idler, MPIF Std 35 FC-0208-50.
- ③ Steel fitted Q and QS sizes have steel idlers.
- ④ Q and QS contains two sets of thrust washers, one set is carbon graphite as standard.
- ⑤ LQ-LS relief valve bodies are stainless steel.

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VIKING UMD INTERNAL GEAR PUMPS



SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Specifications

Model Number	⑥ Standard Port Size	⑦ Capacity at Maximum Rated Speed			Max. Hydrostatic Pressure		① Max. Discharge Pressure		② Max. Recommended Temp. for Standard Pump				Steel Fitted Recommended Above	Approx. Shipping Weight with Valve
									Standard Construction		High Temperature Construction			
	Inches (mm)	GPM	M ³ /Hr	RPM	PSIG	BAR	PSIG	BAR	°F	°C	°F	°C	SSU	Pounds
H8124A	③ 1.5 (40)	15	3.4	1750	400	28	200	14	225	107	500	260	25,000	60
H8123A	⑤ 1.5 (40)													70
H8127A	⑥ 1.5 (40)													N/A	70
HL8124A	③ 1.5 (40)	30	6.8	1750	400	28	200	14	225	107	500	260	7,500	60
HL8123A	⑤ 1.5 (40)													70
HL8127A	⑥ 1.5 (40)													N/A	70
K8124A	③ 2 (50)	80	18	780	400	28	200	14	225	107	500	260	25,000	195
K8123A	⑤ 2 (50)													205
K8127A	⑥ 2 (50)													N/A	205
KK8124A	③ 2 (50)	100	23	780	400	28	200	14	225	107	500	260	75,000	195
KK8123A	⑤ 2 (50)													205
KK8127A	⑥ 2 (50)													N/A	205
L8124A	③ 2 (50)	135	30	640	400	28	200	14	225	107	500	260	25,000	280
LQ8124A	④ 2.5 (65)	135	30	640	400	28	200	14	225	107	500	260	25,000	290
LQ8123A	⑤ 2.5 (65)													295
LQ8127A	⑥ 2.5 (65)													N/A	295
LL8124A	④ 3 (75)	170	39	640	400	28	200	14	225	107	500	260	2,500	305
LL8123A	⑤ 3 (75)													315
LL8127A	⑥ 3 (75)													N/A	315
LS8124A	④ 3 (75)	200	45	640	400	28	200	14	225	107	500	260	75,000	340
LS8123A	⑤ 3 (75)													350
LS8127A	⑥ 3 (75)													N/A	350
Q8124A	4 (100)	300	68	520	400	28	200	14	225	107	500	260	7,500	705
Q8123A	4 (100)													730
Q8127A	4 (100)													N/A	730
QS8124A	6 (150)	500	114	520	400	28	200	14	225	107	500	260	75,000	775
QS8123A	6 (150)													805
QS8127A	6 (150)													N/A	805

① For maximum recommended discharge pressures see performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com.

② Extra clearances are required above 225° F. Higher temperatures can be handled with special construction, consult factory.

③ Ports are tapped for standard (NPT) pipe.

④ Ports are suitable for use with ANSI Class 125 cast iron companion flanges or flanged fittings.

⑤ Ports are suitable for ANSI Class 150 steel or stainless steel companion flanges or flanged fittings.

⑥ See p.635.9 for other port type and size options.

⑦ Nominal capacity on medium viscosity liquids with clockwise rotation. There is a slight reduction in capacity at viscosities less than 100 SSU with counter-clockwise rotation.

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Special Materials and Options Selection Guidelines

For High Viscosities - Above 2,500 SSU (550 cSt)

- Steel fitted construction recommended on Cast Iron and Steel Externals pumps above the following viscosities, according to pump size:

Viscosity	H	HL	K	KK	L	LQ	LL	LS	Q	QS
	SSU	25,000	7,500	25,000	25,000	25,000	25,000	2,500	75,000	7,500	75,000
cSt	5,500	1,650	5,500	5,500	5,500	5,500	550	16,500	1,650	16,500

- Extra clearances required, depending on viscosity.
- Larger ports may be required depending on suction conditions.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For low viscosities or non-lubricating liquids – Below 100 SSU (20 cSt)

- Carbon graphite bushings.
- Cast iron idler for iron or steel pumps, or PPS or 770 stainless alloy idler for stainless steel pumps.
- Silicon carbide thrust washers

For high temperatures – Above 225° F (107° C)

- Samarium cobalt magnets required. Maximum temperature is 500° F (260° C)
- High temperature elastomers – Buna up to 225°F (107°C); Viton® up to 350°F (177°C); PTFE up to 400°F (204°C); or Kalrez® up to 550°F (288°C);
- High temperature relief valve above 350°F (177°C).
- High temperature bushings recommended depending on temperature, size and specific material. See ESB-3 for recommendations.
- Additional operating clearances may be required depending on temperature, size and specific material. See ES-2 for recommendations.
- For temperatures above 450°F (232°C), special materials requirements may be needed. Contact factory for recommendations.

PPS - Reinforced polyphenylene sulfide.

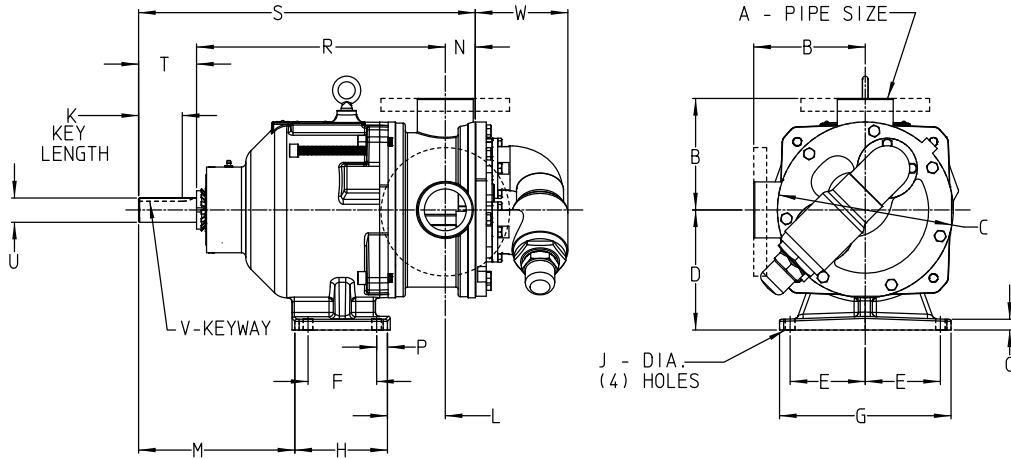
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VIKING UMD INTERNAL GEAR PUMPS

UNIVERSAL MAG DRIVE

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Dimensions - H through LS Sizes – All Materials of Construction



Model Number	A (in)		B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U ^④	V	W
H8124A	① 1.5	in	3.00	4.75	3.50	2.75	2.25	6.75	3.50	.47	0.99	3.38	5.19	1.19	0.56	0.63	10.45	13.26	1.62	0.75	.19 x .09	2.90
HL8124A		mm	76.2	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8	30.2	14.2	15.7	265.5	336.8	41.1	19.0		73.7
H8123A	③ 1.5	in	4.00	4.75	3.50	2.75	2.25	6.75	3.50	.47	0.99	3.38	5.19	1.19	0.56	0.63	10.45	13.26	1.62	0.75	.19 x .09	2.90
HL8123A HL8127A H8127A		mm	102	120.6	88.9	69.8	57.1	171.4	88.9	11.9	25.1	85.8	131.8	30.2	14.2	15.7	265.5	336.8	41.1	19.0		73.7
K8124A	① 2	in	5.12	8.00	5.50	4.00	2.75	9.25	3.95	.56	1.42	3.03	9.39	1.75	.62	.60	14.12	18.12	2.25	1.125	.25 x .12	5.25
KK8124A		mm	130	203	140	102	70	235	100	14	36.1	77	239	44	16	15	359	460	57	28		133
K8123A	③ 2	in	5.25	8.00	5.50	4.00	2.75	9.25	3.95	.56	1.42	3.03	9.39	1.75	.62	.60	14.12	18.12	2.25	1.125	.25 x .12	5.25
K8127A KK8123A KK8127A		mm	133	203	140	102	70	235	100	14	36.1	77	239	44	16	15	359	460	57	28		133
L8124A	① 2	in	6.50	10.25	7.00	4.38	4.00	10.00	5.40	.56	2.55	3.37	9.11	1.75	.62	.63	14.50	19.63	3.38	1.438	.38 x .19	5.40
LQ8124A		mm	165	260	178	112	102	254	137	14	65	86	231	44	16	16	369	499	86	36		137
LQ8123A	②③ 2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.40	.56	2.55	3.37	9.11	1.75	.62	.63	14.50	19.63	3.38	1.438	.38 x .19	5.40
LQ8127A		mm	183	260	178	112	102	254	137	14	65	86	231	44	16	16	369	499	86	36		137
LL8124A	②③ 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.40	.56	2.55	3.37	9.11	2.25	.62	.63	14.50	20.13	3.38	1.438	.38 x .19	5.40
LL8123A LL8127A		mm	183	260	178	112	102	254	137	14	65	86	231	57	16	16	369	511	86	36		137
LS8124A	②③ 3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.40	.56	2.55	4.74	9.11	2.44	.62	.63	15.87	21.69	3.38	1.438	.38 x .19	5.40
LS8123A LS8127A		mm	183	260	178	112	102	254	137	14	65	120	231	62	16	16	403	551	86	36		137

① Series 8124A ports are tapped for standard (NPT) pipe.

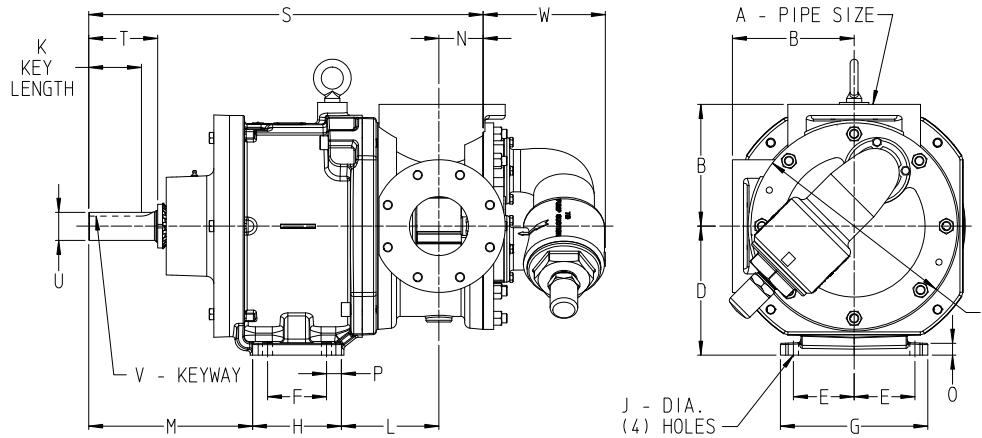
② Series 8124A, sizes LQ, LL and LS ports are suitable for use with 125# ANSI cast iron flanges or flanged fittings.

③ Series 8123A and 8127A ports are suitable for 150# ANSI steel or stainless steel companion flanges or flanged fittings.

④ When replacing on existing units, sizes L, LL and LQ may require a different size coupling half.

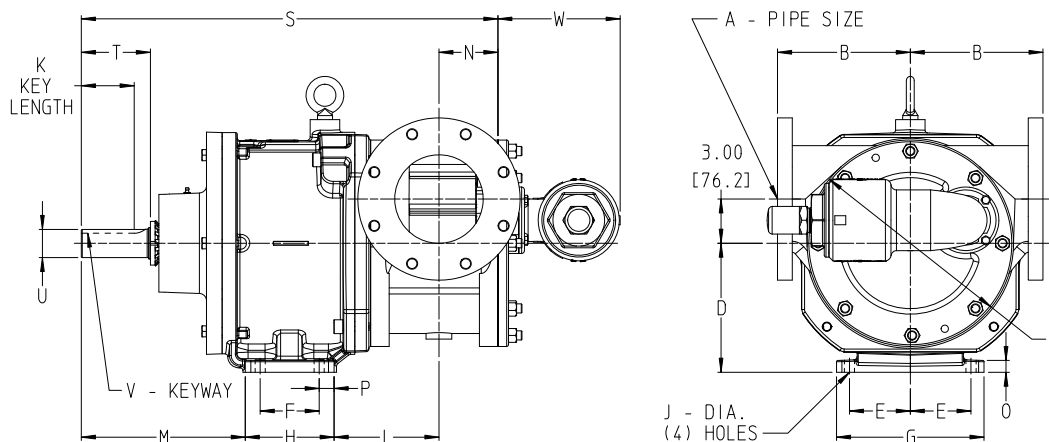
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Dimensions - Q Size – All Materials of Construction



Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U ^④	V	W	
Q8124A	②③ 4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	11.13	3.00	0.80	1.00	26.75	4.68	1.94	.50 x .25	8.29
Q8123A		mm	210	356	222	105	102	254	152	18	91	168	283	76	20	25	679	119	49		211
Q8127A																					

Dimensions - QS Size – All Materials of Construction



Model Number	A (in)	B	C	D	E	F	G	H	J	K	L	M	N	O	P	S	T	U ^④	V	W	
QS8124A	②③ 6	in	9.00	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	7.12	11.13	4.00	0.80	1.00	28.25	4.68	1.94	.50 x .25	8.29
QS8123A		mm	229	356	222	105	102	254	152	18	91	181	283	102	20	25	718	119	49		211
QS8127A																					

- ① Series 8124A ports are tapped for standard (NPT) pipe.
- ② Series 8124A, sizes LQ, LL and LS ports are suitable for use with 125# ANSI cast iron flanges or flanged fittings.
- ③ Series 8123A and 8127A ports are suitable for 150# ANSI steel or stainless steel companion flanges or flanged fittings.
- ④ When replacing on existing units, sizes L, LL and LQ may require a different size coupling half.

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**VIKING UMD
INTERNAL GEAR PUMPS**



SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Optional Casings for Different Port Configurations

Model Number	Standard Ports †	Optional Casings							
H8124A	1.5"①	1.5"②Ⓡ	1.5"③Ⓡ	2"②Ⓡ					
H8123A	1.5"④	1.5"⑤Ⓡ	2"④Ⓡ	2"⑥Ⓡ					
H8127A	1.5"④	1.5"⑤Ⓡ	2"④Ⓡ	2"⑥Ⓡ					
HL8124A	1.5"①	1.5"②Ⓡ	1.5"③Ⓡ	2"②Ⓡ					
HL8123A	1.5"④	1.5"⑤Ⓡ	2"④Ⓡ	2"⑥Ⓡ					
HL8127A	1.5"④	1.5"⑤Ⓡ	2"④Ⓡ	2"⑥Ⓡ					
K8124A	2"①	2"②Ⓡ	2"③Ⓡ	2.5"①Ⓞ	2.5"②Ⓡ	3"②Ⓡ	4"②Ⓡ		
K8123A	2"④	2"⑤Ⓡ	2.5"④Ⓡ	2.5"⑥Ⓡ	3"④Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
K8127A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑥Ⓡ	3"④Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
KK8124A	2"①	2"②Ⓡ	2"③Ⓡ	2.5"①Ⓞ	2.5"②Ⓡ	3"②Ⓡ	4"②Ⓡ		
KK8123A	2"④	2"⑤Ⓡ	2.5"④Ⓡ	2.5"⑥Ⓡ	3"④Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
KK8127A	2"④	2"⑥Ⓡ	2.5"④Ⓡ	2.5"⑥Ⓡ	3"④Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑤Ⓡ	
L8124A	2"①	2"Ⓡ							
LQ8124A	2.5"②	2.5"③Ⓡ	3"②Ⓡ	4"②Ⓡ	6"②Ⓡ*	Side 5"②Ⓡ, Top 6"②			
LQ8123A	2.5"④	2.5"⑤Ⓡ	3"⑥Ⓡ	4"④Ⓡ	4"⑤Ⓡ	6"④Ⓡ			
LQ8127A	2.5"④	2.5"⑤Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LL8124A	3"②	3"③Ⓡ	4"②Ⓡ	5"②Ⓡ*					
LL8123A	3"④	3"⑤Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LL8127A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LS8124A	3"②	3"③Ⓡ	4"②Ⓡ*						
LS8123A	3"④	3"⑤Ⓡ	4"④Ⓡ	4"⑥Ⓡ					
LS8127A	3"④	3"⑥Ⓡ	4"④Ⓡ	4"⑥Ⓡ	4"⑤Ⓞ	6"④Ⓡ			
Q8124A	4"②	4"③Ⓡ	3"②Ⓡ	5"②Ⓡ	6"②(O)	Side 4"②Ⓡ, Top 8"②		Side 6"②Ⓡ, Top 8"②	
Q8123A	4"④	4"⑤Ⓡ	5"④Ⓡ	5"⑥Ⓡ	6"④Ⓡ*	6"⑥Ⓡ*	6"④(O)	6"⑥(O)	
Q8127A	4"④	3"④Ⓡ	4"⑥Ⓡ	5"④Ⓡ	6"④Ⓡ*	6"④Ⓡ	6"④(O)	6"⑥(O)	
QS8124A	6"②(O)								
QS8123A	6"④(O)	6"④Ⓡ	6"⑥(O)						
QS8127A	6"④(O)	6"④Ⓡ	6"⑥(O)						

- ① Port(s) tapped for standard (NPT) pipe.
- ② Port(s) suitable for use with ANSI Class 125 cast iron companion flanges or flanged fittings.
- ③ Port(s) suitable for use with ANSI Class 250 cast iron companion flanges or flanged fittings.
- ④ Port(s) suitable for ANSI Class 150 steel or stainless steel companion flanges or flanged fittings.
- ⑤ Port(s) suitable for ANSI Class 300 steel or stainless steel companion flanges or flanged fittings
- Ⓡ Non-Rotatable Ports at 90 degree angle, contact factory for available orientation (right hand or left hand)
- Ⓞ Opposite Ports
- Ⓢ 90° port arranged for right hand inlet (viewed from shaft end).
- * Core smaller than port size.

Contact factory for flange details (e.g. flat face or raised face flanges)

†Standard port configuration is 90° which may be rotated (H-Q) or opposite (QS) with right hand inlet viewed from the shaft end.

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Selecting the Correct Viking Mag Drive® Coupling

- Find pump HP and speed from the performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.
- Calculate the application torque (T), using this formula:

$$T \text{ (FT-LB)} = \frac{\text{HP}}{\text{SPEED}} \times 5252$$

- Select the temperature correction factor (TCF) from Table 1 or Table 2.

STANDARD NEODYMIUM MAGNETS (For Application Temperatures Below 225°F.)							
Application Temp. (°F)	AMB	100	125	150	175	200	225
TCF	1.0	.94	.88	.82	.76	.70	.64

Table 1: Temperature Correction Factors

OPTIONAL SAMARIUM COBALT MAGNETS (For Application Temperatures Above 225°F.)					
Application Temp. (°F)	175	200	300	400	500
TCF	.74	.73	.69	.63	.59

Table 2: Temperature Correction Factors

- Divide calculated application torque by TCF to get adjusted application torque.
- Select coupling with rating equal to or greater than “adjusted application torque” from Table 3.

MAGNETIC COUPLING TORQUE RATING TABLE	
Pump Size	Torque (FT-LBS)
H & HL	20
	40
K & KK	90
	180
L, LQ, LL, LS	325
Q & QS	425
	900

Table 3

EXAMPLE

- An HL8124A is required to pump 30 GPM of 20 cSt liquid at 1750 RPM, 50 PSI differential pressure
Temperature is 150°F.

From the pump selector, required HP is 2.8.

- Calculate torque (T).

$$\begin{aligned} \text{TORQUE (T)} &= \frac{2.8}{1750} \times (5252) \\ &= 8.40 \text{ FT LB} \end{aligned}$$

- From the temperature correction factor table, the correction factor (TCF) = .82.

- Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{8.40}{.82} \\ &= 10.25 \text{ FT-LB} \end{aligned}$$

- Select coupling.

**THE NEODYMIUM 20 FT-LB COUPLING
IS THE PROPER SELECTION**

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VIKING UMD
INTERNAL GEAR PUMPS

UNIVERSAL
/// MAG DRIVE ///

SERIES 8124A (Cast Iron), 8123A (Steel Externals), 8127A (Stainless Steel)

Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com.

Section 640

Viking Lid – Ease

Basket-Type Line Strainers

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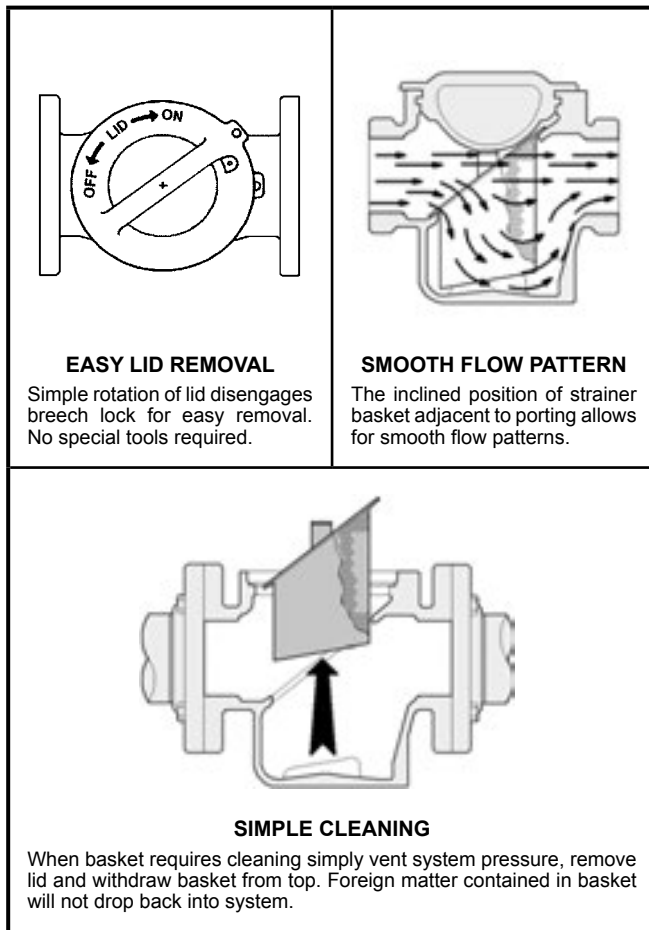
VIKING® LID-EASE

BASKET-TYPE LINE STRAINERS

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FEATURES

- LIGHT IN WEIGHT
- EASY TO CLEAN
- LOW PRESSURE DROP
- SMALL IN OVERALL DIMENSION
- VIKING QUALITY CONSTRUCTION IN CAST IRON OR STAINLESS STEEL



Viking Lid-Ease® Simplex Strainers provide protection for your pumping system with low pressure drop. The inclined position of the strainer basket adjacent to the porting provides smooth flow patterns not found in conventional basket-type strainers.

Viking's Lid-Ease Simplex Strainers reduce cleaning problems encountered with conventional strainers. Simple lid rotation disengages the breech lock type lid permitting easy removal of the basket. Basket is removed from the top of the strainer, possibly eliminating the need to completely drain the system or allowing foreign matter to drop back into the line when the strainer is cleaned. The relatively small port-to-port dimensions of the strainer allow easy installation.



Viking Lid-Ease Simplex Strainers are designed with a weatherseal lid to protect the breech lock area from exterior elements and prevent air infiltration into the pump suction. Strainers are also equipped with a drain plug for complete draining of strainer if needed.

Tapped or flanged end ports available. See page 2.

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VIKING® LID-EASE BASKET-TYPE LINE STRAINERS

MODEL NUMBERING CODE

F - 1 020 - I IRN - 01 3

PRODUCT:
F = Strainer

PRODUCT TYPE:
1 = Simplex Type

PORT SIZES:
007 = 3/4"
010 = 1"
015 = 1 1/2"
020 = 2"
030 = 3"
040 = 4"
060 = 6"
080 = 8"

MATERIAL:
IRN = Iron
SST = Stainless Steel

BASKET MESH:
0 = No Mesh
1 = 10 Mesh
2 = 20 Mesh
3 = 40 Mesh
4 = 60 Mesh
5 = 80 Mesh
6 = 100 Mesh

PORT TYPES:
I = Internal Tapped Threads
F = Flanged

ELASTOMER SEAL:
01 = Buna-N – Cast Iron
02 = Viton® – Stainless Steel

Example: F-1020-IIRN-013. A cast iron simplex strainer with 2" NPT ports, Buna-N O-Ring seal, 40 mesh basket.

Viton® — Registered trademark of DuPont Performance Elastomers.

Kits available in Buna, Viton and PTFE when alternate material needed

OPTIONS



OPTIONAL MAGNETIC INSERTS

Magnetic inserts are available for trapping ferrous particles too small for the basket straining media. The inserts are secured to basket handle using a spring clip which makes removal for cleaning a simple task.



OPTIONAL PRESSURE DIFFERENTIAL INDICATORS

Pressure differential indicators are available as an option to indicate when basket needs to be cleaned. Consult Factory.

VIKING® LID-EASE

BASKET-TYPE LINE STRAINERS

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FEATURES – SPECIFICATIONS



Tapped Ports
3/4", 1", 1½", 2" & 3"



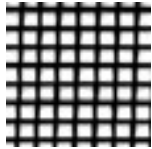
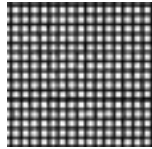
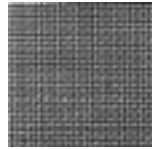
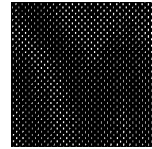
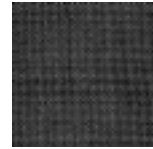
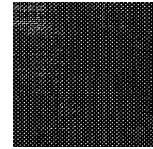
Flanged Ports
2", 3", 4", 6" & 8"

Strainer bodies are available in cast iron or stainless steel materials. For normal use, baskets of double wall construction are recommended. The inner stainless steel screen (10, 20, 40, 60, 80 or 100 mesh) is rigidly supported by a perforated stainless steel basket having maximum hoop strength so that a high differential pressure over the

basket will not burst or distort the basket to the extent that it cannot be withdrawn from the body.

Stainless steel construction can also be used for steel requirements in the chemical, petrochemical and pharmaceutical industries.

SPECIFICATIONS — AVAILABLE MESH SIZES

						
Mesh	10	20	40	60	80	100
Opening (Inches)	.075	.034	.015	.0092	.007	.0055
Opening (Microns)	1910	860	380	230	190	140

SPECIFICATIONS — STRAINERS

Model Number	Port Size	Nominal Pipe Area	① Standard Basket Perforation	Basket Surface Area	Basket Free Area	Ratio Free Area / Port Area	Maximum Basket Differential Pressure
	Inches	Inches ²	Inches	Inches ²	Inches ²		PSID
F-1007	3/4"	.53	.156	8.6	5.4	10.2	150
F-1010	1"	.86	.156	8.6	5.4	6.3	150
F-1015	1½"	2.04	.156	17.9	11.3	5.5	150
F-1020	2"	3.36	.188	33	16.8	5.0	150
F-1030	3"	7.39	.188	66	33.7	4.6	125
F-1040	4"	12.73	.188	113	57.6	4.5	125
F-1060	6"	28.9	.188	233	118.8	4.1	75
F-1080	8"	50.0	.188	636	324.7	6.5	50

① For other basket perforations, consult the factory.

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VIKING® LID-EASE

BASKET-TYPE LINE STRAINERS

SPECIFICATIONS

CONSTRUCTION — CAST IRON

Body & Lid	O-Ring for Lid	Basket Material
Cast Iron	① Buna-N	316 Stainless Steel

① Buna-N O-Ring standard, Viton® and PTFE (Derivative) Encapsulated optional.
For other materials consult factory.

SPECIFICATIONS — CAST IRON

Model Numbers	Port Size	① Nominal Capacity Suction Rating	Rated System Pressure	② Temperature Range		Approximate Shipping Weight
	Inches			Degrees F.	Pounds	
F-1007-IIRN	③ ¾"	20	200	-40 to 400		7
F-1010-IIRN	③ 1"	30	200	-40 to 400		7
F-1015-IIRN	③ 1½"	50	200	-40 to 400		9
F-1020-FIRN	④ 2"	100	200	-40 to 400		16
F-1020-IIRN	③ 2"					13
F-1030-FIRN	④ 3"	200	⑤ 125	-40 to 400		40
F-1030-IIRN	③ 3"					30
F-1040-FIRN	④ 4"	400	⑤ 125	-40 to 400		73
F-1060-FIRN	④ 6"	800	⑤ 125	-40 to 400		120
F-1080-FIRN	④ 8"	1500	⑤ 125	-40 to 400		300



Viking Lid-Ease® Strainer
1½" size, Cast Iron
with tapped ports.

- ① Capacity based on approx. 1 PSI pressure drop with 40 mesh basket and 38 SSU liquid.
- ② Elastomers suitable for temperature must be used.
- ③ Tapped ports compatible with standard pipe. (NPT Threads)
- ④ Flanged ports suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings.
- ⑤ 175 PSI on liquid temperature below 150° F.

CONSTRUCTION — STAINLESS STEEL

Body & Lid	O-Ring for Lid	Basket Material
316 Stainless Steel	Viton®	316 Stainless Steel

SPECIFICATIONS — STAINLESS STEEL

Model Numbers	Port Size	① Nominal Capacity Suction Rating	Rated System Pressure	② Temperature Range		Approximate Shipping Weight
	Inches			Degrees F.	Pounds	
F-1007-ISST	③ ¾"	20	200	-100 to 400		7
F-1010-ISST	③ 1"	30	200	-100 to 400		7
F-1015-ISST	③ 1½"	50	200	-100 to 400		10
F-1020-FSST	④ 2"	100	200	-100 to 400		20
F-1020-ISST	③ 2"					14
F-1030-FSST	④ 3"	200	⑤ 125	-100 to 400		44
F-1040-FSST	④ 4"	400	⑤ 125	-100 to 400		77
F-1060-FSST	④ 6"	800	⑤ 125	-100 to 400		128



Viking Lid-Ease Strainer
4" Size, Stainless Steel
with flanged ports.

- ① Capacity based on approx. 1 PSI pressure drop with 40 mesh basket and 38 SSU liquid.
- ② Elastomers suitable for temperature must be used.
- ③ Tapped ports compatible with standard pipe. (NPT Threads)
- ④ Flanged ports suitable for use with 150# ANSI steel or stainless steel companion flanges or flanged fittings.
- ⑤ 175 PSI on liquid temperature below 150° F.

Viton® — Registered trademark of DuPont Performance Elastomers.

VIKING® LID-EASE

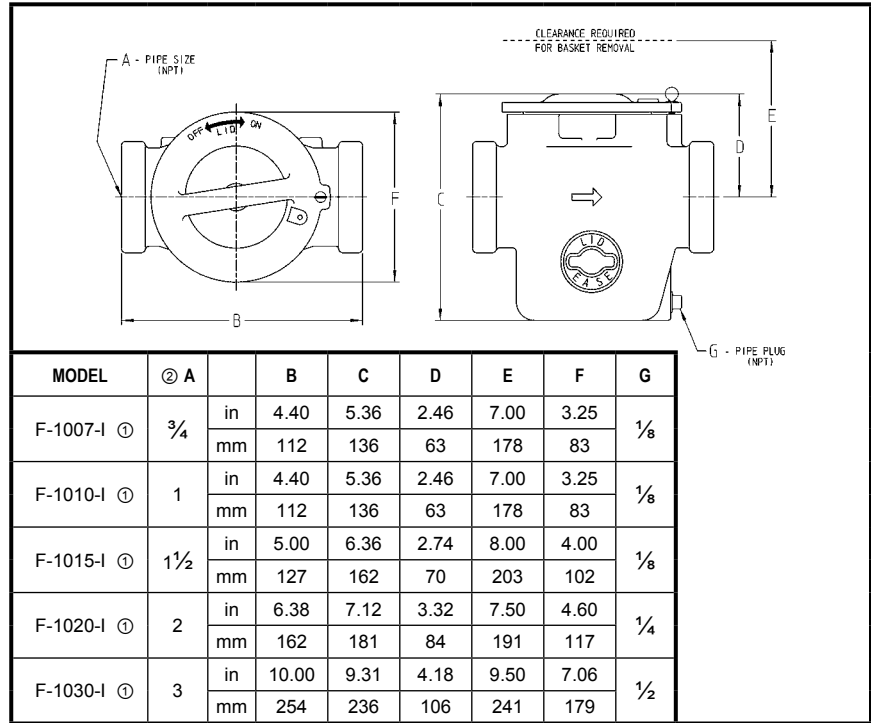
BASKET-TYPE LINE STRAINERS

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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

DIMENSIONS— STRAINERS WITH TAPPED PORTS

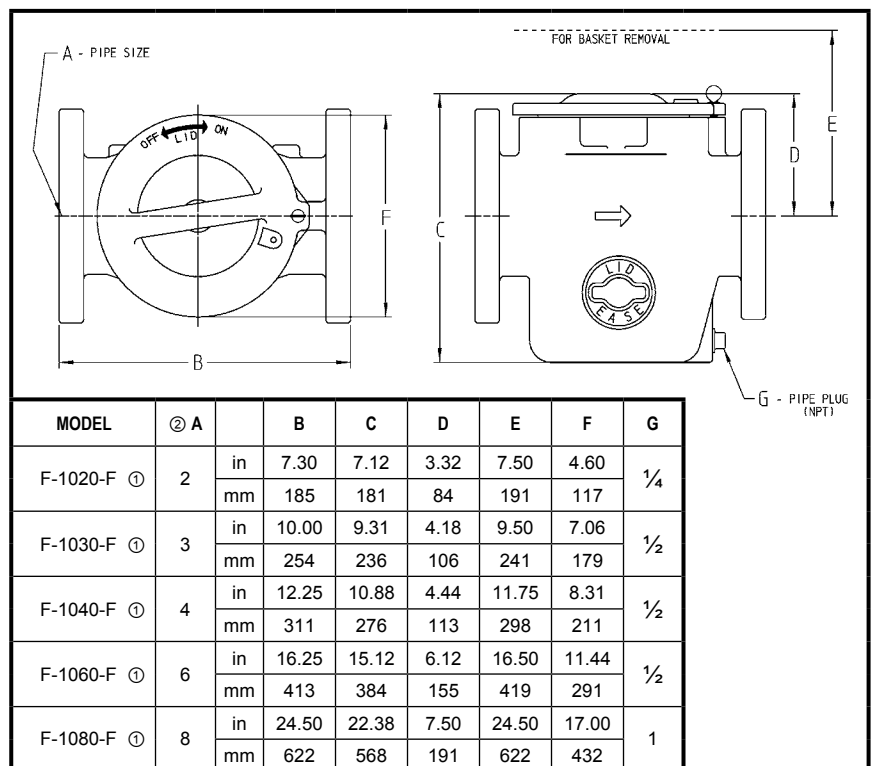


① IRN—Iron, SST—Stainless Steel. (See specifications tables for available materials of construction).

② Tapped ports compatible with standard pipe. (NPT Threads)

These dimensions are average and not for construction purposes. Certified prints on request.

DIMENSIONS— STRAINERS WITH FLANGED PORTS



① IRN—Iron, SST—Stainless Steel (See specifications tables for available materials of construction).

② Flanged ports suitable for use with 125# ANSI cast Iron or 150# ANSI steel or stainless steel companion flanges or flanged fittings.

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VIKING® LID-EASE

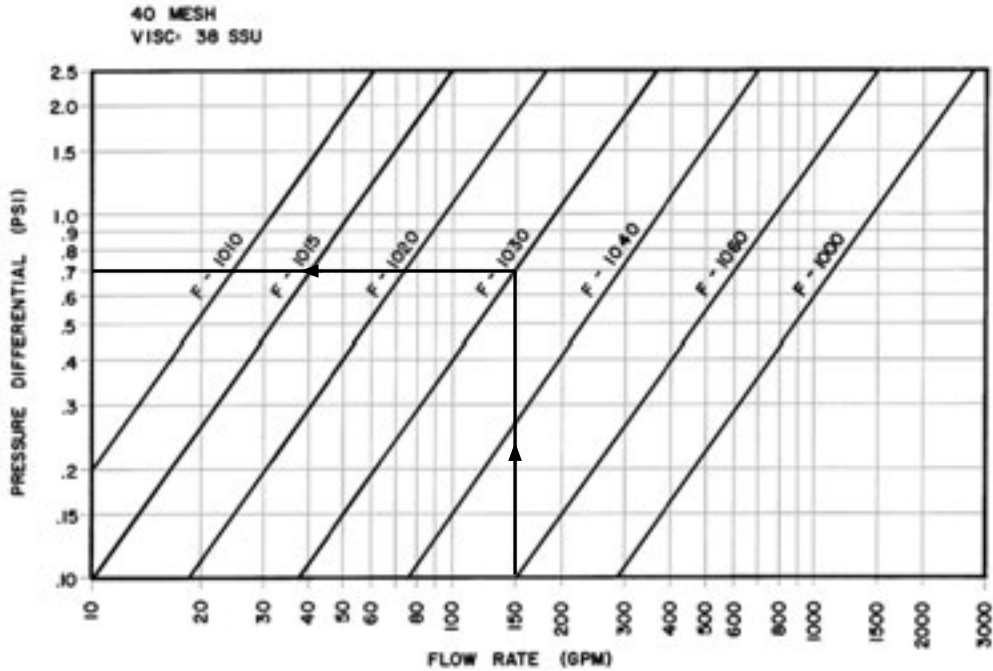
BASKET-TYPE LINE STRAINERS

PRESSURE DROP INFORMATION

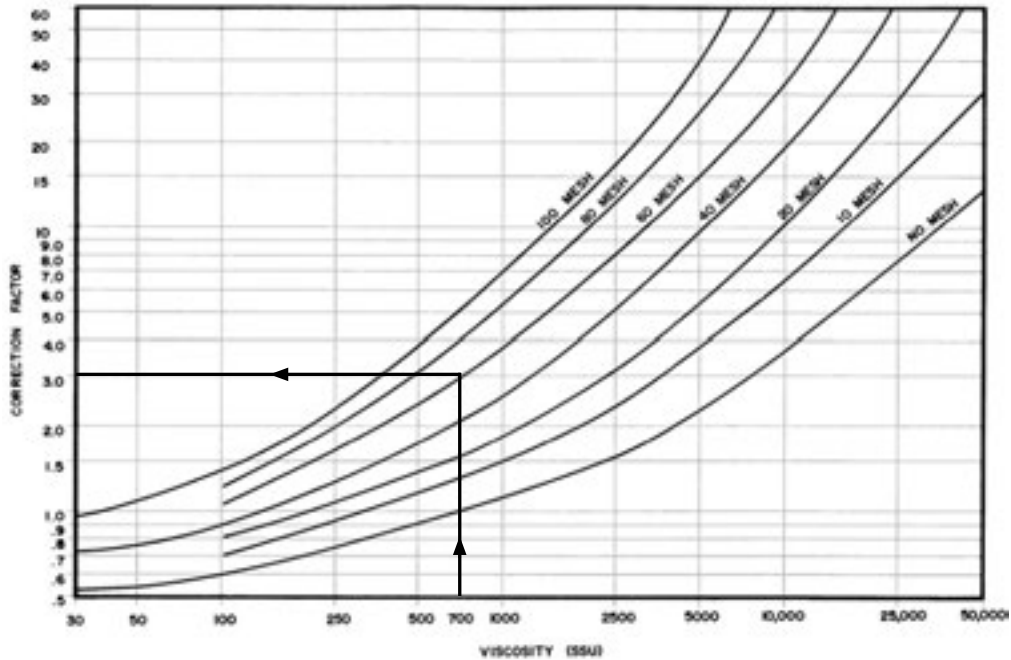
Example: To determine the pressure drop across a strainer for a pump with 3" ports producing a flow rate of 150 GPM, with a viscosity of 700 SSU; first, determine the nominal pressure differential for the 3" strainer (F-1030) by following 150 GPM vertically until it intersects the F-1030 curve then read horizontally on the Pressure Drop Curve

the nominal pressure differential (.7 psi). Using the Correction Curves, enter vertically at 700 SSU and proceed until intersecting the 60 mesh curve, then read the correction factor horizontally (3.0). Therefore, the actual pressure drop will be $3.0 \times .7 = 2.1$ psi (4.28" of Hg.)

PRESSURE DROP CURVES



CORRECTION CURVES



Section 641

Eaton Strainers

(Model 53BTX and 50 Duplex Basket Strainers, Model 85 Y Strainers)

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FEATURES



MODEL 53BTX DUPLEX ($3/4$ " TO 4")

- Dynamic sealing design for long life
- Easy-to-operate lever handle — no gear box required
- Unique seat and seal design requires no adjustments
- PTFE seats for longer service life
- Foot pads for rock solid installation
- Double-stem O-rings for positive sealing
- Easy to access body vent valve
- Side drain plugs on each basket well
- Piston seal strainer basket cover
- Easy access for diverter cartridge removal
- 316 stainless steel ball design

MODEL 50 DUPLEX (5", 6", 8")

- Continuous flow, no shutdown for basket cleaning
- Rugged tapered plug design
- Lift jack prevents galling of the plug
- Quick open cover—no tools needed
- Large capacity baskets
- Threaded drain
- Machined basket seat
- Perforated or mesh 316 stainless steel basket

DUPLEX OPTIONS

- Iron, Carbon Steel, Stainless Steel
- Basket perforations from $1/32$ " to $1/2$ "
- Basket mesh from 20 to 400
- Vent valves
- Drain valves
- Gauge/vent taps - $1/4$ " NPT
- Differential pressure gauges, with or without switches
- Magnetic separators installed in the strainer basket for removing fine ferrous particulate matter from the process media



MODEL 85 Y ($1/4$ " TO 10")

- Compact design
- Bolted or threaded covers
- Standard stainless steel screens
- Horizontal or vertical installation

Y OPTIONS

- Carbon Steel, Stainless Steel
- Basket perforations from $1/32$ " to $1/2$ "
- Basket mesh from 20 to 400

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EATON EATON STRAINERS

MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS

MODEL 85 Y STRAINERS

TO SELECT A STRAINER:

STEP 1

Determine the objective of the strainer:

Protect the pump, protect components in the system or to remove unwanted contaminants from the fluid.

If the objective is to strain the fluid, select the appropriate size mesh opening size (see at right – Table 1A).

NOTE: A strainer, even with a 100 mesh basket, may not provide total protection for the pump. Particles of 0.0055” size can pass through a 100 mesh strainer. On a “K” size pump, the mean radial clearance between the rotor and casing is only 0.003”. This means that the 0.0055” particles are larger than the radial clearance, which can result in some wear between the casing and the rotor. On smaller pumps, particle size is more critical since the mean radial clearance between the rotor and casing on a “F” pump is less than 0.001”. For small pumps, a strainer with a 20 mesh basket is highly recommended.

In many cases, a perforated basket is used to strain any large foreign object which can jam or cause breakage of the rotor or idler. A strainer comes with a standard perforated basket based on size (see at right - Table 1B).

TABLE 1A: MESH BASKET SHEET

Mesh Size	Wire Diameter Inches	Mesh Opening Inches	Mesh Opening Microns	% Open Area
20	0.016	0.0340	864	46.2
40	0.010	0.0150	381	36.0
60	0.0075	0.0092	234	30.5
80	0.0060	0.0065	165	27.0
100	0.0045	0.0055	140	30.3
200	0.0021	0.0029	74	33.6
325	0.0014	0.0017	43	30.0
400	0.0015	0.0015	38	36.0

TABLE 1B: PERFORATED BASKET SHEET

Perforation Size Inches	Sheet Thickness USS Gauge #	Hole Pattern	% Open Area
1/32	26	Straight	28.0
3/64	26	Straight	30.2
1/16	26	Straight	31.0
1/8	26	Staggered	47.9
5/32	26	Staggered	63.0
1/4	26	Staggered	42.0
3/8	26	Staggered	52.0
1/2	26	Staggered	47.9

STEP 2

Determine correction factor for baskets using viscosity of the liquid in Table 2.

EXAMPLE: 60 Mesh basket with 2,000 SSU liquid = 2.7.

TABLE 2

VISCOSITY (SSU)	UNLINED PERFORATED BASKET	40 MESH LINED BASKET	60 MESH LINED BASKET	80 MESH LINED BASKET	100 MESH LINED BASKET	200 MESH LINED BASKET	325 MESH LINED BASKET
30 (water)	1	1.2	1.4	1.6	1.7	2.0	2.5
500	1.6	1.9	2.1	2.4	2.6	3.1	3.6
1000	1.7	2.2	2.4	2.6	2.8	3.3	3.8
2000	1.9	2.4	2.7	2.9	3.2	3.8	4.0
3000	2.0	2.6	2.9	3.2	3.5	4.1	4.3
5000	2.2	3.0	3.5	4.0	4.5	5.3	6.3
10000	2.5	3.5	4.2	5.0	6.0	7.1	8.5

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TO SELECT A STRAINER:

STEP 3

Divide maximum recommended clean strainer pressure drop of 2 PSI by the correction factor from Step 2.

This gives the maximum corrected pressure drop in units of water.

EXAMPLE:

2 PSI / 2.7 (correction factor from Step 2) = 0.74 PSI

STEP 4

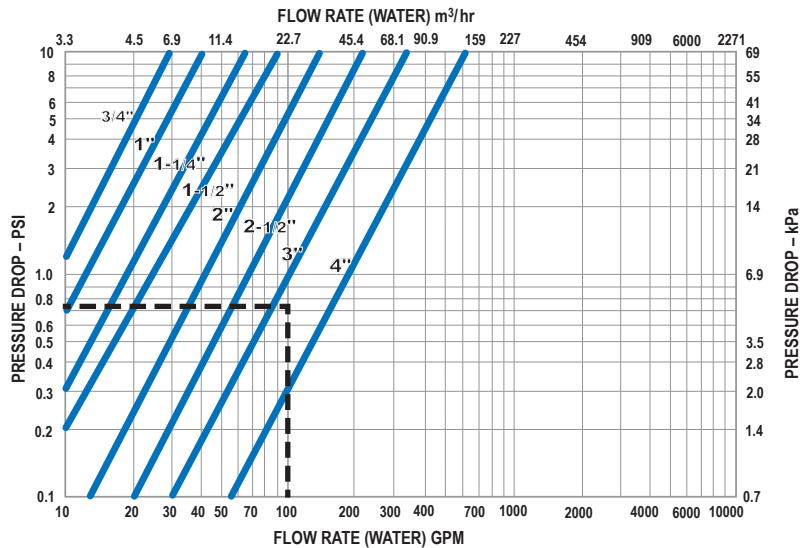
Determine the size of strainer using the pressure drop curves.

With the corrected pressure drop from Step 3 and the flow rate in GPM, determine the maximum size of the strainer. Any larger size strainer will improve pressure drop.

NOTE: For Duplex Strainers, refer to pressure drop curves for Model 53BTX (3/4" – 4") on page 4 or Model 50 (5", 6", 8") on page 5. For Y-Strainers, refer to pressure drop curves for Model 85 (1/4" – 10") on page 6.

EXAMPLE:

100 GPM with a max pressure drop of 0.74 PSI determines a 4" strainer size or larger is to be selected.



STEP 5

Determine your material and porting type requirements from the specification, selection chart.

MODEL 53BTX SELECTION CHART

Size	Body & Cartridge Material	End Connections	Seat / Seal	Diverter Balls
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Iron	Threaded	TFE/Buna-N*	Stainless Steel
3/4", 1", 1-1/4", 1-1/2", 2"	Carbon Steel	Threaded	TFE/Buna-N*	Stainless Steel
3/4", 1", 1-1/4", 1-1/2", 2"	Stainless Steel	Threaded	TFE/Viton®	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Iron	Flanged 125#	TFE/Buna-N*	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Carbon Steel	Flanged 150#	TFE/Buna-N*	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Stainless Steel	Flanged 150#	TFE/Viton®	Stainless Steel

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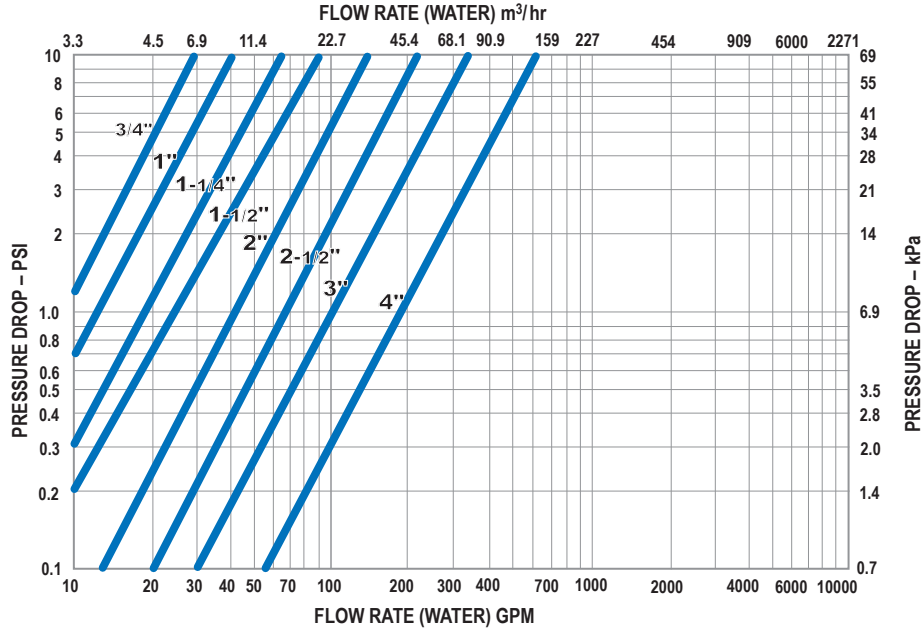
EATON EATON STRAINERS

MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS

MODEL 85 Y STRAINERS

SPECIFICATIONS:

MODEL 53BTX (3/4" TO 4")



SELECTION CHART				
Size	Body & Cartridge Material	End Connections	Seat / Seal	Diverter Balls
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Iron	Threaded	TFE/Buna-N*	Stainless Steel
3/4", 1", 1-1/4", 1-1/2", 2"	Carbon Steel	Threaded	TFE/Buna-N*	Stainless Steel
3/4", 1", 1-1/4", 1-1/2", 2"	Stainless Steel	Threaded	TFE/Viton®	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Iron	Flanged 125#	TFE/Buna-N*	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Carbon Steel	Flanged 150#	TFE/Buna-N*	Stainless Steel
1", 1-1/2", 2", 2-1/2", 3", 4"	Stainless Steel	Flanged 150#	TFE/Viton®	Stainless Steel

PRESSURE RATING	
Size	Rating
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2", 3", 4"	200 psi @ 100°F

Viton® standard for SSTL, optional for iron, bronze and carbon steel.

MODEL NUMBERING CODE								
Model #	Port Size	Flange Class	Pipe Connection	Body & Cartridge Material	Elastomer Material	Basket (Perf or Mesh)		
						Code	Baskets	
ST053	007 (3/4")	A (125#)	F (Flat Face Flange)	22A (Stainless/Stainless)	- B (Buna)	-P033 -P045 -P062 -P125 -P156 -P250 -P375 -P500	PERF:	
	010 (1")	Cast Iron	Cast Iron	33TS (Steel/Steel)	- V (Viton)		1/32"	
	012 (1-1/4")	B (150#) Steel & Stainless	R (Raised Face Flange) Steel & Stainless	46TS (Cast Iron/Ductile Iron)			3/64"	
	015 (1-1/2")						1/16"	
	020 (2")						5/32"	
	025* (2-1/2")						1/4"	
	030 (3")	T (Threaded)					3/8"	
	040 (4")						1/2"	
								MESH:
								-M020	20
						-M040	40	
						-M060	60	
						-M080	80	
						-M100	100	
						-M150	150	
						-M200	200	
						-M325	325	
						-M400	400	

EXAMPLE:
2", Iron, Threaded Ports, Buna Elastomers, 40 Mesh Baskets
Part # ST053020AT46TS-B-M040

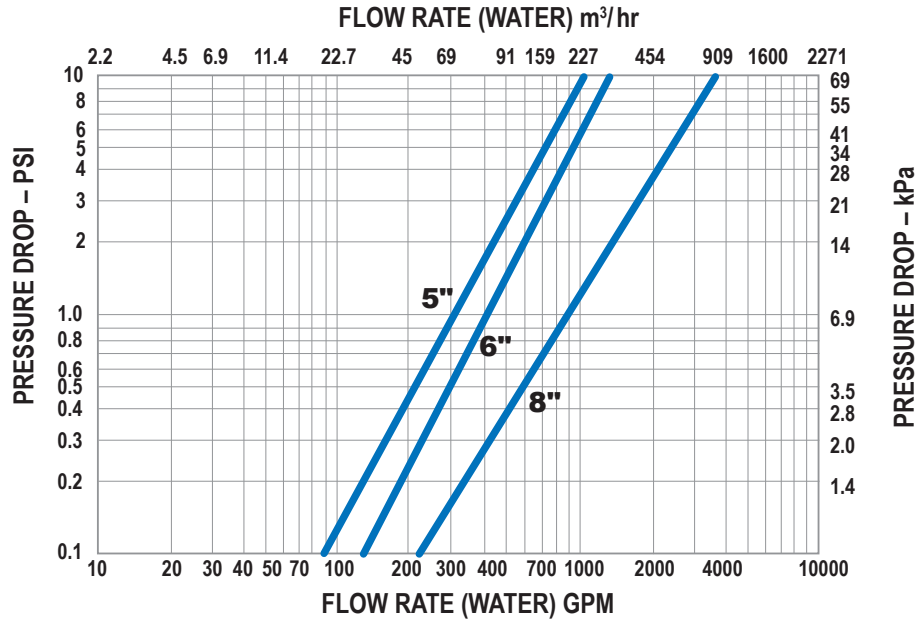
*Only available in Cast Iron

Viton® is a registered trademark of DuPont Performance Elastomers.

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SPECIFICATIONS:

MODEL 50 (5", 6", 8")



SELECTION CHART					RATING	
Size	Body Material	Plug Material	End Connections	Seals	Size	Rating
5", 6", 8"	Iron	Bronze	Flanged 125#	Buna-N	5"	200 psi @ 100°F
6", 8"	Carbon Steel	Bronze	Flanged 150#	Buna-N	6"	200 psi @ 100°F
6", 8"	Stainless Steel	Stainless Steel	Flanged 150#	Viton®	8"	150 psi @ 100°F

DIN flanges available in 6" only.

MODEL NUMBERING CODE

Model #	Port Size	Pipe Connection	Body Code	Diverter	Elastomer Material	Basket (Perf or Mesh)	
						Code	Baskets
ST050	0500* (5") 0600 (6") 0800 (8")	F (Flat Face Flange) * R (Raised Face Flange) ²	2 (Stainless Steel w/ 150# Flanges) 3 (Carbon Steel w/ 150# Flanges) 4 (Cast Iron w/ 125# Flanges)	1C (Bronze) ¹ 2C (Stainless Steel) ²	- B (Buna) - V (Viton) - T (PTFE) - E (EPDM)	PERF:	
						-P033	1/32"
						-P045	3/64"
						-P062	1/16"
						-P125	1/8"
						-P156	5/32"
						-P250	1/4"
						-P375	3/8"
						-P500	1/2"
-M020	20						
-M040	40						
-M060	60						
-M080	80						
-M100	100						
-M150	150						
-M200	200						
-M325	325						
-M400	400						

EXAMPLE:

6", Stainless Steel, Flanged Ports, Viton® Elastomers, 1/4" Perforated Baskets
Part # ST0500600F22C-V-P250

* Only available in Cast Iron
¹ Cast Iron or Steel strainers only
² Steel or Stainless Steel only

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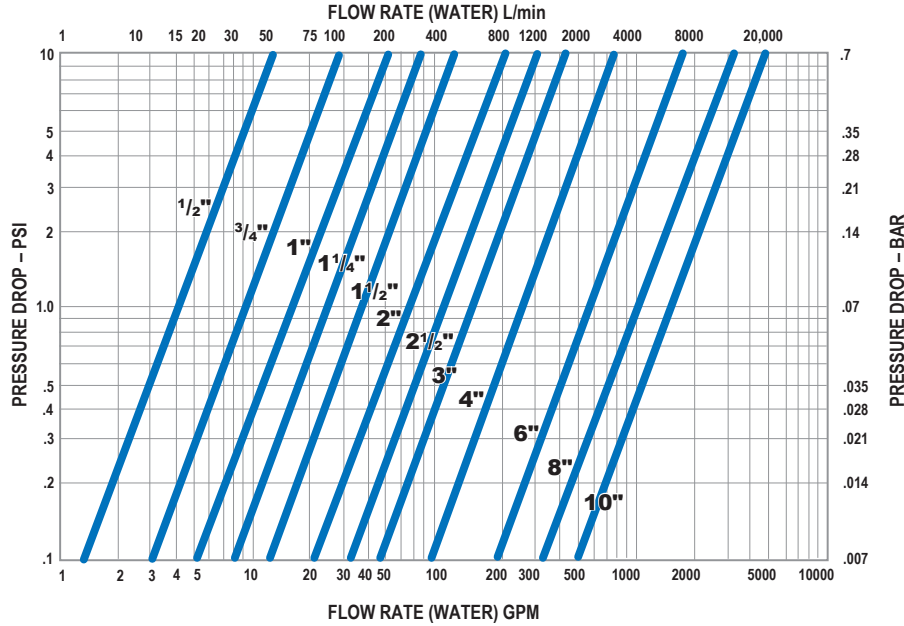
EATON EATON STRAINERS

MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS

MODEL 85 Y STRAINERS

SPECIFICATIONS:

MODEL 85 (1/4" TO 10")



CARBON AND STAINLESS STEEL - THREADED, SOCKET WELD & FLANGED				
Size	Material	End Connections	Cover	Rating (WOG) non-shock
1/4" to 2"	Carbon Steel	Threaded or Socket Weld 600#	Threaded	1480 psi @ 100°F
1/4" to 2"	Stainless Steel	Threaded or Socket Weld 600#	Threaded	1440 psi @ 100°F
3/4" to 10"	Carbon Steel	Flanged 150#	Bolted	285 psi @ 100°F
1" to 10"	Carbon Steel	Flanged 300#	Bolted	740 psi @ 100°F
3/4" to 10"	Stainless Steel	Flanged 150#	Bolted	275 psi @ 100°F
1" to 10"	Stainless Steel	Flanged 300#	Bolted	720 psi @ 100°F

MODEL NUMBERING CODE					
Model #	Port Size	Flange Class, Pipe Connection	Body Code	Basket (Perf or Mesh)	
				Code	Baskets
SY085	Threaded and Socket Available Sizes 002 (1/4") 003 (3/8") 005 (1/2") 007 (3/4") ⊕ 010 (1") 012 (1-1/4") 015 (1-1/2") 020 (2") 025 (2-1/2") 030 (3") 040 (4") 060 (6") 080 (8") 100 (10")	BR (150# Raised Face Flange) DR (300# Raised Face Flange) ES (600# Socket Weld) ET (600# Threaded)	20A (Stainless Steel) 30A (Carbon Steel)	-P033	PERF: 1/32"
				-P045	3/64"
				-P062	1/16"
				-P125	1/8"
				-P156	5/32"
				-P250	1/4"
				-P375	3/8"
				-P500	1/2"
				-M020	MESH: 20
				-M040	40
				-M060	60
				-M080	80
				-M100	100
				-M150	150
				-M200	200
-M325	325				
-M400	400				

EXAMPLE:

1", Steel, 150# Flanged Ports, 80 Mesh

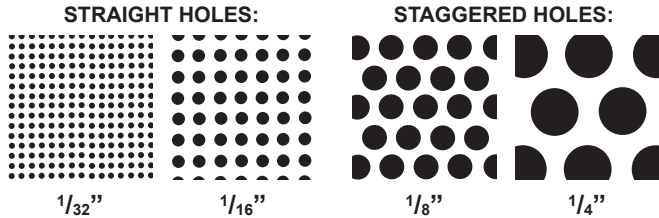
Part # SY085010BR30A-M080

⊕ 3/4" not available with 300# flanges.

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BASKET AND SCREEN DATA

PATTERN EXAMPLES (ACTUAL SIZE):



BASKET AND SCREEN DESIGN

Designed to be both effective and durable, the basket or screen is the heart of an Eaton strainer. Eaton supplies baskets for duplex strainers and screens for Y strainers, in standard and heavy-duty designs. Standard design baskets meet the needs of most applications. Eaton recommends the heavy-duty design in cases when straining an extremely high viscosity material or experiencing a high solids load.

Eaton baskets and screens are available in 316 stainless steel. A wide range of perforations and mesh provides removal of solids from 1/2" down to as low as 40 microns.

BASKET CONSTRUCTION

Each style basket includes a perforated sheet induction welded to a rigid top ring and solid bottom cap. Special attention to the welds along the perforated sheet seam, prevent the possible bypass of solids and maintain the basket's strength. A handle, welded to the I.D. of the top ring, facilitates easy removal. Heavy-duty baskets have reinforcing strips induction welded along the perforation's seam, and circumferentially on the outside of the mid-section of the basket. The perforated sheet is inside the top ring and bottom cap.

SCREEN CONSTRUCTION

Y strainer screens, rolled to form a perfect cylinder, are induction welded along the seam. A neat weld, applied along the perforated sheet seam, prevents the possible bypass of solids and provides a seam of acceptable strength. Eaton machines Y strainer screen seats to specific dimensions and, accordingly, both the O.D. and length of these screens are closely toleranced.

PERFORATED SHEET - SPECIFICATION

Eaton baskets utilize perforated sheets because of their greater inherent strength and resistance to stress cracking. The percentage of open area of a screen generally dictates the internal pressure drop experienced across it. The objective is to select a perforation with the best balance of open area, hole arrangement, and sheet thickness.

PERFORATED SHEET - OPEN AREA

Perforated sheets can have an open area from 15% to 75%. In general, the larger the open area of perforated sheet, the thinner the sheet thickness must be. Holes punched closer together increase the perforated open area; the solid portion between holes distorts and becomes weak. Another factor in controlling the sheet thickness is the hole diameter. The smaller the hole diameter, the thinner the sheet. The rule of thumb used by commercial perforated sheet manufacturers is that hole dimensions smaller than the plate thickness are impractical and costly to manufacture. Eaton baskets and screens have between 28% to 63% open area with gauge thickness from 18" (0.048") to 25" (0.021"), depending upon the size of the perforations and the size and model of the strainer.

HOLE ARRANGEMENT

Holes can be punched either in a straight line or in a staggered pattern. Eaton baskets and screens have a staggered pattern that increases the open area, provides extra strength, and creates less pressure drop.

PERFORATIONS

Eaton baskets and screens are available in 1/32", 3/64", 1/16", 1/8", 5/32", 1/4", 3/8", and 1/2" perforations and in mesh sizes 20, 40, 60, 80, 100, 200, 325, and 400. However, for general service there is one perforation for each size and type of strainer. Unless specified, this standard perforation is the size furnished with the strainer.

OPENINGS

Standard wire mesh liners for Eaton baskets and screens are available from 20 to 400 mesh. For any size mesh, there are different open area selections based on the diameter of the wires used. Twenty mesh means 20 wires per inch in both a vertical and horizontal direction. Therefore, as the wire size increases, the hole size decreases. Eaton baskets offer wire mesh with openings from 0.034" to 0.0015" (20 mesh to 400 mesh).

OPEN AREA

The open area of wire mesh is a function of both the weave and the wire diameter. Eaton uses a plain square weave in most cases because its straight-through flow path creates the least pressure drop. The mesh is reinforced with a perforated metal backing possessing greater than a 60% open area. This combination affords the greatest degree of strength, yet offers a lower pressure drop than other types of wire mesh. Eaton can supply baskets and screens with open areas from 14% to 46%.

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EATON EATON STRAINERS

MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS

MODEL 85 Y STRAINERS

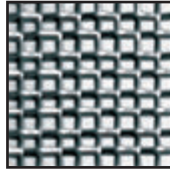
BASKET AND SCREEN DATA

WIRE MESH SPECIFICATIONS

Eaton strainers are available with woven wire mesh screens. Wire mesh provides smaller openings for very fine straining applications down to 40 microns. Eaton baskets and screens use monofilament mesh possessing equal wire size and wire count in both directions to produce square openings.

PLAIN SQUARE WEAVE

Woven in an over and under pattern of wire having the same diameter, this weave produces a square opening with excellent flow characteristics.



MESH LINERS AVAILABLE

The number of openings per linear inch determines the size of mesh liners. The standard sizes Eaton can furnish are 20, 40, 60, 80, 100, 200, 325, and 400.

BASKET EFFECTIVE AREA

	Strainer Model	Pipe Size	Perforation Size	Nominal Area Of Pipe (Sq In)	Gross Screen Area (Sq In)	Free Area (Sq In)	Ratio Free Area To Pipe Area
DUPLEX STRAINERS	53BTX	3/4	1/32	0.53	19.8	5.5	10.4
	53BTX	1	1/32	0.86	19.8	5.5	6.4
	53BTX	1 1/4	1/8	1.49	45.0	22.0	14.4
	53BTX	1 1/2	1/8	2.03	45.0	22.0	10.6
	53BTX	2	1/8	3.35	65.0	31.0	9.3
	53BTX	2 1/2	1/8	4.78	65.0	31.0	6.5
	53BTX	3	3/16	7.39	110.3	55.1	7.4
	53BTX	4	3/16	12.73	152.0	76.0	5.9
	50	5	3/16	20.0	216.1	106.0	5.4
	50	6	3/16	28.9	265.4	132.7	4.6
50	8	3/16	50.02	506.7	253.4	5.1	
Y STRAINERS	85	1/4	.045	.10	5.0	1.8	18.0
	85	3/8	.045	.19	5.0	1.8	9.5
	85	1/2	.045	.30	5.0	1.8	6.0
	85	3/4	.045	.53	7.1	2.6	4.9
	85	1	.045	.86	10.4	3.7	4.3
	85	1 1/4	.045	1.49	15.1	5.5	3.7
	85	1 1/2	.045	2.03	21.7	7.8	3.8
	85	2	.045	3.35	30.4	10.9	3.3
	85	2 1/2	.045	4.78	43.2	15.5	3.2
	85	3	.045	7.39	70.7	25.5	3.4
	85	4	.045	12.73	106.8	38.4	3.0
	85	6	.045	28.70	241.7	87.0	3.0
	85	8	.045	50.02	414.6	149.2	3.0
	85	10	.045	71.80	652.2	234.8	3.3

OPTIONS

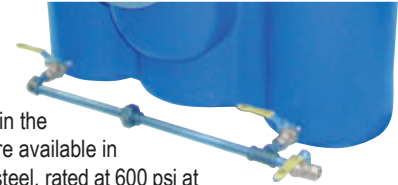


MAGNETIC INSERTS

In some applications, particularly where fluids are involved in machining processes, microscopic iron or steel particles may be present. These could pass

through even the finest mesh screen. Magnetic inserts in the strainer basket catch these particles before they can pass through the mesh lining. Guaranteed to retain their magnetism indefinitely, the powerful Alnico magnets, completely encased and sealed in a 1/8" thick, type 316 stainless steel shell, prevent contamination or corrosion. Each magnet's capacity is 1300 gauss.

DRAIN VALVES



These ball type valves, used to drain the strainer housing, are available in brass or stainless steel, rated at 600 psi at 100 °F with either 1/4" or 1/2" NPT connections.



ELASTOMER SEALS

If the standard seals on a pipeline strainer are not suitable for

a specific application, Eaton offers a variety of special seals that include EPDM, Viton®, Buna-N, and TFE-encapsulated.

DIFFERENTIAL PRESSURE GAUGE



This gauge shows the pressure differential across the strainer and helps determine when to change out the strainer basket. It has a 0 - 30 psid pressure range and features a 3-1/2" gauge face. Rated at 3000 psi, it comes with a 1/4" NPT connection in either brass or stainless steel.



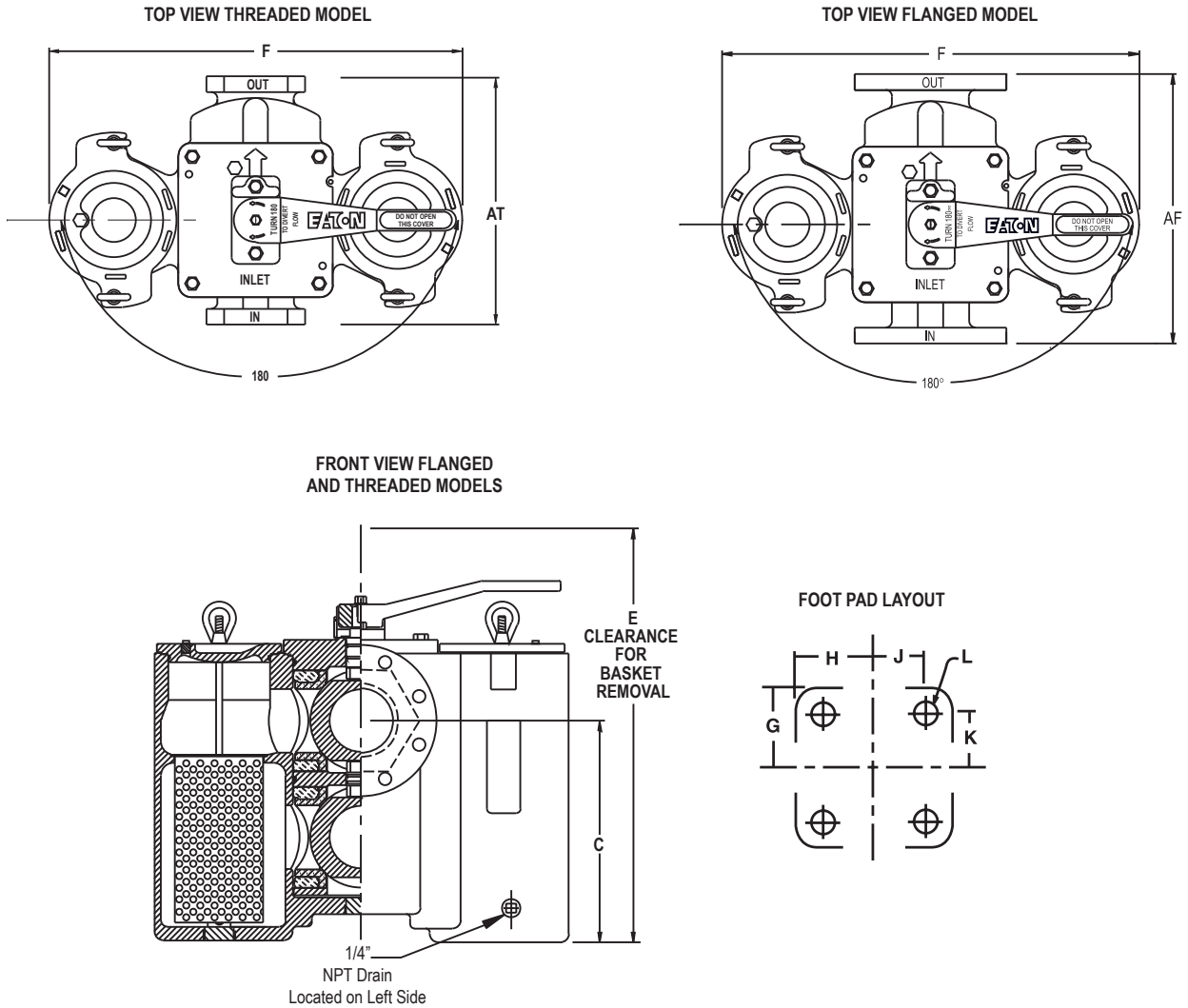
HEAVY-DUTY STRAINER BASKETS

For very demanding applications, heavy-duty construction baskets are extremely rugged and stand up to the most abusive conditions. Heavy-duty strainer baskets have a metal banding spot welded at top and middle to provide extra support for difficult applications.

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DIMENSIONS - 53BTX (3/4" TO 4")

These dimensions are average and not for construction purposes. Certified prints on request.



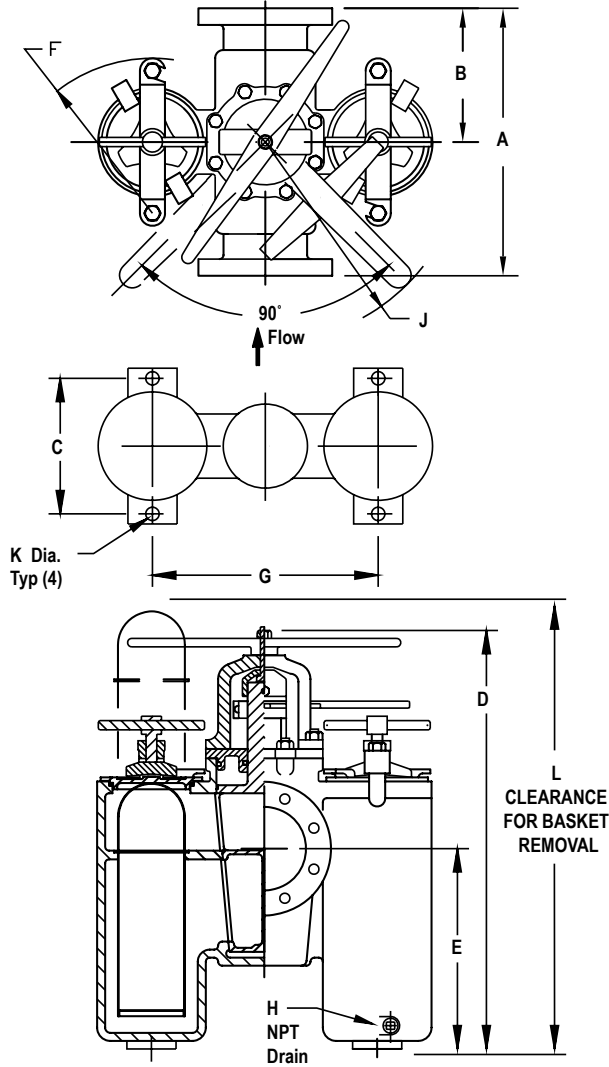
Pipe Size	DIMENSIONS - in (mm)										WEIGHT - lb (kg)			
	AF	AT	C	E	F	G	H	J	K	L	IRON		CARBON & SS	
											FLANGED	THREADED	FLANGED	THREADED
3/4	—	5.50 (140)	5.00 (127)	13.38 (340)	10.50 (268)	3.25 (83)	2.13 (54)	1.63 (41)	2.75 (70)	3/8	—	37 (17)	—	41 (19)
1	6.88 (175)	5.50 (140)	5.00 (127)	13.38 (340)	10.50 (268)	3.25 (83)	2.13 (54)	1.63 (41)	2.75 (70)	3/8	42 (19)	37 (17)	47 (21)	41 (19)
1 1/4	6.88 (175)	7.50 (190)	6.81 (173)	17.00 (432)	13.25 (330)	3.25 (83)	2.13 (54)	1.63 (41)	2.75 (70)	3/8	—	80 (36)	—	89 (40)
1 1/2	9.38 (238)	7.50 (190)	6.81 (173)	17.00 (432)	13.25 (330)	3.25 (83)	2.13 (54)	1.63 (41)	2.75 (70)	3/8	90 (41)	80 (36)	100 (45)	89 (40)
2	10.63 (270)	10.00 (254)	8.38 (213)	21.75 (552)	17.38 (441)	4.69 (119)	2.50 (64)	1.81 (46)	4.00 (102)	5/8	167 (76)	157 (71)	185 (84)	174 (79)
2 1/2	10.75 (273)	10.00 (254)	8.38 (213)	21.75 (552)	17.37 (441)	4.69 (119)	2.50 (64)	1.81 (46)	4.00 (102)	5/8	183 (83)	157 (71)	203 (92)	—
3	13.50 (343)	—	8.88 (226)	26.50 (673)	22.75 (578)	4.69 (119)	2.50 (64)	1.81 (46)	4.00 (102)	5/8	285 (129)	—	432 (196)	—
4	16.00 (406)	—	13.25 (337)	33.00 (838)	24.75 (629)	5.19 (132)	3.94 (100)	3.25 (83)	4.50 (114)	5/8	389 (177)	—	432 (196)	—

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EATON **EATON STRAINERS**
MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS
MODEL 85 Y STRAINERS

DIMENSIONS - MODEL 50 (5", 6", 8")

These dimensions are average and not for construction purposes. Certified prints on request.



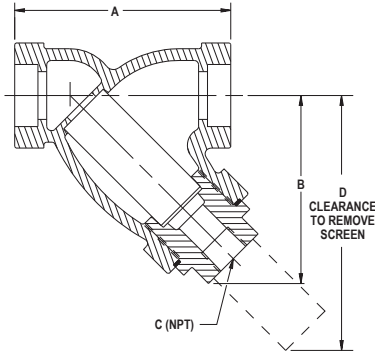
Pipe Size	DIMENSIONS - in (mm)											WEIGHT - lb (kg)		
	A	B	C	D	E	F	G	H	J	K	L	Cast Iron	Carbon Steel	Stainless Steel
5	18.38 (467)	9.00 (229)	9.75 (248)	33.25 (845)	14.75 (375)	10.25 (260)	17.19 (437)	3/8 —	19.75 (502)	0.56 (14)	41.00 (1041)	403 (183)	—	—
6	22.00 (559)	12.88 (327)	12.50 (318)	36.25 (921)	19.50 (495)	11.75 (298)	20.75 (527)	3/8 —	19.75 (502)	0.63 (16)	42.00 (1067)	500 (227)	580 (263)	615 (279)
8	25.00 (635)	14.00 (356)	17.00 (432)	50.63 (1286)	23.06 (586)	—	30.75 (781)	1/2 —	28.00 (711)	0.94 (24)	56.00 (1422)	1500 (682)	1610 (732)	1670 (759)

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DIMENSIONS - MODEL 85 Y (1/4" TO 10")

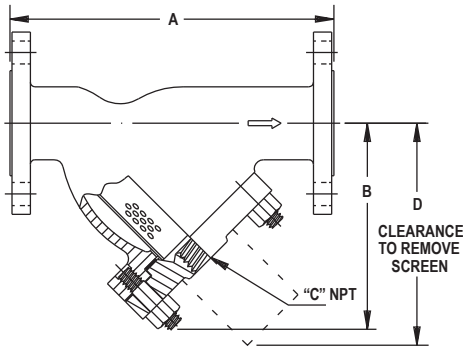
These dimensions are average and not for construction purposes. Certified prints on request.

TYPICAL SOCKET WELD AND THREADED Y STRAINER



SOCKET WELD, THREADED CARBON STEEL & SS - 600#					
Size	A	B	C (Nom.)	D	WEIGHT lb (kg)
	in (mm)	in (mm)		in (mm)	
1/4	3.00 (76)	3.00 (76)	3/8	4.00 (102)	2 (0.9)
3/8	3.00 (76)	3.00 (76)	3/8	4.00 (102)	2 (0.9)
1/2	3.00 (76)	3.00 (76)	3/8	4.00 (102)	2 (0.9)
3/4	3.75 (95)	3.50 (89)	3/8	4.75 (121)	4 (1.8)
1	4.63 (118)	4.00 (102)	1/2	5.75 (146)	6 (2.7)
1-1/4	5.00 (127)	4.63 (118)	3/4	6.50 (165)	8 (3.6)
1-1/2	5.63 (143)	5.25 (133)	3/4	7.50 (191)	10 (4.5)
2	7.00 (178)	5.75 (146)	1	8.75 (222)	15 (6.8)

TYPICAL FLANGED Y STRAINER



FLANGED CARBON STEEL & STAINLESS STEEL - 150#					
Size	A	B	C (Nom.)	D	WEIGHT lb (kg)
	in (mm)	in (mm)		in (mm)	
3/4	5.63 (143)	3.00 (76)	3/8	4.00 (102)	7 (3.2)
1	6.38 (162)	3.64 (92)	1/2	5.00 (127)	9 (4.1)
1-1/4	7.25 (184)	4.25 (108)	3/4	5.75 (146)	14 (6.3)
1-1/2	8.88 (226)	5.75 (146)	3/4	6.50 (165)	18 (8.2)
2	7.88 (200)	6.00 (152)	1	8.25 (210)	16 (7.3)
2-1/2	9.75 (248)	6.50 (165)	1	9.25 (235)	25 (11.4)
3	10.00 (254)	7.25 (184)	1 1/4	10.50 (267)	35 (16)
4	12.13 (208)	9.75 (248)	1 1/2	14.75 (375)	70 (32)
6	18.50 (470)	14.25 (362)	2	21.00 (533)	130 (59)
8	21.63 (549)	18.00 (457)	2	26.75 (679)	240 (109)
10	26.00 (660)	22.50 (565)	2	33.75 (857)	300 (136)

FLANGED CARBON STEEL & STAINLESS STEEL - 300#					
Size	A	B	C (Nom.)	D	WEIGHT lb (kg)
	in (mm)	in (mm)		in (mm)	
1	6.88 (175)	3.63 (92)	1/2	5.00 (127)	13 (6.0)
1-1/4	7.75 (197)	4.25 (108)	3/4	5.75 (146)	18 (8.2)
1-1/2	9.38 (238)	5.75 (146)	3/4	6.50 (165)	24 (11)
2	8.63 (219)	6.25 (159)	1	8.25 (210)	30 (13.6)
2-1/2	10.63 (270)	7.00 (178)	1	9.25 (235)	40 (18.2)
3	12.00 (305)	7.75 (197)	1 1/4	10.50 (267)	55 (25)
4	14.50 (368)	10.50 (267)	1 1/2	14.75 (375)	105 (48)
6	20.00 (508)	14.75 (375)	2	21.00 (533)	200 (91)
8	23.38 (594)	18.75 (476)	2	27.00 (686)	360 (164)
10	27.38 (695)	22.75 (578)	2	34.50 (876)	430 (195)

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EATON EATON STRAINERS

MODEL 53BTX AND 50 DUPLEX BASKET STRAINERS MODEL 85 Y STRAINERS

PRESSURE DROP CALCULATIONS

Pressure drops for Eaton strainers are shown on each product page. The curves are based on the flow of water through clean, perforated baskets or screens. For mesh-lined baskets or screens and/or for fluids other than water, use the correction factors listed on this page. To accurately calculate the pressure loss for filters and strainers in a pipeline, proceed as follows:

- 1 First calculate pressure loss using Cv factor formula at right.
- 2 Take the pressure loss figure obtained in (1) and recalculate it using the appropriate correction factor from Table 2 on page 2.

CORRECTION FACTORS FOR MESH-LINED BASKETS

First – Multiply the pressure drop for water shown in the selection charts on pages 4-5 by the specific gravity of the liquid.

Second – Multiply the corrected pressure drop figure by the following correction factors for more viscous liquids. (Water has a viscosity of 30 SSU.)

C _v FACTORS*	
Size	Value
3/4"	13
1"	13
1-1/4"	18
1-1/2"	25
2"	42
2-1/2"	65
3"	110
4"	175
5"	300
6"	420
8"	900

* For water with clean, perforated basket

PRESSURE LOSS CALCULATION USING C_v FACTOR

METRIC UNITS:

$$\Delta P = \left[\frac{Q}{C_v} \right]^2 (133.6)$$

ΔP = Pressure Drop in kPa

Q = Flow in M³/hr

C_v = Flow Coefficient

STANDARD UNITS:

$$\Delta P = \left[\frac{Q}{C_v} \right]^2$$

ΔP = Pressure Drop in psi

Q = Flow in gpm

C_v = Flow Coefficient

The pressure loss across a strainer can be calculated using the system's flow rate and the Cv factor for that strainer.

For example, a 5" Model 50 duplex strainer with a perforated basket has a Cv factor of 300. In water service with a 300 gpm flow rate, it will have a 1.0 psi pressure drop $(300 \div 300)^2 = 1.0$. For mesh-lined baskets and/or fluids with a viscosity greater than water, multiply the pressure drop by the correction factors in Table 2 on page 2.

Section 642

Viking Bolted-Lid Strainers

(Basket Type Line Strainers)

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VIKING® BOLTED-LID BASKET-TYPE LINE STRAINERS

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- LOW PRESSURE DROP
- EASY TO CLEAN
- LIGHT IN WEIGHT
- SMALL IN OVERALL DIMENSION
- VIKING QUALITY DUCTILE CONSTRUCTION

Series Description

Viking Bolted-Lid Simplex Strainers provide protection for your pumping system with low pressure drop. The inclined position of the strainer basket adjacent to the porting provides smooth flow patterns not found in conventional basket-type strainers.

Viking Bolted-Lid Simplex Strainers reduce cleaning problems encountered with conventional strainers. The basket is removed from the top of the strainer, possibly eliminating the need to completely drain the system or allowing foreign matter to drop back into the line when the strainer is cleaned. The relatively small port-to-port dimensions of the strainer allow easy installation.

Viking Bolted-Lid Simplex Strainers are designed with a tapped port in the lid to easily attach an air eliminator. Strainers are also equipped with a bottom drain plug for complete draining of ports if needed. They are also equipped with pressure indicator ports.



VIKING® BOLTED-LID BASKET-TYPE LINE STRAINERS

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Key Features and Benefits:

- Strainer bodies available in ductile iron
- Ductile iron can be used for steel requirements in chemical, petrochemical and pharmaceutical industries
- Stainless steel baskets with 3/16" perforation holes standard (no mesh)
- Mesh lining available in 10, 20, 40, 60, 80 or 100 sizes
- Baskets provide maximum hoop strength to prevent distortion or basket damage
- Strainer body comes standard with pre-drilled and tapped differential and vent plugs.



Class 150 Raised Face Ports
2", 3" & 4"



Class 300 Raised Face Ports
2", 3" & 4"

Model Number Key:

F - 1020 - RDUC - 020

Product:
F = Strainer

Port Sizes:
020 = 2"
030 = 3"
040 = 4"

Material:
DUC = Ductile Iron

Elastomer Seal:
02 = Viton®

Product Type:
1 = Simplex Type

Port Types:
R = Flanged - Class 150 Raised Face
H = Flanged - Class 300 Raised Face

Basket Mesh:
0 = No Mesh
1 = 10 Mesh
2 = 20 Mesh
3 = 40 Mesh
4 = 60 Mesh
5 = 80 Mesh
6 = 100 Mesh

Example: F-1020-RDUC-023

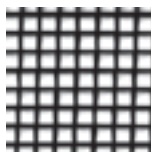
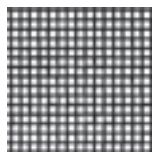
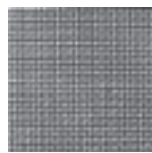
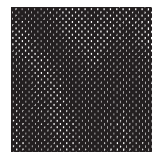
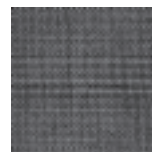
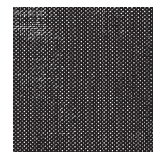
A ductile iron simplex strainer with 2" Class 150 raised face ports, Viton® O-Ring seal, 40 mesh basket.

Viton® is a registered trademark of DuPont Performance Elastomers.

VIKING® BOLTED-LID BASKET-TYPE LINE STRAINERS

Section	642
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Specifications — Available Mesh Sizes:

						
Mesh	10	20	40	60	80	100
Opening (Inches)	.075	.034	.015	.0092	.007	.0055
Opening (Microns)	1910	860	380	230	190	140

Specifications — Strainers:

Model Number	Port Size	Nominal Pipe Area	Standard Basket Perforation	Basket Surface Area	Basket Free Area	Ratio Free Area / Port Area	Maximum Basket Differential Pressure
	Inches	Inches ²	Inches	Inches ²	Inches ²		PSID
F-1020	2"	3.36	.188	33	16.8	5.0	150
F-1030	3"	7.39	.188	66	33.7	4.6	125
F-1040	4"	12.73	.188	113	57.6	4.5	125

Options:



OPTIONAL MAGNETIC INSERTS

Magnetic inserts are available for trapping ferrous particles too small for the basket straining media. The inserts are secured to basket handle using a spring clip which makes removal for cleaning a simple task.



OPTIONAL PRESSURE DIFFERENTIAL INDICATORS

Pressure differential indicators are available as an option to indicate when basket needs to be cleaned. Consult Factory.

VIKING® BOLTED-LID BASKET-TYPE LINE STRAINERS

Section	642
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Construction — Ductile Iron:

Body & Lid	O-Ring for Lid	Basket Material	Bolt Material
Ductile Iron	Viton®	316 Stainless Steel	High Strength Stainless Steel

Viton® — Registered trademark of DuPont Performance Elastomers.

Specifications — Ductile Iron:

Model Numbers	Port Size	① Nominal Capacity Suction Rating	② Rated System Pressure	③ Temperature Range	Approximate Shipping Weight
	Inches	GPM	PSI	Degrees F.	Pounds
F-1020-RDUC	2"	100	250	0 to 350	28
F-1020-HDUC	2"	100	640	0 to 350	31
F-1030-RDUC	3"	200	250	0 to 350	58
F-1030-HDUC	3"	200	640	0 to 350	65
F-1040-RDUC	4"	400	250	0 to 350	81
F-1040-HDUC	4"	400	640	0 to 350	96



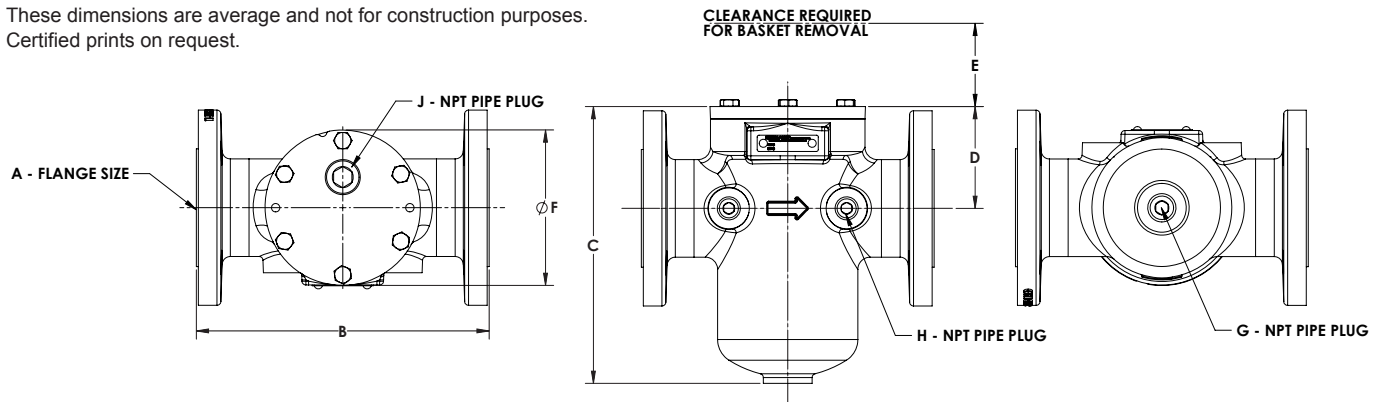
① Capacity based on approx. 1 PSI pressure drop with 40 mesh basket and 38 SSU liquid.

② System pressure ratings for temperature range of 0°F to 100°F per ANSI B16.42 Ductile Iron Pipe Flanges and Flanged Fittings.

③ Elastomers suitable for temperature must be used.

Dimensions:

These dimensions are average and not for construction purposes. Certified prints on request.



Model Numbers	A		B	C	D	E	F	G	H	J
F-1020-RDUC	① 2" CLASS 150	in	9.00	8.51	3.13	7.50	4.75	1/2"	3/8"	3/4"
		mm	228.6	216.2	79.5	190.5	120.7			
F-1020-HDUC	① 2" CLASS 300	in	9.00	8.51	3.13	7.50	4.75	1/2"	3/8"	3/4"
		mm	228.6	216.2	79.5	190.5	120.7			
F-1030-RDUC	① 3" CLASS 150	in	12.00	10.69	3.94	9.50	7.25	1/2"	3/8"	3/4"
		mm	304.8	271.5	100.0	241.3	184.2			
F-1030-HDUC	① 3" CLASS 300	in	12.00	10.69	3.94	9.50	7.25	1/2"	3/8"	3/4"
		mm	304.8	271.5	100.0	241.3	184.2			
F-1040-RDUC	① 4" CLASS 150	in	14.50	12.25	4.50	11.75	8.50	1/2"	3/8"	3/4"
		mm	368.3	311.2	114.3	298.5	215.9			
F-1040-HDUC	① 4" CLASS 300	in	14.50	12.25	4.50	11.75	8.50	1/2"	3/8"	3/4"
		mm	368.3	311.2	114.3	298.5	215.9			

① Flanged ports are suitable for use with Class 150 or Class 300 ANSI companion flanges or flanged fittings.

VIKING® BOLTED-LID BASKET-TYPE LINE STRAINERS

Section	642
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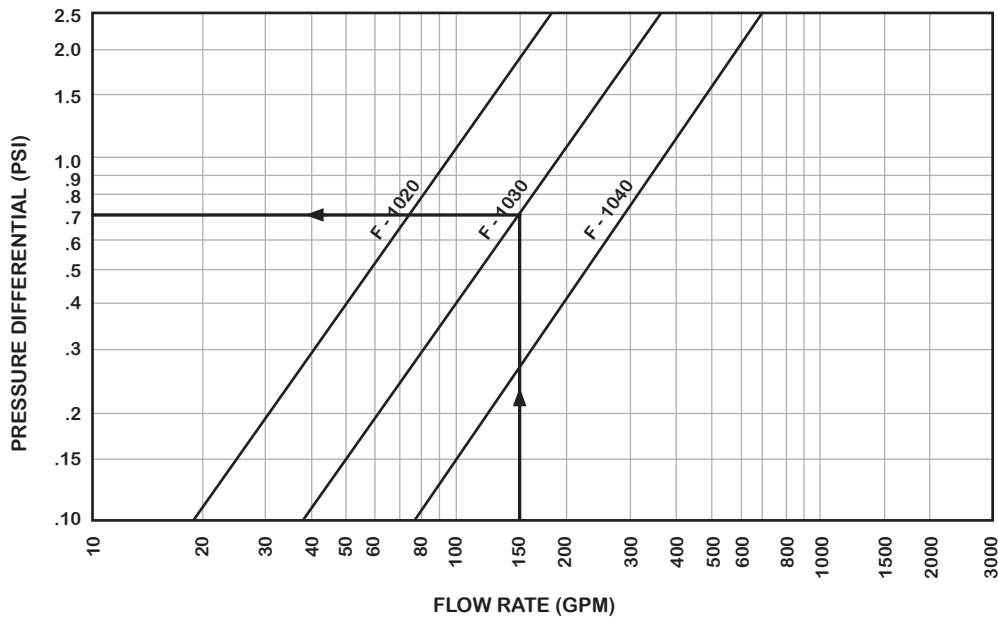
Pressure Drop Information:

Example:

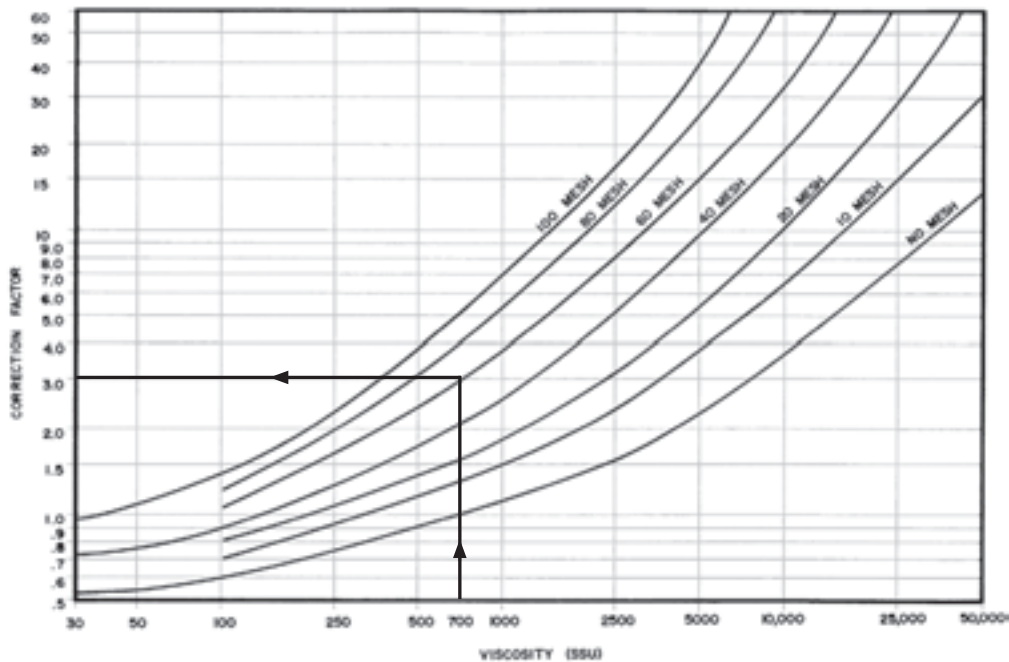
To determine the pressure drop across a strainer for a pump with 3" ports producing a flow rate of 150 GPM, with a viscosity of 700 SSU; first, determine the nominal pressure differential for the 3" strainer (F-1030) by following 150 GPM vertically on it intersects the F-1030 curve then read horizontally on

the Pressure Drop Curve the nominal pressure differential (.7 psi). Using the Correction Curves, enter vertically at 700 SSU and proceed until intersecting the 60 mesh curve, then read the correction factor horizontally (3.0). Therefore, the actual pressure drop will be $3.0 \times .7 = 2.1$ psi (4.28" of Hg.)

Pressure Drop Curves:



Correction Curves:



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Section 680

Viking Mag Drive

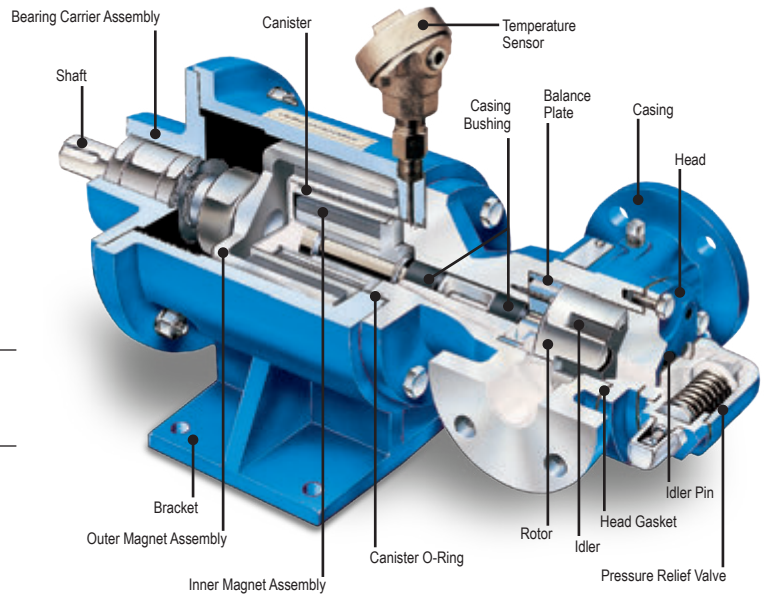
(Internal Gear Pumps with Magnetic Drive)

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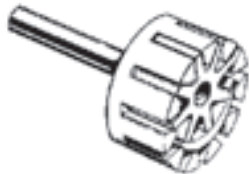
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FEATURES

① Differential Pressures	To 8.5 BAR To 125 PSI
② Temperature Range	-50°C. to +260°C. -60°F. to +500°F.
① Viscosity Range	1.0 cSt. to 5,500 cSt. 28 SSU to 25,000 SSU

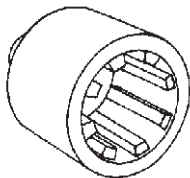


SERIES 897 Pumps
Cutaway View
“HL” size shown



INTERNAL GEAR

Viking internal gear Mag Drive pumps are available in stainless steel, steel, or cast iron construction with capacities up to 75 GPM. With only two moving parts Viking Mag Drive and Viking’s gear-within-a-gear principle provides low-shear pumping.



MAGNETIC COUPLING

Viking Mag Drive magnetically couples the pump to the driver. Magnetic force passing through a stainless steel canister is used to drive the inner coupling, eliminating the need for shaft seals.

GPM 7 to 75

③ (Nominal Rating)

Viking® Mag Drive is designed to provide positive-displacement pumping capability in those situations that require the highest assurance of liquid containment. Viking Mag Drive provides for the safe, trouble-free transfer of hazardous, EPA-regulated fluids without electronic monitoring as required with mechanical face-type shaft seals. Hard-to-seal liquids are also easily handled with the Viking Mag Drive which eliminates the high cost of mechanical seal replacement and repair. A variety of coupling sizes are available for flow requirements to 75 GPM. The torque-carrying ability of high-strength magnets allows pumps to be coupled with gear reducers for slow-speed handling of viscous liquids. The self-priming positive-displacement pumping principle provides low-shear, nonpulsating flow. Internal gear pumps are available in stainless steel, steel, and cast iron construction.

- ① See following pages and performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com for specific recommendations. Certain models have lower limitations.
- ② Optional samarium cobalt magnets are used at temperatures over 225°F.
- ③ Nominal capacities based on handling thin liquids at low pressures.

Kalrez®- Registered trademark of DuPont Performance Elastomers.
Viton®- Registered trademark of DuPont Performance Elastomers.
Viking® and Viking Mag Drive®- Registered trademarks of Viking Pump, Inc.

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VIKING MAG DRIVE[®]

SERIES 897, 893 AND 895

INTERNAL GEAR

CONSTRUCTION—SERIES 897 (STAINLESS STEEL)—SERIES 893 (STEEL) AND SERIES 895 (CAST IRON)

Pump Construction	① O-Ring	Casing	Head	Rotor	Idler	Balance Plate	Rotor Shaft	Idler Pin	Idler Bushing	Internal Pressure Relief Valve
Stainless Steel	PTFE	Stainless Steel	Stainless Steel	Stainless Steel	③ PPS	PPS	Coated Stainless Steel	Coated Stainless Steel	Carbon Graphite	Stainless Steel
Steel	Buna-N	Steel	Steel	② Ductile Iron	③ PPS	PPS	Steel	Steel	Carbon Graphite	Steel Externals
Cast Iron	Buna-N	Iron	Iron	② Ductile Iron	③ PPS	PPS	Steel	Steel	Carbon Graphite	Iron

SPECIFICATIONS—SERIES 897, 893 AND 895

Model Numbers	Materials of Construction	Port Size Inches	Nominal Pump Rating			④ Magnetic Coupling Availability			⑤ Maximum Temperature (Standard Construction)		Maximum Hydrostatic Pressure		Approximate Pump Shipping Weight With Valve (Less Power)		⑦ Approximate Coupling Only Shipping Weight (ready to accept but less power)	
						Series	Torque		Degrees F.	Degrees C.						
							Ft-Lbs	Nm								
GG-897	Stainless Steel	1	10	2.3	1800	MD-A	4	5.4	225	93	400	28	22	10	31	14
GG-893	Steel															
GG-895	Cast Iron																7	1.6	1200	9	12.2
HJ-897	Stainless Steel	1½	20	4.5	1800	MD-A	4	5.4	225	93	400	28	30	14		
HJ-893	Steel															
HJ-895	Cast Iron																13	3.0	1200	9	12.2
HL-897	Stainless Steel	1½	30	6.8	1800	MD-B	15	20.3	225	93	400	28	30	14		
HL-893	Steel															
HL-895	Cast Iron														20	4.5	1200	40	54
AS-897	Stainless Steel	⑥ 3	35	8.0	1200	MD-B	15	20.3	225	93	400	28	78	35	71	32
AS-893	Steel															
AS-895	Cast Iron															
AK-897	Stainless Steel	⑥ 3	50	11	1200	MD-B	40	54	225	93	400	28	78	35		
AK-893	Steel															
AK-895	Cast Iron															
AL-897	Stainless Steel	3	75	17	1200	MD-C	80	108	225	93	400	28	78	35	95	43
AL-893	Steel															
AL-895	Cast Iron															

① Buna-N, Viton[®], Neoprene, PTFE, or Kalrez[®] O-Rings available.

② Standard construction includes iron rotor for "GG" and "HJ" sizes; ductile iron rotor for "HL" through "AL" sizes. When steel-fitted construction is required, hardened steel rotor will be provided on "GG" through "HJ" sizes.

③ Standard Material is Polyphenylene Sulfide with composite material. Recommend using metal idler above 10,000 SSU.

④ See Performance Curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector, for specific coupling recommendation on other pressures and viscosities. See page 13 for "Selecting the correct Mag Drive coupling."

⑤ Higher temperatures can be handled with Samarium Cobalt magnets. See page 20 for torque and temperature limits.

⑥ "AS" and "AK" Series 895 have 2½" NPT tapped ports.

⑦ For bearing carrier weights add 8 lbs (2 KG) for "MD-A" size, add 17 lbs (4 KG) for "MD-B" size.

DRIVE OPTIONS



SERIES 895 Pumps
MD-B15B, bearing carrier, footed bracket, and mounted pump with tapped ports.



SERIES 895 Pumps
MD-B15M, motor direct connected to bracket and pump with tapped ports.

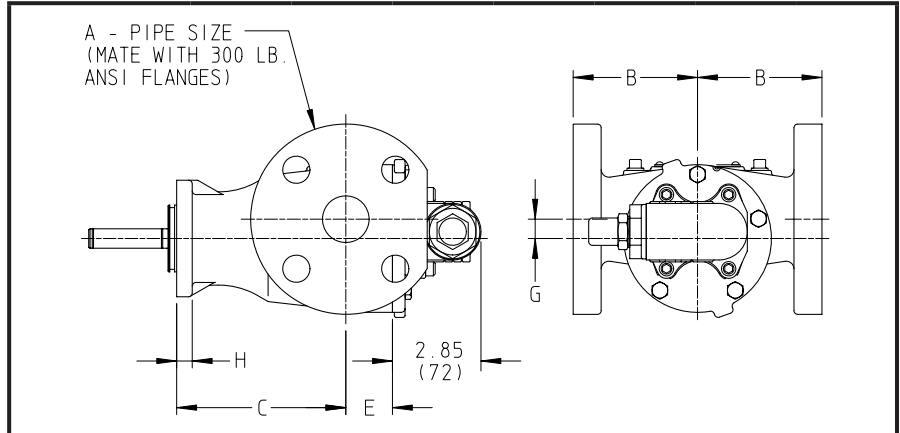
Dimensions for Internal Gear Mag Drive Pumps - See Pages 680.3 through 680.12.

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

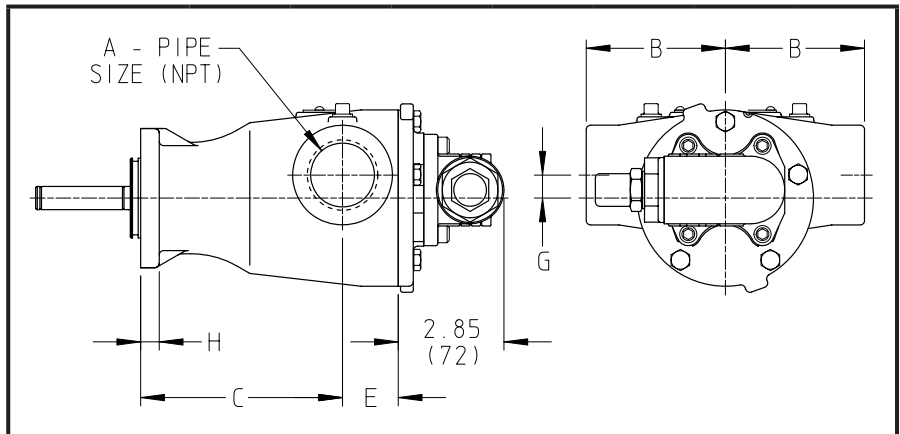
DIMENSIONS—
SERIES 893
STEEL UNMOUNTED PUMPS
“GG”–“HJ”–“HL” SIZES



MODEL NO.	(in)		B	C	E	G	H
GG-893	1	in	4.00	4.29	1.12	0.62	0.50
		mm	102	108	29	16	13
HJ-893 HL-893	1½	in	4.00	5.44	1.50	0.62	0.50
		mm	102	138	38	16	13

For specifications, see page 680.2.

DIMENSIONS—
SERIES 895
CAST IRON UNMOUNTED PUMPS
“GG”–“HJ”–“HL” SIZES



MODEL NO.	(in)		B	C	E	G	H
GG-895	1	in	2.75	4.29	1.12	0.62	0.50
		mm	70	108	29	16	13
HJ-895 HL-895	1½	in	3.75	5.44	1.50	0.62	0.50
		mm	95	138	38	16	13

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VIKING MAG DRIVE[®]

SERIES 897 AND 895

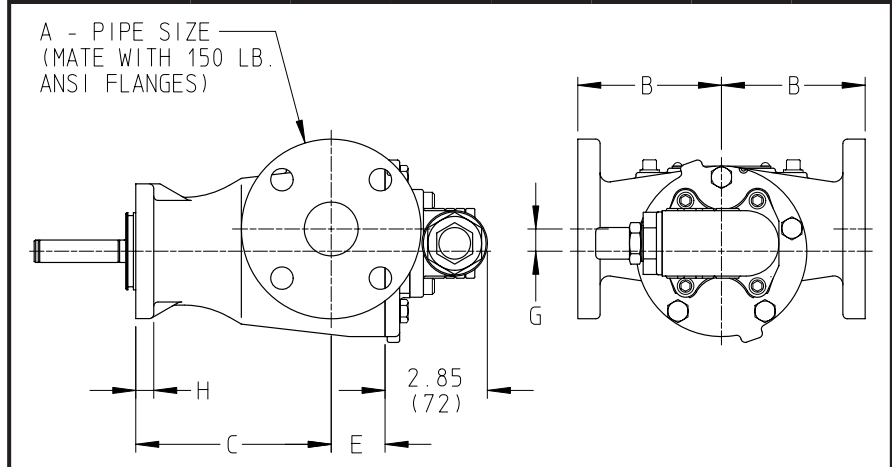
STAINLESS STEEL AND CAST IRON CONSTRUCTION

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

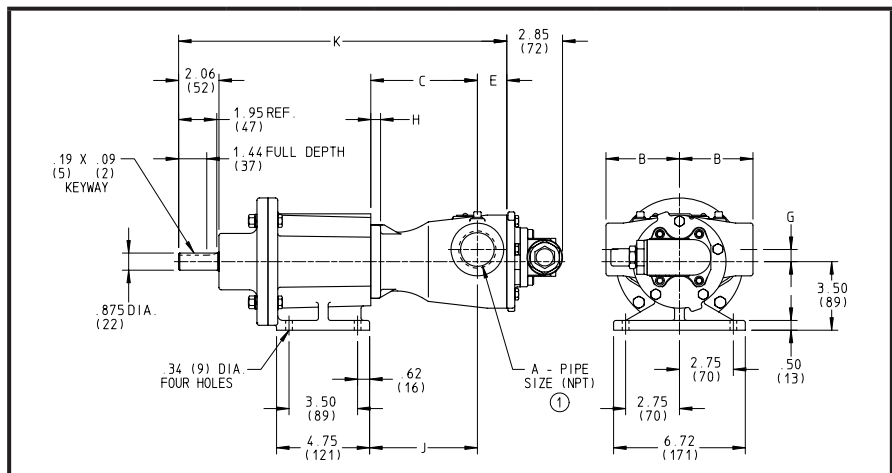
DIMENSIONS— SERIES 897 STAINLESS STEEL UNMOUNTED PUMPS “GG”–“HJ”–“HL” SIZES



MODEL NO.	(in) A		B	C	E	G	H
GG-897	1	in	4.00	4.29	1.12	0.62	0.50
		mm	102	108	29	16	13
HJ-897 HL-897	1½	in	4.00	5.44	1.50	0.62	0.50
		mm	102	138	38	16	13

For specifications, see page 680.2.

DIMENSIONS— SERIES 895 (MD-A_“B” DRIVE) “GG”–“HJ”–“HL” SIZES



MODEL NO.	(in) A		B	C	E	G	H	J	K
GG-895-MD-A_B	1	in	2.75	4.29	1.12	0.62	0.50	4.35	15.30
		mm	70	108	29	16	13	123	389
HJ-895-MD-A_B HL-895-MD-A_B	1½	in	3.75	5.44	1.50	0.62	0.50	5.50	16.75
		mm	95	138	38	16	13	140	425

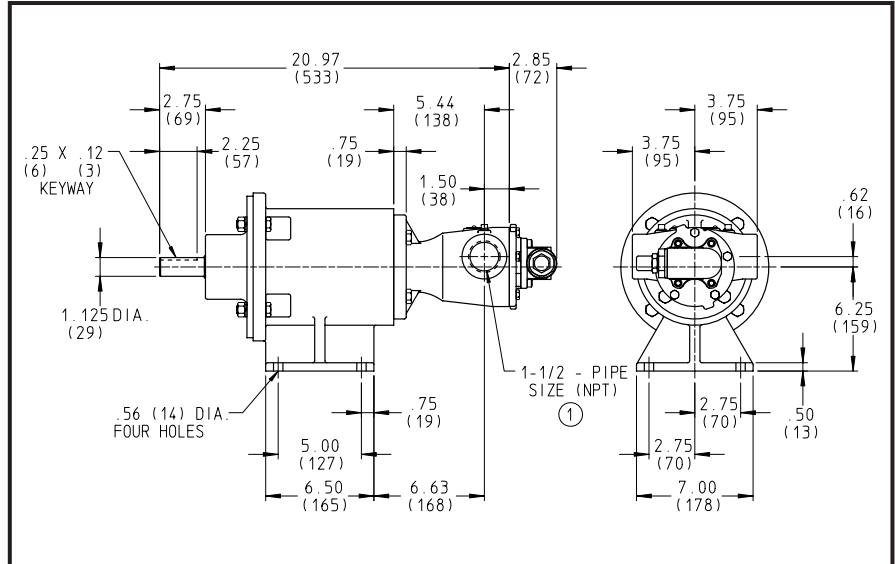
① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

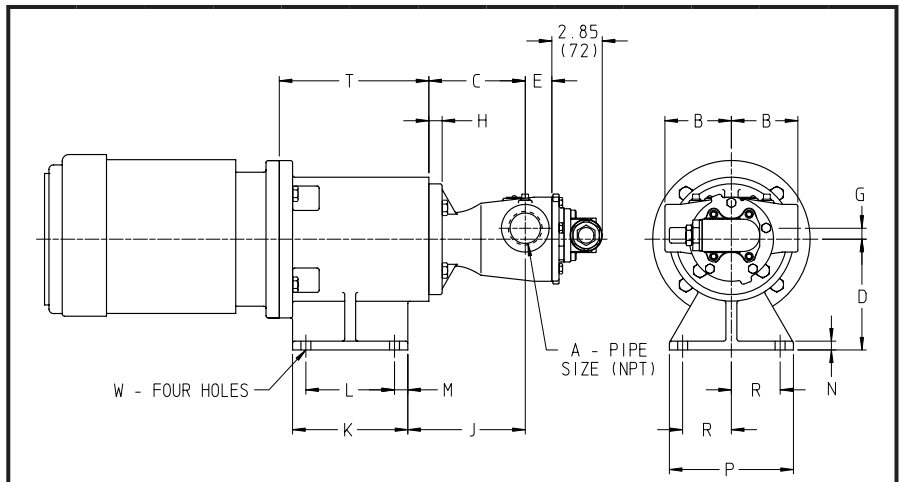
**DIMENSIONS—
 SERIES 895
 (MD-B_“B” DRIVE)
 “HJ”–“HL” SIZES**



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

For specifications, see page 680.4.

**DIMENSIONS—
 SERIES 895
 (MD-A AND MD-B_“M” DRIVE)
 “GG”–“HJ”–“HL” SIZES**



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

MD-A couplings available for 56C, 143/145TC motors.

MD-B couplings available for 182/184TC, 213/215TC motors, and 254/256TC with motor modification.

MODEL NO.	(in) A		B	C	D	E	G	H	J	K	L	M	N	P	R	T	W
GG-895-MD-A_M	1	in	2.75	4.29	3.50	1.12	0.62	0.50	4.85	4.75	3.50	0.62	0.50	6.72	2.75	5.25	0.34
		mm	70	108	89	29	16	13	123	121	89	16	16	171	70	133	9
HJ-895-MD-A_M HL-895-MD-A_M	1½	in	3.75	5.44	3.50	1.50	0.62	0.50	5.50	4.75	3.50	0.62	0.50	6.72	2.75	5.25	0.34
		mm	95	138	159	38	16	13	140	121	89	16	13	171	70	133	9
HJ-895-MD-B_M HL-895-MD-B_M	1½	in	3.75	5.44	6.25	1.50	0.62	0.75	6.63	6.50	5.00	0.75	0.50	7.00	2.75	8.44	0.56
		mm	95	138	159	38	16	13	164	165	127	19	13	178	70	210	14

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VIKING MAG DRIVE[®]

SERIES 893 AND 895

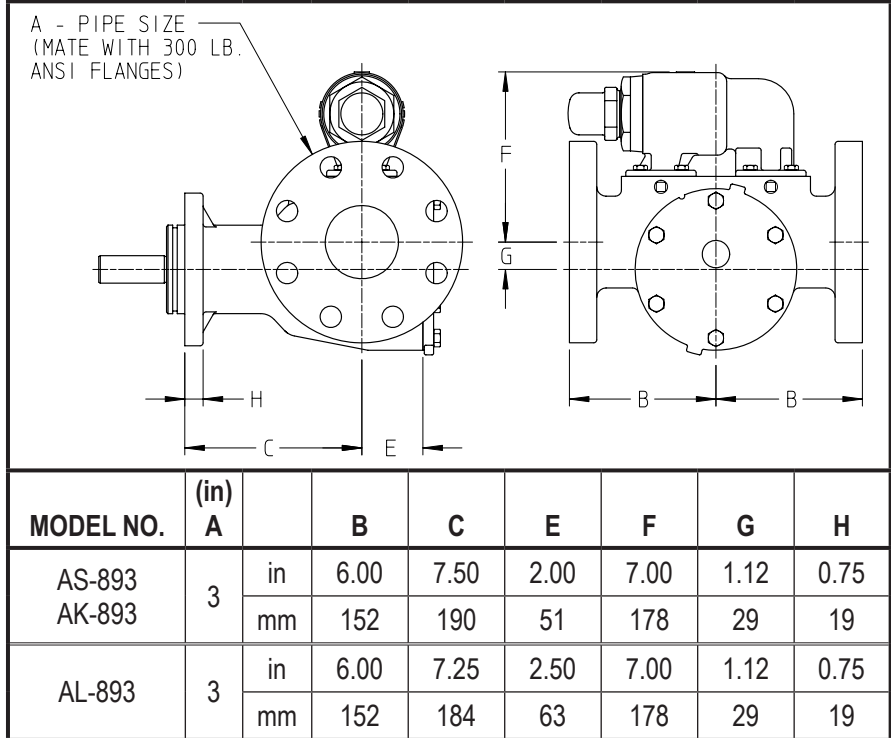
STEEL AND CAST IRON CONSTRUCTION

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

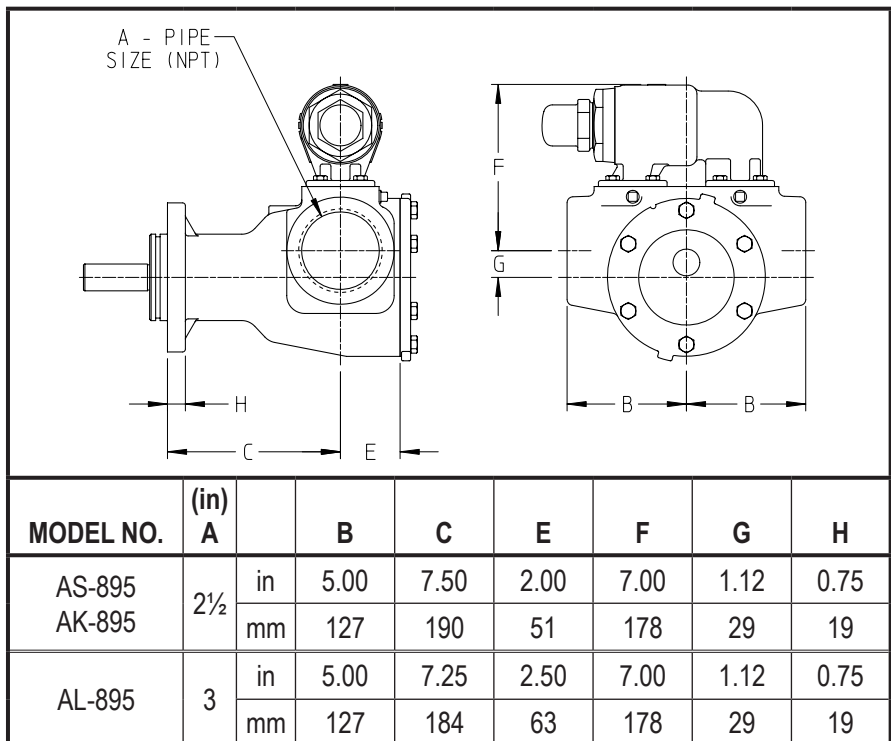
For specifications, see page 680.2.

DIMENSIONS— SERIES 893 STEEL UNMOUNTED PUMPS “AS”–“AK”–“AL” SIZES



For specifications, see page 680.2.

DIMENSIONS— SERIES 895 CAST IRON UNMOUNTED PUMPS “AS”–“AK”–“AL” SIZES



VIKING **MAG DRIVE**
SERIES 897 AND 895
STAINLESS STEEL AND CAST IRON CONSTRUCTION

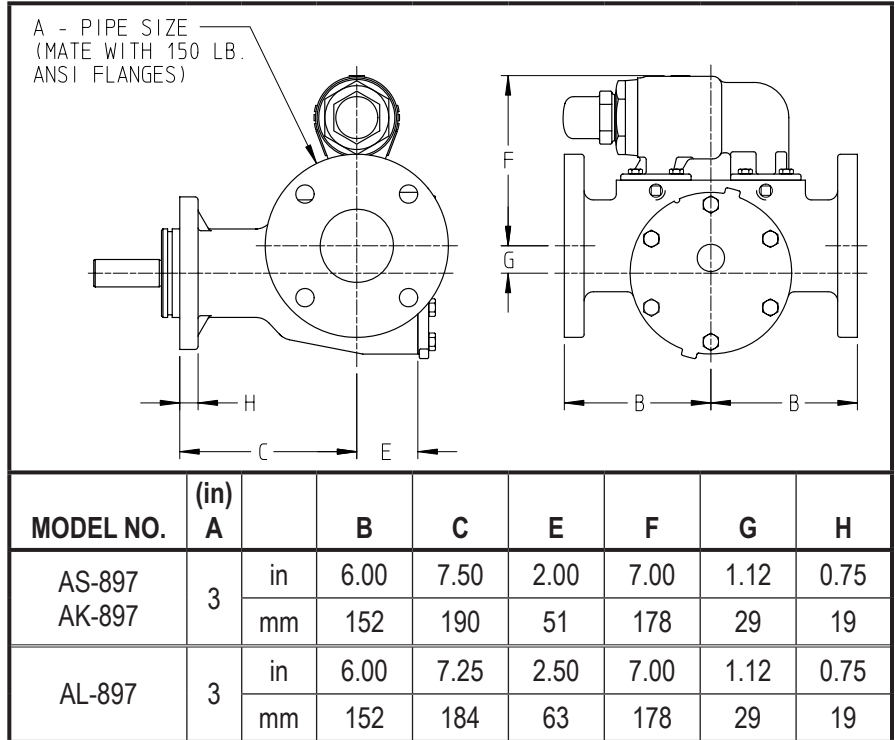
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DIMENSIONS

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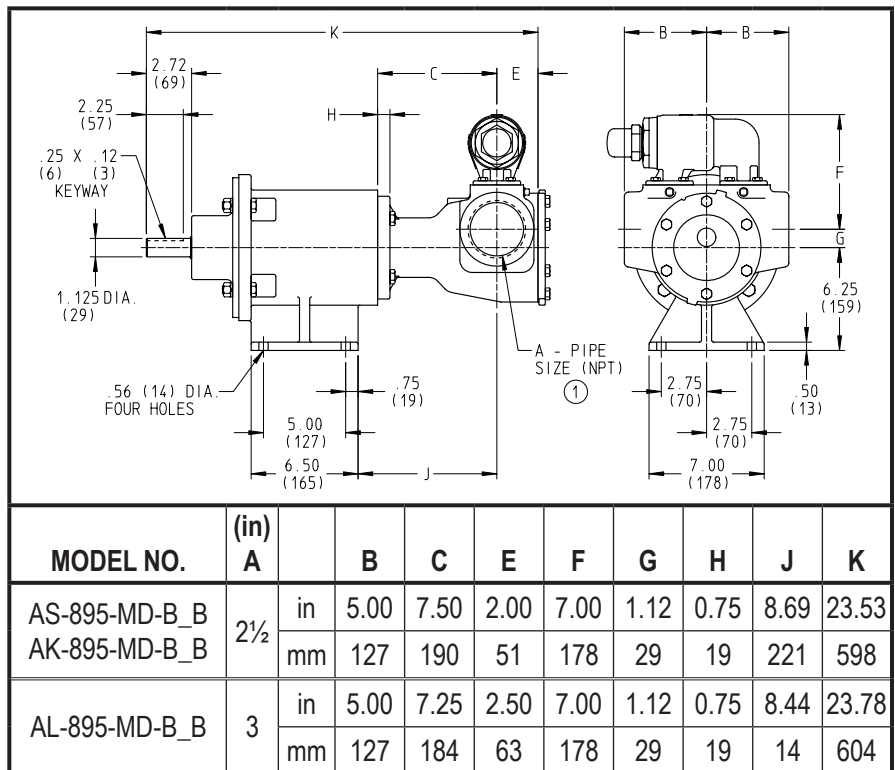
For specifications, see page 680.2.

DIMENSIONS—
SERIES 897
STAINLESS STEEL
UNMOUNTED PUMPS
“AS”–“AK”–“AL” SIZES



For specifications, see page 680.2.

DIMENSIONS—
SERIES 895
(MD-B_ “B” DRIVE)
“AS”–“AK”–“AL” SIZES



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

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VIKING MAG DRIVE[®]

SERIES 895

CAST IRON CONSTRUCTION

DIMENSIONS

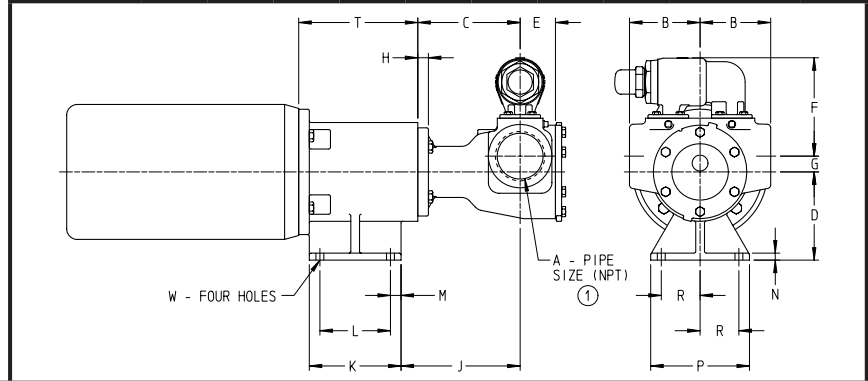
These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

DIMENSIONS— SERIES 895 (MD-B “M” DRIVE) “AS” – “AK” – “AL” SIZES

① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

MD-B couplings available for 182/184TC, 213/215TC motors, and 254/256TC with motor modification.

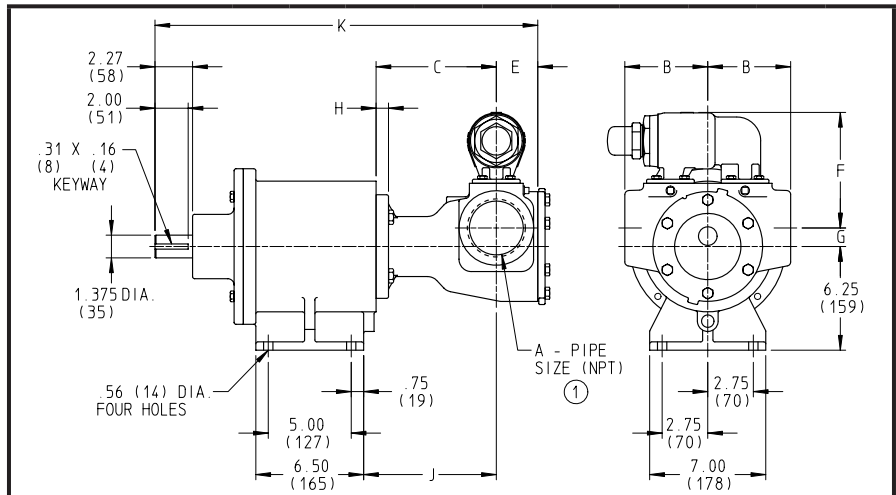


MODEL NO.	(in) A		B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	W
AS-895-MD-B_M	2½	in	5.00	7.50	6.25	2.00	7.00	1.12	0.75	8.69	6.50	5.00	0.75	0.50	7.00	2.75	8.44	0.56
AK-895-MD-B_M		mm	127	190	159	51	178	29	19	221	165	127	19	13	178	70	214	14
AL-895-MD-B_M	3	in	5.00	7.25	6.25	2.50	7.00	1.12	0.75	8.44	6.50	5.00	0.75	0.50	7.00	2.75	8.44	0.56
		mm	127	184	159	63	178	29	19	214	165	127	19	13	178	70	214	14

For specifications, see page 680.2.

DIMENSIONS— SERIES 895 (MD-C80 “B” DRIVE) “AS” – “AK” – “AL” SIZES

① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.



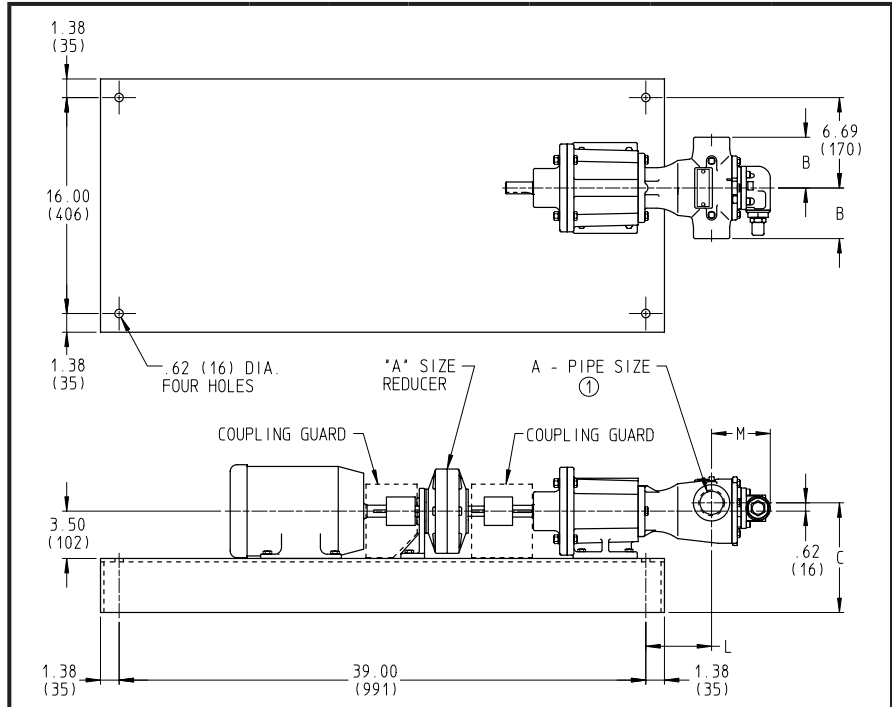
MODEL NO.	(in) A		B	C	E	F	G	H	J	K
AS-895-MD-C80-B	2½	in	5.00	7.50	2.00	7.00	1.12	0.75	8.25	22.83
AK-895-MD-C80-B		mm	127	190	51	178	29	19	210	580
AL-895-MD-C80-B	3	in	5.00	7.25	2.50	7.00	1.12	0.75	8.00	23.08
		mm	127	184	63	178	29	19	203	586

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

**DIMENSIONS—
 SERIES 895
 (MD-A_ AND MD-B_“R” DRIVE)
 “GG”–“HJ”–“HL” SIZES
 “A” SIZE REDUCER UNITS**



MODEL NO.	(in) A		B	C	L	M
GG-895-MD-A_R	1	in	2.75	8.12	3.73	4.29
		mm	70	206	95	108
HJ-895-MD-A_R HL-895-MD-A_R	1½	in	3.75	8.12	4.88	5.44
		mm	95	206	124	138
HJ-895-MD-B_R HL-895-MD-B_R	1½	in	3.75	10.87	6.00	5.44
		mm	95	276	152	138

① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

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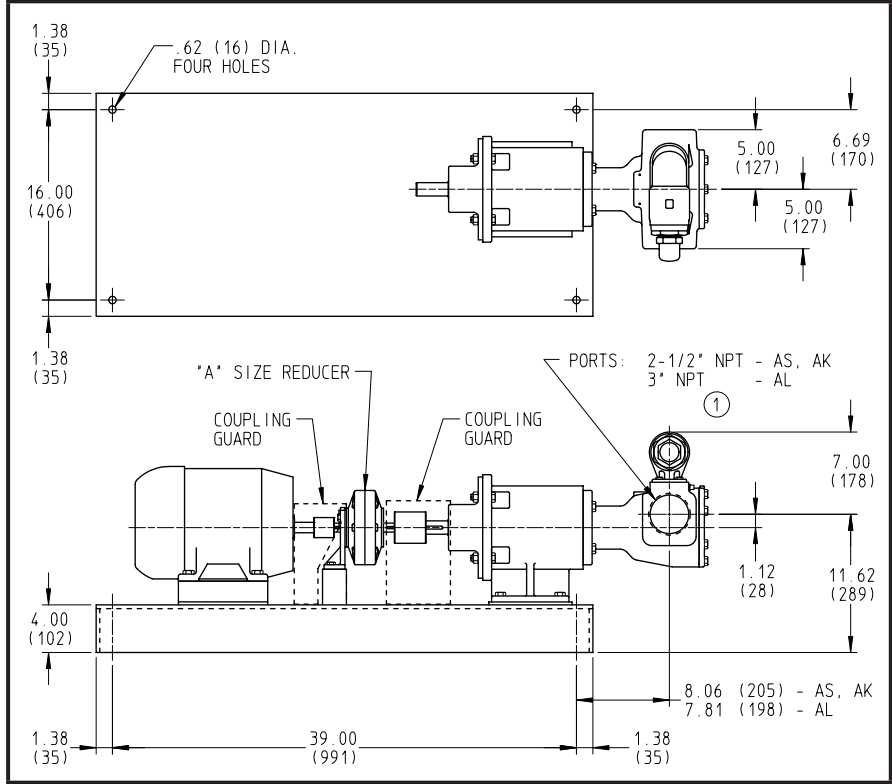
VIKING **MAG DRIVE**[®]
SERIES 895
CAST IRON CONSTRUCTION

DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

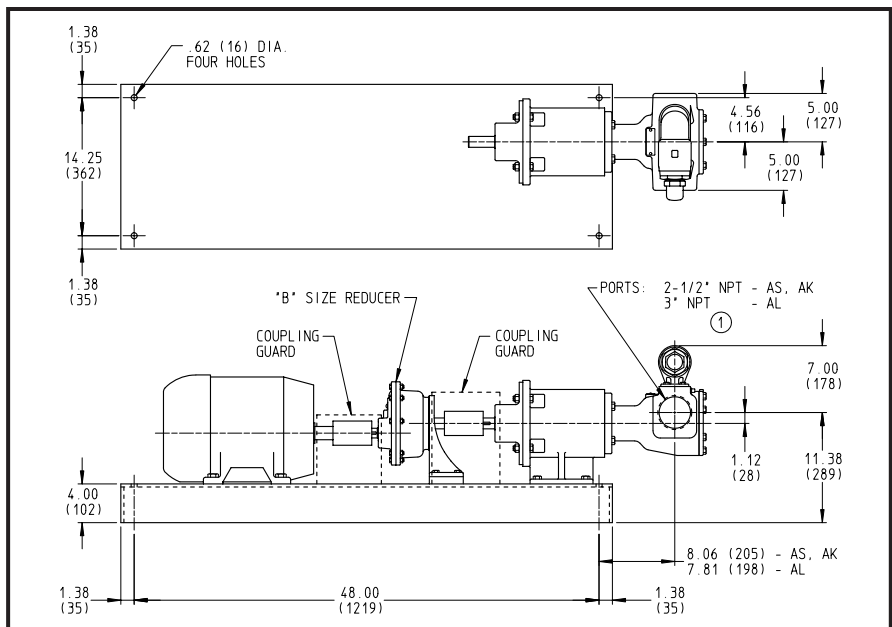
**DIMENSIONS—
SERIES 895
(MD-B_“R” DRIVE)
“AS”-“AK”-“AL” SIZES
“A” SIZE REDUCER UNITS**



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

For specifications, see page 680.2.

**DIMENSIONS—
SERIES 895
(MD-B_“R” DRIVE)
“AS”-“AK”-“AL” SIZES
“B” SIZE REDUCER UNITS**



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

VIKING MAG DRIVE[®]

SERIES 895
CAST IRON CONSTRUCTION

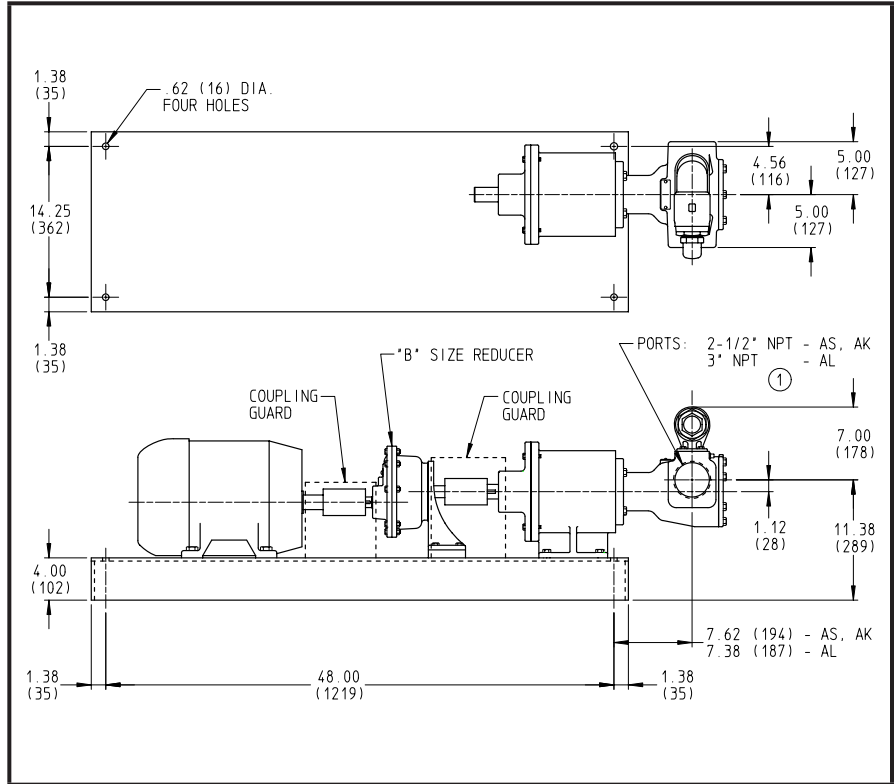
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 680.2.

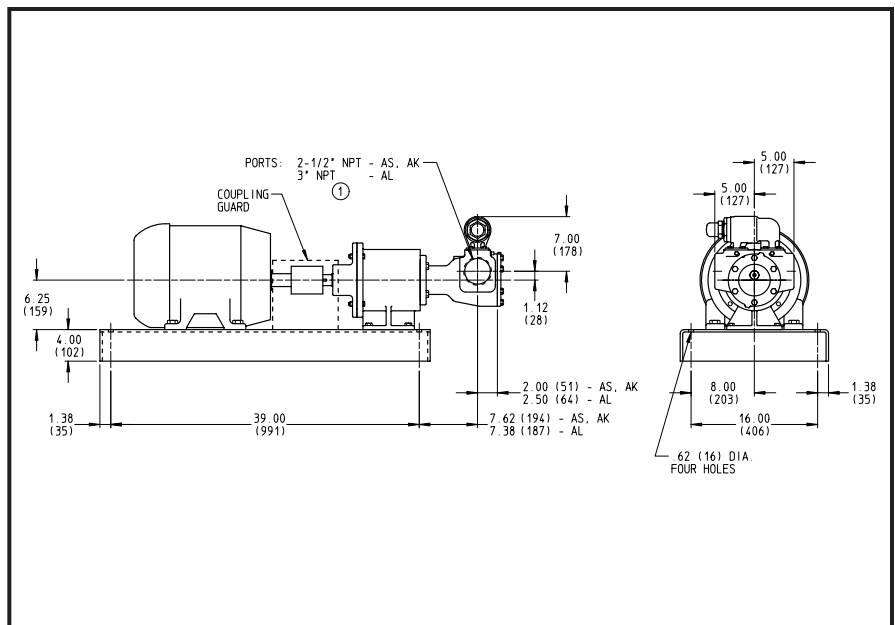
DIMENSIONS— SERIES 895 (MD-C80 “R” DRIVE) “AS”-“AK”-“AL” SIZES “B” SIZE REDUCER UNITS



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

For specifications, see page 680.2.

DIMENSIONS— SERIES 895 (MD-C80 “D” DRIVE) “AS”-“AK”-“AL” SIZES



① Series 895 shown. See unmounted pump for port configuration on Series 893 and 897 pumps.

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program.

This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com.

Security passwords are required to access IDEXconnect.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head—Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head—Available in the system) must be greater than NPSH_R.

NPSH_R-FEET OF LIQUID SP. GR. 1.0),
Viscosities to 750 SSU

Pump Size	PUMP SPEED					
	840	780	950	1150	1450	1750
GG	2.2	2.6	3.1	3.9	5.6	7.6
HJ, HL	2.8	3.4	4.5	6.2	9.5	13.5
AS, AK, AL	3.9	5.5	7.7	11.2	—	—

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, for information in determining line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying these pumps to such liquids as cool water, aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI})}{(\text{Capacity, GPM}) (100)} \frac{1}{(\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure		Capacity	
In.-Hg (Inches-Mercury)	kPa* (Kilopascal)	PSI (lbf/n.)	kPa* (Kilopascal)	GPM (Gal./min.)	L/min. (Litre/min)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345	—	—
15	51	100	690	—	—
20	68	150	1034	—	—
25	85	200	1379	—	—
—	—	250	1724	—	—

* 100 kPa = 1 bar

MAG DRIVE MODEL NUMBERS: In the Viking internal gear model number system, the basic size letters are combined with the series number (893, 895, 897) indicating basic pump construction material. (Steel, cast iron, stainless steel). Spur gear pumps models are available in cast iron construction (SG-804, 805, 807). and ductile iron (SGN-805, SGN-807).

Unmounted Pumps	UNITS
SG-804, 805, 807 SGN-805, SGN-807	Units are designated by the unmounted pump model numbers followed by the magnetic coupling size and a letter indicating drive style: D - Direct Drive M - “C” Face Motor Mount B - Bearing Carrier Assembly R - Viking Reducer Drive P - Commercial Reducer Drive (Examples: HJ-895-MD-A-R SG-80741-MD-A-B)
GG-893, 895, 897	
HJ-893, 895, 897	
HL-893, 895, 897	
AS-893, 895, 897	
AK-893, 895, 897	
AL-893, 895, 897	

Performance Curve Notes Cont'd

SELECTING THE CORRECT VIKING MAG DRIVE® COUPLING

- Find pump HP and speed from performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.
- Calculate application torque (T), using this formula:

$$T \text{ (FT LB)} = \frac{\text{HP}}{\text{SPEED}} \times 5252$$
- Select temperature correction factor (TCF) from Table 1 or Table 2.

STANDARD NEODYMIUM MAGNETS (For Application Temperatures Below 225°F.)							
Application Temp. (°F)	AMB	100	125	150	175	200	225
TCF	1.0	.94	.88	.82	.76	.70	.64

Table 1: Temperature Correction Factors

OPTIONAL SAMARIUM COBALT MAGNETS (For Application Temperatures Above 225°F.)					
Application Temp. (°F)	175	200	300	400	500
TCF	.74	.73	.69	.63	.59

Table 2: Temperature Correction Factors

- Divide calculated application torque by TCF to get adjusted application torque.
Select coupling with capacity equal to or greater than "adjusted application torque" from Table 3.

MAGNETIC COUPLING TORQUE CAPACITY TABLE	
Coupling Size	Torque (FT-LBS)
MD-A4	4
MD-A9	9
MD-B15	15
MD-B40	40
MD-C80	80

Table 3

EXAMPLE 1:

- A GG-895 is required to pump a 100 SSU liquid at 1750 RPM, 50 psi differential pressure. Temperature is 100° F.

From the Viking Pump Selector Program, located at www.vikingpump.com/pumpselector, the required HP is .85.

- Calculate torque (T).

$$\begin{aligned} \text{TORQUE (T)} &= \frac{.85}{1750} (5252) \\ &= 2.6 \text{ FT LB} \end{aligned}$$

- From the temperature correction factor table, the correction factor (TCF) = .94.
- Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{2.6}{.94} \\ &= 2.8 \text{ FT-LB} \end{aligned}$$

- Select coupling.

A STANDARD NEODYMIUM MD-A4 COUPLING IS THE PROPER SELECTION.

EXAMPLE 2:

- An AL-895 is required to pump a 38 SSU liquid at 1150 RPM, 50 psi differential pressure. Temperature is 300° F

From the Viking Pump Selector Program, located at www.vikingpump.com/pumpselector, the required HP is 3.7.

- Calculate torque (T).

$$\begin{aligned} \text{TORQUE (T)} &= \frac{3.7}{1150} (5252) \\ &= 16.9 \text{ FT-LB} \end{aligned}$$

- From the temperature correction factor table, the correction factor (TCF) = .69.
- Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{16.9}{.69} \\ &= 24.5 \text{ FT-LB} \end{aligned}$$

- Select coupling.

AN MD-B40 WITH OPTIONAL SAMARIUM COBALT MAGNETS IS THE PROPER SELECTION.

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Section 685

Viking Mag Drive

(Series 855 – Cast Iron Construction)

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Series 855 - Cast Iron Construction

HEAVY-DUTY, SEALLESS MAGNETICALLY- COUPLED, INTERNAL GEAR PUMPS



Model AK855UB-MD2 B32-B

U.S. Inch Design with ANSI- Compatible Flanged Ports, B32 Coupling and Bearing Carrier



Model GG855MA-MD2 A9-M

Metric Design with DIN 2501 Flange Ports, A9 Coupling and Close-coupled to IEC B-5 Flange Motor

PRODUCT DESCRIPTION

The Viking Mag Drive® Series 855 is a series of sealless, positive displacement internal gear pumps. The driver shaft is magnetically coupled to the rotor shaft, using magnetic force passing through a stainless steel containment canister, eliminating traditional shaft seals. This provides the highest assurance of liquid and gas containment. It eliminates problems of seal leakage, fugitive emissions, seal wear and periodic seal maintenance or replacement.

Patent applied for.

APPLICATIONS

While Viking Mag Drive Series 855 sealless pumps may be used in any application to minimize the need for regular seal inspection and maintenance, they are particularly useful for:

- Hazardous liquids (e.g. caustics, ammonia, solvents)
- Hard-to-seal liquids, usually those that crystallize at seal faces (e.g. isocyanates)
- Liquids which set up on contact with air (e.g. adhesives)
- Odorants (e.g. mercaptans)
- Costly liquids, where leakage is expensive
- Inaccessible or remote locations where seal inspection and maintenance is impractical

SERIES OPERATING RANGE

Nominal Capacity	5 to 130 gpm	1.1 to 29.5 m ³ /hr
Max. Differential Pressure	to 200 PSI	to 14 Bar
Max. Hydrostatic Pressure	to 400 PSI	to 28 Bar
Viscosity Range	28 to 250,000 SSU	1 to 55,000 cSt
Temperature Range (standard Neodymium Iron Boron Magnets)	-60° to 225°F	-51° to 107°C
Temperature Range (optional Samarium Cobalt Magnets)	-60° to 500°F	-51° to 260°C

NOMINAL FLOW RATES

Pump Model	Speed	Capacity	
	RPM*	GPM	m ³ /hr
GS855	1750	5	1.1
GG855	1750	10	2.2
HJ855	1750	20	4.5
HL855	1750	30	6.8
AS855	1450	42	9.5
AK855	1450	66	15
AL855	1450	88	20
KE855	1150	94	21.3
KKE855	1150	130	29.5

* Pump speed of 1750 RPM for A -AL sizes, 1450 RPM for KE and KKE sizes with approval. Contact Viking Application Engineering.

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VIKING MAG DRIVE®

Series 855 - Cast Iron Construction

FEATURES AND BENEFITS

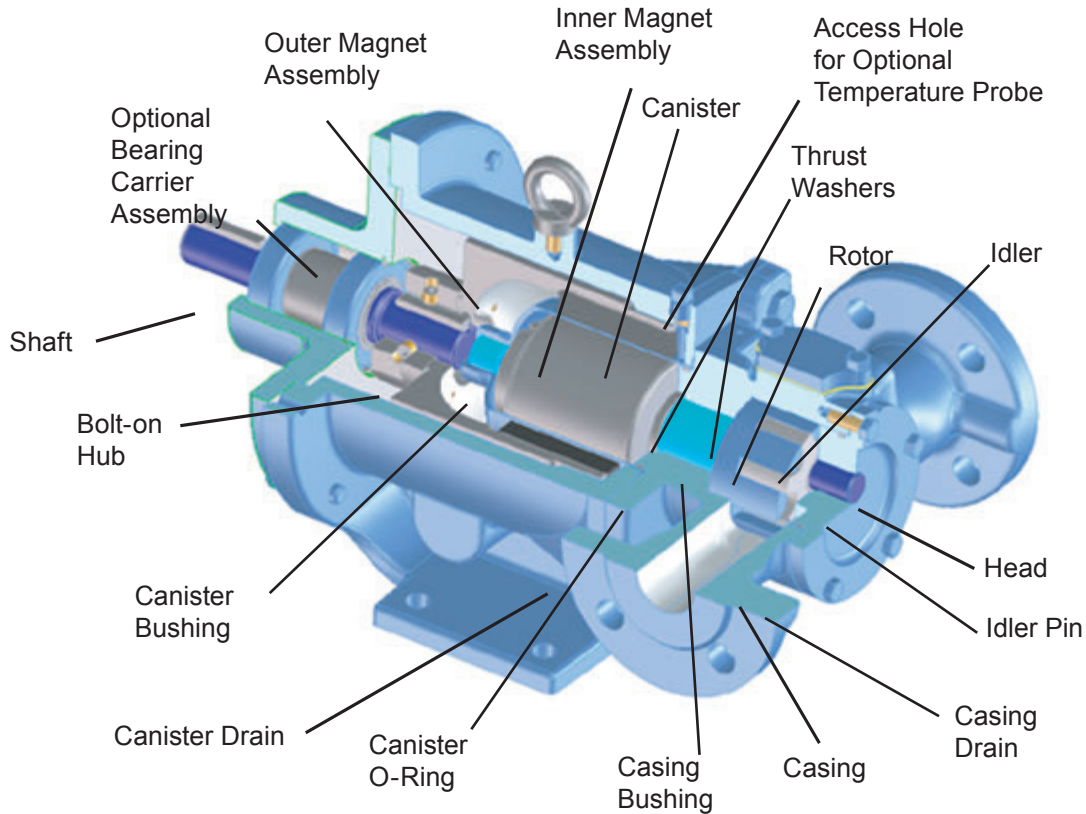
- **Short-term Run-dry Capability.** Unlike many mag-drive pumps, the Viking Mag Drive® series may be run dry for short periods, such as for clear lines when unloading, or in the case of accidental empty tank situations.
- **Reversible Direction Of Flow.** The pump operates in either direction, allowing one pump to be used for both loading and unloading. Pump curves are based on clockwise rotation (looking from the motor end). There is a slight reduction in capacity with counter-clockwise rotation.
- **Adjustable End Clearance.** The use of head shims allows the end clearance to be adjusted for fluid viscosity or to compensate for wear over time.
- **Reliability.** These pumps were designed to provide exceptional reliability and freedom from down time and maintenance.
- **High Pressure Capability.** They are capable of handling up to 200 psi (14 bar) differential pressure.
- **Motor Speed Operation.** The ability to run at 50 or 60 Hz synchronous motor speeds on many fluids eliminates the need for gear reducers or gear motors, reducing the overall cost and footprint of the pumping unit.
- **High Torque Capability.** The high strength magnets are designed to operate at higher pressures and handle viscous liquids without decoupling.
- **Ease of Disassembly And Reassembly.** These pumps are designed to be easily disassembled with no special tools required. Reassembly is just as simple. Drain plugs enable easy drainage and flushing when changing fluids.

OPTIONS

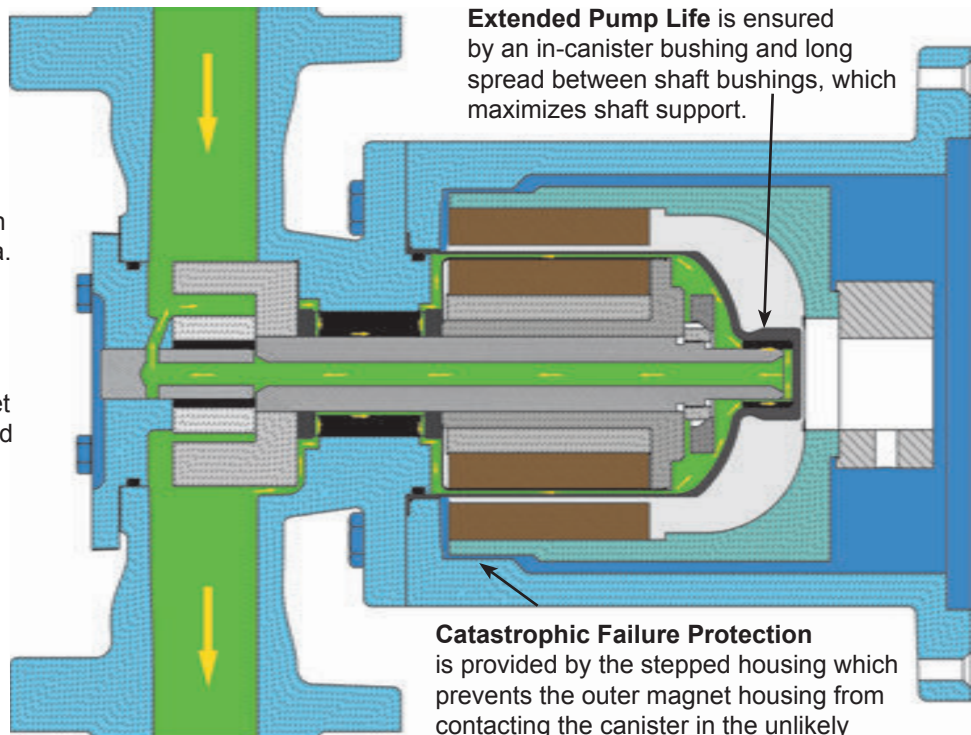
- **Close Or Long Coupling.** Choose between motor mounts for NEMA-C or IEC B-5 flange motors for motor speed applications, or solid input shaft with bearing carrier for applications requiring speed reducers, gear motors or belt drives (belt drive not recommended with A or B size couplings).
- **External Flush.** A solid rotor shaft option with external flush or barrier fluid may be used to minimize slip on thin liquids or to maintain flow of canister cooling liquids on viscous liquids. This will result in some cross-contamination between the pumpage and the flush liquid.
- **Temperature Monitoring.** The bracket is drilled and tapped as standard to accept an optional sensor for monitoring canister temperature as a means of preventing thermal degradation of product or damage to pump and magnets in the event of cooling system blockage or loss of flow.
- **Run-Dry Monitoring.** The Viking Power Load Monitor is an accessory that continuously monitors motor power and compares it to normal operating conditions. In the event of underload (run-dry), the Power Load Monitor can automatically shut down the pump or trigger alarm annunciation.
- **ATEX Conformity.** Pumps conforming to ATEX hazard prevention requirements are available.
- **Rotatable Casing.** The pump casings, with opposite (180 degree) ports, may be rotated in 90 degree increments.
- **Magnet Options.** Choice of magnet torque levels and materials ensures that the required torque and temperature capability is matched to the application.
- **Material Options.** Optional hard materials are available for abrasive liquid applications.
- **Available As Inch Or Metric designed with Corresponding Ports, And Motor Mounts.** No piping or motor adapters required to conform to local standards.

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Series 855 - Cast Iron Construction



Positive Cooling Flow (indicated by small arrows) minimizes potential for thermal product degradation and to cool the magnet area. Pressure differential from the discharge side causes a cooling flow between the pump shaft and bushing, and the canister and magnet through the shaft interior and hollow idler pin back to the pump suction. This cooling flow is reversed when the pump's direction of flow is reversed.



Extended Pump Life is ensured by an in-canister bushing and long spread between shaft bushings, which maximizes shaft support.

Catastrophic Failure Protection is provided by the stepped housing which prevents the outer magnet housing from contacting the canister in the unlikely event of bearing failure.

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VIKING MAG DRIVE®

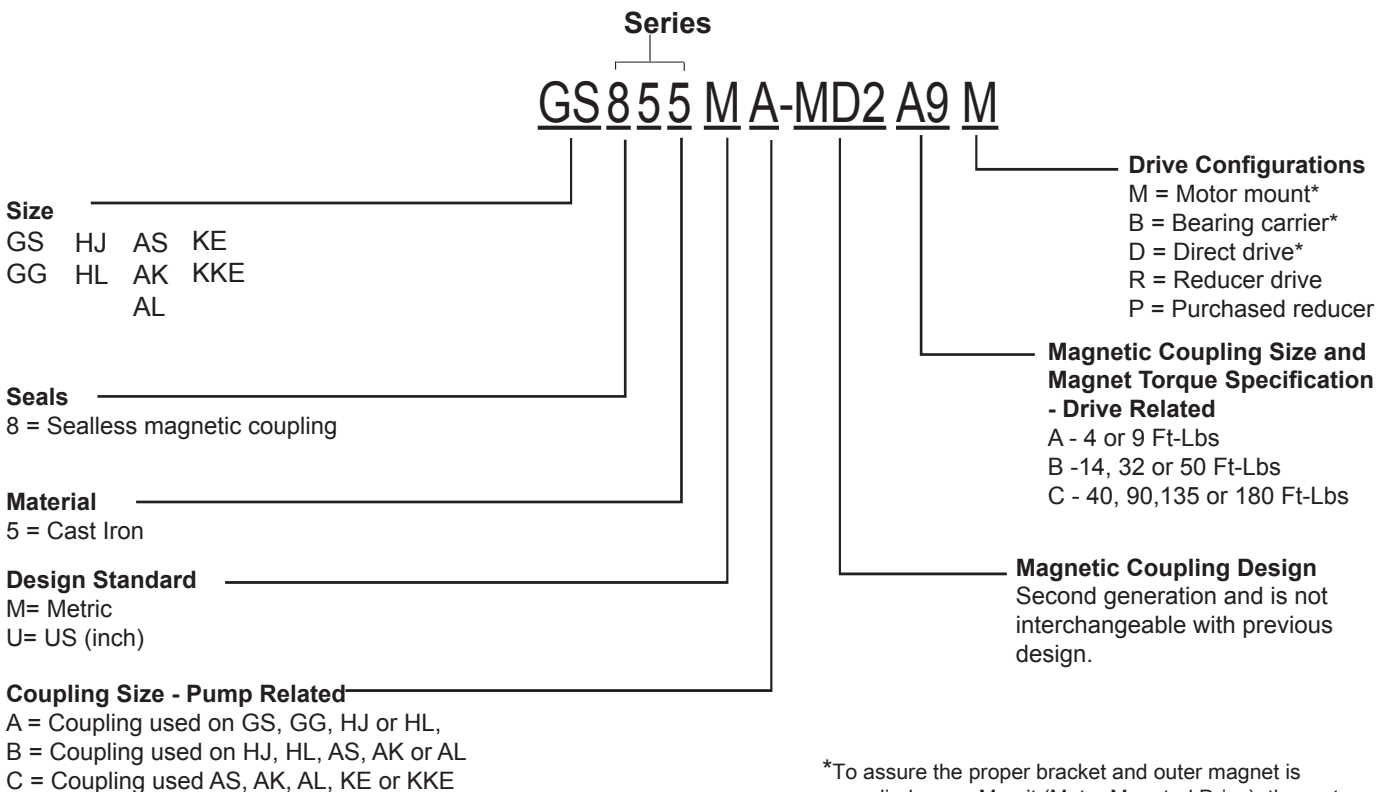
Series 855 - Cast Iron Construction

MODEL NUMBERING SYSTEM

The Viking Mag Drive Series 855 is manufactured to either Metric or US (inch) design standards, as shown in the model number. The table below lists the affected components, with model number examples for both Metric and US design standards.

Affected Components	Metric Design (M) e.g. GG855M	US (Inch) Design (U) e.g. GG855U
Pump		
Fasteners	Metric	Metric
Ports	DIN 2501-Compatible PN 16/25/40 or PN 25/40 Raised Face Flange	ANSI B16.5-Compatible 125# Class Flat Face Flange
Drive		
Motor Mount	I.E.C. B5 Flange	NEMA C-Flange
Bearing Carrier Shaft and Keys	Metric	Inch

Model numbers for the 855 series, Viking Mag Drive begin with the displacement, followed by the pump series. The last number of the series indicates the material of construction for the external components. This is followed by the coupling and drive unit designations. With this series the outer magnet and its bracket are determined by the motor frame and coupling size.



*To assure the proper bracket and outer magnet is supplied on an M unit (Motor Mounted Drive), the motor frame (NEMA or IEC) must be specified when ordering. For B and D drives specify the shaft style (inch or metric) that will be required for proper mounting on the unit.

Series 855 - Cast Iron Construction

PUMP SPECIFICATIONS

Model Numbers ④	Port Size		Nominal Flow at Rated Speed* at 22 cSt (100 SSU)				Maximum Hydrostatic Pressure		Maximum Differential Pressure* Handling 20cSt at Rated Speeds		Maximum Recommended Temperature			
	US "U" Design Std. Pump	Metric "M" Design Std. Pump									Standard Construction		High Temperature Construction	
	Inch ①	mm	Capacity at Max. Rated Speeds		Capacity at 50 Hz Motor Speeds		PSIG	BAR	PSIG	BAR	°F	°C	°F	°C
			GPM	RPM	M ³ /hr	RPM								
GS855	1	25②	5	1750	0.95	1450	400	27	200	14	225	107	500	260
GG855	1	25②	10	1750	1.9	1450	400	27	200	14	225	107	500	260
HJ855	1.5	40②	20	1750	3.8	1450	400	27	200	14	225	107	500	260
HL855	1.5	40②	30	1750	5.6	1450	400	27	200	14	225	107	500	260
AS855	3	65③	42	1450	9.5	1450	400	27	150	10.3	225	107	500	260
AK855	3	65③	66	1450	15	1450	400	27	150	10.3	225	107	500	260
AL855	3	65③	88	1450	20	1450	400	27	150	10.3	225	107	500	260
KE855	3	80③	94	1150	17.8	950	400	27	150	10.3	225	107	500	260
KKE855	3	80③	130	1150	24.6	950	400	27	150	10.3	225	107	500	260

* Pressures to 200 PSI and pump speed of 1750 RPM for A - AL sizes, 1450 RPM for KE and KKE sizes with approval. Contact Viking Application Engineering.

① Standard ports are compatible with ANSI B16.5 125# Class flanges

② Standard ports are compatible with DIN 2501 PN16/25/40 flanges

③ Standard ports are compatible with DIN 2501 PN25/40 flanges

④ Refer to Page 12 for shipping weight information

COUPLING TORQUE AND SIZE OPTIONS

MAGNETIC COUPLING OPTIONS	
Pump Size	Magnetic Coupling Sizes
GS, GG	MD2-A
HJ, HL	MD2-A, MD2-B
AS, AK, AL	MD2-B, MD2-C
KE, KKE	MD2-C

TORQUE RATINGS AND DRIVER CONNECTION OPTIONS					
Magnetic Coupling Sizes	Torque Ratings (Ft-Lbs)	"M" Drive Close-Coupled		Long-Coupled	
		IEC B-5 Flange Motor Mounts	NEMA Motor Mounts	Bearing Carrier *	
				Metric	Inch
MD2-A	• 4 • 9	• 80/90 • 100/112	• 56C • 143 / 145TC • 182 / 184TC	100/112	143/145TC
MD2-B	• 14 • 32 • 50	• 100/112 • 132	• 182 / 184TC • 213 / 215TC • 254 / 256TC	100/112	213/215TC
MD2-C	• 40 • 90 • 135 • 180	• 132 • 160 • 180	• 213 / 215TC • 254 / 256TC • 284 / 286TC	132	132 **

* The bearing carrier mounts to bracket for the motor frame listed.

** The US design uses a modified IEC 132 bracket when mounting the bearing carrier.

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VIKING MAG DRIVE®

Series 855 - Cast Iron Construction

PUMP CONSTRUCTION

Construction	O-Ring	Casing	Head	Rotor	Idler	Rotor Shaft	Idler Pin
Standard	Buna N	Iron ASTM A48, Class 35B	Iron ASTM A48, Class 35B	^① Ductile Iron ASTM A536 Grade 60-45-18	^② Iron ASTM A48, Class 35B	Steel ASTM A 10, Grade 1045	Hardened Steel ASTM A108, Grade 1045
Steel Fitted	Buna N	Iron ASTM A48, Class 35B	Iron ASTM A48, Class 35B	Steel ASTM A148, Grade 90-60	Iron ASTM A48, Class 35B	Steel ASTM A 10, Grade 1045	Hardened Steel ASTM A 108, Grade 1045
Optional Construction	Viton®	NA	NA	NA	PPS (Composite)	Hardened Steel	NA
	PTFE (Derivative) Encapsulated						
	Kalrez®						

Construction (cont.)	Casing Bushing	Idler Bushing	Thrust Washers	Canister Bushing	Pressure Relief Valve
Standard	Carbon Graphite	Carbon Graphite	Hardened Cast Iron	Carbon Graphite	Iron ASTM A48, Class 35B
Steel Fitted	Carbon Graphite	Carbon Graphite	Hardened Cast Iron	Carbon Graphite	Iron ASTM A48, Class 35B
Optional Construction	Hardened Cast Iron	^③ Hardened Cast Iron	NA	Hardened Cast Iron	NA

① GS and GG rotors are standard as cast iron.

② GS-HL Idlers are powdered metal (MPIF35-FN0208-45).

③ GS-HJ idler bushings are cast iron (not hardened).

COUPLING / BEARING CARRIER CONSTRUCTION

Construction	Bracket	Canister	Coupling Magnet ^④	Canister Bushing	Bearing Carrier
Standard	Iron ASTM A48, Class 35B	316L Stainless Steel	Neodymium Iron Boron	Carbon Graphite	Cast Iron ^⑤
Optional Construction	NA	NA	Samarium Cobalt	Hardened Cast Iron	NA

④ Outer magnet is nickel plated

⑤ MD2-C bearing Carrier is ductile iron.

Viton® and Kalrez® - Registered tradenames of DuPont Dow Elastomers.

Series 855 - Cast Iron Construction

Special Materials and Options Selection Guidelines

For High Viscosities

- Pump should be operated at slower than maximum speeds. Maximum recommended viscosity for motor speed operation in cSt is:

Motor Speed	Pump Size									
	GS	GG	HJ	HL	AS ^①	AK ^①	AL ^①	KE ^①	KKE ^①	
1750 RPM	1500	1500	1500	1500	—	—	—	—	—	cSt
	6825	6825	6825	6825						SSU
1450 RPM	1500	1500	1500	1500	500	500	500	—	—	cSt
	6825	6825	6825	6825	2275	2275	2275			SSU
1150 RPM								1500	1500	cSt
								6825	6825	SSU

① Maximum close-coupled 60 Hz motor speed is 1150 RPM without prior approval.

- For viscosities over 15,000 cSt (68,250SSU), contact factory for operation recommendations.
- Steel fitted construction (steel rotor) recommended above the following viscosities, according to pump size:

Viscosity	Pump Size									
	GS	GG	HJ	HL	AS	AK	AL	KE	KKE	
cSt	5,000	1500	②	②	②	②	②	②	②	cSt
SSU	22,750	6825								SSU

② HJ, HL, AS, AK, AL, KE and KKE use a ductile iron rotor and do not require steel fitted.

For Low Viscosities or Non-Lubricating Liquids - Below 20 cSt (up to 225°F or 107°C)

- PPS composite idler recommended.

For High Temperatures - Above 225°F (107°C)

- High temperature elastomers – Buna up to 225°F (107°C); Viton® up to 350°F (177°C); PTFE (Derivative) Encapsulated up to 450°F (232°C), Kalrez® to 500°F (260°C).
- Samarium Cobalt magnets to 500°F (260°C). Standard Neodymium Iron Boron magnets rated to 225°F (107°C)
- Extra clearances, depending on temperature. Contact factory for clearance specifications.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

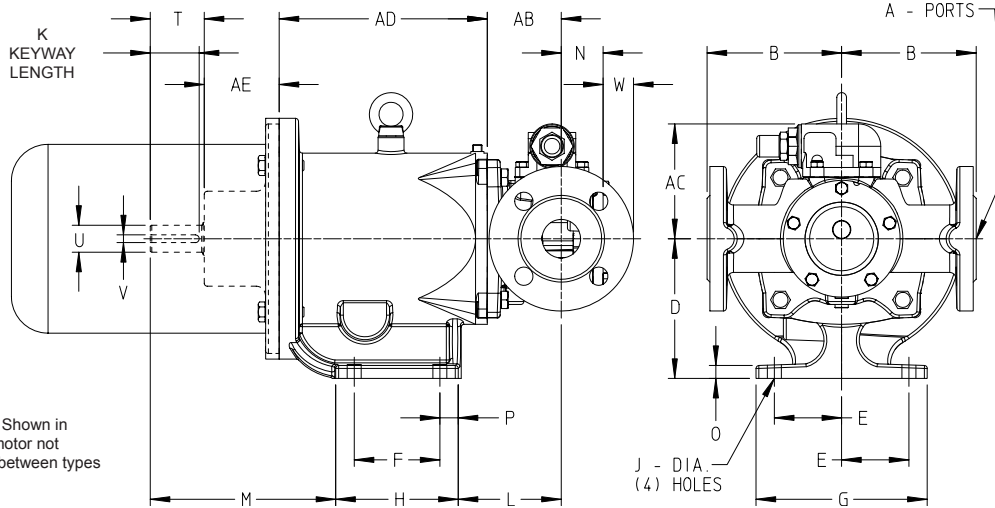
For Abrasive or Dirty Liquids

- If possible, filter or strain out the abrasives present.
- Wear resistant bushings (hardened iron) and hardened shaft.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- Consult factory regarding external flush option or hardening options of other parts.

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VIKING MAG DRIVE®

Series 855 - Cast Iron Construction



Optional Bearing Carrier Shown in dashed line. Length of motor not shown due to variations between types and manufacturers.

DIMENSIONS IN INCHES SERIES 855U "GS-KKE" SIZES

Coupling	Pump Model	A④	B	L	N	W	AB	AC
A	GS 855 U	1	4.00	3.74	1.94	0.32	2.56	4.68
A	GG 855 U	1	4.00	3.74	1.94	0.32	2.56	4.68
A or B	HJ 855 U	1.5	5.50	4.20	1.69	1.26	3.03	4.68
A or B	HL 855 U	1.5	5.50	4.20	1.69	1.26	3.03	4.68
B	AS 855 U	3	5.91	4.69	2.65	1.10	3.62	8.12
B	AK 855 U	3	5.91	4.69	2.65	1.10	3.62	8.12
B	AL 855 U	3	5.91	4.69	2.65	1.10	3.62	8.12
C	AS 855 U	3	5.91	5.44	2.65	1.10	4.37	8.12
C	AK 855 U	3	5.91	5.44	2.65	1.10	4.37	8.12
C	AL 855 U	3	5.91	5.44	2.65	1.10	4.37	8.12
C	KE 855 U	3	6.69	5.57	2.53	1.40	4.50	8.79
C	KKE 855 U	3	6.69	5.57	2.53	1.40	4.50	8.79

④ ANSI B16.5-Compatible 125# Class Flat Face Flanges

⑤ Bearing Carrier (shown in dashed line) or NEMA-C Flange Motor Mount

⑥ An Adapter plate 0.56" thick is mounted between "C" coupling and 213 through 256TC motor (dimension not included in table)

⑦ An Adapter plate 1.29" thick is mounted between "C" coupling and 284/286 TC motor (dimension not included in table)

Access hole for temperature probe is 1/4" NPT (dimension not included in table)

Coupling	Drive⑥	Motor Shaft Height*	D	E	F	G	H	J	K	M	O	P	T	U	V	AD	AE
A	Bearing Carrier	-	4.50	2.75	4.00	7.00	5.71	0.56	1.88	5.00	0.53	0.76	2.06	0.875	0.19	7.34	2.50
	56C, 145TC	3.50	4.50	2.75	4.00	7.00	5.71	0.56	-	-	0.53	0.76	-	-	-	7.34	-
	182/184TC	4.50	5.12	2.75	4.25	7.00	6.12	0.56	-	-	0.53	0.76	-	-	-	7.60	-
B	Bearing Carrier	-	5.50	2.75	4.88	7.00	6.41	0.56	2.12	7.31	0.53	0.78	2.72	1.125	0.25	9.30	2.87
	182/184TC	4.50	5.50	2.75	4.25	7.00	5.78	0.56	-	-	0.53	0.78	-	-	-	8.92	-
	213/215TC	5.25	5.50	2.75	4.88	7.00	6.41	0.56	-	-	0.53	0.78	-	-	-	9.30	-
	254/256TC	6.25	6.50	2.75	5.50	7.00	7.03	0.56	-	-	0.53	0.78	-	-	-	9.92	-
C	Bearing Carrier	-	6.69	3.75	5.75	10.00	8.53	0.945	2.50	11.14	0.76	1.40	4.07	1.875	0.50	11.20	5.50
	213TC Through 256TC	6.25	6.69	3.75	5.75	10.00	8.53	0.945	-	-	0.76	1.40	-	-	-	11.95	-
	284/286TC⑦	7.00	6.69	3.75	5.75	10.00	8.53	0.945	-	-	0.76	1.40	-	-	-	12.87	-

* Nominal motor shaft height for NEMA motor frames listed for reference only.

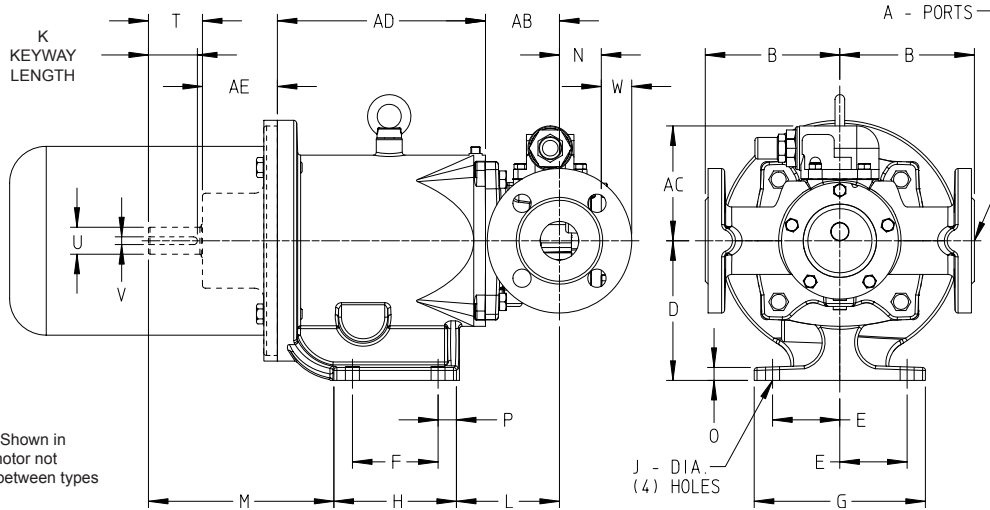
⑥ Motors with a 7" center height will require a minimum .31" spacer under the bracket foot to provide proper motor clearance.

Note: Belt drive not recommended for A or B Couplings.

These dimensions are average and not for construction purposes. Certified prints on request

Series 855 - Cast Iron Construction

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Optional Bearing Carrier Shown in dashed line. Length of motor not shown due to variations between types and manufacturers.

DIMENSIONS IN MM SERIES 855M PUMPS (METRIC STANDARD) “GS-KKE” SIZES

Coupling	Pump Model	A	B	L	N	W	AB	AC
A	GS 855 M	25 ^①	102	95	49.0	8.3	65	119
A	GG 855 M	25 ^①	102	95	49.0	8.3	65	119
A or B	HJ 855 M	40 ^①	140	107	43.0	32.0	77	119
A or B	HL 855 M	40 ^①	140	107	43.0	32.0	77	119
B	AS 855 M	65 ^②	150	119	67.3	28.0	92	206
B	AK 855 M	65 ^②	150	119	67.3	28.0	92	206
B	AL 855 M	65 ^②	150	119	67.3	28.0	92	206
C	AS 855 M	65 ^②	150	138	67.3	28.0	111	206
C	AK 855 M	65 ^②	150	138	67.3	28.0	111	206
C	AL 855 M	65 ^②	150	138	67.3	28.0	111	206
C	KE 855 M	80 ^②	170	143	64.0	35.6	114.3	223
C	KKE 855 M	80 ^②	170	143	64.0	35.6	114.3	223

- ① DIN 2501-Compatible PN 16/25/40 Raised Face Flanges
- ② DIN 2501-Compatible PN 25/40 Raised Face Flanges
- ③ Bearing Carrier (shown in dashed line) or IEC B-5 Flange Motor Mount

Access hole for temperature probe is 1/4" NPT (dimension not included in table)

Coupling	Drive ^③	Motor Shaft Height*	D	E	F	G	H	J	K	M	O	P	T	U	V	AD	AE
A	Bearing Carrier	-	130	69.9	88.9	178	145	14.5	46	141	13.5	19	56.0	28	8	182	77.7
	80/90	80/90	130	69.9	88.9	178	145	14.5	-	-	13.5	19	-	-	-	182	-
	100/112	100/112	130	69.9	88.9	178	145	14.5	-	-	13.5	19	-	-	-	182	-
B	Bearing Carrier	-	145	69.9	88.9	178	127.5	14.5	46	191	13.5	19	56.0	28	8	216	77.7
	100/112	100/112	145	69.9	88.9	178	127.5	14.5	-	-	13.5	19	-	-	-	216	-
	132	132	170	69.9	108	178	146.3	14.5	-	-	13.5	19	-	-	-	236	-
C	Bearing Carrier	-	170	95	146	254	216.6	24.0	63	283	19.3	35.6	103.4	48	14	284	139.7
	132	132	170	95	146	254	216.6	24	-	-	19.3	35.6	-	-	-	284	-
	160 / 180	160/180	203	120	165	305	235	24	-	-	19.3	35	-	-	-	314	-

* Nominal motor shaft height for IEC B-5 Flange motor frames listed for reference only.
Note: Belt drive not recommended for A or B Couplings.

These dimensions are average and not for construction purposes. Certified prints on request.

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VIKING MAG DRIVE®

Series 855 - Cast Iron Construction

SHIPPING WEIGHTS

The pump design (US or Metric) and the selected coupling size determine which optional bearing carrier will be required for a unit. Optional bearing carrier weights will vary greatly between designs. To determine pump and coupling assembly weight use the table below.

1. Select weight of the pump by size.
2. Add the inner magnet and canister weight.
3. Add outer magnet and bracket assembly weights shown for US or Metric Models.
4. If the bearing carrier is to be used, add bearing carrier weight based on the coupling size being used.

Weights are approximate and have been rounded to the nearest whole number.

1. PUMP ONLY		
Pump	Weight	
	Lbs.	Kg
GS-GG "A" Cplg	25	11.3
HJ-HL "A" Cplg	35	15.9
HJ-HL "B" Cplg	35	15.9
AS, AK & AL "B" Cplg	81	36.8
AS, AK & AL "C" Cplg	87	39.5
KE & KKE "C" Cplg	114	51.7

2. INNER MAGNET AND CANISTER		
Magnet Size	Weight	
	Lbs.	Kg
MD2-A4	2	0.9
MD2-A9	2.4	1.1
MD2-B14	6.9	3.1
MD2-B32	8	3.6
MD2-B50	9.1	4.1
MD2-C40	17.5	7.9
MD2-C90	19.8	9.0
MD2-C135	22	10.0
MD2-C180	24.3	11.0

3. OUTER MAGNET		
Magnet Size	Weight	
	Lbs	Kg
A4	7.8	3.5
A9	9	4.1
B14	16.3	7.4
B32	18	8.2
B50	19.7	8.9
C40	25.2	11.4
C90	28	12.7
C135	30.9	14
C180	33.8	15.3

3. (Cont.) BRACKET ASSEMBLY						
	IEC Motor Frame	Weight IEC Design	Weight IEC Design	NEMA Motor Frame	Weight NEMA Design	Weight NEMA Design
		Lbs	Kg		Lbs	Kg
"A" Cplg				56C	36.5	16.6
	80/90	50	22.7	143/145TC*	36.5	16.6
	100/112*	48.8	22.1	182/184TC	51.7	23.5
"B" Cplg	100/112*	42	19.1	182/184TC	39	17.7
	132	50	22.7	213/215TC*	42	19.1
				254/256TC	46	20.9
"C" Cplg	132**	80	36.3	254/256TC	99.5	45.1
	160/180	104	47.2	284/286TC	114	51.7

4. BEARING CARRIER (OPTIONAL) BY COUPLING SIZE Refer To Page 685.5				
	US Design		Metric Design	
	Lbs.	Kg	Lbs.	Kg
MD2-A	8	3.6	20	9.1
MD2-B	17	7.7	20	9.1
MD2-C	91	41.3	91	41.3

* Denotes the bracket used with bearing carrier

** Both the US and Metric Design uses the IEC 132 bracket assembly when mounting a "C" coupling with a bearing carrier.

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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com/pumpselector for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head-Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head-Available in the system) must be greater than NPSH_R.

NPSH_R requirements, based on viscosity and speed are listed on each performance curve.

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, for information in determining line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying these pumps to such liquids as aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM})}{(100) (\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

Vacuum			Pressure			Capacity		
In.-Hg (Inches-Mercury)	kPa* (Kilopascal)	Bar	PSI (Lbf/in ²)	kPa* (Kilopascal)	Bar	GPM (Gal./min.)	L/min. (Litre/min)	M ³ /Hr
1	3.4	.034	1	6.9	.068	1.00	3.8	.22
5	17	.17	25	172	1.72	.26	1	.06
10	34	.51	50	345	3.45			
15	51	.34	100	690	6.90			
20	68	.68	150	1034	10.30			
25	85	.85	200	1379	13.80			
			250	1724	17.25			

* 100 kPa = 1 bar

MAG DRIVE MODEL NUMBERS: In the Viking internal gear model number system, the basic size letters are combined with the series number (855) indicating basic pump construction material. The series is available in cast iron construction only.

Unmounted Pumps	UNITS
GS-855U, GS-855M	Units are designated by the unmounted pump model numbers followed by the magnetic coupling size and a letter indicating drive style: M= Motor Mount - Close Coupled B - Bearing Carrier Assembly D - Direct Drive R - Viking Reducer Drive P - Commercial Reducer Drive (Examples: HJ-855-MD2-A9M)
GG-855U, GG-855M	
HJ-855U, HJ-855M	
HL-855U, HL-855M	
AS-855U, AS-855M	
AK-855U, AK-855M	
AL-855U, AL-855M	
KE-855U, KE-855M	
KKE-855U, KKE-885M	

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VIKING MAG DRIVE®

Series 855 - Cast Iron Construction

Performance Curve Notes Cont'd

SELECTING THE CORRECT VIKING MAG DRIVE® COUPLING

- Find pump HP and speed from the performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.
- Calculate the application torque (T), using this formula:

$$T \text{ (FT LB)} = \frac{\text{HP}}{\text{SPEED}} \times 5252$$

- Select the temperature correction factor (TCF) from Table 1 or Table 2.

STANDARD NEODYMIUM MAGNETS (For Application Temperatures Below 225°F.)							
Application Temp. (°F)	AMB	100	125	150	175	200	225
TCF	1.0	.94	.88	.82	.76	.70	.64

Table 1: Temperature Correction Factors

OPTIONAL SAMARIUM COBALT MAGNETS (For Application Temperatures Above 225°F.)					
Application Temp. (°F)	175	200	300	400	500
TCF	.74	.73	.69	.63	.59

Table 2: Temperature Correction Factors

- Divide calculated application torque by TCF to get adjusted application torque.
- Select coupling with rating equal to or greater than “adjusted application torque” from Table 3.

MAGNETIC COUPLING TORQUE RATING TABLE	
① Coupling Size	Torque (FT-LBS)
MD2-A4	4
MD2-A9	9
MD2-B14	14
MD2-B32	32
MD2-B50	50
MD2-C40	40
MD2-C90	90
MD2-C135	135
MD2-C180	180

Table 3

EXAMPLE

- A GG-855 is required to pump 10 gpm of 20 cSt liquid at 1750 RPM, 50 psi differential pressure. Temperature is 100° F.

From the Viking Pump Curve Selector located on www.vikingpump.com, required HP is 1.05.

- Calculate torque (T).

$$\begin{aligned} \text{TORQUE (T)} &= \frac{1.05}{1750} \times (5252) \\ &= 3.15 \text{ FT LB} \end{aligned}$$

- From the temperature correction factor table, the correction factor (TCF) = .94.
- Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{3.15}{.94} \\ &= 3.35 \text{ FT-LB} \end{aligned}$$

- Select coupling.

A STANDARD NEODYMIUM MD2-A4 COUPLING IS THE PROPER SELECTION

Section 845

Viking Mag Drive

(Series 825, 823, and 827. Cast Iron, Steel, and Stainless Steel)

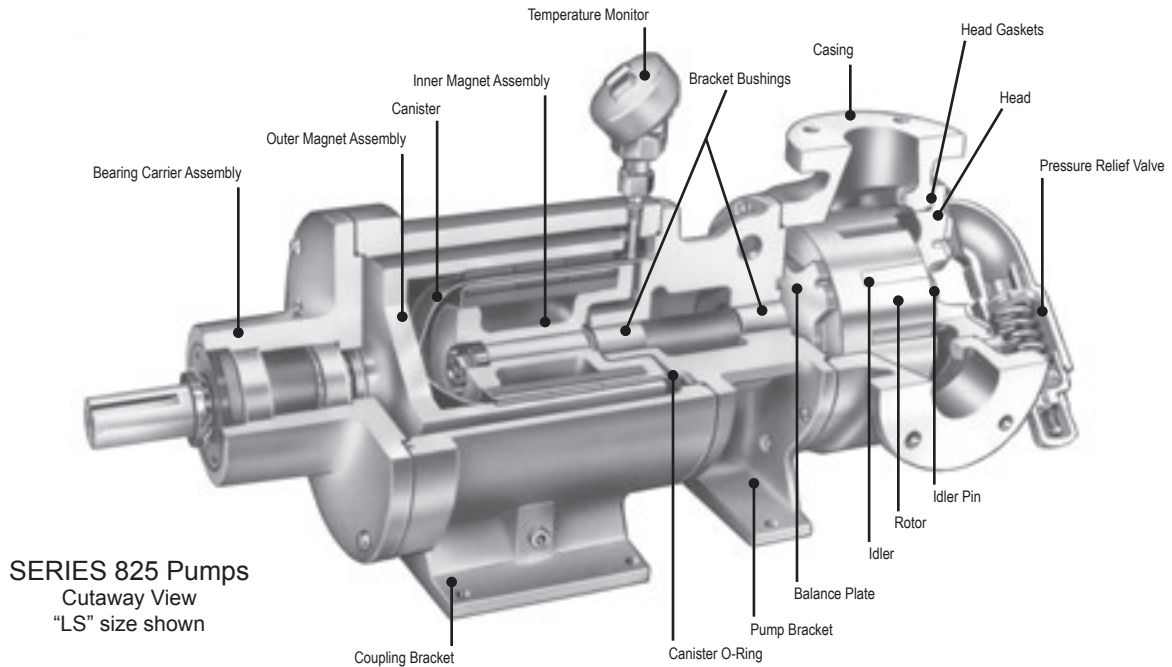
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VIKING MAG DRIVE[®]

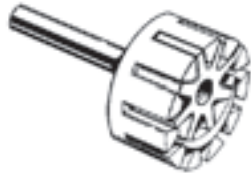
SERIES 825, 823, AND 827
CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

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FEATURES



SERIES 825 Pumps
Cutaway View
"LS" size shown



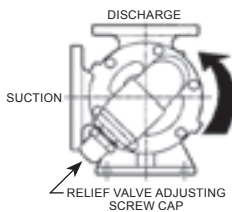
INTERNAL GEAR

The internal gear Mag Drive pumps are available in cast iron, steel, or stainless steel construction with capacities up to 500 GPM. With only two moving parts, Mag Drive and gear-within-a-gear principle provide low-shear pumping.



REVOLVABLE PUMP CASING

Most Series 825, 823, and 827 pumps are equipped so that ports can be repositioned. "K" and "KK" rotate at the bracket so four positions are possible. "LQ" and "LS" (and some "Q") rotate at the casing and eight positions are available. Relief valve must point to suction port in all cases.



PUMP ROTATION CW STANDARD

(When viewed from shaft end)

Viking Mag Drive pumps are directional and should not be run in both directions. To change direction of rotation, consult the Technical Service Manual. Relief valve must point to suction port in all cases.



MAGNETIC COUPLING

The Viking Mag Drive magnetically couples the pump shaft to the prime mover. Magnetic force passing through a stainless steel canister drives the inner coupling eliminating the need for dynamic shaft seals.

① Maximum Differential Pressure	125 PSI
② Temperature Range	-60°F. to +500°F.
③ Viscosity Range	28 SSU to 250,000

GPM 80-100-135-200-300-500

③ (Nominal Rating)

Viking Mag Drive is designed to provide positive-displacement pumping capability in those situations that require the highest assurance of liquid containment. Viking Mag Drive provides for the safe, trouble-free transfer of hazardous, EPA-regulated fluids without electronic monitoring as required with mechanical face-type shaft seals. Hard-to-seal liquids are also easily handled with the Mag Drive which eliminates the high cost of mechanical seal replacement and repair. Top unloading of trucks and railcars, plus many other transfer applications, is ideal for these self-priming pumps with flows up to 500 GPM. The high torque available from the rare-earth magnetic coupling permits slow-speed running of the pump with gear reducer for handling viscous liquids. The internal gear design provides low-shear and nonpulsating flow.

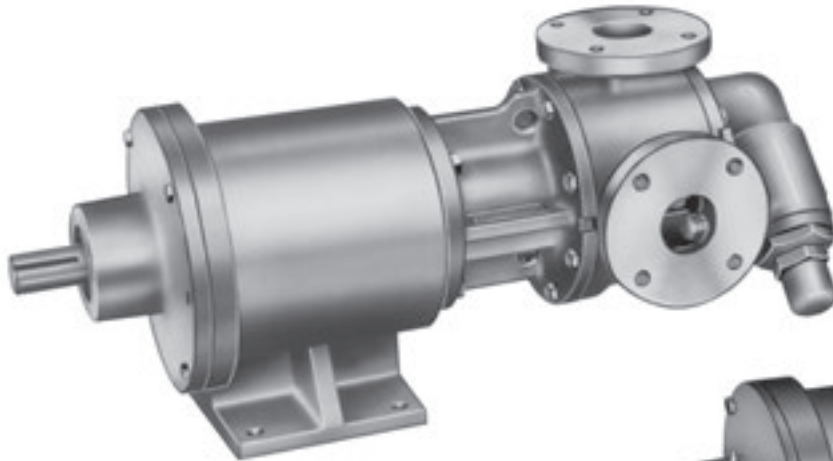
- ① See following pages and performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector, for specific recommendations. Certain models have lower limitations.
- ② Optional samarium cobalt magnets are used at temperatures over 225°F.
- ③ Nominal capacities based on handling thin liquids at low pressures.

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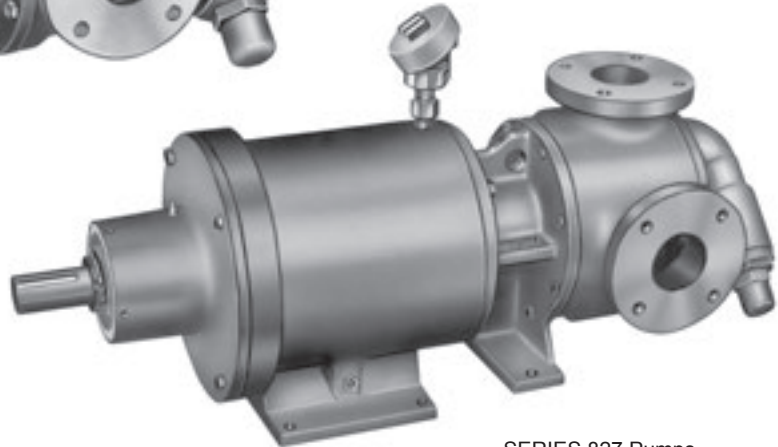
VIKING MAG DRIVE®

SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION



SERIES 827 Pumps
 Unmounted Pump with MD-C Series
 Magnetic Coupling with Bearing Carrier
 80-100 GPM



SERIES 827 Pumps
 Unmounted Pump with MD-D Series
 Magnetic Coupling with Bearing Carrier
 135-200 GPM

All Series 825, 823, and 827 pumps are standard with **Hollow Shaft Circulation**. The “Q” and “QS” feature an integral jacketed pump bracket as standard. Bolt-on jacketing is available as an option for the smaller sizes. **Temperature Probe** (to monitor canister temperature) is standard for “LQ,” “LS,” “Q,” and “QS” sizes and optional on the “K” and “KK” sizes. **Silicon Carbide** bushings are optional for all Mag Drive internal gear pumps.

Dimensions for Internal Gear Mag Drive Pumps — See Pages 845.4 through 845.9.

WARNING

The magnets in these units do not pose a hazard in the assembled state. No one with any type of medical implant should come close to the magnets of a disassembled unit. The inner magnet especially may also have adverse effects on the performance of computers, watches, credit cards, and other memory devices.

CONSTRUCTION — SERIES 825, 823, AND 827

Series	① Pump Construction	Bracket & Casing	Head	Rotor	Idler	Rotor Shaft	Idler Pin	Idler Bushing	Internal Pressure Relief Valve	Balance Plate
825	Cast Iron	② Iron	Iron	③ Ductile Iron	Iron	Steel	Hardened Steel	Carbon Graphite	Iron	④ Iron
823	Steel	② Steel	Steel	③ Ductile Iron	Iron	Steel	Hardened Steel	Carbon Graphite	Steel Externals	PPS Composite
827	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	770 SST Alloy	Stainless Steel	Coated Stainless	Carbon Graphite	Stainless Steel	⑤ 770 SST Alloy

① Viton® O-Rings are standard. Buna-N, Neoprene, PTFE, or Kalrez® available.

② “LQ,” “LS,” “Q,” and “QS” Series 825 bracket is ductile iron and Series 823 bracket is stainless steel.

③ Standard construction includes iron rotor for “K” and “Q” sizes. When steel-fitted construction is required, “K” and “Q” are furnished with ductile rotor.

④ Balance plate is integral to bracket in “K” and “KK” sizes, cast iron construction, Series 825 pumps.

⑤ PPS Composite balance plate furnished in “K” and “KK” sizes, stainless steel, Series 827 pumps.

PPS - Reinforced polyphenylene sulfide (Ryton®).

Ryton® is a registered trade name of Phillips Petroleum Company.

Viton® and Kalrez® are registered trademarks of DuPont Performance Elastomers.

VIKING MAG DRIVE®

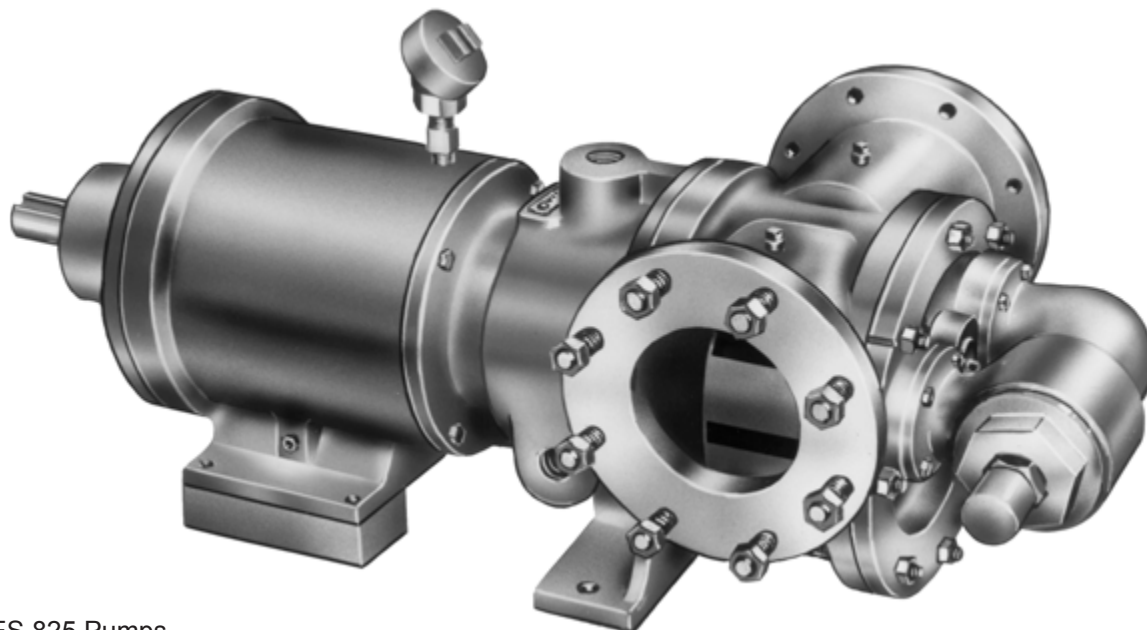
SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.



SERIES 825 Pumps
 Unmounted Pump with MD-D Series
 Magnetic Coupling with Bearing Carrier
 Jacketed Pump Bracket
 300-500 GPM, "QS" size illustrated

SPECIFICATIONS — SERIES 825, 823, AND 827

Model Numbers Unmounted Pumps	Materials of Construction	Port Size Inches	Nominal Pump Rating			② Magnetic Coupling Availability			③ Maximum Temperature (Standard Construction)		Maximum Hydrostatic Pressure		Approximate Shipping Weight With Valve (Less Power)	
			GPM	m³/h	RPM	Series	Ft-Lbs	Nm	Degrees F.	Degrees C.	PSIG	bar	Pounds	Kg
K-825	Cast Iron	2	80	18	780	MD-C	80	108	225	107	400	28	90	41
K-823	Steel	① 2	80	18	780								105	48
K-827	Stainless Steel	① 2	80	18	780								105	48
KK-825	Cast Iron	2	100	22	780	MD-C	80	108	225	107	400	28	95	43
KK-823	Steel	① 2	100	22	780								110	50
KK-827	Stainless Steel	① 2	100	22	780								110	50
LQ-825	Cast Iron	① 2½	135	31	640	MD-D	175	240	225	107	400	28	172	78
LQ-823	Steel	① 2½	135	31	640		360	490					182	83
LQ-827	Stainless Steel	① 2½	135	31	640		560	760					182	83
LS-825	Cast Iron	① 3	200	45	640	MD-D	175	240	225	107	400	28	212	96
LS-823	Steel	① 3	200	45	640		360	490					225	102
LS-827	Stainless Steel	① 3	200	45	640		560	760					225	102
Q-825	Cast Iron	① 4	300	68	520	MD-D	175	240	225	107	400	28	450	204
Q-823	Steel	① 4	300	68	520		360	490					460	209
Q-827	Stainless Steel	① 4	300	68	520		560	760					460	209
QS-825	Cast Iron	① 6	500	114	520	MD-D	175	240	225	107	400	28	560	254
QS-823	Steel	① 6	500	114	520		360	490					570	259
QS-827	Stainless Steel	① 6	500	114	520		560	760					570	259

① Ports are suitable for use with 150# ANSI steel companion flanges or flanged fittings.

② See page 845.12 for proper sizing of torque coupling. Coupling designation begins with Series letter followed by torque rating required for application, then letter

indicating drive arrangement.

③ Alternate magnet materials and/or special construction features are required at temperatures above 225° F. Consult factory for details.

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VIKING MAG DRIVE[®]

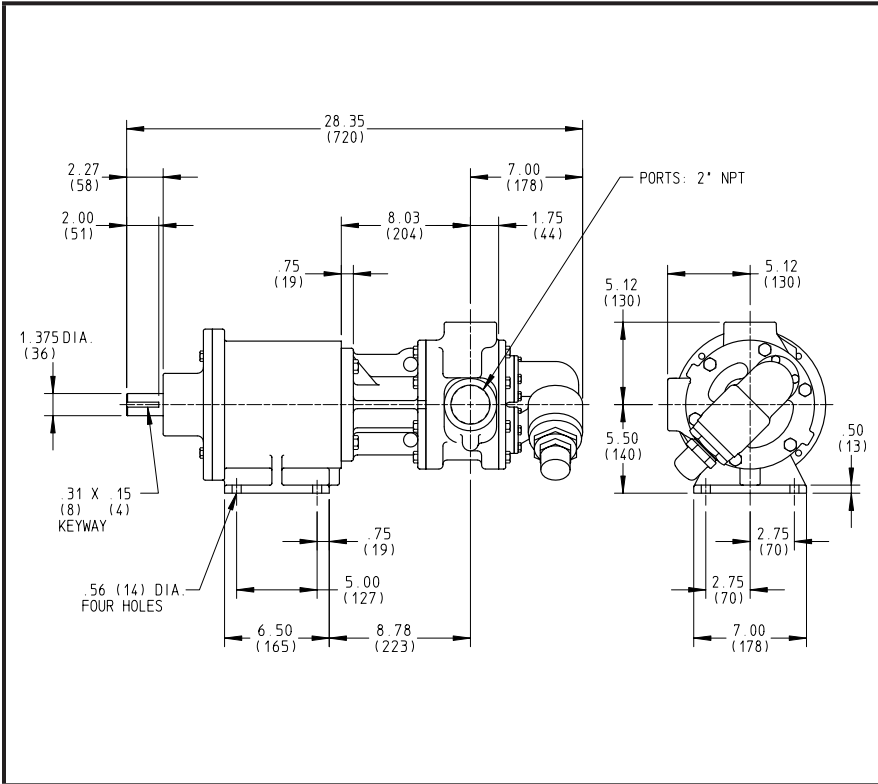
SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

DIMENSIONS

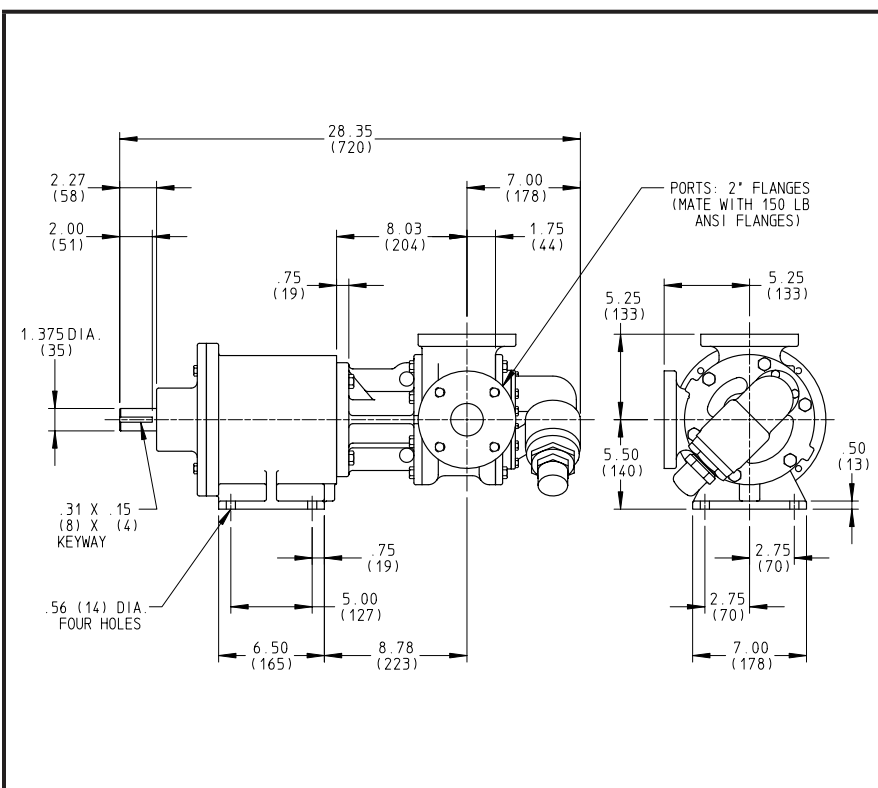
These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 845.3.



DIMENSIONS— SERIES 825 CAST IRON CONSTRUCTION “K”-“KK” SIZES UNMOUNTED PUMPS

NOTE: Dimensions shown in parentheses are millimeters; others are inches.



For specifications, see page 845.3.

DIMENSIONS— SERIES 823 AND 827 STEEL AND STAINLESS STEEL CONSTRUCTION “K”-“KK” SIZES UNMOUNTED PUMPS

NOTE: Dimensions shown in parentheses are millimeters; others are inches.

VIKING MAG DRIVE®

SERIES 825, 823, AND 827
CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

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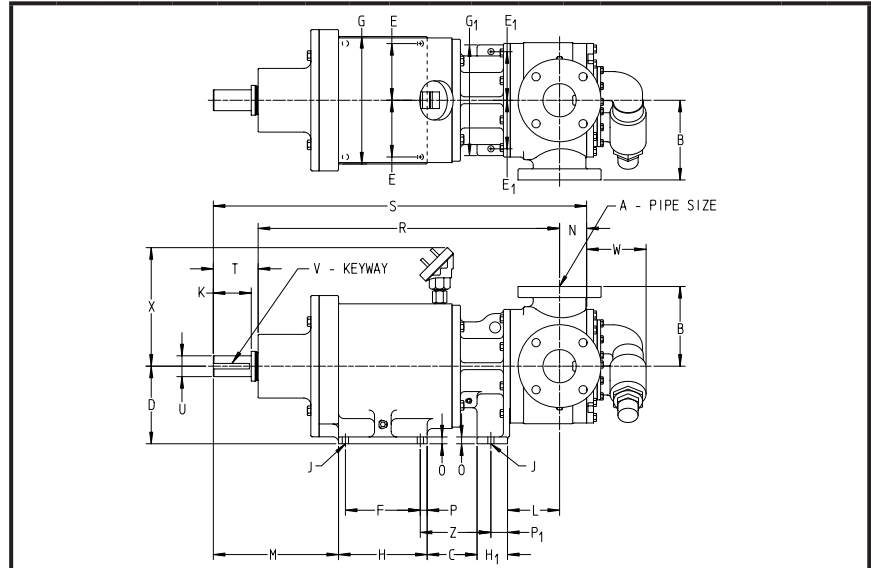
DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 845.3.

DIMENSIONS— SERIES 825 - CAST IRON CONSTRUCTION SERIES 823 - STEEL CONSTRUCTION SERIES 827 - STAINLESS STEEL CONSTRUCTION “LQ”-“LS” SIZES UNMOUNTED PUMPS

① Ports are suitable for use with 125# ANSI cast iron or 150# ANSI steel companion flanges or flanged fittings. All pumps in the “LQ” and “LS” Series are standard with flanged ports.

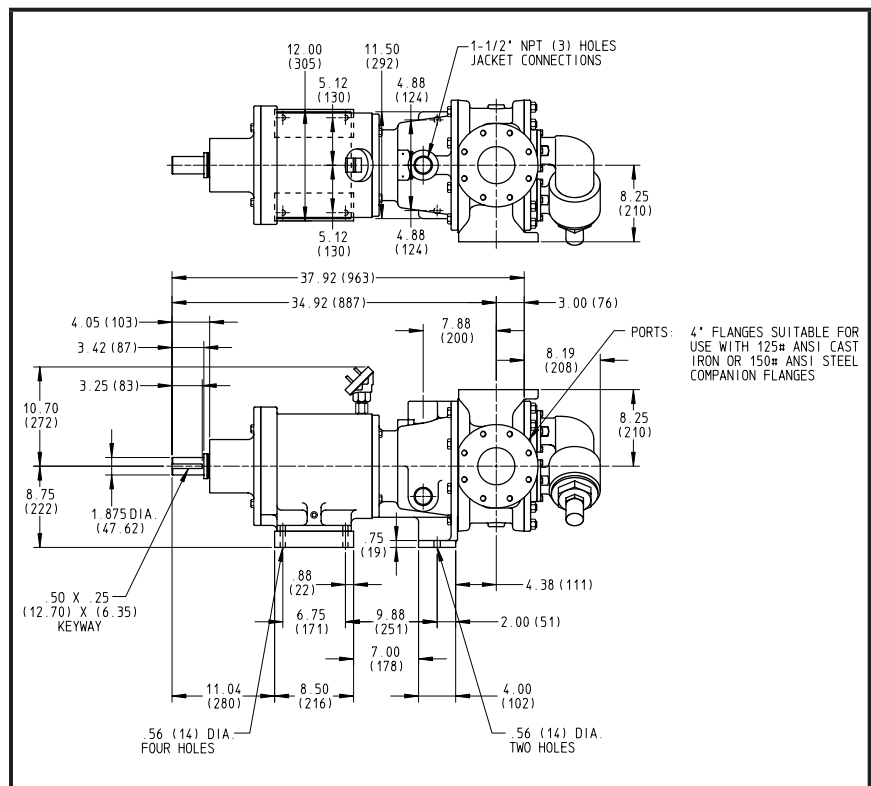


MODEL NO.	A	B	C	D	E	E ₁	F	G	G ₁	H	H ₁	J	K	L	M	N	O	P	P ₁	R	S	T	U	V	W	X	Z	
LQ-825-MD-D-B	① 2 1/2	in	7.19	4.50	7.00	5.12	4.38	6.75	11.50	10.00	8.00	2.75	.56	3.42	3.58	11.29	1.75	.62	.62	1.50	26.08	31.87	4.04	1.875	.50 x .25	5.38	10.70	6.38
LQ-823-MD-D-B		mm	183	114	178	130	111	171	292	254	203	70	14	87	91	287	44	16	16	38	662	809	103	47.62	12.70 x 6.35	137	272	162
LQ-827-MD-D-B		mm	183	114	178	130	111	171	292	254	203	70	14	87	91	287	44	16	16	38	662	809	103	47.62	12.70 x 6.35	137	272	162
LS-825-M D-D-B	① 3	in	7.19	4.50	7.00	5.12	4.38	6.75	11.50	10.00	8.00	2.75	.56	3.42	4.70	11.29	2.44	.62	.62	1.50	27.20	33.68	4.04	1.875	.50 x .25	5.19	10.70	6.38
LS-823-MD-D-B		mm	183	114	178	130	111	171	292	254	203	70	14	87	119	287	62	16	16	38	691	855	103	47.62	12.70 x 6.35	132	272	162
LS-827-MD-D-B		mm	183	114	178	130	111	171	292	254	203	70	14	87	119	287	62	16	16	38	691	855	103	47.62	12.70 x 6.35	132	272	162

For specifications, see page 845.3.

DIMENSIONS— SERIES 825 - CAST IRON CONSTRUCTION SERIES 823 - STEEL CONSTRUCTION SERIES 827 - STAINLESS STEEL CONSTRUCTION “Q” SIZES UNMOUNTED PUMPS

All pumps in the “Q” Series are standard with flanged ports. NOTE: Dimensions shown in parentheses are millimeters; others are inches.



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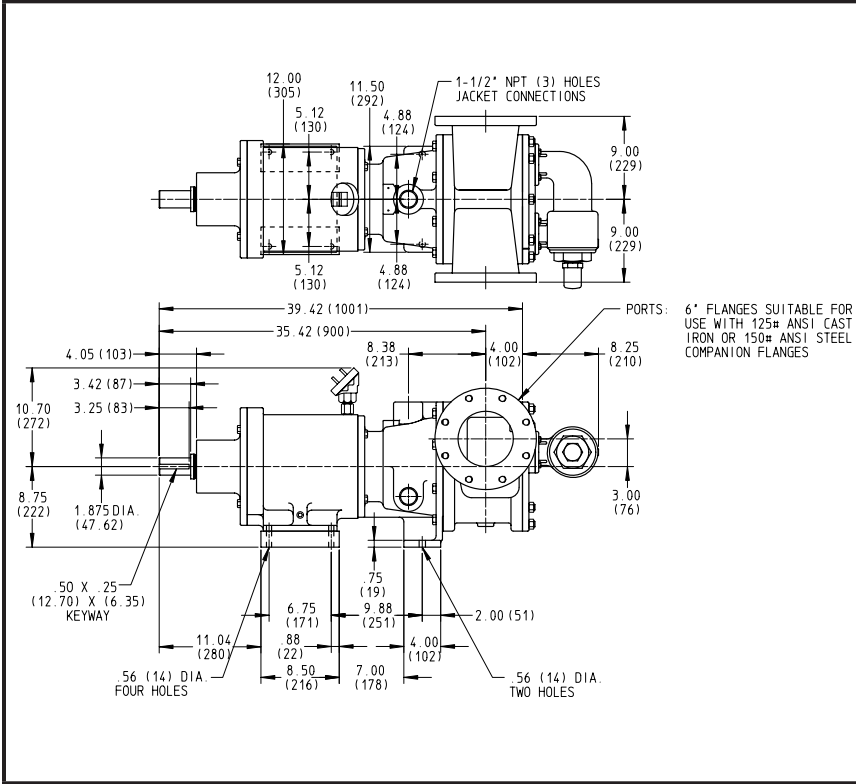
VIKING MAG DRIVE[®]

SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

DIMENSIONS

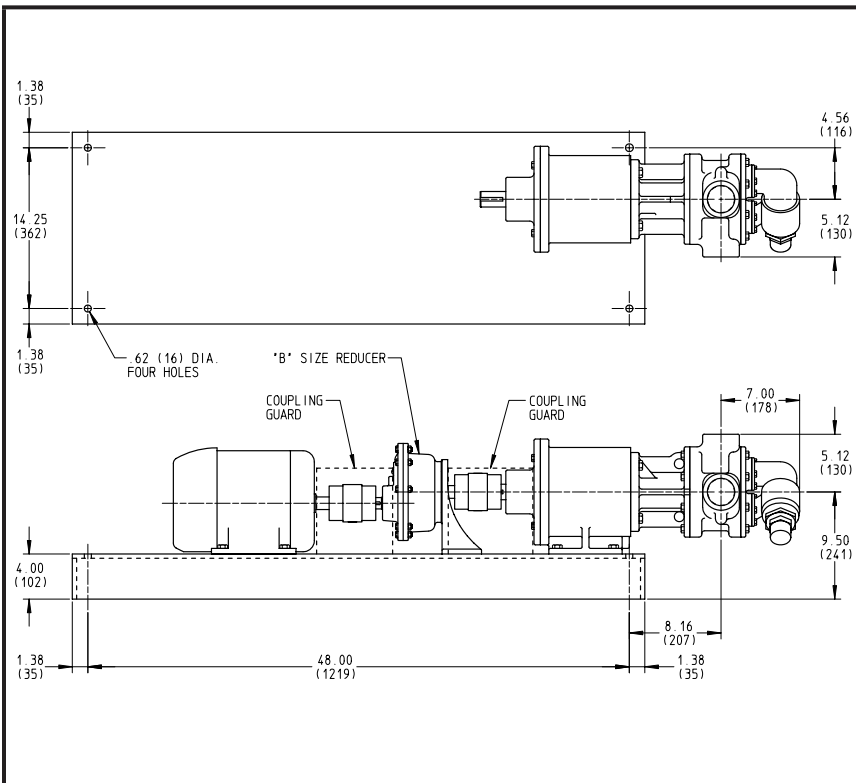
These dimensions are average and not for construction purposes. Certified prints on request.



For specifications, see page 845.3.

DIMENSIONS— SERIES 825 - CAST IRON CONSTRUCTION SERIES 823 - STEEL CONSTRUCTION SERIES 827 - STAINLESS STEEL CONSTRUCTION “QS” SIZES UNMOUNTED PUMPS

All pumps in the “QS” Series are standard with flanged ports.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.



For specifications, see page 845.3.

DIMENSIONS— SERIES 825^① CAST IRON CONSTRUCTION (MD-C “R” DRIVE) “K”-“KK” SIZES “B” SIZE REDUCER UNITS

① Series 825 shown. See unmounted pump for port configuration on Series 823 and 827 pumps.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.

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SERIES 825, 823, AND 827
CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

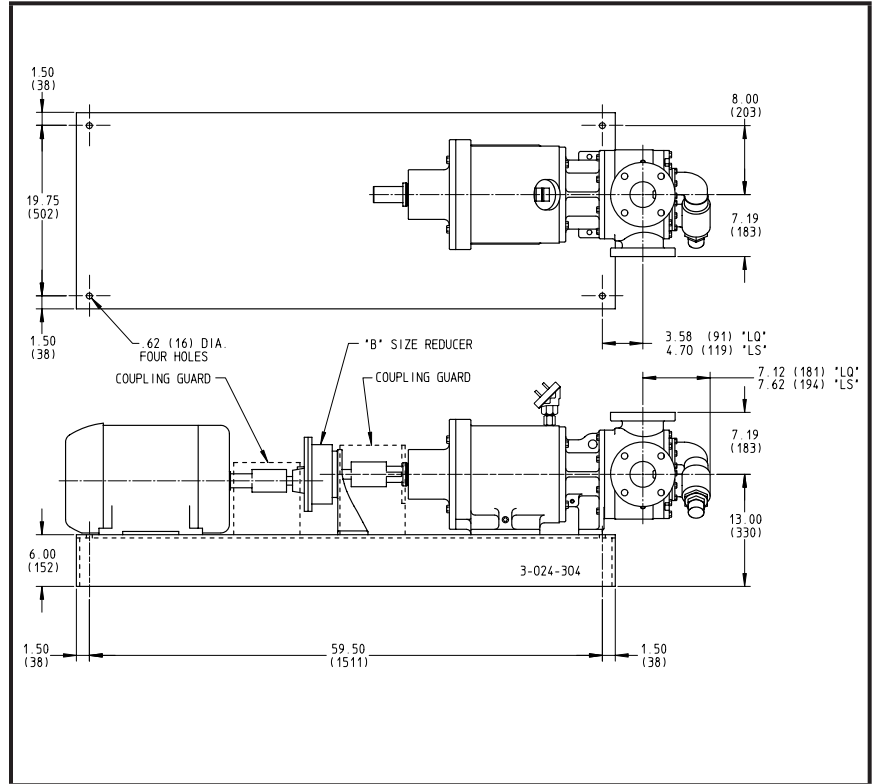
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DIMENSIONS

These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 845.3.

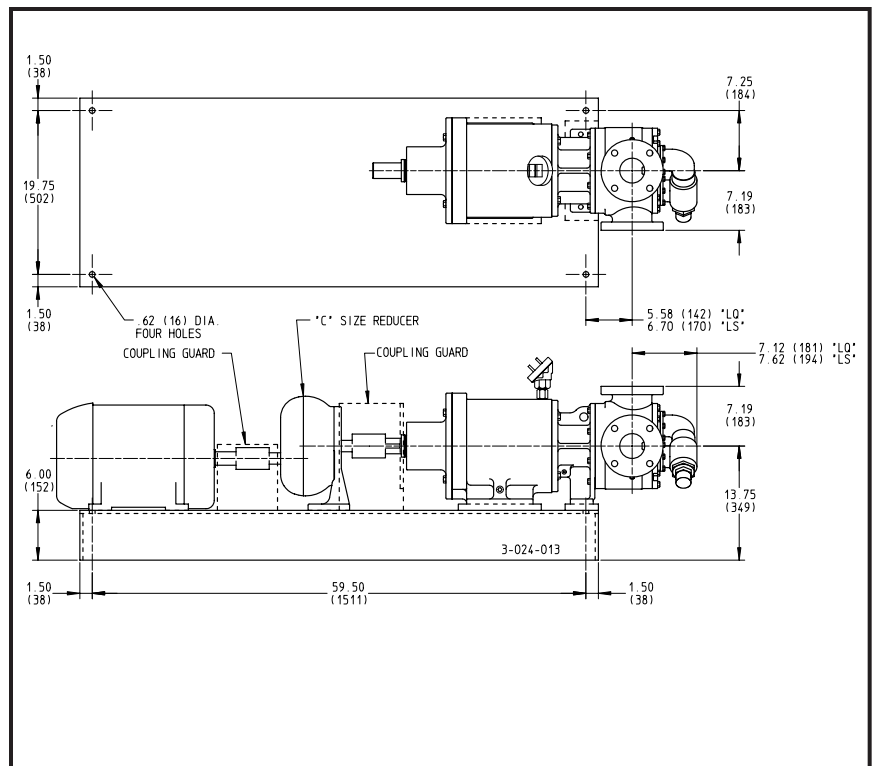
DIMENSIONS— SERIES 825^① CAST IRON CONSTRUCTION (MD-D “R” DRIVE) “LQ”-“LS” SIZES “B” SIZE REDUCER UNITS



^① Series 825 shown. See unmounted pump for port configuration on Series 823 and 827 pumps.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.

For specifications, see page 845.3.

DIMENSIONS— SERIES 825^① CAST IRON CONSTRUCTION (MD-D “R” DRIVE) “LQ”-“LS” SIZES “C” SIZE REDUCER UNITS



^① Series 825 shown. See unmounted pump for port configuration on Series 823 and 827 pumps.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.

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VIKING MAG DRIVE[®]

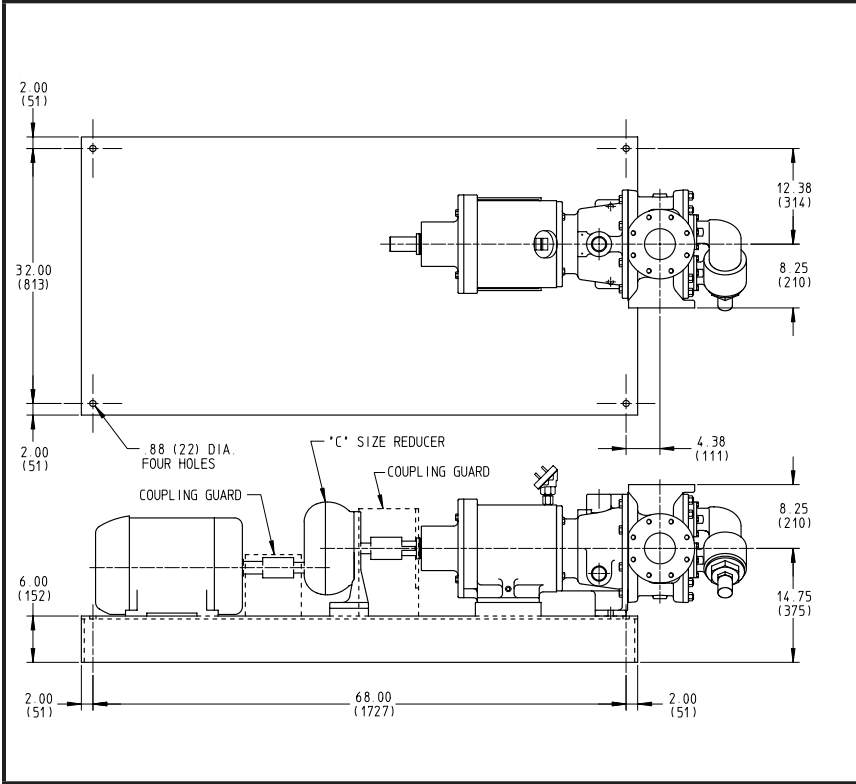
SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

DIMENSIONS

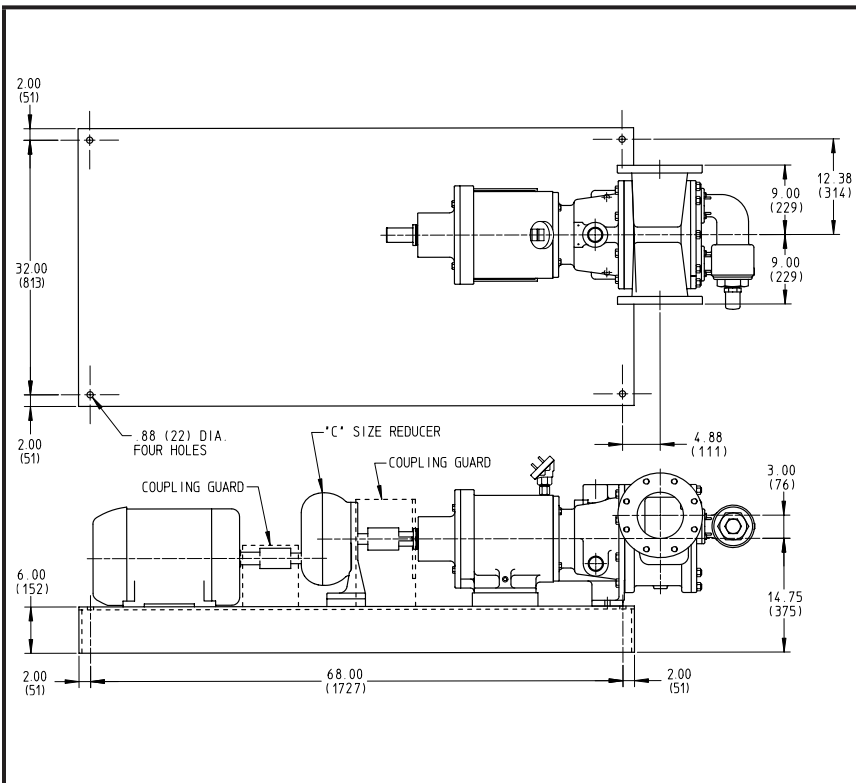
These dimensions are average and not for construction purposes. Certified prints on request.

For specifications, see page 845.3.



DIMENSIONS— SERIES 825^① CAST IRON CONSTRUCTION (MD-D “R” DRIVE) “Q” SIZES “C” SIZE REDUCER UNITS

① Series 825 shown. See unmounted pump for port configuration on Series 823 and 827 pumps.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.



For specifications, see page 845.3.

DIMENSIONS— SERIES 825^① CAST IRON CONSTRUCTION (MD-D “R” DRIVE) “QS” SIZES “C” SIZE REDUCER UNITS

① Series 825 shown. See unmounted pump for port configuration on Series 823 and 827 pumps.
NOTE: Dimensions shown in parentheses are millimeters; others are inches.

VIKING **MAG DRIVE**[®]
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Performance Curve Notes

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Selector Program. This program can be located on www.vikingpump.com for the general public.

For authorized distributors, this program can be found listed under the “Products” tab at www.idexconnect.com. Security passwords are required to access IDEXconnect.

INLET CONDITIONS: The performance curves show “Based on 10 (or 15) In.-Hg.” which is Viking’s standard test condition. This is not the maximum vacuum capability of the pump.

NPSH (Net Positive Suction Head): The NPSH_R (Net Positive Suction Head—Required by the pump) is given in the table below and applies for viscosities through 750 SSU. NPSH_A (Net Positive Suction Head—Available in the system) must be greater than NPSH_R.

NPSH_R—FEET OF LIQUID SP. GR. 1.0),
 Viscosities to 750 SSU

Pump Size	PUMP SPEED							
	155	230	280	350	420	520	640	780
K, KK	1.8	2.1	2.8	2.8	3.3	4.4	6.3	9.1
LQ, LS	2.0	2.5	3.0	3.8	5.0	7.3	10.8	—
Q, QS	2.3	3.3	4.2	6.1	8.4	12.7	—	—

For a complete explanation of NPSH, see Viking Application Data Sheet, AD-19.

FOR VISCOSITIES ABOVE 750 SSU (NPSH_R data not available): The performance curves are based on 15 In.-Hg. While vacuums up to 20 In.-Hg. will not generally result in any loss of capacity, it is recommended that the suction line size and possibly the pump port size be increased to hold the expected vacuum to 15 In.-Hg. or less. Vacuum above 20 In.-Hg. should be avoided. (Refer to Viking’s General Catalog, Engineering Section 510, for information in determining line size).

THIN LIQUIDS: The 28 SSU curves should be used when applying these pumps to such liquids as cool water, aqueous solutions, alcohols, solvents, etc.

MECHANICAL EFFICIENCY: The Mechanical Efficiency (expressed in percent) can be calculated using the following formula:

$$\text{Mechanical Efficiency} = \frac{(\text{Differential Pressure, PSI}) (\text{Capacity, GPM}) (100)}{(\text{Horsepower, BHP}) (1715)}$$

METRIC CONVERSION: The following table has been compiled for conversion to metric values.

Vacuum		Pressure		Capacity	
In.-Hg (Inches-Mercury)	kPa* (Kilopascal)	PSI (lbf/n.')	kPa* (Kilopascal)	GPM (Gal./min.)	L/min. (Litre/min)
1	3.4	1	6.9	1	3.8
5	17	25	172	0.26	1
10	34	50	345		
15	51	100	690		
20	68	150	1034		
25	85	200	1379		
		250	1724		

* 100 kPa = 1 bar

MAG DRIVE MODEL NUMBERS: In the Viking internal gear model number system, the basic size letters are combined with the series number (825, 823, 827) indicating basic pump construction material. (Cast iron, steel, stainless steel).

MODEL NUMBER CHART

Unmounted Pumps	UNITS
K - 825, 823, 827	Units are designated by the unmounted pump model numbers followed by the magnetic coupling size and a letter indicating drive style: B - Bracket Mount R - Viking Reducer Drive P - Commercial Reducer Drive (Examples: LS- 827 MD-360 R)
KK - 825, 823, 827	
LQ - 825, 823, 827	
LS - 825, 823, 827	
Q - 825, 823, 827	
QS - 825, 823, 827	

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SERIES 825, 823, AND 827

CAST IRON, STEEL, AND STAINLESS STEEL CONSTRUCTION

Performance Curve Notes Cont'd

SELECTING THE CORRECT VIKING MAG DRIVE[®] COUPLING

1. Find pump HP and speed from performance curves, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com/pumpselector.

2. Calculate application torque (T), using this formula:

$$T \text{ (FT LB)} = \frac{\text{HP}}{\text{SPEED}} \times 5252$$

3. Select temperature correction factor (TCF) from Table 1 or Table 2.

STANDARD NEODYMIUM MAGNETS (For Application Temperatures Below 225°F.)							
Application Temp. (°F)	AMB	100	125	150	175	200	225
TCF	1.0	.94	.88	.82	.76	.70	.64

Table 1: Temperature Correction Factors

OPTIONAL SAMARIUM COBALT MAGNETS (For Application Temperatures Above 225°F.)					
Application Temp. (°F)	175	200	300	400	500
TCF	.74	.73	.69	.63	.59

Table 2: Temperature Correction Factors

4. Divide calculated application torque by TCF to get adjusted application torque.

5. Select coupling with capacity equal to or greater than “adjusted application torque” from Table 3.

MAGNETIC COUPLING TORQUE CAPACITY TABLE	
① Coupling Size	Torque (FT-LBS)
MD-C80	80
MD-D175	175
MD-D360	360
MD-D560	560

Table 3

EXAMPLE 1:

1. A KK-825 is required to pump a 100 SSU liquid at 780 RPM, 100 PSI differential pressure. The temperature is 100° F.

From the Viking Pump Curve Selector located on www.vikingpump.com, the required HP is 8.8.

2. Calculate torque (T).

$$\text{TORQUE (T)} = \frac{8.8}{780} \times (5252) = 59.3 \text{ FT LB}$$

3. Since the Temperature is below 225 ° F., standard neodymium magnets will be used. Use Table 1 to determine the Temperature Correction Factor, TCF = .94.

4. Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{59.3}{0.94} \\ &= 63 \text{ FT-LB} \end{aligned}$$

5. Verify that the adusted torque value is less than 80.

A STANDARD NEODYMIUM MD-C80 COUPLING IS THE PROPER SELECTION.

EXAMPLE 2:

1. A K-825 is required to pump a 2500 SSU liquid at 520 RPM, Delivering 59 GPM at 75 PSI differential pressure. The temperature is 300° F.

From the Viking Pump Curve Selector located on www.vikingpump.com, the required HP is 5.3.

2. Calculate torque (T).

$$\text{TORQUE (T)} = \frac{5.3}{520} \times (5252) = 53.5 \text{ FT-LB}$$

3. With an operating temperature above 225 ° F., samarium magnets will be required. Use Table 2 to determine the Temperature Correction Factor (TCF) = .69.

4. Calculate adjusted application torque.

$$\begin{aligned} \text{ADJUSTED APPLICATION TORQUE} &= \frac{53.5}{0.69} \\ &= 78 \text{ FT-LB} \end{aligned}$$

5. Verify that the adusted torque value is less than 80.

AN MD-C80 WITH OPTIONAL SAMARIUM COBALT MAGNETS IS THE PROPER SELECTION.