

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.

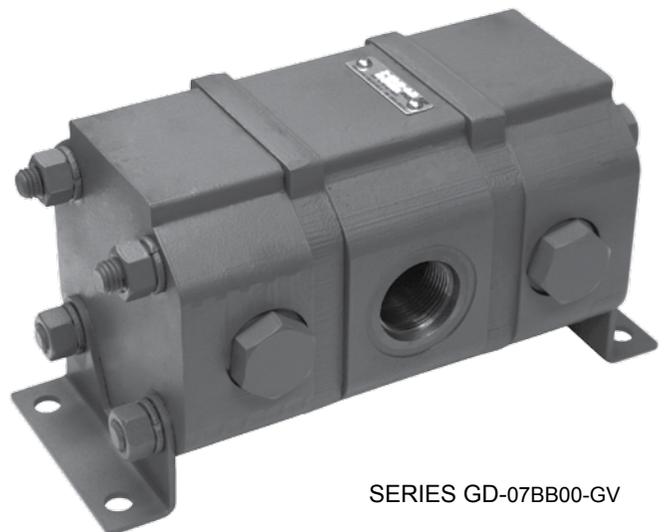
Rotary gear flow divider applications include fuel distribution systems, lube systems, forklift trucks, container handlers, cranes, manlifts and many types of multiple function machines.

OPERATING RANGE:

GD Series Flow Dividers		
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



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VIKING ROTARY FLOW DIVIDERS

MODEL NUMBER KEY

GD - 05 BB OO - GV

External Gear
Flow Divider

Series:
-05
-07

1st 2nd 3rd 4th
Element Codes from tables below

Design
Series

Relief Valves:
V = With Valves
O = Without Valves

Code	Element	Displacement / rev		Element Capacity at 3500 RPM	
		in ³	ml or cc	GPM	LPM
B	25	.139	2.27	2.0	7.5
D	50	.277	4.54	4.0	15.1
E	70	.388	6.36	5.6	21.2
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
B	58	.765	12.53	11.2	42.4
D	11	1.530	25.07	22.4	84.8
O	none	(3 rd or 4 th elements only)			

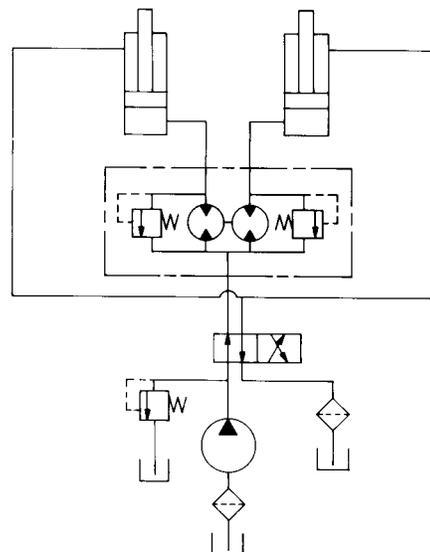
NOTES:

- 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.



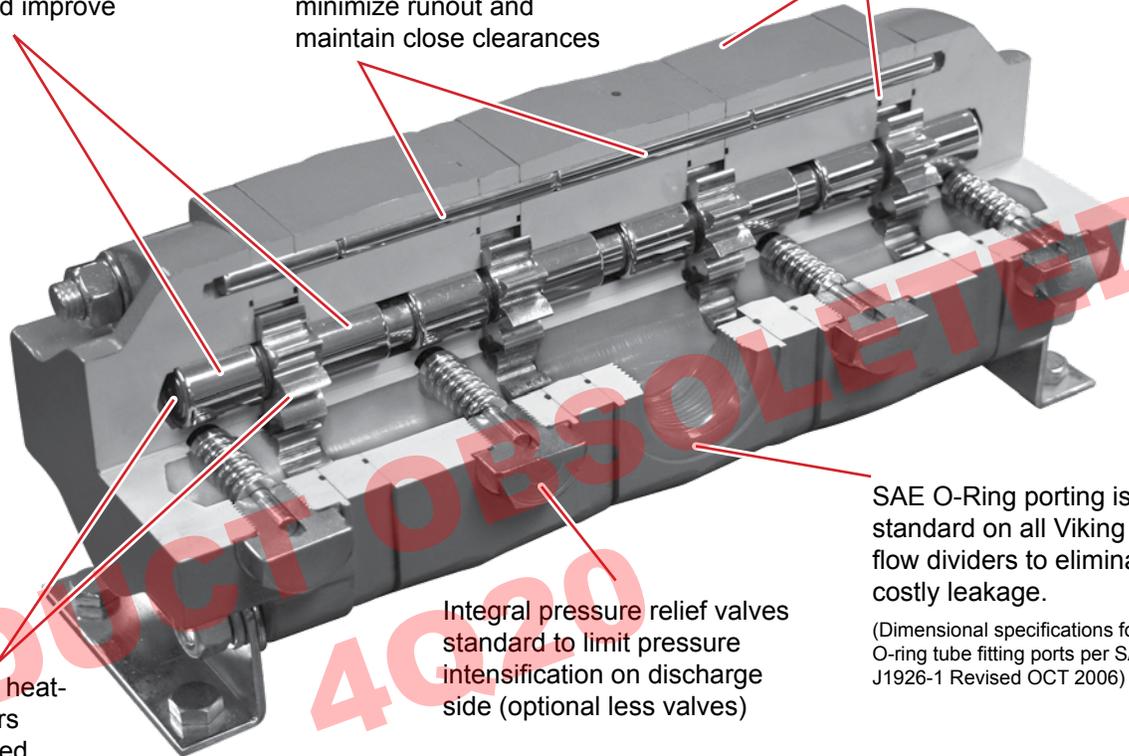
VIKING ROTARY FLOW DIVIDERS

CONSTRUCTION AND FEATURES

Anti-friction needle bearings to reduce friction and improve efficiency.

Alignment sleeves positively locate each section to minimize runout and maintain close clearances

O-Rings between sections for positive sealing.



Precision ground heat-treated steel gears and case-hardened steel shafts to insure maximum operating life.

Integral pressure relief valves standard to limit pressure intensification on discharge side (optional less valves)

SAE O-Ring porting is standard on all Viking flow dividers to eliminate costly leakage.

(Dimensional specifications for O-ring tube fitting ports per SAE J1926-1 Revised OCT 2006)

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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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.

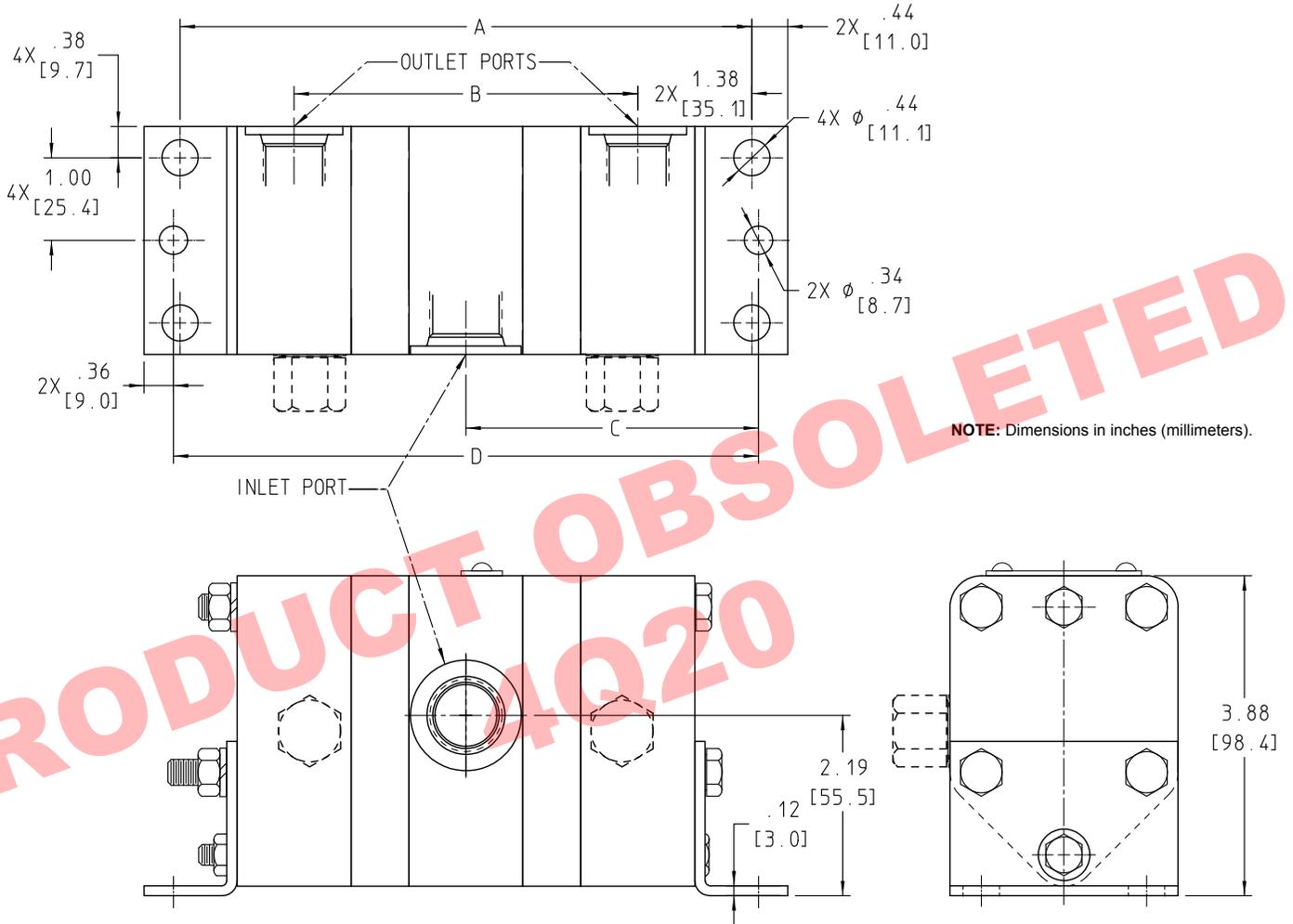
Contact factory for specifications on custom units.

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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DIMENSIONS – SERIES GD-05



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				
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				

NOTE: Dimensional drawings for 3-section and 4-section flow dividers available upon request.

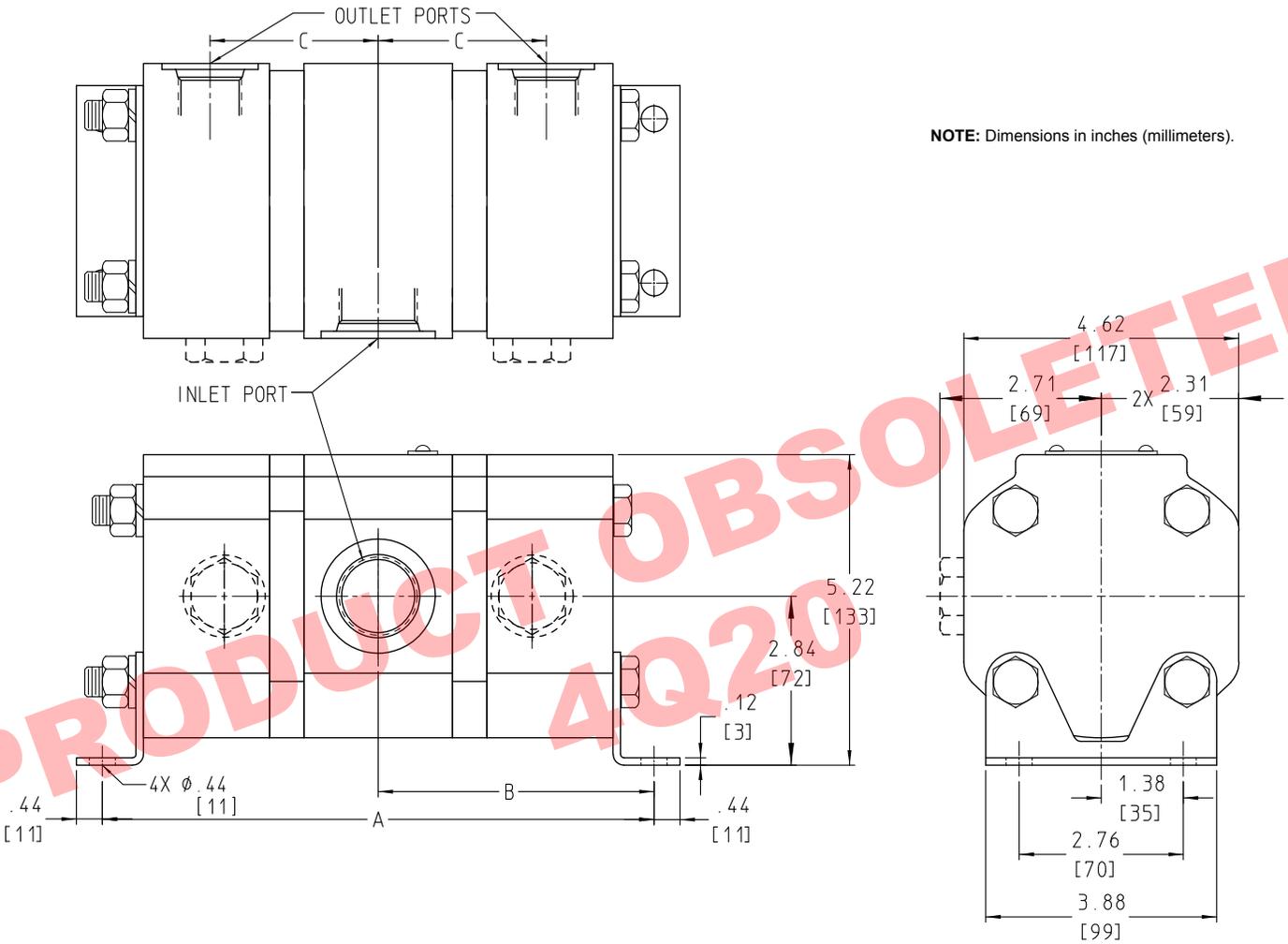
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DIMENSIONS – SERIES GD-07



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				