

ROTARY GEAR FLOW DIVIDERS



Concentric AB

Innovation in Hydraulics

GC and D Series Rotary Gear Flow Dividers

Intensifier - Combiner (European and U.S. Versions)

Field-proven Concentric' Rotary Gear Flow Dividers are providing efficient, reliable service for a wide variety of applications in agricultural, materials handling, and construction equipment. These hydraulic flow dividers provide many useful functions from a single pump source:

- Synchronized operation of multiple cylinders or fluid motors.
- Proportional division of pump output among several circuits.
- Intensified pressure when pressure higher than pump capacity is
- nigner than pump capacity needed.

WHY ROTARY GEAR FLOW DIVIDERS INSTEAD OF SPOOL TYPE DIVIDERS?

Connected within the hydraulic circuit, rotary gear flow dividers operate automatically and only when needed. They require no maintenance.

In a rotary gear divider, horsepower-in is equal to horsepower-out with very small efficiency losses. Consequently, it does not generate heat. Since the efficiency of the unit is a function of the pressure drop across the section, *efficiencies approaching 98 percent are not uncommon*. This enhances the overall system effectiveness. Spool type dividers require a significant pressure drop just to operate. Heat is designed in when spool type dividers are incorporated in an application. Much care has to be taken to accommodate the inherent inefficiencies of spool type dividers when sizing them for an application.

Rotary gear flow dividers are also more tolerant of contamination and more rugged than spool type flow dividers. Spool type dividers can be accurate and exhibit little internal leakage but their cost is generally as much as 25% greater than comparable rotary gear dividers.

DIFFERENTIAL RELIEF VALVES

Our modular design allows us to add differential relief valves in each section of our flow dividers. These valves are not system relief valves. They are commonly used in applications where cylinders must be synchronized. They also serve to protect the flow divider against excessive differential pressure in the divider which could be caused by actuators becoming stalled or restricted.

APPLICATION OF A ROTARY GEAR FLOW DIVIDER IN A CYLINDER CIRCUIT

Rotary Gear Flow Dividers are designed to synchronize hydraulic cylinders (bring them to equal stroke length) in one direction only. This needs to be in a direction where the cylinders bottom out (go to the end of their stroke). The synchronizing is accomplished because excess fluid is bled off over the flow divider's internal relief valves to feed the cylinder that is late getting to the end of it's stroke. Reversing the direction of the cylinders, the Rotary Gear Flow Divider will act as a combiner with the same efficiency as a divider. Please note that a combiner doesn't regulate cylinder speed, so a flow control is required to limit maximum flow.

ROTARY GEAR FLOW DIVIDER USED AS AN INTENSIFIER

Press and clamping circuits that require high flow at low pressure and low flow at high pressure are good applications for Rotary Gear Flow Dividers to intensify pressure. High flow from the outputs of the divider are combined until high pressure is required, then one or more of the divider outputs are dumped to tank giving high pressure in the intensified circuit. Caution is required so that the pressure does not exceed the rating of the flow divider.

WHAT'S NEW AND INNOVATIVE ABOUT CONCENTRIC ROTARY GEAR FLOW DIVIDERS?

We have earned a reputation over the last 70 years as innovators and systems specialists. We go beyond the basic requirements for hydraulic components to analyze the total system goals. In doing this, many times we find that we can help solve a customer's system problem by doing something different to our product. The following are examples of how we have done this with flow dividers:

SOLENOID ACTUATED 2-WAY VALVES FOR FLUID MOTOR DRIVE APPLICATIONS

This feature provides operator selection between a positive traction drive or differential drive on turf care vehicles, small utility vehicles and various mobile lift devices. This feature is available in 2, 3 or 4 section dividers.

ADJUSTABLE NEEDLE VALVE BETWEEN SECTIONS

to allow only the set amount of flow providing the desired differential effect for drive motors. It can also be adjusted for varying tire ratios.

WHY CONCENTRIC VS. OTHER ROTARY GEAR FLOW DIVIDERS?

Concentric GC series flow dividers are of cast iron construction with 1/2" diameter shaft and needle bearings for high pressure operation. The gear bores are held to extremely close tolerances to provide maximum efficiency. They are lighter weight than many competitors because no interface plates are required between sections. This feature also insures better shaft alignment and fewer leakage paths. Seal plates between each section provide additional insurance against leakage. The modular design easily accommodates multiple gear width combinations and multiple porting options. Concentric D series flow dividers incorporate the above features but substitute a 5/8" diameter shaft and needle bearings. The D series also substitutes o-ring seals between each section for enhanced sealing.

INSIDE THIS CATALOG ...

This catalog combines both GC and D series flow divider information, including European versions. We have included performance and dimensional information as well.

Please review the information provided to get a general understanding of what Concentric can offer your company. To answer your specific needs, please contact us. We have an excellent track record for meeting unique hydraulic system challenges.

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		Gear	Displa	cement	SAEI	Ports		mum //Sec		imum v/Sec	Pres Betv	. Diff. sure veen Outlet	Ou Pres	tium tlet sure ection
	Order	Face												
	Code	Width	ln.³	Cm. ³	Inlet	Outlet	GPM	L/M	GPM	L/M	PSI	BAR	PSI	BAR
	06	3/16	.097	1.59	9/16-18	9/16-18	0.8	3.0	1.7	6.4	1800	124	3500	241
*	08	1/4	.129	2.12	3/4-16	3/4-16	1.2	4.5	2.5	9.5				
	12	3/8	.194	3.18	3/4-16	9/16-18	1.7	6.4	4.5	13.2				
*	16	1/2	.258	4.24	7/8-14	7/8-14	2.5	9.5	5.0	18.9				
	20	5/8	.323	5.30	7/8-14	7/8-14	3.0	11.4	6.0	22.7				
*	24	3/4	.388	6.36	7/8-14	7/8-14	3.5	13.2	7.0	26.5	1600	110		
	28	7/8	.453	7.42	7/8-14	7/8-14	4.0	15.1	8.0	30.3	1300	90		
*	32	1	.517	8.48	7/8-14	7/8-14	4.5	17.0	9.0	34.1	1200	83		

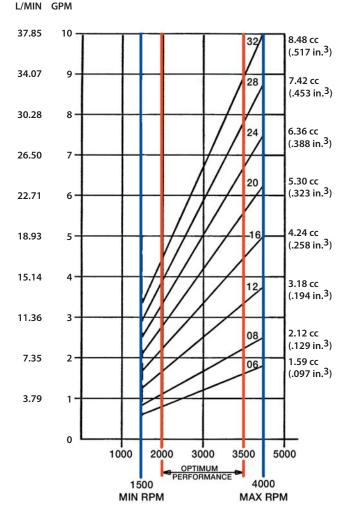
GC Series Rotary Gear Flow Dividers

NOTE: Flows listed above are per section.

For European Style GC Flow Dividers, all inlet and outlet ports are 1/2-14 BSPP.

* Stock units available in two and four section versions, see page 9.

MAXIMUM inlet pressure 3000 psi (207 bar) • MAXIMUM outlet pressure 3500 psi (241 bar). For 3 section flow dividers or flow dividers with unequal sections, contact the factory. Recommended operating range 2000 rpm to 3500 rpm.



Performance

The curve on the left and the chart above can be useful in selecting the proper size flow divider sections. The curve shows speed vs. flow per section.

For equal sized sections:

Assume four section dividers with a total flow of 12 GPM (45.4 L/M) in and 3 GPM (11.4 L/M) per section out. From the chart, an order code 12 or 20 would be suitable for this flow. However, the nearer the mid-range, the better the efficiency. From the curve, order code 16 crosses the 3 GPM (11.4 L/M) line at 2750 RPM. The best selection is the order code 16 gear section.

For proportional flow, the curve is used as follows:

Assume a four section divider with an input flow of 19 GPM (71.9 L/M) and an outlet flow of 7 GPM (26.5 L/M) , 5 GPM (18.9 L/M), 4 GPM (15.1 L/M), and 3 GPM (11.4 L/M). With a straight edge on the 3000 RPM line, proper flow for 7 GPM (26.5 L/M) is given with an order code 32 gear section, 5 GPM (18.9 L/M) with an order code 24 gear section, 4 GPM (15.1 L/M) with an order code 20 gear section and 3 GPM (11.4 L/M) with an order code 16 gear section.

The chart above also shows the allowable differential pressures. The differential relief valve setting is determined by the maximum pressure needed by the circuit minus the inlet pressure without exceeding the allowable differential pressure. Either the continuous or intermittent differential pressures are used, depending on the circuit requirement. The differential relief valve is adjustable through a range of 500 - 1000 PSI (34.5 - 69 BAR). Our standard setting for the differential relief valves is 750 PSI (51.7 BAR).

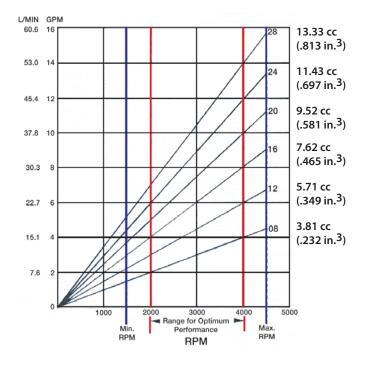
D Series Rotary Gear Flow Dividers

	Order	Gear Displacement		splacement SAE Ports		Minimum Flow/Sec		Maximum Flow/Sec		Continuous Differential Between Sections		Intermittent Differential Between Sections		
	Code	Width	In. ³	Cm. ³	Inlet	Outlet	GPM	L/M	GPM	L/M	PSI	BAR	PSI	BAR
	08	1/4	.232	3.81	7/8-14	9/16-18	2	7.6	4	15.2	3000	207	3000	207
*	12	3/8	.349	5.71	1 5/16-12	3/4-16	3	11.4	6	22.9	2750	190	3000	207
	16	1/2	.465	7.62	1 5/16-12	3/4-16	4	15.2	8	30.5	2500	172	3000	207
*	20	5/8	.581	9.52	1 5/16-12	7/8-14	5	19.0	10	38.1	2000	138	2750	190
	24	3/4	.697	11.43	1 5/16-12	7/8-14	6	22.9	12	45.7	1500	103	2250	155
*	28	7/8	.813	13.33	1 5/16-12	1 1/16-12	7	26.7	14	53.3	1200	83	1750	121

NOTE: Flows listed above are per section.

* Stock units available in two and four section versions, see page 9.

MAXIMUM inlet pressure 3000 psi (207 bar) • MAXIMUM outlet pressure 4500 psi (310.3 bar). For 3 section flow dividers or flow dividers with unequal sections, contact the factory. Recommended operating range 2000 rpm to 4000 rpm. NOTE: Do not exceed 4500 rpm.



Performance

The curve on the left and the chart above can be useful in selecting the proper size flow divider sections. The curve shows speed vs. flow per section.

For equal sized sections:

Assume two section dividers with a total flow of 16 GPM (60.6 L/M) in and 8 GPM (30.3 L/M) per section out. From the chart, an order code 16, 20, 24 or 28 would be suitable for this flow. However, the nearer the mid-range, the better the efficiency. From the curve, order code 20 crosses the 8 GPM (30.3 L/M) line at 3200 RPM. The best selection is the order code 20 gear section.

For proportional flow, the curve is used as follows:

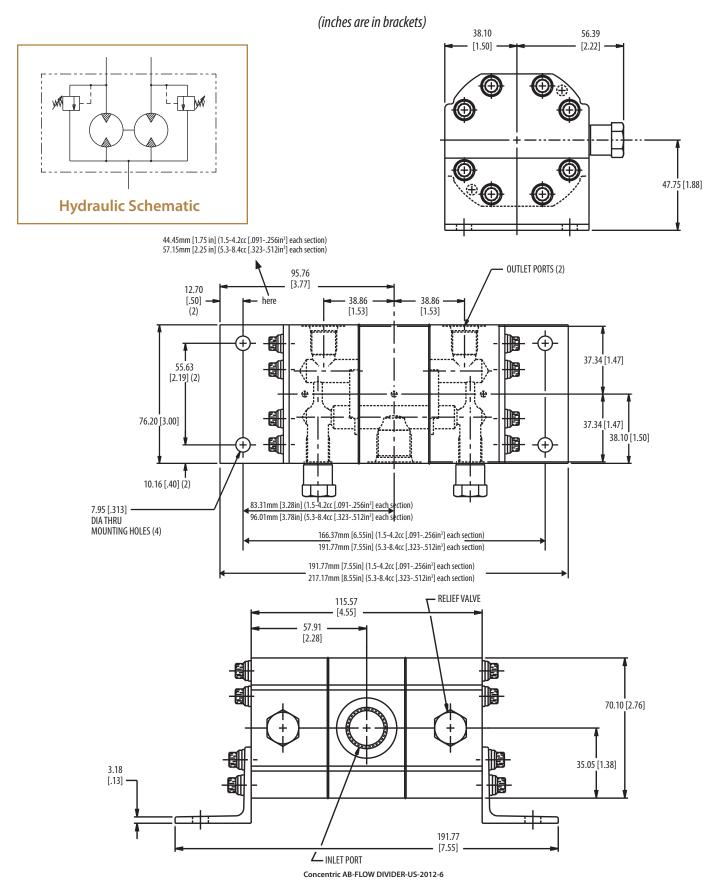
Assume a three section divider with an input flow of 20 GPM (75.7 L/M) and an outlet flow of 10 GPM (37.9 L/M), 7 GPM (26.5 L/M), and 3 GPM (11.4 L/M). With a straight edge on the RPM line, note the 10 GPM (37.9 L/M) line at 2800 RPM gives the proper flow with an order code 28 gear section, an order code 20 gear section and an order code 08 gear section.

The chart above also shows the allowable differential pressures. The differential relief valve setting is determined by the maximum pressure needed by the circuit minus the inlet pressure without exceeding the allowable differential pressure. Either the continuous or intermittent differential pressures are used, depending on the circuit requirement. The differential relief valve is adjustable through a range of 500 - 1000 PSI (34.5 - 69 BAR). Our standard setting for the differential relief valves is 750 PSI (51.7 BAR).

2 Section GC Series Flow Divider U.S. & European Style

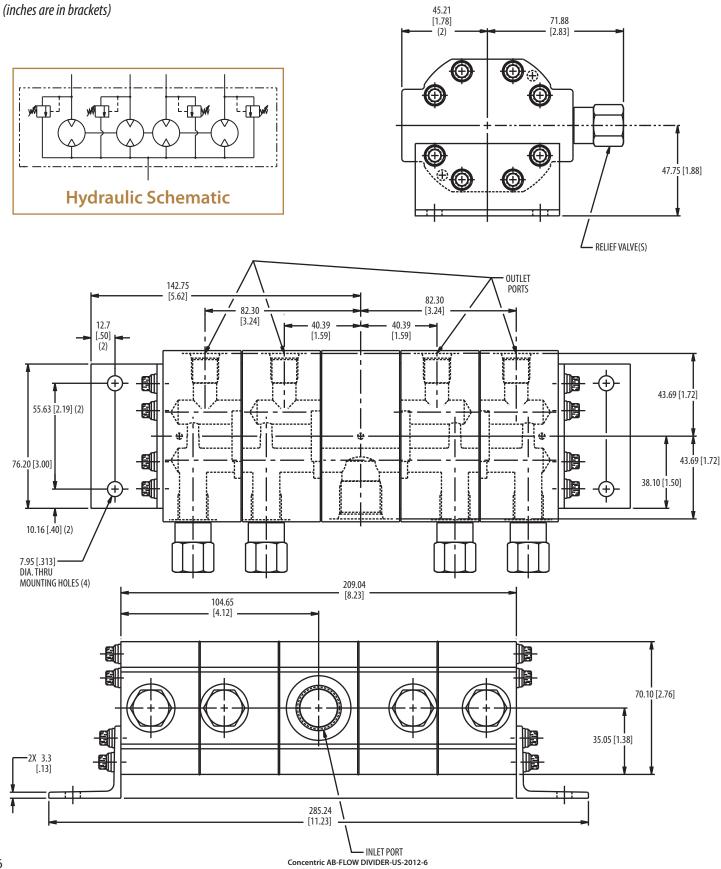
NOTE: The only difference between the U.S. version and European version is the porting configuration.

The U.S. version has SAE standard ports (refer to page 3) and the European version has 1/2-14 BSPP ports.



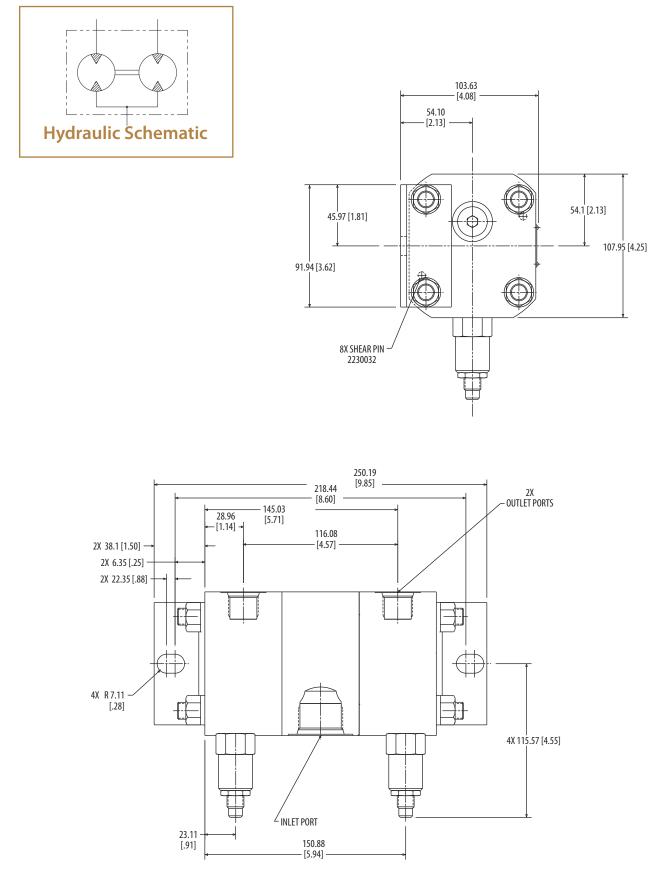
4 Section GC Series Flow Divider U.S. & European Style

NOTE: The only difference between the U.S. version and European version is the porting configuration. The U.S. version has SAE standard ports (refer to page 3) and the European version has 1/2-14 BSPP ports.



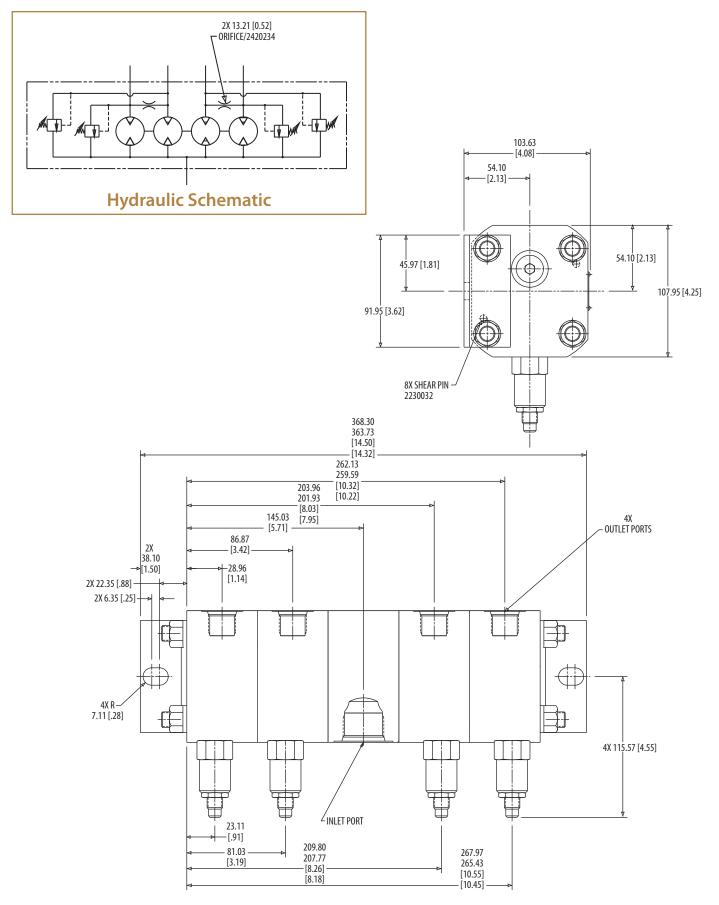
2 Section D Series Flow Divider

(inches in brackets)



4 Section D Series Flow Divider

(inches in brackets)



Stock Concentric Flow Dividers

	Ports (SAE)		Relief	Displacement	Model Code	Stock	
Sections	Inlet	Outlet	Valve	in. ³ Per Section	X-Ref	P/N	
2	3/4-16	3/4-16	Included	.129	FG1220021	1300634	
2	7/8-14	7/8-14	Included	.258	FG1440021	1300635	
2	7/8-14	7/8-14	Included	.388	FG1770021	1300636	
2	7/8-14	7/8-14	Included	.517	FG1990021	1300637	
4	3/4-16	3/4-16	Included	.129	FG322221	1303139	
4	7/8-14	9/16-18	Included	.258	FG3444421	1303140	
4	7/8-14	3/4-16	Included	.388	FG3777721	1303142	
4	7/8-14	7/8-14	Included	.517	FG3999921	1303143	

GC Series (U.S. Version) Flow Dividers

GC Series (European Version) Flow Dividers

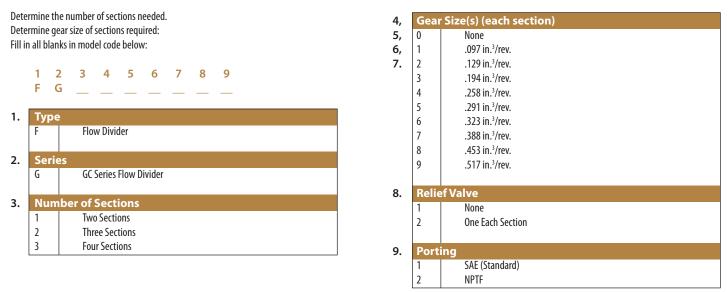
Ports	(BSPP)	Relief	Displacement	Model Code	Stock	
tions Inlet Outlet		Valve	cc Per Section	X-Ref	P/N	
1/2 1/	1/2 1/	Included	2 11	FC1220022	1303144	
					1303144	
					1303149	
					1303157	
1/2-14	1/2-14	Included	4.24	FG3444423	1303147	
	1/2-14 1/2-14 1/2-14 1/2-14 1/2-14	1/2-14 1/2-14 1/2-14 1/2-14 1/2-14 1/2-14 1/2-14 1/2-14 1/2-14 1/2-14	Inlet Outlet Valve 1/2-14 1/2-14 Included 1/2-14 1/2-14 Included 1/2-14 1/2-14 Included 1/2-14 1/2-14 Included 1/2-14 1/2-14 Included	Inlet Outlet Valve cc Per Section 1/2-14 1/2-14 Included 2.11 1/2-14 1/2-14 Included 3.18 1/2-14 1/2-14 Included 4.24 1/2-14 1/2-14 Included 2.11	Inlet Outlet Valve Cc Per Section X-Ref 1/2-14 1/2-14 Included 2.11 FG1220023 1/2-14 1/2-14 Included 3.18 FG1330023 1/2-14 1/2-14 Included 4.24 FG1440023 1/2-14 1/2-14 Included 2.11 FG322223	

D Series Flow Dividers

	Ports (SAE)		Relief	Displacement	Model Code	Stock
Sections	Inlet	Outlet	Valve	in. ³ Per Section	X-Ref	P/N
2	1 5/16-12	7/8-14	Included	.581 (9.5 cc)	FD2-0-V20S7.5-20S7.5-0-B10	1300315
2	1 5/16-12	3/4-16	Included	.348 (5.7 сс)	FD2-0-V12Q7.5-12Q7.5-0-B10	1300322
4	1 5/16-12	7/8-14	Included	.581 (9.5 cc)	FD2-V20S7.5-20S7.5 -20S7.5-20S7.5-B10	1300323
4	1 5/16-12	3/4-16	Included	.348 (5.7 cc)	FD2-V12Q7.5- 12Q7.5-12Q7.5-12Q7.5-B10	1300324
2	1 5/16-12	1 1/16-12	Included	.813 (13.3 cc)	FD2-0-V28T7.5-28T7.5-0-B10	1300352
4	1 5/16-12	1 1/16-12	Included	.813 (13.3 cc)	FD2-V28T7.5-28T7.5 -28T7.5-28T7.5-B10	1300353

How To Order Concentric GC Series Flow Dividers

Concentric stocks a selection of GC Series two section and four section flow dividers, which include a built-in adjustable differential relief valve in each section. See page 9 for a list of stock available. If the GC Series flow divider required is not a stock item at Concentric, it may be ordered by following the ordering code show below. Non-stock options require a 100-piece minimum.

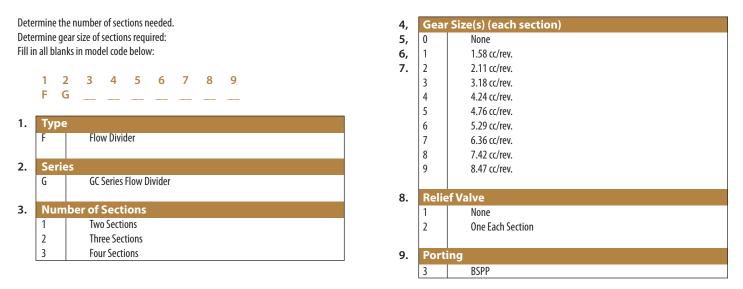


EXAMPLE: FG1440021

Two section flow divider, .258 in.³/rev. gear first section, .258 in.³/rev. gear second section, no 3rd or 4th section, relief valve in each section, SAE ports.

How To Order Concentric GC Series Flow Dividers (European Version)

Concentric stocks a selection of GC Series two section and four section flow dividers (European Version), which include a built-in adjustable differential relief valve in each section. See page 9 for a list of stock available. If the GC Series flow divider required is not a stock item at Concentric, it may be ordered by following the ordering code show below. Non-stock options require a 100-piece minimum.



EXAMPLE: FG1220023

Two section flow divider, 2.11 cc/rev. gear first section, 2.11 cc/rev. gear second section, no 3rd or 4th section, relief valve in each section, BSPP ports.

How To Order Concentric D Series Flow Dividers

Concentric stocks a selection of D Series two section and four section flow dividers, which include a built-in adjustable differential relief valve in each section. See page 9 for a list of stock available. If the D Series flow divider required is not a stock item at Concentric, it may be ordered by following the ordering code show below. Non-stock options require a 100-piece minimum.

EXAMPLE: FD2-V28T7.5-28T7.528T7.5-28T7.5-B10

D Series Flow Divider, two section flow divider, #16 SAE 1-5/16" - 12 inlet port, .813 in.³/rev. (13.3 cc/rev.) Position A Section Displacement, #12 SAE 1-1/16" - 12 Position A Section Outlet Port, 750 PSI (51.7 BAR) Position A Section Relief Valve, .813 in.³/rev. (13.3 cc/rev.) Position B Section Displacement, #12 SAE 1-1/16" - 12 Position B Section Outlet Port, 750 PSI (51.7 BAR) Position C Section Displacement, #12 SAE 1-1/16" - 12 Position C Section Outlet Port, 750 PSI (51.7 BAR) Position C Section Displacement, #12 SAE 1-1/16" - 12 Position C Section Outlet Port, 750 PSI (51.7 BAR) Position C Section Displacement, #12 SAE 1-1/16" - 12 Position D Section Outlet Port, 750 PSI (51.7 BAR) Position C Section Relief Valve, .813 in.³/rev. (13.3 cc/rev.) Position D Section Displacement, #12 SAE 1-1/16" - 12 Position D Section Displacement, #12 SAE 1-1/16" - 12 Position D Section D Section

	-	
1.		Option
	P1	Standard Black
	P2	Grey
2.	Mode	el Series
	FD	D Series Flow Divider
3.	Num	ber of Sections
5.	2	Two Sections
	3	Three Sections
	4	Four Sections
4.	Inlet	
	S	#10 SAE 7/8" - 14 (Displacement 08 only)
	T	#12 SAE 1-1/16" - 12
	V	#16 SAE 1-5/16" - 12 (Except Displacement 08)
5.	Posit	ion A Section Displacement Code
	08	.232 in. ³ /rev. (3.8 cc/rev.)
	12	.348 in. ³ /rev. (5.7 cc/rev.)
	16	.465 in. ³ /rev. (7.6 cc/rev.)
	20	.581 in. ³ /rev. (9.5 cc/rev.)
	24	.697 in. ³ /rev. (11.4 cc/rev.)
	28	.813 in. ³ /rev. (13.3 cc/rev.)
б.	Posit	ion A Section Outlet Port
	Н	9/16″ - 18 SAE
	Q	#8 SAE 3/4" - 16
	S	#10 SAE 7/8" - 14 (Displacement 08 only)
	S T	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12
	S	#10 SAE 7/8" - 14 (Displacement 08 only)
7.	S T V	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12
7.	S T V Posit Omit	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08)
7.	S T V Posit 0mit 15	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR)
7.	S T V Posit Omit	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve
	S T V Posit Omit 15 7.5	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR)
	S T V Posit Omit 15 7.5	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR)
	S T V Posit Omit 15 7.5 Posit	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code
	S T V Posit 0mit 15 7.5 Posit 08	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.)
	S T V Posit 0mit 15 7.5 Posit 08 12 16 20	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.6 cc/rev.) .581 in. ³ /rev. (9.5 cc/rev.)
	S T V Posit 15 7.5 Posit 08 12 16 20 24	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (9.5 cc/rev.) .697 in. ³ /rev. (11.4 cc/rev.)
	S T V Posit 0mit 15 7.5 Posit 08 12 16 20	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.6 cc/rev.) .581 in. ³ /rev. (9.5 cc/rev.)
7. 8. 9.	S T V Posit 15 7.5 Posit 08 12 16 20 24 28	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (9.5 cc/rev.) .697 in. ³ /rev. (11.4 cc/rev.)
8.	S T V Posit 15 7.5 Posit 08 12 16 20 24 28 Posit H	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (7.6 cc/rev.) .581 in. ³ /rev. (11.4 cc/rev.) .813 in. ³ /rev. (13.3 cc/rev.) ion B Section Outlet Port 9/16" - 18 SAE
	S T V Omit 15 7.5 Posit 08 12 16 20 24 28 Posit H Q	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (7.6 cc/rev.) .581 in. ³ /rev. (11.4 cc/rev.) .813 in. ³ /rev. (13.3 cc/rev.) ion B Section Outlet Port 9/16" - 18 SAE #8 SAE 3/4" - 16
8.	S T V Posit 15 7.5 Posit 08 12 16 20 24 28 Posit H Q S	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (9.5 cc/rev.) .697 in. ³ /rev. (11.4 cc/rev.) .813 in. ³ /rev. (13.3 cc/rev.) ion B Section Outlet Port 9/16" - 18 SAE #8 SAE 3/4" - 16 #10 SAE 7/8" - 14 (Displacement 08 only)
8.	S T V Omit 15 7.5 Posit 08 12 16 20 24 28 Posit H Q	#10 SAE 7/8" - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08) ion A Section Relief Valve No Valve 1500 PSI (103.5 BAR) 750 PSI (51.7 BAR) ion B Section Displacement Code .232 in. ³ /rev. (3.8 cc/rev.) .348 in. ³ /rev. (5.7 cc/rev.) .465 in. ³ /rev. (5.7 cc/rev.) .581 in. ³ /rev. (7.6 cc/rev.) .581 in. ³ /rev. (11.4 cc/rev.) .813 in. ³ /rev. (13.3 cc/rev.) ion B Section Outlet Port 9/16" - 18 SAE #8 SAE 3/4" - 16

10.	Posit	ion B Section Relief Valve
	Omit	No Valve
	15	1500 PSI (103.5 BAR)
	7.5	750 PSI (51.7 BAR)
11.	Posit	ion C Section Displacement Code
	08	.232 in. ³ /rev. (3.8 cc/rev.)
	12	.348 in. ³ /rev. (5.7 cc/rev.)
	16	.465 in. ³ /rev. (7.6 cc/rev.)
	20	.581 in. ³ /rev. (9.5 cc/rev.)
	24	.697 in. ³ /rev. (11.4 cc/rev.)
	28	.813 in. ³ /rev. (13.3 cc/rev.)
12.	Pocit	ion C Section Outlet Port
12.	H	9/16" - 18 SAE
	Q	#8 SAE 3/4" - 16
	S	#10 SAE 5/4 - 10 #10 SAE 7/8" - 14 (Displacement 08 only)
	T	#10 SAE 7/8 - 14 (Displacement 08 only) #12 SAE 1-1/16" - 12
	v	#12 SAE 1-1710 - 12 #16 SAE 1-5/16" - 12 (Except Displacement 08)
	v	# 10 SAE 1-3/10 - 12 (Except Displacement 08)
13.	Posit	ion C Section Relief Valve
	Omit	No Valve
	15	1500 PSI (103.5 BAR)
	7.5	750 PSI (51.7 BAR)
14.	Posit	ion D Section Displacement Code
14.	08	.232 in. ³ /rev. (3.8 cc/rev.)
	12	.348 in. ³ /rev. (5.7 cc/rev.)
	16	.465 in. ³ /rev. (7.6 cc/rev.)
	20	.581 in. ³ /rev. (9.5 cc/rev.)
	24	.697 in. ³ /rev. (11.4 cc/rev.)
	28	.813 in. ³ /rev. (13.3 cc/rev.)
15.	Posit	ion D Section Outlet Port
	H	9/16" - 18 SAE
	Q	#8 SAE 3/4" - 16
	S	#10 SAE 7/8" - 14 (Displacement 08 only)
	T	#12 SAE 1-1/16"-12
	V	#16 SAE 1-5/16" - 12 (Except Displacement 08)
16.	Posit	ion D Section Relief Valve
	Omit	No Valve
	15	1500 PSI (103.5 BAR)
	7.5	750 PSI (51.7 BAR)
17.	Brac	
	B	Standard Bracket
	Omit	No Bracket
18.	Desid	gn Series
10.	10	Standard
		e currend M



PRODUCT RANGE

HE Powerpacks 12/24/48 VDC 0.3 – 4.5 kW and 0.75 – 3 kW AC modular power packs

HE Box Powerpacks 12/24/48 VDC modular powerpacks in weatherproof boxes

Pressure Switches 5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps 0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps 0,8 – 5,7 cc 230 bar

W600 Hydraulic pumps / motors 3 – 12 cc 276 bar

W900 Hydraulic pumps / motors 5 – 31 cc/section 276 bar

Calma The new quiet pumps 6,2 - 23,7 cc/section 250 bar

WQ900 The quiet pumps 5 - 23 cc/section 230 bar

WP900X Hydraulic pumps 16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors 19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps 16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps 19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors 23 – 161 cc/section 276 bar

GPA Internal Gear pumps 1,7 – 63 cc/section 100 bar

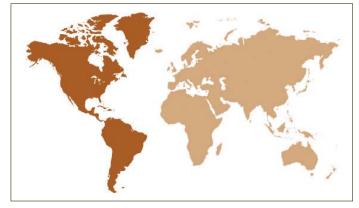
GC Hydraulic pumps / motors 1,06 – 11,65 cc/section 276 bar

D Hydraulic pumps 3,8 – 22,9 cc/section 207 bar

II-Stage Hydraulic pumps 4,2 – 22,8 cc/section 276 bar

Rotary Flow Dividers 3,8 – 13,3 cc/section 300 bar

Transmission pumps



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