

GEAR FLOW  
DIVIDERS

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## FEATURES

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Modern machinery with complex kinematics often calls for multiple movements that are separate and fully independent of each other. In flow equalization and flow division applications and for high pressure actuation, CASAPPA respond with their comprehensive MAGNUM 30 and MAGNUM 35 range of flow dividing gear motors to transmit fluid power using rational technical solutions and at low costs. When these rotary flow dividers are used for the correct applications they permit the optimization of hydraulic circuits and improve pump life, thereby reducing installation and operating costs. The MAGNUM series of rotary flow dividers comprise two or more independent gear sections internally connected by a common shaft so that the ratio of the output flow from each section is proportional and constant to its individual displacement capacity, excluding small losses in volumetric efficiency. Rotary flow dividers do not dissipate energy. If the outlet pressure from a given section should fall below the inlet pressure then the section will act as a motor and absorb energy from the fluid. This energy is not then wasted in the form of heat, instead it is transferred via the common shaft to the other sections which will continue to pump since their outlet pressure is higher than their inlet pressure. These components can be used as:

- Flow equalizers
- Flow dividers
- Pressure intensifiers

### DISPLACEMENTS

From 17,28 cm<sup>3</sup>/rev (1.05 in<sup>3</sup>/rev)

A 125,63 cm<sup>3</sup>/rev (7.66 in<sup>3</sup>/rev)

### PRESSURE

Max. continuous 310 bar (4500 psi)

Max. peak 335 bar (4800 psi)

- Modular design
- Accurate division of flow
- High flow
- Combination between different groups

## GENERAL DATA

Fluid	Mineral oil based hydraulic fluids to ISO/DIN and fire resistant fluids [see table (1)]. For other fluids please consult our technical sales department.
Fluid temperature range	See table (1)
Viscosity range	From 12 to 100 mm <sup>2</sup> /s (cSt) [60 to 456 SSU] recommended Up to 750 mm <sup>2</sup> /s (cSt) [3410 SSU] permitted
Filtering requirement	See table (2)

**Tab. 1**

Type	Fluid composition	Max pressure bar (psi)	Max speed min <sup>-1</sup>	Temperature °C (°F)			Seals (◆)
				Min	Max. continuous	Max. peak	
ISO/DIN	Mineral oil based hydraulic fluid to ISO/DIN	See page 5	See page 5	-25 (-13)	80 (176)	100 (212)	<b>N</b>
				-25 (-13)	110 (230)	125 (257)	<b>V</b>
HFA	Oil emulsion in water 5 ÷ 15% of oil	50 (725)	1500	2 (36)	55 (131)	-	<b>N</b>
HFB	Water emulsion in oil 40 % of water	120 (1740)	1500	2 (36)	60 (140)	-	<b>N</b>
HFC	Water - glycol	100 (1450)	1500	-20 (-4)	60 (140)	-	<b>N Bz</b>
HFD	Phosphate ester	150 (2175)	1500	-10 (14)	80 (176)	-	<b>V Bz</b>

(◆) **N** = Buna N (standard) - **V**= Viton - **N Bz**= Buna N and Bronze thrust plates - **V Bz**=Viton and Bronze thrust plates.

**Tab. 2**

Working pressure psi (bar)	$\Delta p < 2030$	$2030 < \Delta p < 3045$	$\Delta p > 3045$
	$\Delta p < (140)$	$(140) < \Delta p < (210)$	$\Delta p > (210)$
Contamination class NAS 1638	10	9	8
Contamination class ISO 4406:1999	21/19/16	20/18/15	19/17/14
Achieved with filter $\beta_{10(c)} \geq 200$ according to ISO 16889	-	10 $\mu\text{m}$	10 $\mu\text{m}$
Achieved with filter $\beta_{25(c)} \geq 200$ according to ISO 16889	25 $\mu\text{m}$	-	-

Casappa recommends to use its own production filters:



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## GENERAL DATA

Type	Displacement	Max. pressure		Max. speed	Min. speed
	cm <sup>3</sup> /rev (in <sup>3</sup> /rev)	$P_1$	$P_2$	min <sup>-1</sup>	
		bar (psi)			
<b>HDD 30•17</b>	17,28 (1.05)	310 (4500)	335 (4800)	3000	500
<b>HDD 30•22</b>	21,89 (1.34)	310 (4500)	335 (4800)	3000	500
<b>HDD 30•27</b>	26,58 (1.62)	310 (4500)	335 (4800)	3000	500
<b>HDD 30•34</b>	34,39 (2.10)	310 (4500)	335 (4800)	3000	500
<b>HDD 30•43</b>	43,77 (2.67)	310 (4500)	335 (4800)	3000	500
<b>HDD 30•51</b>	51,59 (3.15)	310 (4500)	335 (4800)	2500	500
<b>HDD 30•61</b>	60,97 (3.72)	310 (4500)	335 (4800)	2500	500
<b>HDD 30•73</b>	73,47 (4.48)	310 (4500)	335 (4800)	2000	500
<b>HDD 30•82</b>	81,29 (4.96)	310 (4500)	335 (4800)	2000	500
<b>HDD 35•50</b>	50,77 (3.10)	310 (4500)	335 (4800)	3000	500
<b>HDD 35•63</b>	63,46 (3.87)	310 (4500)	335 (4800)	3000	500
<b>HDD 35•71</b>	71,92 (4.39)	310 (4500)	335 (4800)	3000	500
<b>HDD 35•80</b>	80,39 (4.90)	310 (4500)	335 (4800)	3000	500
<b>HDD 35•90</b>	90,96 (5.55)	310 (4500)	335 (4800)	2700	500
<b>HDD 35•100</b>	99,43 (6.06)	310 (4500)	335 (4800)	2700	500
<b>HDD 35•112</b>	112,12 (6.84)	310 (4500)	335 (4800)	2700	500
<b>HDD 35•125</b>	124,81(7.61)	310 (4500)	335 (4800)	2500	500

$p_1$ = Max. continuous pressure

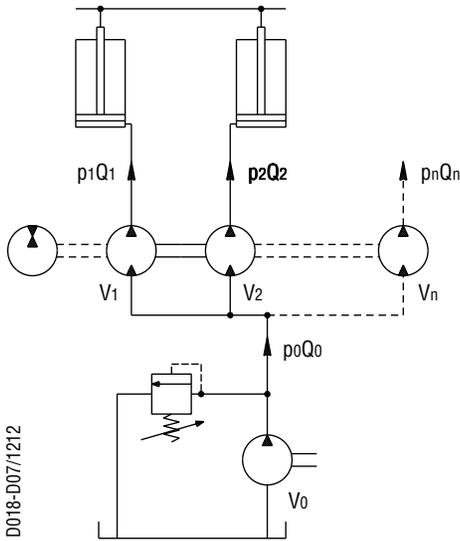
$p_2$ = Max. peak pressure

**Note:** Diagrams providing selection data will be found on subsequent pages.

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## FLOW EQUALIZERS

Flow dividing gear motors are suited for applications where the flow must be divided equally with maximum actuator synchronization difference of  $\pm 2\%$ . In order to obtain synchronous operation the displacements of the gear sections must be identical. When several single acting cylinders are operated together, acting on loads have not sufficient mass to win the circuit's resistance, we recommend the flow equalizer must be supplemented by a further gear section acting as a motor in order to guarantee the cylinders retract. The displacement of this motor section can be in the same group as the sections of the equalizer or of a different group, but it should be roughly equal to the sum of the displacements of the other sections. Two typical circuit diagrams of applications where flow equalizers are utilized will be found on page 19.



<b>V</b>	cm <sup>3</sup> /rev (in <sup>3</sup> /rev)	Displacement
<b>Q</b>	l/min (US gpm)	Delivery
<b>p</b>	bar (psi)	Pressure
<b>n</b>	min <sup>-1</sup>	Speed

$$V_1 = V_2 \dots = V_n$$

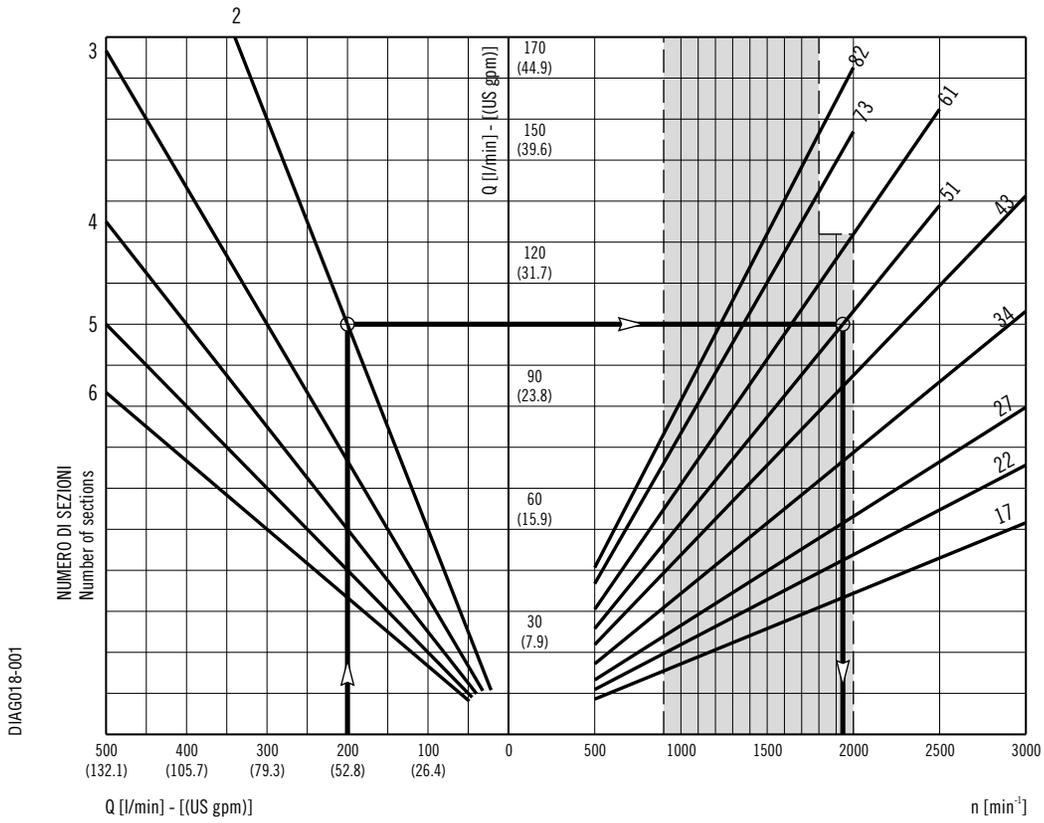
$$Q_0 = Q_1 + Q_2 \dots + Q_n$$

$$p_0 Q_0 = p_1 Q_1 + p_2 Q_2 \dots + p_n Q_n$$

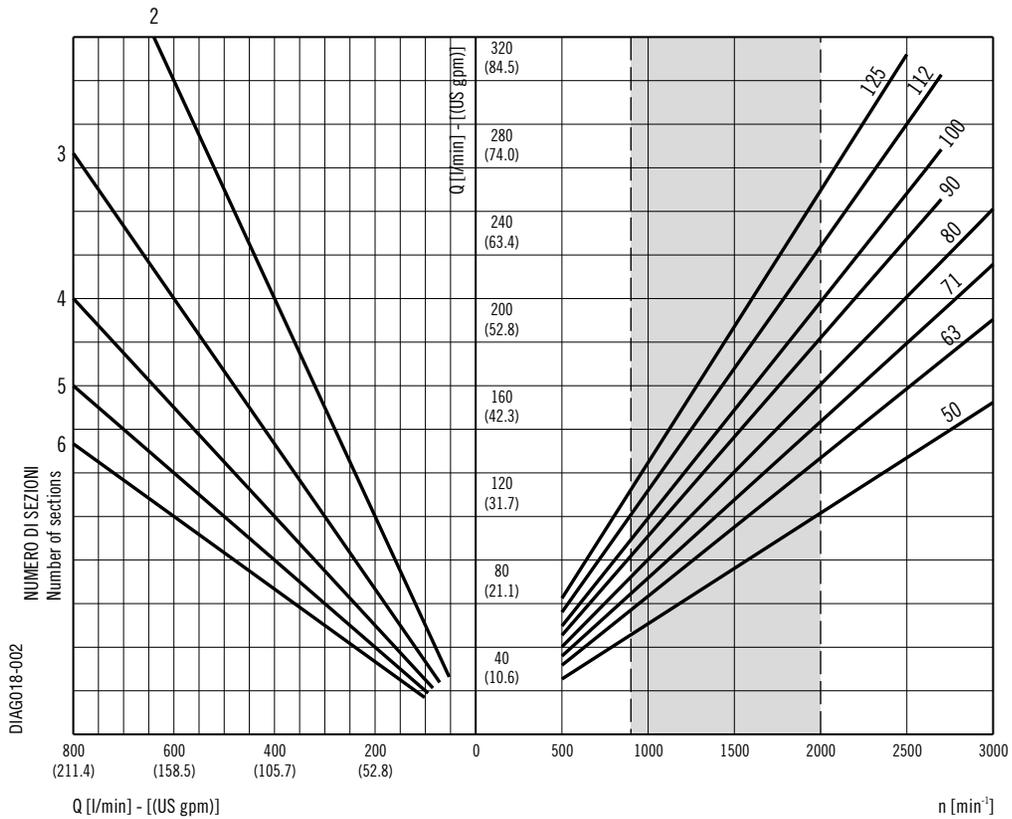
Let us assume that it is necessary to supply power to two services that require a flow rate of 100 l/min (26.42 US gpm) each. For simplicity's sake we will ignore pressure losses and the compression factor of the fluid. The pump must deliver a flow equal to:  $Q_0 = Q_1 + Q_2 = 200$  l/min (52.84 US gpm). To find the displacement of the two sections of the flow equalizer, assuming group HDD 30 is to be used, simply locate the flow rate 200 l/min (52.84 US gpm) on the X axis and then ascend vertically until the line corresponding to the number of sections (2) is encountered; now trace a horizontal line to the right until encountering the lines referring to displacement. Select the displacement with the point of intersection on the graph that lies nearest to the maximum speed for the optimum performance range.

# FLOW EQUALIZERS

**HDD 30**



**HDD 35**



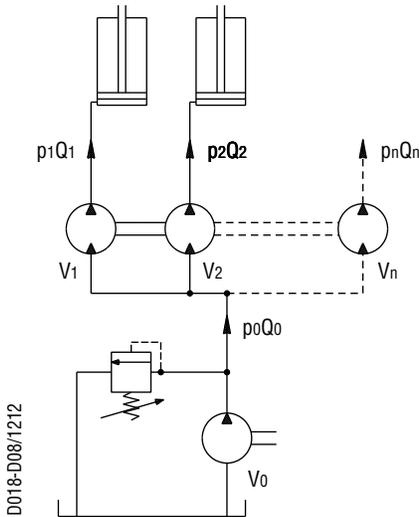
Range for optimum performance

Each curve has been obtained at 50°C (122 °F), using oil with viscosity 36 cSt (168 SSU) at 40°C (104 °F).

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## FLOW DIVIDERS

These flow dividers are used where the same pump must drive several different services requiring different pressures and flow rates. The displacement of each section must be proportional to the flow rate required by the service to which it is connected. Two typical circuits in which flow dividers are installed will be found on page 20.



<b>V</b>	cm <sup>3</sup> /rev (in <sup>3</sup> /rev)	Displacement
<b>Q</b>	l/min (US gpm)	Delivery
<b>p</b>	bar (psi)	Pressure
<b>n</b>	min <sup>-1</sup>	Speed

$$Q_0 = Q_1 + Q_2 \dots + Q_n$$

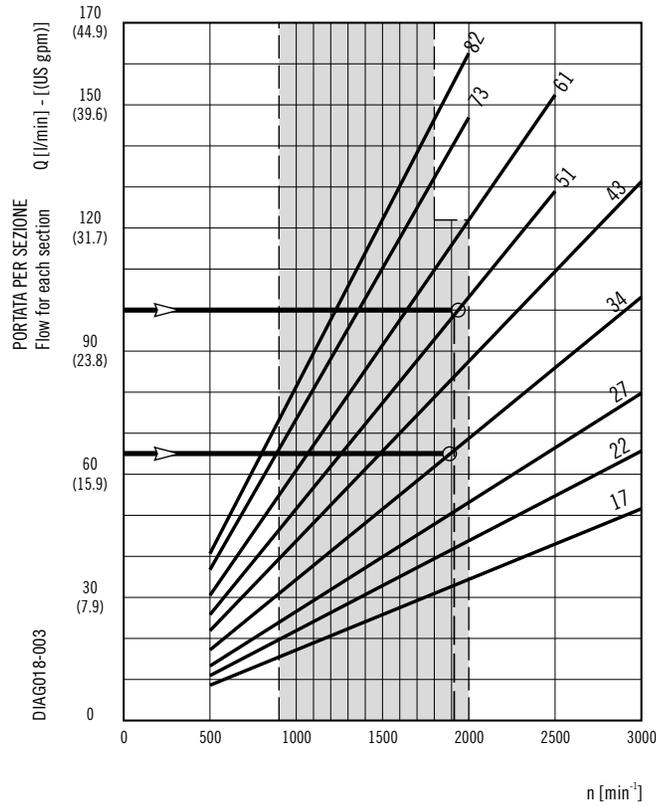
$$p_0 Q_0 = p_1 Q_1 + p_2 Q_2 \dots + p_n Q_n$$

$$V = \frac{1000 Q}{n}$$

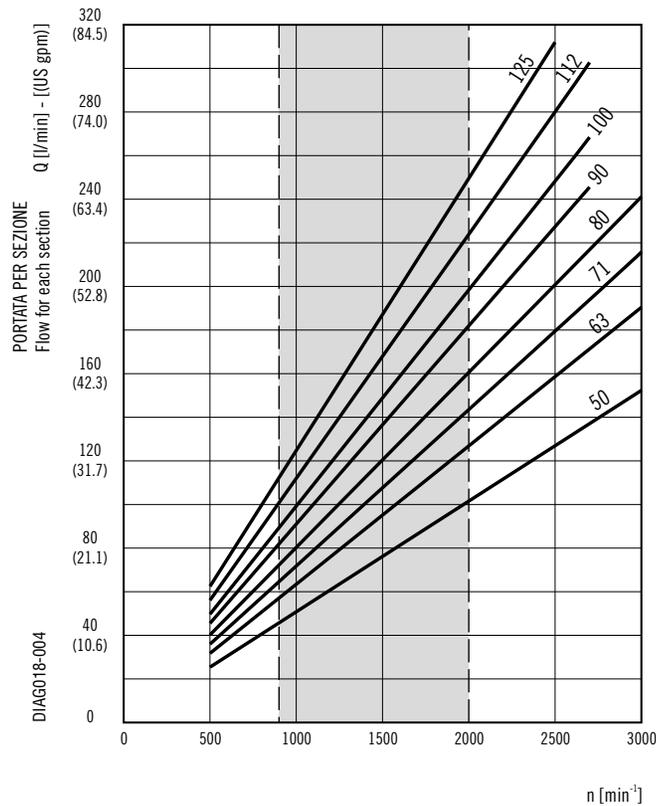
Assume two services must be driven absorbing 100 l/min (26.42 US gpm) and 65 l/min (17.17 US gpm) respectively. To find the displacement of the flow divider sections, assuming the HDD 30 group is opted for, simply locate the flow rates in question on the Y axis and then move across horizontally until the lines corresponding to the displacement are encountered. Select a displacement with points of intersection aligned as near as possible vertically, and the nearest to the maximum speed for the optimum performance range.

## FLOW DIVIDERS

**HDD 30**



**HDD 35**



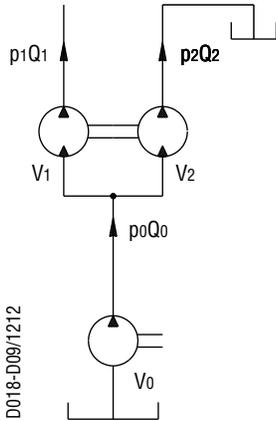
Range for optimum performance

Each curve has been obtained at 50°C (122 °F), using oil with viscosity 36 cSt (168 SSU) at 40°C (104 °F).

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## PRESSURE INTENSIFIERS

Pressure intensifiers are used for services requiring working pressures in excess of the operating pressure of the pump. Pressure is increased by using one of two sections as a motor connecting it to “tank” and the other as a pump connecting it to the service. For optimum intensification, the ratio R between the displacement of the “motor” and “pump” sections must fall within the range 0.5 ÷ 2. The graph on page 11 illustrates pressure intensification available with these units. Two typical circuit diagrams incorporating pressure intensifiers are shown on page 21.



<b>V</b>	cm <sup>3</sup> /rev (in <sup>3</sup> /rev)	Displacement
<b>Q</b>	l/min (US gpm)	Delivery
<b>p</b>	bar (psi)	Pressure
<b>n</b>	min <sup>-1</sup>	Speed

$$Q_0 = Q_1 + Q_2$$

$$p_0 Q_0 = p_1 Q_1 + p_2 Q_2$$

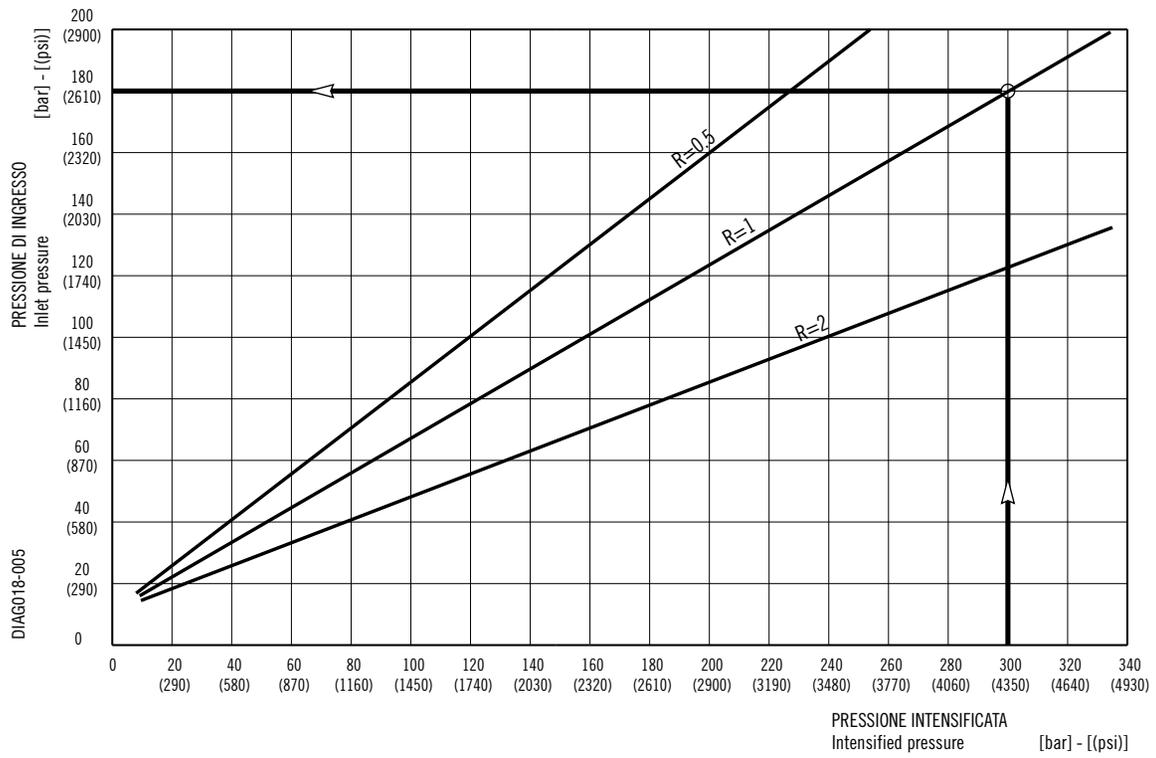
$$V = \frac{1000 Q}{n}$$

Let us imagine that we must drive a service at a pressure of 300 bar (4350 psi) with a flow of 100 l/min (26.42 US gpm). To find the working pressure of the main pump use graph on the facing page. First locate the pressure required by the service on the X axis and then move up vertically until the lines of ratio R. Select the displacement ratio between the two intensifier sections R=1 and move horizontally to the left to read off the pressure value on the Y axis  $p_0 = 180$  bar (2610 psi). Remember that  $R = V_2 / V_1 = 1$

$$Q_1 = Q_2 = 100 \text{ l/min (26.42 US gpm)}$$

Select section displacements by consulting the graphs on pages 7 to 9.

**PRESSURE INTENSIFIERS**



Each curve has been obtained at 50°C (122 °F), using oil with viscosity 36 cSt (168 SSU) at 40°C (104 °F).

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## NOTES ABOUT COMPOSITION

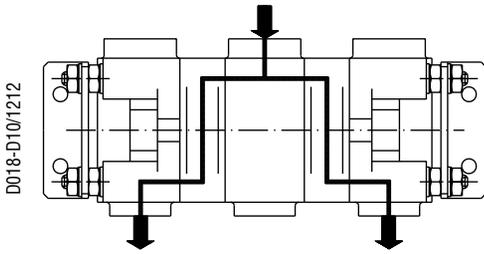
Flow divider sections are arranged in descending displacements or groups with the largest displacement to the left as viewed from the delivery ports side. Where flow dividers are made up of different groups, an intermediate inlet section must be disposed between them. Standard formats of flow dividers are given beneath and on the following pages; for different configurations please consult our Technical Sales staff.

### INTERMEDIATE INLET SECTIONS

Group	HDD 30	HDD 35
HDD 30	<b>C 30 • 30</b>	—
HDD 35	<b>C 35 • 30</b>	<b>C 35 • 35</b>

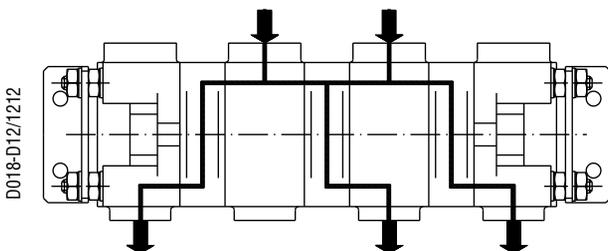
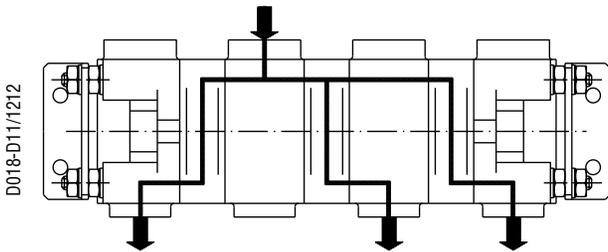
## STANDARD COMPOSITION

### 2 SECTIONS



Type	Max. delivery for inlet section
	l/min (US gpm)
<b>C 30 • 30</b>	350 (92.5)
<b>C 35 • 30</b>	550 (145.3)
<b>C 35 • 35</b>	550 (145.3)

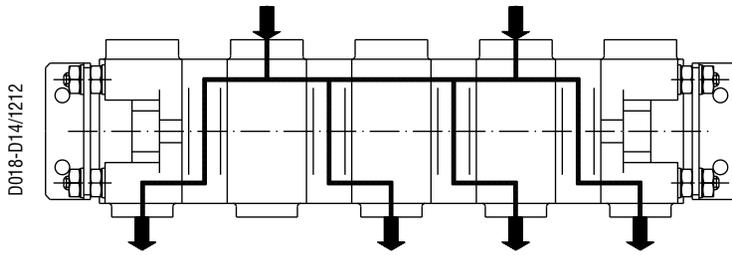
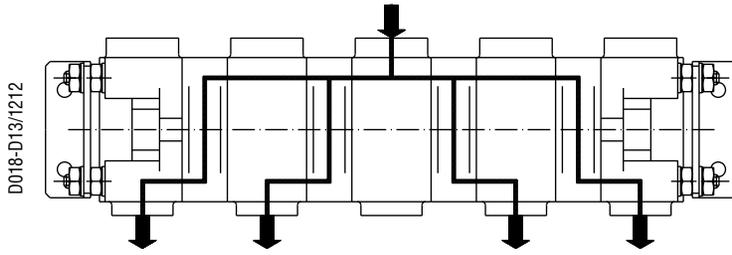
### 3 SECTIONS



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**STANDARD COMPOSITION**

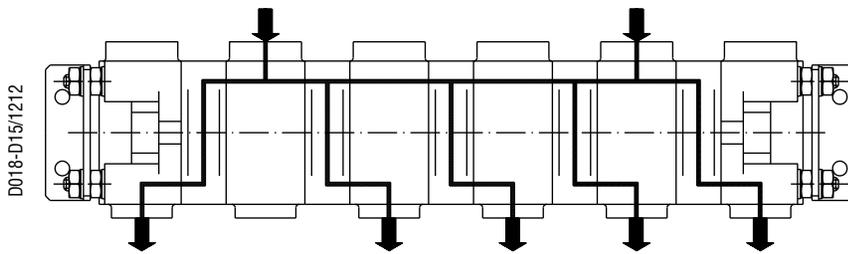
**4 SECTIONS**



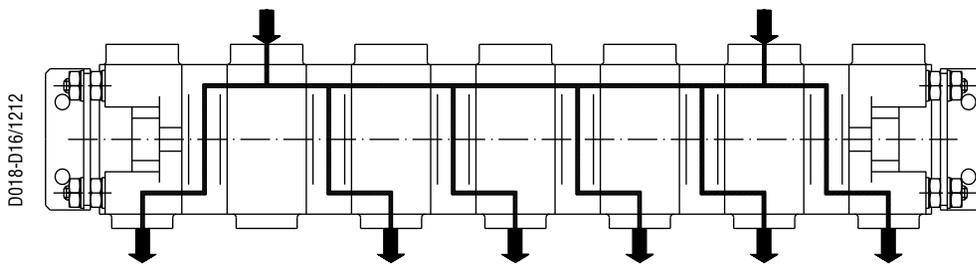
Type Max. delivery for inlet section

Type	Max. delivery for inlet section l/min (US gpm)
<b>C 30 • 30</b>	350 (92.5)
<b>C 35 • 30</b>	550 (145.3)
<b>C 35 • 35</b>	550 (145.3)

**5 SECTIONS**

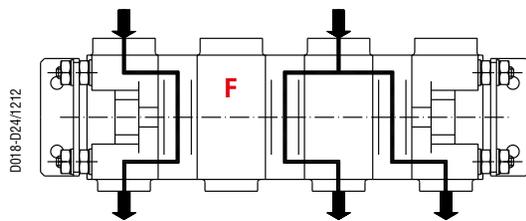


**6 SECTIONS**



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**STANDARD COMPOSITION FOR FLOW EQUALIZERS WITH MOTOR SECTION**

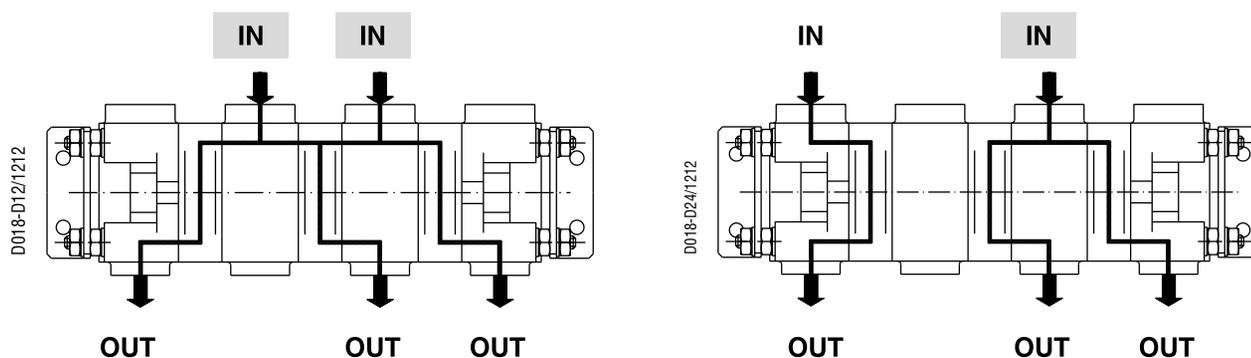


MAX. 6 SECTIONS

**INTERMEDIATE FLANGE**

Group	HDD 30	HDD 35
<b>HDD 30</b>	<b>F 30 • 30</b>	—
<b>HDD 35</b>	<b>F 35 • 30</b>	<b>F 35 • 35</b>

## PORTS - POSITION AND TYPE



Flow equalizer with motor section.

Standard version

PORTS Type	SSS			SSM			BSPP			ODT		
	IN	IN	OUT	IN	IN	OUT	IN	IN	OUT	IN	IN	OUT
<b>HDD 30•17</b>	SD	SB	SB	MD	MB	MB	GF	GE	GD	OF	OD	OB
<b>HDD 30•22</b>	SD	SB	SB	MD	MB	MB	GF	GE	GD	OF	OD	OB
<b>HDD 30•27</b>	SD	SC	SB	MD	MC	MB	GF	GF	GE	OF	OF	OD
<b>HDD 30•34</b>	SD	SC	SB	MD	MC	MB	GF	GF	GE	OF	OF	OD
<b>HDD 30•43</b>	SD	SD	SC	MD	MD	MC	GF	GG	GF	OF	OG	OF
<b>HDD 30•51</b>	SD	SD	SC	MD	MD	MC	GF	GG	GF	OF	OG	OF
<b>HDD 30•61</b>	SD	SE	SD	MD	ME	MD	GF	GG	GF	OF	OG	OF
<b>HDD 30•73</b>	SD	SE	SD	MD	ME	MD	GF	GG	GF	OF	OG	OF
<b>HDD 30•82</b>	SD	SE	SD	MD	ME	MD	GF	GG	GF	OF	OG	OF
<b>HDD 35•50</b>	SE	SE	SD	ME	ME	MD	GH	GH	GG	OH	OG	OF
<b>HDD 35•63</b>	SE	SE	SD	ME	ME	MD	GH	GH	GG	OH	OG	OF
<b>HDD 35•71</b>	SE	SE	SD	ME	ME	MD	GH	GH	GG	OH	OG	OF
<b>HDD 35•80</b>	SE	SE	SD	ME	ME	MD	GH	GH	GG	OH	OG	OF
<b>HDD 35•90</b>	SE	SF	SE	ME	MF	ME	GH	GL	GH	OH	OH	OG
<b>HDD 35•100</b>	SE	SF	SE	ME	MF	ME	GH	GL	GH	OH	OH	OG
<b>HDD 35•112</b>	SE	SF	SE	ME	MF	ME	GH	GL	GH	OH	OH	OG
<b>HDD 35•125</b>	SE	SF	SE	ME	MF	ME	GH	GL	GH	OH	OH	OG

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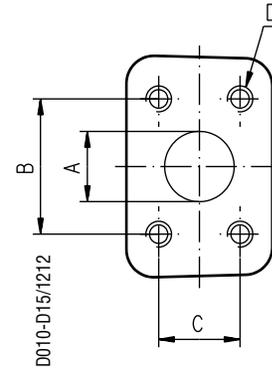
## PORT SIZES

 Port tightening torque [values obtained at 350 bar (5075 psi)]

### SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI **SSS**

American straight thread UNC-UNF 60° conforms to ANSI B 1.1

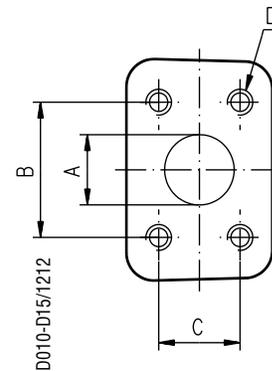
CODE	A mm (in)	B mm (in)	C mm (in)	D Thread Depth mm (in)	 Nm (lbf in)
<b>SB</b>	19 (0.75)	47,6 (1.87)	22,2 (0.87)	3/8 - 16 UNC-2B 22 (0.87)	30 <sup>+2,5</sup> (266 ÷ 288)
<b>SC</b>	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	3/8 - 16 UNC-2B 22 (0.87)	30 <sup>+2,5</sup> (266 ÷ 288)
<b>SD</b>	30,5 (1.20)	58,7 (2.31)	30,2 (1.19)	7/16 - 14 UNC-2B 28,5 (1.12)	55 <sup>+5</sup> (487 ÷ 531)
<b>SE</b>	39,3 (1.55)	69,8 (2.75)	35,7 (1.40)	1/2 - 13 UNC-2B 27 (1.06)	70 <sup>+5</sup> (620 ÷ 664)
<b>SF</b>	51 (2.00)	77,8 (3.06)	42,9 (1.69)	1/2 - 13 UNC-2B 27 (1.06)	90 <sup>+5</sup> (797 ÷ 841)



### SAE FLANGED PORTS J518 - Standard pressure series 3000 PSI **SSM**

Metric thread ISO 60° conforms to ISO/R 262

CODE	A mm (in)	B mm (in)	C mm (in)	D Thread Depth mm (in)	 Nm (lbf in)
<b>MB</b>	19 (0.75)	47,6 (1.87)	22,2 (0.87)	M 10 22 (0.87)	35 <sup>+2,5</sup> (310 ÷ 332)
<b>MC</b>	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	M 10 22 (0.87)	35 <sup>+2,5</sup> (310 ÷ 332)
<b>MD</b>	30,5 (1.20)	58,7 (2.31)	30,2 (1.19)	M 10 22 (0.87)	35 <sup>+2,5</sup> (310 ÷ 332)
<b>ME</b>	39,3 (1.55)	69,8 (2.75)	35,7 (1.41)	M 12 27 (1.06)	65 <sup>+5</sup> (575 ÷ 620)
<b>MF</b>	51 (2.00)	77,8 (3.06)	42,9 (1.69)	M 12 27 (1.06)	90 <sup>+5</sup> (797 ÷ 841)



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## PORT SIZES

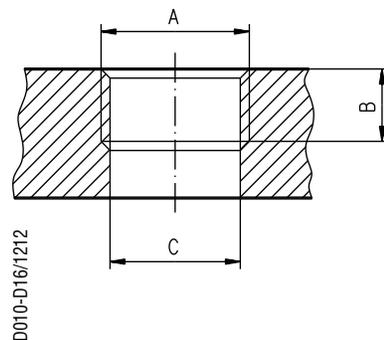
 Port tightening torque [values obtained at 350 bar (5075 psi)]

### GAS STRAIGHT THREAD PORTS

**BSPP**

British standard pipe parallel (55°) conforms to UNI - ISO 228

CODE	Nominal size	A	B	C	 Nm (lbf in)
			mm (in)	mm (in)	
<b>GD</b>	1/2"	G 1/2	18 (0.71)	19 (0.75)	50 <sup>+2,5</sup> (443 ÷ 465)
<b>GE</b>	3/4"	G 3/4	20 (0.79)	24,5 (0.96)	90 <sup>+5</sup> (797 ÷ 841)
<b>GF</b>	1"	G 1	22 (0.87)	30,5 (1.20)	130 <sup>+10</sup> (1151 ÷ 1239)
<b>GG</b>	1" 1/4	G 1 1/4	24 (0.94)	39,3 (1.55)	170 <sup>+15</sup> (1505 ÷ 1637)
<b>GH</b>	1" 1/2	G 1 1/2	26 (1.02)	45 (1.77)	210 <sup>+15</sup> (1859 ÷ 1991)
<b>GL</b>	2"	G 2	32 (1.26)	56 (2.20)	400 <sup>+20</sup> (3540 ÷ 3717)

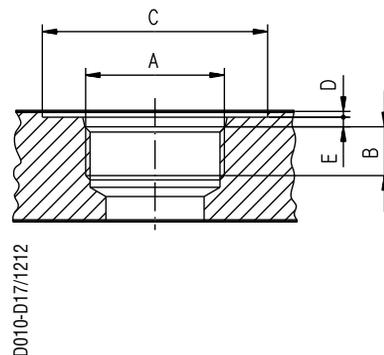


### SAE STRAIGHT THREAD PORTS J514

**ODT**

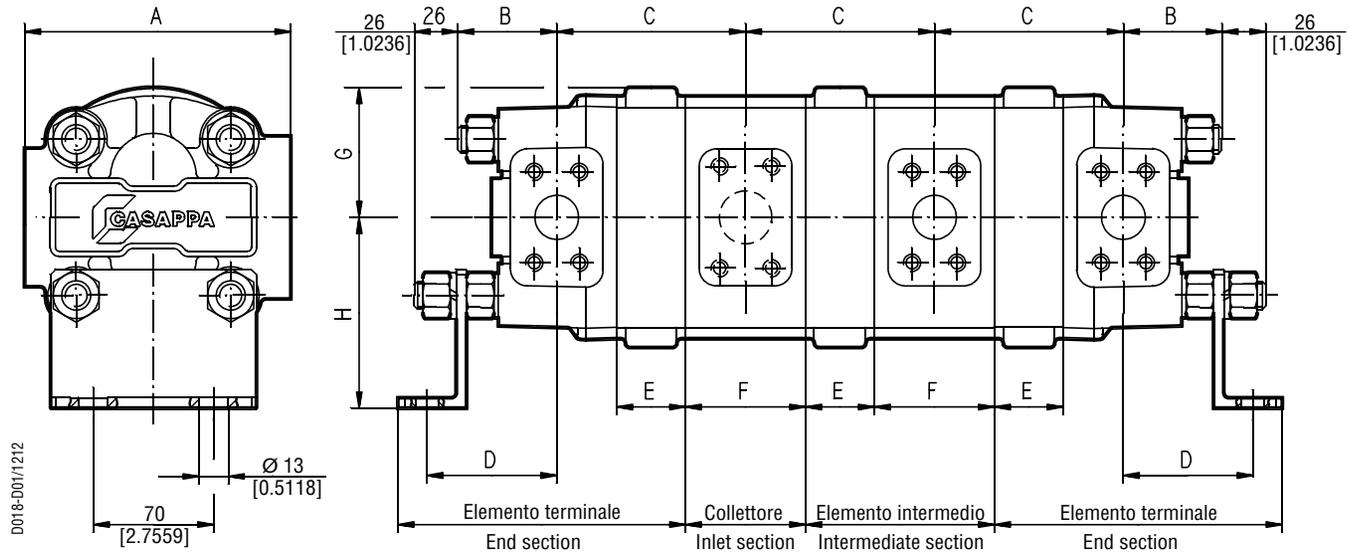
American straight thread UNC-UNF 60° conforms to ANSI B 1.1

CODE	Nominal size	A	B	C	D	E	 Nm (lbf in)
			mm (in)	mm (in)	mm (in)	mm (in)	
<b>OB</b>	1/2"	3/4 - 16 UNF - 2B	15 (0.59)	32 (1.26)	0,5 (0.02)	2,5 (0.10)	45 <sup>+2,5</sup> (398 ÷ 420)
<b>OD</b>	3/4"	1 1/16" - 12 UNF - 2B	20 (0.79)	42 (1.65)	0,5 (0.02)	3,3 (0.13)	120 <sup>+10</sup> (1062 ÷ 1151)
<b>OF</b>	1"	1 5/16" - 12 UNF - 2B	20 (0.79)	50 (1.97)	0,5 (0.02)	3,3 (0.13)	170 <sup>+10</sup> (1505 ÷ 1593)
<b>OG</b>	1" 1/4	1 5/8" - 12 UNF - 2B	20 (0.79)	60 (2.36)	0,5 (0.02)	3,3 (0.13)	200 <sup>+10</sup> (1770 ÷ 1859)
<b>OH</b>	1" 1/2	1 7/8" - 12 UNF - 2B	20 (0.79)	70 (2.76)	0,5 (0.02)	3,3 (0.13)	270 <sup>+15</sup> (2390 ÷ 2523)



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**FLOW DIVIDERS DIMENSIONS - SAME GROUP**



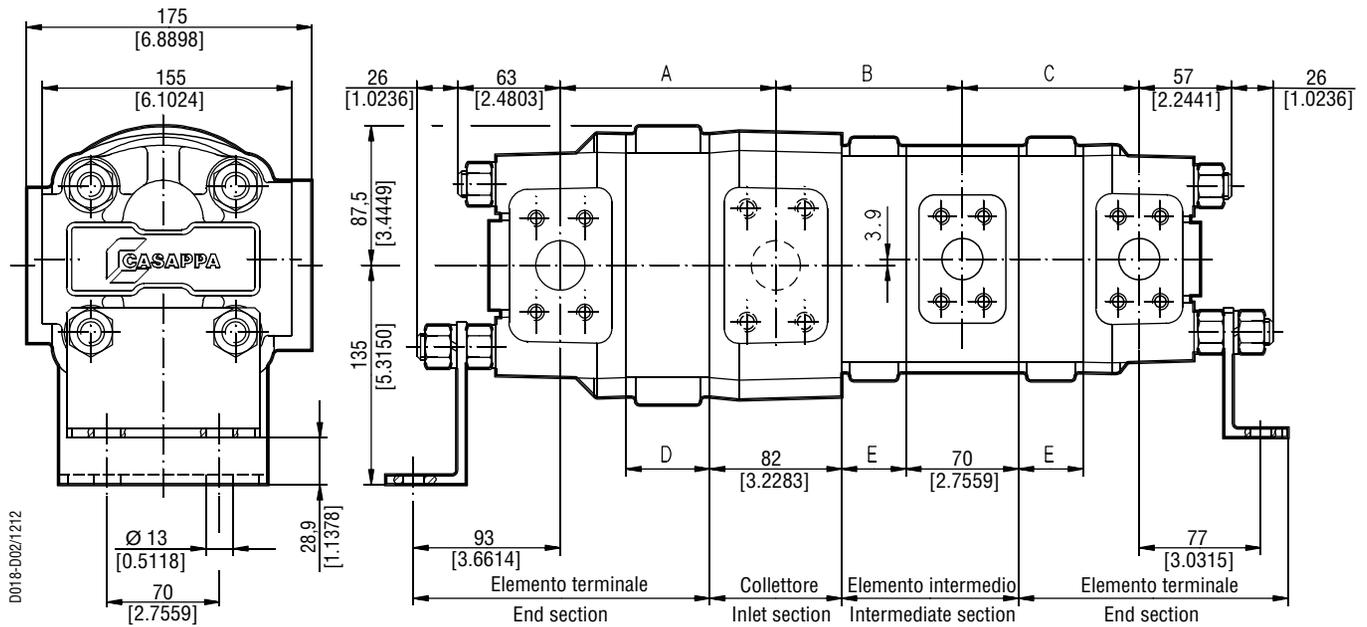
Flow divider type	A	B	C	D	E	F	G	H
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
<b>HDD 30 + HDD 30</b>	155 (6.10)	57 (2.24)	70 + E (2.76 + E)	77 (3.03)	See below	70 (2.76)	75 (2.95)	110 (4.33)
<b>HDD 35 + HDD 35</b>	175 (6.89)	63 (2.48)	82 + E (3.23 + E)	93 (3.66)	See below	82 (3.23)	87,5 (3.44)	135 (5.32)

Flow divider type	E
	mm (in)
<b>HDD 30•17</b>	23 (0.91)
<b>HDD 30•22</b>	26 (1.02)
<b>HDD 30•27</b>	29 (1.14)
<b>HDD 30•34</b>	34 (1.34)
<b>HDD 30•43</b>	40 (1.57)
<b>HDD 30•51</b>	45 (1.77)
<b>HDD 30•61</b>	51 (2.01)
<b>HDD 30•73</b>	59 (2.32)
<b>HDD 30•82</b>	64 (2.52)

Flow divider type	E
	mm (in)
<b>HDD 35•50</b>	38 (1.50)
<b>HDD 35•63</b>	44 (1.73)
<b>HDD 35•71</b>	48 (1.89)
<b>HDD 35•80</b>	52 (2.05)
<b>HDD 35•90</b>	57 (2.24)
<b>HDD 35•100</b>	61 (2.40)
<b>HDD 35•112</b>	67 (2.64)
<b>HDD 35•125</b>	73 (2.87)

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## FLOW DIVIDERS DIMENSIONS - DIFFERENT GROUP

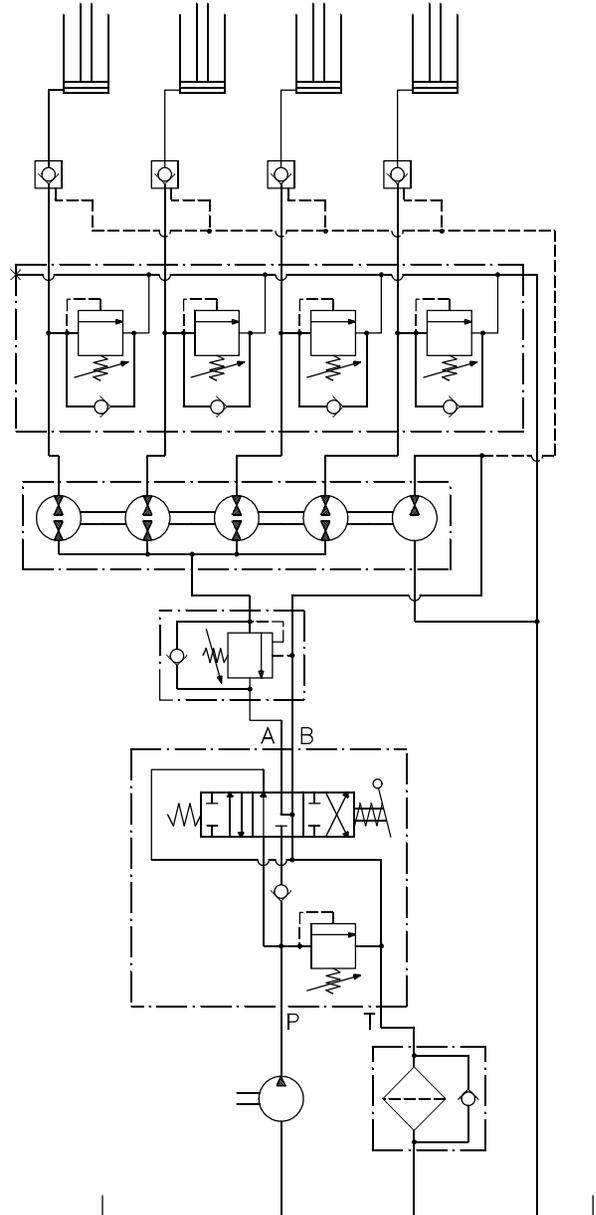
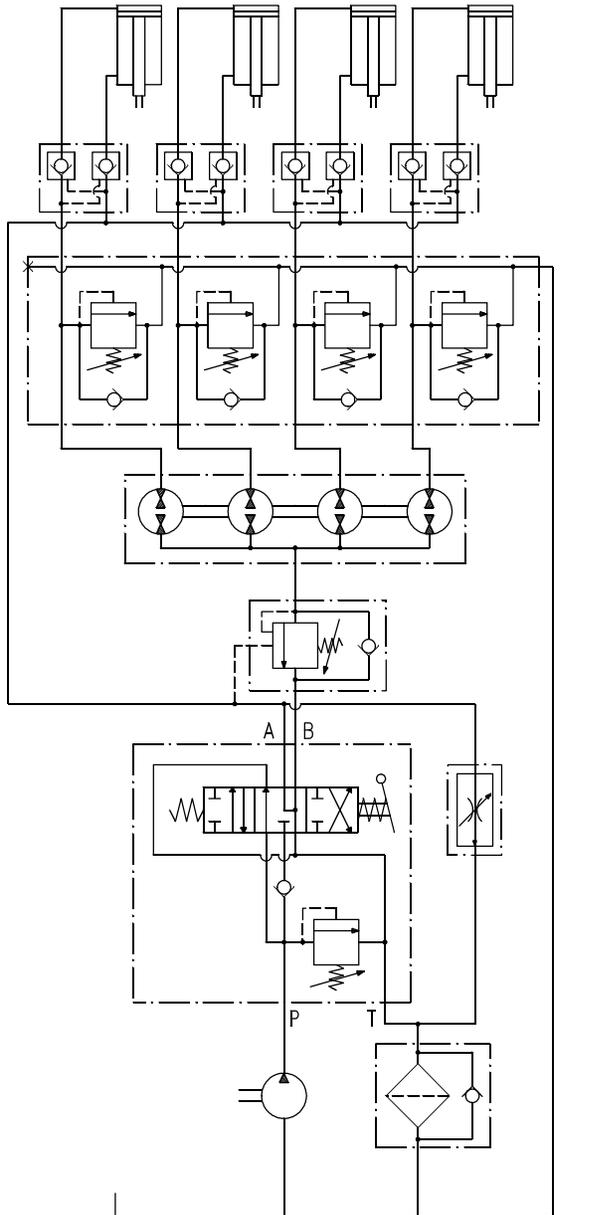


Flow divider type	<b>A</b>	<b>B</b>	<b>C</b>
	mm (in)	mm (in)	mm (in)
<b>HDD 35 + HDD 30</b>	82 + D (3.23 + D)	76 + E (2.99 + E)	70 + E (2.76 + E)

Flow divider type	<b>E</b>	Flow divider type	<b>E</b>
	mm (in)		mm (in)
<b>HDD 35•50</b>	23 (0.91)	<b>HDD 30•17</b>	23 (0.91)
<b>HDD 30•22</b>	26 (1.02)	<b>HDD 30•22</b>	26 (1.02)
<b>HDD 30•27</b>	29 (1.14)	<b>HDD 30•27</b>	29 (1.14)
<b>HDD 30•34</b>	34 (1.34)	<b>HDD 30•34</b>	34 (1.34)
<b>HDD 30•43</b>	40 (1.57)	<b>HDD 30•43</b>	40 (1.57)
<b>HDD 30•51</b>	45 (1.77)	<b>HDD 30•51</b>	45 (1.77)
<b>HDD 30•61</b>	51 (2.01)	<b>HDD 30•61</b>	51 (2.01)
<b>HDD 30•73</b>	59 (2.32)	<b>HDD 30•73</b>	59 (2.32)
<b>HDD 30•82</b>	64 (2.52)	<b>HDD 30•82</b>	64 (2.52)

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## TYPICAL CIRCUITS FOR FLOW EQUALIZERS



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Diagram with a flow divider permitting the use of a single pump to drive a number of different services requiring flows at different pressures.

Diagram with a flow divider permitting the use of a single pump to drive a number of different services requiring flows at different pressures.

**TYPICAL CIRCUITS FOR FLOW DIVIDERS**

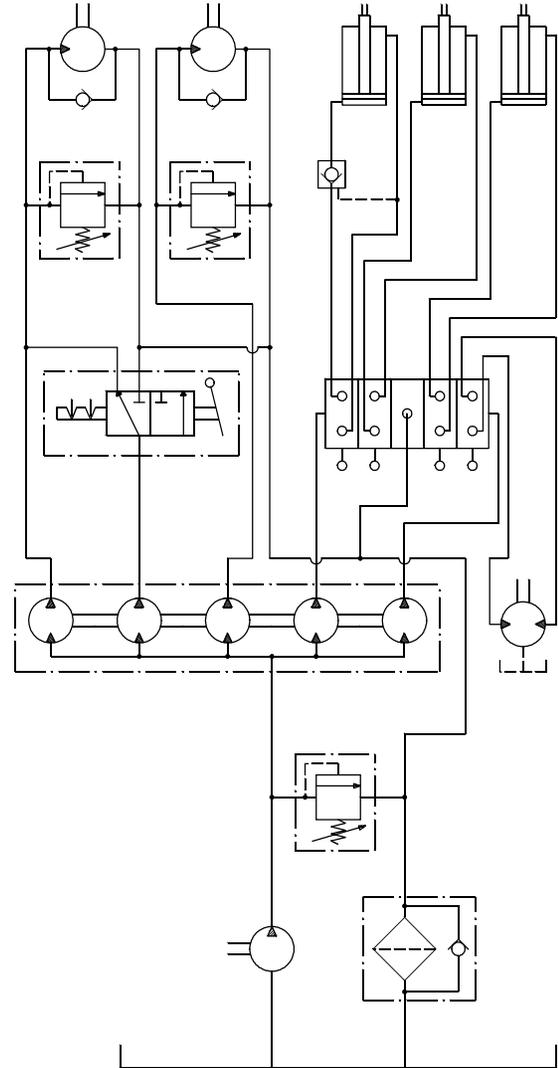
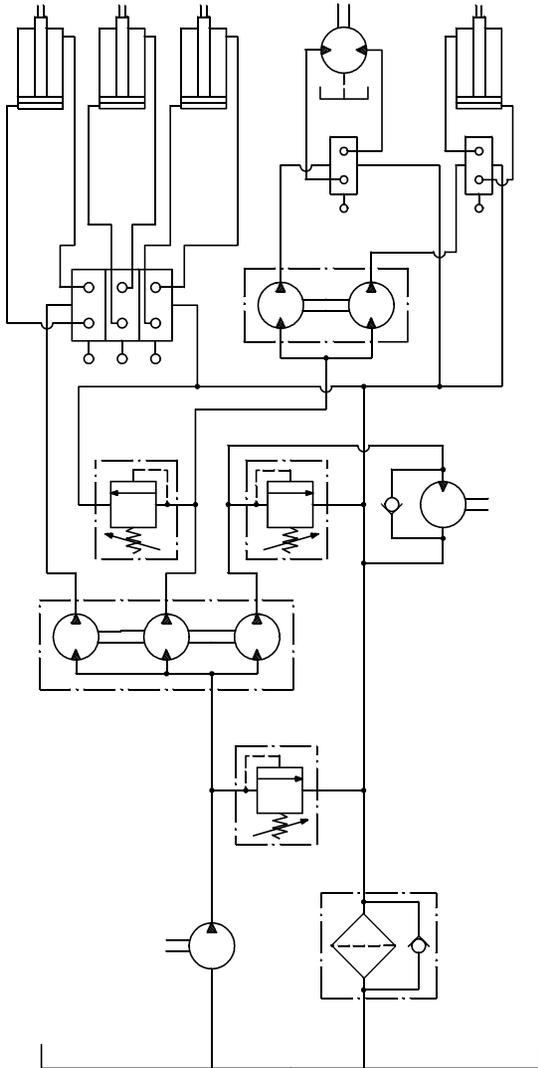
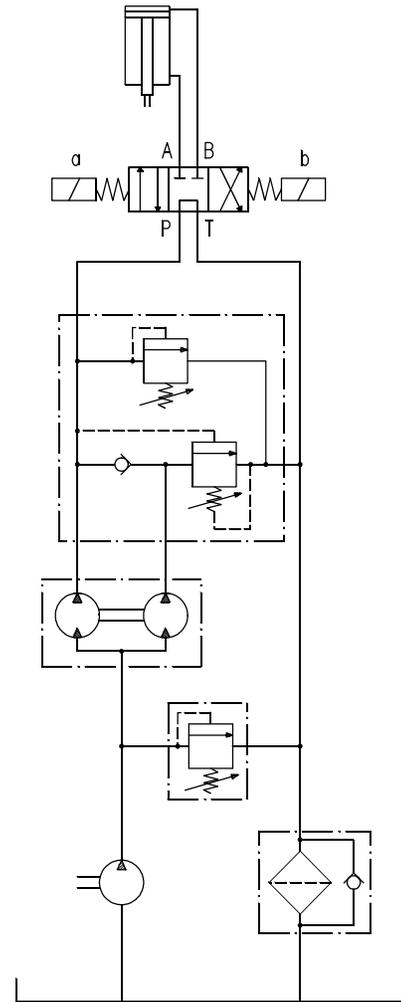
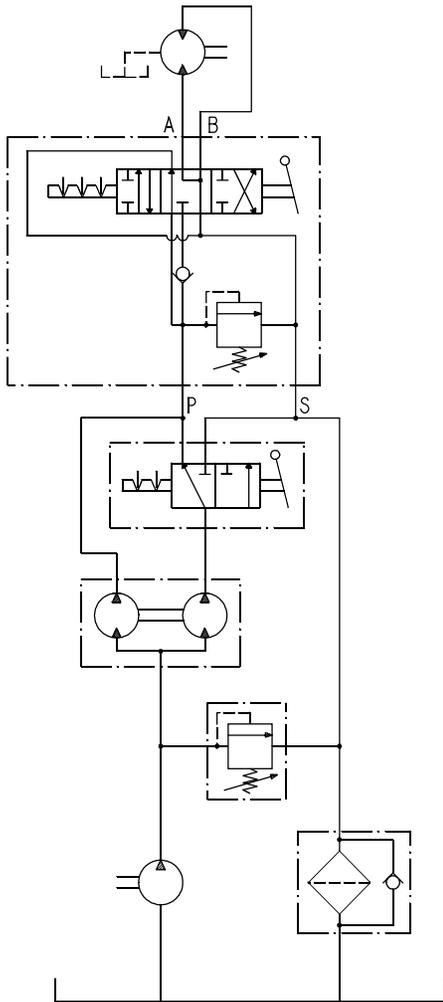


Diagram with a flow divider permitting the use of a single pump to drive a number of different services requiring flows at different pressures.

Diagram with a flow divider permitting the use of a single pump to drive a number of different services requiring flows at different pressures.

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**TYPICAL CIRCUITS FOR PRESSURE INTENSIFIERS**

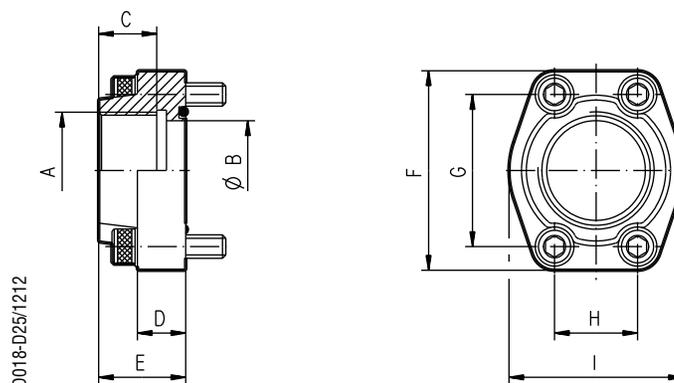


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Diagram with pressure intensifier so that a service requiring a pressure higher than the pressure available at the main delivery pump can be driven.

Diagram with pressure intensifier so that a service requiring a pressure higher than the pressure available at the main delivery pump can be driven.

## SAE STRAIGHT BSPP THREAD PORT CONNECTORS



Type	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-MA/FG12-N</b>	G 1/2	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MA/FG38-N</b>	G 3/8	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MB/FG34-N</b>	G 3/4	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MB/FG12-N</b>	G 1/2	13 (0.51)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MC/FG100-N</b>	G 1	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (1.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MC/FG34-N</b>	G 3/4	19 (0.75)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (1.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MD/FG114-N</b>	G 1 1/4	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 593-12.9	4150
<b>RD2-MD/FG100-N</b>	G 1	25 (0.98)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 593-12.9	4150
<b>RD2-ME/FG112-N</b>	G 1 1/2	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 593-12.9	4187
<b>RD2-ME/FG114-N</b>	G 1 1/4	32 (1.26)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 593-12.9	4187
<b>RD2-MF/FG200-N</b>	G 2	51 (2.01)	30 (1.18)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 593-12.9	4225
<b>RD2-MF/FG112-N</b>	G 1 1/2	38 (1.50)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 593-12.9	4225

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## SAE STRAIGHT BSPP THREAD PORT CONNECTORS

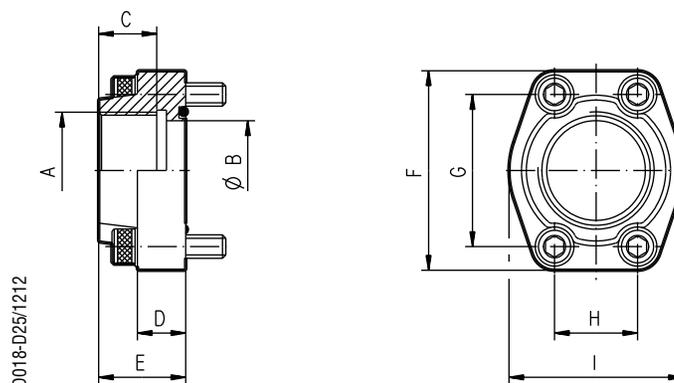
Type	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-SA/FG12-N</b>	G 1/2	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SA/FG38-N</b>	G 3/8	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SB/FG34-N</b>	G 3/4	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	3/8 -16 UNC-2B	4100
<b>RD2-SB/FG12-N</b>	G 1/2	13 (0.51)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	3/8 -16 UNC-2B	4100
<b>RD2-SC/FG100-N</b>	G 1	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SC/FG34-N</b>	G 3/4	19 (0.75)	19 (0.7)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SD/FG114-N</b>	G 1 1/4	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SD/FG100-N</b>	G 1	25 (0.98)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SE/FG112-N</b>	G 1 1/2	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SE/FG114-N</b>	G 1 1/4	32 (1.26)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SF/FG200-N</b>	G 2	51 (2.01)	30 (1.18)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	1/2 -14 UNC-2B	4225
<b>RD2-SF/FG112-N</b>	G 1 1/2	38 (1.50)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	1/2 -14 UNC-2B	4225

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter. (eg. **RD2-MA/FG12-N - RD2-MA/FG12-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

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## SAE STRAIGHT NPT THREAD PORT CONNECTORS



Type	A	B	C	D	E	F	G	H	I	Screws	O-ring
<b>RD2-MA/FN12-N</b>	1/2 NPT	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MA/FN38-N</b>	3/8 NPT	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MB/FN34-N</b>	3/4 NPT	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MB/FN12-N</b>	1/2 NPT	13 (0.51)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MC/FN100-N</b>	1 NPT	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MC/FN34-N</b>	3/4 NPT	19 (0.75)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MD/FN114-N</b>	1 1/4 NPT	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 593-12.9	4150
<b>RD2-MD/FN100-N</b>	1 NPT	25 (0.98)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 593-12.9	4150
<b>RD2-ME/FN112-N</b>	1 1/2 NPT	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 593-12.9	4187
<b>RD2-ME/FN114-N</b>	1 1/4 NPT	32 (1.26)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 593-12.9	4187
<b>RD2-MF/FN200-N</b>	2 NPT	51 (2.01)	30 (1.18)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.063)	42,9 (1.69)	90 (3.54)	M 12 UNI 593-12.9	4225
<b>RD2-MF/FN112-N</b>	1 1/2 NPT	38 (1.50)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 593-12.9	4225

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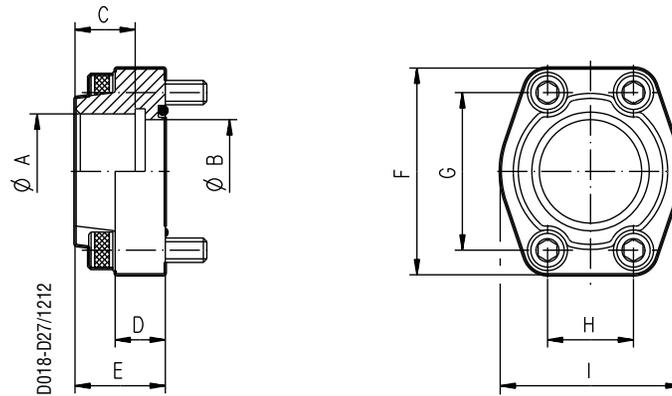
## SAE STRAIGHT NPT THREAD PORT CONNECTORS

Type	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-SA/FN12-N</b>	1/2 NPT	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SA/FN38-N</b>	3/8 NPT	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SB/FN34-N</b>	3/4 NPT	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.967)	3/8 -16 UNC-2B	4100
<b>RD2-SB/FN12-N</b>	1/2 NPT	13 (0.5118)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	3/8 -16 UNC-2B	4100
<b>RD2-SC/FN100-N</b>	1 NPT	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SC/FN34-N</b>	3/4 NPT	19 (0.75)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SD/FN114-N</b>	1 1/4 NPT	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SD/FN100-N</b>	1 NPT	25 (0.98)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SE/FN112-N</b>	1 1/2 NPT	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SE/FN114-N</b>	1 1/4 NPT	32 (1.26)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SF/FN200-N</b>	2 NPT	51 (2.01)	30 (1.18)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.543)	1/2 -14 UNC-2B	4225
<b>RD2-SF/FN112-N</b>	1 1/2 NPT	38 (1.50)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	1/2 -14 UNC-2B	4225

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RD2-MA/FN12-N - RD2-MA/FN12-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## SAE STRAIGHT WELD IN PORT CONNECTORS



Type	Nom. size	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-MA/S12-N</b>	1/2"	21,6 (0.85)	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MA/S38-N</b>	3/8"	17,5 (0.69)	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MB/S34-N</b>	3/4"	27,2 (1.07)	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MC/S100-N</b>	1"	34 (1.34)	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MD/S114-N</b>	1" 1/4	42,8 (1.69)	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 5931-12.9	4150
<b>RD2-ME/S112-N</b>	1" 1/2	48,6 (1.91)	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 5931-12.9	4187
<b>RD2-MF/S200-N</b>	2"	61 (2.40)	51 (2.01)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 5931-12.9	4225

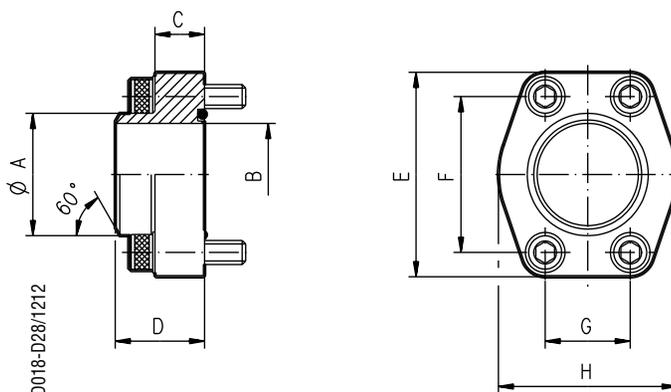
Type	Nom. size	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-SA/S12-N</b>	1/2"	21,6 (0.85)	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SA/S38-N</b>	3/8"	17,5 (0.69)	13 (0.51)	19 (0.75)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SB/S34-N</b>	3/4"	27,2 (1.07)	19 (0.75)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	3/8 -16 UNC-2B	4100
<b>RD2-SC/S100-N</b>	1"	34 (1.34)	25 (0.98)	19 (0.75)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SD/S114-N</b>	1" 1/4	42,8 (1.69)	32 (1.26)	22 (0.87)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SE/S112-N</b>	1" 1/2	48,6 (1.91)	38 (1.50)	24 (0.94)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SF/S200-N</b>	2"	61 (2.40)	51 (2.01)	26 (1.02)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	1/2 -14 UNC-2B	4225

01/09.2019

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RD2-MA/S12-N** - **RD2-MA/S12-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## SAE STRAIGHT WELD ON PORT CONNECTORS



Type	Nom. size	A	B	C	D	E	F	G	H	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-MA/T12-N</b>	1/2"	21,6 (0.85)	13 (0.51)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MA/T38-N</b>	3/8"	17,5 (0.69)	13 (0.51)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	M 8 UNI 5931-8.8	4075
<b>RD2-MB/T34-N</b>	3/4"	27,2 (1.07)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	M 10 UNI 5931-8.8	4100
<b>RD2-MC/T100-N</b>	1"	34 (1.34)	25 (0.98)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	M 10 UNI 5931-8.8	4131
<b>RD2-MD/T114-N</b>	1" 1/4	42,8 (1.69)	32 (1.26)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	M 10 UNI 593-12.9	4150
<b>RD2-ME/T112-N</b>	1" 1/2	48,6 (1.91)	38 (1.50)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	M 12 UNI 593-12.9	4187
<b>RD2-MF/T200-N</b>	2"	61 (2.40)	51 (2.01)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 593-12.9	4225

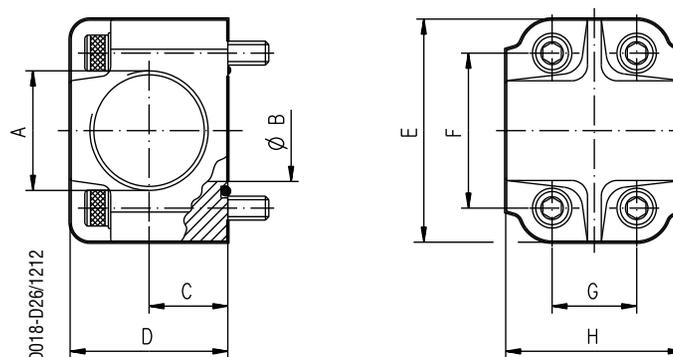
Type	Nom. size	A	B	C	D	E	F	G	H	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RD2-SA/T12-N</b>	1/2"	21,6 (0.85)	13 (0.51)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SA/T38-N</b>	3/8"	17,5 (0.69)	13 (0.51)	16 (0.63)	36 (1.42)	54 (2.13)	38,1 (1.50)	17,5 (0.69)	46 (1.81)	5/16 -18 UNC-2B	4075
<b>RD2-SB/T34-N</b>	3/4"	27,2 (1.07)	19 (0.75)	18 (0.71)	36 (1.42)	65 (2.56)	47,6 (1.87)	22,2 (0.87)	50 (1.97)	3/8 -16 UNC-2B	4100
<b>RD2-SC/T100-N</b>	1"	34 (1.34)	25 (0.98)	18 (0.71)	38 (1.50)	70 (2.76)	52,4 (2.06)	26,2 (1.03)	52 (2.05)	3/8 -16 UNC-2B	4131
<b>RD2-SD/T114-N</b>	1" 1/4	42,8 (1.69)	32 (1.26)	21 (0.83)	41 (1.61)	79 (3.11)	58,7 (2.31)	30,2 (1.19)	68 (2.68)	7/16 -14 UNC-2B	4150
<b>RD2-SE/T112-N</b>	1" 1/2	48,6 (1.91)	38 (1.50)	25 (0.98)	44 (1.73)	93 (3.66)	69,8 (2.75)	35,7 (1.41)	78 (3.07)	1/2 -14 UNC-2B	4187
<b>RD2-SF/T200-N</b>	2"	61 (2.40)	51 (2.01)	25 (0.98)	45 (1.77)	102 (4.02)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	1/2 -14 UNC-2B	4225

01/09.2019

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RD2-MA/T12-N** - **RD2-MA/T12-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## SAE BSPP THREAD ELBOWS

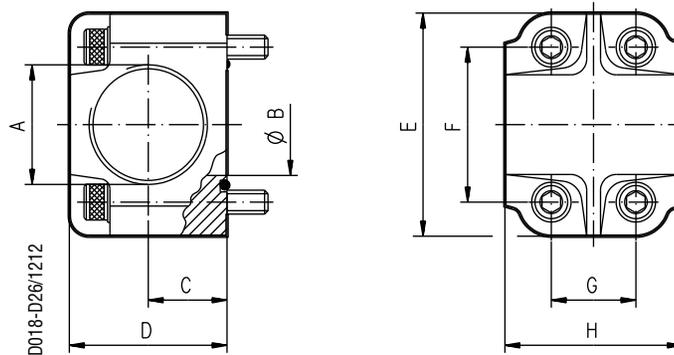


Type	A	B	C	D	E	F	G	H	Screws	O-ring
	Nominal size	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RG2-MB/FG34-N</b>	G 3/4 Depth 19 (0.75)	19 (0.75)	19 (0.75)	38 (1.50)	66 (2.60)	47,6 (1.87)	22,2 (0.87)	46 (1.81)	M 10 UNI 5931-8.8	4100
<b>RG2-MC/FG100-N</b>	G 1 Depth 19 (0.75)	25 (0.98)	22 (0.87)	45 (1.77)	71 (2.80)	52,4 (2.06)	26,2 (1.03)	55 (2.17)	M 10 UNI 5931-8.8	4131
<b>RG2-MD/FG114-N</b>	G 1 1/4 Depth 22 (0.87)	31 (1.22)	27 (1.06)	55 (2.17)	81 (3.19)	58,7 (2.31)	30,2 (1.19)	65 (2.56)	M 10 UNI 5931-12.9	4150
<b>RG2-ME/FG112-N</b>	G 1 1/2 Depth 24 (0.94)	38 (1.50)	32 (1.26)	65 (2.56)	95 (3.74)	69,8 (2.75)	35,7 (1.41)	75 (2.95)	M 12 UNI 5931-12.9	4187
<b>RG2-MF/FG200-N</b>	G 2 Depth 26 (1.02)	51 (2.01)	40 (1.57)	80 (3.15)	112 (4.41)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 5931-12.9	4237

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RG2-MB/FG34-N - RG2-MB/FG34-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## SAE NPT THREAD ELBOWS



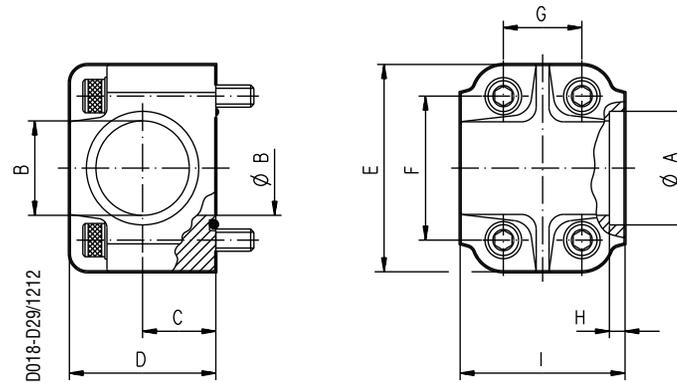
Type	A Nominal size	B	C	D	E	F	G	H	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RG2-MB/FN34-N</b>	3/4 NPT Depth 19 (0.75)	19 (0.75)	19 (0.75)	38 (1.50)	66 (2.60)	47,6 (1.87)	22,2 (0.87)	46 (1.81)	M 10 UNI 5931-8.8	4100
<b>RG2-MC/FN100-N</b>	1 NPT Depth 19 (0.75)	25 (0.98)	22 (0.87)	45 (1.77)	71 (2.80)	52,4 (2.06)	26,2 (1.03)	55 (2.17)	M 10 UNI 5931-8.8	4131
<b>RG2-MD/FN114-N</b>	1 1/4 NPT Depth 22 (0.87)	31 (1.22)	27 (1.06)	55 (2.17)	81 (3.19)	58,7 (2.31)	30,2 (1.19)	65 (2.56)	M 10 UNI 5931-12.9	4150
<b>RG2-ME/FN112-N</b>	1 1/2 NPT Depth 24 (0.94)	38 (1.50)	32 (1.26)	65 (2.56)	95 (3.74)	69,8 (2.75)	35,7 (1.41)	75 (2.95)	M 12 UNI 5931-12.9	4187
<b>RG2-MF/FN200-N</b>	2 NPT Depth 26 (1.02)	51 (2.01)	40 (1.57)	80 (3.15)	112 (4.41)	77,8 (3.06)	42,9 (1.69)	90 (3.54)	M 12 UNI 5931-12.9	4237

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RG2-MB/FN34-N - RG2-MB/FN34-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

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## SAE WELD IN ELBOWS

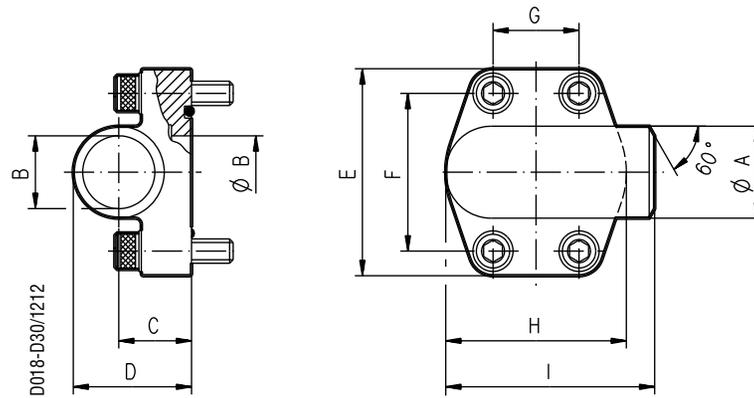


Type	Nom. size	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RG2-MB/S34-N</b>	3/4"	27,2 (1.07)	19 (0.75)	19 (0.75)	38 (1.50)	66 (2.60)	47,6 (1.87)	22,2 (0.87)	5 (0.20)	46 (1.81)	M 10 UNI 5931-8.8	4100
<b>RG2-MC/S100-N</b>	1"	34 (1.34)	25 (0.98)	22 (0.87)	45 (1.77)	71 (2.80)	52,4 (2.06)	26,2 (1.03)	6 (0.24)	55 (2.17)	M 10 UNI 5931-8.8	4131
<b>RG2-MD/S114-N</b>	1" 1/4	42,8 (1.69)	31 (1.22)	27 (1.06)	55 (2.17)	81 (3.19)	58,7 (2.31)	30,2 (1.19)	7 (0.28)	65 (2.56)	M 10 UNI 593-12.9	4150
<b>RG2-ME/S112-N</b>	1" 1/2	48,6 (1.91)	38 (1.50)	32 (1.26)	65 (2.56)	95 (3.74)	69,8 (2.75)	35,7 (1.41)	8 (0.32)	75 (2.95)	M 12 UNI 593-12.9	4187
<b>RG2-MF/S200-N</b>	2"	61,3 (2.41)	51 (2.01)	40 (1.57)	80 (3.15)	112 (4.41)	77,8 (3.06)	42,9 (1.69)	10 (0.39)	90 (3.54)	M 12 UNI 593-12.9	4225

Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter. (esempio: **RG2-MB/S34-N** - **RG2-MB/S34-V**).

**Note:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## SAE WELD ON ELBOWS



Type	Nom. size	A	B	C	D	E	F	G	H	I	Screws	O-ring
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)		
<b>RG2-MB/T34-N</b>	3/4"	27 (1.06)	19 (0.75)	23 (0.91)	38 (1.50)	70 (2.76)	47,6 (1.87)	22,2 (0.87)	44 (1.73)	63 (2.48)	M 10 UNI 5931-8.8	4100
<b>RG2-MC/T100-N</b>	1"	34,5 (1.36)	23 (0.91)	25 (0.98)	42 (1.65)	75 (2.95)	52,4 (2.06)	26,2 (1.03)	48 (1.89)	72 (2.83)	M 10 UNI 5931-8.8	4112
<b>RG2-MD/T114-N</b>	1" 1/4	43 (1.69)	31 (1.22)	27 (1.06)	48 (1.89)	86 (3.39)	58,7 (2.31)	30,2 (1.19)	56 (2.20)	82 (3.23)	M 10 UNI 593-12.9	4150
<b>RG2-ME/T112-N</b>	1" 1/2	50 (1.97)	35 (1.38)	31,5 (1.24)	56 (2.20)	97 (3.82)	69,8 (2.75)	35,7 (1.41)	62 (2.44)	92 (3.62)	M 12 UNI 593-12.9	150
<b>RG2-MF/T200-N</b>	2"	65 (2.56)	48 (1.89)	37,5 (1.48)	60 (2.36)	100 (3.94)	77,8 (3.06)	42,9 (1.69)	72 (2.83)	99 (3.90)	M 12 UNI 593-12.9	156

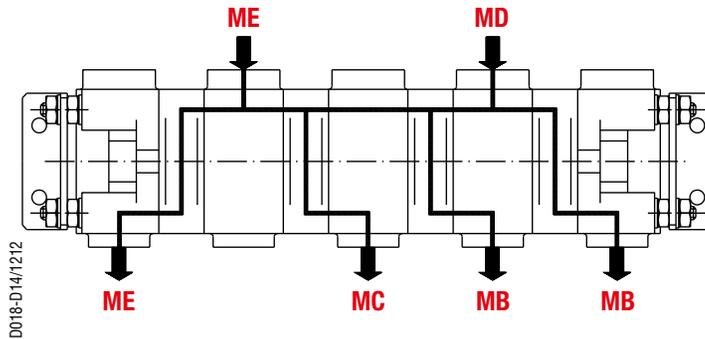
Standard port connectors are equipped with BUNA seals. For heavier operating conditions, require it with VITON seals replacing code's last letter N with the V letter (eg. **RG2-MB/T34-N** - **RG2-MB/T34-V**).

**Nota:** Torque values in the table refer to the mounting of port connectors on MAGNUM series.

## HOW TO ORDER

### ORDER EXAMPLE FOR SECTIONS OF FLOW DIVIDER WITH 4 SECTIONS

Before ordering consult standard compositions at pages 12 - 13.



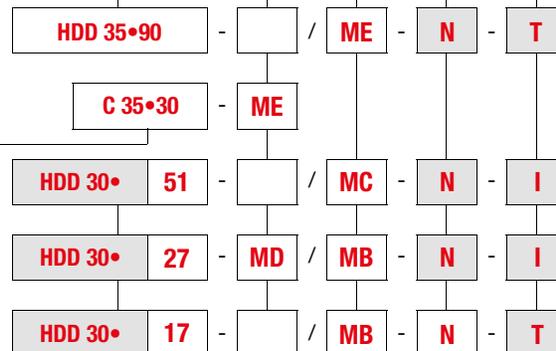
Flow divider type see page 5

Inlet port code see page 14

Outlet port code see page 14

Seal see page 4

Sections code: T= end section  
I= intermediate section



Inlet section type see page 12 - 13

Flow divider type see page 5

Omit code only in the order of assembled units.

### ORDER EXAMPLE FOR ASSEMBLED FLOW DIVIDER WITH 4 SECTIONS

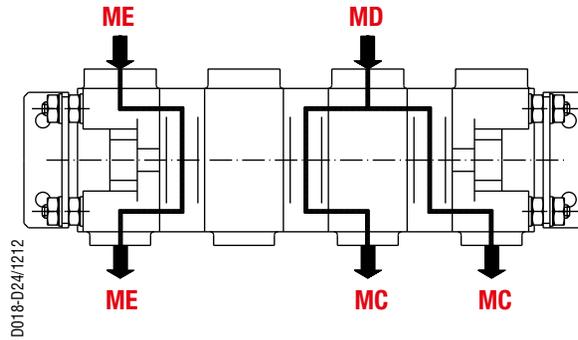
**HDD 35•90 - ME + C 35•30 - ME + 51 - MC + 27 - MD / MB + 17 - MB - N**

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## HOW TO ORDER FLOW EQUALIZER WITH MOTOR SECTION

### ORDER EXAMPLE FOR SECTIONS

Before ordering consult standard compositions at page 13



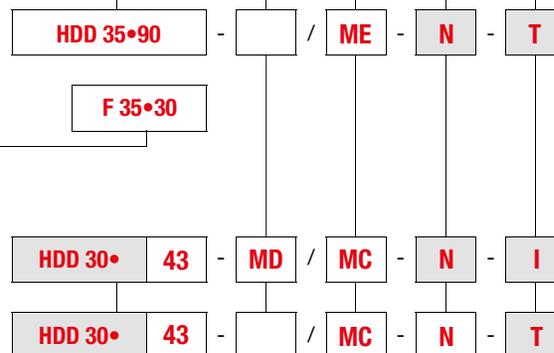
Flow divider type see page 5

Inlet port code see page 14

Outlet port code see page 14

Seal see page 4

Sections code: T= end section  
I= intermediate section



Flange type see page 13

Flow divider type see page 5



Omit code only in the order of assembled units.

01/09.2019

### ORDER EXAMPLE FOR ASSEMBLED SECTIONS

**HDD 35•90 - MF / ME + F 35•30 + 43 - MD / MC + 43 - MC - N**



Our policy is one of continuous improvement in product. Specification of items may, therefore, be changed without notice.

MD 01 T A

Edition: 01/09.2019

Replaces: MD 01 T IE



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