



Cartridge Valves Technical Information

Accessories

Quick reference

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Accessories
Quick reference



Cartridge Valves Technical Information

Accessories

CPF20 cavity screen

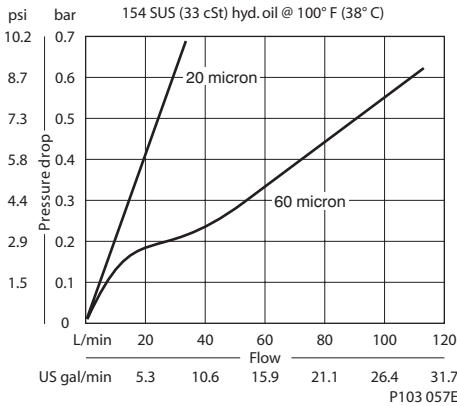
OPERATION

This cartridge assembly is a high pressure screen.

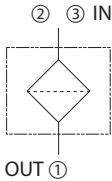
Not recommended as a substitute for hydraulic system filters.

SPECIFICATIONS

Performance graph



Schematic



P103 059

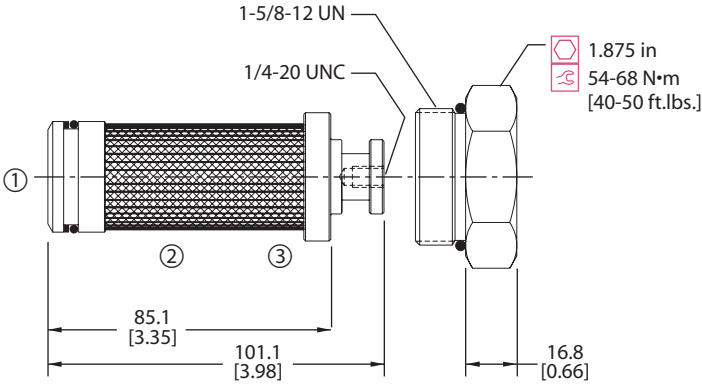
Specifications

Pressure rating	207 bar [3000 psi]
Nominal flow: 20 micron	38 L/min [10 gpm]
Nominal flow: 60 micron	114 L/min [30 gpm]
Weight	0.47 kg [1.04 lbs]
Cavity	SDC20-3

DIMENSIONS

mm [in]

Cross section



P103 058

ORDERING INFORMATION

CPF20 - 3 - B - 20S - P - 020

- Seals: B = Buna-N, V = Viton
- Seal kit: 120608, 120609
- Housing and ports: 0 = No Housing, 6B=AL, 3/4 BSP, 8B=AL, 1 BSP, 12S=AL, #12 SAE, 16S=AL, #16 SAE, Other housings available
- Housing P/N: No Housing, CP20-3-6B, CP20-3-8B, CP20-3-12S, CP20-3-16S
- Filter mesh: 020 = 20 micron, 060 = 60 micron
- Plug option: P = Filter w/ #20 SAE hex plug, Omit = Filter only

P103 060E

Accessories
CPF20 Cavity screen



Cartridge Valves Technical Information

Accessories

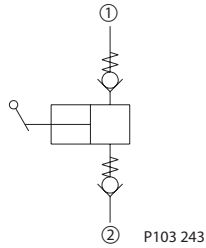
CP600-5 pump

OPERATION

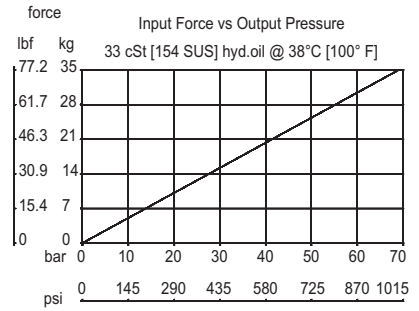
This is a manually operated uni-directional pump.

SPECIFICATIONS

Schematic



Specifications

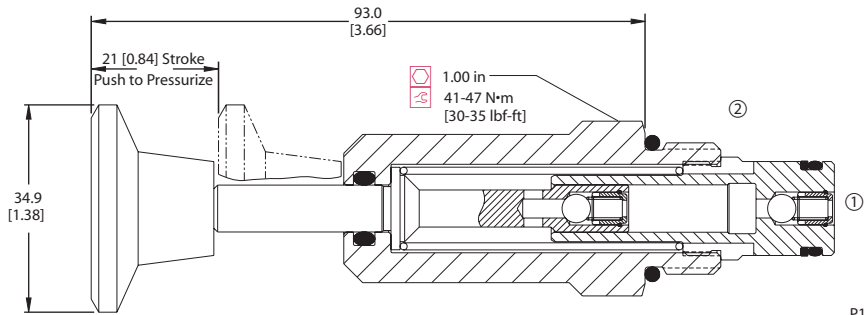


Specifications

Pressure rating	207 bar [3000 psi]
Displacement	1.2 cu. cm [0.07 cu. in.]/stroke
Leakage	6 drops/min @ rated pressure
Weight	0.24 kg [0.52 lbs]
Cavity	SDC 10-2
Pump force	34N [7.7lbs]

DIMENSIONS

mm [in]



ORDERING INFORMATION

CP600-5-B-6S			
Seals		Housing & Ports	Housing P/N
B = Buna-N	Seal kit 120015	0 = Cartridge only	No Housing
V = Viton	120016	6S = AL, #6 SAE	CP10-2-6S
		8S = AL, #8 SAE	CP10-2-8S
		DG3B = AL, 3/8 BSPP	SDC10-2-DG-3B
		DG4B = AL, 1/2 BSPP	SDC10-2-DG-4B
		Other housings available	

P103 132E

Accessories
CP600-5 pump



Cartridge Valves Technical Information

Accessories

CP602-5 hand pump

OPERATION

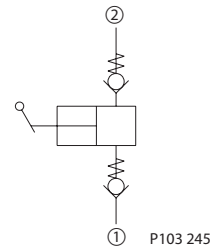
Manually operated pump.

SPECIFICATIONS

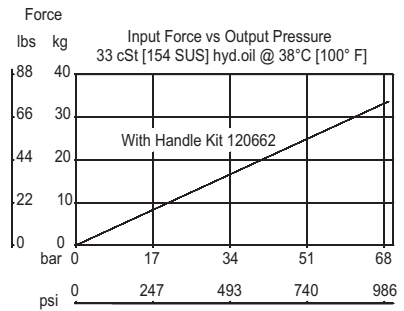
Specifications

Pressure rating	207 bar [3000 psi]
Displacement	9.2 cm ³ [0.56 in ³] / stroke
Leakage	6 drops/ minute @ rated pressure
Cavity	SDC16-2

Schematic



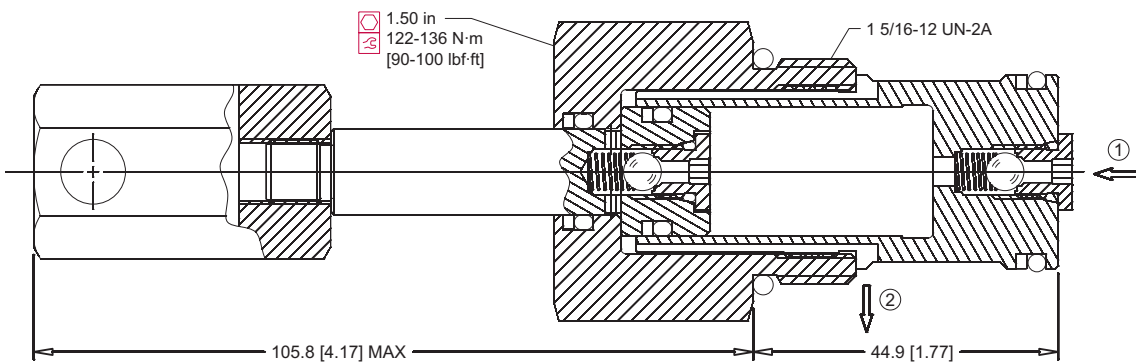
Performance graph



DIMENSIONS

mm [in]

Cross section



P103 125

ORDERING INFORMATION

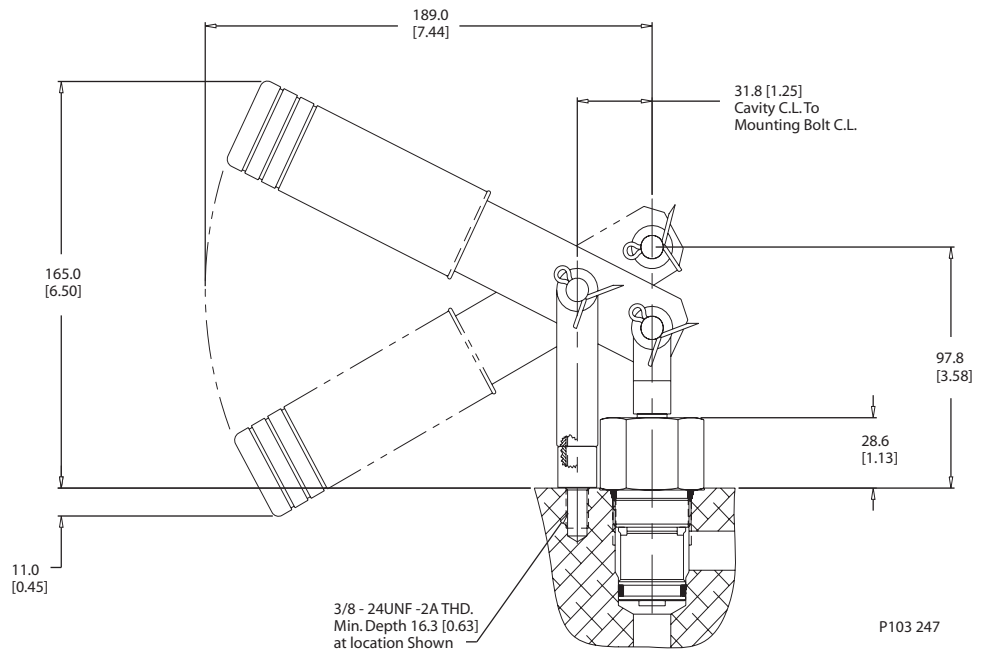
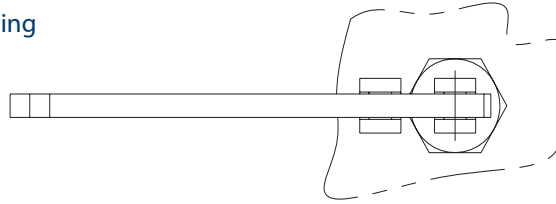
CP602-5-B-12S		
Seals	Seal kit	Housing and Ports
B = Buna-N	120019	0 = No Housing
V = Viton	120030	6S = #6 SAE
		8S = #8 SAE
		12S = AL#12 SAE
		16S = AL#16 SAE
		6B = AL, 3/4 BSPP
		8B = AL, 1 BSPP
		Other housings available
Handle kit is required - sold separately PN - 120662		Housing P/N
		No Housing
		11083731
		11083691
		CP16-2-12S
		CP16-2-16S
		CP16-2-6B
		CP16-2-8B

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Cartridge Valves Technical Information
 Accessories
 120662 handle kit

DIMENSIONS

Installation Drawing



Accessories
 120662 handle kit

ORDERING INFORMATION

To order, request part number 120662—handle kit



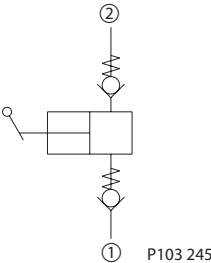
Cartridge Valves Technical Information

Accessories

MP 06 and MP 12 hand pumps

SPECIFICATIONS

Schematic



Specifications

Size		06	12
Displacement Per Stroke	cm³	0.94	5
	[in³]	[0.057]	[0.305]
Max. pressure	bar	315	315
	[psi]	[4569]	[4569]
NCS Cavity		06/2	12/2
Max tightening torque	Nm	40	80
	[lbf·in]	[354]	[708]
Weight	cartridge	kg	0.254
		[lb]	[0.560]
	cartridge with handle	kg	0.550
		[lb]	[1.213]
	with housing	kg	0.854
		[lb]	[1.883]

Description

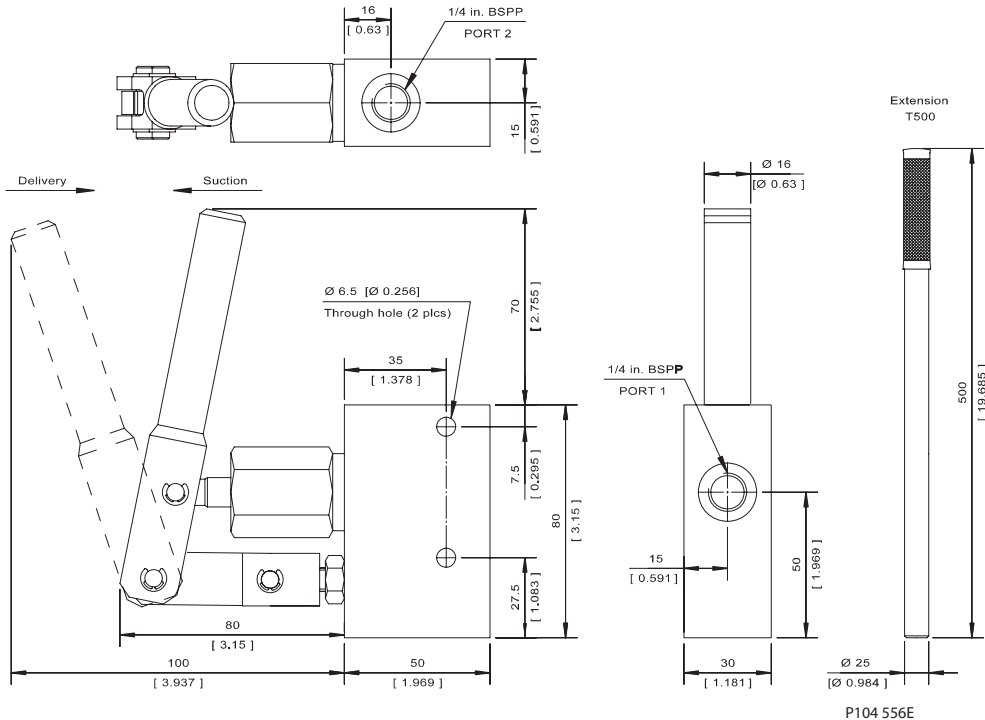
These small displacement hand pumps are used typically for piloting the operation of small hydraulic cylinders or valves. These pumps can be mounted inline using the standard housing or in special blocks. For smooth operation, inlet lines should not be excessively long, and the vertical distance between pump and tank level no more than 300 mm.

These pumps can work in outdoor applications if the ambient air is not contaminated by powder and dust.

DIMENSIONS

mm [in]

MP06 detail drawing



Accessories
MP06 and MP 12 hand pump



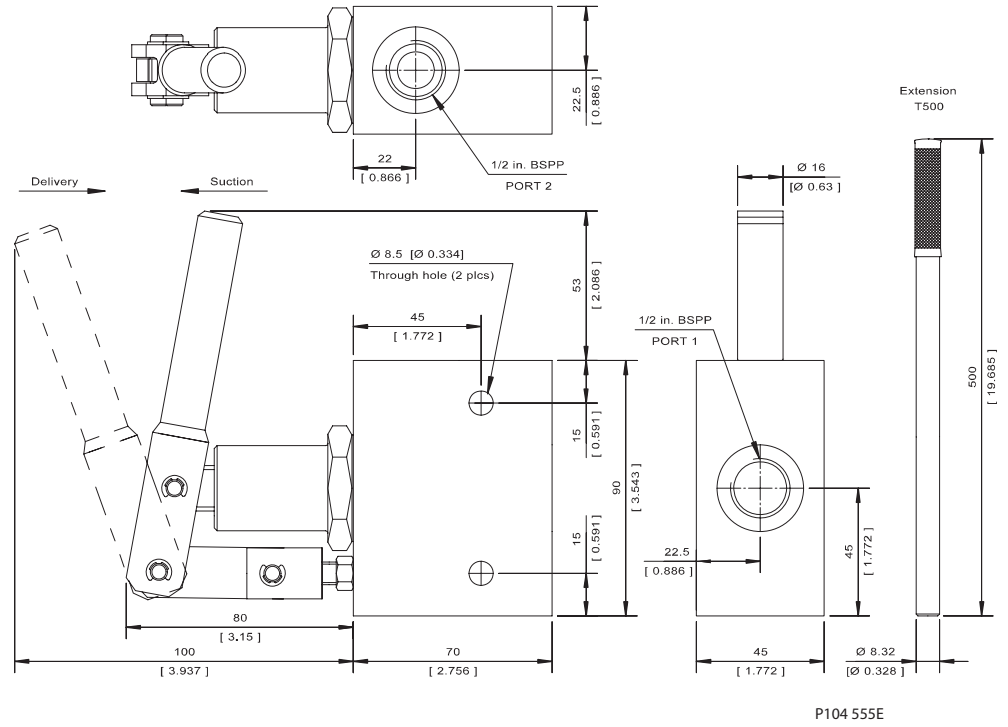
Cartridge Valves Technical Information

Accessories

MP 06 and MP 12 hand pumps

DIMENSIONS
(continued)
mm [in]

MP12 detail drawing



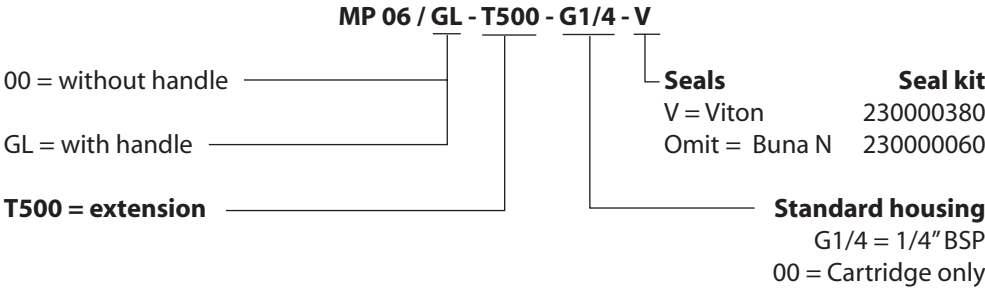
Accessories
MP 06 and MP 12 hand pump



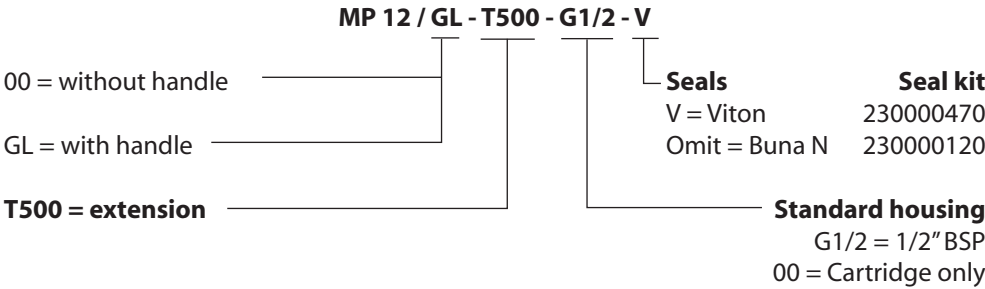
Cartridge Valves Technical Information
 Accessories
 MP 06 and MP 12 hand pumps

ORDERING INFORMATION

Example of designation MP 06



Example of designation MP 12



Accessories
 MP06 and MP 12 hand pump



Cartridge Valves Technical Information

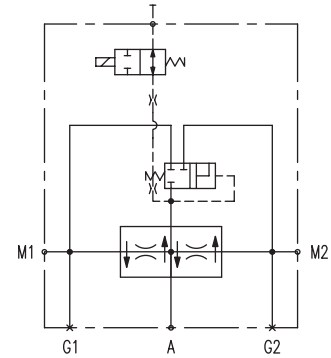
Accessories

X05-FD10 traction manifold

OPERATION

This valve provides electrically actuated traction control for hydrostatic systems with one pump and two motors in parallel. In normal operation, fluid passes freely through the valve. When the solenoid is energized, fluid is forced through the flow divider/combiner, preventing wheel spin or motor over speed.

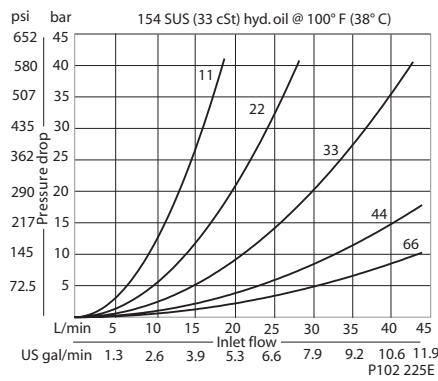
Schematic diagram



P104 584

PERFORMANCE

Performance curve

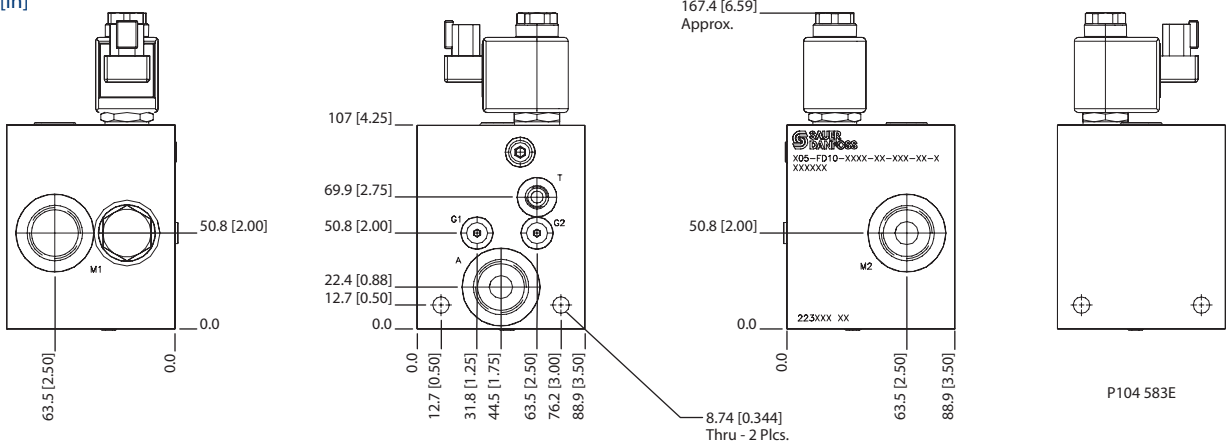


Specifications

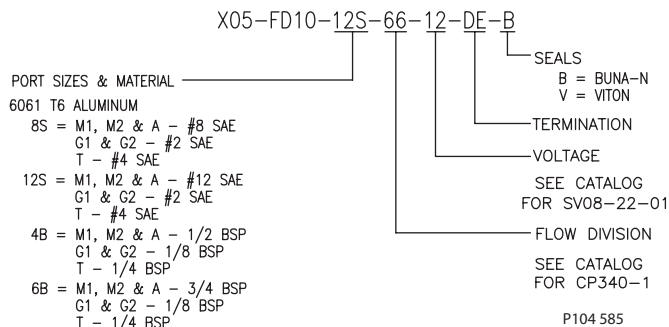
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Weight	2.79 kg [6.15 lb]

DIMENSIONS

mm [in]



ORDERING INFORMATION



Accessories
X05-FD10



Cartridge Valves Technical Information

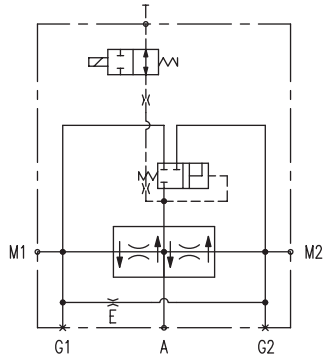
Accessories

X05-FD16 traction manifold

OPERATION

This valve provides electrically actuated traction control for hydrostatic systems with one pump and two motors in parallel. In normal operation, fluid passes freely through the valve. When the solenoid is energized, fluid is forced through the flow divider/combiner, preventing wheel spin or motor over speed.

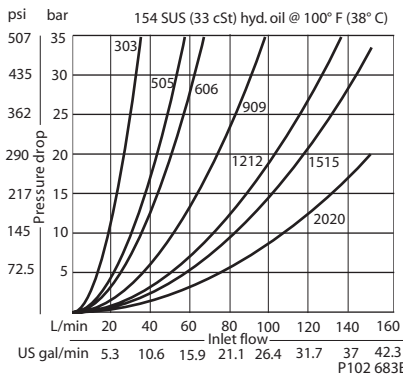
Schematic diagram



P104 588

PERFORMANCE

Performance curve

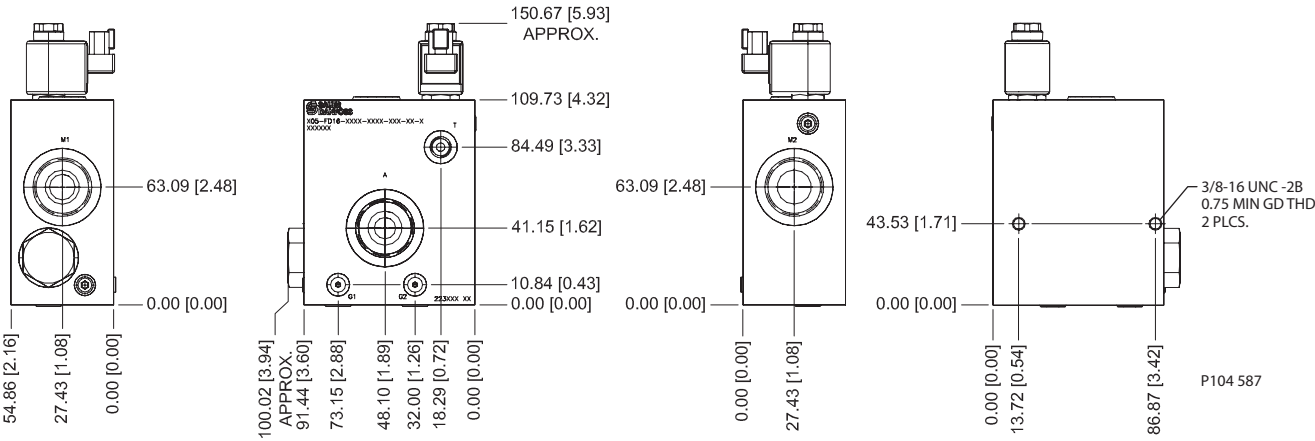


Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	150 l/min [40 US gal/min]
Weight	4.48 kg [9.88 lb]

DIMENSIONS

mm [in]



ORDERING INFORMATION

X05-FD16-F04-1515-00-12-DE-B

PORT SIZES & MATERIAL
6061 T6 ALUMINUM

16S = M1, M2 & A - #16 SAE
G1 & G2 - #2 SAE
T - #6 SAE

20S = M1, M2 & A - #20 SAE
G1 & G2 - #2 SAE
T - #6 SAE

F04 = M1, M2 & A - 1" CODE 61
G1 & G2 - #2 SAE
T - #6 SAE

8B = M1, M2 & A - 1 BSP
G1 & G2 - 1/8 BSP
T - 3/8 BSP

10B = M1, M2 & A - 1-1/4 BSP
G1 & G2 - 1/8 BSP
T - 3/8 BSP

SEALS
B = BUNA-N
V = VITON

TERMINATION
VOLTAGE
SEE CATALOG FOR SV08-22-01

ORIFICE 'E'
00 - PLUG
59 - .059ø
79 - .079ø

FLOW DIVISION
SEE CATALOG FOR CP342-3-U-0-XXXX
PORT 'M2'
PORT 'M1'

P104 586E

Accessories X05-FD16



Cartridge Valves Technical Information

Accessories

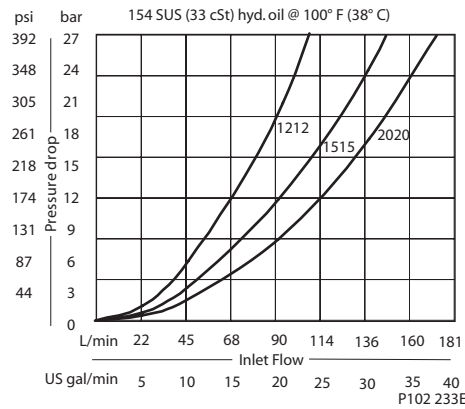
X05-FD104 traction manifold

OPERATION

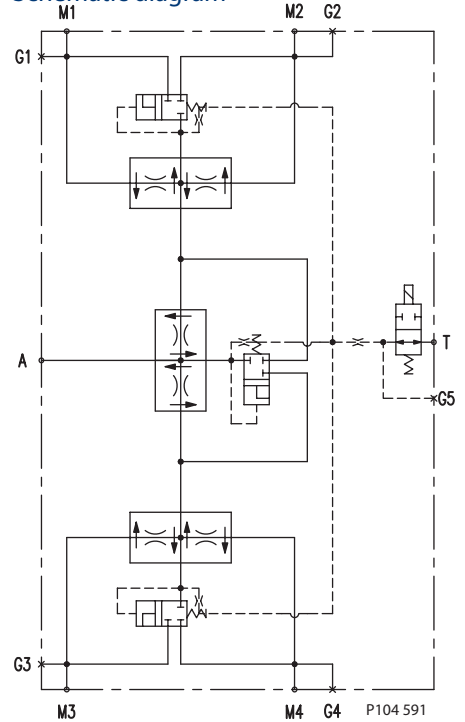
This valve provides electrically actuated traction control for hydrostatic systems with one pump and four motors in parallel. In normal operation, fluid passes freely through the valve. When the solenoid is energized, fluid is forced through the flow divider/combiners. The result is equal flow to all four motors, preventing wheel spin or motor over speed.

PERFORMANCE

Performance curve



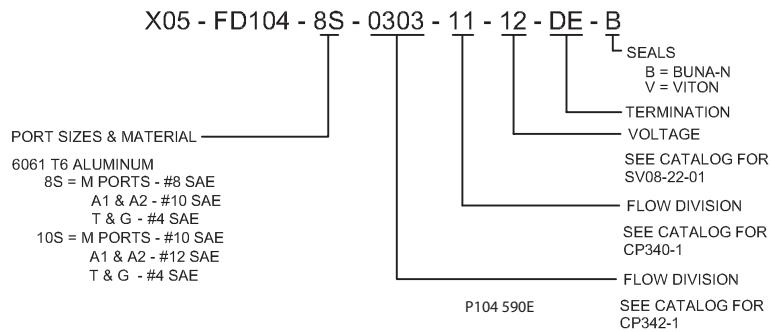
Schematic diagram



Specifications

Rated pressure	230 bar [3300 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Weight	8.74 kg [19.74 lb]

ORDERING INFORMATION



DIMENSIONS

See next page.

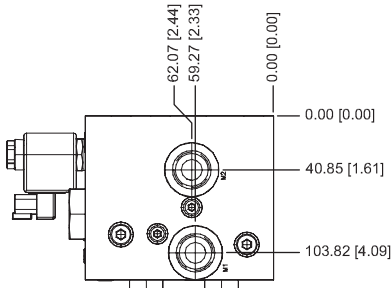
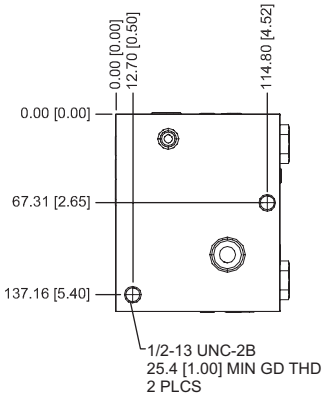
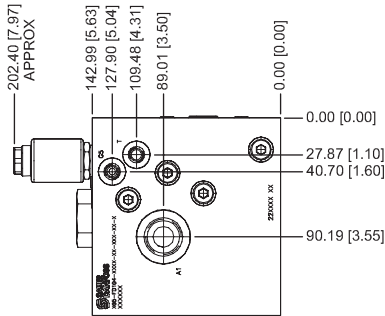
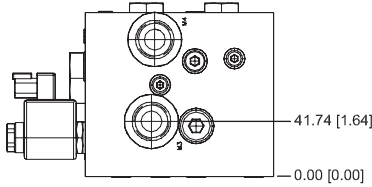
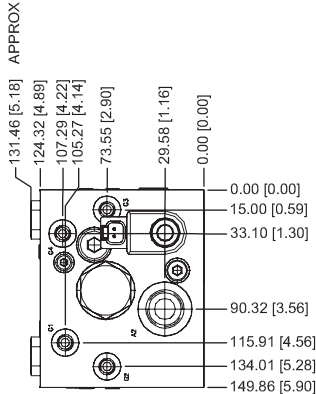
Accessories
X05-FD104



Cartridge Valves Technical Information
 Accessories
 X05-FD104 traction manifold (continued)

DIMENSIONS

mm [in]



P104 589E

Accessories
X05-FD104

STANDARD CONNECTORS TO DIN 43650

	<p>TYPE A CONNECTOR</p>		<p>Standard connector for use with DC input. Type A Order no.088010080</p>
	<p>TYPE C CONNECTOR</p>		<p>Full wave bridge rectifier with 4 diodes and VDR protecting the a.c. side against overvoltage from electrical power supply. Type C Order no.088010060</p>
	<p>TYPE E CONNECTOR</p>		<p>With diode blocking overvoltage on opening. Type E Order no.088010410</p>
	<p>TYPE K CONNECTOR</p>	<p>Standard connector to Kostal pattern, for use with DC input. Type K Order no.088010350</p>	

REMARK

For details of use, see technical data relevant to the individual solenoid valves. All connector are supplied unassembled. Connectors with indicator lights are available on request (Consult factory).

P104 557E



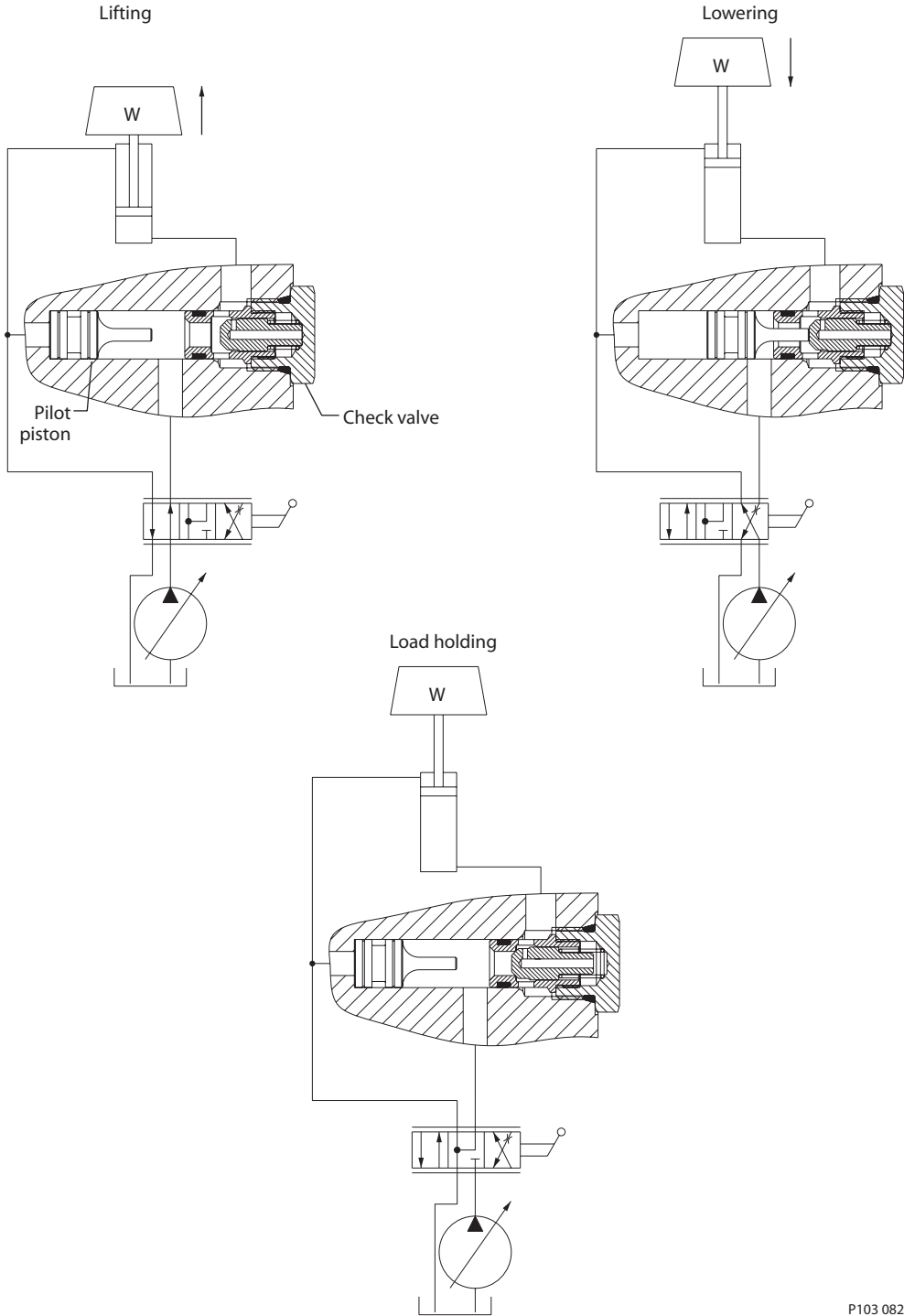
Cartridge Valves Technical Information Accessories Pilot pistons

OPERATION

Pilot pistons used with check valve cartridges are an economical way to create pilot-operated check valve functions in custom Hydraulic Integrated Circuits (HIC).

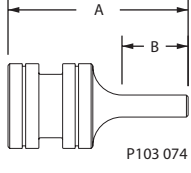
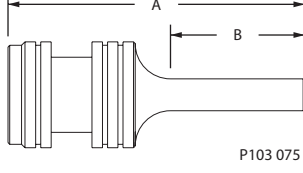
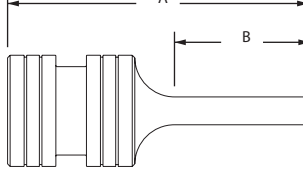
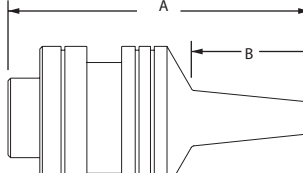
EXAMPLE

Application of pilot pistons



Accessories
Pilot pistons

Single-acting pilot pistons

Series	Compatible valves	Pilot ratio	Seals (optional)	Pilot piston order code	A mm [in]	B mm [in]	Bore diameter* mm [in]	
8	CV08-NP	4:1	1) 720092 O-rings 2) 720500 back-up rings	621460	26.97 [1.062]	14.27 [0.562]	Ø 12.70 ± 0.03 [0.501 ± 0.001]	 P103 074
10	CV10-NP	4:1	1) 720178 O-ring 2) 720412 back-up rings	621175	44.45 [1.750]	25.40 [1.000]	Ø 15.90 ± 0.03 [0.626 ± 0.001]	 P103 075
	CP100-3	2.5:1		621176	47.63 [1.875]	28.58 [1.125]		
				621535	38.10 [1.500]	19.05 [0.750]		
12	CP101-1	4:1	1) 720031 O-ring 2) 720385 back-up rings	621538	60.33 [2.375]	34.93 [1.375]	Ø 22.25 ± 0.03 [0.876 ± 0.001]	 P103 076
16	CP102-1	4:1	1) 720033 O-ring 2) 720375 back-up rings	620600	60.20 [2.370]	23.55 [0.927]	Ø 28.63 ± 0.03 [1.127 ± 0.001]	 P103 077

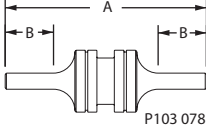
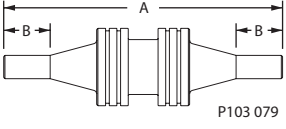
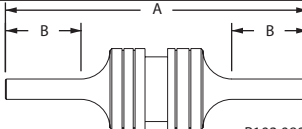
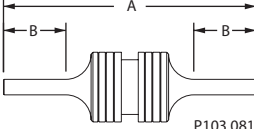
Consult factory for bore details.

Cartridge Valves Technical Information

Accessories

Pilot pistons

Double-acting pilot pistons

Series	Compatible valves	Pilot ratio	Seals (optional)	Pilot piston order code	A mm [in]	B mm [in]	Bore diameter* mm [in]	
8	CV08-NP	4:1	1) 720092 O-rings 2) 720500 back-up rings	621457	41.28 [1.625]	14.27 [0.562]	Ø 12.70 ± 0.03 [0.501 ± 0.001]	 P103 078
				621553	52.37 [2.062]	19.84 [0.781]		
				625138	38.10 [1.500]	12.70 [0.500]		
				625298	49.53 [1.950]	18.42 [0.725]		
10	CV10-NP	4:1	1) 720178 O-ring 2) 720412 back-up rings	621058	60.50 [2.382]	20.73 [0.816]	Ø 15.90 ± 0.03 [0.626 ± 0.001]	 P103 079
				621400	57.15 [2.250]	19.05 [0.750]		
	CP100-3	2.5:1	621692	69.85 [2.750]	25.40 [1.000]			
			625104	66.04 [2.600]	23.50 [0.925]			
12	CP101-1	4:1	1) 720031 O-ring 2) 720385 back-up rings	621539	82.55 [3.250]	28.58 [1.125]	Ø 22.25 ± 0.03 [0.876 ± 0.001]	 P103 080
16	CP102-1	4:1	1) 720033 O-ring 2) 720375 back-up rings	621540	XXX	XXX	Ø 28.63 ± 0.03 [1.127 ± 0.001]	 P103 081

Consult factory for bore details.



Cartridge Valves Technical Information

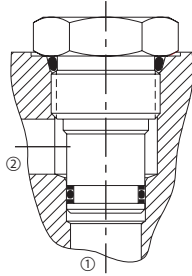
Accessories

Cavity plugs (CP and SDC cavities)

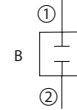
FUNCTION

Cavity plugs are used to block flow into and out of set ports or to block flow between given ports.

2 WAY PLUG



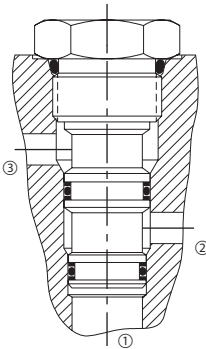
Plug options



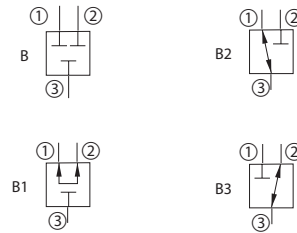
P103 061

P103 065

3 WAY PLUG



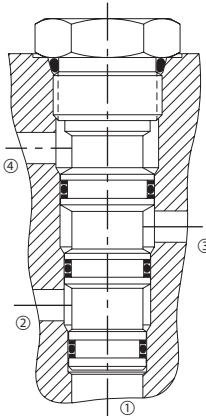
Plug options



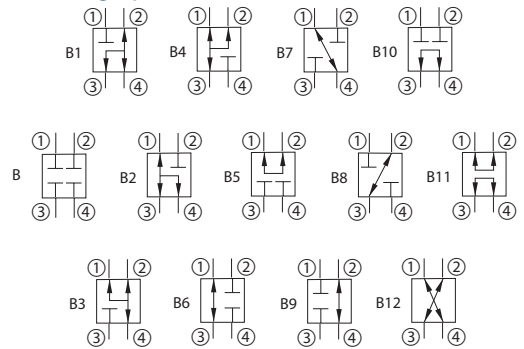
P103 062

P103 066

4 WAY PLUG



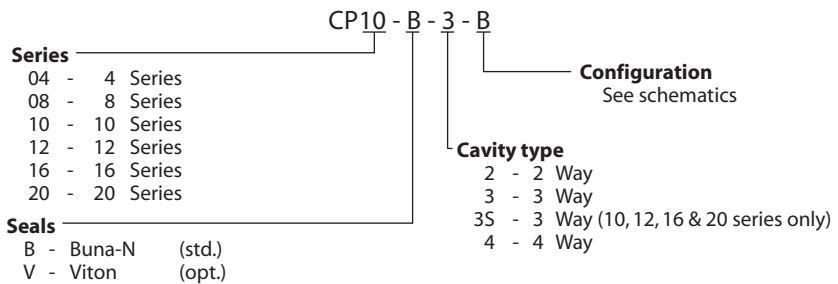
Plug options



P103 063

P103 067

ORDERING INFORMATION

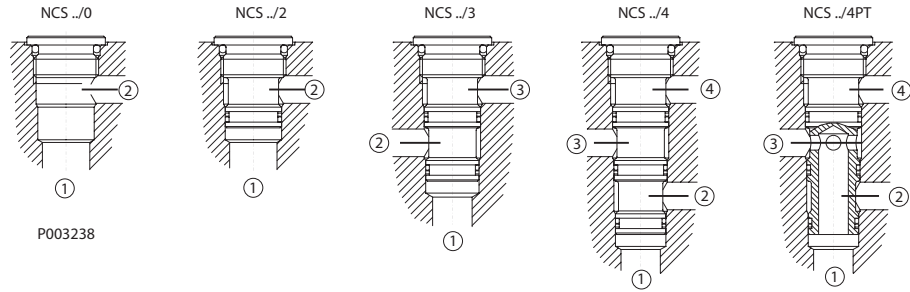


P103 064

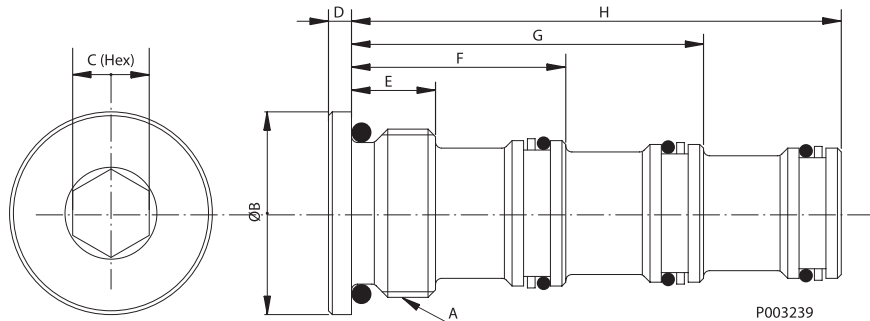
Accessories
Cavity plugs

Cartridge Valves Technical Information
Accessories
Cavity plugs (NCS cavities)

PLUGS FOR NCS CAVITIES



P003238



P003239

Dimensions

Type	Dimensions-mm								Order number for plug complete	Weight of plug complete-kg [lbs.]
	A	B	C	D	E	F	G	H		
NCS 04/0	M18x1.5	22 [0.87]	8	3 [0.12]	10.5 [0.41]	—	—	—	92.00.010.1	0.018 [0.04]
NCS 04/2	M18x1.5	22 [0.87]	8	3 [0.12]	—	24.5 [0.96]	—	—	92.00.009.1	0.035 [0.08]
NCS 04/3	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	39.5 [1.56]	—	92.00.008.1	0.057 [0.13]
NCS 04/4	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	—	54.5 [2.15]	92.00.007.1	0.070 [0.15]
NCS 04/4PT	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	—	54.5 [2.15]	92.00.021.1	0.060 [0.13]
NCS 06/0	M22x1.5	26 [1.02]	10	3 [0.12]	11 [0.43]	—	—	—	92.00.006.1	0.032 [0.07]
NCS 06/2	M22x1.5	26 [1.02]	10	3 [0.12]	—	28 [1.10]	—	—	92.00.004.1	0.060 [0.13]
NCS 06/3	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	46 [1.81]	—	92.00.014.1	0.098 [0.22]
NCS 06/4	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	—	64 [2.52]	92.00.013.1	0.120 [0.26]
NCS 06/4PT	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	—	64 [2.52]	92.00.020.1	0.100 [0.22]
NCS 12/0	M33x2	38 [1.50]	12	3 [0.12]	15 [0.59]	—	—	—	92.00.018.1	0.117 [0.26]
NCS 12/2	M33x2	38 [1.50]	12	3 [0.12]	—	38 [1.50]	—	—	92.00.017.1	0.200 [0.44]
NCS 12/3	M33x2	38 [1.50]	12	3 [0.12]	—	—	63 [2.48]	—	92.00.016.1	0.280 [0.62]
NCS 12/4	M33x2	38 [1.50]	12	3 [0.12]	—	—	—	88 [3.46]	92.00.015.1	0.370 [0.81]
NCS 12/4PT	M33x2	38 [1.50]	12	3 [0.12]	—	—	—	88 [3.46]	92.00.022.1	0.310 [0.68]

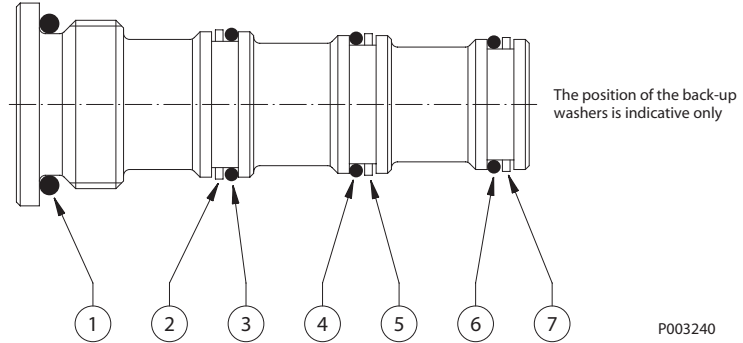


Cartridge Valves Technical Information

Accessories

Seal kits (NCS cavities)

NCS



P003240

Type	Seals back-up washers (composition)	Spares: Set of O-rings and back-up washers (pack of 10 sets minimum)	
		Standard seals	Viton seals
NCS 04/0	1	230030070	230370070
NCS 04/2	1 2 3	230000190	230000390
NCS 04/3	1 2 3 4 5	230000160	230000450
NCS 04/4	1 2 3 4 5 6 7	230000250	230000460
NCS 06/0	1	230080210	230390210
NCS 06/2	1 2 3	230000060	230000380
NCS 06/3	1 2 3 4 5	230000070	230000110
NCS 06/4	1 2 3 4 5 6 7	230000080	230000350
NCS 12/0	1	230030110	230370110
NCS 12/2	1 2 3	230000120	230000470
NCS 12/3	1 2 3 4 5	230000130	230000360
NCS 12/4	1 2 3 4 5 6 7	230000100	230000480

Accessories Seal Kits



Cartridge Valves Technical Information

Accessories

Orifice plugs

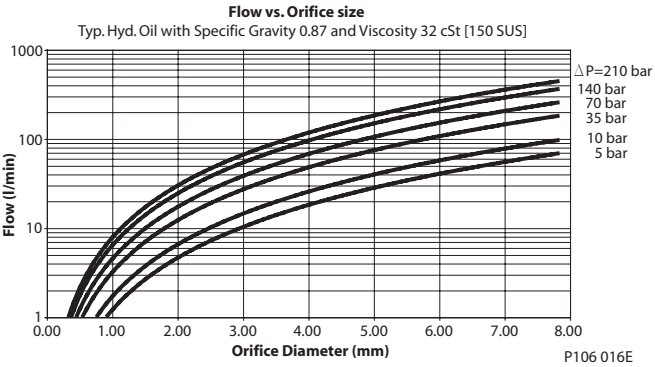
OPERATION Install in manifold to restrict fluid flow.

Schematic

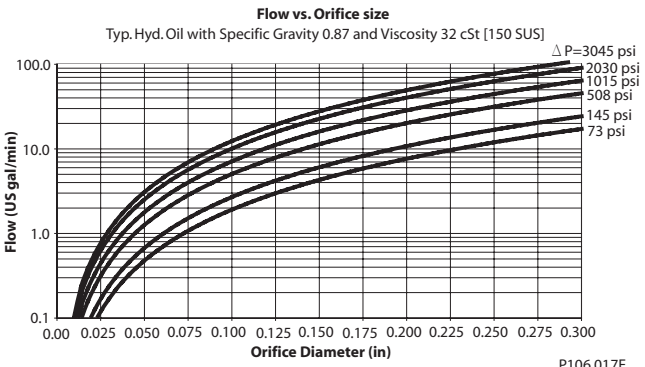


P106 014

SPECIFICATIONS



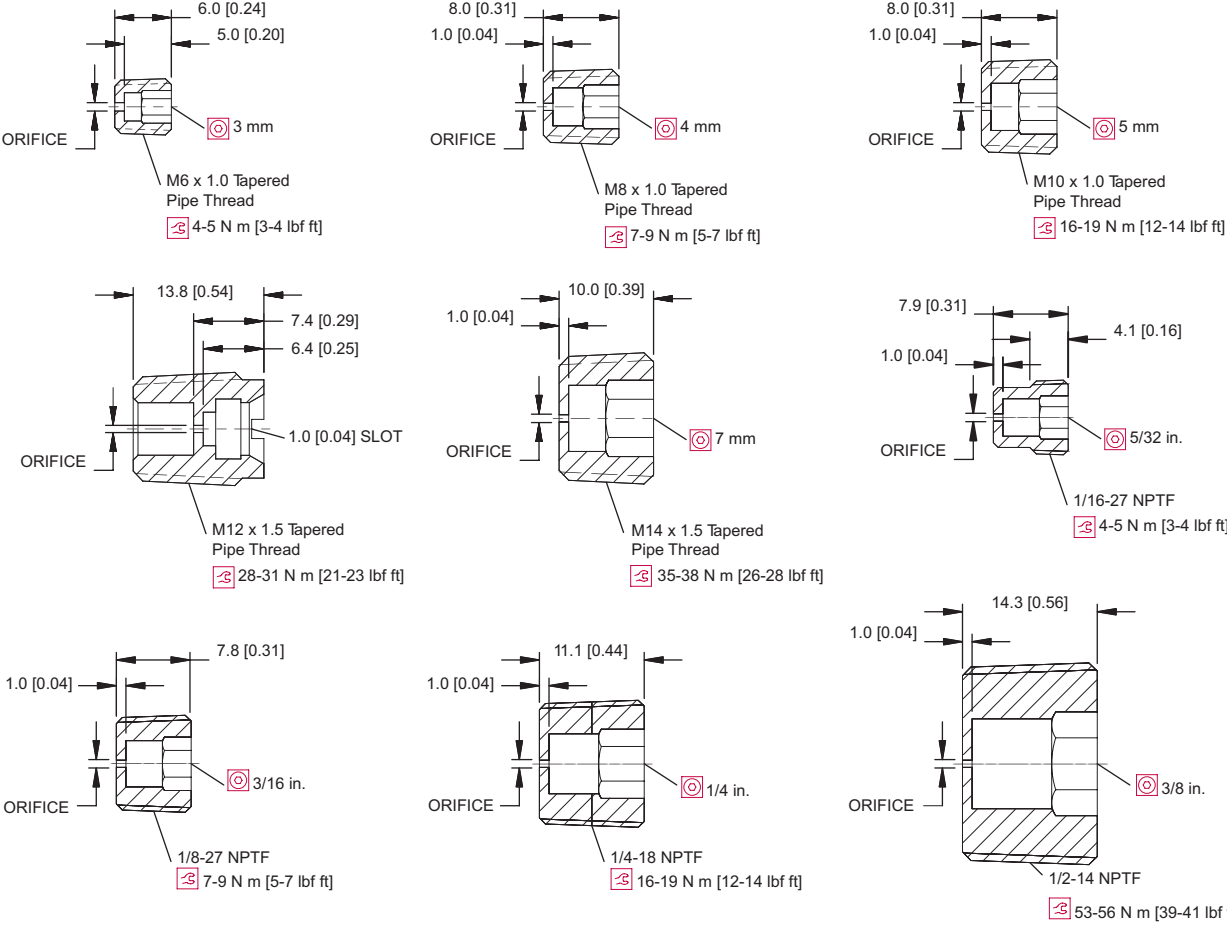
P106 016E



P106 017E

DIMENSIONS

mm [in]



Accessories
Orifice plug



Cartridge Valves Technical Information

Accessories

Orifice plugs

ORDERING INFORMATION

Orifice Diameter		Orifice Plug Part Number								
		Plug Thread Size								
mm	[in]	1/16-27 NPTF	1/8-27 NPTF	1/4-18 NPTF	1/2-14 NPTF	M6 x 1.0 Tapered Pipe Thread	M8 x 1.0 Tapered Pipe Thread	M10 x 1.0 Tapered Pipe Thread	M12 x 1.5 Tapered Pipe Thread	M14 x 1.5 Tapered Pipe Thread
None	None	620294	320150	320151	320153	624910	321561	321562	626059	321660
0.33	0.013	623736				625958				
0.38	0.015	620510	621351			625414			626061	
0.43	0.017								626062	
0.46	0.018	620295								
0.51	0.020	621510	621469			624898	625190		626063	
0.61	0.024	622417				624904		624478		
0.64	0.025	620634				624862	624838			
0.71	0.028	622846				624861	624839	624841		
0.76	0.030	620296	620299							
0.79	0.031			620927		624855	624857	624308	626133	625266
0.81	0.032	624410								
0.89	0.035	622447				624903	625346	625424		
0.91	0.036	620777				626022				
0.97	0.038	621608								
0.99	0.039	623455				624856	624821	624553		
1.02	0.040	620511	622231	624080						
1.07	0.042	621702				626075				
1.14	0.045	621210		620928						
1.19	0.047	620814	620591			625929	624892	624427		
1.32	0.052	620573				624911	626100	625374		
1.40	0.055	620572								
1.50	0.059					624846	624822	624152		
1.52	0.060	620297	621254							
1.57	0.062	621496	620509							
1.60	0.063					625197	624902	625252		
1.70	0.067					624844				
1.78	0.070	621554	620508	620751		625871	626041			
1.98	0.078	622117	621478							
2.01	0.079					626135	624681	624153		
2.03	0.080	620842								
2.06	0.081		621431							
2.13	0.084		622721							
2.18	0.086	621246								
2.21	0.087						625067			
2.26	0.089	620656								
2.29	0.090					625002				
2.39	0.094	620574				625542		626138		
2.44	0.096	621051		626010						
2.46	0.097						626185			
2.49	0.098	620774								624507
2.59	0.102	624360					625630			
2.64	0.104		621349							
2.67	0.105			621665						
2.74	0.108							625049		
2.79	0.110						625492			
2.82	0.111	620778								
2.95	0.116	620575	621319							
3.00	0.118	624422						624480		
3.05	0.120			621318						
3.10	0.122		624361							
3.18	0.125	620594	622722	620384			626058	626151		
3.28	0.129	620775								
3.30	0.130			623795						
3.35	0.132						625543			
3.45	0.136	620605								
3.56	0.140		622114							
3.78	0.149	623712								
3.96	0.156		622723							
4.06	0.160			621666						
4.22	0.166			620583						
4.57	0.180		624362							
4.78	0.188		620328	621880	623224					
5.00	0.197									624501
5.16	0.203		620657							
5.61	0.221			623908						
5.84	0.230									625981
6.35	0.250					624433				625068
7.92	0.312					622311				

Accessories
Orifice plug

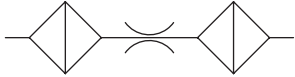


Cartridge Valves Technical Information
Accessories
Screened orifice plug

OPERATION

Install in manifold to restrict fluid flow.

Schematic



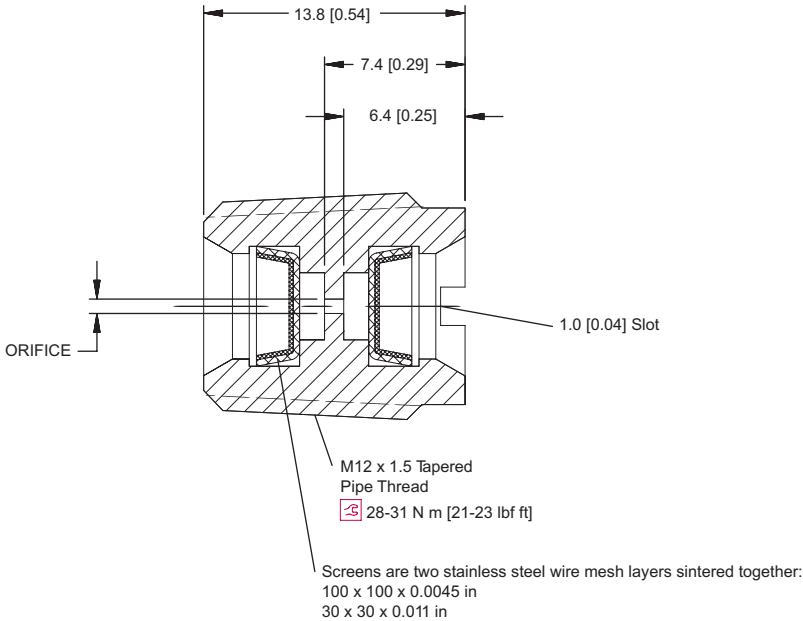
P106 021E

PERFORMANCE

Refer to Orifice plug sizing chart on page 18.28

DIMENSIONS

mm [in]



P106 019E

Accessories
Screened orifice plug

ORDERING INFORMATION

Orifice Diameter		Orifice Plug Part Number
mm	[in]	
0.38	0.015	923231
0.43	0.017	923038
0.46	0.018	923239
0.51	0.020	923061
0.64	0.025	923053
1.91	0.075	923186
3.56	0.140	923112

P106 020E