



Cartridge Valves Technical Information

Accessories

Quick reference

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Accessories
Quick reference





Cartridge Valves Technical Information

Accessories

CPF20 cavity screen

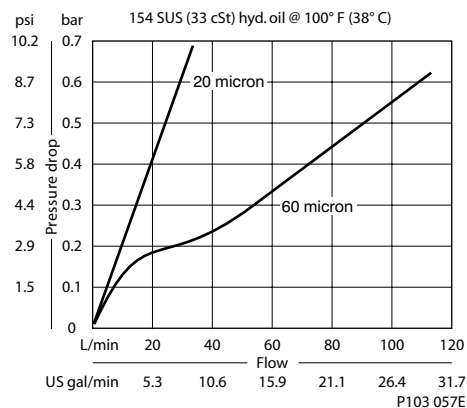
OPERATION

This cartridge assembly is a high pressure screen.

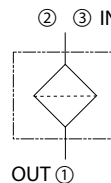
Not recommended as a substitute for hydraulic system filters.

SPECIFICATIONS

Performance graph



Schematic



P103 059

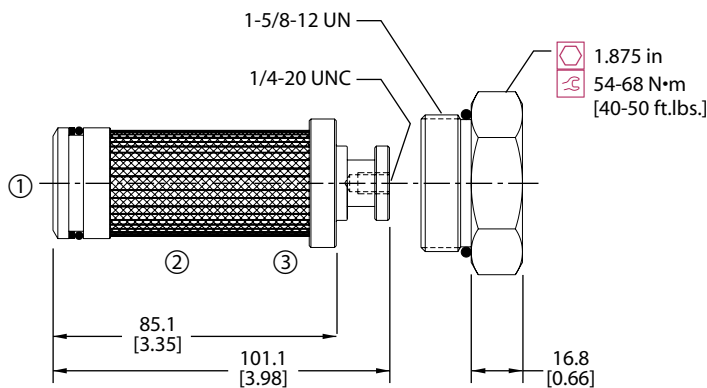
Specifications

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
- Filter mesh: 020 = 20 micron, 060 = 60 micron
- 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
- Plug option: P = Filter w/ #20 SAE hex plug, Omit = Filter only

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Cartridge Valves Technical Information

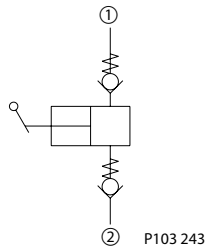
Accessories CP600-5 pump

OPERATION

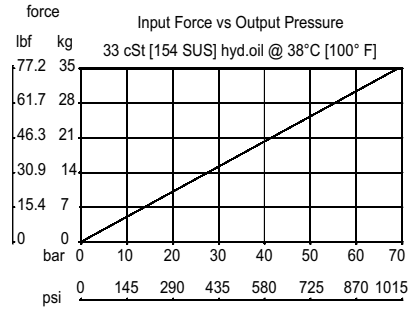
This is a manually operated uni-directional pump.

SPECIFICATIONS

Schematic



Specifications

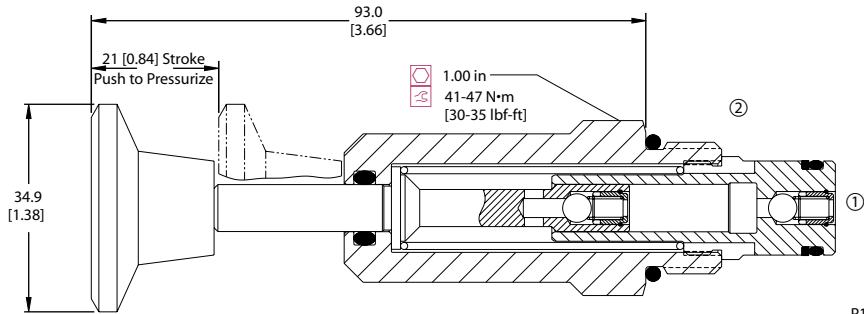


Specifications

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	0 = Cartridge only	No Housing
V = Viton	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	

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Accessories
CP600-5 pump



Cartridge Valves Technical Information

Accessories

CP602-5 hand pump

OPERATION

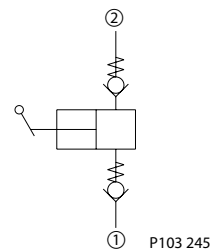
Manually operated pump.

SPECIFICATIONS

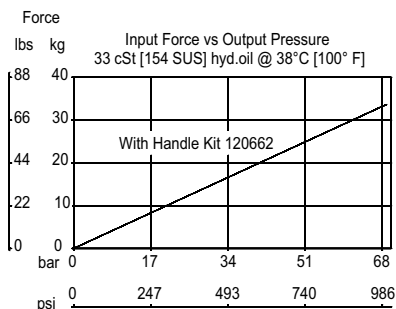
Specifications

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



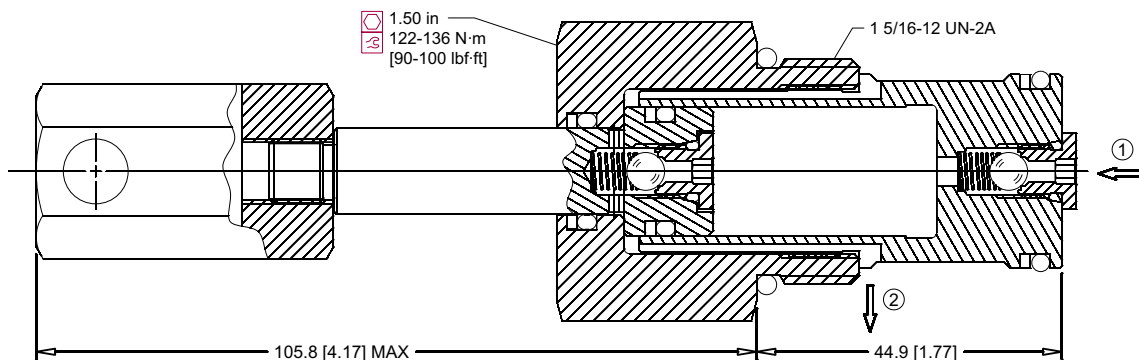
Performance graph



DIMENSIONS

mm [in]

Cross section



ORDERING INFORMATION

CP602-5-B-12S		
Seals		Housing and Ports
B = Buna-N	Sealkit 120019	0 = No Housing
V = Viton	120030	12S = AL #12 SAE
		16S = AL #16 SAE
		6B = AL 3/4 BSPP
		8B = AL 1 BSPP
		Other housings available
		Housing P/N
		No Housing
		CP16-2-12S
		CP16-2-16S
		CP16-2-6B
		CP16-2-8B

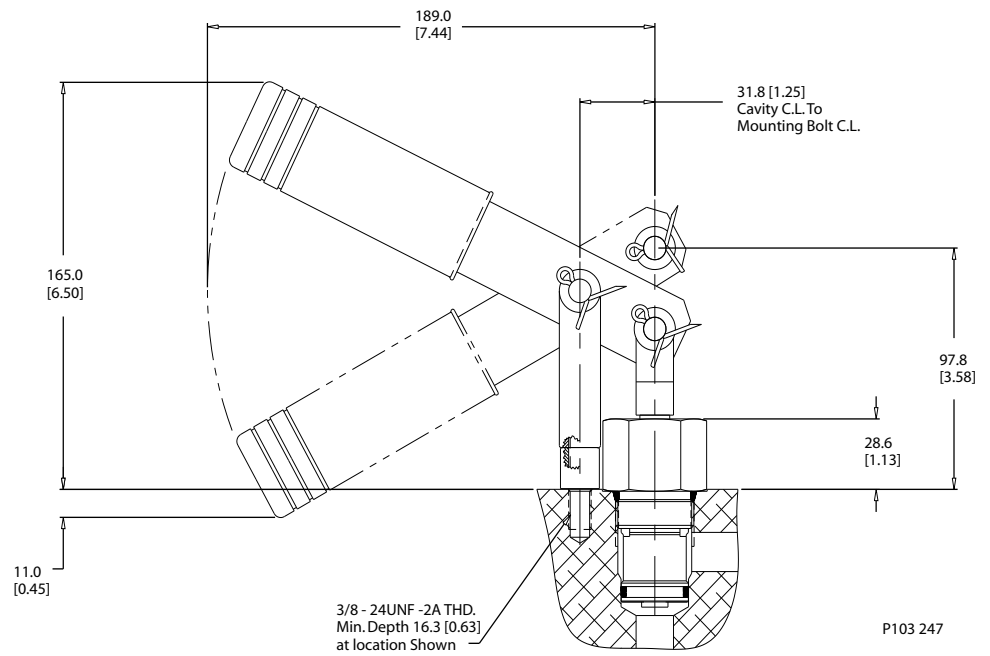
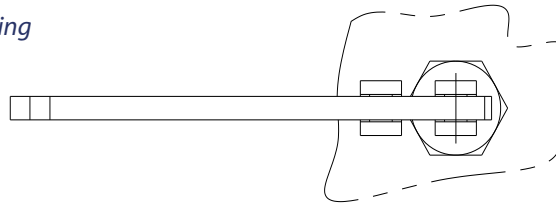
Handle kit is required
- sold separately PN - 120662



Cartridge Valves Technical Information
 Accessories
 120662 handle kit

DIMENSIONS

Installation Drawing



Accessories
120662 handle kit

ORDERING INFORMATION

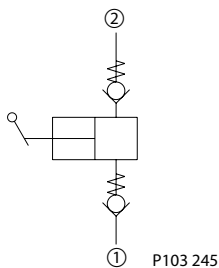
To order, request part number 120662—handle kit



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

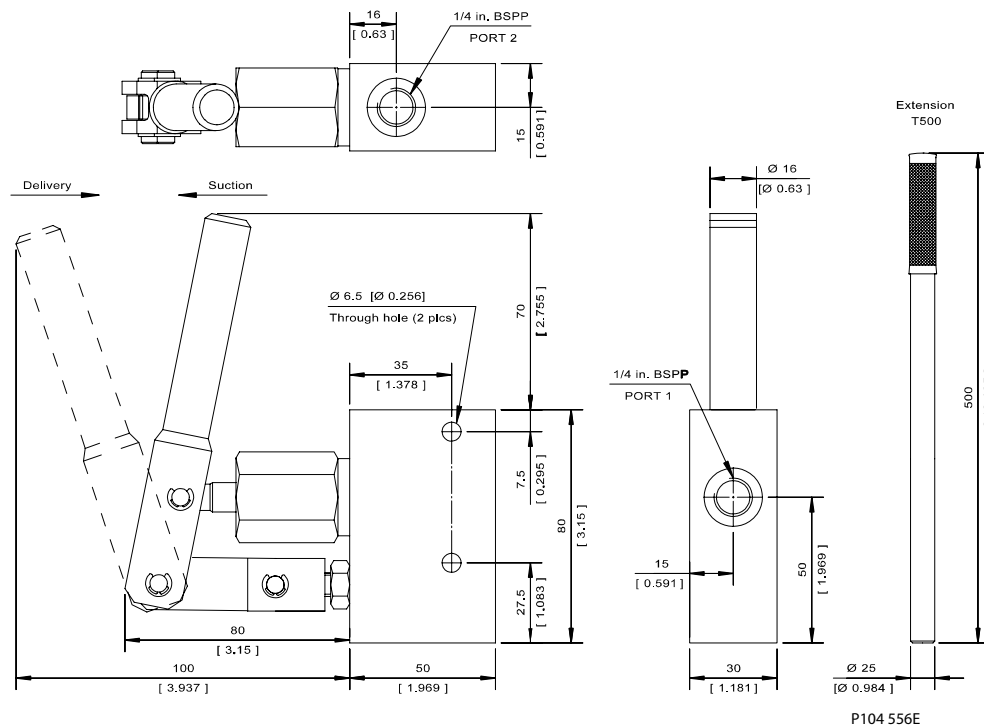
These small displacement hand pumps are used typically for piloting the operation of small hydraulic cylinders or valves. These pumps can be mounted inline using the standard housing or in special blocks. For smooth operation, inlet lines should not be excessively long, and the vertical distance between 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



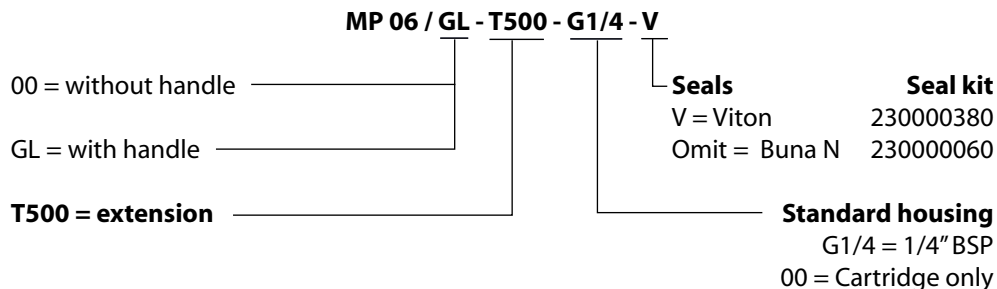
Accessories
MP06 and MP 12 hand pump



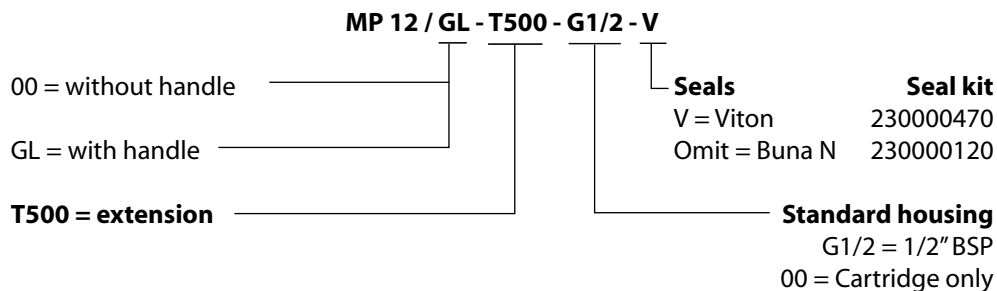
Cartridge Valves Technical Information
 Accessories
 MP 06 and MP 12 hand pumps

ORDERING INFORMATION

Example of designation MP 06



Example of designation MP 12



Accessories
 MP06 and MP 12 hand pump



Cartridge Valves Technical Information

Accessories

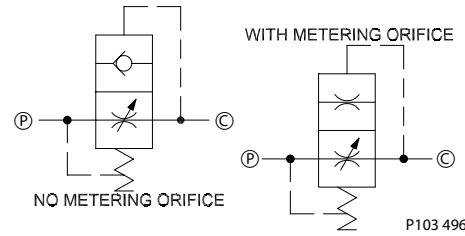
BC 06 velocity fuse

OPERATION

This is an in-line restrictive type flow control valve.

SPECIFICATIONS

Schematic

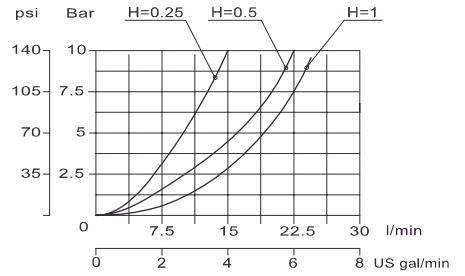


Specifications

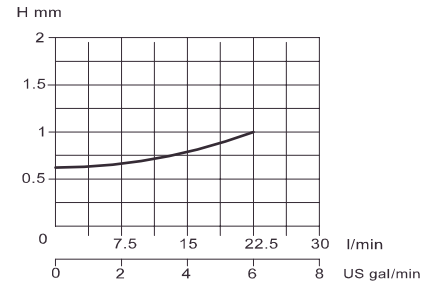
Pressure rating	210 bar [3000 psi]
Rated Free Flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Cavity	Consult factory

Theoretical performance

Pressure drop from P⇒C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



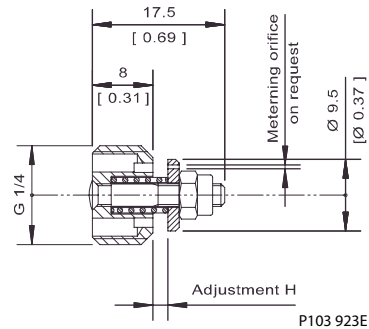
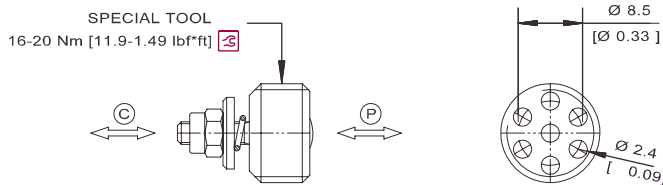
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



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DIMENSIONS

mm [in]



ORDERING INFORMATION

BC 06 - 1.0 - G - 00 - S1.5

- Adjustment H
- 00 = No factory adjustment
 - 0.25 = 0.25 mm [in]
 - 0.5 = 0.5 mm [in]
 - 1.0 = 1.0 mm [in]
 - 1.5 = 1.5mm [in]
 - 2.0 = 2.0mm [in]

- Metering orifice
- Omit = No orifice
 - S0.5 = 0.5 mm [in]
 - S0.7 = 0.7 mm [in]
 - S1.0 = 1.0 mm [in]
 - S1.5 = 1.5 mm [in]
 - S2.0 = 2.0 mm [in]

Coupling
Contact factory

P103 853E



Cartridge Valves Technical Information

Accessories

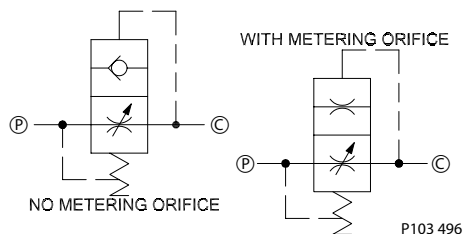
BC 10 velocity fuse

OPERATION

This is an in-line restrictive type flow control valve.

SPECIFICATIONS

Schematic

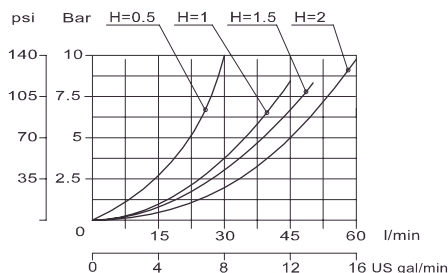


Specifications

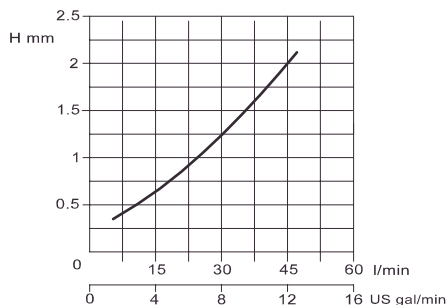
Pressure rating	210 bar [3000 psi]
Rated Free Flow at 7 bar [100 psi]	60 l/min [16 US gal/min]
Cavity	Consult factory

Theoretical performance

Pressure drop from P=C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



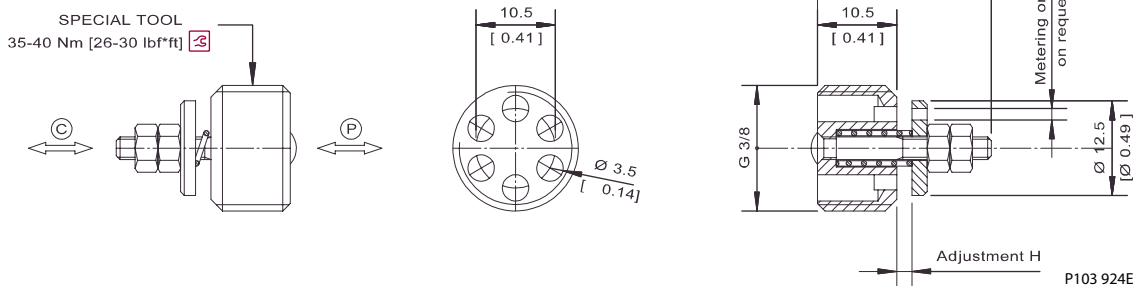
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



P103 939E

DIMENSIONS

mm [in]



ORDERING INFORMATION

BC 10 - 1.0 - G - 00 - S1.5

Adjustment H

- 00 = No factory adjustment
- 0.25 = 0.25 mm [in]
- 0.5 = 0.5 mm [in]
- 1.0 = 1.0 mm [in]
- 1.5 = 1.5mm [in]
- 2.0 = 2.0mm [in]

Metering orifice

- Omit = No orifice
- S0.5 = 0.5 mm [in]
- S0.7 = 0.7 mm [in]
- S1.0 = 1.0 mm [in]
- S1.5 = 1.5 mm [in]
- S2.0 = 2.0 mm [in]

Coupling
Contact factory

P103 847E

Accessories
BC 10 velocity fuse



Cartridge Valves Technical Information

Accessories

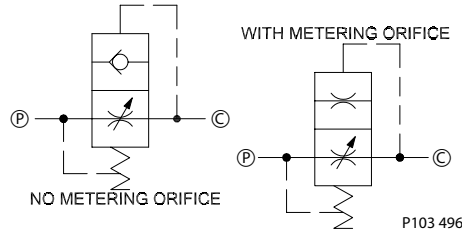
BC 13 velocity fuse

OPERATION

This is an in-line restrictive type flow control valve with free reverse flow.

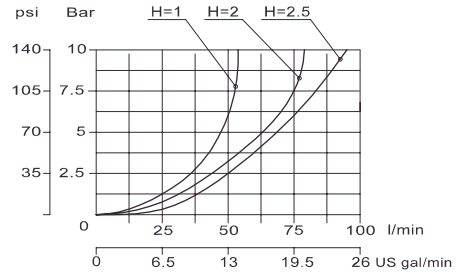
SPECIFICATIONS

Schematic

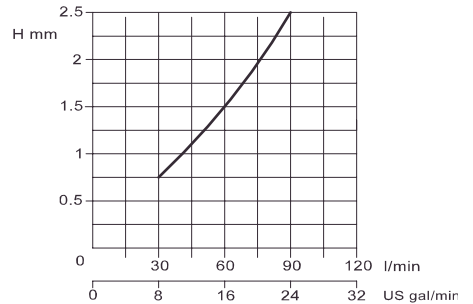


Theoretical performance

Pressure drop from P ⇒ C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



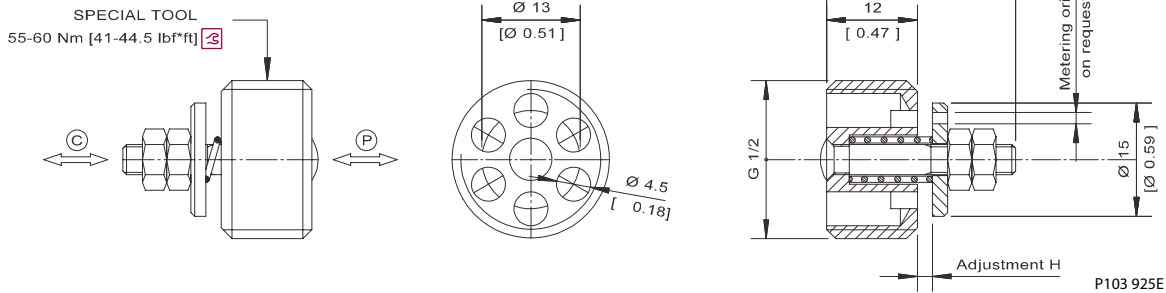
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



P103 940E

DIMENSIONS

mm [in]



ORDERING INFORMATION

BC 13 - 1.0 - G - 00 - S1.5

- Adjustment H**
- 00 = No factory adjustment
 - 0.25 = 0.25 mm [in]
 - 0.5 = 0.5 mm [in]
 - 1.0 = 1.0 mm [in]
 - 1.5 = 1.5 mm
 - 2.0 = 2.0 mm

- Metering orifice**
- Omit = No orifice
 - S0.5 = 0.5 mm [in]
 - S0.7 = 0.7 mm [in]
 - S1.0 = 1.0 mm [in]
 - S1.5 = 1.5 mm [in]
 - S2.0 = 2.0 mm [in]

Coupling
Contact factory

P103 848E

Accessories
BC 13 velocity fuse



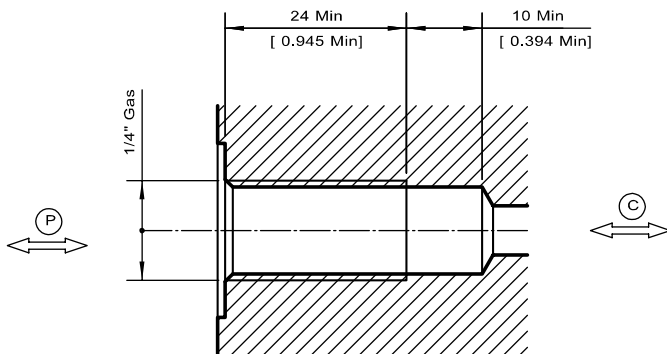
Cartridge Valves Technical Information

Accessories BC 06, BC 10 and BC 13 cavities

TYPE BC 06

TOLERANCES UNLESS OTHERWISE SPECIFIED

Diameter and Lengths:
if < 18mm ± 0.1 [0.004]
Angles ± 2°

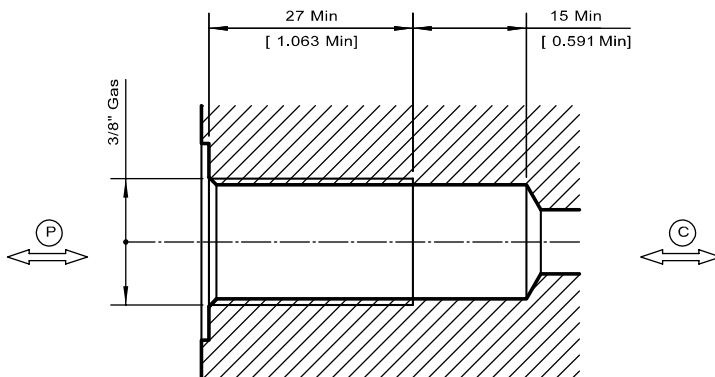


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TYPE BC 10

TOLERANCES UNLESS OTHERWISE SPECIFIED

Diameter and Lengths:
if < 18mm ± 0.1 [0.004]
Angles ± 2°

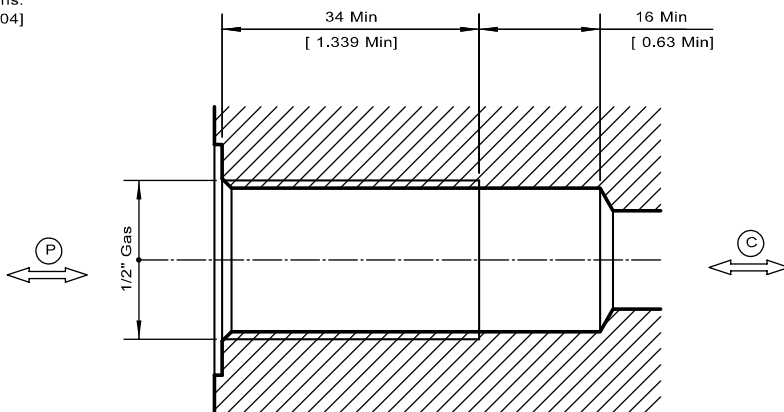


P103 140

TYPE BC 13

TOLERANCES UNLESS OTHERWISE SPECIFIED

Diameter and Lengths:
if < 18mm ± 0.1 [0.004]
Angles ± 2°



P103 141

Accessories
BC 06, BC 10, and BC 13 cavities



Cartridge Valves Technical Information

Accessories

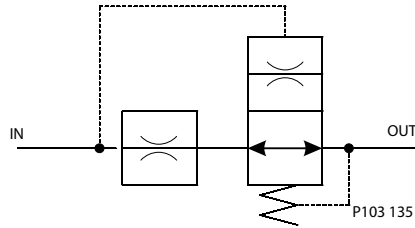
CP330-3 velocity fuse

OPERATION

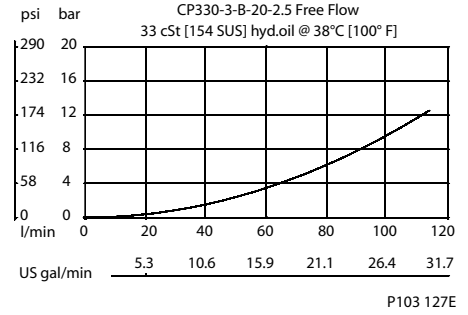
This is an in-line velocity fuse.

SPECIFICATIONS

Schematic



Specifications

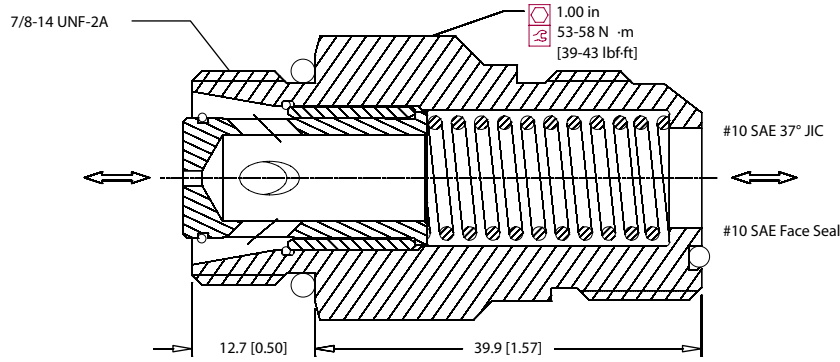


Specifications

Pressure rating	207 bar [3000 psi]
Max Trip Flow	110 l/min [29 US gal/min]
Bypass Flow	9.5 lpm [2.5 gal/min]
Weight	0.12 kg [0.26 lbs]
Cavity	#10 SAE Port

DIMENSIONS

mm [in]



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ORDERING INFORMATION

CP330-3-B-FS10-17-2.5

Seals B = BUNA-N V = VITON	Bypass Flow @ 48 bar [700 psi]
Fitting Type Omit = #10SAE37° JIC FS10 = #10SAE face seal	Flow Setting
	l/min USgal/min
	17 = 64.4 17
	20 = 75.7 20
	23 = 87.1 23
	26 = 98.4 26
	29 = 109.8 29
	2.5 = 9.5 2.5

P103 131E

Accessories
CP330-3 velocity fuse



Cartridge Valves Technical Information

Accessories

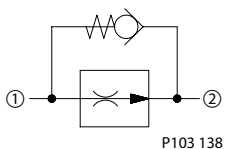
CP9014-1 flow control valve

OPERATION

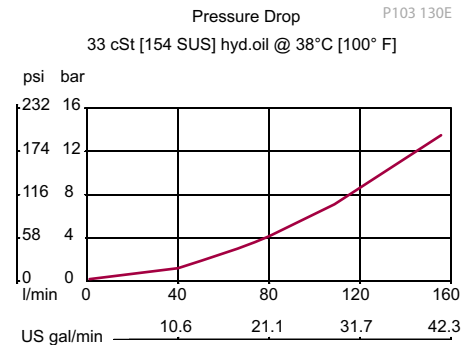
This is an in-line restrictive type flow control valve with free reverse flow.

SPECIFICATIONS

Schematic

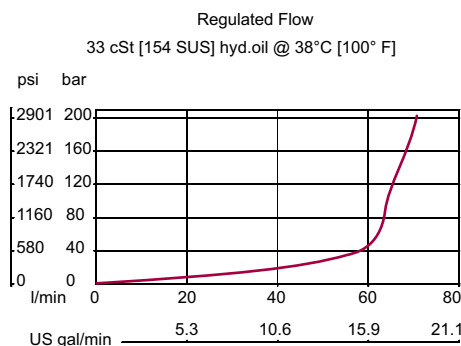


Specifications



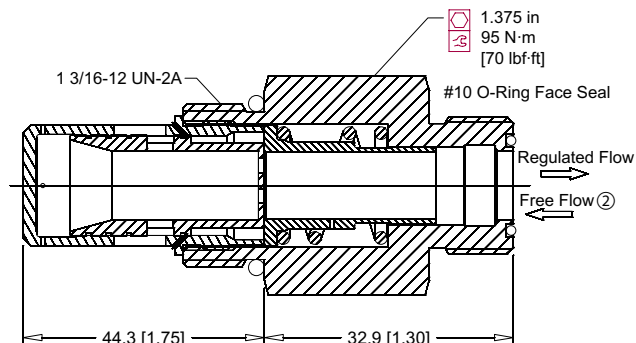
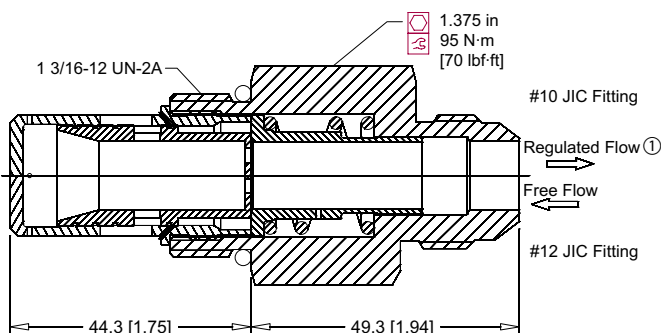
Specifications

Pressure rating	207 bar [3000 psi]
Rated Free Flow at 7 bar [100 psi]	113 l/min [30 US gal/min]
Max regulated flow	106 l/min [28 US gal/min]
Cavity	Modified SAE #14 port



DIMENSIONS

mm [in]



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ORDERING INFORMATION

CP9014-1-B-10-24

Seals	Seal kit	Flow Setting
B = Buna-N	720025	l/min USgal/min
V = Viton	720363	18 = 68.1 18
		24 = 90.8 24
		28 = 106.0 28
		Consult factory for complete list of flows.
	Connection(Port2)	
	10 = #10SAE37° JIC Fitting	7/8-14UNC-2A
	12 = #12SAE37° JIC Fitting	11/16-12UN-2A
	FS10 = #10SAEO-Ring Face Seal	17/16-12UN-2A

P103 134E

Accessories
CP9014-1 flow control valve



Cartridge Valves Technical Information

Accessories

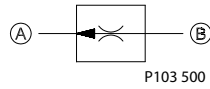
SC 10

OPERATION

This is an in-line restrictive type flow control valve.

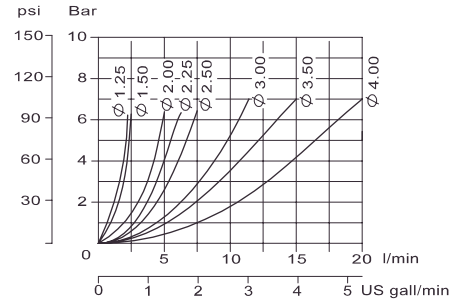
SPECIFICATIONS

Schematic

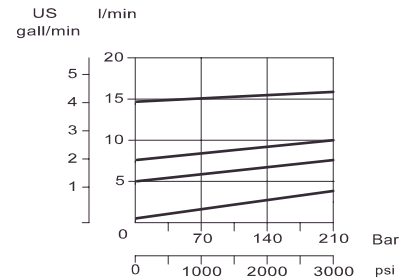


Theoretical performance

Pressure drop from A⇒B according to orifice diameter
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



Variation in controlled flow from B⇒A according to pressure
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]

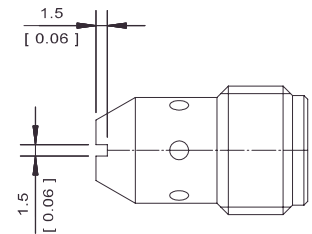
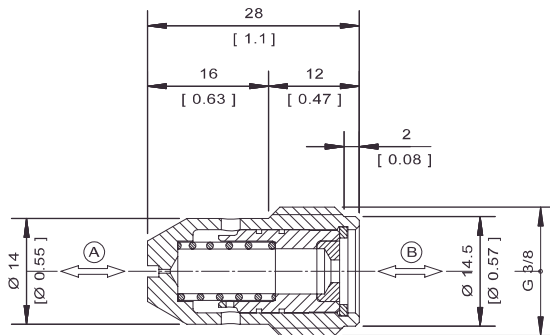


Specifications

Pressure rating	210 bar [3000 psi]
Max regulated flow	16 l/min [4.2 US gal/min]
Cavity	Consult factory

DIMENSIONS

mm [in]



P103 941E

P103 926E

ORDERING INFORMATION

SC10 - 1.25 - G - 00

Orifice diameter mm	Flow at 100 bar [1450 psi] l/min [US gal/min]
1.25	= 2.0[0.53]
1.50	= 3.0[0.79]
2.00	= 4.0[1.06]
2.25	= 5.0[1.32]
2.50	= 6.0[1.59]
3.00	= 9.0[2.38]
3.50	= 11.0[2.91]
4.00	= 16.0[4.23]

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Cartridge Valves Technical Information

Accessories

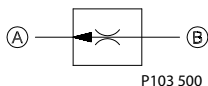
SC 13

OPERATION

This is an in-line restrictive type flow control valve.

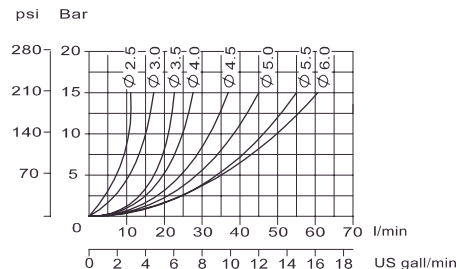
SPECIFICATIONS

Schematic



Theoretical performance

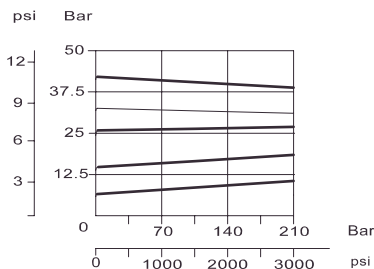
Pressure drop from A \Rightarrow B according to orifice diameter
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



Specifications

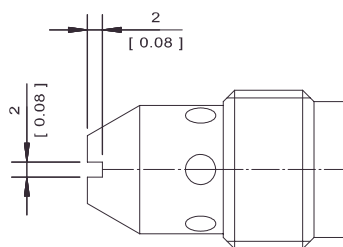
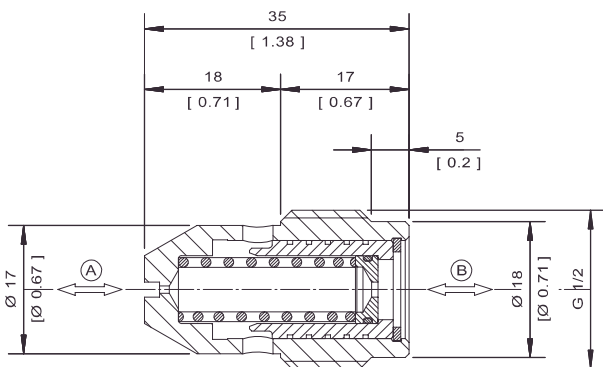
Pressure rating	207 bar [3000 psi]
Max regulated flow	47 l/min [12 US gal/min]
Cavity	Consult factory

Variation in controlled flow from B \Rightarrow A according to pressure
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



DIMENSIONS

mm [in]



ORDERING INFORMATION

SC13/4.5 - G - 00

Orifice diameter	Flow at 100 bar [1450 psi]
mm	l/min [US gal/min]
2.50	= 9 [2.38]
3.00	= 12 [3.17]
3.50	= 17 [4.49]
4.00	= 21 [5.55]
4.50	= 27 [7.13]
5.00	= 32 [8.45]
5.50	= 40 [10.57]
6.00	= 47 [12.42]

P103 942E

P103 927E



Cartridge Valves Technical Information

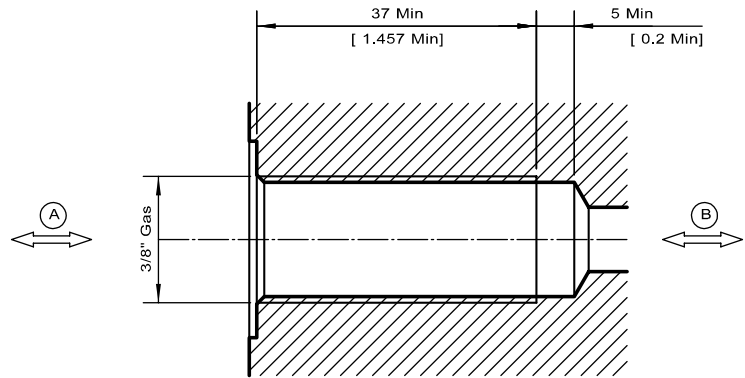
Accessories SC 10 and SC 13 cavities

TYPE SC 10

DIMENSIONS mm [in]

TOLERANCES UNLESS OTHERWISE SPECIFIED

Diameter and Lengths:
if < 18mm ± 0.1 [0.004]
Angles ± 2°



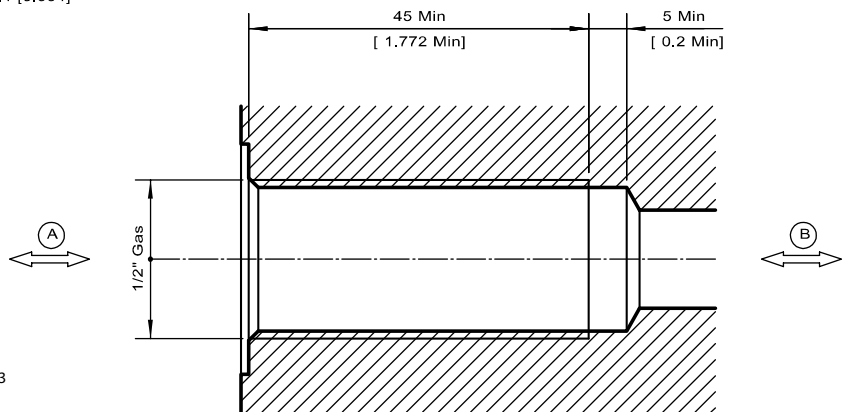
P103 142

TYPE SC 13

DIMENSIONS mm [in]

TOLERANCES UNLESS OTHERWISE SPECIFIED

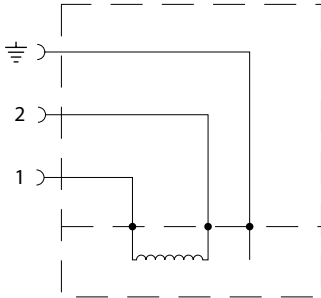
Diameter and Lengths:
if < 18mm ± 0.1 [0.004]
Angles ± 2°



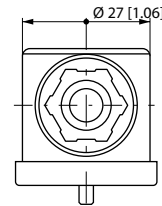
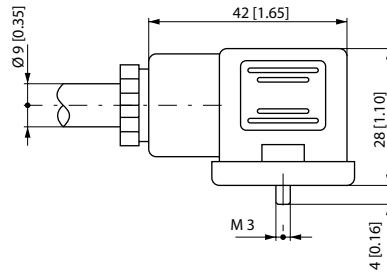
P103 143

Accessories
SC 10 and SC 13 cavities

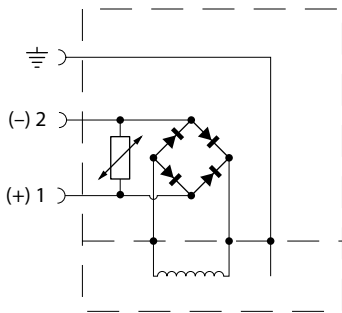
STANDARD CONNECTORS TO DIN 43650



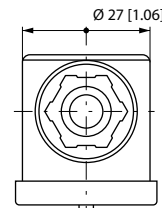
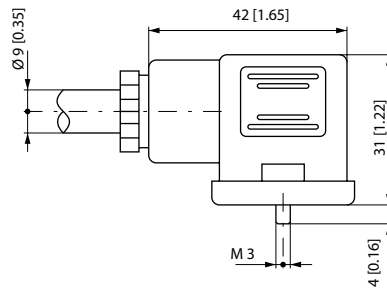
TYPE A CONNECTOR



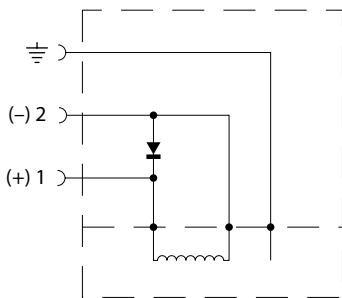
Standard connector for use with DC input.
Type A
Order no.088010080



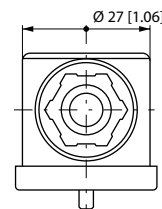
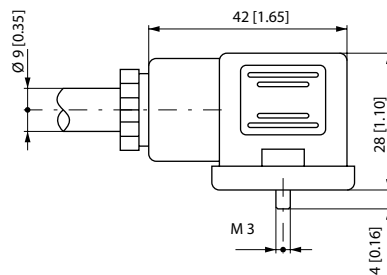
TYPE C CONNECTOR



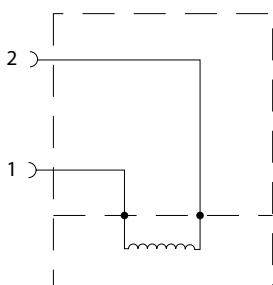
Full wave bridge rectifier with 4 diodes and VDR protecting the a.c. side against overvoltage from electrical power supply.
Type C
Order no.088010060



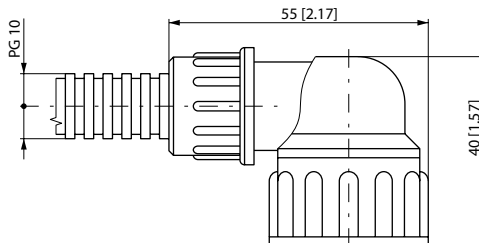
TYPE E CONNECTOR



With diode blocking overvoltage on opening.
Type E
Order no.088010410



TYPE K CONNECTOR



Standard connector to Kostal pattern, for use with DC input.
Type K
Order no.088010350

P104 557E

REMARK

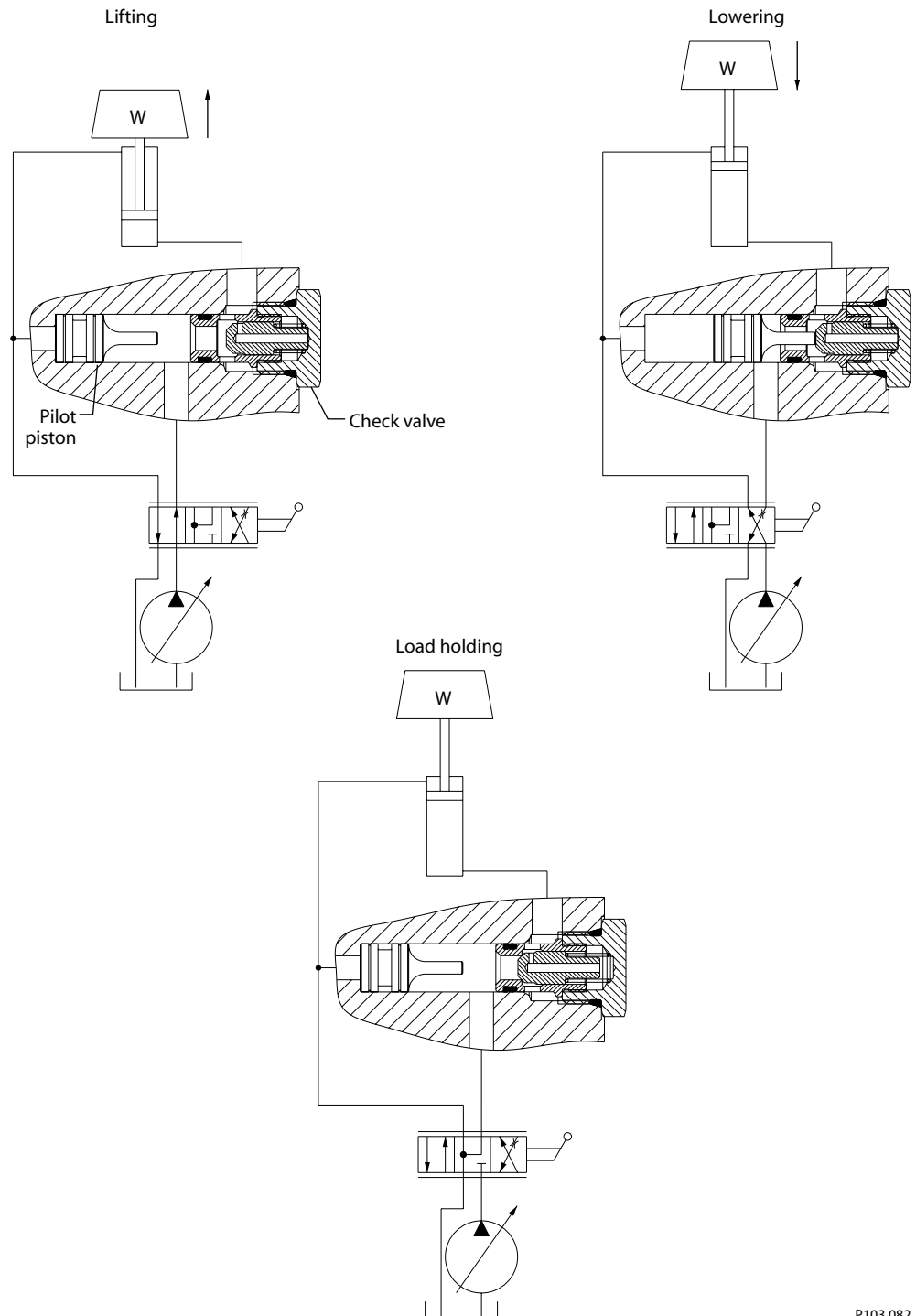
For details of use, see technical data relevant to the individual solenoid valves. All connector are supplied unassembled. Connectors with indicator lights are available on request (Consult factory).

OPERATION

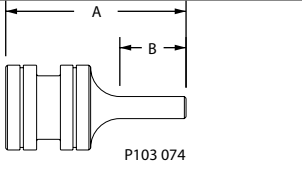
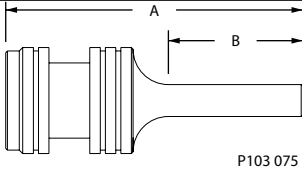
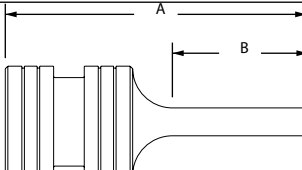
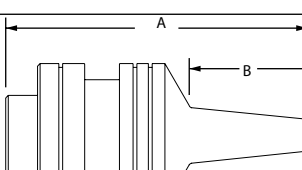
Pilot pistons used with check valve cartridges are an economical way to create pilot-operated check valve functions in custom **Hydraulic Integrated Circuits (HIC)**.

EXAMPLE

Application of pilot pistons

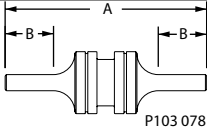
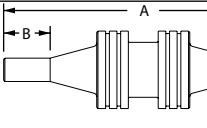
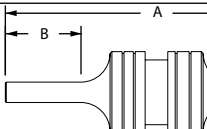
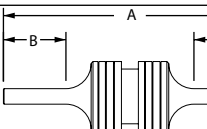


Single-acting pilot pistons

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.

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

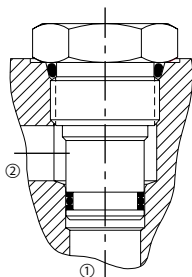
Accessories

Cavity plugs (CP and SDC cavities)

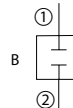
FUNCTION

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

2 WAY PLUG



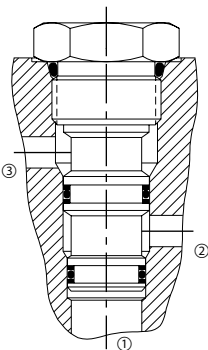
Plug options



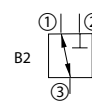
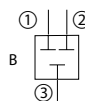
P103 061

P103 065

3 WAY PLUG



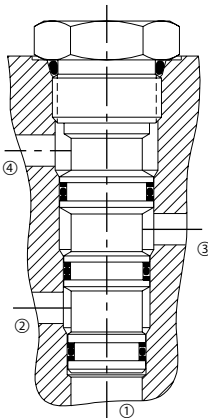
Plug options



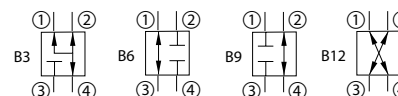
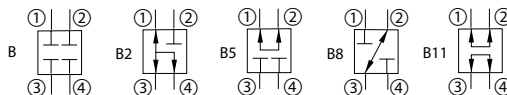
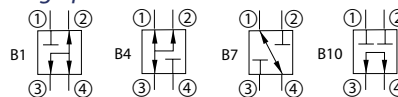
P103 062

P103 066

4 WAY PLUG



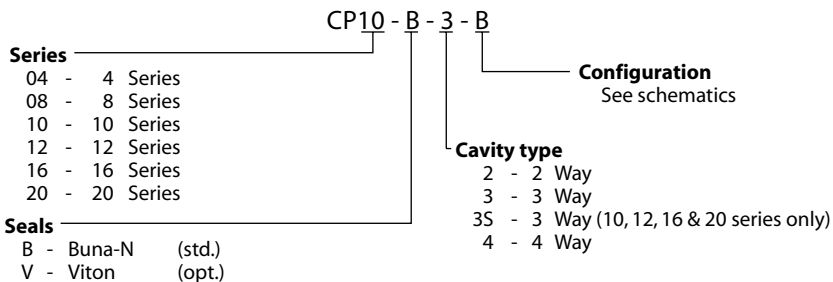
Plug options



P103 063

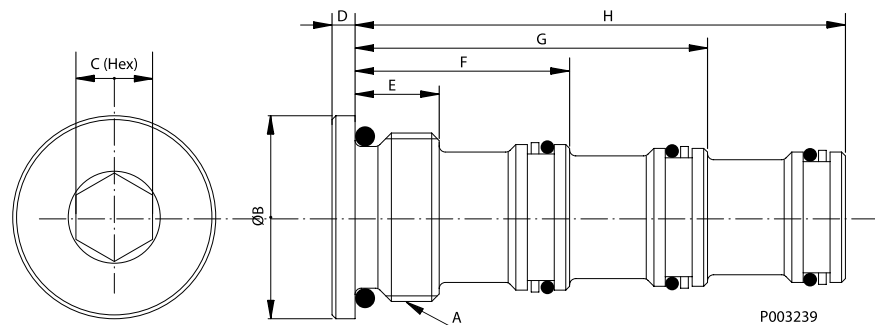
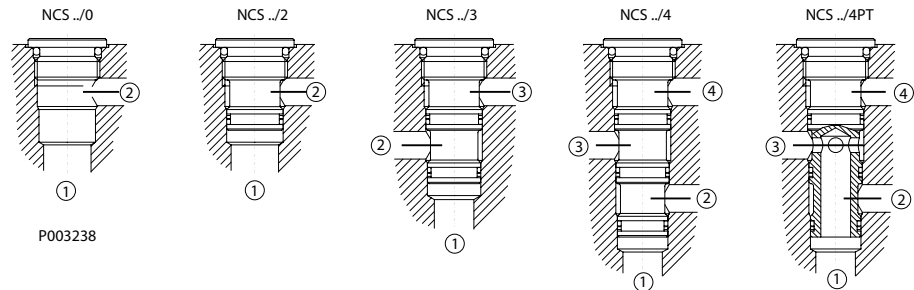
P103 067

ORDERING INFORMATION



P103 064

PLUGS FOR NCS CAVITIES



Dimensions

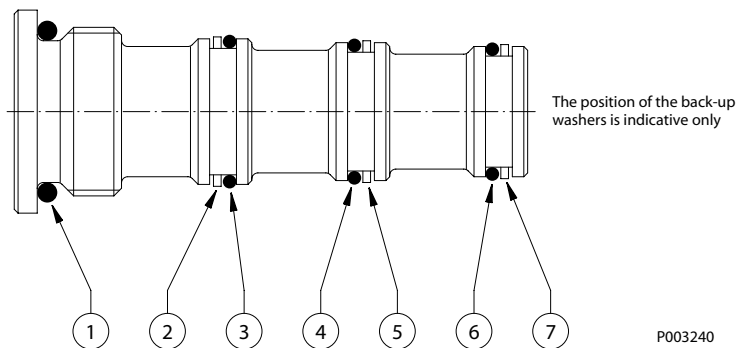
Type	Dimensions-mm								Order number for plug complete	Weight of plug complete-kg [lbs.]
	A	B	C	D	E	F	G	H		
NCS 04/0	M18x1.5	22 [0.87]	8	3 [0.12]	10.5 [0.41]	—	—	—	92.00.010.1	0.018 [0.04]
NCS 04/2	M18x1.5	22 [0.87]	8	3 [0.12]	—	24.5 [0.96]	—	—	92.00.009.1	0.035 [0.08]
NCS 04/3	M18x1.5	22 [0.87]	8	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



Cartridge Valves Technical Information

Accessories

Form tools (NCS and VME cavities)

STEP DRILLS FOR NCS

Type of cavity	Order number: Step drill with two cutting edges-HSS	Order number: Step drill with three cutting edges-hard metal
Step NCS 04/2	00950741	00950742
Step NCS 04/3	00950791	00950792
Step NCS 04/4	00950801	00950802
Step NCS 06/2	00950651	00950652
Step NCS 06/3	00950561	00950562
Step NCS 06/4	00950641	00950642
Step NCS 12/2	00950691	00950692
Step NCS 12/3	00950701	00950702
Step NCS 12/4	00950711	00950712
Step NCS 16/3		00951392

STEP DRILLS FOR
SPECIAL CAVITIES

Type of cavity	Order number: Step drill with two cutting edges-HSS
Seating VM03	00950491
Seating VME 06	00950301
Seating VME 07	00950101
Seating VME 08	00950091
Seating 041/2	00950811
Seating 041/3	00952411
Seating 041/3	00952421
Seating 041/4	00950701
Seating 043/3 (PDRH 043)	00951671
Seating 044/2-064/2-061/2	00951721
Seating 044/3-064/3	00951381
Seating 044/4-064/4	00951601
Seating 065/2	00950621
Seating 066/2	00952961
Seating 066/3	00952191
Seating 066/4	00952181
Seating 068/2 (RPP 068)	00951541
Seating 068/3 (PPRC 068)	00951711
Seating 121/3 (VCD 121)	00950451

STEP DRILLS FOR PORTS

Type of port	Order number: Step drill with two cutting edges-HSS
1/8 BSP*	00951941
1/4 BSP	00951491
3/8 BSP	00951501
1/2 BSP	00951191
3/4 BSP	00951511
1 BSP	00950371
M14x1.5**	00951221
M16x1.5	00951231
M18x1.5	00951241
M22x1.5	00951681

*"BSP" Series ports to UNI 338-66 (cylindrical)

**"M" Series ports to UNI 4534-64 (metric)



Cartridge Valves Technical Information

Accessories

MC200 microcontroller (P/N 1090882)

FEATURES

- Full featured dual axis driver
- On the fly choice of 2 input characterization curves
- Independent acceleration and deceleration settings
- Adjustable output PWM frequencies from 80 to 200 Hz

MC microcontroller



F102 016

FLEXIBLE DESIGN

The 2-axis joystick controller personality software for the MC200 microcontroller provides an economical 2-axis proportional valve driver with many features packaged to withstand the mobile environment. These include on the fly maximum output adjustment and closed loop output current control. This controller is perfectly suited to work in conjunction with the Sauer-Danfoss JS series hall effect joysticks. Sauer-Danfoss WebGPI™ interface software provides communication to the microcontroller and access to all setup variables. Customer defined parameter default values are also possible. Contact the factory for details.

FULL FEATURED DEVICE

Sauer-Danfoss personality standard features

- Adjustable error detection
- Fault code reporting
- On-line documentation
- Data-logging with WebGPI™ interface

Rugged hardware

- 9 to 32 Vdc operation
- Environmentally sealed connector
- Rugged die cast housing
- Protected from shock, vibration, EMI/RFI, high pressure washdown, temperature and humidity extremes
- Compact footprint:
87.4 mm [3.44 in] wide x 116.8 mm [4.60 in] long x 51.8 mm [2.04 in] deep

Inputs

- Joystick axis 1 (analog)
- Joystick axis 2 (analog)
- Output Enable (digital)
- Joystick 1 profile (digital/optional)
- Joystick 2 profile (digital/optional)
- Output 1 max. (digital/optional)
- Output 2 max. (digital/optional)
- Force calibrate (digital/optional)

Outputs

- Valve 1 FWD
- Valve 1 REV
- Valve 2 FWD
- Valve 2 REV



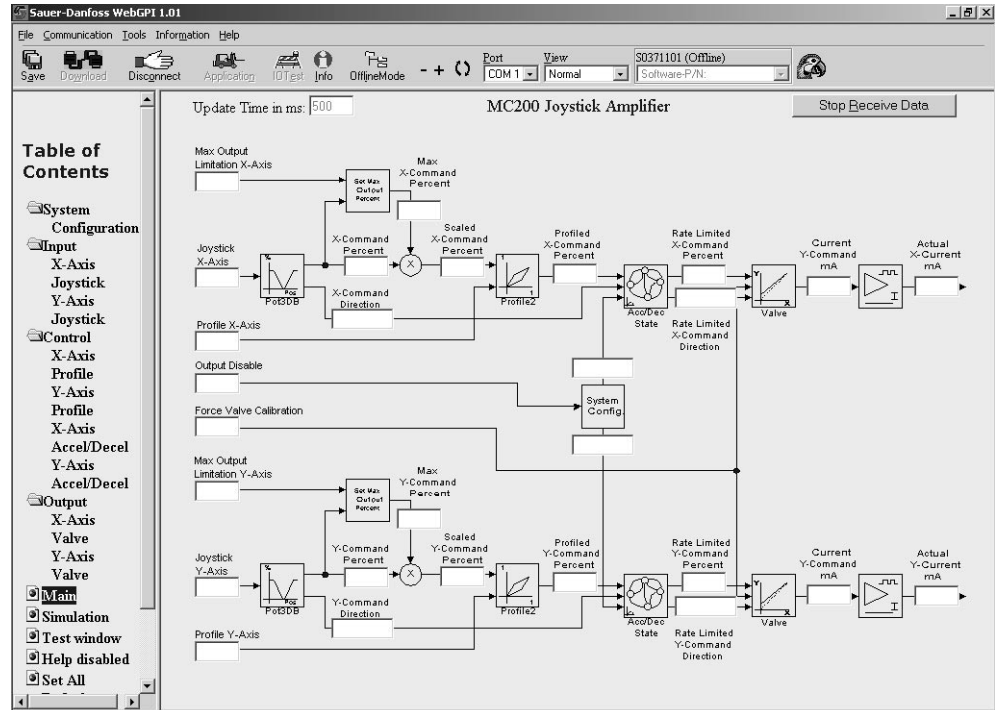
Cartridge Valves Technical Information

Accessories

MC200 microcontroller (P/N 1090882)

FULL FEATURED DEVICE (continued)

WebGPI screen



ORDERING INFORMATION

1090745 Two 2.5 A proportional valve outputs
See BLN-95-9072 for specific hardware information.

PRODUCTS

- MC200 mating connector:
K23334
- WebGPI™ communication software CD:
1090381
- MC200 2-axis joystick control setup files CD:
1090505
- 3-pin Packard to DB9 programming cable:
KW02025
- Metri-Pack mating connector crimp tool:
12085271 (from Packard Electric)



Cartridge Valves Technical Information

Accessories

Orifice plugs

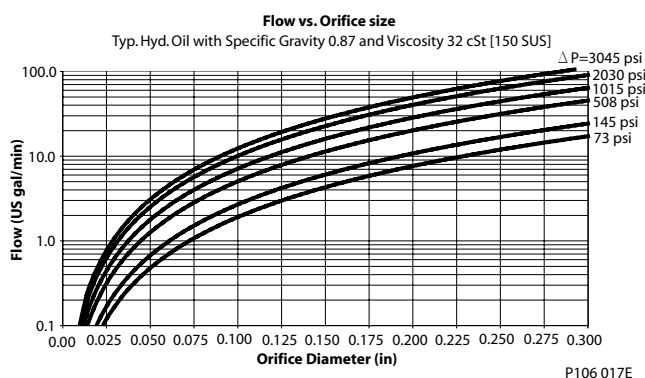
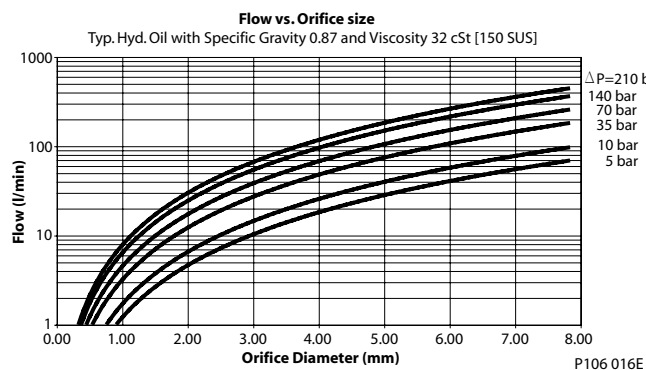
OPERATION Install in manifold to restrict fluid flow.

Schematic



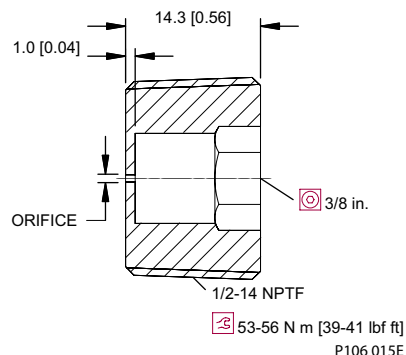
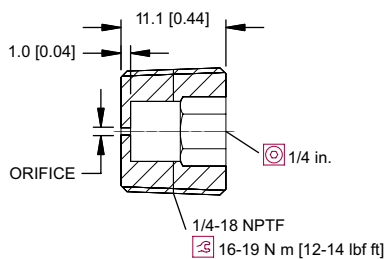
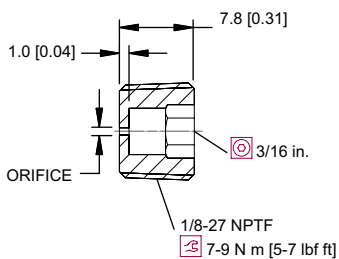
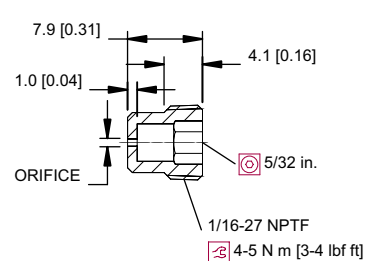
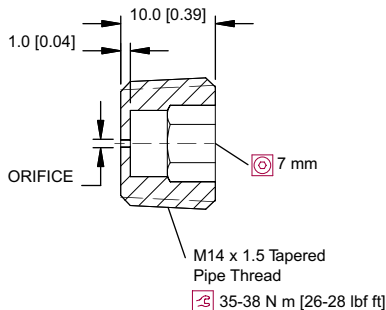
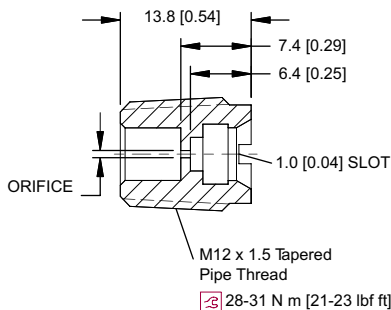
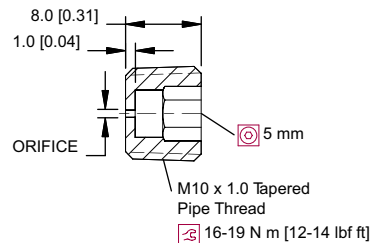
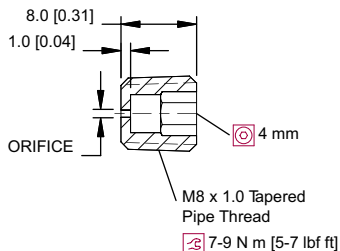
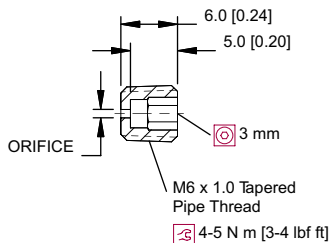
P106 014

SPECIFICATIONS



DIMENSIONS

mm [in]



Accessories
Orifice plug



Cartridge Valves Technical Information

Accessories
Orifice plugsORDERING
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									
2.79	0.110						625492	625049		
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					

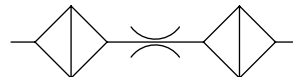


Cartridge Valves Technical Information
 Accessories
 Screened orifice plug

OPERATION

Install in manifold to restrict fluid flow.

Schematic



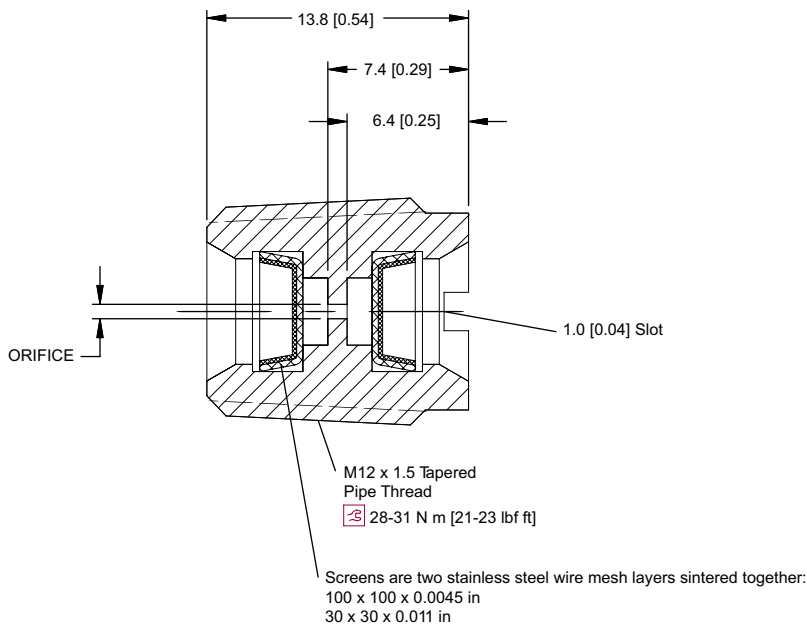
P106 021E

PERFORMANCE

Refer to Orifice plug sizing chart on page 18.28

DIMENSIONS

mm [in]



P106 019E

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



Cartridge Valves Technical Information

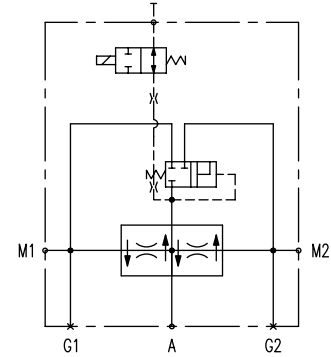
Accessories

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.

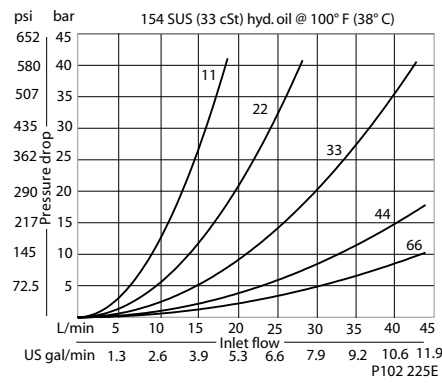
Schematic diagram



P104 584

PERFORMANCE

Performance curve

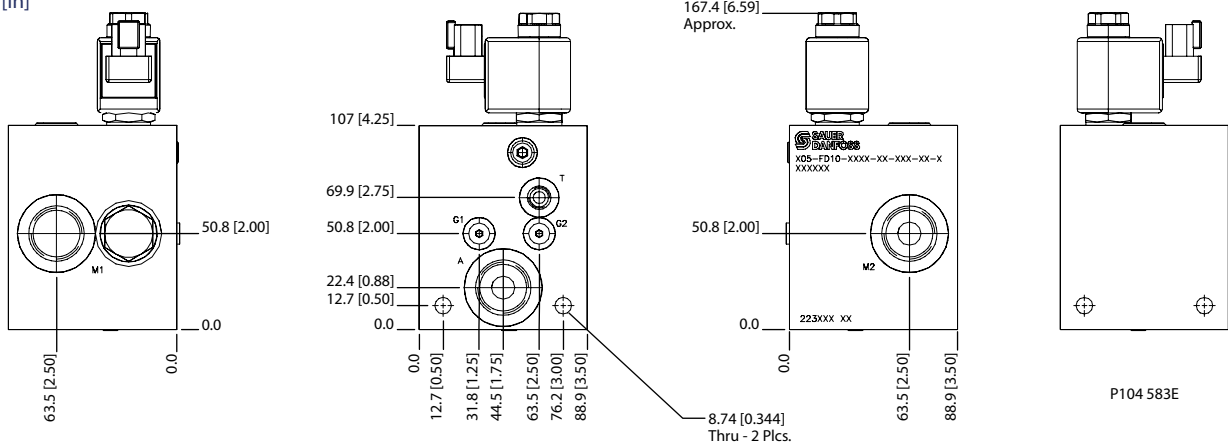


Specifications

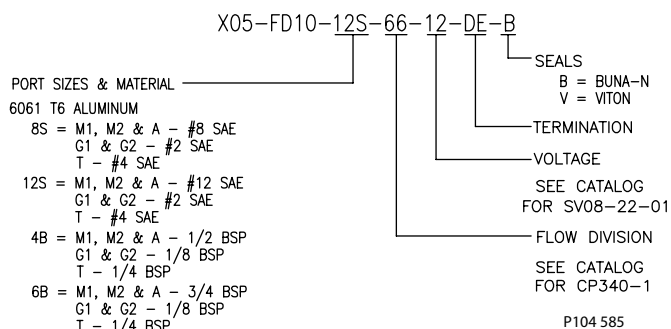
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Weight	2.79 kg [6.15 lb]

DIMENSIONS

mm [in]



ORDERING INFORMATION



Accessories X05-FD10



Cartridge Valves Technical Information

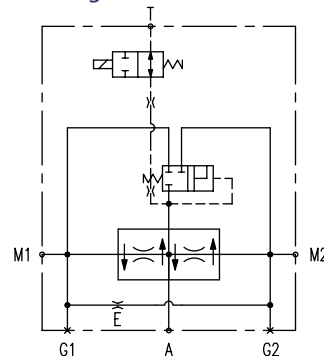
Accessories

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.

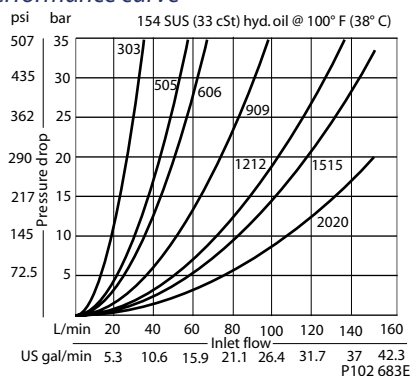
Schematic diagram



P104 588

PERFORMANCE

Performance curve

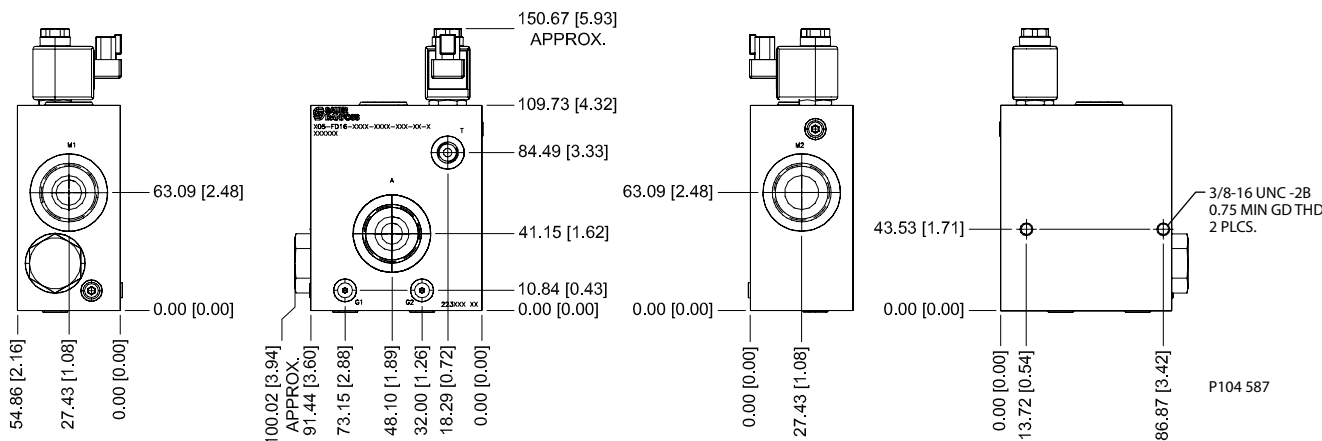


Specifications

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]

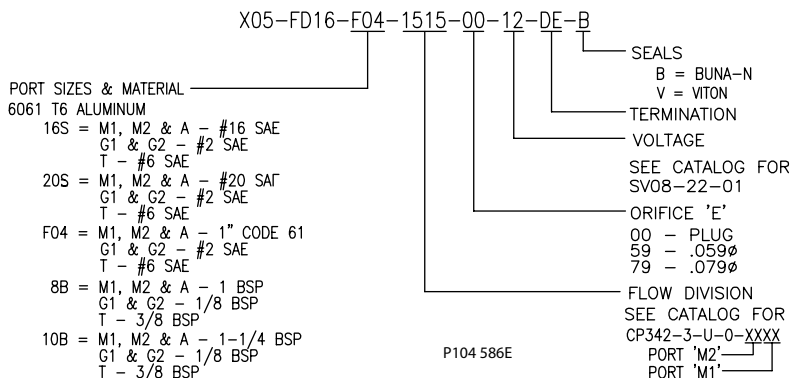
DIMENSIONS

mm [in]



P104 587

ORDERING INFORMATION



P104 586E



Cartridge Valves Technical Information

Accessories

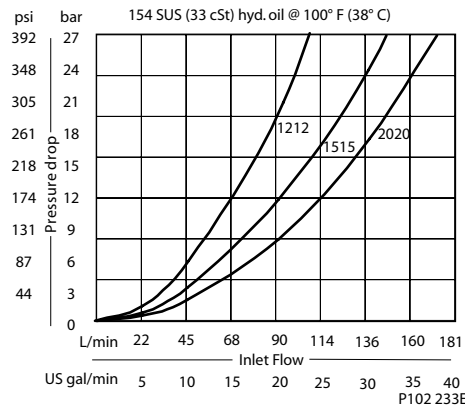
X05-FD104 traction manifold

OPERATION

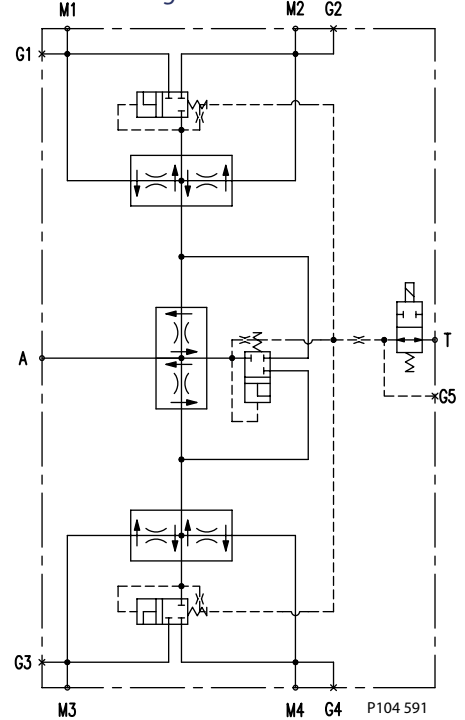
This valve provides electrically actuated traction control for hydrostatic systems with one pump and four motors in parallel. In normal operation, fluid passes freely through the valve. When the solenoid is energized, fluid is forced through the flow divider/combiners. The result is equal flow to all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

PERFORMANCE

Performance curve



Schematic diagram

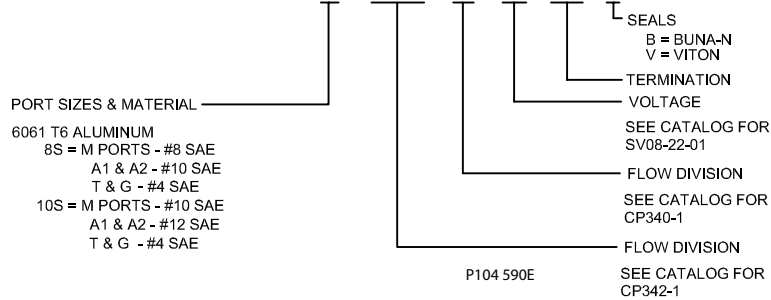


Specifications

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

X05 - FD104 - 8S - 0303 - 11 - 12 - DE - B



DIMENSIONS

See next page.



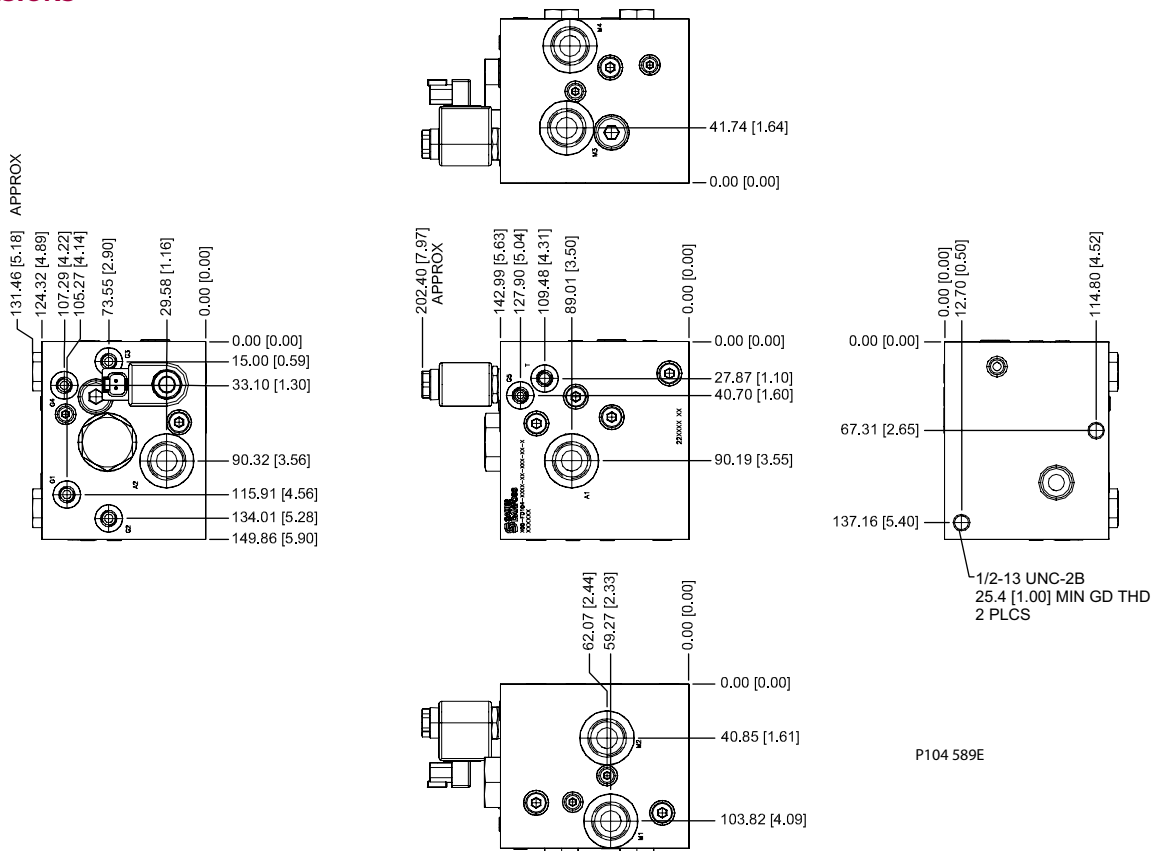
Cartridge Valves Technical Information

Accessories

X05-FD104 traction manifold (continued)

DIMENSIONS

mm [in]



Accessories
X05-FD104



Cartridge Valves Technical Information

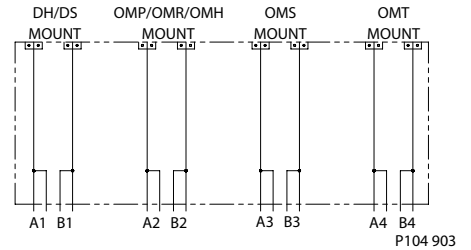
Accessories

MMHC Test Block - 11025000

OPERATION

Use this steel test block for setting or testing motor-mount HICs. It contains the mounting patterns for DH, DS, OMH, OMP, OMR, OMS, and OMT motors. Interface ports are SAE.

Schematic diagram



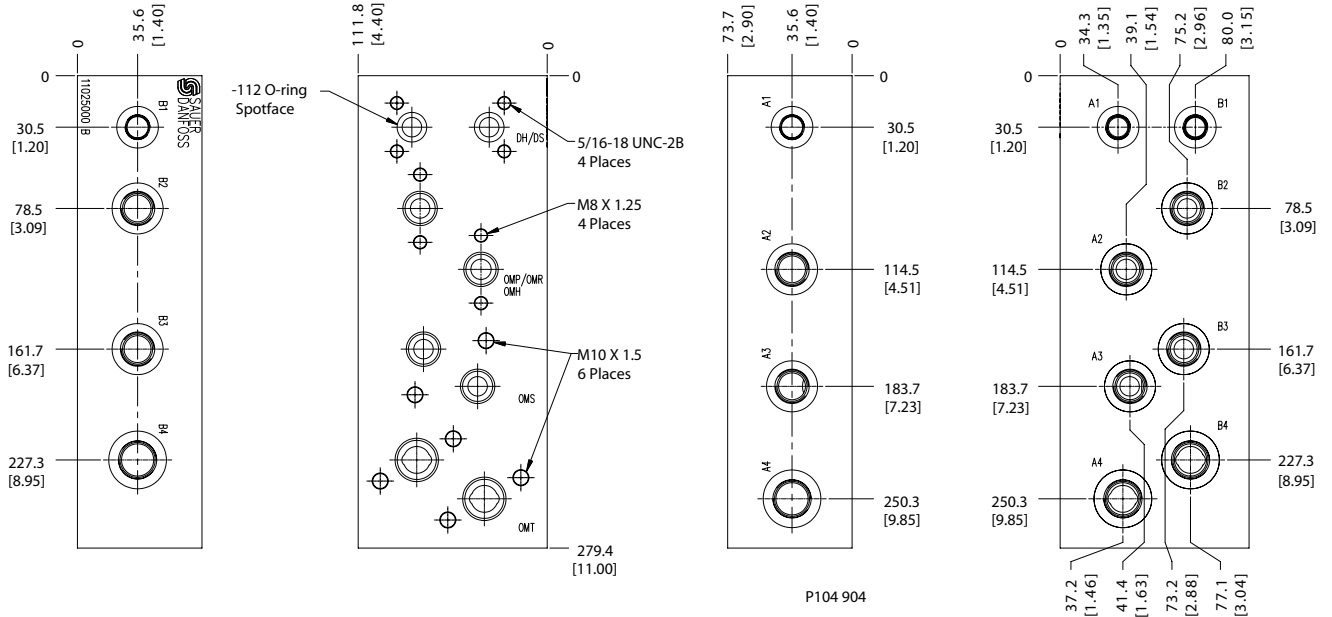
SPECIFICATIONS

Specifications

Rated pressure	345 bar [5000 psi]
Weight	16.21 kg [35.7 lb]
Ports	
A1/B1 (DH/DS)	SAE #6
A2/B2 (OMP/OMR/OMH)	SAE #8
A3/B3 (OMS)	SAE #8
A4/B4 (OMT)	SAE #10

DIMENSIONS

mm [in]



ORDERING INFORMATION

Order 11025000

Accessories
MMHC Test Block - 11025000



Cartridge Valves Technical Information
Accessories
Notes