



## CONTENTS

<b>CPF20-3</b> Cavity Filter .....	AC - 2
<b>CP600-5</b> Hand Pump .....	AC - 3
<b>CP602-5</b> Hand Pump .....	AC - 4
<b>120662</b> handle kit .....	AC - 5
<b>MP 06</b> Hand Pump .....	AC - 6
<b>MP 12</b> Hand Pump .....	AC - 8
<b>DIN connectors</b> .....	AC - 10
<b>Pilot pistons</b> .....	AC - 11
<b>Cavity plugs (CP and SDC cavities)</b> .....	AC - 14
<b>Cavity plugs (NCS cavities)</b> .....	AC - 15
<b>Seal kits (NCS cavities)</b> .....	AC - 16
<b>Orifice plugs</b> .....	AC - 17
<b>Screened orifice plug</b> .....	AC - 19





# Cartridge Valves Accessories Technical Information

## CPF20-3 Cavity Filter

### OPERATION

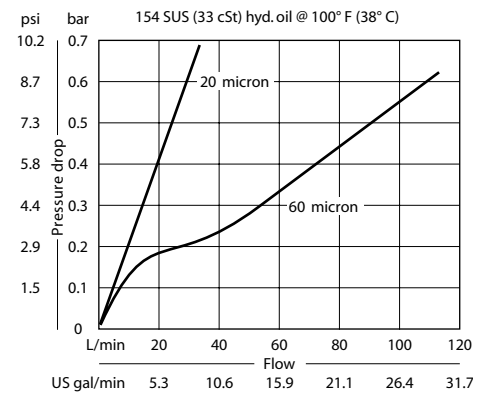
This is a filter that fits into a standard cartridge cavity (SDC20-3)

Not recommended as a substitute for hydraulic system filters.

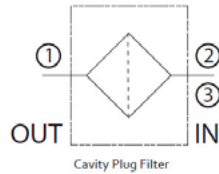
### SPECIFICATIONS

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

### Performance Curve



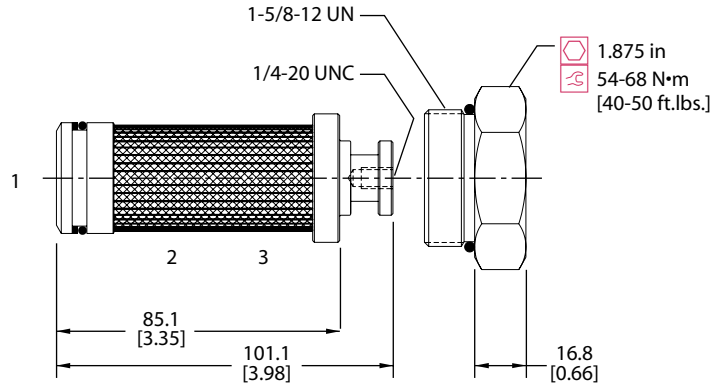
### Schematic



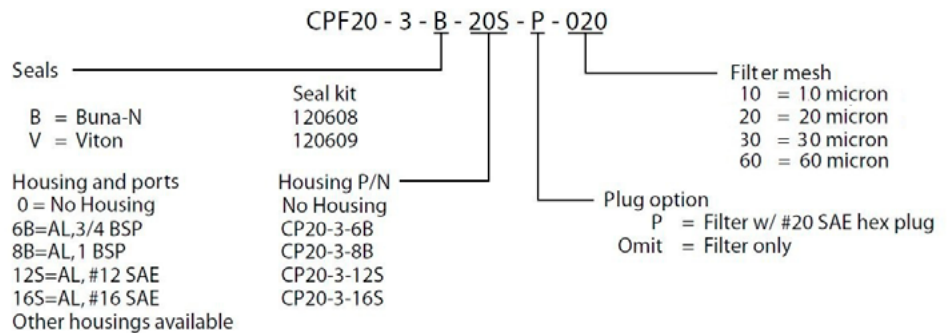
### DIMENSIONS

mm [in]

### Cross section



### ORDERING INFORMATION





# Cartridge Valves Accessories Technical Information

## CP600-5 Hand Pump

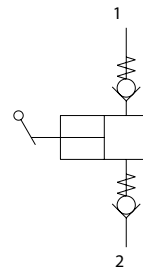
### OPERATION

This is a manually operated uni-directional pump. 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 custom HICs. For smooth operation, inlet lines should not be excessively long, and the vertical distance between pump and tank level no more than 300 mm (12 inch).

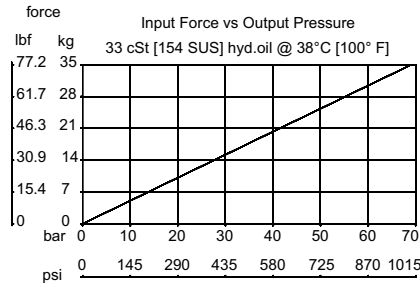
### SPECIFICATIONS

<b>Pressure rating</b>	207 bar [3000 psi]
<b>Displacement</b>	1.2 cu. cm [0.07 cu. in.]/stroke
<b>Leakage</b>	6 drops/min @ Rated pressure
<b>Weight</b>	0.24 kg [0.52 lbs]
<b>Cavity</b>	<b>SDC10-2</b>
<b>Pump force</b>	34N [7.7lbs]

### SCHEMATIC



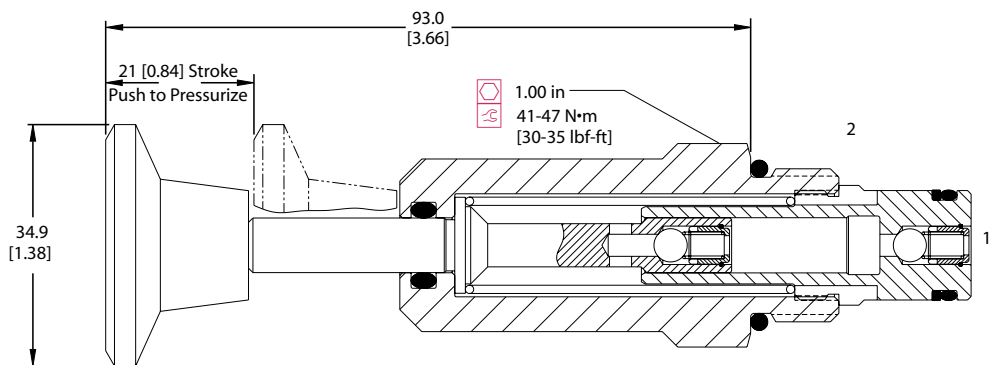
### PERFORMANCE CURVE



### DIMENSIONS

mm [in]

### Cross section



### ORDERING INFORMATION

<b>CP600-5-B-6S</b>			
Seals	Seal kit	Housing & Ports	Housing P/N
B = Buna-N	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	



# Cartridge Valves Accessories Technical Information

## CP602-5 Hand Pump

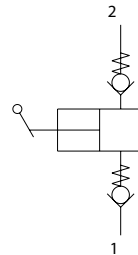
### OPERATION

This is a manually operated uni-directional pump. 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 custom HICs. For smooth operation, inlet lines should not be excessively long, and the vertical distance between pump and tank level no more than 300 mm (12 inch).

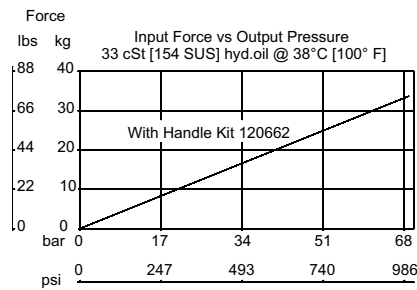
### SPECIFICATIONS

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

### SCHEMATIC



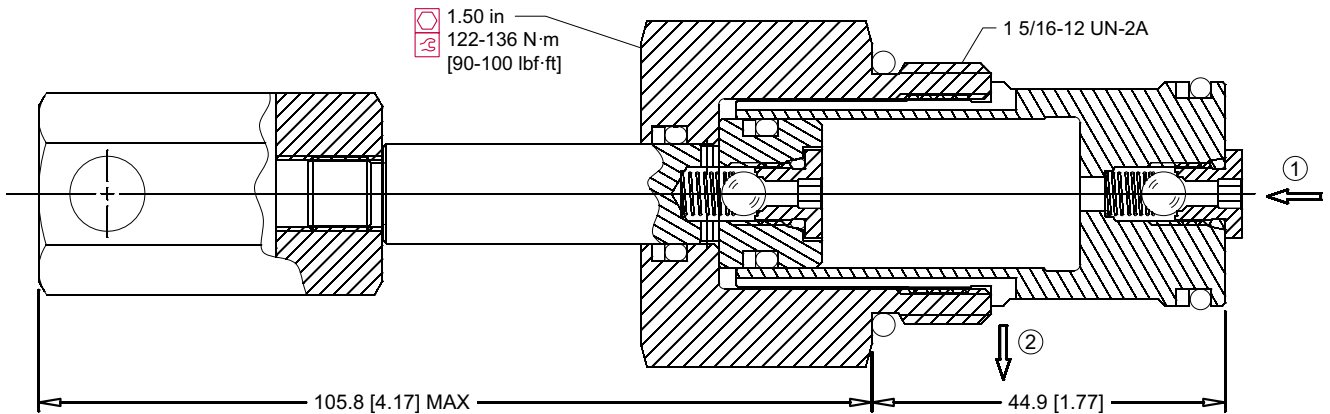
### PERFORMANCE CURVE



### DIMENSIONS

mm [in]

### Cross section



### CP602-5-B-12S

### ORDERING INFORMATION

Seals ————— Sealkit  
 B = Buna-N 120019  
 V = Viton 120030

Housing and Ports

Handle kit is required  
 - sold separately PN - 120662

0 = No Housing  
 6S = #6 SAE  
 8S = #8 SAE  
 12S = AL#12SAE  
 16S = AL#16SAE  
 6B = AL 3/4 BSPP  
 8B = AL 1 BSPP  
 Other housings available

Housing P/N  
 No Housing  
 11083731  
 11083691  
 CP16-2-12S  
 CP16-2-16S  
 CP16-2-6B  
 CP16-2-8B

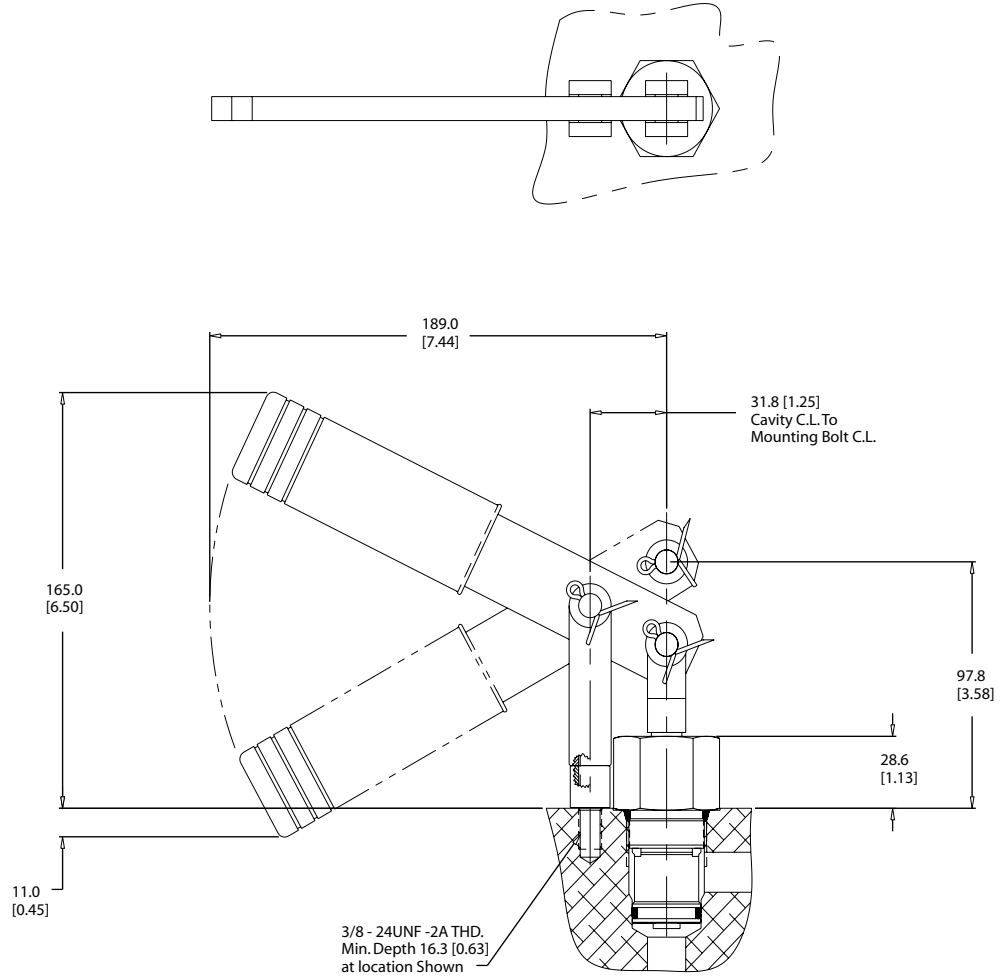


# Cartridge Valves Accessories Technical Information

## 120662 Handle Kit

### DIMENSIONS

### Installation Drawing



### ORDERING INFORMATION

To order, request part number 120662—handle kit



### OPERATION

This is a manually operated uni-directional pump.

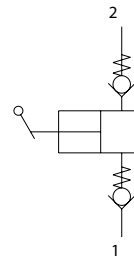
These small displacement hand pumps are used typically for piloting the operation of small hydraulic cylinders or valves. These pumps can be mounted inline using the standard housing or in custom HICs. For smooth operation, inlet lines should not be excessively long, and the vertical distance between pump and tank level no more than 300 mm (12 inch).

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

### SPECIFICATIONS

Size		06	
Displacement Per Stroke	cm <sup>3</sup> [in <sup>3</sup> ]	0.94 [0.057]	
Max. pressure	bar [psi]	315 [4569]	
NCS Cavity		<b>NCS06/2</b>	
Max tightening torque	Nm [lbf-in]	40 [354]	
Weight	cartridge	kg [lb]	0.254 [0.560]
	cartridge with handle	kg [lb]	0.550 [1.213]
	with housing	kg [lb]	0.854 [1.883]

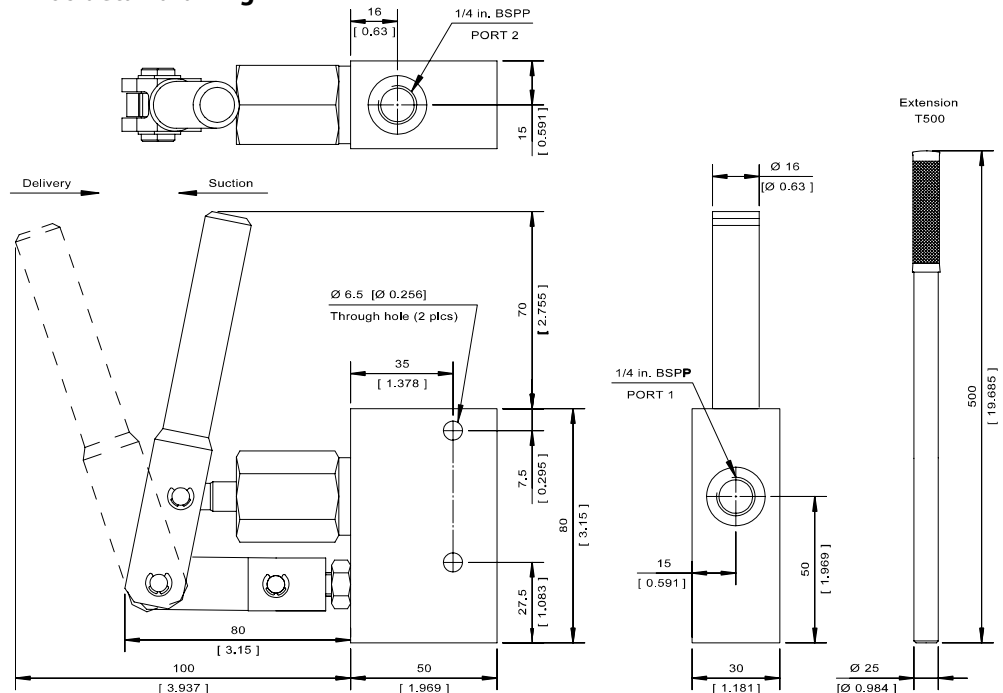
### SCHEMATIC



### DIMENSIONS

mm [in]

### MP06 detail drawing



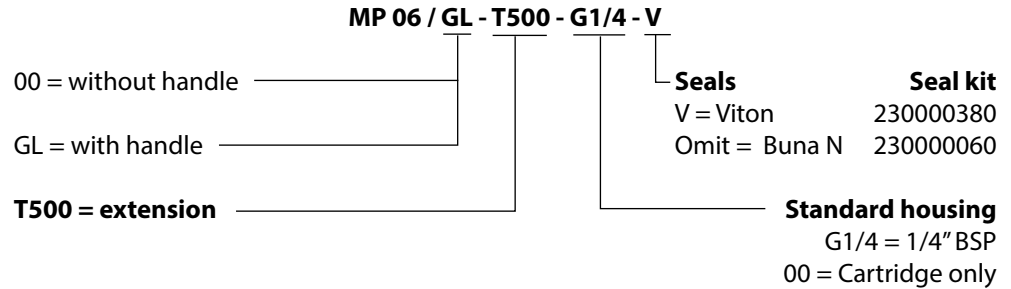


# Cartridge Valves Accessories Technical Information

## MP 06 Hand Pumps

### ORDERING INFORMATION

#### Example of designation MP 06



Housing Part #502500313



# Cartridge Valves Accessories Technical Information

## MP 12 Hand Pumps

### OPERATION

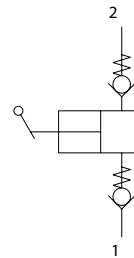
This is a manually operated uni-directional pump. These small displacement hand pumps are used typically for piloting the operation of small hydraulic cylinders or valves. These pumps can be mounted inline using the standard housing or in custom HICs. For smooth operation, inlet lines should not be excessively long, and the vertical distance between pump and tank level no more than 300 mm (12 inch).

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

### SPECIFICATIONS

Size		12
Displacement Per Stroke	cm <sup>3</sup> [in <sup>3</sup> ]	5 [0.305]
Max. pressure	bar [psi]	315 [4569]
NCS Cavity		<b>NCS12/2</b>
Max tightening torque	Nm [lbf·in]	80 [708]

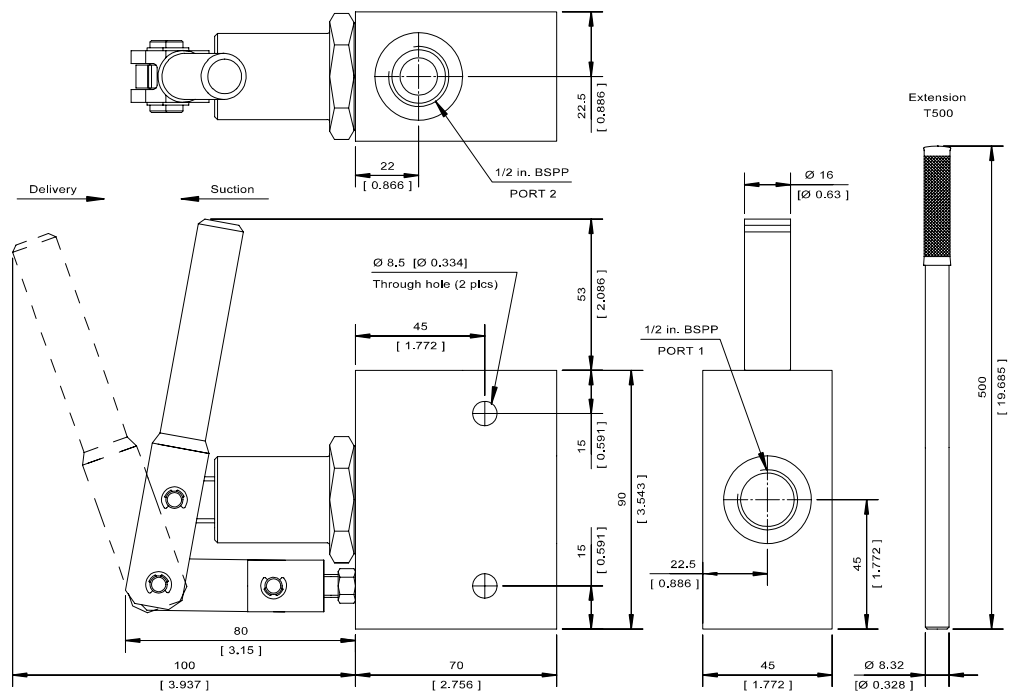
### SCHEMATIC



### DIMENSIONS

mm [in]

### MP12 detail drawing





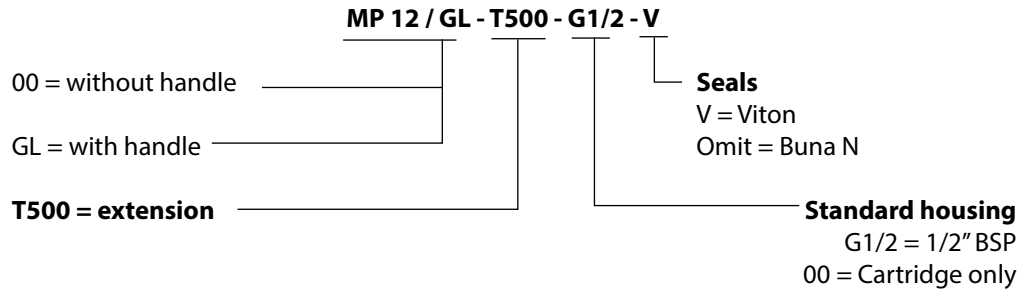


# Cartridge Valves Accessories Technical Information

## MP 12 Hand Pumps

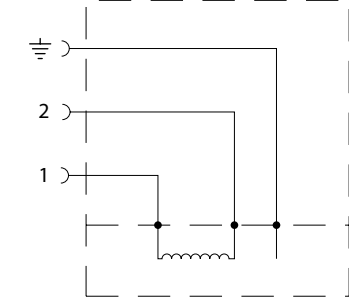
### ORDERING INFORMATION

#### Example of designation MP 12

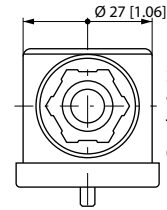
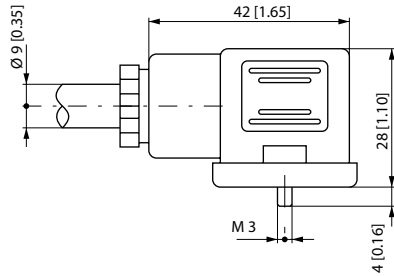


Housing Part #502500613

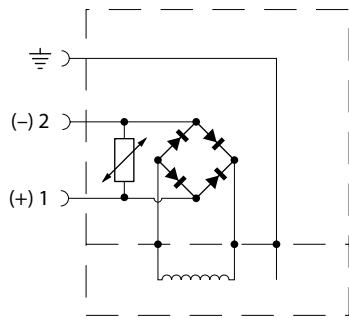
### STANDARD CONNECTORS TO DIN 43650



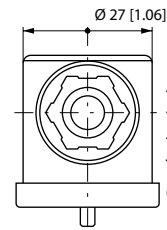
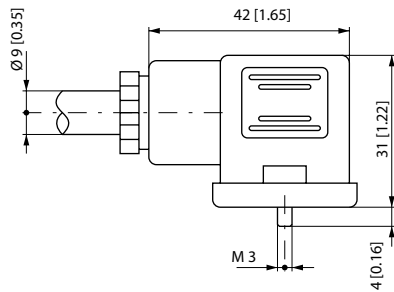
TYPE A CONNECTOR



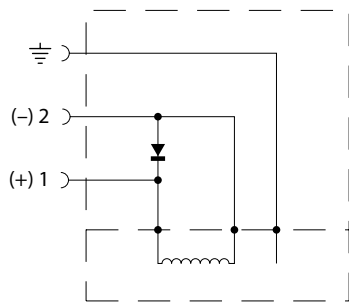
Standard connector for use with DC input.  
Type A  
Order no. R088010080



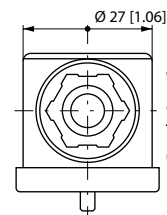
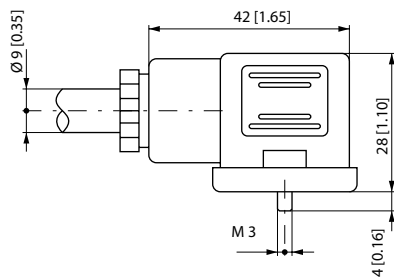
TYPE C CONNECTOR



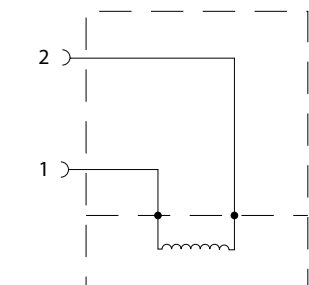
Full wave bridge rectifier with 4 diodes and VDR protecting the a.c. side against overvoltage from electrical power supply.  
Type C  
Order no. R088010060



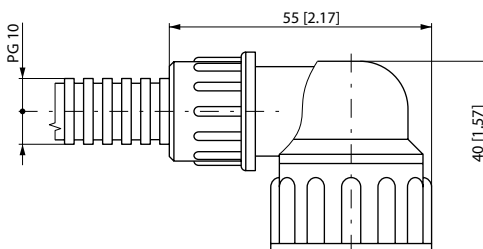
TYPE E CONNECTOR



With diode blocking overvoltage on opening.  
Type E  
Order no. R088010410



TYPE K CONNECTOR



Standard connector to Kostal pattern, for use with DC input.  
Type K  
Order no. R088010350

**REMARK**

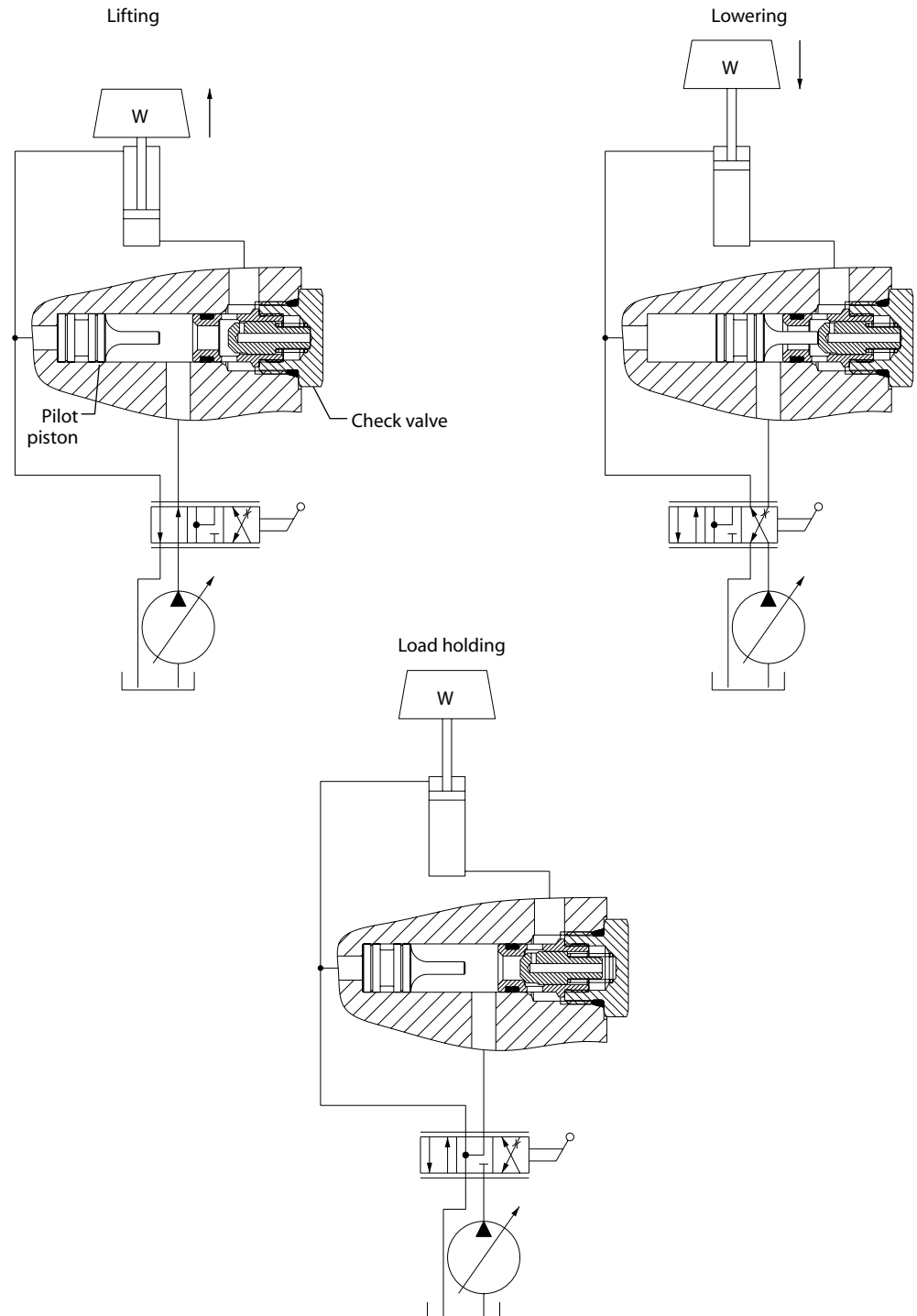
For details of use, see technical data relevant to the individual solenoid valves. All connector are supplied unassembled. Connectors with indicator lights are available on request (Consult factory).

### OPERATION

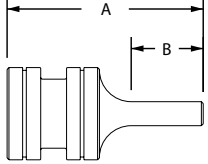
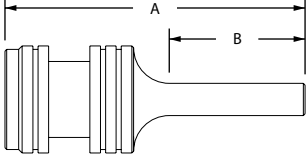
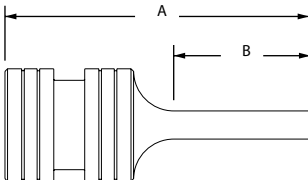
Pilot pistons used with check valve cartridges are an economical way to create pilot-operated check valve functions in custom **Hydraulic Integrated Circuits (HIC)**.

### 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]	
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]	
	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]	

Consult factory for bore details.



### Double-acting pilot pistons

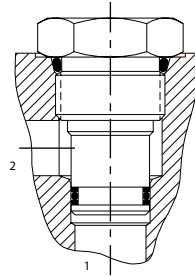
Series	Compatible valves	Pilot ratio	Seals (optional)	Pilot piston order code	A mm [in]	B mm [in]	Bore diameter* mm [in]	
8	CV08-NP	4:1	1) 720092 O-rings 2) 720500 back-up rings	621457	41.28 [1.625]	14.27 [0.562]	Ø 12.70 ± 0.03 [0.501 ± 0.001]	
				621553	52.37 [2.062]	19.84 [0.781]		
				625138	38.10 [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]	
	CP100-3	2.5:1		621400	57.15 [2.250]	19.05 [0.750]		
				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]	

Consult factory for bore details.

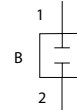
### FUNCTION

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

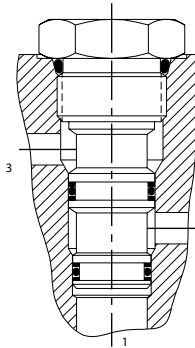
### 2 WAY PLUG



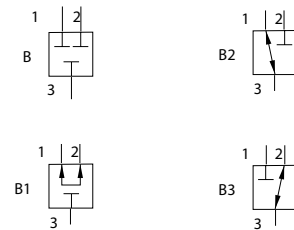
Plug options



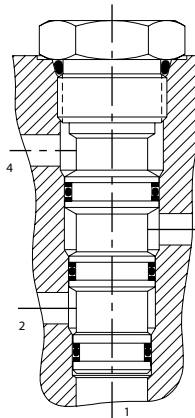
### 3 WAY PLUG



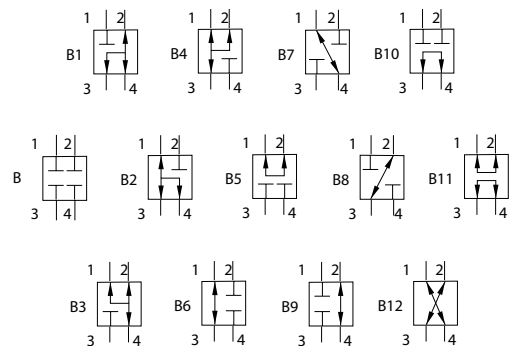
Plug options



### 4 WAY PLUG



Plug options

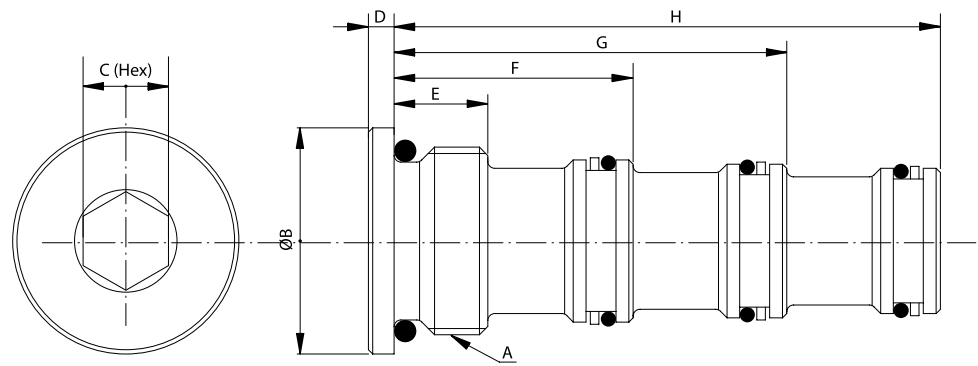
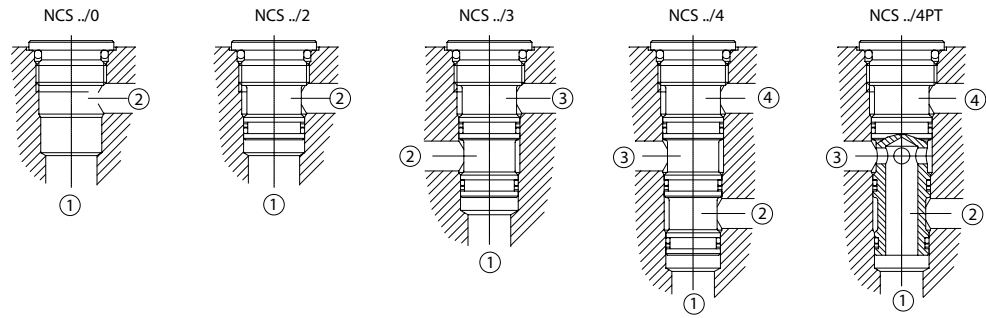


### ORDERING INFORMATION

**CP10 - B - 3 - B**

<p><b>Series</b></p> <ul style="list-style-type: none"> <li>04 - 4 Series</li> <li>08 - 8 Series</li> <li>10 - 10 Series</li> <li>12 - 12 Series</li> <li>16 - 16 Series</li> <li>20 - 20 Series</li> </ul> <p><b>Seals</b></p> <ul style="list-style-type: none"> <li>B - Buna-N (std.)</li> <li>V - Viton (opt.)</li> </ul>	<p><b>Configuration</b></p> <p>See schematics</p> <p><b>Cavity type</b></p> <ul style="list-style-type: none"> <li>2 - 2 Way</li> <li>3 - 3 Way</li> <li>3S - 3 Way (10, 12, 16 &amp; 20 series only)</li> <li>4 - 4 Way</li> </ul>
---	---

### PLUGS FOR NCS CAVITIES



### Dimensions

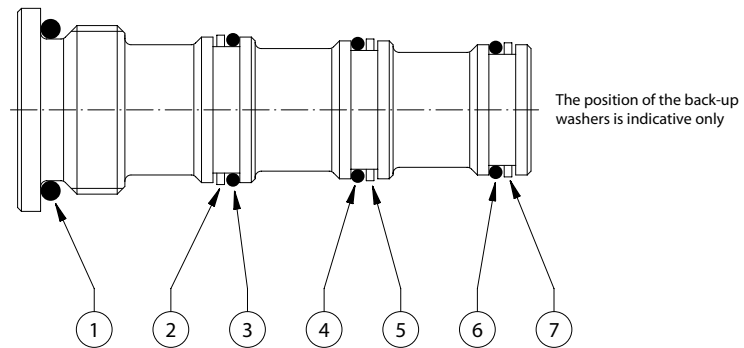
Type	Dimensions-mm								Order number for plug complete	Weight of plug complete-kg [lbs.]
	A	B	C	D	E	F	G	H		
NCS04/0	M18x1.5	22 [0.87]	8	3 [0.12]	10.5 [0.41]	—	—	—	92.00.010.1	0.018 [0.04]
NCS04/2	M18x1.5	22 [0.87]	8	3 [0.12]	—	24.5 [0.96]	—	—	92.00.009.1	0.035 [0.08]
NCS04/3	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	39.5 [1.56]	—	92.00.008.1	0.057 [0.13]
NCS04/4	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	—	54.5 [2.15]	92.00.007.1	0.070 [0.15]
NCS04/4PT	M18x1.5	22 [0.87]	8	3 [0.12]	—	—	—	54.5 [2.15]	92.00.021.1	0.060 [0.13]
NCS06/0	M22x1.5	26 [1.02]	10	3 [0.12]	11 [0.43]	—	—	—	92.00.006.1	0.032 [0.07]
NCS06/2	M22x1.5	26 [1.02]	10	3 [0.12]	—	28 [1.10]	—	—	92.00.004.1	0.060 [0.13]
NCS06/3	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	46 [1.81]	—	92.00.014.1	0.098 [0.22]
NCS06/4	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	—	64 [2.52]	92.00.013.1	0.120 [0.26]
NCS06/4PT	M22x1.5	26 [1.02]	10	3 [0.12]	—	—	—	64 [2.52]	92.00.020.1	0.100 [0.22]
NCS12/0	M33x2	38 [1.50]	12	3 [0.12]	15 [0.59]	—	—	—	92.00.018.1	0.117 [0.26]
NCS12/2	M33x2	38 [1.50]	12	3 [0.12]	—	38 [1.50]	—	—	92.00.017.1	0.200 [0.44]
NCS12/3	M33x2	38 [1.50]	12	3 [0.12]	—	—	63 [2.48]	—	92.00.016.1	0.280 [0.62]
NCS12/4	M33x2	38 [1.50]	12	3 [0.12]	—	—	—	88 [3.46]	92.00.015.1	0.370 [0.81]
NCS12/4PT	M33x2	38 [1.50]	12	3 [0.12]	—	—	—	88 [3.46]	92.00.022.1	0.310 [0.68]



# Cartridge Valves Accessories Technical Information

## Seal Kits (NCS cavities)

### NCS



Type	Seals back-up washers (composition)	Spares: Set of O-rings and back-up washers (pack of 10 sets minimum)	
		Standard seals	Viton seals
NCS04/0	1	230030070	230370070
NCS04/2	1 2 3	230000190	230000390
NCS04/3	1 2 3 4 5	230000160	230000450
NCS04/4	1 2 3 4 5 6 7	230000250	230000460
NCS06/0	1	230080210	230390210
NCS06/2	1 2 3	230000060	230000380
NCS06/3	1 2 3 4 5	230000070	230000110
NCS06/4	1 2 3 4 5 6 7	230000080	230000350
NCS12/0	1	230030110	230370110
NCS12/2	1 2 3	230000120	230000470
NCS12/3	1 2 3 4 5	230000130	230000360
NCS12/4	1 2 3 4 5 6 7	230000100	230000480



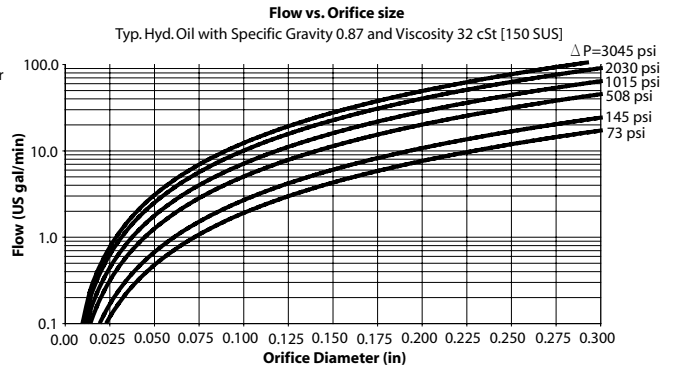
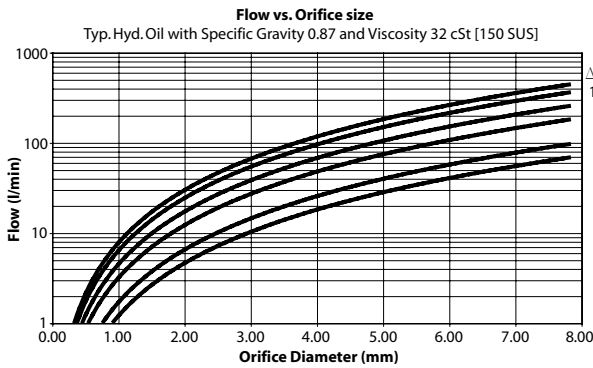


**OPERATION** Install in manifold to restrict fluid flow.

**SCHEMATIC**

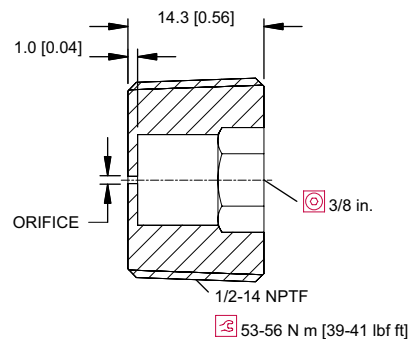
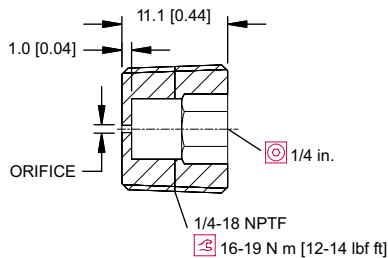
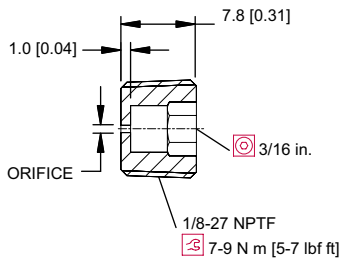
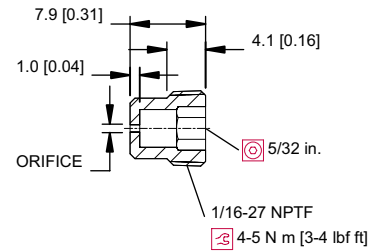
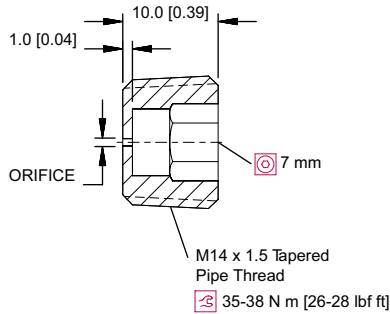
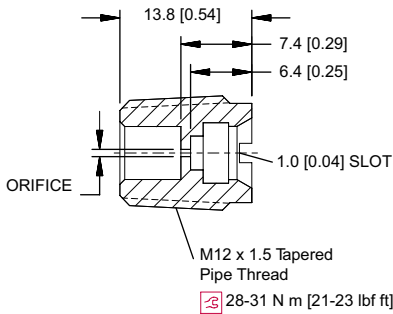
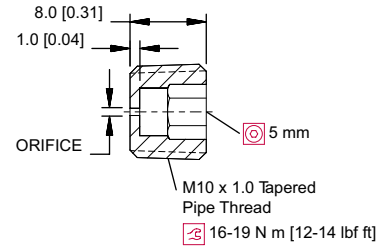
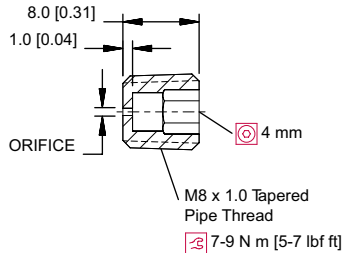
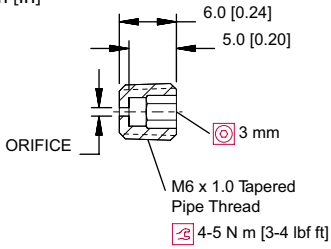


**SPECIFICATIONS**



**DIMENSIONS**

mm [in]





# Cartridge Valves Accessories Technical Information

## Orifice Plugs

### ORDERING INFORMATION

Orifice Diameter		Orifice Plug Part Number								
		Plug Thread Size								
mm	[in]	1/16-27 NPTF	1/8-27 NP TF	1/4-18 NP TF	1/2-14 NP TF	M6 x 1.0 Ta per e d P ipe Thread	M8 x 1.0 Ta per e d P ipe Thread	M10 x 1.0 Ta per e d P ipe Thread	M12 x 1.5 Ta per e d P ipe Thread	M14 x 1.5 Ta per e d P ipe Thread
None	None			320151	320153					
0.33	0.013	11008337				625958				
0.38	0.015	620510				625414				
0.43	0.017								626062	
0.46	0.018									
0.51	0.020	621510	11015116			624898	625190			
0.61	0.024	622417				624904		624478		
0.64	0.025	620634				624862	624838			
0.71	0.028	622846				62486				
0.76	0.030	620296	620299							
0.79	0.031					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					624856	624821			
1.02	0.040	620511								
1.07	0.042	621702				626075				
1.14	0.045	621210								
1.19	0.047	620814	620591				624892	624427		
1.32	0.052	620573				624911	626100			
1.40	0.055	620572								
1.50	0.059					624846	624822	624152		
1.52	0.060	620297								
1.57	0.062	621496								
1.60	0.063					625197	624902	625252		
1.70	0.067					624844				
1.78	0.070	621554				625871	626041			
1.98	0.078	622117								
2.01	0.079					626135	624681	624153		
2.03	0.080									
2.06	0.081									
2.13	0.084									
2.18	0.086	621246								
2.21	0.087						625067			
2.26	0.089									
2.29	0.090					625002				
2.39	0.094		622721			625542		626138		
2.44	0.096	621051		626010						
2.46	0.097						626185			
2.49	0.098									
2.59	0.102						625630			
2.64	0.104									
2.67	0.105			621665						
2.74	0.108							625049		
2.79	0.110						625492			
2.82	0.111									
2.95	0.116	620575								
3.00	0.118							624480		
3.05	0.120									
3.10	0.122									
3.18	0.125		622722				626058	626151		
3.28	0.129									
3.30	0.130									
3.35	0.132						625543			
3.45	0.136									
3.56	0.140		622114						625929	
3.78	0.149	623712								
3.96	0.156									
4.06	0.160			621666						
4.22	0.166									
4.57	0.180		624362							
4.78	0.188				623224					
5.00	0.197									624501
5.16	0.203									
5.61	0.221									
5.84	0.230									625981
6.35	0.250									625068
7.92	0.312									

\*Contact factory for additional orifice sizes.



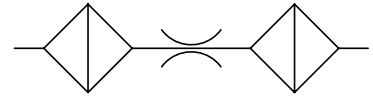
# Cartridge Valves Accessories Technical Information

## Screened Orifice Plug

**OPERATION**

Install in manifold to restrict fluid flow.

**SCHEMATIC**

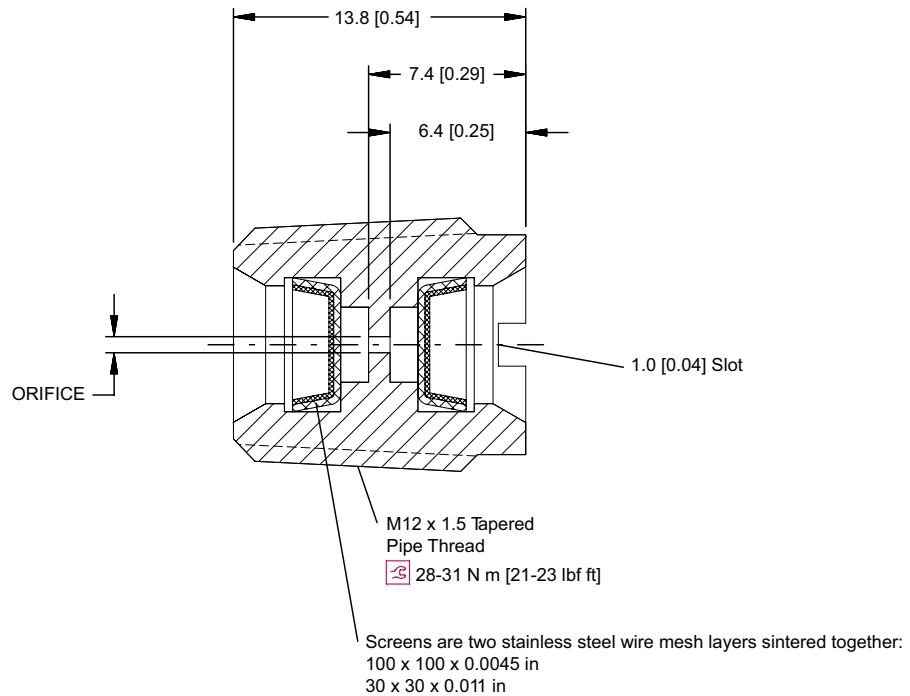


**PERFORMANCE**

Refer to Orifice plug sizing chart on page 18.28

**DIMENSIONS**

mm [in]



**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
1.19	0.047	11070992
1.91	0.075	923186
3.56	0.140	923112