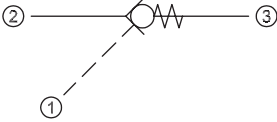
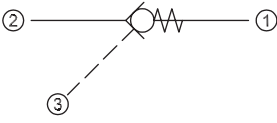


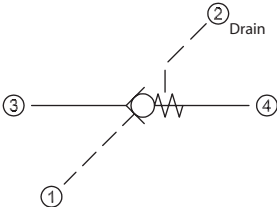
Cartridge Valves Technical Information

Pilot operated check valves

Quick reference

Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	RPC 04	NCS04/3	Pilot Operated Check Valve, Pilot to Open	12 l/min [3 US gal/min]	210 bar [3000 psi]	08.6
	RPC 06	NCS06/3		25 l/min [7 US gal/min]	315 bar [4500 psi]	08.7
	CP450-1	SDC10-3		30 l/min [8 US gal/min]	240 bar [3480 psi]	08.8
	RPC 12	NCS12/3		70 l/min [18 US gal/min]	315 bar [4500 psi]	08.9

Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP458-2	SDC08-3	Pilot Operated Check Valve, Reverse Pilot to Open	20 l/min [5 US gal/min]	210 bar [3000 psi]	08.10
	MC10-RO	SDC10-3S		45 l/min [12 US gal/min]	250 bar [3600 psi]	08.11
	CP451-2	CP12-3S		95 l/min [25 US gal/min]	210 bar [3000 psi]	08.12
	CP452-2	SDC16-3S		130 l/min [34 US gal/min]	210 bar [3000 psi]	08.13
	CP453-2	CP20-3S		230 l/min [61 US gal/min]	210 bar [3000 psi]	08.14

Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	RPV 06	NCS06/4	Pilot Operated Check Valve, Pilot-to-open with drain	30 l/min [8 US gal/min]	315 bar [4500 psi]	08.15

* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Cartridge Valves Technical Information

Pilot operated check valves

Quick reference

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP453-5	SDC20-2	Pilot Operated Check Valve, Reverse Pilot-to-open with vent	250 l/min [66 US gal/min]	350 bar [5000 psi]	08.16

Pilot to Close	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP460-1	SDC10-3	Pilot Operated Check Valve, Pilot to Close	45 l/min [12 US gal/min]	210 bar [3000 psi]	08.17
	CP461-1	CP12-3S		115 l/min [30 US gal/min]	210 bar [3000 psi]	08.18
	CP462-1	SDC16-3S		190 l/min [50 US gal/min]	210 bar [3000 psi]	08.19

Dual Pilot-Operated Checks	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP410-1	none	Pilot Operated Check Valve, Catalog HIC	85 l/min [22 US gal/min]	210 bar [3000 psi]	08.20

* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Cartridge Valves Technical Information

Pilot operated check valves

Application notes

MOTION CONTROL VALVES

Motion control valves, also referred to as load holding valves, are used to control the motion of a load in the following ways:

- Prevent a load from dropping in case of hose or tube failure.
- Prevent a load from drifting caused by directional control valve spool leakage.
- Provide smooth, modulated motion when the load is in a lowering or run-away mode.
- Provide smooth, modulated motion when the directional control valve is suddenly closed.

There are two basic types of motion control valves:

- Pilot-operated, or pilot-to-open check valves will satisfy the first two of the above requirements.
- Counterbalance valves will satisfy all four of the above requirements.

Pilot operated check valves



F102 009

Cartridge Valves Technical Information

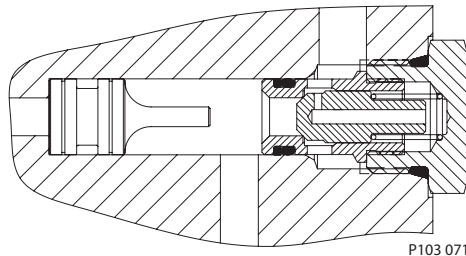
Pilot operated check valves

Application notes

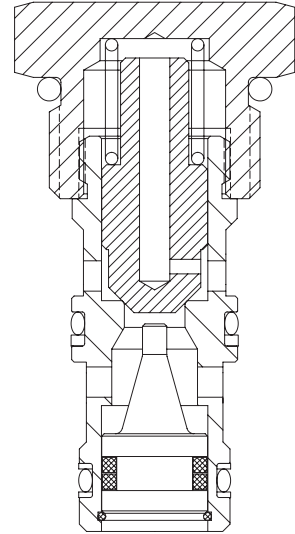
PILOT-OPERATED CHECK VALVES

Pilot-operated, or pilot-to-open check valves will positively hold a pressurized load and will release the load upon application of a pressure signal to the pilot port. Pilot-operated check valves are available as individual cartridges, standard **Cartridge-In-Body (CIB)** packages, or can be created in custom manifolds by using a standard check valve such as CV10-NP with a guided pilot piston. For more information on pilot pistons, see Accessories.

Cartridge in body

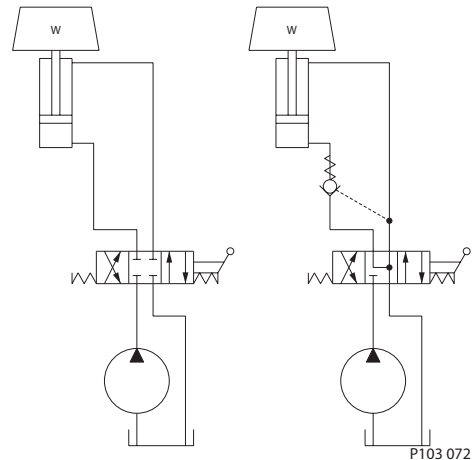


Individual cartridges



A typical circuit application for pilot-operated check valves contains a pump, directional control valve, and an actuator. Without a pilot-operated check valve the load will drift down due to spool leakage if the directional control valve is centered with the load raised. Additionally there is no protection against the load dropping in the event of hydraulic line failure. Adding a pilot-operated check valve helps prevent cylinder drift and provides protection against hose or tube failure. In this circuit, moving the directional control valve to the right causes the cylinder to extend. When the directional control valve is centered, the pilot-operated check valve will prevent leakage and lock the cylinder in position. Moving the directional control valve to the left sends pressure/flow to the rod end of the cylinder. This pressure also acts on the pilot piston to open the check valve and allow the load to be lowered.

Typical circuit application



Cartridge Valves Technical Information

Pilot operated check valves

Application notes

PILOT-OPERATED CHECK VALVES (continued)

The pressure required to pilot open the check valve can be calculated by:

$$P = \frac{W + (P_c \cdot A_b)}{(A_b \cdot R) - A_r} \quad \text{cylinder retracts}$$

$$P = \frac{W + (P_c \cdot A_r)}{(A_r \cdot R) - A_b} \quad \text{cylinder extends}$$

W = Load

P_c = Check valve crack pressure (typically 0.34-4.5 bar [5-65 psi]; consult catalog sheets for details)

A_b = Cylinder bore area

A_r = Cylinder rod area

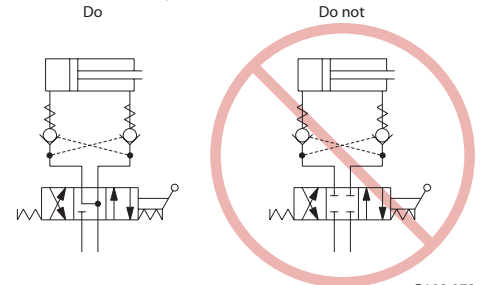
R = Check valve pilot ratio (typically 3:1 or 4:1; consult catalog sheets for details)

Note that these equations are idealized and do not consider any backpressure in the circuit, which is additive to the pressure required to pilot open the check valve.

Some additional guidelines for pilot-operated check valve applications:

- Use pilot-operated check valves for load holding, not for motion (speed) control. Pilot-operated check valves are on-off, non-modulating devices. Trying to use a pilot-operated check valve to control an overrunning load can result in severely unstable motion. For motion (speed) control of overrunning loads, use a counterbalance valve.
- Use caution when applying pilot-operated check valves to the rod end of a cylinder. Cylinders with large rod:bore diameter ratios may intensify rod pressure to a point where the required pilot pressure may be dangerously high— refer to the above equations. If intensification creates application concerns, consider using a counterbalance valve.
- Do not use pilot-operated check valves with closed-center, directional control valves. Pressure trapped between the directional control valve and the pilot-operated check valve can pilot the check valve open and result in undesired load motion.
- Locate pilot-operated check valves at or near the actuator to provide maximum load holding protection in the event of hydraulic line failure.

Closed center, directional control valves



P103 073

Cartridge Valves Technical Information

Pilot operated check valves

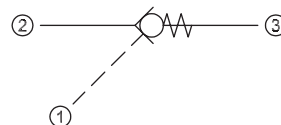
Pilot to Open

RPC 04

OPERATION

This is a pilot-to-open check valve.

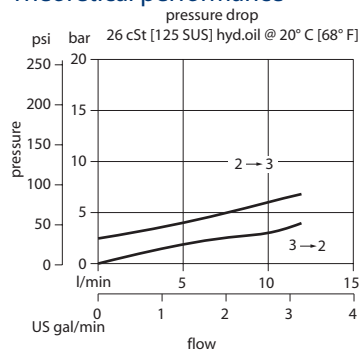
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



P103 679E

Specifications

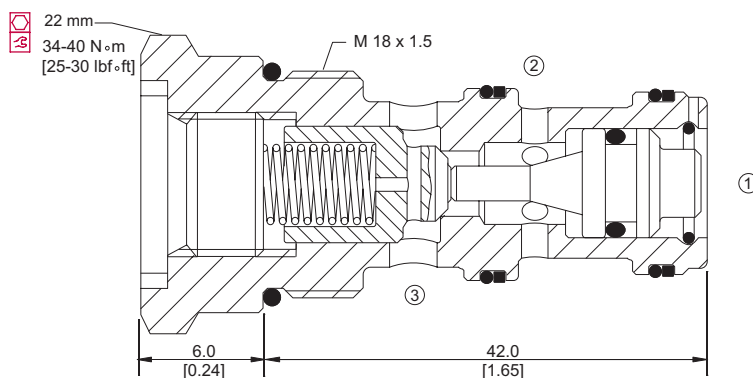
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	12 l/min [3 US gal/min]
Weight	0.06 kg [0.13 lb]
Pilot ratio	3.2:1
Cavity	NCS04/3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 652

ORDERING INFORMATION

RPC 04 - 2.5 - OR - 00 - V

Pressure to open

0.5 = 0.5 bar [7 psi]
2.5 = 2.5 bar [36 psi]
5.0 = 5 bar [72 psi]

Piston seals

OR = Seal
Omit = No seal

Seals

V = Viton
Omit = Buna-N

Seal kit

230000450
230000160

Housing and ports

00 = No Housing
SE1/4 = AL, 1/4 BSP
SE4S = AL, #4 SAE
SE6S = AL, #6 SAE
Other housings available

Housing P/N

No Housing
NCS04/3-SE-1/4
NCS04/3-SE-4S
NCS04/3-SE-6S

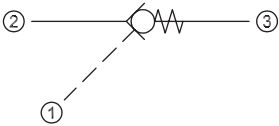
P103 706E

Cartridge Valves Technical Information
Pilot operated check valves
Pilot to Open
RPC 06

OPERATION

This is a pilot-to-open check valve.

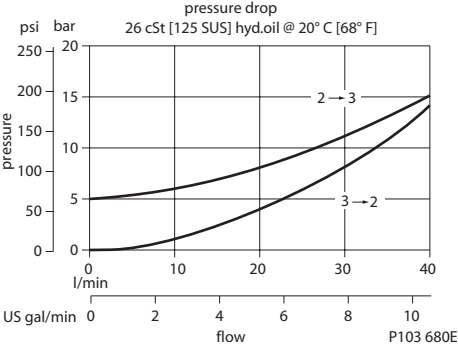
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



Specifications

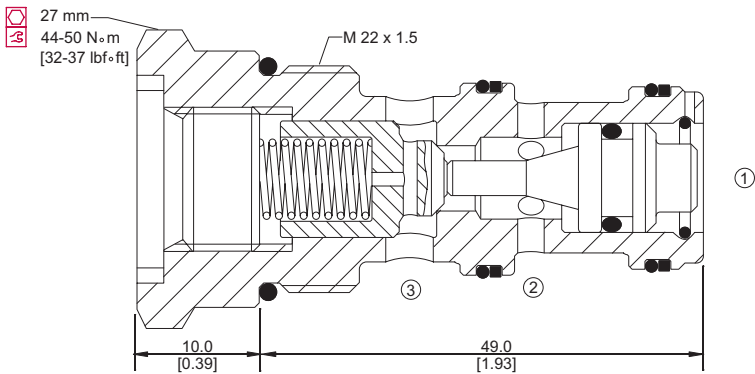
Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	25 l/min [7 US gal/min]
Weight	0.10 kg [0.22 lb]
Pilot ratio	3.4:1
Cavity	NCS06/3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 653

ORDERING INFORMATION

RPC 06 - 5 - OR - 00 - V			
Pressure to open		Seals	Seal kit
0.5 = 0.5 bar [7 psi]		V = Viton	230000110
5 = 5 bar [73 psi]		Omit = Buna-N	230000070
Piston seals		Housing and ports	Housing P/N
OR = Seals		00 = No Housing	No Housing
Omit = No seals		SE3/8 = AL, 3/8 BSP	NCS06/3-SE-3/8
		SE3/4 = AL, 3/4 BSP	NCS06/3-SE-1/2
		SE6S = AL, #6 SAE	NCS06/3-SE-6S
		SE8S = AL, #8 SAE	NCS06/3-SE-8S
		Other housings available	

P103 707E

Cartridge Valves Technical Information

Pilot operated check valves

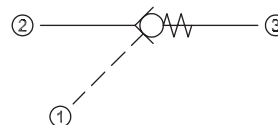
Pilot to Open

CP450-1

OPERATION

This valve is a pilot-to-open check valve.

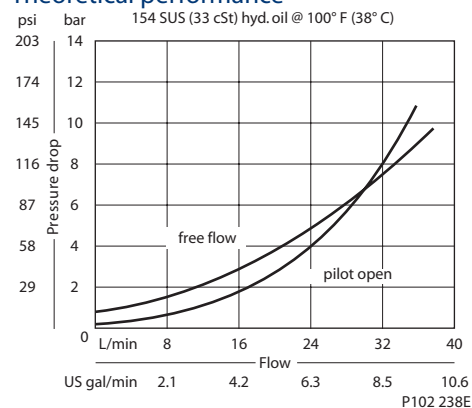
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



Specifications

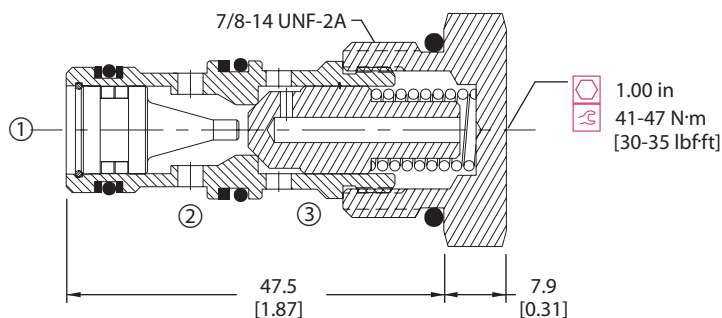
Rated pressure	240 bar [3480 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.09 kg [0.20 lb]
Pilot ratio	3.0:1
Cavity	SDC10-3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 236E

ORDERING INFORMATION

CP450 - 1 - B - 8S - 015 - 0			
Seals		Piston seals	
B = Buna-N	Seal kit 120570	0 = No seals	
V = Viton	120571	S = Seals included	
Body and ports		Cracking Pressure	
0 = Cartridge	Body P/N		
6S = Aluminum, #6 SAE	No body		
8S = Aluminum, #8 SAE	CP10-3-6S	065 = 4.48	[65]
SE3B = Aluminum, 3/8 BSP	CP10-3-8S	115 = 7.90	[115]
SE4B = Aluminum, 1/2 BSP	SDC10-3-SE-3B	200 = 13.8	[200]
	SDC10-3-SE-4B	315 = 21.8	[315]

P102 067E

Cartridge Valves Technical Information

Pilot operated check valves

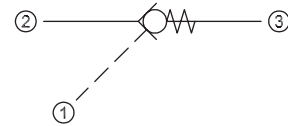
Pilot to Open

RPC 12

OPERATION

This is a pilot-to-open check valve.

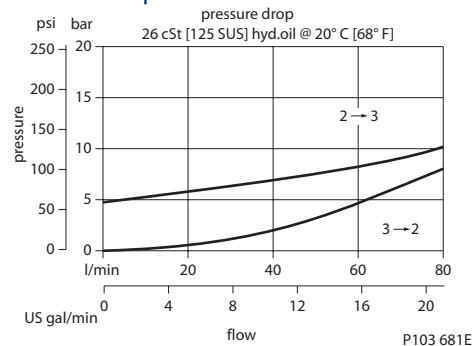
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



Specifications

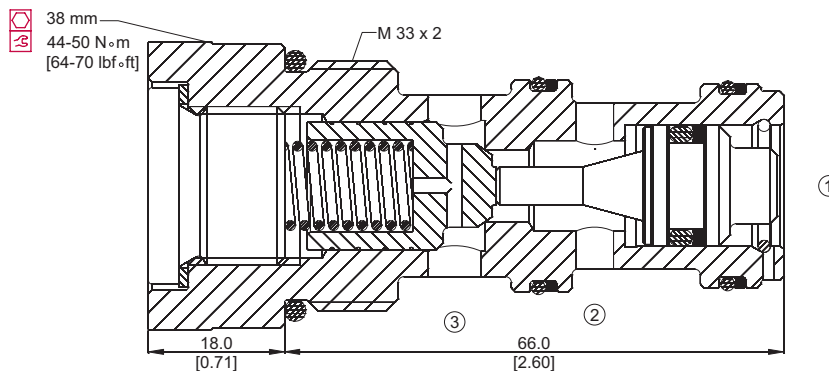
Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	70 l/min [18 US gal/min]
Weight	0.20 kg [0.44 lb]
Pilot ratio	2.8:1
Cavity	NCS12/3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 654

ORDERING INFORMATION

RPC 12 - 5 - OR - 00 - V			
Pressure to open 0.5 = 0.5 bar [7 psi] 5 = 5 bar [73 psi]		Seals V = Viton Omit = Buna-N	Seal kit 230000360 230000130
		Housing and ports 00 = No Housing SE1/2 = AL, 1/2 BSP SE3/4 = AL, 3/4 BSP SE8S = AL, #8 SAE SE12S = AL, #12 SAE Other housings available	Housing P/N No Housing NCS12/3-SE-1/2 NCS12/3-SE-3/4 NCS12/3-SE-8S NCS12/3-SE-12S
Piston seals OR = Seals Omit = No seals			

P103 708E

Cartridge Valves Technical Information

Pilot operated check valves

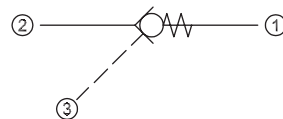
Pilot to Open

CP458-2

OPERATION

This valve is a pilot-to-open check valve.

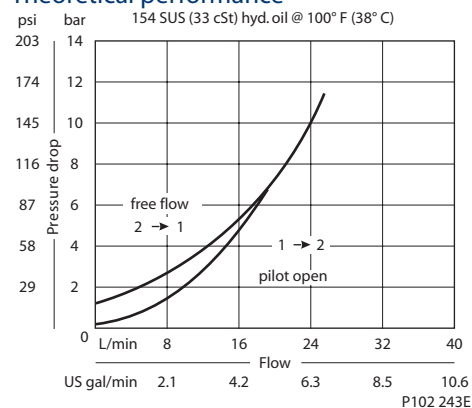
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



Specifications

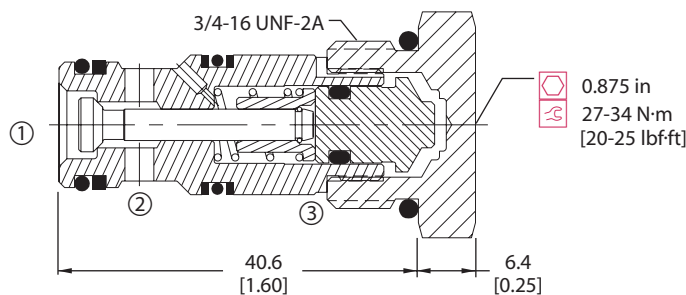
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	20 l/min [5 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.07 kg [0.15 lb]
Pilot ratio	2.8:1
Cavity	SDC08-3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 242E

ORDERING INFORMATION

Seals

B = Buna-N
V = Viton

Housing and ports

0 = No Housing
SE2B = Al, 1/4 BSP
SE3B = Al, 3/8 BSP
4S = Al, #4 SAE
6S = Al, #6 SAE
Other housings available

Seal kit

120250
120253

Housing P/N

No Housing
SDC08-3-SE-2B
SDC08-3-SE-3B
CP08-3-4S
CP08-3-6S

CP458 - 2 - B - 6S - 065 - 0

Piston seals

0 = No seals
S = Seals included

Crack Pressure

065 = 4.48 bar [psi]
[65]

P102 076E

Cartridge Valves Technical Information

Pilot operated check valves

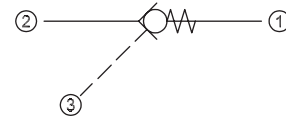
Pilot to Open

MC10-RO

OPERATION

This is a pilot-to-open check valve.

Schematic

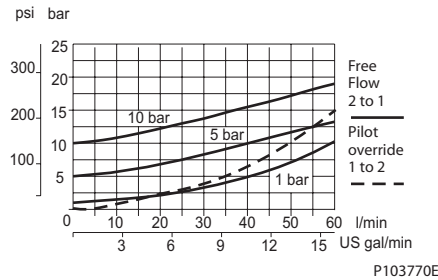


P102 377E

SPECIFICATIONS

Theoretical performance

26 cSt [121 SUS] hyd.oil at 50°C [122°F]



Specifications

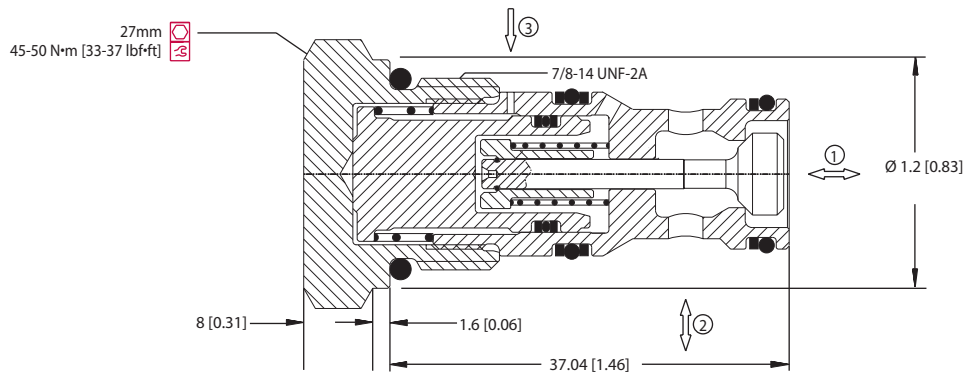
Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Leakage	6 drops/min @
Weight	0.12 kg [0.26 lb]
Pilot ratio	3.0:1
Cavity	SDC10-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 753

ORDERING INFORMATION

MC10-RO-5-OR-A-B-6S

Crack Pressure
 1 = 1 bar [15 psi]
 5 = 5 bar [73 psi]
 10 = 10 bar [145 psi]

Piston seals
 Omit = No seal
 OR = Seals included

Housing and ports

00 = No Housing
 SE3B = Al, 3/8 BSP
 SE4B = Al, 1/2 BSP
 6S = Al, #6 SAE
 8S = Al, #8 SAE
 Other housings available

Seals

B = Buna-N 35401419
 V = Viton 35401519

Housing P/N

No Housing
 SDC10-3S-SE-3B
 SDC10-3S-SE-4B
 SDC10-3S-6S/6S
 SDC10-3S-8S/6S

P103 771E

Cartridge Valves Technical Information

Pilot operated check valves

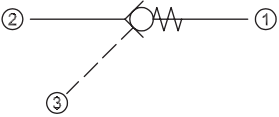
Pilot to Open

CP451-2

OPERATION

This valve is a pilot-to-open check valve.

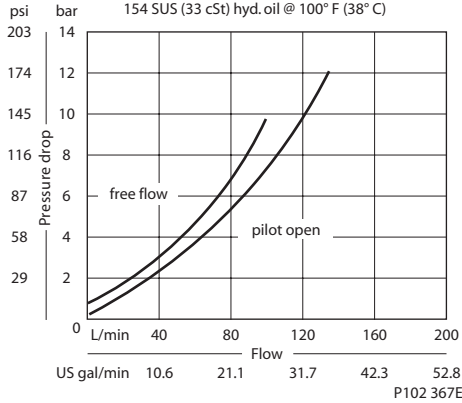
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



Specifications

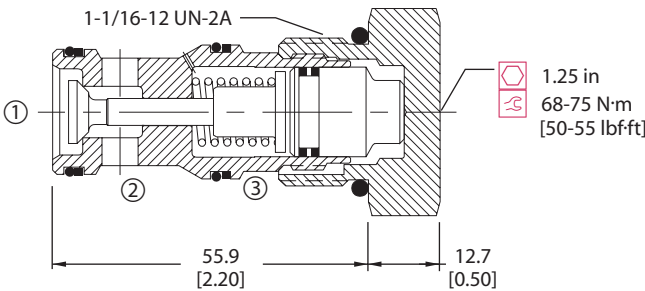
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	95 l/min [25 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.21 kg [0.46 lb]
Pilot ratio	3:1
Cavity	CP12-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 354E

ORDERING INFORMATION

CP451 - 2 - B - 12S - 065 - 0

Seals	Seal kit	Piston seals	Crack Pressure
B = Buna-N	120204	0 = No seals	bar [psi]
V = Viton	120205	S = Seals included	065 = 4.48 [65]
Housing and ports	Housing P/N		
0 = No Housing	No Housing		
4B = Al, 1/2 BSP	CP12-3S-4B/2B		
6B = Al, 3/4 BSP	CP12-3S-6B/2B		
10S = Al, #10 SAE	CP12-3S-10S/4S		
12S = Al, #12 SAE	CP12-3S-12S/4S		
Other housings available			

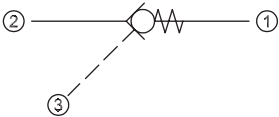
P102 063E

Cartridge Valves Technical Information
Pilot operated check valves
Pilot to Open
CP452-2

OPERATION

This valve is a pilot-to-open check valve.

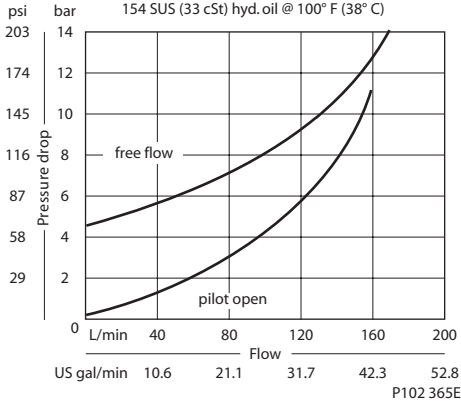
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



Specifications

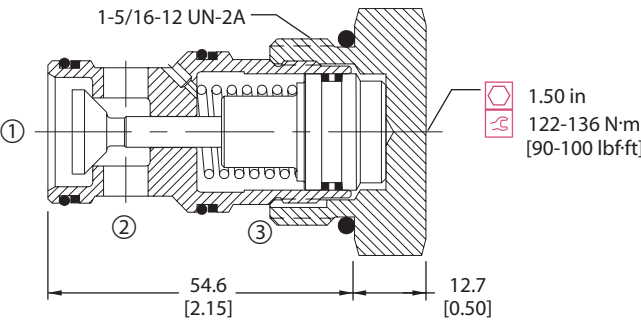
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.29 kg [0.64 lb]
Pilot ratio	3:1
Cavity	SDC16-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 352E

ORDERING INFORMATION

CP452 - 2 - B - 16S - 065 - 0			
Seals B = Buna-N V = Viton	Seal kit 120033 120034	Piston seals 0 = No seals S = Seals included	
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 CP16-3S-6B/2B CP16-3S-8B/2B CP16-3S-12S/4S CP16-3S-12S/4S	Crack Pressure 065 = 4.48 bar [65 psi]	

P102 081E

Cartridge Valves Technical Information

Pilot operated check valves

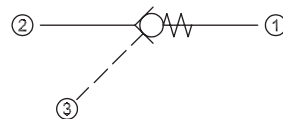
Pilot to Open

CP453-2

OPERATION

This valve is a pilot-to-open check valve.

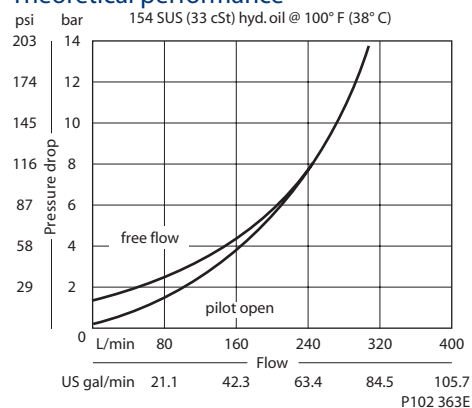
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



Specifications

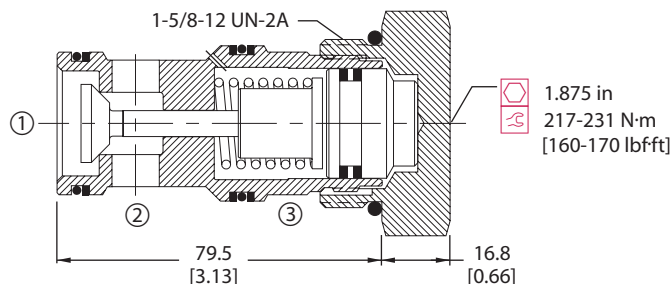
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	230 l/min [61 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.66 kg [1.46 lb]
Pilot ratio	3:1
Cavity	CP20-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 350E

ORDERING INFORMATION

CP453 - 2 - B - 20S - 065 - 0			
Seals B = Buna-N V = Viton	Seal kit 120380 120381	Housing P/N No Housing CP20-3S-8B/2B CP20-3S-10B/2B CP20-3S-16S/4S CP20-3S-20S/4S Other housings available	Piston seals 0 = No seals S = Seals included
Housing and ports 0 = No Housing 8B = Al, 1 BSP 10B = Al, 1-1/4 BSP 16S = Al, #16 SAE 20S = Al, #20 SAE Other housings available		Crack Pressure 065 = 4.48 bar [65 psi]	

P102 086E

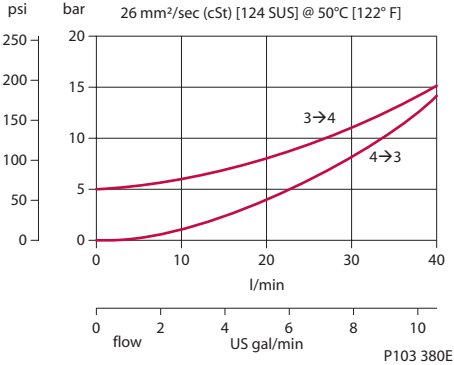
Cartridge Valves Technical Information
Pilot operated check valves
Pilot to Open with Drain
RPV 06

OPERATION

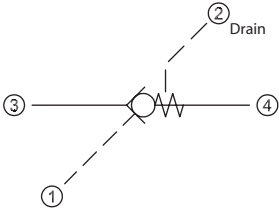
This is a pilot-to-open check valve with an internal drain.

SPECIFICATIONS

Theoretical performance



Schematic



P103 511

Specifications

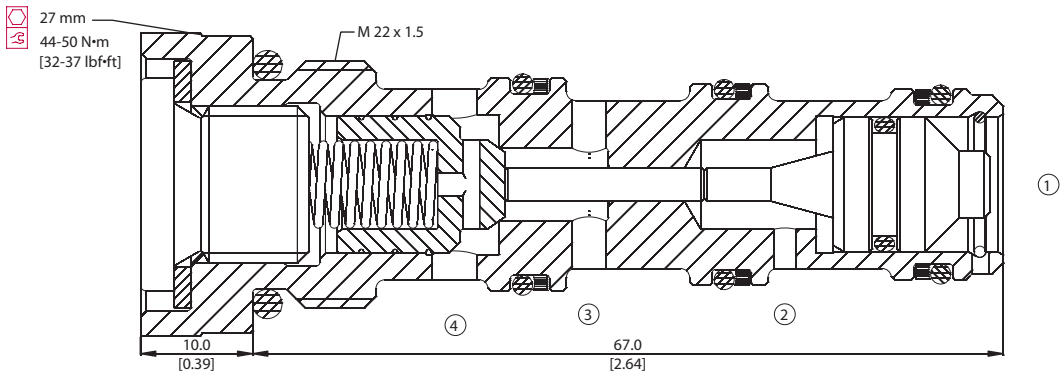
Rated pressure	315 bar [4500 psi]
Rated flow at bar [psi]	30 l/min [8 US gal/min]
Weight	0.13 kg [0.29 lb]
Pilot ratio	3.4:1
Cavity	NCS06/4

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 379

ORDERING INFORMATION

RPV 06 - 5 - OR - 00 - V			
Piston seals		Seals	Seal Kit
OR = Seals		V = Viton	Consult factory
Omit = No seals		Omit = Buna-N	230000080
Housing and ports		Housing P/N	
00 = No Housing		No Housing	
L3/8 = AL, 3/8 BSP		NCS06/4-L-3/8	
L3/4 = AL, 3/4 BSP		NCS06/4-L-1/2	
L6S = AL, #6 SAE		NCS06/4-L-6S	
L8S = AL, #8 SAE		NCS06/4-L-8S	
Other housings available			

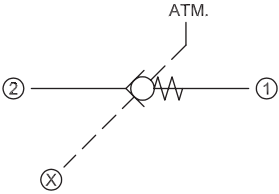
P103 381E

Cartridge Valves Technical Information Pilot operated check valves Pilot to Open with Drain CP453-5

OPERATION

This is a pilot-to-open check valve with an external pilot connection.

Schematic

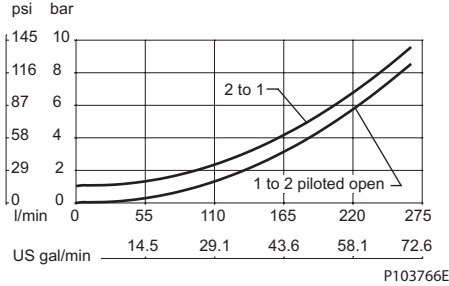


P103 509

SPECIFICATIONS

Theoretical performance

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



P103766E

Specifications

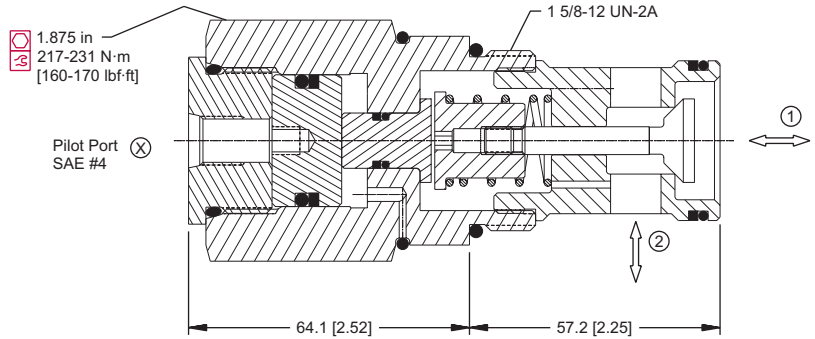
Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	250 l/min [66 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	1.23 kg [2.71 lb]
Pilot ratio	4:1
Cavity	SDC20-2

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P103 751

ORDERING INFORMATION

		CP453-5-B-16S-4-065	
Seals	Seal kit		Crack Pressure
B = Buna-N	120011		bar [psi]
V = Viton	120012		065 = 4.3 65
			100 = 6.9 100
Housing and ports	Housing P/N		Pilot ratio
0 = No Housing	No Housing		4 = 4:1
8B = AL, 1 BSP	CP20-2-8B		
10B = AL, 1-1/4 BSP	CP20-2-10B		
16S = AL, #16 SAE	CP20-2-16S		
20S = AL, #20 SAE	CP20-3-20S		
Other housings available			

P103 767E

Cartridge Valves Technical Information

Pilot operated check valves

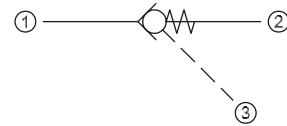
Pilot to Close

CP460-1

OPERATION

This valve is a pilot-to-close check valve.

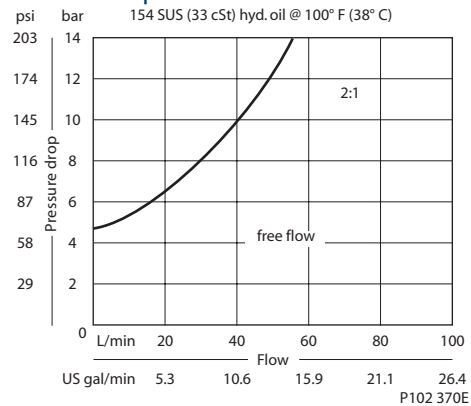
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



Specifications

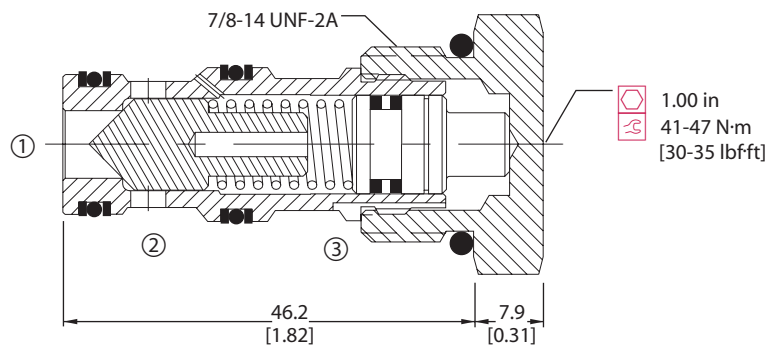
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	22 l/min [5.8 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.10 kg [0.21 lb]
Pilot ratio	2:1
Cavity	SDC10-3

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 356E

ORDERING INFORMATION

CP460 - 1 - B - 8S - 2 - 065 - 0

Seals	Seal kit	Piston seals
B = Buna-N	120009	0 = No seals
V = Viton	120010	S = Seals included
Housing and ports	Housing P/N	Crack Pressure
0 = No Housing	No Housing	065 = 4.48 bar [psi]
E3B = Al, 3/8 BSP	SDC10-3-SE-3B	
E4B = Al, 1/2 BSP	SDC10-3-SE-4B	
6S = Al, #6 SAE	CP10-3-6S	Pilot ratio
8S = Al, #8 SAE	CP10-3-8S	2 = 2:1
Other housings available		

P102 072E

Cartridge Valves Technical Information

Pilot operated check valves

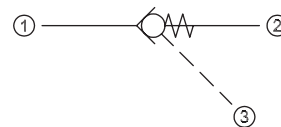
Pilot to Close

CP461-1

OPERATION

This valve is a pilot-to-close check valve.

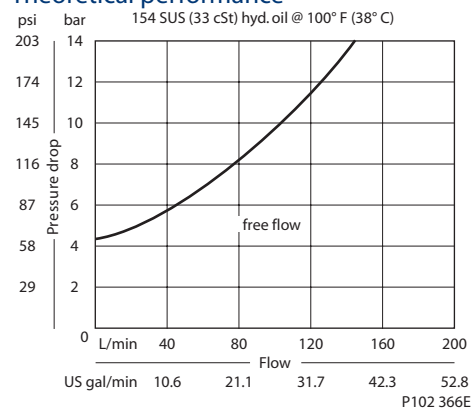
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



Specifications

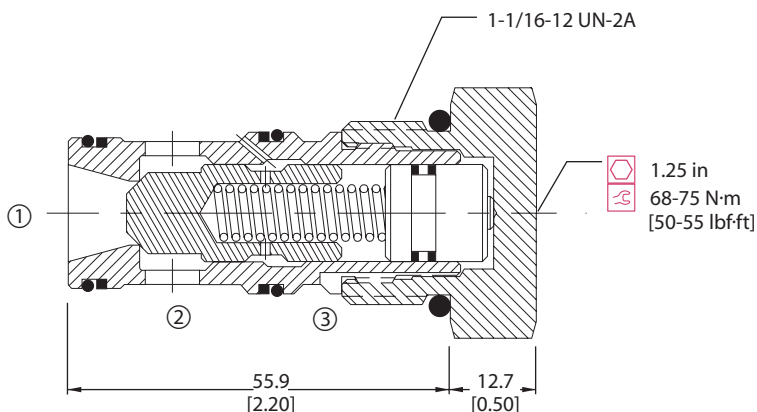
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	60 l/min [16 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.21 kg [0.47 lb]
Pilot ratio	2.3:1
Cavity	CP12-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 353E

ORDERING INFORMATION

CP461 - 1 - B - 12S - 065 - 0			
Seals		Piston seals	
B = Buna-N		0 = No seals	
V = Viton		S = Seals included	
Housing and ports	Seal kit	Crack Pressure	
0 = No Housing	120335	bar	[psi]
4B = Al, 1/2 BSP	120336	065 = 4.48	[65]
6B = Al, 3/4 BSP			
10S = Al, #10 SAE			
12S = Al, #12 SAE			
Other housings available			
Housing P/N			
No Housing			
CP12-3S-4B/2B			
CP12-3S-6B/2B			
CP12-3S-10S/4S			
CP12-3S-12S/4S			

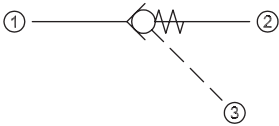
P102 077E

Cartridge Valves Technical Information
Pilot operated check valves
Pilot to Close
CP462-1

OPERATION

This valve is a pilot-to-close check valve.

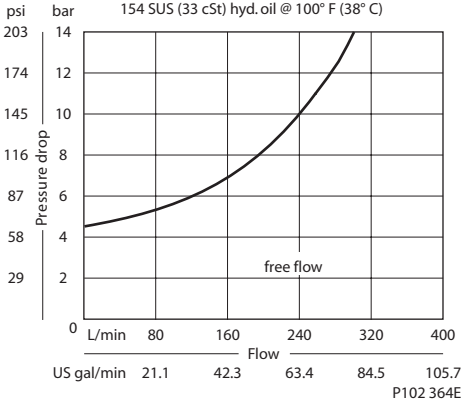
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



Specifications

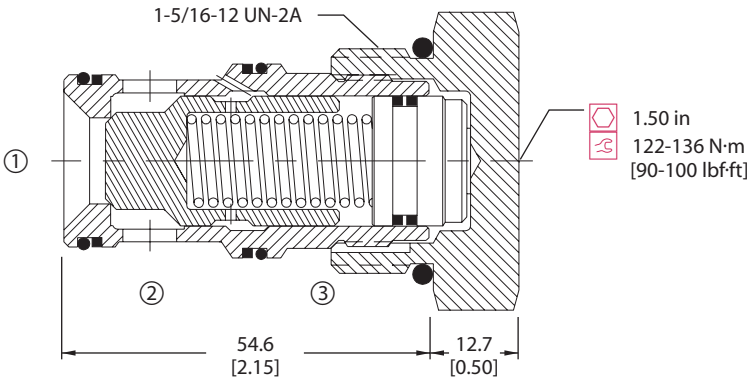
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	190 l/min [50 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.29 kg [0.64 lb]
Pilot ratio	2.3:1
Cavity	SDC16-3S

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 351E

ORDERING INFORMATION

CP462 - 1 - B - 16S - 065 - 0

Seals		Piston seals
B = Buna-N	Seal kit 120033	0 = No seals
V = Viton	Seal kit 120034	S = Seals included
Housing and ports	Housing P/N	Crack Pressure
00 = No Housing	No Housing	065 = 4.48 bar [65 psi]
6B = Al, 3/4 BSP	CP16-3S-6B/2B	
8B = Al, 1 BSP	CP16-3S-8B/2B	
12S = Al, #12 SAE	CP16-3S-12S/4S	
16S = Al, #16 SAE	CP16-3S-12S/4S	
Other housings available		

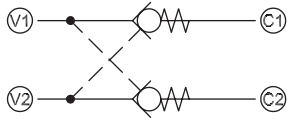
P102 082E

Cartridge Valves Technical Information Pilot operated check valves Dual Pilot-Operated Checks CP410-1

OPERATION

This is a dual pilot operated check valve, which uses two CV10-NP check valves.

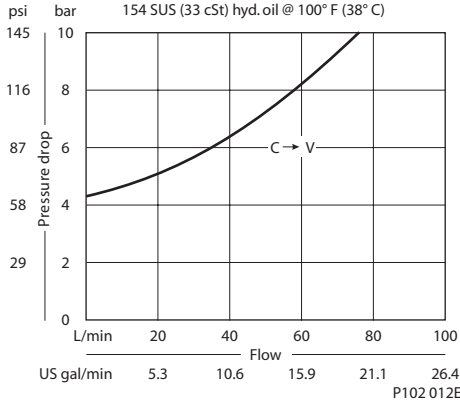
Schematic



P102 383E

SPECIFICATIONS

Theoretical performance



Specifications

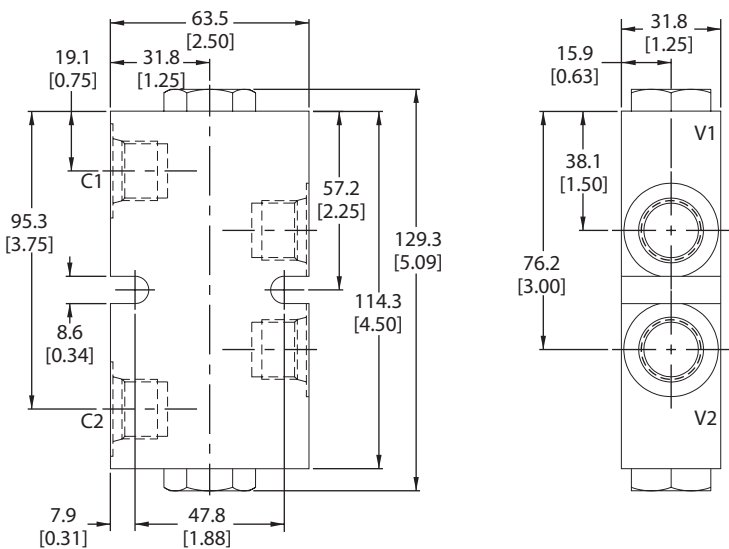
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	85 l/min [22 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.67 kg [1.48 lb]
Pilot ratio	4:1
Cavity	none

Note: A piston seal requires a 4.5 bar [65 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



P102 346E

ORDERING INFORMATION

CP410 - 1 - B - 8S - 0 - 065			
Seals	Seal kit	W/ piston seals	Crack Pressure
B = Buna-N	120072	120176	bar [psi]
V = Viton	120161	120177	065 = 4.50 [65]
Housing and ports	Housing P/N	Piston seals	
6S = Aluminum, #6 SAE	220099	0 = No seals	
8S = Aluminum, #8 SAE	220100	S = Seals included	
3B = Al, 3/8 BSP	221794		
4B = Al, 1/2 BSP	221652		

P102 088E