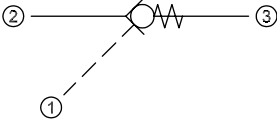
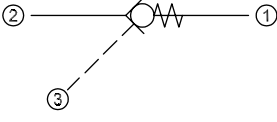
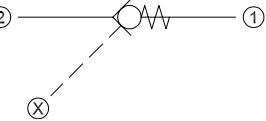
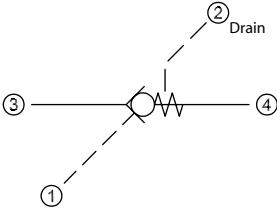


Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	RPC 04	NCS04/3	Pilot-to-open check valve	12 l/min [3 US gal/min]	210 bar [3000 psi]	08.6
	RPC 06	NCS06/3		25 l/min [7 US gal/min]	315 bar [4500 psi]	08.7
	CP450-1	SDC10-3		30 l/min [8 US gal/min]	240 bar [3480 psi]	08.8
	RPC 12	NCS12/3		70 l/min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

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP458-2	SDC08-3	Pilot-to-open check valve	20 l/min [5 US gal/min]	210 bar [3000 psi]	08.10
	CP450-2	SDC10-3		40 l/min [11 US gal/min]	210 bar [3000 psi]	08.11
	MC10-RO	SDC10-3S		45 l/min [12 US gal/min]	250 bar [3600 psi]	08.12
	CP451-2	CP12-3S		95 l/min [25 US gal/min]	210 bar [3000 psi]	08.13
	CP452-2	SDC16-3S		130 l/min [34 US gal/min]	210 bar [3000 psi]	08.14
	CP453-2	CP20-3S		230 l/min [61 US gal/min]	210 bar [3000 psi]	08.15

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP458-3	SDC08-2	Pilot-to-open check valve	20 l/min [5 US gal/min]	210 bar [3000 psi]	08.16

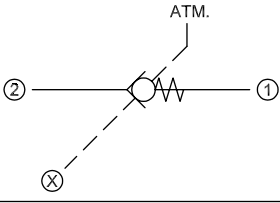
Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	RPV 06	NCS06/4	Pilot-to-open check valve (internal drain)	30 l/min [8 US gal/min]	315 bar [4500 psi]	08.17

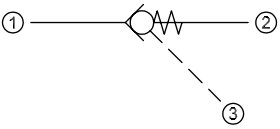
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

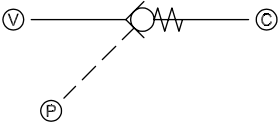
Cartridge Valves Technical Information

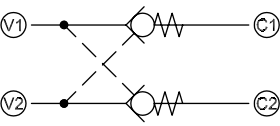
Pilot operated check valves

Quick reference

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP453-5	SDC20-2	Pilot-to-open check valve	250 l/min [66 US gal/min]	350 bar [5000 psi]	08.18

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP468-1	SDC08-3	Pilot-to-close check valve	40 l/min [11 US gal/min]	210 bar [3000 psi]	08.19
	CP460-1	SDC10-3		45 l/min [12 US gal/min]	210 bar [3000 psi]	08.20
	CP461-1	CP12-3S		115 l/min [30 US gal/min]	210 bar [3000 psi]	08.21
	CP462-1	SDC16-3S		190 l/min [50 US gal/min]	210 bar [3000 psi]	08.22

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP408-1	none	Single pilot operated check valve	30 l/min [8 US gal/min]	210 bar [3000 psi]	08.23
	CP400-1	none		85 l/min [22 US gal/min]	210 bar [3000 psi]	08.24
	CP401-1	none		100 l/min [26 US gal/min]	210 bar [3000 psi]	08.25
	CP402-1	none		210 l/min [55 US gal/min]	210 bar [3000 psi]	08.26

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP410-1	none	Dual pilot operated check valve	85 l/min [22 US gal/min]	210 bar [3000 psi]	08.27

* 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

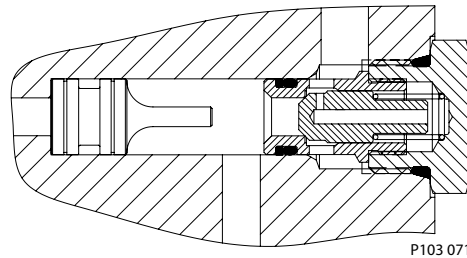
Cartridge Valves Technical Information

Pilot operated check valves Application notes

PILOT-OPERATED CHECK VALVES

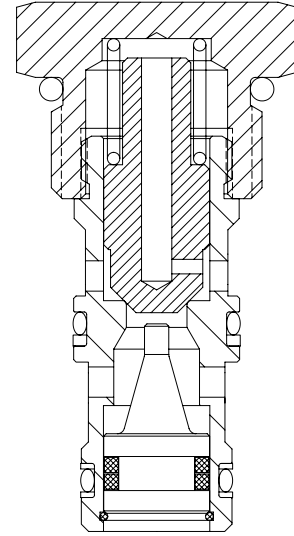
Pilot-operated, or pilot-to-open check valves will positively hold a pressurized load and will release the load upon application of a pressure signal to the pilot port. Pilot-operated check valves are available as individual cartridges, standard **Cartridge-In-Body (CIB)** packages, or can be created 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



P103 071

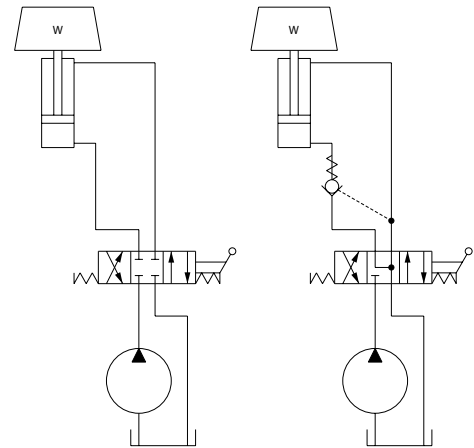
Individual cartridges



P103 070

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



P103 072



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

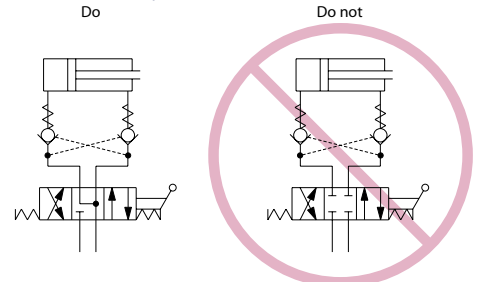
R = Check valve pilot ratio (typically 3:1 or 4:1; consult catalog sheets for details)

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

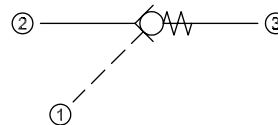
Pilot operated check valves

RPC 04

OPERATION

This is a pilot-to-open check valve.

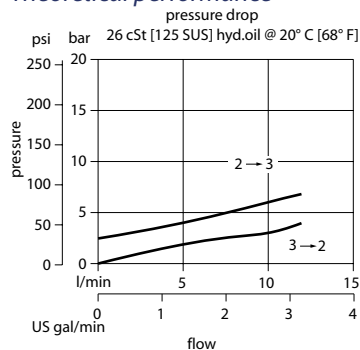
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



P103 679E

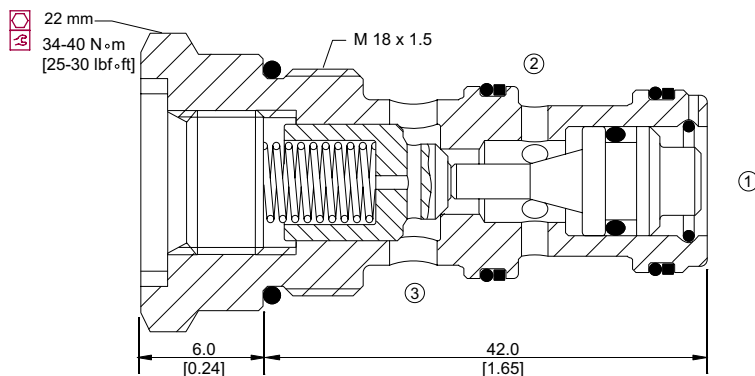
Specifications

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

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
- Housing and ports**
 - 00 = No Housing
 - SE1/4 = AL, 1/4 BSP
 - SE4S = AL, #4 SAE
 - SE6S = AL, #6 SAE
 - Other housings available
- Seal kit**
 - 230000450
 - 230000160
- Housing P/N**
 - No Housing
 - NCS04/3-SE-1/4
 - NCS04/3-SE-4S
 - NCS04/3-SE-6S

P103 706E

Pilot operated check valves
RPC 04



Cartridge Valves Technical Information

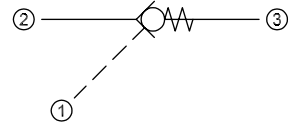
Pilot operated check valves

RPC 06

OPERATION

This is a pilot-to-open check valve.

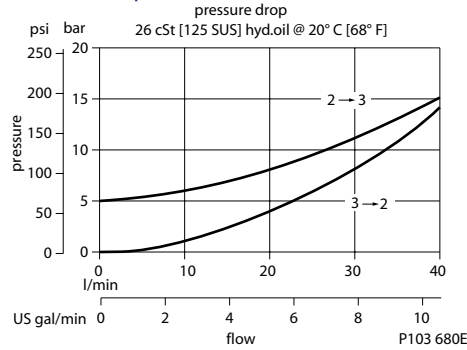
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



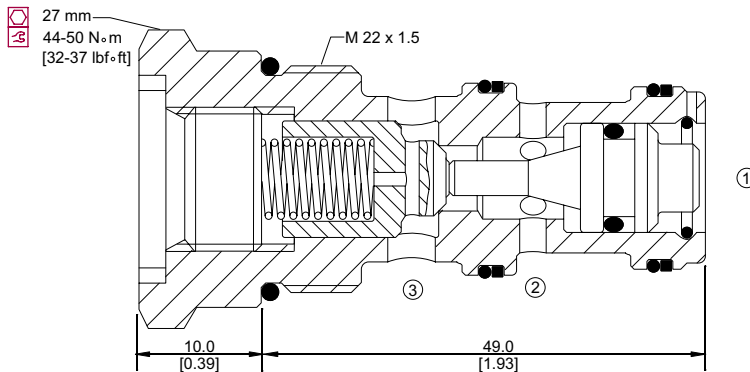
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P103 653

ORDERING INFORMATION

RPC 06 - 5 - OR - 00 - V

Pressure to open
 0.5 = 0.5 bar [7 psi]
 5 = 5 bar [73 psi]

Piston seals
 OR = Seals
 Omit = No seals

Seals
 V = Viton
 Omit = Buna-N

Seal kit
 230000110
 230000070

Housing and ports
 00 = No Housing
 SE3/8 = AL, 3/8 BSP
 SE3/4 = AL, 3/4 BSP
 SE6S = AL, #6 SAE
 SE8S = AL, #8 SAE
 Other housings available

Housing P/N
 No Housing
 NCS06/3-SE-3/8
 NCS06/3-SE-1/2
 NCS06/3-SE-6S
 NCS06/3-SE-8S

P103 707E

Pilot operated check valves
RPC 06



Cartridge Valves Technical Information

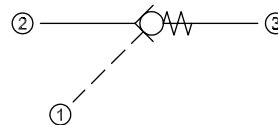
Pilot operated check valves

CP450-1

OPERATION

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

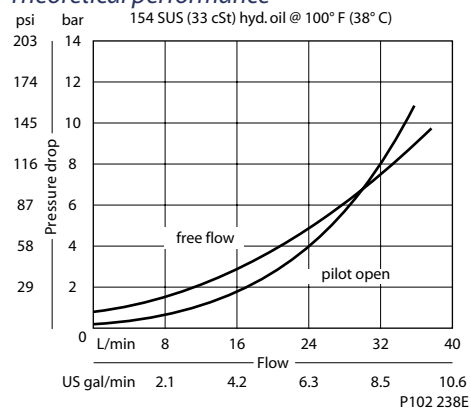
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



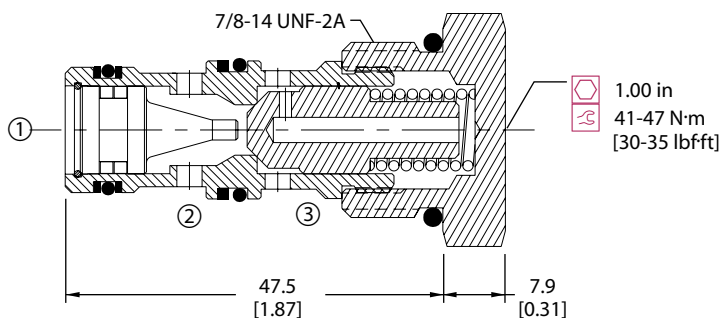
Specifications

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

DIMENSIONS

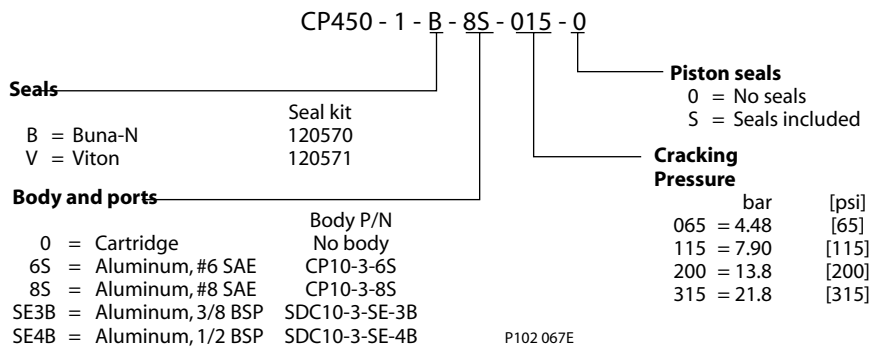
mm [in]

Cross-sectional view



P102 236E

ORDERING INFORMATION





Cartridge Valves Technical Information

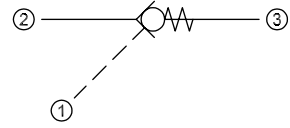
Pilot operated check valves

RPC 12

OPERATION

This is a pilot-to-open check valve.

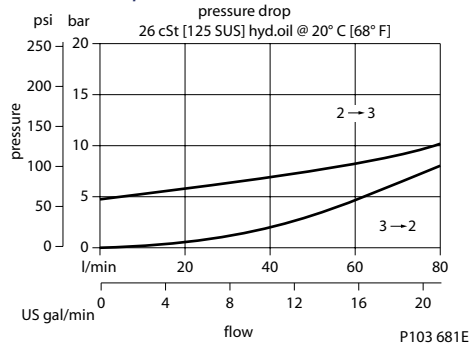
Schematic



P102 381E

SPECIFICATIONS

Theoretical performance



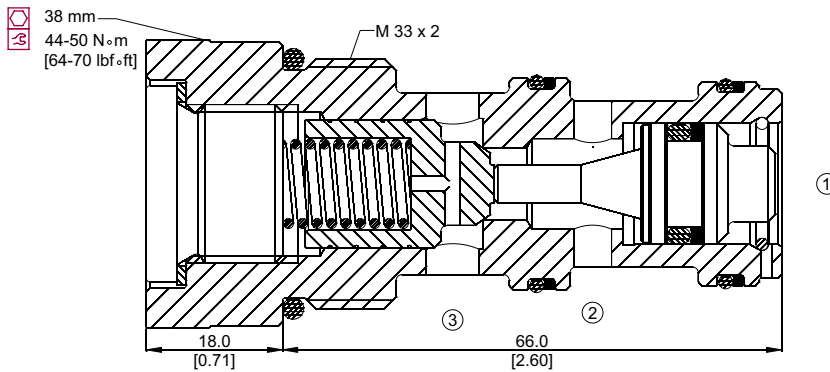
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

RPC 12 - 5 - OR - 00 - V

<p>Pressure to open 0.5 = 0.5 bar [7 psi] 5 = 5 bar [73 psi]</p> <p>Piston seals OR = Seals Omit = No seals</p>	<p>Seals V = Viton Omit = Buna-N</p> <p>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</p>	<p>Seal kit 230000360 230000130</p> <p>Housing P/N No Housing NCS12/3-SE-1/2 NCS12/3-SE-3/4 NCS12/3-SE-8S NCS12/3-SE-12S</p>
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P103 708E

Pilot operated check valves
RPC 12



Cartridge Valves Technical Information

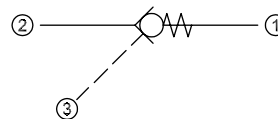
Pilot operated check valves

CP458-2

OPERATION

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

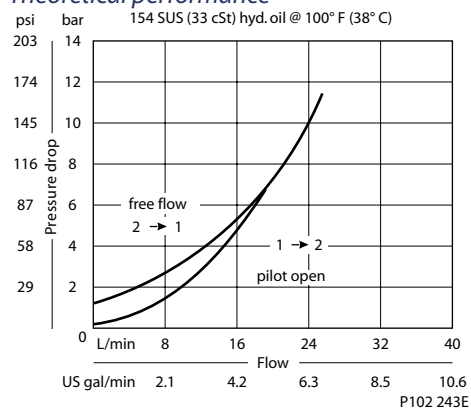
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



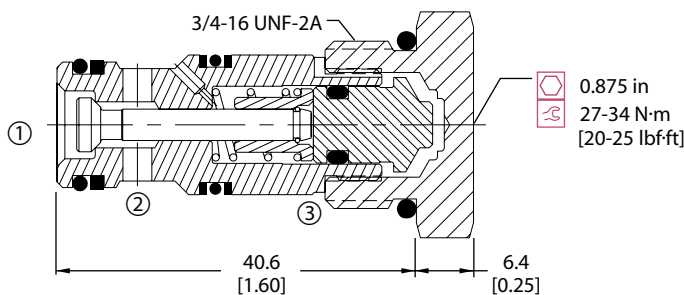
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P102 242E

ORDERING INFORMATION

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

<p>Seals</p> <p>B = Buna-N V = Viton</p>	<p>Seal kit</p> <p>120250 120253</p>	<p>Piston seals</p> <p>0 = No seals S = Seals included</p>
<p>Housing and ports</p> <p>0 = No Housing SE2B = Al, 1/4 BSP SE3B = Al, 3/8 BSP 4S = Al, #4 SAE 6S = Al, #6 SAE Other housings available</p>	<p>Housing P/N</p> <p>No Housing SDC08-3-SE-2B SDC08-3-SE-3B CP08-3-4S CP08-3-6S</p>	<p>Crack Pressure</p> <p>bar [psi] 065 = 4.48 [65]</p>

P102 076E



Cartridge Valves Technical Information

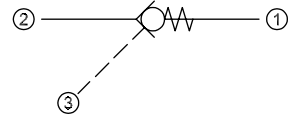
Pilot operated check valves

CP450-2

OPERATION

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

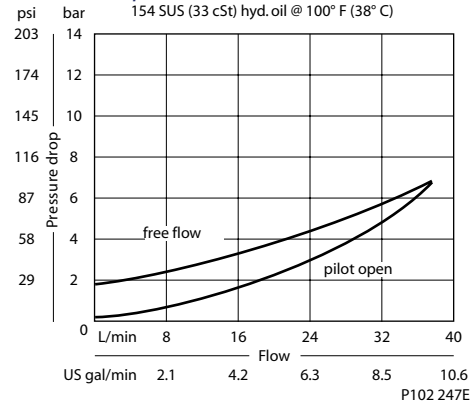
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



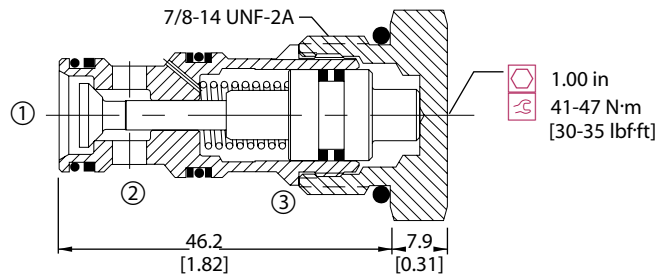
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.10 kg [0.21 lb]
Pilot ratio	3:1
Cavity	SDC10-3

DIMENSIONS

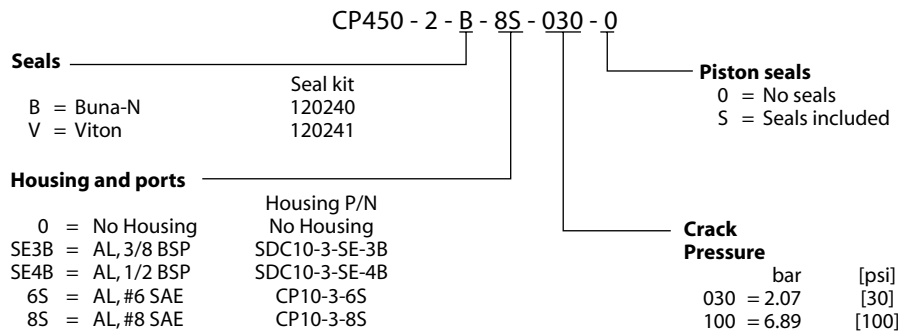
mm [in]

Cross-sectional view



P102 246E

ORDERING INFORMATION



P102 068E



Cartridge Valves Technical Information

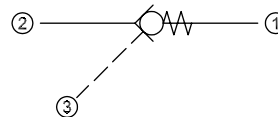
Pilot operated check valves

MC10-RO

OPERATION

This is a pilot-to-open check valve.

Schematic

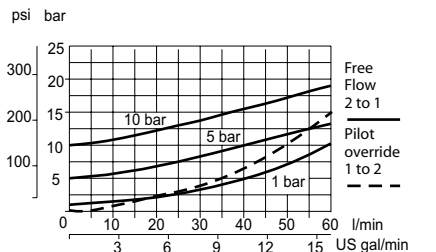


P102 377E

SPECIFICATIONS

Theoretical performance

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



P103770E

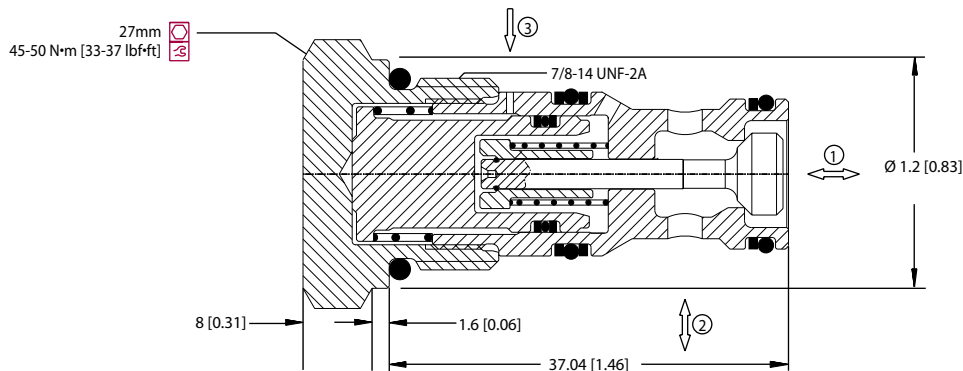
Specifications

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	SDC10-35

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

Housing P/N

- No Housing
- SDC10-35-SE-3B
- SDC10-35-SE-4B
- SDC10-35-6S/6S
- SDC10-35-8S/6S

Seals

- B = Buna-N
- V = Viton

Seal kit

- 3540141
- 3540151

P103 771E



Cartridge Valves Technical Information

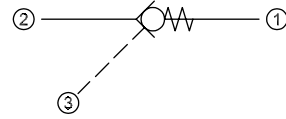
Pilot operated check valves

CP451-2

OPERATION

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

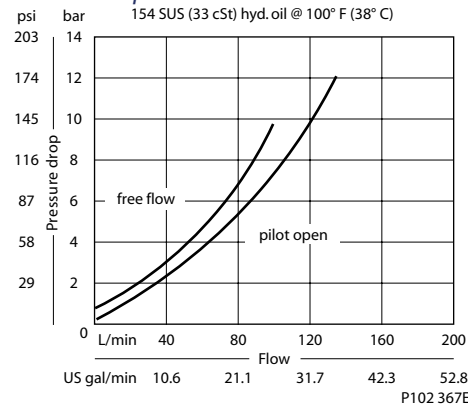
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



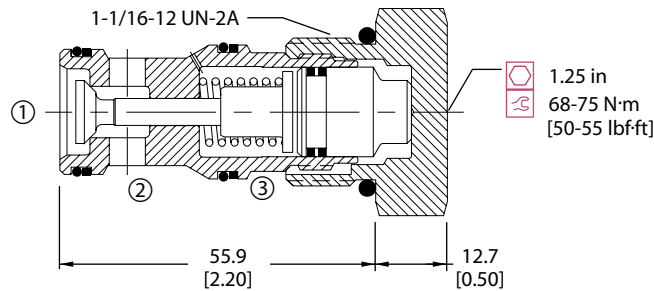
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P102 354E

ORDERING INFORMATION

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

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

Pilot operated check valves CP451-2



Cartridge Valves Technical Information

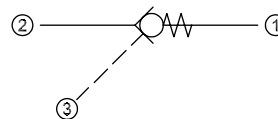
Pilot operated check valves

CP452-2

OPERATION

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

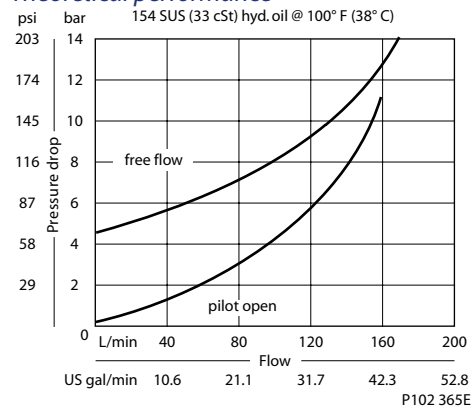
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



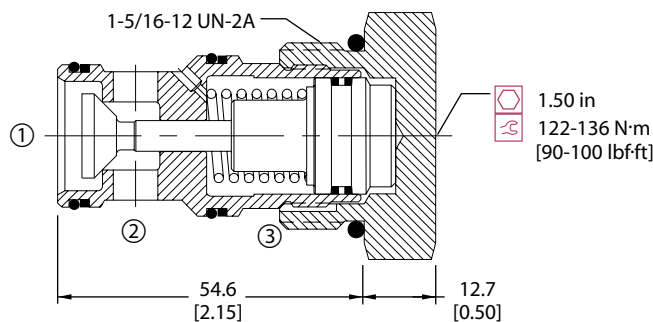
Specifications

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	SDC16-35

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 bar [psi] 065 = 4.48 [65]

P102 081E



Cartridge Valves Technical Information

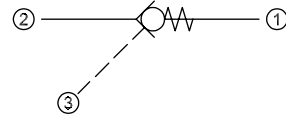
Pilot operated check valves

CP453-2

OPERATION

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

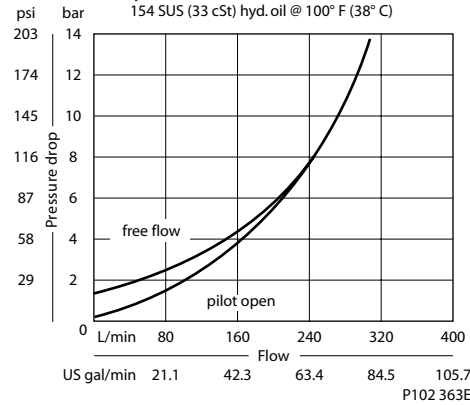
Schematic



P102 377E

SPECIFICATIONS

Theoretical performance



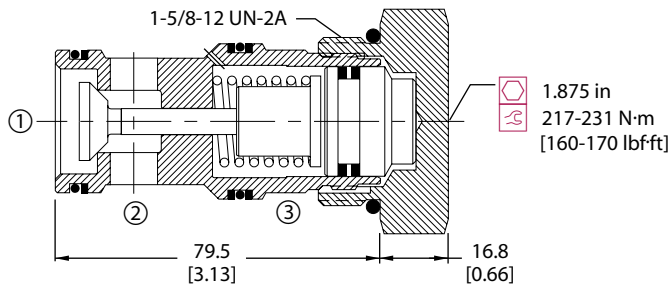
Specifications

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

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	Crack Pressure bar [psi] 065 = 4.48 [65]
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P102 086E

Pilot operated check valves
CP453-2



Cartridge Valves Technical Information

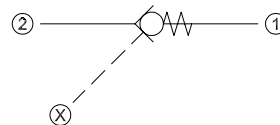
Pilot operated check valves

CP458-3

OPERATION

This is a pilot-to-open check valve with an external pilot and internal vent.

Schematic



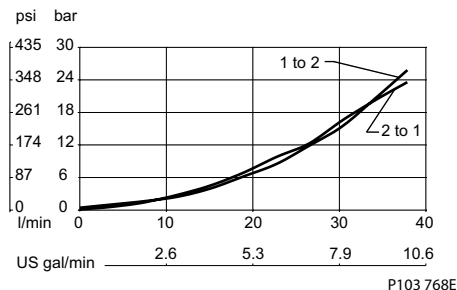
P103 510

SPECIFICATIONS

Theoretical performance

Pressure Drop

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



P103 768E

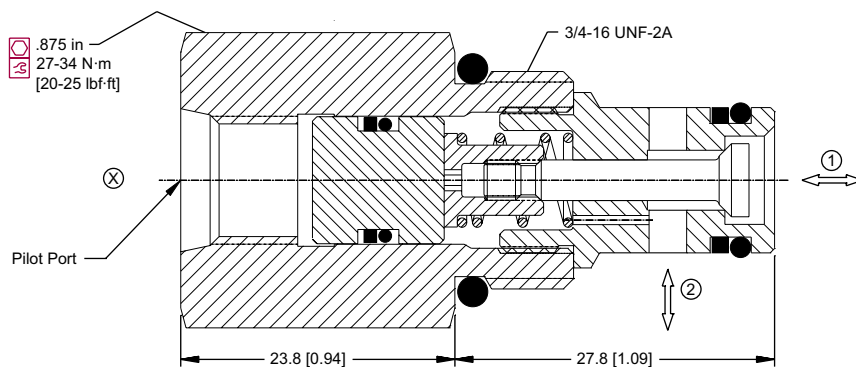
Specifications

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	0.08 kg [0.17 lb]
Pilot ratio	4.5:1
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



P103 752

ORDERING INFORMATION

CP458-3-B-16S-065-4-4S

Seals	Seal kit			
B = Buna-N	120221			
V = Viton	120222			
Housing and ports		Housing P/N		Pilot port
0 = No Housing		No Housing		4S = #4 SAE
DG2B = AL, 1/4 BSP		SDC08-2-DG-2B		2B = 1/4 BSP
DG3B = AL, 3/8 BSP		SDC08-2-DG-3B		Piston seals
4S = AL, #4 SAE		CP08-2-4S		0 = No seals
6S = AL, #6 SAE		CP08-2-6S		S = Seals included
Other housings available				Crack Pressure
				bar [psi]
				065 = 4.3 65

P103 769E



Cartridge Valves Technical Information

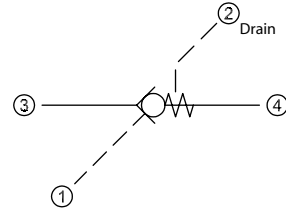
Pilot operated check valves

RPV 06

OPERATION

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

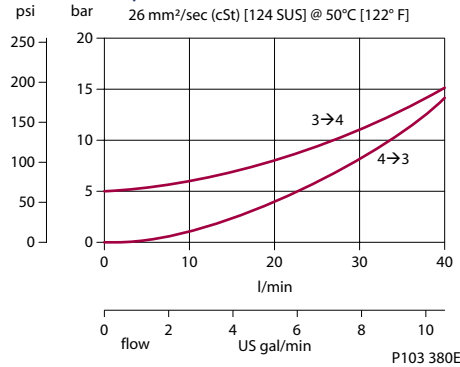
Schematic



P103 511

SPECIFICATIONS

Theoretical performance



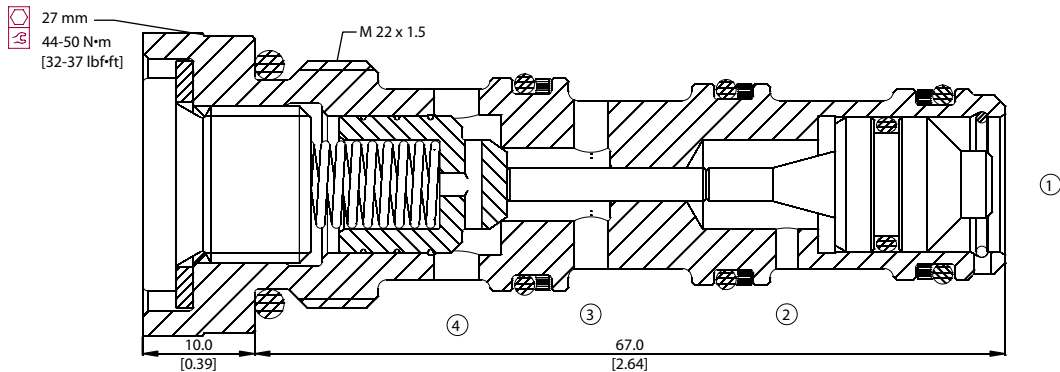
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P103 379

ORDERING INFORMATION

RPV 06 - 5 - OR - 00 - V

Piston seals
OR = Seals
Omit = No seals

Housing and ports
00 = No Housing
L3/8 = AL, 3/8 BSP
L3/4 = AL, 3/4 BSP
L6S = AL, #6 SAE
L8S = AL, #8 SAE
Other housings available

Seals
V = Viton
Omit = Buna-N

Seal Kit
Consult factory
230000080

Housing P/N
No Housing
NCS06/4-L-3/8
NCS06/4-L-1/2
NCS06/4-L-6S
NCS06/4-L-8S

P103 381E

Pilot operated check valves
RPV 06



Cartridge Valves Technical Information

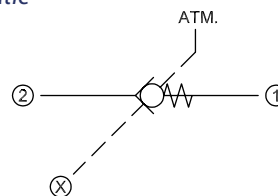
Pilot operated check valves

CP453-5

OPERATION

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

Schematic

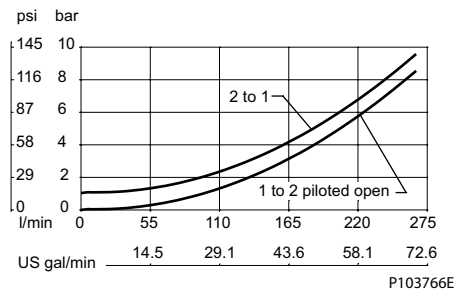


P103 509

SPECIFICATIONS

Theoretical performance

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



P103766E

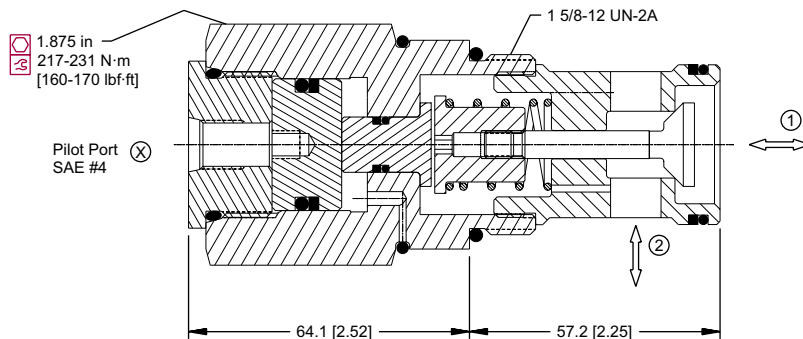
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P103 751

ORDERING INFORMATION

CP453-5-B-16S-4-065

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

P103 767E



Cartridge Valves Technical Information

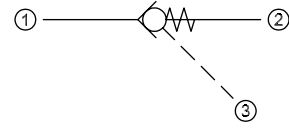
Pilot operated check valves

CP468-1

OPERATION

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

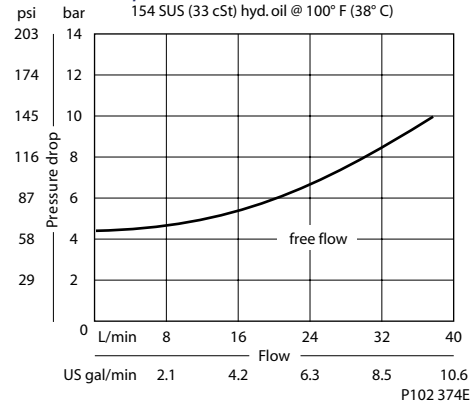
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



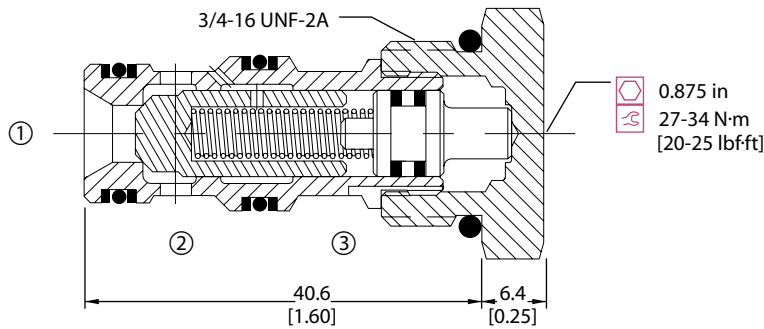
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.06 kg [0.14 lb]
Pilot ratio	2.2:1
Cavity	SDC08-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 359E

ORDERING INFORMATION

CP468 - 1 - B - 6S - 065 - 0

Seals

- B = Buna-N
- V = Viton

Seal kit
120229
120230

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

Housing P/N

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

Piston seals

- 0 = No seals
- S = Seals included

Crack Pressure

- 065 = 4.48 bar [65 psi]

P102 064E

Pilot operated check valves CP468-1



Cartridge Valves Technical Information

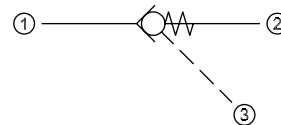
Pilot operated check valves

CP460-1

OPERATION

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

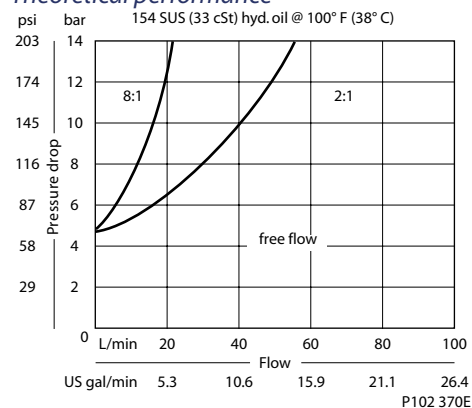
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



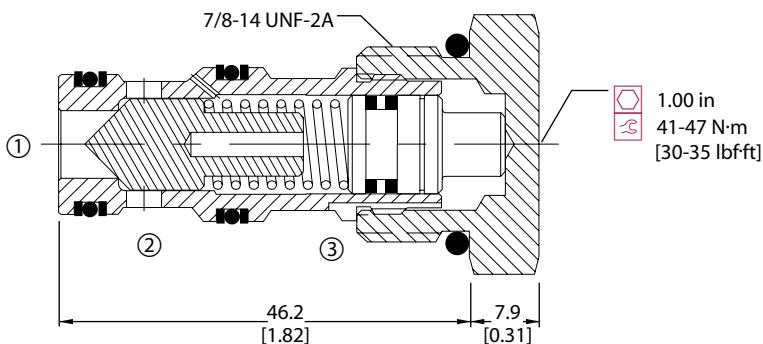
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.10 kg [0.21 lb]
Pilot ratio	2:1 or 8:1
Cavity	SDC10-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 356E

ORDERING INFORMATION

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

Seals	Seal kit	Piston seals	0 = No seals
B = Buna-N	120009	S = Seals included	
V = Viton	120010		
Housing and ports	Housing P/N	Crack Pressure	bar [psi]
0 = No Housing	No Housing	065 = 4.48	[65]
SE3B = Al, 3/8 BSP	SDC10-3-SE-3B		
SE4B = 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		8 = 8:1	

P102 072E



Cartridge Valves Technical Information

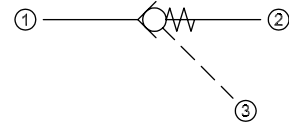
Pilot operated check valves

CP461-1

OPERATION

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

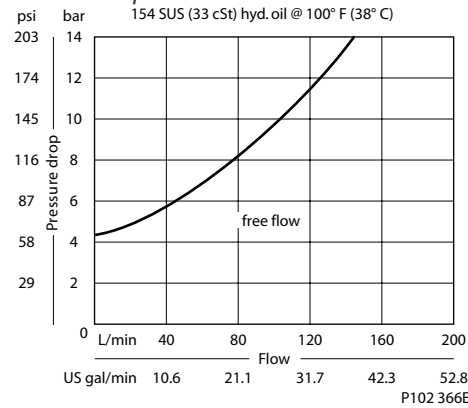
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



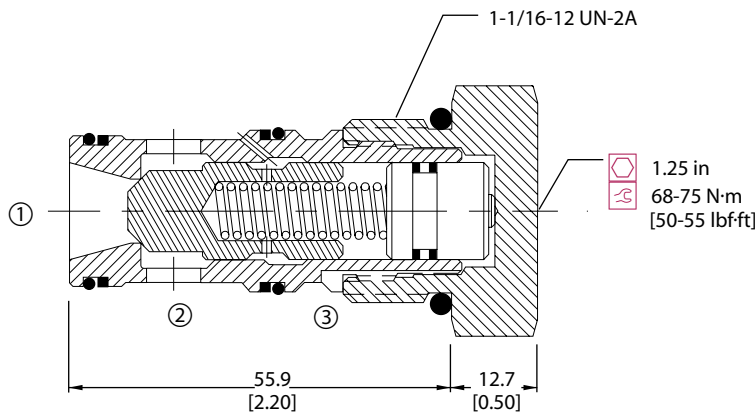
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	115 l/min [30 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.21 kg [0.47 lb]
Pilot ratio	2.3:1
Cavity	CP12-3S

DIMENSIONS

mm [in]

Cross-sectional view



P102 353E

ORDERING INFORMATION

CP461 - 1 - B - 12S - 065 - 0

Seals

- B = Buna-N
- V = Viton

Seal kit

- 120335
- 120336

Housing and ports

- 0 = No Housing
- 4B = Al, 1/2 BSP
- 6B = Al, 3/4 BSP
- 10S = Al, #10 SAE
- 12S = Al, #12 SAE

Housing P/N

- No Housing
- CP12-3S-4B/2B
- CP12-3S-6B/2B
- CP12-3S-10S/4S
- CP12-3S-12S/4S

Other housings available

Piston seals

- 0 = No seals
- S = Seals included

Crack Pressure

- 065 = 4.48 bar [65 psi]

P102 077E

Pilot operated check valves
CP461-1



Cartridge Valves Technical Information

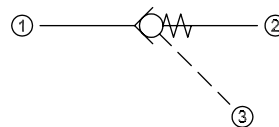
Pilot operated check valves

CP462-1

OPERATION

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

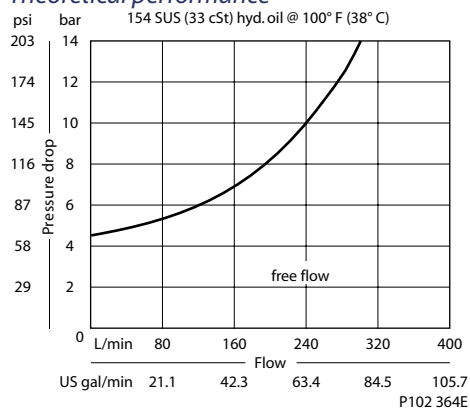
Schematic



P102 378E

SPECIFICATIONS

Theoretical performance



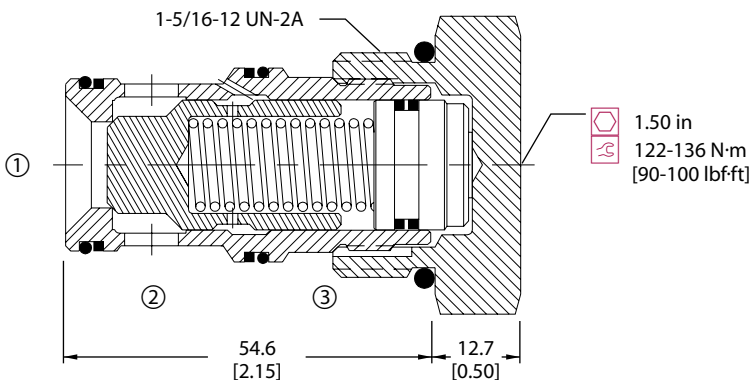
Specifications

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	SDC16-35

DIMENSIONS

mm [in]

Cross-sectional view



P102 351E

ORDERING INFORMATION

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

Seals

- B = Buna-N Seal kit 120033
- V = Viton Seal kit 120034

Housing and ports

- 00 = No Housing
- 6B = Al, 3/4 BSP
- 8B = Al, 1 BSP
- 12S = Al, #12 SAE
- 16S = Al, #16 SAE

Housing P/N

- No Housing
- CP16-3S-6B/2B
- CP16-3S-8B/2B
- CP16-3S-12S/4S
- CP16-3S-12S/4S

Other housings available

Piston seals

- 0 = No seals
- S = Seals included

Crack Pressure

- 065 = 4.48 bar [65 psi]

P102 082E



Cartridge Valves Technical Information

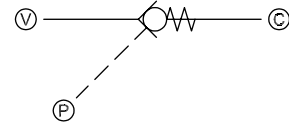
Pilot operated check valves

CP408-1

OPERATION

This is a single pilot operated check valve, which uses one CV08-NP check valve.

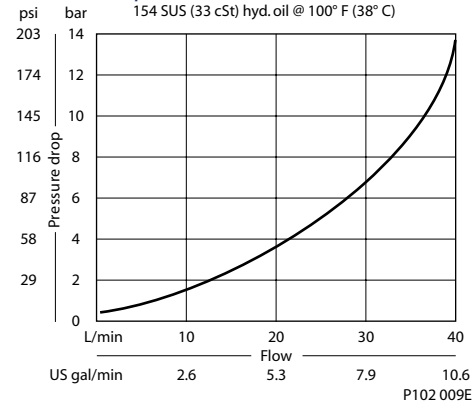
Schematic



P102 382E

SPECIFICATIONS

Theoretical performance



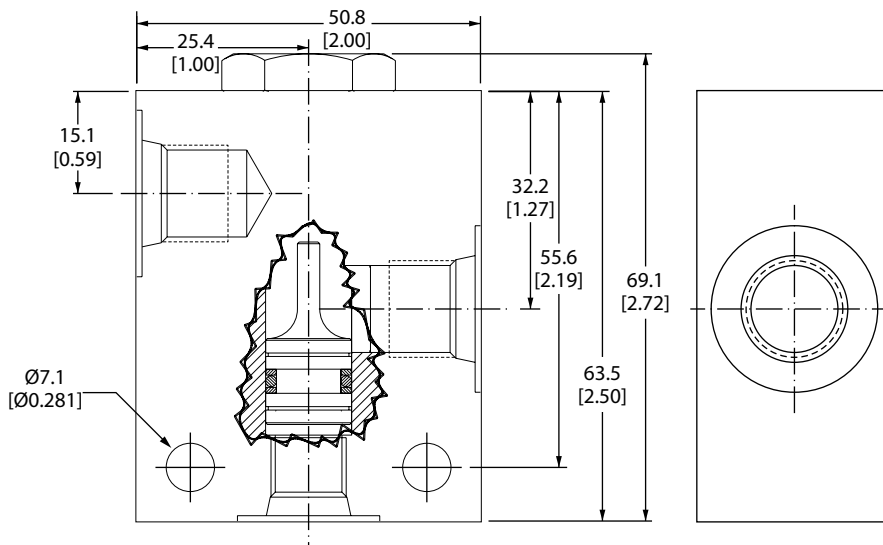
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.27 kg [0.60 lb]
Pilot ratio	4:1
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 929

ORDERING INFORMATION

CP408-1-B-4S-S-065

Crack pressure

065 = 4.5 bar [65 psi]

Housing and ports

Housing P/N

Seals

B = Buna-N
B = Buna-N
V = Viton
V = Viton

Piston seals

0 = No seals
S = Seals included
0 = No seals
S = Seals included

Seal kit

120221
120242
120222
120244

4S = Aluminum, #4 SAE
6S = Aluminum, #6 SAE

11011861
220865

P102 897E

Pilot operated check valves
CP408-1



Cartridge Valves Technical Information

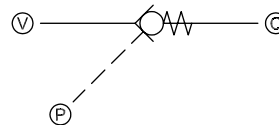
Pilot operated check valves

CP400-1

OPERATION

This is a single pilot operated check valve, which uses one CV10-NP check valve.

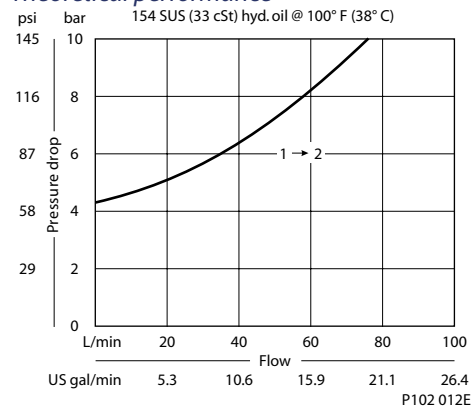
Schematic



P102 382E

SPECIFICATIONS

Theoretical performance



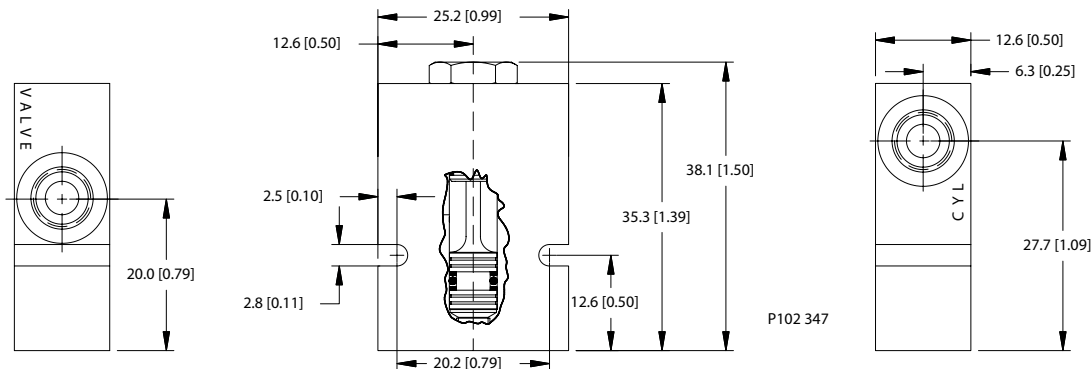
Specifications

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	0.50 kg [1.10 lb]
Pilot ratio	4:1
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 347

ORDERING INFORMATION

CP400 - 1 - B - 8S - 0 - 065

Seals	Seal kit		Crack Pressure
B = Buna-N	120428		bar [psi]
V = Viton	120429		065 = 4.5 [65]
Housing	Housing P/N	Pilot port	Piston seals
6S = AL, #6 SAE	220236	4S = #4 SAE	0 = No seals
8S = AL, #8 SAE	220237	4S = #4 SAE	S = Seals included
3B = AL, 3/8 BSP	221662	2B = 1/4 BSP	
4B = AL, 1/2 BSP	221663	2B = 1/4 BSP	

P102 087E

Pilot operated check valves CP400-1



Cartridge Valves Technical Information

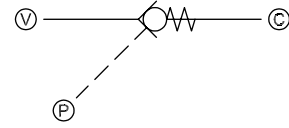
Pilot operated check valves

CP401-1

OPERATION

This is a single pilot operated check valve, which uses on CP101-1 check valve.

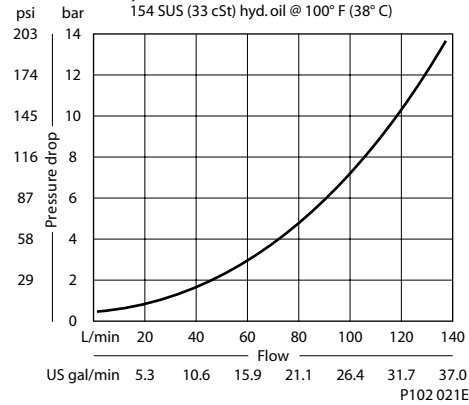
Schematic



P102 382E

SPECIFICATIONS

Theoretical performance



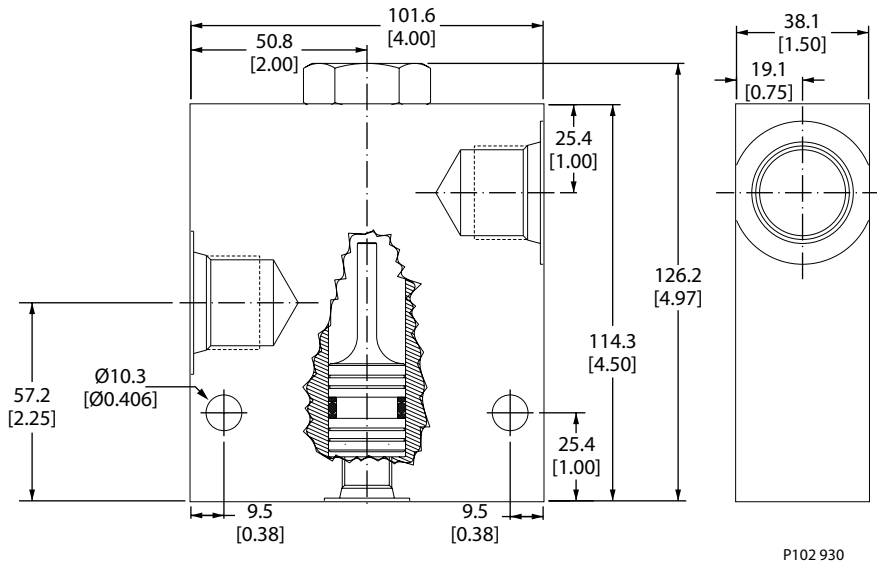
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	100 l/min [26 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	1.32 kg [2.90 lb]
Pilot ratio	4:1
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



Pilot operated check valves CP401-1

ORDERING INFORMATION

CP401-1-B-10S-S-065

Crack pressure
065 = 4.5 bar [65 psi]

Housing and ports
10S = AL, #10 SAE
12S = AL, #12 SAE

Housing P/N Pilot port
220263 6S = #6 SAE
220264 12S = #12 SAE

Seals	Piston seals	Seal kit
B = Buna-N	0 = No seals	120017
B = Buna-N	S = Seals included	120036
V = Viton	0 = No seals	120018
V = Viton	S = Seals included	120037

P102 896E



Cartridge Valves Technical Information

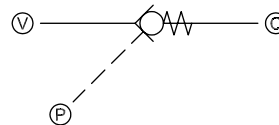
Pilot operated check valves

CP402-1

OPERATION

This is a single pilot operated check valve, which uses one CP102-1 check valve.

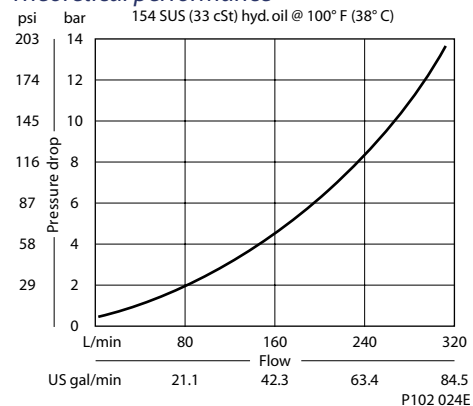
Schematic



P102 382E

SPECIFICATIONS

Theoretical performance



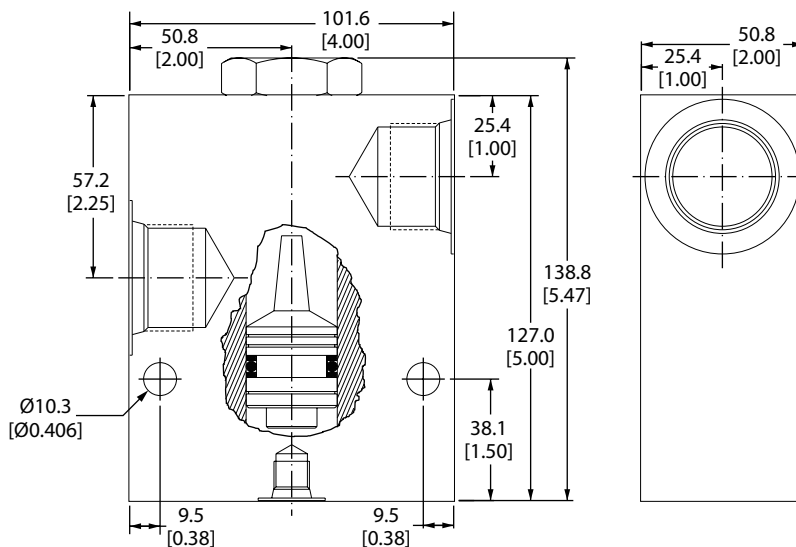
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	210 l/min [55 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	1.91 kg [4.20 lb]
Pilot ratio	4:1
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 931

ORDERING INFORMATION

CP402-1-B-12S-S-065

Crack pressure
065 = 4.5 bar [65 psi]

Seals

B = Buna-N
B = Buna-N
V = Viton
V = Viton

Piston seals

0 = No seals
S = Seals included
0 = No seals
S = Seals included

Seal kit

120019
120038
120020
120039

Housing and ports

12S = Aluminum, #12 SAE 220241
16S = Aluminum, #16 SAE 220242

Housing P/N

Pilot port

4S = #4 SAE
4S = #4 SAE

P102 895E



Cartridge Valves Technical Information

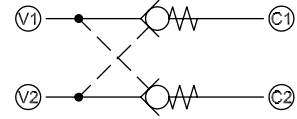
Pilot operated check valves

CP410-1

OPERATION

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

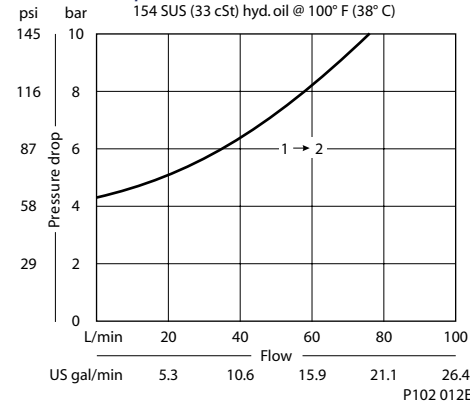
Schematic



P102 383E

SPECIFICATIONS

Theoretical performance



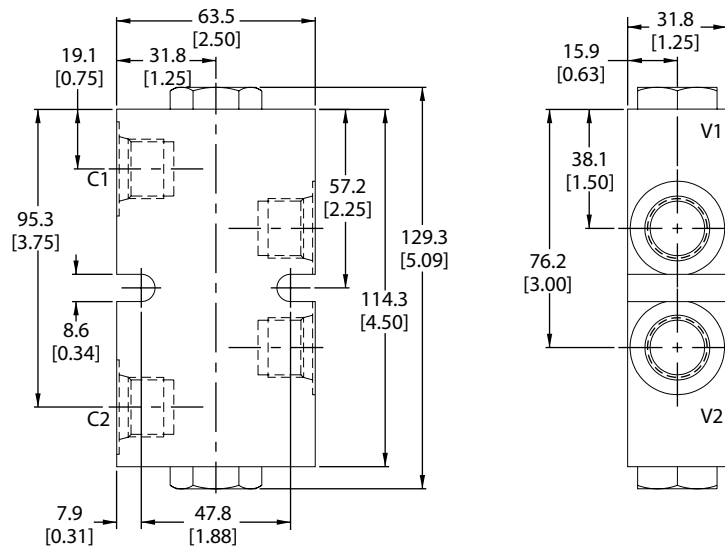
Specifications

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

DIMENSIONS

mm [in]

Cross-sectional view



P102 346E

ORDERING INFORMATION

CP410-1-B-8S-0-065

Seals

	Seal kit	W/ piston seals
B = Buna-N	120072	120176
V = Viton	120161	120177

Crack Pressure

065	= 4.50	[65]
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Housing and ports

	Housing P/N
6S = Aluminum, #6 SAE	220099
8S = Aluminum, #8 SAE	220100
3B = Al, 3/8 BSP	221794
4B = Al, 1/2 BSP	221652

Piston seals

- 0 = No seals
- S = Seals included

P102 088E

Pilot operated check valves CP410-1



Cartridge Valves Technical Information
Pilot operated check valves
Notes