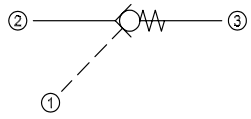
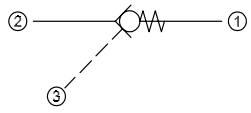
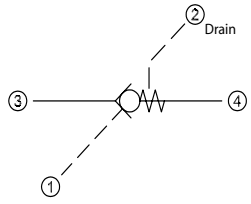
ENGINEERING TOMORROW

Pilot Operated Check Valves Technical Information

Quick Reference

Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	**RPC04**	**NCS04/3**	Pilot Operated Check Valve, Pilot to Open	20.5 l/min [5.4 US gal/min]	350 bar [5075 psi]	**PO - 6**
	RPC06	**NCS06/3**		35 l/min [9.3 US gal/min]	350 bar [5075 psi]	**PO - 7**
	CP450-1	**SDC10-3**		30 l/min [8 US gal/min]	240 bar [3480 psi]	**PO - 8**
	RPC12	**NCS12/3**		90 l/min [23.8 US gal/min]	315 bar [4570 psi]	**PO - 9**

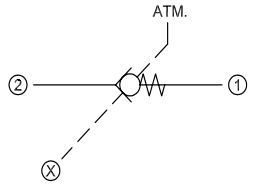
Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	**CP458-2**	**SDC08-3**	Pilot Operated Check Valve, Reverse Pilot to Open	20 l/min [5 US gal/min]	210 bar [3000 psi]	**PO - 10**
	MC10-RO	**SDC10-3S**		45 l/min [12 US gal/min]	250 bar [3600 psi]	**PO - 11**
	CP451-2	**CP12-3S**		95 l/min [25 US gal/min]	210 bar [3000 psi]	**PO - 12**
	CP452-2	**SDC16-3S**		130 l/min [34 US gal/min]	210 bar [3000 psi]	**PO - 13**
	CP453-2	**CP20-3S**		230 l/min [61 US gal/min]	210 bar [3000 psi]	**PO - 14**

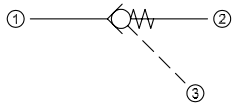
Pilot to Open	Model No.	Cavity	Description	Flow*	Pressure	Page
	**RPV 06**	**NCS06/4**	Pilot Operated Check Valve, Pilot-to-open with drain	30 l/min [8 US gal/min]	315 bar [4500 psi]	**PO - 15**

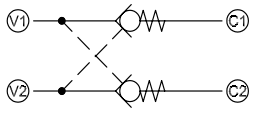
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Pilot Operated Check Valves Technical Information

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 [5075 psi]	**PO - 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]	**PO - 17**
	CP461-1	**CP12-3S**		115 l/min [30 US gal/min]	210 bar [3000 psi]	**PO - 18**
	CP462-1	**SDC16-3S**		190 l/min [50 US gal/min]	210 bar [3000 psi]	**PO - 19**

Dual Pilot-Operated Checks	Model No.	Cavity	Description	Flow*	Pressure	Page
	**CP410-1**	none	Pilot Operated Check Valve, Catalog HIC	80 l/min [21.1 US gal/min]	210 bar [3000 psi]	**PO - 20**

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

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:

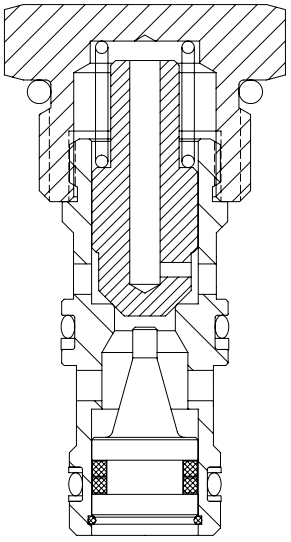
- Pilot-operated, or pilot-to-open check valves will satisfy the first two of the above requirements.
- Counterbalance valves will satisfy all four of the above requirements.

Pilot operated check valves

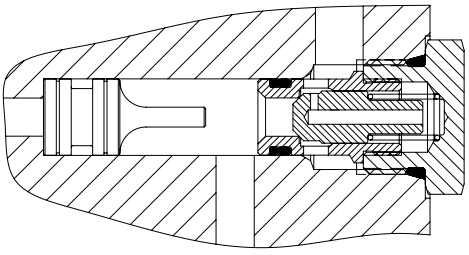
PILOT-OPERATED CHECK VALVES

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 **C**artridge-**I**n-**B**ody (**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.

Individual cartridges

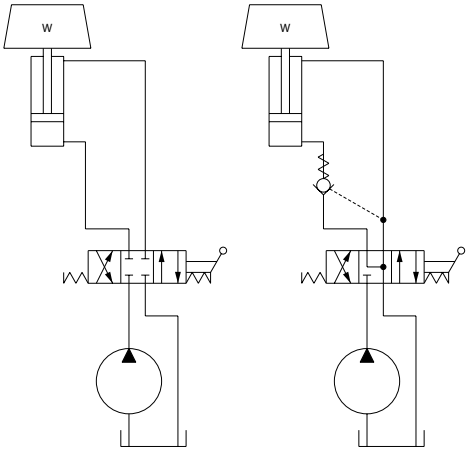


Cartridge in body



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 right 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



PILOT-OPERATED CHECK VALVES (continued)

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

$$P = \frac{W + (Pc \cdot Ab)}{(Ab \cdot R) - Ar}$$ cylinder retracts

$$P = \frac{W + (Pc \cdot Ar)}{(Ar \cdot R) - Ab}$$ cylinder extends

W = Load
Pc = Check valve crack pressure (typically 0.34-4.5 bar [5-65 psi]; consult catalog sheets for details)
Ab = Cylinder bore area
Ar = Cylinder rod area
R = Check valve pilot ratio (typically 3:1 or 4:1; consult catalog sheets for details)

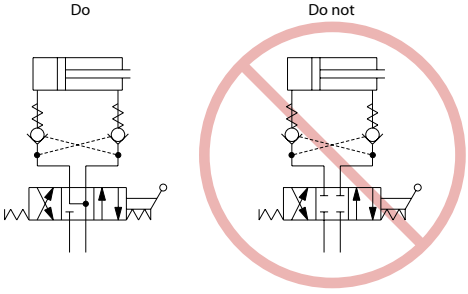
Note that these equations are idealized and do not consider any backpressure in the circuit, which is additive to the pressure required to pilot open the check valve.

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.

Closed center, directional control valves



- 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.

Pilot Operated Check Valves Technical Information

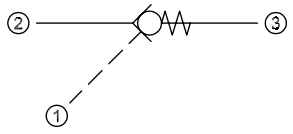
Pilot to Open

RPC04

OPERATION

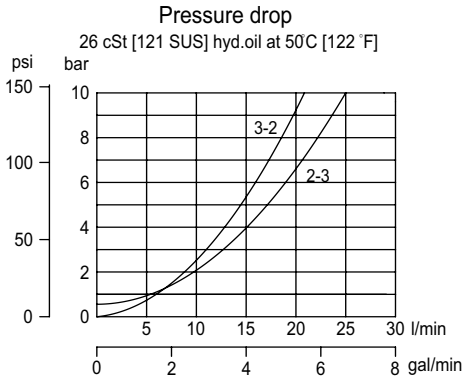
This is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar [100 psi]	20.5 l/min [5.4 US gal/min]
Weight	0.06 kg [0.13 lb]
Pilot ratio	3.2:1
Cavity	**NCS04/3**

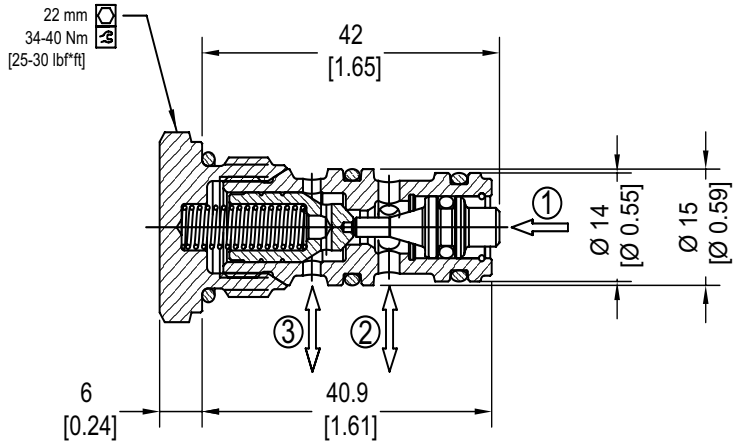
*Rated Pressure based on NFPA fatigue test standard (at 1 million cycles)

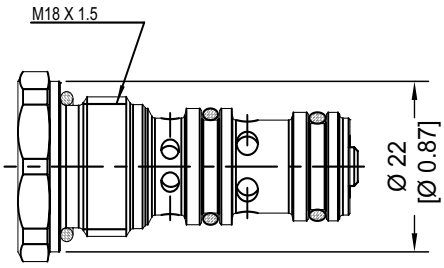
Note: A piston seal requires a 5 bar [72.5 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view





ORDERING INFORMATION

RPC04-2.5-OR-00-V

Pilot to Open

Crack Pressure	
0.5	0.5 bar [7 psi]
2.5	2.5 bar [36.25 psi]
5	5 bar [72.5 psi]
8	8 bar [116 psi]
15	15 bar [217.5 psi]

Pilot Seal Option	
Omit	No seals
OR	Seals

Seal Option	Seal Kit
Omit = Buna-N	230000160
V = Viton	230000450

Code	Ports & Material	Body Nomenclature
00	00 = Cartridge only	No Housing
SE1/4	AL, 1/4 BSP	NCS04/3-SE-1/4
SE4S	AL, #4 SAE	NCS04/3-SE-4S
SE6S	AL, #6 SAE	NCS04/3-SE-6S

** Aluminum bodies are to be used for pressures less than 210 bar (3000 psi)
***Other housings available

ENGINEERING TOMORROW

Pilot Operated Check Valves Technical Information

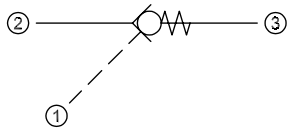
Pilot to Open

RPC06

OPERATION

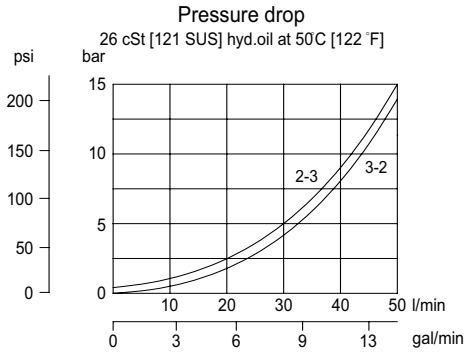
This is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

Rated pressure*	350 bar [5075 psi]
Rated flow at 7 bar [100 psi]	35 l/min [9.25 US gal/min]
Weight	0.10 kg [0.22 lb]
Pilot ratio	3.4:1
Cavity	**NCS06/3**

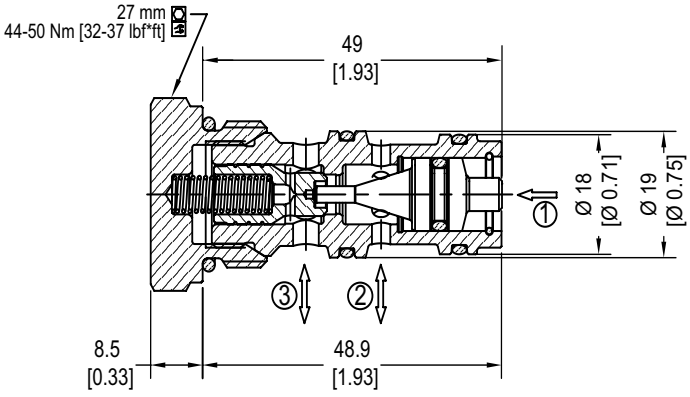
*Rated pressure based on NFPA fatigue test standard (at 1 million cycles)

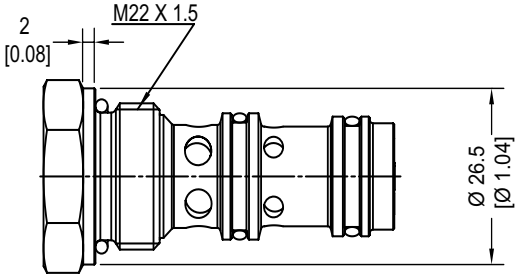
Note: A piston seal requires a 5 bar [72.5 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view





ORDERING INFORMATION

RPC06-5-OR-00-V

Pilot to Open

Crack Pressure	
0.5	0.5 bar [7 psi]
2	2 bar [30 psi]
5	5 bar [72.5 psi]
10	10 bar [145 psi]

Pilot Seal Option	
Omit	No seals
OR	Seals

Seal Option	Seal Kit
Omit = Buna-N	230000070
V = Viton	230000110

Code	Ports & Material	Body Nomenclature
00	00 = Cartridge only	No Housing
SE3/8	AL, 3/8 BSP	NCS06/3-SE-3/8
SE1/2	AL, 1/2 BSP	NCS06/3-SE-1/2
SE6S	AL, #6 SAE	NCS06/3-SE-6S
SE8S	AL, #8 SAE	NCS04/3-SE-8S

** Aluminum bodies are to be used for pressures less than 210 bar (3000 psi)

***Other housings available

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Pilot Operated Check Valves Technical Information

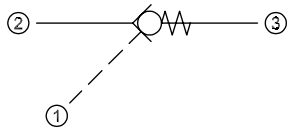
Pilot to Open

CP450-1

OPERATION

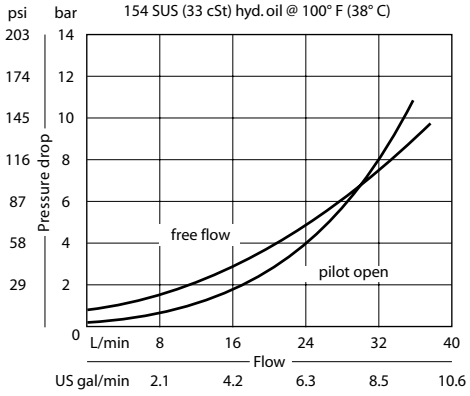
This valve is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

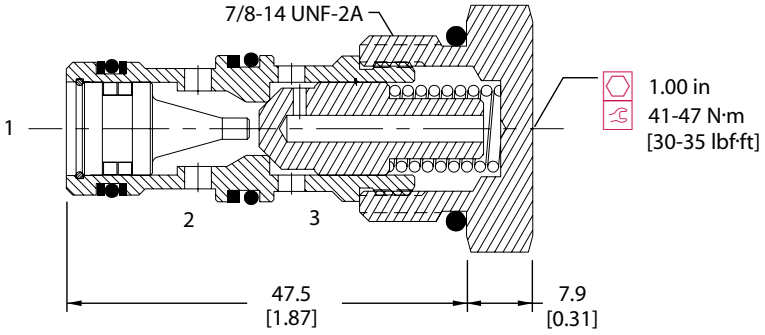
Rated pressure	240 bar [3480 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.09 kg [0.20 lb]
Pilot ratio	3.0:1
Cavity	**SDC10-3**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP450 - 1 - B - 8S - 015 - 0

Seals

	Seal kit
B = Buna-N	120570
V = Viton	120571

Body and ports

	Body P/N
0 = Cartridge	No body
6S = Aluminum, #6 SAE	CP10-3-6S
8S = Aluminum, #8 SAE	CP10-3-8S
SE3B = Aluminum, 3/8 BSP	SDC10-3-SE-3B
SE4B = Aluminum, 1/2 BSP	SDC10-3-SE-4B

Piston seals

0 = No seals
S = Seals included

Cracking Pressure

bar	[psi]
065 = 4.48	[65]
115 = 7.90	[115]
200 = 13.8	[200]
315 = 21.8	[315]

ENGINEERING TOMORROW

Pilot Operated Check Valves Technical Information

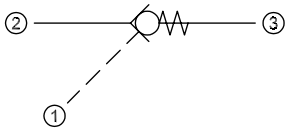
Pilot to Open

RPC12

OPERATION

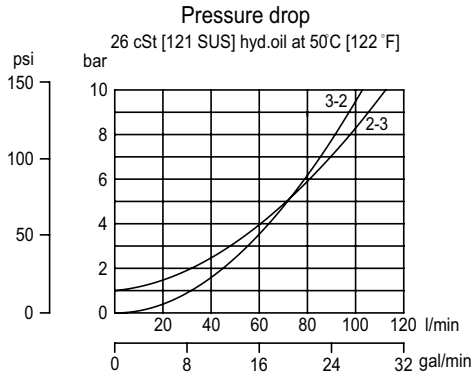
This is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

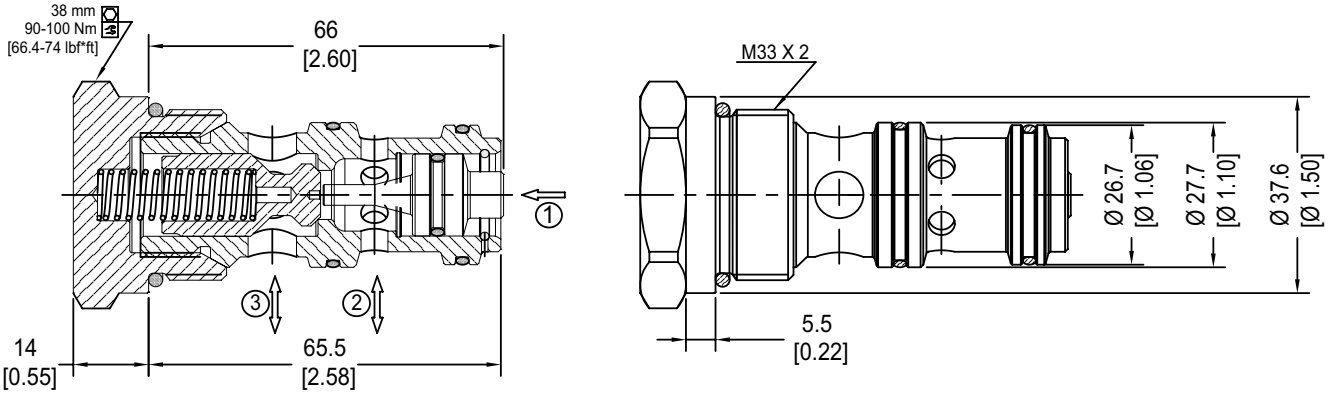
Rated pressure	315 bar [4570 psi]
Rated flow at 7 bar [100 psi]	90 l/min [23.8 US gal/min]
Weight	0.20 kg [0.44 lb]
Pilot ratio	2.8:1
Cavity	**NCS12/3**

Note: A piston seal requires a 5 bar [72.5 psi] or greater return spring.

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

RPC12-5-OR-00-V

Pilot to Open

Crack Pressure	
0.5	0.5 bar [7 psi]
2.5	2.5 bar [36.2psi]
5	5.0 bar [72.5 psi]
10	10 bar [145 psi]

Pilot Seal Option	
Omit	No Seals
OR	Seals

Seal Option	Seal Kit
Omit = Buna-N	230000130
V = Viton	230000360

Code	Ports & Material	Body Nomenclature
00	00 = Cartridge only	00 = Cartridge only
SE1/2	AL, 1/2 BSP	NCS12/3-SE-1/2
SE3/4	AL, 3/4 BSP	NCS12/3-SE-3/4
SE8S	AL, #8 SAE	NCS12/3-SE-8S
SE12S	AL, #12 SAE	NCS12/3-SE-12S

**Aluminum bodies are to be used for pressures less than 210 bar (3000 psi)

***Other housings available

Pilot Operated Check Valves Technical Information

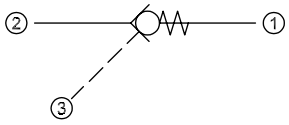
Reverse Pilot to Open

CP458-2

OPERATION

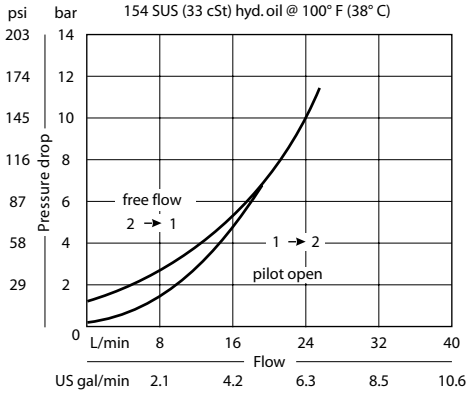
This valve is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

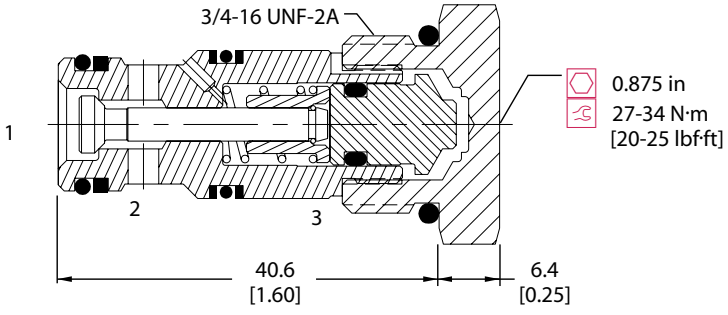
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	20 l/min [5 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.07 kg [0.15 lb]
Pilot ratio	2.8:1
Cavity	**SDC08-3**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seals
B = Buna-N
V = Viton

Seal kit
120250
120253

Housing and ports

		Housing P/N
0	= No Housing	No Housing
SE2B	= Al, 1/4 BSP	SDC08-3-SE-2B
SE3B	= Al, 3/8 BSP	SDC08-3-SE-3B
4S	= Al, #4 SAE	CP08-3-4S
6S	= Al, #6 SAE	CP08-3-6S

Other housings available

Piston seals
0 = No seals
S = Seals included

Crack Pressure

bar	[psi]
065 = 4.48	[65]

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Pilot Operated Check Valves Technical Information

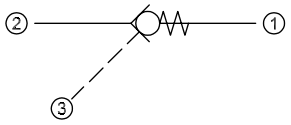
Reverse Pilot to Open

MC10-RO

OPERATION

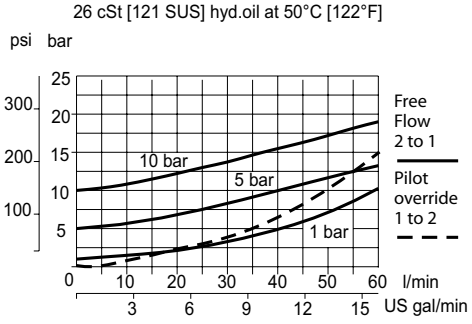
This is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

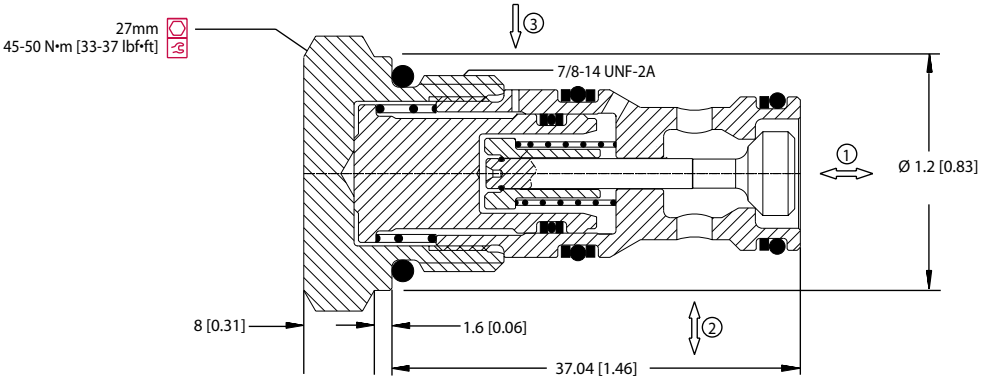
Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.12 kg [0.26 lb]
Pilot ratio	3.0:1
Cavity	**SDC10-3S**

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

			Housing P/N
00	=	No Housing	No Housing
SE3B	=	Al, 3/8 BSP	SDC10-3S-SE-3B
SE4B	=	Al, 1/2 BSP	SDC10-3S-SE-4B
6S	=	Al, #6 SAE	SDC10-3S-6S/6S
8S	=	Al, #8 SAE	SDC10-3S-8S/6S

Other housings available

Seals

	Seal kit
B = Buna-N	35401419
V = Viton	35401519

Pilot Operated Check Valves Technical Information

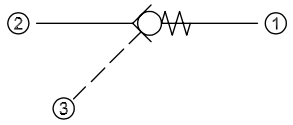
Reverse Pilot to Open

CP451-2

OPERATION

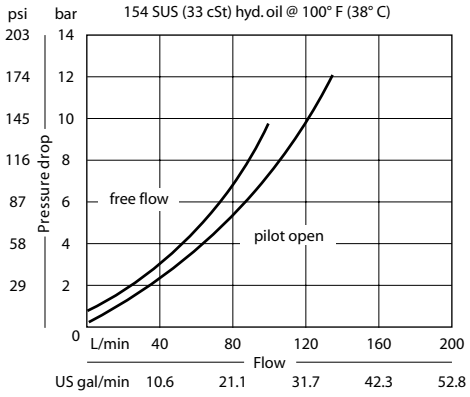
This valve is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

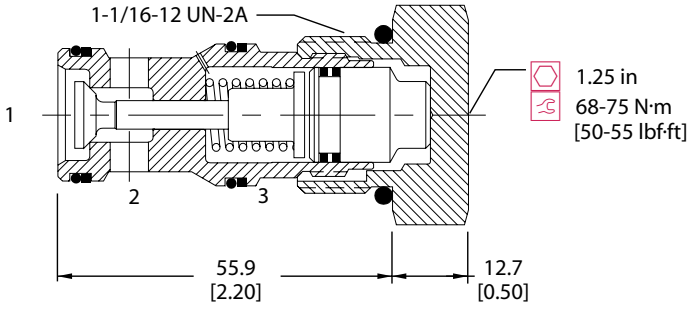
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	95 l/min [25 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.21 kg [0.46 lb]
Pilot ratio	3:1
Cavity	**CP12-3S**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP451 - 2 - B - 125 - 065 - 0

Seals

	Seal kit
B = Buna-N	120335
V = Viton	120336

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

Piston seals

0 = No seals
S = Seals included

Crack Pressure

bar	[psi]
065 = 4.48	[65]

Pilot Operated Check Valves Technical Information

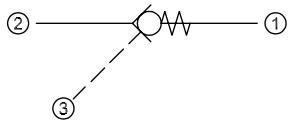
Reverse Pilot to Open

CP452-2

OPERATION

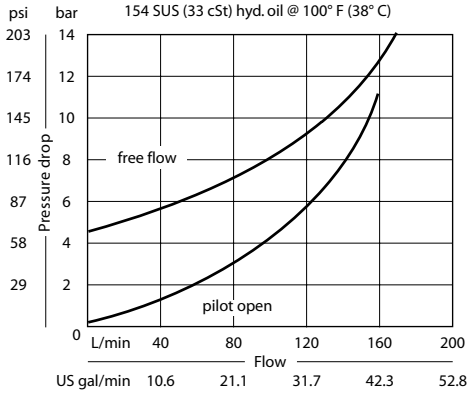
This valve is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

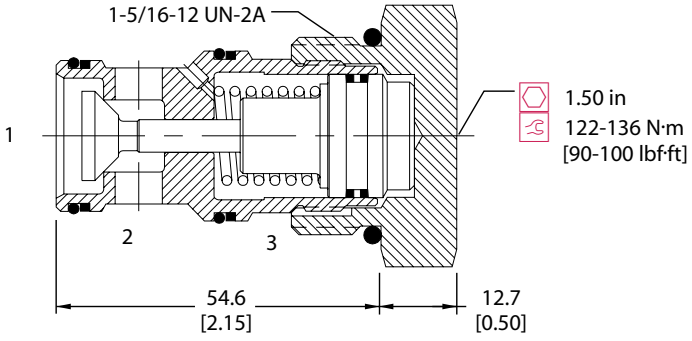
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.29 kg [0.64 lb]
Pilot ratio	3:1
Cavity	**SDC16-3S**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP452-2 - B - 16S - 065 - 0

Seal Option

Code	Seal Material	Seal kit
B	Buna	120033
V	Viton	120034

Piston Seals

Code	
0	No seals
S	Seals Included

Housings & Ports	Housing P/N
0: Cartridge Only	No Housing
6B: 3/4 BSP, AL	CP16-3S-6B/2B
8B: 1 BSP, AL	CP16-3S-8B/2B
12S: #12 SAE, AL	CP16-3S-12S/4S
16S: #16 SAE, AL	CP16-3S-16S/4S

Other Housings available

Crack Pressure

Code	bar	[psi]
065	4.48	[65]

Pilot Operated Check Valves Technical Information

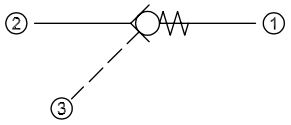
Reverse Pilot to Open

CP453-2

OPERATION

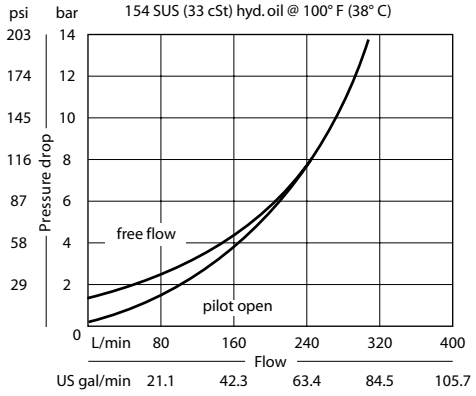
This valve is a pilot-to-open check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

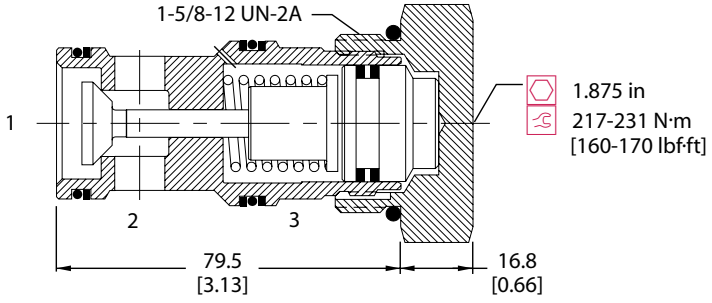
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	230 l/min [61 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.66 kg [1.46 lb]
Pilot ratio	3:1
Cavity	**CP20-3S**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP453 - 2 - B - 20S - 065 - 0

Seals

B	= Buna-N	**Seal kit** 120380
V	= Viton	120381

Housing and ports

			Housing P/N
0	=	No Housing	No Housing
8B	=	Al, 1 BSP	CP20-3S-8B/2B
10B	=	Al, 1-1/4 BSP	CP20-3S-10B/2B
16S	=	Al, #16 SAE	CP20-3S-16S/4S
20S	=	Al, #20 SAE	CP20-3S-20S/4S

Other housings available

Piston seals

0 = No seals
S = Seals included

Crack Pressure

bar	[psi]
065 = 4.48	[65]

Pilot Operated Check Valves Technical Information

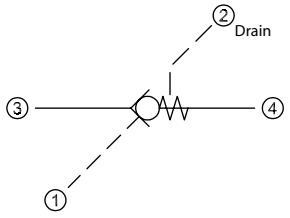
Pilot to Open with Drain

RPV 06

OPERATION

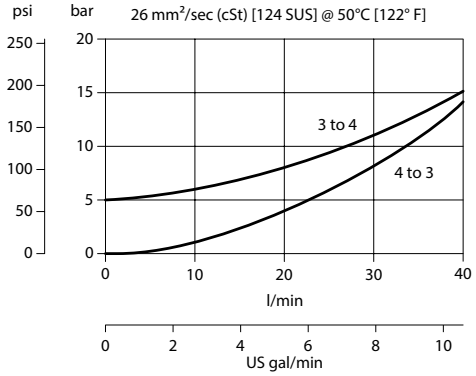
This is a pilot-to-open check valve with an internal drain.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

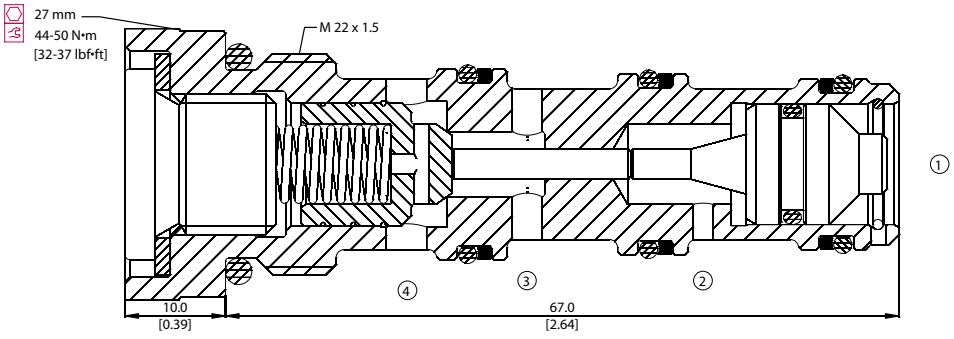
Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Weight	0.13 kg [0.29 lb]
Pilot ratio	3.4:1
Cavity	**NCS06/4**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

RPV 06 - 5 - OR - 00 - V

Seals
V = Viton
Omit = Buna-N

Seal Kit
Consult factory
230000080

Piston seals
OR = Seals
Omit = No seals

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

ENGINEERING TOMORROW

Pilot Operated Check Valves Technical Information

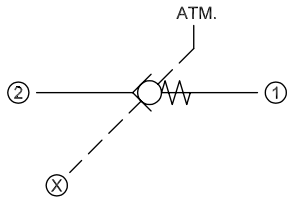
Reverse Pilot to Open with Vent

CP453-5

OPERATION

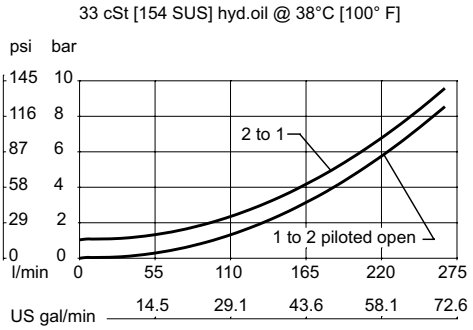
This is a pilot-to-open check valve with an external pilot connection.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

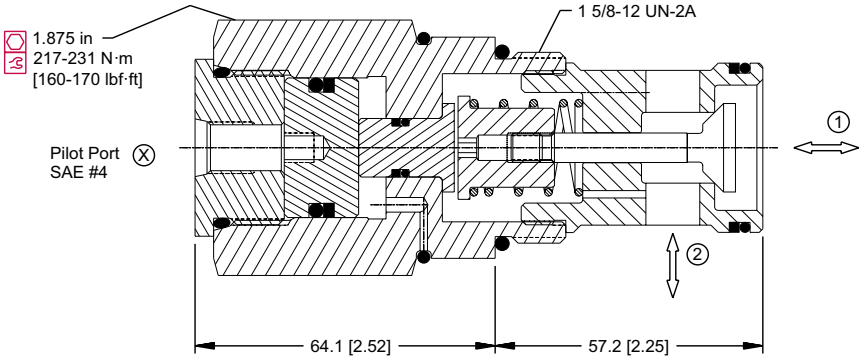
Rated pressure	350 bar [5075 psi]
Rated flow at 7 bar [100 psi]	250 l/min [66 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	1.23 kg [2.71 lb]
Pilot ratio	4:1
Cavity	**SDC20-2**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seals

	Seal kit
B = Buna-N	120011
V = Viton	120012

Housing and ports

		Housing P/N
0	= No Housing	No Housing
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	CP20-2-20S

Other housings available

Crack Pressure

	bar	[psi]
065 =	4.3	65
100 =	6.9	100

Pilot ratio

4 = 4:1

Pilot Operated Check Valves Technical Information

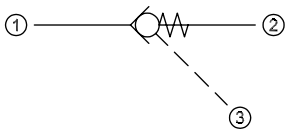
Pilot to Close

CP460-1

OPERATION

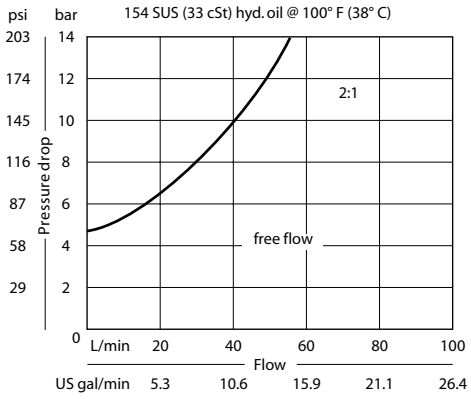
This valve is a pilot-to-close check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

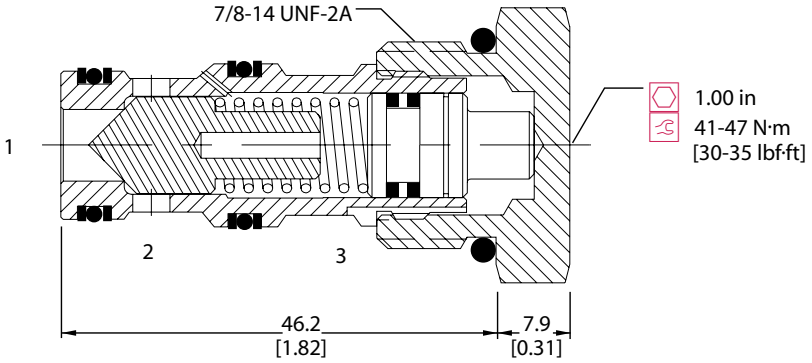
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	22 l/min [5.8 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.10 kg [0.21 lb]
Pilot ratio	2:1
Cavity	**SDC10-3**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seals

	Seal kit
B = Buna-N	120009
V = Viton	120010

Housing and ports / **Housing P/N**

0	No Housing	No Housing
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
8S	Al, #8 SAE	CP10-3-8S

Other housings available

Pilot ratio
2 = 2:1

Crack Pressure

bar	[psi]
065 = 4.48	[65]

Piston seals
0 = No seals
S = Seals included

Pilot Operated Check Valves Technical Information

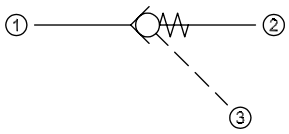
Pilot to Close

CP461-1

OPERATION

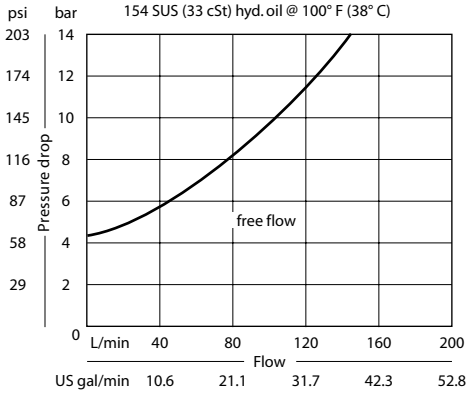
This valve is a pilot-to-close check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

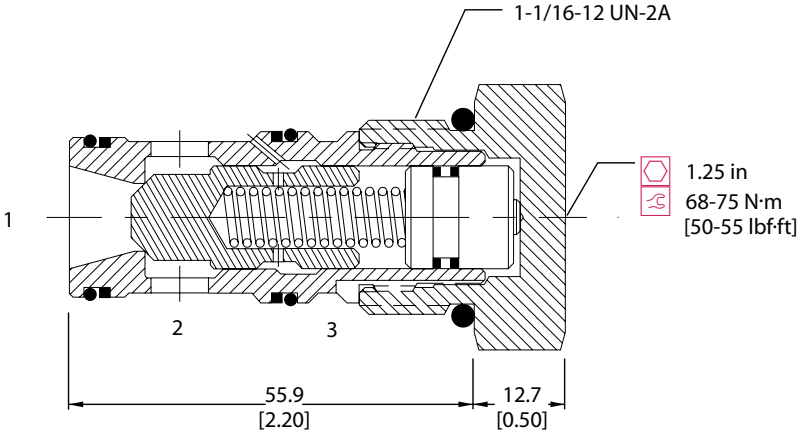
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	60 l/min [16 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.21 kg [0.47 lb]
Pilot ratio	2.3:1
Cavity	**CP12-3S**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seals

	Seal kit
B = Buna-N	120335
V = Viton	120336

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

Piston seals
0 = No seals
S = Seals included

Crack Pressure

bar	[psi]]
065 = 4.48	[65]

Pilot Operated Check Valves Technical Information

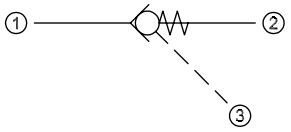
Pilot to Close

CP462-1

OPERATION

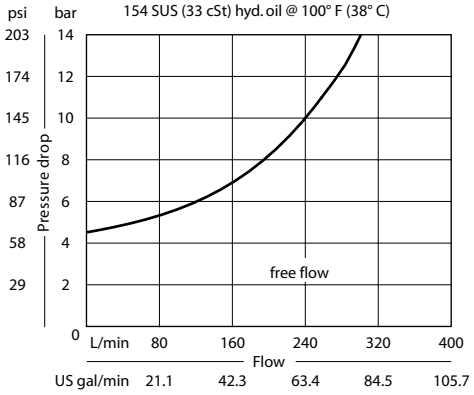
This valve is a pilot-to-close check valve.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

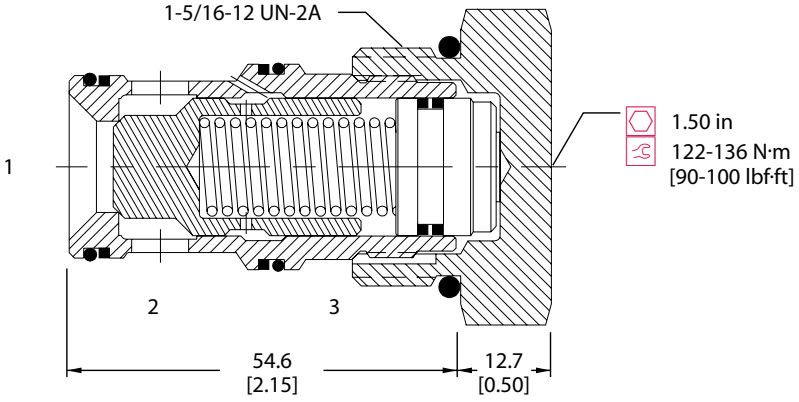
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	190 l/min [50 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.29 kg [0.64 lb]
Pilot ratio	2.3:1
Cavity	**SDC16-3S**

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seal Option

Code	Seal Material	Seal kit
B	Buna	120033
V	Viton	120034

Housings & Ports	Housing P/N
0: Cartridge Only	No Housing
6B: 3/4 BSP, AL	CP16-3S-6B/2B
8B: 1 BSP, AL	CP16-3S-8B/2B
12S: #12 SAE, AL	CP16-3S-12S/4S
16S: #16 SAE, AL	CP16-3S-16S/4S

Other Housings available

Piston Seals

Code	
0	**No seals**
S	**Seals Included**

Crack Pressure

Code	bar	[psi]
065	4.48	[65]

Pilot Operated Check Valves Technical Information

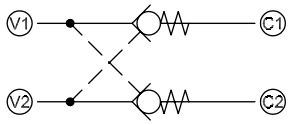
Catalog HIC

CP410-1

OPERATION

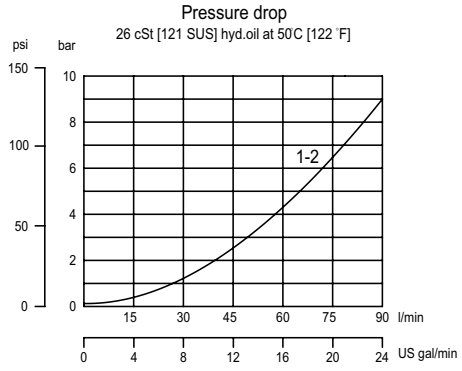
This is a dual pilot operated check valve, which uses two CV10-NP check valves.

Schematic



SPECIFICATIONS

Theoretical performance



Specifications

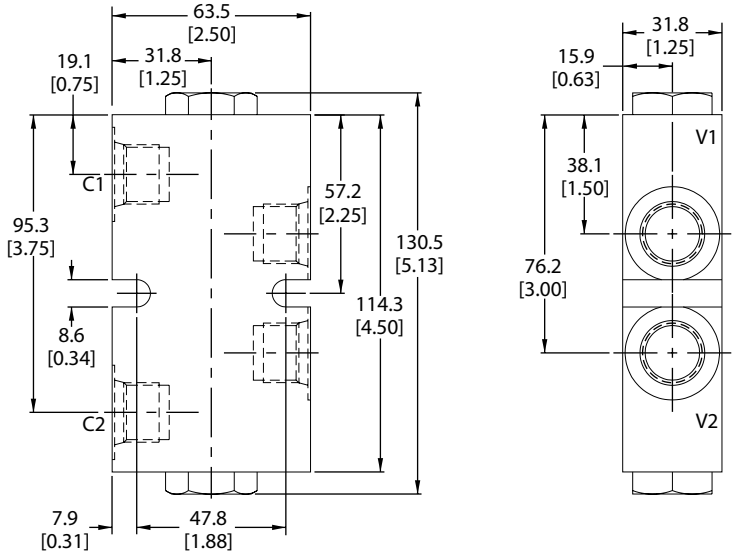
Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	80 l/min [21.1 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.67 kg [1.48 lb]
Pilot ratio	4:1
Cavity	none

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

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Seals

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

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

Crack Pressure

	bar	[psi]
065	= 4.50	[65]

Piston seals

0 = No seals

S = Seals included