

Check Valves

Direct and pilot operated check valve functions for applications up to 350 bar (5000 psi) and 227 L/min (60 USgpm)



Check Valves

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Check Valves

This section gives basic specifications for the full line of Vickers screw-in cartridge check valves. Its purpose is to provide a quick, convenient reference tool when choosing Vickers cartridge valves or designing a system using these components.

The Vickers range of direct and pilot operated check valves provides the hydraulic circuit designer with a wide selection of cartridge and in-line products.

Two pressure ratings are shown for all products featured in this catalog. The typical application pressure rating is the maximum recommended operating pressure for the valve in a given system. The fatigue pressure rating is the pressure for the valve to be free for infinite life from metal fatigue.

All poppet type check valve cartridges have hardened and ground poppets and sharp-edged ground steel seats. This provides an excellent product that is dirt-tolerant, has reliable seating, and is suitable for fast cycling with long life.

Direct operated check valves

Cartridges fit into industry standard cavities and may be supplied for installation in manifolds, or be provided in standard housings having SAE or BSPP ports suitable for in-line mounting.

A wide selection of cracking pressures is available from 0,21 to 20,7 bar (3 to 300 psi). Thus the opportunity exists to use the valves not only as conventional check but also as low pressure relief valves.

Pilot operated check valves

These valves are used for:

- Position load locking
- As an alternative to counterbalance valves where neither the overrunning loads or release speed are factors in the application.

The high pressure POC*-10 and POC*-12 series of pilot-to-open check valves complement the CBV*-10 and CBV*-12 counterbalance cartridges and are physically interchangeable with them.

The POC's provide a low cost alternative to load control when the dynamics of neither overrunning loads nor load release speed are factors to be considered in the design of the hydraulic circuit for the load to be controlled.

The pilot-to-open valves positively lock a load from port 1 to port 2 until pilot pressure applied to port 3 is sufficient to unseat the valve. This then permits flow from port 1 to port 2. The load can also be released through means of an optional screw type override.

The POC*-10 covers flow up to 60 L/min (15 USgpm). The POC*-12 covers flow up to 114 L/min (30 USgpm). With infinite life qualification to a fatigue pressure rating of 310 bar (4500 psi), these POC valves are suitable for use in a broad range of load control applications with typical system operating pressures up to 350 bar (5000 psi). Tailoring of the circuit to gain energy savings while minimizing

shock is obtained through the use of several standard cracking pressure ranges from 2,0 bar (30 psi) to 7 bar (100 psi). When anti-cavitation protection is required, the 0,30 bar (5 psi) spring should be used. For those applications where pilot pressure may not always be available, the valve can be ordered with an optional adjustable override.

Features and benefits

- Products in this catalog have been fatigue tested for one million cycles at 132% or 10 million cycles at 115% of rated pressure.
- Simple load holding device. Low cost alternative to more complex solutions when overrunning loads are not present and / or control of load release speed is not required.
- Provides high operational efficiency and low spring settings.
- Valves are offered with a wide variety of standard housings with SAE and BSPP port options in the following configurations:
 - In-line single
 - In-line dual
 - SAE, 4-bolt, code 61
 - Close coupled, nipple mounted
 - Gasket mounted single
 - Gasket mounted dual

These valves can also be used in a C-10-3S or C-10-3S cavity.

- Four standard cracking pressures permit energy savings, while tailoring the hydraulic system requirements to minimize shock.
- Unique dual spring design provides high operational efficiency and a low

pressure spring option for effective anti-cavitation protection.

- Unique design provides compact package and low pressure drops that match or exceed current market expectations and provide for excellent repeatability and stability.
- 3:1 pilot ratio satisfies simple load holding application requirements, while providing smooth operation and longer operating life.
- Optional adjustable override releases the load for situations where pilot pressure is not always available.

Single pilot check

Also offered are SPC2-8 and SPC2-10 single pilot check valves with pressures to 240 bar (3500 psi) and flows to 23 L/min (6 USgpm). These valves operate similar to the POC1 product but offer an opposite flow path which offers the designer a choice of pilot operated check valve when laying out a custom manifold for ease of design.

Supporting products

Vickers screw in cartridge valves are available in a wide range of mounting configurations and porting options to provide flexibility in developing circuits. Housings are available in either aluminum 210 bar (3000 psi) or steel 350 bar (5000 psi) configurations. All are available with a choice of BSPP (ISO-0228/1) or SAE style ports.

CV3-4

Check valve

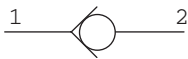
Description

The CV3-4-B is a ball type, screw-in cartridge check valve.

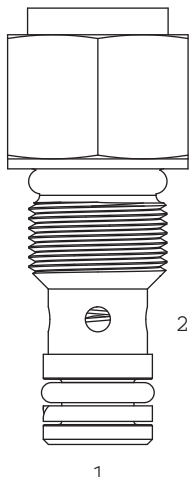
Operation

This valve remains closed until the bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Profile View



RATINGS AND SPECIFICATIONS

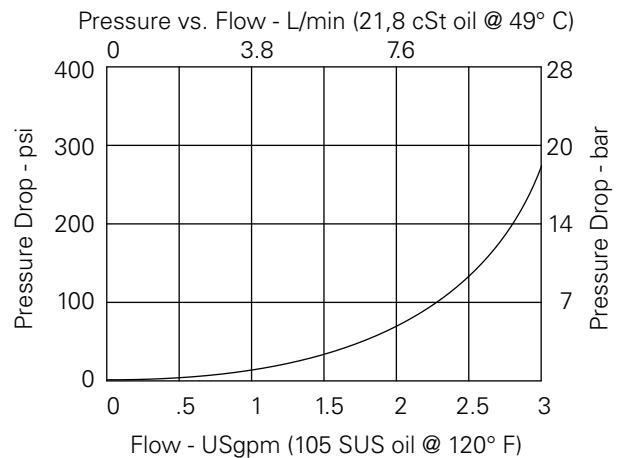
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	7.6 L/min (2 USgpm)
Free flow cracking pressure @ 1 l/min (0.25 USgpm)	5 – 0,34 bar (5 psi)
Internal leakage, Port 2 to 1	5 drops/min maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-4-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Weight cartridge only	0,04 kg (0.09 lbs)
Seal kit	9900174-000 Buna-N 9900175-00 Viton®

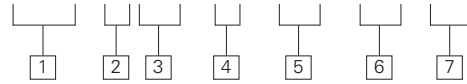
Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



CV3 - 4 (V) - B - * - ** - 00**



1 Function

CV3 - Check valve

3 Seals

Blank - Buna-N
V - Viton®

5 Port size

000 - Cartridge only

7 Special features

00 - None
(Only required if valve has special features - omitted if "00")

2 Size

4 - 4 Size

4 Style

B - Ball type

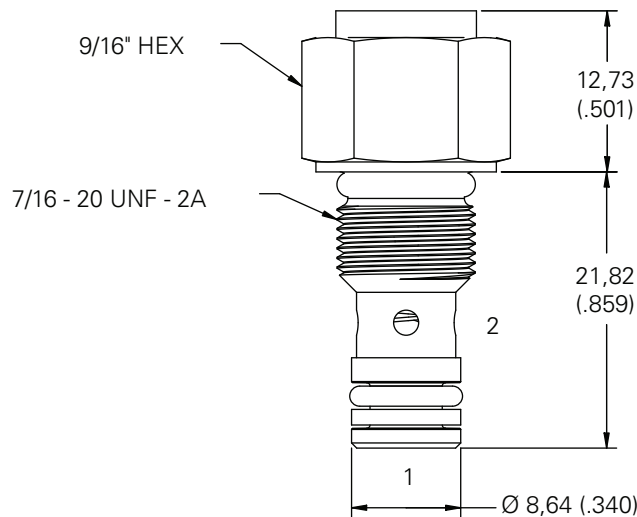
6 Free flow cracking pressure

05 - 0,34 bar (5 psi)

Dimensions

mm (inch)

Torque cartridge in aluminum or steel housing to 8.1-13.6 Nm (6-10 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi)



CV3-8

Check Valve

Description

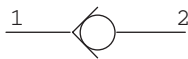
The CV3-8-P is a direct acting, poppet type check valve.

Operation

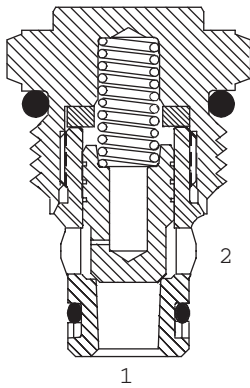
This valve remains closed until the spring bias is reached at port 1.

The poppet then lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

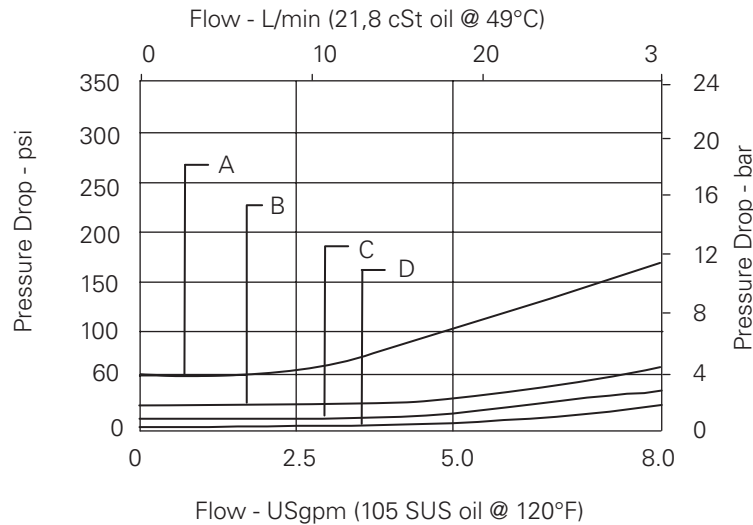
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	280 bar (4000 psi)
Rated flow	30 L/min (8 USgpm)
Cracking pressures @ 1.0 L/min (0.25 USgpm)	4 – 0,28 bar (4 psi) 10 – 0,7 bar (10 psi) 15 – 1,03 bar (15 psi) 25 – 1,7 bar (25 psi) 30 – 2,07 bar (30 psi) 60 – 4,0 bar (60 psi)
Internal leakage	5 drops/min. maximum @ 350 bar (5000 psi)
Cavity	C-8-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Weight cartridge only	0,05 kg (0.12 lb)
Seal kits	02-165875 Buna-N 02-165877 Viton®

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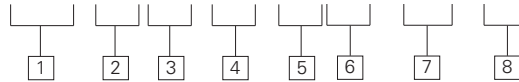
Pressure Drop Curves

Cartridge only

- A** – CV3-8-P-O-60
- B** – CV3-8-P-O-25
- C** – CV3-8-P-O-10
- D** – CV3-8-P-O-4



CV3 – 8 (V) – P – (*) ** – * – 00**



- 1 Function**
CV3 – Check Valve

- 2 Size**
8 – 8 Size

- 3 Seals**
Blank – Buna-N
V – Viton®

- 4 Style**
P – Poppet

- 5 Valve housing material**
Omit for cartridge only
A – Aluminum
S – Steel

6 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Fatigue rated	Steel Fatigue rated
4T	SAE 4	02-160730	02-160736
6T	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738
2G	1/4" BSPP	02-160727	02-160733
3G	3/8" BSPP	02-160728	02-160734

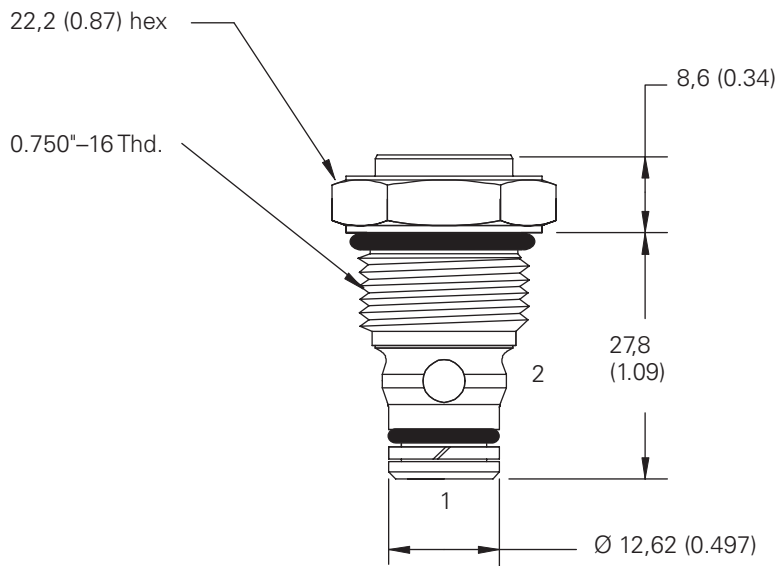
See Section J for housing details.

- 7 Cracking Pressure**
004 – 0,28 bar (4 psi)
010 – 0,70 bar (10 psi)
015 – 1,03 bar (15psi)
025 – 1,70 bar (25 psi)
030 – 2,07 bar (30 psi)
060 – 4,00 bar (60 psi)

- 8 Special Features**
00 – None
(Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components

Dimensions
mm(inch)

Torque cartridge in aluminum or steel housing
34-41 Nm (25-30 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi)



CV1-10/CV11-10

Check valve

Description

The CV1-10-P and CV11-10-P is a poppet type, screw-in cartridge check valve.

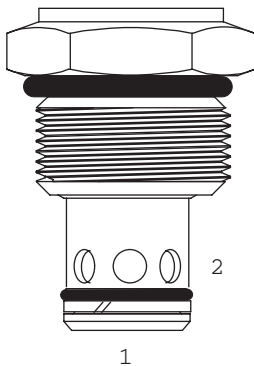
Operation

This valve remains closed until the bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Profile View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) CV1/CV11	210 bar (3000 psi)/350 bar (5000 psi)
Cartridge fatigue pressure (infinite life) CV1/CV11	210 bar (3000 psi)/350 bar (5000 psi)
Rated flow	45 L/min (12 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	005 – 0,34 bar (5 psi) 015 – 1,03 bar (15 psi) 030 – 2,07 bar (30 psi) 065 – 4,48 bar (65 psi) 080 – 5,12 bar (80 psi) 100 – 6,90 bar (100 psi) 140 – 9,66 bar (140 psi) 260 – 17,93 bar (260 psi) 300 – 20,7 bar (300 psi)

Internal leakage, Port 2 to 1	5 drops / min. maximum @ 350 bar (5000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or Steel
Weight cartridge only	0,08 kg (0.17 lb)
Seal kit	565803 Buna-N 566086 Viton®

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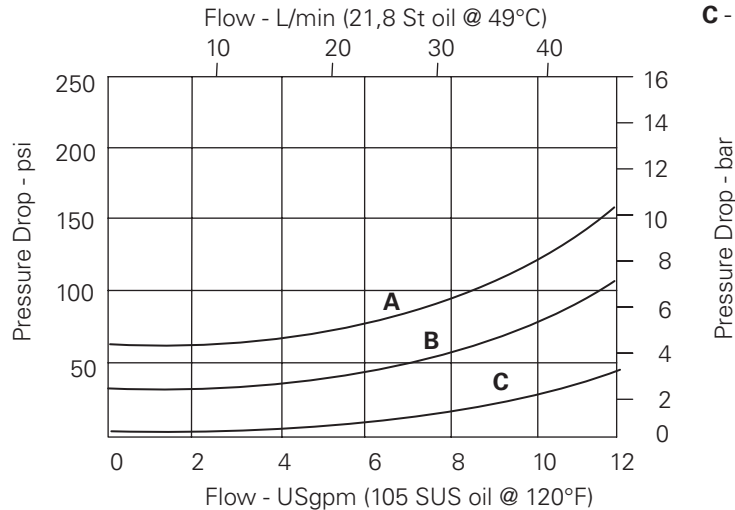
Pressure Drop Curves

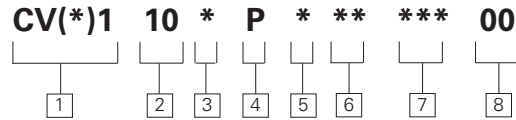
Cartridge only

A - CV(*)1 10*P 000 065 00

B - CV(*)1 10*P 000 030 00

C - CV(*)1 10*P 000 015 00





1 Function

CV1 – Check valve 210 bar (3000 psi)
CV11 – Check valve 350 bar (5000 psi)

2 Size

10 – 10 Size

3 Seals

N – Buna-N
V – Viton

4 Style

P – Poppet

5 Valve housing material

0 – Cartridge only
A – Aluminum
S – Steel

6 Port size

00 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light Duty	Aluminum Fatigue rated	Steel Fatigue rated
3B	3/8" BSPP	02-175462	–	–
6T	SAE 6	566151	–	02-175100
8T	SAE 8	–	–	02-175101
2G	1/4" BSPP	–	876702	02-175102
3G	3/8" BSPP	–	876703	02-175103
6H	SAE 6	–	876700	–
8H	SAE 6	–	876701	–

See Section J for housing details.

7 Free flow cracking pressure

005 – 0,34 bar (5 psi) (Anti-cavitation)	080 – 5,12 bar (80 psi)
015 – 1,03 bar (15 psi)	100 – 6,90 bar (100 psi)
030 – 2,07 bar (30 psi)	140 – 9,66 bar (140 psi)
065 – 4,48 bar (65 psi)	260 – 17,93 bar (260 psi)
	300 – 20,70 bar (300 psi)

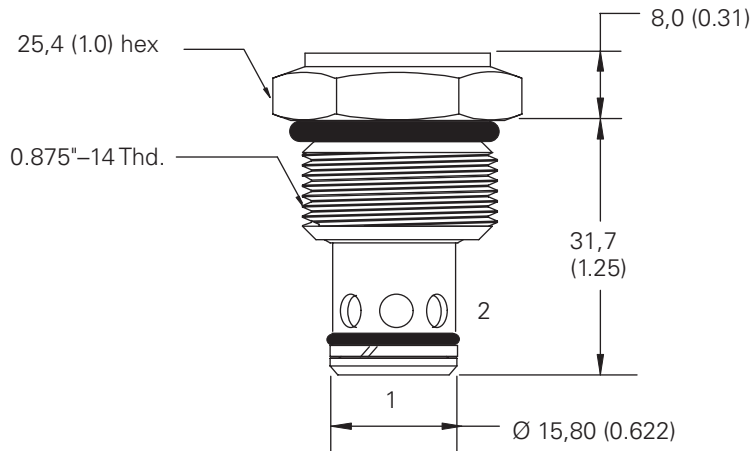
8 Special Features

00 – None
 (Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components

Dimensions

mm (inch)

Torque cartridge in housing
A - 47-54 Nm (35-40 ft. lbs)
S - 68-70 Nm (50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)

CV3-10/CV13-10

Check valve

Description

The CV3-10-P and CV13-10-P is a poppet type, screw-in cartridge check valve.

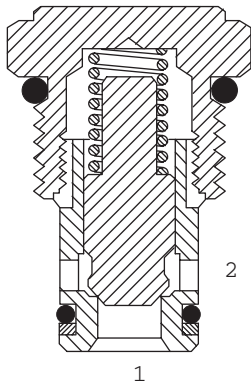
Operation

This valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) CV3/CV13	210 bar (3000 psi)/350 bar (5000 psi)
Cartridge fatigue pressure (infinite life) CV3/CV13	210 bar (3000 psi)/350 bar (5000 psi)
Rated flow	76 L/min (20 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	003 – 0,21 bar (3 psi) 010 – 0,69 bar (10 psi) 020 – 1,38 bar (20 psi) 035 – 2,41 bar (35psi) 040 – 2,76 bar (40 psi) 065 – 4,48 bar (65 psi) 100 – 6,90 bar (100 psi) 180 – 12,40 bar (180 psi) 210 – 14,50 bar (210 psi)

Internal leakage, Port 2 to 1	5 drops / min. maximum @ 350 bar (5000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,08 kg (0.17 lb)
Seal kit	565803 Buna-N 566086 Viton®

Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

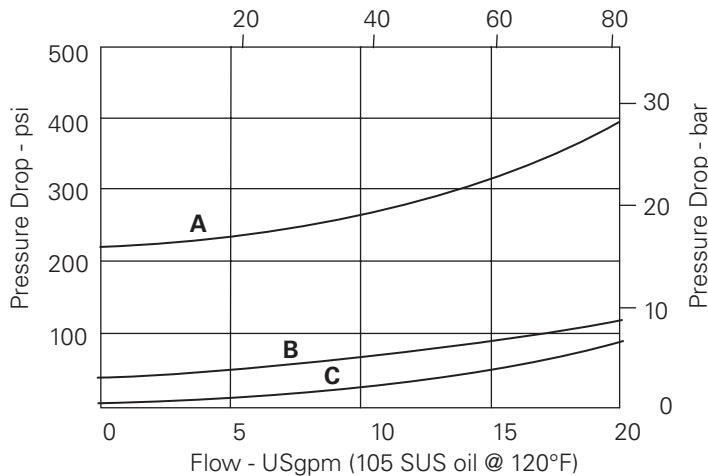
Cartridge only

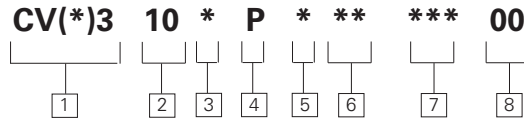
Flow - L/min (21,8 cSt oil @ 49°C)

A - CV(*)3 10*P 000 210 00

B - CV(*)3 10*P 000 040 00

C - CV(*)3 10*P 000 003 00





1 Function

CV3 – Check valve 210 bar (3000 psi)
CV13 – Check valve 350 bar (5000 psi)

2 Size

10 – 10 Size

3 Seals

N – Buna-N
V – Viton®

4 Style

P – Poppet

5 Valve housing material

0 – None
A – Aluminum
S – Steel

6 Port size

00 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light Duty	Aluminum Fatigue rated	Steel Fatigue rated
3B	3/8" BSPP	02-175462	–	–
6T	SAE 6	566151	–	02-175100
8T	SAE 8	–	–	02-175101
2G	1/4" BSPP	–	876702	02-175102
3G	3/8" BSPP	–	876703	02-175103
6H	SAE 6	–	876700	–
8H	SAE 8	–	876701	–

See Section J for housing details.

7 Free flow cracking pressure

003 – 0,21 bar (3 psi) (Anti-cavitation)
010 – 0,69 bar (10 psi) (Anti-cavitation)
020 – 1,38 bar (20 psi)
035 – 2,41 bar (35psi)
040 – 2,76 bar (40 psi)
065 – 4,48 bar (65 psi)
100 – 6,90 bar (100 psi)
180 – 12,4 bar (180 psi)
210 – 14,5 bar (210 psi)

8 Special Features

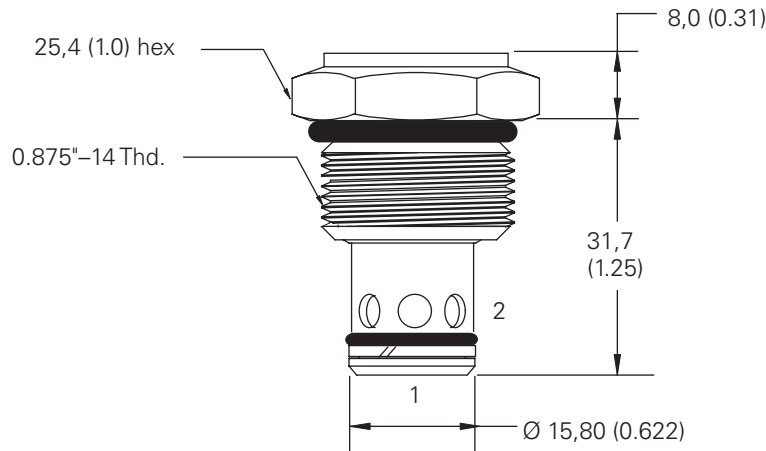
00 – None
 (Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components

Dimensions

mm (inch)

Torque cartridge in housing

A - 47-54 Nm (35-40 ft. lbs)
S - 68-70 Nm (50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)

CV16-10

Check Valve
(side in, nose out)

Description

The CV16-10-P is a poppet type, screw-in cartridge check valve.

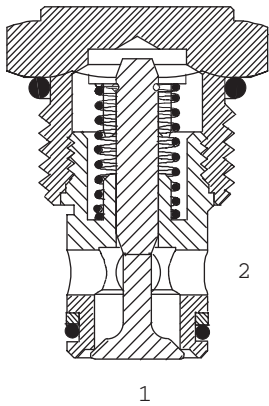
Operation

This valve remains closed until the spring bias is reached at port 2 at which time the poppet lifts off the seat and allows flow from port 2 to port 1.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

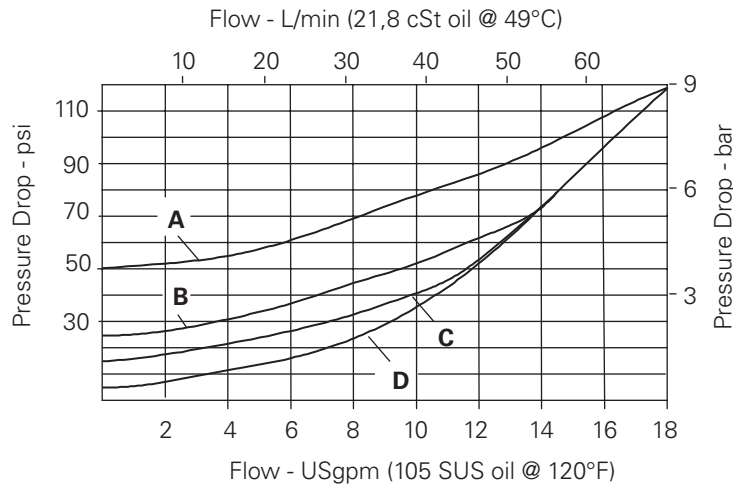
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	76 L/min (20 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	5 – 0,34 bar (5 psi) 15 – 1,03 bar (15 psi) 25 – 1,70 bar (25 psi) 50 – 3,40 bar (50 psi)
Internal leakage, Port 2 to 1	5 drops / min. maximum @ 350 bar (5000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,08 kg (0.17 lb)
Seal kit	565803 Buna-N 566086 Viton®

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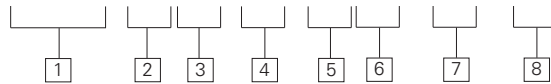
Pressure Drop Curves

Cartridge only

- A** – CV16-10-P-O-50
- B** – CV16-10-P-O-25
- C** – CV16-10-P-O-15
- D** – CV16-10-P-O-5



CV16 – 10 (V) – P – (*) ** – * – 00**



- 1 Function**
CV16 – Check Valve

- 2 Size**
10 – 10 Size

- 3 Seals**
Blank – Buna-N
V – Viton®

- 4 Style**
P – Poppet

- 5 Valve housing material**
Omit for cartridge only
A – Aluminum
S – Steel

6 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light duty	Aluminum Fatigue rated	Steel Fatigue rated
3B	3/8" BSPP	02-175462	–	–
6T	SAE 6	566151	–	02-175100
8T	SAE 8	–	–	02-175101
2G	1/4" BSPP	–	876702	02-175102
3G	3/8" BSPP	–	876703	02-175103
6H	SAE 6	–	876700	–
8H	SAE 8	–	876701	–

See Section J for housing details.

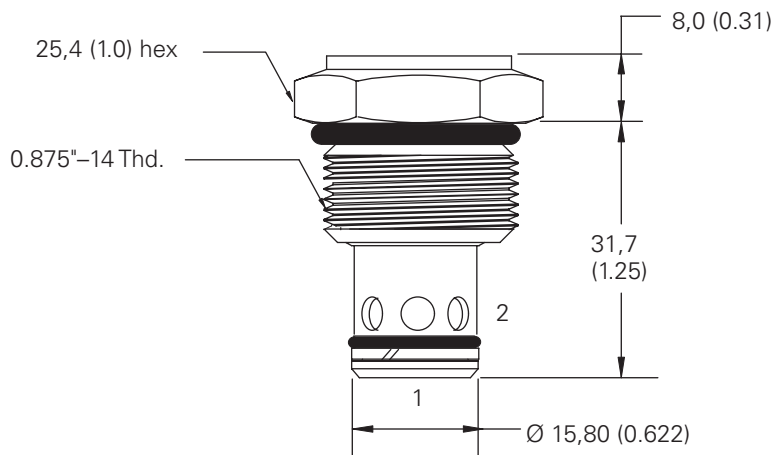
- 7 Free flow cracking pressure**
5 – 0,34 bar (5 psi) (Anticavitation)
15 – 1,03 bar (15 psi)
25 – 1,70 bar (25 psi)
50 – 3,40 bar (50 psi)

- 8 Special Features**
00 – None (Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components

Dimensions

mm (inch)

Torque cartridge in housing
A - 47-54 Nm (35-40 ft. lbs)
S - 68-75 Nm (50-55 ft. lbs)



WARNING
The cavity should be machined to the 14,29 (0.562) maximum diameter and 36,00 (1.417) maximum depth (see cavity detail, page M-12).



Aluminum housings can be used for pressures up to 210 bar (3000 psi) Steel housings must be used for operating pressures above 210 bar (3000 psi)

CV11-12

Check valve

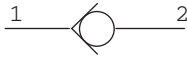
Description

The CV11-12 is a poppet type, screw-in cartridge check valve.

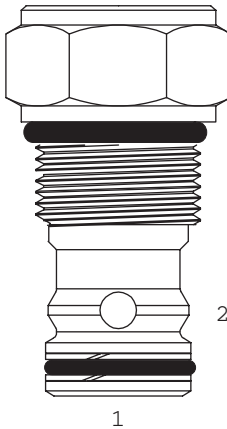
Operation

This valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Profile View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	114 L/min (30 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	2.5 – 0,17 bar (2.5 psi) 5.0 – 0,35 bar (5.0 psi) 10 – 0,69 bar (10 psi) 20 – 1,38 bar (20 psi) 40 – 2,76 bar (40 psi) 80 – 5,50 bar (80 psi) 160 – 11,0 bar (160 psi)
Internal leakage, Port 2 to 1	5 drops / min. maximum @ 350 bar (5000 psi)
Hysteresis	Less than 0,35 bar (5 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-12-2 or C-12-2U
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,24 kg (0.54 lb)
Seal kit	02-165889 Buna-N® 02-165888 Viton®

Viton is a registered trademark of E.I. DuPont

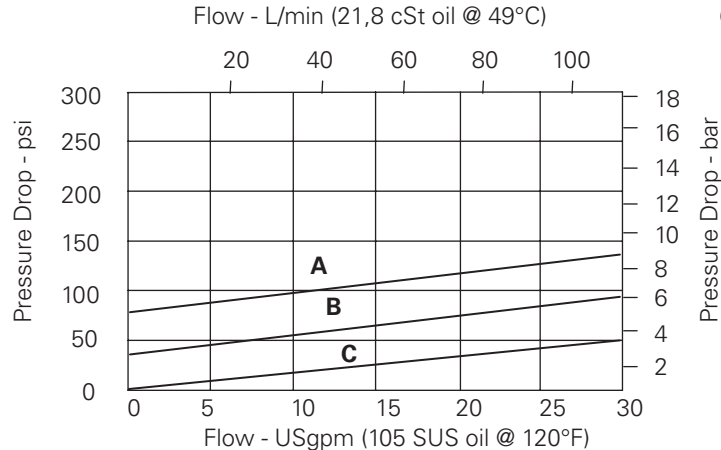
Pressure Drop Curves

Cartridge only

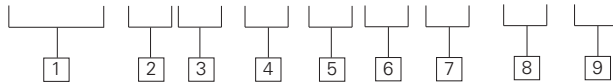
A – CV11-12-P-O-80

B – CV11-12-P-O-20

C – CV11-12-P-O-2.5



CV11 - 12 (V) - P - (*) * (U) - ** - 00**



- 1 Function**
CV11 – Check valve

- 2 Size**
12 – 12 Size

- 3 Seals**
Blank – Buna-N
V – Viton®

- 4 Style**
P – Poppet

- 5 Valve housing material**
Omit for cartridge only
A – Aluminum
S – Steel

6 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER			
		C-12-2U Aluminum Fatigue rated	C-12-2 Aluminum Fatigue rated	C-12-2U Steel Fatigue rated	C-12-2 Steel Fatigue rated
10T	SAE 10	02-160641	02-160640	02-169817	02-169744
12T	SAE 12	02-160645	02-160644	02-169790	02-169782
4G	1/2" BSPP	02-161116	02-161118	02-172512	02-172062
6G	3/4" BSPP	02-161115	02-161117	02-162922	02-169665

See Section J for housing details.

7 Cavity
Blank – Cavity without undercut
U – Cavity with undercut

8 Cracking pressure
2.5 – 0,17 bar (2.5 psi)
5.0 – 0,35 bar (5 psi)
10 – 0,69 bar (10 psi)
20 – 1,38 bar (20 psi)
40 – 2,75 bar (40 psi)
80 – 5,50 bar (80 psi)
160 – 11,0 bar (160 psi)

9 Special Features
00 – None
(Only required if valve has special features - omitted if "00")

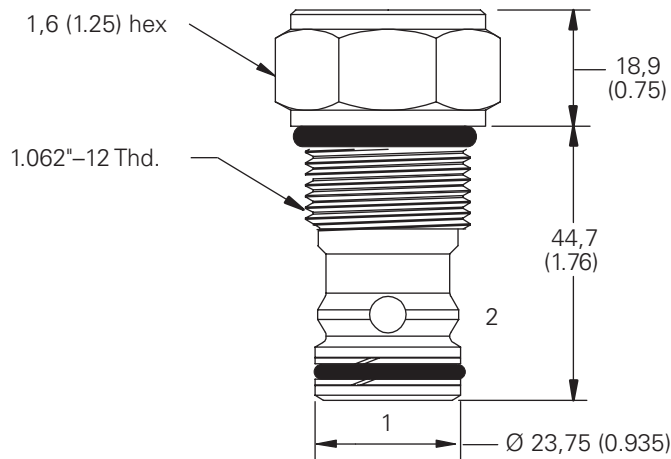
Dimensions

mm (inch)

Torque cartridge in housing
A - 81-95 Nm
(60-70 ft. lbs)
S - 102-115 Nm
(75-85 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi).



CV1-16/CV11-16

Check Valve

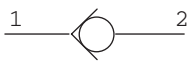
Description

The CV1-16-P and CV11-16-P are poppet type, screw-in cartridge check valves.

Operation

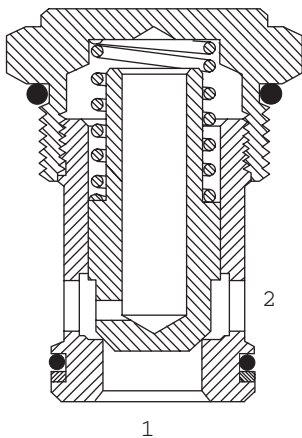
This valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Sectional View

CV1-16 Shown



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	CV1-16: 210 bar (3000 psi) / CV11-16: 350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	CV1-16: 210 bar (3000 psi) / CV11-16: 350 bar (5000 psi)
Rated flow	151 L/min (40 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	5 – 0,34 bar (5 psi) 20 – 1,34 bar (20 psi) 30 – 2,07 bar (30 psi) 40 – 2,67 bar (40 psi) 50 – 3,45 bar (50 psi) 100 – 6,90 bar (100 psi)

Note: Only 5 psi option available for CV11-16

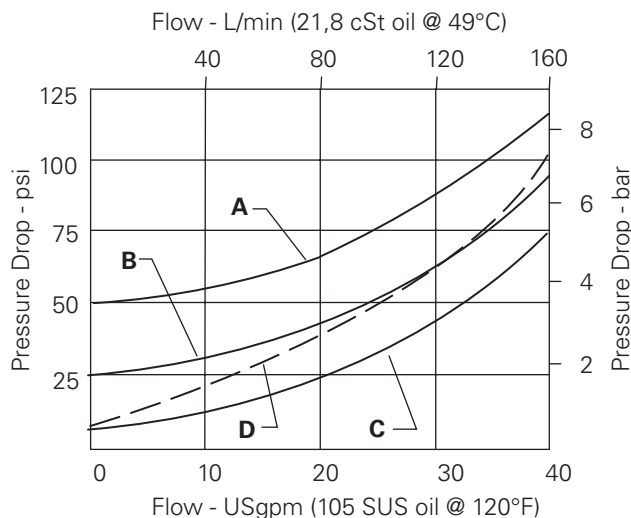
Internal leakage, Port 2 to 1	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Steel or Aluminum
Weight cartridge only	0,26 kg (0.58 lb)
Seal kit	565810 Buna-N 889609 Viton®

Viton is a registered trademark of E.I.DuPont

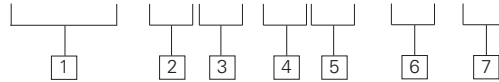
Pressure Drop Curves

Cartridge only

- A** – CV(*)1-16-P-O-50
- B** – CV(*)1-16-P-O-20
- C** – CV(*)1-16-P-O-5
- D** – CV(*)1-16-P-O-5



CV(*)1 – 16 (V) – P * – ** – 00**



1 Function

CV1 – Check Valve – 210 bar
CV11 – Check Valve – 350 bar

2 Size

16 – 16 Size

3 Seals

Blank – Buna-N
V – Viton®

4 Style

P – Poppet

5 Port size

0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light duty	Aluminum Fatigue rated	Steel Fatigue rated
6B	3/4" BSPP	02-175463	–	–
10T	SAE 10	–	–	02-175104
12T	SAE 12	566149	–	02-175105
4G	1/2" BSPP	–	876716	02-175106
6G	3/4" BSPP	–	876718	02-175107
10H	SAE 10	–	876717	–
12H	SAE 12	–	566113	–

See Section J for housing details.

6 Free flow cracking pressure

5 – 0,34 bar (5 psi)
 (Anti-cavitation)
20 – 1,34 bar (20 psi)
30 – 2,07 bar (30 psi)
40 – 2,67 bar (40 psi)
50 – 3,45 bar (50 psi)
100 – 6,90 bar (100 psi)
 Only 5 psi option available for CV11-16

7 Special Features

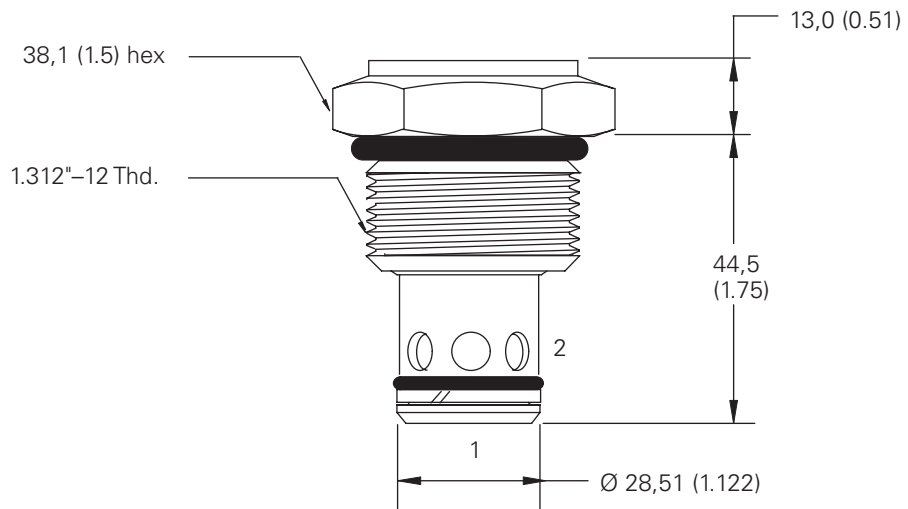
00 – None
 (Only required if valve has special features - omitted if "00")



Dimensions

mm (inch)

Torque cartridge housing:
A – 108-122 Nm (80-90 ft. lbs)
S – 136-149 Nm (100-110 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)

CV2-20

Check valve

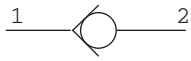
Description

The CV2-20-P is a poppet type, screw-in cartridge check valve.

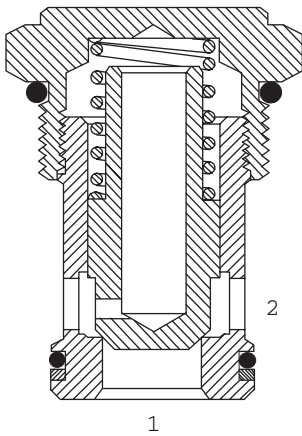
Operation

This valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	5 – 0,34 bar (5 psi) 15 – 1,03 bar (15 psi) 30 – 2,07 bar (30 psi) 60 – 4,14 bar (60 psi) 100 – 6,90 bar (100 psi)
Internal leakage, Port 2 to 1	5 drops / min. maximum @210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight cartridge only	0,49 kg (1.09 lb)
Seal kit	889615 Buna-N 889619 Viton®

Viton is a registered trademark of E.I.DuPont

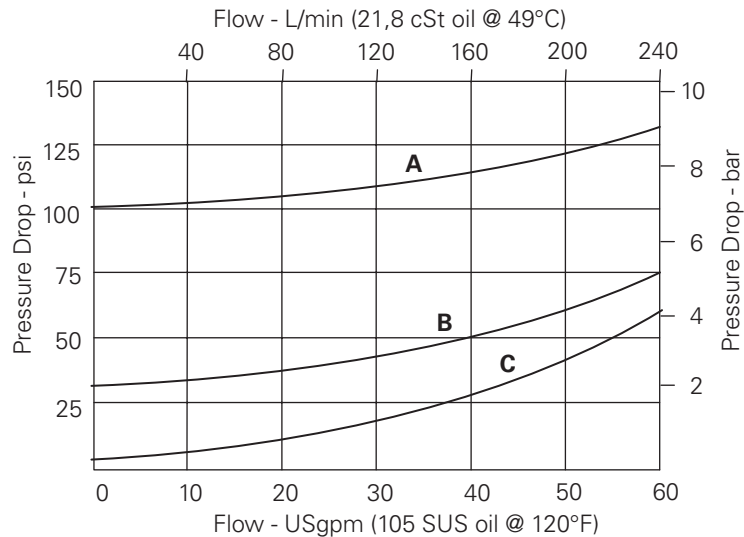
Pressure Drop Curves

Cartridge only

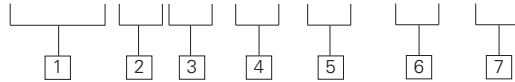
A – CV2-20-P-O-100

B – CV2-20-P-O-30

C – CV2-20-P-O-5



CV2 – 20 (V) – P – * – *** – 00**



1 Function
CV2 – Check valve

2 Size
20 – 20 Size

3 Seals
Blank – Buna-N
V – Viton®

4 Style
P – Poppet

5 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Light duty	Aluminum Fatigue rated
8B	1" BSPP	02-175464	–
16T	SAE 16	566409	–
6G	3/4" BSPP	–	876732
8G	1" BSPP	–	876734
12H	SAE 12	–	876733
16H	SAE 16	–	876735

See Section J for housing details.

6 Free flow cracking pressure

- 5** – 0,34 bar (5 psi) (Anti-cavitation)
- 15** – 1,03 bar (15 psi)
- 30** – 2,07 bar (30 psi)
- 60** – 4,14 bar (60 psi)
- 100** – 6,90 bar (100 psi)

7 Special Features

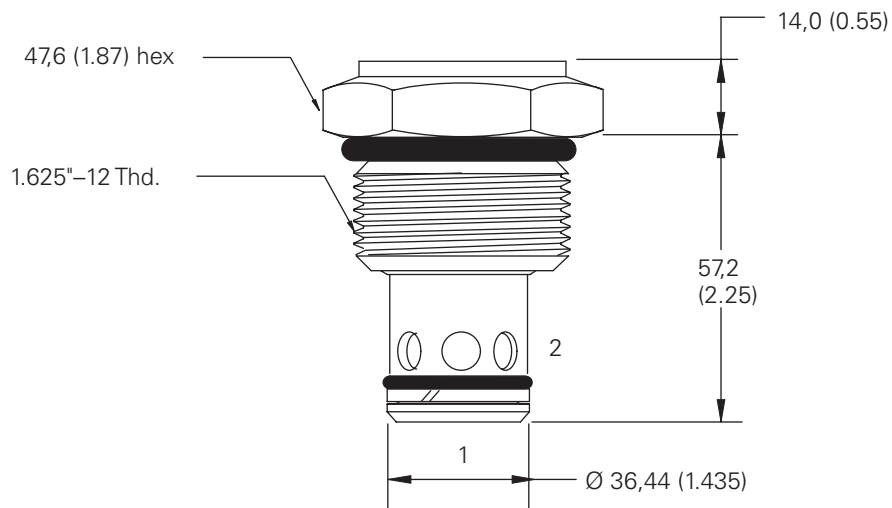
00 – None
 (Only required if valve has special features - omitted if "00")



Dimensions

mm (inch)

Torque cartridge in aluminum housing
 128-155 Nm (95-115 ft. lbs)



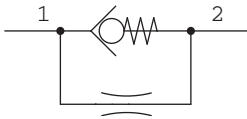
CV6-10

Orifice check valve

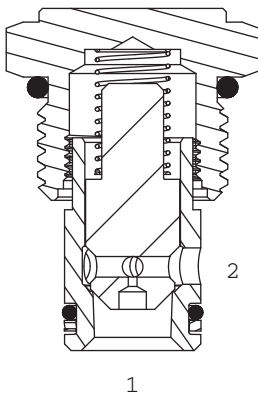
Description

The CV6-10-P is a poppet type, screw-in cartridge check valve with bypass orifice.

Functional Symbol



Sectional View



Operation

This valve acts a restrictor in the 2 to 1 direction and as a check valve it allows free flow from 1 to 2.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

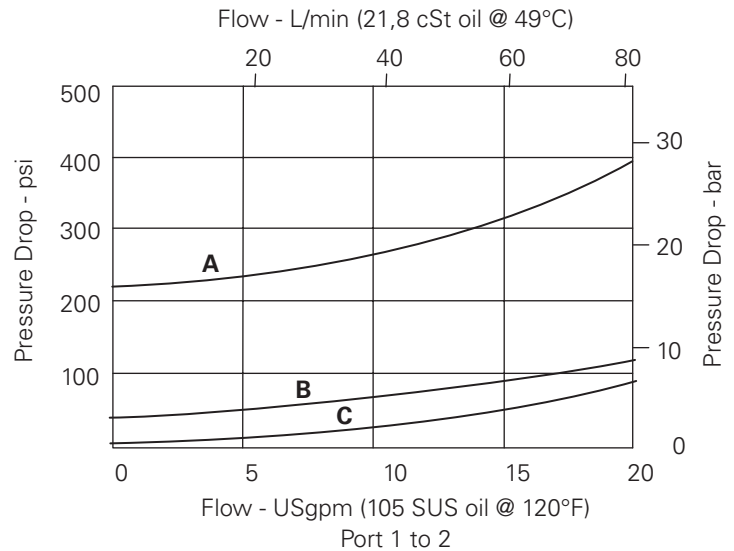
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	76 L/min (20 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	003 – 0,21 bar (3 psi) 010 – 0,69 bar (10 psi) 020 – 1,38 bar (20 psi) 035 – 2,41 bar (35 psi) 040 – 2,76 bar (40 psi) 065 – 4,48 bar (65 psi) 100 – 6,90 bar (100 psi) 180 – 12,40 bar (180 psi) 210 – 14,50 bar (210 psi)
Orifice size range	0.015 to 0.125" (0.381 - 3.175 mm)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,08 kg (0.17 lbs)
Seal kit	565803 Buna-N 566086 Viton®

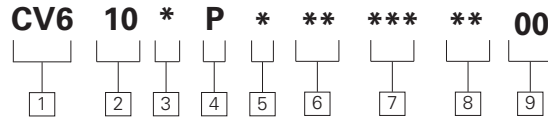
Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only

- A** - CV6 10*P 000 210 00
- B** - CV6 10*P 000 040 00
- C** - CV6 10*P 000 003 00





1 Function
CV6 - Check valve with bypass orifice

2 Size
10 - 10 Size

3 Seals
N - Buna-N
V - Viton®

4 Style
P - Poppet

5 Valve housing material
0 - No housing
A - Aluminum
S - Steel

7 Free flow cracking pressure
003 - 0,21 bar (3 psi) (Anti-cavitation)
010 - 0,69 bar (10 psi) (Anti-cavitation)
020 - 1,38 bar (20 psi)
035 - 2,41 bar (35 psi)
040 - 2,76 bar (40 psi)
065 - 4,48 bar (65 psi)
100 - 6,90 bar (100 psi)
180 - 12,4 bar (180 psi)
210 - 14,5 bar (210 psi)

6 Port size
00 - Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light duty	Aluminum Fatigue rated	Steel Fatigue rated
3B	3/8" BSPP	02-175462	–	–
6T	SAE 6	566151	–	02-175100
8T	SAE 8	–	–	02-175101
2G	1/4" BSPP	–	876702	02-175102
3G	3/8" BSPP	–	876703	02-175103
6H	SAE 6	–	876700	–
8H	SAE 8	–	876701	–

See Section J for housing details.

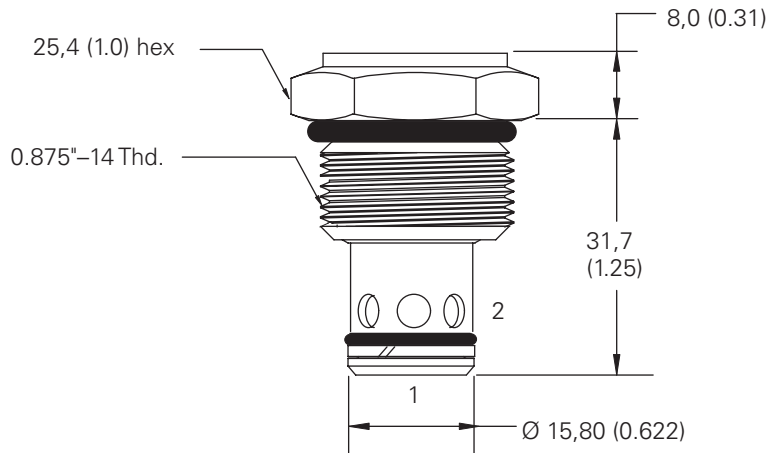
8 Orifice size
 Specify in thousandths of an inch
 \varnothing - 0.125 max
 \varnothing - 0.015 min

9 Special features
00 - None (Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components

Dimensions

mm (inch)

Torque cartridge in housing
A - 47-54 Nm (35-40 ft. lbs)
S - 68-70 Nm (50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)

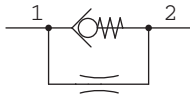
CV6-16

Orifice check valve

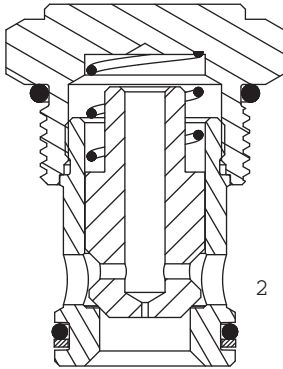
Description

The CV6-16-P is a poppet type, screw-in cartridge check valve with bypass orifice.

Functional Symbol



Sectional View



Operation

This valve acts a restrictor in the 2 to 1 direction and as a check valve it allows free flow from 1 to 2.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

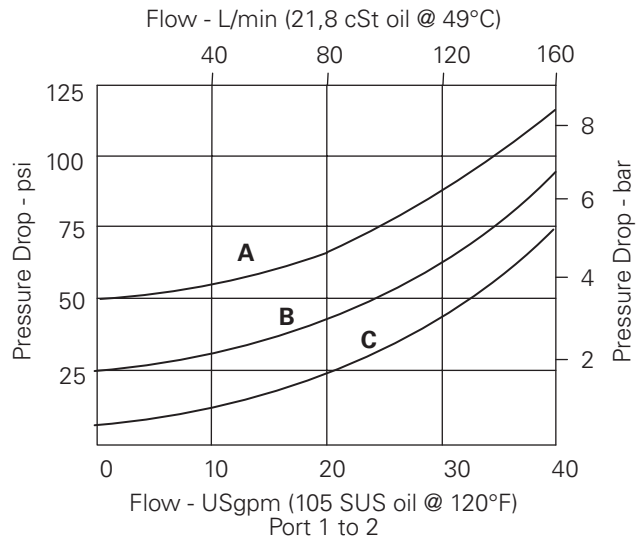
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	151 L/min (40 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	005 – 0,34 bar (3 psi) 020 – 1,34 bar (20 psi) 030 – 2,07 bar (30 psi) 050 – 3,45 bar (50 psi)
Orifice size range	0.015 - 0.125 inch (0.381 - 3.175 mm)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight cartridge only	0,26 kg (0.58 lbs)
Seal kit	565810 Buna-N 889609 Viton®

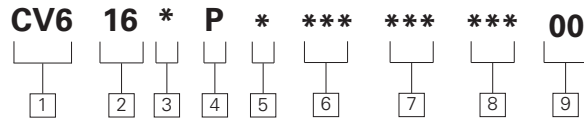
Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only

- A** - CV6 16*P 0000 050 00
- B** - CV6 16*P 0000 020 00
- C** - CV6 16*P 0000 005 00





1 Function
CV6 - Check valve with bypass orifice

2 Size
16 - 16 Size

3 Seals
N - Buna-N
V - Viton®

4 Style
P - Poppet

5 Block material
0 - No housing
A - Aluminum

7 Free flow cracking pressure
005 - 0,21 bar (5 psi) (Anti-cavitation)
020 - 1,34 bar (20 psi)
030 - 2,07 bar (30 psi)
040 - 2,76 bar (40 psi)
050 - 3,45 bar (50 psi)
100 - 6,90 bar (100 psi)

6 Port size
000 - Cartridge only

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Light duty	Aluminum Fatigue rated
6B	3/4" BSPP	02-175463	–
12T	SAE 12	566149	–
4G	1/2" BSPP	–	876716
6G	3/4" BSPP	–	876718
10H	SAE 10	–	876717
12H	SAE 12	–	566113

See Section J for housing details.

8 Orifice size
 Specify in thousandths of an inch
 \varnothing - 0.125 max
 \varnothing - 0.015 min

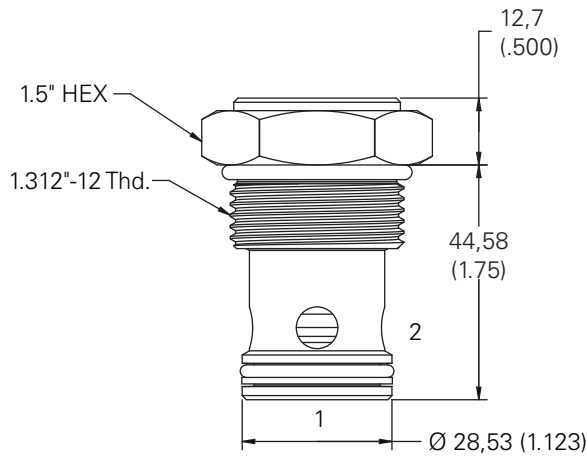
9 Special features
00 - None
 (Only required if valve has special features - omitted if "00")



Dimensions

mm (inch)

Torque cartridge in aluminum housing
 108-122 Nm (80-90 ft. lbs)



RCV3-10

Restrictive check valve

Description

The RCV3-10-P is a poppet type, screw-in cartridge check valve with stroke limiter.

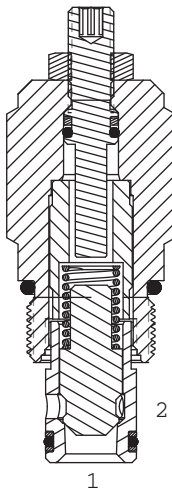
Operation

This valve remains closed until the spring bias is reached at port 1 at which time the poppet lifts off the seat and allows flow from port 1 to port 2. The effective orifice in the free flow direction is adjustable.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

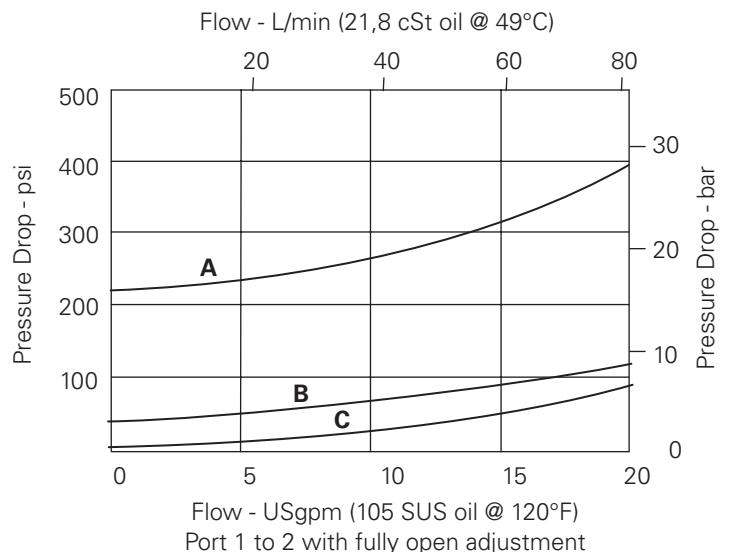
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	76 L/min (20 USgpm)
Free flow cracking pressure @1 L/min (0.25 USgpm)	003 – 0,21 bar (3 psi) 010 – 0,69 bar (10 psi) 020 – 1,38 bar (20 psi) 040 – 2,76 bar (40 psi) 065 – 4,48 bar (65 psi) 100 – 6,90 bar (100 psi) 180 – 12,40 bar (180 psi) 210 – 14,50 bar (210 psi)
Internal leakage, Port 2 to 1	5 drops/min maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,22 kg (0.48 lbs)
Seal kit	565803 Buna-N 566086 Viton®

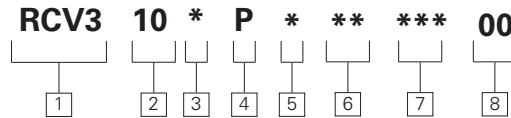
Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only

- A** - RCV3 10* P 0 00 210
- B** - RCV3 10* P 0 00 040
- C** - RCV3 10* P 0 00 003





1 Function

RCV3 - Check valve with stroke limiter (Restrictive check valve)

2 Size

10 - 10 Size

3 Seals

N - Buna-N
V - Viton®

4 Style

P - Poppet

5 Block material

O - No block
A - Aluminum
S - Steel

7 Free flow cracking pressure

003 - 0,21 bar (3 psi) (Anti-cavitation)
010 - 0,69 bar (10 psi) (Anti-cavitation)
020 - 1,38 bar (20 psi)
040 - 2,76 bar (40 psi)
065 - 4,48 bar (65 psi)
100 - 6,90 bar (100 psi)
180 - 12,4 bar (180 psi)
210 - 14,5 bar (210 psi)

6 Port size

00 - Cartridge only

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum Light duty	Aluminum Fatigue rated	Steel Fatigue rated
3B	3/8" BSPP	02-175462	–	–
6T	SAE 6	566151	–	02-175100
8T	SAE 8	–	–	02-175101
2G	1/4" BSPP	–	876702	02-175102
3G	3/8" BSPP	–	876703	02-175103
6H	SAE 6	–	876700	–
8H	SAE 8	–	876701	–

See Section J for housing details.

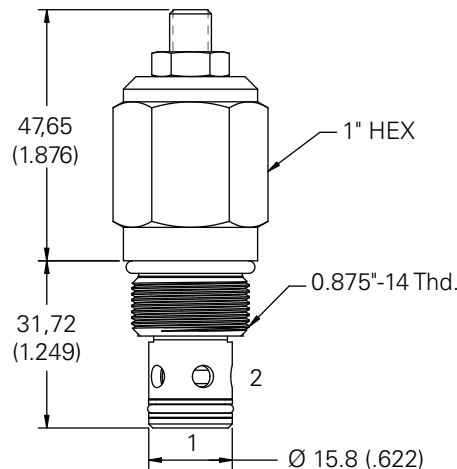
8 Special features

00 - None
(Only required if valve has special features - omitted if "00")

Dimensions

mm (inch)

Torque cartridge in housing
A - 47-54 Nm (35-40 ft. lbs)
S - 68-75 Nm (50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi)

SPC2-8

Single pilot check valve

Description

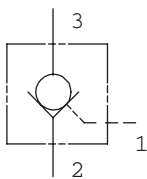
The SPC2-8 is a poppet type, pilot-to-open, screw-in cartridge type check valve.

Operation

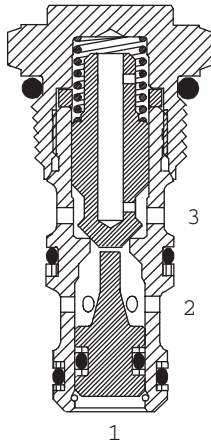
The SPC2-8 allows flow from port 2 to port 3 when the spring bias is overcome.

Flow is blocked from port 3 to port 2 until sufficient pilot pressure is applied at port 1.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	240 bar (3500 psi)
Cartridge fatigue pressure (infinite life)	240 bar (3500 psi)
Rated flow	19 L/min (5 USgpm)
Pilot ratio	3:1
Cracking pressure	15 – 1,0 bar (15 psi) 35 – 2,4 bar (35 psi) 65 – 4,5 bar (65 psi)

Internal leakage. All leakage rates @ 240 bar (3500 psi)

Port 3 to 2 5 drops / min. maximum @ 240 bar (3500 psi)

Port 2 to 1 Unsealed piston*

140 cc/min. maximum, zero leakage with sealed piston.

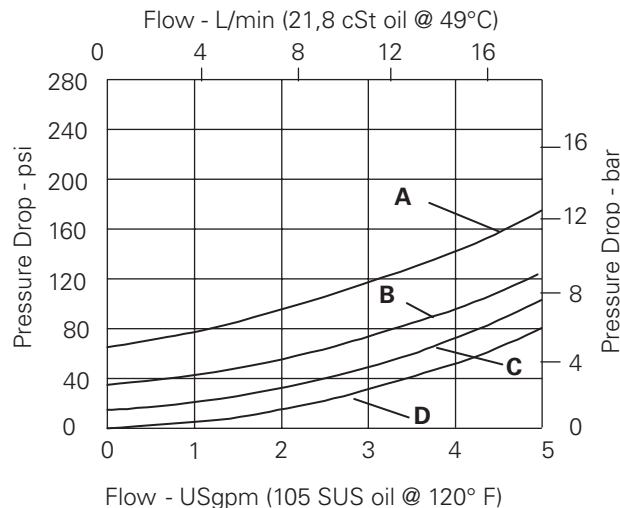
*Unsealed piston only supplied with 15 psi spring option.

Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,07 kg (0.15 lb)
Seal kit	02-173326 Buna N 02-173327 Viton®

Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



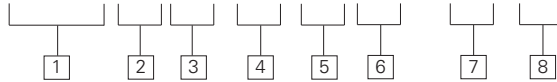
- A – 65 psi (port 2 to 3)
- B – 35 psi (port 2 to 3)
- C – 15 psi (port 2 to 3)
- D – Port 3 to 2 (piloted open)



WARNING

Do not use Single pilot check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

SPC2 – 8 (X) – P – (*) ** – ** – 00



1 Function

SPC2 – Single pilot check valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N
V – Viton®
U – Buna-N with no piston seals
W – Viton® with no piston seals

4 Style

P – Poppet

5 Valve housing material

Omit for cartridge only

A – Aluminum
S – Steel

Dimensions

mm (inch)

Torque cartridge in aluminum or steel housing to 34-41 Nm (25-30 ft. lbs)

6 Port size

0 – Cartridge only

CODE PORT SIZE HOUSING NUMBER

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Fatigue rated	Steel Fatigue rated
4T	SAE 4	02-160741	02-160745
6T	SAE 6	02-160742	02-160744
2G	1/4" BSPP	02-160739	02-160743
3G	3/8" BSPP	02-160740	02-160746

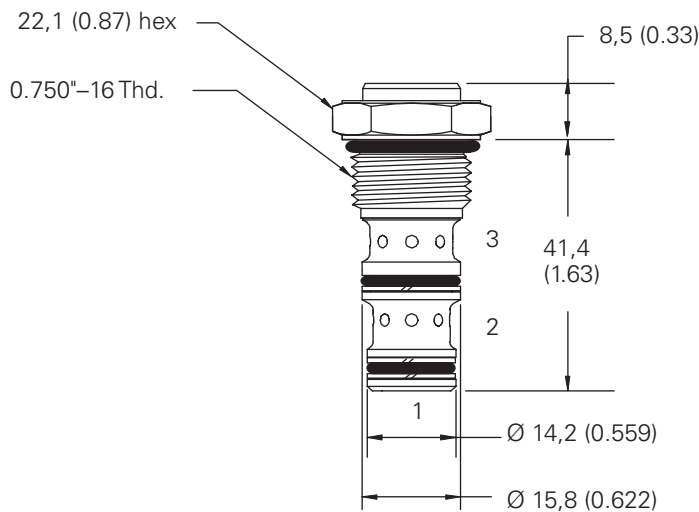
See Section J for housing details.

7 Cracking Pressure

15 – 1,0 bar (15 psi)
35 – 2,4 bar (35 psi)
65 – 4,5 bar (65 psi)

8 Special Features

00 – None
 (Only required if valve has special features - omitted if "00")
SS - 316 Stainless Steel external components



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)



SPC2-10

Single pilot check valve

Description

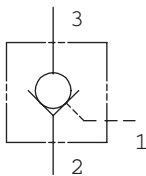
The SPC2-10 is a poppet type pilot-to-open check valve, screw-in cartridge type.

Operation

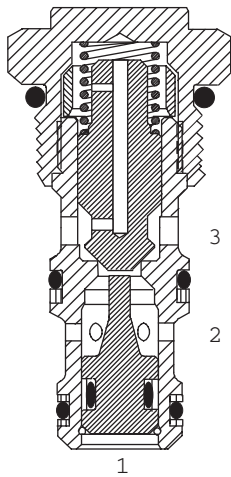
This valve allows flow from Port 2 to Port 3, when the spring bias is overcome.

Flow is blocked from Port 3 to Port 2 until sufficient pilot pressure is applied at Port 1.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

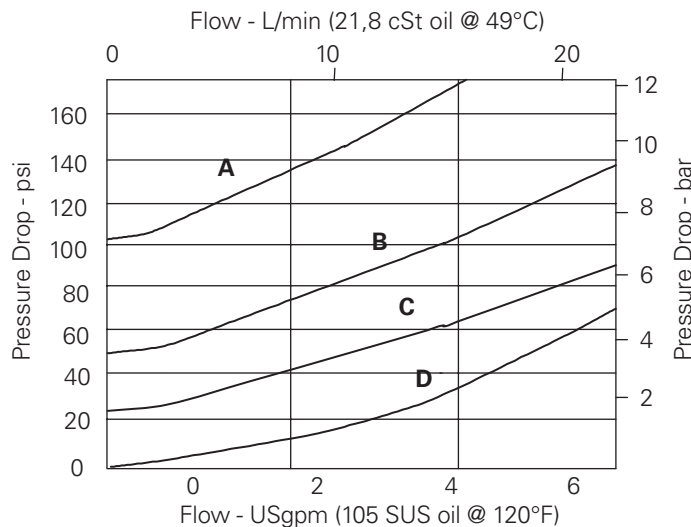
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Cracking pressure @ 1 L/min (0.25 USgpm)	25 – 1,72 bar (25 psi) 50 – 3,45 bar (50 psi) 100 – 6,90 bar (100 psi)
Internal leakage, Port 3 to 2	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Cavity	C-10-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight cartridge only	0,08 kg (0.18lb)
Seal kit (Check valve)	02-153267 Buna-N 02-173666 Viton®

Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



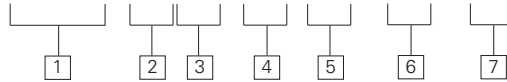
- A** – SPC2-10-P-0-100
- B** – SPC2-10-P-0-50
- C** – SPC2-10-P-0-25
- D** – Port 3 to 2 (piloted open)



WARNING

Do not use Single pilot check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

SPC2 – 10 (X) – P – ** – * – 00**



1 Function

SPC2 – Single pilot check valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N

V – Viton®

U – Buna-N with no piston seals

W – Viton® with no piston seals

4 Style

P – Poppet

5 Port size

0 – Cartridge only

6 Free flow cracking pressure

25 – 1,72 bar (25 psi)

50 – 3,45 bar (50 psi)

100 – 6,90 bar (100 psi)

7 Special Features

00 – None

(Only required if valve has special features - omitted if "00")

SS - 316 Stainless Steel external components

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Light duty	Aluminum Fatigue rated
3B	3/8" BSPP	02-173358	–
6T	SAE 6	566162	–
2G	1/4" BSPP	–	876705
3G	3/8" BSPP	–	876714
6H	SAE 6	–	876704
8H	SAE 8	–	876711

See Section J for housing details.

Dimensions

mm (inch)

Torque cartridge in housing

A - 47-54 Nm

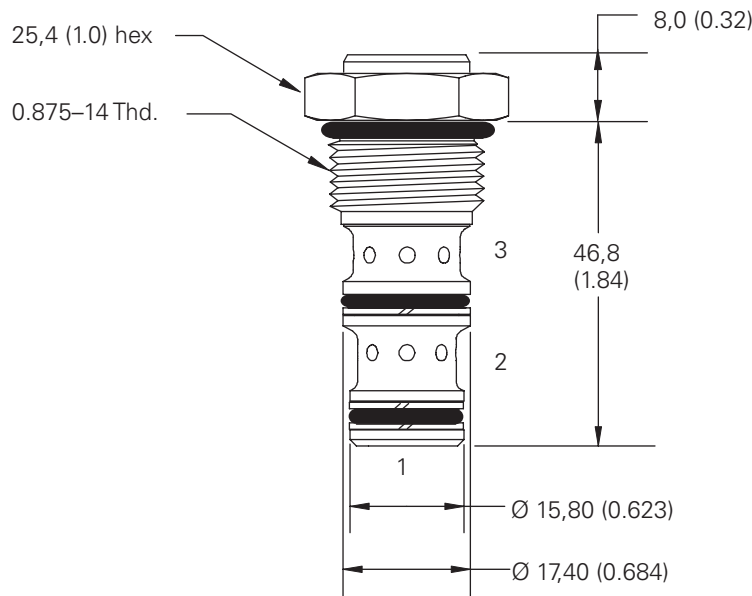
(35-40 ft. lbs)

S - 68-70 Nm

(50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi)



SPC1-10

Single pilot check valve

Description

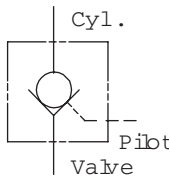
The SPC1-10 is an in-line housing type, pilot-to-open check valve.

Operation

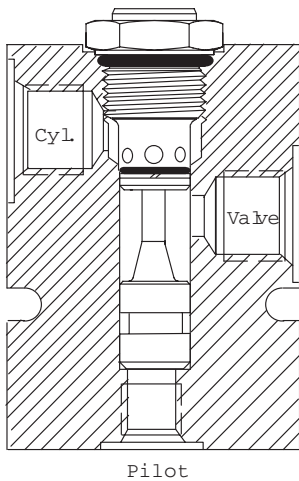
This valve allows flow from the valve port to the cylinder port when the spring bias is overcome.

Flow is blocked from the cylinder port to the valve port until sufficient pilot pressure is applied at the pilot port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,03 bar (15 psi)
Internal leakage cylinder port to valve port	5 drops / min maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	0,52 kg (1.14 lb)
Seal kit (Check valve)	565803 Buna-N 566086 Viton®
Seal kit (Pilot piston)	889648 Buna-N 889649 Viton®

Viton is a registered trademark of E.I. DuPont

Pilot Pressure calculation

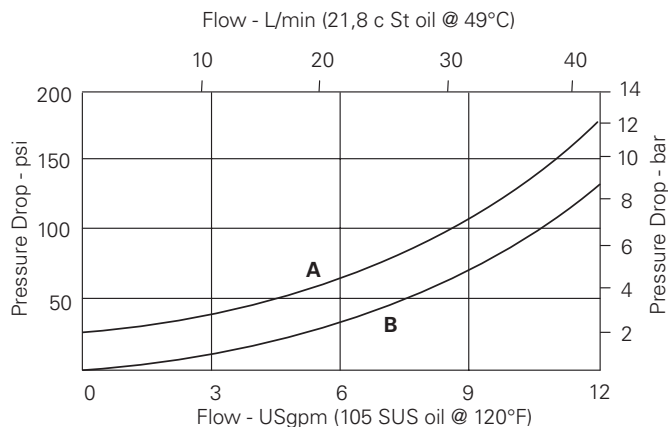
Nominal pressure to open valve by remote control

Pilot pressure at Pilot port =

$$\frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0,75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only



A – “Valve” to “Cyl” port (Free Flow)

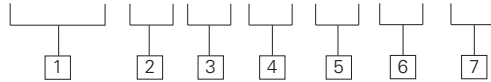
B – “Cyl” to “Valve” port (Piloted Flow)



WARNING

Do not use Single pilot check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

SPC1 – 10 (S) (V) – P – ** – 00



1 Function

SPC1 – Single pilot check valve

2 Size

10 – 10 Size

3 Piston Seals

Blank – No seals
S – With seals

Dimensions

mm (inch)

Torque cartridge in housing
 47-54 Nm (35-40 ft. lbs)

HOUSING PORT SIZE	ALL PORTS	PART NUMBER
3B	3/8" BSPP	02-178259
6T	SAE 6	02-161386

4 Seals

Blank – Buna-N
V – Viton®

5 Seating type

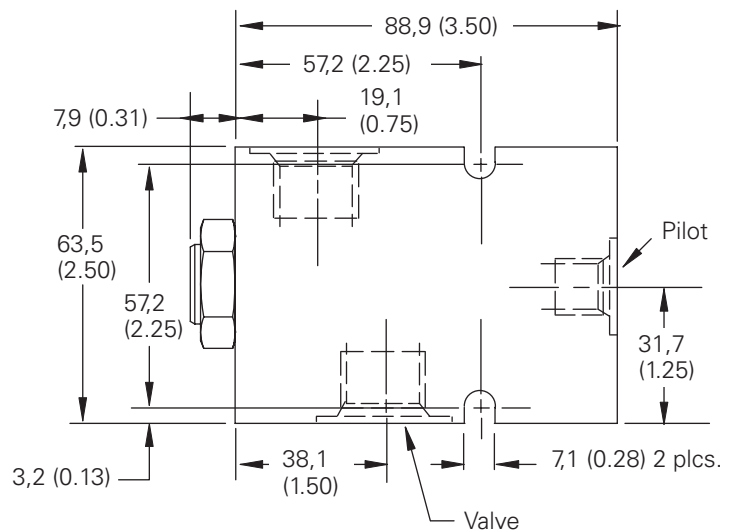
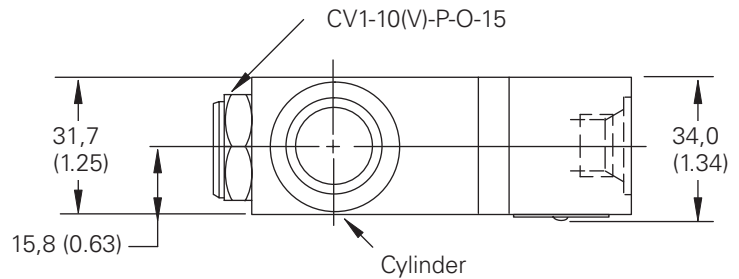
P – Poppet

6 Port size

3B – 3/8" BSPP (Light duty)
6T – SAE 6 (Light duty)

7 Special Features

00 – None
 (Only required if valve has special features - omitted if "00")



SPC1-16

Single pilot check valve

Description

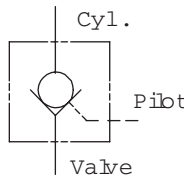
The SPC1-16 is an in-line housing type, pilot-to-open screw-in cartridge type check valve.

Operation

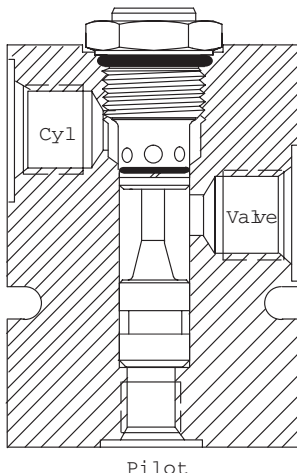
This valve allows flow from the valve port to the cylinder port when the spring bias is overcome.

Flow is blocked from the cylinder port to the valve port until sufficient pilot pressure is applied at the pilot port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	151 L/min (40 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,38 bar (20 psi)
Internal leakage cylinder port to valve port	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	1,83 kg (4.03 lb)
Seal kit (Check valve)	565810 Buna-N 889609 Viton®
Seal kit (Pilot piston)	889644 Buna-N 02-173598 Viton®

Viton is a registered trademark of E.I.DuPont

Pilot Pressure calculation

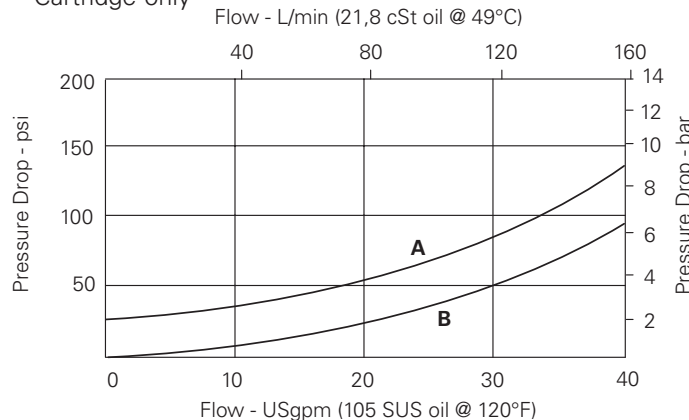
Nominal pressure to open valve by remote control

Pilot pressure at Pilot port =

$$\frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0.75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only



A – “Valve” to “Cyl” port (Free Flow)

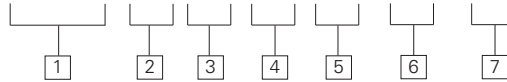
B – “Cyl” to “Valve” port (Piloted Flow)



WARNING

Do not use Single pilot check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

SPC1 – 16 (S) (V) – P – * – 00**



1 Function

SPC1 – Single pilot check valve

2 Size

16 – 16 Size

3 Piston Seals

Blank – No seals
S – With seals

4 Seals

Blank – Buna-N
V – Viton®

5 Seating type

P – Poppet

6 Port size

6B – 3/4" BSPP (Light duty)
12T – SAE 12 (Light duty)

7 Special Features

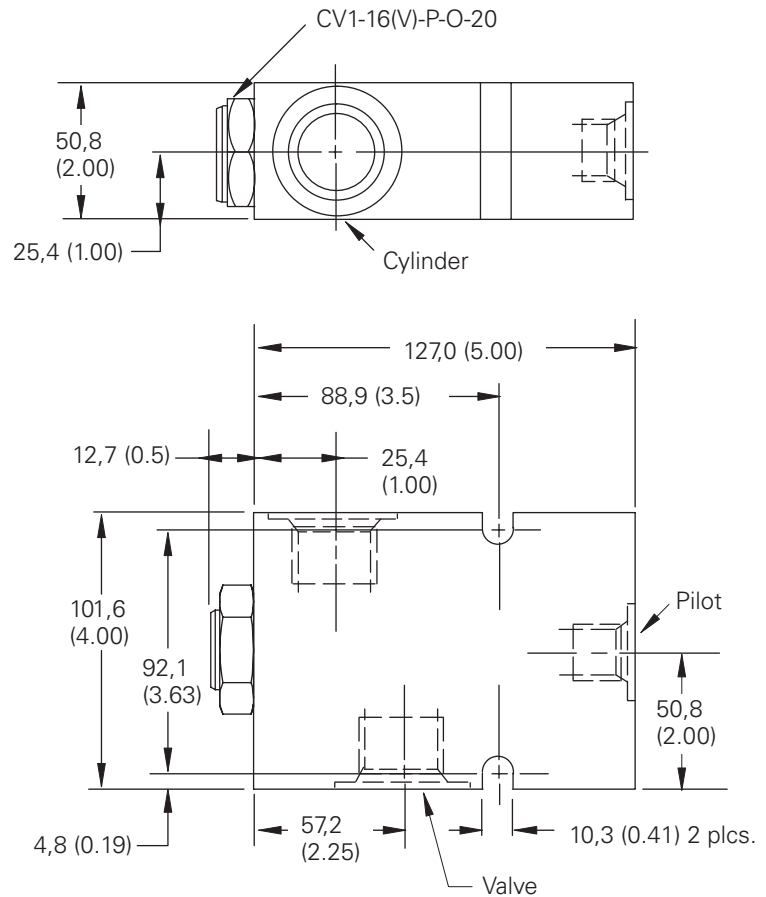
00 – None
(Only required if valve has special features - omitted if "00")

Dimensions

mm (inch)

Torque cartridge in housing
108-122 Nm (80-90 ft. lbs)

HOUSING PORT SIZE	ALL PORTS	PART NUMBER
6B	3/8" BSPP	02-178260
12T	SAE 12	889158



SPC1-20

Single pilot check valve

Description

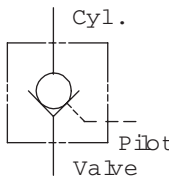
The SPC1-20 is an inline housing type, pilot-to-open check valve.

Operation

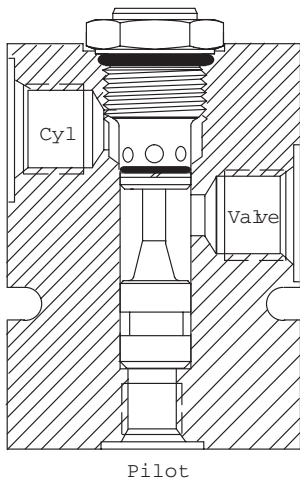
This valve allows flow from the valve port to the cylinder port when the spring force is overcome.

Flow is blocked from the cylinder port to the valve port until sufficient pilot pressure is applied at the pilot port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,03 bar (15 psi)
Internal leakage cylinder port to valve port	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	3,17 kg (6.98 lb)
Seal kit (Check valve)	889615 Buna-N 889619 Viton®
Seal kit (Pilot piston)	889656 Buna-N 02-173599 Viton®

Viton is a registered trademark of E.I. DuPont

Pilot Pressure calculation

Nominal pressure to open valve by remote control

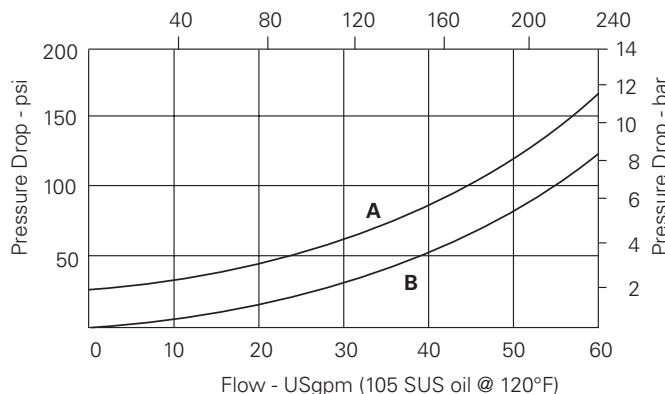
Pilot pressure at Pilot port =

$$\frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0.75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only

Flow - L/min (21,8 cSt oil @ 49°C)



A – “Valve” to “Cyl” port (Free Flow)

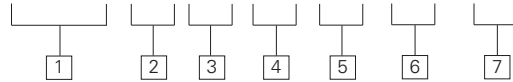
B – “Cyl” to “Valve” port (Piloted Flow)



WARNING

Do not use Single pilot check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

SPC1 – 20 (S) (V) – P – * – 00**



1 Function

SPC1 – Single pilot check valve

2 Size

20 – 20 Size

3 Piston Seals

Blank – No seals
S – With seals

4 Seals

Blank – Buna-N
V – Viton®

5 Seating type

P – Poppet

6 Port size

8B – 1" BSPP (Light duty)
16T – SAE 16 (Light duty)
20T – SAE 20 (Light duty)

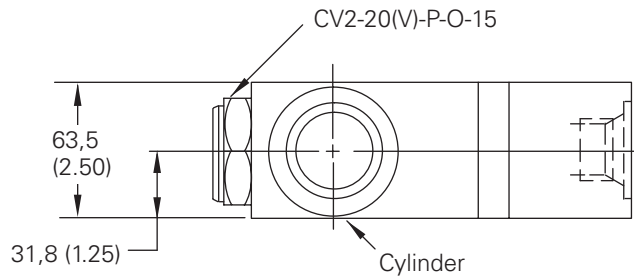
7 Special Features

00 – None
 (Only required if valve has special features - omitted if "00")

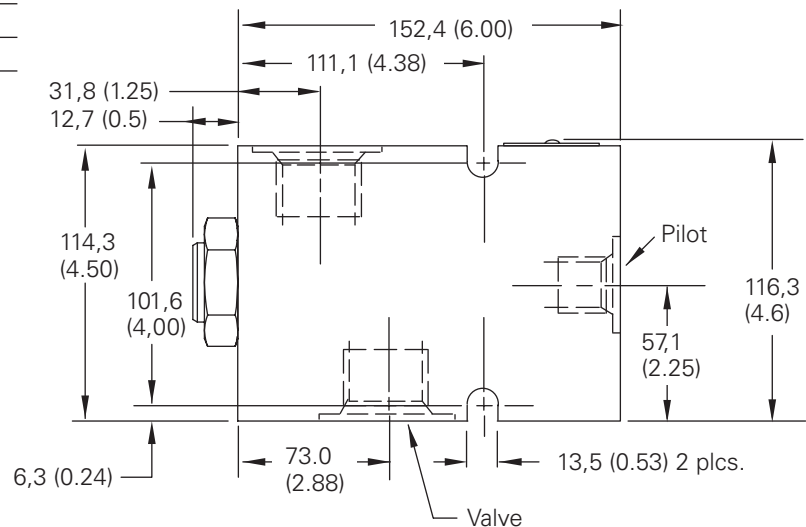
Dimensions

mm (inch)

Torque cartridge in housing
 128-155 Nm (95-115 ft. lbs)



HOUSING PORT SIZE	ALL PORTS	PART NUMBER
8B	1" BSPP	02-178261
16T	SAE 16	889161
20T	SAE 20	889162



POC1-10

Pilot operated check valve

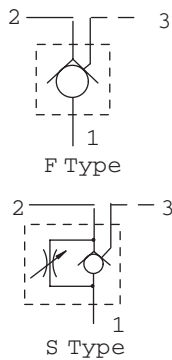
Description

The POC1-10 is a pilot-to-open, screw-in cartridge type check valve.

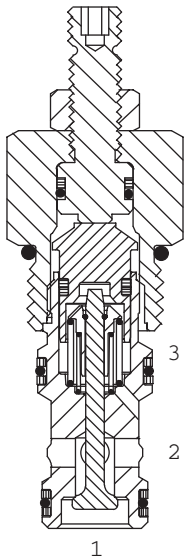
Operation

The POC1-10 will positively lock a load from port 1 to port 2, but will release the load by applying pressure to the pilot port (port 3). The load can also be released by adjusting the optional override.

Functional Symbols



Sectional View



RATINGS AND SPECIFICATIONS

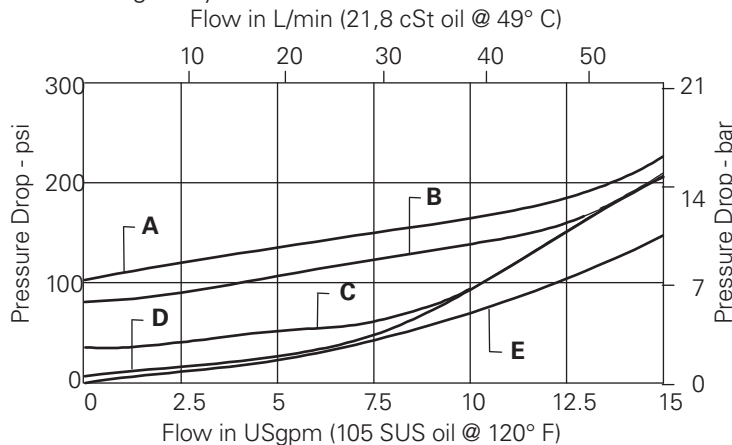
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	57 L/min (15 USgpm)
Pilot ratio	3:1
Internal leakage, Port 1 to 2	Less than 5 drops / min. maximum @ 350 bar (5000 psi)
Free flow cracking pressure @ 1.0 L/min (0.25 USgpm)	0,3 bar (5 psi); 2,0 bar (30 psi); 5,1 bar (75 psi); 6,9 bar (100 psi)
Hysteresis	less than 3 bar (45 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-3S
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or Steel
Weight cartridge w/out override	0,10 kg (0.23 lb)
cartridge w/override	0,17 kg (0.36 lb)
Seal kit	889650 Buna-N 889652 Viton®

Viton is a registered trademark of E.I.DuPont

Pressure Drop Curves

Cartridge only



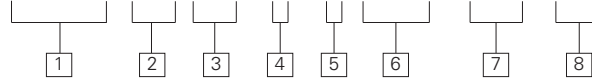
WARNING

Do not use Pilot-to-Open check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

3:1 Ratio

$$\text{Pilot pressure, nominal at Port 3} = \frac{(\text{Crack Pressure} + \text{Port 1 Pressure} - \text{Port 2 Pressure})}{3} + \text{Port 2 Pressure}$$

POC1 - 10 (V) - * - * ** - *** - 00**



1 Function

POC1 – Pilot operated check valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton®

4 Override option

F – None
S – Adjustable override

5 Valve Body

O - Cartridge only
I - Inline body
N - Close coupled, nipple mounting
G - Gasket mounted, single
D - Dual, line mounted
M - Dual, line mounted with integral shuttle valve
P - Dual, gasket mounted
H - Dual, bolt on manifold for H or T series motor
2K - Dual, bolt on manifold for 2000 series motor

6 Housing port sizes

PORT SIZE	VALVE BODY CODES							
	I Aluminum Steel		N/G/P Aluminum Steel		D/M Aluminum Steel		H/2K Aluminum Steel	
SAE 6	A6H*	S6T	A6H	A6T	A6H	S6T	-	-
SAE 8	A8H	S8T	-	-	A8H	S8T	-	-
SAE 10	-	S10T	-	-	A10H	S10T	A10H	-
1/4" BSPP	A2G	-	-	-	A2G	S2G	-	-
3/8" BSPP	A3G*	S3G	A3G	A3G	A3G	S3G	-	-
1/2" BSPP	-	S4G	-	-	A4G	S4G	-	-

* Light Duty Housing is available, to specify, substitute H or G with T or B respectively.

For housing part numbers and dimensions see section J.

Note -P, H, 2K, D and M bodies use two POC1-10 valves.

7 Free flow cracking pressure

005 – 0,3 bar (5 psi)
(anti-cavitation)
030 – 2,0 bar (30 psi)
075 – 5,1 bar (75 psi)
100 – 6,9 bar (100 psi)

8 Special Features

00 – None
(Only required if valve has special features - omitted if "00")

Dimensions

mm (inch)

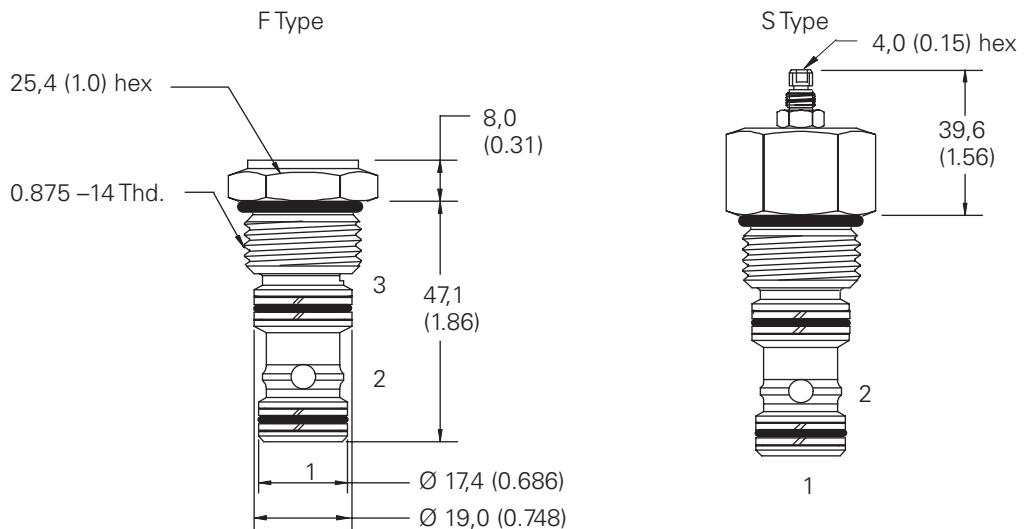
Torque cartridge in housing

A - 47-54 Nm
(35-40 ft. lbs)

S - 68-75 Nm
(50-55 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
Steel housings must be used for operating pressures above 210 bar (3000 psi)



POC1-12

Pilot operated check valve

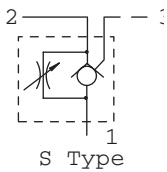
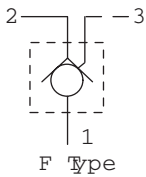
Description

The POC1-12 is a pilot-to-open, screw-in cartridge type check valve.

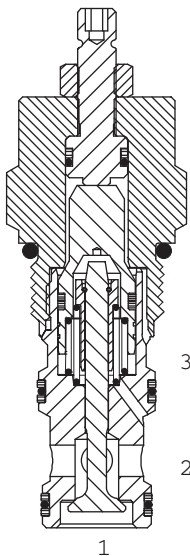
Operation

The POC1-12 will positively lock a load from port 1 to port 2, but will release the load by applying pressure to the pilot port (port 3). The load can also be released by adjusting the optional override.

Functional Symbols



Sectional View



RATINGS AND SPECIFICATIONS

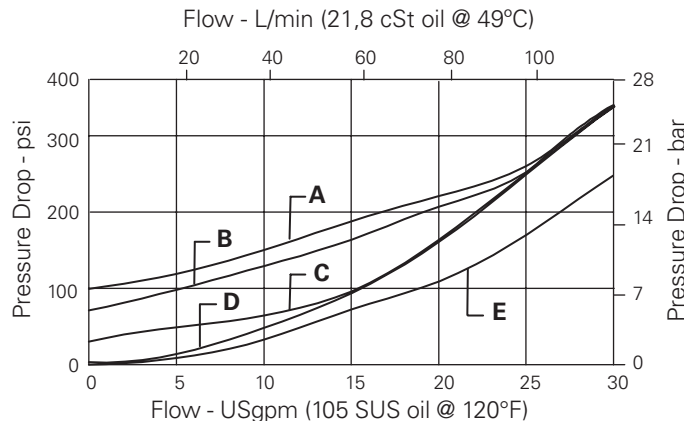
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Pilot ratio	3:1
Internal leakage, Port 1 to 2	5 drops / min. maximum @ 350 bar (5000 psi)
Free flow cracking pressure @ 1.0 L/min (0.25 USgpm)	0,3 bar (5 psi); 2,0 bar (30 psi); 5,1 bar (75 psi); 6,9 bar (100 psi)
Hysteresis	less than 3 bar (45 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-12-3S
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge w/out override	0,26 kg (0.58 lb)
cartridge w/override	0,34 kg (0.74 lb)
Seal kit	02-180095 Buna-N 02-165887 Viton®

Viton is a registered trademark of E.I.DuPont

Pressure Drop Curves

Cartridge only



- A – 100 psi
- B – 75 psi
- C – 30 psi
- D – 5 psi
- E – Full pilot



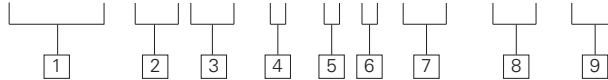
WARNING

Do not use Pilot-to-Open check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

3:1 Ratio

$$\text{Pilot pressure, nominal at Port 3} = \frac{\text{Crack Pressure} + \text{Port 1 Pressure} - \text{Port 2 Pressure}}{3} + \text{Port 2 pressure}$$

POC1 - 12 (V) - * - * * * - *** - 00**



1 Function
POC1 – Pilot operated check valve

2 Valve Size
12 – 12 Size

3 Seals
Blank – Buna-N
V – Viton®

4 Override option
F – None
S – Adjustable override

5 Valve body
O - Cartridge only
I - Inline body
B - SAE 4 - Bolt pad
N - Close coupled, nipple mounting
G - Gasket mounted, single
D - Dual, line mounted
M - Dual, line mounted with integral shuttle valve
P - Dual, gasket mounted

Dimensions
 mm (inch)
 Torque cartridge in housing
A - 81-95 Nm (60-70 ft. lbs)
S - 102-115 Nm (75-85 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)

6 Valve housing material
A - Aluminum
S - Steel

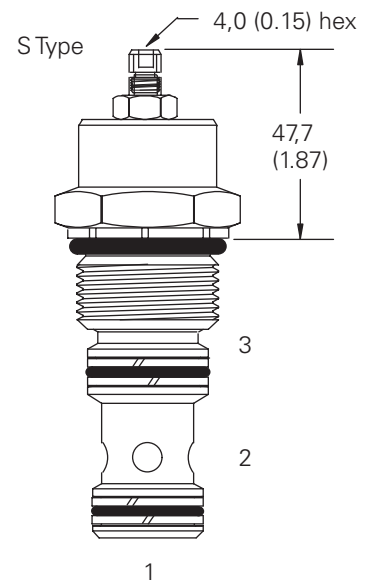
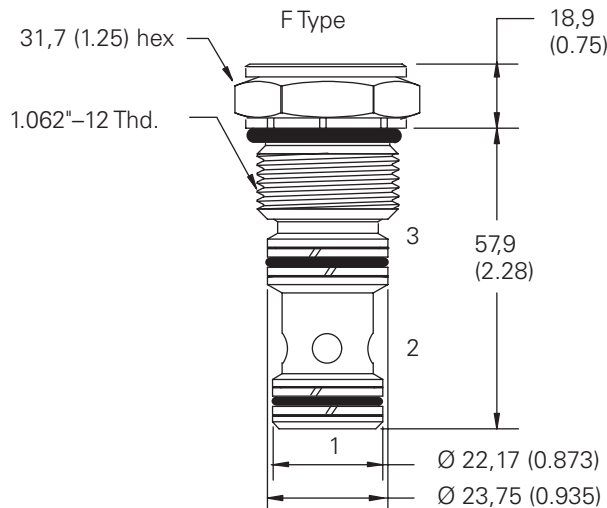
7 Housing port sizes

PORT SIZE	VALVE BODY CODES			
	I	B	N/G/P	D/M
SAE 6	-	-	-	-
SAE 8	-	-	8T	-
SAE 10	10T	-	-	10T
SAE 12	12T	-	-	12T
1/4" BSPP	-	-	-	-
3/4" BSPP	-	-	-	-
1/2" BSPP	4G	-	4G	4G
SAE-Code 61	6G	6T	-	-

For housing part numbers and dimensions see section J.
 Note -M, P, & D housings use two POC1-12 valves.

8 Free flow cracking pressure
005 – 0,3 bar (5 psi) (Anti-cavitation)
030 – 2,0 bar (30 psi)
075 – 5,1 bar (75 psi)
100 – 6,9 bar (100 psi)

9 Special Features
00 – None
 (Only required if valve has special features - omitted if "00")



DPC2-8

Dual Pilot Operated Check Valve Cartridge

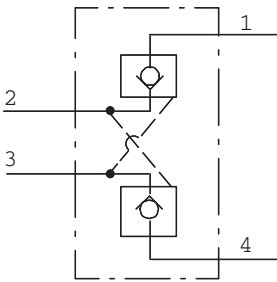
Description

The DPC2-8 is a Pilot-to-Open, screw-in cartridge type, dual pilot operated check valve.

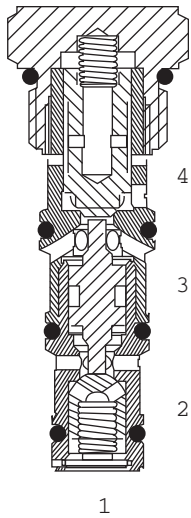
Operation

The valve allows flow from port 2 to port 1 or from port 3 to port 4 when the spring bias is overcome. Flow is blocked from ports 4 to 3 and from 1 to 2 until pilot pressure is applied to ports 2 and 3 respectively.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

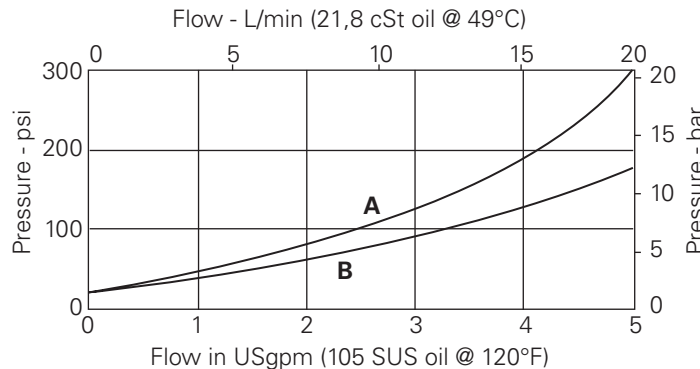
Typical application pressure (all ports)	240 bar (3500 psi)
Cartridge fatigue pressure (infinite life)	240 bar (3500 psi)
Rated inlet flow	19 L/min (5 USgpm)
Pilot ratio	3:1
Maximum internal leakage	Ports 2 to 3 and 3 to 2: 140 cc/min. (8.5 in ³ /min.) @ 240 bar (3500psi) Ports 4 to 3 and 1 to 2: 5 drops/min. @ 240 bar (3500psi)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,7 bar (25 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0.08 kg (0.18 lbs)
Seal kit	02-370387 Urethane

3:1 Pilot Pressure Ratio

$$\text{Nominal Pilot pressure to open valve} = \frac{\text{Crack Pressure} + \text{Load Pressure}}{3} + .66x \text{ Return line Pressure}$$

Pressure Drop Curves

Cartridge only



A – Port 2 to 1

B – Port 3 to 4

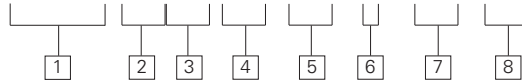


WARNING

Do not use Pilot-to-Open check valves in load

holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

DPC2 - 8 U - A - 25 - * - ** - 00



1 Function
DPC2 – Dual Pilot Operated Check

2 Size
8 – 8 Size

3 Seals
U– Urethane (standard)

4 Pilot Leakage
A – Standard

5 Crack Pressure
25 – 1,7 bar (25 psi)

6 Body
 Omit for cartridge only
A – Aluminum
S – Steel

7 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum Fatigue rated	Steel Fatigue rated
2G	1/4" BSPP	02-160747	02-160753
3G	3/8" BSPP	02-160748	02-160754
4T	SAE 4	02-160749	02-160751
6T	SAE 6	02-160750	02-160752

See Section J for housing details.

8 Special Features
00 – None
 (Only required if valve has special features - omitted if "00")



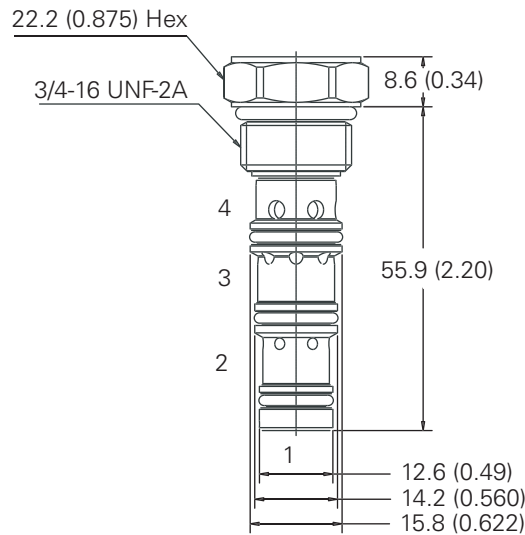
Dimensions

mm (inch)

Torque cartridge in Aluminum or Steel housing
 34-41 Nm (25-30 ft. lbs)



Aluminum housings can be used for pressures up to 210 bar (3000 psi)
 Steel housings must be used for operating pressures above 210 bar (3000 psi)



DPC1-10

Double pilot check valve

Description

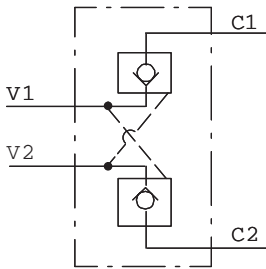
The DPC1-10 is an inline housing type, double pilot operated check valve.

Operation

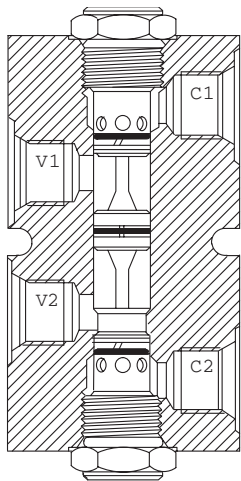
This valve allows flow from the V ports to the C ports, while blocking flow from the C ports to the V ports.

Flow will be allowed from the C ports to the V ports when pressure is applied at the opposite V port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,03 bar (15 psi)
Internal leakage cylinder port to valve port	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	1,83 kg (4.03 lb)
Seal kit (Check valve)	889615 Buna-N 889619 Viton®
Seal kit (Pilot piston)	889656 Buna-N 02-173599 Viton®

Viton is a registered trademark of E.I. DuPont

Pilot Pressure Calculation

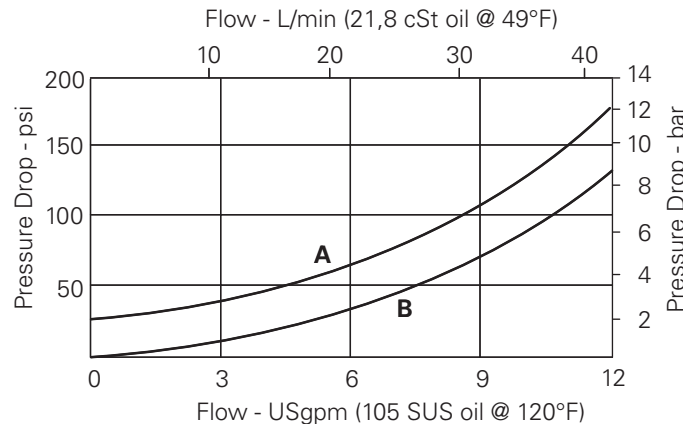
Nominal pressure to open valve by remote control

Pilot pressure at Pilot port =

$$\frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0.75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only



A – Port V to C (free flow)

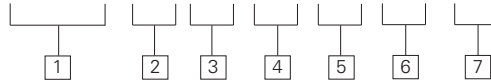
B – Port C to V (pilot open)



WARNING

Do not use Pilot-to-Open check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

DPC1 - 10 (S) (V) - P - ** - 00



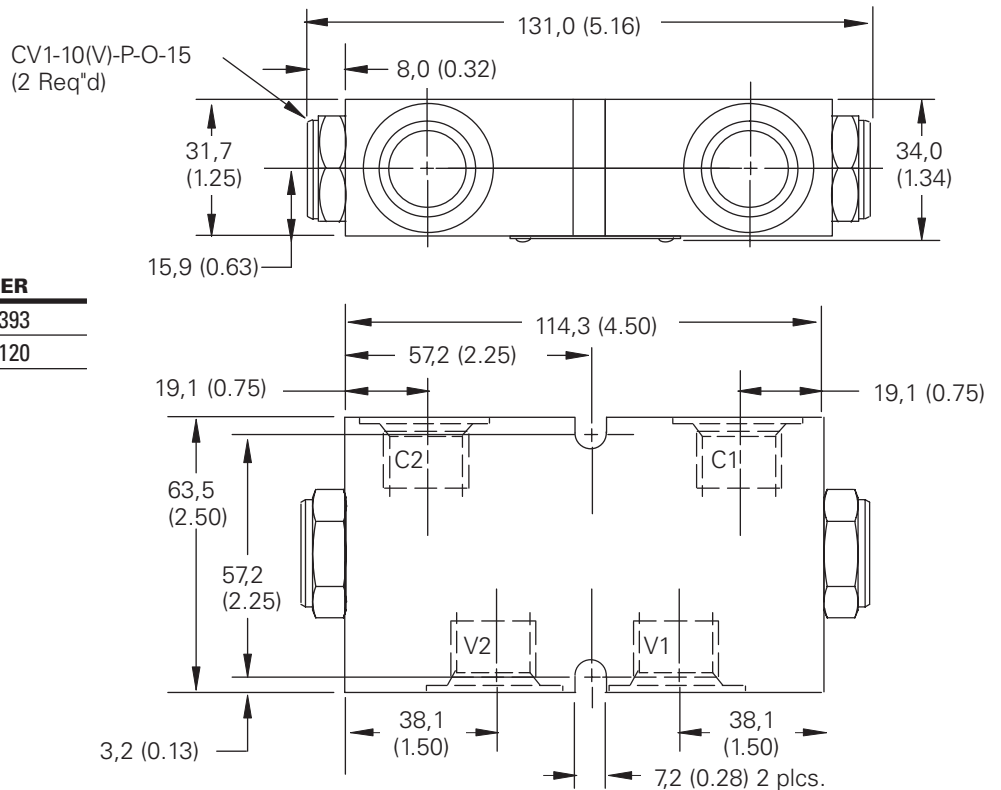
1 Function DPC1 – Double pilot check valve	3 Pilot Piston Seals Blank – No seals S – With seals	5 Style P – Poppet	7 Special Features 00 – None (Only required if valve has special features - omitted if "00")
2 Size 10 – 10 Size	4 Seals Blank – Buna-N V – Viton®	6 Port size 3B – 3/8" BSPP (Light duty) 6T – SAE 6 (Light duty)	

Dimensions

mm (inch)

Torque cartridge in housing
47-54 Nm (35-40 ft. lbs)

HOUSING PORT SIZE	ALL PORTS	PART NUMBER
6T	SAE 6	02-161393
3B	3/8" BSPP	02-171120



DPC11-12

Double pilot check valve

Description

The DPC11-12 is an inline housing type, double pilot operated check valve.

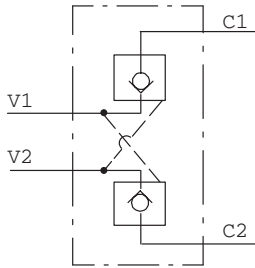
Operation

This valve allows flow from the V ports to the C ports, while blocking flow from

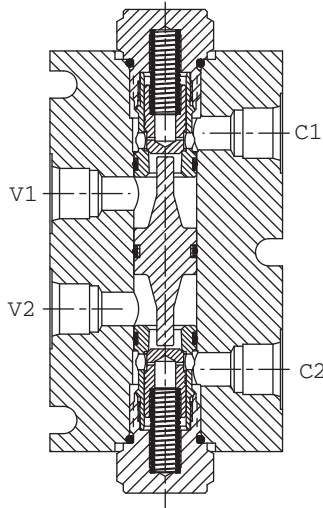
the C ports to the V ports. Flow will be allowed from the C ports to the V ports

when pressure is applied at the opposite V port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	Steel housing: 350 bar (5000 psi) Aluminum housing: 210 bar (3000 psi)
Rated flow	114 L/min (30 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,38 bar (20 psi)
Internal leakage cylinder port to valve port	5 drops/min maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	3.5:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Weight	Steel 10.61 lbs, Aluminum 4.45 lbs
Seal kit (Check valve-2 req'd)	02-165887 Buna-N 02-165888 Viton®
Seal kit (Pilot piston)	02-185706 Buna-N 02-185707 Viton®

Viton is a registered trademark of E.I. DuPont

Pilot Pressure calculation

Nominal pressure to open valves

Nominal pressure at V1 for flow from C2 to V2 =

$$\frac{\text{Cracking pressure} + \text{pressure at C2}}{3,5} + (0,71) \times \text{pressure at V2}$$

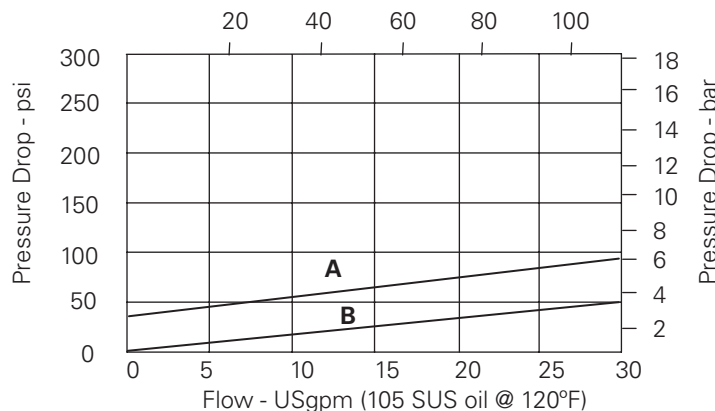
Pilot pressure at V2 for flow from C1 to V1 =

$$\frac{\text{Cracking pressure} + \text{pressure at C1}}{3,5} + (0,71) \times \text{pressure at V1}$$

Pressure Drop Curves

Cartridge only

Flow - L/min (21,8 cSt oil @ 49°C)



A - V-C Free flow

B - C-V Piloted open

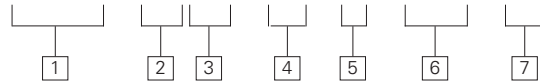


WARNING

Do not use Pilot-to-Open check valves in load

holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

DPC11 - 12 (V) - (S) - P - ** - 00**



1 Function

DPC11 - Double pilot check valve

2 Size

12 - 12 Size

3 Seals

Blank - Buna-N
V - Viton®

4 Pilot piston seals

Blank - No seal
S - With seal

5 Seating type

P - Poppet

6 Port size

CODE	HOUSING NUMBER		Port Size
	Aluminum	Steel	
A10H	4996704-002	–	SAE 10
A6G	4996704-004	–	3/4" BSPP
S10H	–	4996705-002	SAE 10
S6G	–	4996705-004	3/4" BSPP

7 Special features

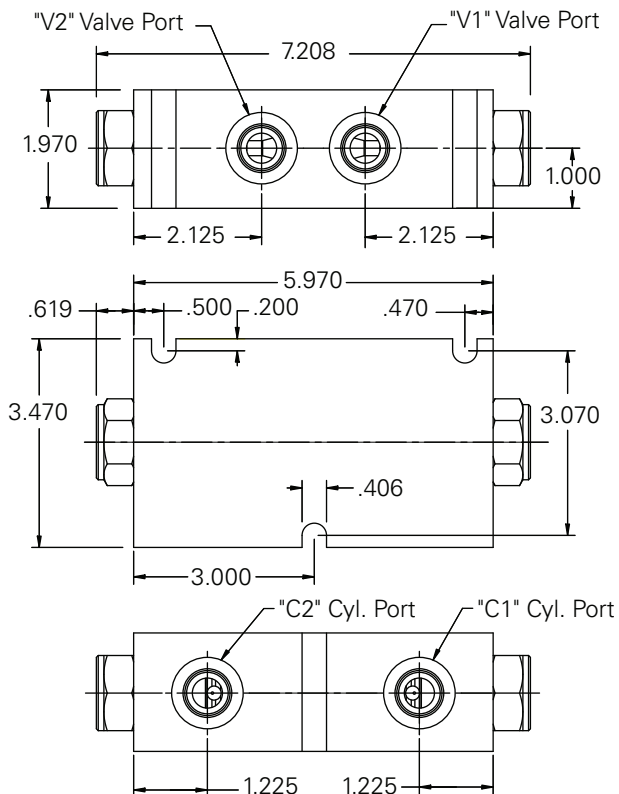
00 - None
(Only required if valve has special features - omitted if "00")



Dimensions

mm (inch)

Torque cartridge in housing
A - 81-95 Nm (60-70 ft. lbs)
S - 102-115 Nm (75-85 ft. lbs)



PILOT PISTON

No Seal	02-185702
Buna-N Seal	02-185703
Viton® Seal	4996729-001

DPC1-16

Double pilot check valve

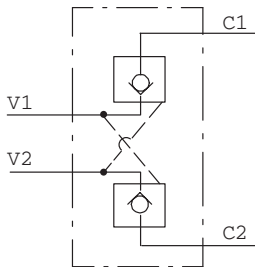
Description

The DPC1-16 is an inline housing type, double pilot operated check valve.

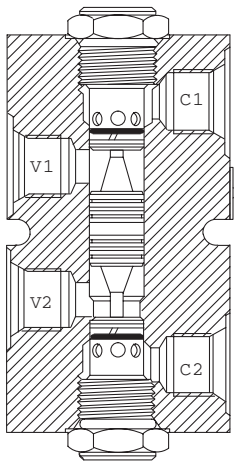
Operation

This valve allows flow from the C ports to the V ports, while blocking flow from the V ports to the C ports. Flow will be allowed from the C ports to the V ports when pressure is applied at the opposite V port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	151 L/min (40 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,38 bar (20 psi)
Internal leakage cylinder port to valve port	5 drops / min maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	2,61 kg (5.75 lb.)
Seal kit (Check valve-2 req'd)	565810 Buna-N 889609 Viton®
Seal kit (Pilot piston)	889644 Buna-N 02-173598 Viton®

Viton is a registered trademark of E.I. DuPont

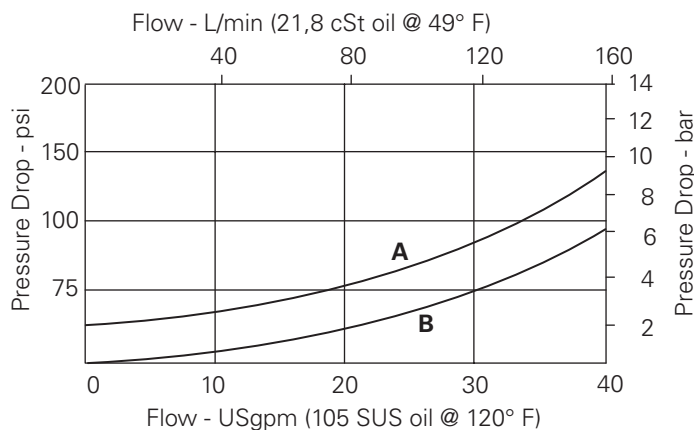
Pilot Pressure Calculation

Nominal pressure to open valve by remote control

$$\text{Pilot pressure at Pilot port} = \frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0.75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only



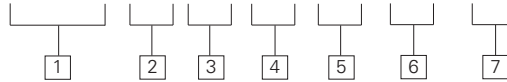
- A** – Port V to C (free flow)
- B** – Port C to V (piloted open)



WARNING

Do not use Pilot-to-Open check valves in load holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

DPC1 - 16 (S) (V) - P - * - 00**



1 Function

DPC1 – Double pilot check valve

2 Size

16 – 16 Size

3 Pilot piston seals

Blank– No seal
S – With seal

4 Seals

Blank – Buna-N
V – Viton®

5 Seating type

P – Poppet

6 Port size

12T – SAE 12 (Light duty)
6B – 3/4" BSPP (Light duty)

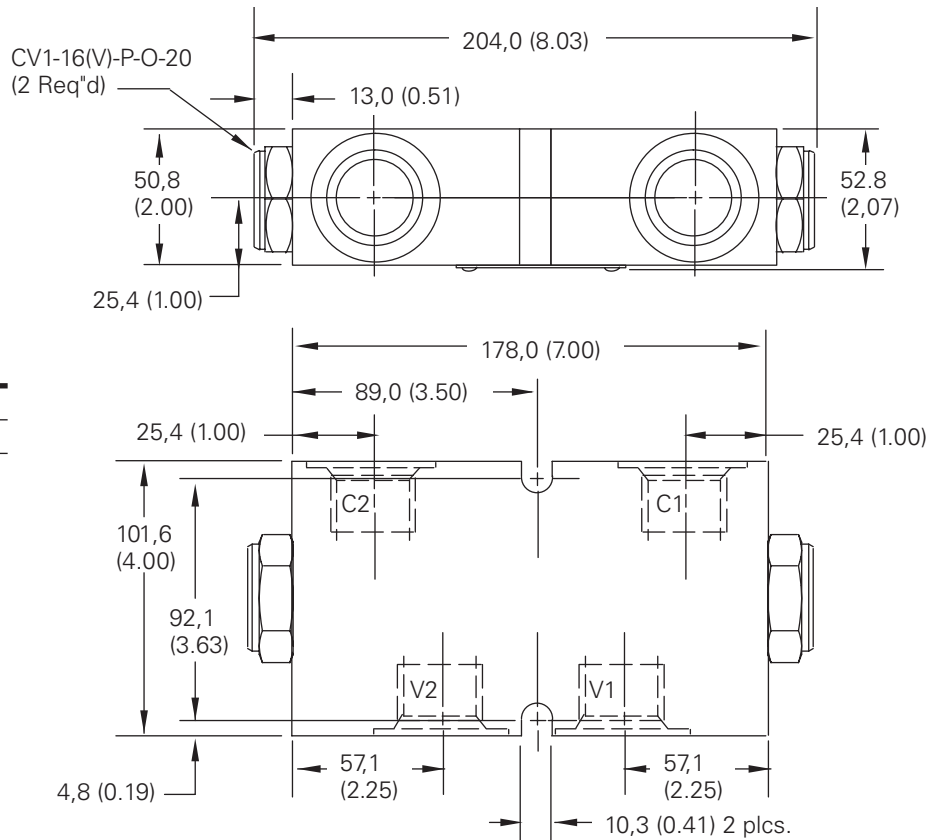
7 Special Features

00 – None
(Only required if valve has special features - omitted if "00")

Dimensions

mm (inch)

Torque cartridge in aluminum housing
108-122 Nm (80-90 ft. lbs)



HOUSING PORT SIZE	ALL PORTS	PART NUMBER
12T	SAE 12	889155
6B	3/4" BSPP	02-175414



DPC1-20

Double pilot check valve

Description

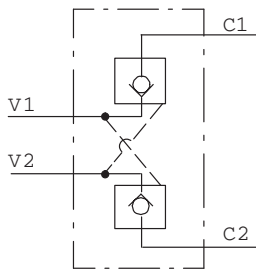
The DPC1-20 is an inline housing type, double pilot operated check valve.

Operation

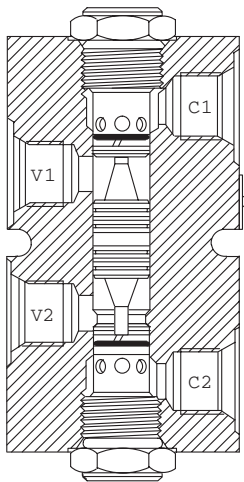
This valve allows flow from the V ports to the C ports, while blocking flow from the C ports to the V ports. Flow will be allowed from the C ports to the

V ports when pressure is applied at the opposite V port.

Functional Symbol



Sectional View



RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Free flow cracking pressure @ 1 L/min (0.25 USgpm)	1,03 bar (15 psi)
Internal leakage cylinder port to valve port	5 drops / min. maximum @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Pilot ratio	4:1
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing materials	Aluminum
Weight	4,45 kg (9.80 lb)
Seal kit (Check valve-2 req'd)	889615 Buna-N 889619 Viton®
Seal kit (Pilot piston)	889656 Buna-N 02-173599 Viton®

Viton is a registered trademark of E.I. DuPont

Pilot Pressure Calculation

Nominal pressure to open valve by remote control

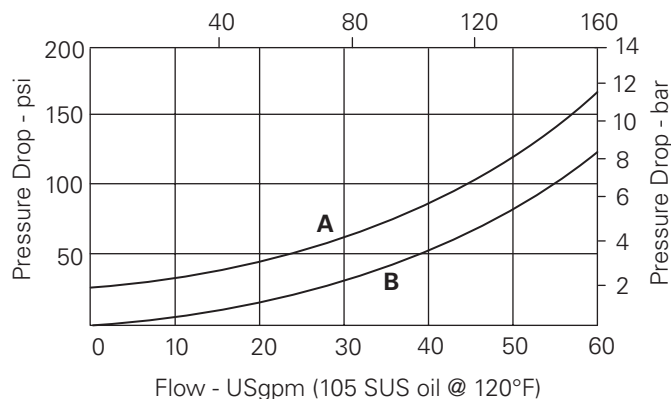
Pilot pressure at Pilot port =

$$\frac{\text{Cracking pressure} + \text{Pressure at Cyl port}}{4} + (0.75 \times \text{Pressure at Valve port})$$

Pressure Drop Curves

Cartridge only

Flow - L/min (21,8 cSt oil @ 49°C)



A – Port V to C (free flow)

B – Port C to V (piloted open)

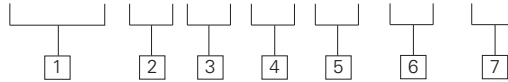


WARNING

Do not use Pilot-to-Open check valves in load

holding applications where either overrunning loads are possible; or, load release speed is critical. Failure to observe these guidelines may result in bodily injury or damage to equipment.

DPC1 - 20 (S) (V) - P - * - 00**



1 Function

DPC1 – Double pilot check valve

2 Size

20 – 20 Size

3 Pilot piston seals

Blank – No seal
S – With seal

4 Seals

Blank – Buna-N
V – Viton®

5 Seating type

P – Poppet

6 Port size

20T – SAE 20 (Light duty)
8B – 1" BSPP (Light duty)

7 Special Features

00 – None
(Only required if valve has special features - omitted if "00")

Dimensions

mm (inch)

Torque cartridge in aluminum housing
128-155 Nm (95-115 ft. lbs)

HOUSING PORT SIZE	ALL PORTS	PART NUMBER
20T	SAE 20	889159
8B	1" BSPP	02-175415

