

DPC2-8

Dual Pilot Operated Check Valve Cartridge

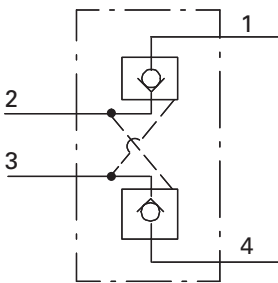
Description

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

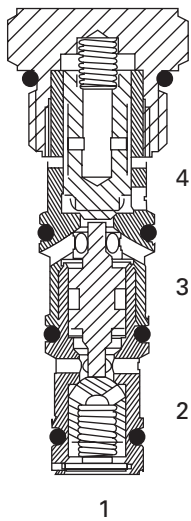
Operation

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)

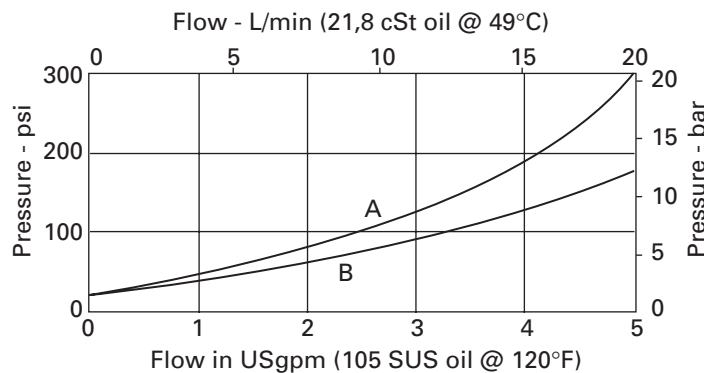
Typical application pressure (all ports)	240 bar (3500 psi)
Cartridge fatigue pressure (infinite life)	240 bar (3500 psi)
Rated inlet flow	19 L/min (5 USgpm)
Pilot ratio	3:1
Maximum internal leakage	Ports 2 to 3 and 3 to 2: 140 cc/min. (8.5 in ³ /min.) @ 240 bar (3500psi) Ports 4 to 3 and 1 to 2: 5 drops/min. @ 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

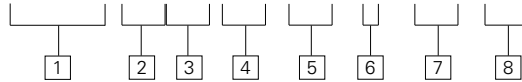
B – Port 3 to 4



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")



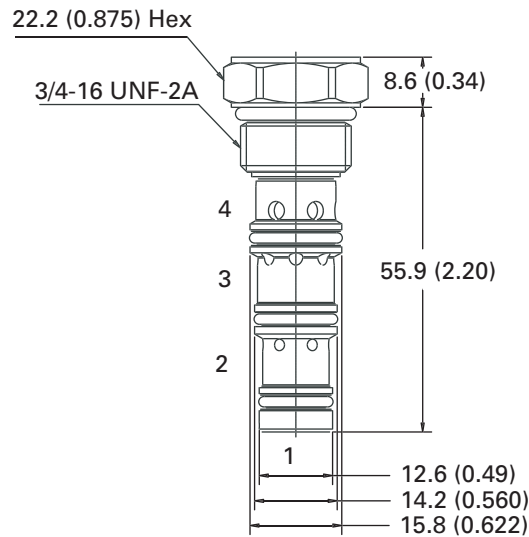
Dimensions

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

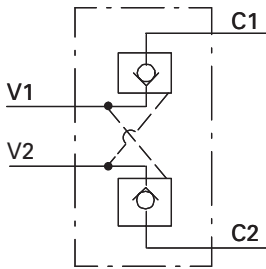
The DPC1-10 is an inline housing type, double pilot operated check valve.

Operation

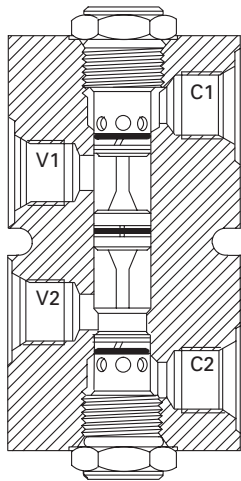
This valve allows flow from the V ports to the C ports, while blocking flow from the C ports to the V ports.

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

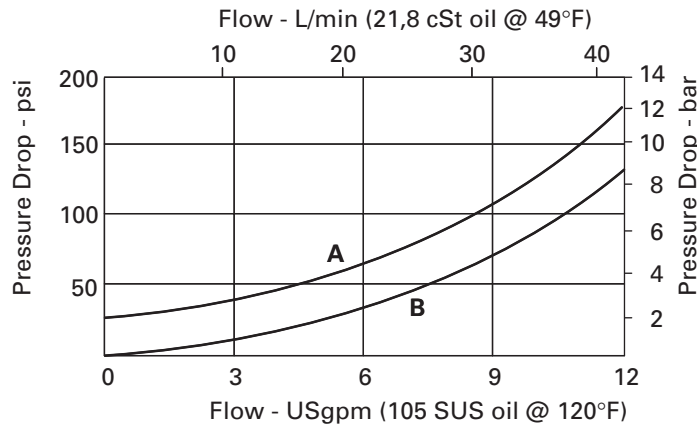
Nominal pressure to open valve by remote control

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)

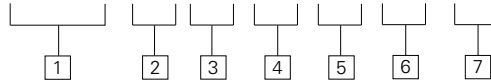
B – Port C to V (pilot open)



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

2 Size

10 – 10 Size

3 Pilot Piston Seals

Blank – No seals
S – With seals

4 Seals

Blank – Buna-N
V – Viton®

5 Style

P – Poppet

6 Port size

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

7 Special Features

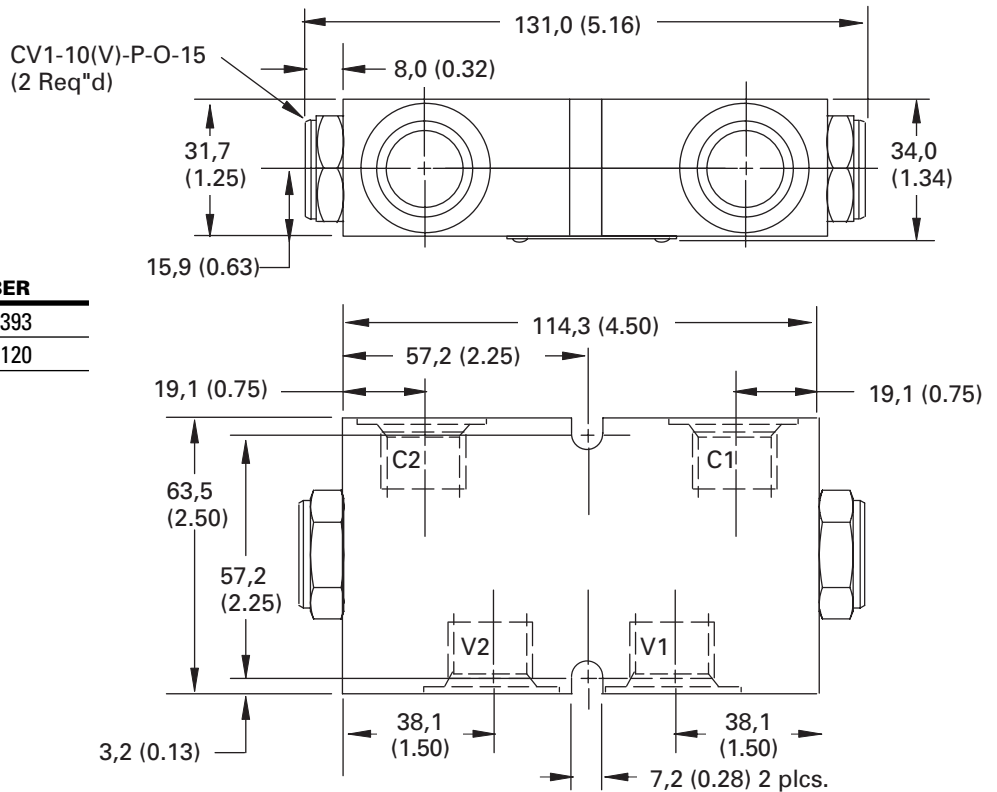
00 – None
(Only required if valve has special features - omitted if "00")

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

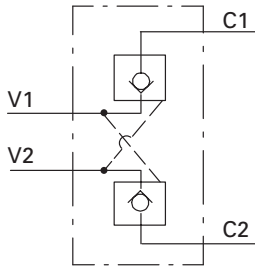
The DPC11-12 is an inline housing type, double pilot operated check valve.

Operation

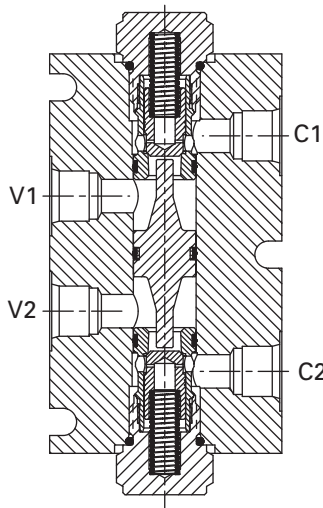
This valve allows flow from the V ports to the C ports, while blocking flow from the C ports to the V ports.

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®

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Pilot Pressure calculation

Nominal pressure to open valves

Nominal pressure at V1 for flow from C2 to V2 =

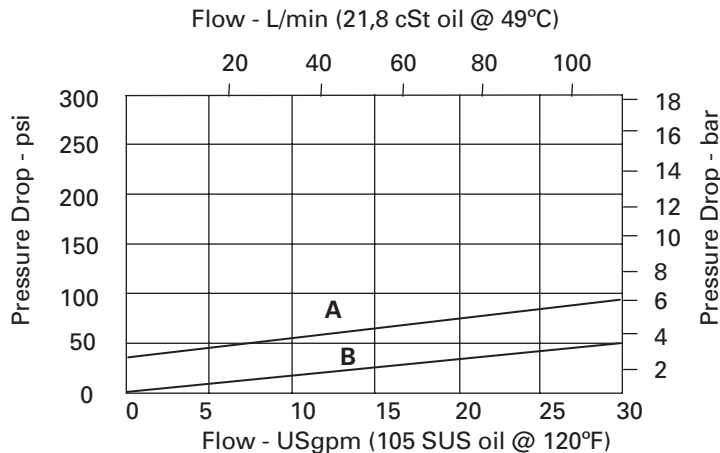
$$\frac{\text{Cracking pressure} + \text{pressure at C2}}{3,5} + (0,71) \times \text{pressure at V2}$$

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



A - V-C Free flow

B - C-V Piloted open

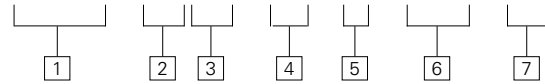


WARNING

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	
A8H	4996704-001	—	SAE 8
A10H	4996704-002	—	SAE 10
A4G	4996704-003	—	1/2" BSPP
A6G	4996704-004	—	3/4" BSPP
S8H	—	4996705-001	SAE 8
S10H	—	4996705-002	SAE 10
S4G	—	4996705-003	1/2" BSPP
S6G	—	4996705-004	3/4" BSPP

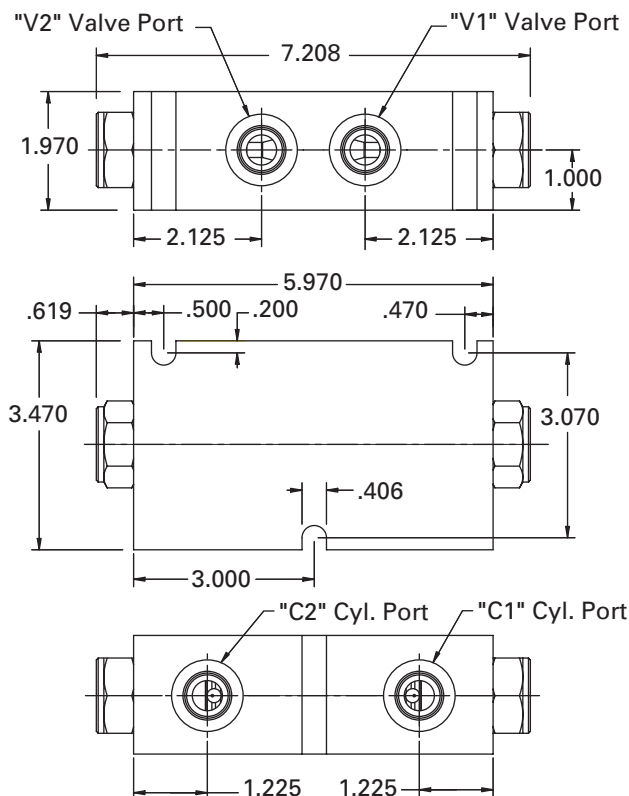
7 Special features

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

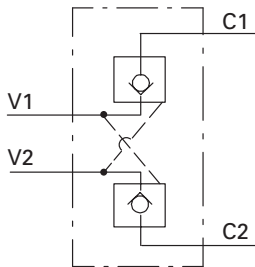
Description

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

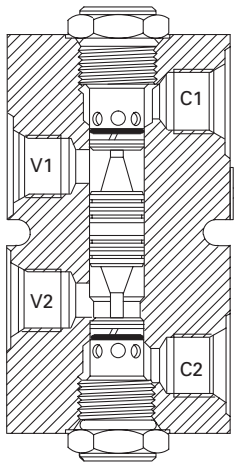
Operation

This valve allows flow from the 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	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®

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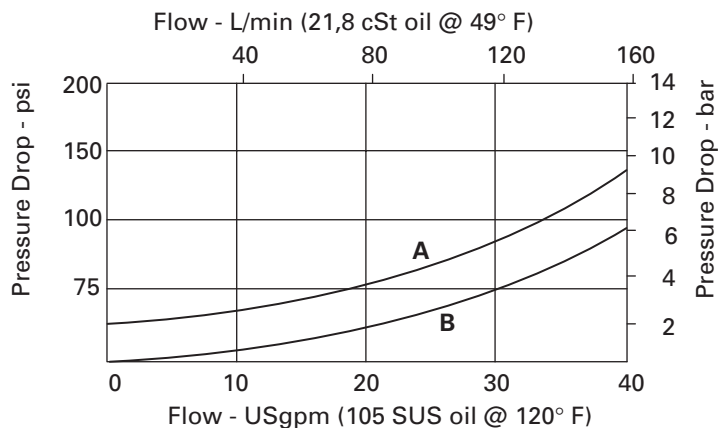
Pilot Pressure Calculation

Nominal pressure to open valve by remote control

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

Pressure Drop Curves

Cartridge only



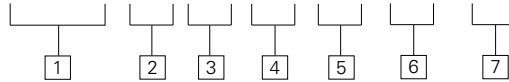
- A** – Port V to C (free flow)
- B** – Port C to V (piloted open)



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)

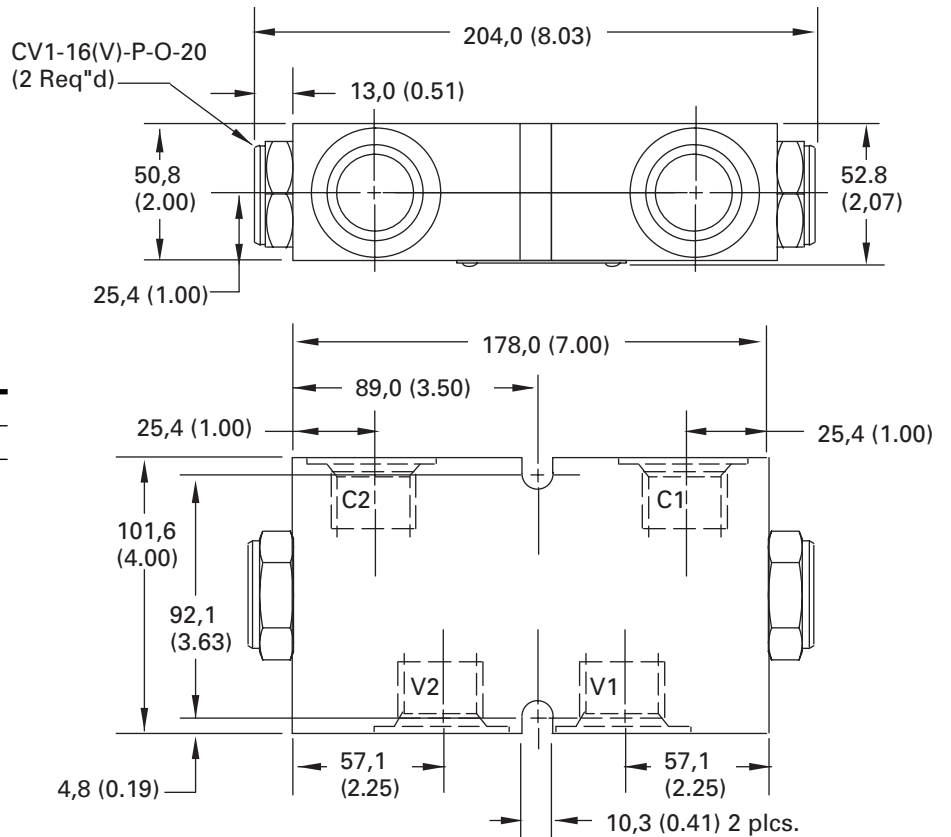
7 Special Features

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

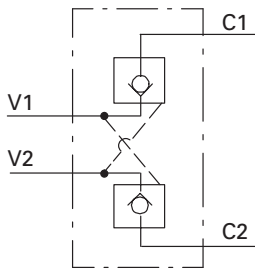
Description

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

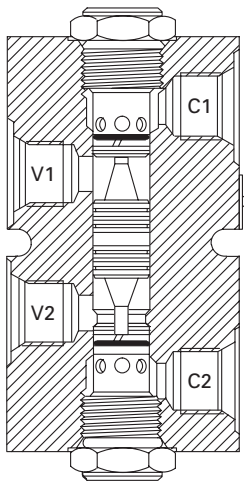
Operation

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

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Pilot Pressure Calculation

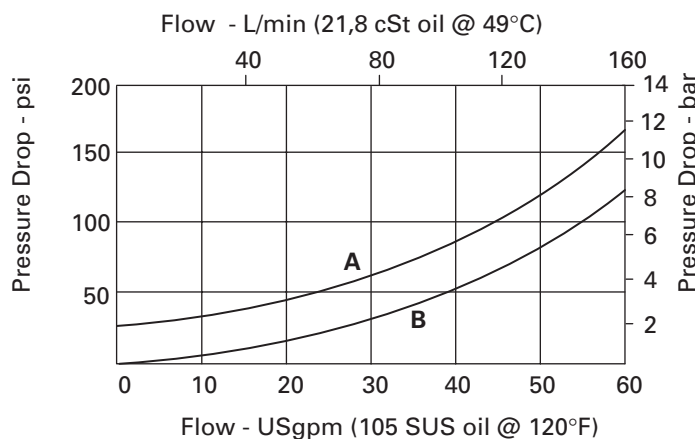
Nominal pressure to open valve by remote control

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



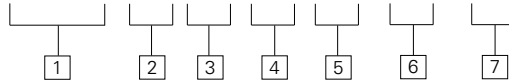
- A - Port V to C (free flow)
- B - Port C to V (piloted open)



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

