EATON | Vickers

Logic Elements

Differential Pressure Sensing Elements and Pressure Compensating Elements
for applications up to 350 bar (5000 psi) and 303 L/min (80 USgpm)

Section Contents

Logic elements and pressure compensators

Section Overview

Logic elements

This section gives basic specifications for Vickers logic element and pressure compensator screw-in cartridge valves. Its purpose is to provide a quick, convenient reference tool when choosing these valves or designing a system using these components.

All cartridges have hardened and ground spools, and/or honed sleeves, 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.

These Vickers cartridges provide the system designer with a versatile range of elements for use in MCD packages for controlling pressure, flow and direction of flow.

The range includes:

- Pressure compensators
- Pressure compensators with priority and bypass outlets
- Differential–pressure sensing elements

The correct selection of these products can enhance machine performance, shorten the design process and minimize manufacturing costs of manifold blocks.

DIfferential–pressure sensing elements – DPS2

For controlling pressure, flow or direction (including 3- and 4-way bridge circuits) the DPS2 is used with the aid of external pilot operators. The DPS2 elements are function building blocks which respond to pressure differential signals, providing the capacity to switch or modulate flows up to 303 L/min (80 USgpm) and pressure to 350 bar (5000 psi).

The choice of pilot arrangements related to DPS2 variants can minimize the number of construction holes in a manifold, simplifying design and reducing costs.

All poppet type DPS2 elements have recently been upgraded to 350 bar (5000 psi).

Flow compensators – PCS3

An essential component of a pressure compensated flow control which, with an external fixed or variable orifice, provides the required compensated flow characteristic. Excess flow is diverted at maximum system pressure. Excess fluid upstream must be diverted e.g. through a relief to tank.

Pressure compensator with priority and bypass outlets –PCS4

Similar in function to the PCS3. The major difference is that excess flow is diverted at priority flow pressure, instead of at maximum system pressure, as is the case with PCS3 compensators. The excess flow can pass to a secondary circuit or to tank.

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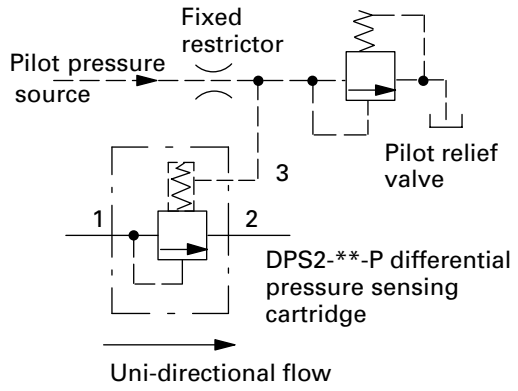
Application Examples

DPS2 Logic elements for pressure control

Pressure control functions

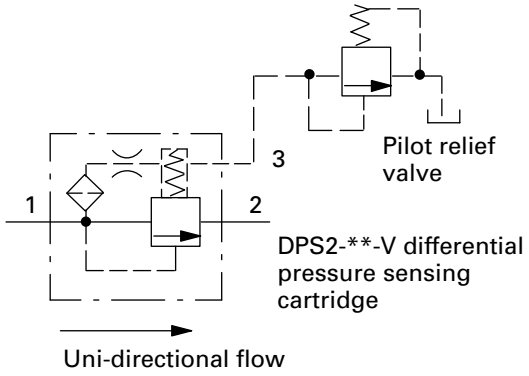
Pressure relief or Sequence example

With external pilot supply and pilot relief



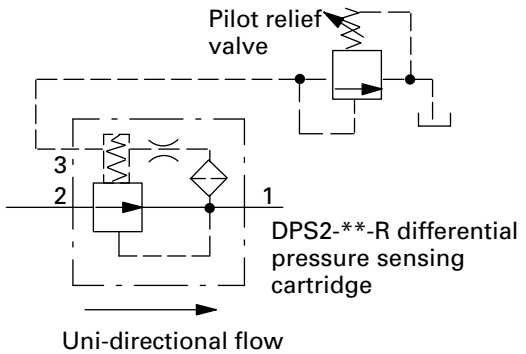
Pressure relief or Sequence example

With internal pilot supply and pilot relief



Pressure reducing example

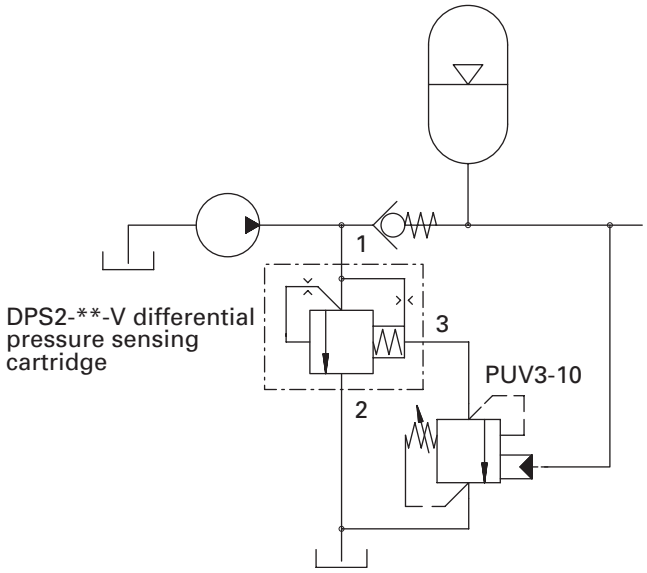
Non-relieving type



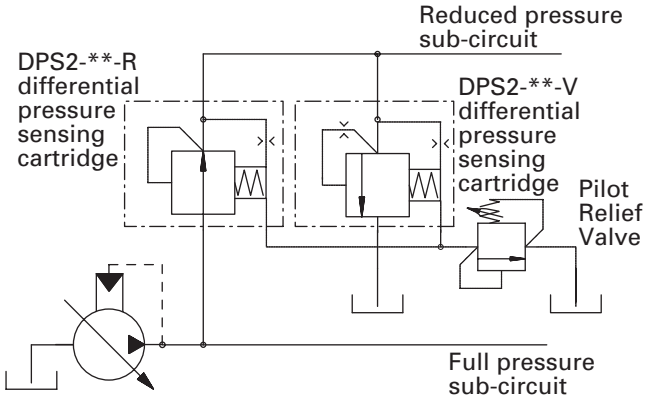
Application Examples

DPS2 Elements for pressure control

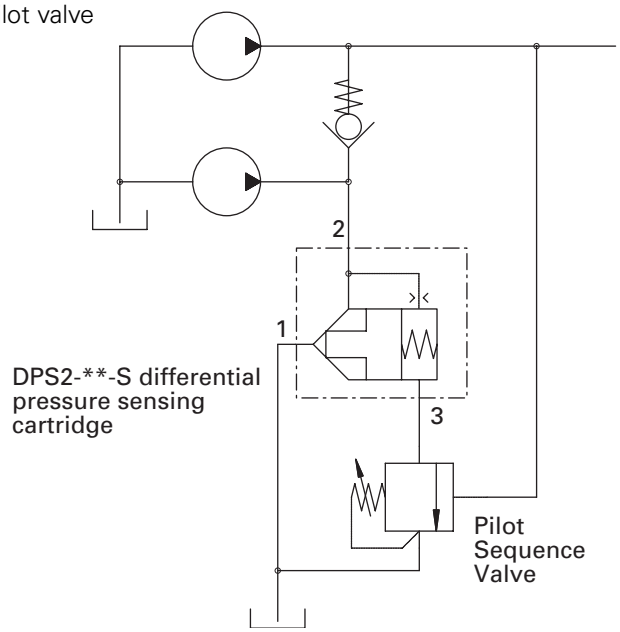
Acculator charging with PUV3-10 pilot stage



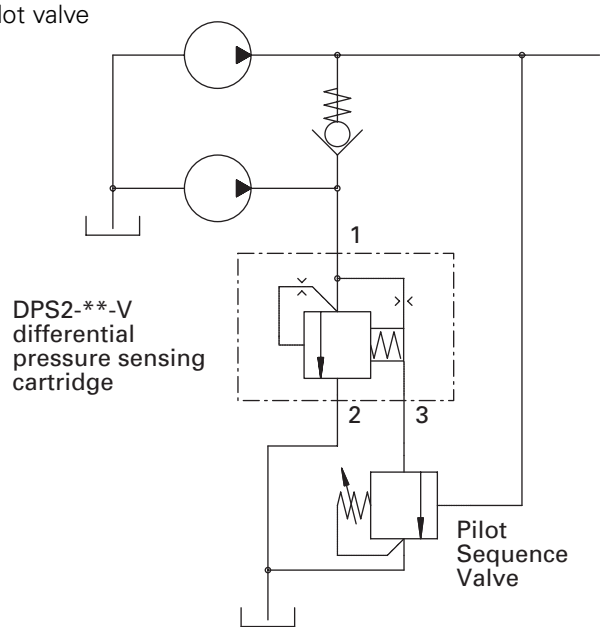
Pressure reducing and relieving



Hi/Low unloading circuit with externally piloted pressure sequence pilot valve



Hi/Low unloading circuit with externally piloted pressure sequence pilot valve



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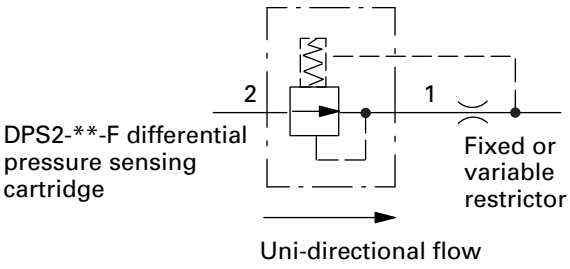
Application Examples

DPS2 Elements for flow control

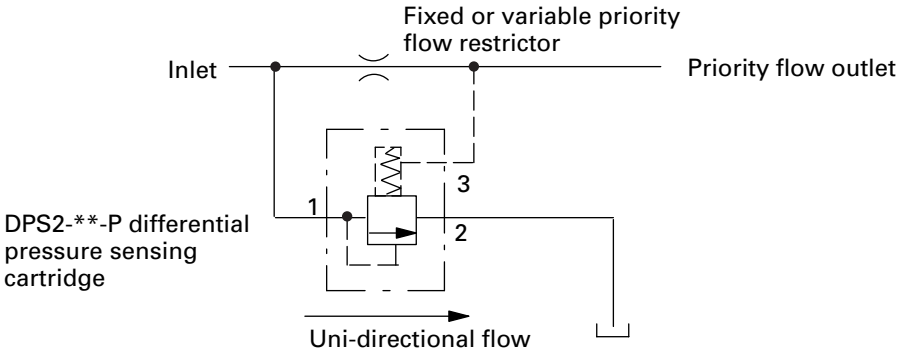
Pressure compensated flow control example

With downstream fixed or variable restrictor



Pressure compensated priority flow control example

With fixed or variable priority flow control

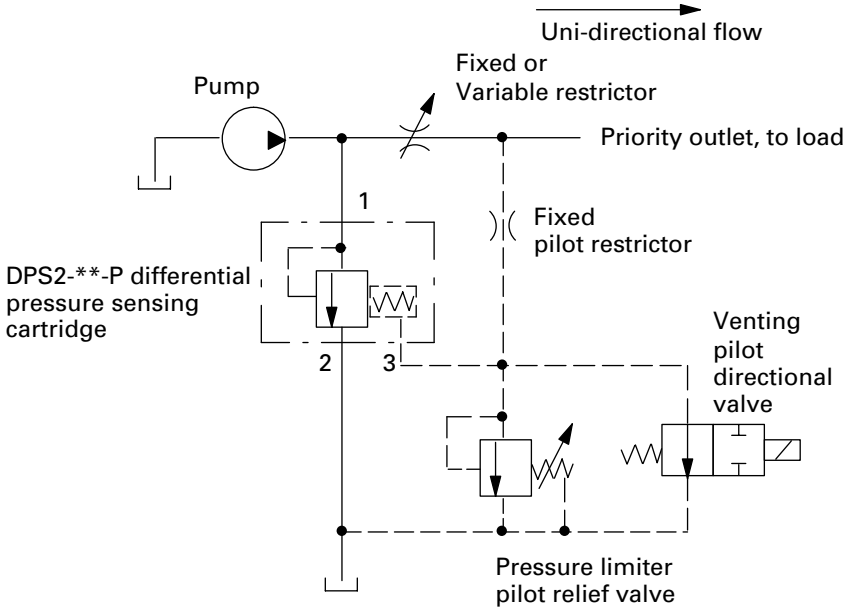


Application Examples

PPS2 Elements for flow control

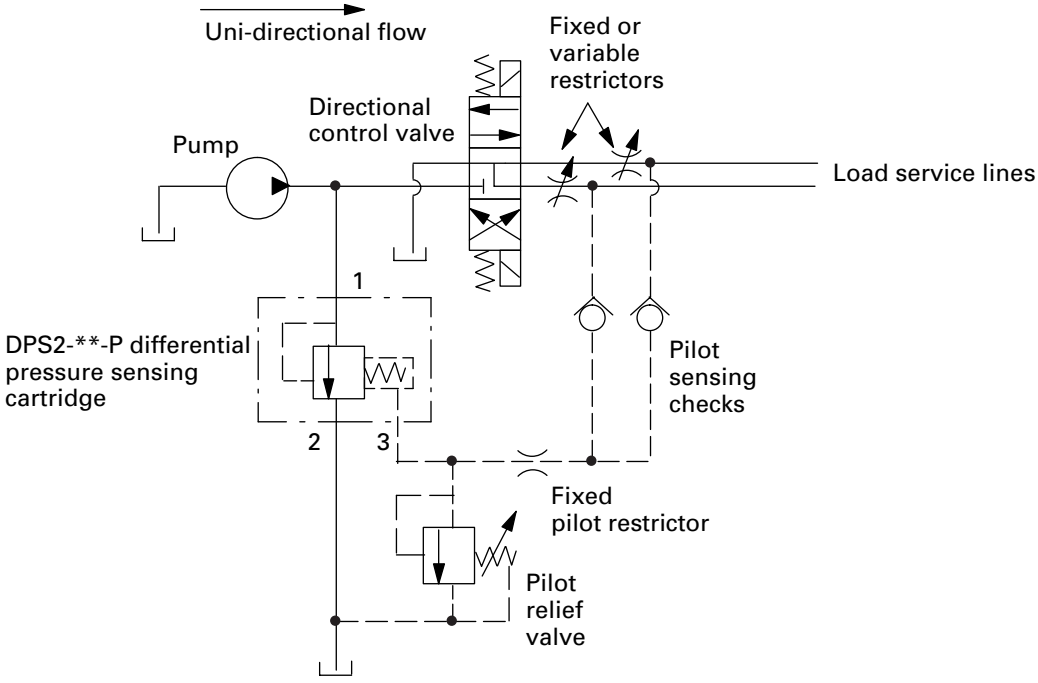
Load sensing priority flow control example

With pressure limiting and venting



Load sensing priority flow control example

Directional control version with pressure limiter



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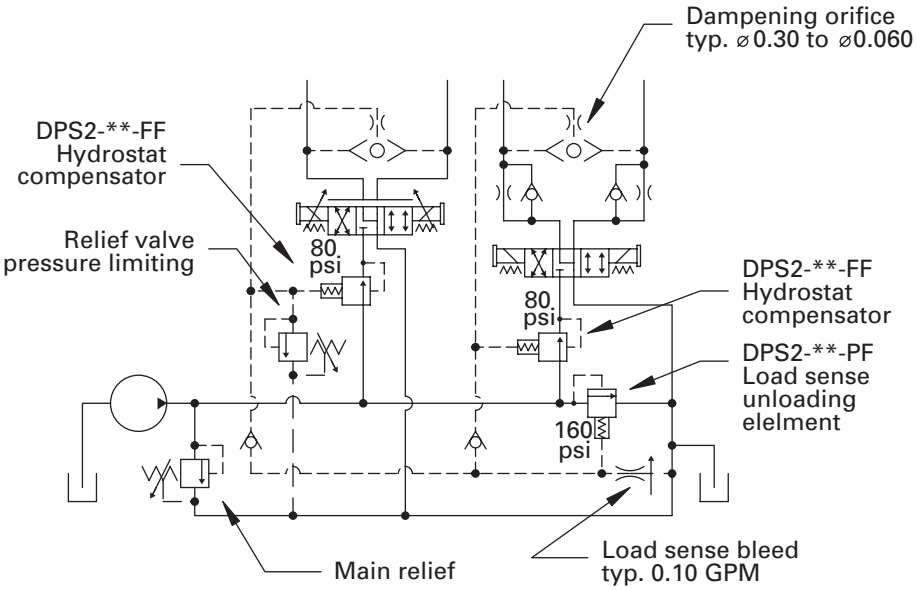
Application Examples

PPS2 Elements for flow control

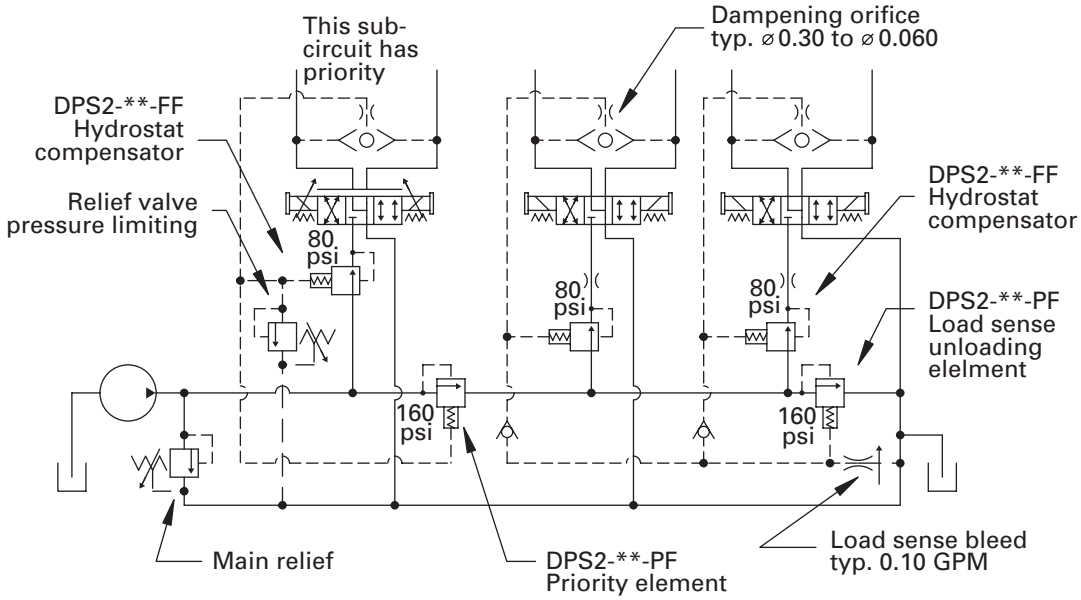
Load sense circuit example

For parallel operation



Load sense circuit example

For priority and parallel operation



Note

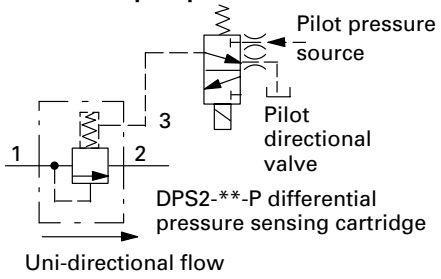
1. Pressure limiting relief must be < main relief setting.
2. If pressure limiting is not used; port reliefs set < main relief are required.

Application Examples

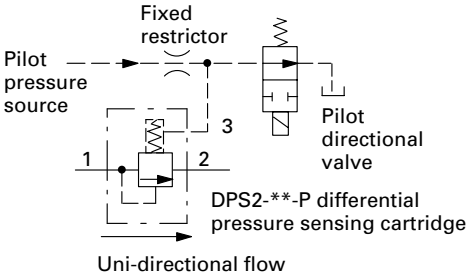
DPS2 Elements for directional control

Two-way, two-position, normally open examples

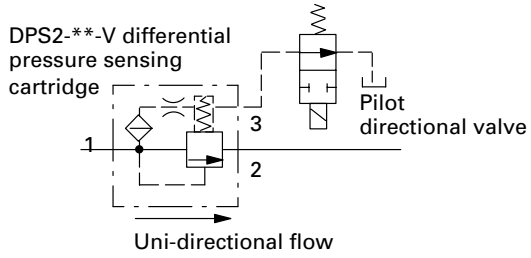
Switched by 3-way, 2-position pilot valve and external pilot pressure



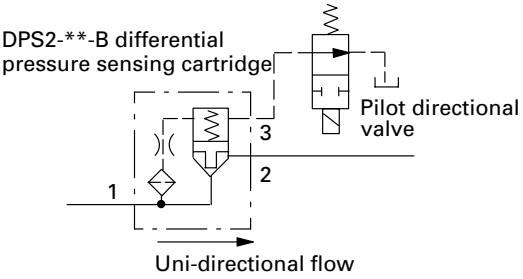
Switched by external pilot pressure and vented through 2-way , 2-position pilot valve



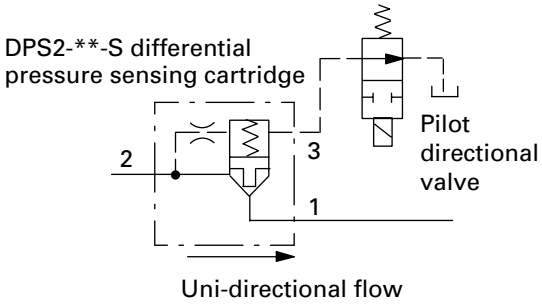
With DPS2--V cartridge and internal pilot supply & vented through 2-way,2 position pilot valve**



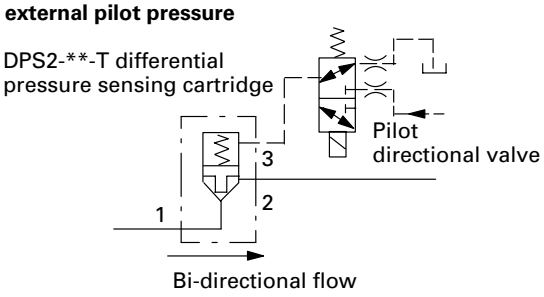
With DPS2--B cartridge and internal pilot supply & vented through 2-way,2 position pilot valve**



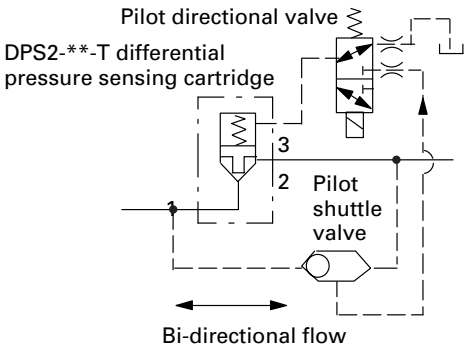
With DPS2--S cartridge and internal pilot supply & vented through 2-way,2 position pilot valve**



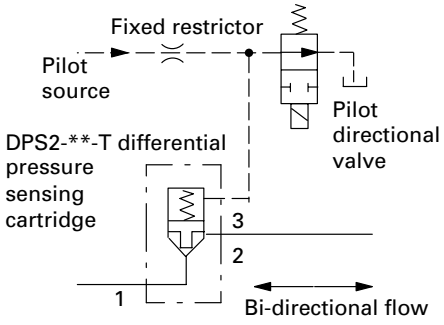
With DPS2--T cartridge and internal pilot supply & swithed by 3-way, 2 position pilot valve and external pilot pressure**



With DPS2--T cartridge and internal shuttle-selected pilot supply**



With DPS2--T cartridge, external pilot supply and two-way two-position pilot valve**



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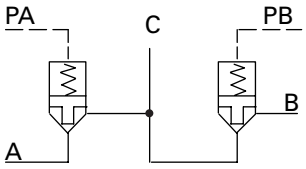
Application Examples

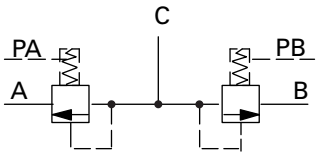
DPS2 Elements for directional control

Three-way bridge circuits



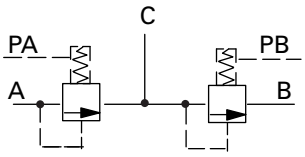
Example 1, with DPS2--T**

Poppet type



Example 2, with DPS2--P**

Spool type



Example 3, with DPS2--P**

Spool type

REQUIRED FLOW PATH	PILOT PRESSURE TO		AVAILABLE FROM FORM		
	PA	PB	1	2	3
A B C	0	0	Yes	Yes	No
	1	0	Yes	Yes	Yes

REQUIRED FLOW PATH	PILOT PRESSURE TO		AVAILABLE FROM FORM		
	PA	PB	1	2	3
	0	1	Yes	Yes	No
	1	1	Yes	Yes	Yes

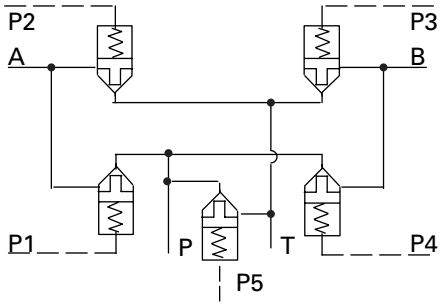
1- Pressure applied 0- Pressure vented

Note
Pilot pressure, modified by valve area ratio (if any), must exceed load pressure at valve in order to close valve.

Application Examples

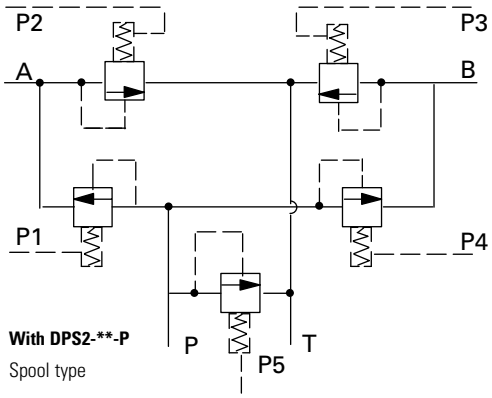
DPS2 Elements for directional control

Four-way bridge circuits



With DPS2--T**

Poppet type



With DPS2--P**

Spool type

REQUIRED FLOW PATH	PILOT PRESSURE TO P1	P2	P3	P4	P5	REQUIRED FLOW PATH	PILOT PRESSURE TO P1	P2	P3	P4	P5
A B P T	1	1	1	1	1		1	1	0	1	1
	0	0	0	0	0		0	1	1	1	1
	1	1	0	0	0		0	1	0	1	1
	0	0	1	1	0		1	0	1	0	1
	1	1	1	1	0		1	1	1	0	1
	1	0	0	1	1		1	0	1	1	1
	0	1	1	0	1						

1-Pressure applied 0-Pressure vented

Note
Pilot pressure, modified by valve area ratio (if any), must exceed load pressure at valve in order to close valve.

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DPS2-10

Differential pressure sensing valve

Description

The DPS2-10 is a differential pressure sensing valve, available as either a spool or poppet type and with either, internal or external pilot.

Operation

This valve is used as a main section of a pilot controlled valve assembly. This valve has multiple uses when used with either directional control, flow control or pressure control cartridges. Refer to application examples.

Functional Symbols

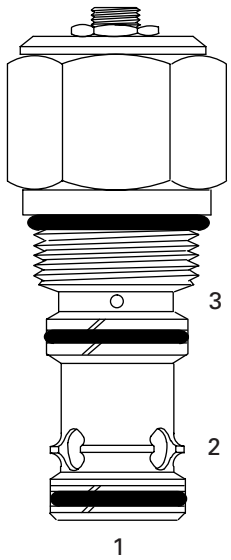
See pages I-18 & I-19

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49˚C (120˚F)	
Typical application pressure (spool type) (poppet type)	290 bar (4200 psi) 350 bar (5000 psi)**
Rated flow	60 L/min (15 USgpm)
Pilot ratio (spool type P,V,R,F) (poppet type B,S,T)	1:1 2:1
Internal leakage, poppet type	Port 1 to 2: < 5 drops/min max @ 350 bar (5000 psi)
Internal leakage, spool type	82 cm ^{3}/min. (5 in ^{3}/min) max @ 290 bar (4200 psi)
Temperature range	-40° to 120° C (-40° to 248° F)
Cavity	C-10-3S
Standard housing materials	Aluminum
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, 14 kg (0.30 lbs)
Seal kits	889650 Buna-N 889652 Viton®

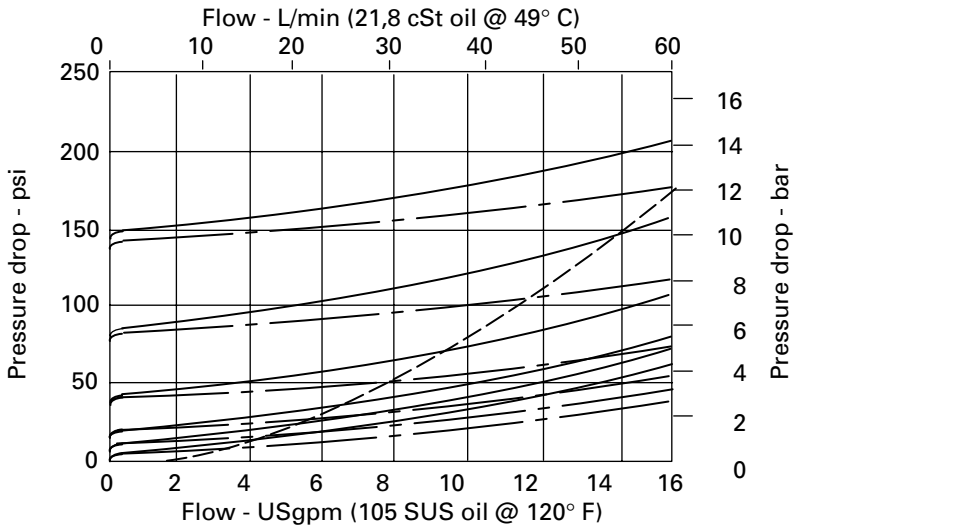
Viton is a registered trademark of E.I. DuPont

Profile View



Pressure Drop Curves

Cartridge only



DPS2 – 10 (V) – *– *– **– *– **

1 2 3 4 5 6 7 8

1 Function
DPS2 – Differential pressure sensing

2 Size
10 – 10 Size

3 Seals
Blank – Buna-N
V – Viton

4 Function
B – Poppet, vent to open, N/C
S – Poppet, vent to open, N/C
T – Poppet, bi-directional, pilot to close, 2:1 ratio, N/C
P – Spool, N/C (L/S element)
V – Spool, N/C
R – Spool, pressure reducing, N/O
F – Spool, flow control, N/O (hydrostat)

5 Stroke adjustment
F – None (Fixed stroke)
S – Screw adjustment
Screw adjustment is not available with F and R functions.

6 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER
		Aluminum
3B	3/8" BSPP	02–175470*
6T	SAE 6	566413*
6H	SAE 6	876706
8H	SAE 8	876712
2G	1/4" BSPP	876707
3G	3/8" BSPP	876710

* Light duty housing

See section J for housing details.

7 Differential pressure
5 – 0,35 bar (5 psi)+ ■
10 – 0,7 bar (10 psi)+ ■
20 – 1,40 bar (20 psi)+ ■
40 – 2,80 bar (40 psi)
80 – 5,50 bar (80 psi)
160 – 11,0 bar (160 psi)

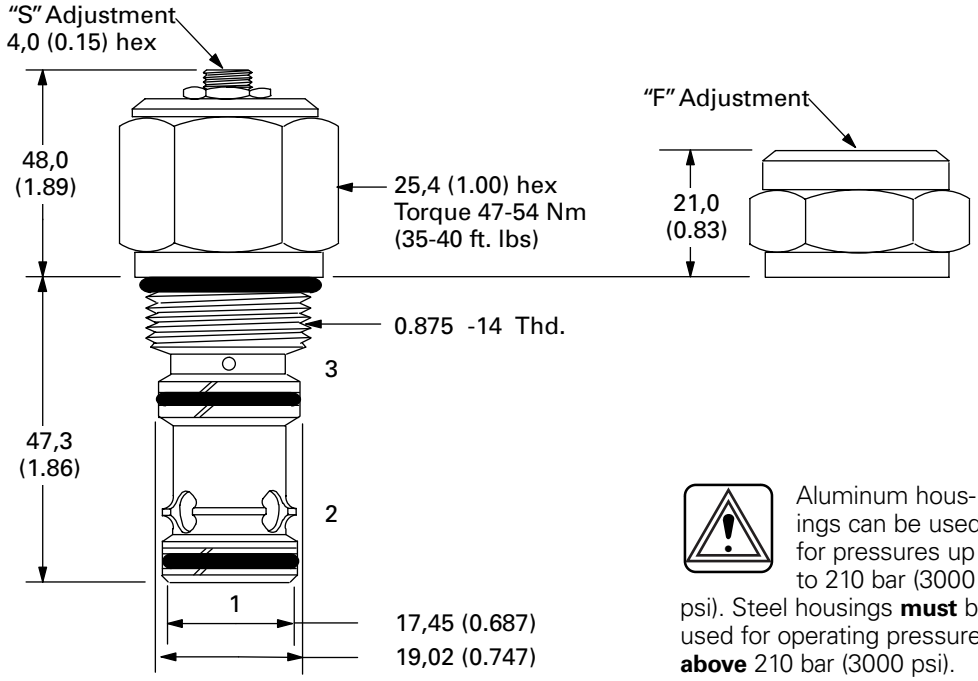
+ Not available with the "B", "S" and "T" poppet.
■ The operating back pressure at port 3 should never be less than 1.3 times the spring set pressure.

8 Special features
00 - 210 bar (3000 psi) rated valve
AA - 350 bar (5000 psi) rated valve (poppet type only) (Only required if valve has special features, omit if 00)**

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).

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DPS2-16

Differential pressure sensing valve

Description

The DPS2-16 is a differential pressure sensing valve, available as either a spool or poppet type and with either, internal or external pilot.

Functional Symbols

See pages I-18 & I-19

Operation

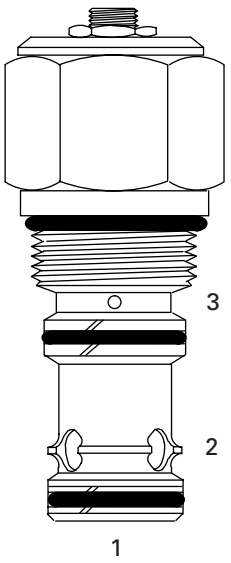
This valve is used as a main section of a pilot controlled valve assembly. This valve has multiple uses when used with either directional control, flow control or pressure control cartridges. Refer to application examples.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)	
Typical application pressure (spool type) (poppet type)	290 bar (4200 psi) 350 bar (5000 psi)**
Rated flow	189 L/min (50 USgpm)
Pilot ratio (spool type P,V,R,F) (poppet type B,S,T)	1:1 2:1
Internal leakage, poppet type	Port 1 to 2: < 5 drops/min. max @ 350 bar (5000 psi)
Internal leakage, spool type	82 cm ^{3}/min. (5 in ^{3}/min) max @ 290 bar (4200 psi)
Temperature range	-40° to 120° C (-40° to 248° F)
Cavity	C-16-3S
Standard housing materials	Aluminum
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, 35 kg (0.78 lbs)
Seal kits	889659 Buna-N 02-165871 Viton®

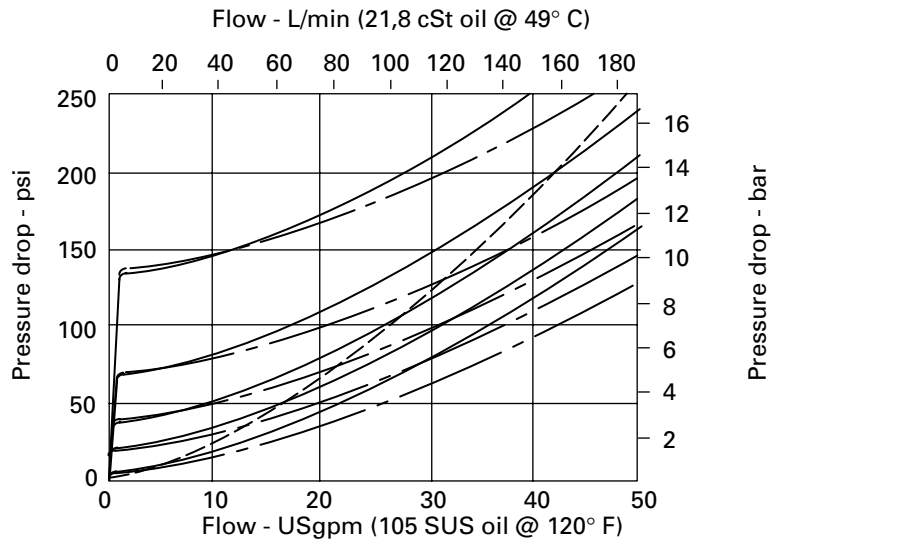
Viton is a registered trademark of E.I. DuPont

Profile View



Pressure Drop Curves

Cartridge only



DPS2 – 16 (V) – * – * – ** – * – **

1 2 3 4 5 6 7 8

1 Function

DPS2 – Differential pressure sensing

2 Size

16 – 16 Size

3 Seals

Blank – Buna-N
V – Viton

4 Function

B – Poppet, vent to open, N/C
S – Poppet, vent to open, N/C
T – Poppet, bi-directional, pilot to close, 2:1 ratio, N/C
P – Spool, N/C (L/S element)
V – Spool, N/C
R – Spool, pressure reducing, N/O
F – Spool, flow control, N/O (hydrostat)

5 Stroke adjustment

F – None (Fixed stroke)
S – Screw adjustment
Screw adjustment is not available with F and R functions.

6 Port size

0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER
		Aluminum
4B	3/4" BSPP	02-175471*
12T	SAE 12	566414*
10H	SAE 10	876725
12H	SAE 12	876727
4G	1/2" BSPP	02-160676
6G	3/4" BSPP	876726

* Light duty housing

See section J for housing details.

7 Differential pressure

5 – 0,35 bar (5 psi)+ ■
20 – 1,40 bar (20 psi)+ ■
40 – 2,80 bar (40 psi)
80 – 5,50 bar (80 psi)
160 – 11,0 bar (160 psi)

+ Not available with the "B" and "S", "T" poppet
■ The operating back pressure at port 3 should never be less than 1.3 times the spring set pressure

8 Special features

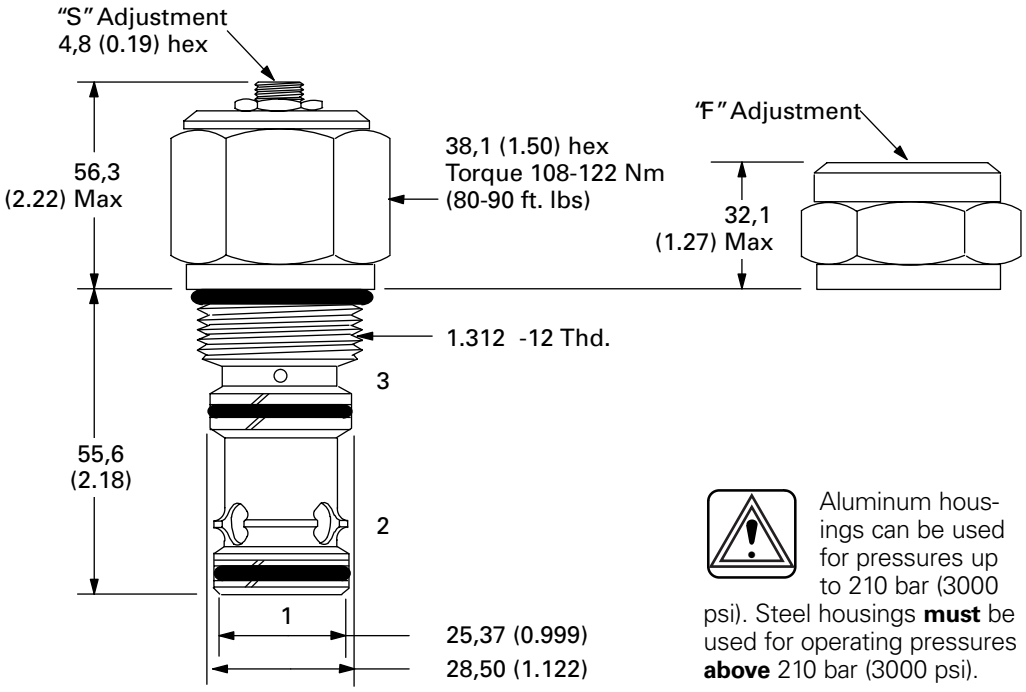
00 - 210 bar (3000 psi) rated valve

AA - 350 bar (5000 psi) rated valve (poppet type only) (Only required if valve has special features, omit if 00)**

Dimensions

mm (inch)

Torque cartridge in 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).

DPS2-20

Differential pressure sensing valve

Description

The DPS2-20 is a differential pressure sensing valve, available as either a spool or poppet type and with either, internal or external pilot.

Operation

This valve is used as a main section of a pilot controlled valve assembly. This valve has multiple uses when used with either directional control, flow control or pressure control cartridges. Refer to application examples.

RATINGS AND SPECIFICATIONS

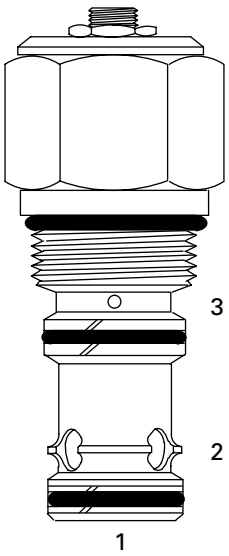
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)	
Typical application pressure (spool type) (poppet type)	290 bar (4200 psi) 350 bar (5000 psi)**
Rated flow	303 L/min (80 USgpm)
Pilot ratio (spool type P,V,R,F) (poppet type B,S,T)	1:1 2:1
Internal leakage, poppet type	Port 1 to 2: < 5 drops/min max @ 350 bar (5000 psi)
Internal leakage, spool type	82 cm ^{3}/min (5 in ^{3}/min) max @ 290 bar (4200 psi)
Temperature range	-40° to 120° C (-40° to 248° F)
Cavity	C-20-3S
Standard housing materials	Aluminum
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, 81 kg (1.78 lbs)
Seal kits	02-113153 Buna-N 02-112969 Viton®

Viton is a registered trademark of E.I. DuPont

Functional Symbols

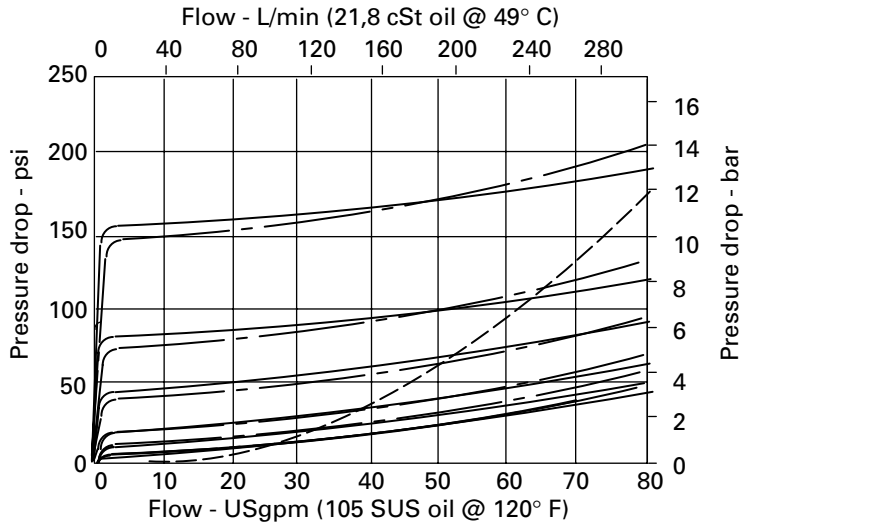
See pages I-18 & I-19

Profile View



Pressure Drop Curves

Cartridge only



DPS2 – 20 (V) – *– *– **– *– **

1 2 3 4 5 6 7 8

1 Function
DPS2 – Differential pressure sensing

2 Size
20 – 20 Size

3 Seals
Blank – Buna-N
V – Viton

4 Function
B – Poppet, vent to open, N/C
S – Poppet, vent to open, N/C
T – Poppet, bi-directional, pilot to close, 2:1 ratio, N/C
P – Spool, N/C (L/S element)
V – Spool, N/C
R – Spool, pressure reducing, N/O
F – Spool, flow control, N/O (hydrostat)

5 Stroke adjustment
F – None (Fixed stroke)
S – Screw adjustment
Screw adjustment is not available with F and R functions.

6 Port size
0 – Cartridge only

CODE	PORT SIZE	HOUSING NUMBER
		Aluminum
8B	1" BSPP	02-175472*
16T	SAE 16	566415*
12H	SAE 12	876741
16H	SAE 16	876743
6G	3/4" BSPP	876740
8G	1" BSPP	876742

* Light duty housing

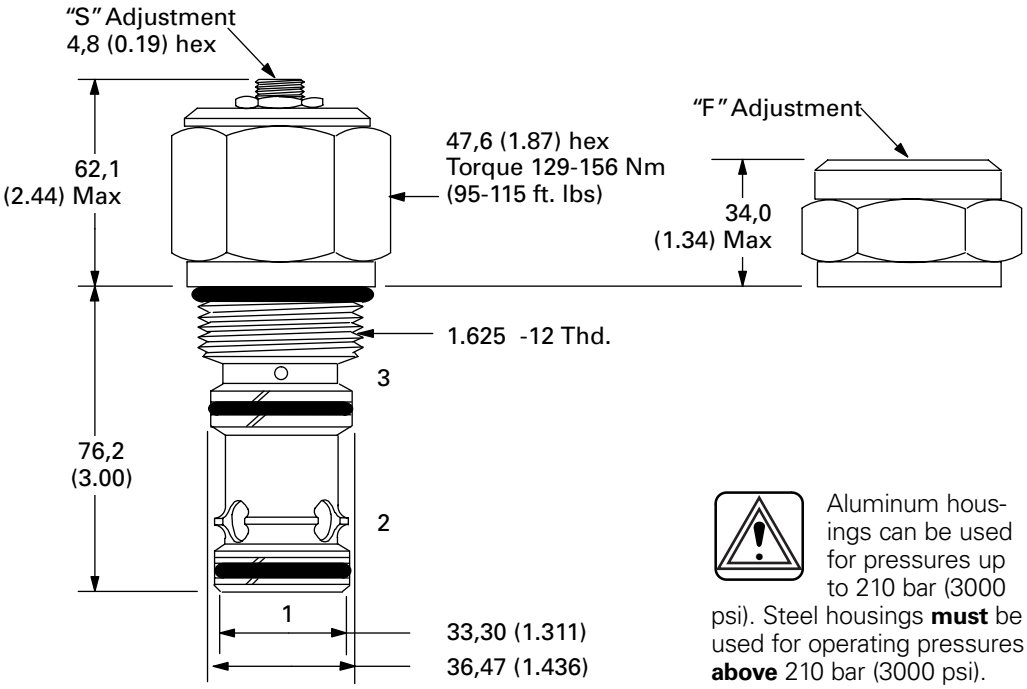
See section J for housing details.

7 Differential pressure
5 – 0,35 bar (5 psi)+ ■
10 – 0,7 bar (10 psi)+ ■
20 – 1,40 bar (20 psi)+ ■
40 – 2,80 bar (40 psi)
80 – 5,50 bar (80 psi)
160 – 11,0 bar (160 psi)

+ Not available with the "B" and "S", "T" poppet
■ The operating back pressure at port 3 should never be less than 1.3 times the spring set pressure

8 Special features
00 - 210 bar (3000 psi) rated valve
AA - 350 bar (5000 psi) rated valve (poppet type only) (Only required if valve has special features, omit if 00)**

Dimensions
mm(inch)



Torque cartridge in housing
A – 128-155 Nm (95-115 ft. lbs)
S – 163-183 Nm (120-135 ft. lbs)

Note

For application at 350 bar (5000 psi) torque into steel housing to 205 - 218 Nm (150 - 160 ft. lbs) (for valves with "AA" special feature only)

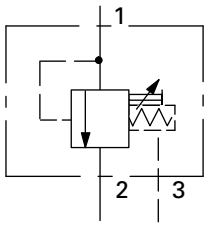
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

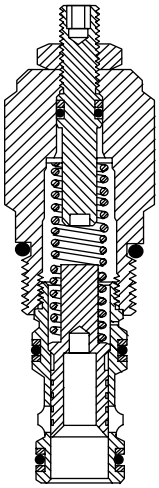
I

DPS2

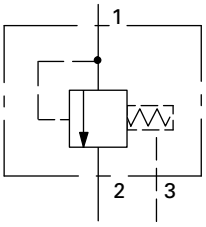
Spool type functional symbols

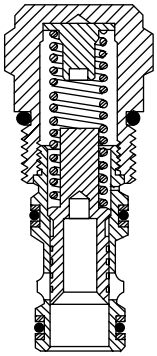
DPS2--P-S**



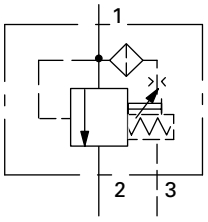


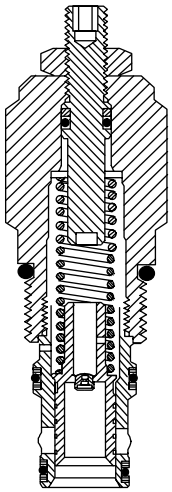
DPS2--P-F**



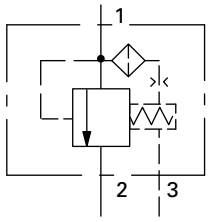


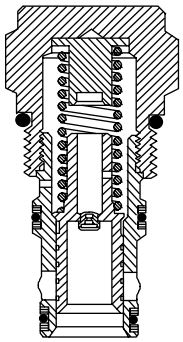
DPS2--V-S**



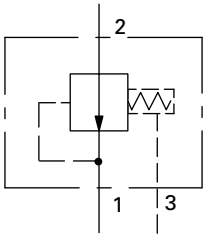


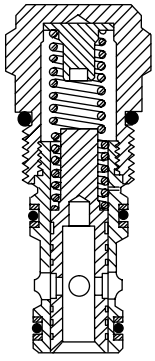
DPS2--V-F**



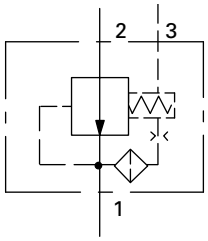


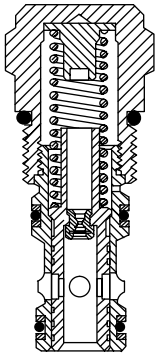
DPS2--F-F**





DPS2--R-F**

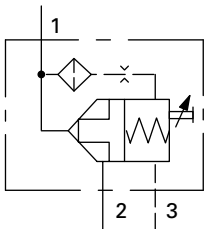


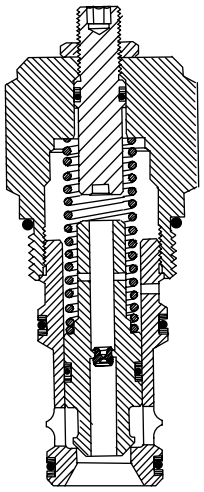


DPS2

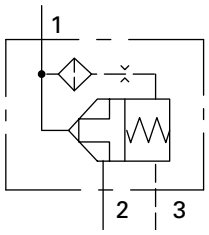
Poppet type functional symbols

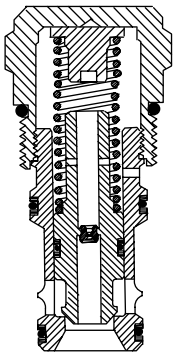
DPS2--B-S**



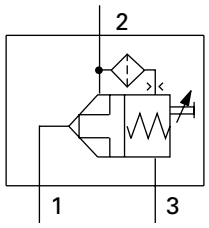


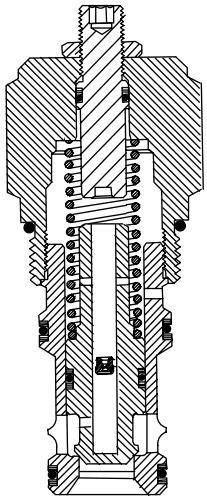
DPS2--B-F**



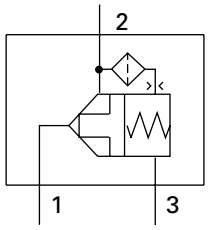


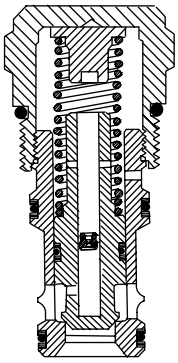
DPS2--S-S**



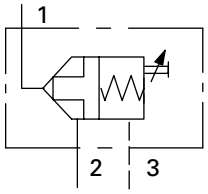


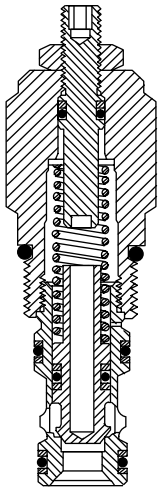
DPS2--S-F**



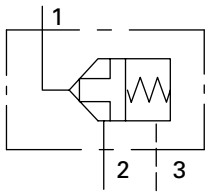


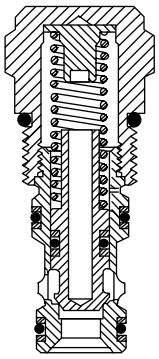
DPS2--T-S**





DPS2--T-F**





I

PCS3-10

Pressure compensator

Description

The PCS3-10 is a screw-in, pressure compensator cartridge.

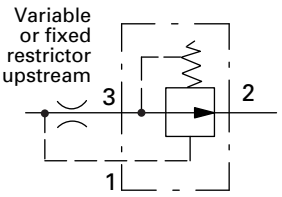
Operation

This valve, when used with either a fixed or variable orifice between port 1 and port 3, maintains a constant flow. This is based on what ever pressure differential is chosen. Flow out of port 2, regardless of pressure, changes downstream on port 2.

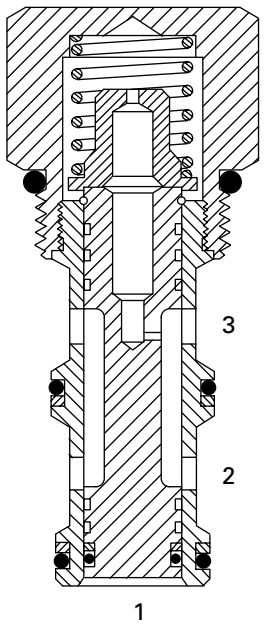
RATINGS AND SPECIFICATIONS

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	38 L/min (10 USgpm)
Cavity	C–10–3
Standard housing materials	Customized housings are necessary for close-coupling, the compensator and orifice
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	0,12 kg (0.26 lbs)
Seal kits	565812 Buna-N 889611 Viton® Viton is a registered trademark of E.I. DuPont

Functional Symbols



Sectional View



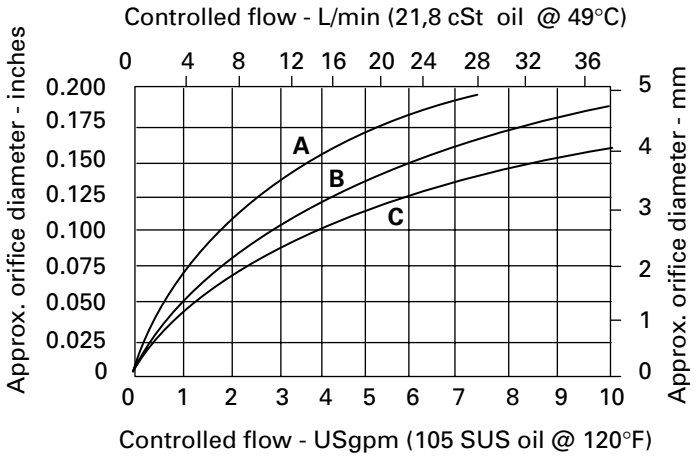
Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)

C – 11,0 bar (160 psi) (control ΔP)



PCS3 – 10 (V) – * – (S) – * – 00**

1 2 3 4 5 6 7

1 Function
PCS3 – Pressure compensator restrictive type

2 Size
10 – 10 Size

3 Seals
Blank – Buna-N
V – Viton

4 Port size
0 – Cartridge only
(Customized housings are necessary for close-coupling, compensator and orifice)

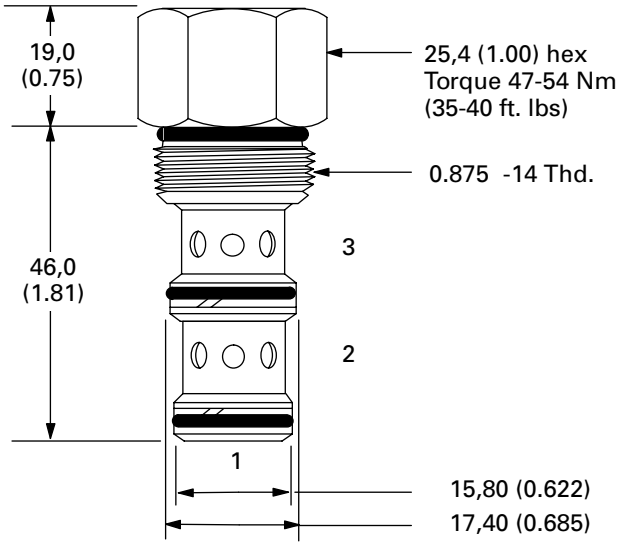
5 Spool seals
Blank – No seal on spool.
S – Seal on spool.
(For load holding applications where leakage from port 1 to 2 could cause cylinder drift, use of seal will increase hysteresis)

6 Pressure differential (nominal)
40 – 2,8 bar (40 psi)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

7 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 47-54 Nm (35-40 ft. lbs)



I

PCS3-16

Pressure compensator

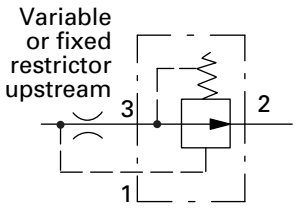
Description

The PCS3-16 is a screw-in, pressure compensator cartridge.

Operation

This valve, when used with either a fixed or variable orifice between port 1 and port 3, maintains a constant flow. This is based on whatever pressure differential is chosen. Flow out of port 2, regardless of pressure, changes downstream on port 2.

Functional Symbols

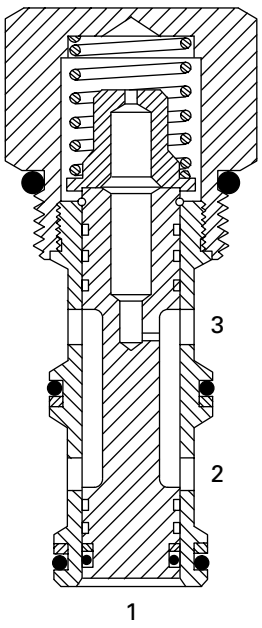


RATINGS AND SPECIFICATIONS

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	114 L/min (30 USgpm)
Cavity	C–16–3
Standard housing materials	Customized housings are necessary for close-coupling the compensator and orifice
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	0,38 kg (0.84 lbs)
Seal kits	565811 Buna-N 889610 Viton®

Viton is a registered trademark of E.I. DuPont

Sectional View



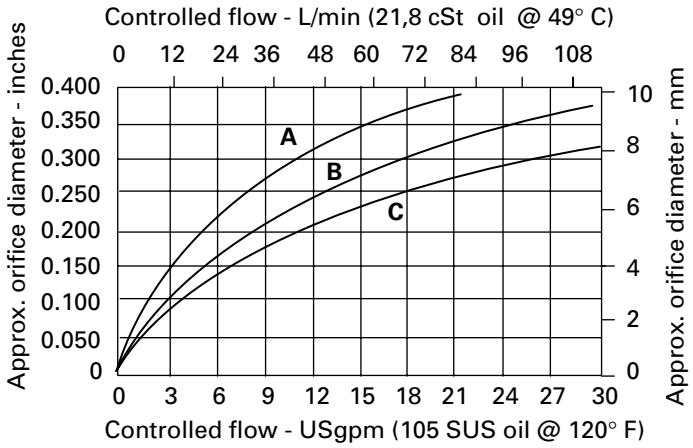
Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)

C – 11,0 bar (160 psi) (control ΔP)



PCS3 – 16 (V) – * – (S) – * – 00**

1 2 3 4 5 6 7

1 Function
PCS3 – Pressure compensator restrictive type

2 Size
16 – 16 Size

3 Seals
Blank – Buna-N
V – Viton

4 Port size
0 – Cartridge only
(Customized housings are necessary for close-coupling, compensator and orifice)

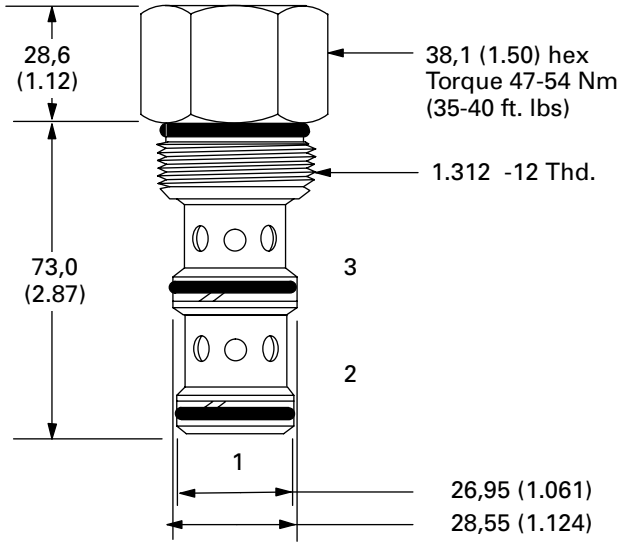
5 Spool seals
Blank – No seal on spool
S – Seal on spool
(For load holding applications where leakage from port 1 to 2 could cause cylinder drift, use of seal will increase hysteresis)

6 Pressure differential (nominal)
40 – 2,8 bar (40 psi)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

7 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 108-122 Nm (80-90 ft. lbs)



I

PCS3-20

Pressure compensator

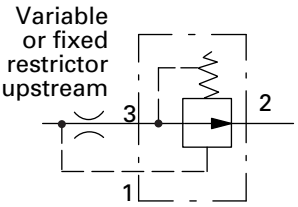
Description

The PCS3-20 is a screw-in, pressure compensator cartridge.

Operation

This valve, when used with either a fixed or variable orifice between port 1 and port 3, maintains a constant flow. This is based on whatever pressure differential is chosen. Flow out of port 2, regardless of pressure, changes downstream on port 2.

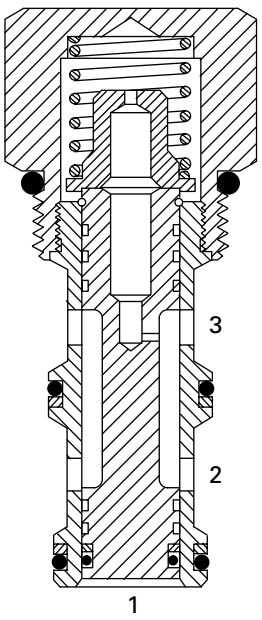
Functional Symbols



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	189 L/min (50 USgpm)
Cavity	C–20–3
Standard housing materials	Customized housings are necessary for close-coupling the compensator and orifice
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	0,88 kg (1.94 lbs)
Seal kits	889616 Buna-N 02-175433 Viton® Viton is a registered trademark of E.I. DuPont

Sectional View

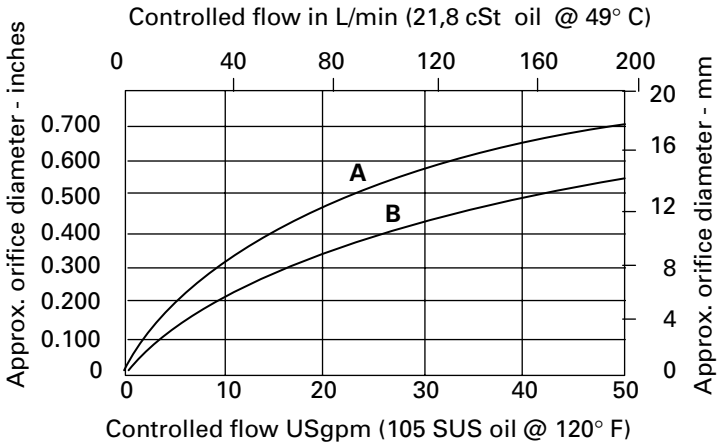


Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)



PCS3 – 20 (V) – * – (S) – * – 00**

1 2 3 4 5 6 7

1 Function
PCS3 – Pressure compensator restrictive type

2 Size
20 – 20 Size

3 Seals
Blank – Buna-N
V – Viton

4 Port size
0 – Cartridge only
(Customized housings are necessary for close-coupling, compensator and orifice)

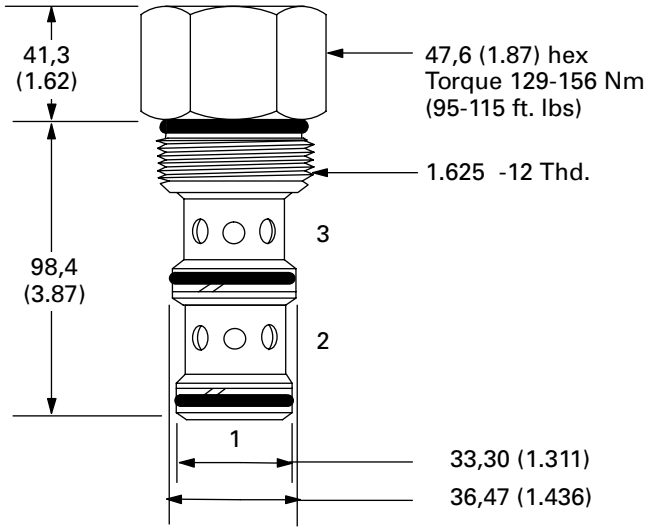
5 Spool seals
Blank – No seal on spool
S – Seal on spool.
(For load holding applications where leakage from port 1 to 2 could cause cylinder drift, use of seal will increase hysteresis)

6 Pressure differential (nominal)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

7 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 128-155 Nm (95-115 ft. lbs)



I

PCS4-10

Pressure compensator

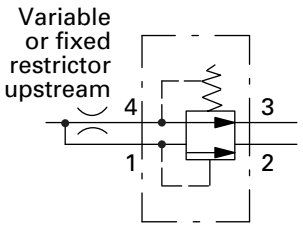
Description

The PCS4-10 is a screw-in, pressure compensator cartridge for the use as a bypass or priority flow control.

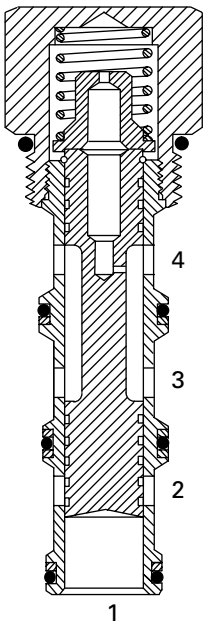
Operation

This valve, when used with either a fixed or variable orifice on port 4, maintains a constant flow out port 3, regardless of pressure changes downstream of port 3. This is based on whatever pressure differential is chosen. All flow in excess of the priority requirement is bypassed from port 1 to port 2. If the priority port is deadheaded, the valve will try to direct flow out of the priority port and shut off the bypass flow, blocking of all flow.

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)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	38 L/min (10 USgpm)
Cavity	C–10–4
Standard housing materials	Customized housings are necessary for close-coupling the compensator and orifice
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	0,14 kg (0.32 lbs)
Seal kits	889651 Buna-N 889653 Viton® Viton is a registered trademark of E.I. DuPont

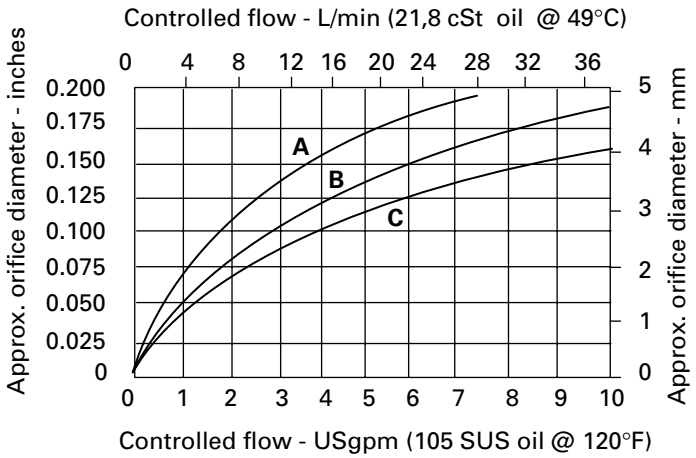
Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)

C – 11,0 bar (160 psi) (control ΔP)



PCS4 – 10 (V) – * – * – 00**

1 2 3 4 5 6

1 Function
PCS4 – Pressure compensator bypass type

2 Size
10 – 10 Size

3 Seals
Blank – Buna-N
V – Viton

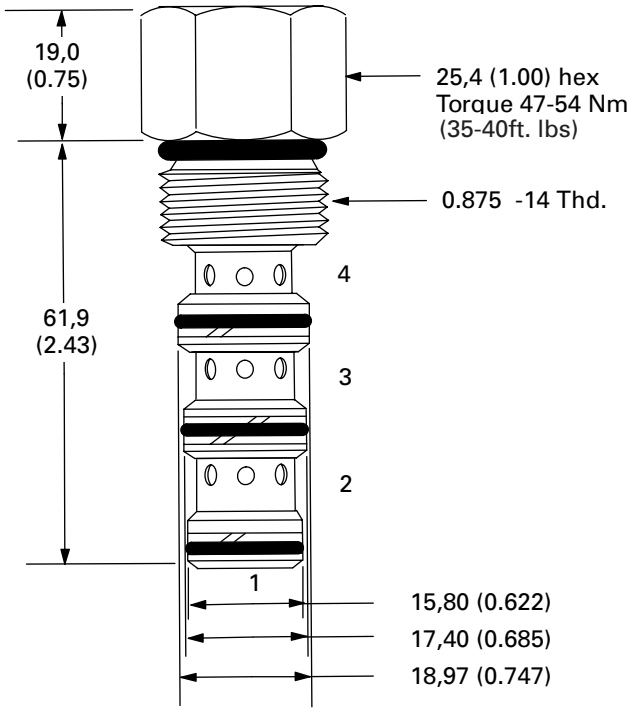
4 Port size
0 – Cartridge only
Customized housings are necessary for close-coupling, compensator and orifice

5 Pressure differential (nominal)
40 – 2,8 bar (40 psi)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

6 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 47-54 Nm (35-40 ft. lbs)



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PCS4-16

Pressure compensator

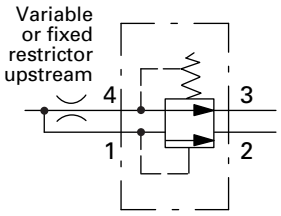
Description

The PCS4-16 is a screw-in, pressure compensator cartridge for the use as a bypass or priority flow control.

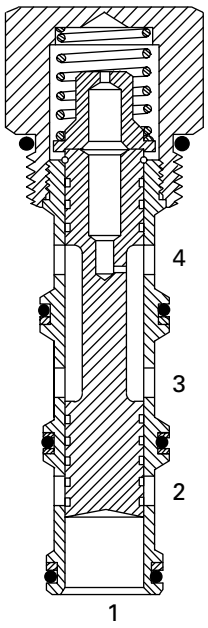
Operation

This valve, when used with either a fixed or variable orifice on port 4, maintains a constant flow out port 3, regardless of pressure changes downstream of port 3. This is based on whatever pressure differential is chosen. All flow in excess of the priority requirement is bypassed from port 1 to port 2. If the priority port is deadheaded, the valve will try to direct flow out of the priority port and shut off the bypass flow, blocking of all flow.

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)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	114 L/min (30 USgpm)
Cavity	C–16–4
Standard housing materials	Customized housings are necessary for close-coupling, the compensator and orifice
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	0,50 kg (1.12 lbs)
Seal kits	889660 Buna-N 02-175435 Viton® Viton is a registered trademark of E.I. DuPont

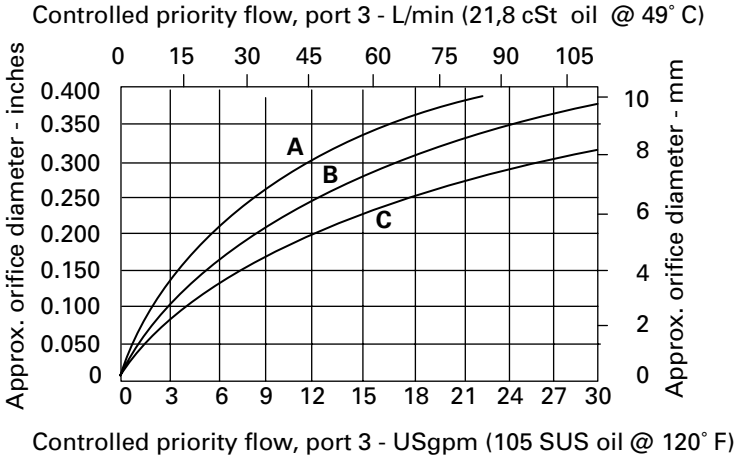
Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)

C – 11,0 bar (160 psi) (control ΔP)



PCS4 – 16 (V) – * – * – 00**

1 2 3 4 5 6

1 Function
PCS4 – Pressure compensator, bypass type

2 Size
16 – 16 Size

3 Seals
Blank – Buna-N
V – Viton

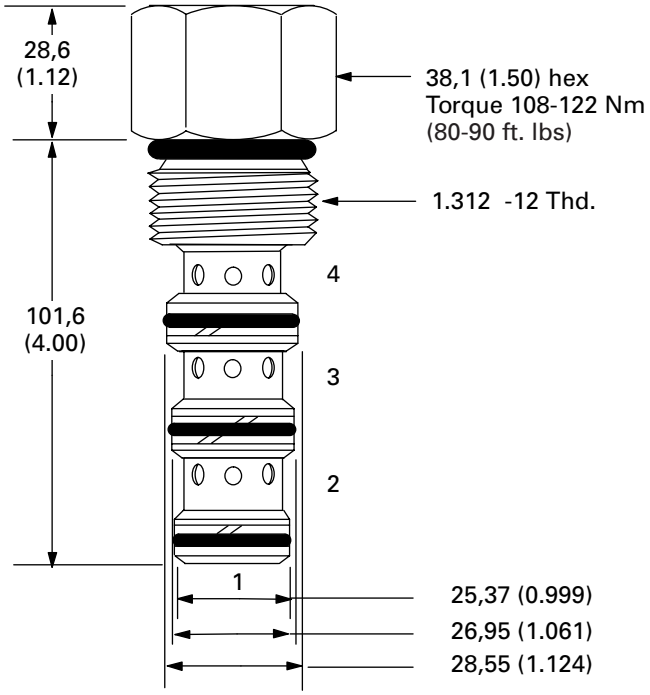
4 Port size
0 – Cartridge only
(Customized housings are necessary for close-coupling, compensator and orifice

5 Pressure differential (nominal)
40 – 2,8 bar (40 psi)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

6 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 108-122 Nm (80-90 ft. lbs)



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PCS4-20

Pressure compensator

Description

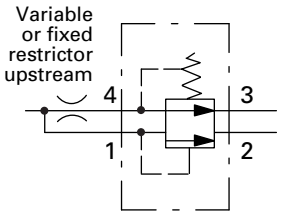
The PCS4-20 is a screw-in, pressure compensator cartridge for the use as a bypass or priority flow control.

Operation

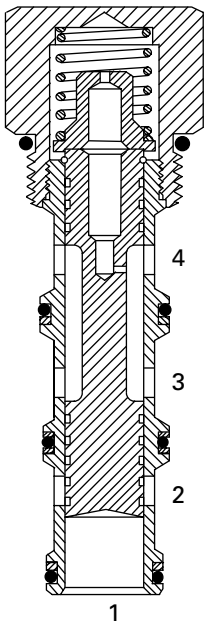
This valve, when used with either a fixed or variable orifice on port 4, maintains a constant flow out port 3, regardless of pressure changes downstream of port 3. This is based on whatever pressure differential is chosen. All flow in excess of the priority requirement is bypassed from port 1 to port 2.

If the priority port is dead-headed, the valve will try to direct flow out of the priority port and shut off the bypass flow, blocking of all flow.

Functional Symbols



Sectional View



RATINGS AND SPECIFICATIONS

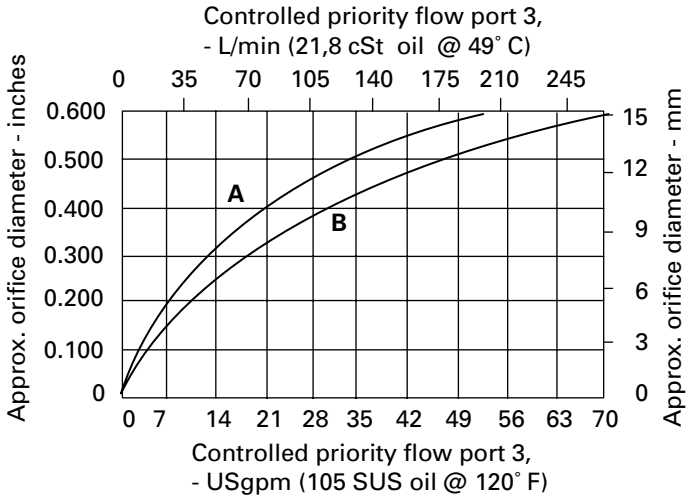
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49˚C (120˚F)	
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	189 L/min (50 USgpm)
Cavity	C–20–4
Standard housing materials	Customized housings are necessary for close-coupling, the compensator and orifice
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	0,50 kg (1.12 lbs)
Seal kits	889660 Buna-N 02-175435 Viton® Viton is a registered trademark of E.I. DuPont

Performance Characteristics

Cartridge only

A – 2,8 bar (40 psi) (control ΔP)

B – 5,5 bar (80 psi) (control ΔP)



PCS4 – 20 (V) – * – * – 00**

1 2 3 4 5 6

1 Function
PCS4 – Pressure compensator, bypass type

2 Size
20 – 20 Size

3 Seals
Blank – Buna-N
V – Viton

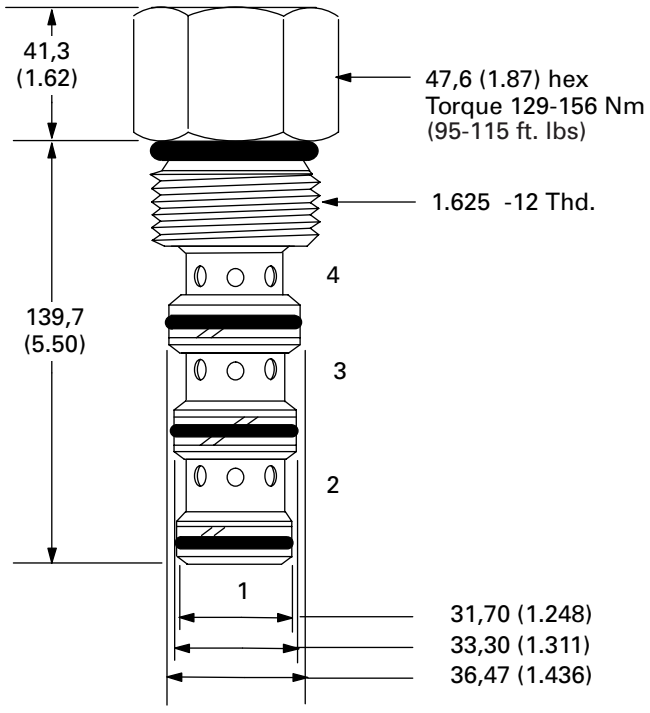
4 Port size
0 – Cartridge only
(Customized housings are necessary for close-coupling, compensator and orifice

5 Pressure differential (nominal)
80 – 5,5 bar (80 psi)
160 – 11,0 bar (160 psi)

6 Special features
00 – None
(Only required if valve has special features, omit if 00)

Dimensions
mm (inch)

Torque into aluminum housing to 128-155 Nm (95-115 ft. lbs)



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