

# **Comatrol**

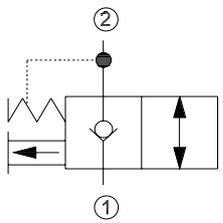
**RESPONSIVENESS IN MOTION**

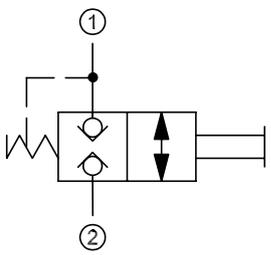
*Member of the Danfoss Group*

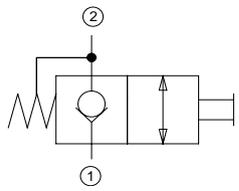


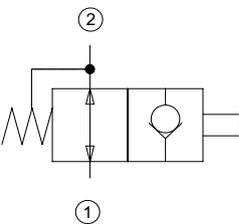
## **Directional Control Valves**

**[www.comatrol.com](http://www.comatrol.com)**

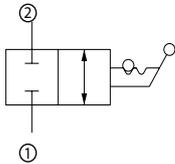
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP600-1	SDC10-2	Directional Mechanical, Poppet, Pull to Open	68 l/min [18 US gal/min]	207 bar [3000 psi]	DV - 10

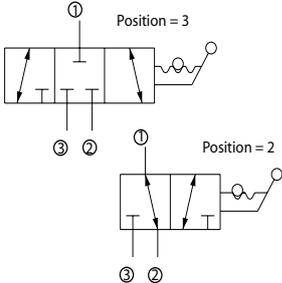
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	CE 06	NCS06/2	Directional Mechanical, Poppet, Push to Open	20 l/min [5 US gal/min]	207 bar [3000 psi]	DV - 11
	CP600-2	SDC10-2		50 l/min [13 US gal/min]	207 bar [3000 psi]	DV - 12

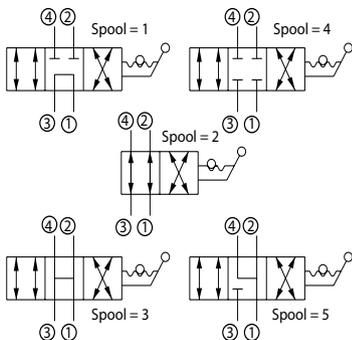
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	DMP08-NC	SDC08-2	Directional Mechanical, Poppet, Normally Closed	38 l/min [10 US gal/min]	207 bar [3000 psi]	DV - 13

Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	DMP08-NO	SDC08-2	Directional Mechanical, Poppet, Normally Open	38 l/min [10 US gal/min]	207 bar [3000 psi]	DV - 14

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

Manual Rotary Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP620-1	SDC10-2	Directional Manual, Rotary, 2-Position, 2-Way	75 l/min [20 US gal/min]	210 bar [3000 psi]	DV - 15

Manual Rotary Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP630-1	SDC10-3	Directional Manual, Rotary, 2-Position, 3-Way	30.3 l/min [8 US gal/min]	210 bar [3000 psi]	DV - 16

Manual Rotary Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP640-1	SDC10-4	Directional Manual, Rotary, 2-Position, 4-Way	10 l/min [3 US gal/min]	210 bar [3000 psi]	DV - 17

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

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP710-8	SDC10-4	Directional Control Valve, 2-Position, 2-Way	40 l/min [11 US gal/min]	210 bar [3000 psi]	DV - 18
	CP712-11	CP16-4		130 l/min [34 US gal/min]	450 bar [6500 psi]	DV - 19
	CP712-8	CP16-4		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 20

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP710-1	SDC10-3	Directional Control Valve, 2-Position, 2-Way, Atmospheric Vent	40 l/min [11 US gal/min]	210 bar [3000 psi]	DV - 21
	CP712-1	SDC16-3		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 22
	CP713-1	SDC20-3		265 l/min [70 US gal/min]	210 bar [3000 psi]	DV - 23

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP710-3	SDC10-3	Directional Control Valve, 2-Position, 2-Way, Hydraulic Vent	40 l/min [11 US gal/min]	210 bar [3000 psi]	DV - 24

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP710-2	SDC10-3	Directional Control Valve, 2-Position, 2-Way, External Pilot	40 l/min [11 US gal/min]	210 bar [3000 psi]	DV - 25
	CP712-2	SDC16-3		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 26
	CP713-2	SDC20-3		265 l/min [70 US gal/min]	210 bar [3000 psi]	DV - 27

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

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP720-1	SDC10-4	Directional Control Valve, 2-Position, 3-Way, Atmospheric Vent	30 l/min [8 US gal/min]	210 bar [3000 psi]	DV - 28
	CP722-1	CP16-4		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 29
	CP723-1	SDC20-4		265 l/min [70 US gal/min]	210 bar [3000 psi]	DV - 30

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP720-2	SDC10-4	Directional Control Valve, 2-Position, 3-Way, External Pilot	25 l/min [7 US gal/min]	210 bar [3000 psi]	DV - 31
	CP722-2	CP16-4		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 32
	CP723-2	SDC20-4		265 l/min [70 US gal/min]	210 bar [3000 psi]	DV - 33

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP720-5	SDC10-4	Directional Control Valve, 2-Position, 3-Way, Hydraulic Vent	40 l/min [11 US gal/min]	210 bar [3000 psi]	DV - 34
	CP722-11	CP16-4		125 l/min [33 US gal/min]	450 bar [6500 psi]	DV - 35
	CP722-5	CP16-4		130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 36
	CP723-5	SDC20-4		265 l/min [70 US gal/min]	210 bar [3000 psi]	DV - 37

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	DV15-P5-24-01	NCS 12/5	Directional Control Valve, 2-Position, 4-Way, Pilot Port 5	70 l/min [18.4 US gal/min]	230 bar [3335 psi]	DV - 38

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	DV15-P5-24-FD	NCS 12/5	Directional Control Valve, 2-Position, 4-Way, Fan Drive, Pilot Port 5	70 l/min [18.4 US gal/min]	230 bar [3335 psi]	DV - 40

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

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	DV15-P5-24-05	NCS 12/5	Directional Control Valve, 2-Position, 4-Way, Pilot Port 5	70 l/min [18.4 US gal/min]	230 bar [3335 psi]	DV - 42

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	DV15-P5-24-08	NCS 12/5	Directional Control Valve, 2-Position, 4-Way, Pilot Port 5	70 l/min [18.4 US gal/min]	230 bar [3335 psi]	DV - 44

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	DV16-P5-23-01	SDC16-5S	Directional Control Valve, 2-Position, 3-Way, Pilot Port 5	130 l/min [34 US gal/min]	210 bar [3000 psi]	DV - 46

Hydraulic Piloted	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP712-7	CP16-4	Directional Control Valve, Normally Closed/Open, Hydraulically Piloted, Proportional	220 l/min [58 US gal/min]	210 bar [3000 psi]	DV - 47

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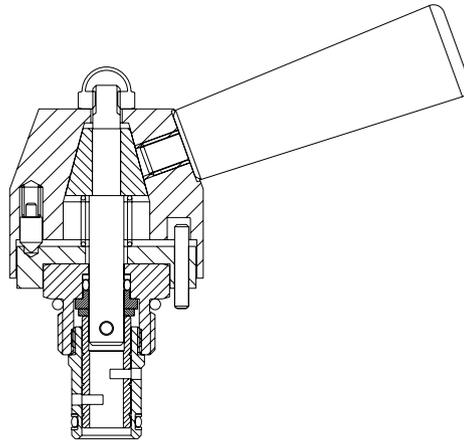
\* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

**TYPES OF DIRECTIONAL CONTROL VALVES**

Directional valves are either manually or hydraulically actuated spools.

Manually-actuated valves are available as 2-way, 3-way, and 4-way valves, and are used either for flow or direction control.

Manually actuated valve

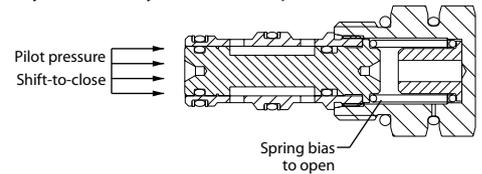


Hydraulically-actuated spool valves are available as 2-way (normally-open or normally-closed), 3-way, and 4-way valves, and are used for direction control. These are all 2-position valves that are spring-biased to a neutral position and use 3-10 bar [40-150 psi] hydraulic pressure to shift the spool.

Directional control valves



Hydraulically actuated spool valve

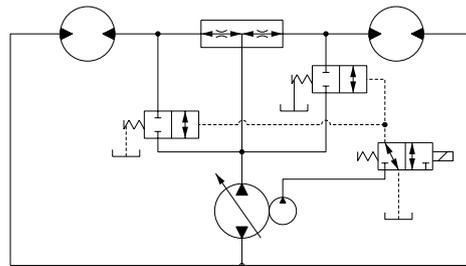


**APPLICATIONS**

Common applications include:

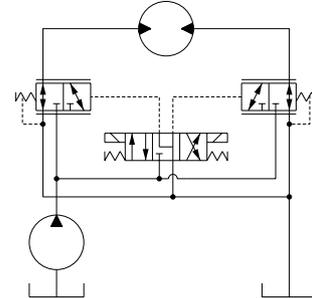
- Directional control valves for high flow with pilot pressure controlled by solenoid valves.
- Bypass valves for flow dividers in vehicle traction circuits.

Pilot-operated bypass valves for traction circuit

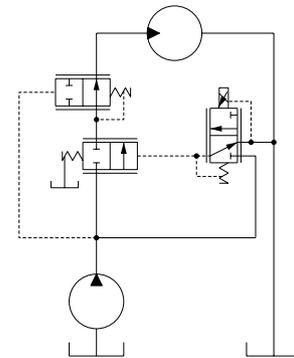


A hydraulically-actuated spool valve (CP712-7) is also available to create an infinitely variable orifice that is controlled by pilot pressure. This valve is typically used in a circuit with a proportional pressure reducing valve (e.g. CP558-24) and a pressure compensator (e.g. CP312-4). Such a circuit creates a pressure-compensated proportional flow control for flows too large for direct-acting proportional valves.

Pilot-operated directional valve circuit



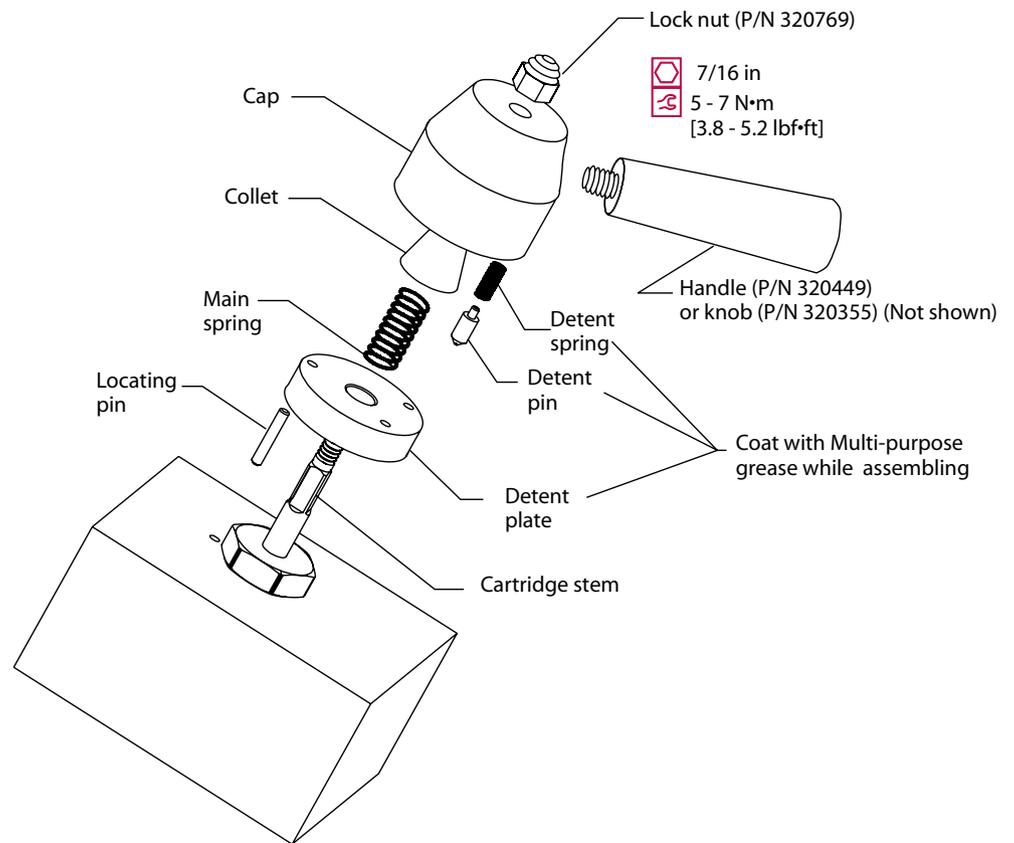
Pilot-operated proportional flow control circuit



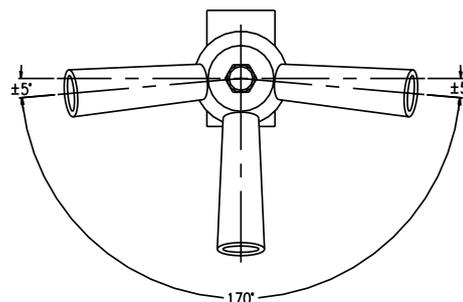
**INSTALLATION**

1. Install cartridge.
2. Place locating pin in the hole in the block.
3. Install detent plate over the cartridge stem and locating pin.
4. Place the main spring over the cartridge stem.
5. Install the collet into the cap.
6. Place the detent spring and detent pin into cap and install cap over the assembly as shown.
7. Place the lock nut and torque as shown.
8. Thread handle or knob into cap.

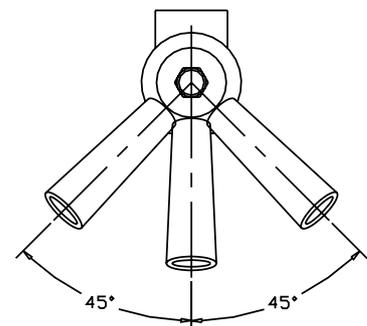
Assembly Drawing



Handle orientation for 2-way valve.



Handle orientation for 3-way and 4-way valves.

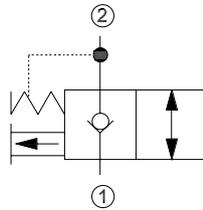


**OPERATION**

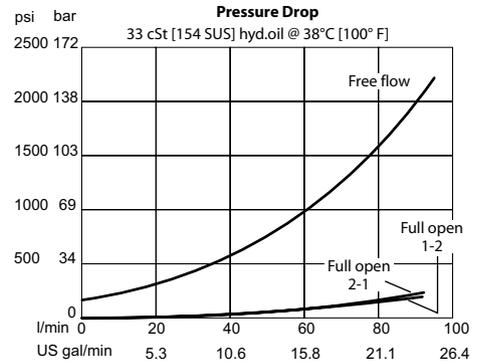
This valve allows free-flow from 1 to 2 and blocks from 2 to 1. It is manually operated with or without knob.

**SPECIFICATIONS**

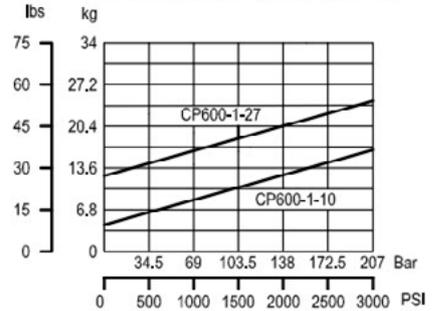
**Schematic**



**Theoretical performance**



**Force Required To Operate Override**



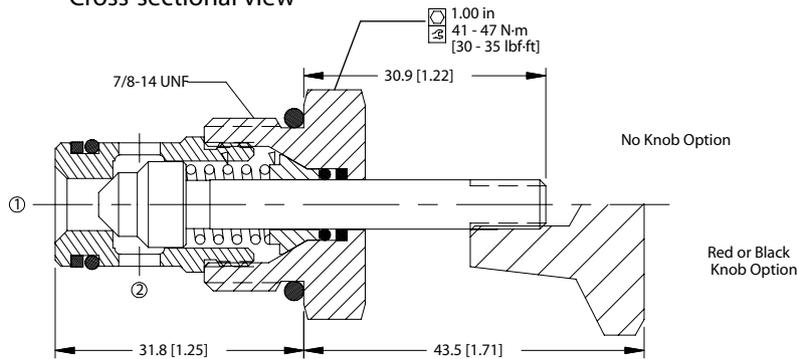
**Specifications**

Rated pressure	207 bar [3002 psi]
Rated flow at 7 bar [100 psi]	68 l/min [18 US gal/min]
Leakage	6 drops/min @ rated pressure
Weight	0.11 kg [0.24 lb]
Cavity	SDC10-2

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP600 - 1 - B - 6S - 00 - K

**Seal Option**

Code	Seal Material	Seal Kit
B	Buna-N	120015
V	Viton	120016

**Bodies**

Code	Ports & Material	Body Nomenclature
00	Cartridge Only	No Body
6S	#6 SAE, AL	CP10-2-6S
8S	#8 SAE, AL	CP10-2-8S
3B	3/8" BSP, AL	SDC10-2-DG-3B
4B	1/2" BSP, AL	SDC16-2-DG-4B

**Knob Options**

Code	Description
28	1/4-28 UNF-2A (NO KNOB)
20	1/4-20 UNF-2A (NO KNOB)
K	BLACK KNOB
R	RED KNOB

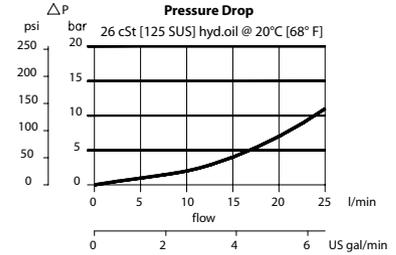
**Force Required to Operate Override**

Code	Description	Crack Pressure (1→2)
10	44 N [10 lbf]	13 Bar [183 PSI]
27	120 N [27 lbf]	34 Bar [491 PSI]

**OPERATION**

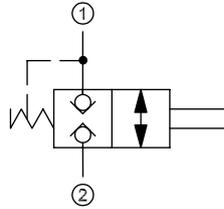
This is a normally-closed, manually-operated, bi-directional poppet valve.

**Theoretical performance**



**SPECIFICATIONS**

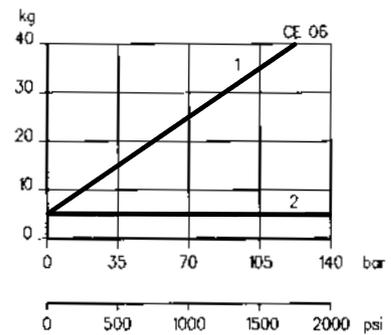
**Schematic**



**Specifications**

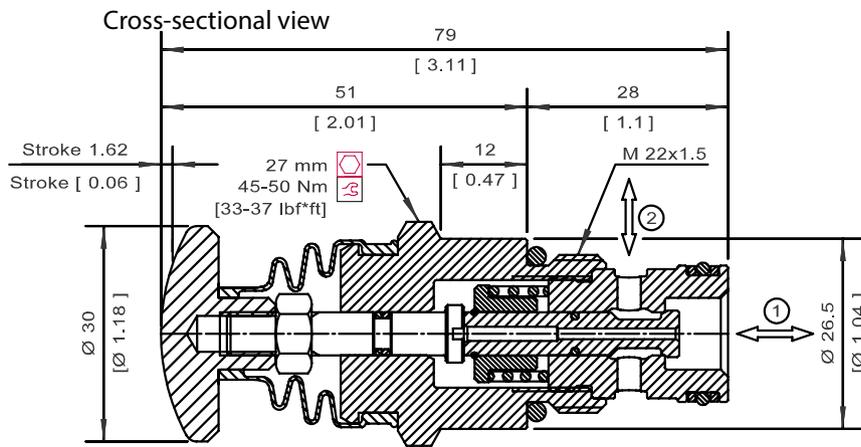
Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	20 l/min [5 US gal/min]
Weight	0.20 kg [0.44 lb]
Cavity	NCS06/2

**Force required to operate override**



**DIMENSIONS**

mm [in]



**ORDERING INFORMATION**

CE 06 - 00 - V

**Seals**  
 V = Viton Seal kit 230000380  
 Omit = Buna-N Seal kit 230000060

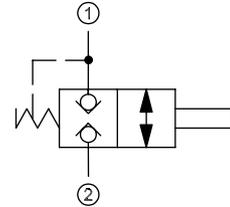
**Housing and ports**  
 00 = No Housing  
 DG3/8 = AL, 3/8 BSP  
 DG1/2 = AL, 1/2 BSP  
 DG6S = AL, #6 SAE  
 DG8S = AL, #8 SAE  
 Other housings available

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

**OPERATION**

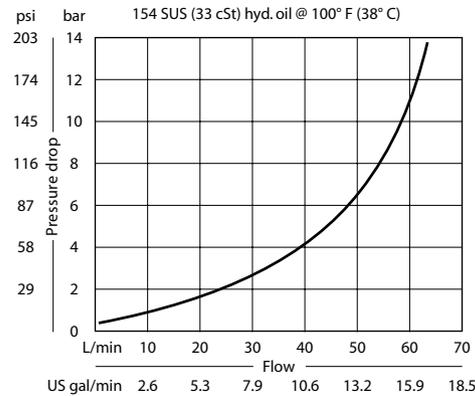
This valve is a normally closed, manually operated, bi-directional push-to-open valve.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



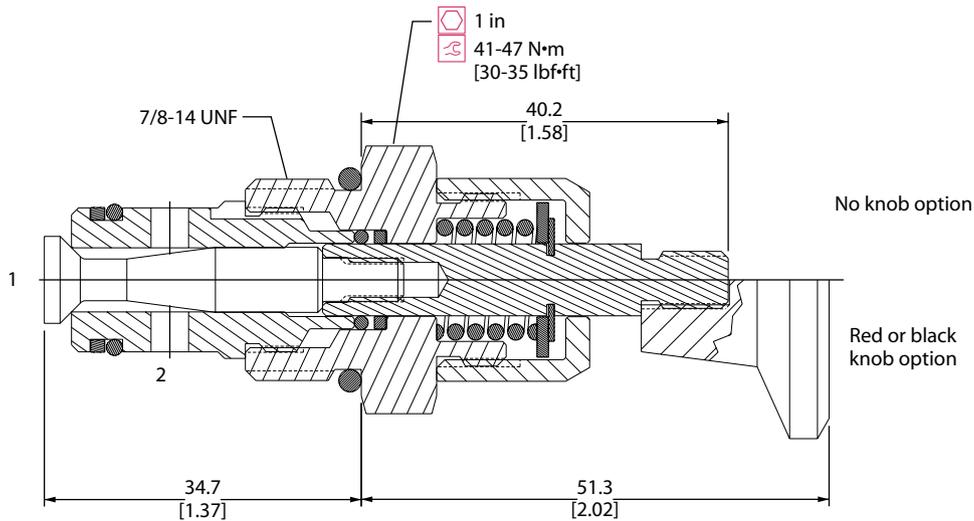
**Specifications**

Rated pressure	207 bar [3000 psi]
Rated flow at 7 bar [100 psi]	50 l/min [13 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.11 kg [0.25 lb]
Cavity	SDC10-2

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

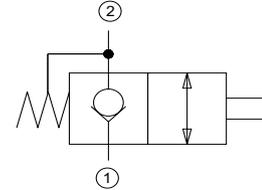
CP600 - 2 - B - 8S - 10 - B

<b>Seals</b>	<b>Seal kit</b>	<b>Knob option</b>
B = Buna-N	120015	0 = No knob (1/4-28 UNF threads)
V = Viton	120016	B = Black knob
<b>Housing and ports</b>	<b>Housing P/N</b>	R = Red knob
0 = No Housing	No Housing	
DG3B = AL, 3/8 BSP	SDC10-2-DG-3B	
DG4B = AL, 1/2 BSP	SDC10-2-DG-4B	
6S = AL, #6 SAE	CP10-2-6S	
8S = AL, #8 SAE	CP10-2-8S	
Other housings available		<b>Spring load</b>
		10 = 44 N [10 lbf]
		15 = 67 N [15 lbf]

**OPERATION**

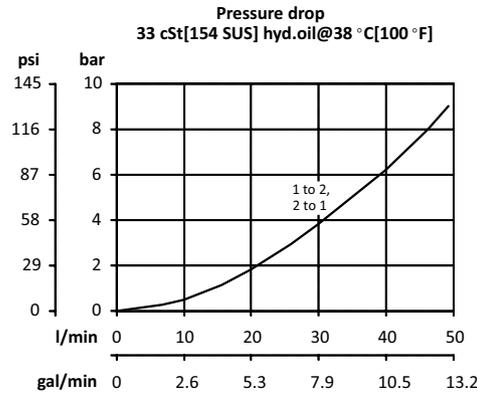
This valve is a normally closed, manually operated, poppet type valve with free reverse flow..

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



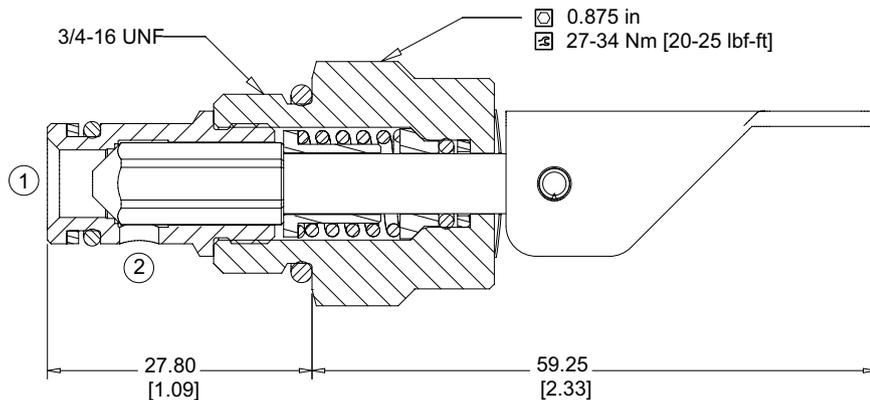
**Specifications**

Rated pressure	207 bar [3000 psi]
Rated flow at 7 bar [100 psi]	48 l/min [12.7 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.12 kg [0.27 lb]
Cavity	SDC08-2

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

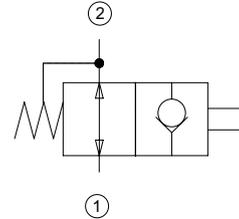
**DMP08-NC-18-LD-B-00**

Shift Force 18 = 18 N [4 lbf]	Handle Option LD = Detented Lever	Housing and ports 00 = No Housing DG-2B = Al, 1/4 BSP DG-3B = Al, 3/8 BSP 4S = Al, #4 SAE 6S = Al, #6 SAE	Housing Part # No Housing SDC08-2-DG-2B SDC08-2-DG-3B CP08-2-4S CP08-2-6S
		Seals B = Buna-N V = Viton	Seal Kit 120221 120222

**OPERATION**

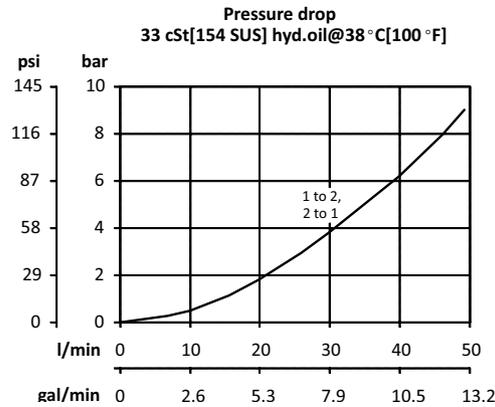
This valve is a normally open, manually operated, poppet type valve with free reverse flow..

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



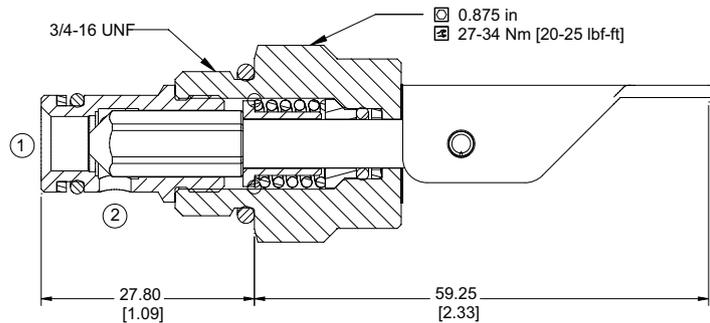
**Specifications**

Rated pressure	207 bar [3000 psi]
Rated flow at 7 bar [100 psi]	48 l/min [12.7 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.12 kg [0.27 lb]
Cavity	SDC08-2

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**DMP08-NO-18-LD-B-00**

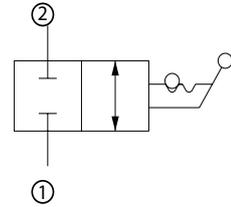
Shift Force 18 = 18 N [4 lbf]		- Housing and ports 00 = No Housing DG-2B = Al, 1/4 BSP DG-3B = Al, 3/8 BSP 4S = Al, #4 SAE 6S = Al, #6 SAE	Housing Part # No Housing SDC08-2-DG-2B SDC08-2-DG-3B CP08-2-4S CP08-2-6S
Handle Option LD = Detented Lever		Seals B = Buna-N V = Viton	Seal Kit 120221 120222

**OPERATION**

This valve is a non-compensated, adjustable flow control.

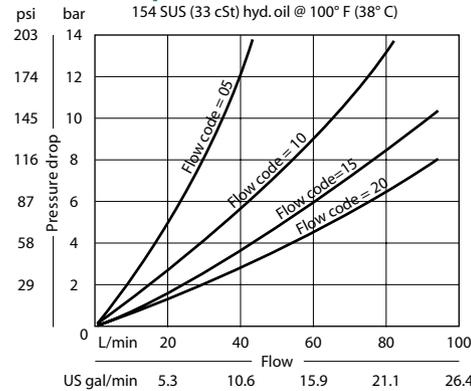
Refer to application notes for installation details.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



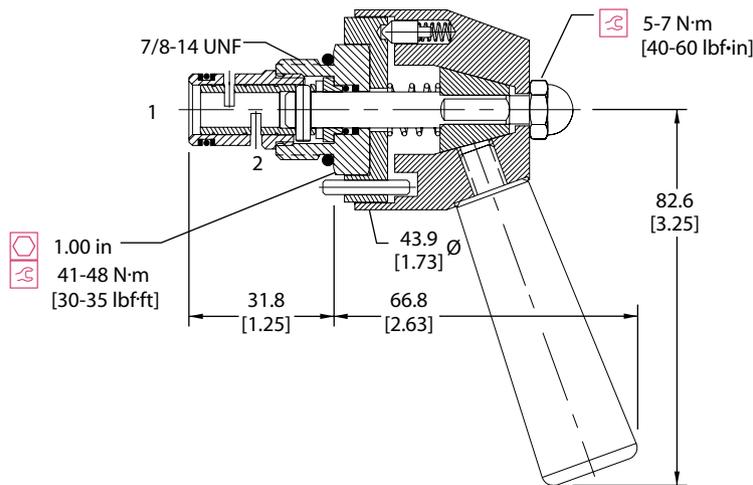
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	75 l/min [20 US gal/min]
Leakage	82 cm <sup>3</sup> /min [5 in <sup>3</sup> /min] @ Rated pressure
Weight	0.31 kg [0.69 lb]
Cavity	SDC10-2

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**CP620 - 1 - B - 8S - 20 - 2 - DR**

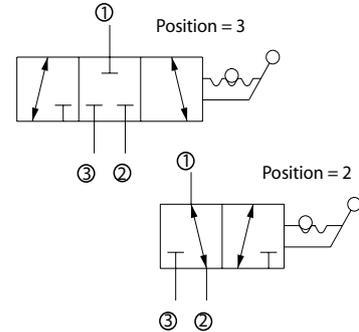
<p><b>Seals</b></p> <p>B - Buna-N V - Viton</p> <p><b>Housing and ports</b></p> <p>0 = No Housing DG3B = AL, 3/8 BSP DG4B = AL, 1/2 BSP 6S = AL, #6 SAE 8S = AL, #8 SAE Other housings available</p>	<p>Seal kit 120073 120074</p> <p><b>Housing P/N</b></p> <p>No Housing SDC10-2-DG-3B SDC10-2-DG-4B CP10-2-6S CP10-2-8S</p>	<p><b>Flow</b></p> <p>05 = 19 l/min [5 US gpm] 10 = 38 l/min [10 US gpm] 15 = 57 l/min [15 US gpm] 20 = 77 l/min [20 US gpm]</p>	<p><b>Rotation to close</b></p> <p>R - Clockwise L - Counterclockwise</p> <p><b>Detent</b></p> <p>D = Detent with handle K = Knob (not shown) knob is not detented</p> <p><b>Position</b></p> <p>2 - 2 Position detent 3 - 3 Position detent 10 - 10 Position detent</p>
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**OPERATION**

This valve is a 2 position 3 way manual directional control.

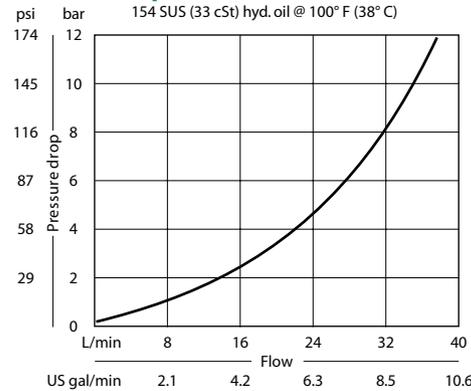
Refer to application notes for installation details.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



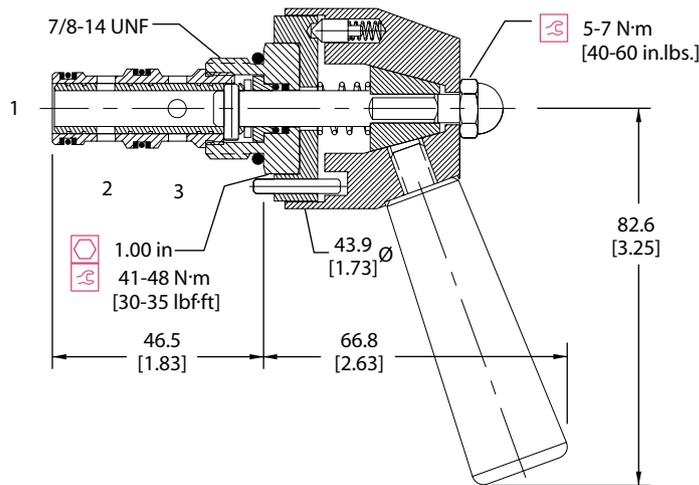
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Leakage	82 cm <sup>3</sup> /min [5 in <sup>3</sup> /min] @ Rated pressure
Weight	0.32 kg [0.71 lb]
Cavity	SDC10-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP630 - 1 - B - 8S - 3 - D

**Seals**

B = Buna-N  
 V = Viton

Seal kit  
 120009  
 120010

**Housing and ports**

0 = No Housing  
 SE3B = AL, 3/8 BSP  
 SE4B = AL, 1/2 BSP  
 6S = AL, #6 SAE  
 8S = AL, #8 SAE  
 Other housings available

**Housing P/N**

No Housing  
 SDC10-3-SE-3B  
 SDC10-3-SE-4B  
 CP10-3-6S  
 CP10-3-8S

**Detent**

D = Detent with handle  
 K = Knob (not shown)  
 knob is not detented

**Position**

2 = 2 Position detent  
 3 = 3 Position detent

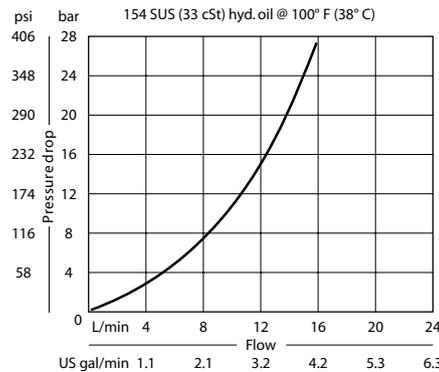
**OPERATION**

This valve is a 3 position 4 way manual directional control. Handle rotated full counterclockwise, flows 1<->4 & 2<->3. Handle rotated full clockwise, flows 1<->2 & 3<->4.

**SPECIFICATIONS**

Refer to application notes for installation details.

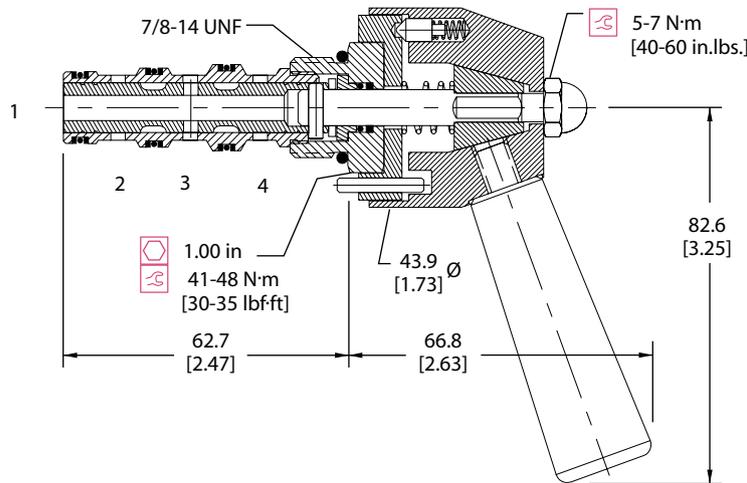
**Theoretical performance**



**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP640 - 1 - B - 8S - 3 - 3 - D

**Seals**  
 B = Buna-N  
 V = Viton

**Housing and ports**  
 0 = No Housing  
 LE3B = AL, 3/8 BSP  
 LE4B = AL, 1/2 BSP  
 6S = AL, #6 SAE  
 8S = AL, #8 SAE  
 Other housings available

**Seal kit**  
 120023  
 120024

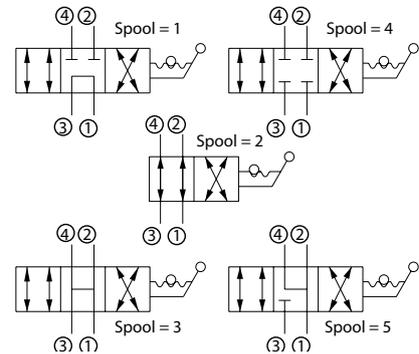
**Housing P/N**  
 No Housing  
 SDC10-4-L-3B  
 SDC10-4-L-4B  
 SDC10-4-6S  
 SDC10-4-8S

**Detent**  
 D = Detent with handle  
 K = Knob (not shown) knob is not detented

**Position**  
 2 = 2 Position detent  
 3 = 3 Position detent

**Spool**  
 1 = Tandem  
 2 = 2 position  
 3 = All open  
 4 = All closed  
 5 = Motor

**Schematic**



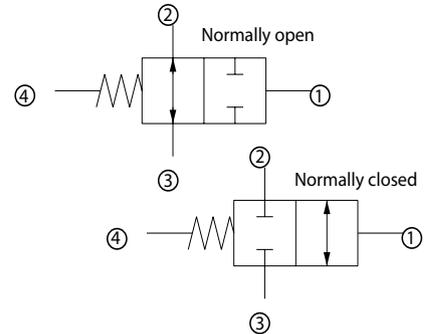
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	10 l/min [3 US gal/min]
Leakage	82 cm <sup>3</sup> /min [5 in <sup>3</sup> /min] @ Rated pressure
Weight	0.35 kg [0.77 lb]
Cavity	SDC10-4

**OPERATION**

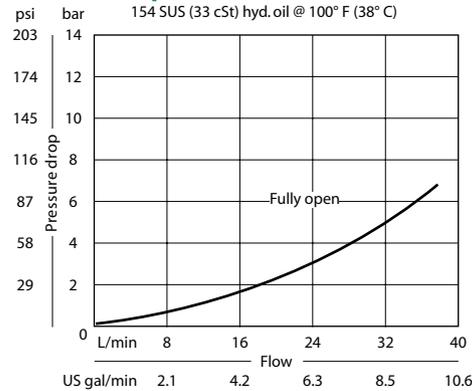
This valve is a 2-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



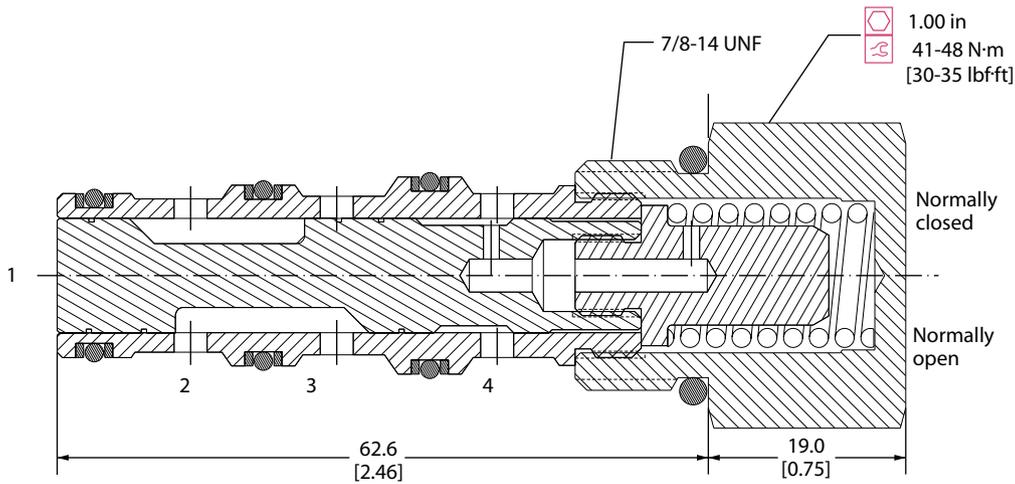
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.15 kg [0.33 lb]
Cavity	SDC10-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**CP710 - 8 - B - 6S - C - 080**

- Seals:
  - B = Buna-N
  - V = Viton
- Seal kit:
  - 120009
  - 120010
- Housing and ports:
  - 0 = No Housing
  - L3B = AL, 3/8 BSP
  - L4B = AL, 1/2 BSP
  - 6S = AL, #6 SAE
  - 8S = AL, #8 SAE
  - Other housings available
- Housing P/N:
  - No Housing
  - SDC10-4-L-3B
  - SDC10-4-L-4B
  - CP10-4-6S
  - CP10-4-8S
- Shift pressure:
  - 040 = 2.8 bar [40 psi]
  - 080 = 5.5 bar [80 psi]
  - 150 = 10.3 bar [150 psi]
- Configuration:
  - O = Normally open
  - C = Normally closed

DV - Directional Control Valves  
CP710-8

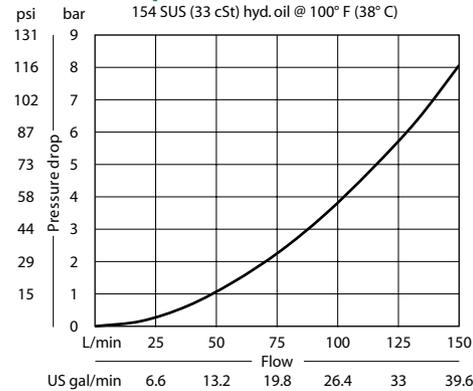
**OPERATION**

This valve is a 2-way double hydraulically piloted spool.

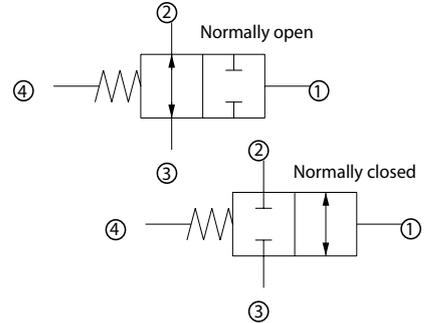
Note: Maximum pressure at port 4 is 207 bar [3000 psi].

**SPECIFICATIONS**

**Theoretical performance**



**Schematic**



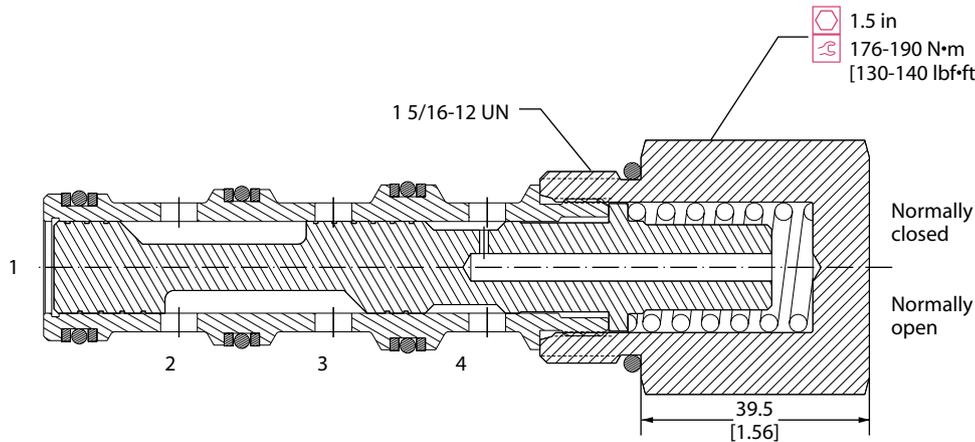
**Specifications**

Rated pressure	450 bar [6500 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Leakage	328 cm <sup>3</sup> /min [20 in <sup>3</sup> /min] @ 210 bar [3000 psi]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP712-11-U-0-C-040

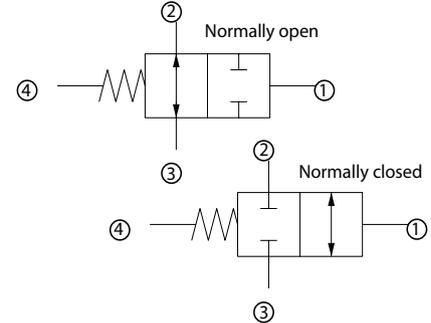
- Shift pressure**  
 040 = 2.8 bar [40 psi]  
 080 = 5.5 bar [80 psi]
- Configuration**  
 O = Normally open  
 C = Normally closed
- Housing and ports**  
 0 = No Housing  
 6B = AL, 3/4 BSP  
 8B = AL, 1 BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE  
 Other housings available
- Seals**  
 U = Urethane Seal kit 120677

- Housing P/N**
- No Housing
  - CP16-4-6B
  - CP16-4-8B
  - CP16-4-12S
  - CP16-4-16S

**OPERATION**

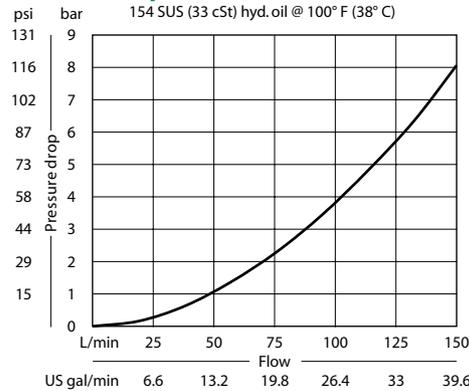
This valve is a 2-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



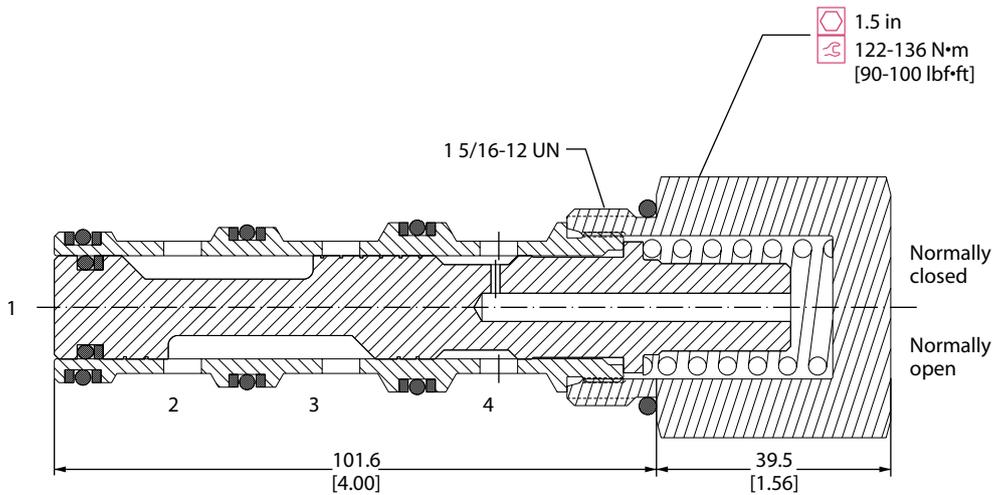
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

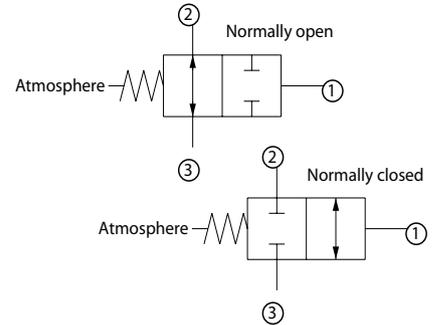
**CP712 - 8 - B - 16S - C - 080 - S1**

- Seals**
  - B = Buna-N
  - V = Viton
- Housing and ports**
  - 0 = No Housing
  - 6B = AL, 3/4 BSP
  - 8B = AL, 1 BSP
  - 12S = AL, #12 SAE
  - 16S = AL, #16 SAE
  - Other housings available
- Housing P/N**
  - No Housing
  - CP16-4-6B
  - CP16-4-8B
  - CP16-4-12S
  - CP16-4-16S
- Seal kit**
  - 120025
  - 120026
- Spool seal**
  - S3 = No seal
  - S4 = Seal included
- Shift pressure**
  - 040 = 2.8 bar [40 psi]
  - 080 = 5.5 bar [80 psi]
  - 150 = 10.3 bar [150 psi]
  - shift pressure assumes no seals
- Configuration**
  - O = Normally open
  - C = Normally closed

**OPERATION**

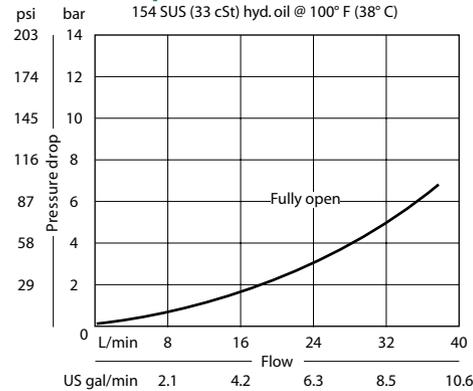
This valve is a hydraulically operated spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



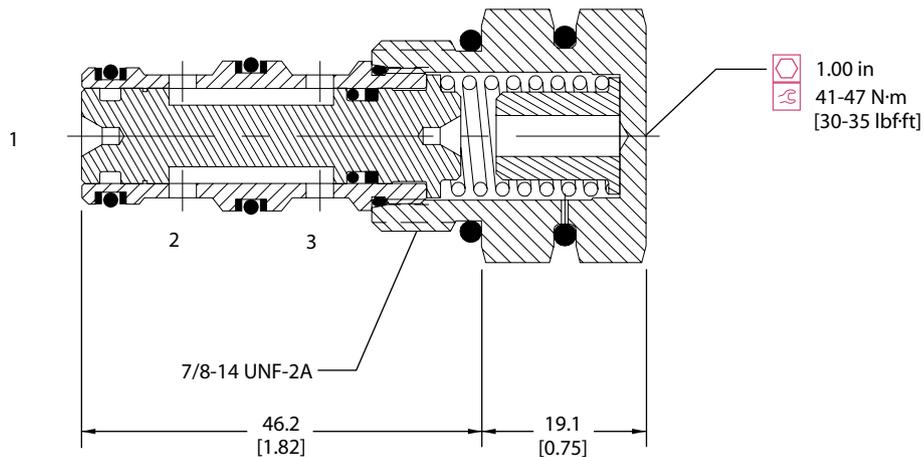
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.13 kg [0.29 lb]
Cavity	SDC10-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

**CP710 - 1 - B - 8S - C - 150 - S1**

**Seals**  
 B = Buna-N  
 V = Viton

**Housing and ports**  
 0 = No Housing  
 SE3B = AL, 3/8 BSP  
 SE4B = AL, 1/2 BSP  
 6S = AL, #6 SAE  
 8S = AL, #8 SAE  
 Other housings available

**Seal kit**  
 120009  
 120010

**Housing P/N**  
 No Housing  
 SDC10-3-SE-3B  
 SDC10-3-SE-4B  
 CP10-3-6S  
 CP10-3-8S

**Spool seals**  
 S1 = Seal at top of spool  
 S2 = Seals at top and bottom of spool

**Shift pressure**

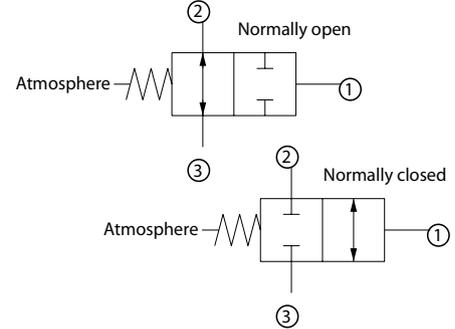
Shift pressure (bar)	Shift pressure (psi)
050	3.5 [50]
080	5.5 [80]
150	10.3 [150]

**Configuration**  
 O = Normally open  
 C = Normally closed

**OPERATION**

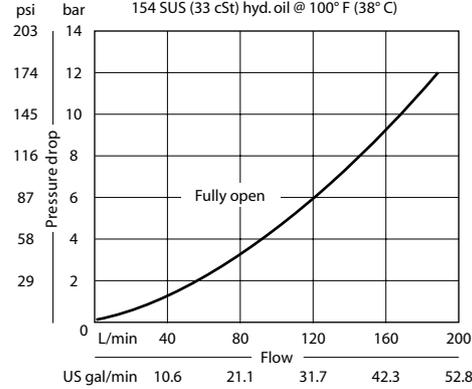
This valve is a hydraulically operated spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



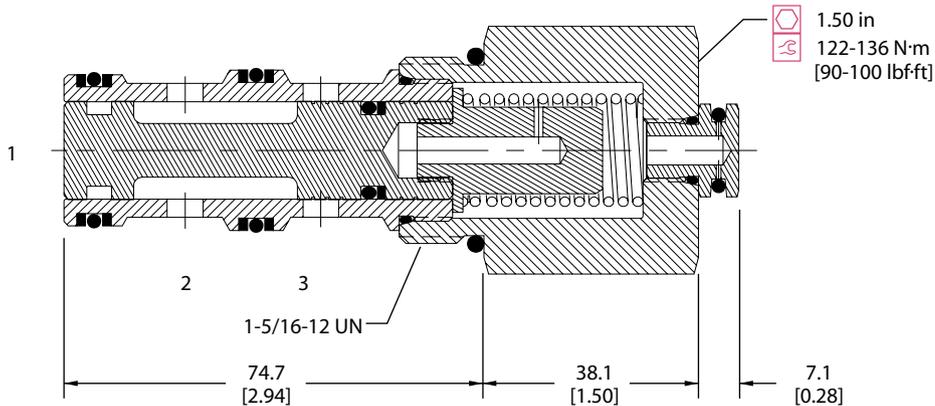
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.57 kg [1.25 lb]
Cavity	SDC16-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

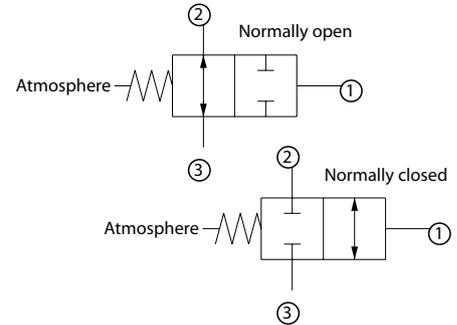
**CP712 - 1 - B - 16S - C - 080 - S1**

<b>Seals</b>		<b>Seal kit</b>		<b>Spool seals</b>	
B = Buna-N		120202		S1 = Seal at top of spool	
V = Viton		120203		S2 = Seals at top and bottom of spool	
<b>Housing and ports</b>		<b>Housing P/N</b>		<b>Shift pressure</b>	
0 = No Housing		No Housing		040 = 2.8 bar [40 psi]	
∅E6B = AL, 3/4 BSP		SDC16-3-SE-6B		080 = 5.5 bar [80 psi]	
∅E8B = AL, 1 BSP		SDC16-3-SE-8B		150 = 10.3 bar [150 psi]	
12S = AL, #12 SAE		CP16-3-12S			
16S = AL, #16 SAE		CP16-3-16S			
Other housings available					
		<b>Configuration</b>			
		O = Normally open			
		C = Normally closed			

**OPERATION**

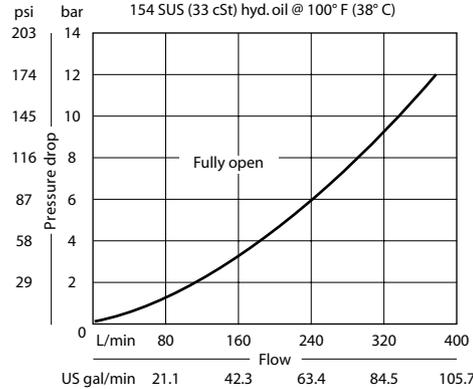
This valve is a hydraulically operated spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



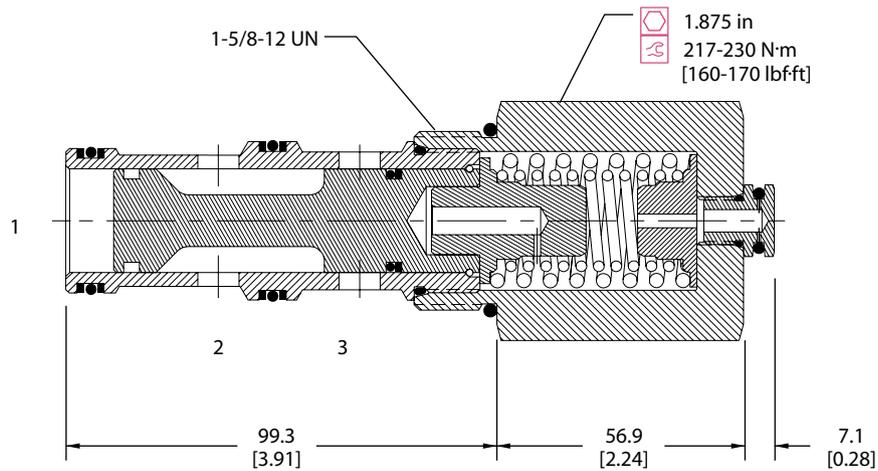
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	265 l/min [70 US gal/min]
Weight	1.26 kg [2.78 lb]
Cavity	SDC20-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP713 - 1 - B - 20S - C - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 8B = AL, 1 BSP  
 10B = AL, 1-1/4 BSP  
 16S = AL, #16 SAE  
 20S = AL, #20 SAE  
 Other housings available

**Configuration**

O = Normally open  
 C = Normally closed

Seal kit  
 120200  
 120201

**Housing P/N**

No Housing  
 CP20-3-8B  
 CP20-3-10B  
 CP20-3-16S  
 CP20-3-20S

**Spool seals**

S1 = Seal at top of spool  
 S2 = Seals at both ends of spool

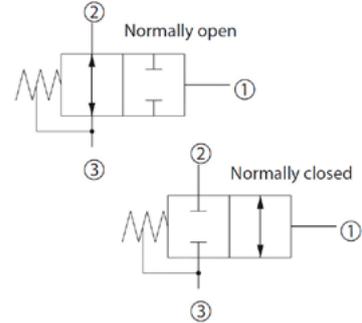
**Shift pressure**

bar	[psi]
050	3.5 [50]
080	5.5 [80]
100	6.9 [100]
130	9.0 [130]
150	10.3 [150]

**OPERATION**

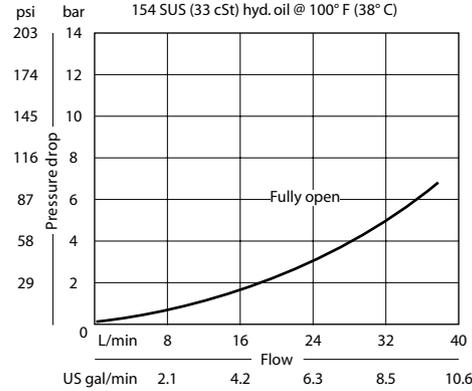
This valve is a 2-way hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



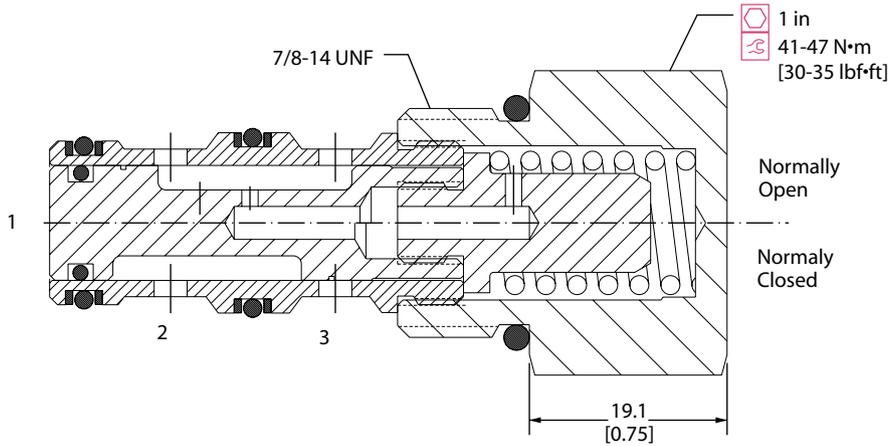
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.13 kg [0.29 lb]
Cavity	SDC10-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

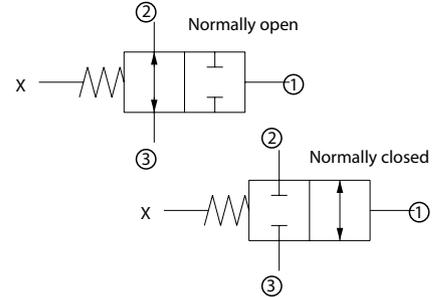
**CP710-3-B-16S-C-150-S1**

- Seals**
  - B = Buna-N
  - V = Viton
- Seal kit**
  - 120009
  - 120010
- Housing and ports**
  - 0 = No Housing
  - SE3B = AL, 3/8 BSP
  - SE4B = AL, 1/2 BSP
  - 6S = AL, #6 SAE
  - 8S = AL, #8 SAE
  - Other housings available
- Housing P/N**
  - No Housing
  - SDC10-3-SE-3B
  - SDC10-3-SE-4B
  - CP10-3
  - CP10-3
- Configuration**
  - O = Normally open
  - C = Normally closed
- Spool seal**
  - S3 = No seal
  - S4 = With seal
- Shift pressure**
  - 150 = 10.3 bar [150 psi]
  - shift pressure assumes no seal

**OPERATION**

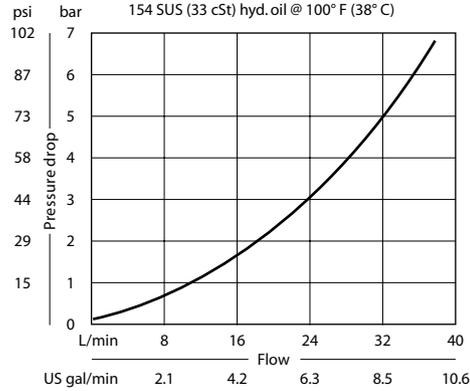
This valve is a 2-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



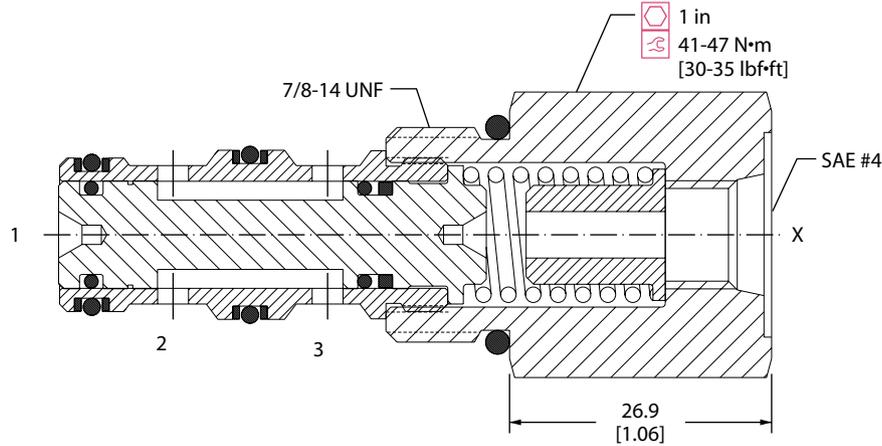
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.13 kg [0.29 lb]
Cavity	SDC10-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**CP710 - 2 - B - 16S - C - 080 - S1**

- Seals**
  - B = Buna-N
  - V = Viton
- Housing and ports**
  - 0 = No Housing
  - SE3B = AL, 3/8 BSP
  - SE4B = AL, 1/2 BSP
  - 6S = AL, #6 SAE
  - 8S = AL, #8 SAE
  - Other housings available
- Housing P/N**
  - No Housing
  - SDC10-3-SE-3B
  - SDC10-3-SE-4B
  - CP10-3-6S
  - CP10-3-8S
- Configuration**
  - O = Normally open
  - C = Normally closed
- Spool seals**
  - S1 = Seal at top of spool
  - S2 = Seal at top and bottom of spool
  - S3 = No seals
  - S4 = Seal at bottom of spool
- Shift pressure**

	bar	[psi]
040	2.8	[40]
050	3.4	[50]
080	5.5	[80]
125	8.6	[125]
150	10.3	[150]

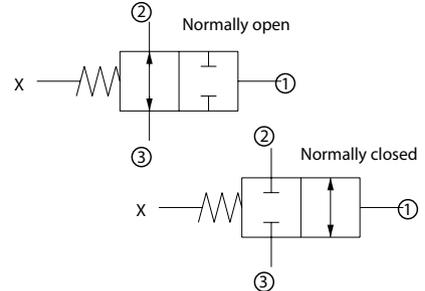
shift pressure assumes no seal

DV - Directional Control Valves  
CP710-2

**OPERATION**

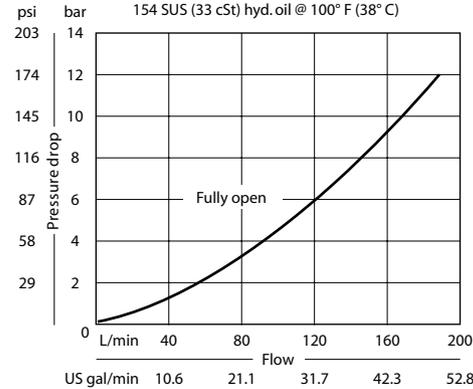
This valve is a 2-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



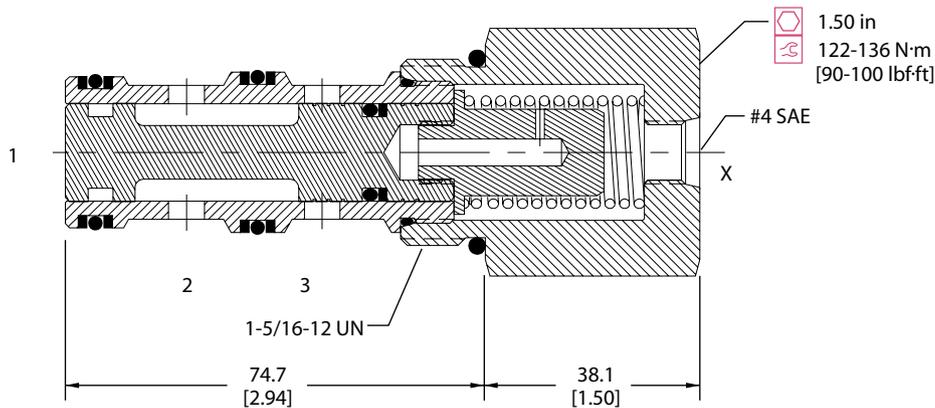
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.57 kg [1.25 lb]
Cavity	SDC16-3

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP712 - 2 - B - 16S - C - 080 - S1

**Seals**  
 B = Buna-N  
 V = Viton

**Seal kit**  
 120202  
 120203

**Housing and ports**  
 0 = No Housing  
 5E6B = AL, 3/4 BSP  
 5E8B = AL, 1BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE  
 Other housings available

**Housing P/N**  
 No Housing  
 SDC16-3-SE-6B  
 SDC16-3-SE-8B  
 CP16-3-12S  
 CP16-3-16S

**Spool seals**  
 S1 = Seal at top of spool  
 S2 = Seals at top and bottom of spool  
 S3 = No seals  
 S4 = Seal at bottom of spool

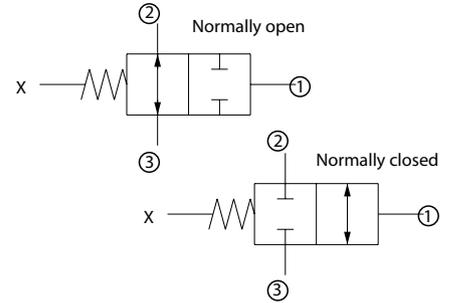
**Shift pressure**  
 bar [psi]  
 040 = 2.8 [40]  
 080 = 5.5 [80]  
 150 = 10.3 [150]  
 shift pressure assumes no seals

**Configuration**  
 O = Normally open  
 C = Normally closed

**OPERATION**

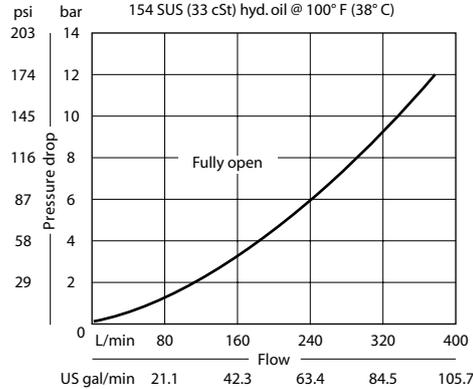
This valve is a 2-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



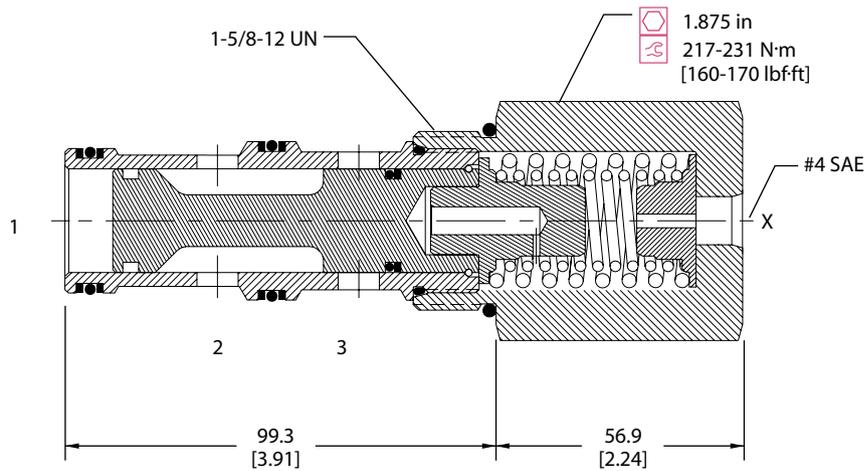
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	265 l/min [70 US gal/min]
Weight	1.26 kg [2.78 lb]
Cavity	SDC20-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

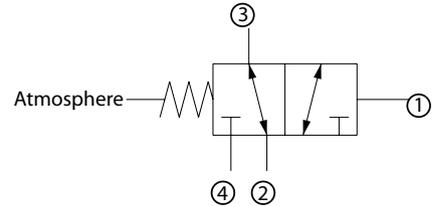
**CP713 - 2 - B - 20S - C - 150 - S1**

<b>Seals</b>	Seal kit 120200 120201	<b>Spool seals</b>	S1 = Seal at top of spool S2 = Seals at top and bottom of spool S3 = No seals S4 = Seal at bottom of spool
B = Buna-N V = Viton		<b>Shift pressure</b>	bar [psi] 050 = 3.5 [50] 080 = 5.5 [80] 100 = 6.9 [100] 130 = 9.0 [130] 150 = 10.3 [150] shift pressure assumes no seals
<b>Housing and ports</b>	<b>Housing P/N</b>		
0 = No Housing 8B = AL, 1 BSP 10B = AL, 1-1/4 BSP 16S = AL, #16 SAE 20S = AL, #20 SAE Other housings available	No Housing CP20-3-8B CP20-3-10B CP20-3-16S CP20-3-20S		
<b>Configuration</b>			
0 = Normally open C = Normally closed			

**OPERATION**

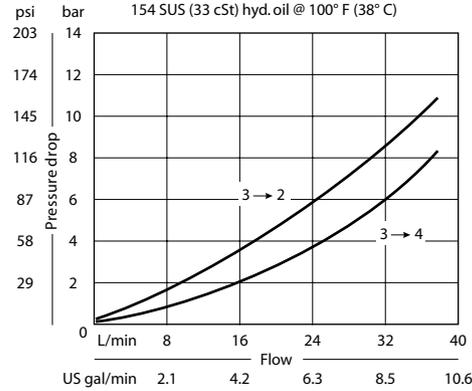
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



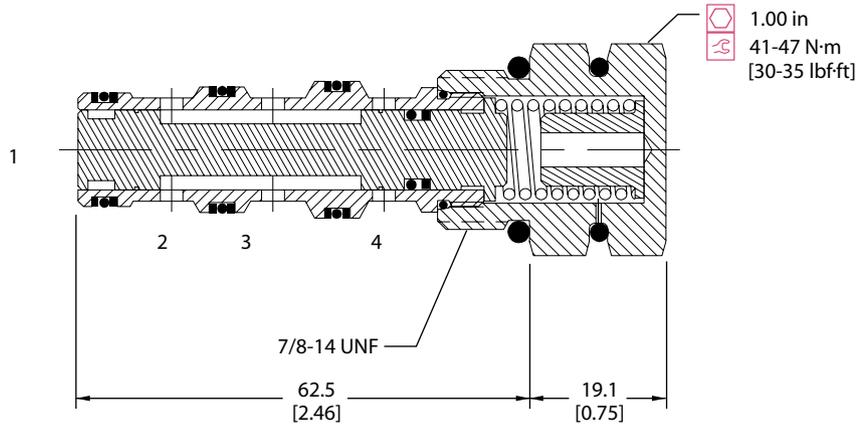
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Weight	0.15 kg [0.33 lb]
Cavity	SDC10-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP720 - 1 - B - 8S - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 L3B = AL, 3/8 BSP  
 L4B = AL, 1/2 BSP  
 6S = AL, #6 SAE  
 8S = AL, #8 SAE  
 Other housings available

**Housing P/N**

No Housing  
 SDC10-4-L-3B  
 SDC10-4-L-4B  
 CP10-4-6S  
 CP10-4-8S

**Spool seals**

S1 = Seal at top of spool  
 S2 = Seals at both ends of spool

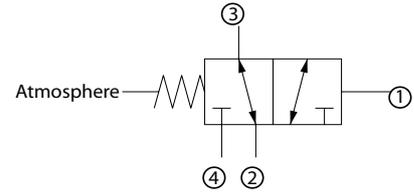
**Shift pressure**

	bar	[psi]
040	= 2.8	[40]
050	= 3.5	[50]
080	= 5.5	[80]
125	= 8.6	[125]
150	= 10.3	[150]

**OPERATION**

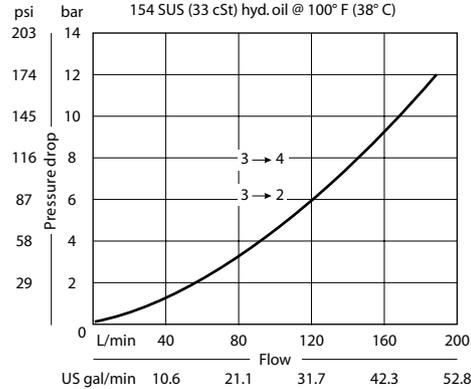
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



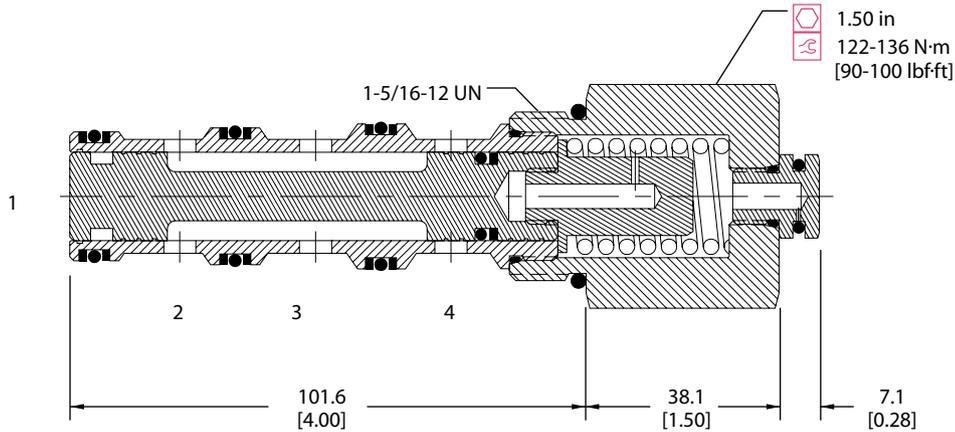
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP722 - 1 - B - 16S - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 6B = AL, 3/4 BSP  
 8B = AL, 1 BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE  
 Other housings available

Seal kit  
 120025  
 120026

**Housing P/N**

No Housing  
 CP16-4-6B  
 CP16-4-8B  
 CP16-4-12S  
 CP16-4-16S

**Spool seals**

S1 = No seals  
 S2 = Seal at bottom of spool

**Shift pressure**

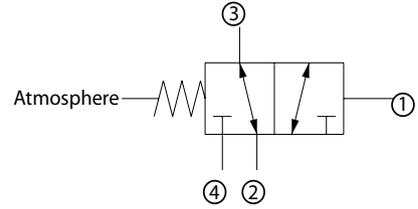
Shift pressure (bar)	Shift pressure (psi)
040	2.8 [40]
080	5.5 [80]
150	10.3 [150]

shift pressure assumes no seals

**OPERATION**

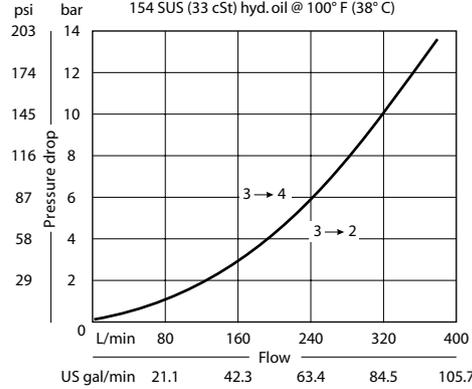
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



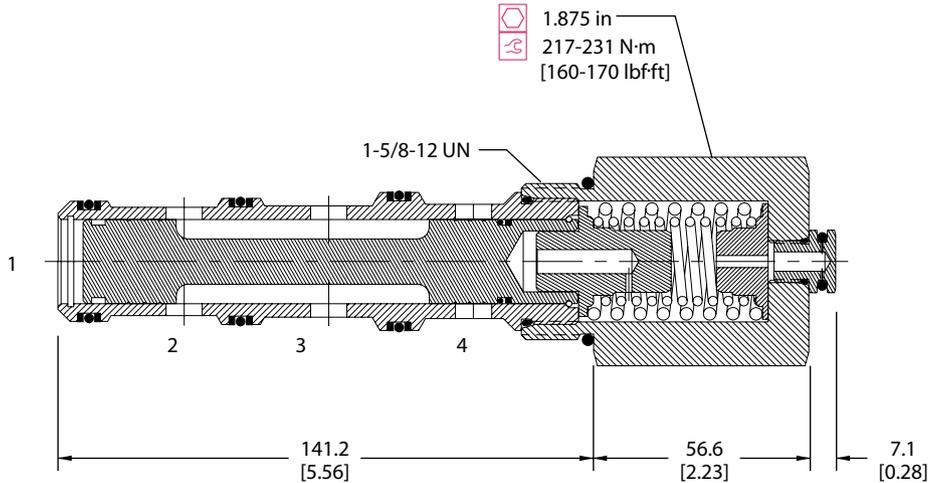
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	265 l/min [70 US gal/min]
Weight	1.22 kg [2.68 lb]
Cavity	SDC20-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP723 - 1 - B - 20S - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 8B = AL, 1 BSP  
 10B = AL, 1-1/4 BSP  
 16S = AL, #16 SAE  
 20S = AL, #20 SAE  
 Other housings available

**Housing P/N**

No Housing  
 CP20-4-8B  
 CP20-4-10B  
 CP20-4-16S  
 CP20-4-20S

**Spool seals**

S1 = Seal at top of spool (required)  
 S2 = Seals at both ends of spool

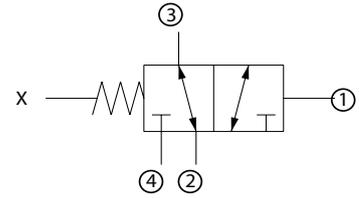
**Shift pressure**

	bar	[psi]
050	3.5	[50]
080	5.5	[80]
100	6.9	[100]
130	9.0	[130]
150	10.3	[150]

**OPERATION**

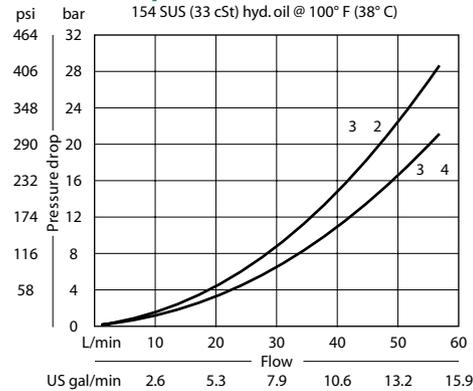
This valve is a 3-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



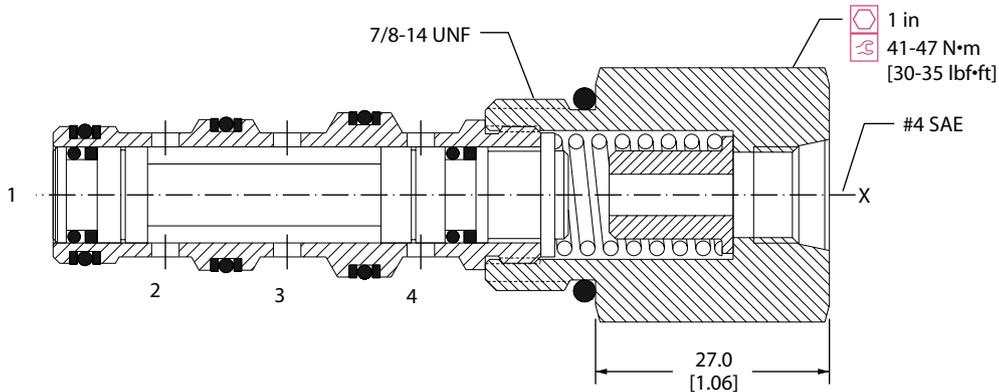
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	25 l/min [7 US gal/min]
Weight	0.15 kg [0.33 lb]
Cavity	SDC10-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

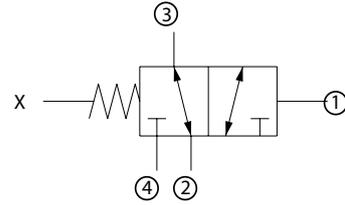
CP720 - 2 - B - 4S - 150 - S1

Seals	Seal kit	Spool seals
B = Buna-N	120023	S1=Seal at top of spool
V = Viton	120024	S2=Seals at both ends of spool
Housing and ports	Housing P/N	S3= No seal
0 = No Housing	No Housing	S4= Seals at bottom of spool
L3B = AL, 3/8 BSP	SDC10-4-L-3B	Shift pressure
L4B = AL, 1/2 BSP	SDC10-4-L-4B	bar [psi]
6S = AL, #6 SAE	CP10-4-6S	040 = 2.8 [40]
8S = AL, #8 SAE	CP10-4-8S	050 = 3.5 [50]
Other housings available		080 = 5.5 [80]
		125 = 8.6 [125]
		150 = 10.3 [150]
		shift pressure assumes no seals

**OPERATION**

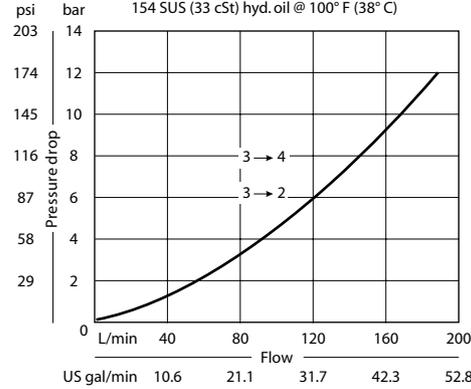
This valve is a 3-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



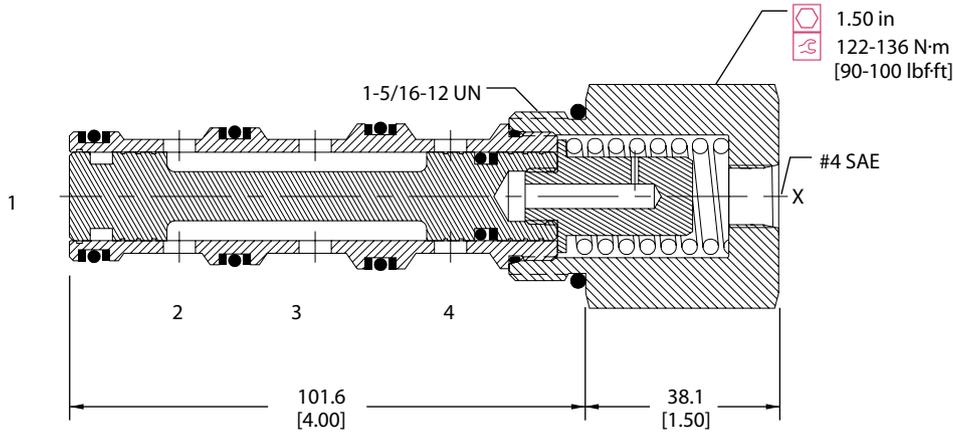
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP722 - 2 - B - 16S - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

Seal kit  
 120025  
 120026

**Spool seals**

S1 = Seal at top of spool  
 S2 = Seals at both ends of spool  
 S3 = No seals  
 S4 = Seal at bottom of spool

**Housing and ports**

0 = No Housing  
 6B = AL, 3/4 BSP  
 8B = AL, 1 BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE  
 Other housings available

**Housing P/N**

No Housing  
 CP16-4-6B  
 CP16-4-8B  
 CP16-4-12S  
 CP16-4-16S

**Shift pressure**

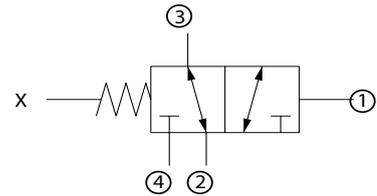
Shift pressure	bar	[psi]
040	2.8	[40]
080	5.5	[80]
150	10.3	[150]

shift pressure assumes no seals

**OPERATION**

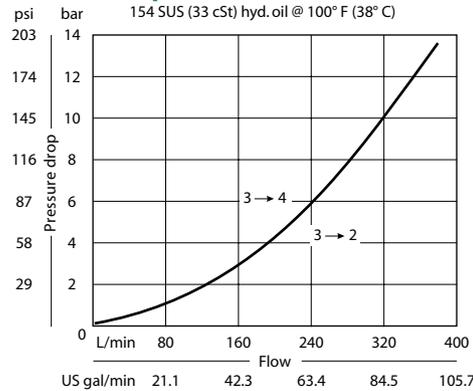
This valve is a 3-way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



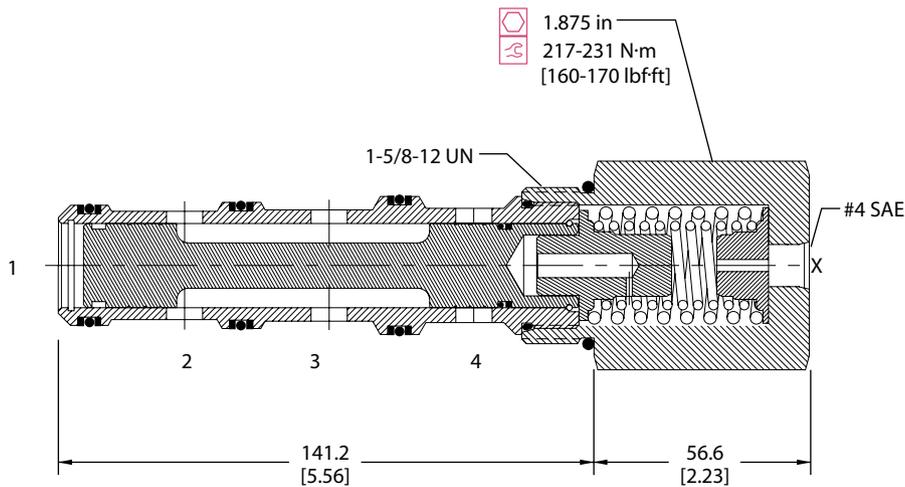
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	265 l/min [70 US gal/min]
Weight	1.22 kg [2.68 lb]
Cavity	SDC20-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP723 - 2 - B - 20S - 150 - S1

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 8B = AL, 1 BSP  
 10B = AL, 1-1/4 BSP  
 16S = AL, #16 SAE  
 20S = AL, #20 SAE  
 Other housings available

Seal kit  
 120181  
 120182

**Housing P/N**

No Housing  
 CP20-4-8B  
 CP20-4-10B  
 CP20-4-16S  
 CP20-4-20S

**Spool seals**

S1 = Seal at top of spool  
 S2 = Seals at top and bottom of spool  
 S3 = No seals  
 S4 = Seal at bottom of spool

**Shift pressure**

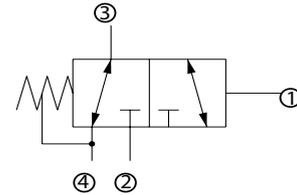
	bar	[psi]
050	3.5	[50]
080	5.5	[80]
100	6.9	[100]
130	9.0	[130]
150	10.3	[150]

shift pressure assumes no seals

**OPERATION**

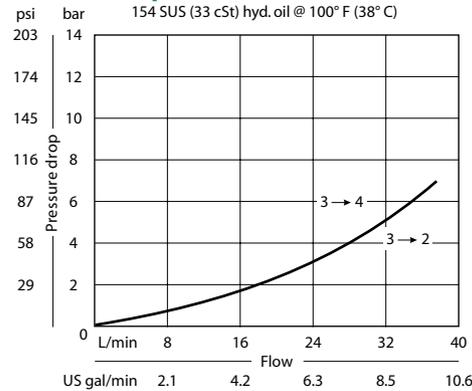
This valve is a 3-way hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



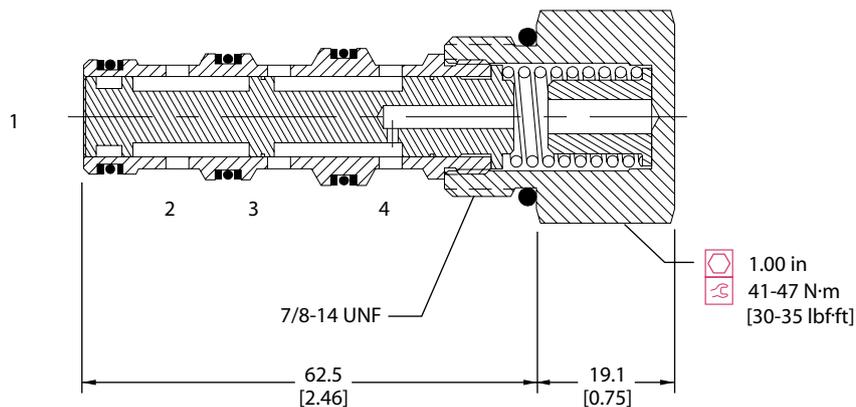
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.15 kg [0.33 lb]
Cavity	SDC10-4

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

CP720 - 5 - B - 8S - 150 - S3

**Seals**

B = Buna-N  
 V = Viton

Seal kit  
 120023  
 120024

**Housing and ports**

0 = No Housing  
 L3B = AL, 3/8 BSP  
 L4B = AL, 1/2 BSP  
 6S = AL, #6 SAE  
 8S = AL, #8 SAE  
 Other housings available

**Housing P/N**

No Housing  
 SDC10-4-L-3B  
 SDC10-4-L-4B  
 CP10-4-6S  
 CP10-4-8S

**Spool seals**

S3 = No seal  
 S4 = Seal at bottom of spool

**Shift pressure**

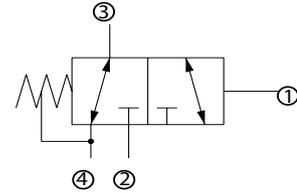
	bar	[psi]
050	3.5	[50]
080	5.5	[80]
125	8.6	[125]
150	10.3	[150]

shift pressure assumes no seals

**OPERATION**

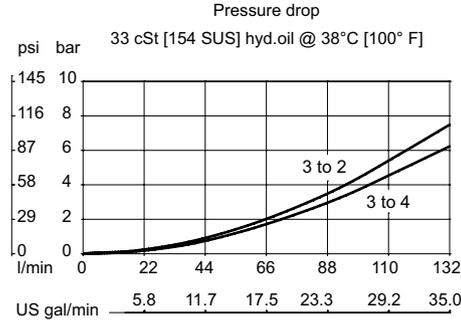
This valve is a 3-way hydraulically-piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



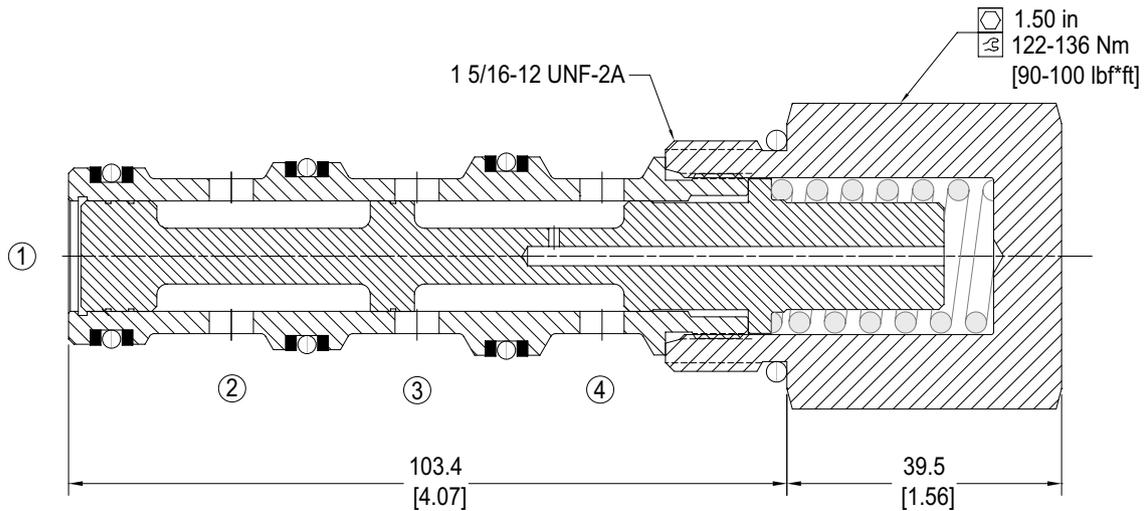
**Specifications**

Rated pressure	450 bar [6500 psi]
Rated flow at 7 bar [100 psi]	125 l/min [33 US gal/min]
Leakage	164 cm <sup>3</sup> /min [10 in <sup>3</sup> /min] @ Oil temperature range -20° to 80°C [-4° to 180°F]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP722 - 11 - U - 12S - 040

**Seals**  
 U = Urethane  
 Seal kit Consult Factory

**Body and ports**

0 = Cartridge	Body P/N
12S = Aluminum, #12 SAE	No body
16S = Aluminum, #16 SAE	CP16-4-12S
S12S = Steel, #12 SAE	CP16-4-16S
S16S = Steel, # 16 SAE	223494
	223495

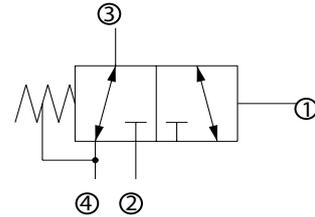
**Shift pressure**

040 = 2.8	[40]
080 = 5.5	[80]

**OPERATION**

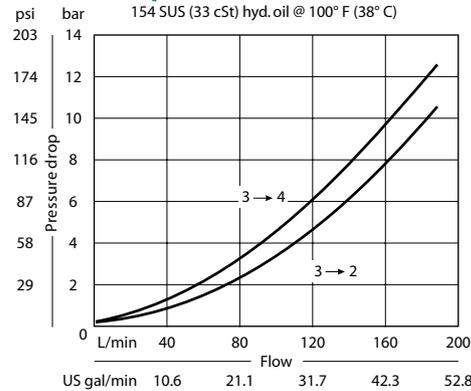
This valve is a 3-way hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



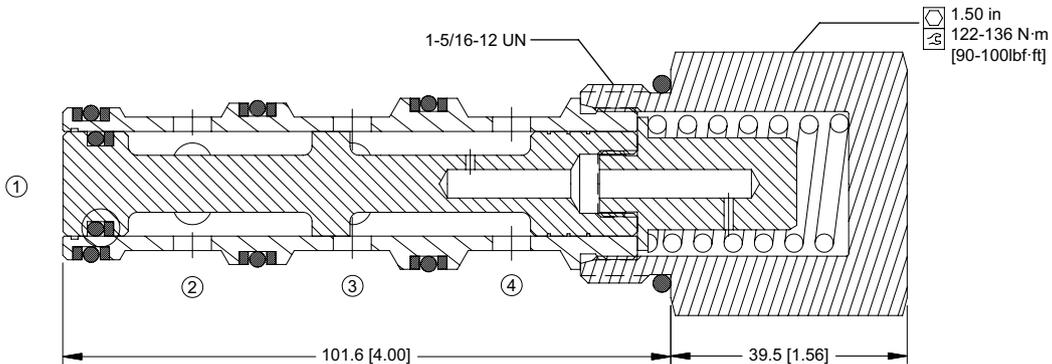
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP722 - 5 - B - 16S - 150 - S3

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

0 = No Housing  
 6B = AL, 3/4 BSP  
 8B = AL, 1 BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE  
 Other housings available

**Housing P/N**

No Housing  
 CP16-4-6B  
 CP16-4-8B  
 CP16-4-12S  
 CP16-4-16S

**Spool seals**

S3 = No seal  
 S4 = Seal at bottom of spool

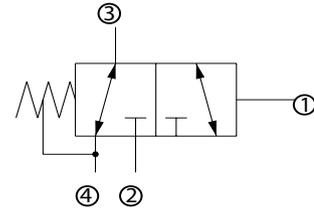
**Shift pressure**

bar [psi]  
 040 = 2.8 [40]  
 080 = 5.5 [80]  
 150 = 10.3 [150]  
 shift pressure assumes no seals

**OPERATION**

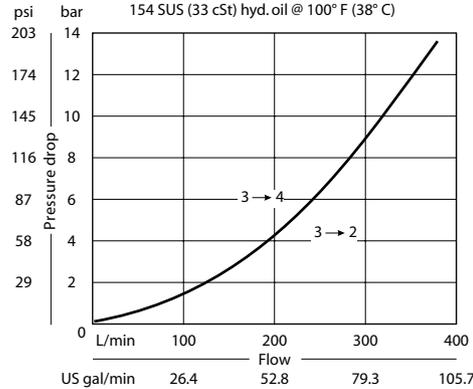
This valve is a 3-way hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



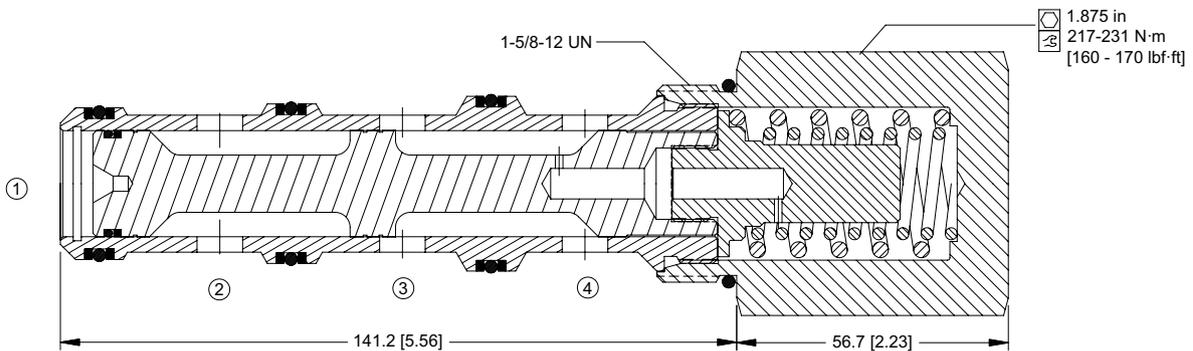
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	265 l/min [70 US gal/min]
Weight	1.22 kg [2.68 lb]
Cavity	SDC20-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP723 - 5 - B - 20S - 150 - S3

**Seals**

B = Buna-N  
 V = Viton

**Housing and ports**

00 = No Housing  
 8B = AL, 1 BSP  
 10B = AL, 1-1/4 BSP  
 16S = AL, #16 SAE  
 20S = AL, #20 SAE  
 Other housings available

Seal kit  
 120181  
 120182

**Housing P/N**

No Housing  
 CP20-4-8B  
 CP20-4-10B  
 CP20-4-16S  
 CP20-4-20S

**Spool seals**

S3 = No seal  
 S4 = Seal at bottom of spool

**Shift pressure**

Shift pressure (bar)	Shift pressure (psi)
050	3.5 [50]
080	5.5 [80]
100	6.9 [100]
130	9.0 [130]
150	10.3 [150]

shift pressure assumes no seals

**OPERATION**

The DV15-P5-24-01 is a normally open, 5-ported piloted directional control valve, 2-position, 4-way, 15-size. It is shifted by applying pressure to port 5. In the normal position, flow is allowed between ports 3 and 4, and ports 2 to 1. During transition, all ports are closed. When the valve is fully shifted, flow is allowed between ports 2 and 3, and ports 4 to 1.



**APPLICATIONS**

This spool-type valve is primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option. Alternatively, it can also be piloted with a 2-position, 3-way solenoid valve using the internal pilot drain plug option.

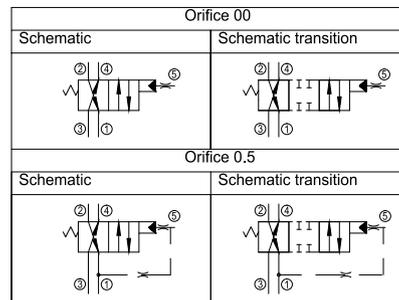
DV - Directional Control Valves  
 DV15-P5-24-01

**SPECIFICATIONS**

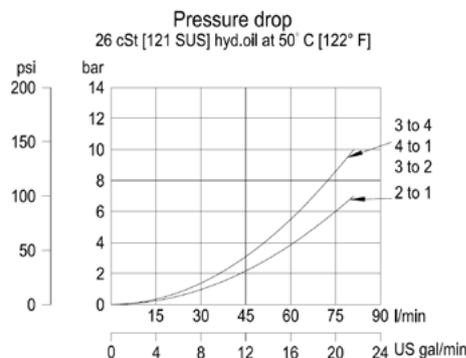
<b>Rated Pressure*</b>	230 bar [3335 psi]
<b>Rated Flow at 7 bar [100 psi]</b>	70 l/min [18.4 US gal/min]
<b>Maximum Rated Flow</b>	80 l/min [21.1 US gal/min]
<b>Minimum pilot pressure</b>	2 bar [29 psi]
<b>Weight</b>	0.44 kg [0.95 lbs]
<b>Cavity</b>	NCS12/5

\* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

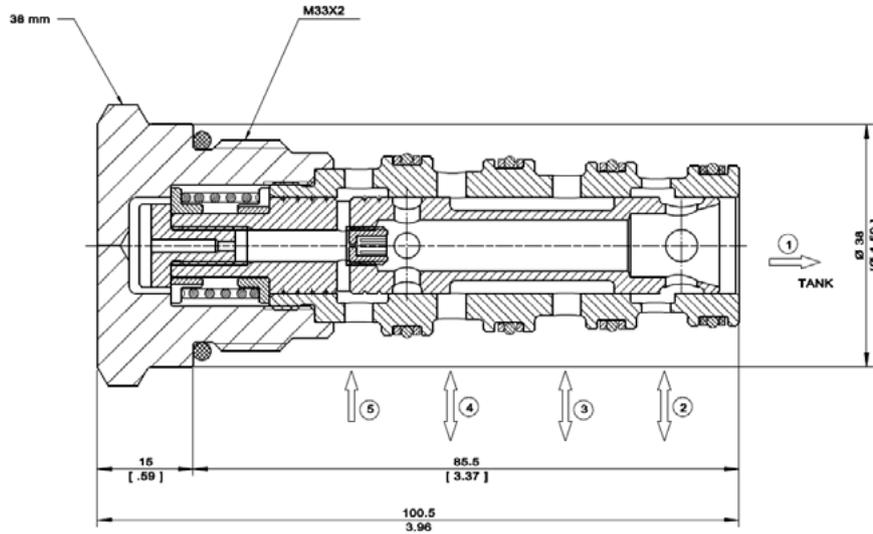
**SCHEMATICS**



**PERFORMANCE CURVE**



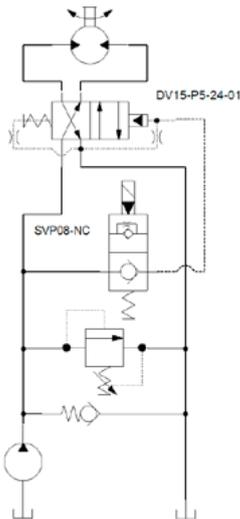
**DIMENSIONS**



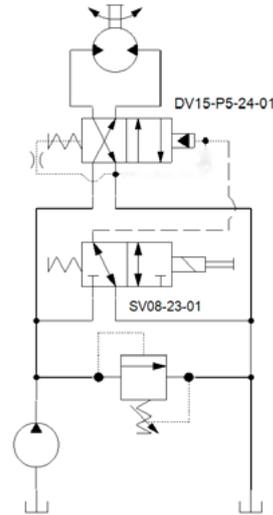
**EXAMPLE CIRCUITS**

**Bi-directional Motor Control**

Piloted with 2-way valve and internal pilot drain orifice option



Piloted with 3-way valve and internal pilot drain plug option



**ORDERING INFORMATION**

**DV15 - P5 - 24 - 01 - 0.5 - B - 2 - 12S**

**DV15:** Directional Control Valve, Hydraulically Piloted, 15 Size  
**P5:** Piloted, Port 5  
**24:** 2 Position, 4-way

**01:** Schematic: Normally Open

Code	Orifice/Plug for Pilot Drain
00	Plug
0.5	0.5 mm

Housing & Ports	Housing P/N
<b>6B:</b> 3/4 BSP [P5 - 3/8 BSP]	NCS12/5 - 6B/3B
<b>12S:</b> #12 SAE [P5 - #6 SAE]	NCS12/5 - 12S/6S

**Pilot Shift Pressure**  
 2: 2 bar [29 psi]

Code	Seal Material
<b>B</b>	Buna
<b>V</b>	Viton

**OPERATION**

The DV15-P5-24-FD is a normally open, 5-ported piloted directional control valve, 2-position, 4-way, 15-size. It is shifted by applying pilot pressure to port 5. In the normal position, flow is allowed between ports 3 and 4, and ports 2 to port 1. During transition, flow is temporarily allowed between all four ports. When fully shifted flow is allowed ports 3 to 2, and ports 4 to port 1.



**APPLICATIONS**

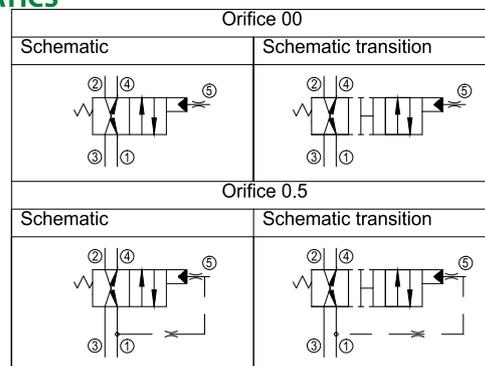
This valve is primarily used for reversing fan drive circuits where the open-transition design is important for smooth shifting and minimal pressure spikes during reversing. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option. Alternatively, it can also be piloted with a 2-position, 3-way solenoid valve using the internal pilot drain plug option.

**SPECIFICATIONS**

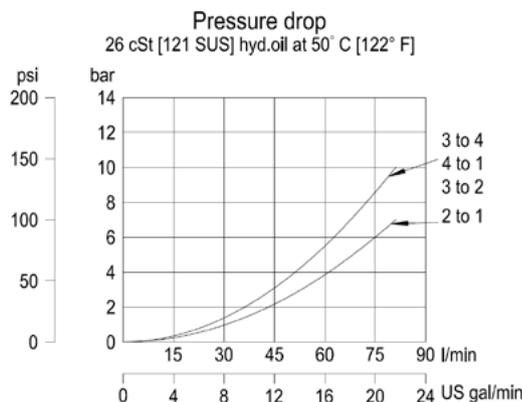
<b>Rated Pressure*</b>	230 bar [3335 psi]
<b>Rated Flow at 7 bar [100 psi]</b>	70 l/min [18.4 US gal/min]
<b>Maximum Rated Flow</b>	80 l/min [21.1 US gal/min]
<b>Minimum pilot pressure</b>	2 bar [29 psi]
<b>Weight</b>	0.44 kg [0.95 lbs]
<b>Cavity</b>	NCS12/5

\* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

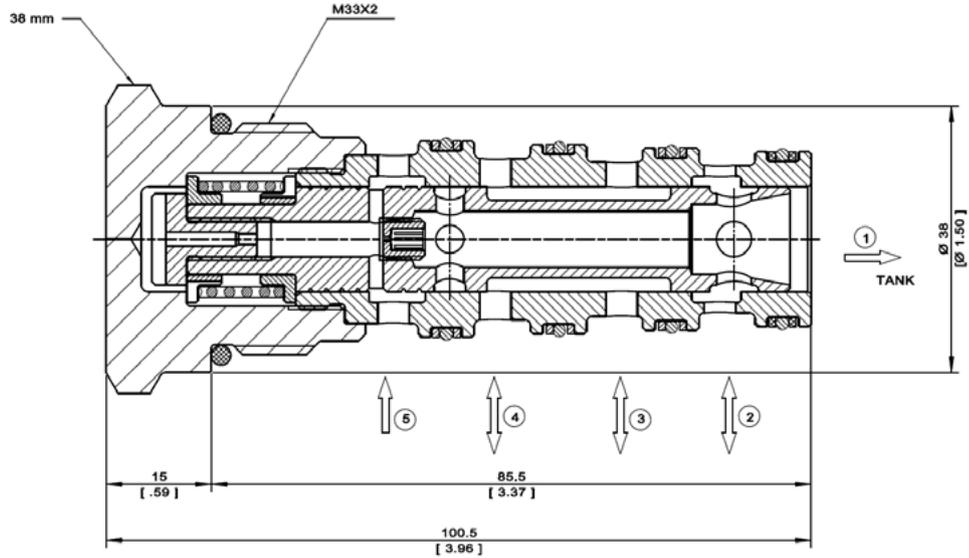
**SCHEMATICS**



**PERFORMANCE CURVE**



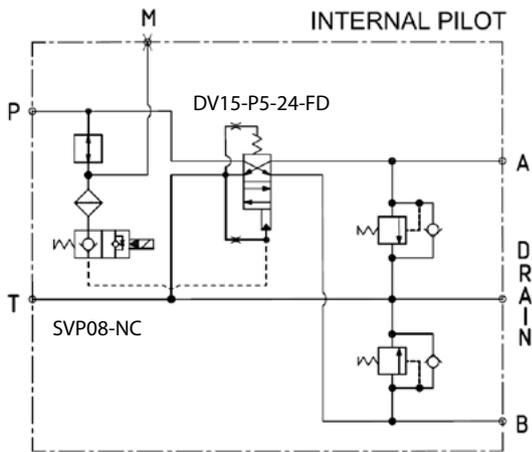
**DIMENSIONS**



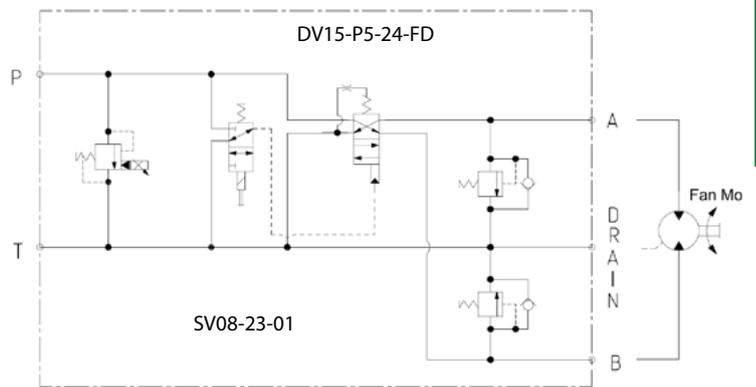
**EXAMPLE CIRCUITS**

Reversing Fan Drive Circuits

Piloted with 2-way valve and internal pilot drain orifice option



Piloted with 3-way valve and internal pilot drain plug option



DV - Directional Control Valves  
 DV15-P5-24-FD

**ORDERING INFORMATION**

**DV15 - P5 - 24 - FD - 0.5 - B - 2 - 12S**

DV15: Directional Control Valve, Hydraulically Piloted, 15 Size

P5: Piloted, Port 5

24: 2 Position, 4-way

FD: Schematic: Fan Drive

Code	Orifice/Plug for Pilot Drain
00	Plug
0.5	0.5 mm

Housing & Ports	Housing P/N
6B: 3/4 BSP [P5 - 3/8 BSP]	NCS12/5 - 6B/3B
12S: #12 SAE [P5 - #6 SAE]	NCS12/5 - 12S/6S

Pilot Shift Pressure  
 2: 2 bar [29 psi]

Code	Seal Material
B	Buna
V	Viton

**OPERATION**

The DV15-P5-24-05 is a normally-open, 5-ported piloted directional control valve, 2-position, 4-way, 15-size. It is shifted by applying a pilot pressure to port 5. In the normal position, flow is allowed between ports 3 and 2, and ports 4 to 1. During transition, the flow patterns remain the same. When the spool is fully shifted, all four ports are closed.



**APPLICATIONS**

Use this valve for applications including on-off control of uni-directional motors. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option. Alternatively, it can also be piloted with a 2-position, 3-way solenoid valve using the internal pilot drain plug option.

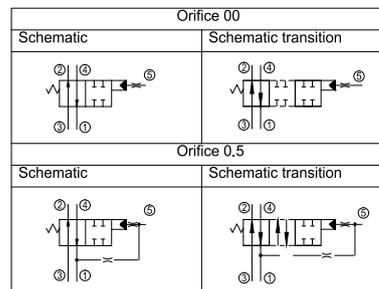
DV - Directional Control Valves  
 DV15-P5-24-05

**SPECIFICATIONS**

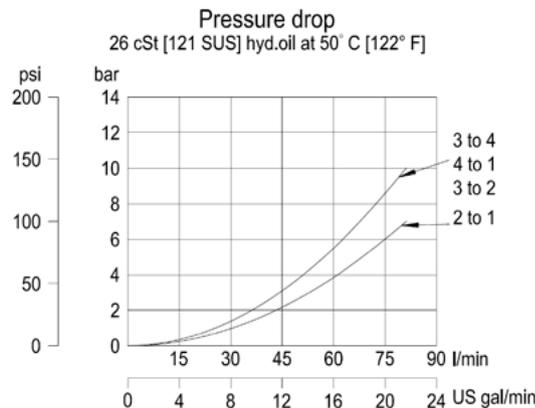
<b>Rated Pressure*</b>	230 bar [3335 psi]
<b>Rated Flow at 7 bar [100 psi]</b>	70 l/min [18.4 US gal/min]
<b>Maximum Rated Flow</b>	80 l/min [21.1 US gal/min]
<b>Minimum pilot pressure</b>	2 bar [29 psi]
<b>Weight</b>	0.44 kg [0.95 lbs]
<b>Cavity</b>	NCS12/5

\* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

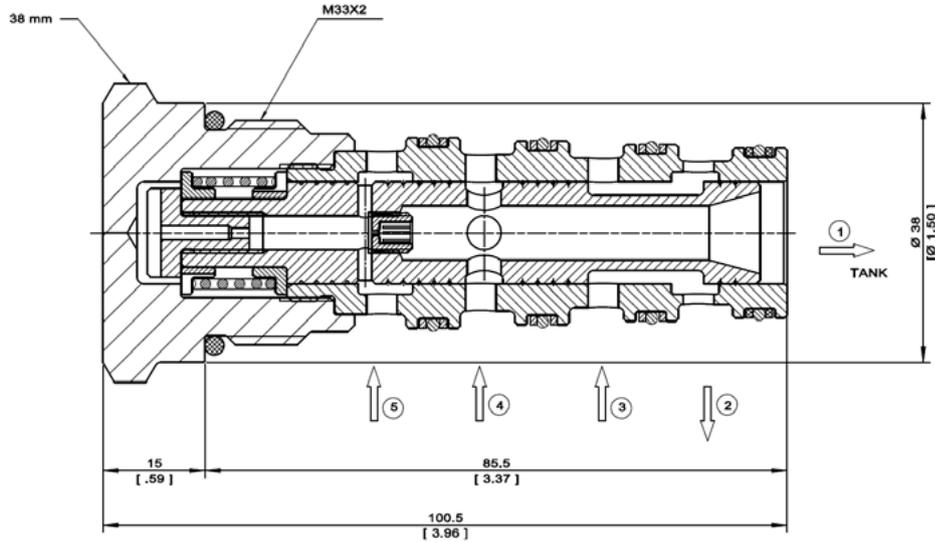
**SCHEMATIC**



**PERFORMANCE CURVE**



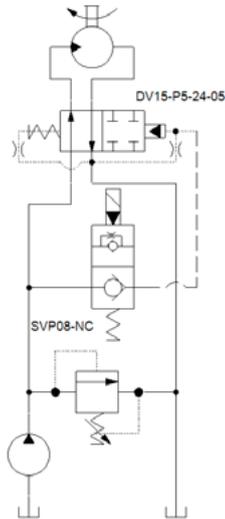
**DIMENSIONS**



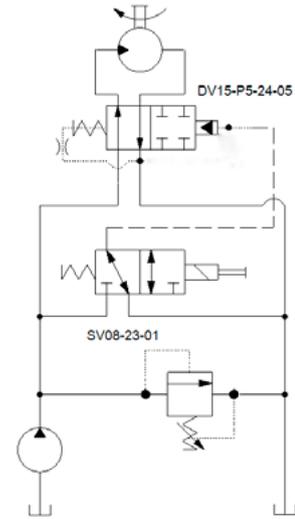
**EXAMPLE CIRCUITS**

Uni-directional Motor Control, Normally On

Piloted with 2-way valve and internal pilot drain orifice option



Piloted with 3-way valve and internal pilot drain plug option



**ORDERING INFORMATION**

**DV15 - P5 - 24 - 05 - 0.5 - B - 2 - 12S**

DV15: Directional Control Valve, Hydraulically Piloted, 15 Size  
 P5: Piloted, Port 5  
 24: 2 Position, 4-way  
 05: Schematic: Normally Open

Code	Orifice/Plug for Pilot Drain
00	Plug
0.5	0.5 mm

Housing & Ports		Housing P/N
6B:	3/4 BSP [P5 - 3/8 BSP]	NCS12/5 - 6B/3B
12S:	#12 SAE [P5 - #6 SAE]	NCS12/5 - 12S/6S

Pilot Shift Pressure  
 2: 2 bar [29 psi]

Code	Seal Material
B	Buna
V	Viton

**OPERATION**

The DV15-P5-24-08 is a 5-ported piloted directional control valve, 2-position, 4-way, 15-size. It is shifted by applying pilot pressure to port 5. When the DV15-P5-24-08 is in the normal position, port 3 is blocked while flow is allowed between ports 2, 4 and 1. During transition, flow is allowed between all four ports. When the spool is fully shifted, flow is allowed from ports 3 to 2, and ports 4 to 1.



**APPLICATIONS**

Use this valve for applications including motor free wheel operation. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option. Alternatively, it can also be piloted with a 2-position, 3-way solenoid valve using the internal pilot drain plug option.

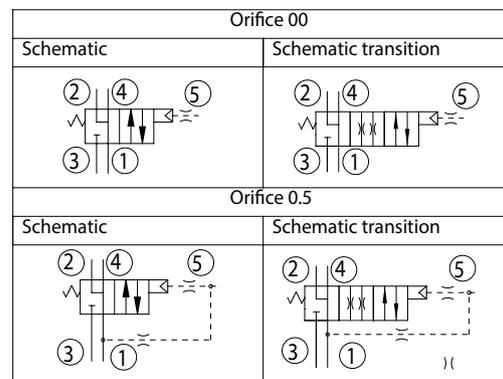
**DIMENSIONS**

**SPECIFICATIONS**

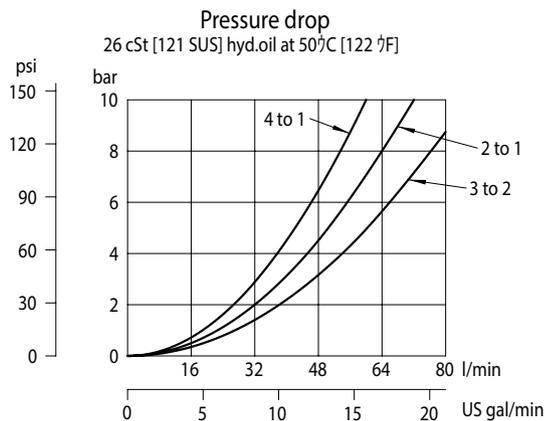
<b>Rated Pressure*</b>	230 bar [3335 psi]
<b>Rated Flow at 7 bar [100 psi]</b>	70 l/min [18.4 US gal/min]
<b>Maximum Rated Flow</b>	80 l/min [21.1 US gal/min]
<b>Minimum pilot pressure</b>	2 bar [29 psi]
<b>Weight</b>	0.44 kg [0.95 lbs]
<b>Cavity</b>	NCS12/5

\* Rated Pressure based on NFPA fatigue test standards (at 1 Million Cycles).

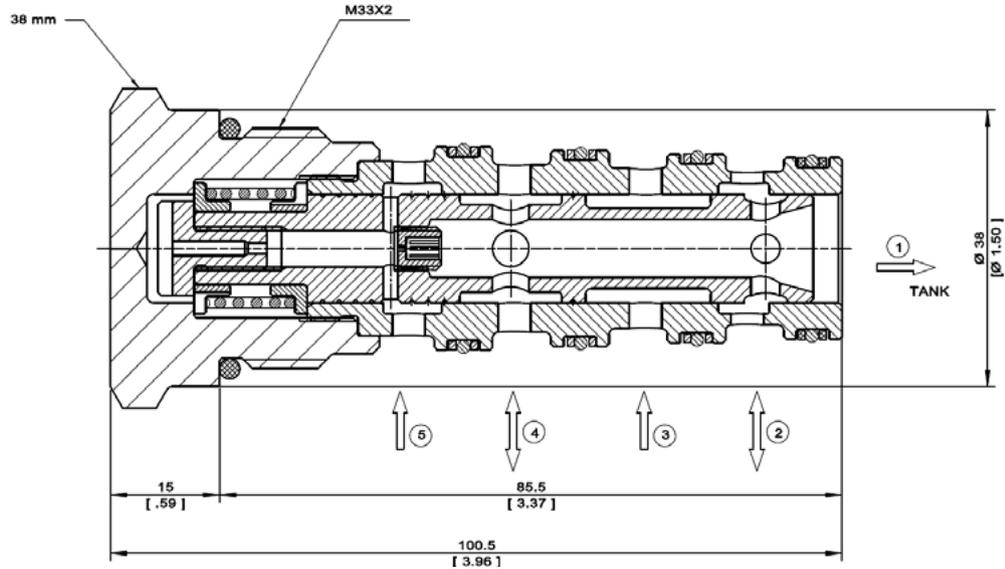
**SCHEMATICS**



**PERFORMANCE CURVE**



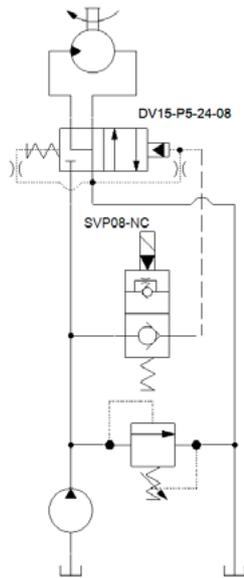
**DIMENSIONS**



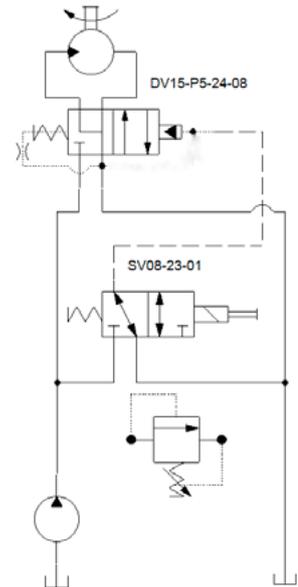
**EXAMPLE CIRCUITS**

**Free Wheel Motor Control**

Piloted with 2-way valve and internal pilot drain orifice option



Piloted with 3-way valve and internal pilot drain plug option



**ORDERING INFORMATION**

**DV15 - P5 - 24 - 08 - 0.5 - B - 2 - 12S**

DV15: Directional Control Valve, Hydraulically Piloted, 15 Size  
 P5: Piloted, Port 5  
 24: 2 Position, 4-way  
 08: Schematic Type

Code	Orifice/ Plug for Pilot Drain
00	Plug
0.5	0.5 mm

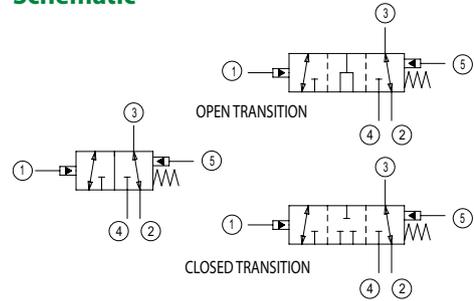
Housing & Ports		Housing P/N
6B: 3/4 BSP [P5 - 3/8 BSP]		NCS12/5 - 6B/3B
12S: #12 SAE [P5 - #6 SAE]		NCS12/5 - 12S/6S

Pilot Shift Pressure  
 2: 2 bar (29 psi)

Code	Seal Material
B	Buna
V	Viton

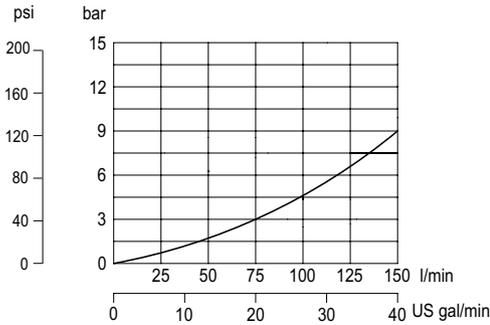
**OPERATION** This valve is a three way double hydraulically piloted spool.

**Schematic**



**SPECIFICATIONS**

Pressure drop  
 33 cSt [154 SUS] hyd.oil at 38°C [100°F]



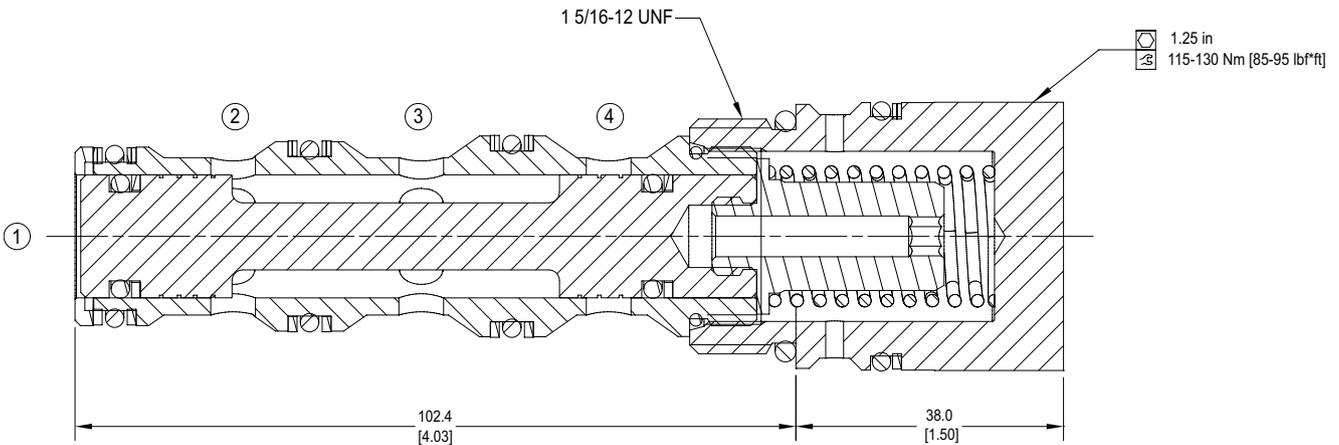
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Weight	0.67 kg [1.47 lb]
Cavity	SDC16-5S

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

DV16-P5-23-01 - OT - S1 - B - 2.75 - 12S

Directional Valve, 2 Position  
 3 Way, Double Hydraulically  
 Piloted, 16 Size, Spool Type

**Spool Transition**

Code	Description
OT	Open Transition
CT	Closed Transition

**Internal Seals**

Code	Description
S1	Top Seals Only
S2	Top and Bottom Seals
S3	No Seals
S4	Bottom Seals Only

**Bodies**

Code	Ports & Material	Body Nomenclature
00	Cartridge Only	No Body
12S	#12 SAE, AL	SDC16-5S-12S
16S	#16 SAE, AL	SDC16-5S-16S
6B	3/4" BSP, AL	SDC16-5S-6B
8B	1" BSP, AL	SDC16-5S-8B

\*\*Aluminum bodies are to be used for lower pressures less than 210 bar (3,000 psi)

**Crack Pressure**

Code	Crack Pressure
2.75	2.75 Bar [40 PSI]
5.5	5.5 Bar [80 PSI]
10	10 Bar [150 PSI]

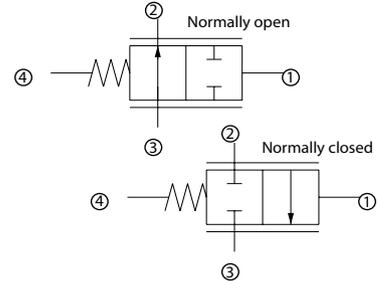
**Seal Option**

Code	Seal Material	Seal Kit
B	Buna	11145379
V	Viton	11145380

**OPERATION**

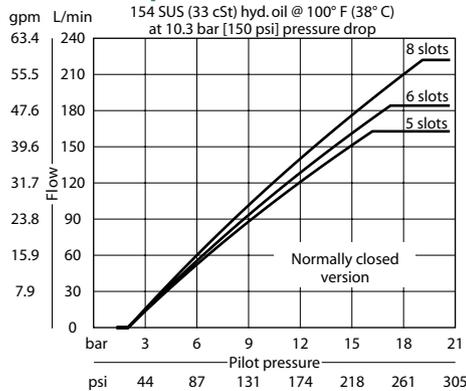
This valve is a hydraulically piloted proportional flow control.

**Schematic**



**SPECIFICATIONS**

**Theoretical performance**



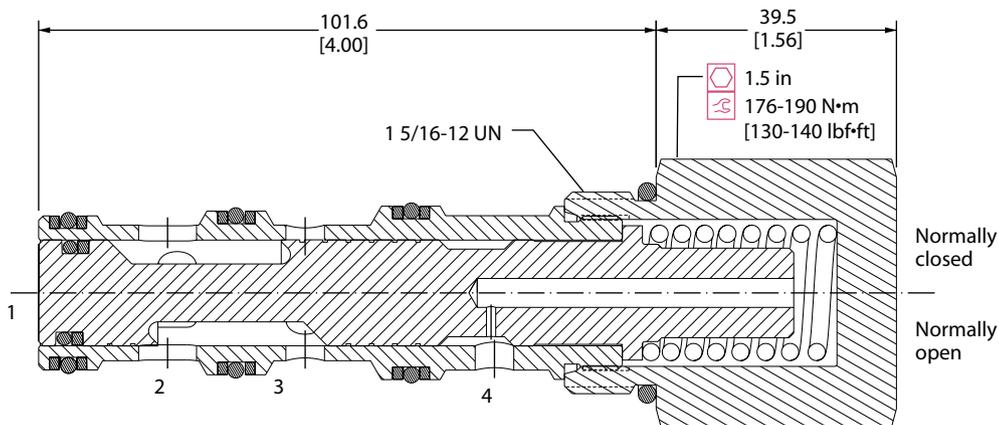
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 10 bar [150 psi]	220 l/min [58 US gal/min]
Weight	0.61 kg [1.34 lb]
Cavity	CP16-4

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP712-7-B-12S-C-5-S4

**Spool seal**

S3 = No spool seal  
 S4 = With spool seal

**Sleeve option**

5 = 5 slots  
 6 = 6 slots  
 8 = 8 slots

**Spool configuration**  
 C = Normally closed  
 O = Normally open

**Housing and ports**

0 = No Housing  
 6B = AL, 3/4 BSP  
 8B = AL, 1 BSP  
 12S = AL, #12 SAE  
 16S = AL, #16 SAE

**Seals**

B = Buna-N  
 V = Viton

Seal kit  
 120025  
 120026

**Housing P/N**

No Housing  
 CP16-4-6B  
 CP16-4-8B  
 CP16-4-12S  
 CP16-4-16S

