

Comatrol

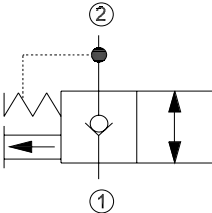
RESPONSIVENESS IN MOTION

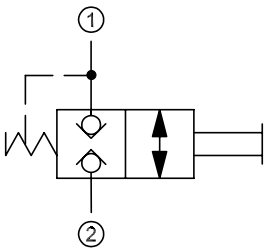
Member of the Danfoss Group

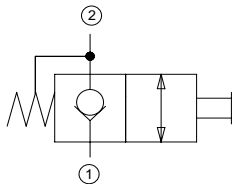


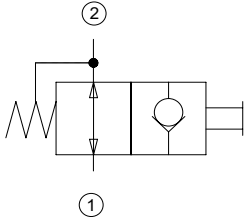
Directional Control Valves

www.comatrol.com

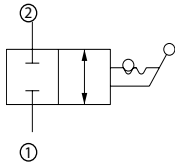
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP600-1	SDC10-2	Directional Mechanical, Poppet, Pull to Open	68 l/min [18 US gal/ min]	207 bar [3000 psi]	DV - 10

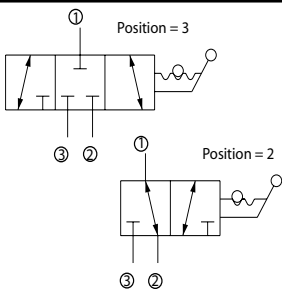
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	CE 06	NCS06/2	Directional Mechanical, Poppet, Pull to Open	20 l/min [5 US gal/min]	207 bar [3000 psi]	DV - 11
	CP600-2	SDC10-2		50 l/min [13 US gal/ min]	207 bar [3000 psi]	DV - 12

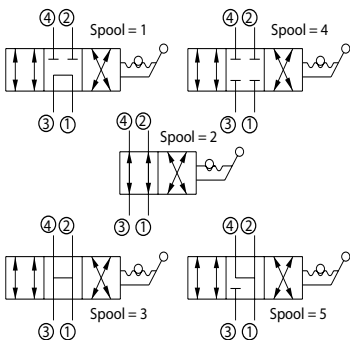
Manual Push/Pull	Model No.	Cavity	Description	Flow*	Pressure	Page
	DMP08-NC	SDC08-2	Directional Mechanical, Poppet, Normally Closed	38 l/min [10 US gal/ min]	207 bar [3000 psi]	DV - 13

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	SDC16-55	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

W

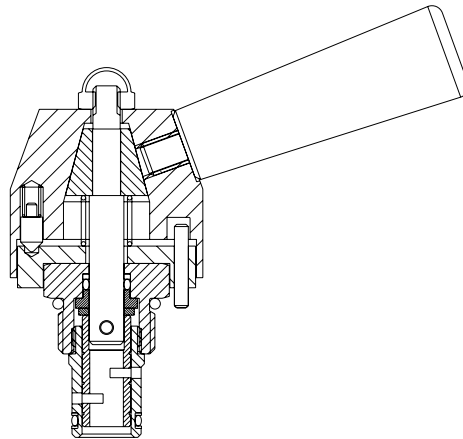
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

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

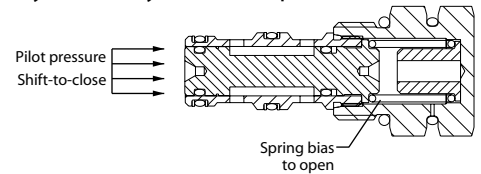


Hydraulically-actuated spool valves are available as 2-way (normally-open or normally-closed), 3-way, and 4-way valves, and are used for direction control. These are all 2-position valves that are spring-biased to a neutral position and use 3-10 bar [40-150 psi] hydraulic pressure to shift the spool.

Directional control valves



Hydraulically actuated spool valve

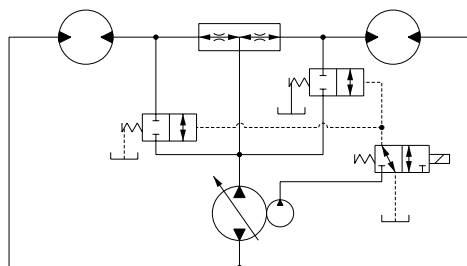


APPLICATIONS

Common applications include:

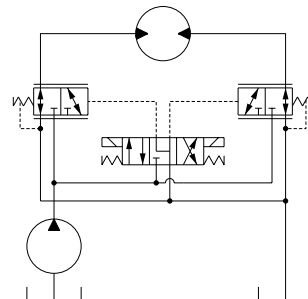
- Directional control valves for high flow with pilot pressure controlled by solenoid valves.
- Bypass valves for flow dividers in vehicle traction circuits.

Pilot-operated bypass valves for traction circuit

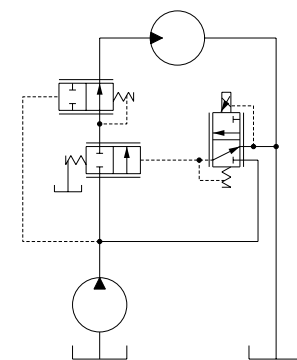


A hydraulically-actuated spool valve (CP712-7) is also available to create an infinitely variable orifice that is controlled by pilot pressure. This valve is typically used in a circuit with a proportional pressure reducing valve (e.g. CP558-24) and a pressure compensator (e.g. CP312-4). Such a circuit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

Pilot-operated directional valve circuit



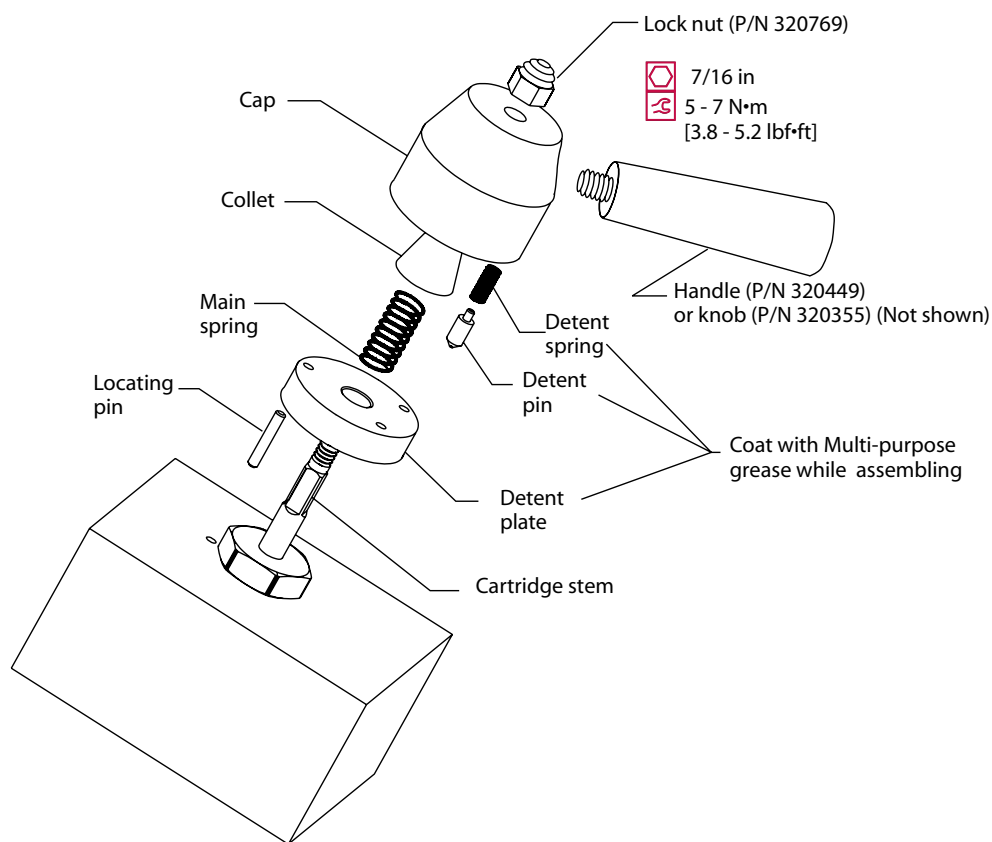
Pilot-operated proportional flow control circuit



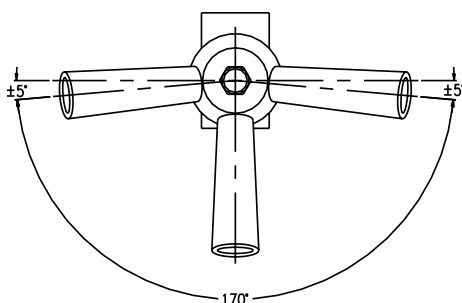
INSTALLATION

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.

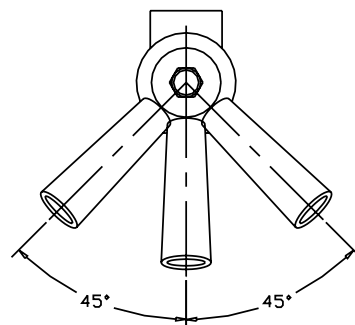
Assembly Drawing



Handle orientation for 2-way valve.



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

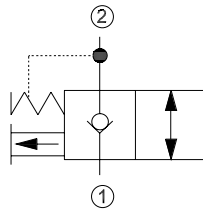


OPERATION

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



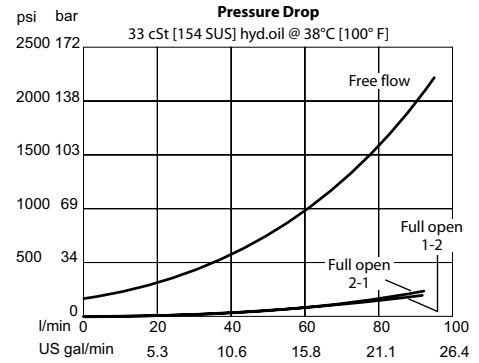
Specifications

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

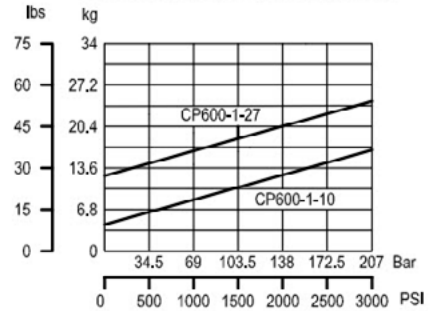
DIMENSIONS

mm [in]

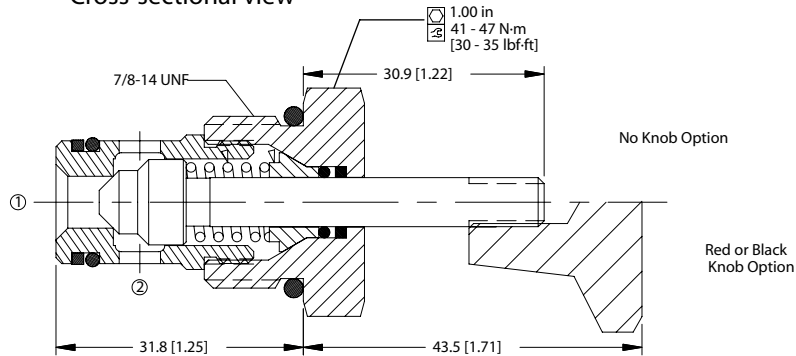
Theoretical performance



Force Required To Operate Override



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

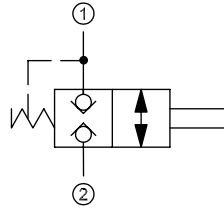
Force Required to Operate Override

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.

Schematic

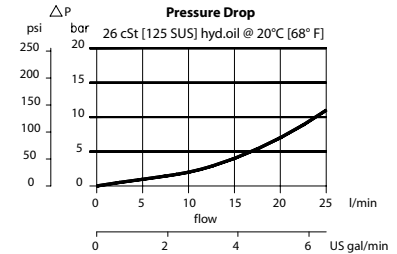


SPECIFICATIONS

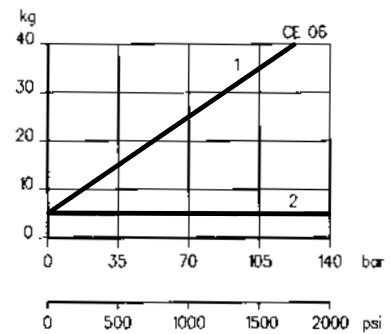
Specifications

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

Theoretical performance

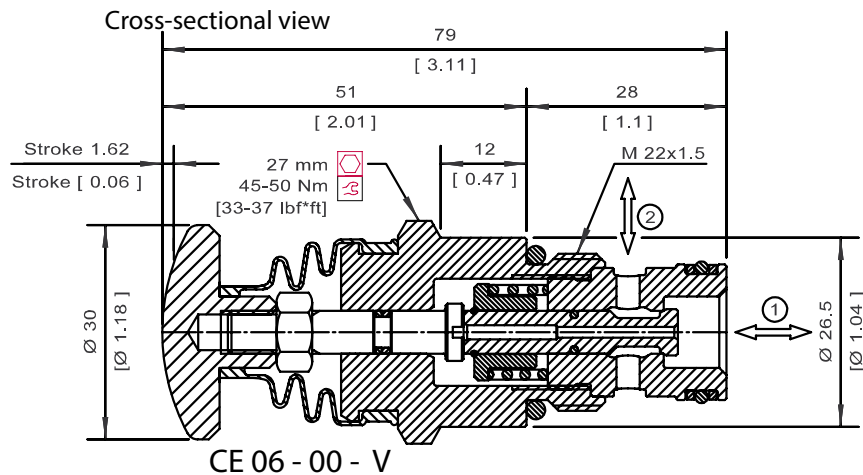


Force required to operate override



DIMENSIONS

mm [in]



ORDERING INFORMATION

Seals

V = Viton

Omit = Buna-N

Seal kit

230000380

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

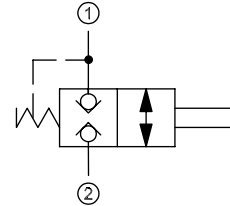
NCS06/2-DG-6S

NCS06/2-DG-8S

OPERATION

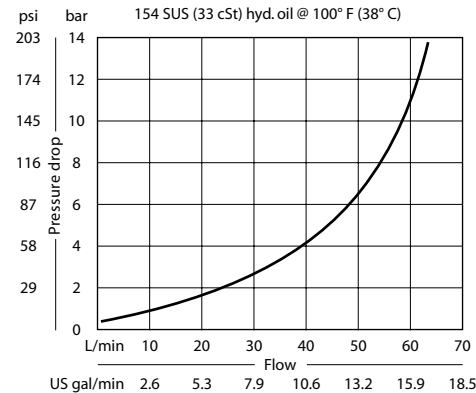
This valve is a normally closed, manually operated, bi-directional push-to-open valve.

Schematic



SPECIFICATIONS

Theoretical performance



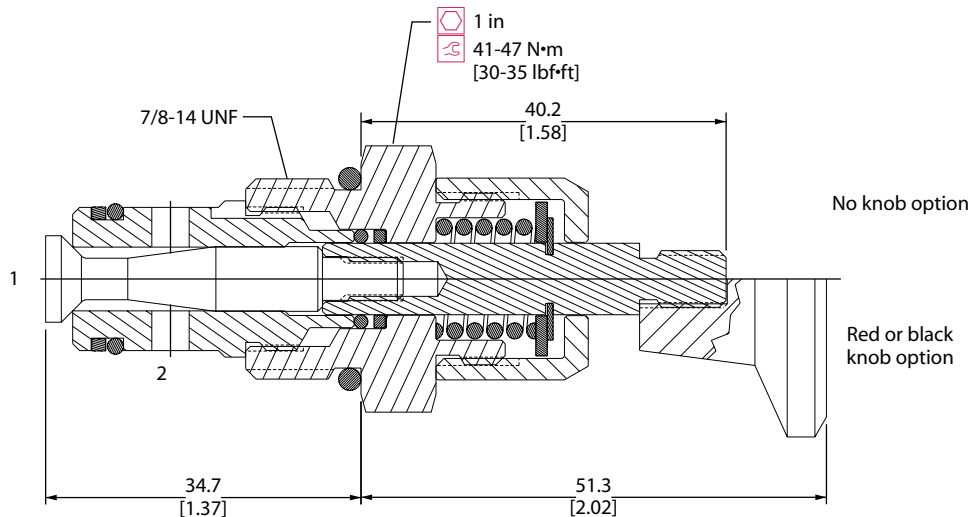
Specifications

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



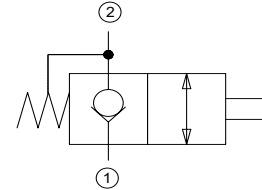
ORDERING INFORMATION

CP600 - 2 - B - 8S - 10 - B			
Seals		Seal kit	
B = Buna-N		120015	
V = Viton		120016	
Housing and ports		Housing P/N	
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			
		Knob option	
		0 = No knob (1/4-28 UNF threads)	
		B = Black knob	
		R = Red knob	
		Spring load	
		10 = 44 N [10 lbf]	
		15 = 67 N [15 lbf]	

OPERATION

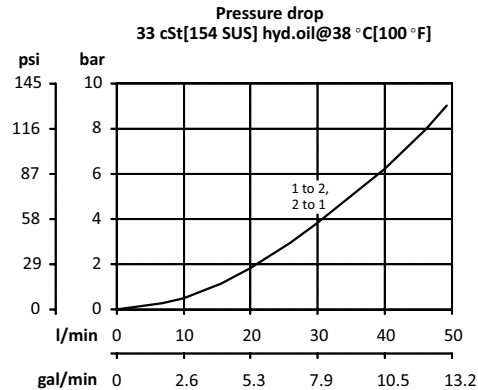
This valve is a normally closed, manually operated, poppet type valve with free reverse flow..

Schematic



SPECIFICATIONS

Theoretical performance



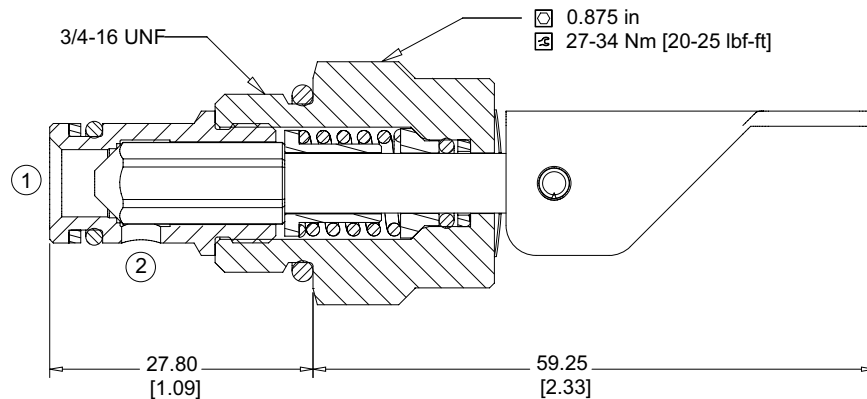
Specifications

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

Seals
 B = Buna-N
 V = Viton

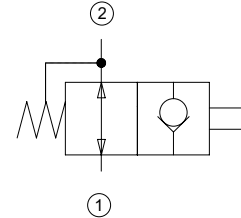
Housing Part #
 No Housing
 SDC08-2-DG-2B
 SDC08-2-DG-3B
 CP08-2-4S
 CP08-2-6S

Seal Kit
 120221
 120222

OPERATION

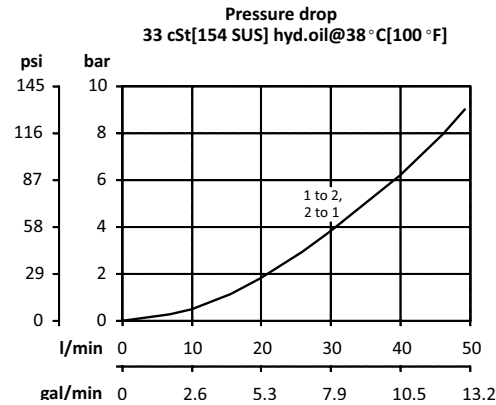
This valve is a normally open, manually operated, poppet type valve with free reverse flow..

Schematic



SPECIFICATIONS

Theoretical performance



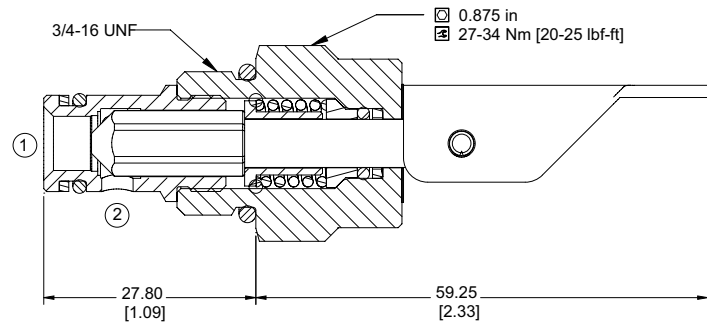
Specifications

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

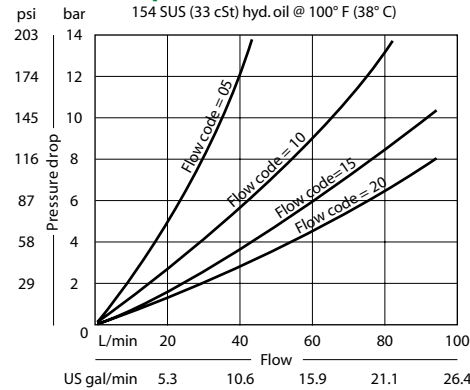
OPERATION

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

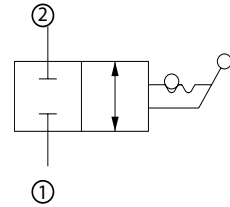
Refer to application notes for installation details.

SPECIFICATIONS

Theoretical performance



Schematic



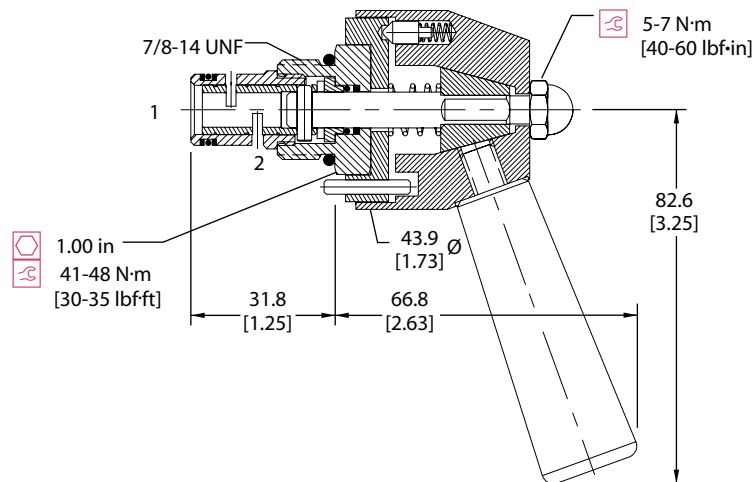
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	75 l/min [20 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /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			
Seals	Seal kit	Rotation to close	Detent
B - Buna-N	120073	R - Clockwise	D = Detent with handle
V - Viton	120074	L - Counterclockwise	K = Knob (not shown)
Housing and ports	Housing P/N		knob is not detented
0 = No Housing	No Housing		Position
DG3B = AL, 3/8 BSP	SDC10-2-DG-3B		2 - 2 Position detent
DG4B = AL, 1/2 BSP	SDC10-2-DG-4B		3 - 3 Position detent
6S = AL, #6 SAE	CP10-2-6S		10 - 10 Position detent
8S = AL, #8 SAE	CP10-2-8S		
Other housings available		Flow	
		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]	

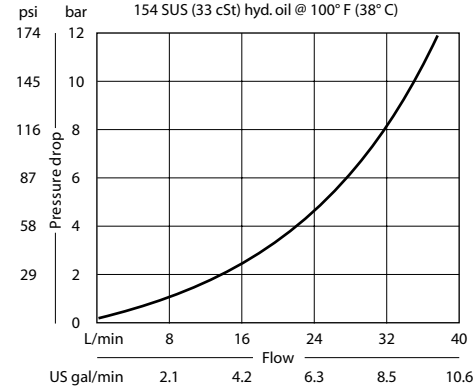
OPERATION

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

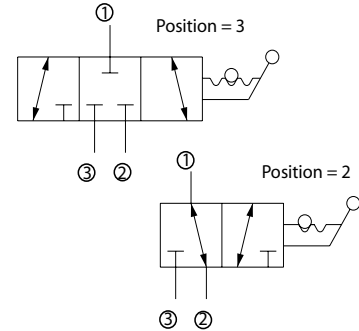
Refer to application notes for installation details.

SPECIFICATIONS

Theoretical performance



Schematic



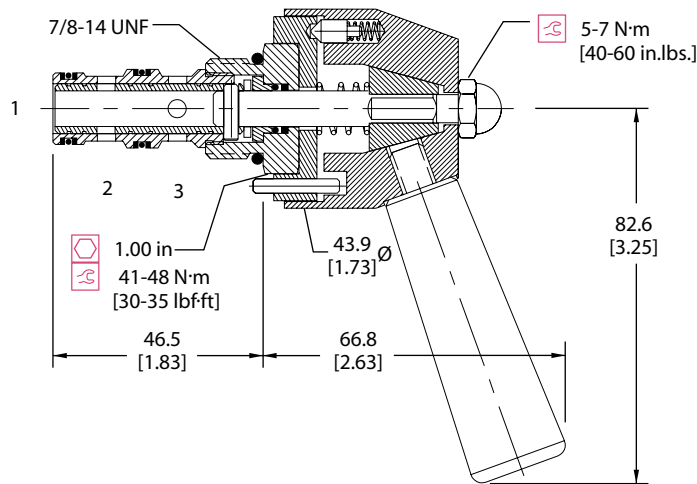
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /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

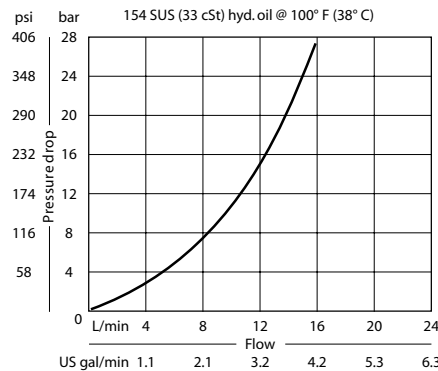
OPERATION

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.

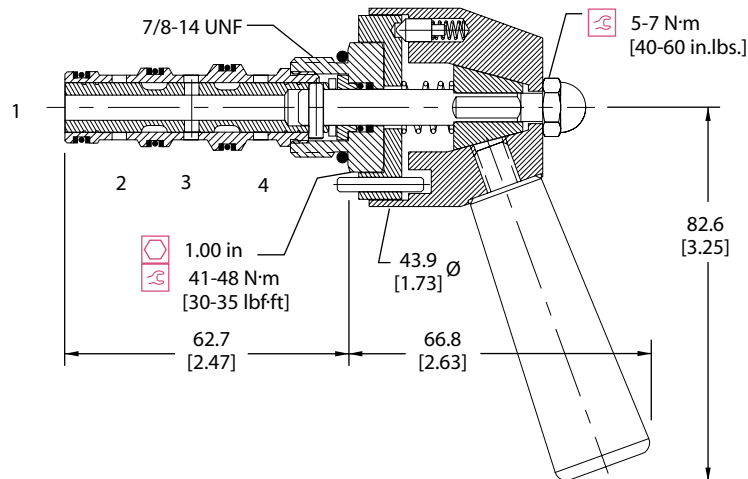
Theoretical performance



DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

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

Housing P/N

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

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

Detent

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

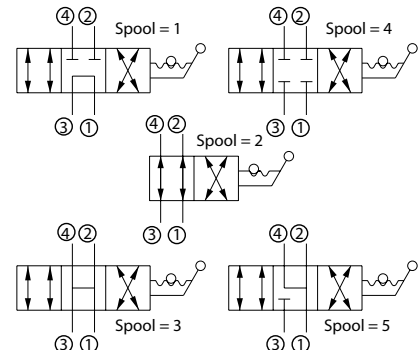
Position

2 = 2 Position detent
3 = 3 Position detent

Spool

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

Schematic



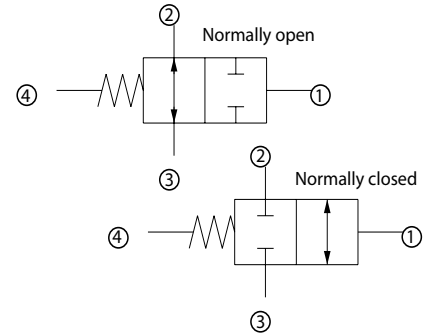
Specifications

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

OPERATION

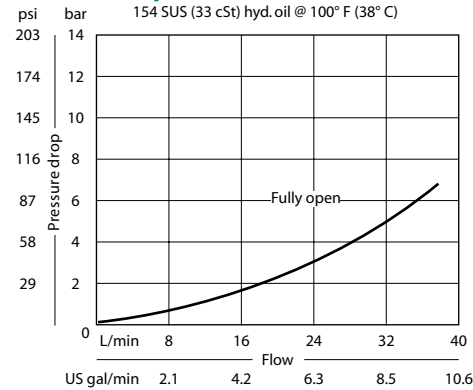
This valve is a 2-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



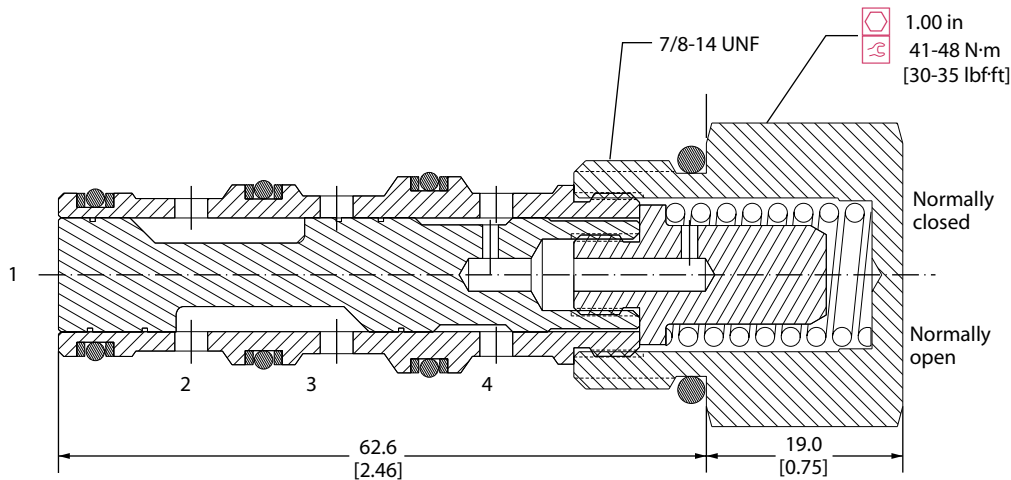
Specifications

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 - 16S - C - 080			
Seals			
B = Buna-N	Seal kit		
V = Viton	120009		
	120010		
Housing and ports	Housing P/N		
0 = No Housing	No Housing		
L3B = AL, 3/8 BSP	SDC10-4-L-3B		
L4B = AL, 1/2 BSP	SDC10-4-L-4B		
6S = AL, #6 SAE	CP10-4-6S		
8S = AL, #8 SAE	CP10-4-8S		
Other housings available			
Configuration			
O = Normally open			
C = Normally closed			
	Shift pressure		
	040 = 2.8 bar [40 psi]		
	080 = 5.5 bar [80 psi]		
	150 = 10.3 bar [150 psi]		

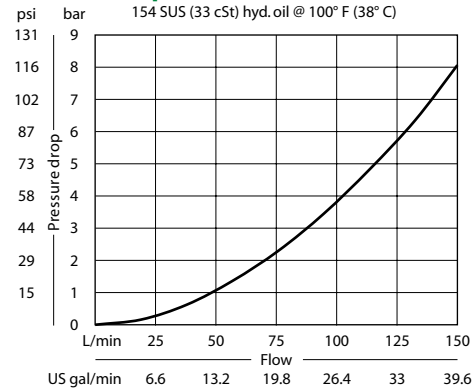
OPERATION

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

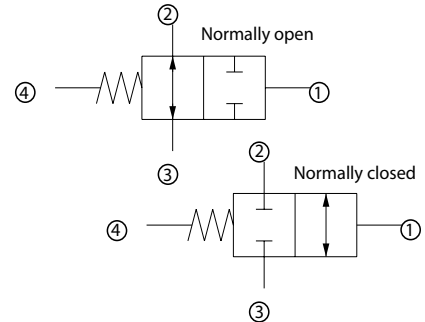
Note: Maximum pressure at port 4 is 207 bar [3000 psi].

SPECIFICATIONS

Theoretical performance



Schematic



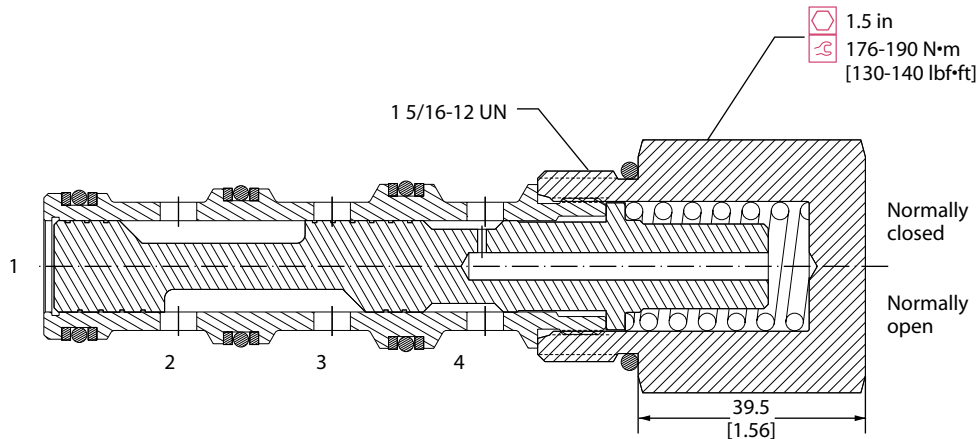
Specifications

Rated pressure	450 bar [6500 psi]
Rated flow at 7 bar [100 psi]	130 l/min [34 US gal/min]
Leakage	328 cm ³ /min [20 in ³ /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

Configuration

O = Normally open
 C = Normally closed

Seals

U = Urethane

Seal kit
 120677

Shift pressure

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

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

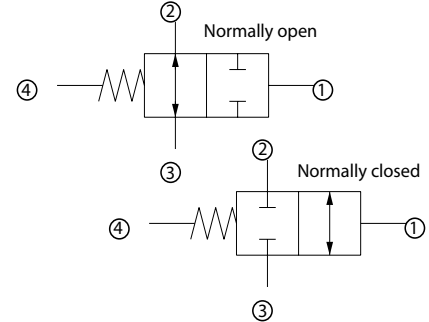
Housing P/N

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

OPERATION

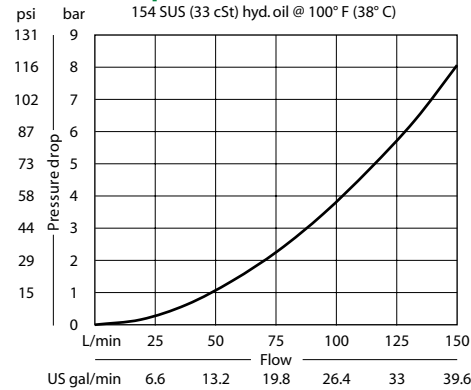
This valve is a 2-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



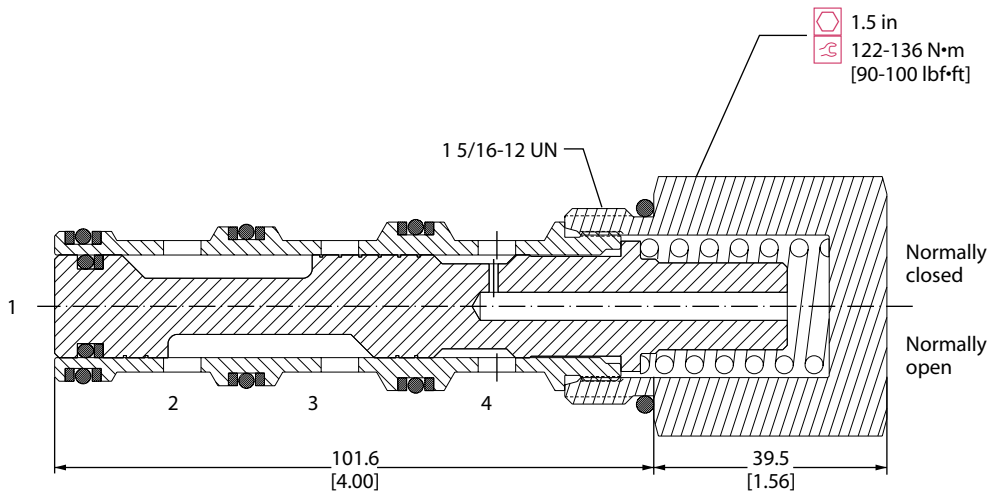
Specifications

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

Directional Control Valves Catalog

2-Position, 2-Way, Atmospheric Vent

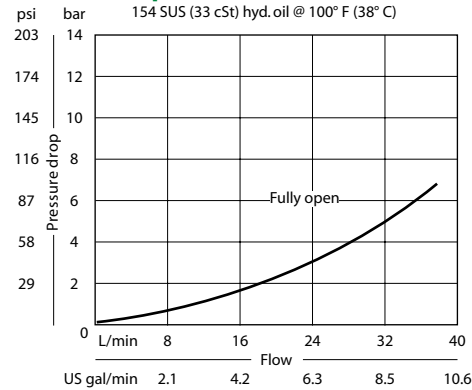
CP710-1

OPERATION

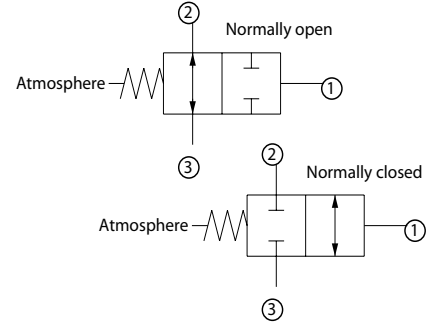
This valve is a hydraulically operated spool with atmospheric vent.

SPECIFICATIONS

Theoretical performance



Schematic



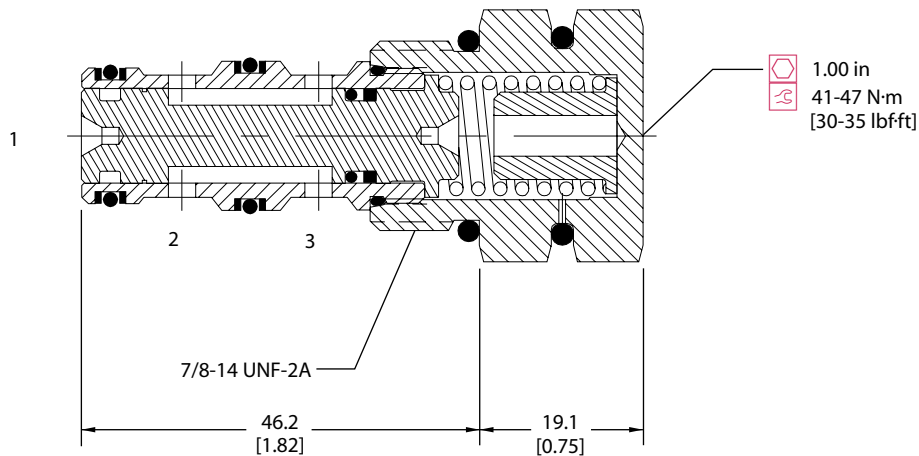
Specifications

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



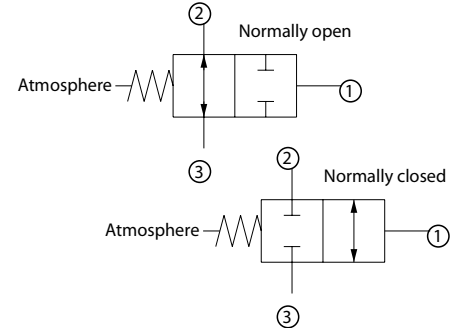
ORDERING INFORMATION

		CP710 - 1 - B - 8S - C - 150 - S1			
Seals				Spool seals	
		Seal kit		S1 = Seal at top of spool	
B = Buna-N		120009		S2 = Seals at top and bottom of spool	
V = Viton		120010			
Housing and ports		Housing P/N		Shift pressure	
0 = No Housing		No Housing		050 = 3.5 bar [50]	
SE3B = AL, 3/8 BSP		SDC10-3-SE-3B		080 = 5.5 [80]	
SE4B = AL, 1/2 BSP		SDC10-3-SE-4B		150 = 10.3 [150]	
6S = AL, #6 SAE		CP10-3-6S		Configuration	
8S = AL, #8 SAE		CP10-3-8S		O = Normally open	
Other housings available				C = Normally closed	

OPERATION

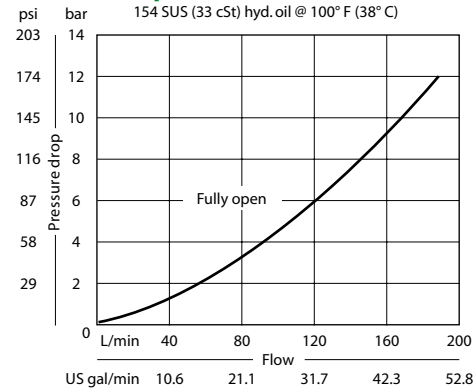
This valve is a hydraulically operated spool with atmospheric vent.

Schematic



SPECIFICATIONS

Theoretical performance



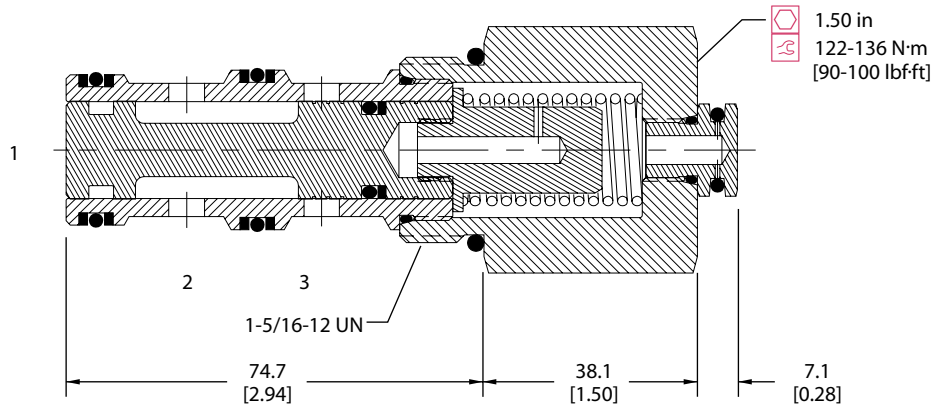
Specifications

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

Directional Control Valves Catalog

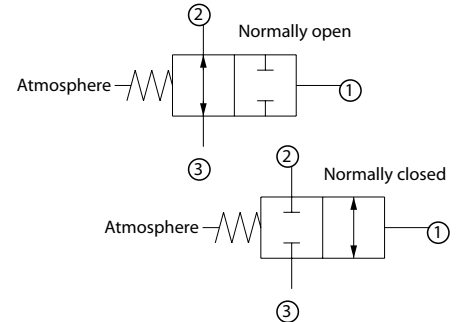
2-Position, 2-Way, Atmospheric Vent

CP713-1

OPERATION

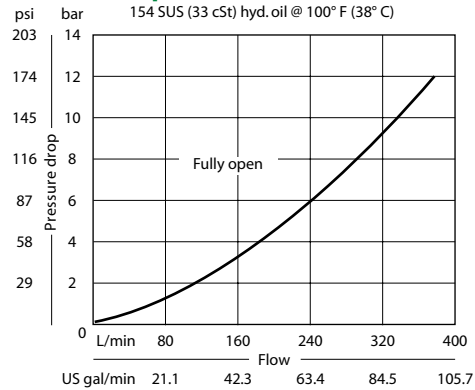
This valve is a hydraulically operated spool with atmospheric vent.

Schematic



SPECIFICATIONS

Theoretical performance



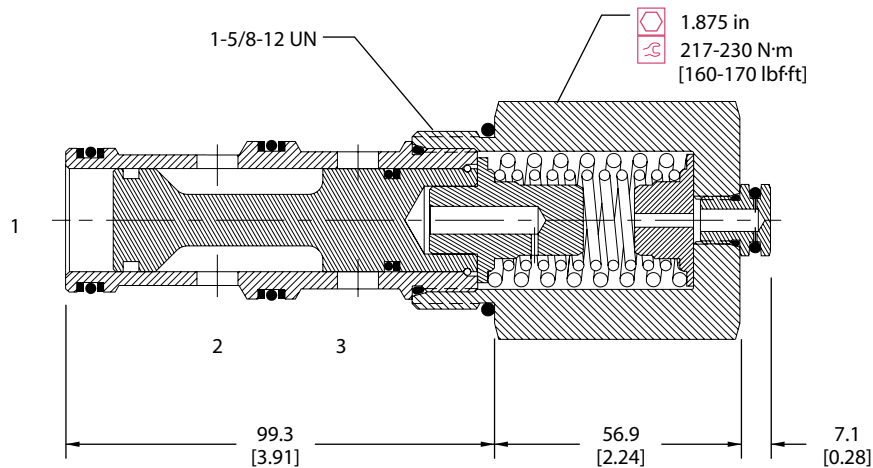
Specifications

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		Seal kit	
B = Buna-N		120200	
V = Viton		120201	
Housing and ports		Housing P/N	
0 = No Housing		No Housing	
8B = AL, 1 BSP		CP20-3-8B	
10B = AL, 1-1/4 BSP		CP20-3-10B	
16S = AL, #16 SAE		CP20-3-16S	
20S = AL, #20 SAE		CP20-3-20S	
Other housings available			
Configuration		Shift pressure	
O = Normally open		050 = 3.5 bar [50 psi]	
C = Normally closed		080 = 5.5 bar [80 psi]	
		100 = 6.9 bar [100 psi]	
		130 = 9.0 bar [130 psi]	
		150 = 10.3 bar [150 psi]	

Spool seals

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

Directional Control Valves Catalog

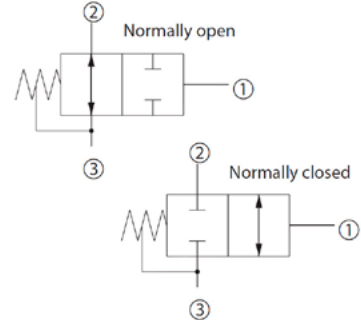
2-Position, 2-Way, Hydraulic Vent

CP710-3

OPERATION

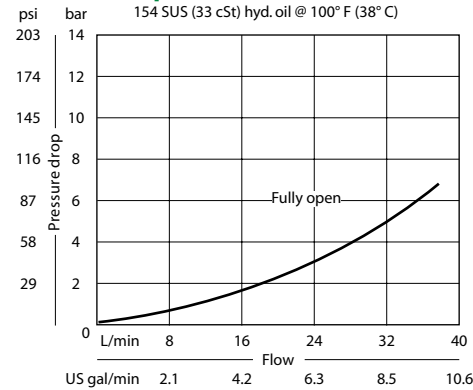
This valve is a 2-way hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



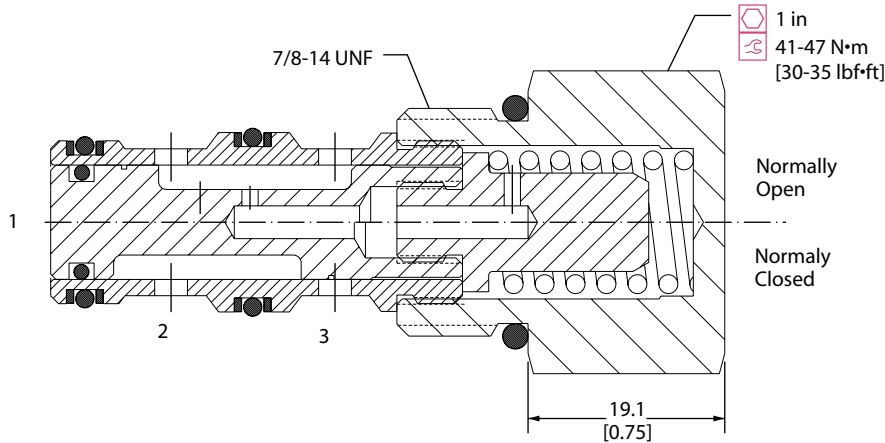
Specifications

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



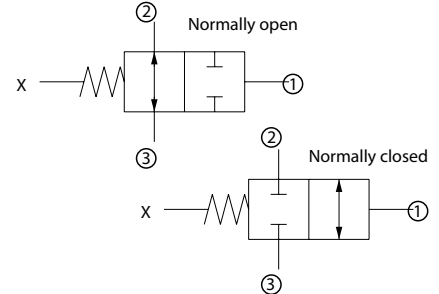
ORDERING INFORMATION

CP710 - 3 - B - 16S - C - 150 - S1			
Seals		Seal kit	Spool seal
B = Buna-N		120009	S3 = No seal
V = Viton		120010	S4 = With seal
Housing and ports		Housing P/N	Shift pressure
0 = No Housing		No Housing	bar [psi]
SE3B = AL, 3/8 BSP		SDC10-3-SE-3B	150 = 10.3 [150]
SE4B = AL, 1/2 BSP		SDC10-3-SE-4B	shift pressure assumes no seal
6S = AL, #6 SAE		CP10-3	
8S = AL, #8 SAE		CP10-3	
Other housings available			
Configuration			
O = Normally open			
C = Normally closed			

OPERATION

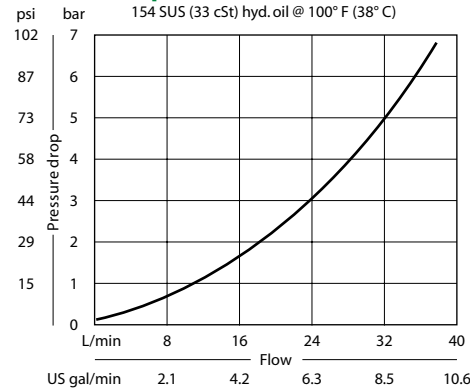
This valve is a 2-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



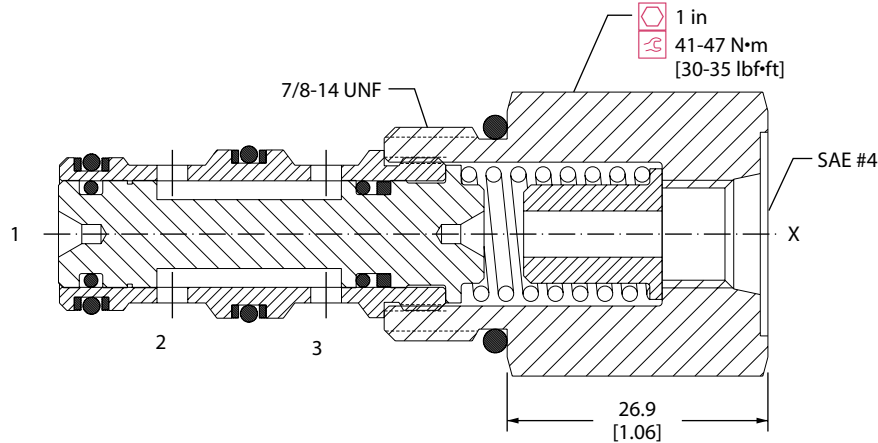
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	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	Seal kit	Shift pressure	Spool seals
B = Buna-N	120009	040 = 2.8 bar [40]	S1 = Seal at top of spool
V = Viton	120010	050 = 3.4 bar [50]	S2 = Seal at top and bottom of spool
Housing and ports	Housing P/N	080 = 5.5 bar [80]	S3 = No seals
0 = No Housing	No Housing	125 = 8.6 bar [125]	S4 = Seal at bottom of spool
SE3B = AL, 3/8 BSP	SDC10-3-SE-3B	150 = 10.3 bar [150]	
SE4B = AL, 1/2 BSP	SDC10-3-SE-4B		
6S = AL, #6 SAE	CP10-3-6S		
8S = AL, #8 SAE	CP10-3-8S		
Other housings available			
Configuration			
O = Normally open			
C = Normally closed			

Directional Control Valves Catalog

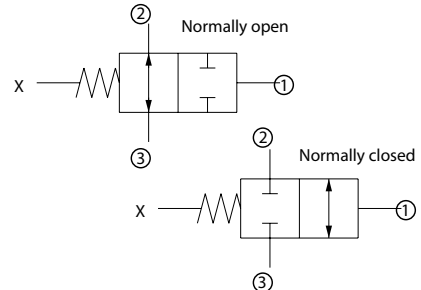
2-Position, 2-Way, External Pilot

CP712-2

OPERATION

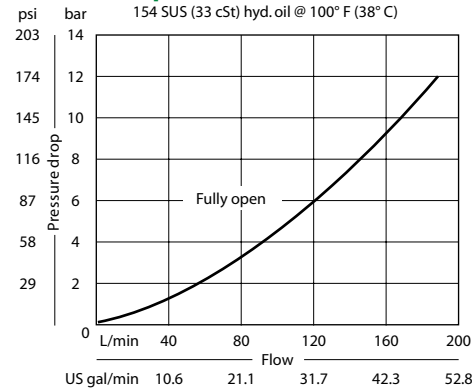
This valve is a 2-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



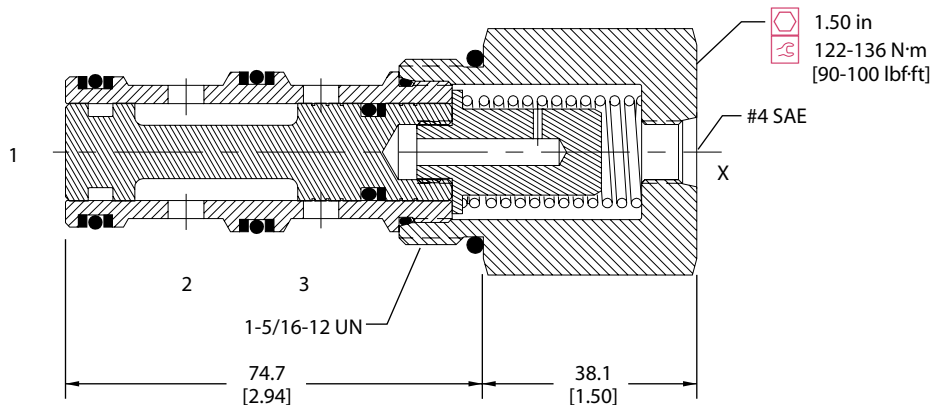
Specifications

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



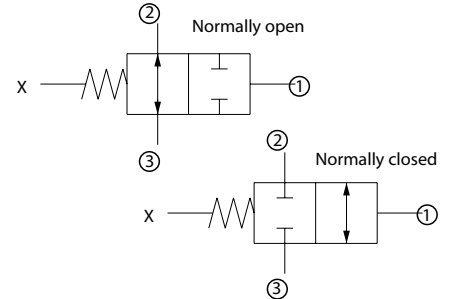
ORDERING INFORMATION

CP712 - 2 - B - 16S - C - 080 - S1			
Seals	Seal kit	Spool seals	
B = Buna-N	120202	S1 = Seal at top of spool	
V = Viton	120203	S2 = Seals at top and bottom of spool	
		S3 = No seals	
		S4 = Seal at bottom of spool	
Housing and ports	Housing P/N	Shift pressure	
0 = No Housing	No Housing		
5E6B = AL, 3/4 BSP	SDC16-3-SE-6B	040 = 2.8 bar [40 psi]	
5E8B = AL, 1BSP	SDC16-3-SE-8B	080 = 5.5 bar [80 psi]	
12S = AL, #12 SAE	CP16-3-12S	150 = 10.3 bar [150 psi]	
16S = AL, #16 SAE	CP16-3-16S	shift pressure assumes no seals	
Other housings available		Configuration	
		O = Normally open	
		C = Normally closed	

OPERATION

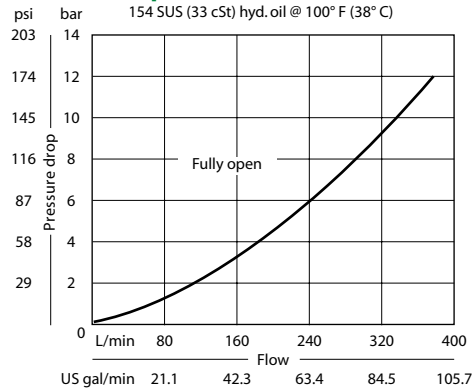
This valve is a 2-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



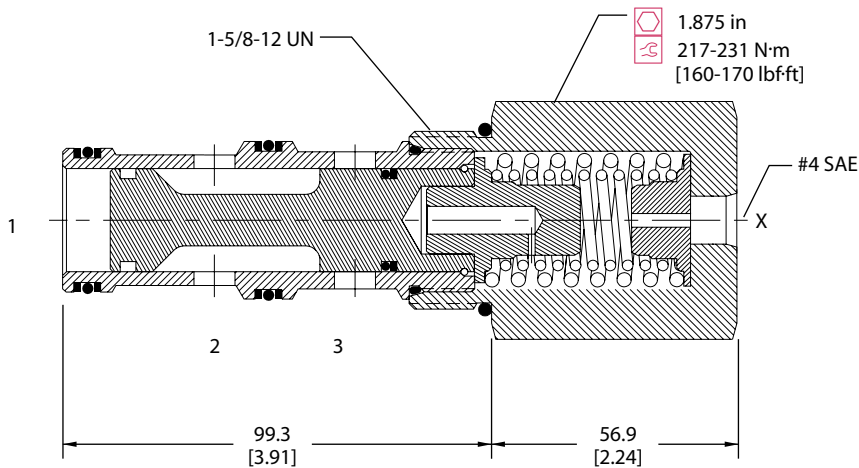
Specifications

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			
Seals		Seal kit	Spool seals
B = Buna-N		120200	S1 = Seal at top of spool
V = Viton		120201	S2 = Seals at top and bottom of spool
Housing and ports		Housing P/N	S3 = No seals
0 = No Housing		No Housing	S4 = Seal at bottom of spool
8B = AL, 1 BSP		CP20-3-8B	
10B = AL, 1-1/4 BSP		CP20-3-10B	Shift pressure
16S = AL, #16 SAE		CP20-3-16S	
20S = AL, #20 SAE		CP20-3-20S	
Other housings available			
Configuration			
0 = Normally open			
C = Normally closed			

Directional Control Valves Catalog

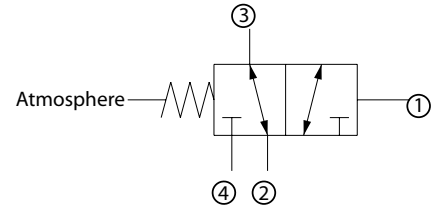
2-Position, 3-Way, Atmospheric Vent

CP720-1

OPERATION

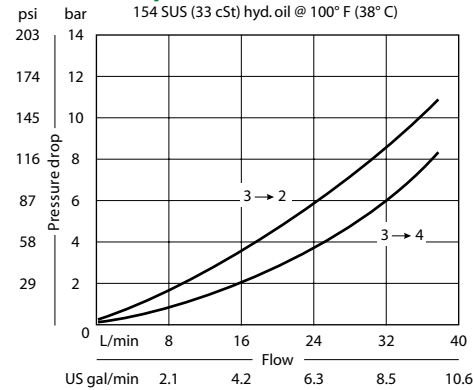
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

Schematic



SPECIFICATIONS

Theoretical performance



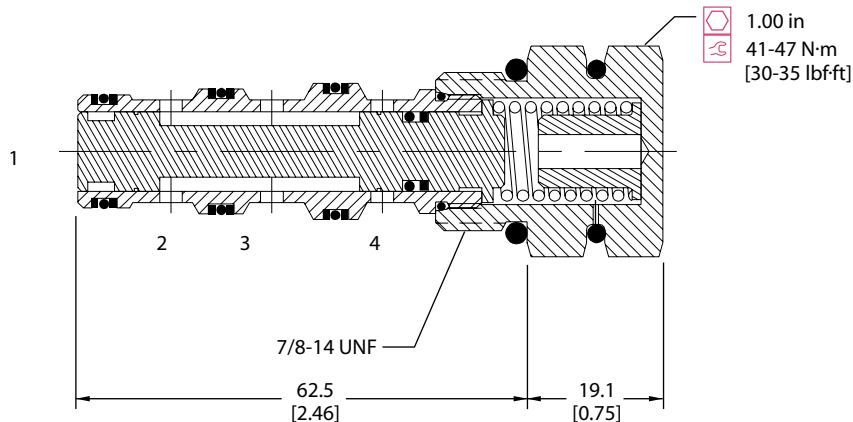
Specifications

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

Seal kit
120023
120024

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]

Directional Control Valves Catalog

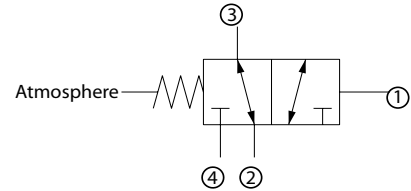
2-Position, 3-Way, Atmospheric Vent

CP722-1

OPERATION

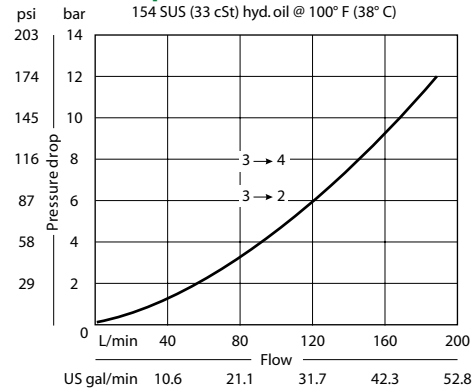
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

Schematic



SPECIFICATIONS

Theoretical performance



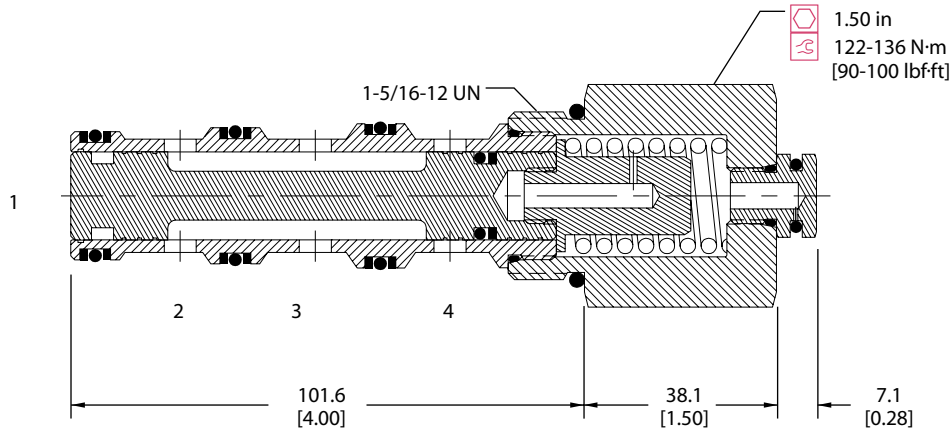
Specifications

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

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

shift pressure assumes no seals

Directional Control Valves Catalog

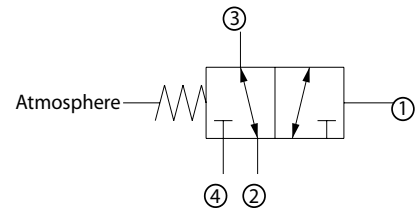
2-Position, 3-Way, Atmospheric Vent

CP723-1

OPERATION

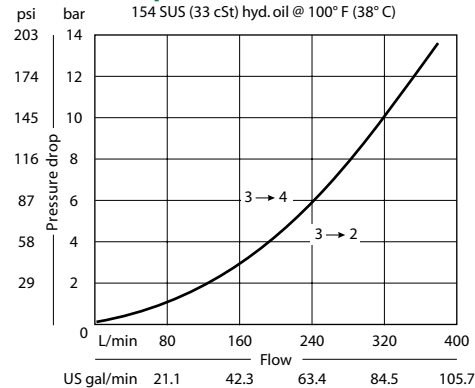
This valve is a 3-way hydraulically piloted spool with atmospheric vent.

Schematic



SPECIFICATIONS

Theoretical performance



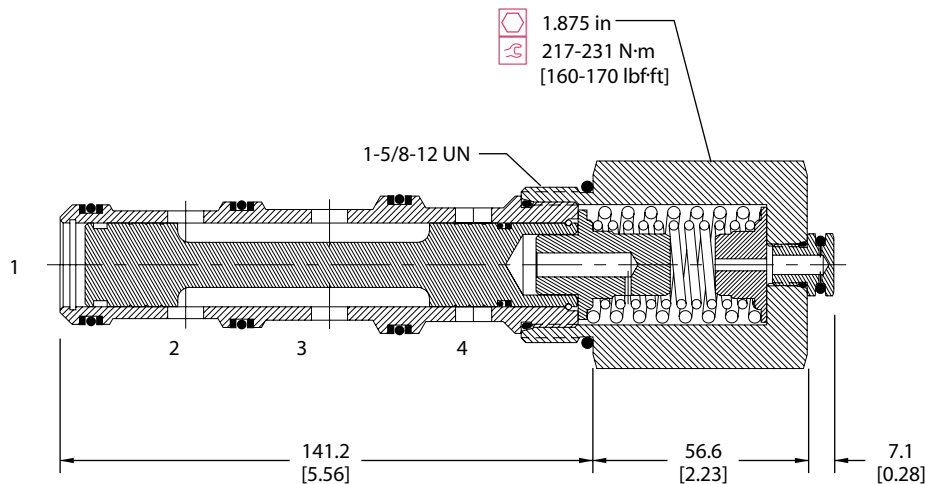
Specifications

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

Seal kit
120181
120182

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

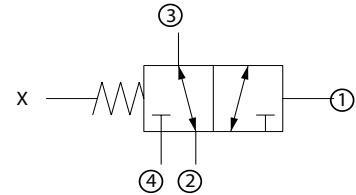
Shift pressure

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

OPERATION

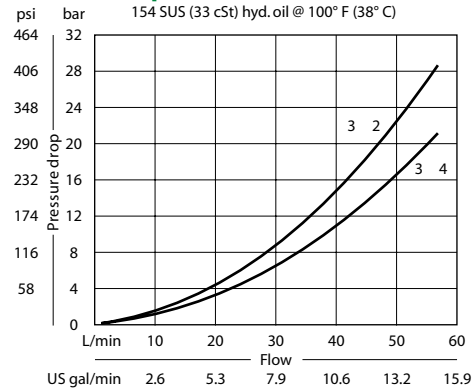
This valve is a 3-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



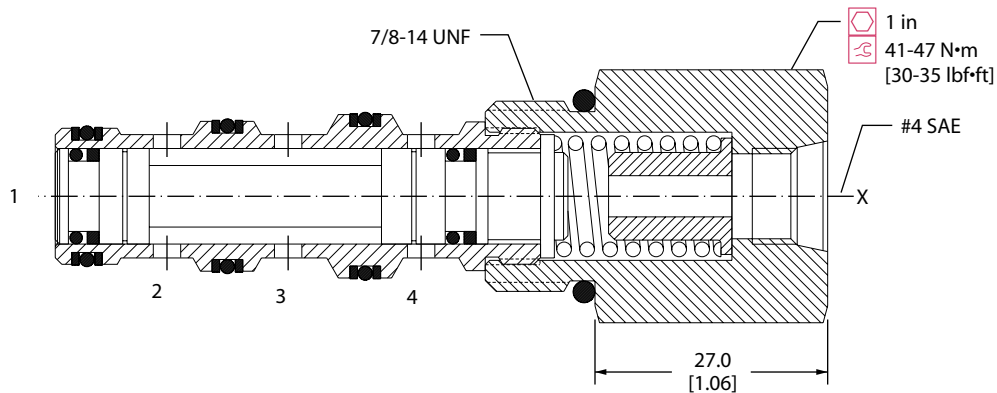
Specifications

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

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

Seal kit
120200
120201

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
S3= No seal
S4= Seals at bottom 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]

shift pressure assumes no seals

Directional Control Valves Catalog

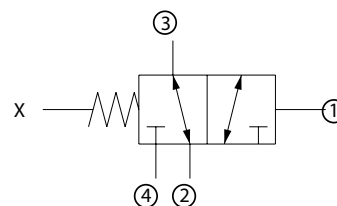
2-Position, 3-Way, External Pilot

CP722-2

OPERATION

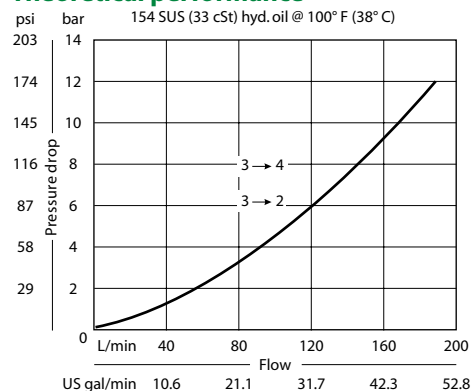
This valve is a 3-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



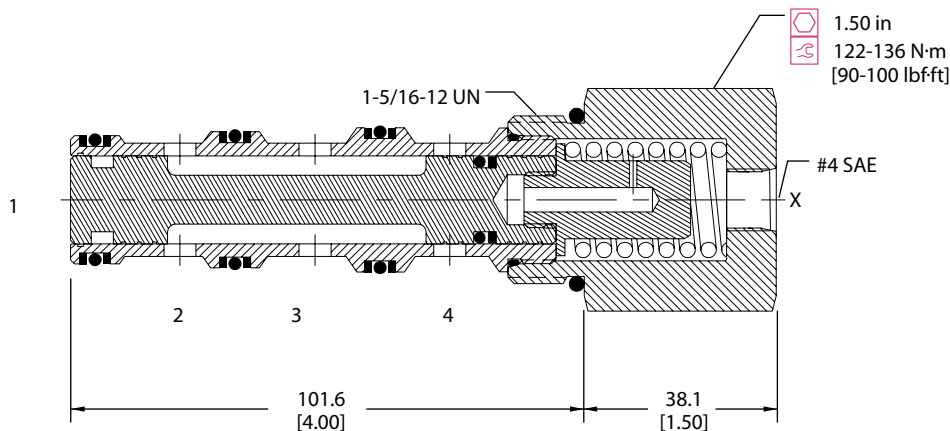
Specifications

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

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

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

Shift pressure

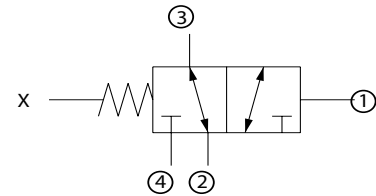
	bar	[psi]
040	2.8	[40]
080	5.5	[80]
150	10.3	[150]

shift pressure assumes no seals

OPERATION

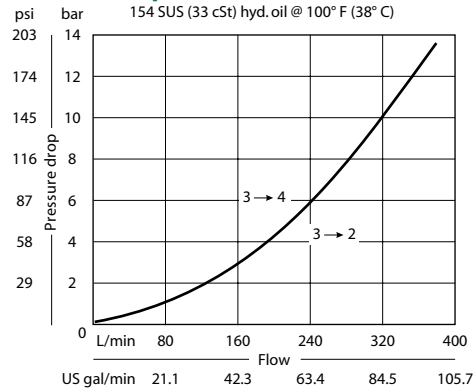
This valve is a 3-way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



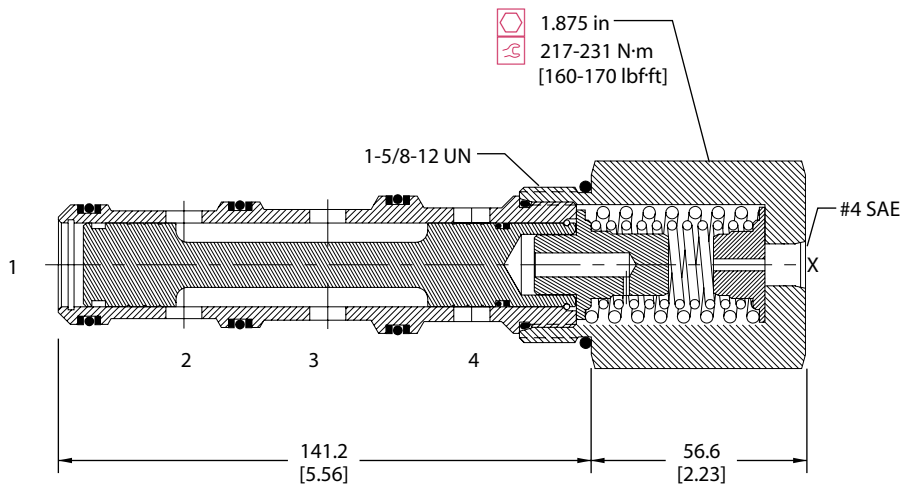
Specifications

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

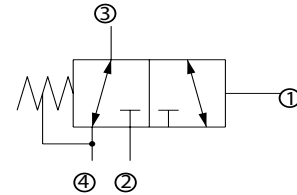
	bar	[psi]
050	3.5	[50]
080	5.5	[80]
100	6.9	[100]
130	9.0	[130]
150	10.3	[150]

shift pressure assumes no seals

OPERATION

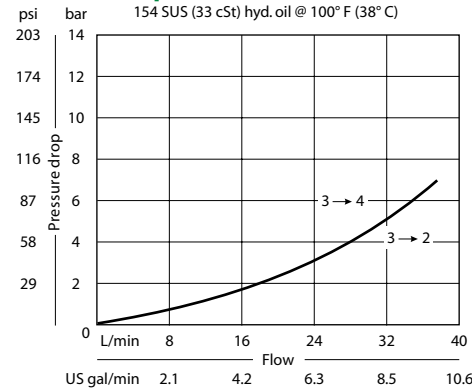
This valve is a 3-way hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



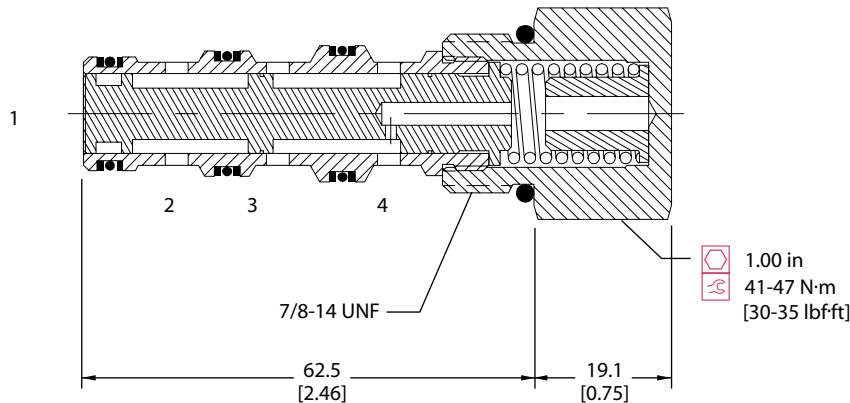
Specifications

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



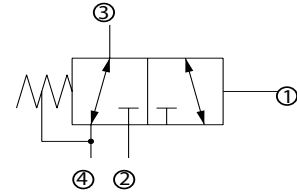
ORDERING INFORMATION

CP720 - 5 - B - 8S - 150 - S3			
Seals		Spool seals	
B = Buna-N V = Viton		S3 = No seal S4 = Seal at bottom of spool	
Housing and ports		Shift pressure	
0 = No Housing L3B = AL, 3/8 BSP L4B = AL, 1/2 BSP 6S = AL, #6 SAE 8S = AL, #8 SAE Other housings available		bar [psi]	
Housing P/N		050 = 3.5 [50]	
No Housing SDC10-4-L-3B SDC10-4-L-4B CP10-4-6S CP10-4-8S		080 = 5.5 [80]	
		125 = 8.6 [125]	
		150 = 10.3 [150]	
		shift pressure assumes no seals	

OPERATION

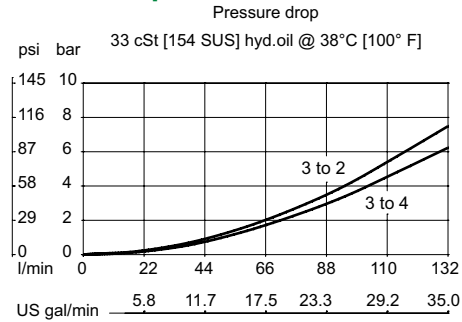
This valve is a 3-way hydraulically-piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



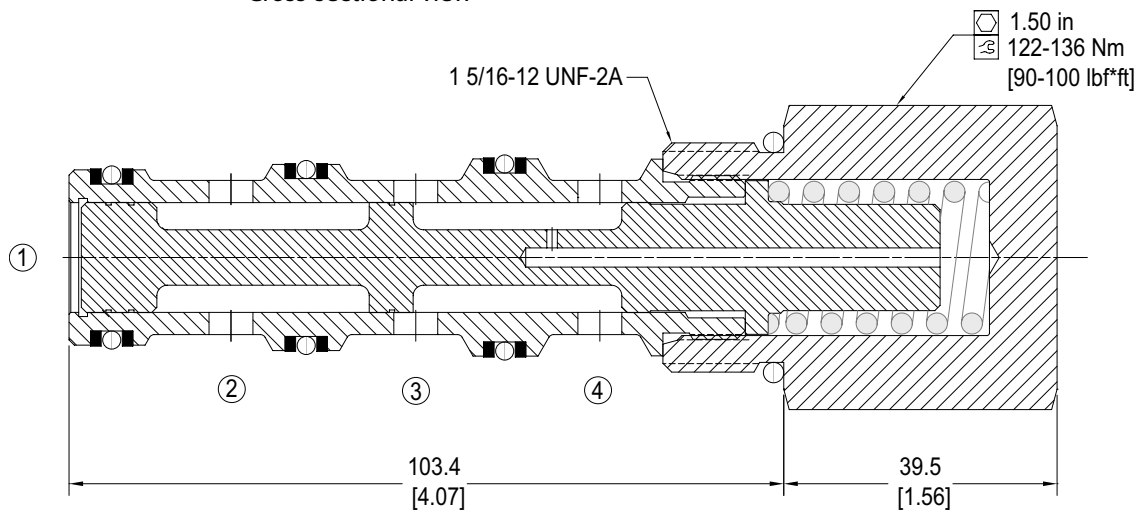
Specifications

Rated pressure	450 bar [6500 psi]
Rated flow at 7 bar [100 psi]	125 l/min [33 US gal/min]
Leakage	164 cm ³ /min [10 in ³ /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



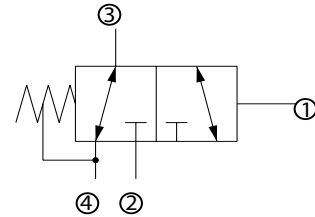
ORDERING INFORMATION

CP722 - 11 - U - 12S - 040	
Seals	Seal kit Consult Factory
U = Urethane	
Body and ports	
0 = Cartridge	Body P/N No body
12S = Aluminum, #12 SAE	CP16-4-12S
16S = Aluminum, #16 SAE	CP16-4-16S
S12S = Steel, #12 SAE	223494
S16S = Steel, #16 SAE	223495
Shift pressure	
040 = 2.8 bar [40 psi]	
080 = 5.5 bar [80 psi]	

OPERATION

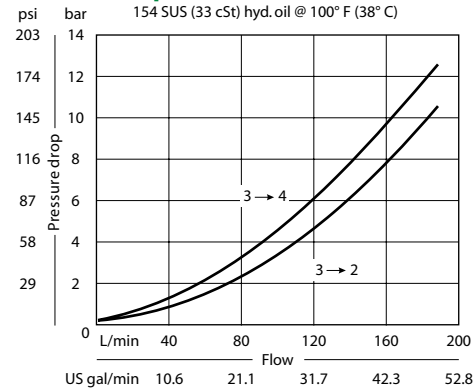
This valve is a 3-way hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



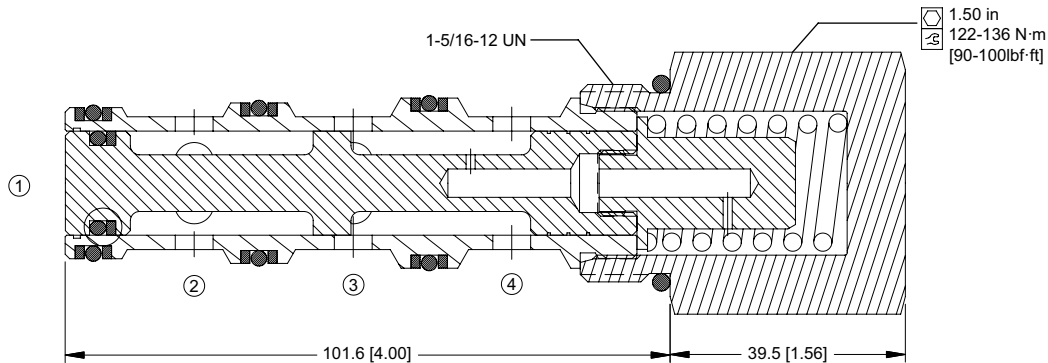
Specifications

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

Seal kit
 120025
 120026

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

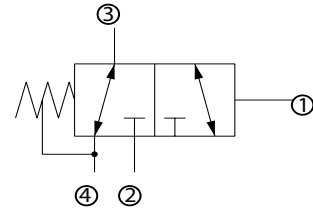
bar [psi]
 040 = 2.8 [40]
 080 = 5.5 [80]
 150 = 10.3 [150]

shift pressure assumes no seals

OPERATION

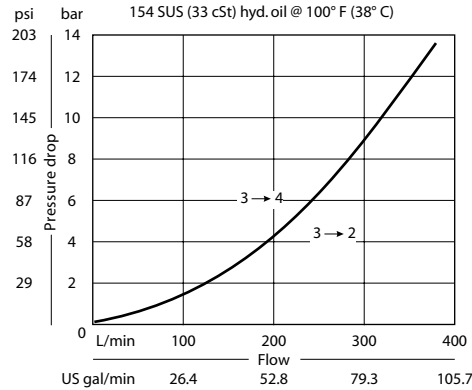
This valve is a 3-way hydraulically piloted spool.

Schematic



SPECIFICATIONS

Theoretical performance



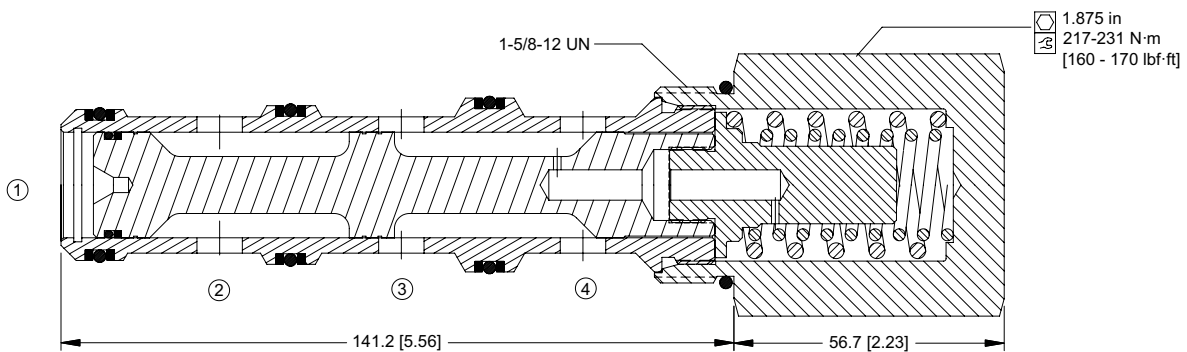
Specifications

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

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

Directional Control Valves Catalog

4 Way, 2 Position Hydraulic Piloted DV15-P5-24-01

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

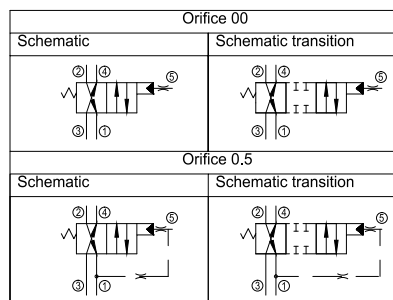
This spool-type valve is primarily used in mobile and industrial applications for controlling the direction of the flow in a circuit, like motors or cylinders. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option.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

SPECIFICATIONS

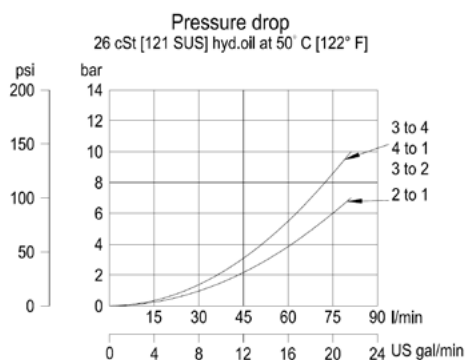
Rated Pressure*	230 bar [3335 psi]
Rated Flow at 7 bar [100 psi]	70 l/min [18.4 US gal/min]
Maximum Rated Flow	80 l/min [21.1 US gal/min]
Minimum pilot pressure	2 bar [29 psi]
Weight	0.44 kg [0.95 lbs]
Cavity	NCS12/5

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

SCHEMATICS



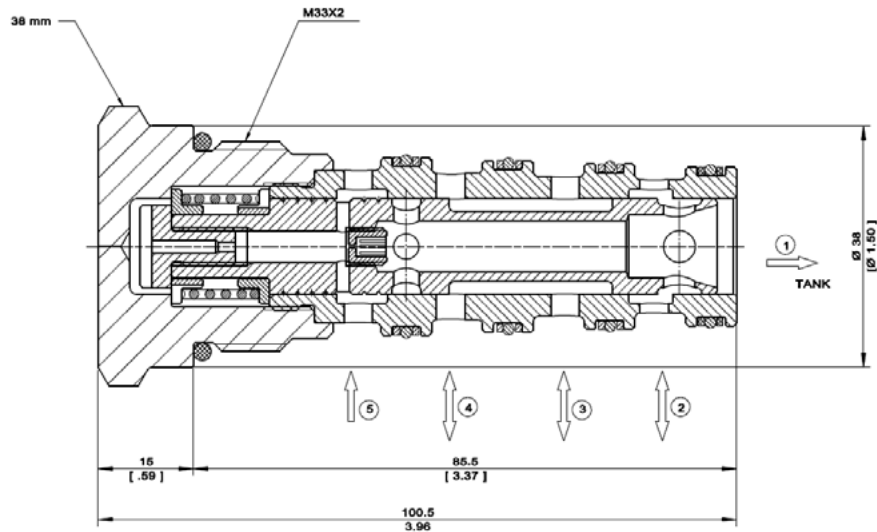
PERFORMANCE CURVE



Directional Control Valves Catalog

4 Way, 2 Position Hydraulic Piloted DV15-P5-24-01

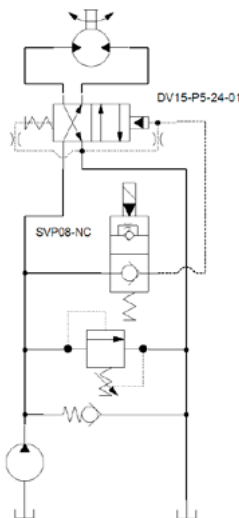
DIMENSIONS



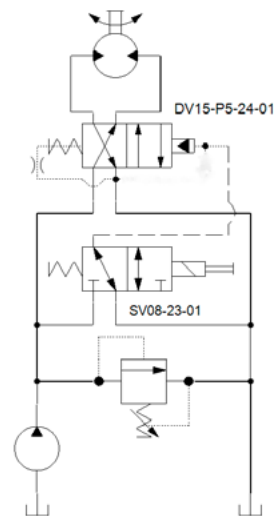
EXAMPLE CIRCUITS

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
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-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

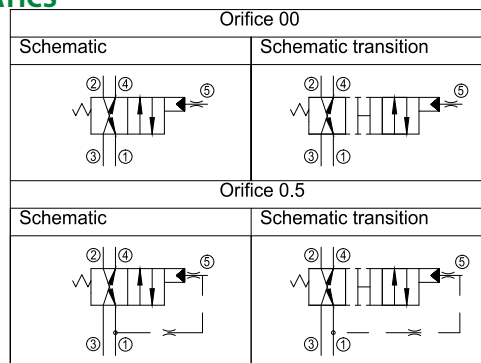
This valve is primarily used for reversing fan drive circuits where the open-transition design is important for smooth shifting and minimal pressure spikes during reversing. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain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

SPECIFICATIONS

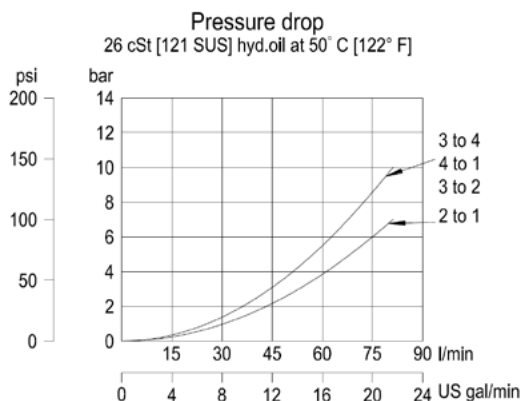
Rated Pressure*	230 bar [3335 psi]
Rated Flow at 7 bar [100 psi]	70 l/min [18.4 US gal/min]
Maximum Rated Flow	80 l/min [21.1 US gal/min]
Minimum pilot pressure	2 bar [29 psi]
Weight	0.44 kg [0.95 lbs]
Cavity	NCS12/5

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

SCHEMATICS



PERFORMANCE CURVE



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

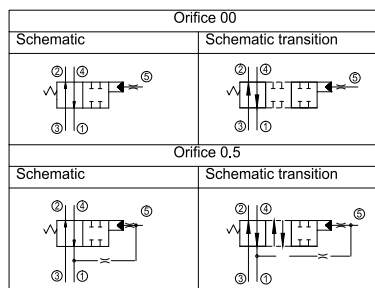
Use this valve for applications including on-off control of uni-directional motors. The valve can be piloted with many 2-way valves including solenoid, sequence, relief or manual valves with the internal pilot drain orifice option. Alternatively, it can also be piloted with a 2-position, 3-way solenoid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

SPECIFICATIONS

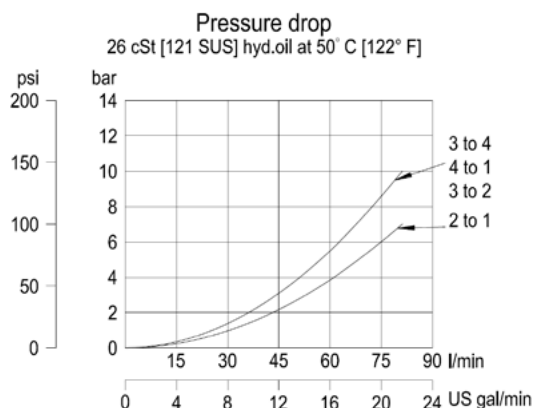
Rated Pressure*	230 bar [3335 psi]
Rated Flow at 7 bar [100 psi]	70 l/min [18.4 US gal/min]
Maximum Rated Flow	80 l/min [21.1 US gal/min]
Minimum pilot pressure	2 bar [29 psi]
Weight	0.44 kg [0.95 lbs]
Cavity	NCS12/5

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

SCHEMATIC



PERFORMANCE CURVE

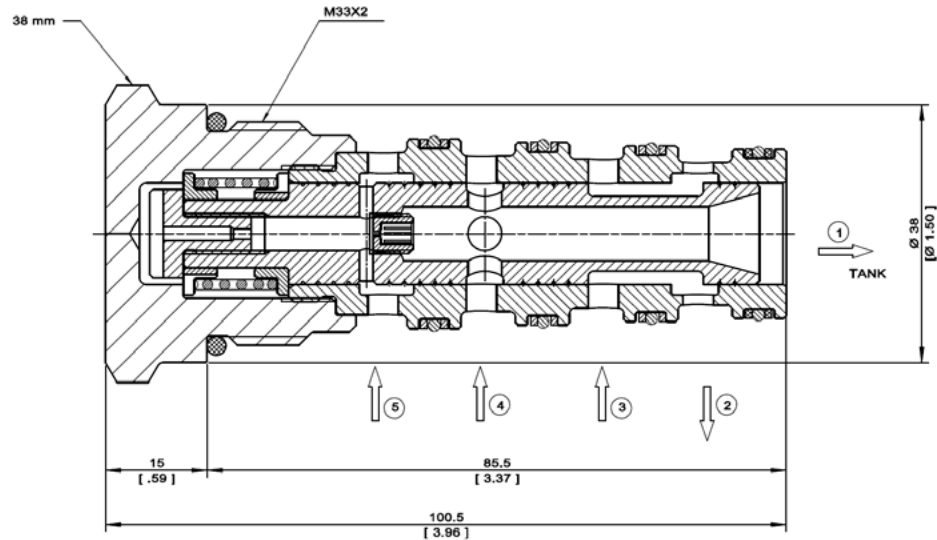


Directional Control Valves Catalog

4 Way, 2 Position Hydraulic Piloted

DV15-P5-24-05

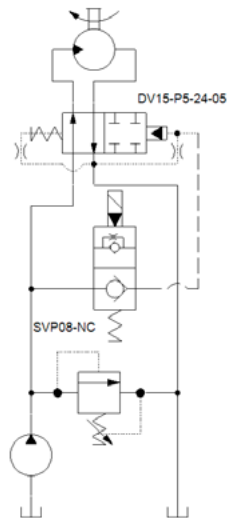
DIMENSIONS



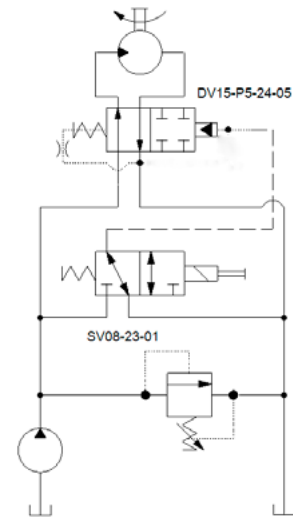
EXAMPLE CIRCUITS

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.

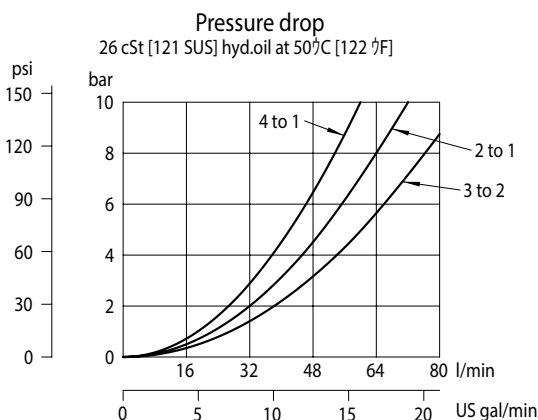
DIMENSIONS

SPECIFICATIONS

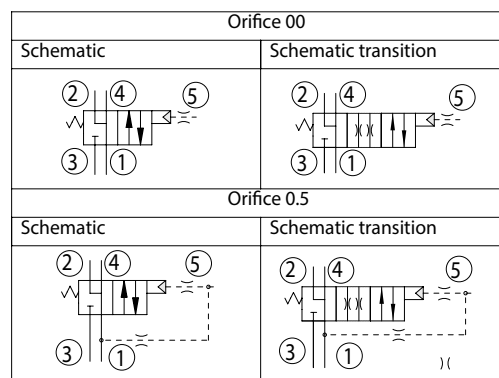
Rated Pressure*	230 bar [3335 psi]
Rated Flow at 7 bar [100 psi]	70 l/min [18.4 US gal/min]
Maximum Rated Flow	80 l/min [21.1 US gal/min]
Minimum pilot pressure	2 bar [29 psi]
Weight	0.44 kg [0.95 lbs]
Cavity	NCS12/5

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

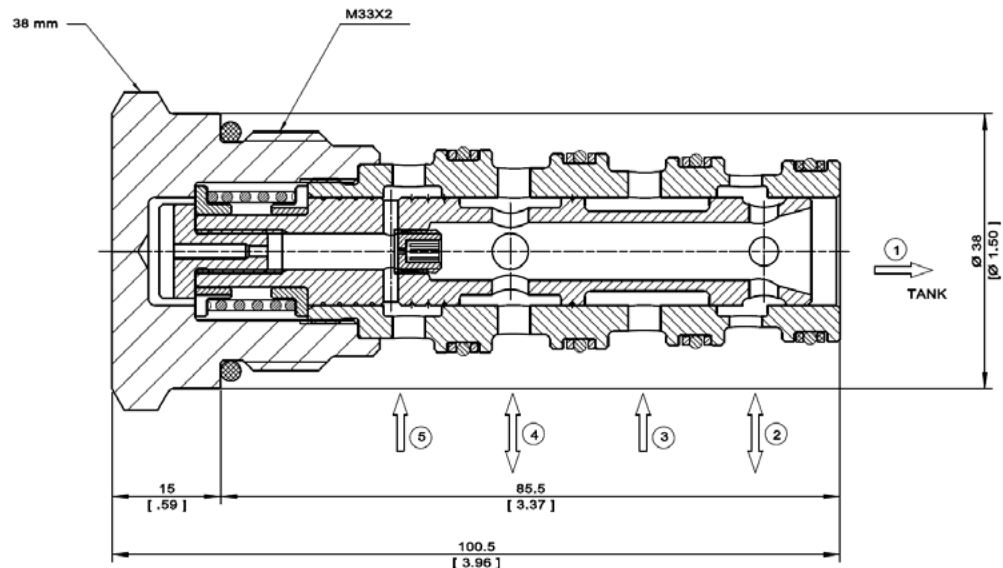
PERFORMANCE CURVE



SCHEMATICS



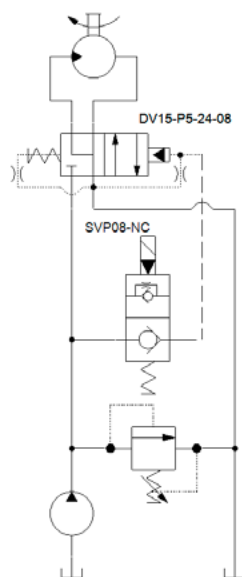
DIMENSIONS



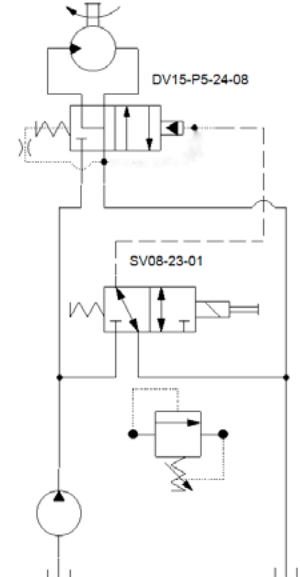
EXAMPLE CIRCUITS

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 - #8 SAE]	NCS12/5 - 12S/6S

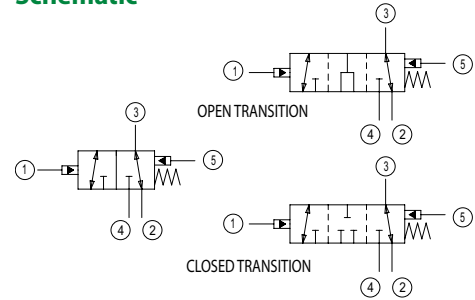
Pilot Shift Pressure
2: 2 bar (29 psi)

Code	Seal Material
B	Buna
V	Viton

OPERATION

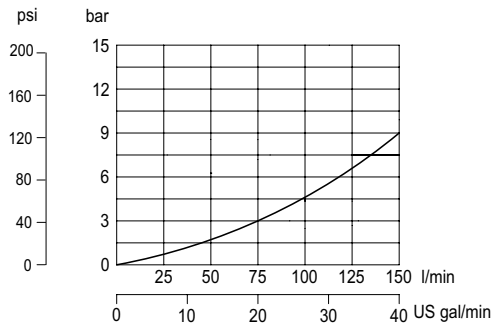
This valve is a three way double hydraulically piloted spool.

Schematic



SPECIFICATIONS

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



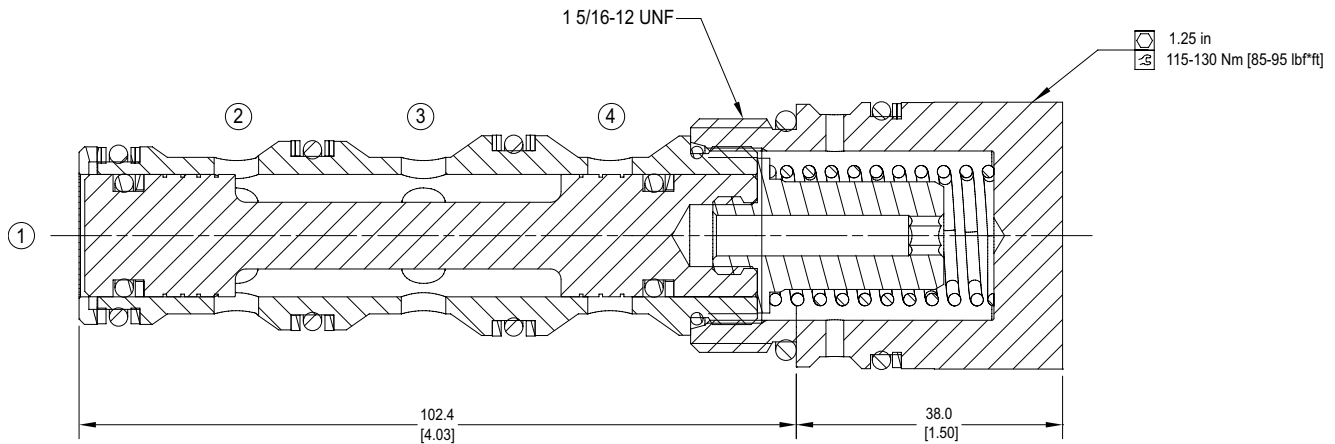
Specifications

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]

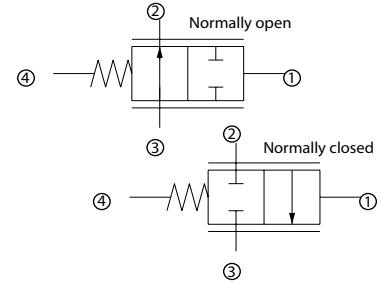
Seal Option

Code	Seal Material	Seal Kit
B	Buna	11145379
V	Viton	11145380

OPERATION

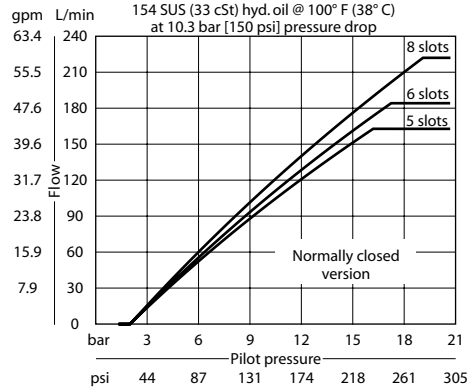
This valve is a hydraulically piloted proportional flow control.

Schematic



SPECIFICATIONS

Theoretical performance



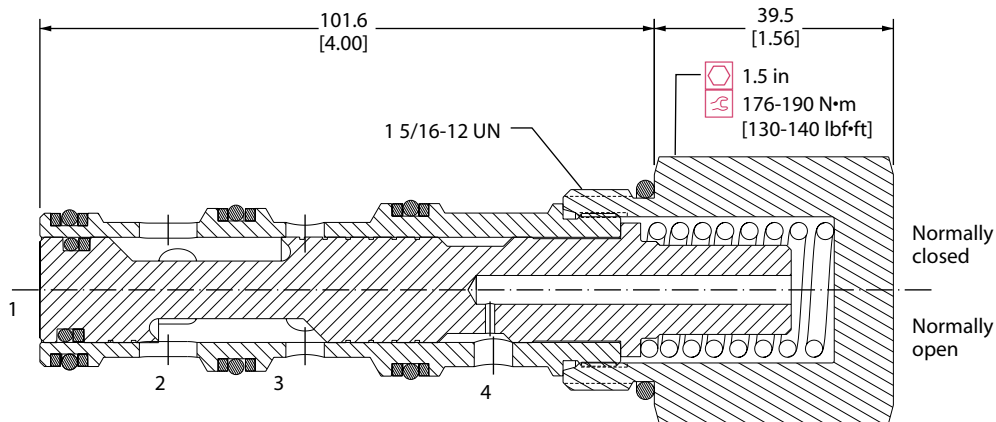
Specifications

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

Spool configuration

C = Normally closed
O = Normally open

Sleeve option

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

Seals

B = Buna-N
V = Viton

Seal kit
120025
120026

Housing and ports

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

Housing P/N

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

