SQ

Sequence and Unloading Valves

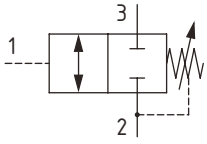
Sequence and Unloading Valves
Application Notes

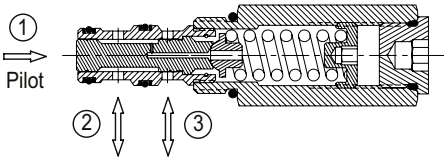
Basic Operation: Sequence Valves

Sequence valves come in two forms: Hydraulically piloted spool valves and pressure sequence valves. Hydraulically piloted spool valves will open or close based on a pressure applied to a pilot port. The spring chamber is referenced to tank or to atmosphere, allowing the outlet pressure to rise in line with the inlet pressure. Pressure sequence valves allow flow through the valve when the inlet pressure rises above the setting, allowing flow to a secondary function which can be used at pressure. These are available as direct acting and pilot operated valves. Sequence valves are similar in design to relief valves, with the difference being the addition of a spring chamber drain port. Sequence valves can be used to sequence a secondary operation within a system, as pressure compensators, or as load sense bypass valves.

Hydraulically Pilot Operated Spool Type

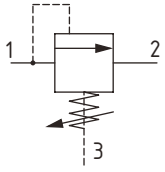
The normally closed, pilot operated, spool type sequence valve opens port 2 to 3 when a set pilot pressure is reached. The normally open valve will close port 2 to 3 when the set pilot pressure is reached. In the three-port configuration, the spring chamber will be referenced to atmosphere. With the four-port configuration, the spring chamber should be connected hydraulically to tank. These valves can be used to sequence a function in a separate part of the circuit by taking pilot pressure from another function.

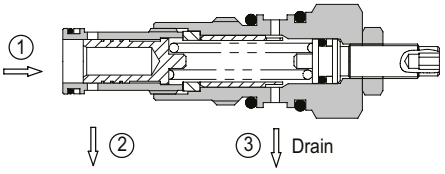




Direct Acting Pressure Sequence Type

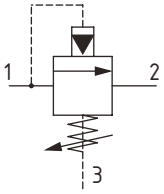
The direct acting pressure sequence valve is a normally closed, spool type controlling flow from the inlet port 1 to the sequenced port 2. When the pressure rises above the setting, the valve opens allowing flow port 1 to 2. With port 3 connected directly to tank, the valve will stay open if the pressure in port 1 is higher than the valve setting. Flow can then take place from port 1 to 2 or port 2 to 1, from high to low pressure. The valve can be used in standard sequencing circuits, as a load sense compensator, or in regenerative systems where flow passes from port 2

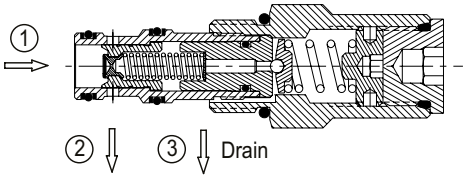




Pilot Operated Pressure Sequence Type

The pilot operated sequence valve blocks flow from port 1 to 2, until there is sufficient pressure to move the pilot poppet off its seat and overcome the opposing spring force. This creates a pressure differential across the spool, causing the spool to move back against a light spring. The two-stage design allows for smooth operation at varying flows while maintaining a consistent setting. With port 3 connected directly to tank, the valve will remain open as long as the inlet pressure is higher than the setting. This design is ideal for sequencing cylinders or motors in clamp and cut or lift and tip circuits. Select models are also available with an integrated reverse free-flow check.





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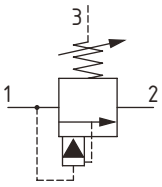
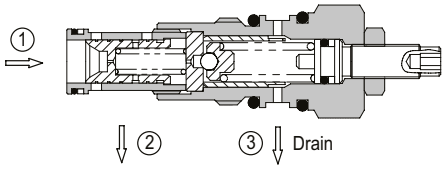
Pilot Operated Kick Down Pressure Sequence Valve

The pilot operated kick down sequence valve blocks flow from port 1 to 2 until there is sufficient pressure to move the pilot poppet off its seat and overcome the opposing spring force. This creates a pressure differential across the spool, causing the spool to move back against a light spring. This automatically opens the main spool spring chamber to port 2 allowing the inlet pressure to decrease to the pressure in port 2. The valve will remain open until flow through the valve is shut off. This valve saves energy, as the inlet pressure decreases to the working pressure of the secondary function.



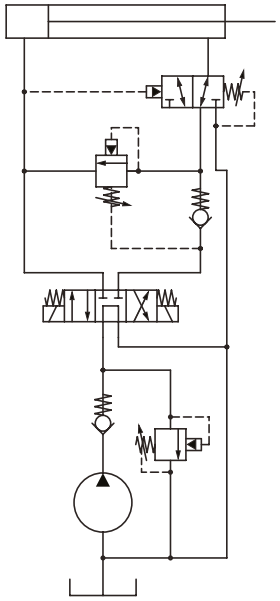


Application Recommendations

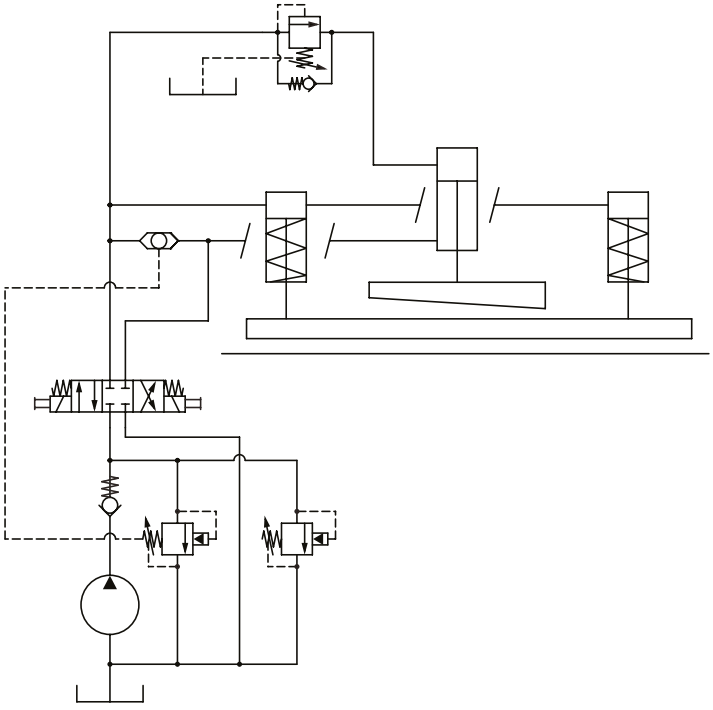
Sequence Valves:

- Spool type sequence valves are used to sequence an operation based on an external pressure from a separate circuit. Typical applications could be to reduce the speed of a feed cylinder, while monitoring the drive pressure on a drill as an anti-stall device.
- Pressure sequence valves are used when sequencing is activated from the same pressure source as the initial operation. For example, in a clamp and drill application, pressure is applied to the clamps first and is maintained on the clamps the drilling operation.
- A kick-down valve can be used when the initial operation does not need the pressure to be maintained. In the case of a clamp, the pressure may be held in by a pilot operated check valve or overcenter valve. The inlet pressure can then be reduced to the pressure required by the secondary function.
- Pressure sequence valves can be used as compensators for by-pass style flow regulators or as logic elements in a pump load sense situation.

Typical Applications



▲Regenerative Circuit



▲Clamp and Cut Circuit

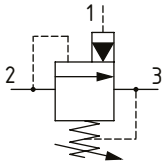
Sequence and Unloading Valves
Application Notes

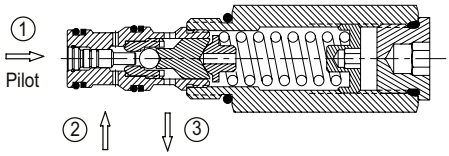
Basic Operation: Unloading Valves

Unloading valves are used to unload pump flow when an accumulator circuit is fully charged. The excess flow can pass directly to tank at minimum pressure drop or be used for a secondary circuit. The low flow pilot valve can be used in load sense systems or in combination with a logic element. The larger valves include the logic element and full flow relief function in a single cartridge. When the pressure in the pilot port falls, the valve will close allowing the re-charging of the accumulator circuit.

Low Flow Pilot Unloading Valve

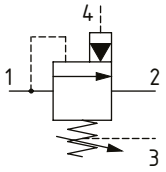
The low flow pilot unloading valve is designed to be used in conjunction with a larger element or in a load sensing system. The valve blocks the flow from port 2 to port 3, until the pressure at port 1 is enough to pilot the ball off its seat. The area of the pilot piston is larger than the seat area, so when the pressure decays in the pilot line, the valve will close (re-seat) at a percentage lower than the setting, allowing pressure to rise again in port 2. This valve is available with various re-seat value percentages. By sensing the pressure downstream of a check valve, the valve will react to the pressure in the secondary system which may contain an accumulator maintaining stored pressure within set parameters.

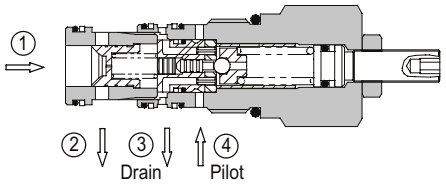




Unloading Valve & Priority Unloading Valve

With the standard unloading valve, inlet pressure is seen on the nose of the valve and system pressure (downstream of the system check valve) operates on the system pilot port. When inlet pressure rises to the valve setting, the relief section opens and the system pressure at the pilot port acts on the pilot piston to hold the valve in the open position. The ratio between the pilot piston diameter and the seat diameter of the relief section ensures that the valve will remain fully open, until the system pressure drops to approximately 85% of the set pressure. The priority unloading valve has a separate spring chamber drain that allowsthe flow downstream to be used at a pressure without affecting the setting of the valve.





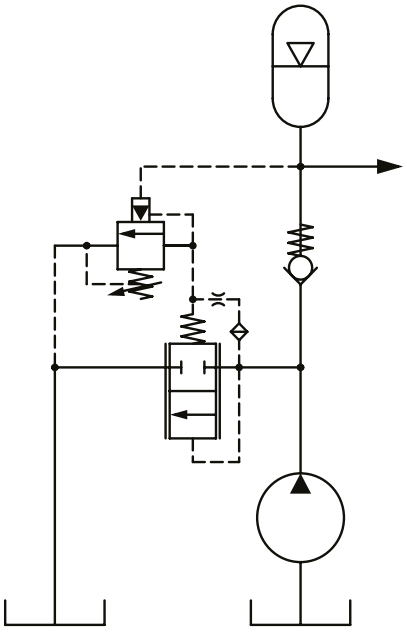
Application Recommendations

Unloading Valves:

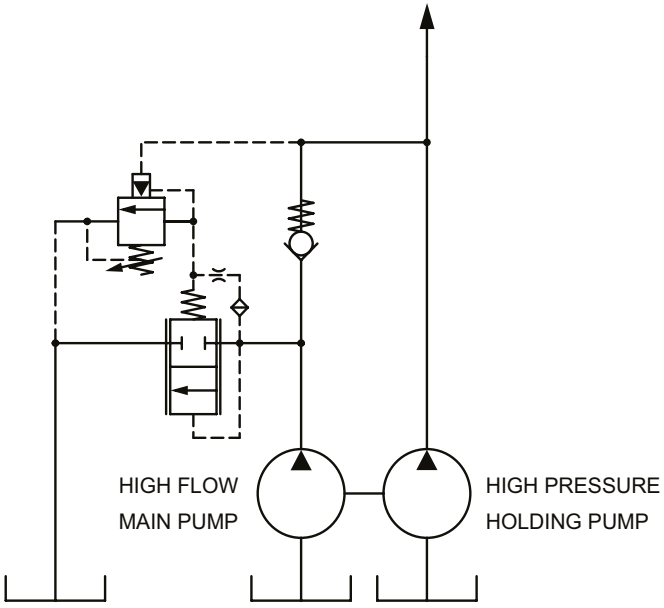
- Unloading valves are often used in conjunction with accumulators. They sense the pressure in the accumulator and unload the pump flow at minimal pressure when the accumulator if fully charged, which increases the system efficiency. When the pressure falls in the accumulator, the unloading valve will close, allowing the pump to re-charge the system.
- Priority unloading valves have the addition of a drain port, so that the outlet pressure does not affect the setting of the valve. This allows the downstream oil to be used at pressure for a separate function. With this valve type, the accumulator circuit will always maintain priority. The downstream oil can only rise to the setting of the unloading valve, preventing the secondary circuit from having a pressure higher than the accumulator circuit. When using these valves, ensure that there is sufficient capacitance in the system to prevent the valve from rapidly unloading and re-loading the system. Too much leakage will cause the valve to enter a relieving mode and impact its ability to unload.

Sequence and Unloading Valves
Application Notes

Typical Applications

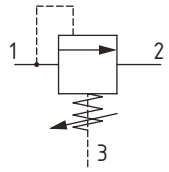


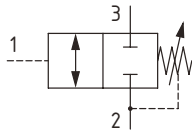
▲Unloading Valve Circuit

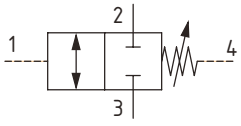


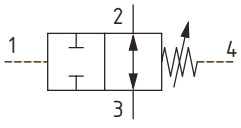
▲Two Pump Unloading Circuit

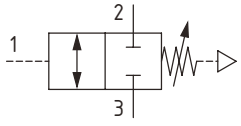
Sequence and Unloading Valves
Quick Reference

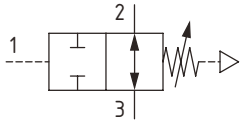
Sequence Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP240-8	SDC10-3	Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain	55 l/min [14 US gpm]	210 bar [3000 psi]	9
	CP241-8	CP12-3S	Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain	150 l/min [40 US gpm]	210 bar [3000 psi]	10
	1DS100	A880	Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain	150 l/min [40 US gpm]	350 bar [5000 psi]	11

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSV4-8	SDC08-3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain	15 l/min [4 US gpm]	350 bar [5000 psi]	12
	PSV2-8	SDC08-3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain	23 l/min [6 US gpm]	210 bar [3000 psi]	13
	PSV4-10	SDC10-3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain	15 l/min [4 US gpm]	210 bar [3000 psi]	14
	PSV2-10	SDC10-3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain	23 l/min [6 US gpm]	210 bar [3000 psi]	15
	CP240-2	SDC10-3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain	35 l/min [9 US gpm]	210 bar [3000 psi]	16

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSV10-10	SDC10-4	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, External Drain	23 l/min [6 US gpm]	210 bar [3000 psi]	17

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP240-5	SDC10-4	Sequence Valve, Normally Open, Spool Type, Hydraulic Pilot, External Drain	25 l/min [7 US gpm]	210 bar [3000 psi]	18

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	VDP 06/NC	NCS 06/3	Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Atmospheric Vent	25 l/min [7 US gpm]	315 bar [4600 psi]	19

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	VDP 06/NA	NCS 06/3	Sequence Valve, Normally Open, Spool Type, Hydraulic Pilot, Atmospheric Vent	25 l/min [7 US gpm]	315 bar [4600 psi]	20

*Flow ratings are for reference only. Refer to individual product page for performance information.

Sequence and Unloading Valves
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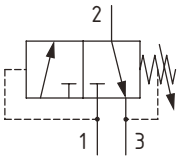
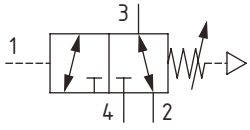
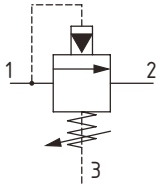
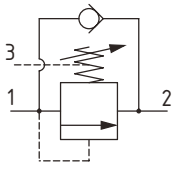
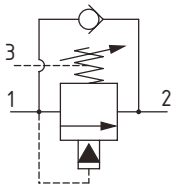
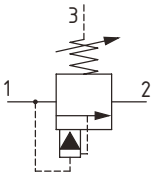
Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSV5-10	SDC10-3	Sequence Valve, Normally Closed, Spool Type, Internal Pilot, Internal Drain	8 l/min [2 US gpm]	210 bar [3000 psi]	21
	PSV1-10	SDC10-3	Sequence Valve, Normally Closed, Spool Type, Internal Pilot, Internal Drain	23 l/min [6 US gpm]	210 bar [3000 psi]	22

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	VDP 06/4201	NCS 06/4	Sequence Valve, 3-Way, Spool Type, Hydraulic Pilot, Atmospheric Vent	23 l/min [6 US gpm]	315 bar [4600 psi]	23

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP240-21	SDC10-3	Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain	45 l/min [12 US gpm]	350 bar [5000 psi]	24
	CP241-21	CP12-3S	Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain	76 l/min [20 US gpm]	350 bar [5000 psi]	25
	1PS100	A880	Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain	150 l/min [40 US gpm]	350 bar [5000 psi]	26
	1PS200	A16102	Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain	250 l/min [66 US gpm]	350 bar [5000 psi]	27

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	1PSC30	A6610	Sequence Valve, Direct Acting, Poppet Type with Reverse Free Flow, Internal Pilot, External Drain	30 l/min [8 US gpm]	350 bar [5000 psi]	28

Sequence Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	1PSC100	A880	Sequence Valve, Pilot Operated, Poppet Type with Reverse Free Flow, Internal Pilot, External Drain	150 l/min [40 US gpm]	350 bar [5000 psi]	29

Kick-Down Sequence Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	1UPS100	A880	Kick-Down Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain	150 l/min [40 US gpm]	350 bar [5000 psi]	30

*Flow ratings are for reference only. Refer to individual product page for performance information.

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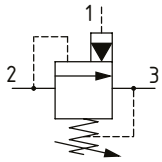
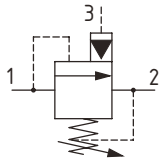
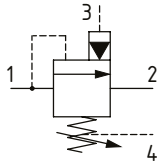
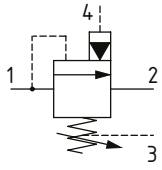
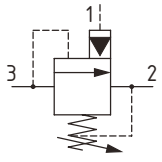
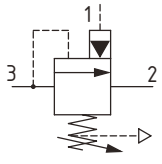
Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP240-30	SDC10-3	Unloading Valve, Direct Acting, Poppet Type, Hydraulic Pilot, Internal Drain	4 l/min [1 US gpm]	240 bar [3500 psi]	31

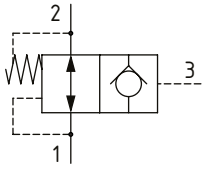
Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	1UL60	A3146	Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, Internal Drain	60 l/min [16 US gpm]	350 bar [5000 psi]	32

Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	AUV 06	NCS 06/4	Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, External Drain	50 l/min [13 US gpm]	250 bar [3600 psi]	33

Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	1PUL60	A12088	Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, External Drain	60 l/min [16 US gpm]	350 bar [5000 psi]	34
	1PUL200	A3145	Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, External Drain	200 l/min [52 US gpm]	350 bar [5000 psi]	35

Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	VDB 06-EN	NCS 06/3	Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Internal Drain	80 l/min [21 US gpm]	350 bar [5000 psi]	36
	VDB 12-EN	NCS 12/3	Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Internal Drain	160 l/min [42 US gpm]	350 bar [5000 psi]	37

Unloading Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	VDB 06-CN	NCS 06/3	Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Atmospheric Vent	80 l/min [21 US gpm]	350 bar [5000 psi]	38

Accumulator Discharge Valve	Model No.	Cavity	Description	Flow*	Pressure	Page
	ADV1-16	SDC16-3S	Accumulator Discharge Valve, Normally Open, Poppet Type, Hydraulic Pilot, Internal Drain	30 l/min [8 US gpm]	210 bar [3000 psi]	39

*Flow ratings are for reference only. Refer to individual product page for performance information.

Sequence and Unloading Valves

CP240-8

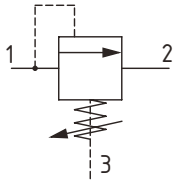
Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain

210 bar [3000 psi] • 55 l/min [14 US gpm]

DESCRIPTION AND OPERATION

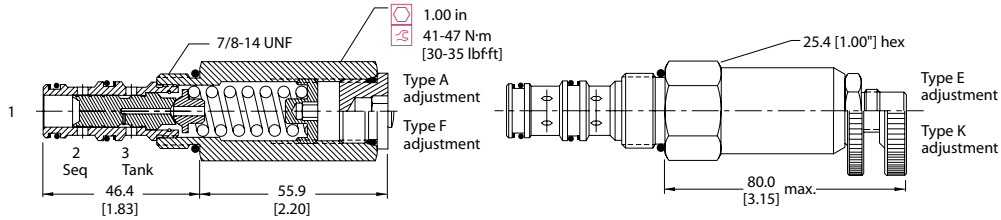
This is a direct acting, spool type sequence valve that opens from port 1 to port 2 when the setting is reached, which can be used to sequence operations in a system limiting pressure loss. Connecting port 3 to tank allows this valve to be used as a relief with a consistent setting in applications with high backpressure variation. This valve is ideal for sequencing a secondary operation, while maintaining pressure in the first or as a compensator in a load sense system.

SCHEMATIC



DIMENSIONS

mm [in]

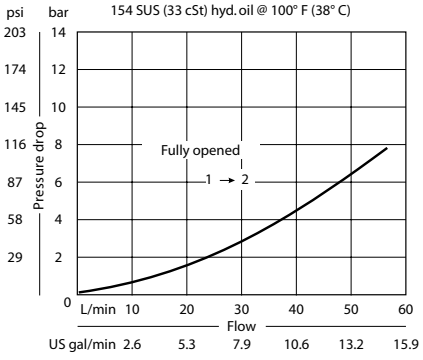


PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow @ 7 bar [100 psi]	**55 l/min [14 US gpm]**
Weight	0.26 kg [0.57 lb]
Cavity	SDC10-3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

CP240 - 8 - B - 6S - A - C - 100

Seal Option

Code	Seal kit
B-Buna - N	120027
V-Viton	120028

Housing

Code	Ports & Material	Housing Model Code
0	No Housing	No Housing
SE3B	AL, 3/8 BSP	SDC10-3-SE-3B
SE4B	AL, 1/2 BSP	SDC10-3-SE-4B
6S	AL, #6 SAE	CP10-3-6S
8S	AL, #8 SAE	CP10-3-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A- Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi (50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
100	69	[1000]

Pressure Range

Code	Bar	Psi
A Standard Setting	4-28 17	[50-400] [250]
B Standard Setting	5-55 28	[75-800] [400]
C Standard Setting	7-97 69	[100-1400] [1000]
D Standard Setting	34-166 103	[500-2400] [1500]

Sequence and Unloading Valves

CP241-8

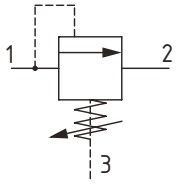
Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain

210 bar [3000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

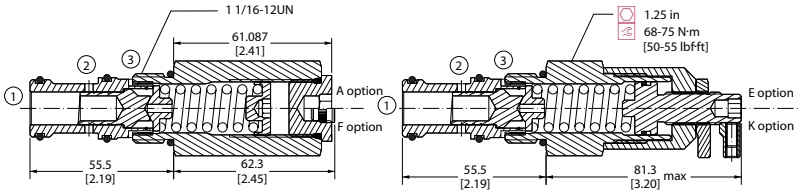
This is a direct acting, spool type sequence valve that opens from port 1 to port 2 when the setting is reached, which can be used to sequence operations in a system limiting pressure loss. Connecting port 3 to tank allows this valve to be used as a relief with a consistent setting in applications with high backpressure variation. This valve is ideal for sequencing a secondary operation, while maintaining pressure in the first or as a compensator in a load sense system.

SCHEMATIC



DIMENSIONS

mm [in]



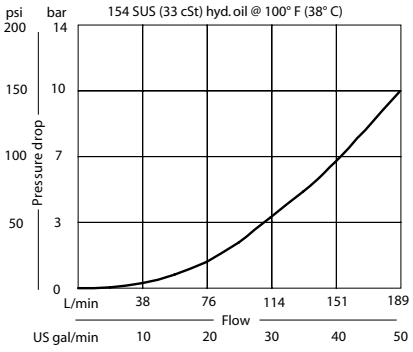
PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow @ 7 bar [100 psi]	**150 l/min [40 US gpm]**
Max setting	41 bar [600 psi]
Weight	0.41 kg [0.90 lb]
Cavity	CP12-3S

Note: Maximum 105 bar [1500 psi] differential allowed between ports 2 and 3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

CP241 - 8 - B - 10S - A - C - 050

Seal Option

Code	Seal kit
B-Buna - N	120680
V-Viton	120681

Housing

Code	Ports & Material	Housing Model Code
0	No Housing	No Housing
4B	AL, 1/2 BSP	CP12-3S-4B/2B
6B	AL, 3/4 BSP	CP12-3S-6B/2B
10S	AL, #10 SAE	CP12-3S-10S/4S
12S	AL, #12 SAE	CP12-3S-12S/4S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A- Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi (10 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
050	35	[500]

Pressure Range

Code	Bar	Psi
A	1-10	[13-150]
Standard Setting	3.4	[50]
B	3.4-28	[50-400]
Standard Setting	7	[100]
C	5.5-41	[80-600]
Standard Setting	14	[200]

Sequence and Unloading Valves

1DS100

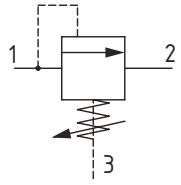
Sequence Valve, Direct Acting, Spool Type, Internal Pilot, External Drain

350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

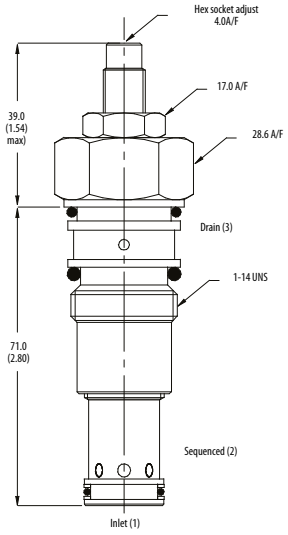
This is a direct acting, spool type sequence valve that opens from port 1 to port 2 when the setting is reached, which can be used to sequence operations in a system limiting pressure loss. Connecting port 3 to tank allows this valve to be used as a relief with a consistent setting in applications with high backpressure variation. This valve is ideal for sequencing a secondary operation, while maintaining pressure in the first or as a compensator in a load sense system.

SCHEMATIC



DIMENSIONS

mm [in]

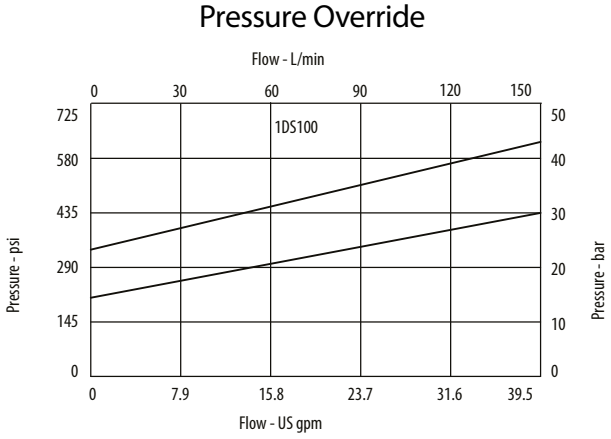


Installation torque
60 Nm [44 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**150 l/min [40 US gpm]**
Max setting	40 bar [580 psi]
Leakage	25 ml/min nominal
Weight	0.28 kg [0.62 lb]
Cavity	A880

PERFORMANCE CURVES



MODEL CODE

1DS145 - P - 3W - 2 - S - 377 - 20

Basic Code
1DS100 - No housing
1DS145 - Cartridge and housing

Adjustment Option
P - External
R - Knob
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminum	Steel
Omit	No Housing		
4W	1/2" BSP. 1/4" BSP Drain	B4821	B4527
6W	3/4" BSP. 1/4" BSP Drain	B5466	B4403
6T	3/8" SAE. 1/4" SAE Drain	B10793	
8T	1/2" SAE. 1/4" SAE Drain	B6584	
12T	3/4" SAE. 1/4" SAE Drain	B7883	B11379

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Pressure Range

Code	Bar	Psi
2	2-25	[29-360]
Standard Setting	20	[290]
4	2-40	[30-580]
Standard Setting	28	[400]

Setting made at 4.8 l/min

Seal Option

Code	Seal Kit
S-Buna-N	SK177
SV-Viton	SK177V

Housing Material
Omit - Aluminum/No housing
377 - Steel

Pressure Setting
Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
20	20	[290]

Sequence and Unloading Valves

PSV4-8

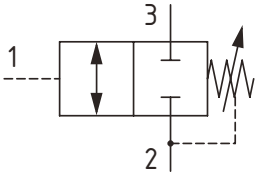
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain

350 bar [5000 psi] • 15 l/min [4 US gpm]

DESCRIPTION AND OPERATION

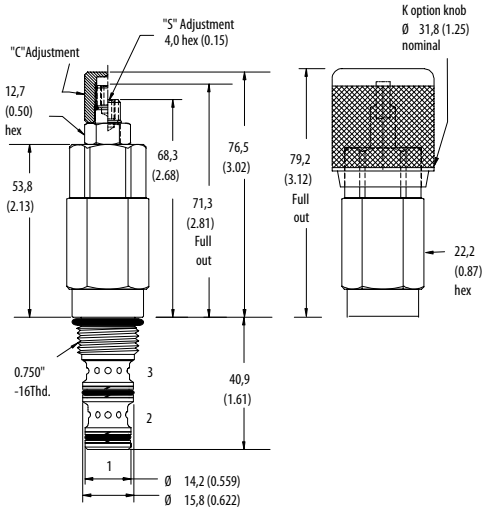
This is a hydraulically pilot operated spool valve, normally closed from port 3 to 2 with the spring chamber referenced to port 2. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 3 to 2. Port 2 should always be connected to tank. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

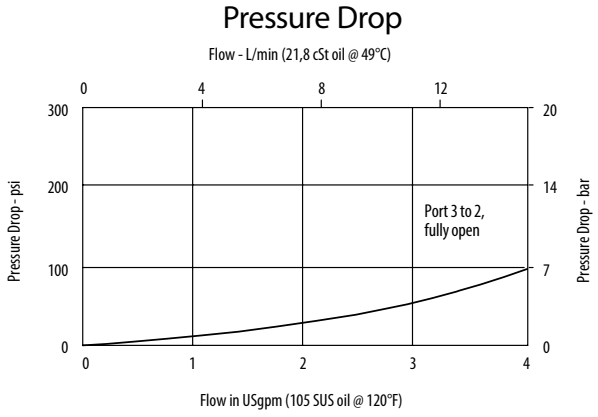


Installation torque
34-41 Nm [35-30 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**15 l/min [4 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.21 kg [0.47 lb]
Cavity	SDC08-3

PERFORMANCE CURVES



MODEL CODE

PSV4 - 8 - V - C - S - 4T - 15 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	02–160755
V-Viton	02–160756

Adjustment Option

C - Tamper Resistant
K - Knob
S - External

Housing Material

Omit - No Housing
S - Steel
A - Aluminium

Housing

Code	Ports	Housing Model Code	
		Aluminum Heavy Duty	**Steel Heavy Duty**
0	No Housing		
4T	#4 SAE	02–160741	02–160745
6T	#6 SAE	02–160742	02–160746
2G	1/4" BSP	02–160739	02–160743
3G	3/8" BSP	02–160740	02–160744

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Pressure Setting

Code x100 - Pressure setting in psi
(100 psi icraments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
10	69	[1000]

Pressure Range

Code	Bar	Psi
15	28-100	[40-1500]
Standard Setting	52	[750]
30	34-210	[500-3000]
Standard Setting	103	[1500]
50	124-350	[1800-5000]
Standard Setting	172	[2500]

Sequence and Unloading Valves

PSV2-8

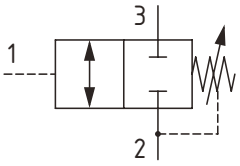
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain

210 bar [3000 psi] • 23 l/min [6 US gpm]

DESCRIPTION AND OPERATION

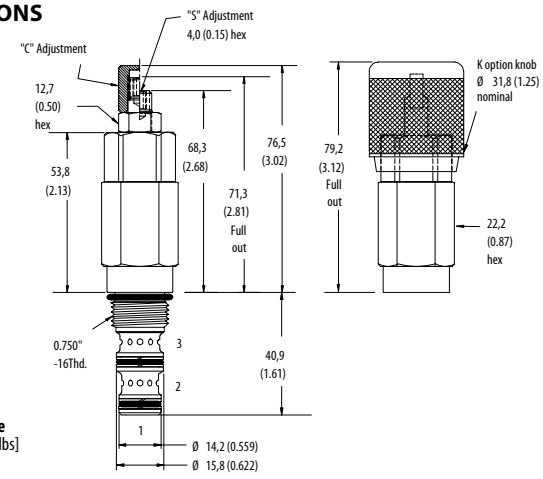
This is a hydraulically pilot operated spool valve, normally closed from port 3 to 2 with the spring chamber referenced to port 2. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 3 to 2. Port 2 should always be connected to tank. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

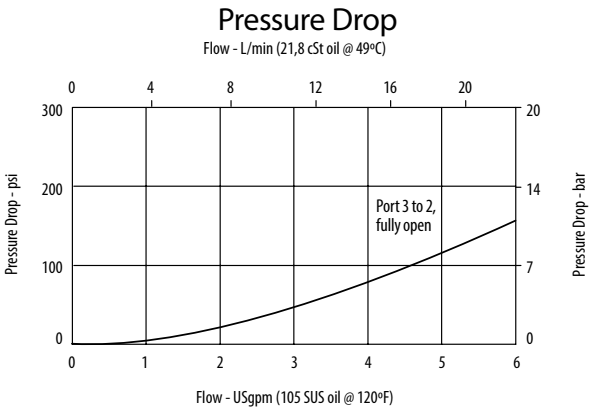


Installation torque
34-41 Nm [35-30 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**23 l/min [6 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.21 kg [0.47 lb]
Cavity	SDC08-3

PERFORMANCE CURVES



MODEL CODE

PSV2 - 8 - V - C - A - 4T - 13 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	02–160755
V-Viton	02–160756

Adjustment Option

C - Tamper Resistant
K - Knob
S - External

Housing Material

Omit - No Housing
A - Aluminium

Housing

Code	Ports	Housing Model Code Aluminum Heavy Duty
0	No Housing	
4T	#4 SAE	02–160741
6T	#6 SAE	02–160742
2G	1/4" BSP	02–160739
3G	3/8" BSP	02–160740

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Pressure Setting

Code x100 - Pressure setting in psi
(100 psi icraments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
10	69	[1000]

Pressure Range

Code	Bar	Psi
13	3.4-90	[50-1300]
Standard Setting	45	[650]
30	35-210	[500-3000]
Standard Setting	103	[1500]

Sequence and Unloading Valves

PSV4-10

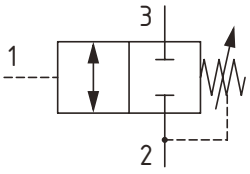
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain

210 bar [3000 psi] • 15 l/min [4 US gpm]

DESCRIPTION AND OPERATION

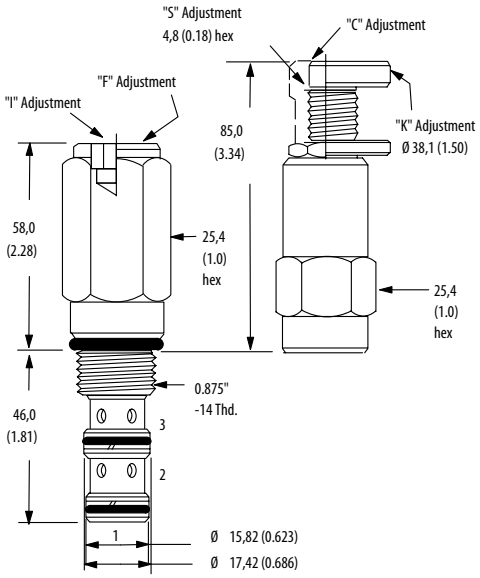
This is a hydraulically pilot operated spool valve, normally closed from port 3 to 2 with the spring chamber referenced to port 2. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 3 to 2. Port 2 should always be connected to tank. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

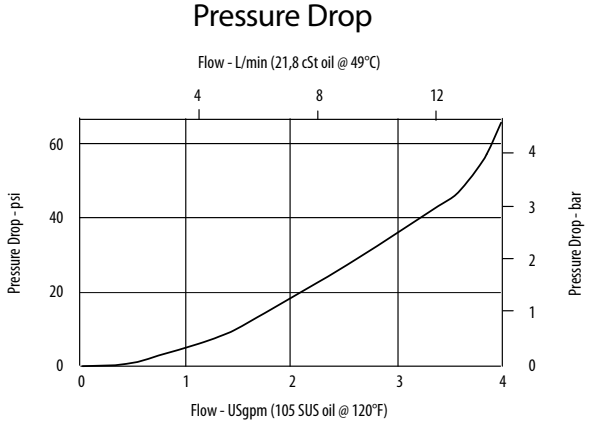


Installation torque
A - 47-54 Nm [35-40 ft. lbs]
S -69-75 Nm [50-55 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**15 l/min [4 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.24 kg [0.53 lb]
Cavity	SDC10-3

PERFORMANCE CURVES



MODEL CODE

PSV4 - 10 - V - C - S - 3B - 14 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	565804
V-Viton	889599

Adjustment Option

C - Tamper Resistant
F - Fixed
I - Internal
K - Knob
S - External

Housing Material

Omit - Aluminum/No Housing
S - Steel

Housing

Code	Ports	Housing Model Code		
		Aluminum Standard Duty	**Aluminum Heavy Duty**	**Steel Heavy Duty**
0	No Housing			
3B	3/8" BSP	02–173358		
2G	1/4" BSP		876705	02–175127
3G	3/8" BSP		876714	02–175128
6H	#6 SAE		876704	
8H	#8 SAE		876711	
6T	#6 SAE	566162		02–175124
8T	#8 SAE			02–175125

Pressure Setting

Code x100 - Pressure setting in psi
(100 psi icraments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
10	69	[1000]

Pressure Range

Code	Bar	Psi
5	3.5-30	[50-450]
Standard Setting	15	[225]
9	7-62	[100-900]
Standard Setting	30	[450]
14	14-95	[200-1400]
Standard Setting	48	[700]
28	20-190	[300-2800]
Standard Setting	97	[1400]
56	35-380	[500-5600]
Standard Setting	193	[2800]

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves
PSV2-10

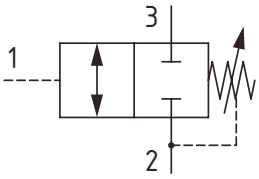
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain

210 bar [3000 psi] • 23 l/min [6 US gpm]

OPERATION AND DESCRIPTION

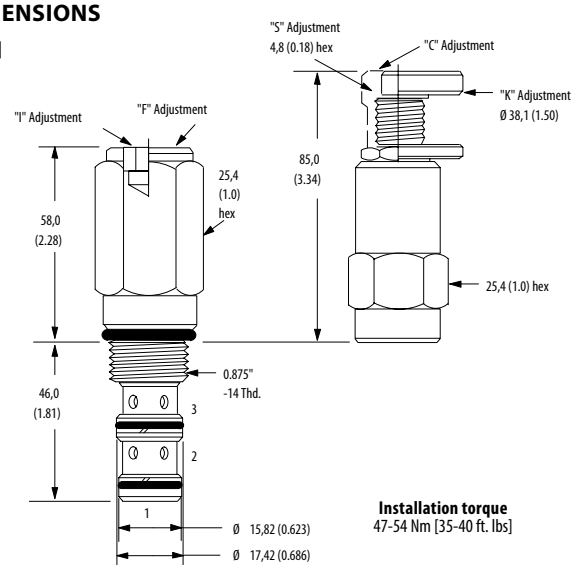
This is a hydraulically pilot operated spool valve, normally closed from port 3 to 2 with the spring chamber referenced to port 2. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 3 to 2. Port 2 should always be connected to tank. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

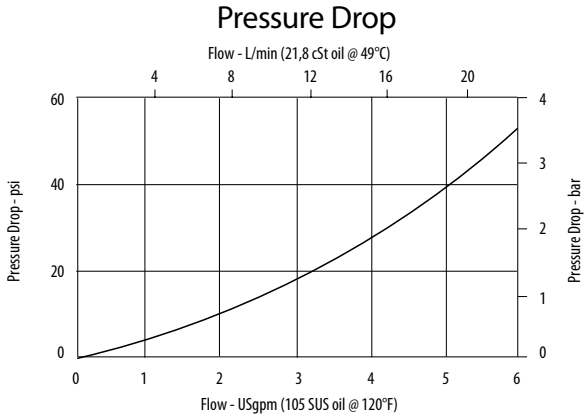


Installation torque
47-54 Nm [35-40 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**23 l/min [6 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.24 kg [0.53 lb]
Cavity	SDC10-3

PERFORMANCE CURVES



MODEL CODE

PSV2 - 10 - V - C - 3B - 12 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	565804
V-Viton	889599

Adjustment Option

C - Tamper Resistant
F - Fixed
I - Internal
K - Knob
S - External

Housing

Code	Ports	Housing Model Code	
		Aluminum Standard Duty	**Aluminum Heavy Duty**
0	No Housing		
3B	3/8" BSP	02–173358	
6T	#6 SAE	566162	
2G	3/4" BSP		876705
3G	3/8" BSP		876714
6H	#6 SAE		876704
8H	#8 SAE		876711

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Pressure Setting

Code- x100 - Pressure setting in psi (50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Examples:

Code	Bar	Psi
10	69	[1000]
10.5	72.4	[1050]

Pressure Range

Code	Bar	Psi
2	3.5-14	[50-200]
Standard Setting	7	[100]
6	7-40	[100-600]
Standard Setting	21	[300]
12	14-80	[200-1200]
Standard Setting	41	[600]
24	25-165	[400-2400]
Standard Setting	83	[1200]

Sequence and Unloading Valves

CP240-2

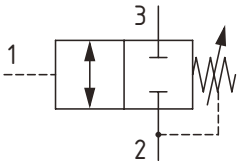
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Internal Drain

210 bar [3000 psi] • 35 l/min [9 US gpm]

DESCRIPTION AND OPERATION

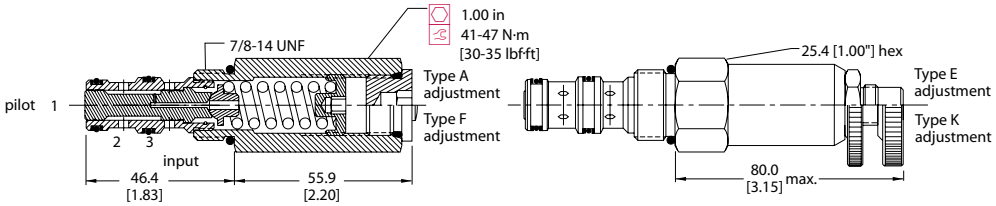
This is a hydraulically pilot operated spool valve, normally closed from port 3 to 2 with the spring chamber referenced to port 2. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 3 to 2. Port 2 should always be connected to tank. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

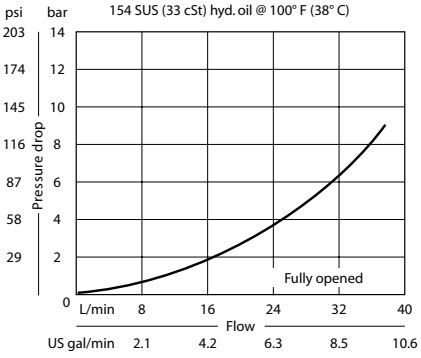


PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow @ 7 bar [100 psi]	**35 l/min [9 US gpm]**
Weight	0.24 kg [0.52 lb]
Cavity	SDC10-3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

CP240 - 2 - B - 6S - A - C - 100

Seal Option

Code	Seal kit
B-Buna - N	120009
V-Viton	120010

Housing

Code	Ports & Material	Housing Model Code
0	No Housing	No Housing
SE3B	AL, 3/8 BSP	SDC10-3-SE-3B
SE4B	AL, 1/2 BSP	SDC10-3-SE-4B
6S	AL, #6 SAE	CP10-3-6S
8S	AL, #8 SAE	CP10-3-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A- Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi (10 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)

Example:

Code	Bar	Psi
100	69	[1000]

Pressure Range

Code	Bar	Psi
A	4-28	[50-400]
Standard Setting	17	[250]
B	5-55	[75-800]
Standard Setting	28	[400]
C	7-97	[100-1400]
Standard Setting	69	[1000]
D	34-166	[500-2400]
Standard Setting	103	[1500]

Sequence and Unloading Valves

PSV10-10

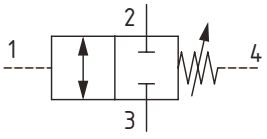
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, External Drain

210 bar [3000 psi] • 23 l/min [6 US gpm]

DESCRIPTION AND OPERATION

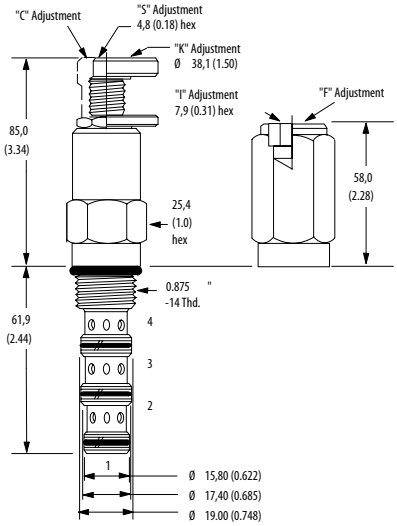
This is a hydraulically pilot operated spool valve, normally closed from port 2 to 3 with port 4 as a drain port connected to tank. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 2 to 3. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

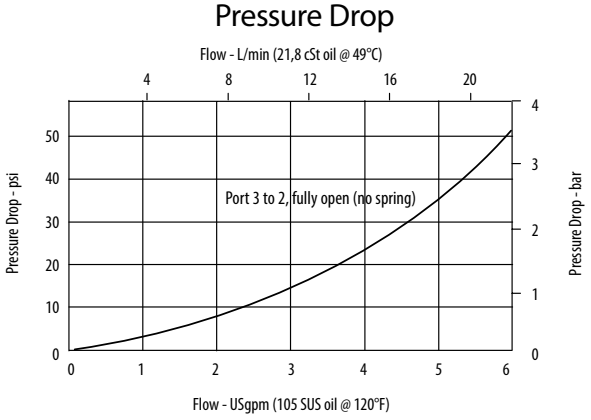


Installation torque
47-54 Nm [35-40 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**23 l/min [6 US gpm]**
Leakage	164 ml/min [10 in³/min] @ 210 bar [3000 psi]
Weight	0.27 kg [0.60 lb]
Cavity	SDC10-4

PERFORMANCE CURVES



MODEL CODE

PSV10 - 10 - V - C - 3B - 12 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	889625
V-Viton	566080

Adjustment Option

C - Tamper Resistant
F - Fixed
I - Internal
K - Knob
S - External

Housing

Code	Ports	Housing Model Code	
		Aluminum Standard Duty	**Aluminum Heavy Duty**
0	No Housing		
3B	3/8" BSP	02–179705	
6T	#6 SAE	566161	
2G	1/4" BSP		876709
3G	3/8" BSP		876715
6H	#6 SAE		876708
8H	#8 SAE		876713

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Pressure Setting

Code- x100 - Pressure setting in psi (50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Examples:

Code	Bar	Psi
10	69	[1000]
10.5	72.4	[1050]

Pressure Range

Code	Bar	Psi
2	3.5-14	[50-200]
Standard Setting	7	[100]
4	5-28	[75-400]
Standard Setting	14	[200]
6	7-40	[100-600]
Standard Setting	21	[300]
12	14-80	[200-1200]
Standard Setting	41	[600]
24	28-165	[400-2400]
Standard Setting	83	[1200]

Sequence and Unloading Valves

CP240-5

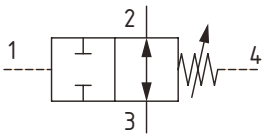
Sequence Valve, Normally Open, Spool Type, Hydraulic Pilot, External Drain

210 bar [3000 psi] • 25 l/min [7 US gpm]

DESCRIPTION AND OPERATION

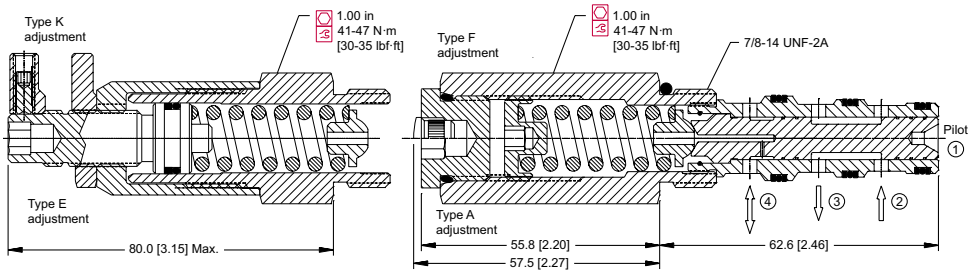
This is a hydraulically pilot operated spool valve, normally open from port 2 to 3 with port 4 as a drain port connected to tank. When the pilot pressure on port 1 reaches the setting, the valve will begin to close port 2 to 3. This is ideal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]



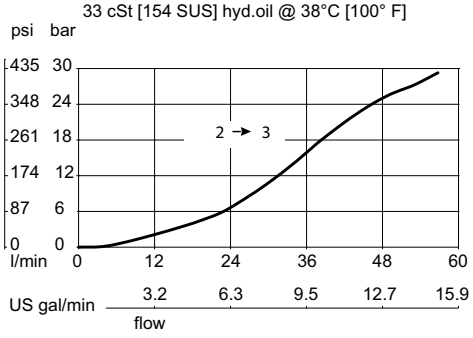
PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow @ 7 bar [100 psi]	**25 l/min [7 US gpm]**
Weight	0.26 kg [0.57 lb]
Cavity	SDC10-4

PERFORMANCE CURVES

Pressure Drop

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



MODEL CODE

CP240 - 5 - V - L3B - A - B - 075

Seal Option

Code	Seal kit
B-Buna - N	120023
V-Viton	120024

Housing

Code	Ports & Material	Housing Model Code
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	SDC10-4-6S
8S	AL, #8 SAE	SDC10-4-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A - Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi
(50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
075	52	[750]

Pressure Range

Code	Bar	Psi
A	3.4-27.6	[50-400]
Standard Setting	17	[250]
B	4.8-55.2	[70-800]
Standard Setting	28	[400]
C	6.9-96.5	[100-1400]
Standard Setting	69	[1000]
D	34.5-165.5	[500-2400]
Standard Setting	103	[1500]

Sequence and Unloading Valves
VDP 06/NC

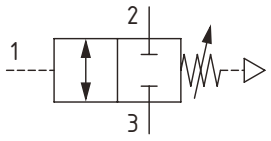
Sequence Valve, Normally Closed, Spool Type, Hydraulic Pilot, Atmospheric Vent

315 bar [4600 psi] • 25 l/min [7 US gpm]

DESCRIPTION AND OPERATION

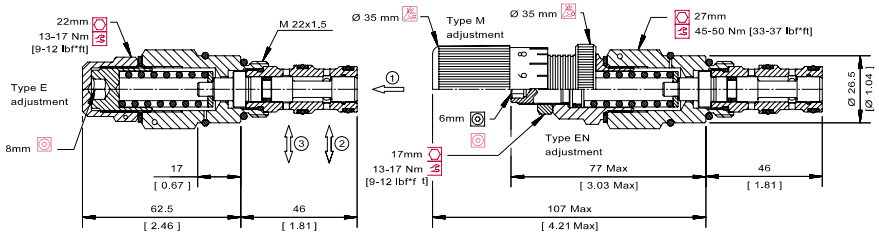
This is a hydraulically pilot operated spool valve, normally closed from port 2 to 3 with an atmospheric vent. When the pilot pressure on port 1 reaches the setting, the valve will begin to open port 2 to 3. This is deal for sensing pressure in a remote area of a circuit to sequence another operation.

SCHEMATIC



DIMENSIONS

mm [in]

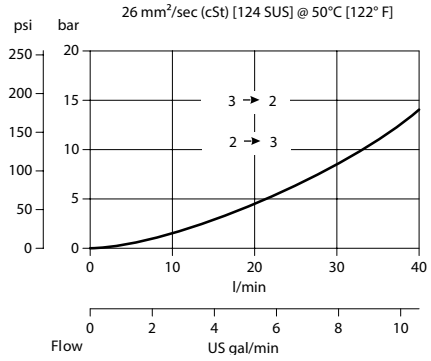


PERFORMANCE DATA

Rated pressure	**315 bar [4600 psi]**
Rated flow @ 7 bar [100 psi]	**25 l/min [7 US gpm]**
Weight	0.26 kg [0.57 lb]
Cavity	NCS 06/3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDP 06 /NC - EN - 2 - 00 - V - 60

Adjustment Option

E - Internal
EN - External
M - Calibrated Knob

Pressure Range

Code	Bar	Psi
1	15-40	[220-580]
Standard Setting	Not set	
2	30-120	[435-1740]
Standard Setting	Not set	
3	105-190	[1520-2750]
Standard Setting	Not set	

Pressure Setting

Code-Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)

Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
V-Viton	230000059
Omit-Buna - N	230000430

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
SE3/8	AL, 3/8 BSP	NCS06/3-SE-3/8
SE1/2	AL, 1/2 BSP	NCS06/3-SE-1/2
SE6S	AL, #6 SAE	NCS06/3-SE-6S
SE8S	AL, #8 SAE	NCS06/3-SE-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves
VDP 06/NA

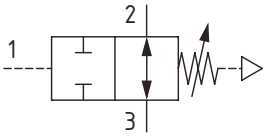
Sequence Valve, Normally Open, Spool Type, Hydraulic Pilot, Atmospheric Vent

315 bar [4600 psi] • 25 l/min [7 US gpm]

DESCRIPTION AND OPERATION

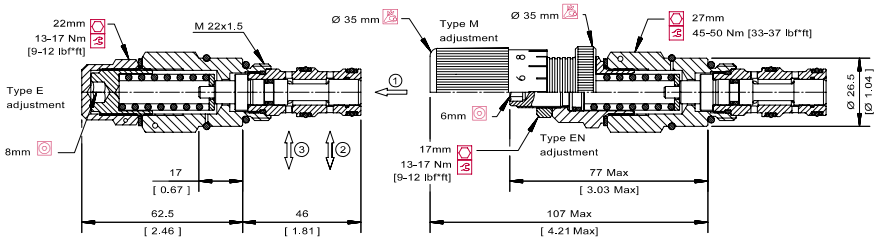
This is a hydraulically pilot operated spool valve, normally open from port 2 to 3 with an atmospheric vent. When the pilot pressure on port 1 reaches the setting, the valve will begin to close port 2 to 3. This is ideal for sensing pressure in a remote area of a circuit to stall another operation.

SCHEMATIC



DIMENSIONS

mm [in]

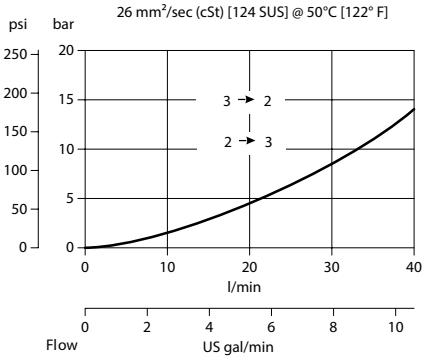


PERFORMANCE DATA

Rated pressure	**315 bar [4600 psi]**
Rated flow @ 7 bar [100 psi]	**25 l/min [7 US gpm]**
Weight	0.26 kg [0.57 lb]
Cavity	NCS 06/3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDP 06 /NA - EN - 2 - 00 - V - 60

Adjustment Option

E - Internal
EN - External
M - Calibrated Knob

Pressure Range

Code	Bar	Psi
1	15-40	[217-580]
Standard Setting	Not set	
2	30-120	[435-1740]
Standard Setting	Not set	
3	105-190	[1523-2756]
Standard Setting	Not set	

Pressure Setting

Code-Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)

Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
V-Viton	230000590
Omit-Buna - N	230000430

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
SE3/8	AL, 3/8 BSP	NSC06/3-SE-3/8
SE1/2	AL, 1/2 BSP	NSC06/3-SE-1/2
SE6S	AL, #6 SAE	NSC06/3-SE-6S
SE8S	AL, #8 SAE	NSC06/3-SE-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

PSV5-10

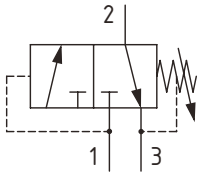
Sequence Valve, Normally Closed, Spool Type, Internal Pilot, Internal Drain

210 bar [3000 psi] • 8 l/min [2 US gpm]

DESCRIPTION AND OPERATION

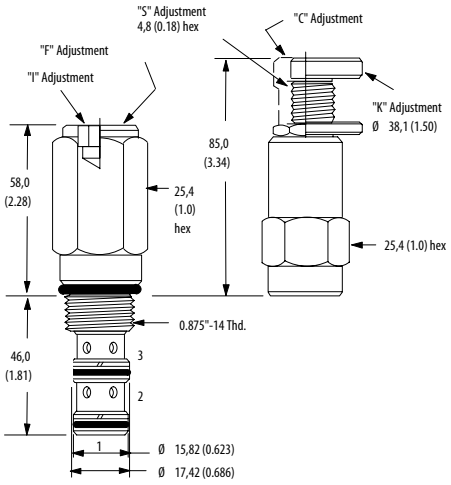
This is a three ported sequence valve, where pressure sensed at port 1 will shift valve and open port 1 to port 2. Port 3 should always be referenced to tank. This is ideal for use as a brake release valve in a transmission circuit.

SCHEMATIC



DIMENSIONS

mm [in]

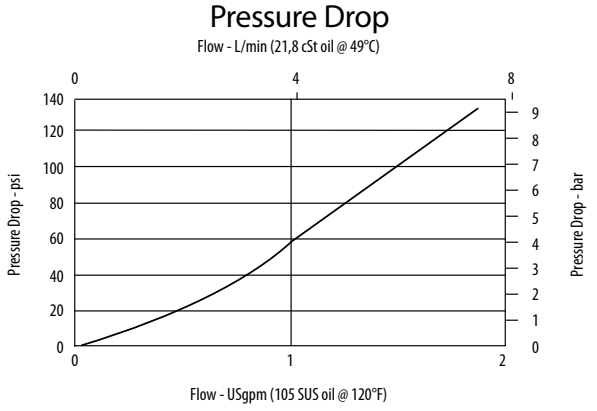


Installation torque
A - 47-54 Nm [35-40 ft. lbs]
S -68-75 Nm [50-55 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**8 l/min [2 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.24 kg [0.53 lb]
Cavity	SDC10-3

PERFORMANCE CURVES



MODEL CODE

PSV5 - 10 - V - C - S - 3B - 14 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	565804
V-Viton	889599

Adjustment Option

C - Tamper Resistant
K - Knob
I - Internal
F - Fixed
S - External

Housing Material

Omit - Aluminum/No Housing
S - Steel

Housing

Code	Ports	Housing Model Code: Aluminum Standard Duty	Aluminum Heavy Duty	Steel Heavy Duty
0	No Housing			
3B	3/8" BSP	02–173358	–	–
2G	1/4" BSP	–	876705	02–175127
3G	3/8" BSP	–	876714	02–175128
6H	#6 SAE	–	876704	–
8H	#8 SAE	–	876711	–
6T	#6 SAE	566162	–	02–175124
8T	#8 SAE	–	–	02–175125

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Pressure Setting

Code- x100 - Pressure setting in psi (50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Examples:

Code	Bar	Psi
10	69	[1000]
10.5	72.4	[1050]

Pressure Range

Code	Bar	Psi
5	3.5-30	[50-450]
Standard Setting	16	[225]
9	7-62	[100-900]
Standard Setting	31	[450]
14	14-95	[200-1400]
Standard Setting	48	[700]
28	20-190	[300-2800]
Standard Setting	97	[1400]

Sequence and Unloading Valves

PSV1-10

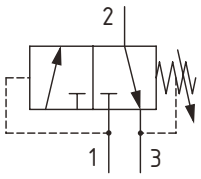
Sequence Valve, Normally Closed, Spool Type, Internal Pilot, Internal Drain

210 bar [3000 psi] • 23 l/min [6 US gpm]

DESCRIPTION AND OPERATION

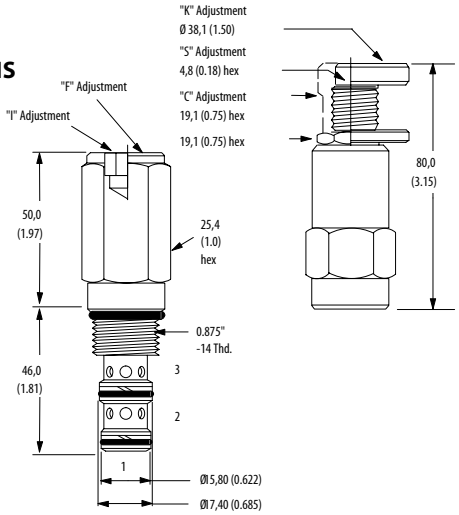
This is a three ported sequence valve, where pressure sensed at port 1 will shift valve and open port 1 to port 2. Port 3 should always be referenced to tank. This is ideal for use as a brake release valvein a transmission circuit.

SCHEMATIC



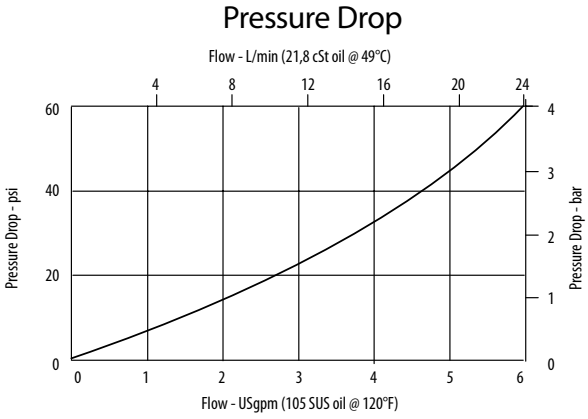
DIMENSIONS

mm [in]



Installation torque
47-54 Nm [35-40 ft. lbs]

PERFORMANCE CURVES



PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**23 l/min [6 US gpm]**
Leakage	82 ml/min [5 in³/min] @ 210 bar [3000 psi]
Weight	0.24 kg [0.53 lb]
Cavity	SDC10-3

MODEL CODE

PSV1 - 10 - V - C - 3B - 12 - 10

Seal Option

Code	Seal Kit
Omit-Buna - N	565804
V-Viton	889599

Adjustment Option

C - Tamper Resistant
F - Fixed
I - Internal
K - Knob
S - External

Housing

Code	Ports	Housing Model Code	
		Aluminum Standard Duty	**Aluminum Heavy Duty**
0	No Housing		
3B	3/8" BSP	02–173358	–
6T	#6 SAE	566162	–
2G	1/4" BSP	–	876705
3G	3/8" BSP	–	876714
6H	#6 SAE	–	876704
8H	#8 SAE	–	876711

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Pressure Setting

Code- x100 - Pressure setting in psi
(50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value).
Examples:

Code	Bar	Psi
10	69	[1000]
10.5	72.4	[1050]

Pressure Range

Code	Bar	Psi
2	3.5-14	[50-200]
Standard Setting	7	[100]
6	7-41	[100-600]
Standard Setting	21	[300]
12	14-82	[200-1200]
Standard Setting	41	[600]
24	25-165	[400-2400]
Standard Setting	83	[1200]

Sequence and Unloading Valves

VDP 06/4201

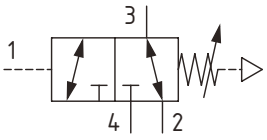
Sequence Valve, 3-Way, Spool Type, Hydraulic Pilot, Atmospheric Vent

315 bar [4600 psi] • 23 l/min [6 US gpm]

DESCRIPTION AND OPERATION

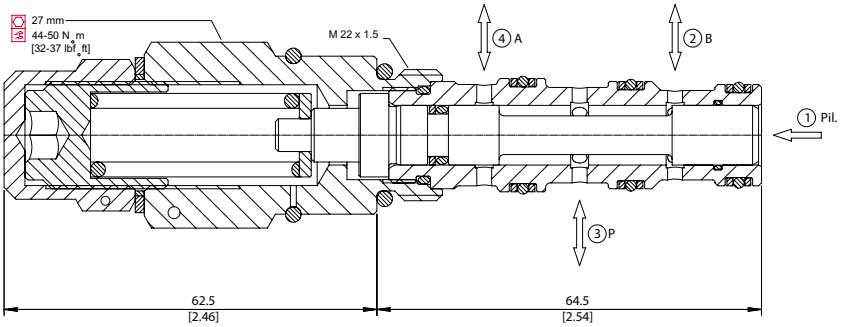
This is a hydraulically pilot operated spool valve where port 4 is closed and port 2 is open to port 3 in the neutral position. Pilot pressure is applied to port 1 and the spring chamber is referenced to atmosphere. When the pressure on port 1 reaches the setting, port 2 will begin to close and port 4 is opened to port 3. This valve can be used normally closed, normally open or as a diverter valve.

SCHEMATIC



DIMENSIONS

mm [in]

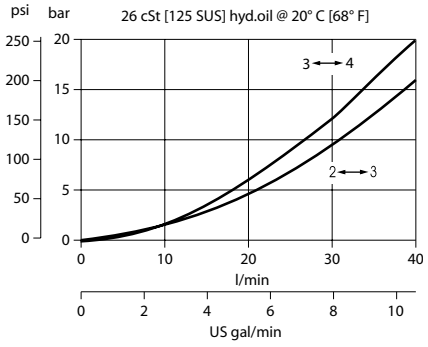


PERFORMANCE DATA

Rated pressure	**315 bar [4600 psi]**
Rated flow @ 7 bar [100 psi]	**23 l/min [6 US gpm]**
Weight	0.28 kg [0.62 lb]
Cavity	NCS06/4

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDP 06 /4201 - M - 1 - 00 - V - 20

Adjustment Option

E - Internal
EN - External
M - Calibrated Knob

Pressure Range

Code	Bar	Psi
1	15-40	[220-580]
Standard Setting	Not set	
2	30-120	[430-1740]
Standard Setting	Not set	
3	105-190	[1520-2750]
Standard Setting	Not set	

Seal Option

Code	Seal kit
Omit-Buna - N	230000080
V-Viton	230000350

Pressure Setting

Code-Pressure setting in bar 5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
20	20	[290]

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
L3/8	AL, 3/8 BSP	NCS06/4-L-3/8
L1/2	AL, 1/2 BSP	NCS06/4-L-3/8
L6S	AL, #6 SAE	NCS06/4-L-6S
L8S	AL, #8 SAE	NCS06/4-L-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

CP240-21

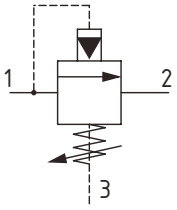
Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain

350 bar [5000 psi] • 45 l/min [12 US gpm]

DESCRIPTION AND OPERATION

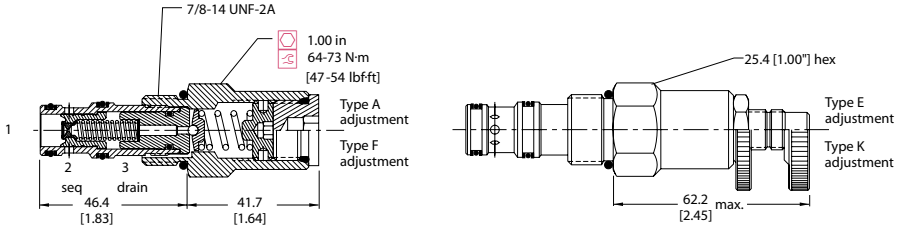
This is a pilot operated, spool type sequence valve that opens from port 1 to port 2 when the setting is reached. This is ideal for sequencing a secondary operation while maintaining pressure in the primary operation, limiting pressure loss with constant or varying flows.

SCHEMATIC



DIMENSIONS

mm [in]

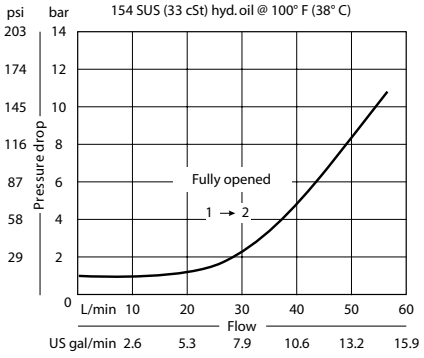


PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow @ 7 bar [100 psi]	**45 l/min [12 US gpm]**
Weight	0.23 kg [0.51 lb]
Cavity	SDC10-3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

CP240 - 21 - B - 6S - A - C - 150

Seal Option

Code	Seal kit
B-Buna - N	120009
V-Viton	120010

Housing

Code	Ports & Material	Housing Model Code
0	No Housing	No Housing
SE3B	AL, 3/8 BSP	SDC10-3-SE-3B
SE4B	AL, 1/2 BSP	SDC10-3-SE-4B
6S	AL, #6 SAE	CP10-3-6S
8S	AL, #8 SAE	CP10-3-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A - Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi
(50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
150	103	[1500]

Pressure Range

Code	Bar	Psi
A Standard Setting	14-55 28	[200-800] [400]
B Standard Setting	21-103 69	[30-1500] [1000]
C Standard Setting	28-207 103	[400-3000] [1500]
D Standard Setting	28-345 103	[400-5000] [1500]

Sequence and Unloading Valves

CP241-21

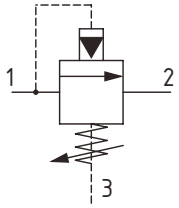
Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain

350 bar [5000 psi] • 76 l/min [20 US gpm]

DESCRIPTION AND OPERATION

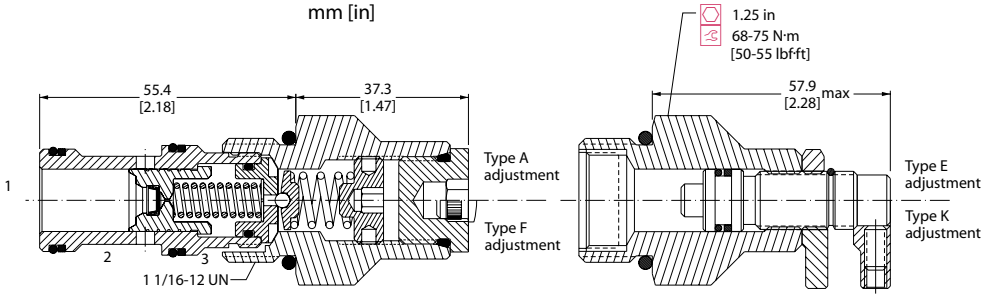
This is a pilot operated, spool type sequence valve that opens from port 1 to port 2 when the setting is reached. This is ideal for sequencing a secondary operation while maintaining pressure in the primary operation, limiting pressure loss with constant or varying flows.

SCHEMATIC



DIMENSIONS

mm [in]

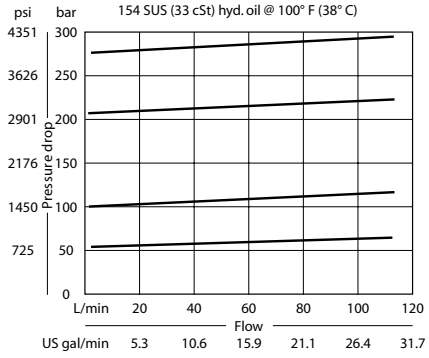


PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow @ 7 bar [100 psi]	**76 l/min [20 US gpm]**
Weight	0.28 kg [0.62 lb]
Cavity	CP12-3S

PERFORMANCE CURVES

Pressure Override



MODEL CODE

CP241 - 21 - B - 6S - A - C - 150

Seal Option

Code	Seal kit
B-Buna - N	120335
V-Viton	120336

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
4B	AL, 1/2 BSP	CP12-3S-4B/2B
6B	AL, 3/4 BSP	CP12-3S-6B/2B
10S	AL, #10 SAE	CP12-3S-10S/4S
12S	AL, #12 SAE	CP12-3S-12S/4S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A - Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Setting

Code x10 - Pressure setting in psi
(50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
150	103	[1500]

Pressure Range

Code	Bar	Psi
A Standard Setting	14-55 28	[200-800] [400]
B Standard Setting	21-103 69	[30-1500] [1000]
C Standard Setting	28-207 103	[400-3000] [1500]
D Standard Setting	28-345 103	[400-5000] [1500]

Sequence and Unloading Valves

1PS100

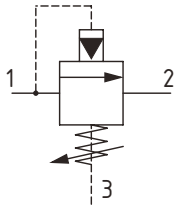
Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain

350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

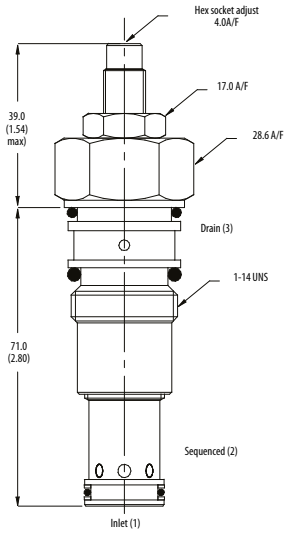
This is a pilot operated, spool type sequence valve that opens from port 1 to port 2 when the setting is reached. This is ideal for sequencing a secondary operation while maintaining pressure in the primary operation, limiting pressure loss with constant or varying flows.

SCHEMATIC



DIMENSIONS

mm [in]

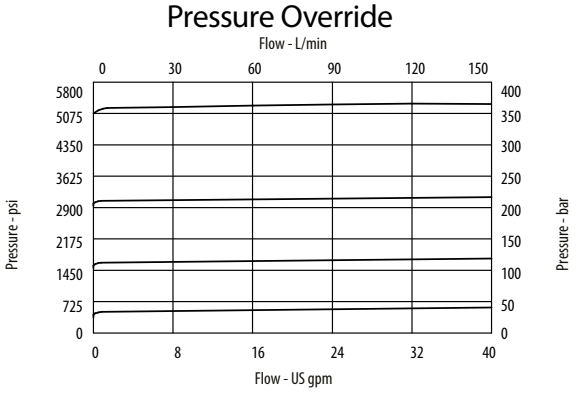


Installation torque
60 Nm [44 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**150 l/min [40 US gpm]**
Leakage	35 ml/min @ 280 bar [4000 psi]
Weight	0.17 kg [0.37 lb]
Cavity	A880

PERFORMANCE CURVES



MODEL CODE

1PS145 - P - 3W - 35 - S - 377 - 60

Basic Code

1PS100 - No housing
1PS145 - Catridge and Housing

Adjustment Option

P - External
R - Knob
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code			
		Aluminum	Steel	Aluminum 1PS155	Steel 1PS155
Omit	No Housing				
4W	1/2" BSP. 1/4" BSP Drain Port	B4821	B4527		
6W	3/4" BSP. 1/4" BSP Drain Port	B5466	B4403	BXP23867-6WS	BXP23867-6WS377
6T	3/8" SAE. 1/4" SAE Drain Port	B10793			
8T	1/2" SAE. 1/4" SAE Drain Port	B6584			
12T	3/4" SAE. 1/4" SAE Drain Port	B7883	B11379		

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Housing Material

Omit - Aluminum/No housing
377 - Steel

Seal Option

Code	Seal Kit
S-Buna-N	SK177
SV-Viton	SK177V

Pressure Range

Code	Bar	Psi
7 Standard Setting	2-70 35	[29-1015] [510]
20 Standard Setting	10-210 100	[150-3000] [1450]
35 Standard Setting	50-350 280	[725-5000] [4060]

Setting made at 14 l/min

Pressure Setting

Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Sequence and Unloading Valves

1PS200

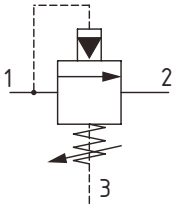
Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain

350 bar [5000 psi] • 250 l/min [66 US gpm]

DESCRIPTION AND OPERATION

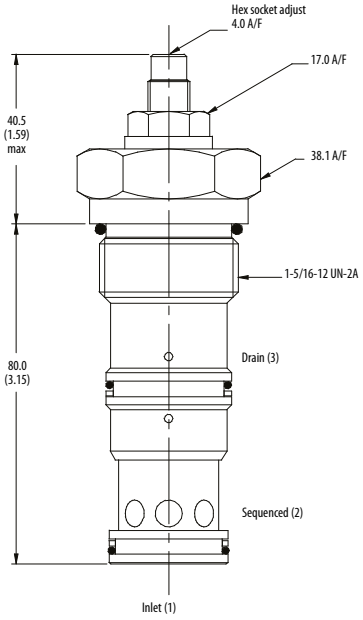
This is a pilot operated, spool type sequence valve that opens from port 1 to port 2 when the setting is reached. This is ideal for sequencing a secondary operation while maintaining pressure in the primary operation, limiting pressure loss with constant or varying flows.

SCHEMATIC



DIMENSIONS

mm [in]



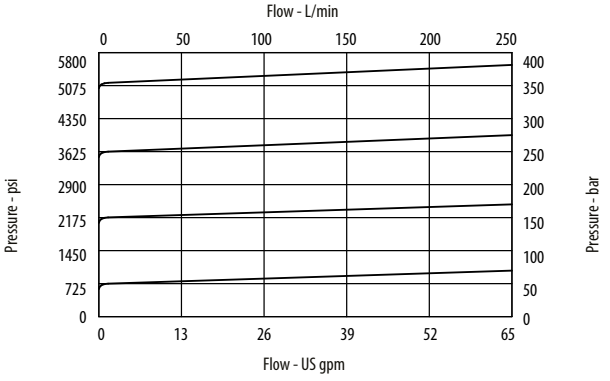
Installation torque
100 Nm [76 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**250 l/min [60 US gpm]**
Leakage	35 ml/min @ 280 bar [4000 psi]
Weight	0.72 kg [1.60 lb]
Cavity	A16102

PERFORMANCE CURVES

Pressure Override



MODEL CODE

1PS250 - P - 8W - 35 - S - 377 - 60

Basic Code

1PS200 - No housing
1PS250 - Cartridge and Housing

Adjustment Option

P - External
R - Knob
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminum	**Steel**
Omit	No Housing		
8W	1" BSP. 1/4" BSP Drain Port	B3496	B3497
16T	1" SAE. 1/4" SAE Drain Port	B6807	B11555

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Housing Material

Omit - Aluminum/No housing
377 - Steel

Pressure Setting

Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal Kit
S-Buna-N	SK173
SV-Viton	SK173V

Pressure Range

Code	Bar	Psi
20	10-210	[150-3000]
Standard Setting	100	[1450]
35	50-350	[725-5000]
Standard Setting	280	[4060]

Setting made at 14 l/min

Sequence and Unloading Valves

1PSC30

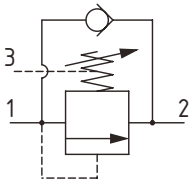
Sequence Valve, Direct Acting, Poppet Type with Reverse Free Flow, Internal Pilot, External Drain

350 bar [5000 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

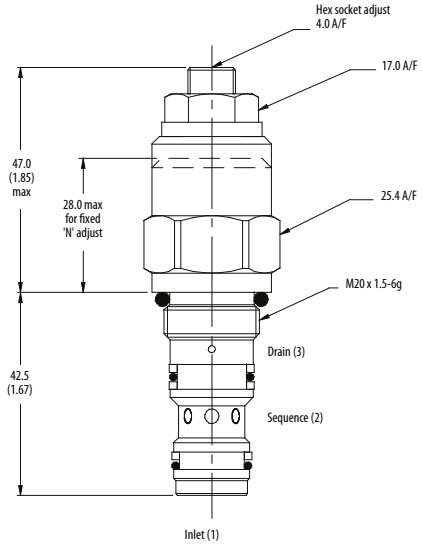
This is a direct acting, poppet type sequence valve with a reverse flow check. It opens from port 1 to port 2 when the set pressure is reached and free flows from port 2 to 1. It can be used to sequence operations in a system or in a service line after a directional valve, where free flow is necessary in the reverse direction.

SCHEMATIC



DIMENSIONS

mm [in]



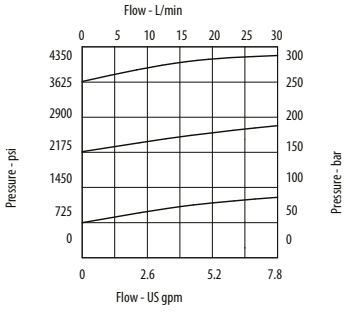
Installation torque
45 Nm [33 ft. lbs]

PERFORMANCE DATA

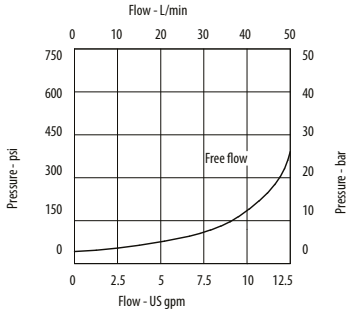
Rated pressure	**350 bar [5000 psi]**
Rated flow	**30 l/min [8 US gpm]**
Leakage	0.3 ml/min nominal [5 drops/min]
Weight	0.15 kg [0.33 lb]
Cavity	A6610

PERFORMANCE CURVES

Pressure Override



Pressure Drop



MODEL CODE

1PSC35 - F - 3W - 20 - S - 377 - 60

Basic Code

1PSC30 - No housing
1PSC35- Cartridge and Housing

Adjustment Option

F - External
N - Non-adjustable option, contact technical support.

Housing

Code	Ports	Housing Model Code	
		Aluminum	**Steel**
Omit	No Housing		
3W	3/8" BSP Valve & Cyl Port. 1/4" BSP Pilot Port	B6743	B12823
6T	3/8" SAE Valve & Cyl Port. 1/4" SAE Pilot Port	B10536	
8T	1/2" SAE Valve & Cyl Port. 1/4" SAE Pilot Port	B7884	B11811

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Pressure Range

Code	Bar	Psi
10	10-100	[145-1450]
Standard Setting	70	[1015]
20	60-210	[870-3000]
Standard Setting	100	[1450]
35	70-350	[1015-5000]
Standard Setting	210	[3000]

Setting made at 4.8 l/min

Seal Option

Code	Seal Kit
S-Buna-N	SK395
SV-Viton	SK395V

Housing Material

Omit - Aluminum/No housing
377 - Steel

Pressure Setting

Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Sequence and Unloading Valves

1PSC100

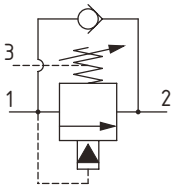
Sequence Valve, Pilot Operated, Poppet Type with Reverse Free Flow, Internal Pilot, External Drain

350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

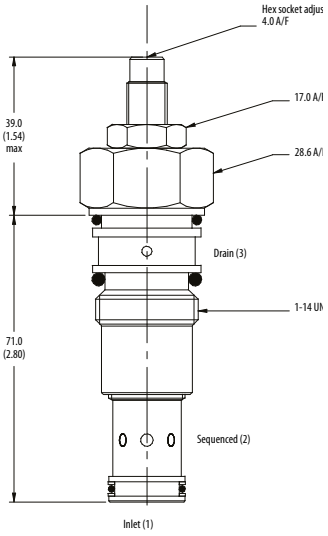
This is a pilot operated, poppet type sequence valve with a reverse flow check. It opens from port 1 to port 2 when the set pressure is reached and free flows from port 2 to 1. It can be used to sequence operations in a system or in a service line after a directional valve, where free flow is necessary in the reverse direction.

SCHEMATIC



DIMENSIONS

mm [in]



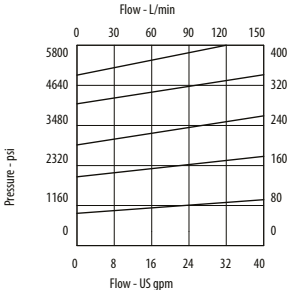
Installation torque
60 Nm [44 ft. lbs]

PERFORMANCE DATA

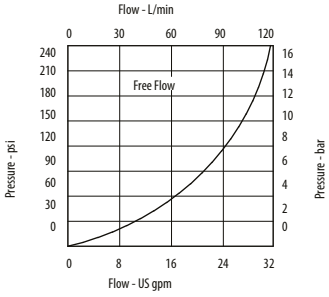
Rated pressure	**350 bar [5000 psi]**
Rated flow	**150 l/min [40 US gpm]**
Leakage	35 ml/min @ 280 bar [4000 psi]
Weight	0.17 kg [0.37 lb]
Cavity	A880

PERFORMANCE CURVES

Pressure Override



Pressure Drop



MODEL CODE

1PSC145 - P - 3W - 35 - S - 377 - 60

Basic Code
1PSC100 - No housing
1PSC145 - Cartridge and Housing

Adjustment Option
P - External
R - Knob
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminum	Steel
Omit	No Housing		
3W	3/8" BSP 1/4" BSP Drain Ports		
4W	1/2" BSP 1/4" BSP Drain Ports	B4821	B4527
6W	3/4" BSP 1/4" BSP Drain Ports	B5466	B4403
6T	3/8" SAE 1/4" SAE Drain Ports	B10793	
8T	1/2" SAE 1/4" SAE Drain Ports	B6584	
12T	3/4" SAE 1/4" SAE Drain Ports	B7883	B11379

Housing Material
Omit - Aluminum/No housing
377 - Steel

Seal Option

Code	Seal Kit
S-Buna-N	SK177
SV-Viton	SK177V

Pressure Range

Code	Bar	Psi
7	2-70	[29-1015]
Standard Setting	35	[510]
20	10-210	[150-3000]
Standard Setting	100	[1450]
35	50-350	[725-5000]
Standard Setting	280	[4060]

Setting made at 14 l/min

Pressure Setting
Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

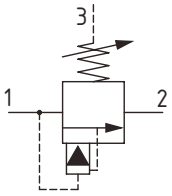
Sequence and Unloading Valves
1UPS100

Kick-Down Sequence Valve, Pilot Operated, Spool Type, Internal Pilot, External Drain
350 bar [5000 psi] • 150 l/min [40 US gpm]

DESCRIPTION AND OPERATION

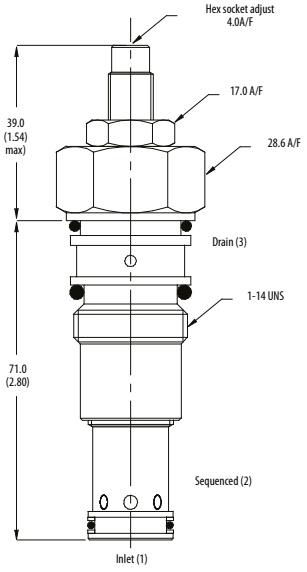
This is a pilot operated, spool type sequence valve that opens from port 1 to port 2 when the setting is reached. It then automatically vents the main spool, causing the inlet pressure in port 1 to fall to the pressure in port 2. Sometimes known as a 'kick-down' valve, it can be used to sequence operations in a system limiting pressure loss, where the pressure in the second operation is much lower than the first.

SCHEMATIC



DIMENSIONS

mm [in]

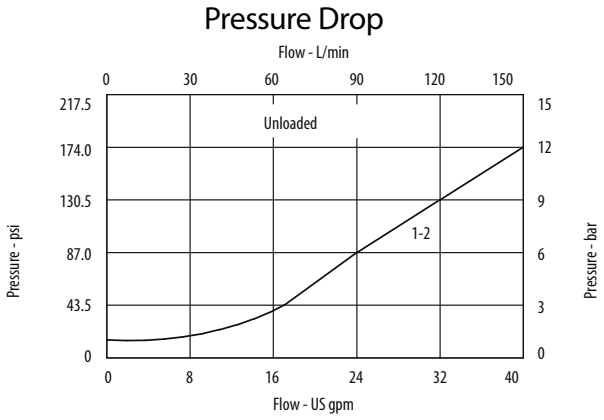


Installation torque
60 Nm [44 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**150 l/min [40 US gpm]**
Leakage	100 ml/min nominal
Weight	0.17 kg [0.37 lb]
Cavity	A880

PERFORMANCE CURVES



MODEL CODE

1UPS145 - P - 3W - 35 - S - 377 - 60

Basic Code
1UPS100 - No housing
1UPS145 - Cartridge and housing
1UPS155 - Cartridge and dual housing

Adjustment Option
P - External
R - Knob
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminum	**Steel**
Omit	No housing		
4W	1/2" BSP 1/4" BSP Drain Ports	B4821	B4527
6W	3/4" BSP 1/4" BSP Drain Ports	B5466	B4403
6T	3/8" SAE 1/4" SAE Drain Ports	B10793	
8T	1/2" SAE 1/4" SAE Drain Ports	B6584	
12T	3/4" SAE 1/4" SAE Drain Ports	B7883	B11379

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Housing Material
Omit - Aluminum/No housing
377 - Steel

Seal Option

Code	Seal Kit
S-Buna-N	SK177
SV-Viton	SK177V

Pressure Range

Code	Bar	Psi
20	10-210	[100]
Standard Setting	100	[145-3000]
35	30-350	[210]
Standard Setting	210	[435-5000]

Setting made at 14 l/min

Pressure Setting
Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Sequence and Unloading Valves

CP240-30

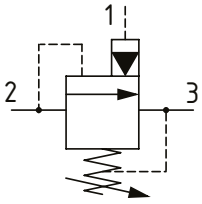
Unloading Valve, Direct Acting, Poppet Type, Hydraulic Pilot, Internal Drain

240 bar [3500 psi] • 4 l/min [1 US gpm]

DESCRIPTION AND OPERATION

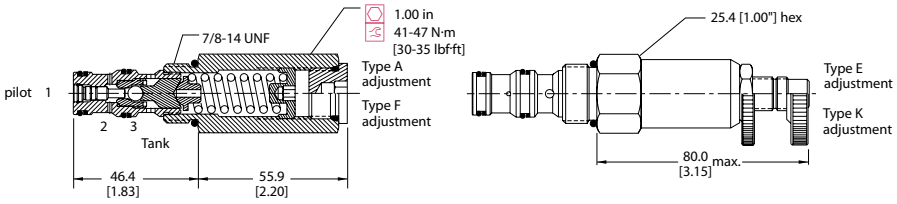
This is a low flow pilot valve for use in unloading circuits. The valve remains closed between port 2 and 3 until the setting is achieved on port 2, and the valve opens as a relief valve. Normally used in conjunction with a check valve, pressure sensed on port 1 downstream of the check valve keeps the valve open until the pressure drops to a pre-determined percentage of the setting (75%, 80%, or 85%). When the pressure falls, the valve will close allowing pressure to rise again. This valve can be used with a logic element in an accumulator system to dump the pump flow at minimum pressure or in a two-pump unloading circuit.

SCHEMATIC



DIMENSIONS

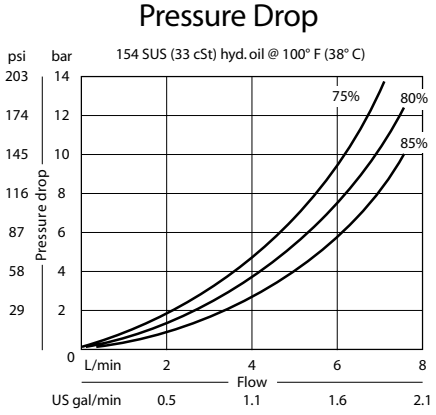
mm [in]



PERFORMANCE DATA

Rated pressure	**240 bar [3500 psi]**
Rated flow @ 7 bar [100 psi]	**4 l/min [1 US gpm]**
Weight	0.24 kg [0.53 lb]
Cavity	SDC10-3

PERFORMANCE CURVES



MODEL CODE

CP240 - 30 - B - 6S - A - B - 75 - 150

Seal Option

Code	Seal kit
B-Buna-N	120027
V-Viton	120028

Housing

Code	Ports & Material	Housing Model Code
0	No Housing	No Housing
SE3B	AL, 3/8 BSP	SDC10-3-SE-3B
SE4B	AL, 1/2 BSP	SDC10-3-SE-4B
6S	AL, #6 SAE	CP10-2-6S
8S	AL, #8 SAE	CP10-2-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Adjustment Option

A - Internal
E - External
F - Tamper Resistant
K - Knob

Pressure Range

Code	Bar	Psi
A Standard Setting	28-103 69	[400-1500] [1000]
B Standard Setting	62-240 103	[900-3500] [1500]

Pressure Ratio

75 - 75%
80 - 80%
85 - 85%

Pressure Setting

Code x10 - Pressure setting in psi
(50 psi increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value).
Example:

Code	Bar	Psi
150	103	[1500]

Sequence and Unloading Valves

1UL60

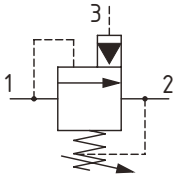
Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, Internal Drain

350 bar [5000 psi] • 60 l/min [16 US gpm]

DESCRIPTION AND OPERATION

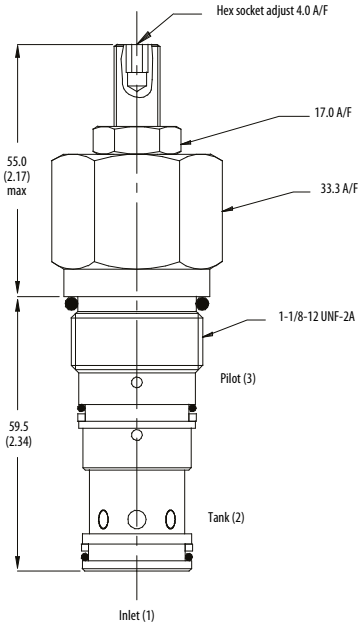
This is a pilot operated, spool type unloading valve. Normally used in conjunction with a check valve, the valve remains closed from port 1 to 2 until the set pressure is reached. Pressure sensed downstream of the check valve at port 3 will pilot the valve open, allowing the pressure at port 1 unload to tank (port 2) at minimum pressure. When the pressure in port 3 falls to 85% of the setting, the valve will close and the pressure in port 1 will rise. This valve can be used to dump the pump flow at minimum pressure in an accumulator system or in a two-pump unloading circuit.

SCHEMATIC



DIMENSIONS

mm [in]

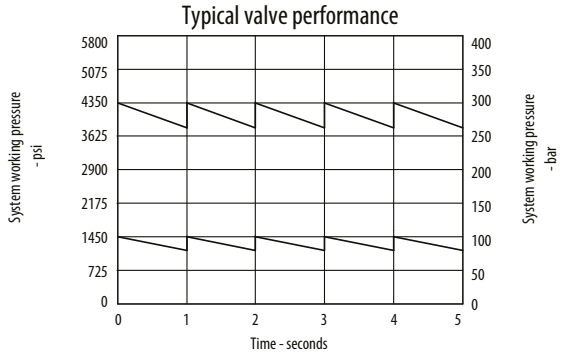


Installation torque
75 Nm [55 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**60 l/min [16 US gpm]**
Leakage	35ml/min nominal
Pressure Ratio	85-90%
Weight	0.46 kg [1.01 lb]
Cavity	A3146

PERFORMANCE CURVES



MODEL CODE

1UL65 - P - 4W - 35 - S - 377 - 60

Basic Code
1UL60 - No Housing
1UL65 - Cartridge and Housing

Adjustment Option
P - External
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminium	Steel
Omit	No Housing		
4W	1/2" BSP		BXP24103-4W-S-377
8T	1/2" SAE	BXP24103-8T-S	

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Pressure Range

Code	Bar	Psi
10 Standard Setting	40-100 75	[580-1450] [1090]
20 Standard Setting	70-210 100	[1015-3000] [1450]
35 Standard Setting	150-350 200	[2200-5000] [2900]

Setting made at 4.8 l/min

Seal Option

Code	Seal Kit
S-Buna-N	SK451
SV-Viton	SK451V

Housing Material
Omit - Aluminum/No Housing
377 - Steel

Pressure Setting
Code-Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Sequence and Unloading Valves

AUV 06

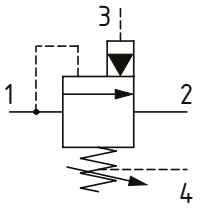
Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, External Drain

250 bar [3600 psi] • 50 l/min [13 US gpm]

DESCRIPTION AND OPERATION

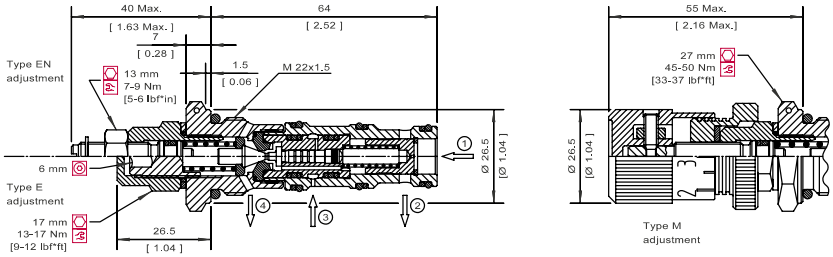
This is a pilot operated, spool type unloading valve. Normally used in conjunction with a check valve, the valve remains closed from port 1 to 2 until the set pressure is reached. Pressure sensed downstream of the check valve at port 3 will pilot the valve open, allowing the pressure at port 1 unload to tank (port 2) at minimum pressure. When the pressure in port 3 falls to 85% of the setting, the valve will close and the pressure in port 1 will rise. This valve can be used to dump the pump flow at minimum pressure in an accumulator system or in a two-pump unloading circuit.

SCHEMATIC



DIMENSIONS

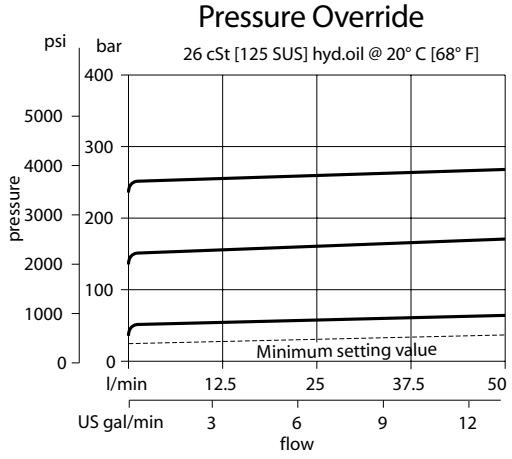
mm [in]



PERFORMANCE DATA

Rated pressure	**250 bar [3600 psi]**
Rated flow @ 7 bar [100 psi]	**50 l/min [13 US gpm]**
Weight	0.22 kg [0.49 lb]
Cavity	NCS06/4

PERFORMANCE CURVES



MODEL CODE

AUV 06 - EN - 1 - A - L3/8 - V - 60

Adjustment Option

E - Internal
EN - External
M - Calibrated Knob

Pressure Range

Code	Bar	Psi
1	10-70	[145-1015]
Standard Setting	Not set	
2	30-140	[435-2030]
Standard Setting	Not set	
3	70-210	[1015-3000]
Standard Setting	Not set	

Pressure Ratio

A - 85%

Seal Option

Code	Seal kit
Omit-Buna-N	230000080
V-Viton	230000350

Pressure Setting

Code-Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
L3/8	AL, 3/8 BSP	NCS06/4-L-3/8
L1/2	AL, 1/2 BSP	NCS06/4-L-1/2
L6S	AL, #6 SAE	NCS06/4-L-6S
L8S	AL, #8 SAE	NCS06/4-L-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

1PUL60

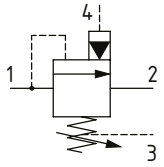
Unloading Valve, Pilot Operated, Spool Type, Hydraulic Pilot, External Drain

350 bar [5000 psi] • 60 l/min [16 US gpm]

DESCRIPTION AND OPERATION

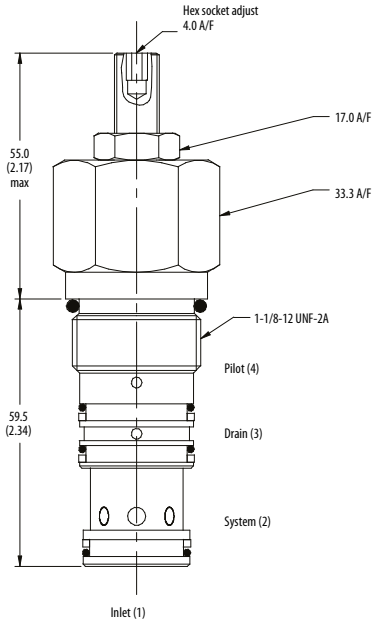
This is a pilot operated, spool type unloading valve. Normally used in conjunction with a check valve, the valve remains closed from port 1 to 2 until the set pressure is reached. Pressure sensed downstream of the check valve at port 4 will pilot the valve open, allowing the pressure at port 1 unload to open to port 2. When the pressure in port 4 falls to 85% of the setting the valve will close and the pressure in port 1 will rise. It has a drain port 3 which allows the use of flow at port 2 in a secondary function. This valve can be used to dump the pump flow at minimum pressure in an accumulator system or in a two-pump unloading circuit.

SCHEMATIC



DIMENSIONS

mm [in]

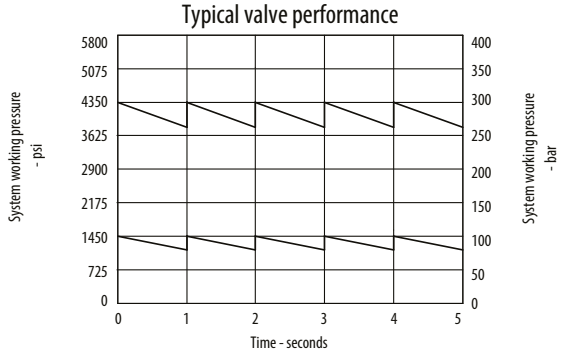


Installation torque
75 Nm [55 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**60 l/min [16 US gpm]**
Leakage	35 ml/min nominal
Pressure Ratio	85-90%
Weight	0.46 kg [1.01 lb]
Cavity	A12088

PERFORMANCE CURVES



MODEL CODE

1PUL65 - P - 4W - 35 - S - 377 - 60

Basic Code
1PUL60 - No Housing
1PUL65 - Cartridge and Housing

Adjustment Option
P - External
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminium	**Steel**
Omit	No Housing		
4W	1/2" BSP		BXP4046-4W-S-377
8T	1/2" SAE	BXP24046-8T-S	

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Housing Material
Omit - Aluminum/No Housing
377 - Steel

Seal Option

Code	Seal Kit
S-Buna-N	SK750
SV-Viton	SK750V

Pressure Setting
Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Pressure Range

Code	Bar	Psi
10	40-100	[580-1450]
Standard Setting	75	[1090]
20	70-210	[1015-3000]
Standard Setting	100	[1450]
35	150-350	[2200-5000]
Standard Setting	200	[2900]

Setting made at 4.8 l/min

Sequence and Unloading Valves

1PUL200

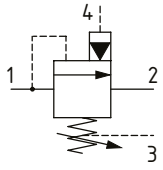
Sequence Valve, Pilot Operated, Poppet Type with Reverse Free Flow, Internal Pilot, External Drain

350 bar [5000 psi] • 200 l/min [52 US gpm]

DESCRIPTION AND OPERATION

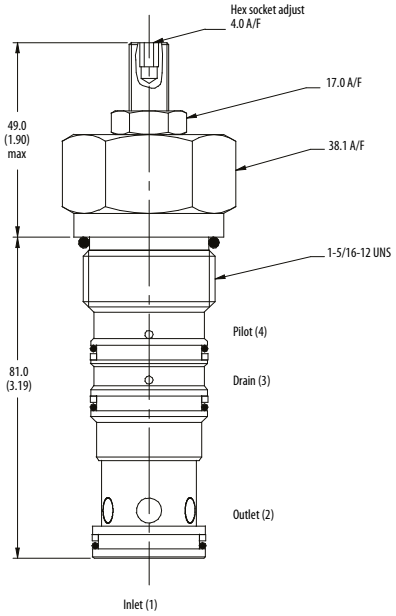
This is a pilot operated, spool type unloading valve. Normally used in conjunction with a check valve, the valve remains closed from port 1 to 2 until the set pressure is reached. Pressure sensed downstream of the check valve at port 4 will pilot the valve open, allowing the pressure at port 1 unload to open to port 2. When the pressure in port 4 falls to 85% of the setting the valve will close and the pressure in port 1 will rise. It has a drain port 3 which allows the use of flow at port 2 in a secondary function. This valve can be used to dump the pump flow at minimum pressure in an accumulator system or in a two-pump unloading circuit.

SCHEMATIC



DIMENSIONS

mm [in]

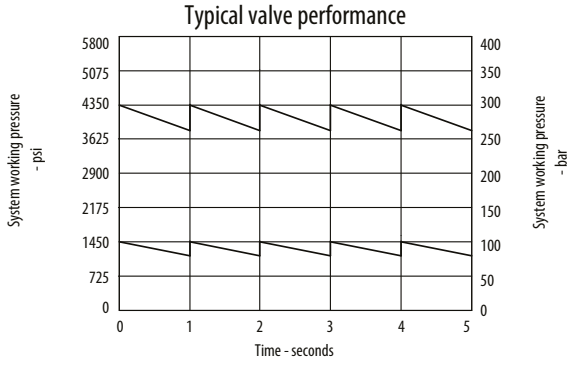


Installation torque
100 Nm [73 ft. lbs]

PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow	**200 l/min [52 US gpm]**
Leakage	35 ml/min nominal
Pressure Ratio	85-90%
Weight	0.74 kg [1.63 lb]
Cavity	A3145

PERFORMANCE CURVES



MODEL CODE

1PUL250 - P - 8W - 35 - S - 377 - 60

Basic Code
1PUL200 - No housing
1PUL250 - Cartridge and Housing

Adjustment Option
P - External
G - Tamper Resistant

Housing

Code	Ports	Housing Model Code	
		Aluminium	Steel
Omit	No Housing		
8W	1" BSP 1/4" BSP Drain Port	BXP23466-8W-S	BXP23466-8W-S-377
16T	1" SAE 1/4" SAE Drain Port	BXP23466-16T-S	BXP23466-16T-S-377

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].

* Additional housings available

Housing Material
Omit - Aluminum/No Housing
377 - Steel

Pressure Setting
Code- Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal Kit - 1PUL200	Seal Kit - 1PUL250
S-Buna-N	SK670	SK452
SV-Viton	SK670V	SK452V

Pressure Range

Code	Bar	Psi
20	30-210	[435-3000]
Standard Setting	100	[1450]
35	150-350	[2200-5000]
Standard Setting	200	[2900]

Setting made at 4.8 l/min

Sequence and Unloading Valves

VDB 06-EN

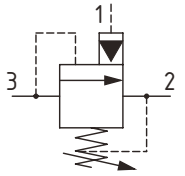
Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Internal Drain

350 bar [5000 psi] • 80 l/min [21 US gpm]

DESCRIPTION AND OPERATION

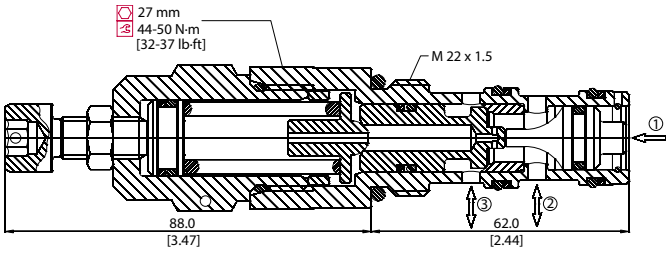
This is a hydraulically pilot operated, poppet type unloading valve where port 3 is closed until pressure rises above the relief setting, allowing flow from port 3 to port 2. Pilot pressure on port 1 will reduce the relief valve setting and eventually open the valve fully. This is ideal for use in two- pump unloading circuits where a gradual reduction in low pressure flow is preferred.

SCHEMATIC



DIMENSIONS

mm [in]

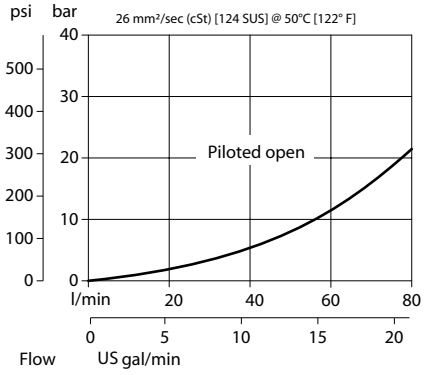


PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow @ 7 bar [100 psi]	**80 l/min [21 US gpm]**
Weight	0.21 kg [0.46 lb]
Cavity	NCS06/3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDB 06 - EN - 1 - A - SE3/8 - V - 60

Pressure Range

Code	Bar	Psi
1	25-140	[360-2030]
Standard Setting	Not set	
2	70-210	[1015-3000]
Standard Setting	Not set	
3	105-350	[1520-5000]
Standard Setting	Not set	

Pilot Ratio

A-7.1:1

B-4.1:1

E-1:1

Pressure Setting

Code - Pressure setting in bar
(5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
Omit-Buna - N	230000070
V-Viton	230000110

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
SE3/8	AL, 3/8 BSP	NCS06/3-SE-3/8
SE1/2	AL, 1/2 BSP	NCS06/3-SE-1/2
SE6S	AL, #6 SAE	NCS06/3-SE-6S
SE8S	AL, #8 SAE	NCS06/3-SE-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

VDB 12-EN

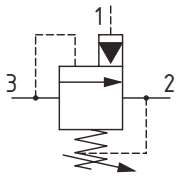
Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Internal Drain

350 bar [5000 psi] • 160 l/min [42 US gpm]

DESCRIPTION AND OPERATION

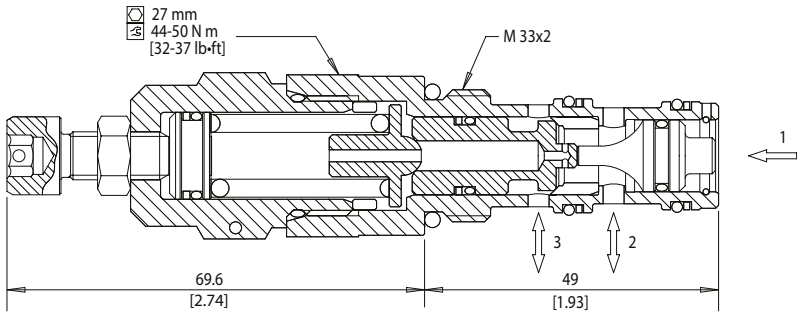
This is a hydraulically pilot operated, poppet type unloading valve where port 3 is closed until pressure rises above the relief setting, allowing flow from port 3 to port 2. Pilot pressure on port 1 will reduce the relief valve setting and eventually open the valve fully. This is ideal for use in two- pump unloading circuits where a gradual reduction in low pressure flow is preferred.

SCHEMATIC



DIMENSIONS

mm [in]

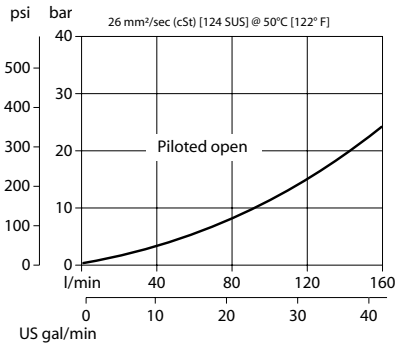


PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow @ 7 bar [100 psi]	**160 l/min [42 US gpm]**
Weight	0.70 kg [1.54 lb]
Cavity	NCS12/3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDB 12 - EN - 1 - B - SE3/4 - V - 60

Pressure Range

	Pilot Ratio A			Pilot Ratio A	
Code	**Bar**	**Psi**	**Code**	**Bar**	**Psi**
1	25-170	[360-2460]	**1**	25-120	[360-1740]
Standard Setting	Not set		Standard Setting	Not set	
2	70-250	[1015-3600]	**2**	60-200	[870-2900]
Standard Setting	Not set		Standard Setting	Not set	
3	105-350	[1520-5000]	**3**	90-280	[1305-4060]
Standard Setting	Not set		Standard Setting	Not set	

Pilot Ratio

A-6.9:1

B-4.7:1

Pressure Setting

Code-Pressure setting in bar (5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
Omit-Buna - N	230000130
V-Viton	230000360

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
SE1/2	AL, 1/2 BSP	NCS12/3-SE-1/2
SE3/4	AL,3/4 BSP	NCS12/3-SE-3/4
SE8S	AL, #8 SAE	NCS12/3-SE-8S
SE12S	AL, #12 SAE	NCS12/3-SE-12S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

VDB 06-CN

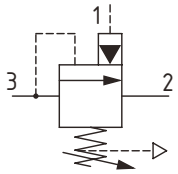
Unloading Valve, Differential Area, Poppet Type, Hydraulic Pilot, Atmospheric Vent

350 bar [5000 psi] • 80 l/min [21 US gpm]

DESCRIPTION AND OPERATION

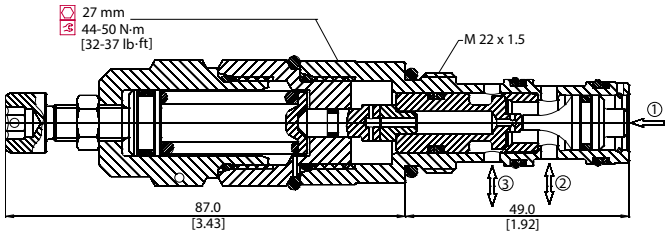
This is a hydraulically pilot operated, poppet type unloading valve with an atmospheric vent. Port 3 is closed until pressure rises above the relief setting, allowing flow from port 3 to port 2. Pilot pressure on port 1 will reduce the relief valve setting and eventually open the valve fully. This is ideal for use in two-pump unloading circuits where a gradual reduction in low pressure flow is preferred.

SCHEMATIC



DIMENSIONS

mm [in]

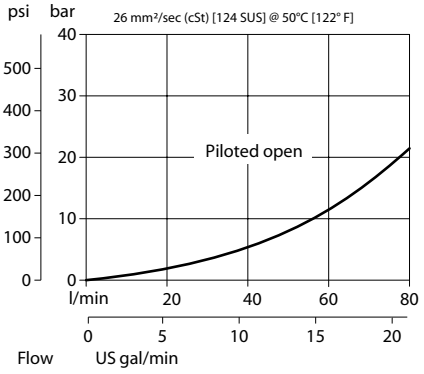


PERFORMANCE DATA

Rated pressure	**350 bar [5000 psi]**
Rated flow @ 7 bar [100 psi]	**80 l/min [21 US gpm]**
Weight	0.29 kg [0.64 lb]
Cavity	NCS06/3

PERFORMANCE CURVES

Pressure Drop



MODEL CODE

VDB 06 - CN - 1 - A - 00 - V - 60

Pressure Range

Code	Bar	Psi
1	25-140	[360-2030]
Standard Setting	Not set	
2	70-210	[1015-3000]
Standard Setting	Not set	
3	105-350	[1520-5000]
Standard Setting	Not set	

Pilot Ratio

A-7.1:1
B-4.1:1
E-1:1

Pressure Setting

Code-Pressure setting in bar
(5 bar increments within specified Pressure Range)
XXX-Standard setting (see Pressure Range for value)
Example:

Code	Bar	Psi
60	60	[870]

Seal Option

Code	Seal kit
Omit-Buna - N	230000070
V-Viton	230000110

Housing

Code	Ports & Material	Housing Model Code
00	No Housing	No Housing
SE3/8	AL, 3/8 BSP	NCS06/3-SE-3/8
SE1/2	AL, 1/2 BSP	NCS06/3-SE-1/2
SE6S	AL, #6 SAE	NCS06/3-SE-6S
SE8S	AL, #8 SAE	NCS06/3-SE-8S

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available

Sequence and Unloading Valves

ADV1-16

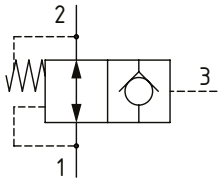
Accumulator Discharge Valve, Normally Open, Poppet Type, Hydraulic Pilot, Internal Drain

210 bar [3000 psi] • 30 l/min [8 US gpm]

DESCRIPTION AND OPERATION

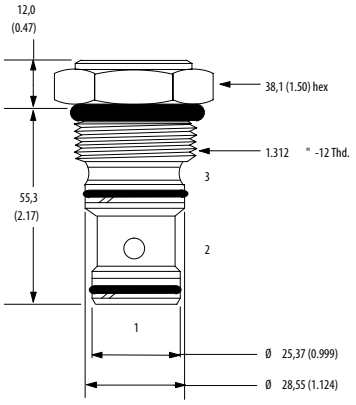
This valve is a normally open, restricted, pilot to close poppet valve. In the normal position, flow can pass from port 1 to 2 or port 2 to 1. When pressure is applied to port 3 the valve will close, preventing oil from passing from port 1 to 2. Pressure in port 2 will open the valve, allowing flow to pass from port 2 to 1. The ideal application for this valve is as an accumulator discharge valve. When the power is removed and the pilot pressure reduces to zero, the accumulator pressure can be discharged through this valve in a controlled manner.

SCHEMATIC



DIMENSIONS

mm [in]

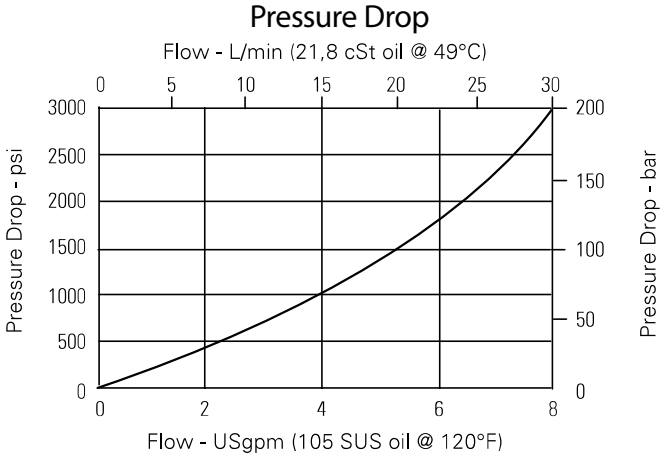


Installation torque
108-122 Nm [80-90 ft. lbs]

PERFORMANCE DATA

Rated pressure	**210 bar [3000 psi]**
Rated flow	**30 l/min [8 US gpm]**
Minimum pilot pressure	4 bar [60 psi]
Weight	0.28 kg [0.62 lb]
Cavity	SDC16-3S

PERFORMANCE CURVES



MODEL CODE

ADV1 - 16 - V - 6B - 100

Seal Option

Code	Seal kit
Omit-Buna - N	565812
V-Viton	889611

Pilot Ratio

100-100:1

Housing

Code	Ports	Aluminum standard duty	Aluminum heavy duty
0	No Housing		
6B	3/4" BSP	02-175471	
12T	#12 SAE	566414	
4G	1/2" BSP		02-160676
6G	3/4" BSP		876726
10H	#10 SAE		876725
12H	#12 SAE		876727

* Aluminum bodies are to be used for pressures less than 210 bar [3000 psi].
* Additional housings available