

## Pressure control

Direct and pilot operated pressure control valves for applications up to 350 bar (5000 psi) and 300 L/min (80 USgpm)



*Powering Business Worldwide*



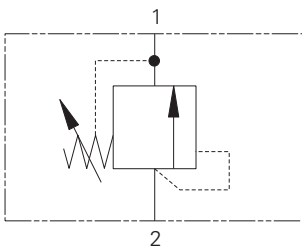
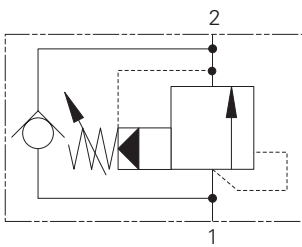
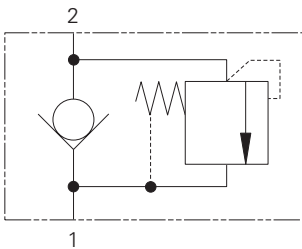
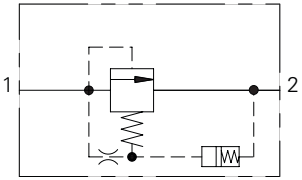
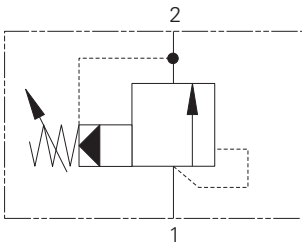
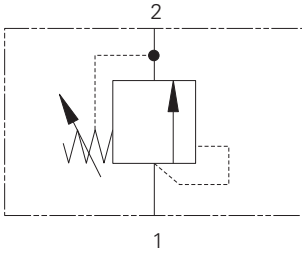
# Pressure control

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# Pressure controls

## Valve locator

### Functional symbol



Model	Cavity	Flow rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Relief valve, poppet</i>				
1DR2	A879	1.2 (0.3)	400 (5800)	E-10
1DR30	A879	30 (8)	400 (5800)	E-12
RV1-10	C-10-2	30 (8)	210 (3000)	E-14
RV1-12	C-12-2 (u)	114 (30)	350 (5000)	E-16

Model	Cavity	Flow rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Relief valve, spool</i>				
RV5-10	C-10-2	114 (30)	350 (5000)	E-18
RV11-12	C-12-2 (u)	190 (50)	350 (5000)	E-20
1AR100	A881	150 (40)	400 (5800)	E-22
RV5-16	C-16-2	300 (80)	350 (5000)	E-24

Model	Cavity	Flow rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Shockless Relief Valve, Poppet</i>				
1ARD100	A881	100 (26)	210 (3000)	E-26

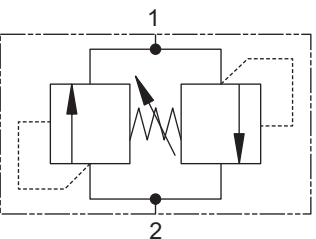
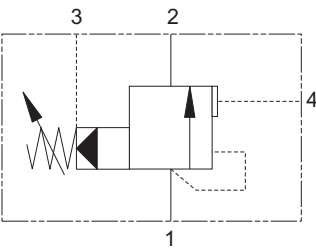
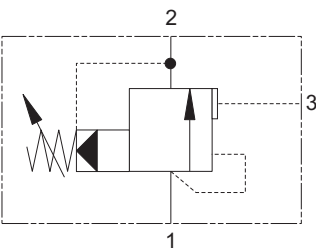
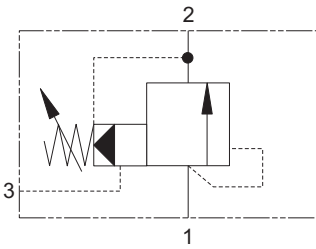
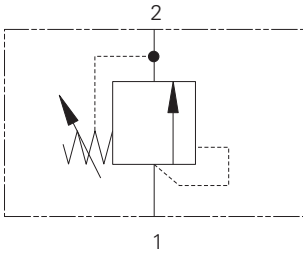
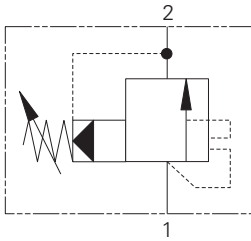
Model	Cavity	Flow Rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Relief valve, poppet</i>				
RV4-10	C-10-2	1/45 (0.25/12)	350 (5000)	E-28

Model	Cavity	Flow rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Relief valve, spool</i>				
RV2-10	C-10-2	12-114 (3-30)	350 (5000)	E-30
1ARC100	A881	150 (40)	400 (5800)	E-32

Model	Cavity	Flow rating L/min (USgpm)	Typical pressure bar (psi)	Page
<i>Relief valve, poppet</i>				
RV8-8	C-8-2	30 (8)	350 (5000)	E-34
RV3-10	C-10-2	76 (20)	250 (3600)	E-36
RV8-10	C-10-2	76 (20)	350 (5000)	E-38
RV3-12	C-12-2 (u)	132 (35)	350 (5000)	E-40
RV8-12	C-12-2 (u)	132 (35)	350 (5000)	E-42
RV8-16	C-16-2	300 (80)	350 (5000)	E-44
1LR300	A1126	380 (100)	350 (5000)	E-46

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

### Functional symbol



Model	Cavity	Flow rating	Typical pressure	Page
<i>Relief valve, spool, unloading</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1UAR100	A881	150 (40)	350 (5000)	E-48

Model	Cavity	Flow rating	Typical pressure	Page
<i>Relief valve, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1GR30	A881	30 (8)	160 (2300)	E-50
1GR60	CVA20-01-0	60 (16)	40 (600)	E-52
1GR100	A881	150 (40)	40 (600)	E-54

Model	Cavity	Flow rating	Typical pressure	Page
<i>Relief ventable, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1VR100	A3146	100 (26)	350 (5000)	E-56
1VR200	A16102	200 (52)	350 (5000)	E-58

Model	Cavity	Flow rating	Typical pressure	Page
<i>Unloading</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1UL60	A3146	60 (16)	350 (5000)	E-60

Model	Cavity	Flow rating	Typical pressure	Page
<i>Unloading</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PUL60	A12088	60 (16)	350 (5000)	E-62
1PUL200	A3145	200 (52)	350 (5000)	E-64

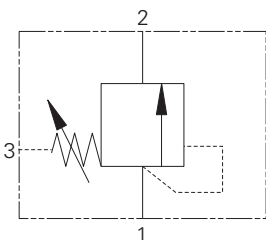
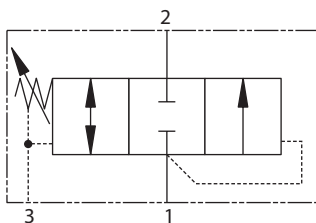
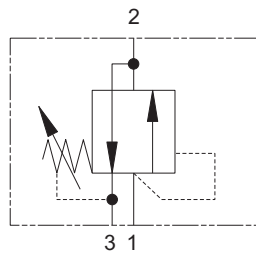
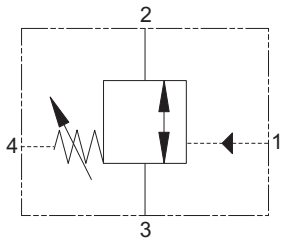
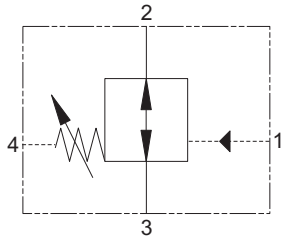
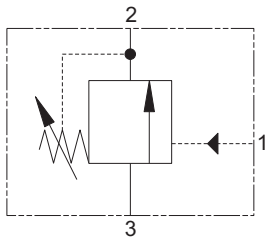
Model	Cavity	Flow rating	Typical pressure	Page
<i>Relief dual</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1CLLR50	C-10-2	50 (12)	250 (3625)	E-66
1CLLR100	A878	150 (40)	350 (5000)	E-68

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

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### Functional symbol



Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Pressure sequence valve, spool</i>				
PSV2-8	C-8-3	23 (6)	210 (3000)	E-70
PSV4-8	C-8-3	15 (4)	350 (5000)	E-72
PSV2-10	C-10-3	23 (6)	210 (3000)	E-78
PSV4-10	C-10-3	15 (4)	210 (3000)	E-80

Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Series sequence valve, NO, spool</i>				
PSV8-10	C-10-4	23 (6)	210 (3000)	E-74

Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Series sequence valve, NC, spool</i>				
PSV10-10	C-10-4	23 (6)	210 (3000)	E-76

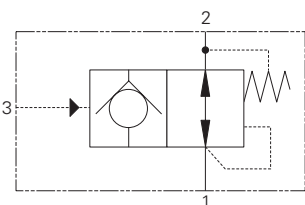
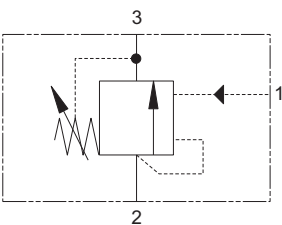
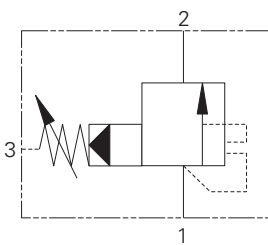
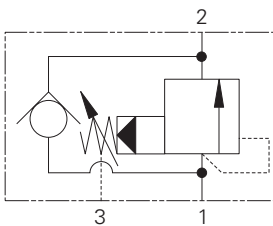
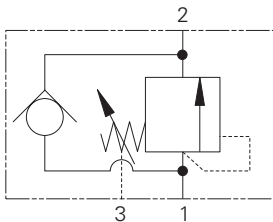
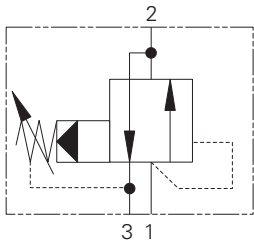
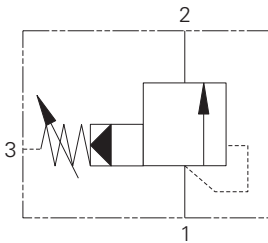
Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Series sequence valve, spool</i>				
PSV1-10	C-10-3	23 (6)	210 (3000)	E-82
PSV5-10	C-10-3	8 (2)	210 (3000)	E-84

Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Series sequence valve, spool</i>				
PSV3-10	C-10-3	23 (6)	210 (3000)	E-86

Model	Cavity	Flow rating	Typical pressure	Page
		L/min (USgpm)	bar (psi)	
<i>Series sequence valve, spool</i>				
PSV7-10	C-10-3	23 (6)	210 (3000)	E-88
1DS30	A880	30 (8)	140 (2000)	E-90
1DS60	CVA-22-06-0	60 (16)	40 (600)	E-92
1DS100	A880	150 (40)	40 (600)	E-94

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### Functional symbol



Model	Cavity	Flow rating	Typical pressure	Page
<i>Series sequence valve, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PS60	CVA-22-06-0	60 (16)	350 (5000)	E-96
1PS100	A880	150 (40)	350 (5000)	E-98
1PS200	A16102	250 (60)	350 (5000)	E-102
PSV11-16	C-16-3S	230 (60)	350 (5000)	E-104

Model	Cavity	Flow rating	Typical pressure	Page
<i>Series sequence valve, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
PSV1-16	C-16-3	95 (25)	350 (5000)	E-100

Model	Cavity	Flow rating	Typical pressure	Page
<i>Series sequence valve, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PSC30	A6610	30 (8)	350 (5000)	E-106

Model	Cavity	Flow rating	Typical pressure	Page
<i>Series sequence valve, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PSC100	A880	150 (40)	350 (5000)	E-108

Model	Cavity	Flow rating	Typical pressure	Page
<i>Series sequence valve, spool, unloading</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1UPS100	A880	150 (40)	350 (5000)	E-110

Model	Cavity	Flow rating	Typical pressure	Page
<i>Pilot unloading valve</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
PUV3-10	C-10-3	4 (1)	210 (3000)	E-112

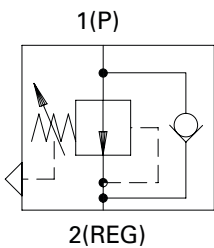
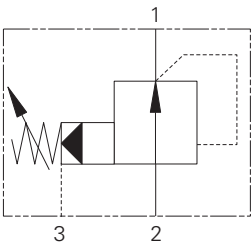
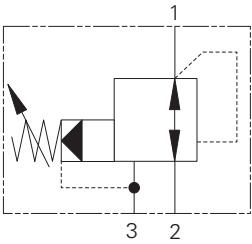
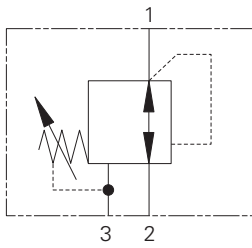
Model	Cavity	Flow Rating	Typical Pressure	Page
<i>Accumulator discharge valve</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
ADV1-16	C-16-3S	30 (8)	210 (3000)	E-114

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

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### Functional symbol



Model	Cavity	Flow rating	Typical pressure	Page
<i>Pressure reducing valve, spool</i>				
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
PRV1-10	C-10-3	15 (4)	165 (2400)	E-116

Model	Cavity	Flow rating	Typical pressure	Page
<i>Pressure reducing valve, spool</i>				
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
PRV2-10	C-10-3	38 (10)	240 (3500)	E-118
PRV12-10	C-10-3	45 (12)	350 (5000)	E-120
PRV12-12	C-12-3	114 (30)	350 (5000)	E-122
PRV2-16	C-16-3	151 (40)	350 (5000)	E-126

Model	Cavity	Flow rating	Typical pressure	Page
<i>Pressure reducing valve, spool</i>				
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PA100	A880	100 (26)	10-350 (150-5000)	E-124
1PA200	A16102	200 (52)	350 (5000)	E-128

Model	Cavity	Flow rating	Typical pressure	Page
<i>Pressure reducing valve with check</i>				
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
1PDC5	C-12-2	6 (1.5)	350 (5000)	E-130

E

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



This section gives basic specifications for Eaton pressure control threaded cartridge valves. Its purpose is to provide a quick, convenient reference tool when choosing Eaton cartridge valves or designing a system using these components.

Eaton offers a full range of Eaton direct and pilot operated relief, reducing, sequence and unloading valves. In general, the direct operated products are faster in response while pilot operated types have a flatter pressure/flow characteristic.

### Relief valves

When selecting a relief valve for a specific application, consideration should be given to the following

- **Direct operated poppet types – RV1 and RV10**  
Suitable for continuous duty with reliable fast response, the RV10 being a low pressure, low cost option. These valves are also suitable for piloting the DPS2 logic elements.

- **Pilot operated poppet type with reverse free-flow check – RV2**

Use as a service line relief where anticavitation make-up is required. It may also be applied as an internally piloted counterbalance valve in a service line.

- **Direct operated poppet type, differential area models – RV3 and RV8**

Sometimes termed a “differential area relief valve”. A fast acting valve, highly tolerant of contaminant and providing an alternative flow path, frequently beneficial in manifold layout. Utilized in CRV3 crossline relief packages.

- **Pilot operated spool type – RV5 and RV11**

Well suited for repetitive, continuous duty with a low pressure-override characteristic.

- **Direct operated ball type – RV6**

A fast-acting valve for intermittent duty. This low flow, low cost valve may be used as a pilot section for a larger mainstage valve, or piloting logic elements.

### Reducing valves

Two types are available:

- Direct operated with relieving feature – PRV1
- Pilot operated with relieving feature – PRV2 and PRV12
- Pilot operated without relieving feature

### Sequence valves

A complete range of sequence functions is available, including:

- Normally-closed and normally-open models
- Internal and external pilot options
- Internal and external drain options
- Two and three position models

Externally drained models may be used as relief valves in circuits with alternating pressure and tank line functions.

### Accumulator unloading valves

Valves that allow accumulators to be charged to a preselected maximum pressure at which the pump is unloaded. The pump does not cut-in until the accumulator pressure has decayed to a pre-selected percentage of maximum pressure. The low-flow PUV3 model can be used as a stand alone model for low flow applications, or as a pilot stage in two-stage arrangements for higher flows.

### Accumulator discharge valve

This valve is designed to ensure that an accumulator will discharge when pilot pressure is lost, e.g. on pump shutdown.

### Fluid cleanliness

Proper fluid condition is essential for long and satisfactory life of hydraulic components and systems. Hydraulic fluid must have the correct balance of cleanliness, materials, and additives for protection against wear of components, elevated viscosity, and inclusion of air.

E

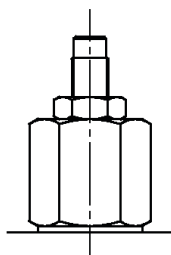
## Adjustments

The adjustment range and Max setting figures shown throughout this catalogue give the design range for each valve, higher or lower values may be attainable but should

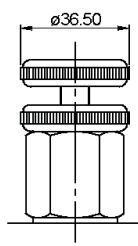
not be used without first contacting our Engineering department. Setting must ALWAYS be carried out using an appropriate gauge and it must NOT be assumed

that screwing an adjuster to its maximum or minimum position will yield the maximum or minimum stated design setting for that valve.

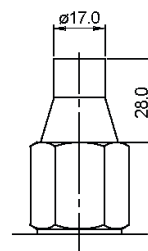
Tightening torque of “F” adjuster locknut - 20 to 25 Nm



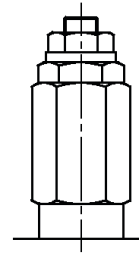
'P' - Leakproof Screw



'R' - Handknob



'G' - Tamperproof Cap

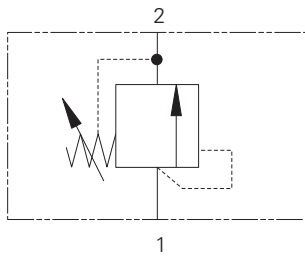


'F' - Screw

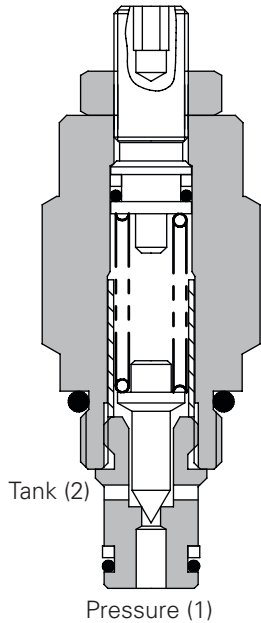
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1DR2 - Relief valve

Poppet, direct acting  
1,2 L/min (0.3 USgpm) • 400 bar (5800 psi)



Sectional view



## Operation

Pressure on the nose of the cartridge acts over the seat area moving the poppet against the spring, allowing relief flow to tank.

## Features

Fast acting, good reseal, ideal for remote operation of larger valves.

## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 32 cSt (150 SUS)*

Typical application pressure	400 bar (5800 psi)
Rated flow	1,2 L/min (0.3 USgpm)
Cartridge Material	Working parts hardened and ground steel. External surfaces zinc plated.
Cavity	C-8-2 (see Section M)
Standard housing materials	Aluminum (up to 210 bar) or Steel (add 377 suffix for steel option)
Torque Cartridge into Cavity	45 Nm (33 lbs ft)
Temperature range	-30° to 90°C (-22° to 194°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code BS5540-4 18/13 (25 micron nominal)
Weight cartridge only	0,14 (0.30)
Internal leakage	0.3 ml/min nominal (5 dpm)
Nominal Viscosity Range	5 to 500 cSt
Seal kits	SK187-02 Buna-N SK187-02V Viton®

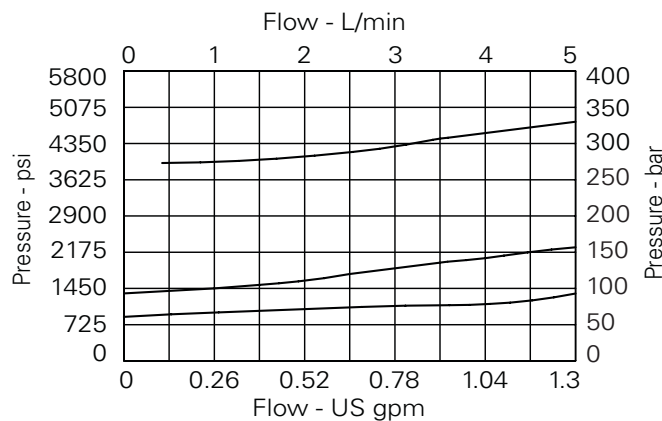
Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting, poppet style screw in cartridge relief valve which is ideally suited for use as a pilot valve or a thermal relief.

## Pressure override curves

Cartridge only

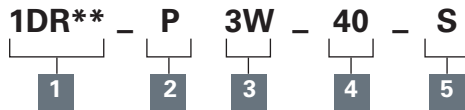


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1DR2 - Relief valve

Poppet, direct acting  
1,2 L/min (0.3 USgpm) • 400 bar (5800 psi)

## Model code



### 1 Function

- 1DR2** - Cartridge only
- 1DR22** - Cartridge and body

### 2 Adjustment

- P** - Leakproof screw adjustment
- R** - Handknob adjustment
- G** - Tamperproof cap (see page E-7 for dimensions)

### 3 Port size - bodied valves only

Code	Port size	Housing number	
		Aluminium	Steel
0		Cartridge only	
2W	1/4" BSP	A1485	
3W	3/8" BSP	A1043	A14175
6T	3/8" SAE	A15676	A14843

See section J for housing details.

### 4 Pressure range at 0.5 L/min

**Note:** Code based on pressure in bar.

- 10** - 7-100 bar (100-1450 psi)  
- std setting at 70 bar
- 20** - 35-210 bar (500-3000 psi)  
- std setting at 100 bar
- 40** - 50-400 bar (725-5800 psi)  
- std setting at 280 bar

### 5 Seal material

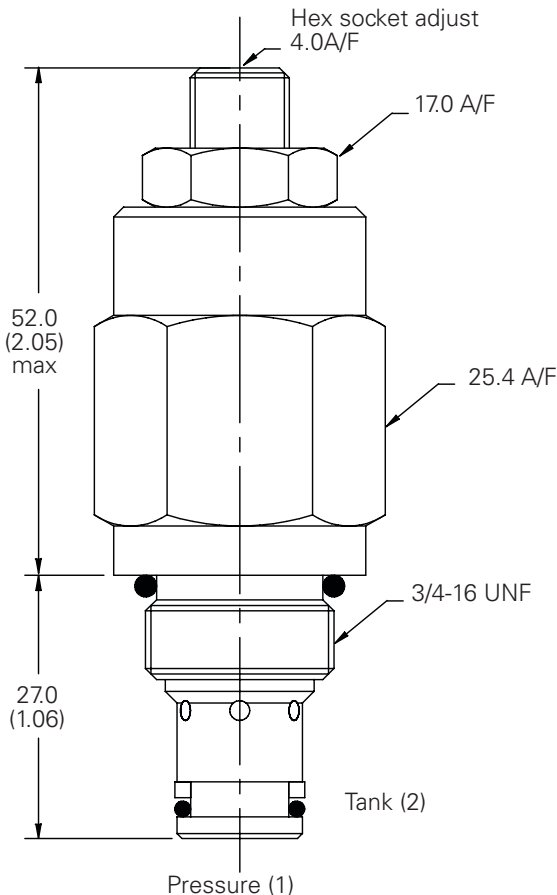
- S** - Nitrile (for use with most industrial hydraulic oils)
- SV** - Viton® (for high temperature and most special fluid applications)

## Dimensions

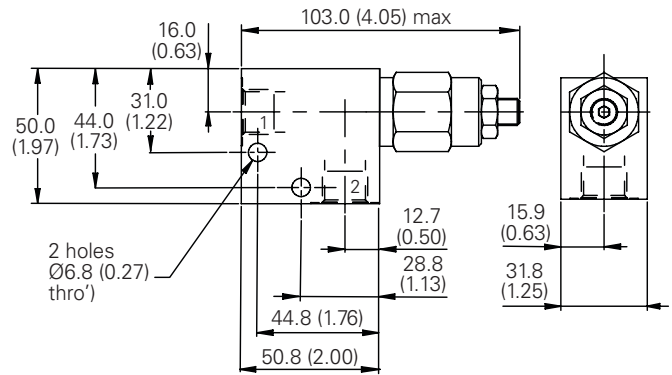
mm (inch)

### Cartridge only

Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)



## Installation drawing



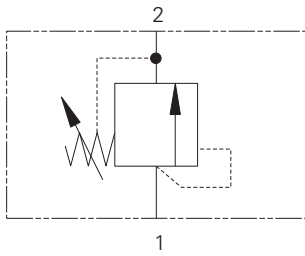
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# I DR30 - Relief valve

Poppet, direct acting  
30 L/min (8 USgpm) • 400 bar (5800 psi)



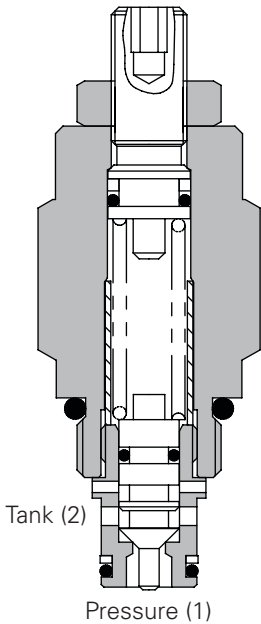
## Operation

Pressure on the nose of the cartridge acts over the seat area moving the poppet against the spring, allowing relief flow to tank.

## Features

Fast acting, low pressure rise due to flow for a direct acting valve.

## Sectional view



E

## Performance data

### Ratings and specifications

Performance data is typical with fluid at 32 cSt (150 SUS) and 40° C (120° F)

Typical application pressure	400 bar (5800 psi)
Rated flow	30 L/min (8 USgpm)
Cartridge Material	Working parts hardened and ground steel. External surfaces zinc plated.
Cavity	C-8-2 (see Section M)
Standard housing materials	Aluminum (up to 210 bar) or Steel (add 377 suffix for steel option)
Torque Cartridge into Cavity	45 Nm (33 lbs ft)
Temperature range	-30° to 90°C (-22° to 194°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code BS5540-4 18/13 (25 micron nominal)
Weight cartridge only	0,17 kg (0.37)
Internal leakage	0.3 ml/min nominal (5 dpm)
Nominal Viscosity Range	5 to 500 cSt
Seal kits	SK243 Buna-N SK243V Viton®

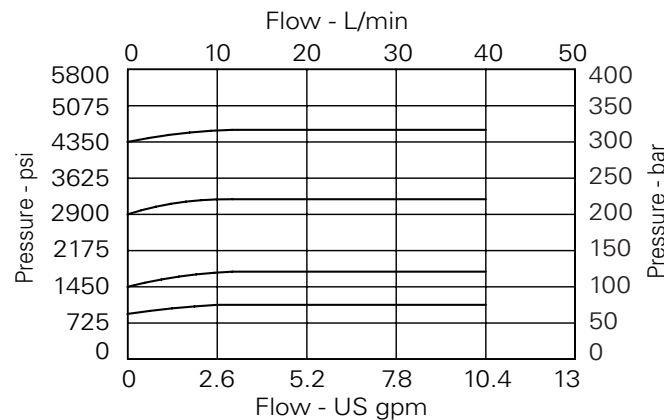
Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting, poppet style screw in cartridge relief valve, it is an economical solution for small flow systems where a fast response is required.

## Pressure override curves

Cartridge only

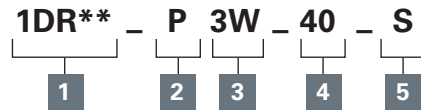


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# I DR30 - Relief valve

Poppet, direct acting  
30 L/min (8 USgpm) • 400 bar (5800 psi)

## Model code



### 1 Function

**1DR30** - Cartridge only  
**1DR35** - Cartridge and body

### 2 Adjustment

**P** - Leakproof screw adjustment  
**R** - Handknob adjustment  
**G** - Tamperproof cap (see page E-7 for dimensions)

### 3 Port size - bodied valves only

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
2W	1/4" BSP	A1485	
3W	3/8" BSP	A1043	A14175
6T	3/8" SAE	A15676	A14843

See section J for housing details.

### 4 Pressure range at 4.8 L/min

**Note:** Code based on pressure in bar.

**10** -7-100 bar (100-1450 psi)  
- std setting at 70 bar  
**20** -35-210 bar (500-3000 psi)  
- std setting at 100 bar  
**40** -50-400 bar (725-5800 psi)  
- std setting at 280 bar

### 5 Seal material

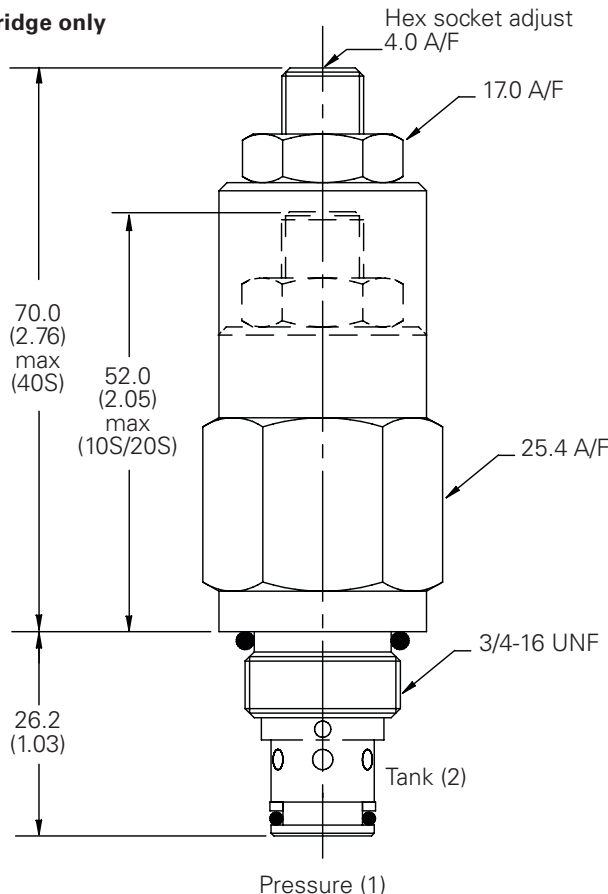
**S** - Nitrile (for use with most industrial hydraulic oils)  
**SV** - Viton® (for high temperature and most special fluid applications)

## Dimensions

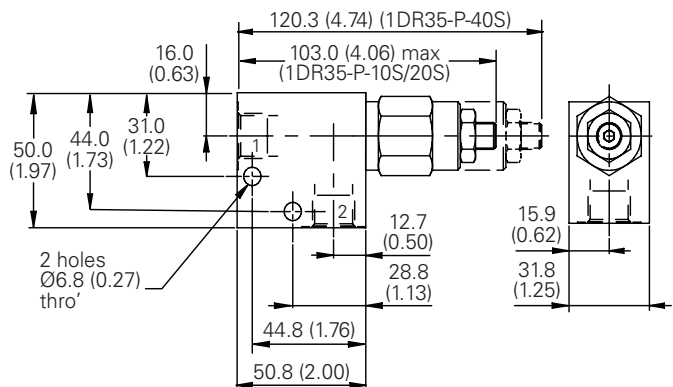
mm (inch)

Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

### Cartridge only



### Installation drawing



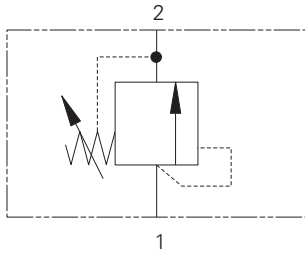
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV1-10 - Relief valve

Poppet, direct acting  
30 L/min (8 USgpm) • 250 bar (3600 psi)



### Operation

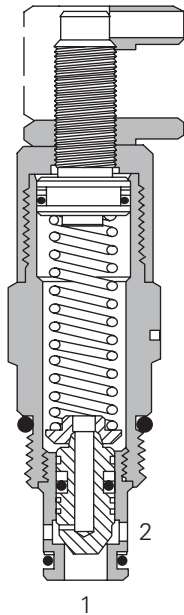
This valve remains closed from port 1 to port 2 until the predetermined setting has been reached at port 1.

The poppet is unseated and allows flow out of port 2.

### Features

Fast acting, low pressure rise.  
Low internal leakage, high flow rate for compact design

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	250 bar (3600 psi)
Cartridge fatigue pressure (infinite life)	250 bar (3600 psi)
Rated flow	30 L/min (8 USgpm)
Internal leakage	0.3 L/min (5 drops/min) @ 85% of Pressure Setting
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,22 kg (0.48 lbs)
Seal kits	565803 Buna-N 566086 Viton®

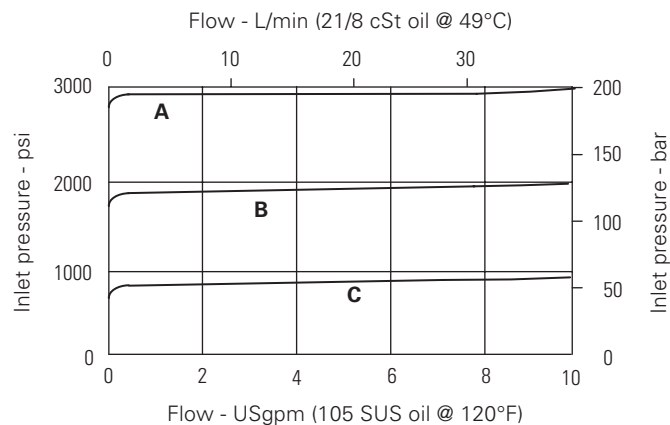
Viton is a registered trademark of E.I. DuPont

### Description

This is a direct acting, poppet style screw in cartridge relief valve ideal for low cost small flow applications to limit the pressure in the system.

### Pressure override curves

Cartridge only

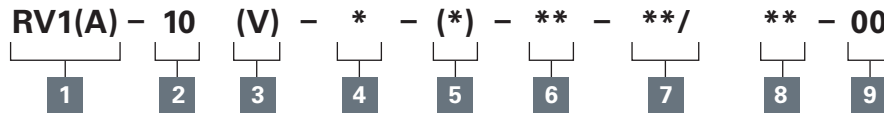


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV1-10 - Relief valve

Poppet, direct acting  
30 L/min (8 USgpm) • 250 bar (3600 psi)

## Model code



### 1 Function

**RV1** - Relief valve - Standard  
**RV1A** - Relief valve - with 1/2 thickness back-up ring on each side of o-ring (for cross port relief applications)

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

Code	Port size	Housing		
		Aluminum Light duty	Aluminum Fatigue rated	Steel Fatigue rated
<b>0</b>	Cartridge only			
<b>3B</b>	3/8" BSPP	02-175462	-	-
<b>2G</b>	1/4" BSPP	-	876702	02-175102
<b>3G</b>	3/8" BSPP	-	876703	02-175103
<b>6H</b>	SAE 6	-	876700	-
<b>8H</b>	SAE 8	-	876701	-
<b>6T</b>	SAE 6	566151	-	02-175100
<b>8T</b>	SAE 8	-	-	02-175101

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.  
**3** -3,5-20 bar (50-300 psi)  
**9** -7- 62 bar (100-900 psi)  
**18** - 17-124 bar (250-1800 psi)  
**30** - 34-210 bar (600-3000 psi)  
**36** - 124-250 bar (1800-3600 psi)

### 8 Setting pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** -70 bar (1000 psi)  
**10.5** -72,4 bar (1050 psi)

### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")  
**SS** - 316 Stainless Steel external components

### Warning

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

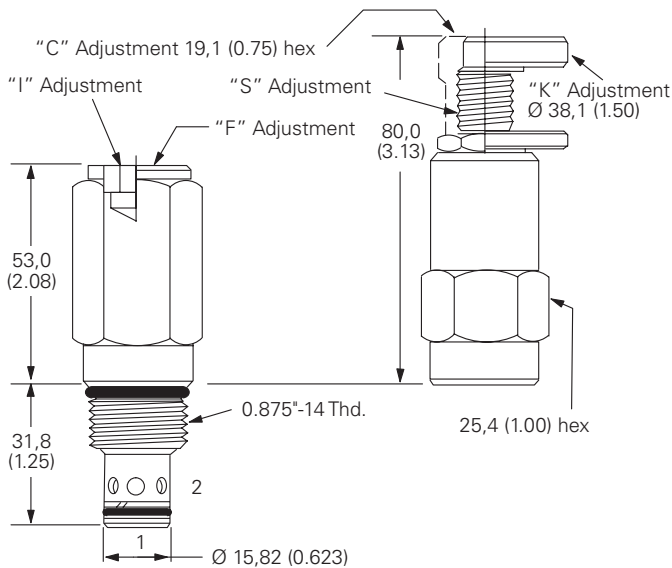
## Dimensions

mm (inch)

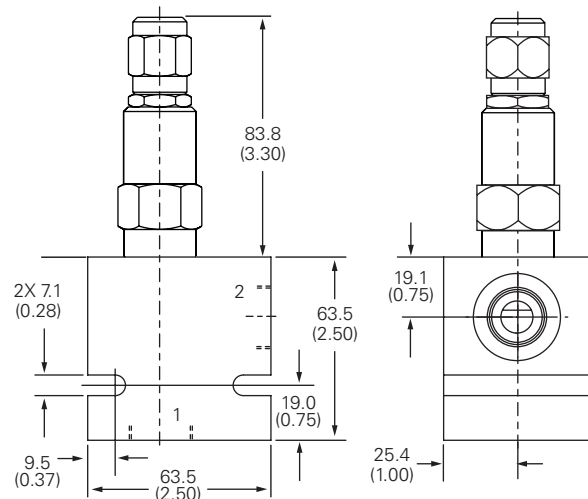
Torque cartridge in housing

**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

## Cartridge only



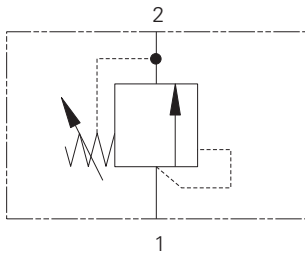
## Installation drawing (Aluminum)



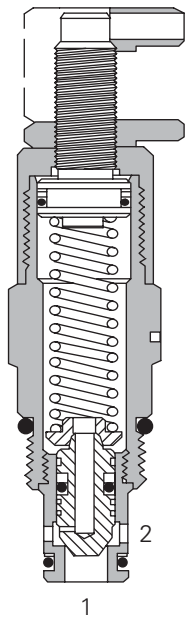
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV1-12 - Relief valve

Poppet, direct acting  
 114 L/min (30 USgpm) • 350 bar (5000 psi)



Sectional view



## Operation

This valve remains closed from port 1 to port 2 until the predetermined setting has been reached at port 1.

The poppet is unseated and allows flow out of port 2.

## Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

## Performance data

### Ratings and specifications

Performance data is typical with fluid at 23,3 cSt (111 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	114 L/min (30 USgpm)
Cracking pressure ranges	3,4-275 bar (50-4000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-12-2 or C-12-2U
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Standard housing materials	Aluminum or Steel
Weight cartridge only	0,49 kg (1.08 lbs)
Seal kit	02-165881 (Buna-N) 02-165888 (Viton®)

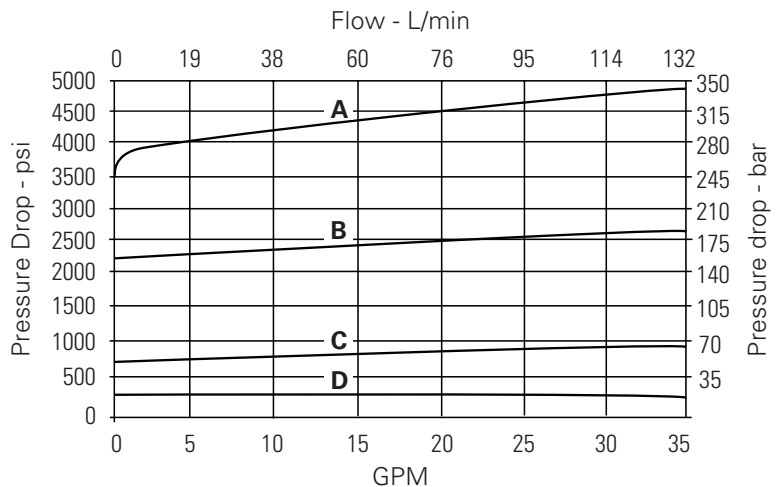
Viton is a registered trademark of E.I. DuPont

Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

This is a direct acting, poppet style screw in cartridge relief valve ideal for low cost applications to limit the pressure in the system.

## Pressure override curves



- A** - 40 spring
- B** - 22 spring
- C** - 8.5 spring
- D** - 2.5 spring

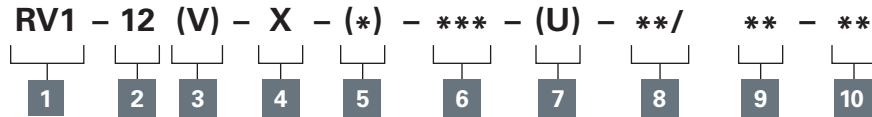
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# RV1-12 - Relief valve

Poppet, direct acting  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV1 - Relief valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
K - Knob  
F - Factory set  
S - Screw

### 5 Valve housing material

Omit for cartridge only  
A - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number			
		C-12-2 Aluminum fatigue rated	C-12-2U Aluminum fatigue rated	C-12-2 Steel fatigue rated	C-12-2U Steel fatigue rated
4G	1/2" BSPP	30189-1	30189-2	30915-1	30915-2
6G	1/4" BSPP	31090-1	31090-2	30916-1	30916-2
10T	SAE 10	31087-1	31087-2	30913-1	30913-2
12T	SAE 12	31088-1	31088-2	30914-1	30914-2

See section J for housing.

### 7 Cavity

Blank - Cavity without undercut  
U - Cavity with undercut

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.  
2.5 - 3,4-17 bar (50-250 psi)  
8.5 -13-55 bar (200-850 psi)  
22 - 20-150 bar (300-2200 psi)  
40 - 40-275 bar (600-4000 psi)

### 9 Setting pressure

Within ranges in 8  
**Blank** - Normal factory setting at approximate mid-range.  
**Optional** - User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

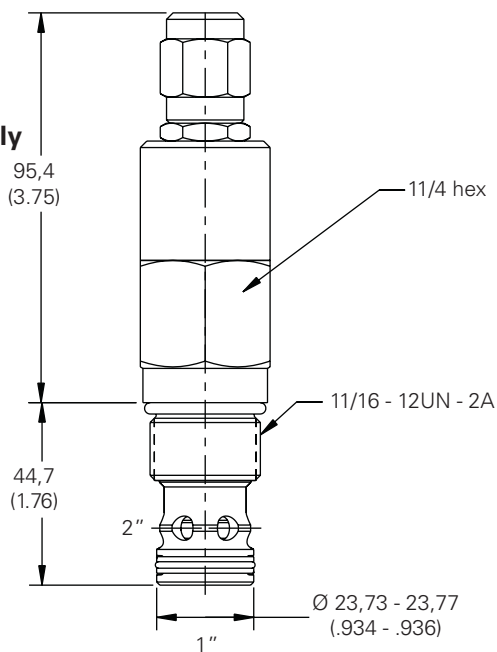
### 10 Special features

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

## Dimensions

mm (inch)

### Cartridge only



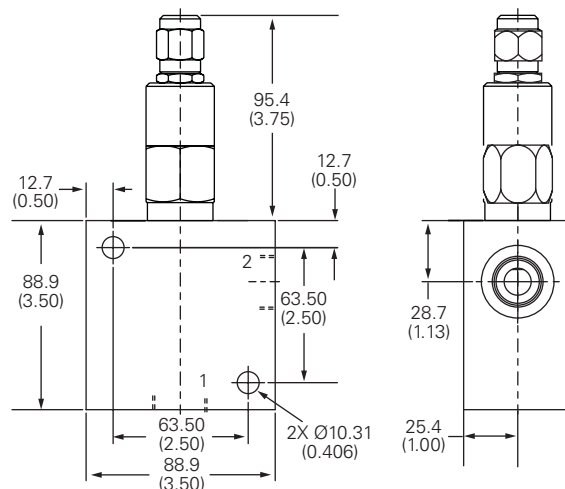
ADJUSTMENT CODE C

Torque cartridge in housing  
A - 81-95 Nm (60-70 ft. lbs)  
S - 102-115 Nm (75-85 ft. lbs)

### Warning

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

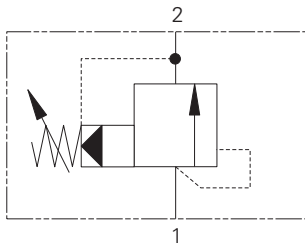
### Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV5-10 - Relief valve

Spool, pilot operated  
 114 L/min (30 USgpm) • 350 bar (5000 psi)



## Operation

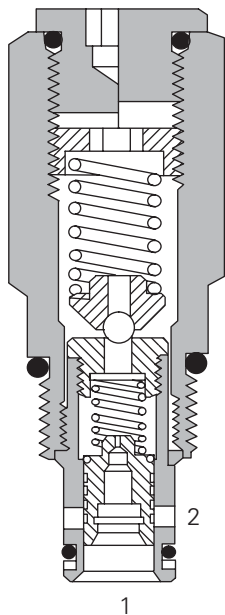
When the inlet pressure exceeds the setting of the valve, the pilot section opens, causing a small flow across the orifice in the main spool.

The subsequent pressure drop moves the spool against a light spring opening a ring of radial holes in the sleeve, allowing relief flow to tank.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage, port 1 to port 2	114 cc/min (7cu in/min @ 350 bar (5000 psi))
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,22 kg (0.48 lbs)
Seal kits – RV5	565803 Buna-N 566086 Viton®
– RV5A	565806 Buna-N 889627 Viton®

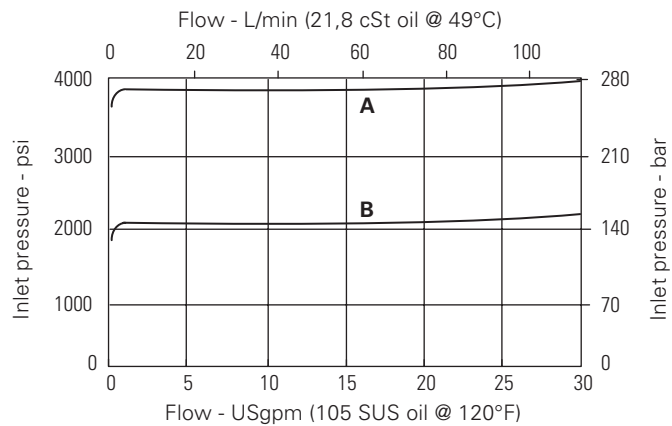
Viton is a registered trademark of E.I. DuPont

## Description

To limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows.

## Pressure override curves

Cartridge only  
 Tank pressure = 0



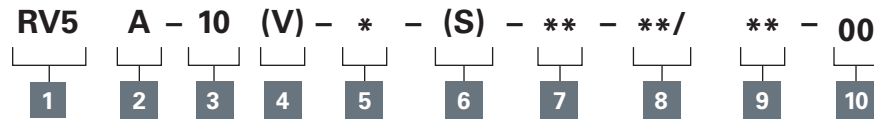
A - 50 spring  
 B - 20 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV5-10 - Relief valve

Spool, pilot operated  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV5 - Relief valve

### 2 Cage seals

**Blank** - Single back-up ring as shown  
**A** - 1/2 thickness back-up ring on each side of o-ring (for cross port relief applications)

### 3 Size

**Blank** - Buna-N

### 4 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 5 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 6 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 7 Port size

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
0	Cartridge only			
3B	3/8" BSPP	02-175462	-	-
2G	1/4" BSPP	-	876702	02-175102
3G	3/8" BSPP	-	876703	02-175103
6H	SAE 6	-	876700	-
8H	SAE 8	-	876701	-
6T	SAE 6	566151	-	02-175100
8T	SAE 8	-	-	02-175101
H10H	SAE 10*	-	4997062-001	-
2K10H	SAE 10**	-	4997060-001	-

\* Bolt on, dual cross over relief valve package for **Eaton H or T series motors**

\*\* Bolt on, dual cross over relief valve package for **Eaton 2000 series motors**

(Note: Two cartridges are installed in this special housing, both are set to the same crack pressure specified in model Code position 9, maximum allowed setting is 210 bar (3000 psi), only available with RV5A option and aluminum housing.)

See section J for housing details.

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.

**3** - 3,4-20 bar (50-300 psi)  
**20** - 7-140 bar (100-2000 psi)  
**35** - 17-240 bar (250-3500 psi)  
**50** - 35-350 bar (500-5000 psi)

### 9 Setting pressure

Within ranges in **8**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 10 Special features

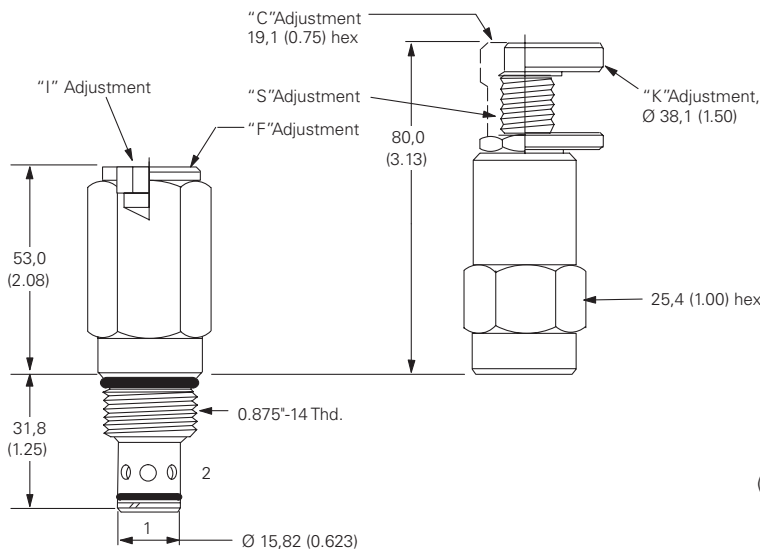
**00** - None  
(Only required if valve has special features, omitted if "00.")

**SS** - 316 Stainless Steel external components

## Dimensions

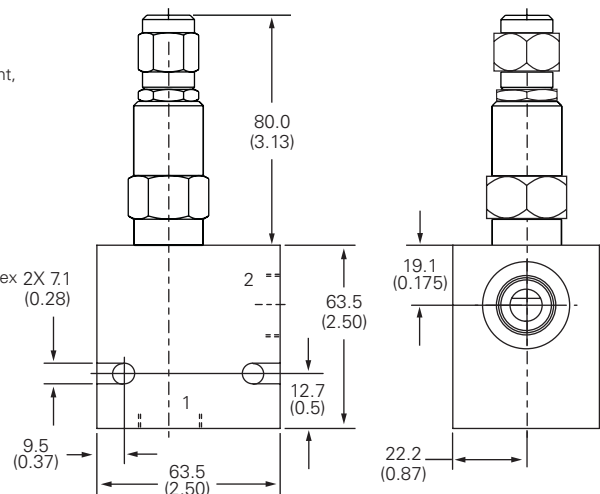
mm (inch)

### Cartridge only



Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

### Installation drawing (Steel)



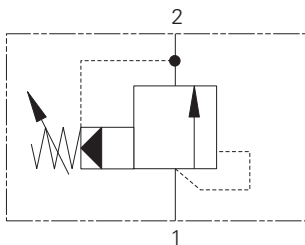
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV11-12 - Relief valve

Spool, pilot operated  
190 L/min (50 USgpm) • 350 bar (5000 psi)



## Operation

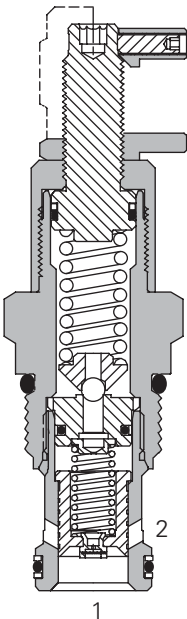
When the inlet pressure exceeds the setting of the valve, the pilot section opens, causing a small flow across the orifice in the main spool.

The subsequent pressure drop moves the spool against a light spring opening a ring of radial holes in the sleeve, allowing relief flow to tank.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

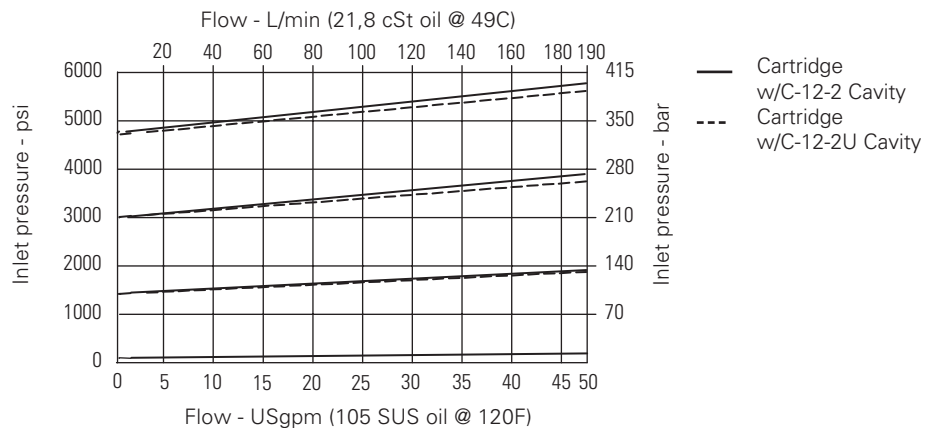
Typical application pressure	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	190 L/min (50 USgpm)
Reseat pressure	More than 90% of crack pressure
Hysteresis	Less than 3 bar (45 psi)
Internal leakage, port 1 to port 2	131 cc/min (8cu in/min@350 bar) (5000 psi)
Overshoot	Less than 20% of max. press. range with flow step of 30 USgpm at pressure rise rate of 100,000 psi/sec
Repeatability	+/- 1% maximum pressure range
Cavity	C-12-2 or C-12-2U
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,3 kg (0.68 lbs)
Seal kits	02-165889 Buna-N 02-165888 Viton®

Viton is a registered trademark of E.I. DuPont

## Description

To limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows.

## Pressure override curves

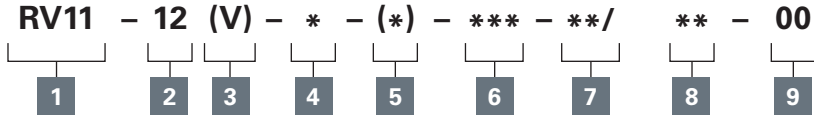


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV11-12 - Relief valve

Spool I, pilot operated  
190 L/min (50 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV11 - Relief valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

S - Screw  
C - Cap  
K - Knob

### 5 Valve housing material

A - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number			
		C-12-2 Aluminum fatigue rated	C-12-2U Aluminum fatigue rated	C-12-2 Steel fatigue rated	C-12-2U Steel fatigue rated
0	Cartridge only				
10T	SAE 10	02-160640	02-160641	02-169744	02-169817
12T	SAE 12	02-160644	02-160645	02-169782	02-169790
4G	1/2" BSPP	02-161118	02-161116	02-172062	02-172512
6G	3/4" BSPP	02-161117	02-161115	02-169665	02-169922

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.  
**15** - 10-100 bar (150-1500 psi)  
**30** - 17-210 bar (250-300 psi)  
**50\*** - 24-350 bar (350-5000 psi)  
 \*Must be ordered as a cartridge only or with a steel housing.

### 8 Setting pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

- 10** - 70 bar (1000 psi)
- 10.5** - 72,4 bar (1050 psi)

Torque cartridge in housing  
**A** - 81-95 Nm (60-70 ft. lbs)  
**S** - 102-115 Nm (75-85 ft. lbs)

### 9 Special features

**00** - None  
 (Only required if valve has special features, omitted if "00.")

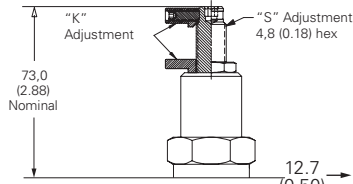
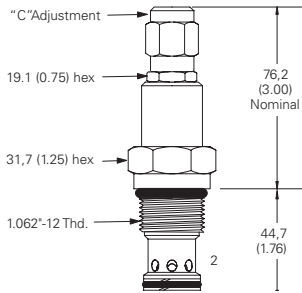
### Warning

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

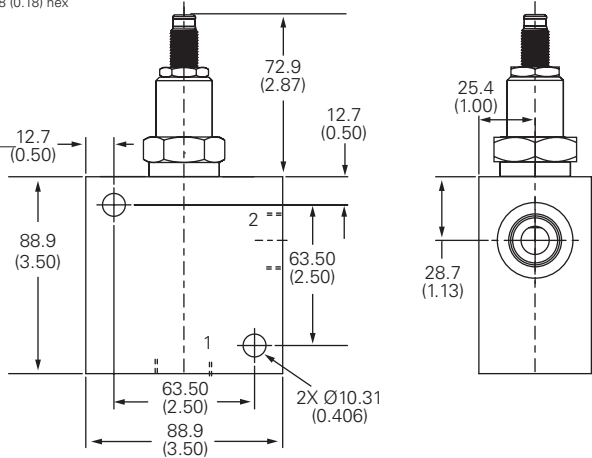
## Dimensions

mm (inch)

### Cartridge only



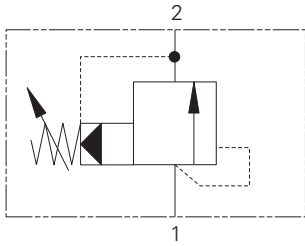
### Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1AR100 - Relief valve

Spool, pilot operated  
150 L/min (40 USgpm) • 400 bar (5800 psi)



## Operation

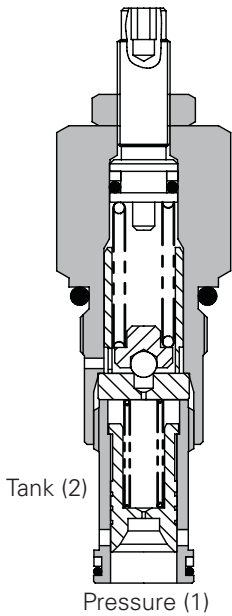
When the inlet pressure exceeds the setting of the valve, the pilot section opens, causing a small flow across the orifice in the main spool.

The subsequent pressure drop moves the spool against a light spring opening a ring of radial holes in the sleeve, allowing relief flow to tank.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

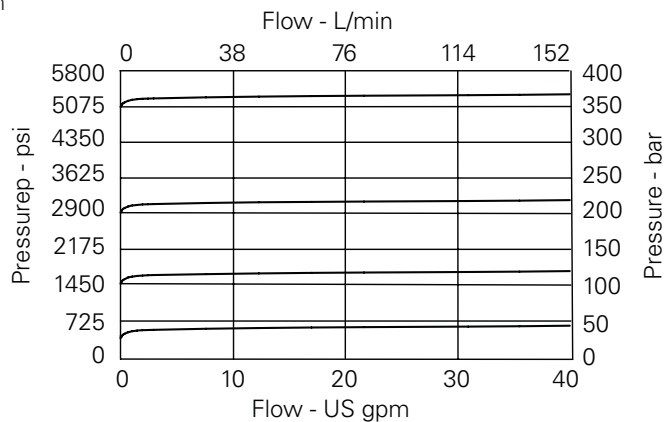
Rated flow	150 L/min (40 USgpm)
Max setting 1AR100	400 bar (5800 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity	A881 (See Section M)
Torque cartridge into cavity	60 Nm (44 lbs ft)
Weight 1AR100	0.14 kg (0.3 lbs)
1AR150	0.65 kg (1.4 lbs)
1AR155	0.91 kg (2.0 lbs)
Seal kit	SK164 (Nitrile) SK164V (Viton®)
Recommended filtration level	BS5540/4 class 18/13 (25 micron nominal)
Operating temp	-30° to +90°C (-22° to +194°F)
Leakage	20 to 65 milliliters/min nominal
Nominal viscosity range	5 to 500 cSt

Viton is a registered trademark of E.I. DuPont

## Description

To limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows.

## Pressure drop curves

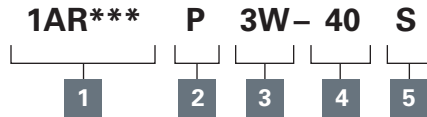


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1AR100 - Relief valve

Spool, pilot operated  
150 L/min (40 USgpm) • 400 bar (5800 psi)

## Model Code



### 1 Function

**1AR100** - Cartridge Only  
**1AR145** - Cartridge and Body  
**1AR150/1AR155**  
- Cartridge and Body  
Through ported

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port Size	Housing number - body only				
		Aluminium 1AR145	Aluminium 1AR150	Steel 1AR150	Aluminium 1AR155	Steel 1AR155
<b>3W</b>	3/8" BSP		C1084			
<b>4W</b>	1/2" BSP	B4851	C1044	C593		
<b>6W</b>	3/4" BSP	B3954	C1086	C4917		
<b>8W</b>	1" BSP				B1617	B4596
<b>6T</b>	3/8" SAE		B10784			
<b>8T</b>	1/2" SAE	B19403	C7140			
<b>12T</b>	3/4" SAE	B19404	B10506	B10742		
<b>16T</b>	1" SAE				B1037	B24040

### 4 Pressure range

**Note:** Code based on pressure in bar.

- 7** - 10-70 bar.  
Std setting 35 bar
- 20** - 10-210 bar.  
Std setting 100 bar
- 40** - 50-400 bar.  
Std setting 280 bar

### 5 Seals

- S** - Nitrile (For use with most industrial hydraulic oils)
- SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

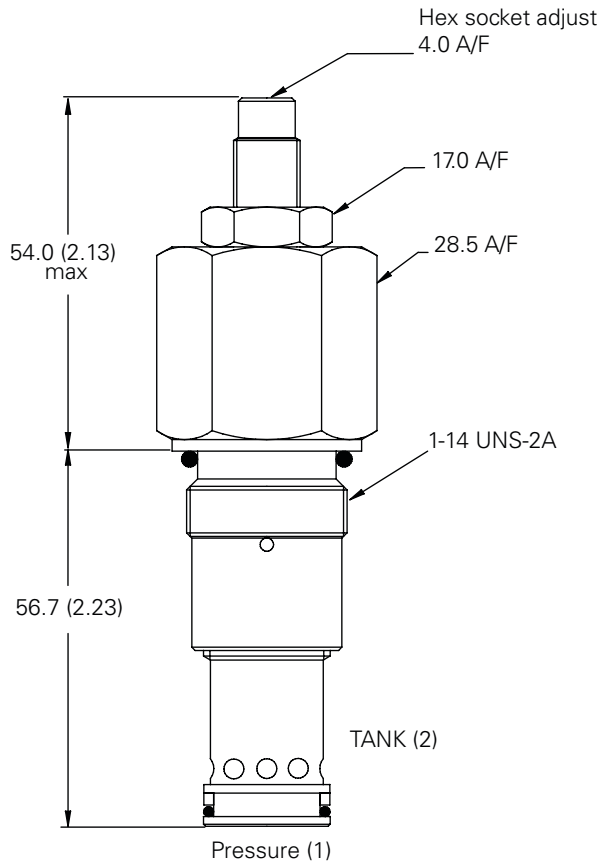
mm (inch)

### Cartridge only

Basic Code

**1AR100**

**Note:** For applications above

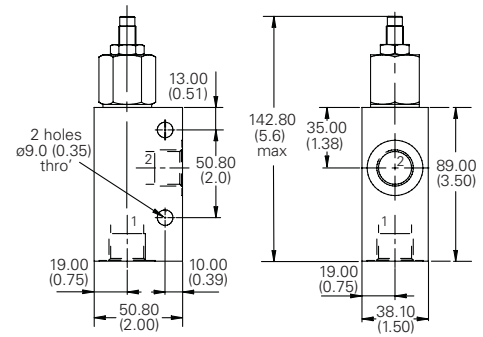


## Complete valve

1/2", 3/4" Ports

Basic Code

**1AR145**

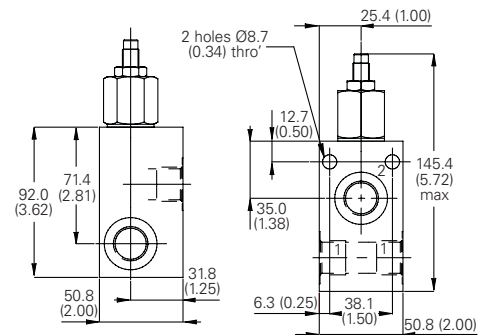


## Complete valve

3/8", 1/2", 3/4" Ports

Basic Code

**1AR150**

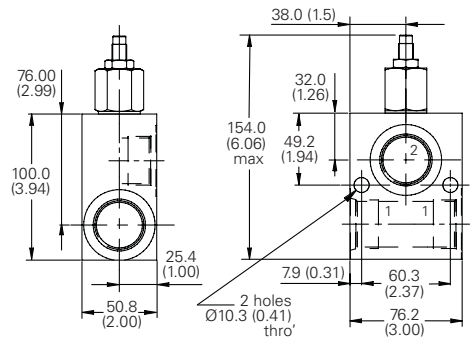


## Complete valve

1" Ports

Basic Code

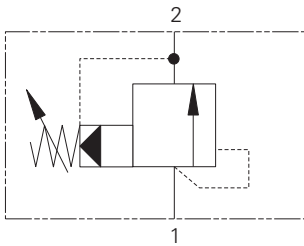
**1AR155**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV5-16 - Relief valve

Spool, pilot operated  
300 L/min (80 USgpm) • 350 bar (5000 psi)



## Operation

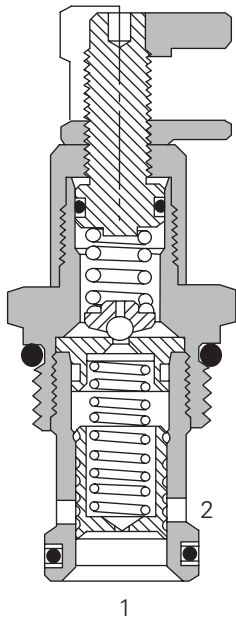
When the inlet pressure exceeds the setting of the valve, the pilot section opens, causing a small flow across the orifice in the main spool.

The subsequent pressure drop moves the spool against a light spring opening a ring of radial holes in the sleeve, allowing relief flow to tank.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	300 L/min (80 USgpm)
Internal leakage, port 1 to port 2	164 cc/min (10cu in/min@350 bar (5000 psi)
Cavity	C-16-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,71 kg (1.57 lbs )
Seal kits	889631 Buna-N 889635 Viton®

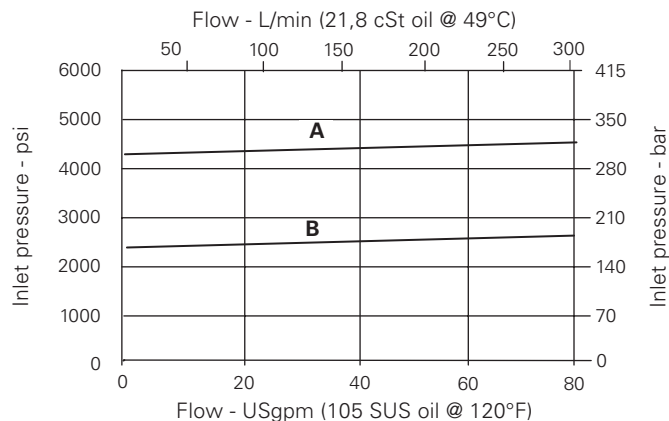
Viton is a registered trademark of E.I. DuPont

## Description

To limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows.

## Pressure override curves

Cartridge only



A - 60 spring

B - 35 spring

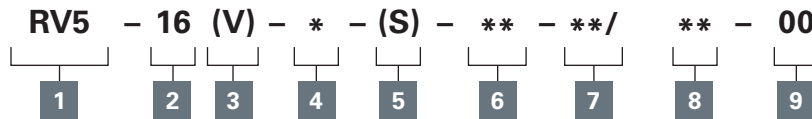
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# RV5-16 - Relief valve

Spool, pilot operated  
300 L/min (80 USgpm) • 350 bar (5000 psi)

## Model Code



### 1 Function

RV5 - Relief valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

S - Screw  
C - Cap  
K - Knob

### 5 Valve housing material

Blank - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number		
		Aluminium light duty	Aluminium fatigue rated	Steel fatigue rated
0	Cartridge only			
6B	3/4" BSPP	02-175463	-	-
4G	1/2" BSPP	-	876716	02-175106
6G	3/4" BSPP	-	876718	02-175107
10H	SAE 10	-	876717	-
12H	SAE 12	-	866113	-
10T	SAE 10	-	-	02-175104
12T	SAE 12	566149	-	02-175105

See section J for housing.

### 7 Cracking pressure range

Note: Code based on pressure in psi.

30 - 34-210 bar (500-3000 psi)  
60 - 70-415 bar (1000-6000 psi)

### 8 Setting pressure

Within ranges in 7  
Blank - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

Torque cartridge in housing  
A - 108-122 Nm (80-90 ft. lbs)  
S - 136-149 Nm (100-110 ft. lbs)

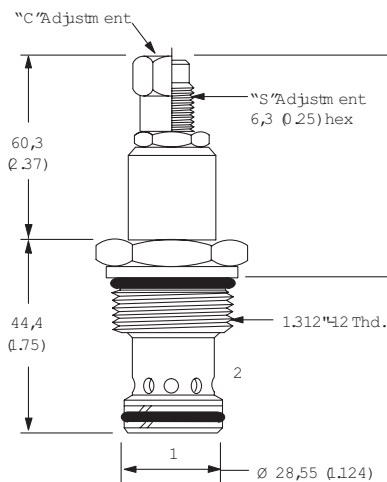
### 9 Special features

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

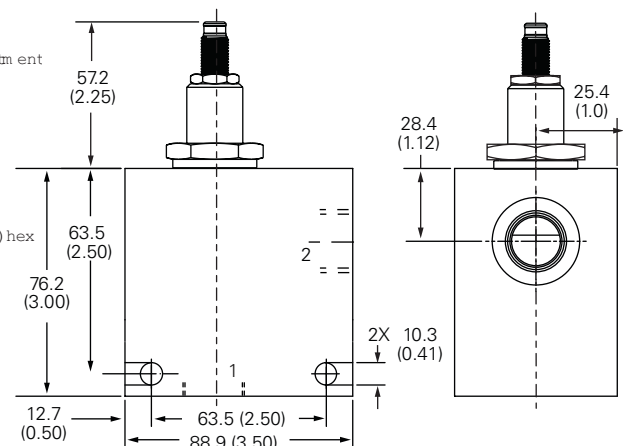
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



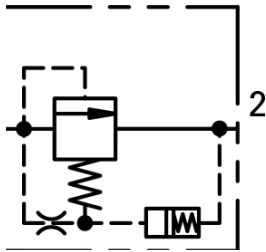
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1ARD100 - Shockless relief valve

Pilot relief valve  
100 L/min (26 USgpm) • 210 bar (3000 psi)



## Operation

System pressure acts on the pilot section of the valve. When the setting is reached the pilot section opens and pilot flow is passed through the centre of the dampening piston and through an orifice to tank. The flow through the orifice causes the dampening piston to compress the main spring to increase the setting. The rate of movement of the dampening piston is

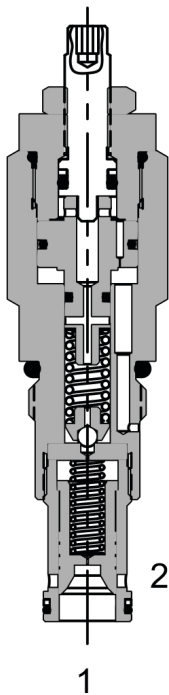
determined by the size of the orifice and the level of dampening by the distance moved by the dampening piston.

The amount of dampening can be adjusted by the adjust screw that changes the stroke of the dampening piston. Adjusting the valve clockwise reduces the amount of dampening.

## Features

High accuracy of the pilot operated design and flexibility of the adjustable dampening. Hardened working parts give long, reliable trouble free life. Cartridge construction allows for mounting into or onto the actuator where it can be most effective.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

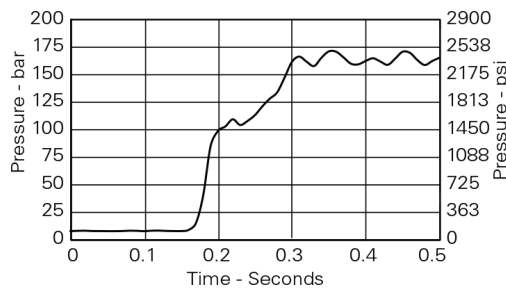
Rated flow	100 L/min (26 USgpm)
Max relief setting	210 bar (3000 psi)
Response time at max dampening	0.12 secs at max flow
Cartridge material	Working parts hardened and ground steel. External steel surfaces zinc plated.
Mounting position	Unrestricted
Cavity number	A881
Torque cartridge into cavity	60 Nm (44 ft lbs)
Weight	0.41 kg (0.9 lbs)
Seal kit number	SK 1412 Buna N / SK1412V Viton®
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temperature	-30° to +90°C (-22° - +194°F)
Leakage	100 millilitres/min nominal
Nominal viscosity range	5-500 cSt

Viton is a registered trademark of E.I. DuPont

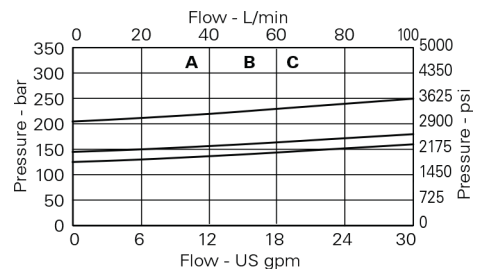
## Description

The 1ARD100 is designed to remove pressure spikes in a system by providing dampening on initial opening. The level of dampening is adjustable but the setting is fixed with increments of 10 bar with a tolerance of +/- 10 bar. This valve is ideal for use on rotating machinery where pressure spikes may be evident on start up or reversing.

### Typical max dampening performance curve



### Pressure drop curve



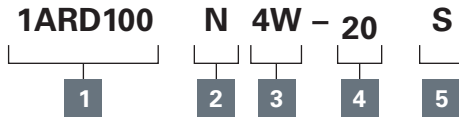
- A - 21S Version
- B - 15S Version
- C - 13S Version

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IARD100 - Shockless relief valve

Pilot relief valve  
100 L/min (26 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**1ARD100** - Cartridge Only

### 2 Adjustment means

**N** - Fixed

For fixed versions add setting in 10 bar increments to end of part number +/- 10 bar tolerance

### 3 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>3W</b>	3/8"BSPP	C1084	
<b>4W</b>	1/2"BSPP	C1044	C593
<b>6W</b>	3/4"BSPP	C1086	C4917
<b>6T</b>	SAE 6	B10784	
<b>8T</b>	SAE 8	C7140	
<b>12T</b>	SAE 12	B10506	B10742

### 4 Pressure range

**20** - 50-210 bar.  
(725 - 3000psi)

Setting fixed 10 bar increments with +/- 10 bar tolerance at 10 lts/min

### 5 Seals

**S** - Buna N (For use with most industrial hydraulic fluids)

**SV** - Viton® (For high temperature and most fluid applications)

## Dimensions

mm (inch)

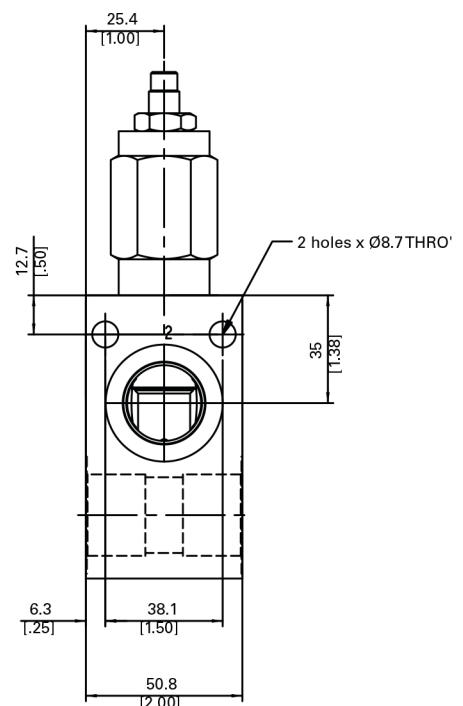
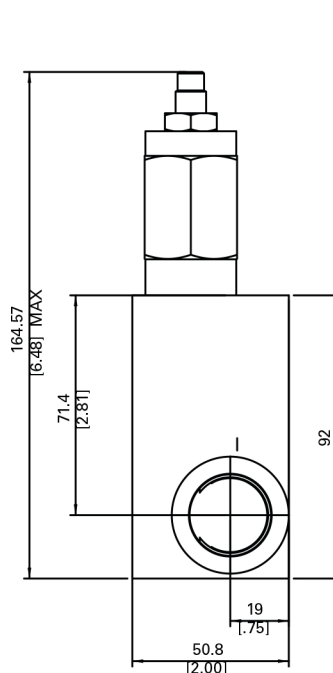
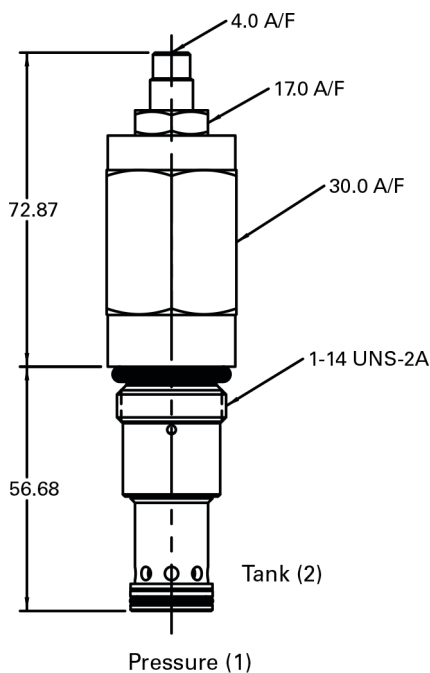
Cartridge only

Basic Code

**1ARD100**

### Warning

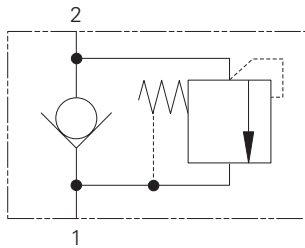
Aluminium housings can be used for 210 bar (3000 psi) Steel housings must be used for operating pressure above 210 bar (3000 psi).



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV4-10 - Relief valve

Poppet, thermal relief with reverse flow check  
 1 L/min (0.25 USgpm) relief/45 L/min (12 USgpm) check • 350 bar (5000 psi)



## Operation

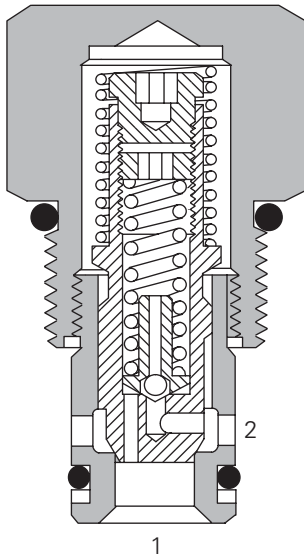
As a check valve the valve remains closed until the pressure at port 1 exceeds the 1.24 bar (18 psi) cracking pressure. The valve will hold pressure in port 2 until the setting of the thermal relief is reached.

Flow will then take place from port 2 to 1. This flow should be limited to that produced due to the thermal expansion of the oil in port 2.

## Features

Very low leakage from port 1 to 2. Hardened and ground working parts. Good re-seat. Compact solution in a single cartridge.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Rated flow – check valve	45 L/min (12 USgpm)
– relief valve	1 L/min (0.25 USgpm)
Relief cracking pressure ranges	28 - 350 bar (400 - 5000 psi)
Check valve cracking pressure	1,24 bar (18 psi)
Reseat pressure	More than 90% of cracking pressure
Internal leakage, port 2 to port 1	0.3 mL/min (5 drops/min) at cracking pressure
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kits	565803 Buna-N 566086 Viton®

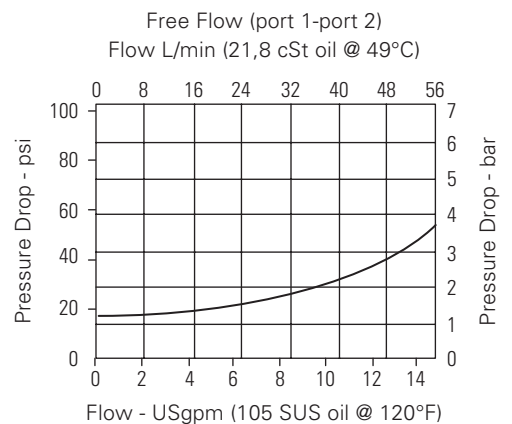
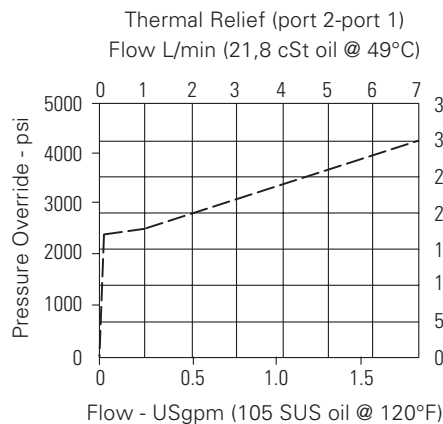
Viton is a registered trademark of E.I. DuPont

## Description

This is a check valve with a built in thermal relief. It is ideal for protecting actuators from damage when ambient temperatures cause the locked in oil pressure to increase. The thermal relief is limited to 4 L/min (1 USgpm) and should not be over-flowed.

## Pressure override & free flow curves

Cartridge only

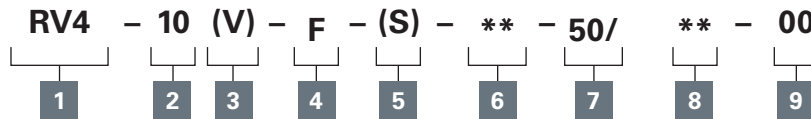


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV4-10 - Relief valve

Poppet, thermal relief with reverse flow check  
1 L/min (0.25 USgpm) relief/45 L/min (12 USgpm) check • 350 bar (5000 psi)

## Model code



### 1 Function

**RV** - Check valve with thermal relief

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**F** - Factory Set

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>0</b>	Cartridge only			
<b>3B</b>	3/8" BSPP	02-175462	-	-
<b>2G</b>	1/4" BSPP	-	876702	02-175102
<b>3G</b>	3/8" BSPP	-	876703	02-175103
<b>6H</b>	SAE 6	-	876700	-
<b>8H</b>	SAE 8	-	876701	-
<b>6T</b>	SAE 6	566151	-	02-175100
<b>8T</b>	SAE 8	-	-	02-175101

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.

**50** - 28-350 bar (400-5000 psi)

### 8 Setting pressure

Within ranges in **7**  
User must specify settings in 7 bar (100 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)

**25** - 175 bar (2500 psi)

### 9 Special features

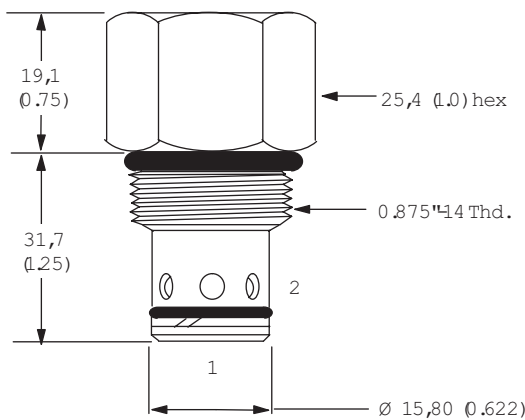
**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

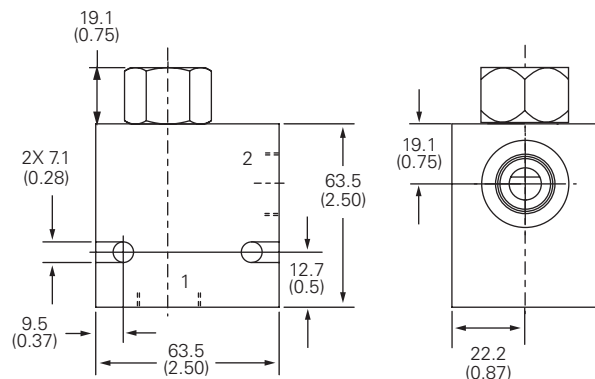
mm (inch)

Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

## Cartridge only



## Installation drawing (Steel)



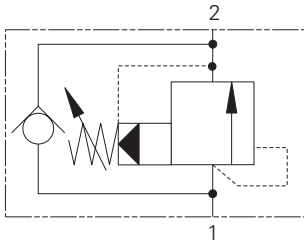
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV2-10 - Relief valve

Poppet, pilot operated with reverse flow check  
 12-114 L/min (3-30 USgpm) • 350 bar (5000 psi)



## Operation

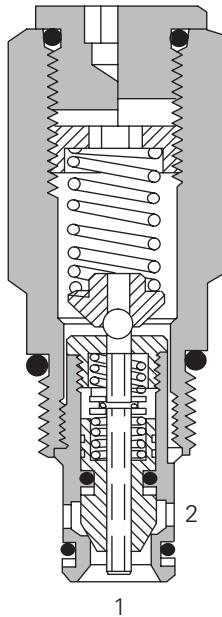
When the inlet reaches the valve setting, the pilot section opens, causing a small flow across the orifice in the poppet.

The subsequent pressure drop moves the poppet, opening the valve, allowing relief flow to tank.

## Features

Very low pressure rise for any increase in flow giving accurate pressure control. Hardened working parts give long, reliable, trouble-free life. Cartridge construction giving maximum flexibility in mounting.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow range	12–114 L/min (3–30 USgpm)
Internal leakage	0.3 mL/min (5 drops/min) @ 85% of Pressure Setting
Reverse free flow check	3 bar (45 psi)
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,22 kg (0.48 lbs)
Seal kits	565803 Buna-N 566086 Viton®

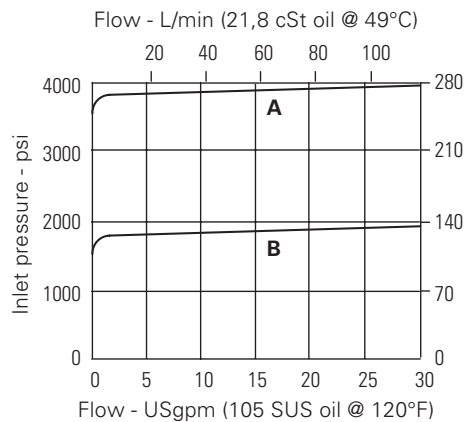
Viton is a registered trademark of E.I. DuPont

## Description

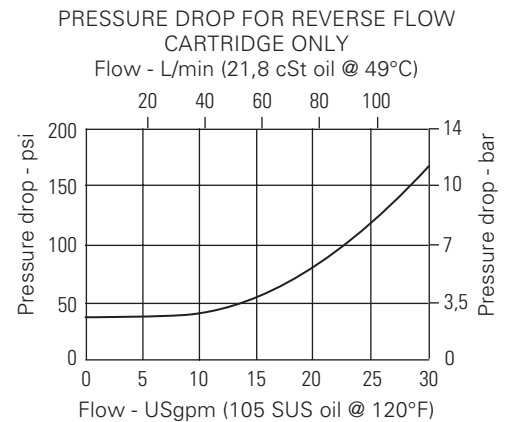
This is a pilot operated relief valve with an integral free flow check designed to limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows. With integral reverse flow check.

## Pressure override curves

Cartridge only  
 Tank pressure = 0



**A** - 50 Spring  
**B** - 20 Spring

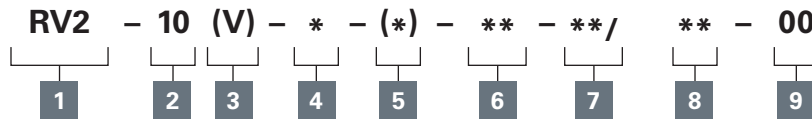


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV2-10 - Relief valve

Poppet, pilot operated with reverse flow check  
12-114 L/min (3-30 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV2- Relief valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
F - Factory set  
I - Internal  
K - Knob  
S - Screw

### 5 Valve housing material

Blank - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
0	Cartridge only			
3B	3/8" BSPP	02-175462	-	-
2G	1/4" BSPP	-	876702	02-175102
3G	3/8" BSPP	-	876703	02-175103
6H	SAE 6	-	876700	-
8H	SAE 8	-	876701	-
6T	SAE 6	566151	-	02-175100
8T	SAE 8	-	-	02-175101

See section J for housing.

### 7 Cracking pressure range

Note: Code based on pressure in psi.

- 3 - 3,5-20 bar (50-300 psi)
- 20 - 7-140 bar (100-2000 psi)
- 35 - 17-240 bar (250-3500 psi)
- 50 - 35-350 bar (500-5000 psi)

### 8 Setting pressure

Within ranges in 7  
Blank - Normal factory setting at approximate mid-range.  
User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

- 10 - 70 bar (1000 psi)
- 10.5 - 72,4 bar (1050 psi)

### 9 Special features

00 - None  
(Only required if valve has special features, omitted if "00.")  
SS - 316 Stainless Steel external components

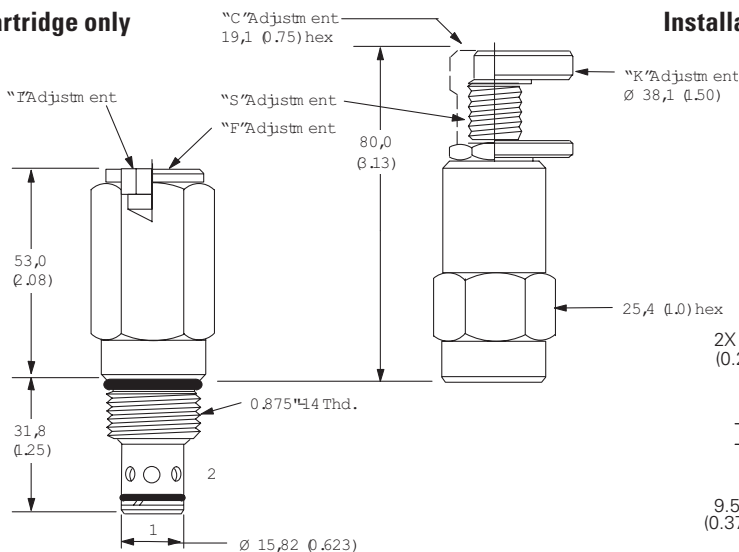
### Warning

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

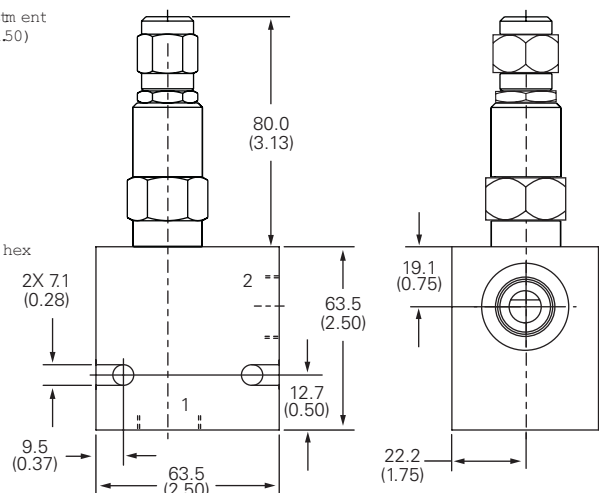
## Dimensions

mm (inch)

### Cartridge only



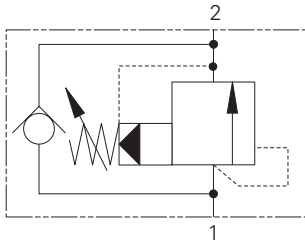
### Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1ARC100 - Relief valve

Spool, pilot operated with reverse flow check  
 150 L/min (40 USgpm) • 400 bar (5800 psi)



## Operation

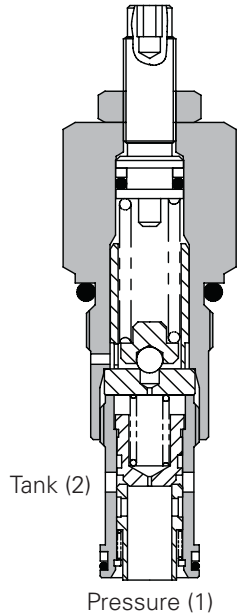
When the inlet reaches the valve setting, the pilot section opens, causing a small flow across the orifice in the spool.

The subsequent pressure drop moves the spool, opening a ring of radial holes in the sleeve, allowing relief flow to tank.

## Features

Very low pressure rise for any increase in flow giving accurate pressure control. Hardened working parts give long, reliable, trouble-free life. Cartridge construction giving maximum flexibility in mounting.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 32 cST (150 SUS)

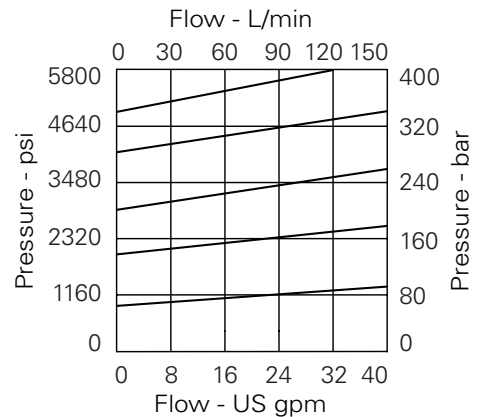
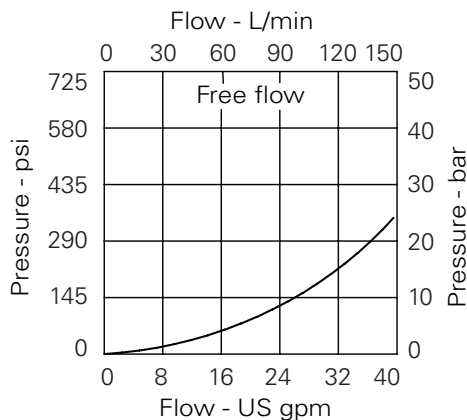
Rated flow	150 L/min (40 USgpm)	
Max setting	400 bar (5800 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	A881 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1ARC100	0.14 kg (0.3 lbs)
	1ARC145	0.54 kg (1.2 lbs)
	1ARC150	0.65 kg (1.4 lbs)
	1ARC155	0.91 kg (2.0 lbs)
Seal kit	SK164 (Nitrile) SK164V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22° to +194°F)	
Leakage	125 milliliters/min @ 280 bar	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated relief valve with an integral free flow check designed to limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows. With integral reverse flow check.

## Pressure drop curves



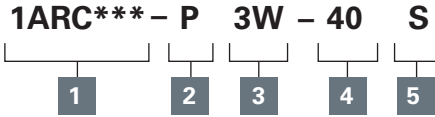
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1ARC100 - Relief valve

Spool, pilot operated with reverse flow check  
150 L/min (40 USgpm) • 400 bar (5800 psi)

## Model code



### 1 Function

**1ARC100** - Cartridge Only  
**1ARC145** - Cartridge and Body  
**1ARC150/1ARC155**  
- Cartridge and Body  
Through ported

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only				
		Aluminium 1AR145	Aluminium 1AR150	Steel 1AR150	Aluminium 1AR155	Steel 1AR155
<b>3W</b>	3/8" BSP		C1084			
<b>4W</b>	1/2" BSP	B4851	C1044	C593		
<b>6W</b>	3/4" BSP	B3954	C1086	C4917		
<b>8W</b>	1" BSP				B1617	B4596
<b>6T</b>	3/8" SAE		B10784			
<b>8T</b>	1/2" SAE	B19403	C7140			
<b>12T</b>	3/4" SAE	B19404	B10506	B10742		
<b>16T</b>	1" SAE				B1037	B24040

### 4 Pressure range

**Note:** Code based on pressure in bar.  
**7** - 10-70 bar.  
Std setting 35 bar  
**20** - 10-210 bar.  
Std setting 100 bar  
**40** - 50-400 bar.  
Std setting 280 bar Std setting made at 14 L/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

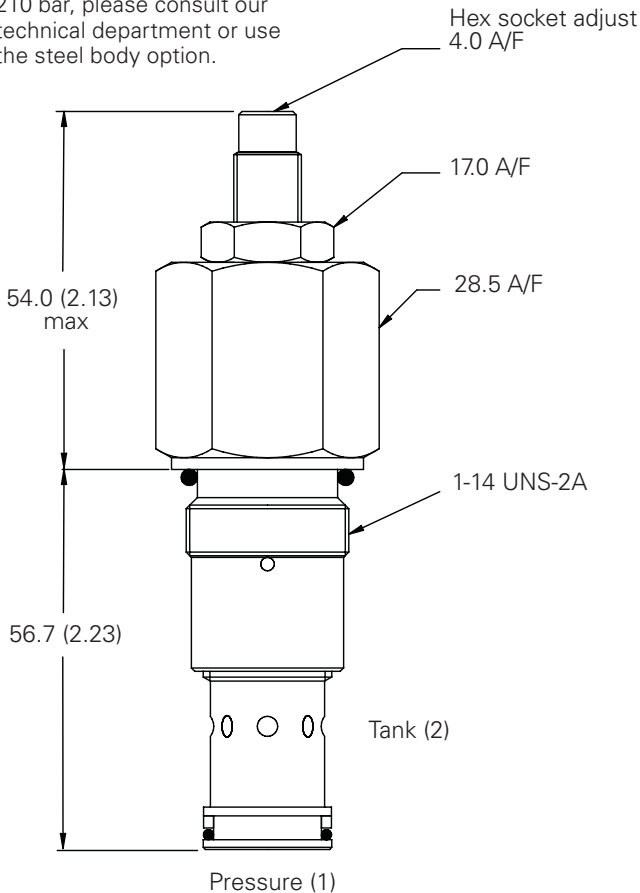
## Dimensions

mm (inch)

### Cartridge only

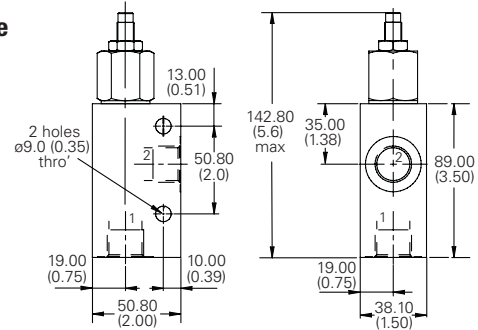
Basic Code  
**1ARC100**

**Note:** For applications above 210 bar, please consult our technical department or use the steel body option.



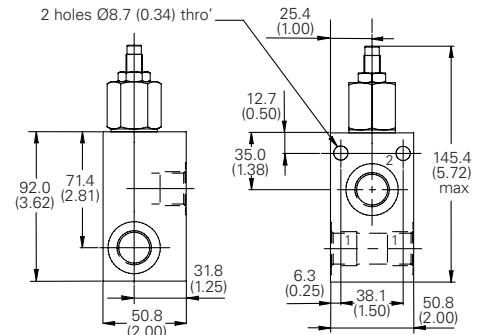
### Complete valve

1/2", 3/4" Ports  
Basic Code  
**1ARC145**



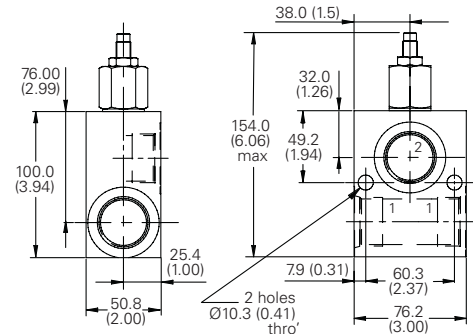
### Complete valve

3/8", 1/2", 3/4" Ports  
Basic Code  
**1ARC150**



### Complete valve

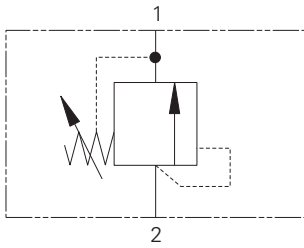
1" Ports  
Basic Code  
**1ARC155**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-8 - Relief valve

Poppet, differential area  
30 L/min (8 USgpm) • 350 bar (5000 psi)



## Operation

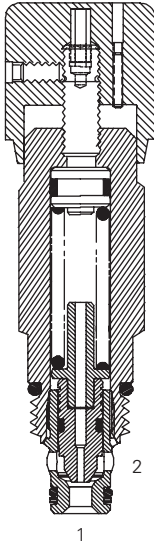
The RV8-8 remains closed until the predetermined setting is reached at port 2.

The force created by the pressure acting on the differential poppet area lifts the poppet off the seat and allows flow from port 2 to port 1.

## Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	280 bar (4000 psi)
Rated flow	30 L/min (8 USgpm)
Cracking pressure ranges	15: 3,4-100 bar (50-1500 psi) 30: 70-210 bar (1000-3000 psi) 50: 70-350 bar (1000-5000 psi)
Internal leakage, port 2 to port 1	Less than 5 drops/min @ 80% of cracking pressure
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight including coil	0,20 kg (0.43 lbs)
Seal kit	02-165874 (Buna-N), 02-165877 (Viton®)

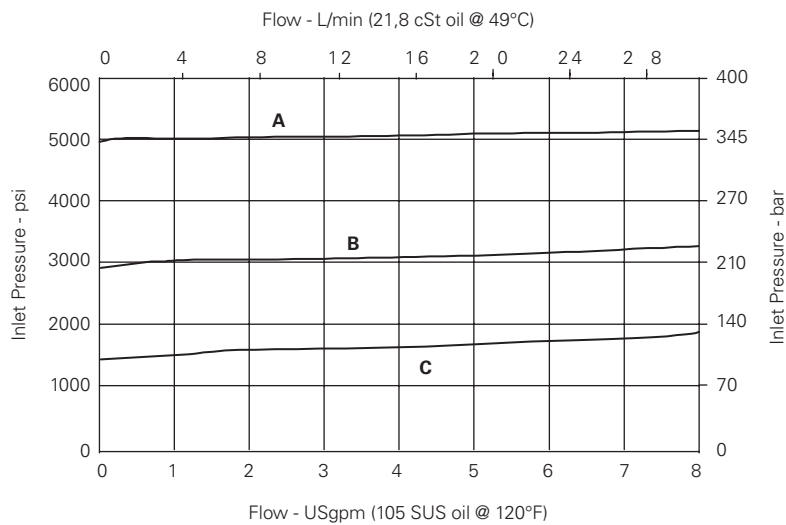
Viton is a registered trademark of E.I. DuPont

## Description

The RV8-8 is a direct acting differential area, poppet type, screw-in cartridge relief valve.

## Pressure drop

Cartridge only



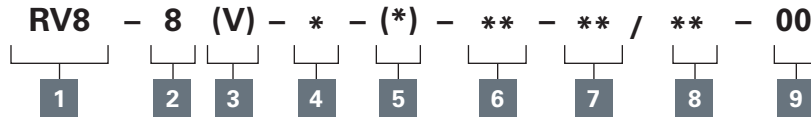
- A** - 50 spring
- B** - 30 spring
- C** - 15 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-8 - Relief valve

Poppet, differential area  
30 L/min (8 USgpm) • 350 bar (5000 psi)

Model code



## 1 Function

RV8- Relief valve

## 2 Size

8 - 8 size

## 3 Seal material

Blank - Buna-N  
V - Viton®

## 4 Adjustment

C - Cap  
K - Knob  
S - Screw

## 5 Valve housing material

Omit for cartridge only  
S - Steel  
A - Aluminum

For valve dimensions with manual override option installed see page A-980.

## 6 Port size

Code	Port size	Housing number	
		Aluminum Fatigue rated	Steel Fatigue rated
0	Cartridge only		
4T	SAE 4	02-160730	02-160736
6T	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738
2G	1/4" BSPP	02-160727	02-160733
3G	3/8" BSPP	02-160728	02-160734

\*Light duty housing.  
See section J for housing details.

## 7 Cracking pressure ranges

15 - 3,4-100 bar (50-1500 psi)  
30 - 70-210 bar (1000-3000 psi)  
50 - 70-350 bar (1000-5000 psi)

## 8 Pressure setting

Optional - Specify in 100 psi increments. If not specified, set at:

15 - 52 bar (750 psi)  
30 - 100 bar (1500 psi)  
50 - 175 bar (25000 psi)

## 9 Special features

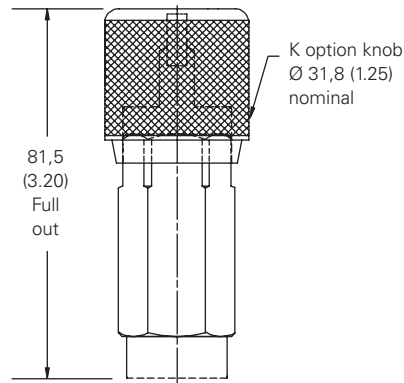
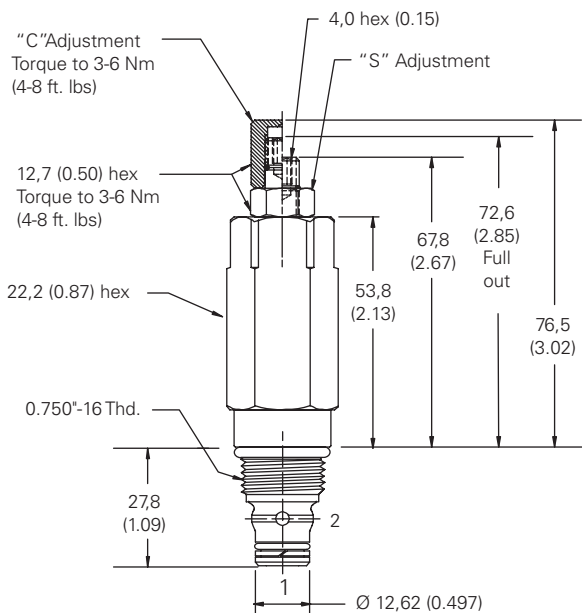
00 - None  
(Only required if valve has special features, omitted if "00.")  
**Note:** Use J series, 23 W coils with this solenoid valve.

## Dimensions

mm (inch)

Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft lbs)

### Cartridge only



### Warning

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

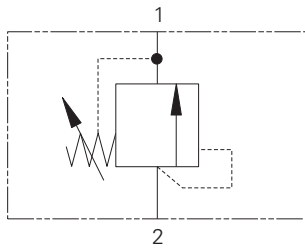
### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV3-10 - Relief valve

Poppet, direct acting, differential area  
76 L/min (20 USgpm) • 250 bar (3600 psi)



## Operation

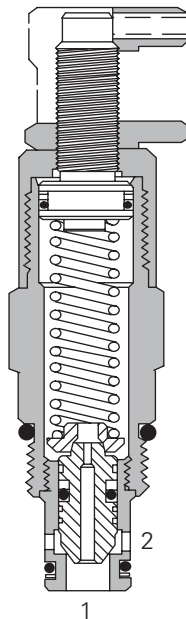
This valve remains closed from port 2 to 1 until the predetermined setting has been reached at port 2.

The pressure acts on the differential area between the seat and the seal diameter on the poppet.

## Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	250 bar (3600 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage	0.3 mL/min (5 drops/min) @ 85% of Pressure Setting
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,22 kg. (0.48 lbs.)
Seal kits – RV3	565803 Buna-N 566086 Viton®
– RV3A (with double backup rings)	565806 Buna-N 889627 Viton®

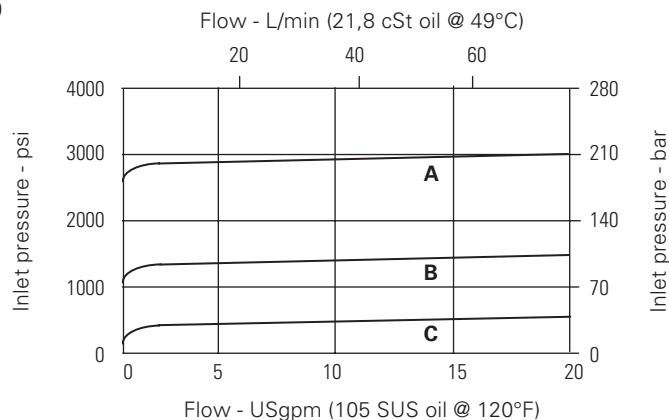
Viton is a registered trademark of E.I. DuPont

## Description

This is a fast, direct acting differential area screw-in cartridge relief valve. The valve is ideal for the protection against shock pressures that can damage actuators.

## Pressure override curves

Cartridge only  
Tank pressure = 0



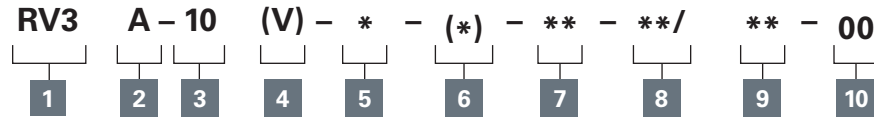
- A - 36 spring
- B - 18 spring
- C - 6 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV3-10 - Relief valve

Poppet, direct acting, differential area  
76 L/min (20 USgpm) • 250 bar (3600 psi)

## Model code



### 1 Function

RV3 - Relief valve

### 2 Cage seals

**Blank** - Single back-up ring  
**A** - 1/2 thickness back-up ring on each side of o-ring (for cross port relief applications)

### 3 Size

10 - 10 size

### 4 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 5 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

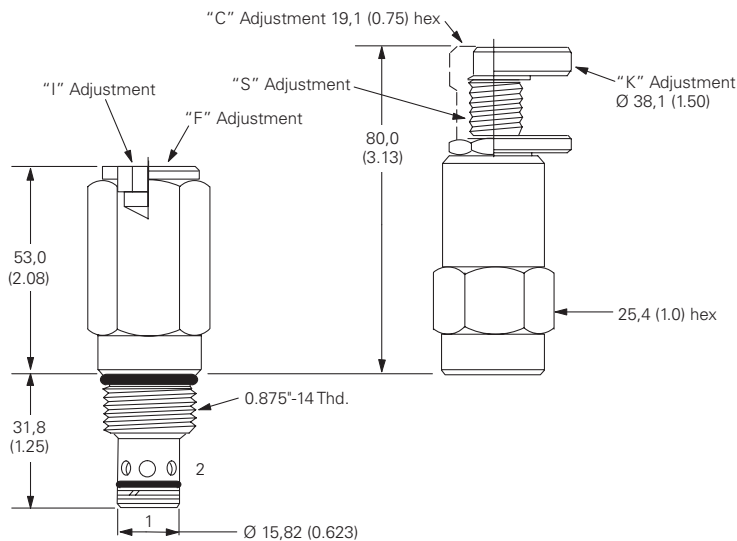
### 6 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### Dimensions

mm (inch)

### Cartridge only



### 7 Port size

o - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
3B	3/8" BSPP	02-175462	-	-
2G	1/4" BSPP	-	876702	02-175102
3G	3/8" BSPP	-	876703	02-175103
6H	SAE 6	-	876700	-
8H	SAE 8	-	876701	-
6T	SAE 6	566151	-	02-175100
8T	SAE 8	-	-	02-175101
H10H	SAE 10*	-	4997062-001	-
2K10H	SAE 10**	-	4997060-001	-

\* Bolt on, dual cross over relief valve package for **Eaton H or T series motors**

\*\* Bolt on, dual cross over relief valve package for **Eaton 2000 series motors**

(Note: Two cartridges are installed in this special housing, both are set to the same crack pressure specified in model Code position 9, maximum allowed setting is 210 bar (3000 psi), only available with RV3A option and aluminum housing.)

See section J for housing details.

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.

**3** - 3,5-21 bar (50-300 psi)  
**6** - 7-41 bar (100-600 psi)  
**9** - 14,5-62 bar (200-900 psi)  
**18** - 21-124 bar (300-1800 psi)  
**36** - 41-250 bar (600-3600 psi)

### 9 Setting pressure

Within ranges in **8**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 10 Special features

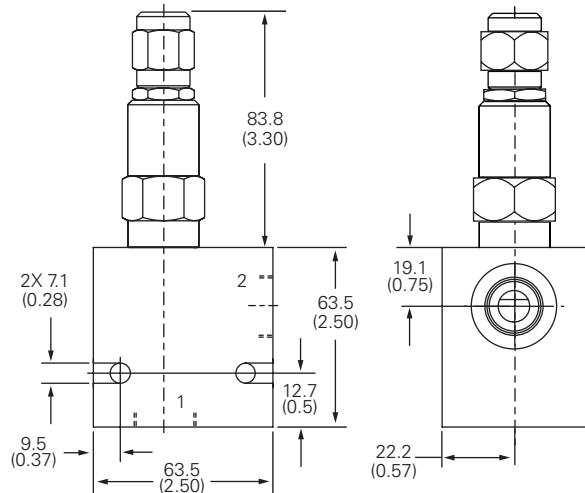
**00** - None  
(Only required if valve has special features, omitted if "00.")

**SS** - 316 Stainless Steel external components

### Warning

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

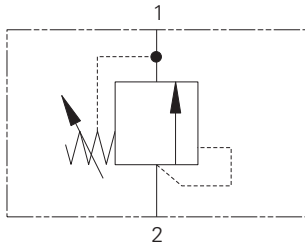
### Installation drawing (Steel)



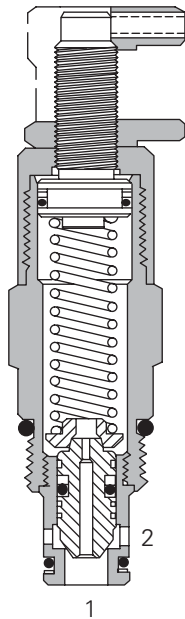
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-10 - Relief valve

Poppet, direct acting, differential area  
76 L/min (20 USgpm) • 350 bar (5000 psi)



Sectional view



## Operation

This valve remains closed from port 2 to 1 until the predetermined setting has been reached at port 2.

The pressure acts on the differential area between the seat and the seal diameter on the poppet.

## Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage	0.3 mL/min (5 drops/min) @ 85% of Pressure Setting
Cavity	C-10-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,22 kg (0.48 lbs)
Seal kits – RV8	565803 Buna-N 566086 Viton®
– RV8A	565806 Buna-N 889627 Viton®

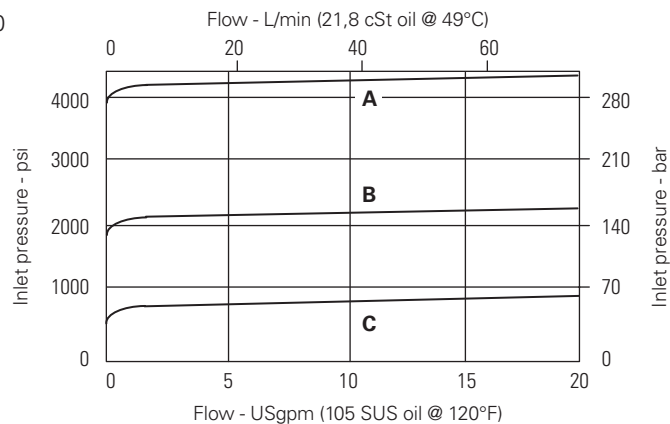
Viton is a registered trademark of E.I. DuPont

## Description

This is a fast, direct acting differential area screw-in cartridge relief valve. The valve is ideal for the protection against shock pressures that can damage actuators.

## Pressure override curves

Cartridge only  
Tank pressure = 0



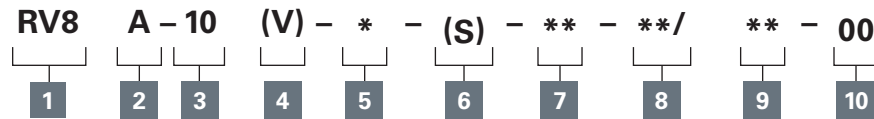
- A - 50 spring
- B - 20 spring
- C - 12 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-10 - Relief valve

Poppet, direct acting, differential area  
76 L/min (20 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV8 - Relief valve

### 2 Cage seals

**Blank** - Single back-up ring as shown

**A** - 1/2 thickness back-up ring on each side of o-ring (for cross port relief applications)

### 3 Size

10 - 10 size

### 4 Seal material

**Blank** - Buna-N

**V** - Viton®

### 5 Adjustment

**C** - Cap

**F** - Factory set

**I** - Internal

**K** - Knob

**S** - Screw

### 6 Valve housing material

**Blank** - Aluminum

**S** - Steel

### 7 port size

0 - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
3B	3/8" BSPP	02-175462	-	-
2G	1/4" BSPP	-	876702	02-175102
3G	3/8" BSPP	-	876703	02-175103
6H	SAE 6	-	876700	-
8H	SAE 8	-	876701	-
6T	SAE 6	566151	-	02-175100
8T	SAE 8	-	-	02-175101

See section J for housing.

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.

4 - 3,45-30 bar (50-450 psi)

12 - 7-86 bar (100-1250 psi)

25 - 17-175 bar (250-2500 psi)

50 - 38-350 bar (550-5000 psi)

### 9 Setting pressure

Within ranges in 8

**Blank** - Normal factory setting at approximate mid-range.

User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)

10.5 - 72,4 bar (1050 psi)

### 10 Special features

00 - None

(Only required if valve has special features, omitted if "00.")

SS - 316 Stainless Steel external components

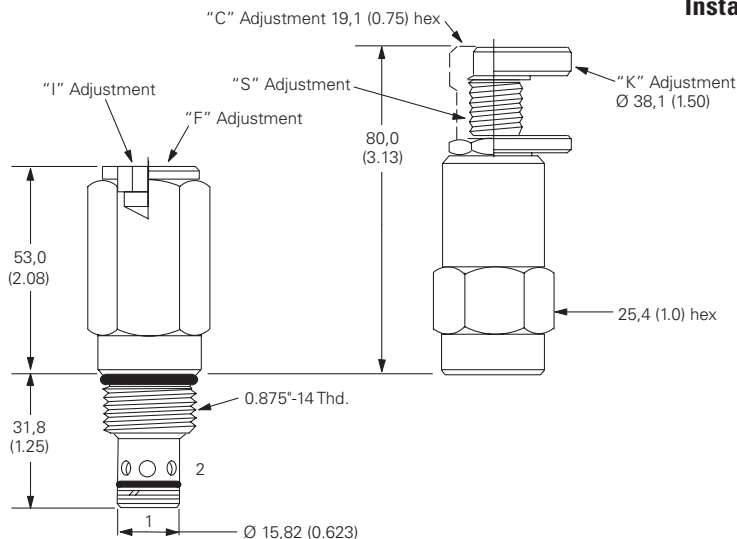
### Warning

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

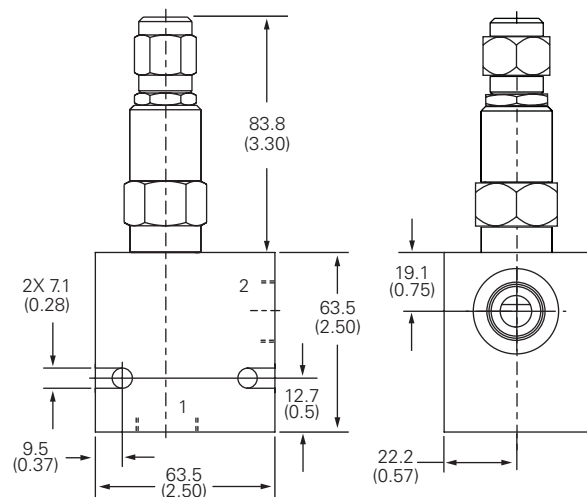
## Dimensions

mm (inch)

### Cartridge only



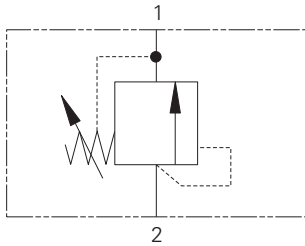
### Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV3-12 - Relief valve

Poppet, direct acting, differential area  
 132 L/min (35 USgpm) • 350 bar (5000 psi)



### Operation

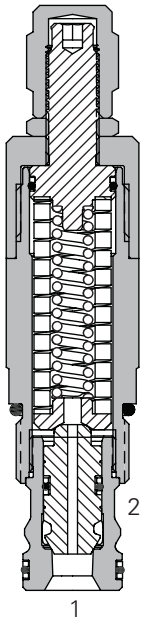
This valve remains closed from port 2 to 1 until the predetermined setting has been reached at port 2.

The pressure acts on the differential area between the seat and the seal diameter on the poppet.

### Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	132 L/min (35 USgpm)
Cracking pressure ranges	3,4-275 bar (50-4000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-12-2 or C-12-2U
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Standard housing materials	Aluminum or steel
Weight cartridge only	0,49 kg (1.08 lbs)
Seal kit	02-165889 (Buna-N) 02-165888 (Viton®)

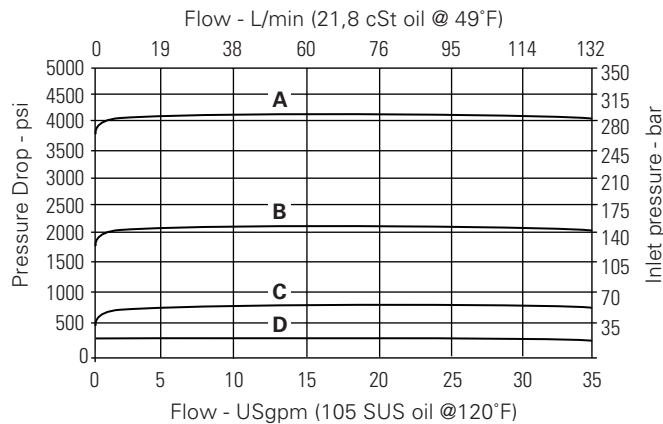
Viton is a registered trademark of E.I. DuPont

Endurance tested to 1 million cycles at full rated flow and pressure.

### Description

This is a fast, direct acting differential area screw-in cartridge relief valve. The valve is ideal for the protection against shock pressures that can damage actuators.

### Pressure drop curves



- A - 40 spring
- B - 22 spring
- C - 8.5 spring
- D - 2.5 spring

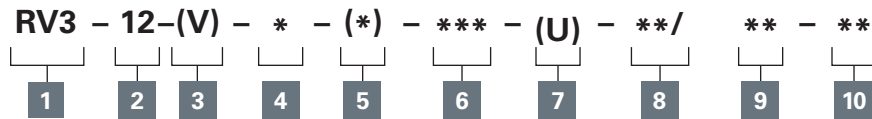
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# RV3-12 - Relief valve

Poppet, direct acting, differential area  
132 L/min (35 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV3 - Relief valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
K - Knob  
F - Factory set  
S - Screw

### 5 Valve housing material

Omit for cartridge only

A - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number			
		C-12-2 Aluminum Fatigue rated	C-12-2U Aluminum Fatigue rated	C-12-2 Steel Fatigue rated	C-12-2U Steel Fatigue rated
4G	1/2" BSPP	02-161118	02-161116	30915-1	30915-2
6G	3/4" BSPP	02-161117	02-161115	02-169665	02-162922
10T	SAE 10	02-160640	02-160641	02-169744	02-169817
12T	SAE 12	02-160644	02-160645	02-169782	02-169790

See section J for housing.

### 7 Cavity

Blank - Cavity without undercut  
U - Cavity with undercut

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.  
2.5 - 3,4-17 bar (50-250 psi)  
8.5 - 13-55 bar (200-850 psi)  
22 - 20-150 bar (300-2200 psi)  
40 - 40-275 bar (600-4000 psi)

### 9 Setting pressure

Within ranges in 8  
Blank - Normal factory setting at approximate mid-range.

**Optional** - User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

### 10 Special features

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

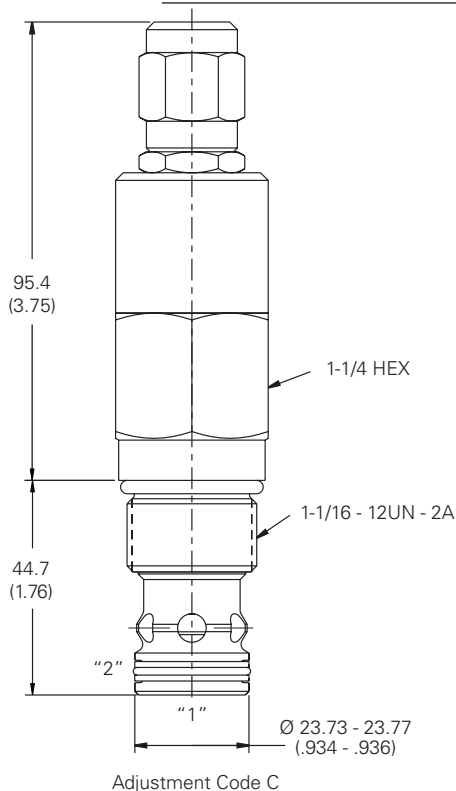
### Warning

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

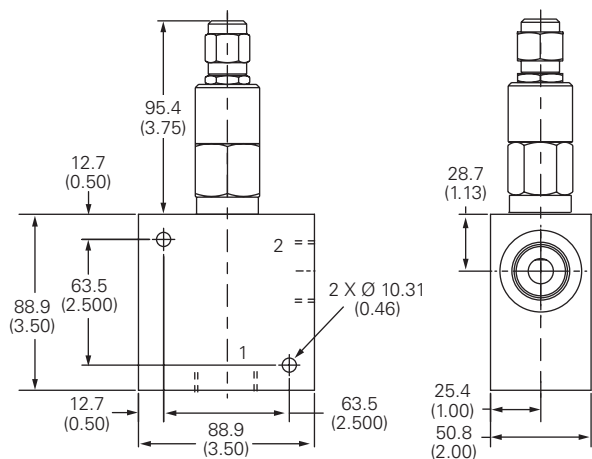
## Dimensions

mm (inch)

## Cartridge only



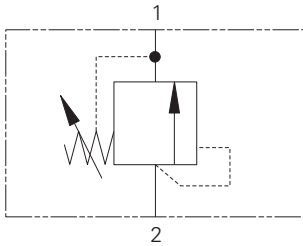
## Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-12 - Relief valve

Poppet, direct acting, differential area  
 132 L/min (35 USgpm) • 350 bar (5000 psi)



### Operation

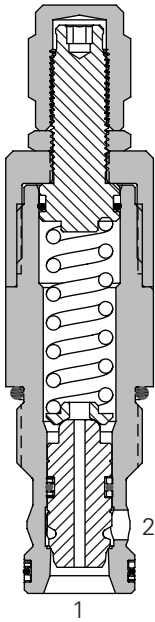
This valve remains closed from port 2 to 1 until the predetermined setting has been reached at port 2.

The pressure acts on the differential area between the seat and the seal diameter on the poppet.

### Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 23,3 cSt (111 SUS) and 49° C (120° F)*

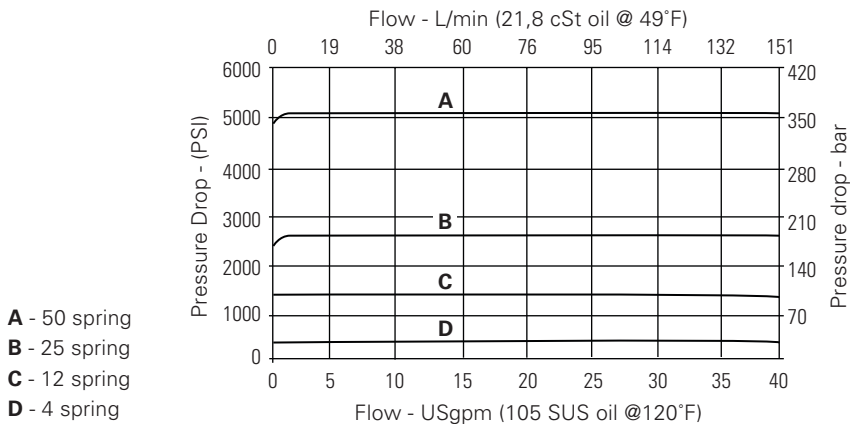
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	132 L/min (35 USgpm)
Cracking Pressure Range	3,4-275 bar (50-4000 psi)
Internal leakage	0.3 mL/min (5 drops/min) @ 85% of Pressure Setting
Cavity	C-12-2 or C-12-2U
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0.43 kg (0.94 lbs)
Seal kits	565803 Buna-N 566086 Viton®

Viton is a registered trademark of E.I. DuPont

### Description

This is a fast, direct acting differential area screw-in cartridge relief valve. The valve is ideal for the protection against shock pressures that can damage actuators.

### Pressure drop curves



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-12 - Relief valve

Poppet, direct acting, differential area  
132 L/min (35 USgpm) • 350 bar (5000 psi)

## Model code

**RV8 - 12 (V) - X - (\*) - \*\*\* - (U) - \*\*/ \*\* - \*\***

1 2 3 4 5 6 7 8 9 10

### 1 Function

RV3 - Relief valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
K - Knob  
S - Screw

### 5 Valve housing material

Omit for cartridge only  
A - Aluminum  
S - Steel

### 6 Port size

Code	Port size	Housing number			
		C-12-2 Aluminum fatigue rated	C-12-2U Aluminum fatigue rated	C-12-2 Steel fatigue rated	C-12-2U Steel fatigue rated
4G	1/2" BSPP	02-161118	02-161116	30915-1	30915-2
6G	3/4" BSPP	02-161117	02-161115	02-169665	02-162922
10T	SAE 10	02-160640	02-160641	02-169744	02-169817
12T	SAE 12	02-160644	02-160645	02-169782	02-169790

See section J for housing.

### 7 Cavity

Blank - Cavity without undercut  
U - Cavity with undercut

### 8 Cracking pressure range

**Note:** Code based on pressure in psi.  
4 - 3,4-350 bar (50-5000 psi)  
12 - 13-85 bar (200-1250 psi)  
25 - 20-170 bar (300-2500 psi)  
50 - 40-350 bar (600-5000 psi)

### 9 Setting pressure

Within ranges in 8  
Blank - Normal factory setting at approximate mid-range.

**Optional** - User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

### 10 Special features

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

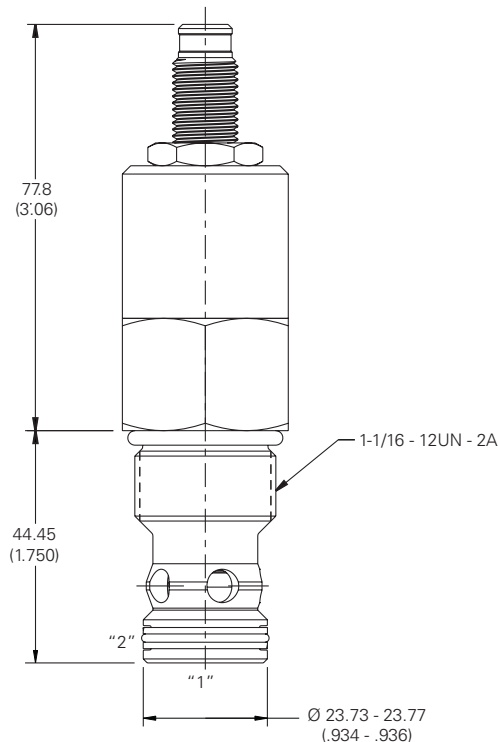
### Warning

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

## Dimensions

mm (inch)

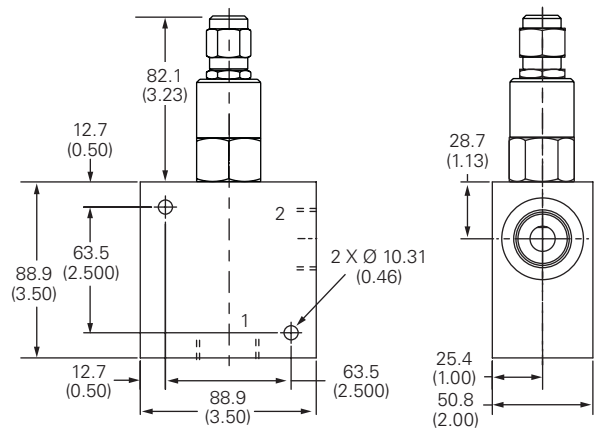
### Cartridge only



ADJUSTMENT CODE "S"

Torque cartridge in housing  
A - 81-95 Nm (60-70 ft. lbs)  
S - 102-115 Nm (75-85 ft. lbs)

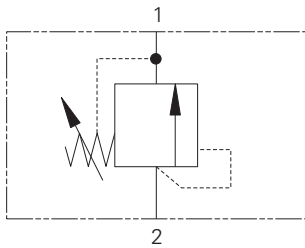
### Installation Drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-16 - Relief valve

Poppet, direct acting, differential area  
 30-303 L/min (8-80 USgpm) • 350 bar (5000 psi)



### Operation

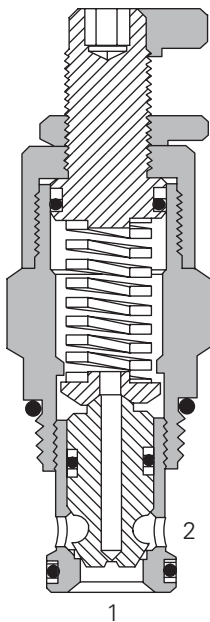
This valve remains closed from port 2 to 1 until the predetermined setting has been reached at port 2.

The pressure acts on the differential area between the seat and the seal diameter on the poppet.

### Features

Hardened and ground working parts. Low leakage poppet design. High flow rate for a compact cartridge.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	30-303 L/min (8-80 USgpm)
Cavity	C-16-2
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,71 kg (1.57 lbs)
Seal kits	565810 Buna-N 889609 Viton®

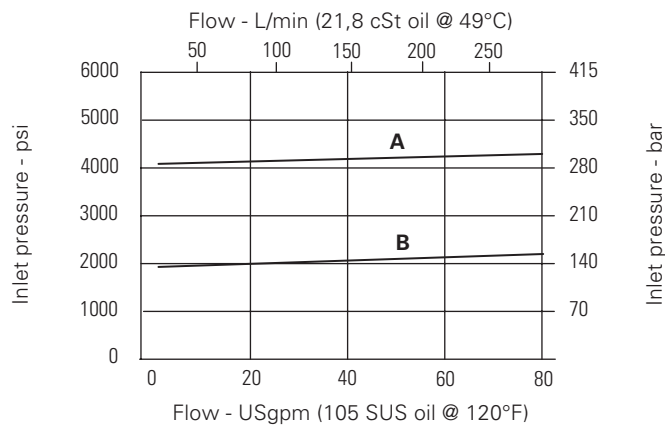
Viton is a registered trademark of E.I. DuPont

### Description

This is a fast, direct acting differential area screw-in cartridge relief valve. The valve is ideal for the protection against shock pressures that can damage actuators.

### Pressure override curves

Cartridge only



**A** - 50 spring

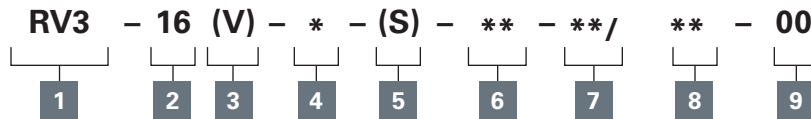
**B** - 35 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# RV8-16 - Relief valve

Poppet, direct acting, differential area  
30-303 L/min (8-80 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

RV3- Relief valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
K - Knob  
S - Screw

### 5 Valve housing material

Blank - Aluminum  
S - Steel

### 6 Port size

0 - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
6B	3/4" BSPP	02-175463	-	-
4G	1/2" BSPP	-	876716	02-175106
6G	3/4" BSPP	-	876718	02-175107
10H	SAE 10	-	876717	-
12H	SAE 12	-	866113	-
10T	SAE 10	-	-	02-175104
12T	SAE 12	566149	-	02-175105

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.  
5 - 3,5-35 bar (50-500 psi)  
13 - 35-90 bar (300-1300 psi)  
35 - 83-240 bar (1200-3500 psi)  
50 - 140-350 bar (2000-5000 psi)

### 8 Setting pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")  
**SS** - 316 Stainless Steel external components

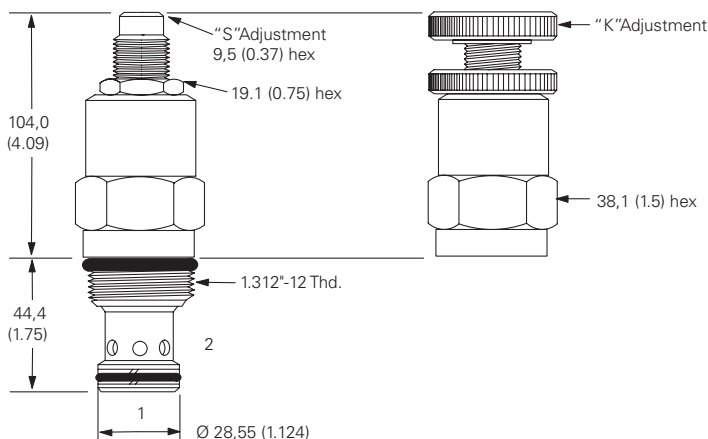
### Warning

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

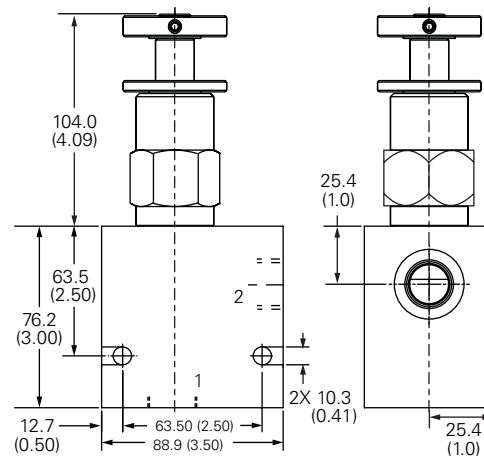
## Dimensions

mm (inch)

### Cartridge only



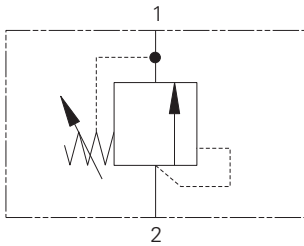
### Installation drawing (Steel)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1LR300 - Relief valve

Poppet, direct acting, differential area  
 380 L/min (100 USgpm) • 350 bar (5000 psi)



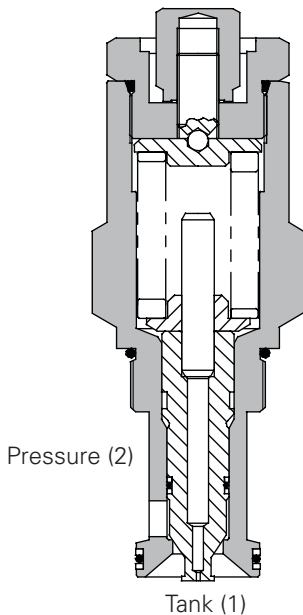
### Operation

Pressure acts over the differential area between the seat and seal on the poppet. When the pressure exceeds the setting, the valve opens, allowing relief flow to tank, washing contaminant away from the seat.

### Features

Dirt tolerant, robust and consistent with good pressure rise to increase in flow characteristics for a direct acting valve. Cartridge construction provides for maximum flexibility in mounting.

### Sectional view



### Performance data

#### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

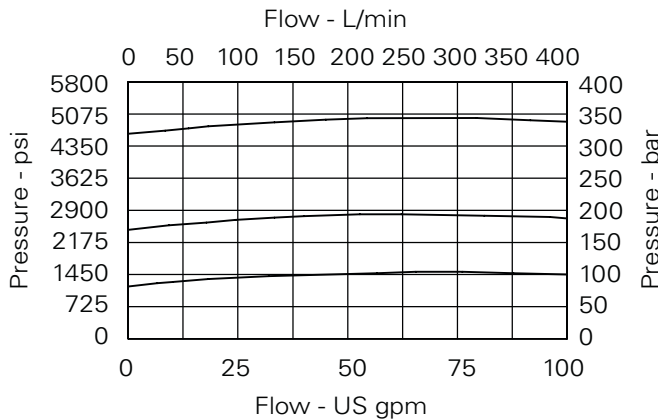
Rated flow	380 L/min (100 USgpm)
Max setting	350 bar (5000 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity	A1126 (See Section M)
Torque cartridge into cavity	150 Nm (110 lbs ft)
Weight	1LR300 1.04 kg (2.3 lbs) 1LR350 2.08 kg (4.6 lbs)
Seal kit	SK207 (Nitrile) SK207V (Viton®)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temp	-30°C to +90°C (-22°C to 194°F)
Leakage	1 millilitre/min nominal (15 dpm)
Nominal viscosity range	5 to 500 cSt

Viton is a registered trademark of E.I. DuPont

### Description

This is a fast, direct acting differential area screw-in cartridge relief valve. Ideal for intermittent duty as protection against overload or surge conditions for all types of actuators. Very fast acting and extremely dirt tolerant.

### Pressure drop curves

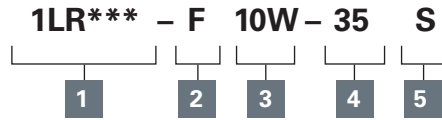


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1LR300 - Relief valve

Poppet, direct acting, differential area  
380 L/min (100 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1LR300** - Cartridge Only  
**1LR350** - Cartridge and Body

### 2 Adjustment means

**F** - Screw Adjustment

### 3 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>10W</b>	1 1/4" BSP	B5134	B882
<b>20T</b>	1 1/4" SAE	B7783	B11553

### 4 Pressure range

**Note:** Code based on pressure in bar.

**20** - 35-210 bar.  
Std setting 100 bar

**35** - 70-350 bar.  
Std setting 280 bar

Std setting made at 30 L/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)

**SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

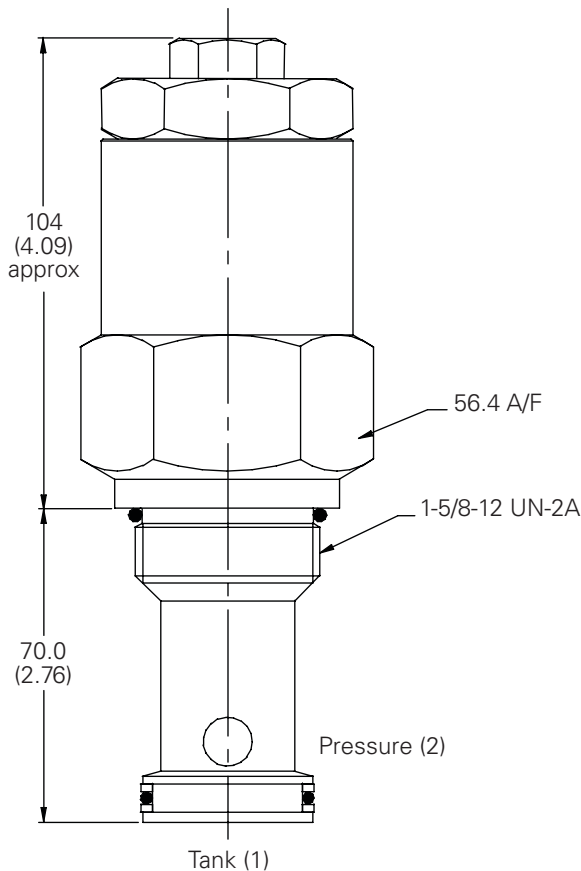
mm (inch)

**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm.

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

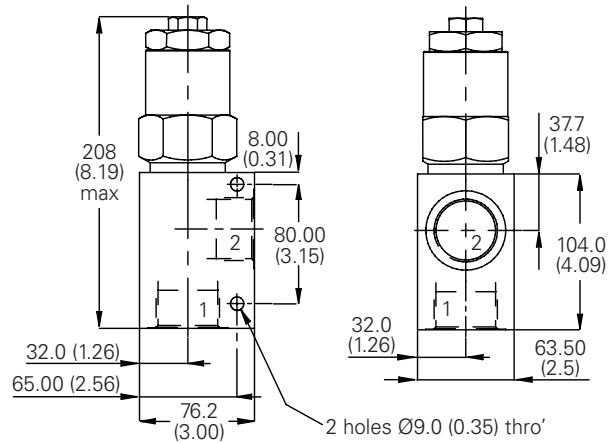
## Cartridge only

Basic Code  
**1LR300**



## Installation drawing

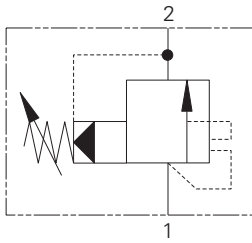
1 1/4" Ports  
Basic Code  
**1LR350**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IUAR100 - Relief valve

Spool, pilot operated, unloading  
 150L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

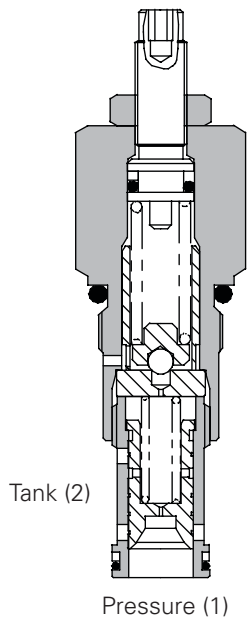
System pressure acts on the pilot section of the valve. When the valve setting is reached, the pilot section opens and the pilot flow causes the spool to move back uncovering the radial vent port.

The main section then opens fully with pilot flow passing through the vent port. When the system pressure is reduced to zero the valve will close.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

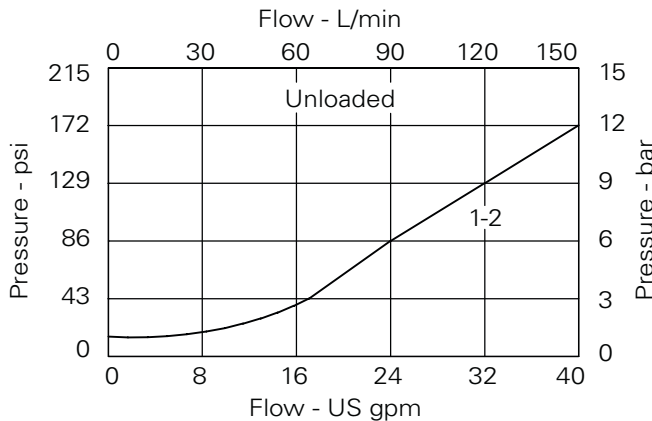
Rated flow	150 L/min (40 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	A881 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1UAR100	0.14 kg (0.30 lbs)
	1UAR145	0.34 kg (0.75 lbs)
	1UAR150	0.65 kg (1.40 lbs)
	1UAR155	0.91 kg (2.00 lbs)
Seal kit	SK164 (Nitrile) SK164V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22° to +194°F)	
Leakage	100 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

The off-loading (kick-down) relief valve opens to unload a hydraulic system if the system pressure exceeds the valve setting. It acts as a fuse to protect persons and machinery where prolonged operation at excess pressure cannot be tolerated.

## Pressure drop curves



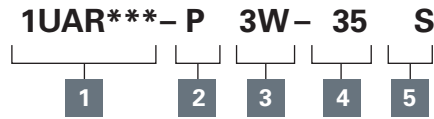
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1UAR100 - Relief valve

Spool, pilot operated, unloading  
150L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

- 1UAR100** - Cartridge Only
- 1UAR145** - Cartridge and Body
- 1UAR150** - Cartridge and Body Through Ported
- 1UAR155** - Cartridge and Body Through Ported

### 2 Adjustment means

- P** - Leakproof Screw Adjustment
- R** - Handknob Adjustment
- G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only				
		Aluminium 1UAR145	Aluminium 1UAR150	Steel 1UAR150	Aluminium 1UAR155	Steel 1UAR155
<b>3W</b>	3/8" BSP		C1084			
<b>4W</b>	1/2" BSP	B4851	C1044	C593		
<b>6W</b>	3/4" BSP	B3954	C1086	C4917		
<b>8W</b>	1" BSP				B1617	B4596
<b>6T</b>	3/8" SAE		B10784			
<b>8T</b>	1/2" SAE	B19403	C7140			
<b>12T</b>	3/4" SAE	B19404	B10506	B10742		
<b>16T</b>	1" SAE				B1037	B24040

### 4 Pressure range

**Note:** Code based on pressure in bar.

- 7** - 2-70 bar.  
Std setting 35 bar
- 20** - 10-210 bar.  
Std setting 100 bar
- 40** - 50-350 bar.  
Std setting 210 bar  
Std setting made at 14 L/min

### 5 Seals

- S** - Nitrile (For use with most industrial hydraulic oils)
- SV** - Viton (For high temperature and most special fluid applications)

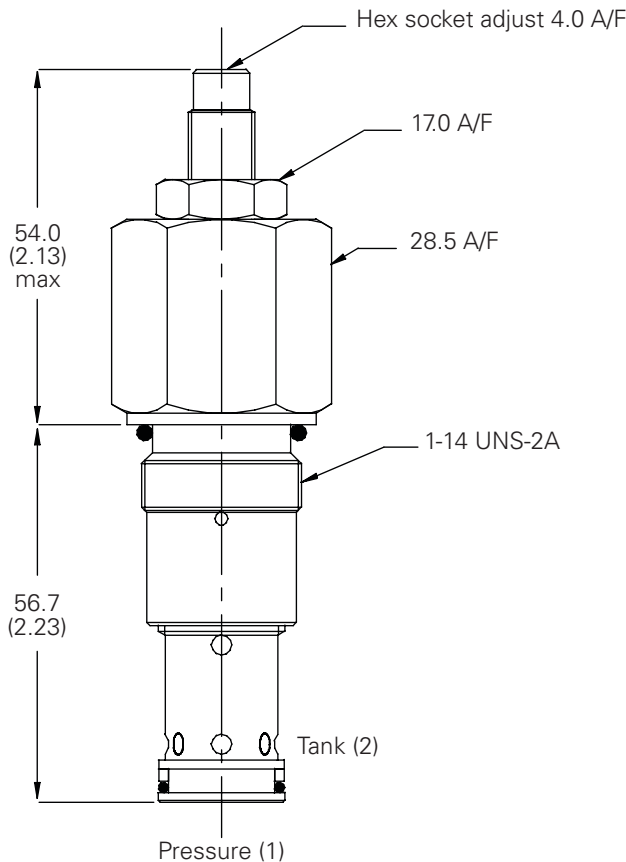
## Dimensions

mm (inch)

### Cartridge only

Basic Code  
**1UAR100**

**Note:** For applications above 210 bar, please consult our technical department or use the steel body option.

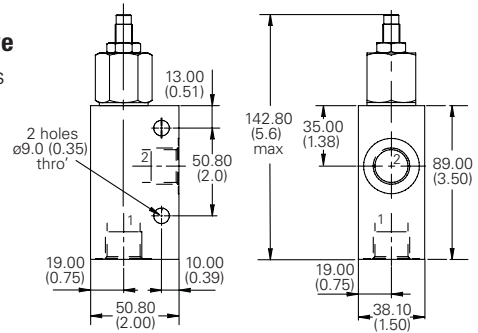


### Complete valve

1/2", 3/4" Ports

Basic Code

**1UAR145**

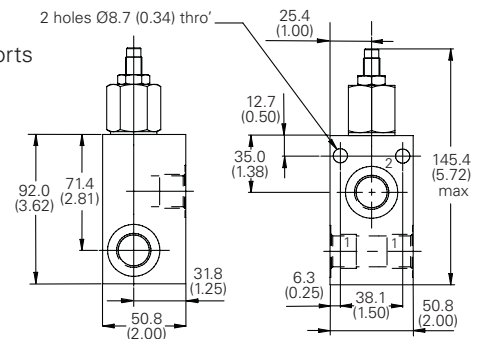


### Complete valve

3/8", 1/2", 3/4" Ports

Basic Code

**1UAR150**

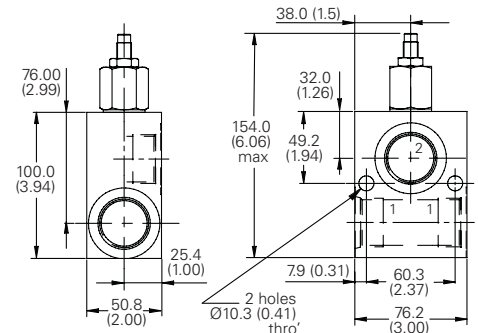


### Complete valve

1" Ports

Basic Code

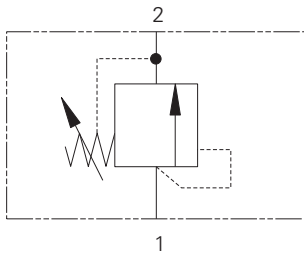
**1UAR155**



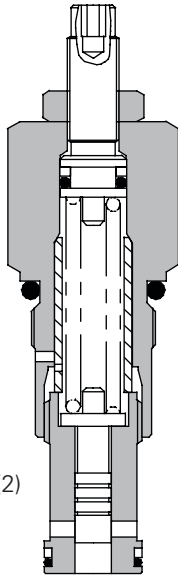
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1GR30 - Relief valve

Spool, direct acting  
30 L/min (8 USgpm) • 160 bar (2300 psi)



Sectional view



Pressure (1)

## Operation

The valve is held closed by the spring until pressure on the piston overcomes the valve setting, allowing relief flow to tank through a ring of radial holes.

## Features

Stable, quiet operation.  
Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reset.

## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cStt (150 SUS)

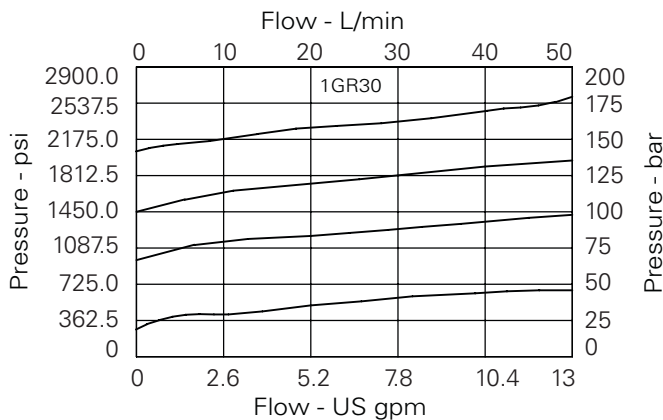
Rated flow	30 L/min (8 USgpm)	
Max setting	160 bar (2300 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	A881 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1GR30	0.31 kg (0.7 lbs)
	1GR35	0.54 kg (1.2 lbs)
	1GR36	0.91 kg (2.0 lbs)
Seal kit	SK190 (Nitrile) SK190V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to +194°F)	
Leakage	15 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting spool type screw in cartridge relief valve. Ideal for low pressure applications, giving good control with fairly constant flow. Also very quiet in operation when applied on low flow or unstable hydraulic systems.

## Pressure drop curves

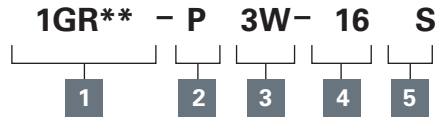


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1GR30 - Relief valve

Spool, direct acting  
30 L/min (8 USgpm) • 160 bar (2300 psi)

## Model code



### 1 Basic code

**1GR30** - Cartridge Only  
**1GR35** - Cartridge and Body  
**1GR36** - Cartridge and Body Through Ported

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only		
		Aluminium 1GR35	Aluminium 1GR36	Steel 1GR36
<b>3W</b>	3/8" BSP		C1084	
<b>4W</b>	1/2" BSP	B4851	C1044	C593
<b>6W</b>	3/4" BSP	B3954	C1086	C4917
<b>6T</b>	3/8" SAE		B10784	
<b>8T</b>	1/2" SAE		C7140	
<b>12T</b>	3/4" SAE		B10506	B10742

### 4 Pressure range

**Note:** Code based on pressure in bar.

**7** - 7-70 bar.  
Std setting 35 bar  
**16** - 14-160 bar.  
Std setting 155 bar  
Std setting made at 4.8 L/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

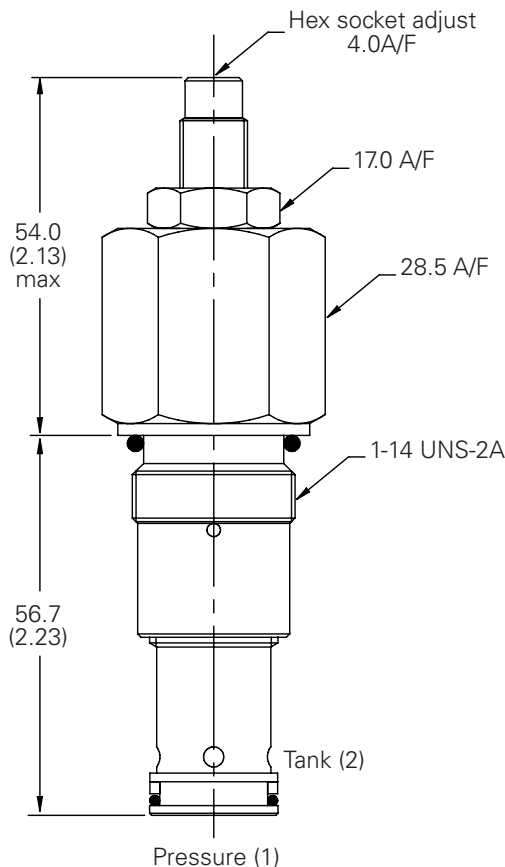
## Dimensions

mm (inch)

## Cartridge only

Basic Code

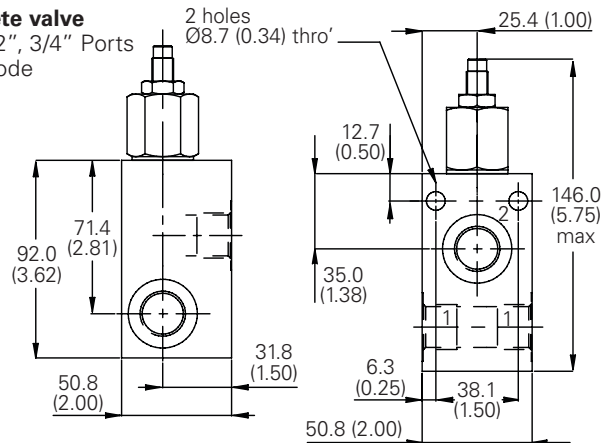
### 1GR30



### Complete valve

3/8", 1/2", 3/4" Ports  
Basic Code

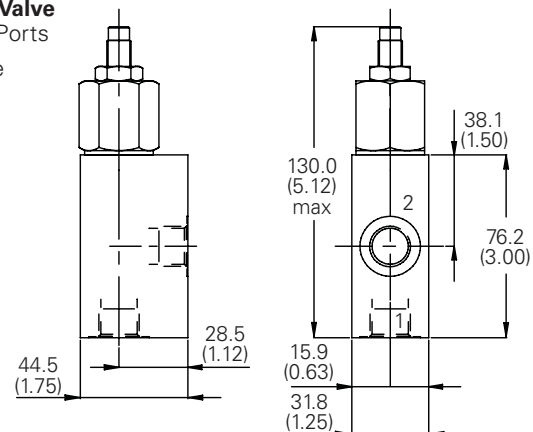
### 1GR36



### Complete Valve

1/2", 3/4" Ports  
Basic Code

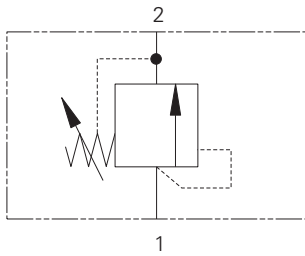
### 1GR35



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IGR60 - Relief valve

Spool, direct acting  
60 L/min (16 USgpm) • 40 bar (600 psi)



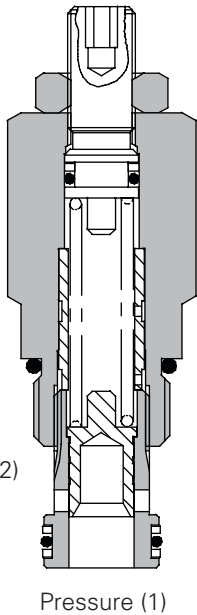
## Operation

The valve is held closed by the spring until pressure on the piston overcomes the valve setting, allowing relief flow to tank through a ring of radial holes.

## Features

Stable, quiet operation. Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reseal.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

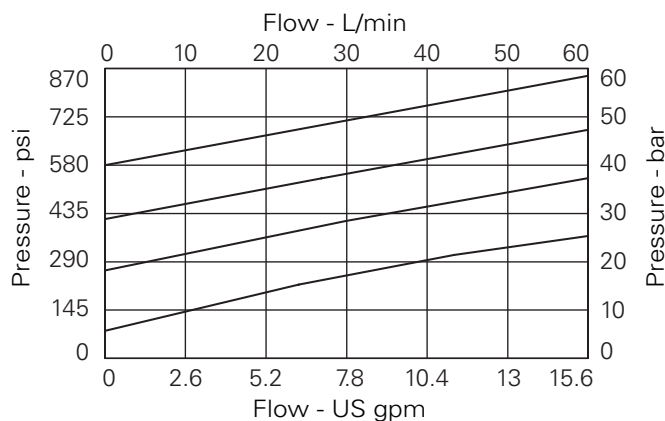
Rated flow	60 L/min (16 USgpm)	
Max setting	40 bar (600 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	CVA20-01-0 (See Section M)	
Torque cartridge into Cavity	45 Nm (33 lbs ft)	
Weight	1GR60	0.18 kg (0.4 lbs)
	1GR65	0.36 kg (0.8 lbs)
	1GR66	0.48 kg (1.0 lbs)
Seal Kit	SK696 (Nitrile)	
	SK696V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22° to +194°F)	
Leakage	35 milliliters/min @ 210 bar	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting spool type screw in cartridge relief valve. Ideal for low pressure applications, giving good control with fairly constant flow. Also very quiet in operation when applied on low flow or unstable hydraulic systems.

## Pressure drop curves

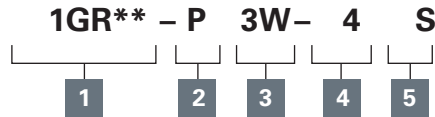


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1GR60 - Relief valve

Spool, direct acting  
60 L/min (16 USgpm) • 40 bar (600 psi)

## Model code



### 1 Function

**1GR60** - Cartridge Only  
**1GR65** - Cartridge and Body  
**1GR66** - Cartridge and Body Through Ported

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap  
 (See page E-7 for dimensions)

### 3 Port sizes

Code	Port size	Housing number - body only			
		Aluminium	Steel	Aluminium	Steel
		<b>1GR65</b>	<b>1GR65</b>	<b>1GR66</b>	<b>1GR66</b>
<b>3W</b>	3/8" BSP	A13758	A13615		
<b>4W</b>	1/2" BSP	A8532		B13011	B13473
<b>6T</b>	3/8" SAE	A10780			
<b>8T</b>	1/2" SAE	A10781	A11798	B10783	B13477

### 4 Pressure range

**Note:** Code based on pressure in bar.

**2** - 5-20 bar.  
Std setting 20 bar  
**16** - 14-160 bar.  
Std setting 28 bar  
Std setting made at 14 L/min

### 5 Seals

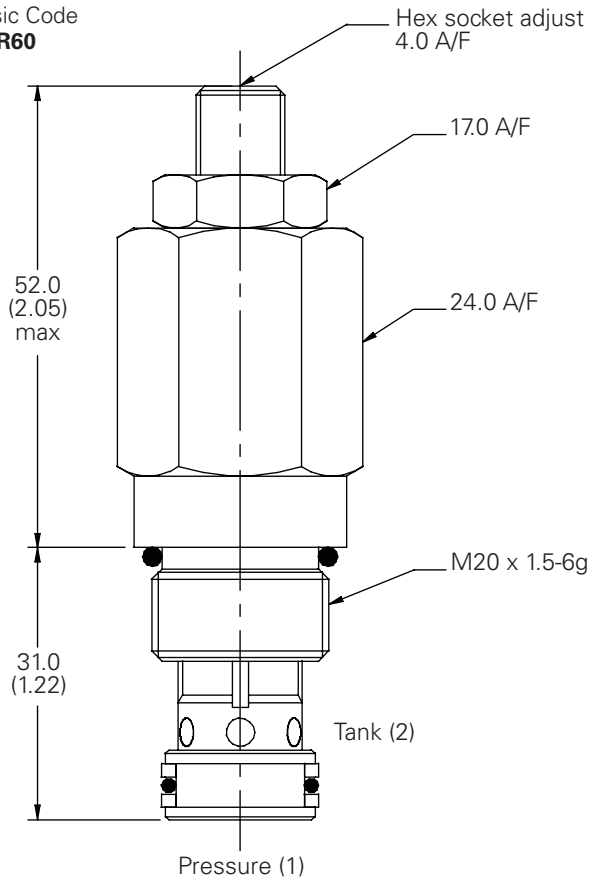
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

### Cartridge only

Basic Code  
**1GR60**

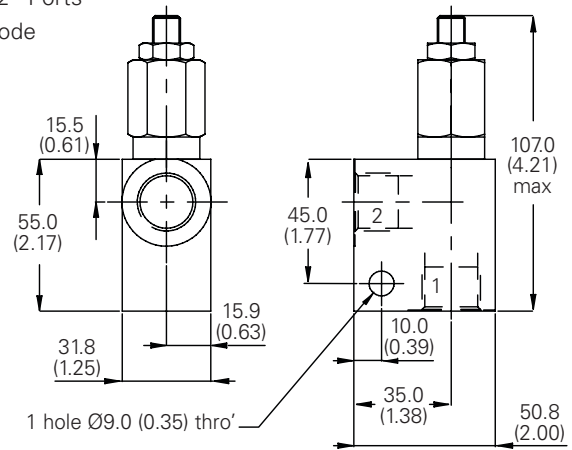


### Complete valve

3/8", 1/2" Ports

Basic Code

**1GR65**

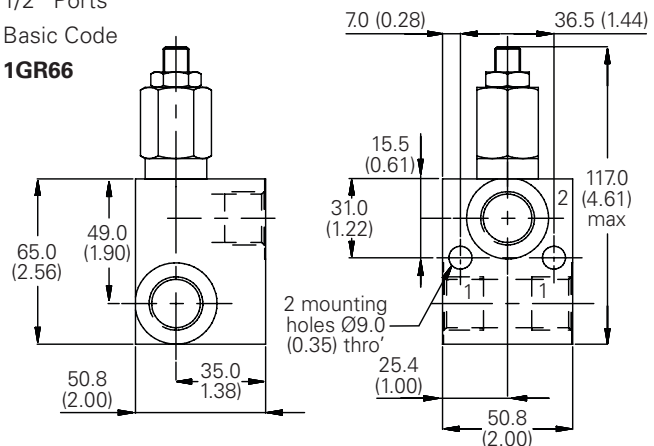


### Complete valve

1/2" Ports

Basic Code

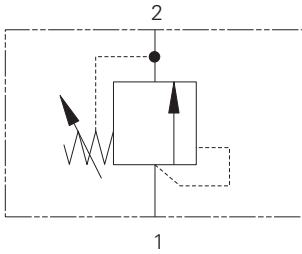
**1GR66**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1GR100 - Relief valve

Spool, direct acting  
150 L/min (40 USgpm) • 40 bar (600 psi)



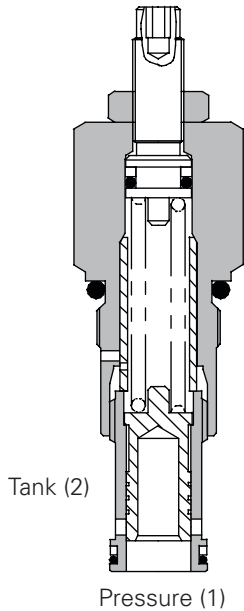
## Operation

The valve is held closed by the spring until pressure on the piston overcomes the valve setting, allowing relief flow to tank through a ring of radial holes.

## Features

Stable, quiet operation.  
Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reset.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cStt (150 SUS)

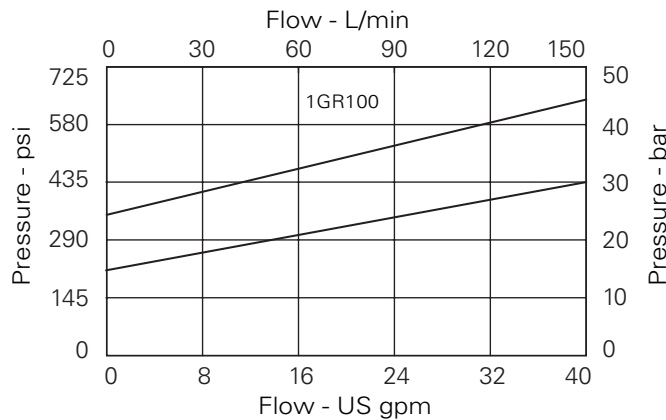
Rated flow	150 L/min (40 USgpm)	
Max setting	40 bar (600 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	A881 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1GR100	0.31 kg (0.7 lbs)
	1GR145	0.54 kg (1.2 lbs)
	1GR150	0.91 kg (2.0 lbs)
	1GR155	1.08 kg (2.4 lbs)
Seal kit	SK190 (Nitrile)	
	SK190V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to 194°F)	
Leakage	15 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting spool type screw in cartridge relief valve. Ideal for low pressure applications, giving good control with fairly constant flow. Also very quiet in operation when applied on low flow or unstable hydraulic systems.

## Pressure drop curves

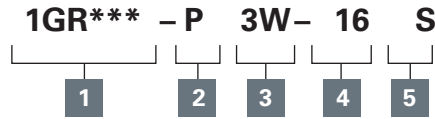


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1GR100 - Relief valve

Spool, direct acting  
150 L/min (40 USgpm) • 40 bar (600 psi)

## Model code



### 1 Basic code

- 1GR100** - Cartridge Only
- 1GR145** - Cartridge and Body Through Ported
- 1GR150** - Cartridge and Body Through Ported
- 1GR155** - Cartridge and Body Through Ported

### 2 Adjustment means

- P** - Leakproof Screw Adjustment
- R** - Handknob Adjustment
- G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only				
		Aluminium 1GR145	Aluminium 1GR150	Steel 1GR150	Aluminium 1GR155	Steel 1GR155
<b>3W</b>	3/8" BSP		C1084			
<b>4W</b>	1/2" BSP	B4851	C1044	C593		
<b>6W</b>	3/4" BSP	B3954	C1086	C4917		
<b>8W</b>	1" BSP				B1617	B4596
<b>6T</b>	3/8" SAE		B10784			
<b>8T</b>	1/2" SAE		C7140			
<b>12T</b>	3/4" SAE		B10506	B10742		
<b>16T</b>	1" SAE				B1037	B24040

### 4 Pressure range @ 4.8 l/min

**Note:** Code based on pressure in bar.

- 0.6** - 0.3-6 bar. Std setting 6 bar
  - 2** - 5-25 bar. Std setting 20 bar
  - 4** - 5-40 bar. Std setting 28 bar
- Std setting made at 4.8 L/min

### 5 Seals

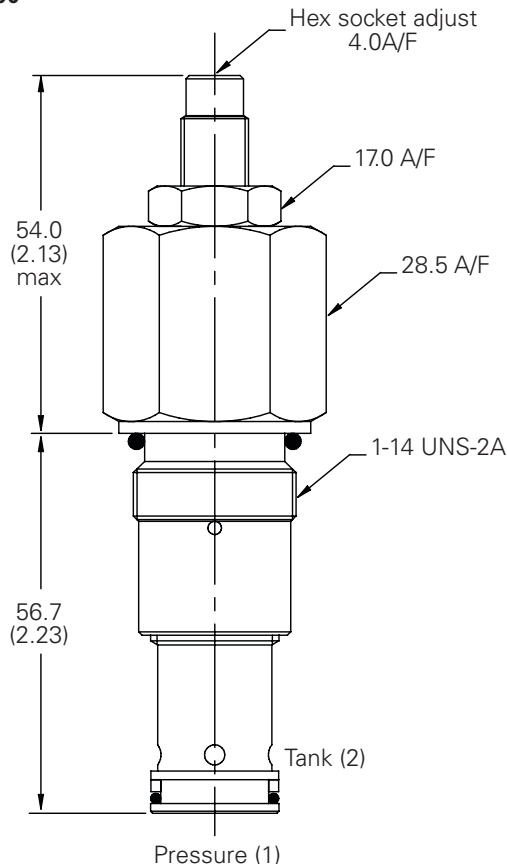
- S** - Nitrile (For use with most industrial hydraulic oils)
- SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

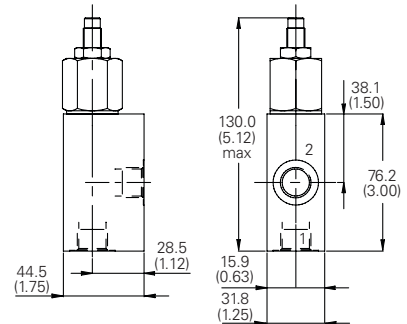
### Cartridge only

Basic Code  
**1GR100**

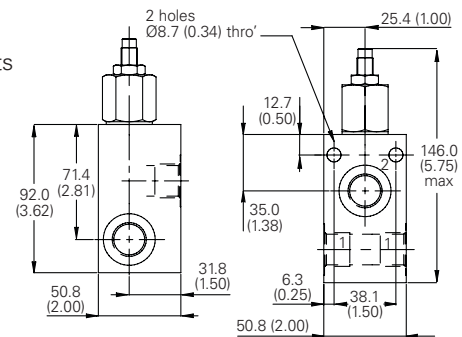


**Note:** For applications above 210 bar, please consult our technical department or use the steel body option.

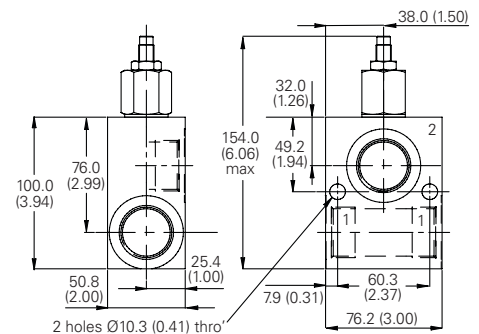
### Complete valve 1/2", 3/4" Ports Basic Code **1GR145**



### Complete valve 3/8", 1/2", 3/4" Ports Basic Code **1GR150**



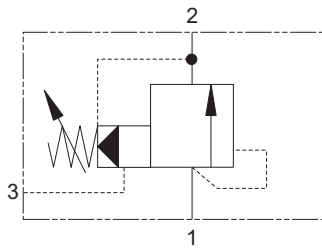
### Complete valve 1" Ports Basic Code **1GR155**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1VR100 - Relief valve

Spool, ventable, pilot operated  
 100 L/min (26 USgpm) • 350 bar (5000 psi)



## Operation

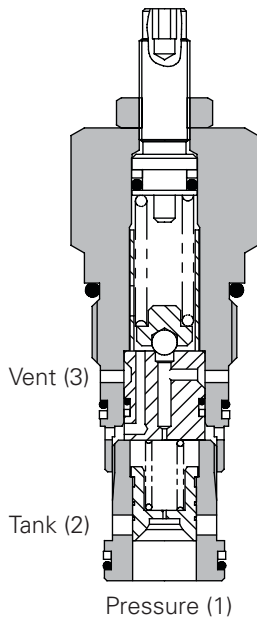
When inlet pressure exceeds the setting of the valve, the pilot section opens. The pilot flow causes a pressure imbalance across the main section spool causing it to open, allowing relief flow to tank.

When 'vented', pilot flow is referenced directly to tank, bypassing the pilot section. This flow through the vent causes a pressure imbalance, opening the main section and dumping the pump at minimum pressure drop.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Ventable for versatility of application. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

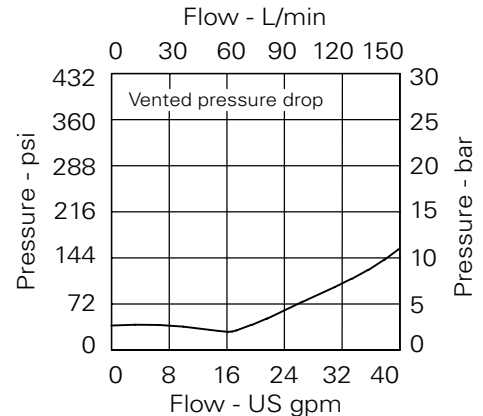
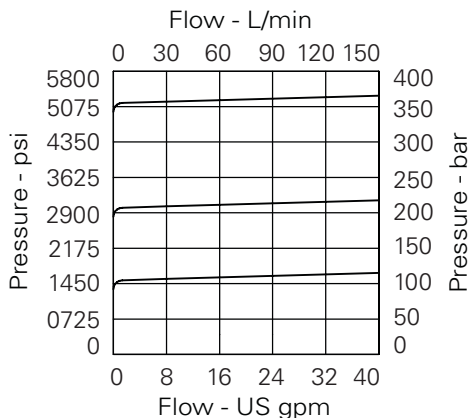
Rated flow	100 L/min (26 USgpm)
Max setting	350 bar (5000 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard aluminium (up to 210 bar). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity	A3146 (See Section M)
Torque cartridge into cavity	75 Nm (55 lbs ft)
Weight	1VR100 0.46 kg (1.0 lbs) 1VR150 1.13 kg (2.5 lbs)
Seal Kit	SK275 (Nitrile) SK275V (Viton®)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temp	-20° to +90°C (-22° to +194°F)
Leakage	35 milliliters/min @ 280 bar
Nominal viscosity range	5 to 500 cSt

Viton® is a registered trademark of E.I. DuPont®

## Description

This is a ventable, internally pilot operated relief valve designed to limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows. The vent feature can be used with remote pilot section for a two-pressure system or to allow manual or remote 'unloading' of the pump.

## Pressure drop curves



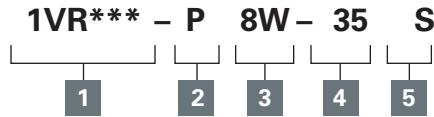
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1VR100 - Relief valve

Spool, ventable, pilot operated  
100 L/min (26 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

1VR100 - Cartridge Only  
1VR150 - Cartridge and Body

### 2 Adjustment means

P - Leakproof Screw Adjustment  
G - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only	
		Aluminium	Steel
6W	3/4" BSP	B4377	B4378
12T	3/4" SAE	B10785	B11554

### 4 Pressure range @ 14 l/min

Note: Code based on pressure in bar.

20 - 10-210 bar.

Std setting 100 bar

35 - 30-350 bar.

Std setting 210 bar

Std setting made at 14 L/min

### 5 Seals

S - Nitrile (For use with most industrial hydraulic oils)

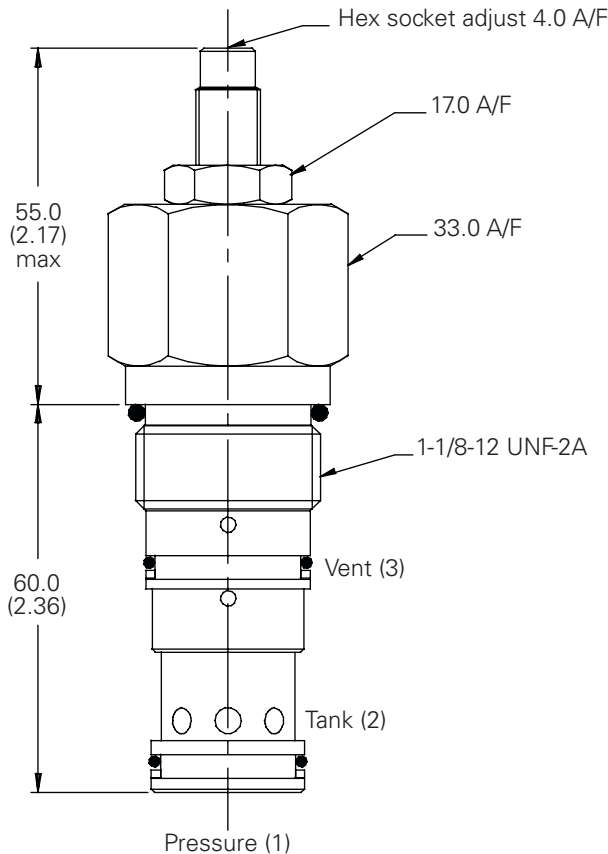
SV - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

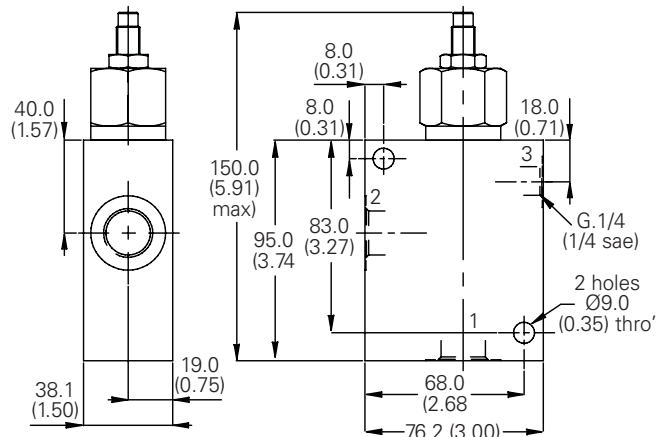
### Cartridge only

Basic Code  
1VR00



### Complete valve

3/4" Ports  
Basic Code  
1VR150



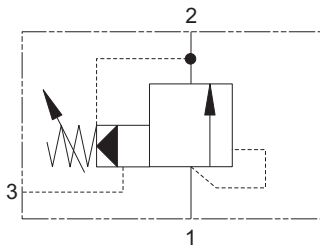
Note: For applications above 210 bar, please consult our technical department or use the steel body option.

Note: Tightening torque of "F" adjuster locknut - 20 to 25 Nm

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1VR200 - Relief valve

Spool, ventable, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)



## Operation

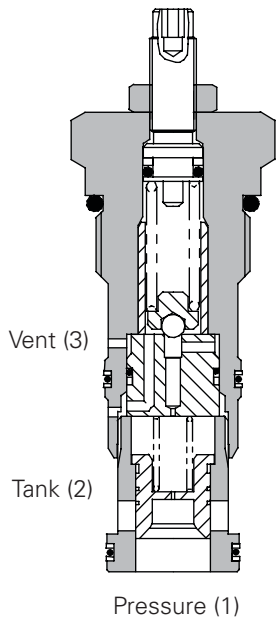
When inlet pressure exceeds the setting of the valve, the pilot section opens. The pilot flow causes a pressure imbalance across the main section spool causing it to open, allowing relief flow to tank.

When 'vented', pilot flow is referenced directly to tank, bypassing the pilot section. This flow through the vent causes a pressure imbalance, opening the main section and dumping relief flow to minimum pressure drop.

## Features

High accuracy of pilot operated design. Hardened working parts give long, reliable, trouble-free life. Ventable for versatility of application. Cartridge construction for installation into your own manifold.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40°C Viscosity = 32 cSt (150 SUS)

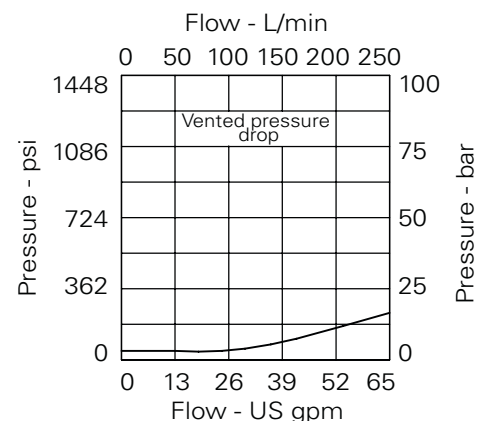
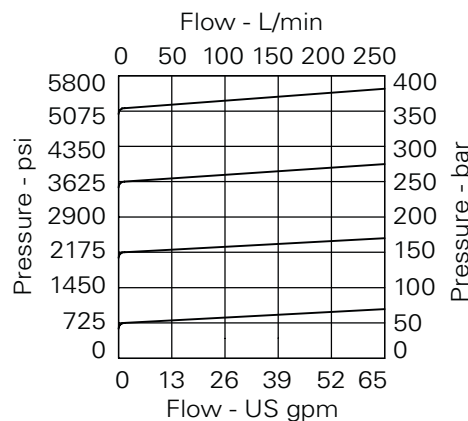
Rated flow	200 L/min (52 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated,	
Body material	Standard aluminium (up to 210 bar). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity	A16102 (See Section M)	
Torque cartridge into cavity	100 Nm (73 lbs ft)	
Weight	1VR200	0.74 kg (1.6 lbs)
	1VR250	1.82 kg (4.0 lbs)
Seal Kit	SK173 (Nitrile) SK173V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to +194°F)	
Leakage	35 milliliters/min @ 280 bar	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a ventable, internally pilot operated relief valve designed to limit pressure in a system. Good for continuous duty and accurate pressure control with constant or varying flows. The vent feature can be used with remote pilot section for a two-pressure system or to allow manual or remote 'unloading' of the pump.

## Pressure drop curves

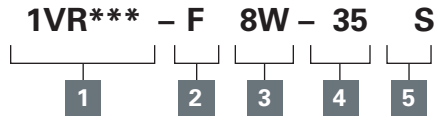


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1VR200 - Relief valve

Spool, ventable, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1VR200** - Cartridge Only  
**1VR250** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**G** - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only	
		Aluminium	Steel
<b>8W</b>	1" BSP	B3496	B3497
<b>16T</b>	1" SAE	B6807	B11555

### 4 Pressure range @ 14 l/min

**Note:** Code based on pressure in bar.  
**20** - 10-210 bar. Std setting 100 bar  
**35** - 30-350 bar. Std setting 210 bar  
Std setting made at 14 L/min

### 5 Seals

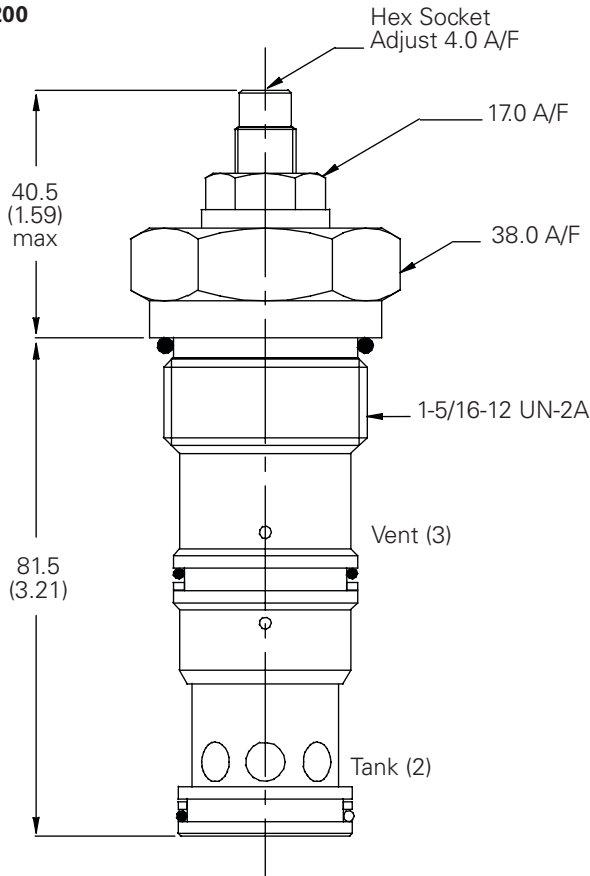
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

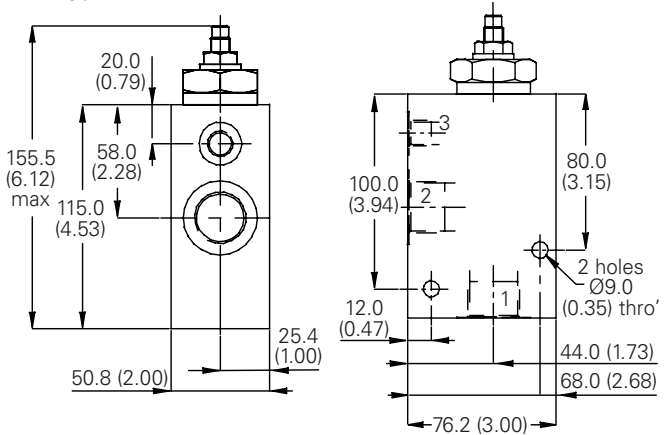
### Cartridge only

Basic Code  
**1VR200**



### Complete valve

3/4" Ports  
Basic Code  
**1VR250**



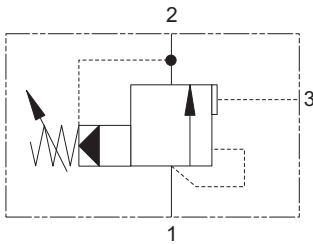
**Note:** For applications above 210 bar, please consult our technical department or use the steel body option.

**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IUL60 - Relief/unloading valve

Spool, pilot operated  
60 L/min (16 USgpm) • 350 bar (5000 psi)



## Operation

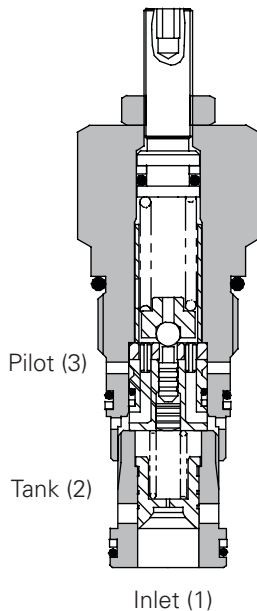
Inlet pressure is seen on the nose of the valve and system pressure (downstream of the system check valve) operates on the system pilot port. When pressure rises to the valve setting, the relief section opens and the system pressure acts on the pilot piston to hold the valve in the open position.

The ratio between the pilot piston diameter and the seat diameter to the relief valve pilot section ensures that the valve will be maintained in the fully open position until the system pressure drops to approximately 85% of the unload pressure.

## Features

Valves are available as cartridges for installation into special line bodies or into custom designed Hydraulic Integrated Circuits. (NOTE: Provision must be made for a system check valve and a pilot line to signal the system pressure). Valve assemblies can be supplied complete in a line body for use in accumulator circuits. Bodied valves include a check valve and the required connection from the system to the valve pilot port.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

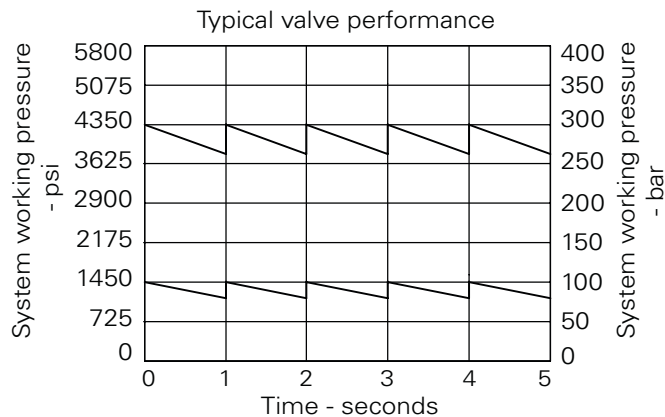
Rated flow	60 L/min (16 USgpm)
Max setting	350 bar (5000 psi)
Differential Unload/Reload	10-15%
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard steel
Mounting position	Unrestricted
Cavity number	A3146 (See Section M)
Torque cartridge into cavity	75 Nm (55 lbs ft)
Weight	0.46 kg (1.01 lbs)
Seal kit number	SK451 (Nitrile), SK451V (Viton®)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temp	-30° to +90°C (-22° to +194°F)
Leakage	35 milliliters/min nominal
Nominal viscosity range	5 to 500 cSt

Viton is a registered trademark of E.I. DuPont

## Description

These unloader valves are used to unload a pump, or pumps, to tank when pressure in a separate part of the circuit reaches a preset level. The valves will close, causing the circuit to reload, when the pressure drops to approximately 85% of the unload pressure. The most common application is to maintain a pressure in an accumulator which may be used in an emergency to operate an essential hydraulic function. (Eg, a brake circuit). The 1PUL\*\* valve has a drain port to ensure correct valve function while allowing the bypassed oil to be used for a secondary circuit requirement.

## Pressure drop curves

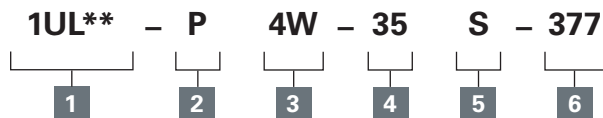


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IUL60 - Relief/unloading valve

Spool, pilot operated  
60 L/min (16 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1UL60** - Cartridge only  
**1UL65** - Cartridge and body

### 2 Adjustment means

**P** - Leakproof screw adjustment  
**G** - Tamperproof cap  
(See page E-7 for dimensions)

### 3 Port size

Code	Port size	Housing number - body only	
		Aluminium	Steel
4W	1/2" BSP		BXP24103-4W-S-377
8T	1/2" SAE	BXP24103-8T-S	

### 4 Pressure range @ 4.8 l/min

**Note:** Code based on pressure in bar.  
**10** - 40-100 bar. Std setting 75 bar  
**35** - 15-350 bar. Std setting 200 bar  
**20** - 70-210 bar. Std setting 100 bar

### 5 Seals

**S** - Nitrile (for use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

### 6 Body material

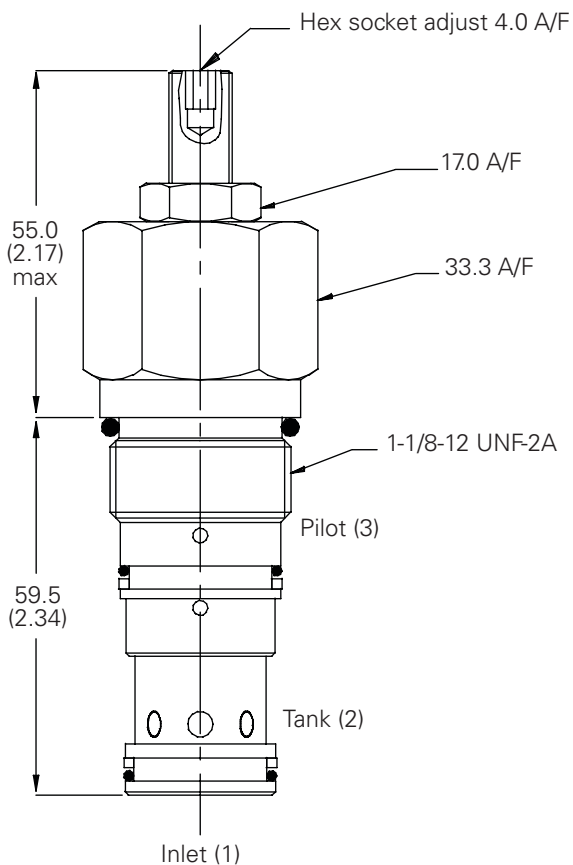
**377** - Steel  
Omit for aluminium (up to 210 bar)

## Dimensions

mm (inch)

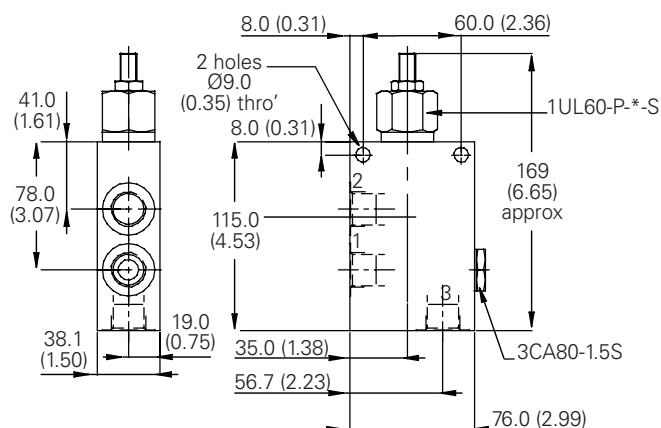
### Cartridge only

Basic Code  
**1UL60**

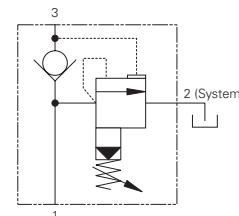


### Cartridge only

1/2" Ports  
Basic Code  
**1UL65**  
With System Check



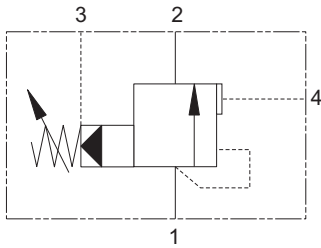
**Note:** For applications above 210 bar (3000 psi) please consult over technical department or use the steel body option.



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PUL60 - Relief/unloading valve

Spool, pilot operated  
60 L/min (16 USgpm) • 350 bar (5000 psi)



## Operation

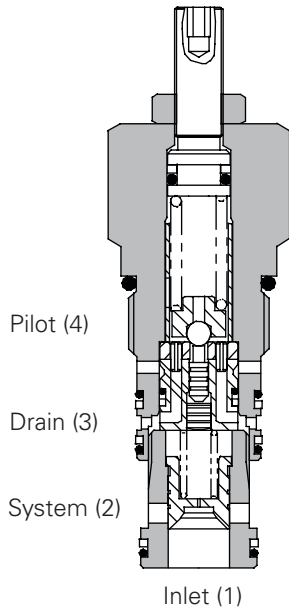
Inlet pressure is seen on the nose of the valve and system pressure (downstream of the system check valve) operates on the system pilot port. When pressure rises to the valve setting, the relief section opens and the system pressure acts on the pilot piston to hold the valve in the open position.

The ratio between the pilot piston diameter and the seat diameter to the relief valve pilot section ensures that the valve will be maintained in the fully open position until the system pressure drops to approximately 85% of the unload pressure.

## Features

Valves are available as cartridges for installation into special line bodies or into custom designed Hydraulic Integrated Circuits. (NOTE: Provision must be made for a system check valve and a pilot line to signal the system pressure). Valve assemblies can be supplied complete in a line body for use in accumulator circuits. Bodied valves include a check valve and the required connection from the system to the valve pilot port.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

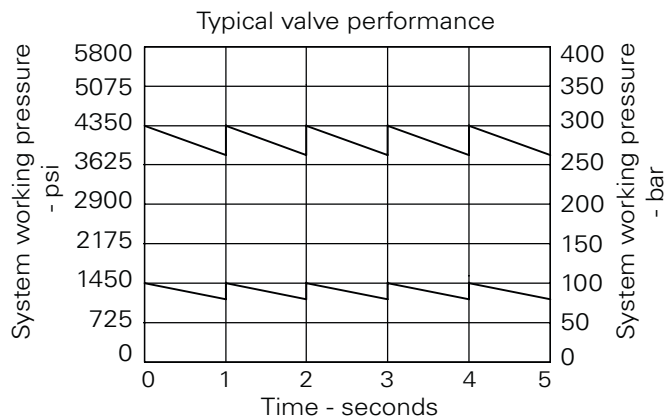
Rated flow	60 L/min (16 USgpm)	
Max setting	350 bar (5000 psi)	
Differential Unload/Reload	10-15%	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard steel	
Mounting position	Unrestricted	
Cavity number	A12088 (See Section M)	
Torque cartridge into cavity	75 Nm (55 lbs ft)	
Weight	1PUL60	0.46 kg (1.01 lbs)
	1PUL65	0.8 kg (1.76 lbs)
Seal kit number	1PUL60	SK750 (Nitrile), SK750V (Viton®)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to +194°F)	
Leakage	35 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

These unloader valves are used to unload a pump, or pumps, to tank when pressure in a separate part of the circuit reaches a preset level. The valves will close, causing the circuit to reload, when the pressure drops to approximately 85% of the unload pressure. The most common application is to maintain a pressure in an accumulator which may be used in an emergency to operate an essential hydraulic function. (Eg, a brake circuit). The 1PUL60 valve has a drain port to ensure correct valve function while allowing the bypassed oil to be used for a secondary circuit requirement.

## Pressure drop curves

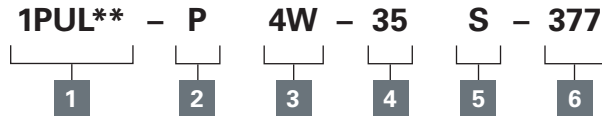


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PUL60 - Relief/unloading valve

Spool, pilot operated  
60 L/min (16 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1PUL60** - Cartridge only  
**1PUL6** - Cartridge and body

### 2 Adjustment means

**P** - Leakproof screw adjustment  
**G** - Tamperproof cap  
(See page E-7 for dimensions)

### 3 Port sizes

Code	Port size	Housing number - Sub Assembly	
		Aluminium	Steel
<b>4W</b>	1/2" BSP		BXP4046-4W-S-377
<b>8T</b>	1/2" SAE	BXP24046-8T-S	

### 4 Pressure range @ 4.8 L/min

**Note:** Code based on pressure in bar.  
**10** - 40-100 bar. Std setting 75 bar  
**20** - 70-210 bar. Std setting 100 bar  
**35** - 50-350 bar. Std setting 200 bar

### 5 Seals

**S** - Nitrile (for use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

### 6 Body material

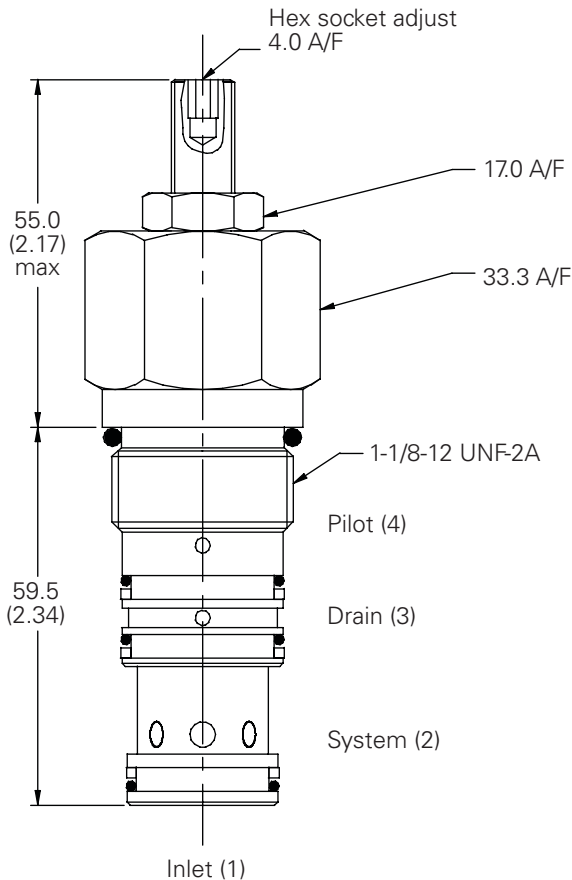
**377** - Steel  
Omit for aluminium (up to 210 bar)

## Dimensions

mm (inch)

### Cartridge only

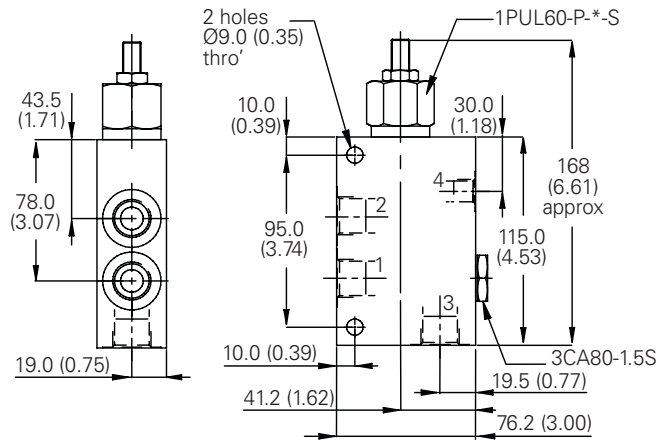
Basic Code  
**1PUL60**



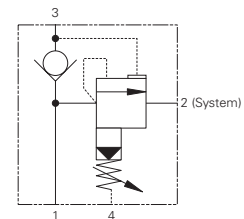
**Note:** For applications above 210 bar (3000 psi) please consult over technical department or use the steel body option.

### Cartridge only

1/2" Ports  
Basic Code  
**1PUL65**  
With System Check



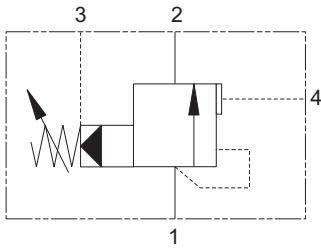
Typical Connections  
Port 1 Pressure  
Port 2 System  
Port 3 Accumulator  
Port 4 Drain



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PUL200 - Relief/unloading valve

Spool, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)



## Operation

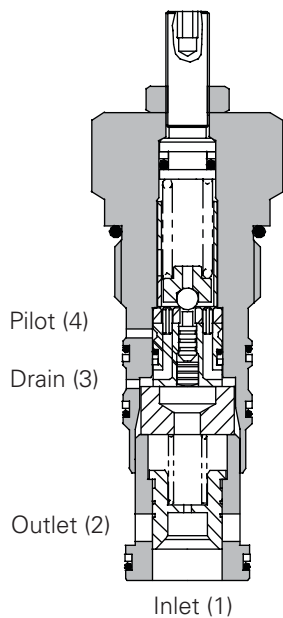
Inlet pressure is seen on the nose of the valve and system pressure (downstream of the system check valve) operates on the system pilot port. When pressure rises to the valve setting, the relief section opens and the system pressure acts on the pilot piston to hold the valve in the open position.

The ratio between the pilot piston diameter and the seat diameter to the relief valve pilot section ensures that the valve will be maintained in the fully open position until the system pressure drops to approximately 85% of the unload pressure.

## Features

Valves are available as cartridges for installation into special line bodies or into custom designed Hydraulic Integrated Circuits. (NOTE: Provision must be made for a system check valve and a pilot line to signal the system pressure). Valve assemblies can be supplied complete in a line body for use in accumulator circuits. Bodied valves include a check valve and the required connection from the system to the valve pilot port.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

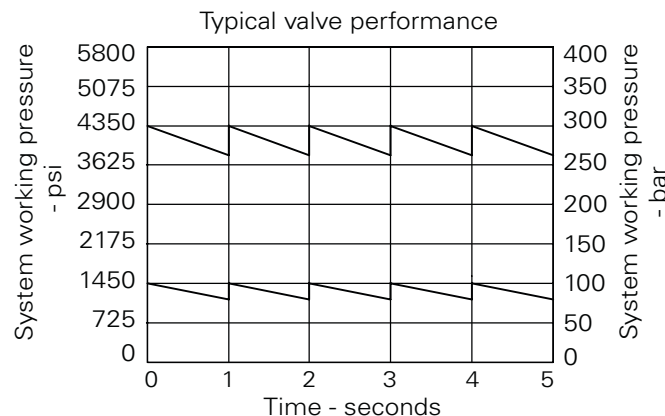
Rated flow	200 L/min (52 USgpm)
Max setting	350 bar (5000 psi)
Differential unload/reload	10-15%
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard steel
Mounting position	Unrestricted
Cavity number	A3145 (See Section M)
Torque cartridge into cavity	100 Nm (73 lbs ft)
Weight	1PUL200 0.74 kg (1.63 lbs) 1PUL250 6.8 kg (14.96 lbs)
Seal kit number	1PUL200 SK670 (Nitrile) SK670V (Viton®) 1PUL250 SK452 (Nitrile) SK452V (Viton)
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)
Operating temp	-30°C to +90°C (-22° to 194°F)
Leakage	35 milliliters/min @ 210 bar
Nominal viscosity range	5 to 500 cSt

Viton is a registered trademark of E.I. DuPont

## Description

These unloader valves are used to unload a pump, or pumps, to tank when pressure in a separate part of the circuit reaches a pre-set level. The valves will close, causing the circuit to reload, when the pressure drops to approximately 85% of the unload pressure. The most common application is to maintain a pressure in an accumulator which may be used in an emergency to operate an essential hydraulic function. (Eg, a brake circuit). The 1PUL\*\* valve has a drain port to ensure correct valve function while allowing the bypassed oil to be used for a secondary circuit requirement.

## Pressure drop curves



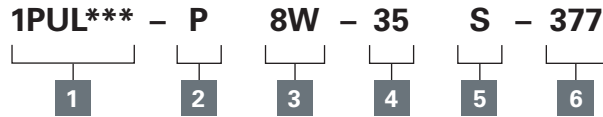
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1PUL200 - Relief/unloading valve

Spool, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic code

**1PUL200** - Cartridge only  
**1PUL250** - Cartridge and body

### 2 Adjustment means

**P** - Leakproof screw adjustment  
**G** - Tamperproof cap (See page 12-102 for dimensions)

### 3 Port sizes - Bodied valves only

Code	Port size	Housing number - Sub assembly	
		Aluminium	Steel
<b>8W</b>	1" BSP 1/4" BSP Drain Port		BXP23466-8W-S-377
<b>16T</b>	1" SAE 1/4" SAE Drain Port	BXP23466-16T-S	BXP23466-16-S-377

### 4 Pressure Range @ 4.8 L/min

**Note:** Code based on pressure in bar.  
**20** - 30-210 bar.  
Std setting 100 bar  
**35** - 50-350 bar.  
Std setting 200 bar

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

### 6 Body material

**377** - Steel  
Omit for aluminium (up to 210 bar)

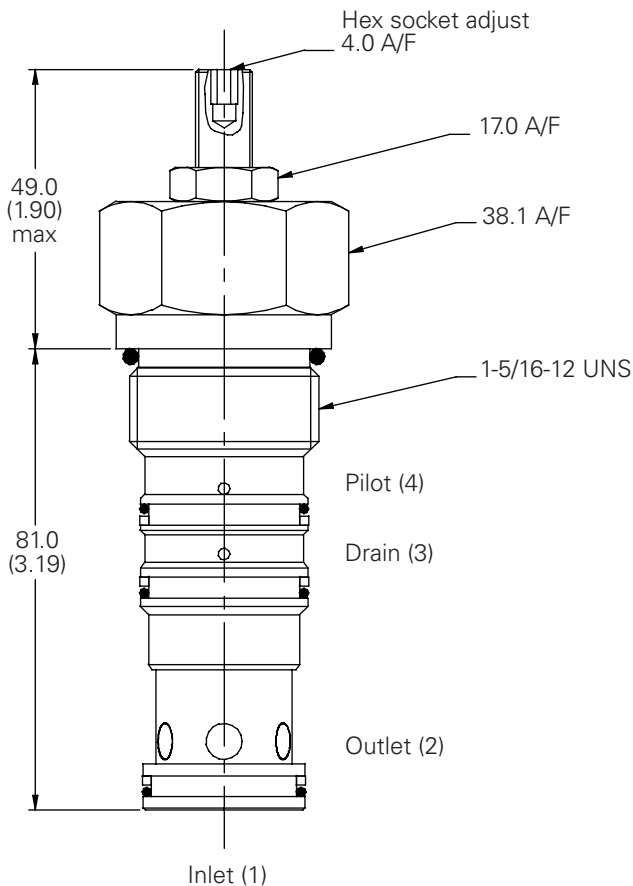
## Dimensions

mm (inch)

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

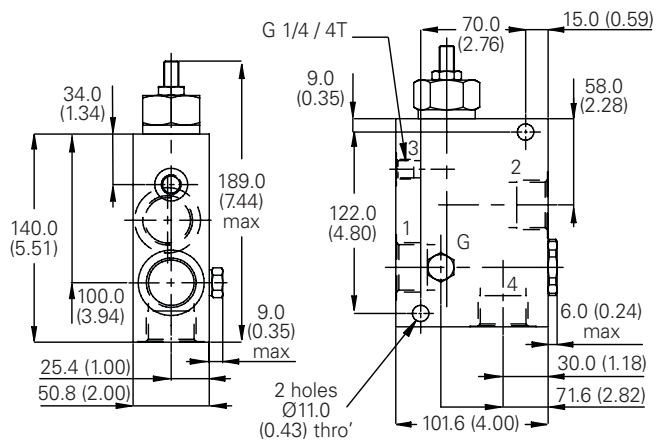
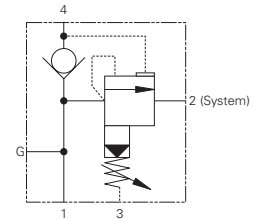
### Cartridge only

Basic Code  
**1PUL200**



### Complete valve

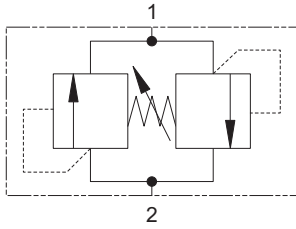
1" Port  
Basic Code  
**1PUL250**  
With System Check



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ICLLR50 - Dual relief valve

Poppet, direct acting, differential area  
50 L/min (12 USgpm) • 250 bar (3500 psi)



### Operation

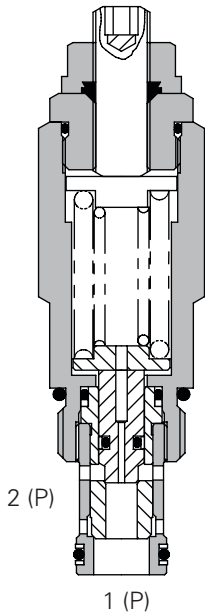
Pressure acts over one of two differential areas forcing the poppet back allowing relief flow to the other port.

This being a single cartridge is ideal for mounting on to a motor in a special housing.

### Features

Single cartridge relieving in both directions cutting down space requirements, giving full adjustment through its range on both pressures at the same time.

### Sectional view



### Performance data

#### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

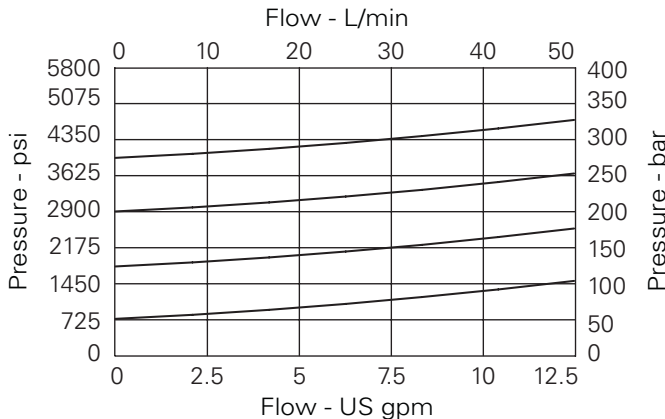
Rated flow	50 L/min (12 USgpm)	
Max pressure	250 bar (3500 psi)	
Cartridge material	Working parts hardened and ground steel. External steel surfaces zinc plate.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	C-10-2 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1CLLR50	0.23 kg (0.5 lbs)
	1CLLR55	0.8 kg (1.8 lbs)
Seal kit number	SK614 (Nitrile) SK614V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to +194°F)	
Leakage	5 milliliters/min	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

### Description

This is a direct acting bi-directional relief valve designed to protect both lines in a circuit from over pressurization by relieving oil to the other line. Ideal for use with motors or directional valves as an emergency relief. Differential area, fast acting, poppet valve.

### Pressure drop curves

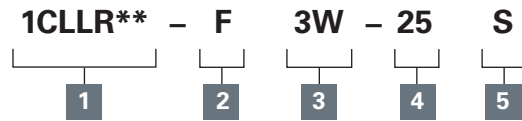


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ICLLR50 - Dual relief valve

Poppet, direct acting, differential area  
50 L/min (12 USgpm) • 250 bar (3500 psi)

## Model code



### 1 Function

**1CLLR50** - Cartridge only  
**1CLLR55** - Cartridge and body

### 2 Adjustment means

**F** - Screw adjustment

### 3 Port sizes

Code	Port size	Housing number - body only	
		Aluminium Single	Steel Single
<b>3W</b>	3/8" BSP	B19053	
<b>4W</b>	1/2" BSP	B19356	B20601
<b>8T</b>	1/2" SAE	B19402	

### 4 Pressure range

**Note:** Code based on pressure in bar.

**25** - 75-200 bar.  
Std setting 120 bar

### 5 Seals

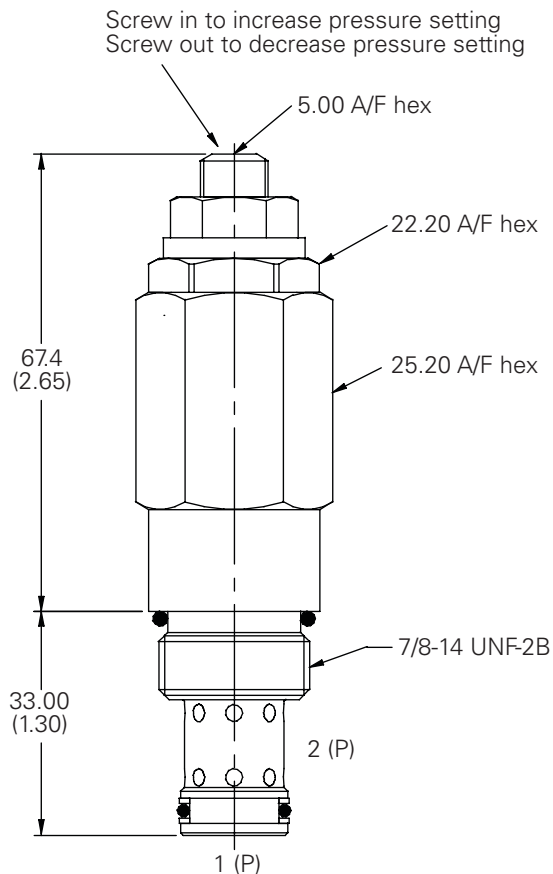
- S** - Nitrile (For use with most industrial hydraulic oils)
- SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

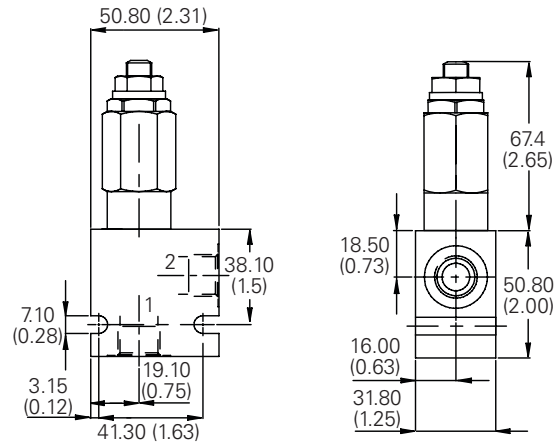
### Cartridge only

Basic code  
**1CLLR50**



### Complete valve

3/8", 1/2" Ports  
Basic Code  
**1CLLR55**

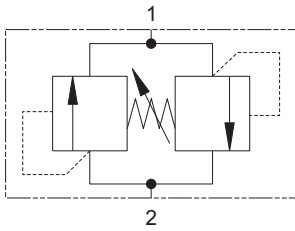


**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ICLLR100 - Dual relief valve

Poppet, direct acting, differential area  
 150 L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

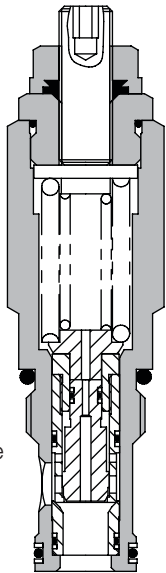
Pressure acts over one of two differential areas forcing the poppet back allowing relief flow to the other port.

This being a single cartridge is ideal for mounting on to a motor in a special housing.

## Features

Single cartridge relieving in both directions cutting down space requirements, giving full adjustment through its range on both pressures at the same time.

## Sectional view



Pressure /tank (2)

Pressure/tank (1)

## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

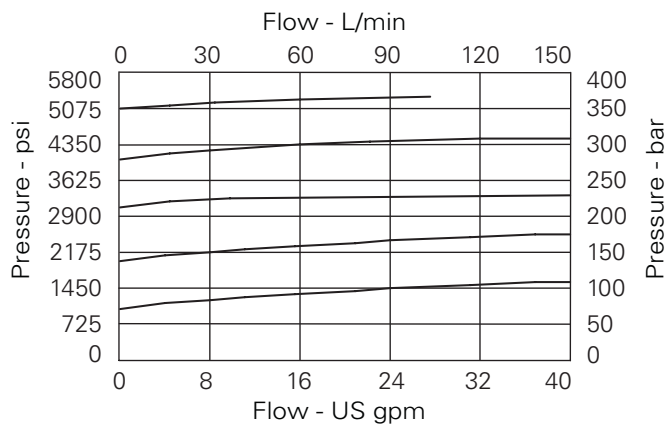
Rated flow	150 L/min (40 USgpm)	
Max pressure	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External steel surfaces black oxide.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A878 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1CLLR100	0.23 kg (0.5 lbs)
	1CLLR150	0.8 kg (1.8 lbs)
	1CLLR155	1.1 kg (2.4 lbs)
Seal kit number	SK614 (Nitrile), SK614V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30° to +90°C (-22° to +194°F)	
Leakage	5 milliliters/min nominal (5 dpm)	
Nominal viscosity range	5 to 500 cSt	

Viton® is a registered trademark of E.I. DuPont

## Description

This is a direct acting bi-directional relief valve designed to protect both lines in a circuit from over pressurization by relieving oil to the other line. Ideal for use with motors or directional valves as an emergency relief. Differential area, fast acting, poppet valve.

## Pressure drop curves

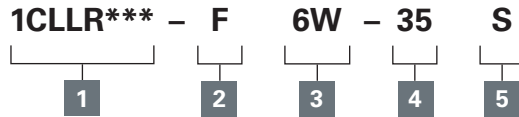


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ICLLR100 - Dual relief valve

Poppet, direct acting, differential area  
150 L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic code

**1CLLR100** - Cartridge only  
**1CLLR150** - Cartridge and body  
**1CLLR155** - Cartridges and body through ported

### 2 Adjustment means

**F** - Screw adjustment

### 3 Port sizes

Code	Port size	Housing number - Body only			
		Aluminium 1CLLR150	Steel 1CLLR150	Aluminium 1CLLR155	Steel 1CLLR155
<b>6W</b>	3/4" BSP	B1067	B5614	B2216	B7147
<b>8W</b>	1" BSP	B1069	B542		
<b>12T</b>	3/4" SAE	B4409		B10623	
<b>16T</b>	1" SAE	B10827	B11801		

### 4 Pressure range @ 14 l/min

**Note:** Code based on pressure in bar.  
**35** - 114-350 bar.  
Std setting 280 bar

### 5 Seals

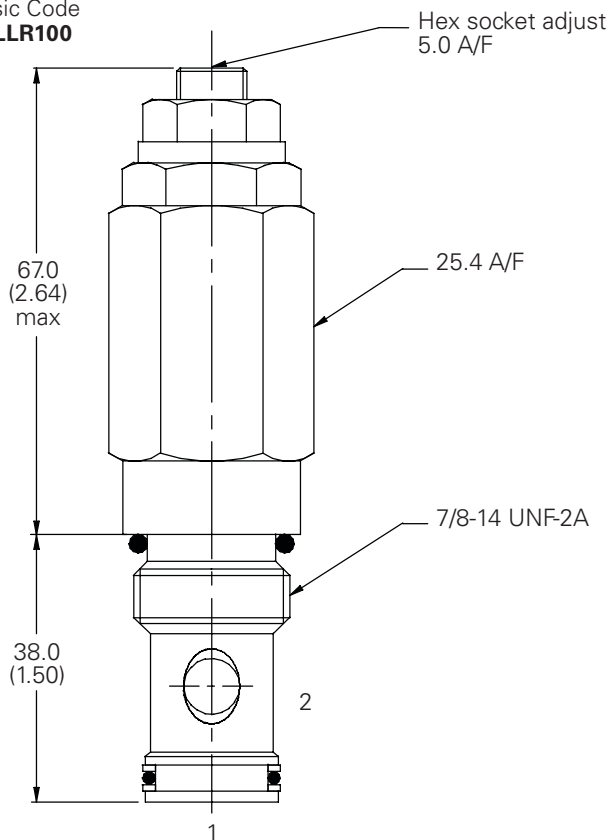
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

### Cartridge only

Basic Code  
**1CLLR100**

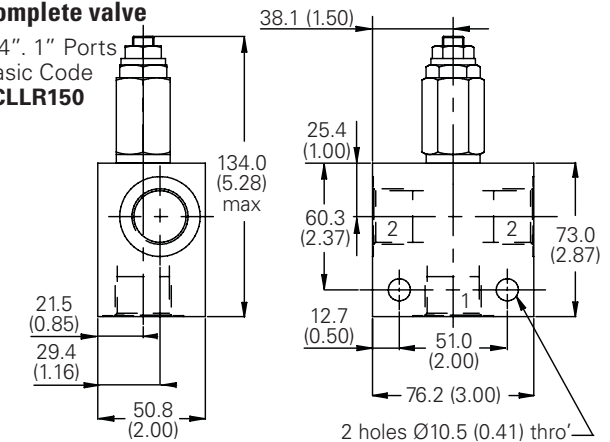


**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

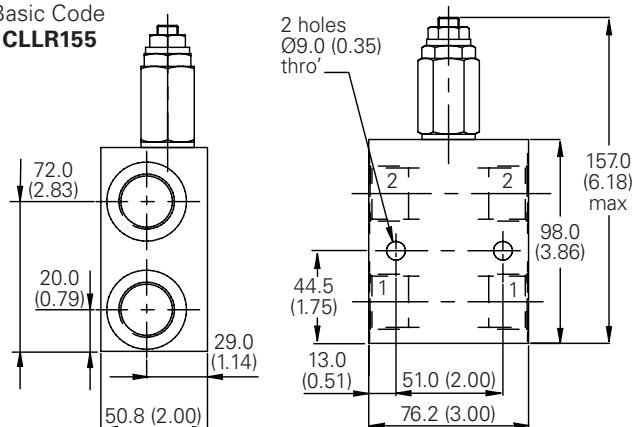
### Complete valve

3/4", 1" Ports  
Basic Code  
**1CLLR150**



### Complete valve

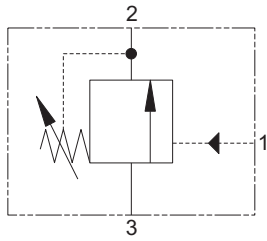
3/4" Ports  
Basic Code  
**1CLLR155**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV2-8 - Pressure sequence valve

Spool, direct acting normally closed, internal drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

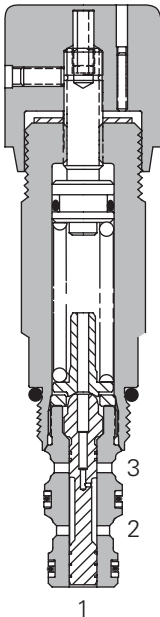
When a pre-set pilot pressure is reached the spool moves back against the spring opening the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Sequence pressure ranges	13 – 3,4–90 bar (50–1300 psi) 30 – 35–210 bar (500–3000 psi)
Rated flow	23 L/min (6 USgpm)
Reseat pressure	More than 90% of cracking pressure
Internal leakage	82 cm <sup>3</sup> /min. (5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Hysteresis	less than 3 bar (45 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Standard housing materials	Aluminum
Weight cartridge only	0,21 kg (0.47 lbs)
Seal kits	02-160755 Buna-N 02-160756 Viton®

Viton is a registered trademark of E.I. DuPont

## Description

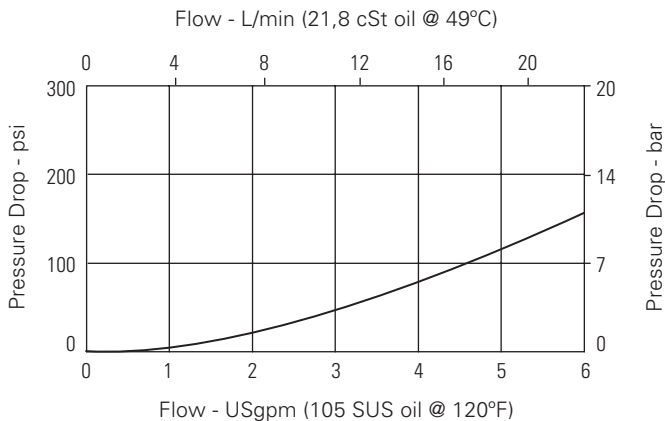
This valve provides a means of opening a pressure line when a predetermined pilot pressure is reached in a normally closed form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Port 3 to 2,  
valve fully open

Cartridge only

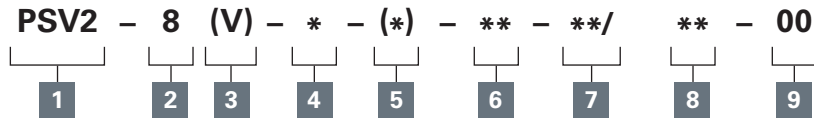


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV2-8 - Pressure sequence valve

Spool, direct acting normally closed, internal drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

PSV2 - Pressure sequence

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
K - Knob  
S - Screw

### 5 Valve housing material

Omit for cartridge only

A - Aluminum  
Maximum operating pressure  
210 bar (3000 psi)

### 6 Port size

0 - Cartridge only

Code	Port size	Housing number
		Aluminum Fatigue rated
4T	SAE 4	02-160741
6T	SAE 6	02-160742
2G	1/4" BSPP	02-160739
3G	3/8" BSPP	02-160740

See section J for housing.

### 7 Sequence pressure range

Note: Code based on pressure in psi.  
13 - 3,4-90 bar (50-1300 psi)  
30 - 35-210 bar (500-3000 psi)

### 8 Pressure setting

Optional - Specify in 100 psi increments. If not specified, set at:

13 - 44 bar (650 psi)  
30 - 100 bar (1500 psi)

### 9 Special features

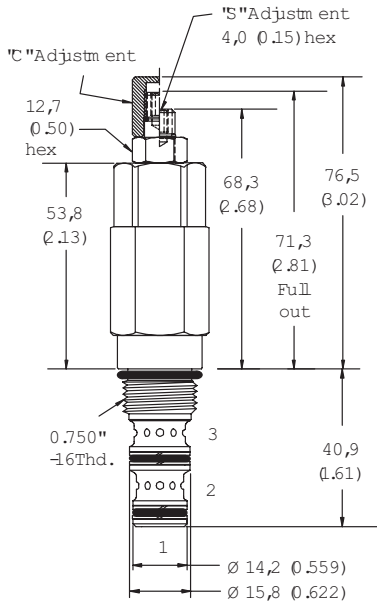
00 - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

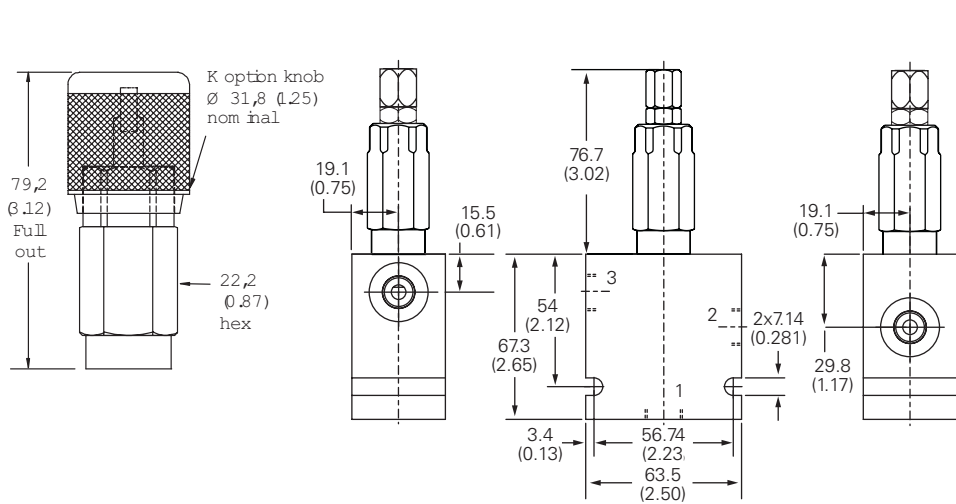
mm (inch)

Torque cartridge in aluminum or steel housing  
34-41 Nm (25-30 ft. lbs)

## Cartridge only



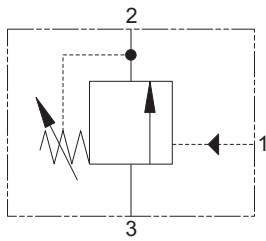
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV4-8 - Pressure sequence valve

Spool, direct acting normally closed, internal drain  
 15 L/min (4 USgpm) • 350 bar (5000 psi)



## Operation

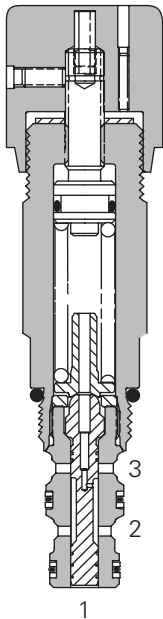
When a pre-set pilot pressure is reached the spool moves back against the spring opening the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	280 bar (4000 psi)
Rated flow	15 L/min (4 USgpm)
Sequence pressure ranges	15 – 28–100 bar (400–1500 psi) 30 – 3,4–210 bar (50–3000 psi) 50 – 124–350 bar (1800–5000 psi)
Reseat pressure	More than 90% of cracking pressure
Internal leakage	5 in3/min @ 210 bar (3000 psi)
Hysteresis	less than 3 bar (45 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Standard housing materials	Aluminum or steel
Weight cartridge only	0,21 kg (0.47 lbs)
Seal kits	02-160755 Buna N 02-160756 Viton®

Viton is a registered trademark of E.I. DuPont

## Description

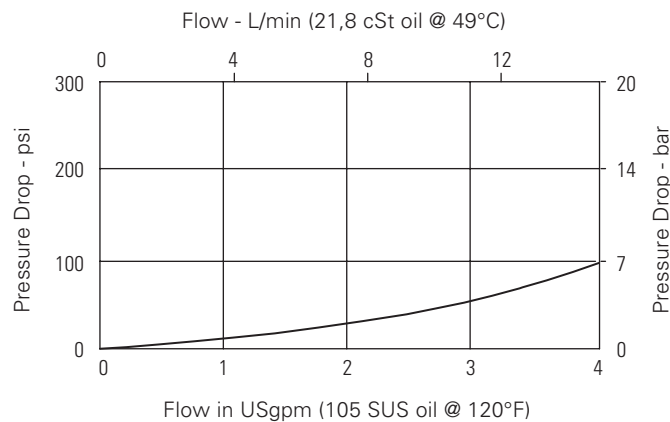
This valve provides a means of opening a pressure line when a predetermined pilot pressure is reached in a normally closed form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Port 3 to 2,  
 valve fully open

Cartridge only



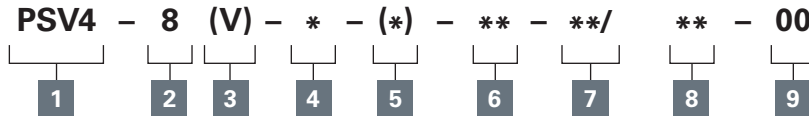
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PSV4-8 - Pressure sequence valve

Spool, direct acting normally closed, internal drain  
15 L/min (4 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**PSV4** - Pressure sequence valve

### 2 Size

**8** - 8 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

Omit for cartridge only  
**S** - Steel  
**A** - Aluminum

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number	
<b>4T</b>	SAE 6	02-160741	02-160745
<b>6T</b>	SAE 6	02-160742	02-160746
<b>2G</b>	1/4" BSPP	02-160739	02-160743
<b>3G</b>	3/8" BSPP	02-160740	02-160744

See section J for housing details.

### 7 Sequence pressure range

**Note:** Code based on pressure in psi.

**15** - 28-100 bar (400-1500 psi)  
**30** - 34-210 bar (500-3000 psi)  
**50** - 124-350 bar (1800-5000 psi)

### 8 Pressure setting

**Optional** - Specify in 100 psi increments. If not specified, set at:

**15** - 52 bar (750 psi)  
**30** - 100 bar (1500 psi)

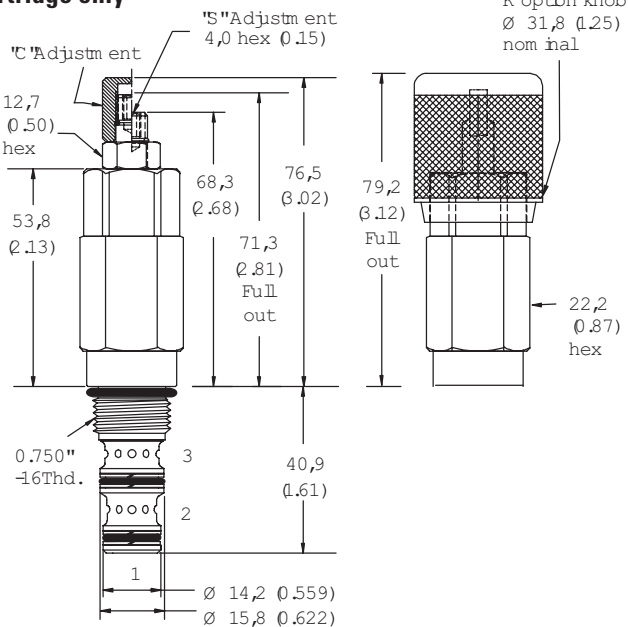
### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

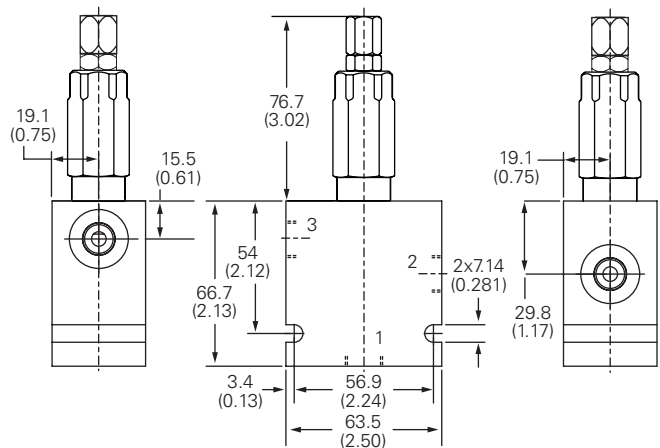
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



### Warning

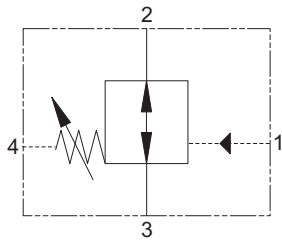
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Torque cartridge in aluminum or steel housing  
34-41 Nm (25-30 ft. lbs)

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV8-10 Pressure sequence valve

Spool direct acting, normally open, external drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

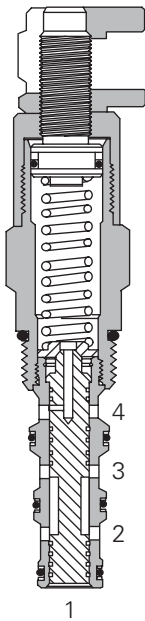
When a pre-set pilot pressure is reached the spool moves back against the spring closing the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	165 bar (2400 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-4
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,27 kg (0.60 lbs)
Seal kits	889625 Buna-N 566080 Viton®

Viton is a registered trademark of E.I. DuPont

## ⚠ Caution

When sudden pressure or velocity is applied at port 1, an orifice disc may be required.

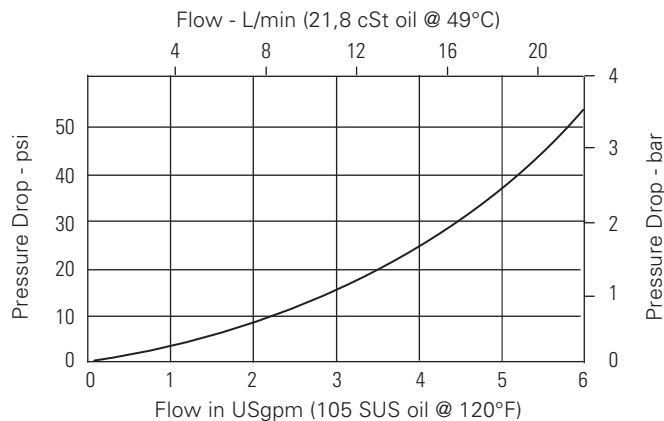
## Description

This valve provides a means of interrupting a pressure line when a predetermined pilot pressure is reached in a normally open form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Port 3 to 2,  
 valve fully open  
 Cartridge only

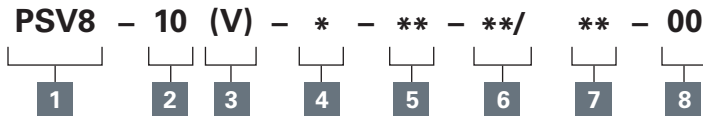


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV8-10 Pressure sequence valve

Spool direct acting, normally open, external drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV8** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum Light duty	Aluminum Fatigue rated
<b>3B</b>	3/8" BSPP	02-179705	-
<b>6T</b>	SAE 6	566161	-
<b>2G</b>	1/4" BSPP	-	876709
<b>3G</b>	3/8" BSPP	-	876715
<b>6H</b>	SAE 6	-	876708
<b>8H</b>	SAE 8	-	876713

See section J for housing.

### 6 Sequence pressure range

**Note:** Code based on pressure in psi.

**2** - 3,5-14 bar (50-200 psi)  
**4** - 5-28 bar (75-400 psi)

**6** - 7-40 bar (100-600 psi)  
**12** - 14-80 bar (200-1200 psi)  
**24** - 28-165 bar (400-2400 psi)

### 7 Setting pressure

Within ranges in **6**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 8 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

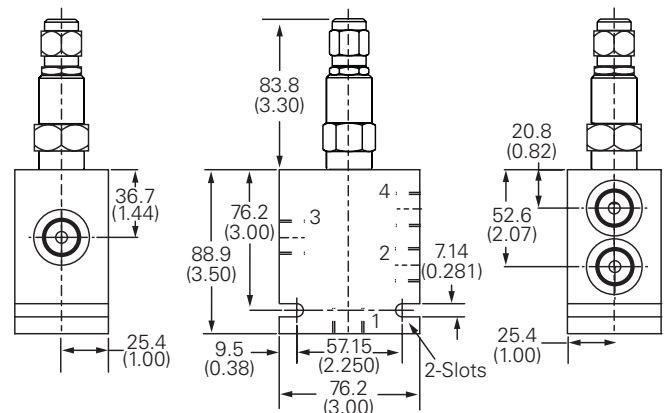
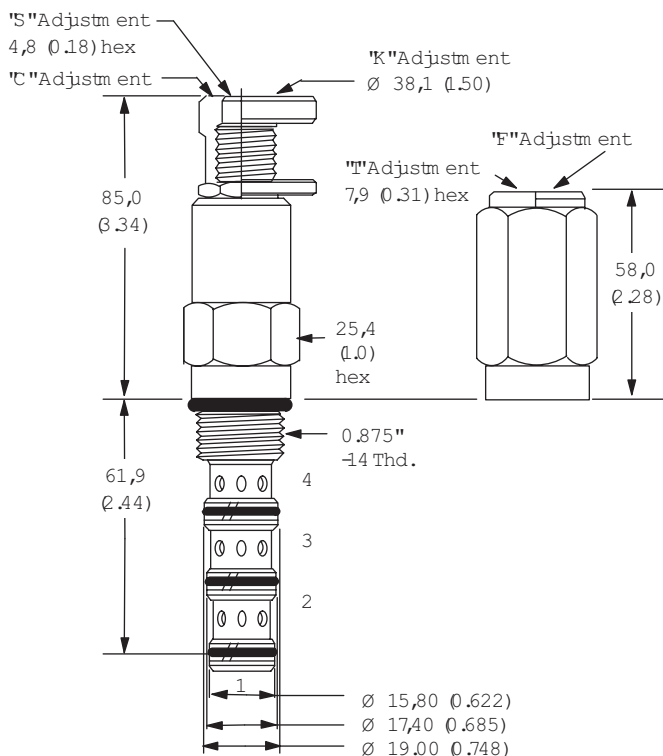
## Dimensions

mm (inch)

Torque cartridge in housing  
47-54 Nm (35-40 ft. lbs)

### Cartridge only

### Installation drawing



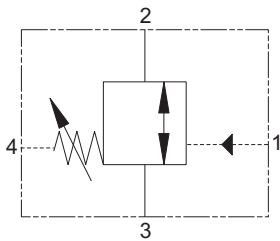
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV10-10 - Pressure sequence valve

Spool direct acting, normally open, external drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

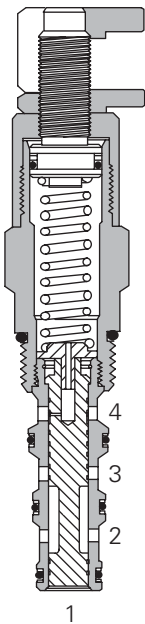
When a pre-set pilot pressure is reached the spool moves back against the spring opening the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	165 bar (2400 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-4
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,27 kg (0.60 lbs)
Seal kits	889625 Buna-N 566080 Viton®

Viton is a registered trademark of E.I. DuPont

### ⚠ Caution

When sudden pressure or velocity is applied at port 1, an orifice disc may be required.

## Description

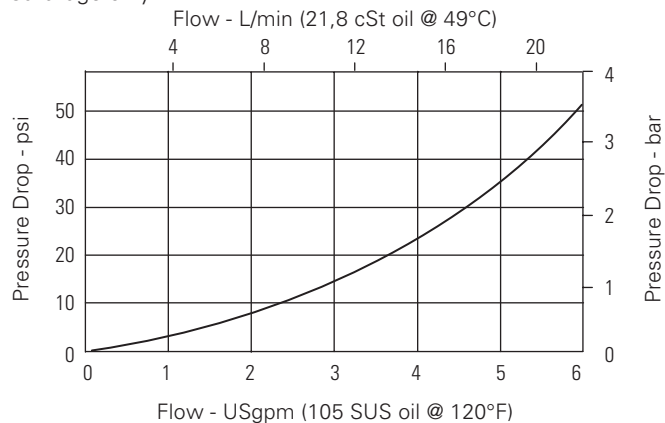
This valve provides a means of opening a pressure line when a predetermined pilot pressure is reached in a normally closed form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Port 3 to 2,  
 valve fully open,  
 spring omitted

Cartridge only

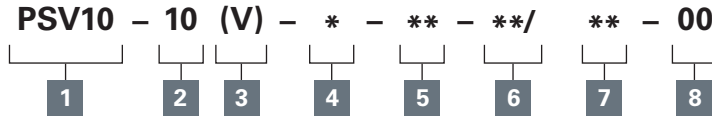


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV10-10 - Pressure sequence valve

Spool direct acting, normally closed, external drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

PSV10 - Pressure sequence valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
F - Factory set  
I - Internal  
K - Knob  
S - Screw

### 5 Port size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
3B	3/8" BSPP	02-179705	-
6T	SAE 6	566161	-
2G	1/4" BSPP	-	876709
3G	3/8" BSPP	-	876715
6H	SAE 6	-	876708
8H	SAE 8	-	876713

See section J for housing.

### 6 Sequence pressure range

**Note:** Code based on pressure in psi.  
2 - 3,5-14 bar (50-200 psi)  
4 - 5-28 bar (75-400 psi)

6 - 7-40 bar (100-600 psi)  
12 - 14-80 bar (200-1200 psi)  
24 - 28-165 bar (400-2400 psi)

### 7 Setting pressure

Within ranges in 6

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

### 8 Special features

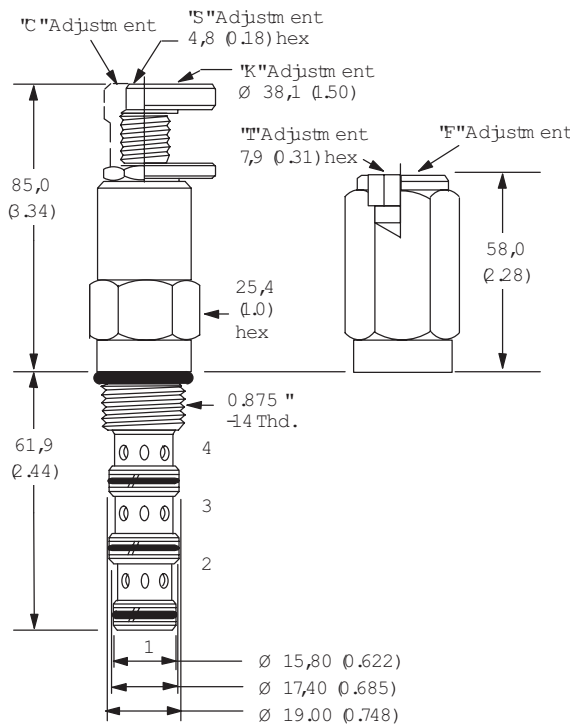
00 - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

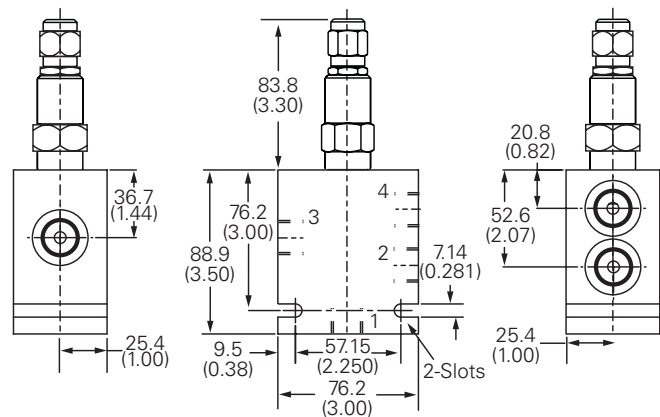
mm (inch)

Torque cartridge in housing  
47-54 Nm (35-40 ft. lbs)

## Cartridge only



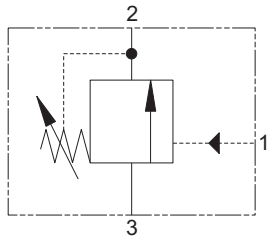
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV2-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

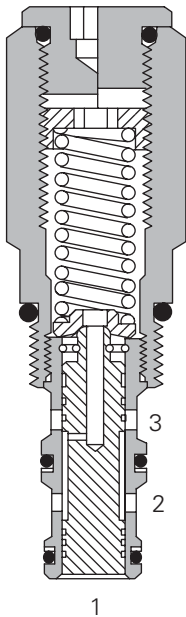
When a pre-set pilot pressure is reached the spool moves back against the spring opening the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	165 bar (2400 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

Viton is a registered trademark of E.I. DuPont

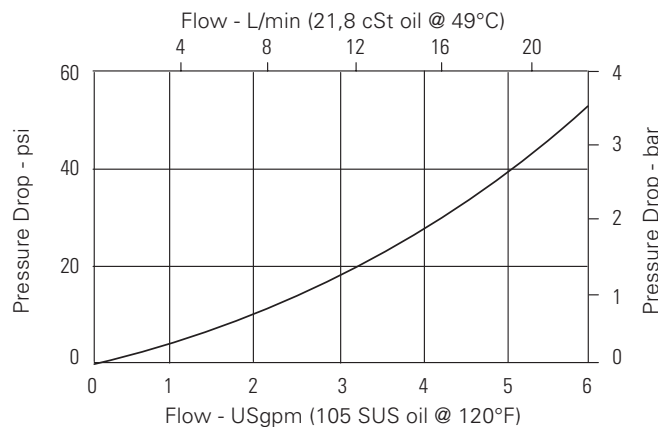
## Description

This valve provides a means of opening a pressure line when a predetermined pilot pressure is reached in a normally closed form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Cartridge only

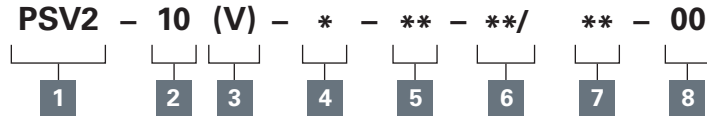


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV2-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

PSV2 - Pressure sequence valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

C - Cap  
F - Factory set  
I - Internal  
K - Knob  
S - Screw

### 5 Port size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
3B	3/8" BSPP	02-173358	-
6T	SAE 6	566162	-
2G	3/4" BSPP	-	876705
3G	3/8" BSPP	-	876714
6H	SAE 6	-	876704
8H	SAE 8	-	876711

See section J for housing.

### 6 Sequence pressure range

Note: Code based on pressure in psi.

2 - 3,5-14 bar (50-200 psi)

6 - 7-40 bar (100-600 psi)

12 - 14-80 bar (200-1200 psi)

24 - 25-165 bar (400-2400 psi)

### 7 Setting pressure

Within ranges in 6

Blank - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
10 - 70 bar (1000 psi)  
10.5 - 72,4 bar (1050 psi)

### 8 Special features

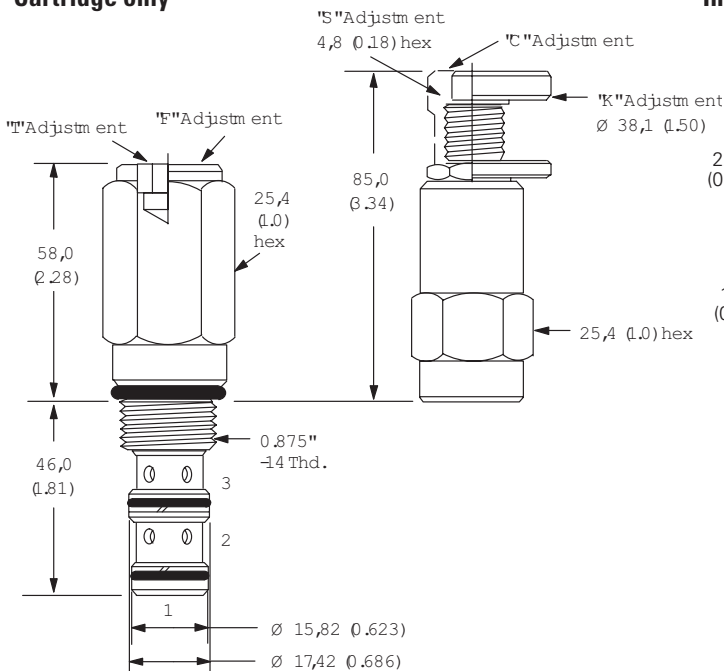
00 - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

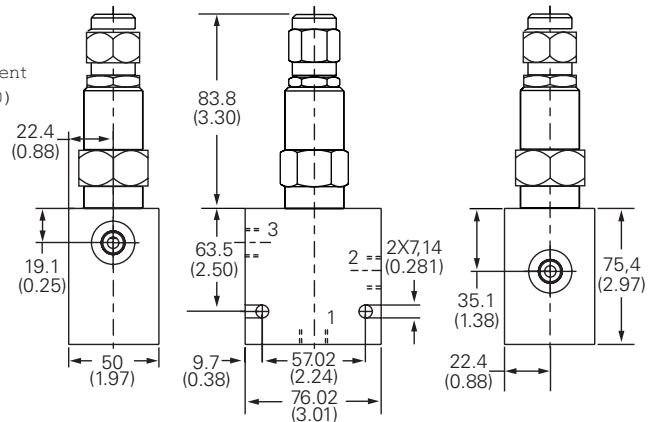
mm (inch)

Torque cartridge in housing  
47-54 Nm (35-40 ft. lbs)

### Cartridge only



### Installation drawing



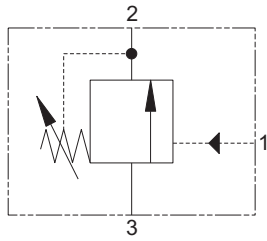
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV4-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal drain  
 15 L/min (4 USgpm) • 210 bar (3000 psi)



## Operation

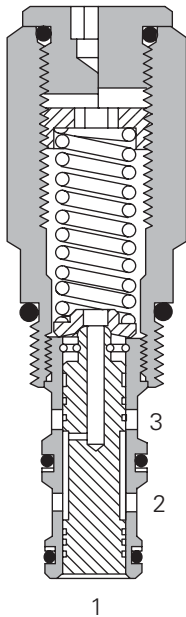
When a pre-set pilot pressure is reached the spool moves back against the spring opening the line between inlet and outlet.

When the pilot pressure falls the valve will return to its normal position.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure, port 2 and 3	210 bar (3000 psi)
Maximum sequence pressure, port 1	380 bar (5600 psi)
Cartridge fatigue pressure (infinite life)	165 bar (2400 psi)
Rated flow	15 L/min (4 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

Viton is a registered trademark of E.I. DuPont

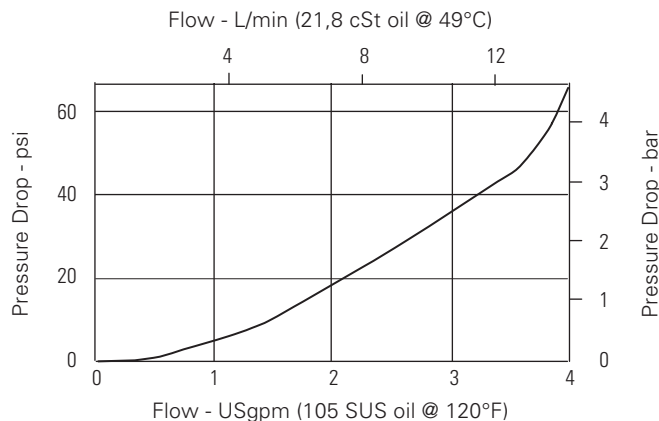
## Description

This valve provides a means of opening a pressure line when a predetermined pilot pressure is reached in a normally closed form.

The valve can be used in any pilot or small flow system as a remotely operated sequence valve.

## Pressure drop curve

Cartridge only



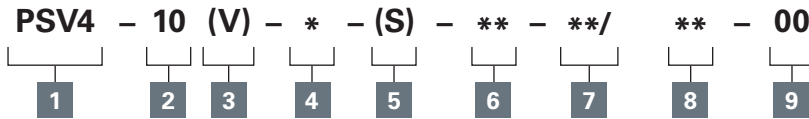
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PSV4-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal drain  
15 L/min (4 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV4** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-	-
<b>2G</b>	1/4" BSPP	-	876705	02-175127
<b>3G</b>	3/8" BSPP	-	876714	02-175128
<b>6H</b>	SAE 6	-	876704	-
<b>8H</b>	SAE 8	-	876711	-
<b>6T</b>	SAE 6	566162	-	02-175124
<b>8T</b>	SAE 8	-	-	02-175125

See section J for housing.

### 7 Sequence pressure range

**Note:** Code based on pressure in psi.

**5** - 3,5-30 bar (50-450 psi)  
**9** - 7-62 bar (100-900 psi)  
**14** - 14-95 bar (200-1400 psi)  
**28** - 20-190 bar (300-2800 psi)  
**56** - 35-380 bar (500-5600 psi)

### 8 Setting pressure

Within ranges in **7**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps. Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

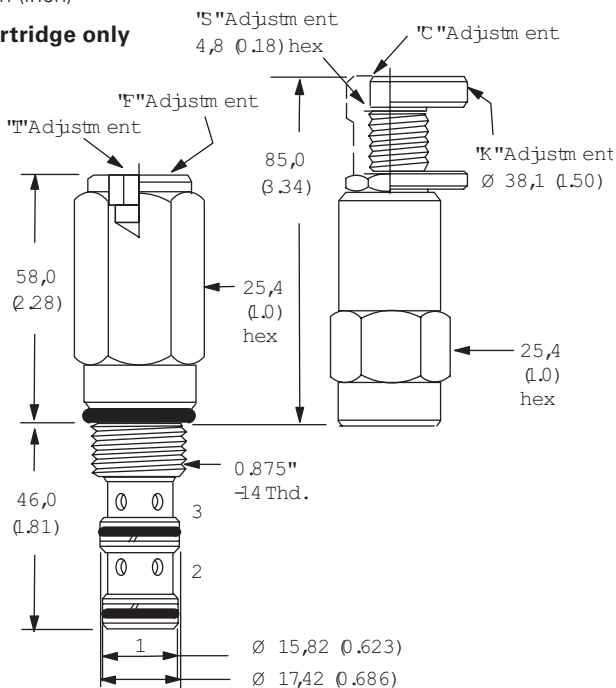
### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

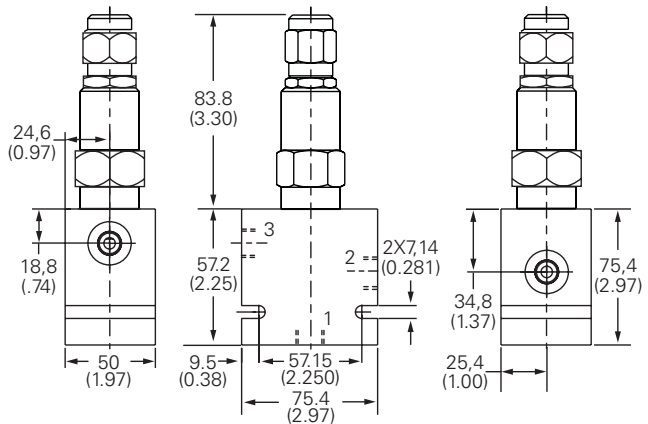
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (aluminum)



### Warning

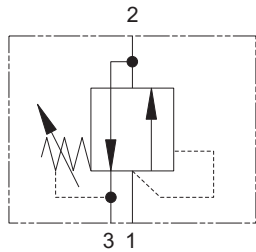
Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV1-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

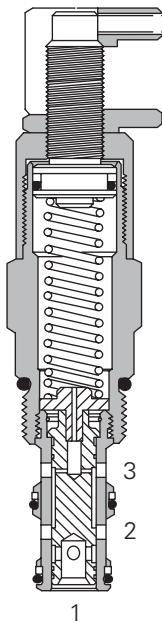
In the normal condition port 2 is open to the tank port 3 and port 1 is blocked.

When the pressure on port 1 exceeds the setting of the valve port 1 opens to port 2 and port 3 is blocked but must always be referenced to tank.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	165 bar (2400 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

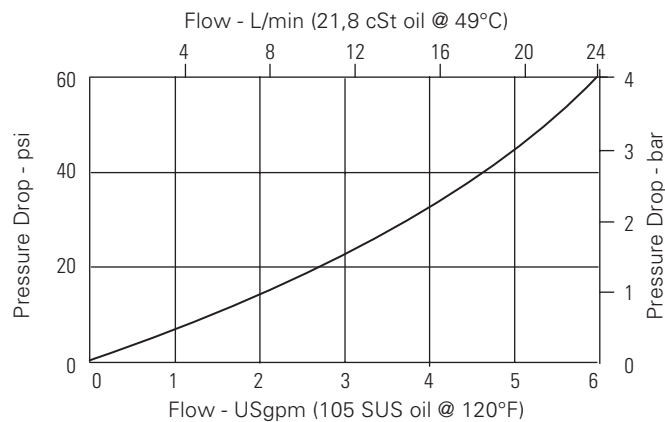
Viton is a registered trademark of E.I. DuPont

## Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated. In the valves normal position the outlet is drained to tank.

## Pressure drop curve

Cartridge only

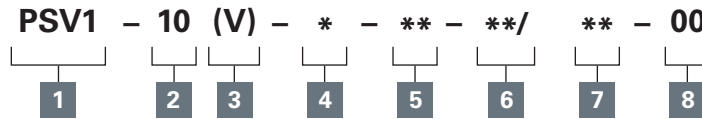


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV1-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV1** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum fatigue rated	Steel fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-
<b>6T</b>	SAE 6	566162	-
<b>2G</b>	1/4" BSPP	-	876705
<b>3G</b>	3/8" BSPP	-	876714
<b>6H</b>	SAE 6	-	876704
<b>8H</b>	SAE 8	-	876711

See section J for housing details.

### 6 Sequence pressure range

**Note:** Code based on pressure in psi.

**2** - 3,5-14 bar (50-200 psi)

**6** - 7-40 bar (100-600 psi)

**12** - 14-80 bar (200-1200 psi)

**24** - 25-165 bar (400-2400 psi)

### 7 Setting pressure

Within ranges in **6**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)

**10.5** - 72,4 bar (1050 psi)

### 8 Special features

**00** - None

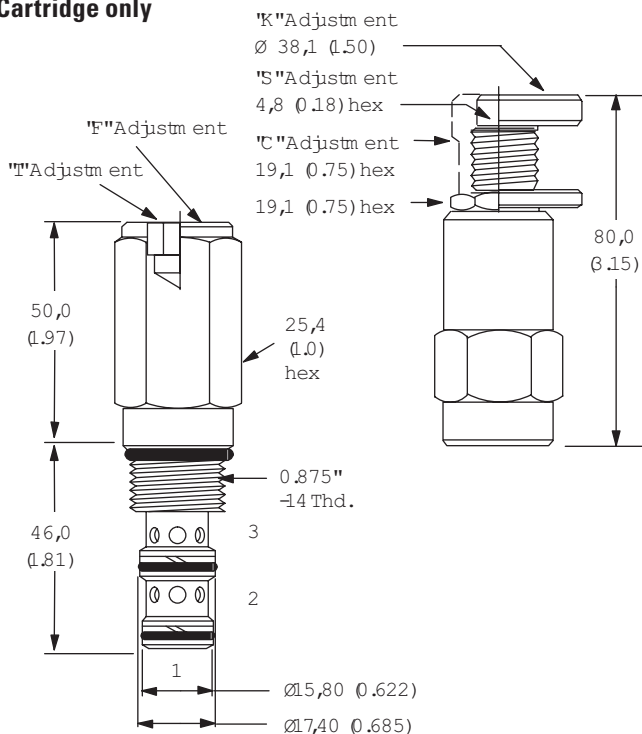
(Only required if valve has special features, omitted if "00.")

## Dimensions

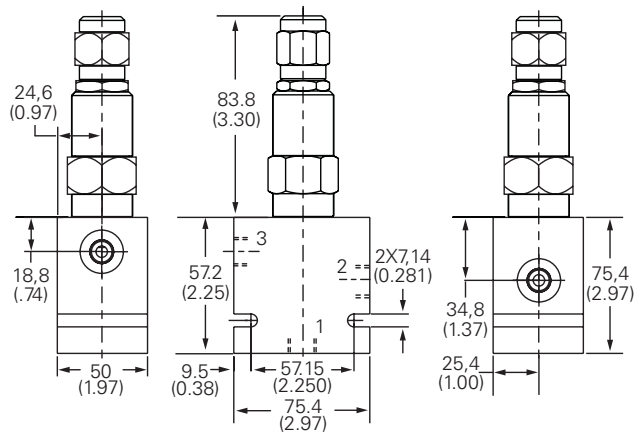
mm (inch)

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

### Cartridge only



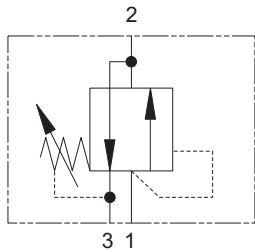
### Installation drawing (Aluminum)



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV5-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 8 L/min (2 USgpm) • 210 bar (3000 psi)



## Operation

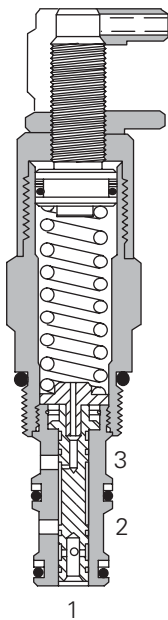
In the normal condition port 2 is open to the tank port 3 and port 1 is blocked.

When the pressure on port 1 exceeds the setting of the valve port 1 opens to port 2 and port 3 is blocked but must always be referenced to tank.

## Features

Cartridge design enabling speedy servicing when mounted in a body or in a composite manifold.

## Sectional view



## Performance data

### Ratings and specifications

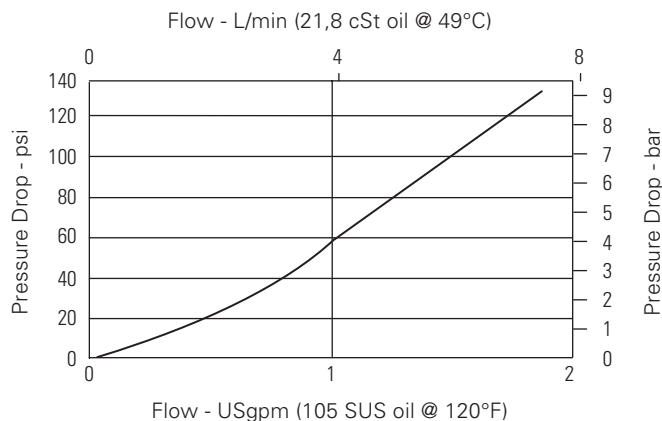
*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	190 bar (2800 psi)
Maximum sequence pressure	380 bar (5600 psi)
Rated flow	8 L/min (2 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

Viton is a registered trademark of E.I. DuPont

## Pressure drop curve

Cartridge only



## Description

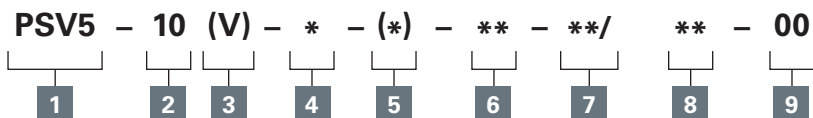
Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated. In the valves normal position the outlet is drained to tank.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV5-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
8 L/min (2 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV5** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**K** - Knob  
**I** - Internal  
**F** - Factory set  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-	-
<b>2G</b>	1/4" BSPP	-	876705	02-175127
<b>3G</b>	3/8" BSPP	-	876714	02-175128
<b>6H</b>	SAE 6	-	876704	-
<b>8H</b>	SAE 8	-	876711	-
<b>6T</b>	SAE 6	566162	-	02-175124
<b>8T</b>	SAE 8	-	-	02-175125

See section J for housing.

### 7 Sequence pressure range

**Note:** Code based on pressure in psi.

**5** - 3,5-30 bar (50-450 psi)  
**9** - 7-62 bar (100-900 psi)  
**14** - 14-95 bar (200-1400 psi)  
**28** - 20-190 bar (300-2800 psi)  
**56** - 35-380 bar (500-5600 psi)

### 8 Setting pressure

Within ranges in **7**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

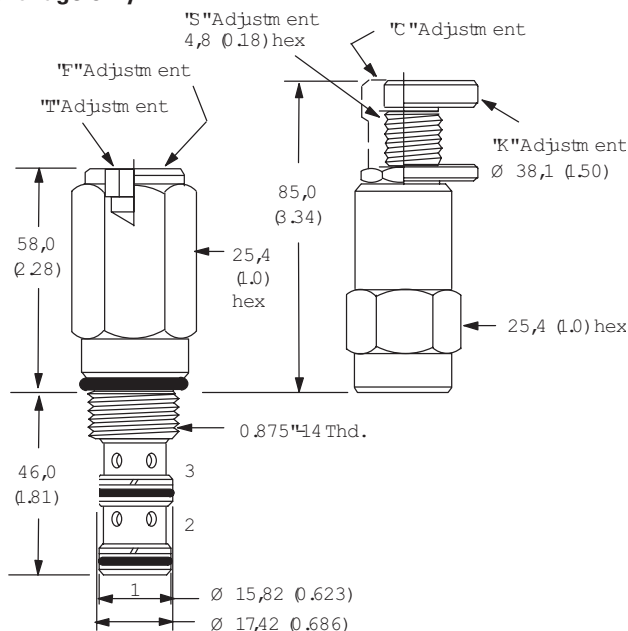
### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

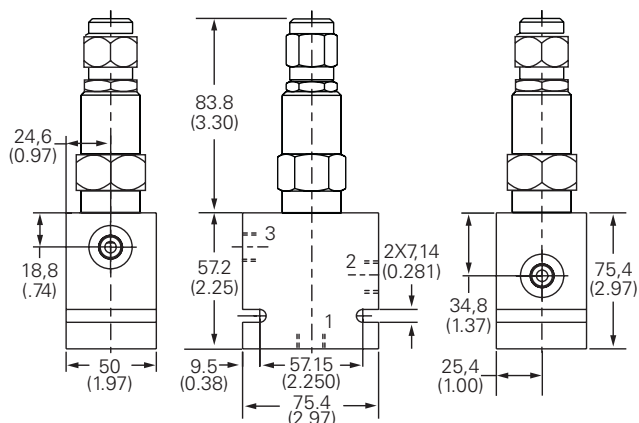
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Aluminum)



### Warning

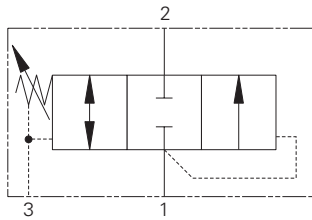
Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV3-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal or external pilot/drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



## Operation

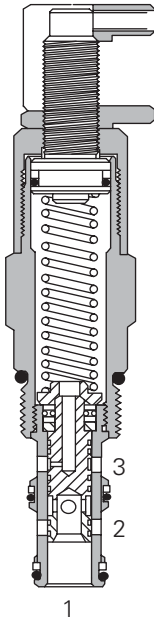
The valve is normally closed until a pre-determined pressure is applied to port 1. The spool then shifts and allows flow from port 1 to port 2.

When port 3 is pressurized the spool shifts to allow flow from port 2 to port 1.

## Features

Stable, quiet operation.  
 Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reset.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 23,3 cSt (111 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	165 bar (2400 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

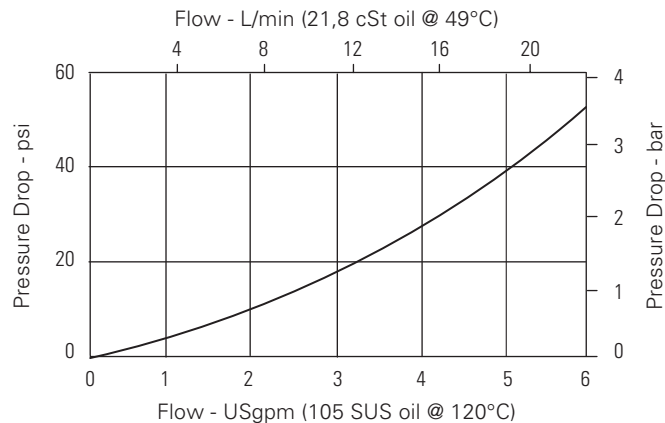
Viton is a registered trademark of E.I. DuPont

## Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated. Pressurizing port 3 will allow free flow from port 2 to port 1.

## Pressure drop curve

Cartridge only

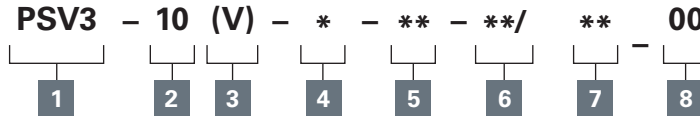


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV3-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal or external pilot/drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV3** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-
<b>6T</b>	SAE 6	566162	-
<b>2G</b>	1/4" BSPP	-	876705
<b>3G</b>	3/8" BSPP	-	876714
<b>6H</b>	SAE 6	-	876704
<b>8H</b>	SAE 8	-	876711

See section J for housing.

### 6 Sequence pressure range

**Note:** Code based on pressure in psi.

**2** - 3,5-14 bar (50-200 psi)  
**4** - 5-28 bar (75-400 psi)

**6** - 7-40 bar (100-600 psi)  
**12** - 14-80 bar (200-1200 psi)  
**24** - 25-165 bar (400-2400 psi)

### 7 Setting pressure

Within ranges in **6**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 8 Special features

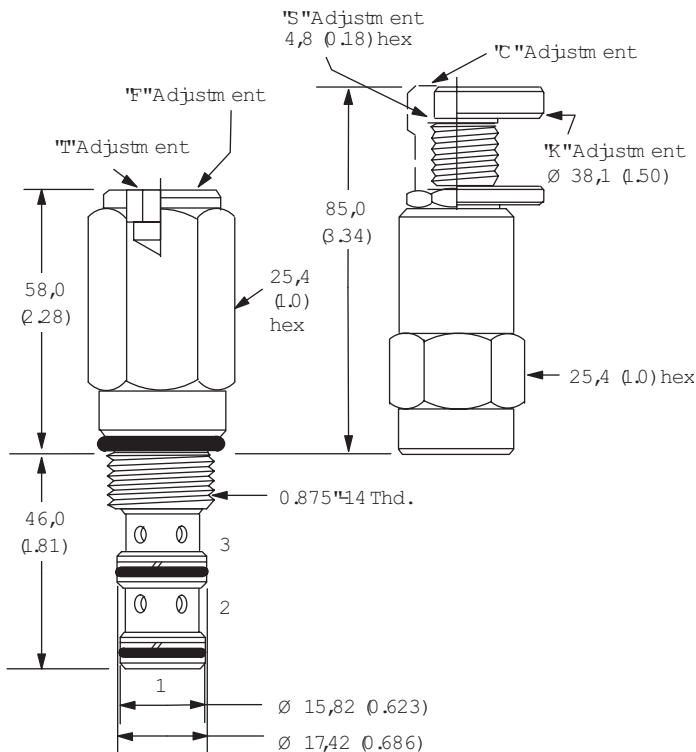
**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

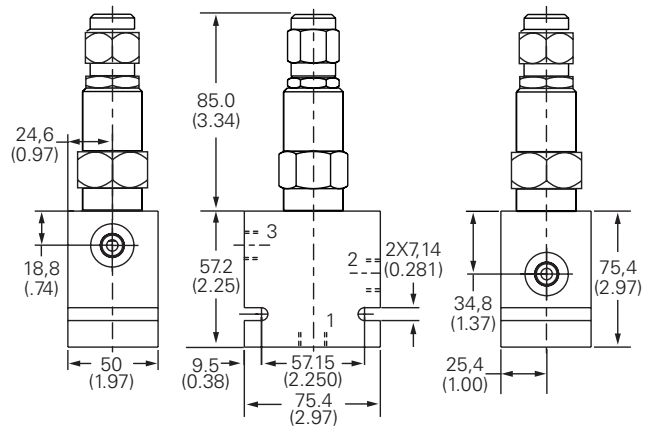
mm (inch)

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

## Cartridge only



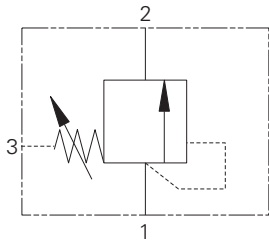
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV7-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 23 L/min (6 USgpm) • 210 bar (3000 psi)



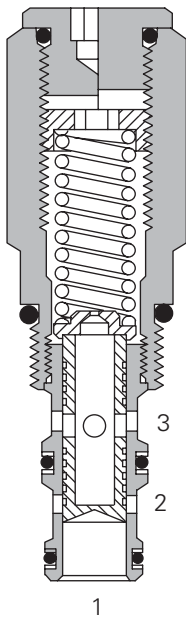
### Operation

As with the direct acting relief valves, when the pressure exceeds the spring force, the spool moves back, opening the inlet to outlet.

### Features

Stable, quiet operation.  
 Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reset.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Maximum sequence pressure	125 bar (1800 psi)
Rated flow	23 L/min (6 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565804 Buna-N 889599 Viton®

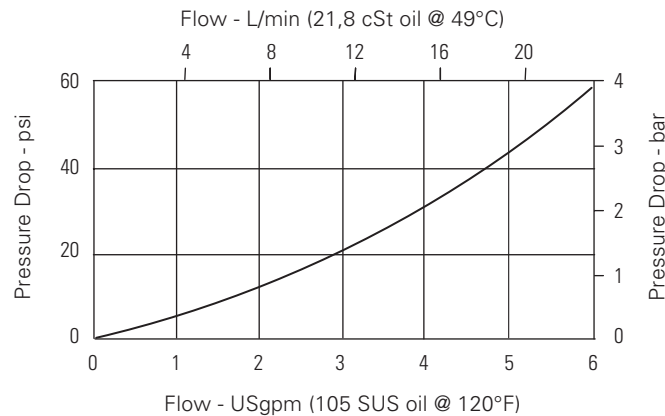
Viton is a registered trademark of E.I. DuPont

### Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated.

### Pressure drop curve

Cartridge only



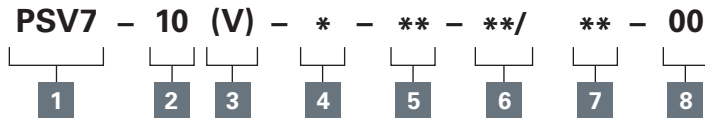
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PSV7-10 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PSV7** - Pressure sequence valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-
<b>6T</b>	SAE 6	566162	-
<b>2G</b>	3/4" BSPP	-	876705
<b>3G</b>	3/8" BSPP	-	876714
<b>6H</b>	SAE 6	-	876704
<b>8H</b>	SAE 8	-	876711

See section J for housing.

### 6 Sequence pressure range

**Note:** Code based on pressure in psi.

**2** - 3,5-10 bar (50-150 psi)  
**3** - 5-20 bar (75-300 psi)

**5** - 7-30 bar (100-450 psi)  
**10** - 14-65 bar (200-950 psi)  
**18** - 20-125 bar (300-1800 psi)

### 7 Setting pressure

Within ranges in **6**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 8 Special features

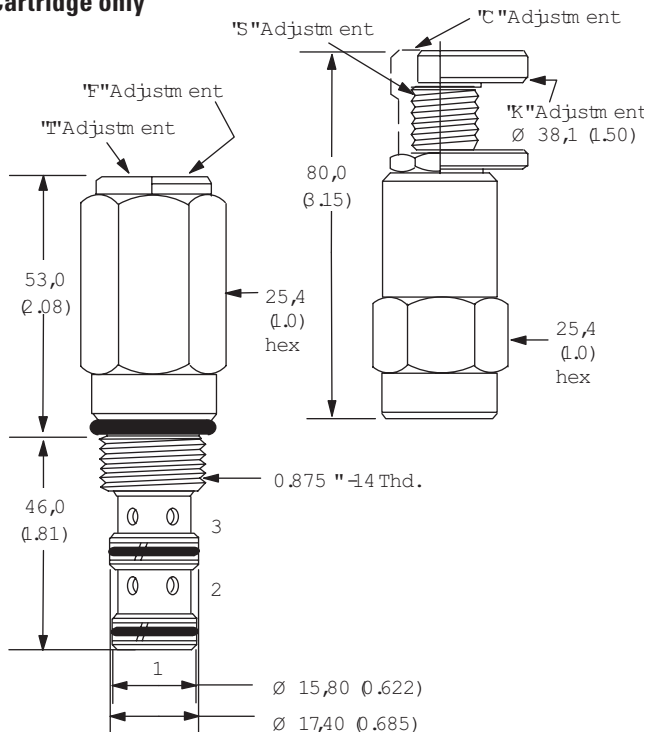
**00** - None  
(Only required if valve has special features, omitted if "00.")  
**SS** - 316 Stainless Steel external components

## Dimensions

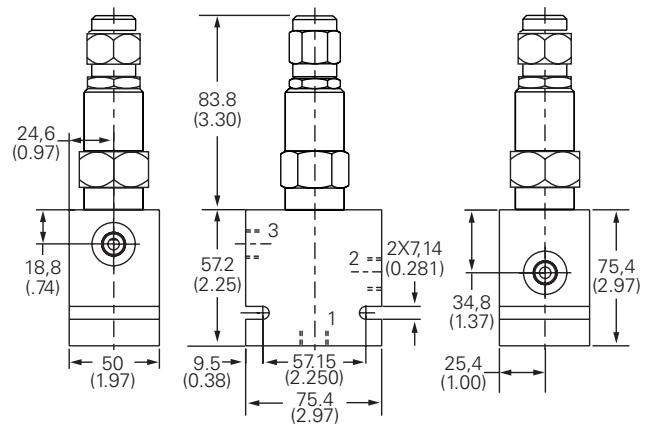
mm (inch)

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

## Cartridge only



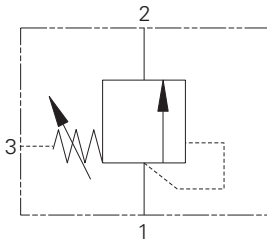
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IDS30 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 30 L/min (8 USgpm) • 140 bar (2000 psi)



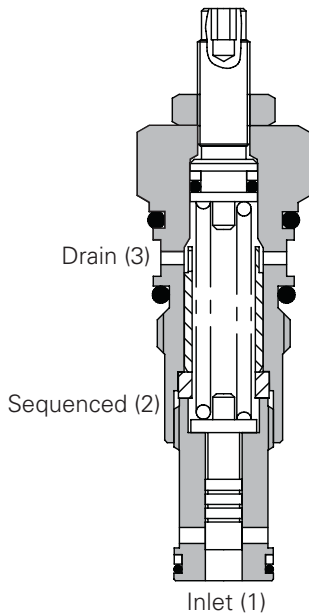
## Operation

As with the direct acting relief valves, when the pressure exceeds the spring force, the spool moves back, opening the inlet to outlet.

## Features

Stable, quiet operation. Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reset.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

Rated flow	30 L/min (8 USgpm)	
Max setting	140 bar (2000 psi)	
Cartridge material	Working parts hardened and ground steel. External steel surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A880 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1DS30	0.28 kg (0.62 lbs)
	1DS35	0.88 kg (1.94 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22 to 194°F)	
Leakage	25 milliliters/min nominal	
	15 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

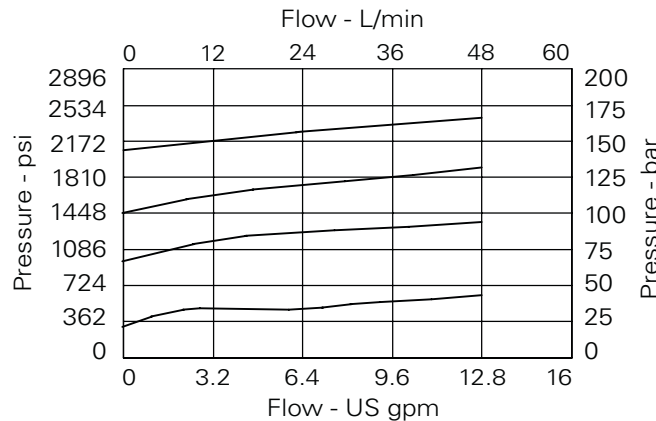
Viton is a registered trademark of E.I. DuPont

\* For applications above 210 bar please consult our technical department or use the steel body option.

## Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated.

## Pressure drop curves

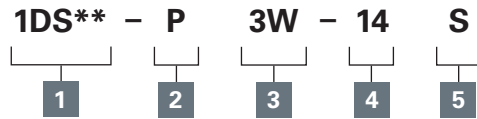


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1DS30 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
30 L/min (8 USgpm) • 140 bar (2000 psi)

## Model code



### 1 Basic code

**1DS30** - Cartridge Only  
**1DS35** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap

(See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium	Steel
<b>4W</b>	1/2" BSP. 1/4" BSP Drain Port	B4821	B4527
<b>6T</b>	3/8" SAE. 1/4" SAE Drain Port	B10793	
<b>8T</b>	1/2" SAE. 1/4" SAE Drain Port	B6584	

### 4 Pressure range @ 4.8 l/min

**Note:** Code based on pressure in bar.  
**7** - 7-70 bar Std setting 35 bar  
**14** - 7-140 bar Std setting 70 bar

### 5 Seals

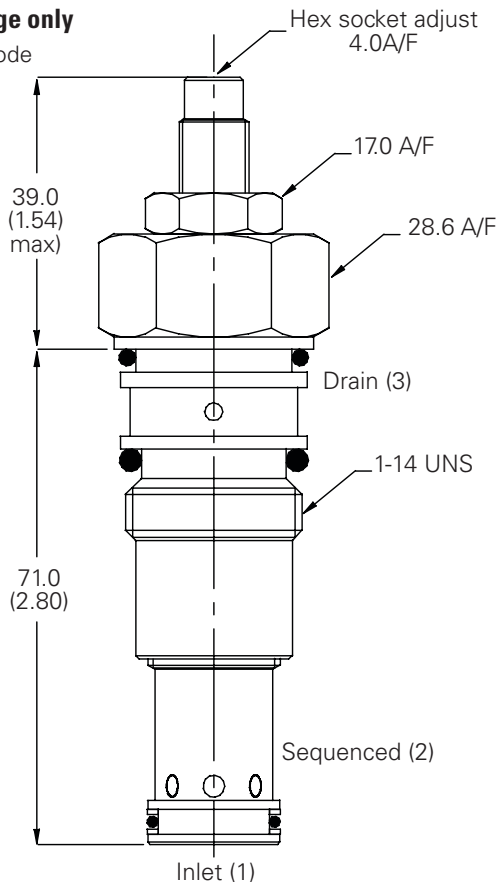
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

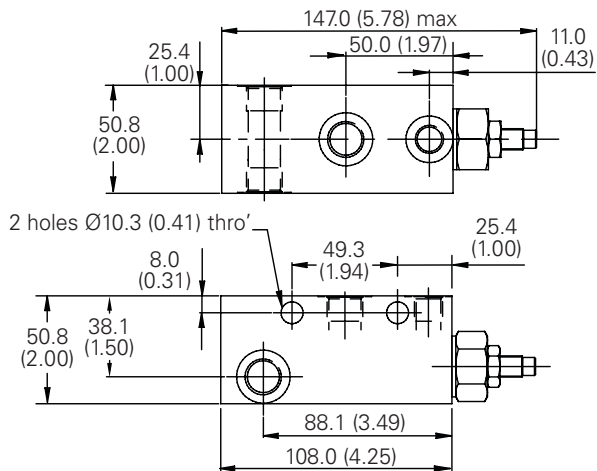
### Cartridge only

Basic Code  
**1DS30**



### Complete valve

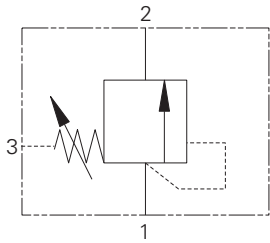
3/8", 1/2" Ports  
Basic Code  
**1DS35**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IDS60 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 60 L/min (16 USgpm) • 40 bar (580 psi)



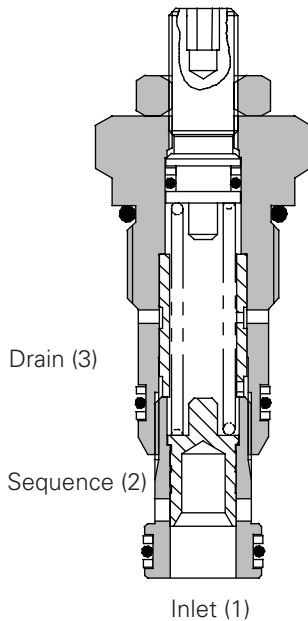
## Operation

As with the direct acting relief valves, when the pressure exceeds the spring force, the spool moves back, opening the inlet to outlet.

## Features

Stable, quiet operation. Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reseal.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

Rated flow	60 L/min (16 USgpm)	
Max pressure	40 bar (580 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	CVA-22-06-0 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1DS60	0.16 kg (0.35 lbs)
	1DS65	0.50 kg (1.10 lbs)
Seal kit number	SK618 (Nitrile), SK618V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/12 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22 to 194°F)	
Leakage	25 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

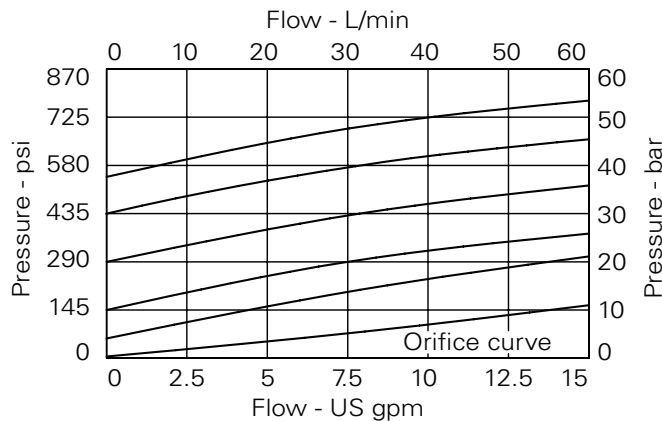
Viton is a registered trademark of E.I. DuPont

\* For applications above 210 bar please consult our technical department or use the steel body option.

## Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated.

## Pressure drop curves

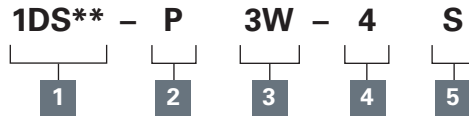


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IDS60 - Pressure sequence valve

Spool. direct acting, normally closed, internal pilot, external drain  
60 L/min (16 USgpm) • 40 bar (580 psi)

## Model code



### 1 Basic code

**1DS60** - Cartridge Only  
**1DS65** - Cartridge and Body  
**1DS66** - Cartridge and Body Through Ported

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number			
		Aluminium 1DS65	Steel 1DS65	Aluminium 1DS66	Steel 1DS66
<b>3W</b>	3/8" BSP 1/4" BSP Drain	B12751	B17070		
<b>4W</b>	1/2" BSP 1/4" BSP Drain	B8533		B13482	B13483
<b>6T</b>	3/8" SAE 1/4" SAE Drain	B10796			
<b>8T</b>	1/2" SAE 1/4" SAE Drain	B10797	B11802		

### 4 Pressure range @ 4.8 l/min

**Note:** Code based on pressure in psi.

**2** - 2–20 bar Std setting 15 bar

**4** - 8.5–40 bar

Std setting 25 bar

Std setting made at 4.8 liters/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)

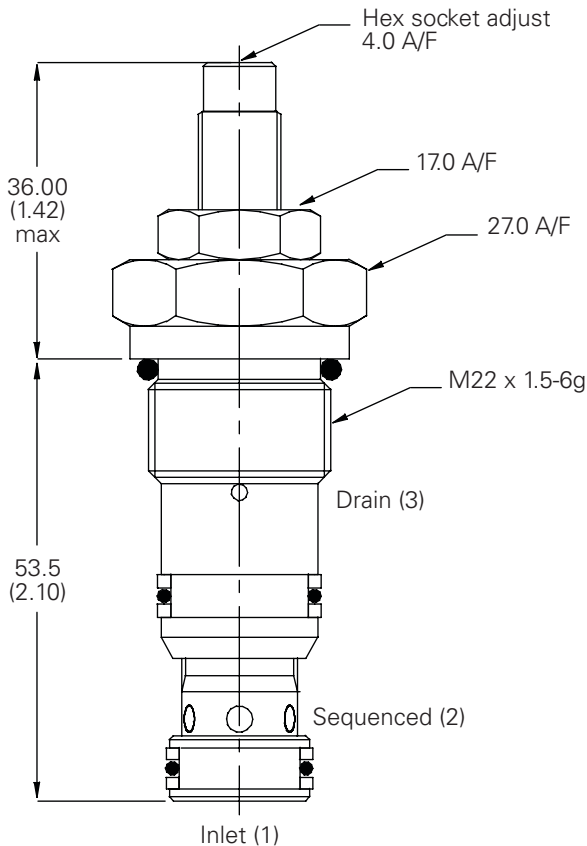
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

### Cartridge only

Basic Code  
1DS60

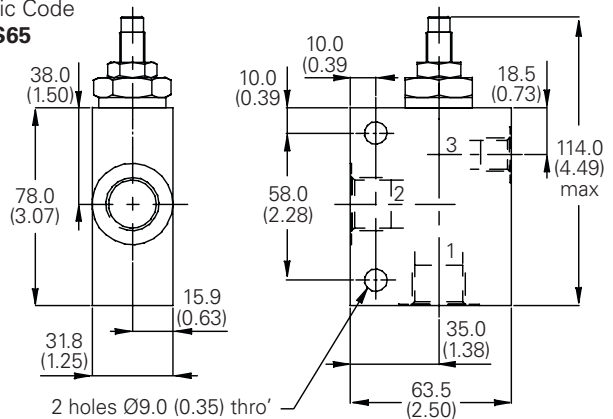


### Complete valve

3/8", 1/2" Ports

Basic Code

**1DS65**

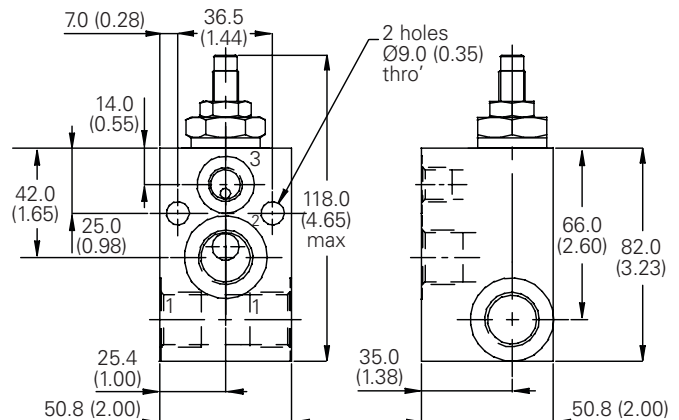


### Complete valve

1/2" Ports

Basic Code

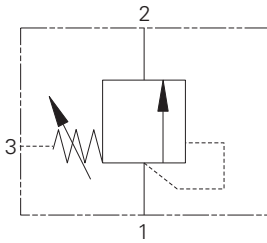
**1DS66**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IDS100 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
 150 L/min (40 USgpm) • 40 bar (600 psi)



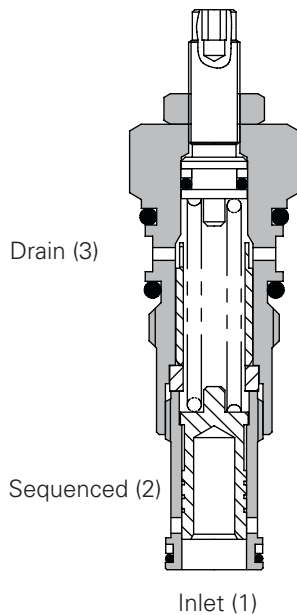
## Operation

As with the direct acting relief valves, when the pressure exceeds the spring force, the spool moves back, opening the inlet to outlet.

## Features

Stable, quiet operation.  
 Cartridge construction gives maximum flexibility in mounting. Offering good repeatability and reseal.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

Rated flow	150 L/min (40 USgpm)	
Max setting	40 bar (600 psi)	
Cartridge material	Working parts hardened and ground steel. External steel surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A880 (See Section 17)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1DS100	0.28 kg (0.62 lbs)
	1DS145	0.88 kg (1.94 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-20° to 194°F)	
Leakage	25 milliliters/min nominal 15 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

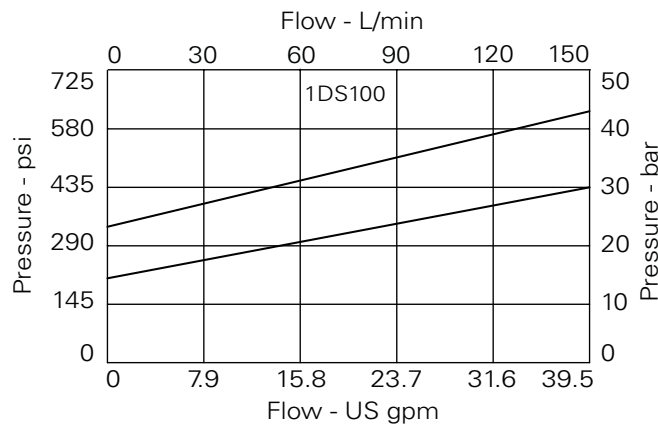
Viton is a registered trademark of E.I. DuPont

\* For applications above 210 bar please consult our technical department or use the steel body option.

## Description

Direct acting sequence valves are ideal for diverting oil to a second circuit at a predetermined pressure as in clamp and drill circuits, or as a relief where the back pressure varies. By taking the drain line directly to tank, back pressure effects are negated.

## Pressure drop curves

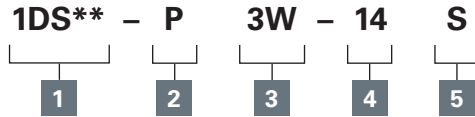


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IDS100 - Pressure sequence valve

Spool, direct acting, normally closed, internal pilot, external drain  
150 L/min (40 USgpm) • 40 bar (600 psi)

## Model code



### 1 Basic code

**1DS100** - Cartridge Only  
**1DS145** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap  
(See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium	Steel
<b>4W</b>	1/2" BSP. 1/4" BSP Drain	B4821	B4527
<b>6W</b>	3/4" BSP. 1/4" BSP Drain	B5466	B4403
<b>6T</b>	3/8" SAE. 1/4" SAE Drain	B10793	
<b>8T</b>	1/2" SAE. 1/4" SAE Drain	B6584	
<b>12T</b>	3/4" SAE. 1/4" SAE Drain	B7883	B11379

### 4 Pressure range @ 4,8 l/min

**Note:** Code based on pressure in bar.  
**2** - 2-25 bar std setting 35 bar  
**4** - 5-40 bar std setting 28 bar

### 5 Seals

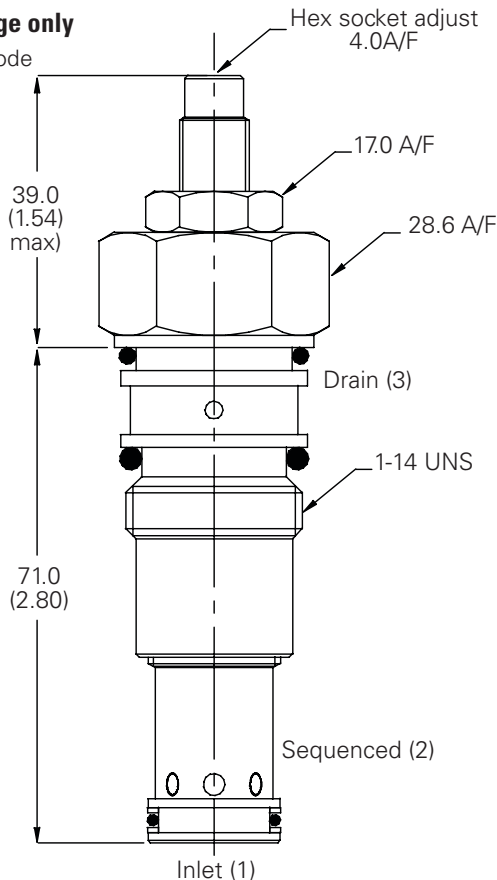
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

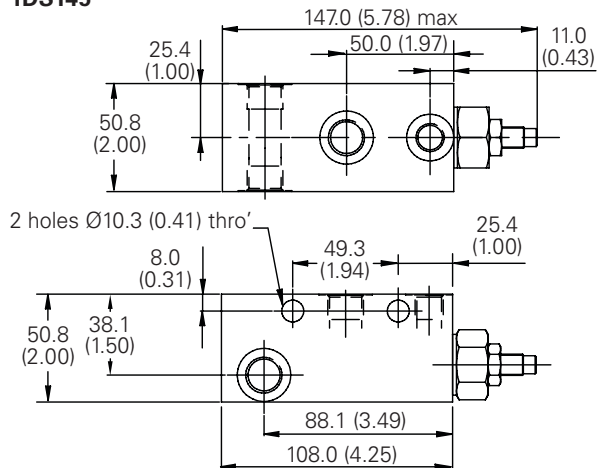
### Cartridge only

Basic Code  
**1DS100**



### Complete valve

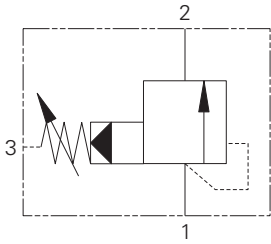
3/8", 1/2", 3/4" Ports  
Basic Code  
**1DS145**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IPS60 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
 60 L/min (16 USgpm) • 350 bar (5000 psi)



## Operation

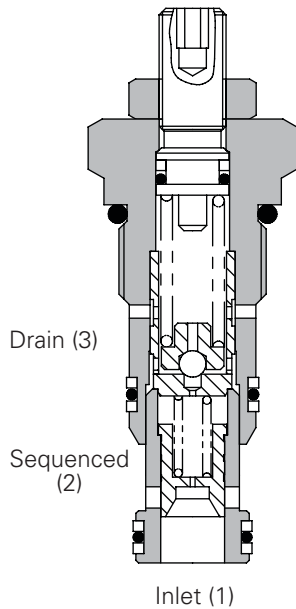
As in the pilot operated relief, when the setting of the valve is exceeded the pilot section opens.

This pilot flow causes a pressure imbalance opening the main section and allowing flow to a secondary circuit (sequenced line).

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

Rated flow	60 L/min (16 USgpm)
Max setting	350 bar (5000 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity number	CVA-22-06-0 (See Section M)
Torque cartridge into cavity	60 Nm (44 lbs ft)
Weight	1PS60 0.16 kg (0.35 lbs) 1PS65 0.50 kg (1.10 lbs)
Seal kit number	SK618 (Nitrile) SK618V (Viton®)
Filtration	BS5540/4 Class 18/12 (25 micron nominal)
Operating temp	-30°C to +90°C (-22°C to +194°F)
Leakage	35 milliliters/min @ 280 bar
Nominal viscosity range	5 to 500 cSt

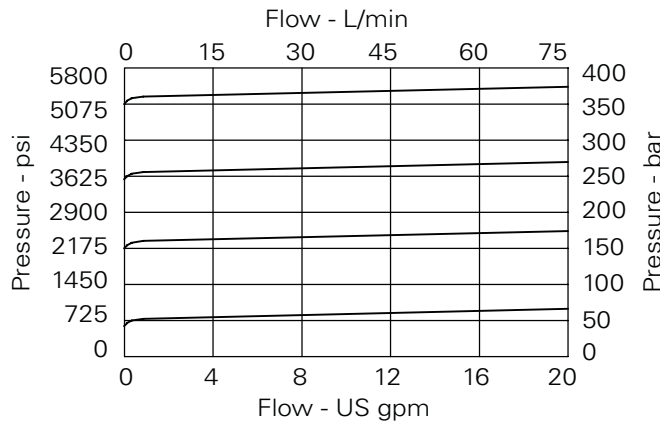
Viton is a registered trademark of E.I. DuPont

## Description

Pilot operated models are best suited for higher flows which may vary widely to:

1. Provide ordered or sequenced series of operations as in a clamp and drill circuit.
2. Serve as a relief valve where oil viscosity or restrictions in the downstream line would cause excessive back pressure. The separate spring chamber drain makes the sequence valve insensitive to this back pressure.

## Pressure drop curves



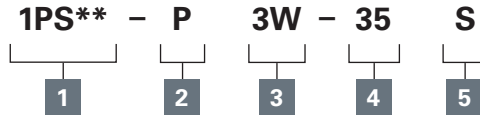
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1PS60 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
60 L/min (16 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic Code

**1PS60** - Cartridge Only  
**1PS65** - Cartridge and Body

### 2 Adjustment Means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium Single	Steel Single
<b>3W</b>	3/8" BSP 1/4" BSP Drain Port	B12751	B17070
<b>4W</b>	1/2" BSP 1/4" BSP Drain Port	B8533	
<b>6T</b>	3/4" SAE 1/4" SAE Drain Port	B10796	
<b>8T</b>	1/2" SAE 1/4" SAE Drain Port	B10797	B11802

### 4 Pressure range @4,8 L/min

**Note:** Code based on pressure in bar.

**10** - 7-100 bar  
Std setting 35 bar  
**20** - 10-210 bar  
Std setting 100 bar  
**35** - 20-350 bar  
Std setting 280 bar  
Std setting made at 4.8 liters min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

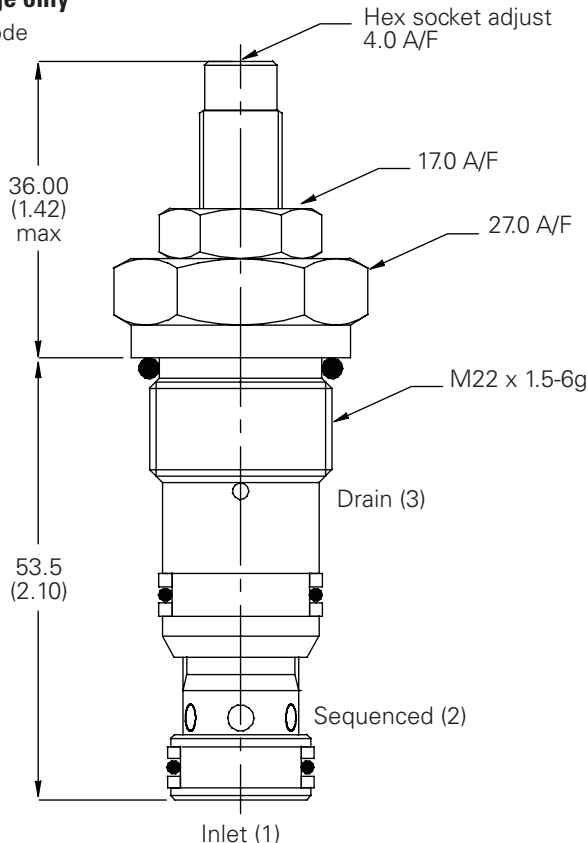
mm (inch)

**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

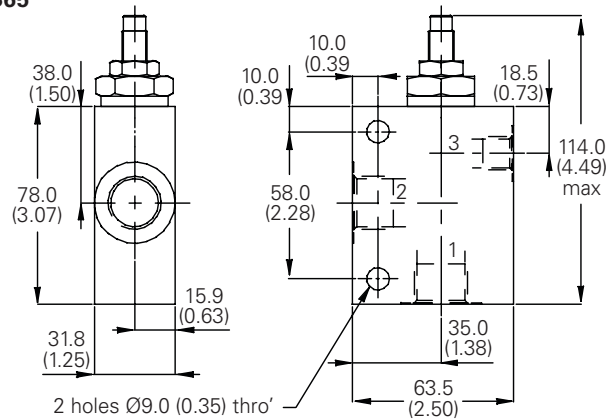
### Cartridge only

Basic Code  
**1PS160**



### Complete valve

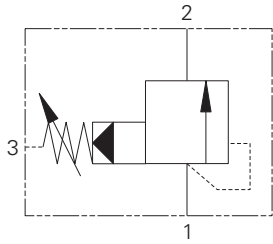
3/8", 1/2" Ports  
Basic Code  
**1PS65**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PS100 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
 150 L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

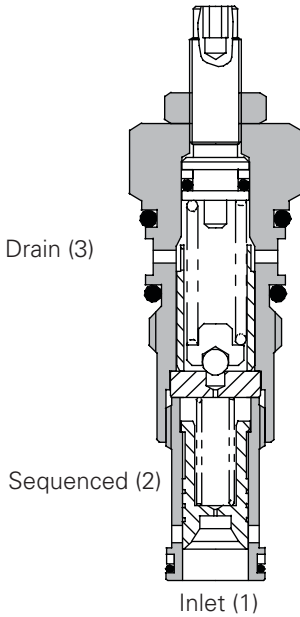
As in the pilot operated relief, when the setting of the valve is exceeded the pilot section opens.

This pilot flow causes a pressure imbalance opening the main section and allowing flow to a secondary circuit (sequenced line).

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 40 cSt

Rated flow	150 L/min (40 USgpm)
Max setting	350 bar (5000 psi)
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.
Mounting position	Unrestricted
Cavity number	A880 (See Section M)
Torque cartridge into cavity	60 Nm (44 lbs ft)
Weight	1PS100 0.17 kg (0.37 lbs) 1PS145 0.56 kg (1.23 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton®)
Filtration	BS5540/4 Class 18/13 (25 micron nominal)
Operating temp	-30°C to +90°C (-22° to +194°F)
Leakage	35 milliliters/min @ 280 bar
Nominal viscosity range	5 to 500 cSt

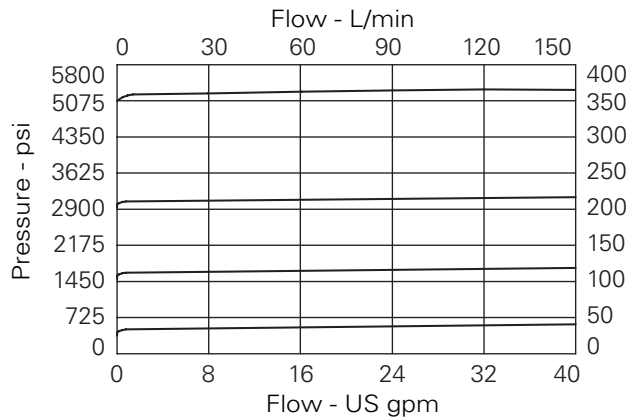
Viton is a registered trademark of E.I. DuPont

## Description

Pilot operated models are best suited for higher flows which may vary widely to:

1. Provide ordered or sequenced series of operations as in a clamp and drill circuit.
2. Serve as a relief valve where oil viscosity or restrictions in the downstream line would cause excessive back pressure. The separate spring chamber drain makes the sequence valve insensitive to this back pressure.

## Pressure drop curves

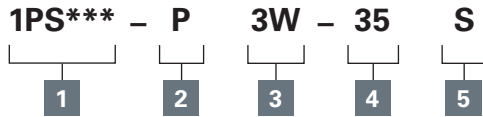


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PS100 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
150 L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic code

**1PS100** - Cartridge Only  
**1PS145** - Cartridge and Body  
**1PS155** - Cartridge, Body and Check

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium Single	Steel Single
1PS145			
<b>4W</b>	1/2" BSP. 1/4" BSP Drain Port	B4821	B4527
<b>6W</b>	3/4" BSP. 1/4" BSP Drain Port	B5466	B4403
<b>6T</b>	3/8" SAE. 1/4" SAE Drain Port	B10793	
<b>8T</b>	1/2" SAE. 1/4" SAE Drain Port	B6584	
<b>12T</b>	3/4" SAE. 1/4" SAE Drain Port	B7883	B11379

### 4 Pressure range @ 14 L/min

**Note:** Code based on pressure in bar.

**7** - 2–70 bar. Std setting 35 bar  
**20** - 10–210 bar. Std setting 100 bar  
**35** - 50–350 bar. Std setting 280 bar

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

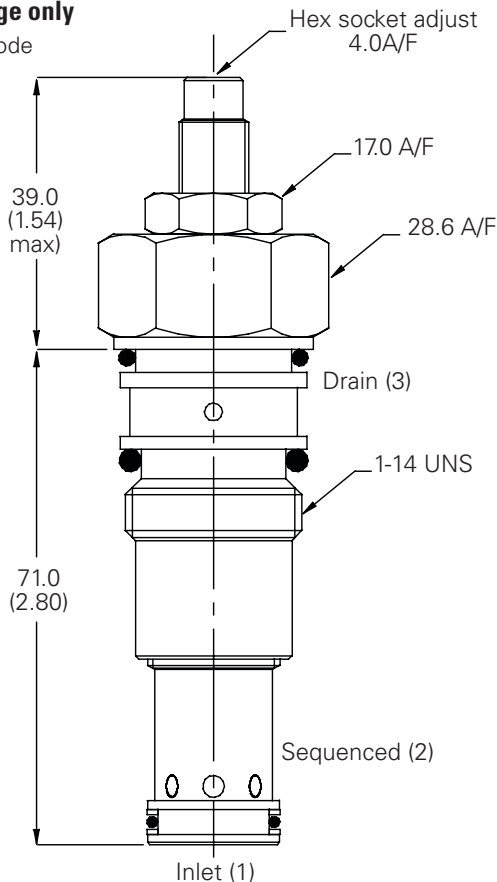
mm (inch)

**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 please consult our technical department or use the steel body option.

### Cartridge only

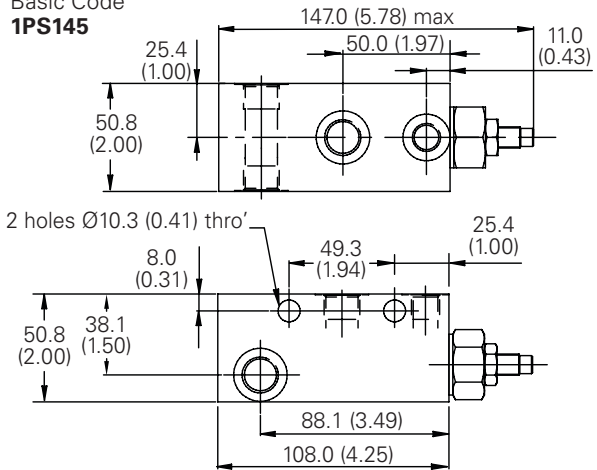
Basic Code  
**1PS100**



### Complete valve

3/8", 1/2", 3/4" Ports

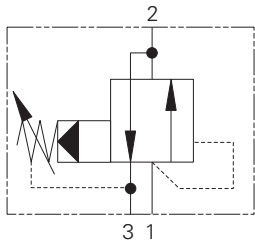
Basic Code  
**1PS145**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV1-16 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
 95 L/min (25 USgpm) • 350 bar (5000 psi)



## Operation

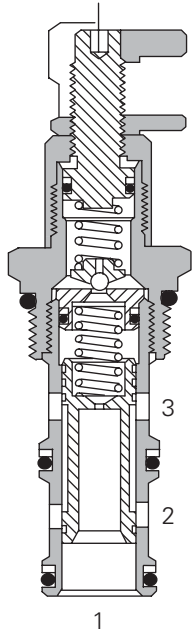
In the normal condition port 2 is open to the tank port 3 and port 1 is blocked.

When the pressure on port 1 exceeds the setting of the valve port 1 opens to port 2 and port 3 is blocked but must always be referenced to tank.

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Maximum sequence pressure	415 bar (6000 psi)
Rated flow	95 L/min (25 USgpm)
Cavity	C-16-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	565811 Buna-N 889610 Viton®

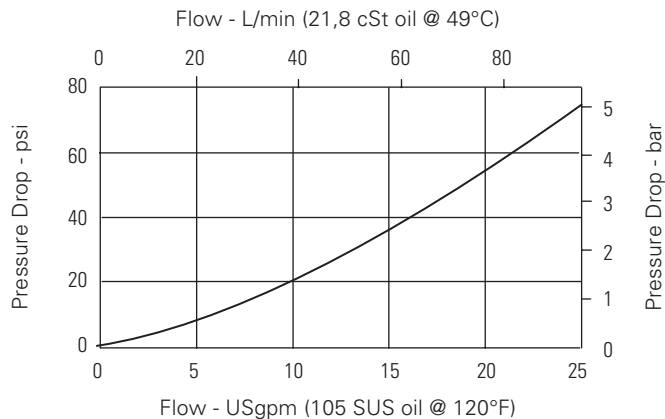
Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated, spool type, internally piloted, externally drained screw in cartridge pressure sequence valve. In its normal position port 2 is open to the tank line port 3.

## Pressure drop curve

Port 1 to 2, valve fully open, spring omitted  
 Cartridge only

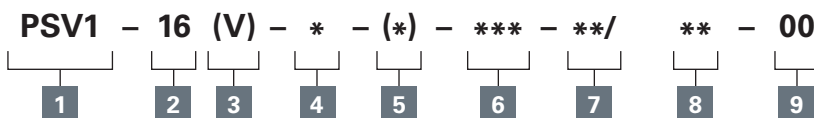


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV1-16 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
95 L/min (25 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**PSV1** - Pressure sequence valve

### 2 Size

**16** - 16 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>6B</b>	3/4" BSPP	02-175465	-	-
<b>4G</b>	1/2" BSPP	-	876720	02-175131
<b>6G</b>	3/4" BSPP	-	876722	02-175132
<b>10H</b>	SAE 10	-	876721	-
<b>12H</b>	SAE 12	-	876723	-
<b>10T</b>	SAE 10	-	-	02-175129
<b>12T</b>	SAE 12	566152	-	02-175130

See section J for housing.

### 7 Sequence pressure range

**Note:** Code based on pressure in psi.

**30** - 34-210 bar (500-3000 psi)

**60** - 70-415 bar (1000-6000 psi)

### 8 Setting pressure

Within ranges in **7**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)

**10.5** - 72,4 bar (1050 psi)

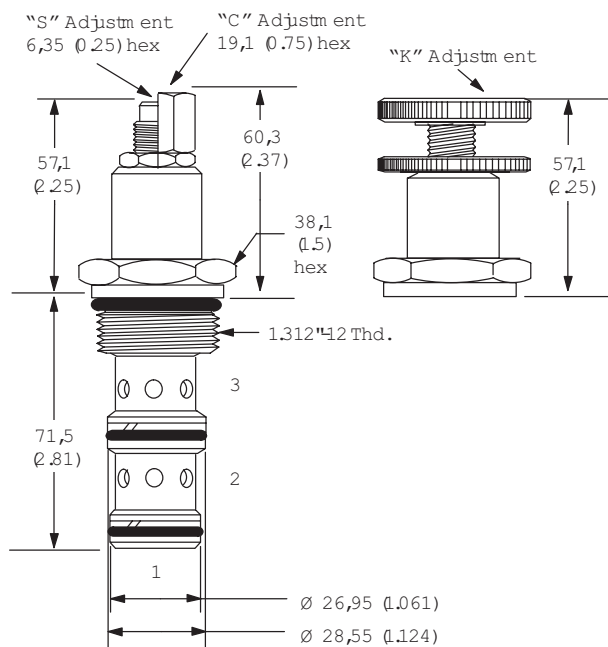
### 9 Special features

**00** - None (Only required if valve has special features, omitted if "00.")

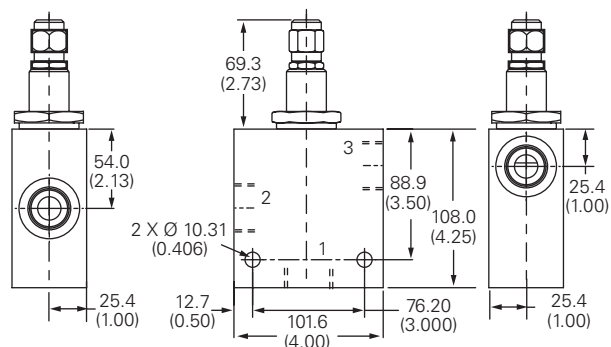
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



Torque cartridge in housing  
**A** - 108-122 Nm (80-90 ft. lbs)  
**S** - 136-149 Nm (100-110 ft. lbs)

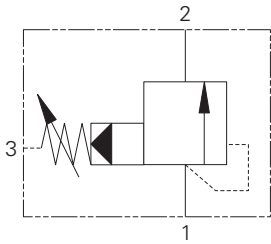
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IPS200 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
 250 L/min (60 USgpm) • 350 bar (5000 psi)



## Operation

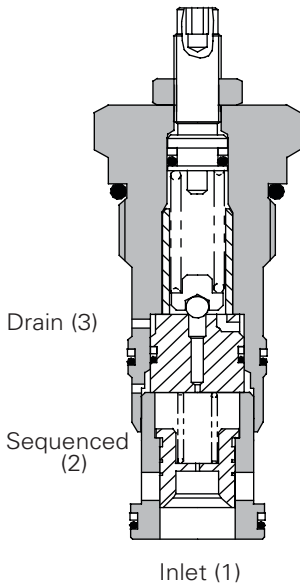
As in the pilot operated relief, when the setting of the valve is exceeded the pilot section opens.

This pilot flow causes a pressure imbalance opening the main section and allowing flow to a secondary circuit (sequenced line).

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

Rated flow	250 L/min (60 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A16102 (See Section M)	
Torque cartridge into cavity	100 Nm (76 lbs ft)	
Weight	1PS200	0.72 kg (1.60 lbs)
	1PS250	1.62 kg (3.60 lbs)
Seal kit number	SK173 (Nitrile) SK173V (Viton®)	
Filtration	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°C to 194°F)	
Leakage	35 milliliters/min @ 280 bar	
Nominal viscosity range	5 to 500 cSt	

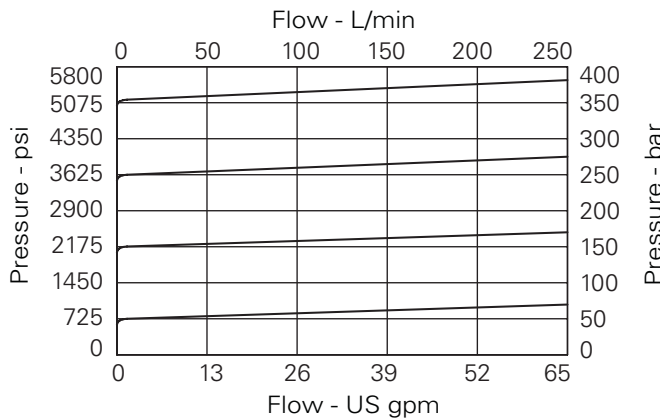
Viton is a registered trademark of E.I. DuPont

## Description

Pilot operated models are best suited for higher flows which may vary widely to:

1. Provide ordered or sequenced series of operations as in a clamp and drill circuit.
2. Serve as a relief valve where oil viscosity or restrictions in the downstream line would cause excessive back pressure. The separate spring chamber drain makes the sequence valve insensitive to this back pressure.

## Pressure drop curves

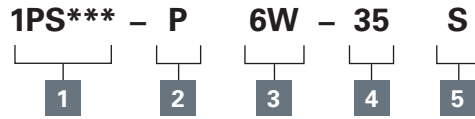


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PS200 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
250 L/min (60 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic code

**1PS200** - Cartridge Only  
**1PS250** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium	Steel
<b>8W</b>	1" BSP. 1/4" BSP Drain Port	B3496	B3497
<b>16T</b>	1" SAE. 1/4" SAE Drain Port	B6807	B11555

### 4 Pressure Range @ 14 L/min

**Note:** Code based on pressure in bar.

**20** - 10-210 bar  
Std setting 100 bar  
**35** - 50-350 bar  
Std setting 100 bar  
Std setting made at 14 L/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

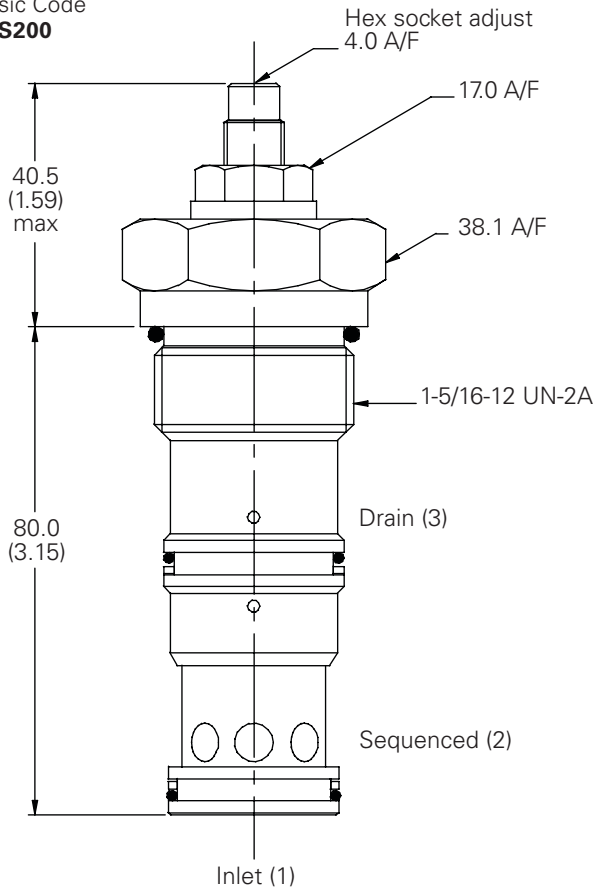
mm (inch)

**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 please consult our technical department or use the steel body option.

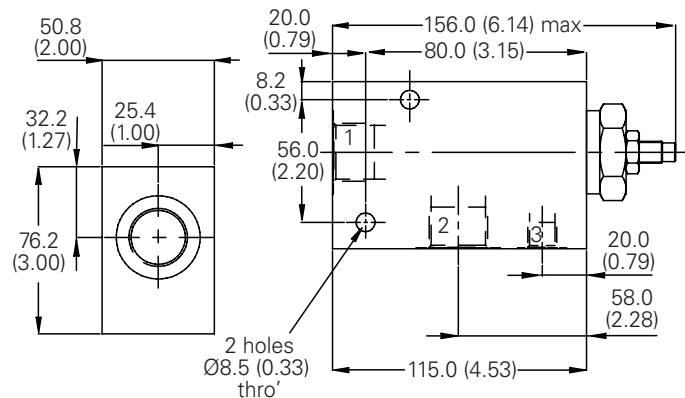
### Cartridge only

Basic Code  
**1PS200**



### Complete valve

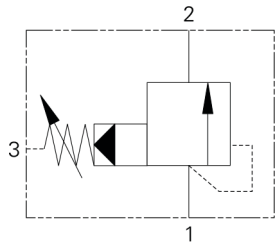
1" Ports  
Basic Code  
**1PS250**



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PSV11-16 - 16 -Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
 230 L/min (60 USgpm) • 350 bar (5000 psi)



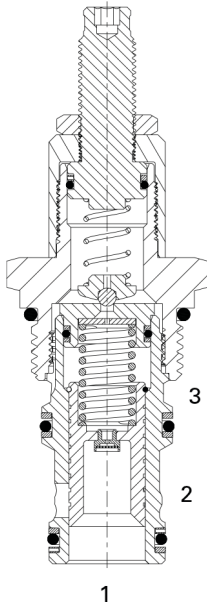
## Operation

The PSV11-16 valve remains normally closed until a predetermined pressure is reached at port 1, which then allows flow to port 2 (port 3 must be vented).

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

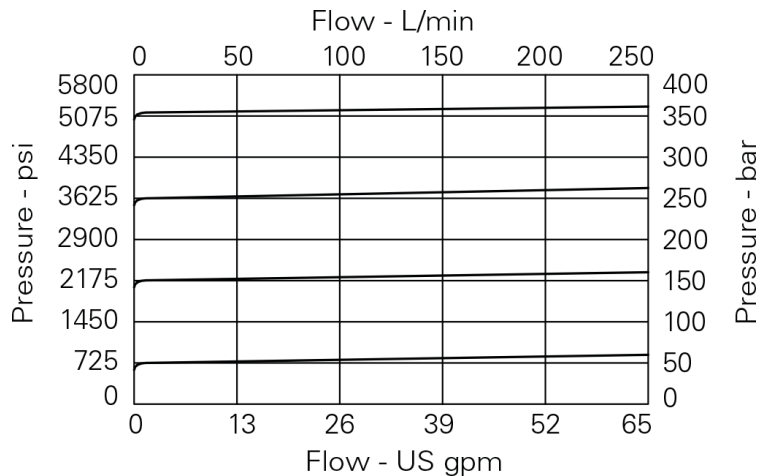
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Maximum sequence pressure	415 bar (6000 psi)
Rated flow	230 L/min (60 USgpm)
Cavity	C-16-3S
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.53 lbs)
Seal kits	889659 Buna-N 02-165871 Viton®

Viton is a registered trademark of E.I. DuPont

## Description

The PSV11-16 is a pilot operated, sliding spool, adjustable, cartridge type pressure sequence valve. This valve, which is internally piloted is used to control the sequence of operations of two or more actuators.

## Pressure drop curve



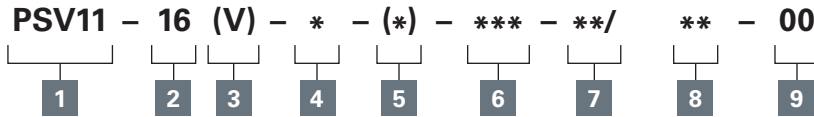
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PSV11-16 - 16 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain  
230 L/min (60 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**PSV11** - Pressure sequence valve

### 2 Size

**16** - 16 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>4G</b>	1/2" BSPP	02-175471	02-160676	02-175118
<b>6G</b>	3/4" BSPP	-	876726	02-175119
<b>10H</b>	SAE 10	-	876725	-
<b>12H</b>	SAE 12	-	876727	-
<b>10T</b>	SAE 10	-	-	02-175116
<b>12T</b>	SAE 12	566414	-	02175117

See section J for housing.

### 7 Sequence Pressure Range

**Note:** Code based on pressure in psi.

**30** - 34-210 bar (500-3000 psi)  
**60** - 70-415 bar (1000-6000 psi)

### 8 Setting pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

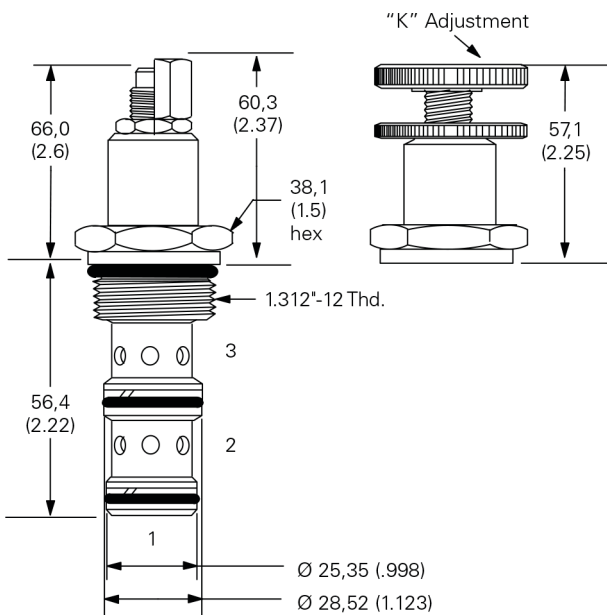
### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

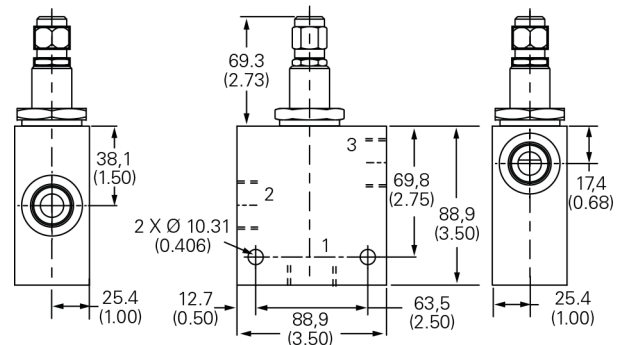
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



Torque cartridge in housing  
**A** - 108-122 Nm (80-90 ft. lbs)  
**S** - 136-149 Nm (100-110 ft. lbs)

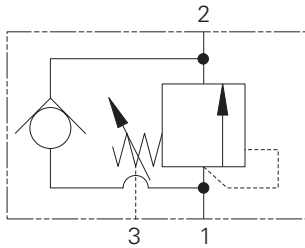
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IPSC30 - Pressure sequence valve

Poppet, direct acting, normally closed, internal pilot, external drain, reverse flow check  
 30 L/min (8 USgpm) • 350 bar (5000 psi)



## Operation

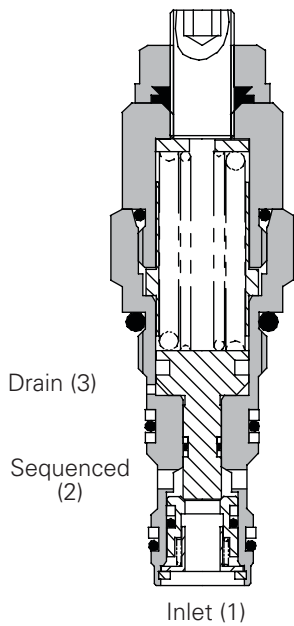
As with the direct acting relief valves, when the pressure exceeds the spring force, the spool moves back, opening the inlet to outlet.

## Features

Match ground and honed hardened working parts give long, trouble-free life. Consistent stable operation providing low pressure rise due to increasing flow.

Cartridge construction gives maximum flexibility in mounting. Steel valve bodies available on request.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

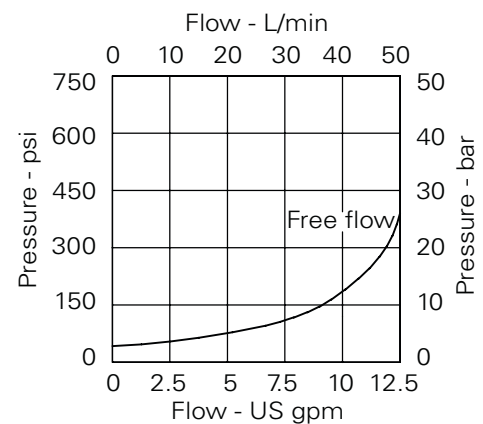
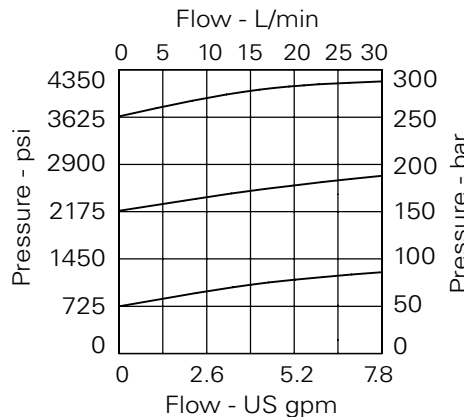
Rated flow	30 L/min (8 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External steel surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel.	
Mounting position	Unrestricted	
Cavity number	A6610 (See Section M)	
Torque cartridge into cavity	45 Nm (33 lbs ft)	
Weight	PSC30	0.15 kg (0.33 lbs)
	PSC35	0.41 kg (0.90 lbs)
Seal kit number	SK395 (Nitrile) SK395V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°C to 194°F)	
Leakage	0.3 milliliters/min nominal (5 dpm)	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

Sequence valves provide ordered sequencing of two or more operations as with clamp and drill circuits. They can also be used as relief valves where the downstream pressure is high or changes during operation. By taking the drain line directly to tank, back pressure effects are negated.

## Pressure drop curves

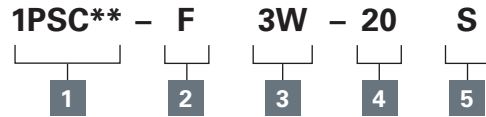


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IPSC30 - Pressure sequence valve

Poppet, direct acting, normally closed, internal pilot, external drain, reverse flow check  
30 L/min (8 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1PSC30** - Cartridge Only  
**1PSC30** - Cartridge and body

### 2 Adjustment means

**F** - Screw adjustment  
**N** - Fixed - State pressure  
Setting required

### 3 Port sizes

Code	Port size	Housing number - body only	
		Aluminium	Steel
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

### 4 Pressure Range @ 4,8 L/min

**Note:** Code based on pressure in bar.  
**10** - 10–100 bar.  
Std setting 70 bar  
**20** - 60–210 bar.  
Std setting 100 bar  
**35** - 70–350 bar.  
Std setting 210 bar

### 5 Seals

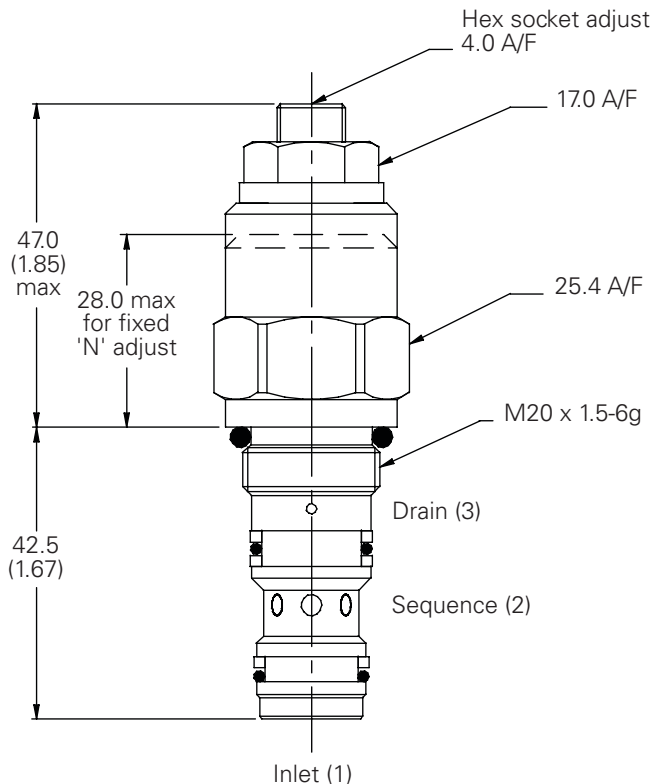
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

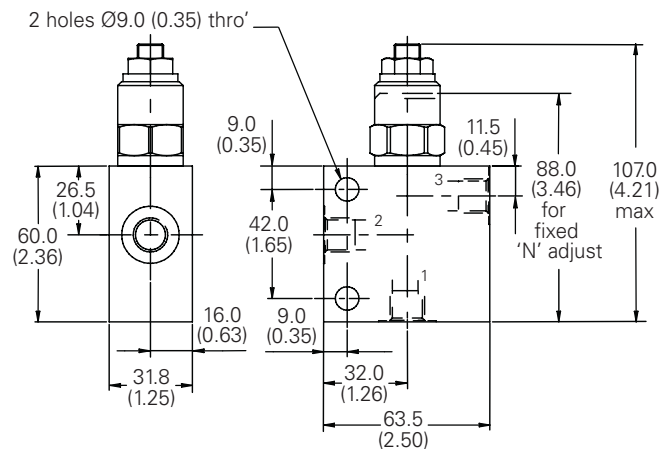
### Cartridge only

Basic Code  
**1PSC30**



### Complete valve

3/8", 1/2" Ports  
Basic Code  
**1PSC35**



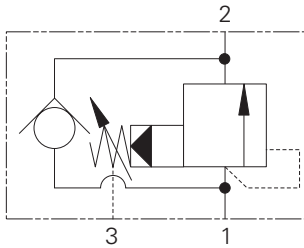
**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm.

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PSC100 - Pressure sequence valve

Poppet, pilot operated, normally closed, internal pilot, external drain, reverse flow check  
 150 L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

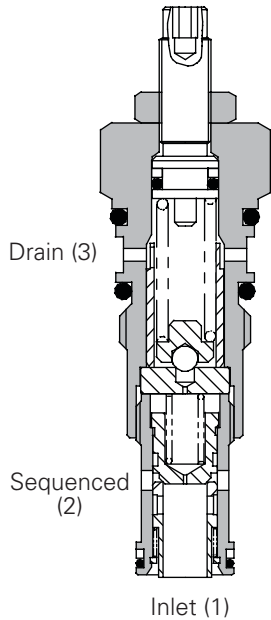
As in the pilot operated relief, when the setting of the valve is exceeded the pilot section opens. This pilot flow causes a pressure imbalance opening the main section and allowing flow to a secondary circuit (sequenced line).

## Features

Match ground and honed hardened working parts give long, trouble-free life. Consistent stable operation providing low pressure rise due to increasing flow.

Cartridge construction gives maximum flexibility in mounting. Steel valve bodies available on request.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

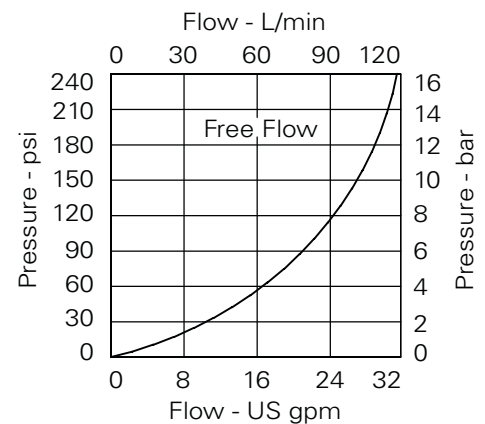
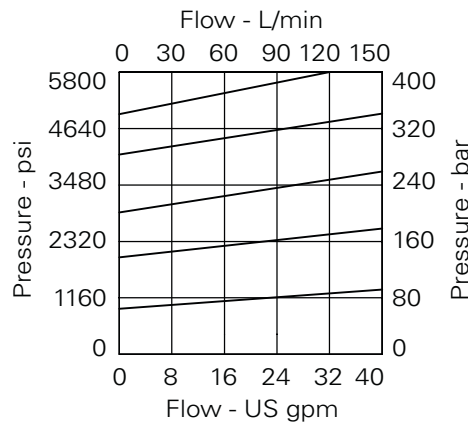
Rated flow	150 L/min (40 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces electroless nickel plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A880 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1PSC100	0.17 kg (0.37 lbs)
	1PSC145	0.78 kg (1.72 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°F to 194°F)	
Leakage	35 milliliters/min @ 280 bar	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

Sequence valves provide ordered sequencing of two or more operations as with clamp and drill circuits. They can also be used as relief valves where the downstream pressure is high or changes during operation. By taking the drain line directly to tank, back pressure effects are negated.

## Pressure drop curves

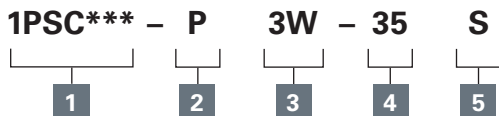


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IPSC100 - Pressure sequence valve

Poppet, pilot operated, normally closed, internal pilot, external drain, reverse flow check  
150 L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

1PSC100 - Cartridge Only  
1PSC145 - Cartridge and body

### 2 Adjustment means

P - Leakproof screw adjustment  
R - Handknob adjustment  
G - Tamperproof Cap  
(See page 4-102 for dimensions)

### 3 Port sizes

Code	Port size	Housing number - body only	
		Aluminium	Steel
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

### 4 Pressure range @ 14 L/min

**Note:** Code based on pressure in bar.  
7 - 2-70 bar.  
Std setting 35 bar  
20 - 10-210 bar  
Std setting 100 bar  
35 - 50-350 bar  
Std setting 280 bar  
Std setting made at 14 L/min

### 5 Seals

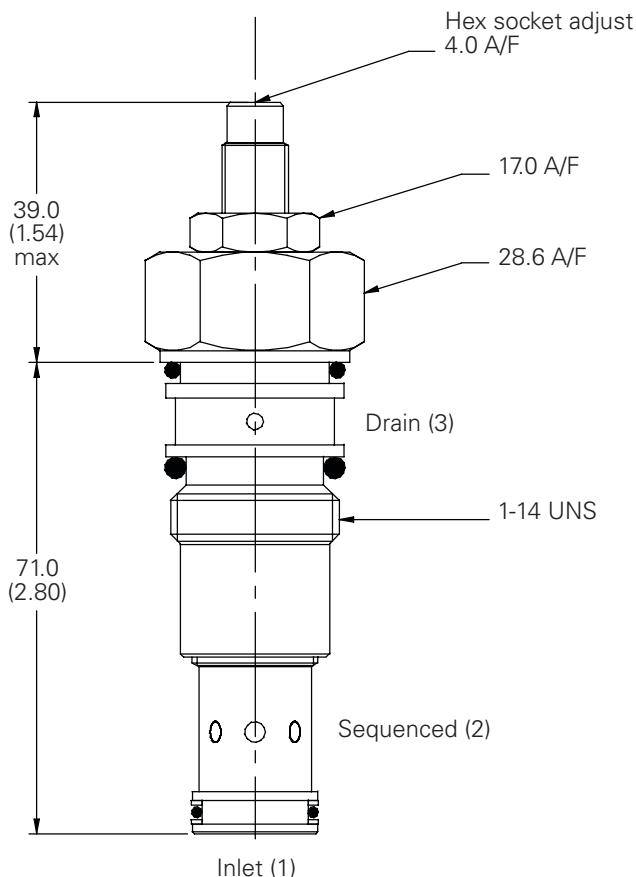
S - Nitrile (For use with most industrial hydraulic oils)  
SV - Viton (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

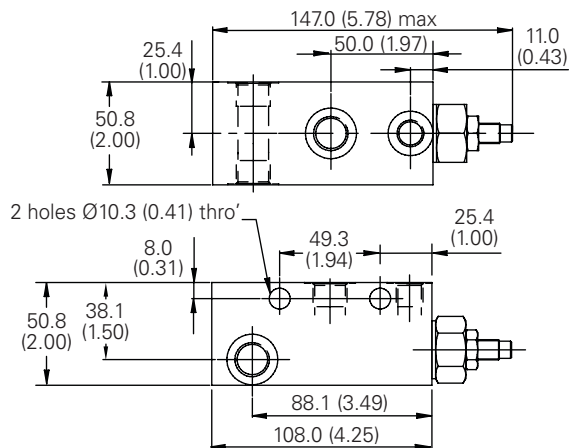
### Cartridge only

Basic Code  
1PSC145



### Complete valve

3/8", 1/2", 3/4" Ports  
Basic Code  
1PSC145

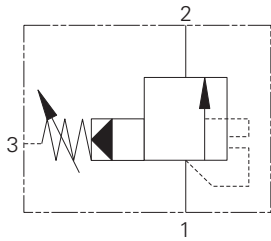


**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# IUPS100 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain, unloading  
 150 L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

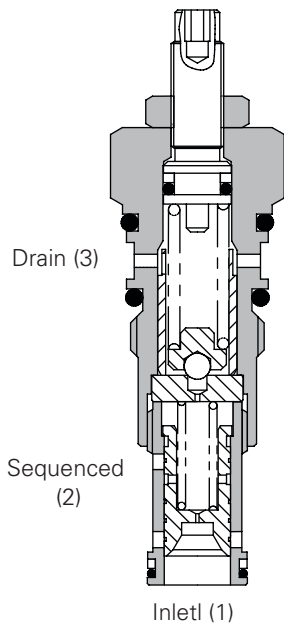
Inlet pressure acts on the pilot section of the valve. When the valve setting is reached, the pilot section opens and pilot flow causes the spool to move back uncovering the radial vent port.

The main section then opens fully with pilot flow passing through the vent. The valve remains open until flow to the sequenced port ceases and inlet pressure drops to zero.

## Features

Hardened steel working parts give long, trouble-free life. Selectively matched honed assemblies give accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp 40° C Viscosity = 32 cSt (150 SUS)

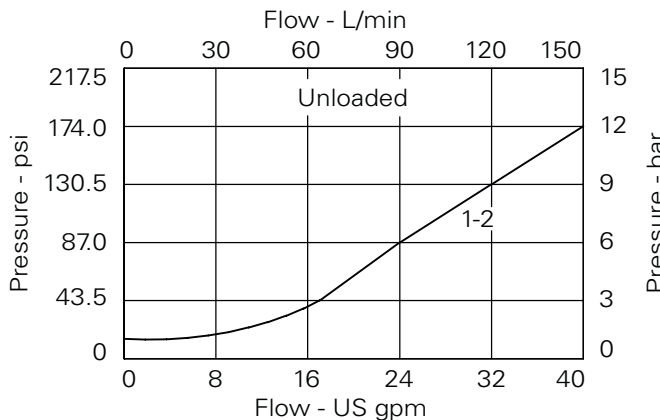
Rated flow	150 L/min (40 USgpm)	
Max setting	350 bar (5000 psi)	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A880 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1PSC100	0.17 kg (0.37 lbs)
	1PSC145	0.56 kg (1.23 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°C to 194°F)	
Leakage	100 milliliters/min nominal	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

An off-loading (kick down) sequence valve opens fully to pass flow to a secondary circuit when the valve pressure setting is reached. This allows flow to the secondary circuit with a minimal pressure drop.

## Pressure drop curves

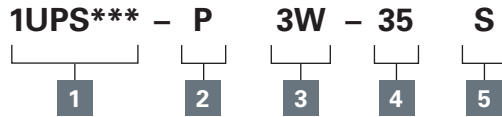


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1UPS100 - Pressure sequence valve

Spool, pilot operated, normally closed, internal pilot, external drain, unloading  
150 L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**1UPS100** - Cartridge Only  
**1UPS145** - Cartridge in body  
**1UPS155** - Cartridges in dual body

### 2 Adjustment means

**P** - Leakproof screw adjustment  
**R** - Handknob adjustment  
**G** - Tamperproof Cap

(See page 4-102 for dimensions)

### 3 Port sizes

Code	Port size	Housing number - body only	
		Aluminium	Steel
<b>4W</b>	1/2" BSP 1/4" BSP Drain Ports	B4821	B4527
<b>6W</b>	3/4" BSP 1/4" BSP Drain Ports	B5466	B4403
<b>6T</b>	3/8" SAE 1/4" SAE Drain Ports	B10793	
<b>8T</b>	1/2" SAE 1/4" SAE Drain Ports	B6584	
<b>12T</b>	3/4" SAE 1/4" SAE Drain Ports	B7883	B11379

### 4 Pressure range @ 14 l/min

**Note:** Code based on pressure in bar.

**20** - 10-210 bar.

Std. setting 100 bar

**35** - 30-350 bar.

Std setting 210 bar

Std setting made at 14 L/min

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)

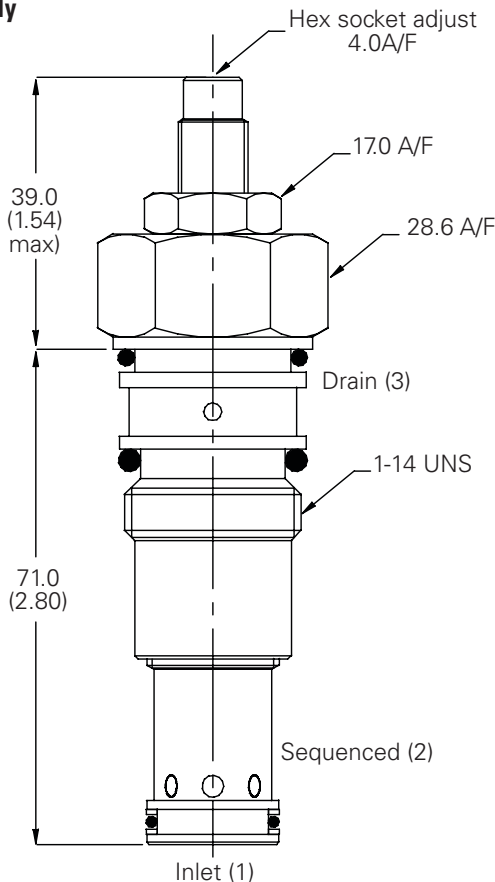
**SV** - (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

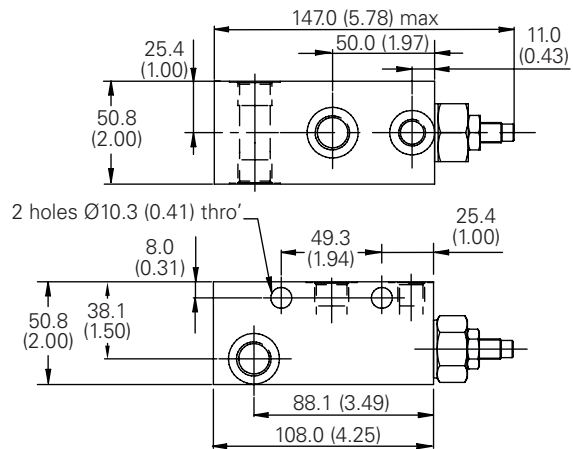
### Cartridge only

Basic Code  
**1UPS100**



### Complete valve

3/8", 1/2", 3/4" Ports  
Basic Code  
**1UPS145**

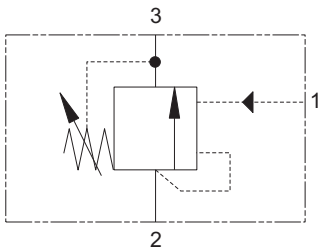


**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PUV3-10 - Pilot unloading valve

Poppet, internal or external pilot operated, normally closed, unloading  
 4 L/min (1 USgpm) • 210 bar (3000 psi)



## Operation

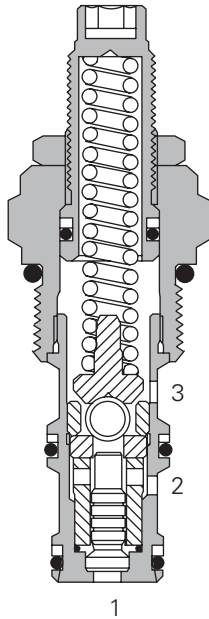
This valve blocks flow from port 2 to port 3, until either the predetermined spring setting has been reached, or an external pilot has been applied to port 1. At this time flow is then allowed from port 2 to port 3.

The valve will reset at a percentage of the unloading setting as called out in the model code. This valve can be used alone for low flow applications or used as the pilot stage of a two-stage unloader valve (see application example). The main stage of the unloader is typically a DPS2 logic element.

## Features

Hardened poppet and seat.  
 Very low leakage when piloted closed without exerting excessive force on the seat.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	4 L/min (1 USgpm)
Unloading pressure adjustment range	20-210 bar (300-3000 psi)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,15 kg (0.33 lbs)
Seal kits	565812 Buna-N 889611 Viton®

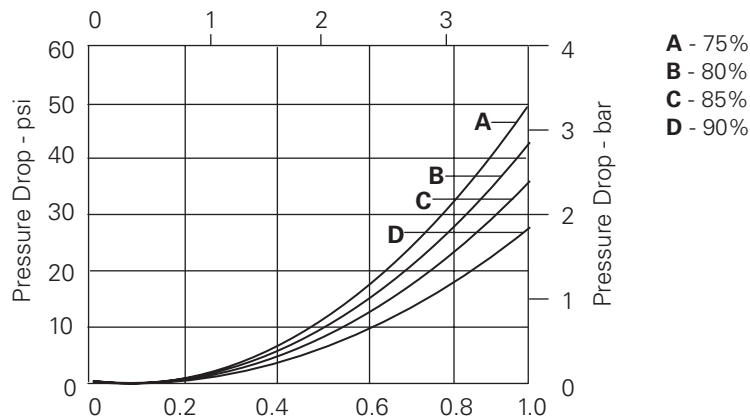
Viton is a registered trademark of E.I. DuPont

## Description

The PUV3 is a two-way, normally closed, externally or internally pilot operated screw-in cartridge type pilot unloading valve.

## Pressure drop curves

Cartridge only  
 Piloted full open



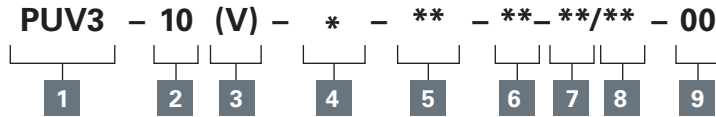
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PUV3-10 - Pilot unloading valve

Poppet, internal or external pilot operated, normally closed, unloading  
4 L/min (1 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**PUV3** - Pilot unloading valve

### 2 Size

**10** - 10 size

### 3 Seal

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
<b>6T</b>	SAE 6	566162	–
<b>3B</b>	3/8" BSPP	02-173358	–
<b>6H</b>	SAE 6	–	876704
<b>8H</b>	SAE 8	–	876711
<b>2G</b>	1/4" BSPP	–	876705
<b>3G</b>	3/8" BSPP	–	876714

See section J for housing.

### 6 Loading (closing) pressure, as percentage of unloading pressure

**75** - 75%  
**80** - 80%  
**85** - 85%  
**90** - 90%

### 7 Pressure range

**Note:** Code based on pressure in psi.  
**15** - 20-100 bar.  
(300-1500 psi)  
**30** - 100-210 bar.  
(1500-3000 psi)

### 8 Unloading pressure setting

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**9.5** - 65 bar (950 psi)

### 9 Special features

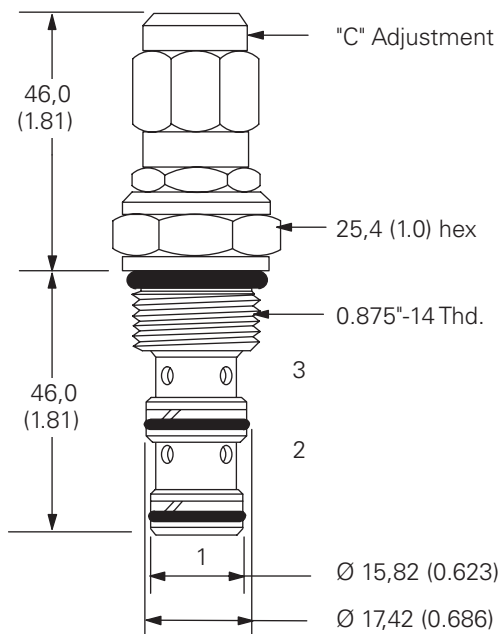
**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

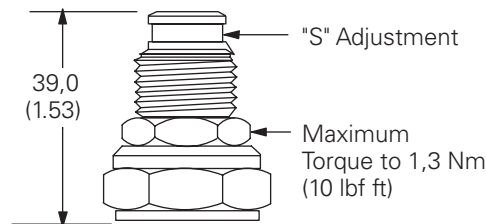
mm (inch)

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

## Cartridge only



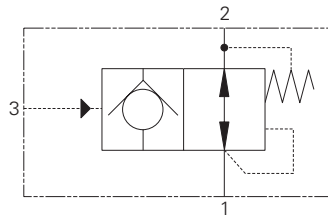
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ADV1-16 - Accumulator discharge valve

Poppet, normally open, external pilot  
 30 L/min (8 USgpm) • 210 bar (3000 psi)



## Operation

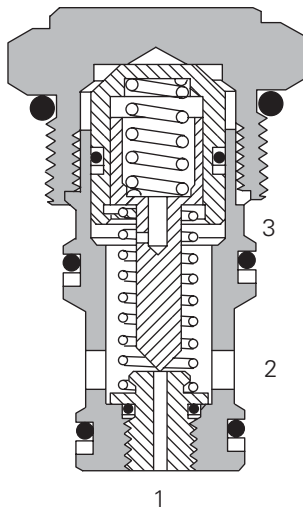
The valve remains open between port 1 and 2 until sufficient pilot pressure is applied to port 3.

This holds pressure in port 1 until the pilot pressure is released allowing flow to take place from port 1 to 2.

## Features

Hardened poppet and seat.  
 Very low leakage when piloted closed without exerting excessive force on the seat.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	30 L/min (8 USgpm)
Minimum pilot pressure @ port 3	4 bar (60 psi)
Cavity	C-16-3S
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Pilot ratio	100:1
Weight cartridge only	0,28 kg (0.62 lbs)
Seal kits	565812 Buna-N 889611 Viton®

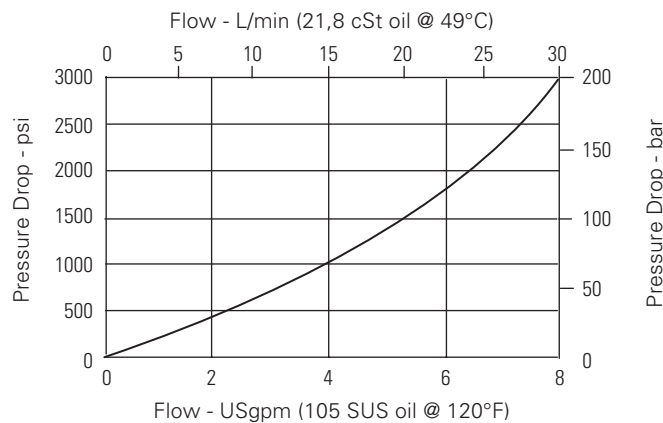
Viton is a registered trademark of E.I. DuPont

## Description

ADV1-16 is a poppet type pilot to close check valve with a 100 to 1 pilot ratio ideal for accumulator discharge applications.

## Pressure drop curves

Cartridge only  
 Port 3 pilot pressure = 0

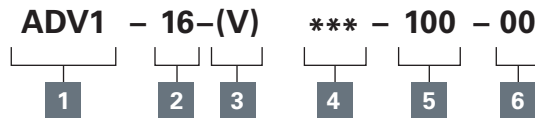


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# ADV1-16 - Accumulator discharge valve

Poppet, normally open, external pilot  
30 L/min (8 USgpm) • 210 bar (3000 psi)

## Model code



### 1 Function

**ADV1** - Accumulator discharge valve

### 2 Size

**16** - 16 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum Light duty	Aluminum Fatigue rated
<b>6B</b>	3/4" BSPP	02-175471	-
<b>12T</b>	SAE 12	566414	-
<b>4G</b>	1/2" BSPP	-	802-160676
<b>6G</b>	3/4" BSPP	-	876726
<b>10H</b>	SAE 10	-	876725
<b>12H</b>	SAE 12	-	876727

See section J for housing.

### 5 Pilot area ratio

Port 3: Port 1 - 100:1  
(Minimum pilot pressure at port 3 - 4 bar (60 psi))

### 6 Special features

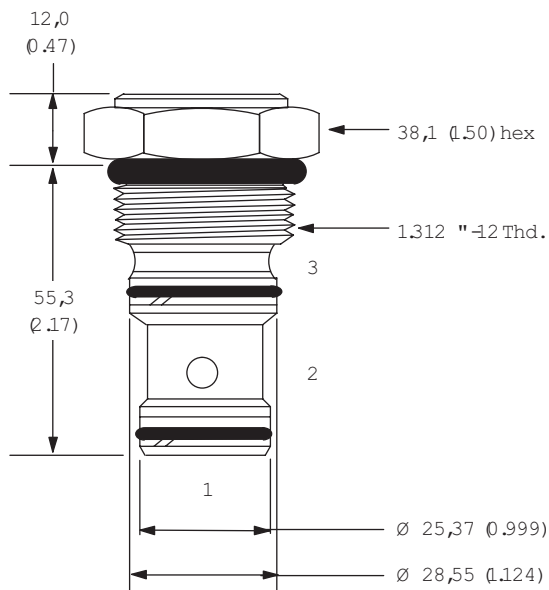
**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

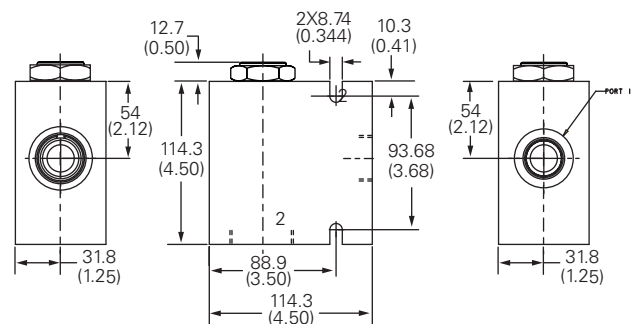
mm (inch)

Torque cartridge in housing  
108-122 Nm (80-90 ft. lbs)

## Cartridge only



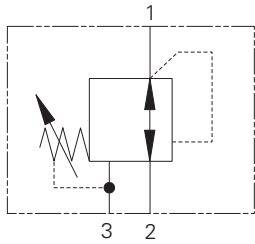
## Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV1-10 - Pressure reducing/relieving valve

Spool, direct acting  
15 L/min (4 USgpm) • 165 bar (2400 psi)



## Operation

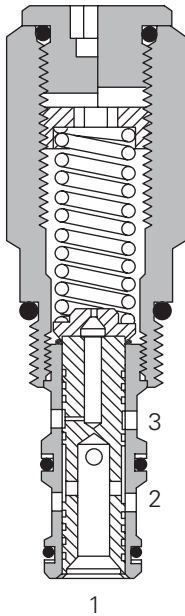
Normally open, the valve throttles or closes to maintain constant pressure in the regulated line.

As in the other direct acting valves, the spring force holds the valve open.

## Features

Hardened steel working parts are individually match ground to assure long life, reliability and high accuracy.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	165 bar (2400 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	15 L/min (4 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.54 lbs)
Seal kits	565804 Buna-N 889599 Viton®

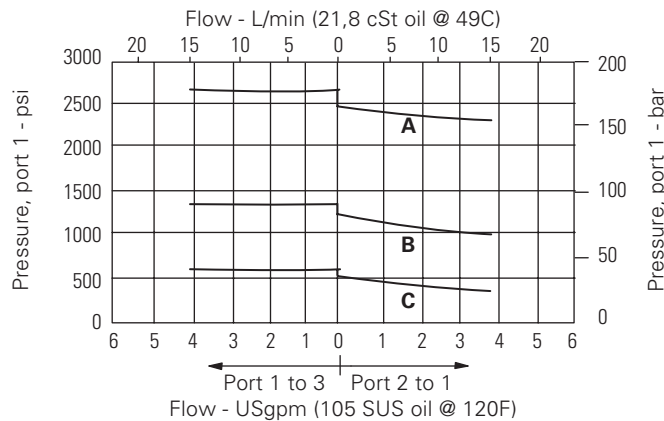
Viton is a registered trademark of E.I. DuPont

## Description

This is a direct acting, screw in cartridge pressure reducing valve designed to provide an adjustable regulated pressure which is lower than supply pressure.. Direct acting models are suited to lower flow applications and regulated pressures to 165 bar (2500 psi). This valve also acts as a relief valve, relieving from regulated line to tank if shock or surge pressures occur in the regulated line.

## Pressure override curves

Cartridge only



- A - 24 spring
- B - 12 spring
- C - 6 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV1-10 - Pressure reducing/relieving valve

Spool, direct acting  
15 L/min (4 USgpm) • 165 bar (2400 psi)

## Model code



### 1 Function

**PRV1** - Pressure reducing/relieving valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminum light duty	Aluminum fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-
<b>6T</b>	SAE 6	566162	-
<b>2G</b>	1/4" BSPP	-	876705
<b>3G</b>	3/8" BSPP	-	876714
<b>6H</b>	SAE 6	-	876704
<b>8H</b>	SAE 8	-	876711

See section J for housing details.

### 6 Pressure range

**Note:** Code based on pressure in psi.

**2** - 3,5-14 bar  
(50-200 psi)  
**6** - 7-40 bar  
(100-600 psi)

**12** - 14-85 bar  
(200-1200 psi)

**24** - 30-165 bar  
(400-2400 psi)

### 7 Factory set reduced pressure

Within ranges in **6**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 8 Special features

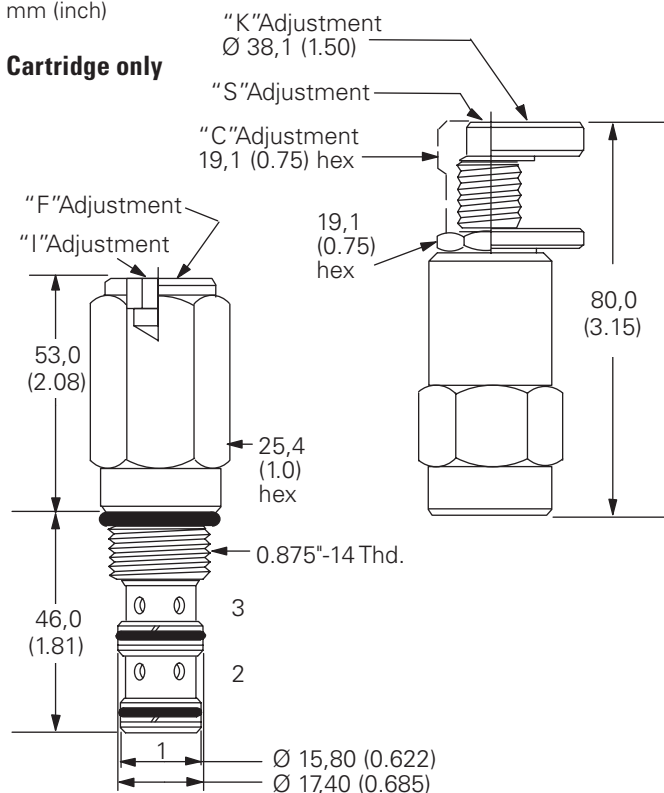
**00** - None  
(Only required if valve has special features, omitted if "00.")

**SS** - 316 Stainless steel external components

## Dimensions

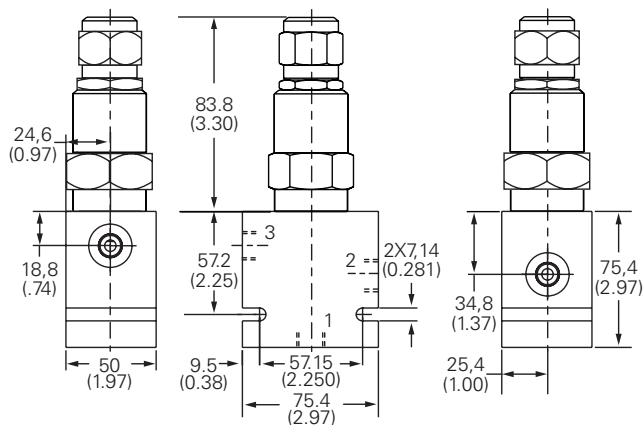
mm (inch)

### Cartridge only



Torque cartridge in aluminum housing 47-54 Nm (35-40 ft. lbs)

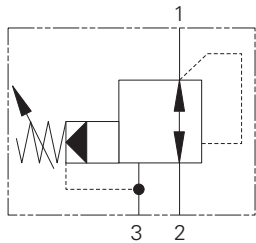
### Installation drawing



Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV2-10 - Pressure reducing/relieving valve

Spool, pilot operated  
38 L/min (10 USgpm) • 240 bar (3500 psi)



## Operation

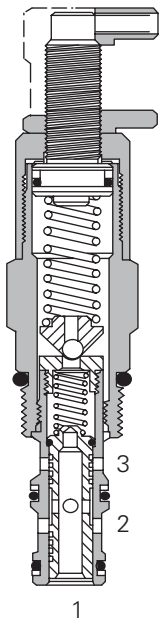
This valve is normally open allowing inlet oil to pass to the regulated line until the outlet (regulated) pressure exceeds the setting of the pilot section. When this setting is achieved a pilot flow occurs, causing a pressure imbalance across the main spool, which then moves throttling the inlet flow

and preventing any further pressure rise in the regulated line. If any external force causes the regulated pressure to rise more than 5-10% above the setting, the main spool moves back further, opening the regulated port to the tank line, thus working as a relief valve.

## Features

Cartridge construction with hardened, ground and honed working parts giving smooth, stable operation over all pressure ranges.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	240 bar (3500 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	38 L/min (10 USgpm)
Cavity	C-10-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,24 kg (0.54 lbs)
Seal kits	565804 Buna-N 889599 Viton®

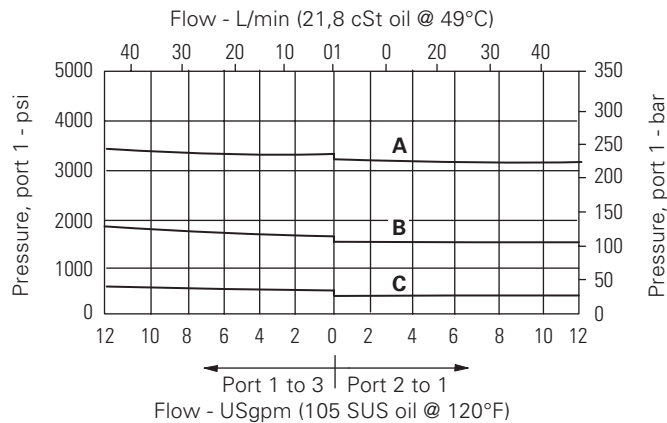
Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated screw in cartridge pressure reducing / relieving valve. The valve maintains a constant outlet pressure in hydraulic sub-systems regardless of fluctuations in the primary system. In addition to this it will act as a relief valve if the pressure in the sub-system rises higher than the setting of the valve directing excess fluid to tank.

## Pressure override curves

Cartridge only



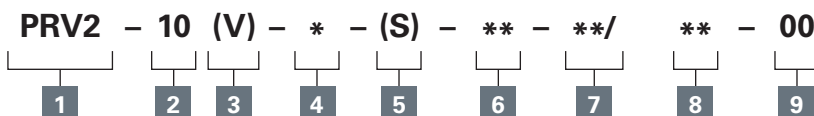
- A - 35 spring
- B - 20 spring
- C - 3 spring

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV2-10 - Pressure reducing/relieving valve

Spool, pilot operated  
38 L/min (10 USgpm) • 240 bar (3500 psi)

## Model code



### 1 Function

**PRV2** - Pressure reducing/relieving valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**F** - Factory set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-	-
<b>2G</b>	1/4" BSPP	-	876705	02-175127
<b>3G</b>	3/8" BSPP	-	876714	02-175128
<b>6H</b>	SAE 6	-	876704	-
<b>8H</b>	SAE 8	-	876711	-
<b>6T</b>	SAE 6	566162	-	02-175124
<b>8T</b>	SAE 8	-	-	02-175125

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.

**3** - 3,5-20 bar (50-300 psi)  
**20** - 7-140 bar (100-2000 psi)  
**35** - 17-240 bar (250-3500 psi)

### 8 Factory set reduced pressure

Within ranges in **7**

**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

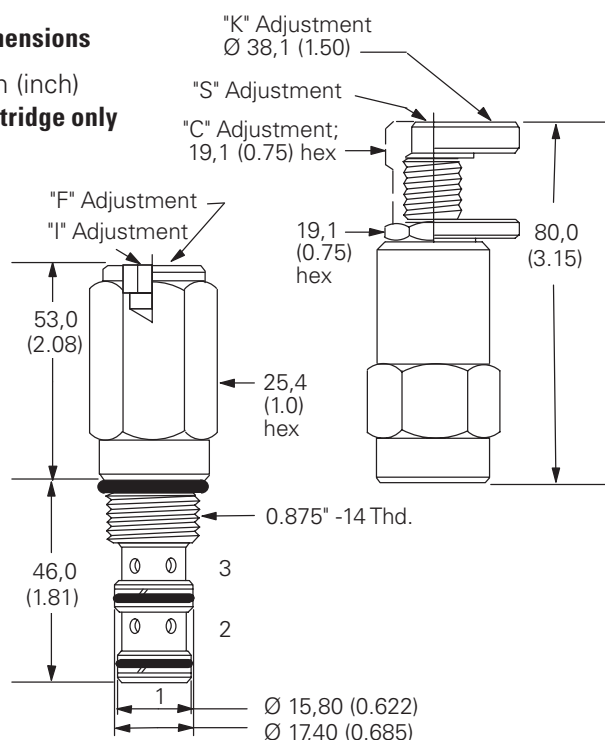
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 9 Special features

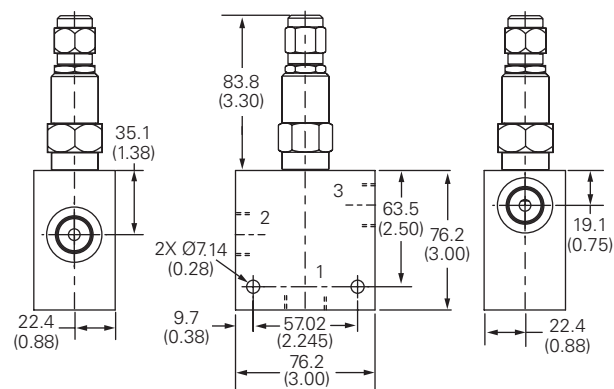
**00** - None (Only required if valve has special features, omitted if "00.")  
**SS** - 316 Stainless Steel external components

## Dimensions

mm (inch)  
**Cartridge only**



## Installation drawing (Steel)



Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

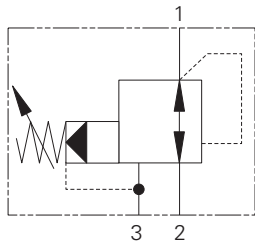
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV12-10 - Pressure reduced/relieving valve

Spool, pilot operated  
45 L/min (12 USgpm) • 350 bar (5000 psi)



## Operation

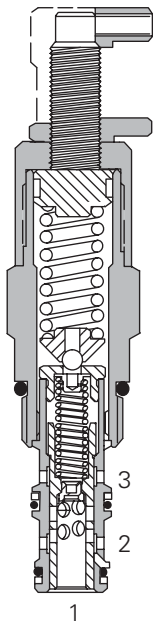
This valve is normally open allowing inlet oil to pass to the regulated line until the outlet (regulated) pressure exceeds the setting of the pilot section. When this setting is achieved a pilot flow occurs, causing a pressure imbalance across the main spool, which then moves throttling the inlet flow

and preventing any further pressure rise in the regulated line. If any external force causes the regulated pressure to rise more than 5-10% above the setting, the main spool moves back further, opening the regulated port to the tank line, thus working as a relief valve.

## Features

Cartridge construction with hardened, ground and honed working parts giving smooth, stable operation over all pressure ranges.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	45 L/min (12 USgpm)
Cracking pressure	15 – 8,5–100 bar (125–1500 psi) 30 – 17,0–210 bar (250–3000 psi) 50 – 38– 350 bar (550–5000 psi)
Cavity	C-10-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,24 kg (0.54 lbs)
Seal kits	565804 Buna-N 889599 Viton®

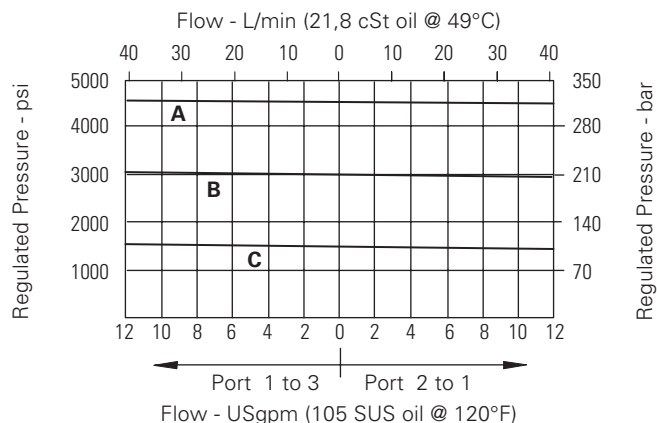
Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated screw in cartridge pressure reducing / relieving valve. The valve maintains a constant outlet pressure in hydraulic sub-systems regardless of fluctuations in the primary system. In addition to this it will act as a relief valve if the pressure in the sub-system rises higher than the setting of the valve directing excess fluid to tank.

## Reduced pressure characteristics

Cartridge only  
(max. setting)



- A - 50 spring
- B - 33 spring
- C - 15 spring

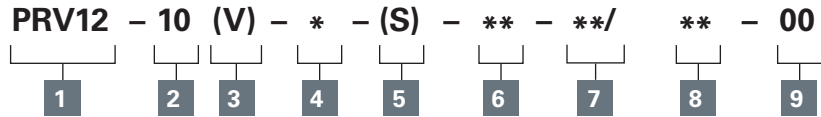
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# PRV12-10 - Pressure reduced/relieving valve

Spool, pilot operated  
45 L/min (12 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**PRV12** - Pressure reducing/relieving valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton

### 4 Adjustment

**C** - Cap  
**F** - Factory Set  
**I** - Internal  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**Blank** - Aluminum  
**S** - Steel

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>3B</b>	3/8" BSPP	02-173358	-	-
<b>2G</b>	1/4" BSPP	-	876705	02-175127
<b>3G</b>	3/8" BSPP	-	876714	02-175128
<b>6H</b>	SAE 6	-	876704	-
<b>8H</b>	SAE 8	-	876711	-
<b>6T</b>	SAE 6	566162	-	02-175124
<b>8T</b>	SAE 8	-	-	02-175125

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.

**15** - 8,5-100 bar (125-1500 psi)  
**30** - 17,0-210 bar (250-3000 psi)  
**50** - 38-350 bar (550-5000 psi)

### 8 Factory set reduced pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

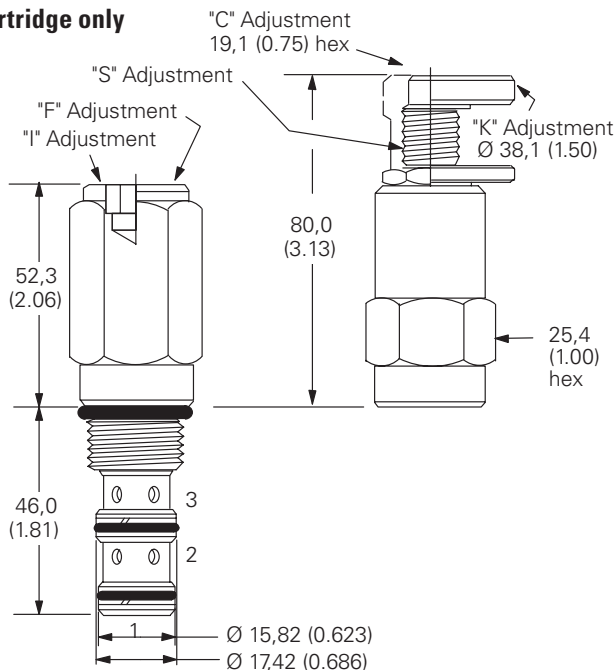
### 9 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

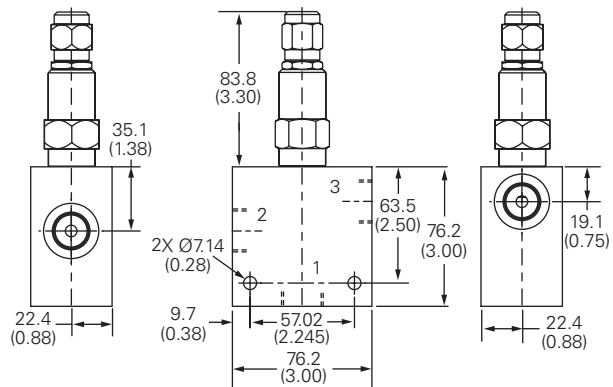
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



### Warning

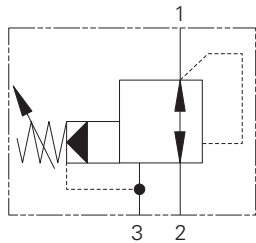
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft. lbs)  
**S** - 68-75 Nm (50-55 ft. lbs)

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV12-12 - Pressure reducing/relieving valve

Spool, pilot operated  
114 L/min (30 USgpm) • 350 bar (5000 psi)



## Operation

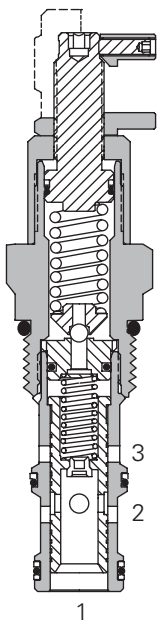
This valve is normally open allowing inlet oil to pass to the regulated line until the outlet (regulated) pressure exceeds the setting of the pilot section. When this setting is achieved a pilot flow occurs, causing a pressure imbalance across the main spool, which then moves throttling the inlet flow

and preventing any further pressure rise in the regulated line. If any external force causes the regulated pressure to rise more than 5-10% above the setting, the main spool moves back further, opening the regulated port to the tank line, thus working as a relief valve.

## Features

Cartridge construction with hardened, ground and honed working parts giving smooth, stable operation over all pressure ranges.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	350 bar (5000 psi) Port 2 to 1 and 1 to 3 @ 57 L/min (15 USgpm) 210 bar (3000 psi) Port 2 to 1 @ 114 L/min (30 USgpm)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage	1,0 L/min (0.25 USgpm)
Cavity	C-12-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/16/13
Weight cartridge only	0,4 kg (0.89 lbs)
Seal kits	02-165872 Buna-N 02-165886 Viton®

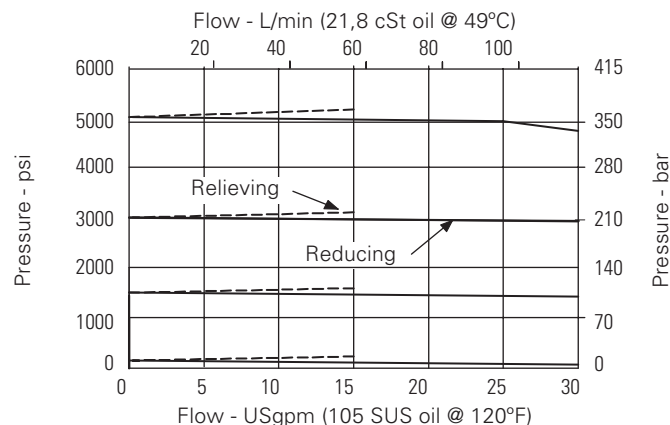
Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated screw in cartridge pressure reducing / relieving valve. The valve maintains a constant outlet pressure in hydraulic sub-systems regardless of fluctuations in the primary system. In addition to this it will act as a relief valve if the pressure in the sub-system rises higher than the setting of the valve directing excess fluid to tank.

## Pressure drop curves

Cartridge only

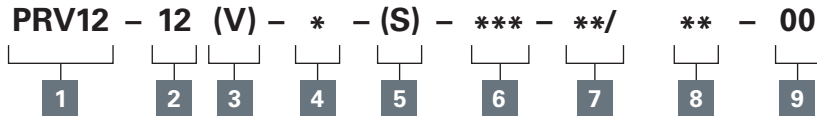


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV12-12 - Pressure reducing/relieving valve

Spool, pilot operated  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

PRV12 - Pressure reducing/relieving valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Adjustment

S - Screw  
C - Cap  
K - Knob

### 5 Valve housing material

Omit for cartridge only

S - Steel  
A - Aluminum

### 6 Port size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminum fatigue rated	Steel fatigue rated
10T	SAE 10	02-160642	02-161070
12T	SAE 12	02-160646	02-169816
4G	1/2" BSPP	02-161817	02-169815
6G	3/4" BSPP	02-161816	02-169814

See section J for housing.

### 7 Cracking pressure range

Note: Code based on pressure in psi.

15 - 10-100 bar (150-1500 psi)

30 - 17-210 bar (250-3000 psi)

50 - 24-350 bar (350-5000 psi)

### 8 Factory set reduced pressure

Within ranges in 7

Blank - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:

10 - 70 bar (1000 psi)

10.5 - 72,4 bar (1050 psi)

### 9 Special features

00 - None

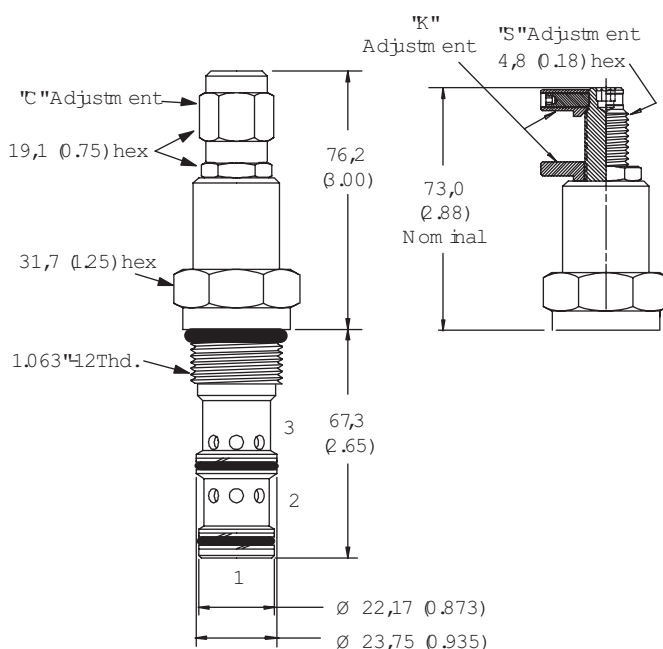
(Only required if valve has special features, omitted if "00.")

## Dimensions

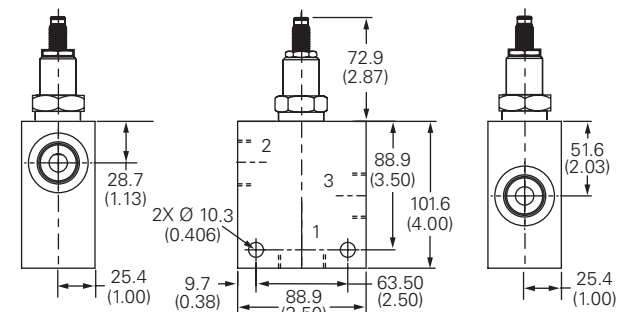
mm (inch)

Torque cartridge in housing  
A - 81-95 Nm (60-70 ft. lbs)  
S - 102-115 Nm (75-85 ft. lbs)

## Cartridge only



## Installation drawing (Steel)



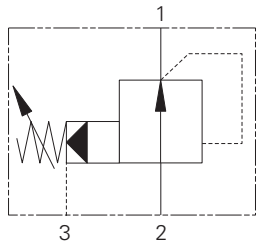
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PA100 - Pressure reducing valve

Spool, pilot operated  
100 L/min (26 USgpm) • 10 bar (150 psi) to 350 bar (5000 psi)



## Operation

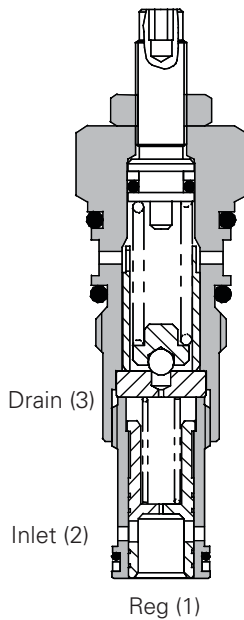
This valve is normally open, allowing oil from the inlet to pass through to the regulated port of the cartridge.

When the regulated pressure reaches the valve setting, the pilot section opens causing a pressure imbalance across the main spool which moves, throttling the inlet flow, preventing any further pressure rise in the regulated line.

## Features

Internal parts hardened, match ground and honed to give long, trouble-free life. Pilot style design allows for high flows and accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

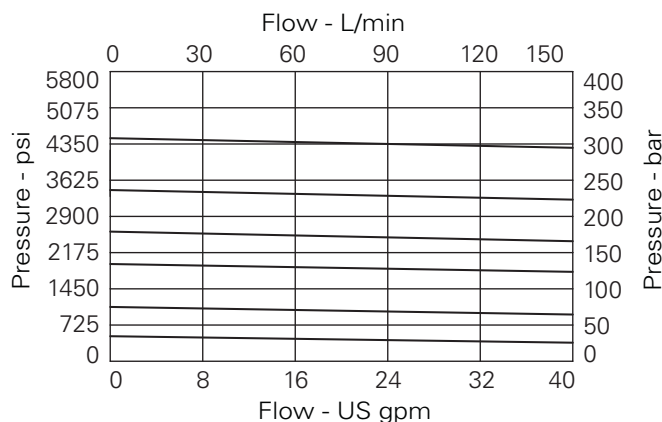
Rated flow	100 L/min (26 USgpm)	
Pressure range	10 to 350 bar (150 to 5000 psi)	
Max differential	210 bar (3000 psi) between 1 and 2	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A880 (See Section M)	
Torque cartridge into cavity	60 Nm (44 lbs ft)	
Weight	1PA100	0.17 kg (0.37 lbs)
	1PA150	0.60 kg (1.32 lbs)
Seal kit number	SK177 (Nitrile) SK177V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°C to 194°F)	
Pilot flow	500 milliliters/min @ standard setting	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated pressure reducing valve designed to maintain a constant downstream pressure lower than the inlet pressure. Ideal for use in two pressure systems or to protect low pressure actuators such as brake cylinders.

## Pressure drop curve

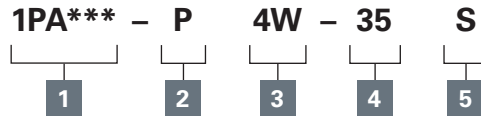


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PA100 - Pressure reducing valve

Spool, pilot operated  
100 L/min (26 USgpm) • 10 bar (150 psi) to 350 bar (5000 psi)

## Model code



### 1 Basic code

**1PA100** - Cartridge Only  
**1PA150** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminium single	Steel single
<b>4W</b>	1/2" BSP. 1/4" BSP Drain Port	B4821	B4527
<b>6W</b>	3/4" BSP. 1/4" BSP Drain Port	B5466	B4403
<b>8T</b>	1/2" SAE. 1/4" SAE Drain Port	B6584	
<b>12T</b>	3/4" SAE. 1/4" SAE Drain Port	B7883	B11379

### 4 Pressure range @ zero flow

**Note:** Code based on pressure in bar.

**7** - 10–70 bar  
Std setting 20 bar  
**20** - 15–210 bar  
Std setting 100 bar  
**35** - 30–350 bar  
Std setting 280 bar  
Std setting made at zero flow (dead head)

### 5 Seals

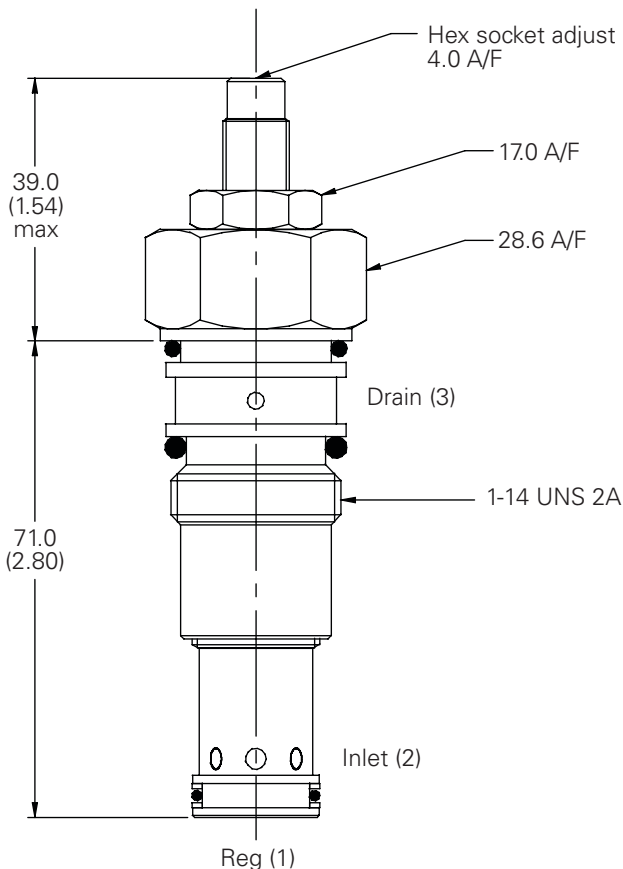
**S** - Nitrile (For use with most industrial hydraulic oils)  
**SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

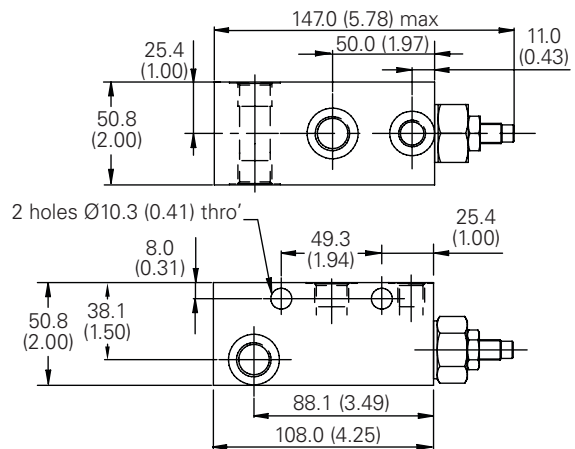
### Cartridge only

Basic Code  
**1PA100**



### Complete valve

1/2", 3/4" Ports  
Basic Code  
**1PA150**



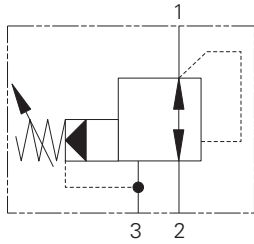
**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 please consult our technical department or use the steel body option.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV2-16 - Pressure reducing/relieving valve

Spool, pilot operated  
151 L/min (40 USgpm) • 350 bar (5000 psi)



## Operation

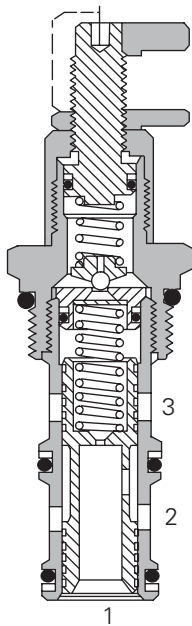
This valve is normally open allowing inlet oil to pass to the regulated line until the outlet (regulated) pressure exceeds the setting of the pilot section. When this setting is achieved a pilot flow occurs, causing a pressure imbalance across the main spool, which then moves throttling the inlet flow

and preventing any further pressure rise in the regulated line. If any external force causes the regulated pressure to rise more than 5-10% above the setting, the main spool moves back further, opening the regulated port to the tank line, thus working as a relief valve.

## Features

Cartridge construction with hardened, ground and honed working parts giving smooth, stable operation over all pressure ranges.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	151 L/min (40 USgpm)
Cavity	C-16-3
Standard housing materials	Aluminum or steel
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness Code 18/ <b>16/13</b>
Weight cartridge only	0,40 kg. (0.89 lbs.)
Seal kits	565811 Buna-N 889610 Viton®

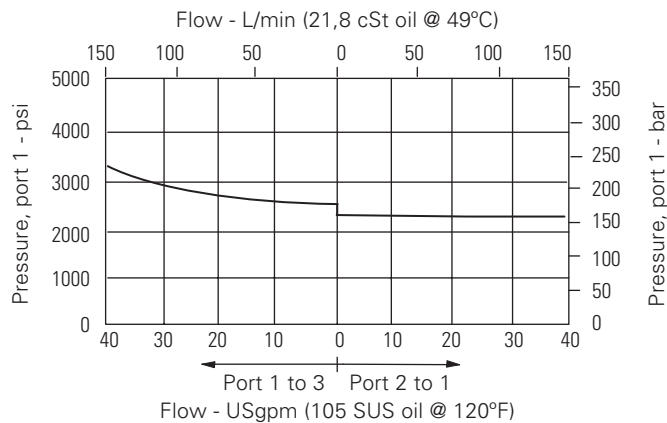
Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated screw in cartridge pressure reducing / relieving valve. The valve maintains a constant outlet pressure in hydraulic sub-systems regardless of fluctuations in the primary system. In addition to this it will act as a relief valve if the pressure in the sub-system rises higher than the setting of the valve directing excess fluid to tank.

## Pressure drop curve

Cartridge only

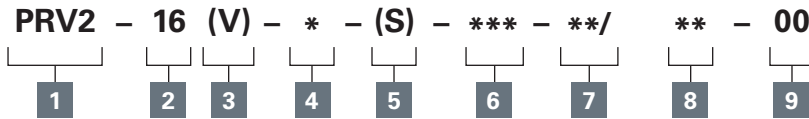


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# PRV2-16 - Pressure reducing/relieving valve

Spool, pilot operated  
151 L/min (40 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

**PRV2** - Pressure reducing/relieving valve

### 2 Size

**16** - 16 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Adjustment

**C** - Cap  
**K** - Knob  
**S** - Screw

### 5 Valve housing material

**S** - Steel  
**A** - Aluminum

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number		
		Aluminum light duty	Aluminum fatigue rated	Steel fatigue rated
<b>6B</b>	3/4" BSPP	02-175465	-	-
<b>4G</b>	1/2" BSPP	-	876720	02-175131
<b>6G</b>	3/4" BSPP	-	876722	02-175132
<b>10H</b>	SAE 10	-	876721	-
<b>12H</b>	SAE 12	-	876723	-
<b>10T</b>	SAE 10	-	-	02-175129
<b>12T</b>	SAE 12	566152	-	02-175130

See section J for housing.

### 7 Cracking pressure range

**Note:** Code based on pressure in psi.  
**30** - 34-210 bar (500-3000 psi)  
**60** - 70-415 bar (1000-6000 psi)

### 8 Factory set reduced pressure

Within ranges in **7**  
**Blank** - Normal factory setting at approximate mid-range. User requested settings in 3,45 bar (50 psi) steps, Coded as in the following examples:  
**10** - 70 bar (1000 psi)  
**10.5** - 72,4 bar (1050 psi)

### 9 Special features

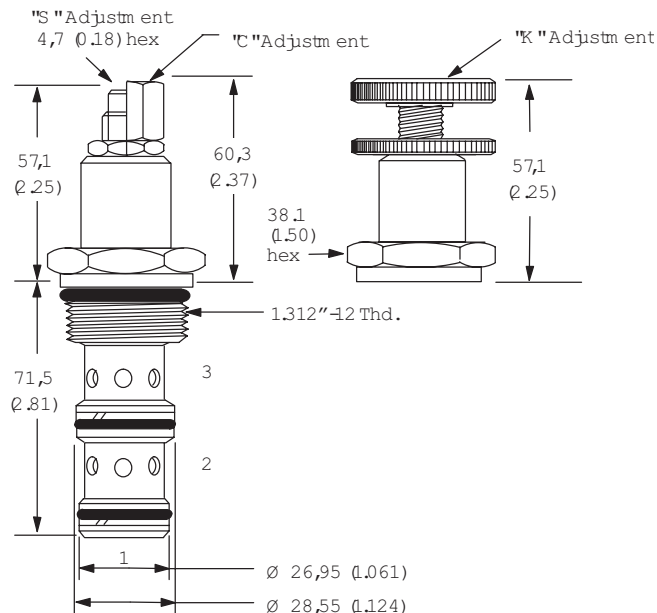
**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

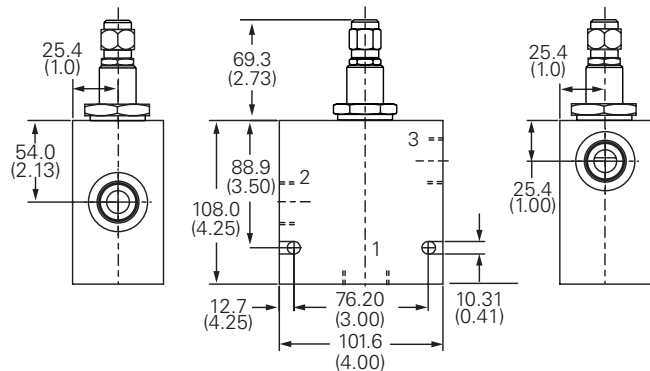
mm (inch)

Torque cartridge in housing  
**A** - 108-122 Nm (80-90 ft. lbs)  
**S** - 136-149 Nm (100-110 ft. bs)

### Cartridge only



### Installation drawing (Steel)



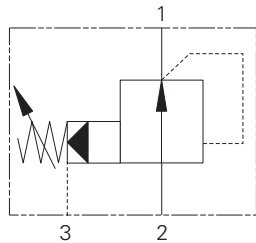
### Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PA200 - Pressure reducing valve

Spool, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)



## Operation

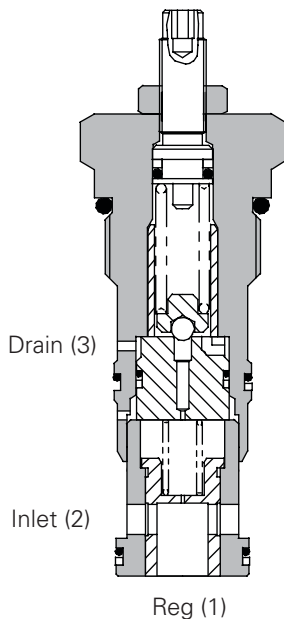
This valve is normally open, allowing oil from the inlet to pass through to the regulated port of the cartridge.

When the regulated pressure reaches the valve setting, the pilot section opens causing a pressure imbalance across the main spool which moves, throttling the inlet flow, preventing any further pressure rise in the regulated line.

## Features

Internal parts hardened, match ground and honed to give long, trouble-free life. Pilot style design allows for high flows and accurate performance.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on: Oil Temp = 40° C Viscosity = 32 cSt (150 SUS)

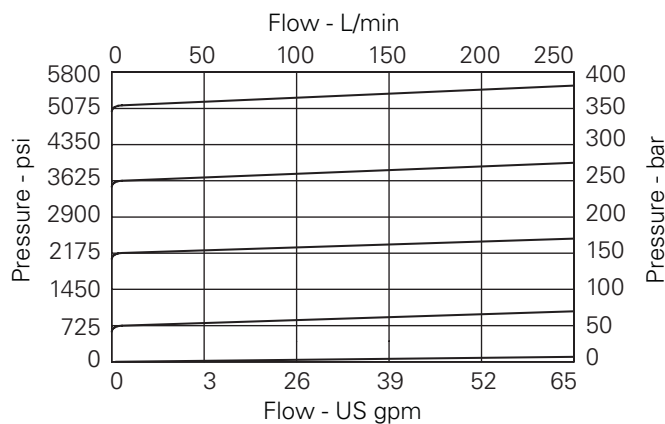
Rated flow	200 L/min (52 USgpm)	
Max setting	Inlet 350 bar (5000 psi) Reg 30–350 bar (435–5000 psi)	
Max Differential	210 bar (3000 psi) between 1 and 2	
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.	
Body material	Standard aluminium (up to 210 bar*). Add suffix "377" for steel option.	
Mounting position	Unrestricted	
Cavity number	A16102 (See Section 17)	
Torque cartridge into cavity	100 Nm (76 lbs ft)	
Weight	1PA200	0.72 kg (1.59 lbs)
	1PA250	1.06 kg (2.34 lbs)
Seal kit number	SK173 (Nitrile) SK173V (Viton®)	
Recommended filtration level	BS5540/4 Class 18/13 (25 micron nominal)	
Operating temp	-30°C to +90°C (-22°C to 194°F)	
Pilot Flow	550 milliliters/min @ standard setting	
Nominal viscosity range	5 to 500 cSt	

Viton is a registered trademark of E.I. DuPont

## Description

This is a pilot operated pressure reducing valve designed to maintain a constant downstream pressure lower than the inlet pressure. Ideal for use in two pressure systems or to protect low pressure actuators such as brake cylinders.

## Pressure drop curve



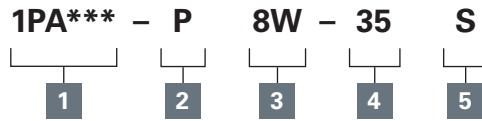
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# 1PA200 - Pressure reducing valve

Spool, pilot operated  
200 L/min (52 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Basic code

**1PA200** - Cartridge Only  
**1PA250** - Cartridge and Body

### 2 Adjustment means

**P** - Leakproof Screw Adjustment  
**R** - Handknob Adjustment  
**G** - Tamperproof Cap (See page E-7 for dimensions)

### 3 Port sizes - bodied valves only

Code	Port size	Housing number	
		Aluminum single	Steel single
<b>8W</b>	1" BSP 1/4" BSP Drain Port	B3496	B3497
<b>12T</b>	3/4" SAE 1/4" BSP Drain Port	B10786	
<b>16T</b>	1" SAE 1/4" SAE Drain Port	B6807	B11555

### 4 Pressure range @ zero flow

**Note:** Code based on pressure in bar.

**20** - 10–210 bar  
Std setting 100 bar

**35** - 30–350 bar  
Std setting 280 bar  
Std setting made at zero flow (dead head)

### 5 Seals

**S** - Nitrile (For use with most industrial hydraulic oils)

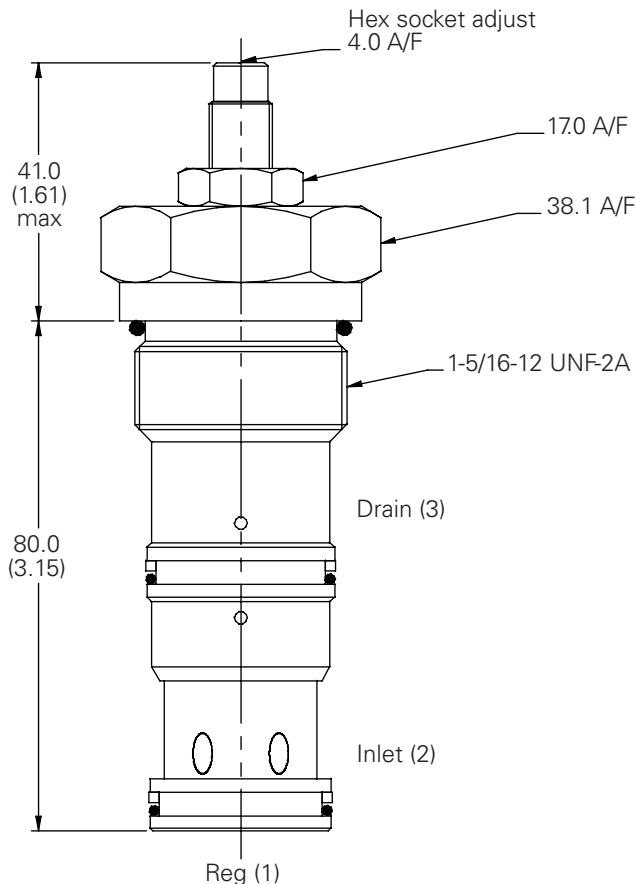
**SV** - Viton® (For high temperature and most special fluid applications)

## Dimensions

mm (inch)

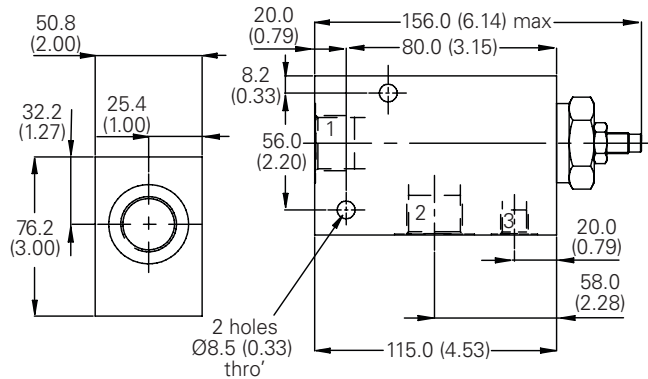
### Cartridge only

Basic Code  
**1PA200**



### Complete valve

3/4", 1" Ports  
Basic Code  
**1PA250**



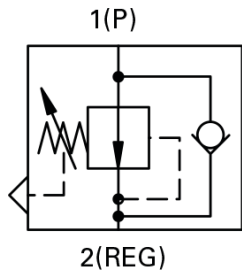
**Note:** Tightening torque of "F" adjuster locknut - 20 to 25 Nm

**Note:** For applications above 210 please consult our technical department or use the steel body option.

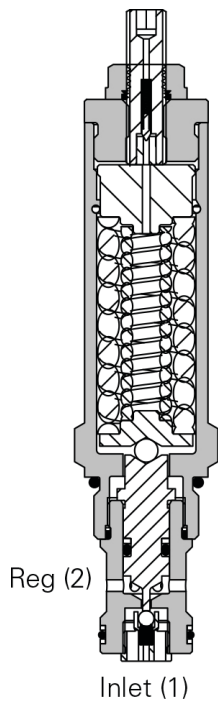
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PDC5 - Pressure reducing valve

Direct acting 2 ported Pressure reducing valve with check  
 6L/min (1.5 USgpm) • 210bar (3000psi) Reg • 350bar (5000psi) Inlet



## Sectional view



## Operation

At low pressure the pilot piston keeps the ball away from the seat allowing flow from port 1 to 2. As the pressure in the line increases the pilot piston is forced back against the spring until the ball sits on the seat. The inlet pressure can then rise up to the maximum system pressure. If the inlet pressure is removed then the ball will remain on the seat limiting the leakage to less than 1/3 cc/ min.

It should be noted that if the inlet pressure remains higher than the set pressure then leakage may take place from port 1 to port 2. If the regulated line has no leakage then the regulated pressure may rise in time to the inlet pressure.

## Features

Hardened seat and ball provide good sealing over the life of the valve. External parts surface hardened.

## Performance data

### Ratings and specifications

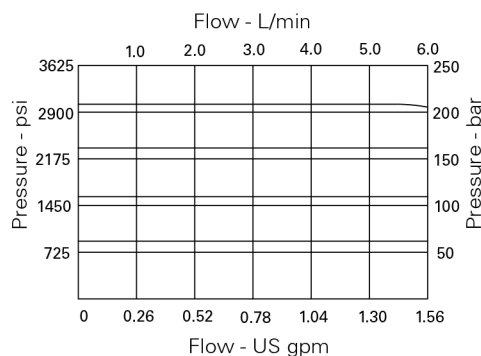
Figures based on: Oil Temp=40 C Viscosity = 32 cSt (150 SUS)

Max setting	210 bar (3000psi)
Max inlet pressure	350 bar (5000 psi)
Rated Flow	6 lts/min (1.5 US gpm)
Cavity	C-12-2
Standard housing material	Aluminium up to 210 bar add suffix "377" for steel option
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Weight Cartridge only	0, 62Kg (1.36 lbs)
Seal kit	02-165889 Nitrile 02-165888 Viton®

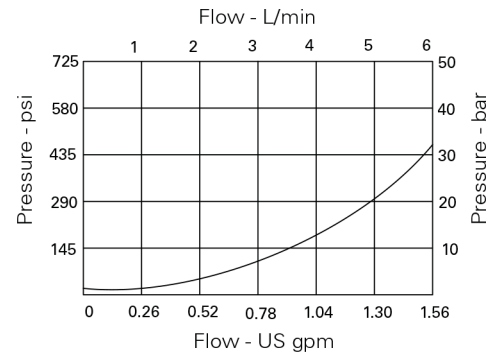
## Description

The 1PDC5 is a direct acting poppet type pressure reducing valve with a free flow check. The valve is used where leakage past the reducing valve is very important to maintain reduced locked in pressure in an accumulator or other pressurised systems.

## Pressure drop



Regulated Pressure



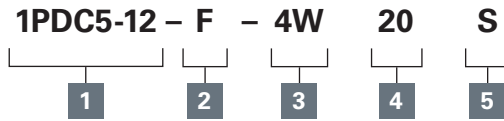
Free Flow Pressure Drop

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# 1PDC5 - Pressure reducing valve

Direct acting 2 ported Pressure reducing valve with check  
6L/min (1.5 USgpm) • 210bar (3000psi) Reg • 350bar (5000psi) Inlet

## Model code



### 1 Function

**1PDC5-12** - Pressure reducing valve with free flow check

### 2 Adjustment

**F** - Screw adjust

### 3 Port sizes - bodied valves only

Code	Port size	Aluminium	Steel
<b>4W</b>	1/2" BSPP	02-161118	02-172062
<b>10T</b>	SAE 10	02-160640	02-169744

### 4 Pressure range

**20** - 30 - 210 bar  
Standard setting 100 bar

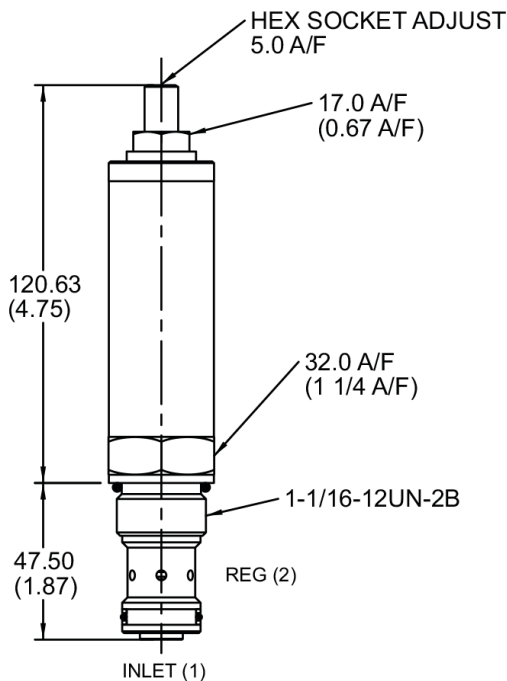
### 5 Seals

**S** - Nitrile - for standard temperatures and most fluid applications

## Dimensions

mm (inch)

## Cartridge only

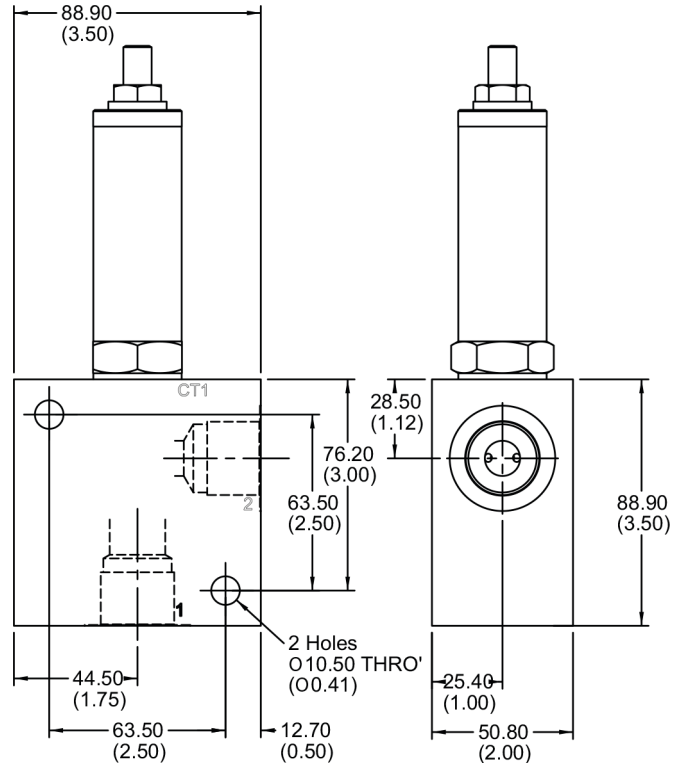


## Torque cartridge into housing

**A** - 81-95Nm (60-70 ft lbs)

**S** - 102-115 Nm (75-85 ft lbs)

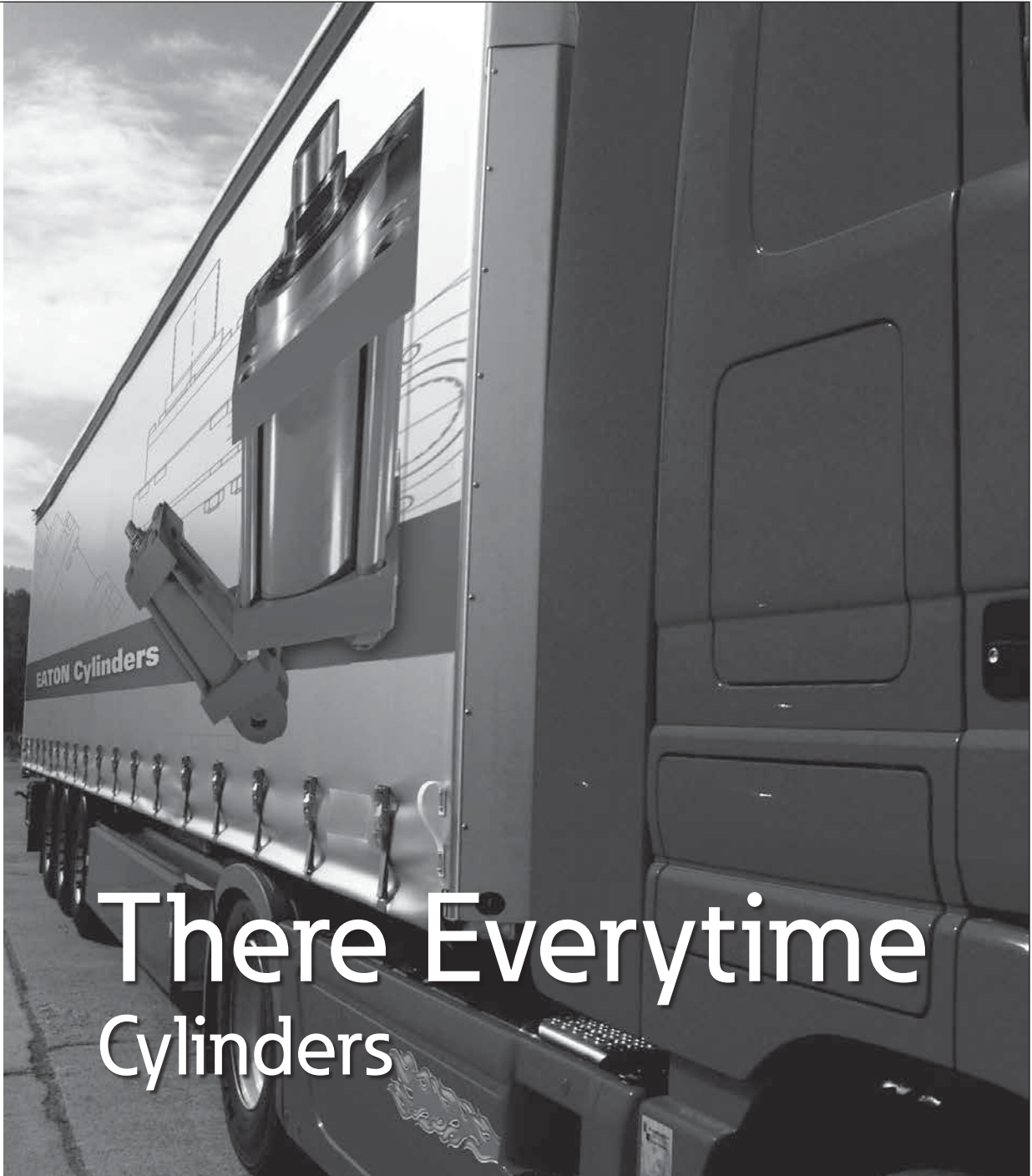
## Installation drawing



## Warning

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

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



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