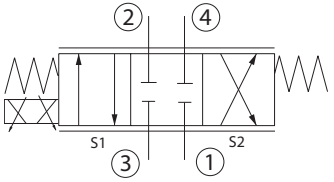
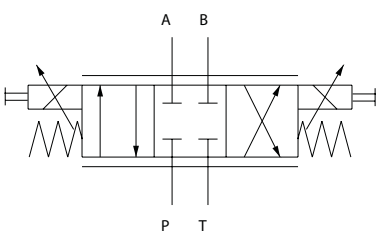
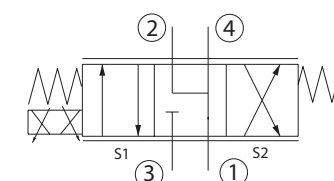
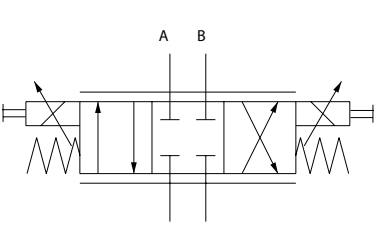
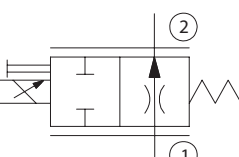


Proportional Directional	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSV10-34-02	SDC10-4	Proportional directional valve	22 l/min [6 US gal/min]	250 bar [3600 psi]	11.12

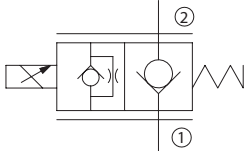
Proportional Directional	Model No.	Cavity	Description	Flow*	Pressure	Page
	PDCV03-3Z11	ISO D03	Proportional directional valve	30.3 l/min [8 US gal/min]	320 bar [4640 psi]	11.13
	PDCV05-3Z11	ISO D05		60 l/min [16 US gal/min]	320 bar [4600 psi]	11.14

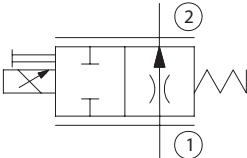
Proportional Directional	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSV10-34-05	SDC10-4	Proportional directional valve	22 l/min [6 US gal/min]	250 bar [3600 psi]	11.15

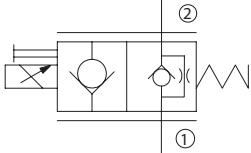
Proportional Directional	Model No.	Cavity	Description	Flow*	Pressure	Page
	PDCV03-3Y11	ISO D03	Proportional directional valve	30.3 l/min [8 US gal/min]	320 bar [4640 psi]	11.16
	PDCV05-3Y11	ISO D05		60 l/min [16 US gal/min]	320 bar [4600 psi]	11.17

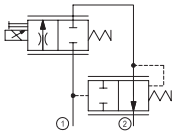
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP518-PNC	SDC08-2	Proportional Flow Control Valve, Non-Compensated, Normally Closed	12 l/min [3 US gal/min]	210 bar [3000 psi]	11.18
	PSV10-NC	SDC10-2		40 l/min [11 US gal/min]	260 bar [3770 psi]	11.19
	PSV12-NC	SDC12-2		80 l/min [21 US gal/min]	260 bar [3770 psi]	11.20
	PSV16-NC	SDC16-2		100 l/min [26 US gal/min]	260 bar [3770 psi]	11.21

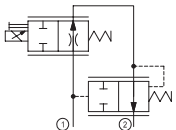
\* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSVP10-NCR	SDC10-2	Proportional Flow Control Valve, Non-Compensated, Normally Closed, Poppet Type	55 l/min [14 US gal/min]	260 bar [3770 psi]	11.22
	PSVP12-NCR	SDC12-2		70 l/min [18 US gal/min]	260 bar [3770 psi]	11.23
	PSVP16-NCR	SDC16-2		90 l/min [24 US gal/min]	260 bar [3770 psi]	11.24

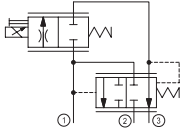
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP518-PNO	SDC08-2	Proportional Flow Control Valve, Non-Compensated, Normally Open	12 l/min [3 US gal/min]	210 bar [3000 psi]	11.25
	PSV10-NO	SDC10-2		45 l/min [12 US gal/min]	260 bar [3770 psi]	11.26
	PSV12-NO	SDC12-2		100 l/min [26 US gal/min]	260 bar [3770 psi]	11.27

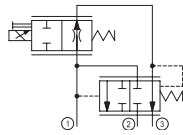
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PSVP10-NOR	SDC10-2	Proportional Flow Control Valve, Non-Compensated, Normally Open, Poppet Type	45 l/min [12 US gal/min]	260 bar [3770 psi]	11.28
	PSVP12-NOR	SDC12-2		70 l/min [18 US gal/min]	260 bar [3770 psi]	11.29
	PSVP16-NOR	SDC16-2		80 l/min [21 US gal/min]	260 bar [3770 psi]	11.30

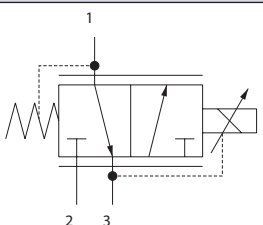
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PFC10-RC	SDC10-2	Proportional Flow Control Valve, Pressure Compensated, Restrictive Type, Normally Closed	30 l/min [8 US gal/min]	260 bar [3770 psi]	11.31
	PFC12-RC	SDC12-2		65 l/min [17 US gal/min]	260 bar [3770 psi]	11.32
	PFC16-RC	SDC16-2		90 l/min [24 US gal/min]	260 bar [3770 psi]	11.33

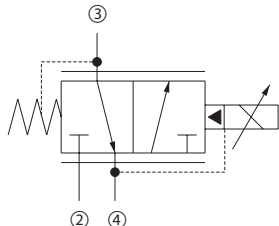
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PFC10-RO	SDC10-2	Proportional Flow Control Valve, Pressure Compensated, Restrictive Type, Normally Open	30 l/min [8 US gal/min]	260 bar [3770 psi]	11.34
	PFC12-RO	SDC12-2		60 l/min [16 US gal/min]	260 bar [3770 psi]	11.35
	PFC16-RO	SDC16-2		85 l/min [22 US gal/min]	260 bar [3770 psi]	11.36

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

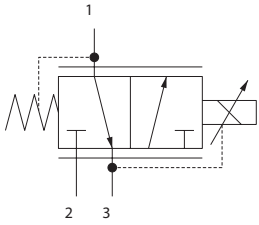
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PFC10-PC	SDC10-3	Proportional Flow Control Valve, Pressure Compensated, Priority Type, Normally Closed	40 l/min [11 US gal/min]	260 bar [3770 psi]	11.37
	PFC12-PC	SDC12-3		65 l/min [17 US gal/min]	260 bar [3770 psi]	11.38
	PFC16-PC	SDC16-3		85 l/min [22 US gal/min]	260 bar [3770 psi]	11.39

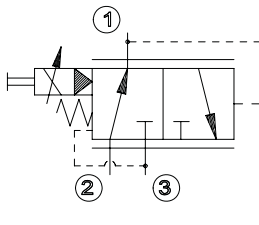
Proportional Flow Controls	Model No.	Cavity	Description	Flow*	Pressure	Page
	PFC10-PO	SDC10-3	Proportional Flow Control Valve, Pressure Compensated, Priority Type, Normally Open	35 l/min [9 US gal/min]	260 bar [3770 psi]	11.40
	PFC12-PO	SDC12-2		70 l/min [18 US gal/min]	260 bar [3770 psi]	11.41
	PFC16-PO	SDC16-3		90 l/min [24 US gal/min]	260 bar [3770 psi]	11.42

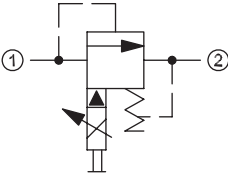
Proportional Pressure Reducing	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP558-24	SDC08-3	Proportional Pressure Reducing Valve, Direct Acting, Normally Open	4 l/min [1 US gal/min]	34 bar [500 psi]	11.43

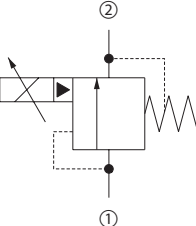
Proportional Pressure Reducing	Model No.	Cavity	Description	Flow*	Pressure	Page
	XRP 044	SDC10-4	Proportional Pressure Reducing/Relieving Valve, Piloted, Normally Open	25 l/min [7 US gal/min]	50 bar [700 psi]	11.44

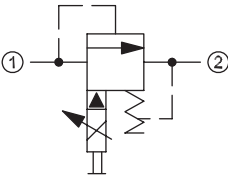
\* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Proportional Pressure Reducing	Model No.	Cavity	Description	Flow*	Pressure	Page
	PPR10-PAC	SDC10-3	Proportional Pressure Reducing/Relieving Valve, Piloted, Normally Closed	18 l/min [5 US gal/min]	250 bar [3625 psi]	11.45

Proportional Pressure Reducing	Model No.	Cavity	Description	Flow*	Pressure	Page
	XRP 06	NCS06/3	Proportional Pressure Reducing/Relieving Valve, Piloted, Normally Open	25 l/min [7 US gal/min]	315 bar [4500 psi]	11.46

Proportional Pressure Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	XMD 04	NCS04/2	Proportional Pressure Reducing Valve,	5 l/min [1 US gal/min]	250 bar [3600 psi]	11.47
	CP558-20	SDC08-2	Direct Acting, Normally Open	8 l/min [2 US gal/min]	210 bar [3000 psi]	11.48

Proportional Pressure Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRV10-POC	SDC10-2	Proportional Relief Valve, Pilot Operated, Normally Closed	76 l/min [20 US gal/min]	250 bar [3600 psi]	11.49
	PRV12-POC	SDC12-2	Proportional Relief Valve, Pilot Operated, Normally Closed	180 l/min [48 US gal/min]	250 bar [3600 psi]	11.50

Proportional Pressure Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	XMP 06	NCS06/2	Proportional Relief Valve, Pilot Operated, Normally Open	50 l/min [13 US gal/min]	315 bar [4500 psi]	11.51

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

**PROPORTIONAL VALVES**

Proportional, or electro-proportional valves, provide infinitely variable control of flow, pressure, or direction, in response to a electric input signal.

There are four basic types of Sauer-Danfoss proportional valves:

- Flow control valves.
- Pressure reducing/relieving valves.
- Pressure relief valves.
- Directional control valves

Proportional valves



F102 011

**PLUS+1™ COMPLIANT**

Sauer-Danfoss solenoid valves are PLUS+1™ compliant. PLUS+1 compliance means our valves are directly compatible with the PLUS+1 machine control architecture. Adding solenoid valves to your application using PLUS+1 GUIDE software is as easy as *drag-and-drop*. Software development that used to take months can now be done in just a few hours. For more information on PLUS+1 GUIDE, visit [www.sauer-danfoss.com/plus1](http://www.sauer-danfoss.com/plus1). The table below details available GUIDE function blocks for controlling Sauer-Danfoss solenoid valves.

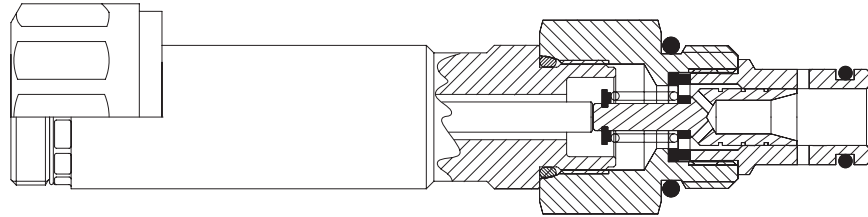
GUIDE function blocks

<b>Two-way proportional</b>	10106103
<b>Three-way proportional</b>	10106104

**PROPORTIONAL FLOW CONTROL VALVES**

Sauer-Danfoss proportional flow control valves are 2-way, spool-type valves that are directly operated with a proportional electromagnetic solenoid actuator. By controlling electric current, these valves create an infinitely variable orifice.

Proportional flow control valve

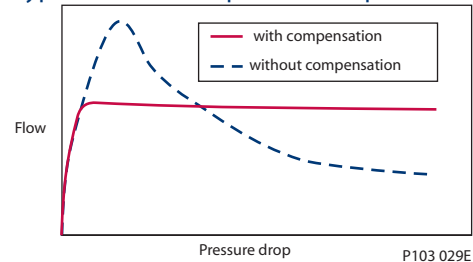


P108 349

These valves are designed to be used with a logic element to provide pressure compensation. Pressure compensation provides two advantages:

1. A constant pressure differential is maintained across the proportional valve (variable orifice), which maintains constant flow regardless of changes in operating pressure or load.
2. A constant pressure differential across the proportional valve limits the flow forces acting on the valve spool. At high flow and pressure, the electromagnetic and spring forces can be insufficient to maintain valve operation without pressure compensation.

Typical flow versus pressure drop

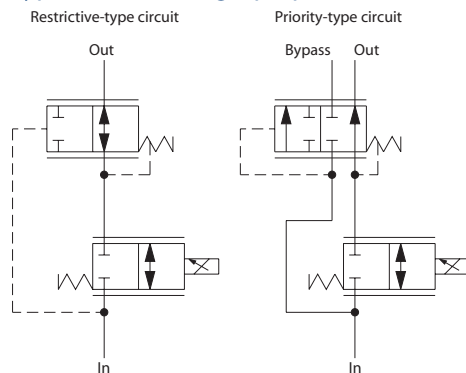


P103 029E

Typical circuits use restrictive-type or priority-type pressure compensators with proportional flow control valves to control speed of a hydraulic motor or cylinder.

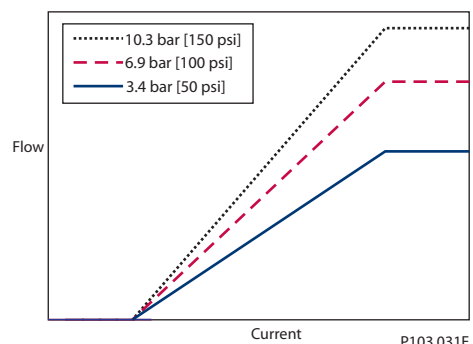
Proportional flow control valves are available with a variety of flow capabilities (variable orifice sizes). By matching this flow capability to various pressure compensator settings, a wide range of flow vs. current control curves can be attained.

Typical circuit using a proportional valve



P103 030E

Flow versus current



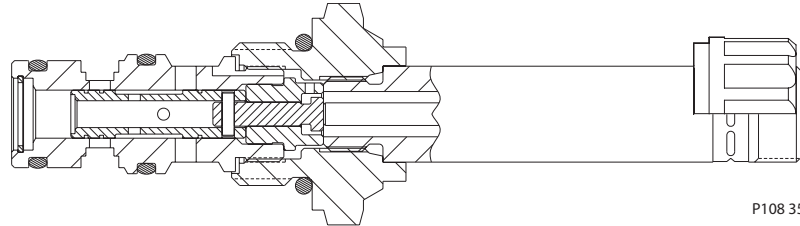
P103 031E

Effect of pressure compensator setting

**PROPORTIONAL  
 PRESSURE REDUCING/  
 RELIEVING VALVES**

Proportional pressure reducing/relieving valves are 3-way valves that provide a controlled output pressure as a function of electric current, regardless of system pressure or flow (within the valve's limits). Direct acting designs are available for low-flow applications.

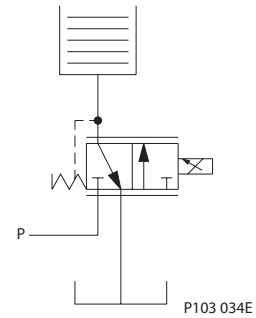
Direct-acting, proportional, pressure reducing valve



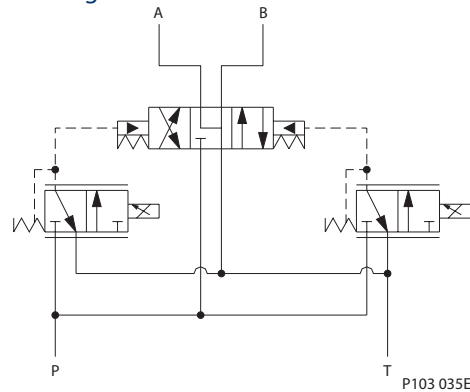
Proportional pressure reducing valves have a variety of applications including:

- Single acting cylinder position control, e.g. combine header height control.
- Clutch or brake pressure control.
- Pilot signal to a directional control valve. By slowly ramping the current to the proportional valve in this example, a soft-start and soft-stop is attained.

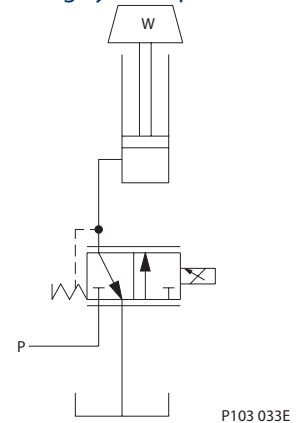
Clutch pressure control



Pilot signal to directional control valve



Single-acting cylinder piston control



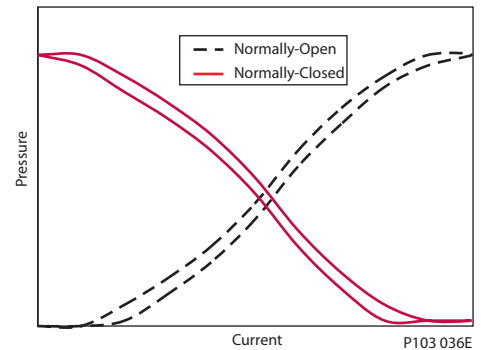
High flow proportional pressure reducing valve functions can be created by using a proportional valve to pilot a differential sensing valve; see differential sensing valve application notes for more information.

**PROPORTIONAL PRESSURE RELIEF VALVES**

Proportional pressure relief valves are 2-way valves that provide a relief pressure as a function of electric current. Both normally-open (increasing pressure with increasing current), and normally-closed (decreasing pressure with increasing current) are available.

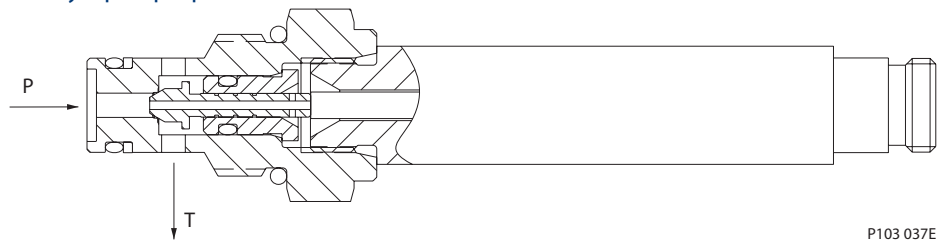
The normally-open proportional relief valve is a direct-acting design for low flow applications. High flow normally-open proportional relief valve functions can be created by using a proportional valve to pilot a differential sensing valve; see differential sensing valve application notes for more information.

Normally closed versus normally open proportional relief valves



Proportional Valves  
 Application notes

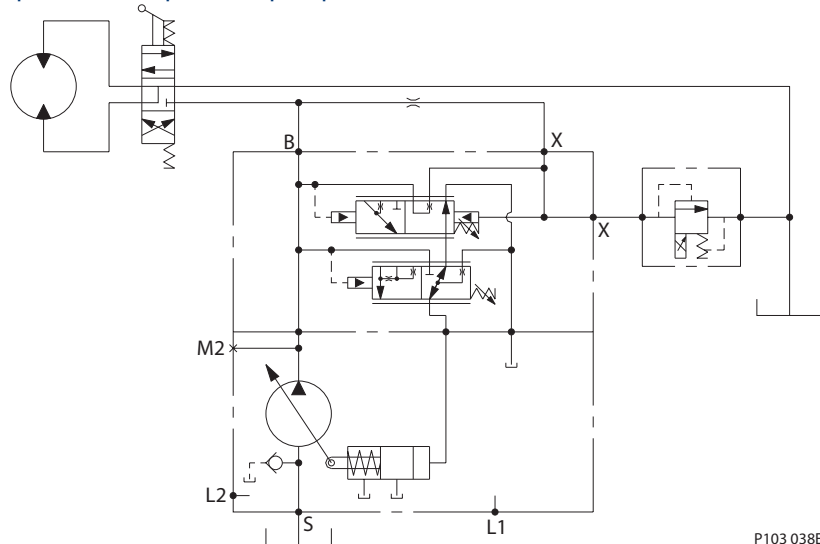
Normally-open proportional relief valve



Common applications for normally-open proportional relief valves are:

- Electro-proportional control of system relief pressure; see differential sensing valve application notes for more information.
- Electro-proportional remote pressure compensator control for open circuit piston pumps (for more information refer to BLN-10128 Series 45 Open Circuit Axial Piston Pumps Technical Information).

Remote pressure compensator pump control

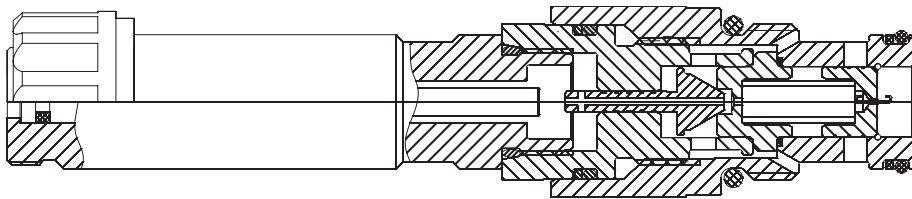




**PROPORTIONAL PRESSURE RELIEF VALVES (continued)**

Normally-closed proportional relief valves are available in direct-acting and pilot-operated designs. A direct-acting, normally-closed proportional relief valve is used for low flow applications. For high flow applications, internally pilot-operated cartridges are available.

Internally pilot-operated cartridge for high flow applications

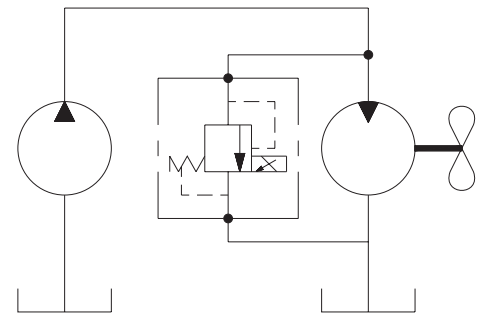


P108 351

Common applications for normally-closed proportional relief valves are:

- Electro-proportional control of system relief pressure or electro-proportional remote pressure compensator control for open circuit piston pumps as above, but where system requirements dictate full pressure with no electrical signal.
- Cooling fan speed control in hydrostatic fan drive systems. (For more information refer to BLN-10080 *Fan Drives Systems and Components Technical Information*).

Cooling fan speed control

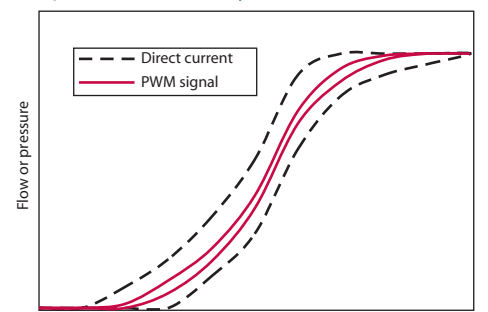


P103 040

**ELECTRICAL REQUIREMENTS**

All Sauer-Danfoss proportional cartridge valves are analog-type valves that control flow or pressure as a function of electric current. For this reason, proportional valves should be driven with a current-controlled device that will maintain constant output regardless of changes in system voltage, line losses, or temperature. Typically available current-controlled valve drivers output a pulse-width-modulated (PWM) square-wave signal. An advantage of a PWM signal is that the dither it provides significantly reduces hysteresis. Sauer-Danfoss recommends using a 100-200 Hz dither for best performance.

Proportional valve hysteresis



P103 041E

Typical performance

**TERMS AND DEFINITIONS**

**Analog Proportional Valves** are controlled by electric current, which may be direct current (DC) or a PWM signal.

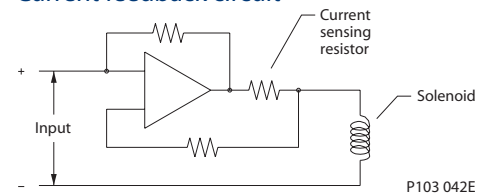
**Compensator** is a hydraulic component that maintains a constant pressure drop across a fixed or variable orifice.

**Current** is the flow of electricity through a conductor or coil, normally measured in amps (A). Steady-state current flow in an electrical circuit can be calculated by Ohm's Law, as well as voltage and resistance.

$$\text{Ohm's Law} \quad I = \frac{V}{R}$$

**Current Control** is a feature of almost all valve drivers. The output of analog proportional valves is a direct function of current. If a valve is controlled with voltage, higher solenoid temperatures, which increase solenoid resistance, will result in lower valve output. To compensate for this, most valve drivers are designed with current feedback circuitry. This means that as solenoid temperature rises or as supply voltage and voltage losses change, the current and corresponding valve output are maintained.

Current feedback circuit



**Deadband** is the range from zero to the minimum current which causes the valve to respond.

**Digital Proportional Valves** are extremely fast responding valves that are controlled by a precise on-off signal to produce an average output that is a function of duty cycle.

**Dither** is a "ripple" signal sent to a solenoid to reduce hysteresis. Dither can be a sine, square, or saw-tooth wave superimposed on a PWM signal or it can be a wave on top of a DC signal.

**Duty Cycle** is the % of time the valve is on divided by total time.

**Hysteresis** is the difference in output for a given input, depending on whether the input is increasing or decreasing. It is normally expressed as a % of the maximum rated output. For example, if a 160 l/min [42 US gal/min] proportional flow control valve provides 80 l/min [21 US gal/min] with 1 amp-increasing and 88 l/min [23 US gal/min] at 1 amp-decreasing, the hysteresis is:

$$\frac{(88-80)}{160} = 5\%$$

$I_{\min}$  is the minimum current required for valve response (see deadband).

$I_{\max}$  is the current required for maximum valve output.

## TERMS AND DEFINITIONS (continued)

**PWM** is an acronym for Pulse-Width-Modulation. Most valve drivers use a current-controlled PWM output to reduce valve hysteresis and to allow current control without excessive heat generation. A typical PWM output is a square wave from 80-500 Hz.

**Ramping** is the application of current to a solenoid with a linear or non-linear ramp, rather than an instantaneous step. Ramping current on and off to a proportional valve provides actuators with soft-starts and soft-stops. Ramps can generally be set or pre-programmed into valve drivers.

**Resistance** is a component's opposition to the flow of electrical current, usually measured in ohms ( $\Omega$ ). Resistance depends on the conductivity of the material, as well as size, shape, and temperature. Solenoid resistance can vary greatly with temperature; to compensate for this, current-controlled drivers are generally always used with proportional valves.

**Threshold** is the minimum current required for valve response; see deadband.

**Valve Driver** is a generic term for any device that sends a signal to a proportional valve. A valve driver may range from a simple electronic circuit attached to a knob or lever up to a microcontroller with custom software and multiple inputs and outputs.

**Voltage** is the potential for current to flow in an electric circuit, usually measured in volts (V).

**OPERATION**

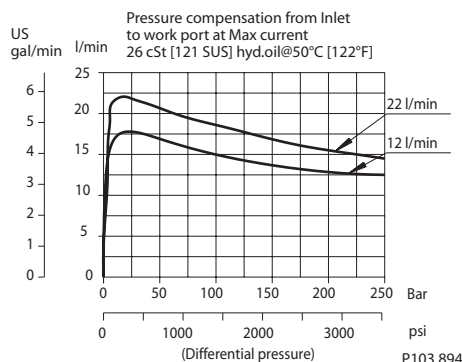
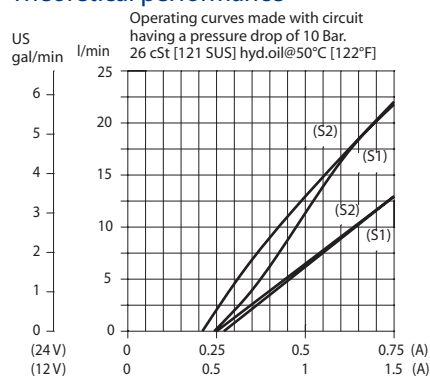
This is a non-compensated proportional directional control valve.

**SPECIFICATIONS**

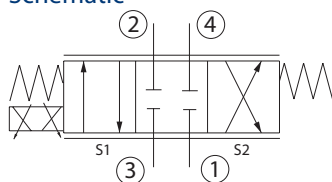
**Specifications**

<b>Rated pressure</b>	250 bar [3600 psi]
<b>Rated flow at 10 bar [150 psi]</b>	22 l/min [6 US gal/min]
<b>Weight</b>	0.77 kg [1.70 lb]
<b>Hysteresis</b>	4% maximum
<b>Threshold current</b>	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
<b>Maximum control current</b>	1.5 A (12 VDC coil) 0.8 A (24 VDC coil)
<b>Cavity</b>	SDC10-4
<b>Standard Coil</b>	M16 26 Watt

**Theoretical performance**



**Schematic**

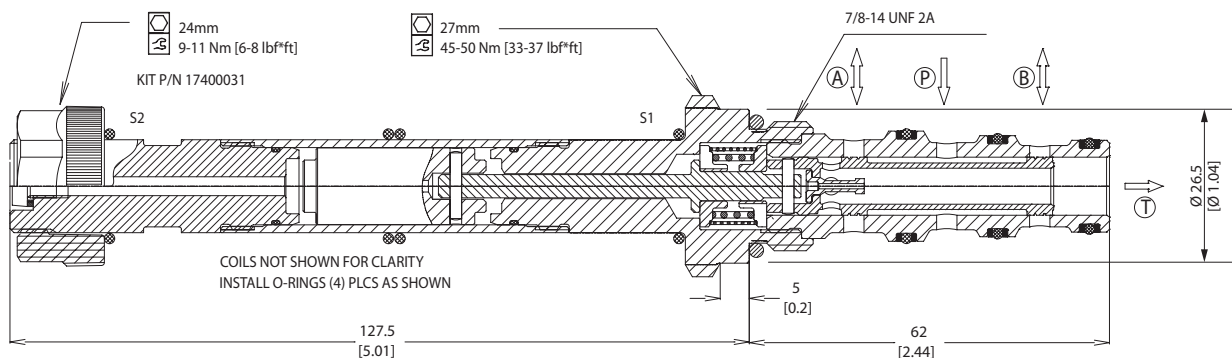


P102 711

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P103 824

**ORDERING INFORMATION**

**PSV10-34-02-12-DN-22-B-XX**

**Coil voltage**  
0 = No coil  
12 = 12V DC  
24 = 24V DC

**Coil termination**  
0 = No connector  
AJ = Amp junior  
AS = Amp superseal 1.5  
DE = Deutsch  
DN = DIN 43650  
FL = Lead wires  
SP = Spade

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

**Seals Seal Kit**  
B = Buna-N 354001919  
V = Viton 354002019

**Max regulated flow**  
12 = 12 l/min [3.2 gal/min]  
22 = 22 l/min [5.8 gal/min]

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

P103 826E



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Directional

#### PDCV03-3Z11



### OPERATION

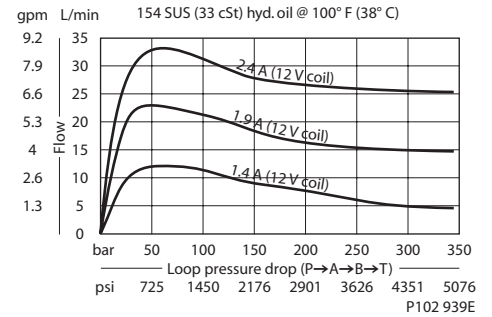
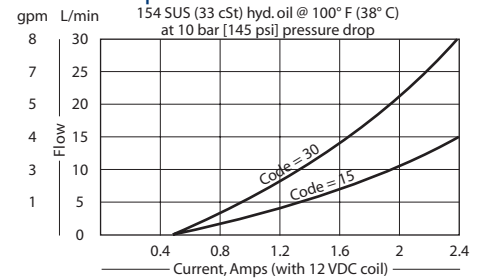
This valve is a proportional directional control.

### SPECIFICATIONS

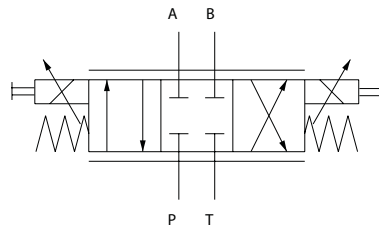
#### Specifications

Rated pressure	320 bar [4640 psi]
Rated flow at 10 bar [145 psi]	30 l/min [8 US gal/min]
Weight	2.40 kg [5.29 lb]
Hysteresis	6% maximum
Threshold current	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
Maximum control current	2.4 A (12 VDC coil) 1.2 A (24 VDC coil)
Cavity	ISO D03
Standard Coil	PD03 40 Watt
Coil nut	158-8005

#### Theoretical performance



#### Schematic

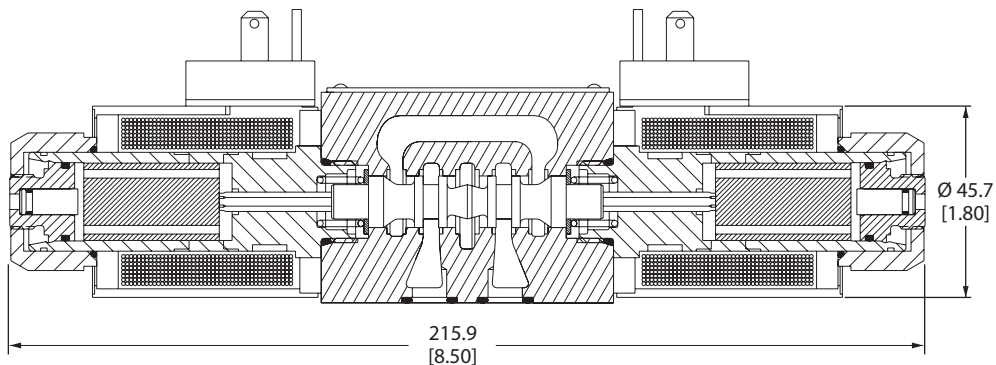


P102 711E

### DIMENSIONS

mm [in]

#### Cross-sectional view



P102 710

### ORDERING INFORMATION

PDCV03-3Z11/15-12-E1-8S

#### Subplate option

- OMIT = No subplate
- 8S = Aluminum, #8 SAE ports
- S8S = Steel, #8 SAE ports

#### Voltage

- 12 = 12 VDC
- 24 = 24 VDC

#### Nominal flow rate

- 15 = 15 L/min [4.0 gpm]
- 30 = 30 L/min [7.9 gpm]

#### Termination

- E1 = DIN 43650
- E3 = Amp Jr.
- E8 = Lead wires
- E12 = Deutsch
- E14 = Dual spade

#### Seal Kit

- B = Buna-N
- V = Viton
- Note: All internal seals are viton

#### Bolt Kit

- #10-24 Thd. 158-8064
- M5 Thd. 158-8026

P102 714E

Proportional valves  
PDCV03-3Z11

**OPERATION**

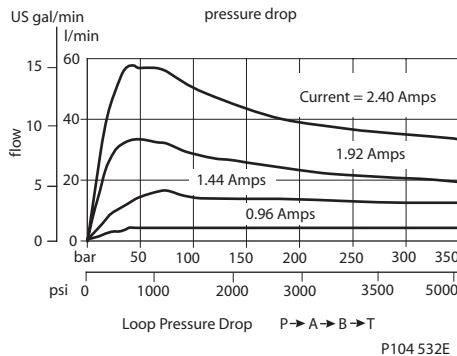
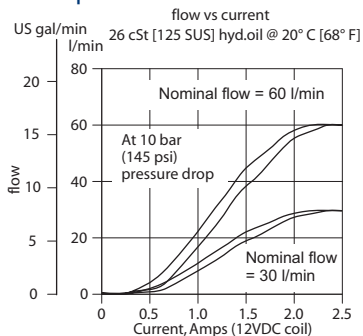
This is a non-compensated proportional directional control valve.

**SPECIFICATIONS**

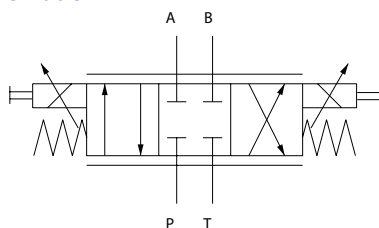
Specifications

<b>Rated pressure</b>	320 bar [4600 psi]
<b>Rated flow at 10 bar [150 psi]</b>	60 l/min [16 US gal/min]
<b>Weight</b>	6.60 kg [14.60 lb]
<b>Hysteresis</b>	6% maximum
<b>Threshold current</b>	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Cavity</b>	ISO D05
<b>Standard Coil</b>	PD05 23 Watt

Theoretical performance



Schematic

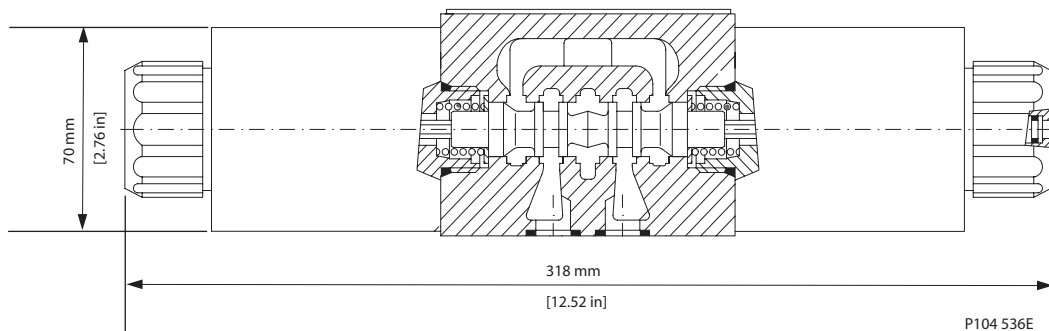


P102 711E

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PDCV05-3Z11/30-12-E1

- |                                 |                |                        |                              |
|---------------------------------|----------------|------------------------|------------------------------|
| <b>Flow rate</b>                | <b>Voltage</b> | <b>Connector</b>       | <b>Seal kit</b>              |
| 30 = 30 l/min [7.9 US gal/min]  | 12 = 12 VDC    | E1 = DIN 43650         | B = Buna N 158-8023          |
| 60 = 60 l/min [15.8 US gal/min] | 24 = 24 VDC    | E8 = Lead wires        | V = Viton 158-8094           |
|                                 |                | E10 = Deutsch on leads | All internal seals are Viton |
|                                 |                | <b>Bolt kit</b>        |                              |
|                                 |                | 1/4-20 Thd 158-8095    |                              |
|                                 |                | M6 Thd 158-8024        |                              |

P103 987E

**OPERATION**

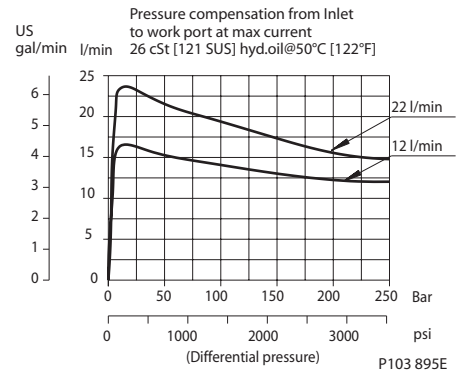
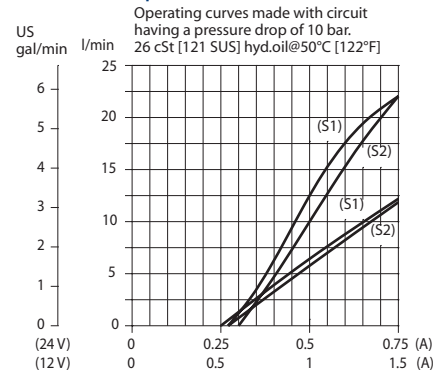
This is a non-compensated proportional directional control valve.

**SPECIFICATIONS**

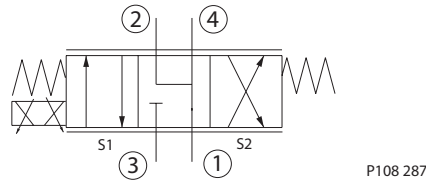
**Specifications**

Rated pressure	250 bar [3600 psi]
Rated flow at 10 bar [150 psi]	22 l/min [6 US gal/min]
Weight	0.77 kg [1.70 lb]
Hysteresis	4% maximum
Threshold current	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
Maximum control current	1.5 A (12 VDC coil) 0.8 A (24 VDC coil)
Cavity	SDC10-4
Standard Coil	M16 26 Watt

**Theoretical performance**



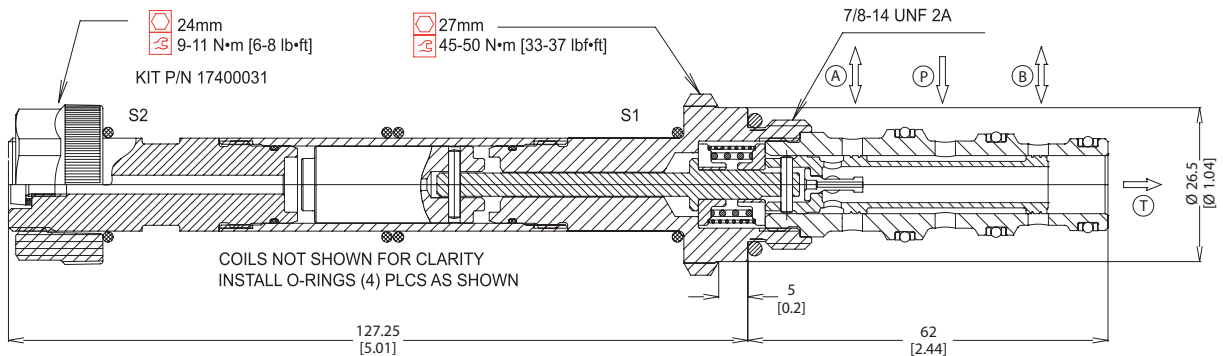
**Schematic**



**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PSV10-34-05-12-DN-22-B-XX**

**Coil voltage**  
0 = No coil  
12 = 12V DC  
24 = 24V DC

**Coil termination**  
0 = No connector  
AJ = Amp junior  
AS = Amp superseal 1.5  
DE = Deutsch  
DN = DIN 43650  
FL = Lead wires  
SP = Spade

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

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

**Max regulated flow**  
12 = 12 l/min [3.2 gal/min]  
22 = 22 l/min [5.8 gal/min]

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

P103 827E

Proportional valves  
PSV10-34-05

**OPERATION**

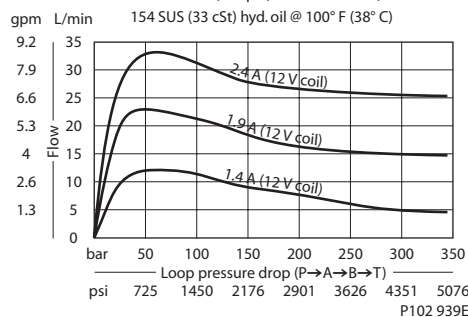
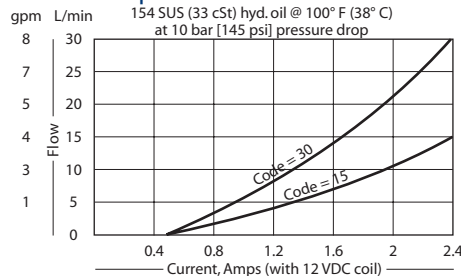
This valve is a proportional directional control.

**SPECIFICATIONS**

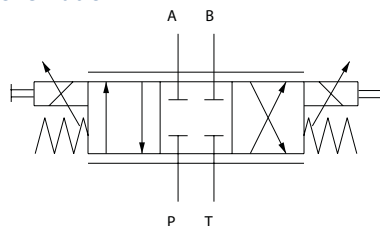
**Specifications**

<b>Rated pressure</b>	320 bar [4640 psi]
<b>Rated flow at 10 bar [145 psi]</b>	30 l/min [8 US gal/min]
<b>Weight</b>	2.40 kg [5.29 lb]
<b>Hysteresis</b>	6% maximum
<b>Threshold current</b>	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
<b>Maximum control current</b>	2.4 A (12 VDC coil) 1.2 A (24 VDC coil)
<b>Cavity</b>	ISO D03
<b>Standard Coil</b>	PD03 40 Watt
<b>Coil nut</b>	158-8005

**Theoretical performance**



**Schematic**

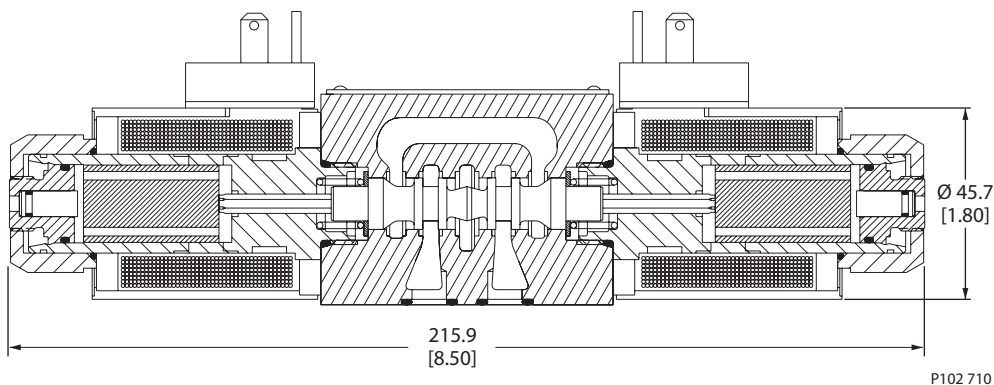


P102 711E

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P102 710

**ORDERING INFORMATION**

PDCV03-3Y11/15-12-E1-8S

**Subplate option**

- OMIT = No subplate
- 8S = Aluminum, #8 SAE ports
- S8S = Steel, #8 SAE ports

**Voltage**

- 12 = 12 VDC
- 24 = 24 VDC

**Nominal flow rate**

- 15 = 15 L/min [4.0 gpm]
- 30 = 30 L/min [7.9 gpm]

**Termination**

- E1 = DIN 43650
- E3 = Amp Jr.
- E8 = Lead wires
- E12 = Deutsch
- E14 = Dual spade

**Seal Kit**

- B = Buna-N Seal kit 158-8007
  - V = Viton Seal kit 158-80062
- Note : All internal seals are viton

**Bolt Kit**

- #10-24 Thd. 158-8064
- M5 Thd. 158-8026

P102 713E





# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Directional

#### PDCV05-3Y11



### OPERATION

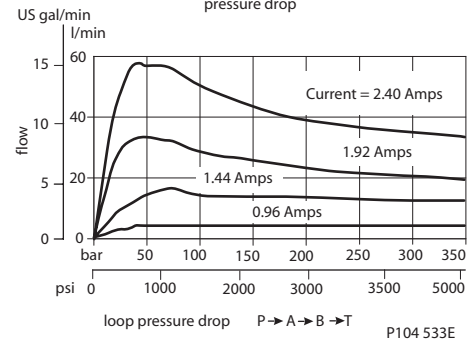
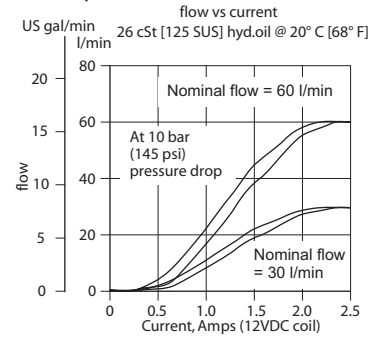
This is a non-compensated proportional directional control valve.

### SPECIFICATIONS

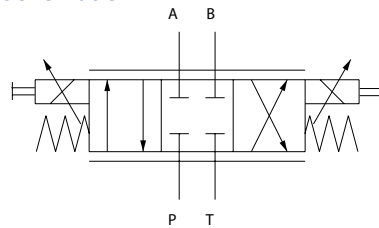
#### Specifications

Rated pressure	320 bar [4600 psi]
Rated flow at 10 bar [150 psi]	60 l/min [16 US gal/min]
Weight	6.60 kg [14.60 lb]
Hysteresis	6% maximum
Threshold current	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Cavity	ISO D05
Standard Coil	PD05 23 Watt

#### Theoretical performance



#### Schematic

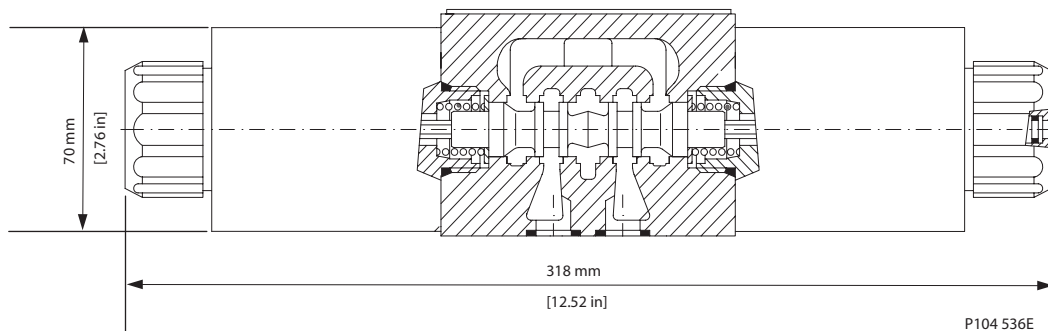


P102 711E

### DIMENSIONS

mm [in]

#### Cross-sectional view



P104 536E

### ORDERING INFORMATION

P-DCV05-3Y11/30-12-E1

#### Connector

- E1 = DIN 43650
- E8 = Lead wires
- E10 = Deutsch on leads

#### Seal kit

- B = Buna N 158-8023
- V = Viton 158-8094
- All internal seals are Viton

#### Nominal flow rate

- 30 = 30 l/min [7.9 US gal/min]
- 60 = 60 l/min [15.8 US gal/min]

#### Voltage

- 12 = 12 VDC
- 24 = 24 VDC

#### Bolt kit

- 1/4-20 Thd 158-8093
- M6 Thd 158-8024

P103 986E

Proportional valves  
P-DCV05-3Y11

**OPERATION**

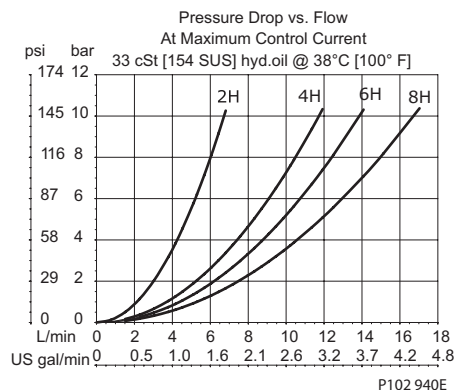
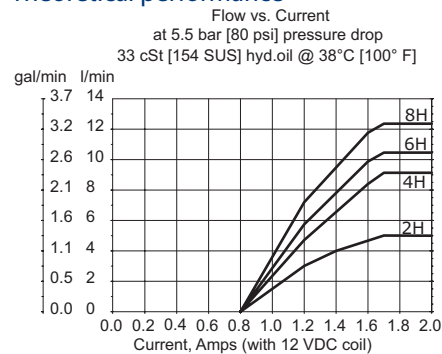
This valve is a non-compensated, normally-closed, proportional flow control.

**SPECIFICATIONS**

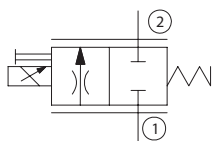
**Specifications**

Rated pressure	210 bar [3000 psi]
Rated flow at 6 bar [80 psi]	12 l/min [3 US gal/min]
Weight	0.36 kg [0.80 lb]
Hysteresis	10% maximum
Threshold current	0.8 A (12 VDC coil) 0.4 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	21 bar [300 psi] maximum
Cavity	SDC08-2
Standard Coil	M19P 22 Watt
Coil nut	173802114

**Theoretical performance**



**Schematic**

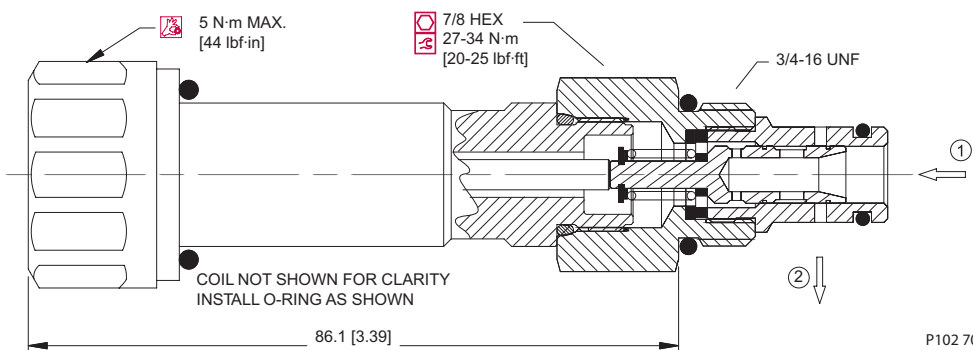


P104 832

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P102 704E

**ORDERING INFORMATION**

CP518-PNC-U-6S-2H-24-DE

**Seals**  
U = Urethane  
Seal kits 120591

**Housing and ports**  
0 = Cartridge only  
4S = AL, #4 SAE  
6S = AL, #6 SAE  
2B = AL, 1/4 BSP  
3B = AL, 3/8 BSP

**Housing P/N**  
No Housing CP08-2-4S  
CP08-2-6S  
SDC08-2-DG-2B  
SDC08-2-DG-3B

**Termination**  
00 = No connector  
DE = Deutsch  
DN = DIN 43650  
FL = Lead wires  
AJ = AMP Jr

**Voltage**  
00 = No coil  
12 = 12 VDC  
24 = 24 VDC

**Flow code**  
2H = 5 l/min [1.3 US gal/min] at 5.5 bar [80 psi]  
4H = 9 l/min [2.4 US gal/min]  
6H = 11 l/min [2.9 US gal/min]  
8H = 13 l/min [3.4 US gal/min]



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### PSV10-NC



### OPERATION

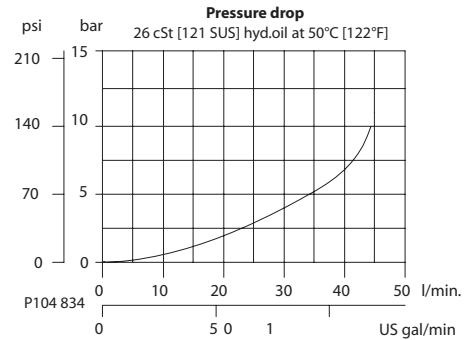
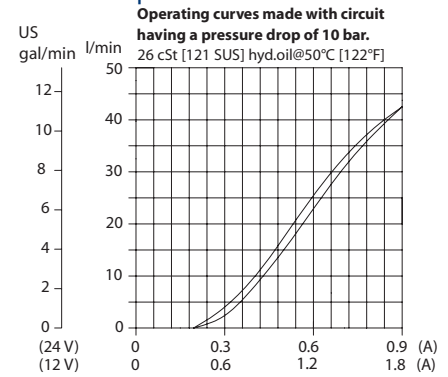
This is a normally-closed, direct-acting, spool-type, non-compensated, proportional flow-control. Controlled flow is from port 1 to 2.

### SPECIFICATIONS

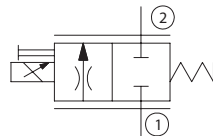
#### Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Maximum flow at 10 bar [145 psi] pressure drop</b>	PSV10-NC-10: 10 l/min [2.64 US gal/min] PSV10-NC-25: 25 l/min [6.6 US gal/min] PSV10-NC-40: 40 l/min [10.6 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.51 kg [1.12 lb]
<b>Hysteresis</b>	5% maximum
<b>Threshold current</b>	0.4 A (12 VDC coil) 0.2 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC10-2
<b>Standard Coil</b>	M19P 22 Watt

#### Theoretical performance



#### Schematic

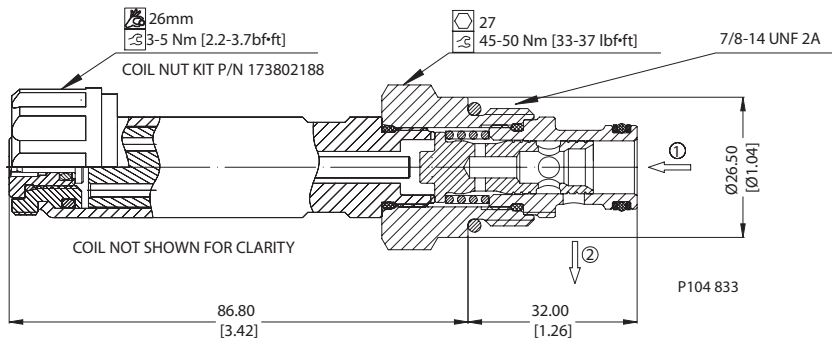


P104 832

### DIMENSIONS

mm [in]

#### Cross-sectional view



P104 833

### ORDERING INFORMATION

#### PSV10-NC-40-12D-DN-B-00

Max regulated flow  
40 = 40 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

Body and Ports  
00 = no housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
DG3B = Al, 3/8 BSP  
DG4B = Al, 1/2 BSP  
Other housing available

Seals  
B = Buna-N seals  
V = Viton seals

Seal Kit  
354004019  
354003419

Body Nomenclature  
No Body  
CP10-2-6S  
CP10-2-8S  
SDC10-2-DG3B  
SDC10-2-DG4B

P104 835

Proportional Valves  
PSV12-NC

**OPERATION**

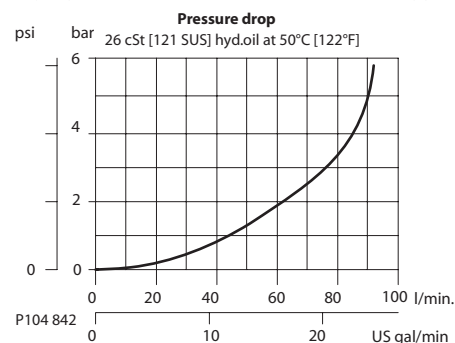
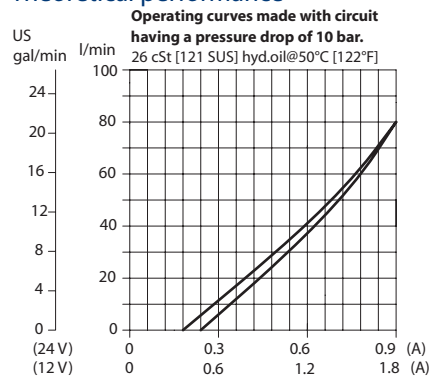
This is a normally-closed, direct-acting, spool-type, non-compensated, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

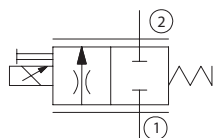
**Specifications**

Rated pressure	260 bar [3770 psi]
Maximum flow at 10 bar [145 psi]	PSV12-NC-60: 60 l/min [15.85 US gal/min] PSV12-NC-80: 80 l/min [21.13 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.76 kg [1.68 lb]
Hysteresis	5% maximum
Threshold current	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC12-2
Standard Coil	D14E(35W) 35 Watt

**Theoretical performance**



**Schematic**

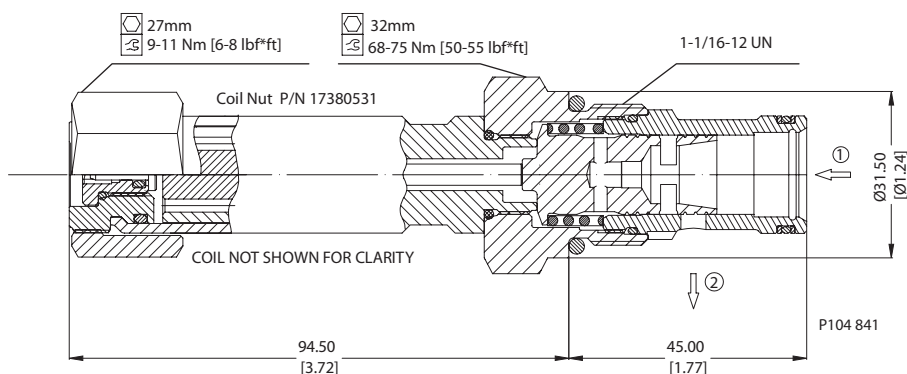


P104 832

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 841

**ORDERING INFORMATION**

**PSV12-NC-80-12D-DN-B-00**

**Max regulated flow**  
80 = 80 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
DG4B = Al, 1/2 BSP  
DG6B = Al, 3/4 BSP  
Other housing available

**Seals**  
B = Buna-N seals 354008319  
V = Viton 354008419

**Body Nomencl.**  
No Body  
CP12-2-10S  
CP12-2-12S  
SDC12-2-DG4B  
SDC12-2-DG6B

P104 843

**OPERATION**

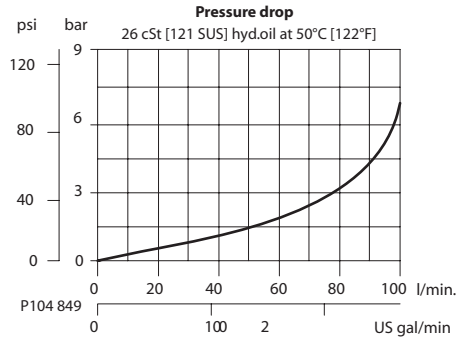
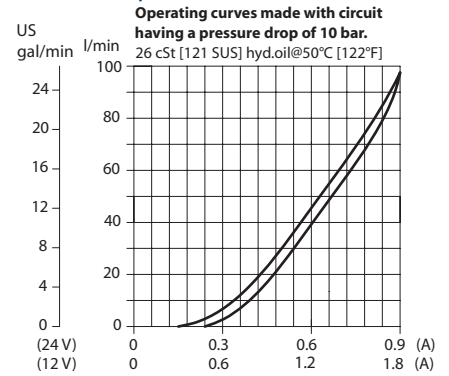
This is a normally-closed, direct-acting, spool-type, non-compensated, proportional flow control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

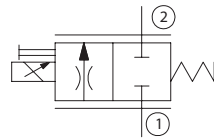
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 10 bar [145 psi]</b>	100 l/min [26 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.87 kg [1.92 lb]
<b>Hysteresis</b>	5% maximum
<b>Threshold current</b>	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC16-2
<b>Standard Coil</b>	D14E(35W) 35 Watt

Theoretical performance



Schematic

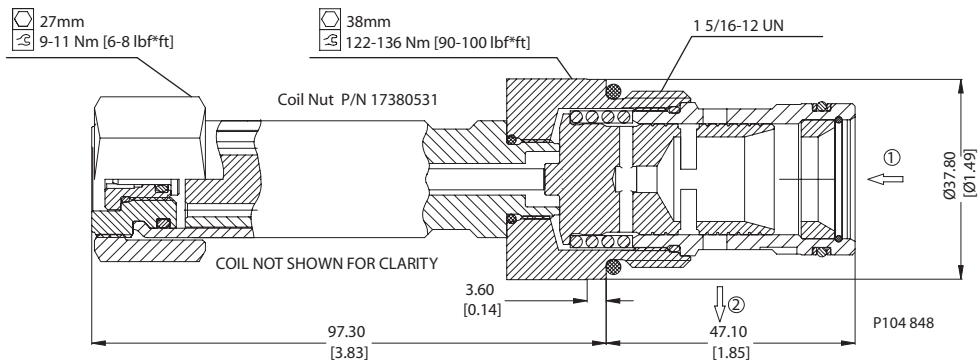


P104 832

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PSV16-NC-100-12D-DN-B-00

**Max regulated flow**  
100 = 100 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
DG6B = Al, 3/4 BSP  
DG8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Other housing available

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

**Seal Kit**  
354008719  
354008819

**Body Nomencl.**  
No Body  
SDC16-2-DG-6B  
SDC16-2-DG-8B  
CP16-2-12S  
CP16-2-16S

P104 850

Proportional Valves  
PSVP10-NCR

**OPERATION**

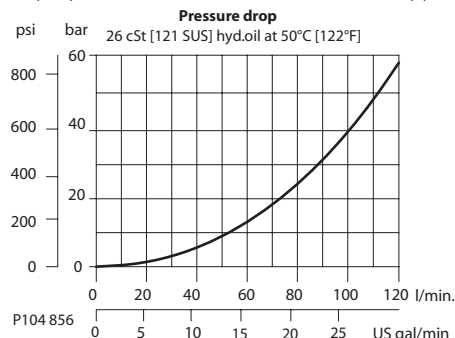
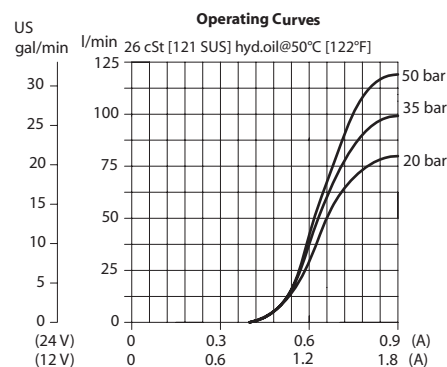
This is a non-compensated, normally-closed, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

**SPECIFICATIONS**

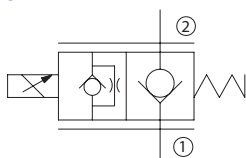
**Specifications**

Rated pressure	260 bar [3770 psi]
Rated flow at 10 bar [150 psi]	55 l/min [14 US gal/min]
Leakage	6 drops/min @ at rated pressure
Weight	0.54 kg [1.19 lb]
Hysteresis	8% maximum
Threshold current	0.8 A (12 VDC coil) 0.4 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC10-2
Standard Coil	M19P 22 Watt

**Theoretical performance**



**Schematic**

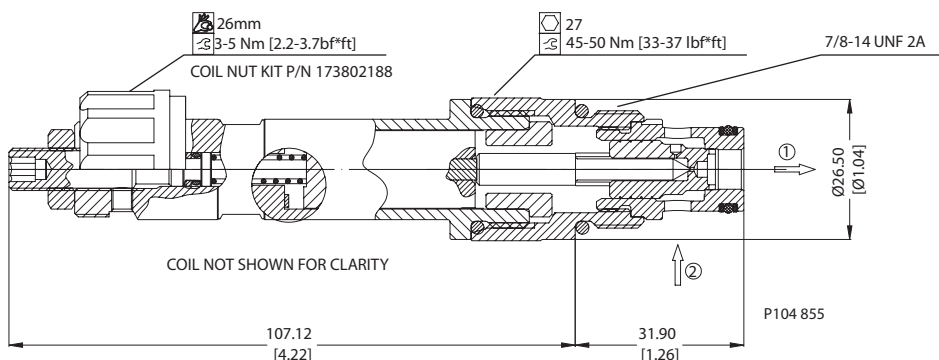


P104 854

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 855

**ORDERING INFORMATION**

**PSVP10-NCR-12D-DN-B-00**

**Coil voltage**

00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**

00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**

00 = No housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
DG3B = Al, 3/8 BSP  
DG4B = Al, 1/2 BSP  
Other housing available

**Seals**

B = Buna-N seals  
V = Viton seals

**Seal Kit**

354004019  
354003419

**Body Nomenclature**

No Body  
CP10-2-6S  
CP10-2-8S  
SDC10-2-DG3B  
SDC10-2-DG4B

P104 857



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### PSVP12-NCR



### OPERATION

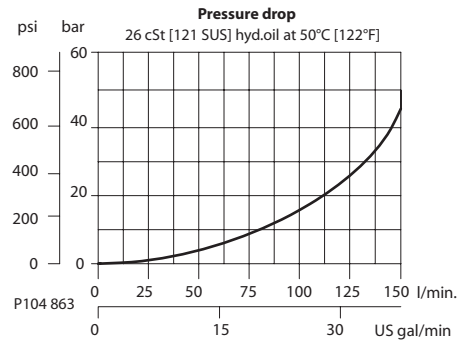
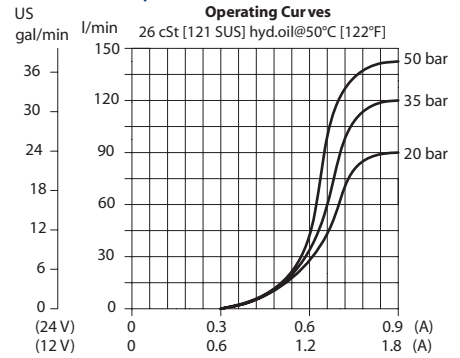
This is a non-compensated, normally-closed, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

### SPECIFICATIONS

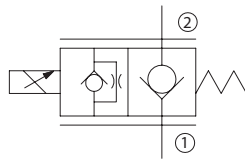
#### Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 10 bar [150 psi]</b>	70 l/min [18 US gal/min]
<b>Leakage</b>	6 drops/min @ at rated pressure
<b>Weight</b>	0.60 kg [1.32 lb]
<b>Hysteresis</b>	8% maximum
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC12-2
<b>Standard Coil</b>	M19P 22 Watt

#### Theoretical performance



#### Schematic

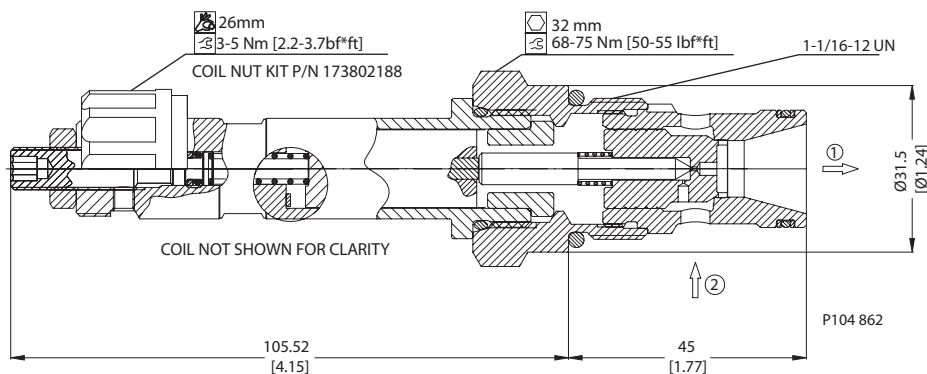


P104 854

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

#### PSVP12-NCR-12D-DN-B-00

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**  
00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
4B = Al, 1/2 BSP  
6B = Al, 3/4 BSP  
Other housing available

**Body Nomencl.**  
No Body  
CP12-3-10S  
CP12-3-12S  
CP12-3-4B  
CP12-3-6B

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

**Seal Kit**  
354008319  
354008419

P104 864

Proportional valves PSVP12-NCR

Proportional Valves  
PSVP16-NCR

**OPERATION**

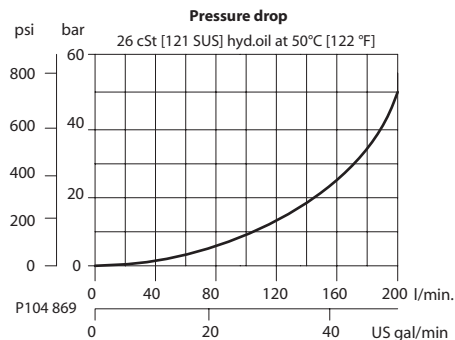
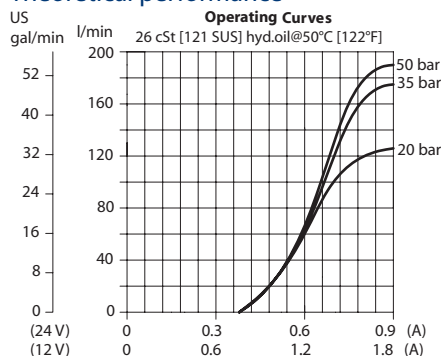
This is a non-compensated, normally-closed, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

**SPECIFICATIONS**

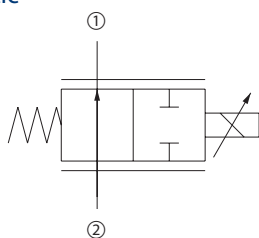
**Specifications**

Rated pressure	260 bar [3770 psi]
Rated flow at 10 bar [150 psi]	100 l/min [26 US gal/min]
Leakage	6 drops/min @ at rated pressure
Weight	0.85 kg [1.87 lb]
Hysteresis	8% maximum
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC16-2
Standard Coil	M19P 22 Watt

**Theoretical performance**



**Schematic**

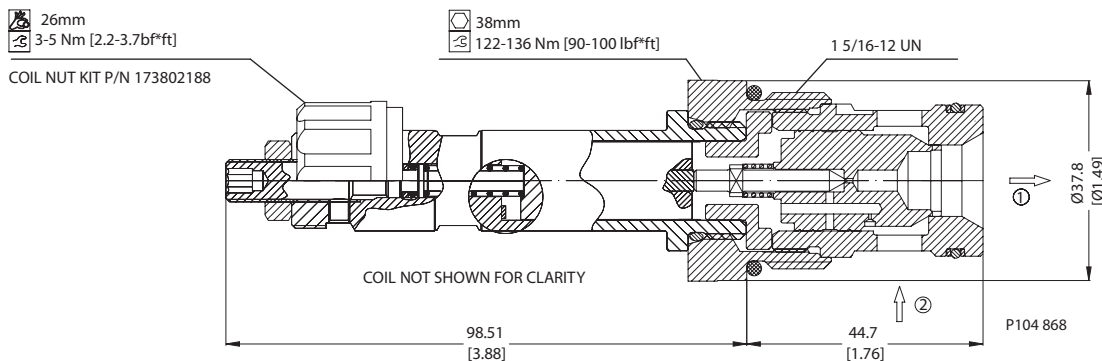


P102 660

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PSVP16-NCR-12D-DN-B-00**

**Coil voltage**

00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**

00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**

00 = No housing  
DG6B = Al, 3/4 BSP  
DG8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Other housing available

**Body Nomencl.**

No Body  
SDC16-2-DG-6B  
SDC16-2-DG-8B  
CP16-2-12S  
CP16-2-16S

**Seals**

B = Buna-N seals  
V = Viton

**Seal Kit**

354008719  
354008819

P104 870





# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### CP518-PNO



### OPERATION

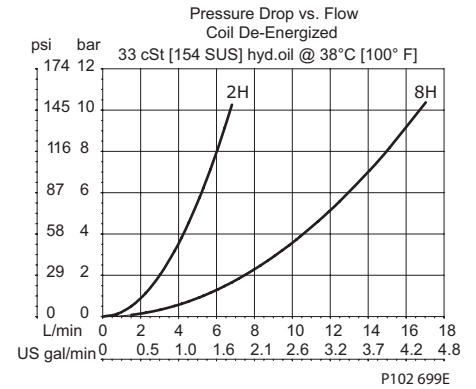
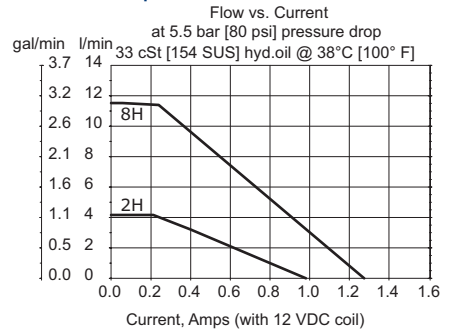
This valve is a non-compensated, normally-open, proportional flow control.

### SPECIFICATIONS

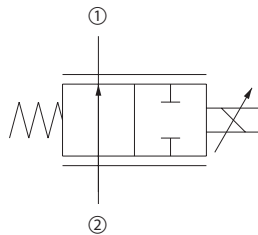
#### Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 6 bar [80 psi]	12 l/min [3 US gal/min]
Weight	0.36 kg [0.80 lb]
Hysteresis	4% maximum
Threshold current	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
Maximum control current	1.2 A (12 VDC coil) 0.6 A (24 VDC coil)
Pressure differential	21 bar [300 psi] maximum
Cavity	SDC08-2
Standard Coil	M19P 22 Watt
Coil nut	173802114

#### Theoretical performance



#### Schematic

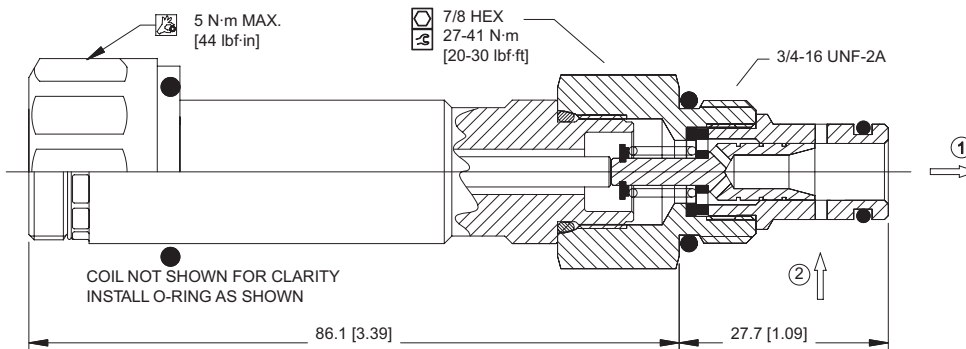


P102 660

### DIMENSIONS

mm [in]

#### Cross-sectional view



P102 703E

### ORDERING INFORMATION

CP518-PNO-U-6S-2H-24-DE

#### Seals

U = Urethane  
Seal kits 120591

#### Housing and ports

0 = Cartridge only  
4S = AL, #4 SAE  
6S = AL, #6 SAE  
2B = AL, 1/4 BSP  
3B = AL, 3/8 BSP

#### Housing P/N

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

#### Voltage

00 = No coil  
12 = 12 VDC  
24 = 24 VDC

#### Flow code

2H  
8H

#### Termination

00 = No connector  
DE = Deutsch  
DN = DIN 43650  
FL = Lead wires  
AJ = AMP Jr

P102 655E

Proportional valves CP518-PNO

**OPERATION**

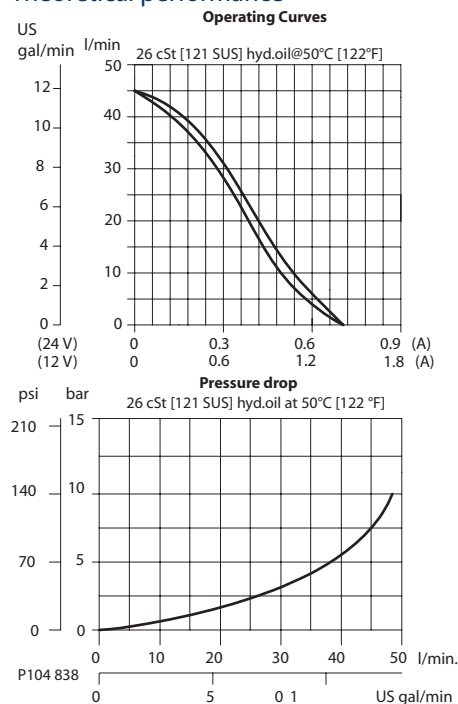
This is a normally-open, direct-acting, spool-type, non-compensated, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

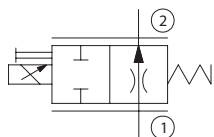
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Maximum flow at 10 bar [145 psi]</b>	PSV10-NO-10: 10 l/min [2.64 US gal/min] PSV10-NO-25: 25 l/min [6.6 US gal/min] PSV10-NO-40: 40 l/min [10.6 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.51 kg [1.12 lb]
<b>Hysteresis</b>	5% maximum
<b>Threshold current</b>	0.1 A (12 VDC coil) 0.05 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC10-2
<b>Standard Coil</b>	M19P 22 Watt

Theoretical performance



Schematic

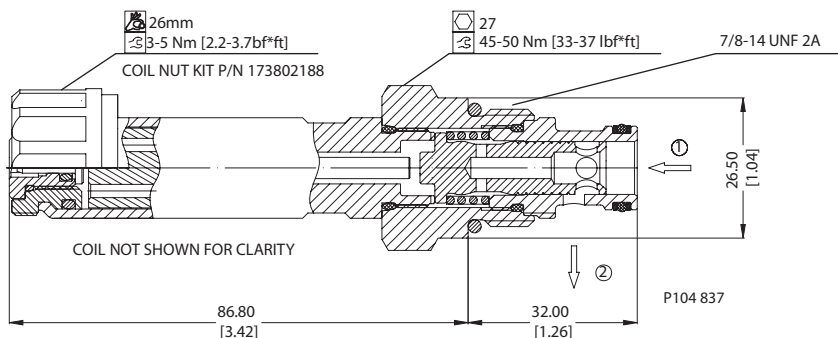


P104 836

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PSV10-NO-45-12D-DN-B-00

**Max regulated flow**  
45 = 45 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**  
Omit = Cartridge only  
6S = Al #6 SAE  
8S = Al, #8 SAE  
DG3B = Al, 3/8 BSP  
DG4B = Al, 1/2 BSP  
Hother housing available

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

**Body Nomenclature**  
No Body  
CP10-2-6S  
CP10-2-8S  
SDC10-2-DG3B  
SDC10-2-DG4B

**Seal Kit**  
354004019  
354003419

P104 839

**OPERATION**

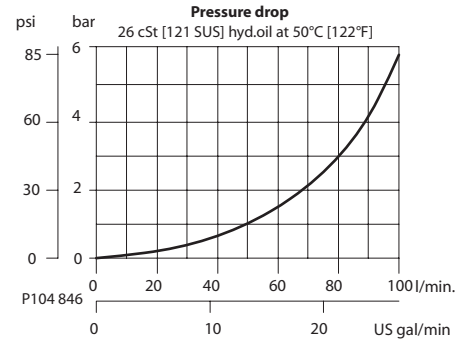
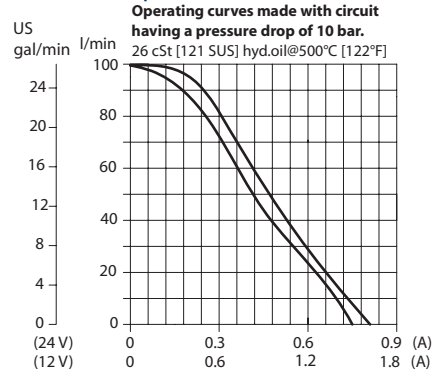
This is a normally-open, direct-acting, spool-type, non-compensated, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

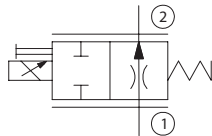
**Specifications**

Rated pressure	260 bar [3770 psi]
Maximum flow at 10 bar [145 psi]	PSV12-NO-60: 60 l/min [15.85 US gal/min] PSV12-NO-80: 80 l/min [31.13 US gal/min] PSV12-NO-100: 100 l/min [26.41 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.76 kg [1.68 lb]
Hysteresis	5% maximum
Threshold current	0.3 A (12 VDC coil) 0.15 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC12-2
Standard Coil	D14E(35W) 35 Watt

**Theoretical performance**



**Schematic**

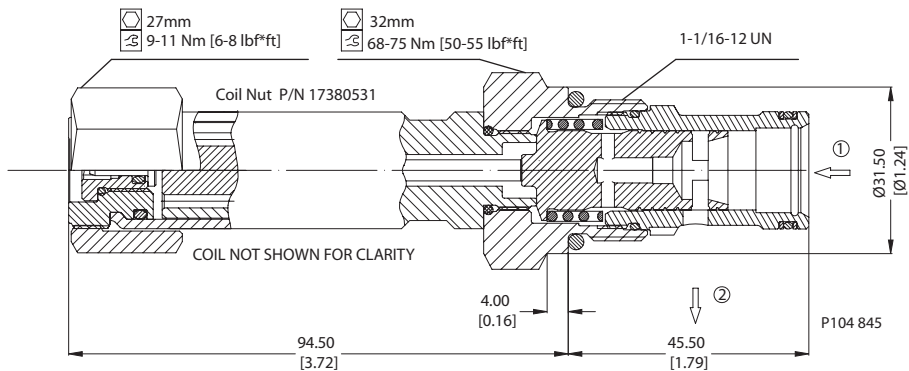


P104 836

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 845

**ORDERING INFORMATION**

**PSV12-NO-100-12D-DN-B-00**

**Max regulated flow**  
100 = 100 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp superseal

**Body and Ports**

00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
DG4B = Al, 1/2 BSP  
DG6B = Al, 3/4 BSP  
Other housing available

**Seals**

B = Buna-N seals 354008319  
V = Viton 354008419

**Body Nomencl.**

No Body  
CP12-2-10S  
CP12-2-12S  
SDC12-2-DG4B  
SDC12-2-DG6B

P104 847

Proportional valves  
PSV12-NO

**OPERATION**

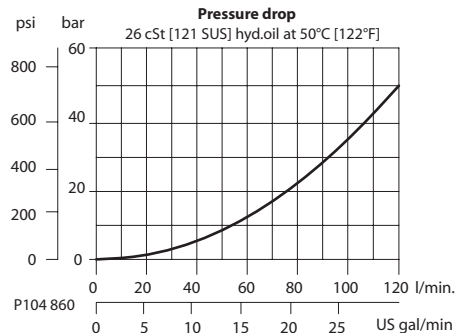
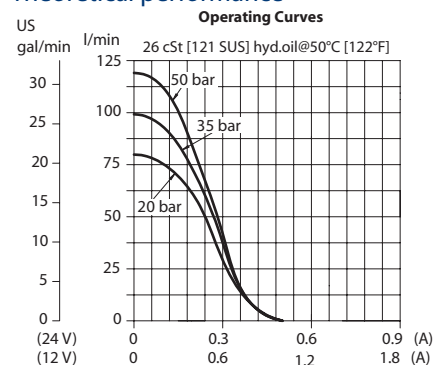
This is a non-compensated, normally-open, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

**SPECIFICATIONS**

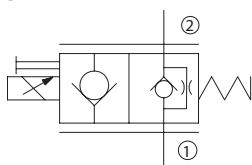
**Specifications**

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 10 bar [2600150 psi]</b>	45 l/min [12 US gal/min]
<b>Leakage</b>	6 drops/min @ at rated pressure
<b>Weight</b>	0.54 kg [1.19 lb]
<b>Hysteresis</b>	8% maximum
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC10-2
<b>Standard Coil</b>	M19P 22 Watt

**Theoretical performance**



**Schematic**

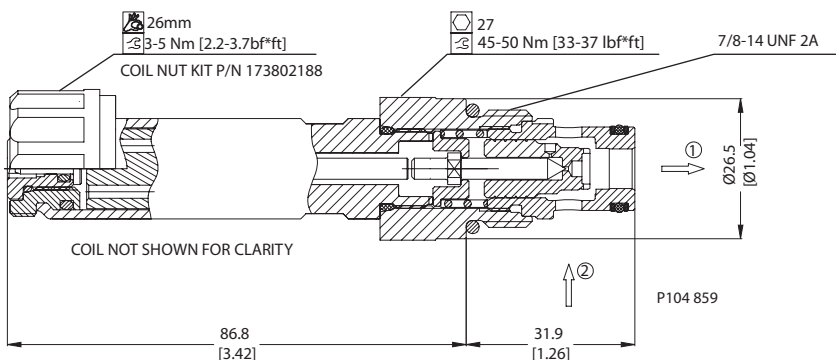


P104 858

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 859

**ORDERING INFORMATION**

**PSVP10-NOR-12D-DN-B-00**

**Coil voltage**

- 00 = No coil
- 12D = 12V DC
- 24D = 24V DC

**Coil termination**

- 00 = No coil
- FL = Flying Lead
- DN = ISO 4400 (DIN 43650)
- DE = Deutsch
- AJ = AMP Jr

**Body and Ports**

- 00 = No housing
- 6S = Al, #6 SAE
- 8S = Al, #8 SAE
- DG3B = Al, 3/8 BSP
- DG4B = Al, 1/2 BSP
- Other housing available

**Body Nomenclature**

- No Body
- CP10-2-6S
- CP10-2-8S
- SDC10-2-DG3B
- SDC10-2-DG4B

**Seals**

- B = Buna-N seals
- V = Viton seals

**Seal Kit**

- 354004019
- 354003419

P104 861

**OPERATION**

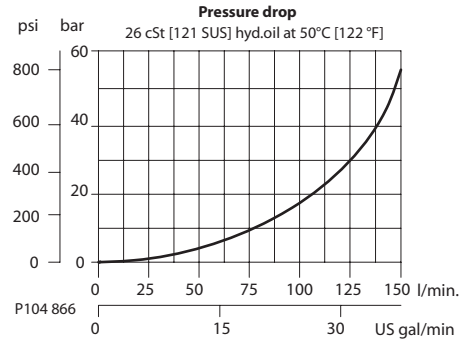
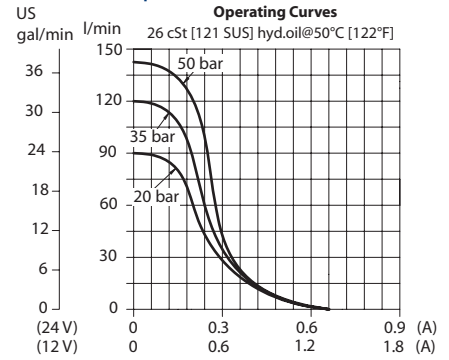
This is a non-compensated, normally-open, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

**SPECIFICATIONS**

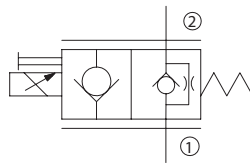
**Specifications**

Rated pressure	260 bar [3770 psi]
Rated flow at 10 bar [150 psi]	70 l/min [18 US gal/min]
Leakage	6 drops/min @ at rated pressure
Weight	0.60 kg [1.32 lb]
Hysteresis	8% maximum
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC12-2
Standard Coil	M19P 22 Watt

**Theoretical performance**



**Schematic**

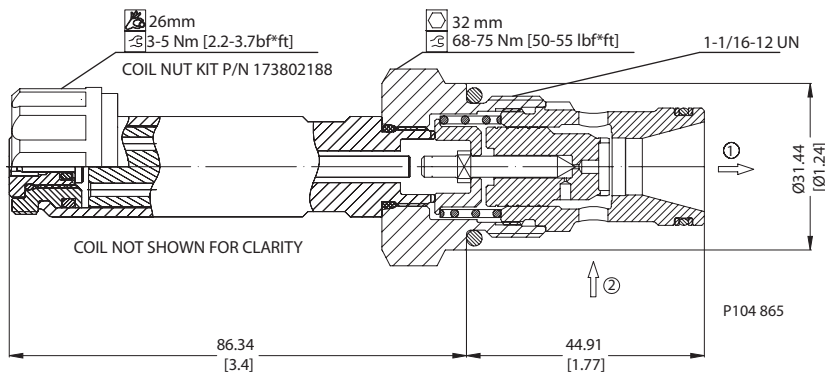


P104 858

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 865

**ORDERING INFORMATION**

**PSVP12-NOR-12D-DN-B-00**

- Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC
- Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

- Body and Ports**  
00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
4B = Al, 1/2 BSP  
6B = Al, 3/4 BSP  
Other housing available

- Body Nomencl.**  
No Body  
CP12-3-10S  
CP12-3-12S  
CP12-3-4B  
CP12-3-6B

- Seals**  
B = Buna-N seals  
V = Viton
- Seal Kit**  
354008319  
354008419
- P104 867

Proportional valves  
PSVP12-NOR

Proportional valves  
PSVP16-NOR

**OPERATION**

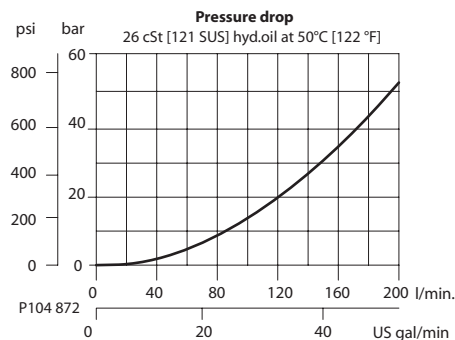
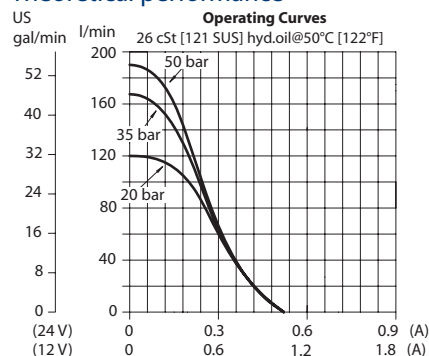
This is a non-compensated, normally-open, pilot-operated, poppet-type, proportional flow-control. Controlled flow is from port 2 to 1.

**SPECIFICATIONS**

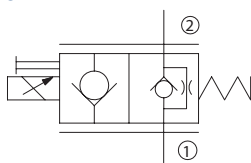
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 10 bar [150 psi]</b>	80 l/min [21 US gal/min]
<b>Leakage</b>	6 drops/min @ at rated pressure
<b>Weight</b>	0.85 kg [1.87 lb]
<b>Hysteresis</b>	8% maximum
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC16-2
<b>Standard Coil</b>	M19P 22 Watt

Theoretical performance



Schematic

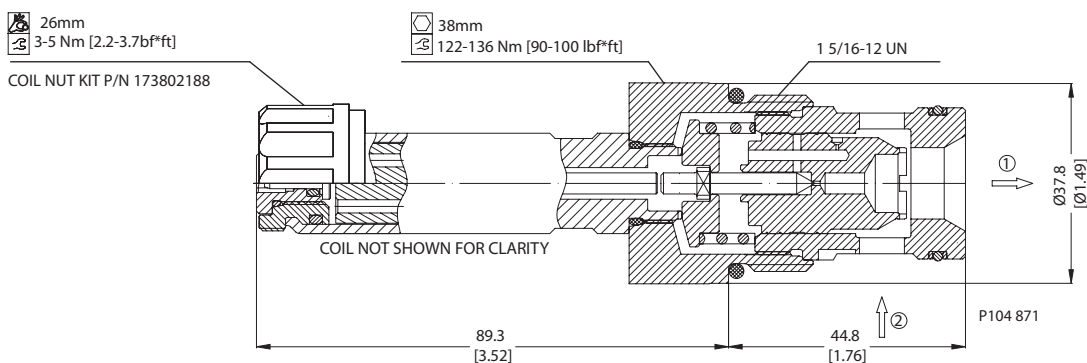


P104 858

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PSVP16-NOR-12D-DN-B-00

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**  
00 = No housing  
DG6B = Al, 3/4 BSP  
DG8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Hother housing available

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

**Seal Kit**  
354008719  
354008819

**Body Nomencl.**  
No Body  
SDC16-2-DG-6B  
SDC16-2-DG-8B  
CP16-2-12S  
CP16-2-16S

P104 873



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### PFC10-RC



### OPERATION

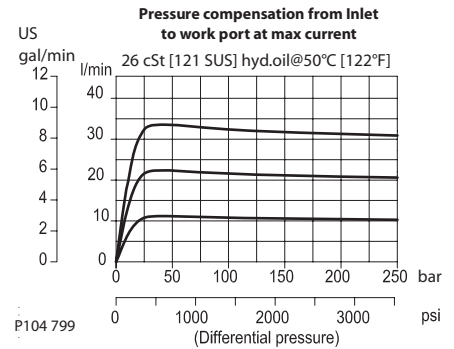
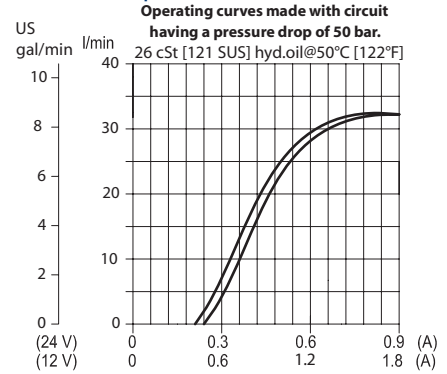
This is a pressure-compensated, restrictive-type, normally-closed, spool-type, proportional flow-control. Controlled flow is from port 1 to 2.

### SPECIFICATIONS

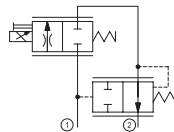
#### Specifications

Rated pressure	260 bar [3770 psi]
Maximum flow at rated pressure	PFC10-RC-10: 10 l/min [2.64 US gal/min] PFC10-RC-30: 30 l/min [7.9 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.65 kg [1.43 lb]
Hysteresis	8% maximum
Threshold current	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC10-2
Standard Coil	M19P 22 Watt

#### Theoretical performance



#### Schematic

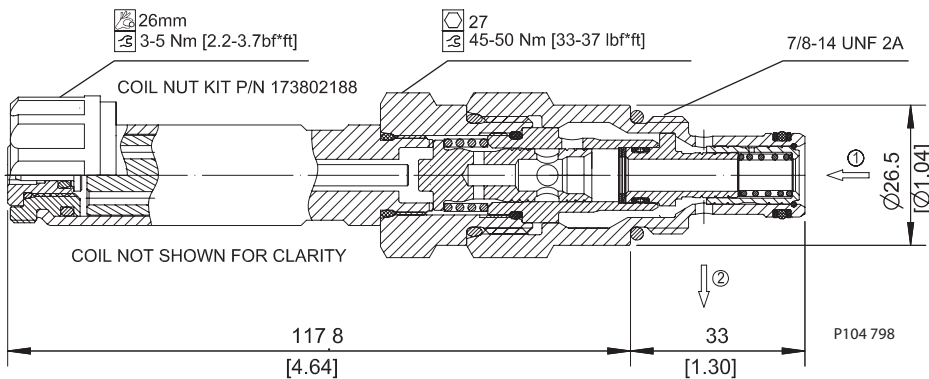


P104 797

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

#### PFC10-RC-30-12D-DN-B-00

Max regulated flow  
30 = 30 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

Body and Ports  
00 = No housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
DG3B = Al, 3/8 BSP  
DG4B = Al, 1/2 BSP  
Other housings available

Seals Seal Kit  
B = Buna-N seals 354004019  
V = Viton seals 354003419

Body Nomenclature  
No Body  
CP10-2-6S  
CP10-2-8S  
SDC10-2-DG3B  
SDC10-2-DG4B

P104 800

Proportional valves PFC10-RC

**OPERATION**

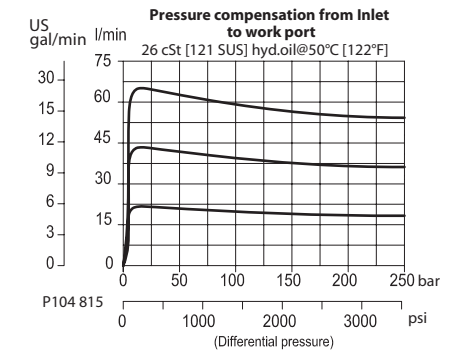
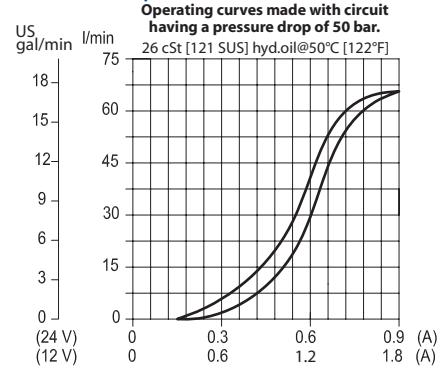
This is a pressure-compensated, restrictive-type, normally-closed, spool-type, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

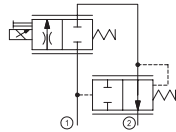
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Maximum flow at rated pressure</b>	PFC12-RC-45: 45 l/min [11.9 US gal/min] PFC12-RC-65: 65 l/min [17.17 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.77 kg [1.70 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.3 A (12 VDC coil) 0.15 A (14 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (14 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC12-2
<b>Standard Coil</b>	D14E(35W) 35 Watt

Theoretical performance



Schematic

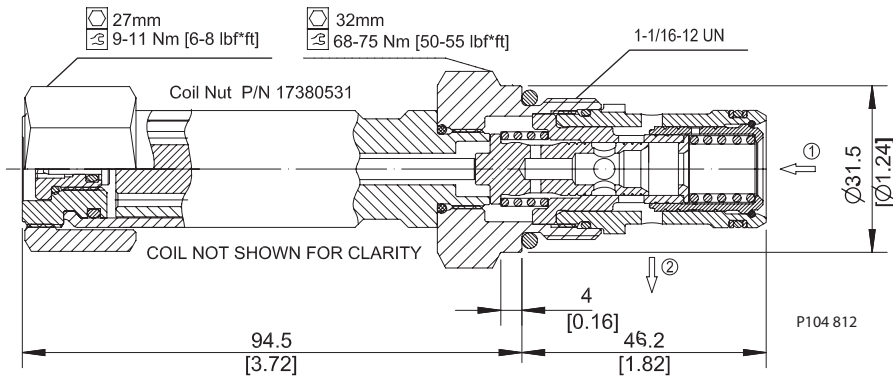


P104 797

**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PFC12-RC-65-12D-DN-B-00

Max regulated flow  
65 = 65 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

Body and Ports

00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
DG4B = Al, 1/2 BSP  
DG6B = Al, 3/4 BSP  
Other housing available

Seals

B = Buna-N seals 354008319  
V = Viton 354008419

Seal Kit

354008319  
354008419

Body Nomencl.

No Body  
CP12-2-10S  
CP12-2-12S  
SDC12-2-DG4B  
SDC12-2-DG6B

P104 814



**OPERATION**

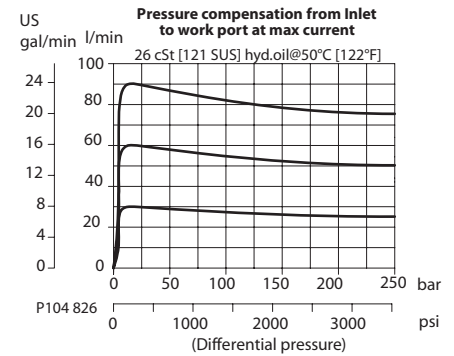
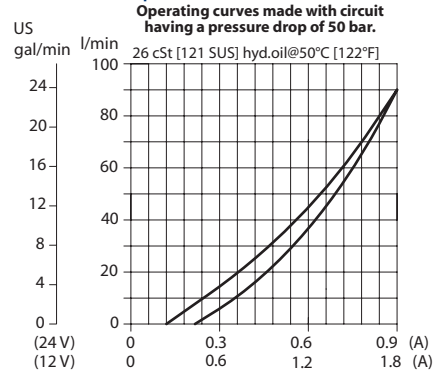
This is a pressure-compensated, restrictive-type, normally-closed, spool-type, proportional flow control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

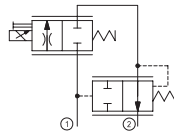
**Specifications**

Rated pressure	260 bar [3770 psi]
Rated flow at 260 bar [3771 psi]	90 l/min [24 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.91 kg [2.01 lb]
Hysteresis	8% maximum
Threshold current	0.4 A (12 VDC coil) 0.2 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC16-2
Standard Coil	D14E(35W) 35 Watt

**Theoretical performance**



**Schematic**

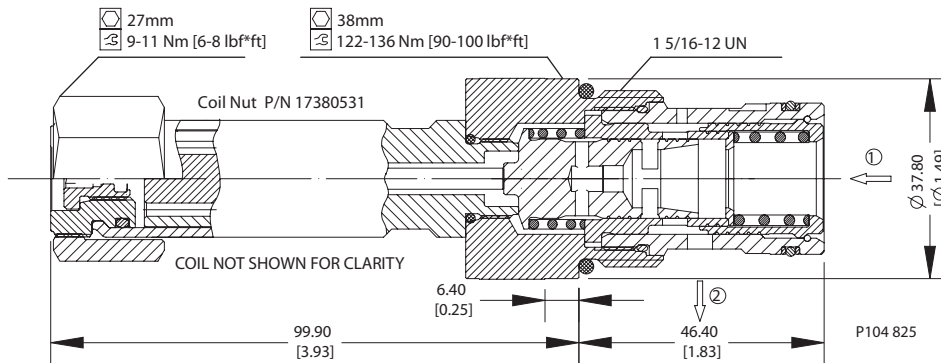


P104 797

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PFC16-RC-90-12D-DN-B-00**

**Max regulated flow**  
90 = 90 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
DG6B = Al, 3/4 BSP  
DG8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Other housing available

**Body Nomencl.**  
No Body  
SDC16-2-DG-6B  
SDC16-2-DG-8B  
CP16-2-12S  
CP16-2-16S

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

**Seal Kit**  
354008719  
354008819

P104 827

**OPERATION**

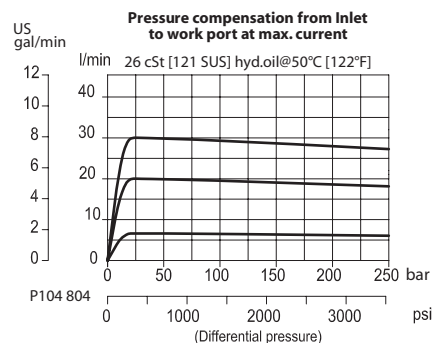
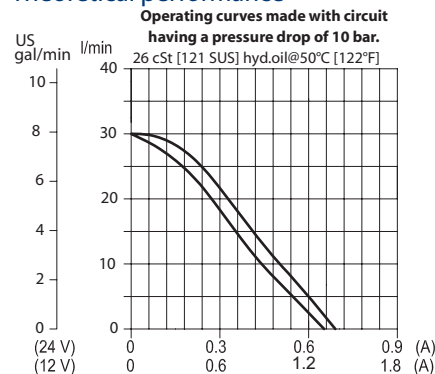
This is a pressure-compensated, restrictive-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

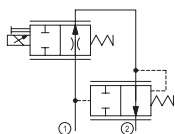
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>maximum flow at rated pressure</b>	PFC10-RO-10: 10 l/min [2.64 US gal/min] PFC10-RO-30: 30 l/min [7.9 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.65 kg [1.43 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC10-2
<b>Standard Coil</b>	M19P 22 Watt

Theoretical performance



Schematic

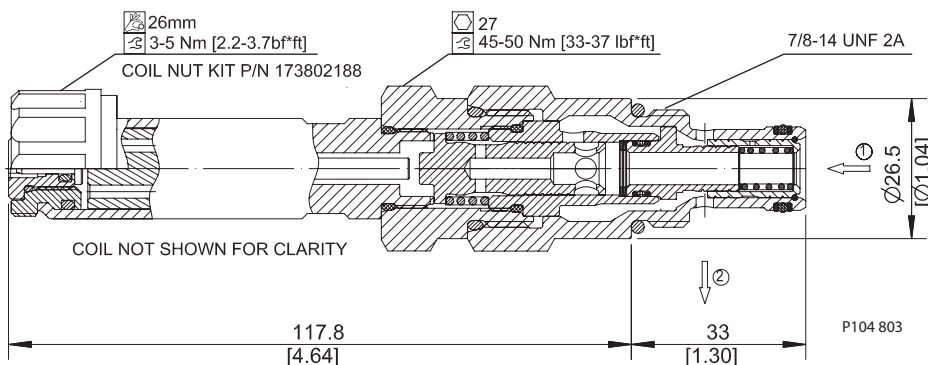


P104 802

**DIMENSIONS**

mm [in]

Cross-sectional view



P104 803

**ORDERING INFORMATION**

PFC10-RO-30-12D-DN-B-00

**Max regulated flow**  
30 = 30 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = AMP Jr

**Body and Ports**  
00 = No housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
DG3B = Al, 3/8 BSP  
DG4B = Al, 1/2 BSP  
Other housing available

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

**Seal Kit**  
354004019  
354003419

**Body Nomenclature**  
No Body  
CP10-2-6S  
CP10-2-8S  
SDC10-2-DG3B  
SDC10-2-DG4B

P104 805



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### PFC12-RO



### OPERATION

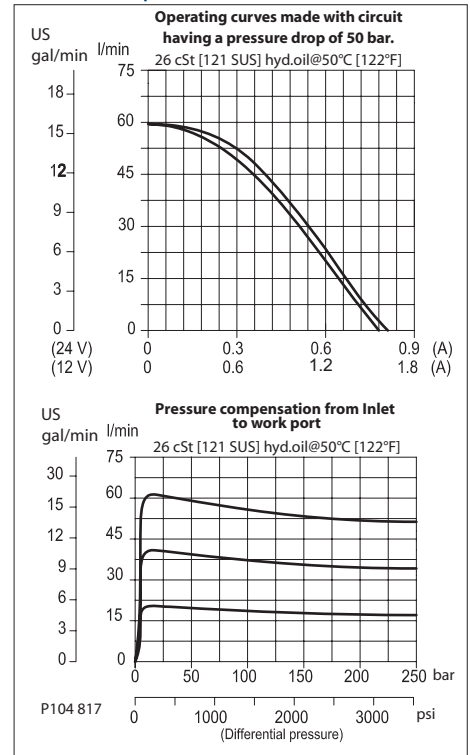
This is a pressure-compensated, restrictive-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 2.

### SPECIFICATIONS

#### Specifications

Rated pressure	260 bar [3770 psi]
Maximum flow at rated pressure	PFC12-RO-45: 45 l/min [11.9 US gal/min] PFC12-RO-60: 60 l/min [15.9 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.77 kg [1.70 lb]
Hysteresis	8% maximum
Threshold current	0.42 A (12 VDC coil) 0.21 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC12-2
Standard Coil	D14E(35W) 35 Watt

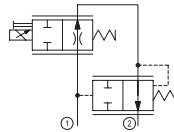
#### Theoretical performance



### DIMENSIONS

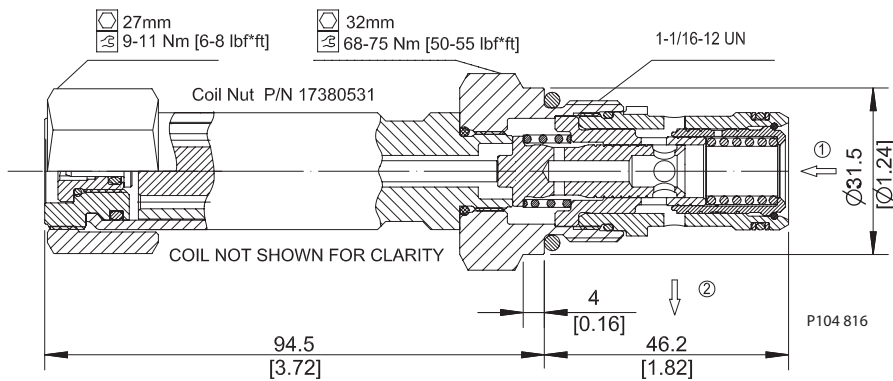
mm [in]

#### Schematic



P104 802

#### Cross-sectional view



### ORDERING INFORMATION

#### PFC12-RO-60-12D-DN-B-00

**Max regulated flow**  
60 = 60 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**

00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
DG4B = Al, 1/2 BSP  
DG6B = Al, 3/4 BSP  
Other housing available

**Body Nomencl.**

No Body  
CP12-2-10S  
CP12-2-12S  
SDC12-2-DG4B  
SDC12-2-DG6B

**Seals**

B = Buna-N seals 354008319  
V = Viton 354008419

**Seal Kit**

P104 818

Proportional Valves  
PFC16-RO

**OPERATION**

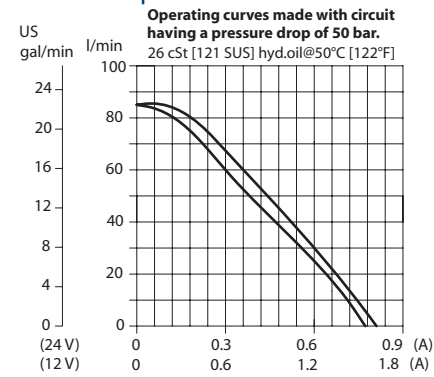
This is a pressure-compensated, restrictive-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 2.

**SPECIFICATIONS**

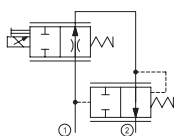
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 260 bar [3771 psi]</b>	85 l/min [22 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.91 kg [2.01 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC16-2
<b>Standard Coil</b>	D14E(35W) 35 Watt

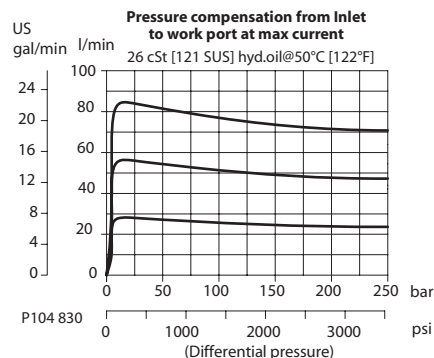
Theoretical performance



Schematic



P104 802

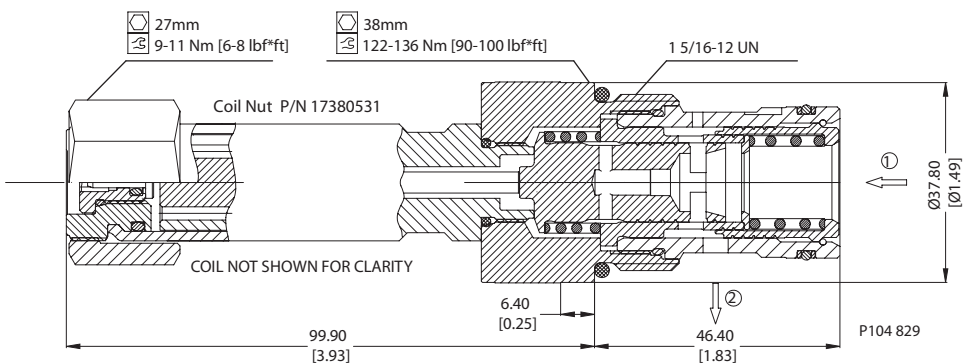


P104 830

**DIMENSIONS**

mm [in]

Cross-sectional view



P104 829

**ORDERING INFORMATION**

PFC16-RO-85-12D-DN-B-00

**Max regulated flow**  
85 = 85 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
DG6B = Al, 3/4 BSP  
DG8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Other housing available

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

**Seal Kit**  
354008719  
354008819

**Body Nomencl.**  
No Body  
SDC16-2-DG-6B  
SDC16-2-DG-8B  
CP16-2-12S  
CP16-2-16S

P104 831

**OPERATION**

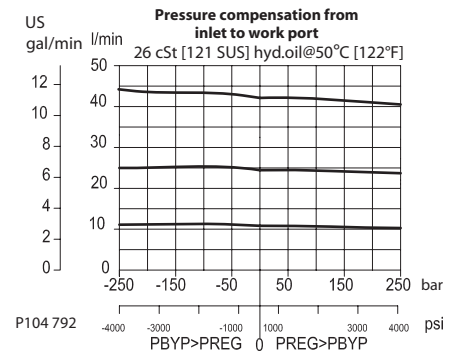
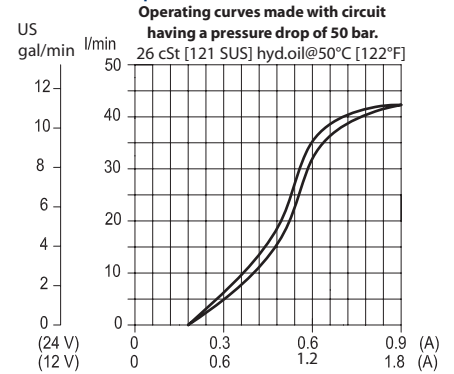
This is a pressure-compensated, priority-type, normally-closed, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

**SPECIFICATIONS**

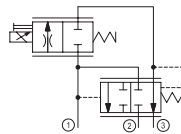
Specifications

Rated pressure	260 bar [3770 psi]
Maximum flow at rated pressure	PFC10-PC-10: 10 l/min [2.64 US gal/min] PFC10-PC-25: 25 l/min [6.6 US gal/min] PFC10-PC-40: 40 l/min [10.6 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight including coil	0.62 kg [1.37 lb]
Hysteresis	8% maximum
Threshold current	0.36 A (12 VDC coil) 0.18 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC10-3
Standard Coil	M19P 22 Watt

Theoretical performance



Schematic

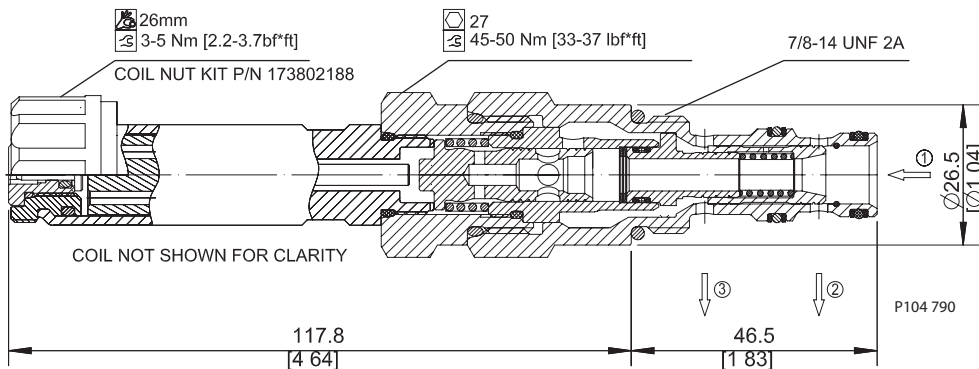


P104 789

**DIMENSIONS**

mm [in]

Cross-sectional view



P104 790

**ORDERING INFORMATION**

PFC10-PC-40-12D-DN-B-00

Max regulated flow  
40 = 40 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination:  
00 = No coil  
FL = Flying Lead  
DN = DIN 43650  
DE = Deutsch  
AJ = AMP Jr

Body and ports  
00 = No housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
SE3B = Al, 3/8" BSP  
SE4B = Al, 1/2" BSP  
Other housing available  
Seals kit  
B = Buna-N 354004210  
V = Viton 354003719

Body Nomenclature  
No Body  
CP10-3-6S  
CP10-3-8S  
SDC10-3-SE3B  
SDC10-3-SE4B

P104 791

**OPERATION**

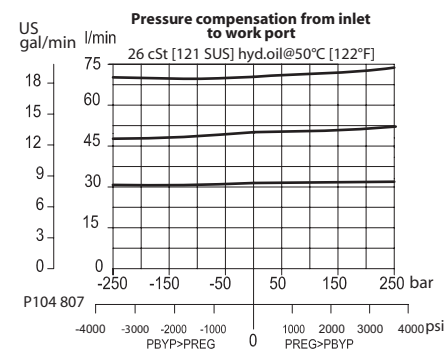
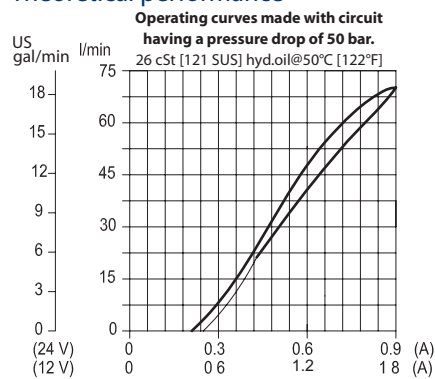
This is a pressure-compensated, priority-type, normally-closed, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

**SPECIFICATIONS**

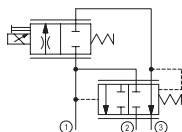
Specifications

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Maximum flow at rated pressure</b>	PFC12-PC-50: 50 l/min [13.21 US gal/min] PFC12-PC-65: 65 l/min [17.17 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.81 kg [1.79 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.5 A (12 VDC coil) 0.25 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC12-3
<b>Standard Coil</b>	D14E(35W) 35 Watt

Theoretical performance



Schematic

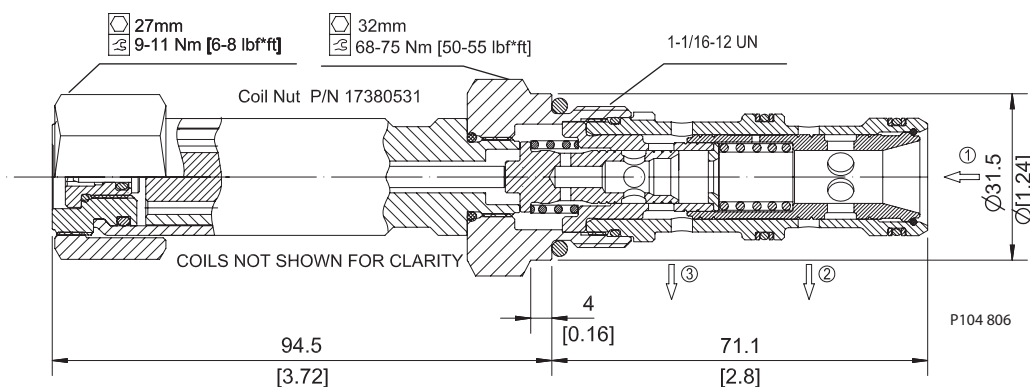


P104 789

**DIMENSIONS**

mm [in]

Cross-sectional view



P104 806

**ORDERING INFORMATION**

PFC12-PC-65-12D-DN-B-00

**Max regulated flow**  
65 = 65 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
4B = Al, 1/2 BSP  
6B = Al, 3/4 BSP  
Other housing available

**Seals Seal Kit**  
B = Buna-N seals 354008319  
V = Viton 354008419

**Body Nomencl.**  
No Body  
CP12-3-10S  
CP12-3-12S  
CP12-3-4B  
CP12-3-6B

P104 808



# Cartridge Valves Technical Information

## Proportional Valves



COMPLIANT

### Proportional Flow Controls

#### PFC16-PC

#### OPERATION

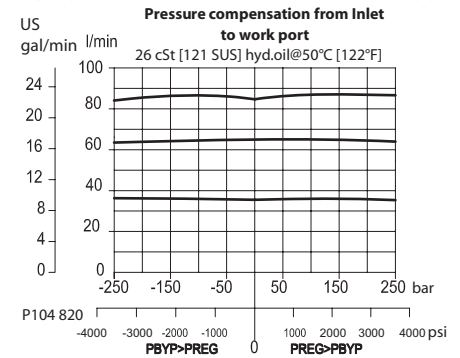
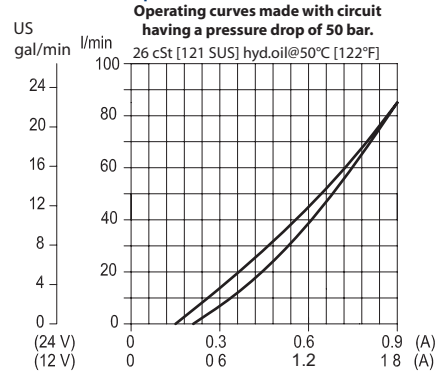
This is a pressure-compensated, priority-type, normally-closed, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

#### SPECIFICATIONS

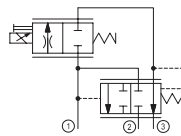
##### Specifications

Rated pressure	260 bar [3770 psi]
Rated flow at 260 bar [3771 psi]	85 l/min [22 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.97 kg [2.14 lb]
Hysteresis	8% maximum
Threshold current	0.4 A (12 VDC coil) 0.2 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC16-3
Standard Coil	D14E(35W) 35 Watt

##### Theoretical performance



##### Schematic

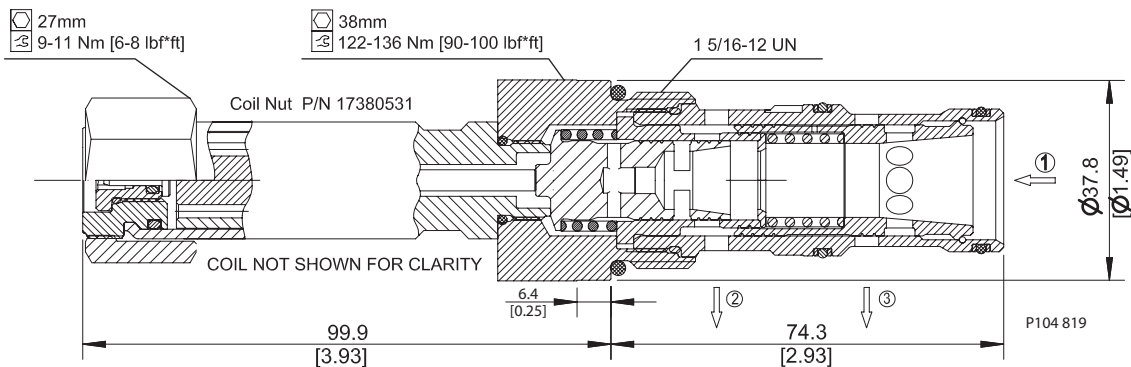


P104 789

#### DIMENSIONS

mm [in]

##### Cross-sectional view



P104 819

#### ORDERING INFORMATION

### PFC16-PC-85-12D-DN-B-00

Max regulated flow  
85 = 85 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

Body and Ports  
00 = No housing  
6B = Al, 3/4 BSP  
8B = Al, 1 BSP  
12S = Al, #12 SAE  
16S = Al, #16 SAE  
Other housings available

Seals Seal Kit  
B = Buna-N seals 354008919  
V = Viton seals 354009019

Body Nomenclature  
No housing  
SDC16-3-HE-6B  
SDC16-3-HE-8B  
CP16-3-12S  
CP16-3-16S

P104 821

**OPERATION**

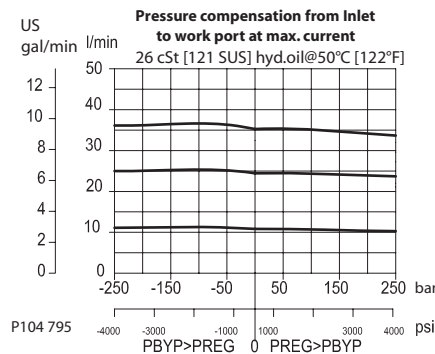
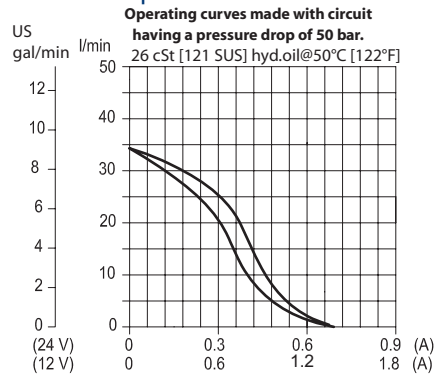
This is a pressure-compensated, priority-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

**SPECIFICATIONS**

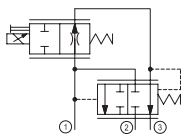
**Specifications**

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Maximum flow at rated pressure</b>	PFC10-PO-10: 10 l/min [2.64 US gal/min] PFC10-PO-25: 25 l/min [6.6 US gal/min] PFC10-PO-35: 35 l/min [9.25 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight including coil</b>	0.72 kg [1.59 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.1 A (12 VDC coil) 0.05 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC10-3
<b>Standard Coil</b>	M19P 22 Watt

**Theoretical performance**



**Schematic**

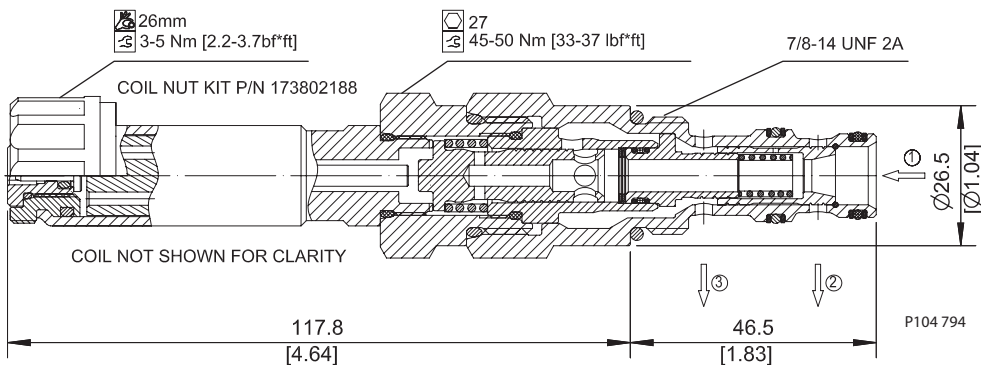


P104 793

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PFC10-PO-35-12D-DN-B-00**

Max regulated flow  
35 = 35 l/min

Coil voltage  
00 = No coil  
12D = 12V DC  
24D = 24V DC

Coil termination:  
00 = No coil  
FL = Flying Lead  
DN = DIN 43650  
DE = Deutsch  
AJ = AMP Jr

Body and ports  
00 = No housing  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
SE3B = Al, 3/8" BSP  
SE4B = Al, 1/2" BSP  
Other housing available  
Seals Seals kit  
B = Buna-N 354004210  
V = Viton 354003719

Body Nomenclature  
No Body  
CP10-3-6S  
CP10-3-8S  
SDC10-3-SE3B  
SDC10-3-SE4B

P104 796





# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Flow Controls

#### PFC12-PO



### OPERATION

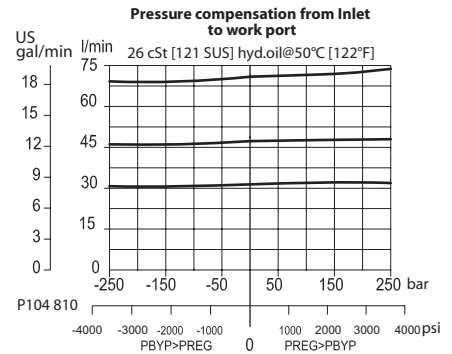
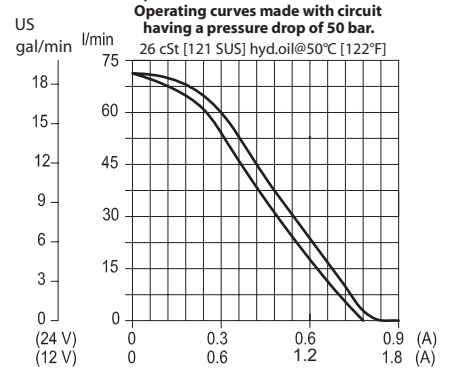
This is a pressure-compensated, priority-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

### SPECIFICATIONS

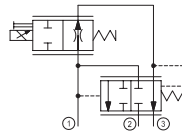
#### Specifications

Rated pressure	260 bar [3770 psi]
maximum flow at rated pressure	PFC12-PO-50: 50 l/min [13.21 US gal/min] PFC12-PO-70: 70 l/min [8.5 US gal/min]
Leakage	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
Weight	0.81 kg [1.79 lb]
Hysteresis	8% maximum
Threshold current	0.2 A (12 VDC coil) 0.1 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC12-2
Standard Coil	D14E(35W) 35 Watt

#### Theoretical performance



#### Schematic

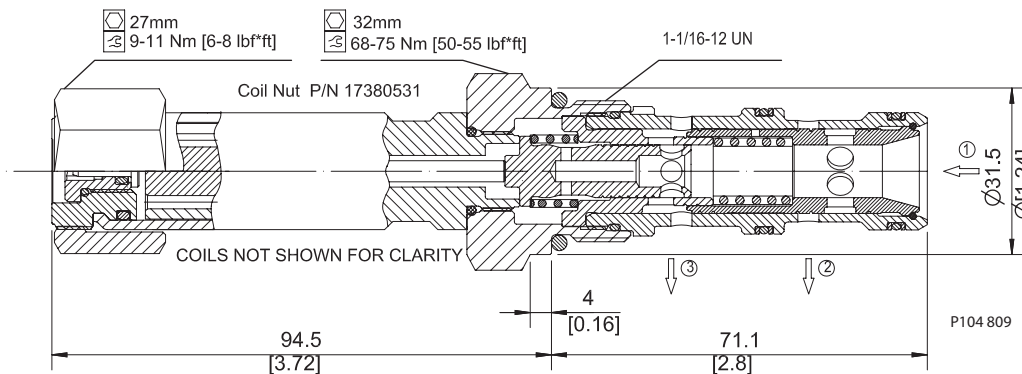


P104 793

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

#### PFC12-PO-70-12D-DN-B-00

**Max regulated flow**  
70 = 70 l/min

**Coil voltage**  
00 = No coil  
12D = 12V DC  
24D = 24V DC

**Coil termination**  
00 = No coil  
FL = Flying Lead  
DN = ISO 4400 (DIN 43650)  
DE = Deutsch  
AJ = Amp Junior  
AS = Amp Superseal

**Body and Ports**  
00 = No housing  
10S = Al, #10 SAE  
12S = Al, #12 SAE  
4B = Al, 1/2 BSP  
6B = Al, 3/4 BSP  
Other housing available

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

**Seal Kit**  
354008319  
354008419

**Body Nomencl.**  
No Body  
CP12-3-10S  
CP12-3-12S  
CP12-3-4B  
CP12-3-6B

P104 811

Proportional valves PFC12-PO

**OPERATION**

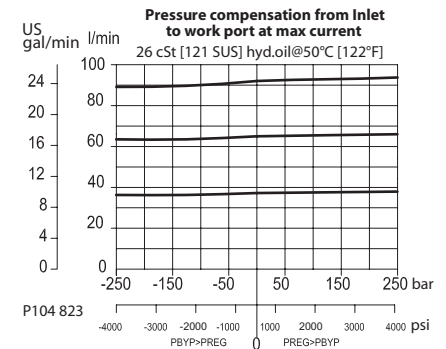
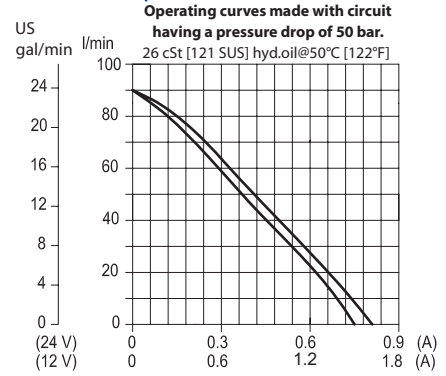
This is a pressure-compensated, priority-type, normally-open, spool-type, proportional flow-control. Controlled flow is from port 1 to 3, port 2 is bypass.

**SPECIFICATIONS**

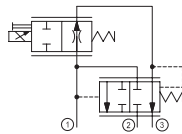
**Specifications**

<b>Rated pressure</b>	260 bar [3770 psi]
<b>Rated flow at 260 bar [3771 psi]</b>	90 l/min [24 US gal/min]
<b>Leakage</b>	420 cm <sup>3</sup> /min [25.6 in <sup>3</sup> /min] @ at rated pressure
<b>Weight</b>	0.97 kg [2.14 lb]
<b>Hysteresis</b>	8% maximum
<b>Threshold current</b>	0.1 A (12 VDC coil) 0.05 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Pressure differential</b>	0 bar [0 psi] maximum
<b>Cavity</b>	SDC16-3
<b>Standard Coil</b>	D14E(35W) 35 Watt

**Theoretical performance**



**Schematic**

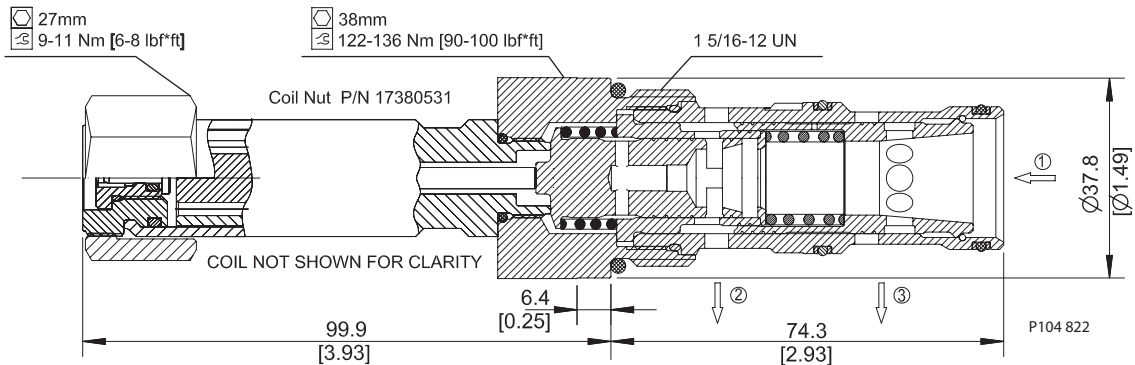


P104 793

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P104 822

**ORDERING INFORMATION**

**PFC16-PO-90-12D-DN-B-00**

<b>Max regulated flow</b> 90 = 90 l/min	<b>Coil voltage</b> 00 = No coil 12D = 12V DC 24D = 24V DC	<b>Coil termination</b> 00 = No coil FL = Flying Lead DN = ISO 4400 (DIN 43650) DE = Deutsch AJ = Amp Junior AS = Amp Superseal	<b>Body and Ports</b> 00 = No housing 6B = Al, 3/4 BSP 8B = Al, 1 BSP 12S = Al, #12 SAE 16S = Al, #16 SAE Other housings available	<b>Body Nomenclature</b> No housing SDC16-3-HE-6B SDC16-3-HE-8B CP16-3-12S CP16-3-16S
			<b>Seals</b> B = Buna-N seals V = Viton seals	<b>Seal Kit</b> 354008919 354009019

P104 824



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Pressure Reducing

#### CP558-24



### OPERATION

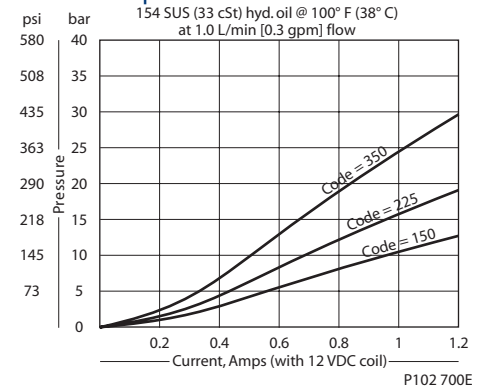
This valve is a direct acting, proportional, pressure reducing/relieving valve.

### SPECIFICATIONS

#### Specifications

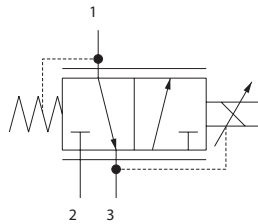
Rated pressure	34 bar [500 psi]
Rated flow at 7 bar [100 psi]	4 l/min [1 US gal/min]
Weight	0.27 kg [0.60 lb]
Hysteresis	10% maximum
Threshold current	0.1 A (12 VDC coil) 0.05 A (24 VDC coil)
Maximum control current	1 A (12 VDC coil) 0.5 A (24 VDC coil)
Cavity	SDC08-3
Standard Coil	D08 16 Watt
Coil nut	322399

#### Theoretical performance



Proportional valves  
CP558-24

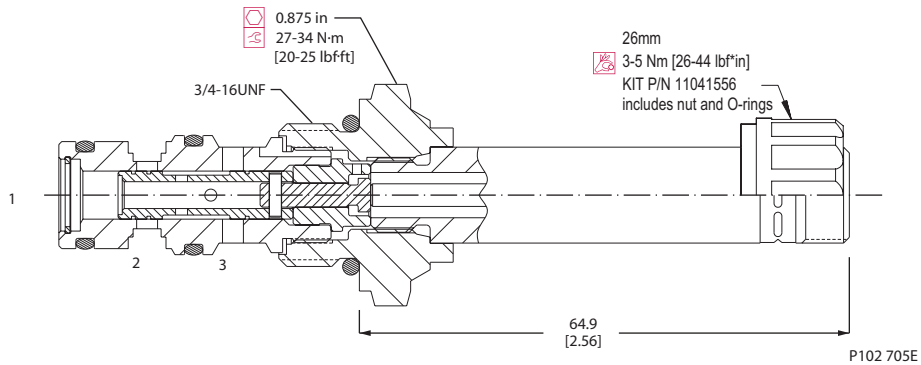
#### Schematic



### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

**CP558-24-B-4S-150-12D-H**

<b>Seals</b> B = Buna-N V = Viton	Seal Kit 11016151 120708	<b>Voltage</b> 000 = No coil 12D = 12 VDC coil 24D = 24 VDC coil	<b>Connector</b> 0 = No connector H = DIN 43650 L = Lead S = Spade AJ = Amp Junior M2 = Metripak 150 Type 1 DE = Deutsch
<b>Housing and ports</b> J = No Housing B = AL, 1/4 BSP B = AL, 3/8 BSP S = AL, #4 SAE S = AL, #6 SAE	<b>Housing P/N</b> No Housing SDC08-3-SE-2B SDC08-3-SE-3B CP08-3-4S CP08-3-6S	<b>Pressure Code</b> 150 = 10.3 bar [150 psi] 225 = 15.5 bar [225 psi] 350 = 24.1 bar [350 psi]	

P102 708E

**OPERATION**

This is a pilot-operated, proportional pressure reducing/relieving valve.

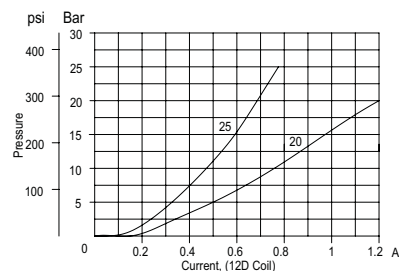
**SPECIFICATIONS**

Specifications

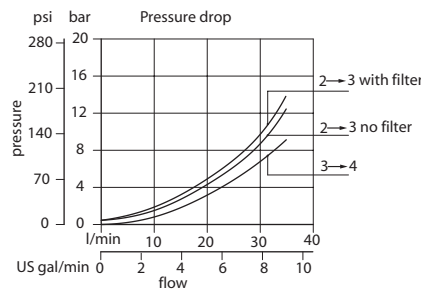
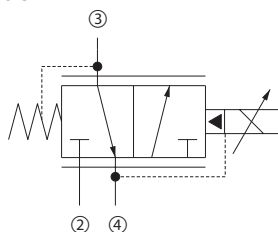
<b>Rated pressure</b>	50 bar [700 psi]
<b>Rated flow at 7 bar [100 psi]</b>	25 l/min [7 US gal/min]
<b>Weight</b>	0.34 kg [0.75 lb]
<b>Hysteresis</b>	6% maximum
<b>Threshold current</b>	0.15 A (12 VDC coil) 0.08 A (24 VDC coil)
<b>Maximum control current</b>	0.8 A (12 VDC coil) 0.4 A (24 VDC coil)
<b>Cavity</b>	SDC10-4
<b>Standard Coil</b>	M13 20 Watt

Theoretical performance

Operating envelope  
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]





Schematic



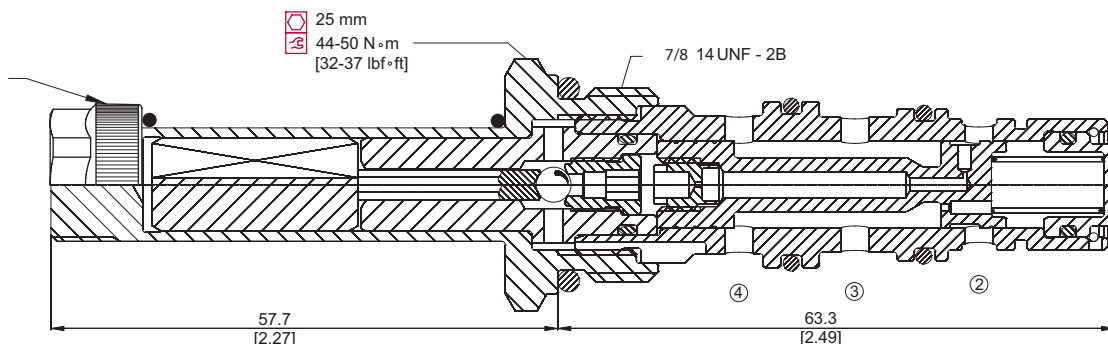
P103 705E

**DIMENSIONS**

mm [in]

20 mm   
4-6 Nm   
[35-53 lbf·in]  
Coil Nut Kit  
P/N 173800588

Cross-sectional view



P103 678

**ORDERING INFORMATION**

XRP 044 / 25\* - F - 24D - A - 00 - V

**Inlet filter**

F = 300 µm filter  
Omit = No filter

**Voltage**

0 = No coil  
12D = 12VDC coil  
24D = 24VDC coil

**Termination**

0 = No connector  
AJ = AMP junior  
AMS = AMP superseal 1.5  
DE = Deutsch  
DN = DIN 43650  
FL600 = Lead wires  
SP = Spade

**Seals**

V = Viton  
Omit = Buna-N

**Seal kit**

Consult factory  
Consult factory

**Housing and ports**

00 = No Housing  
L3/8 = AL, 3/8 BSP  
L1/2 = AL, 1/2 BSP  
6S = AL, #6 SAE  
8S = AL, #8 SAE  
Other housings available

**Housing P/N**

No Housing  
SDC10-4-L-3/8  
SDC10-4-L-1/2  
CP10-4-6S  
CP10-4-8S

\* other pressure ranges available, consult factory

520L0588 • Rev DA • June 2010

P103 733E



# Cartridge Valves Technical Information

## Proportional Valves

### Proportional Pressure Reducing

#### PPR10-PAC



### OPERATION

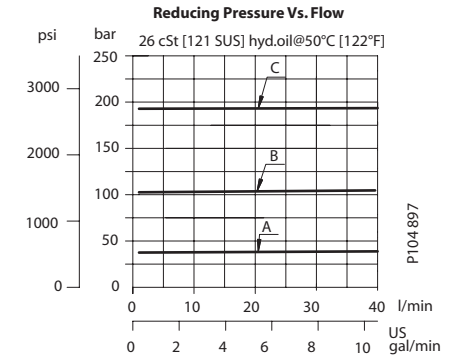
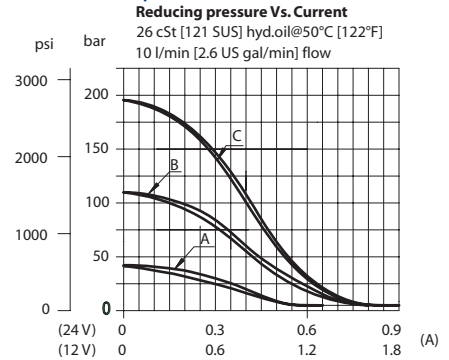
This is a pilot-operated, proportional pressure-reducing/relieving valve (Normally closed).

### SPECIFICATIONS

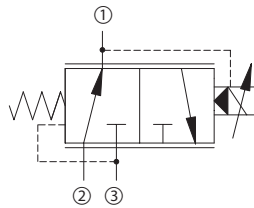
#### Specifications

Rated pressure	250 bar [3625 psi]
Rated flow at 7 bar [100 psi]	18 l/min [5 US gal/min]
Weight	0.62 kg [1.37 lb]
Hysteresis	10% maximum
Threshold current	0 A (12 VDC coil) 0 A (24 VDC coil)
Maximum control current	1.4 A (12 VDC coil) 0.7 A (24 VDC coil)
Pressure differential	0 bar [0 psi] maximum
Cavity	SDC10-3
Standard Coil	M19P 22 Watt

#### Theoretical performance



#### Schematic

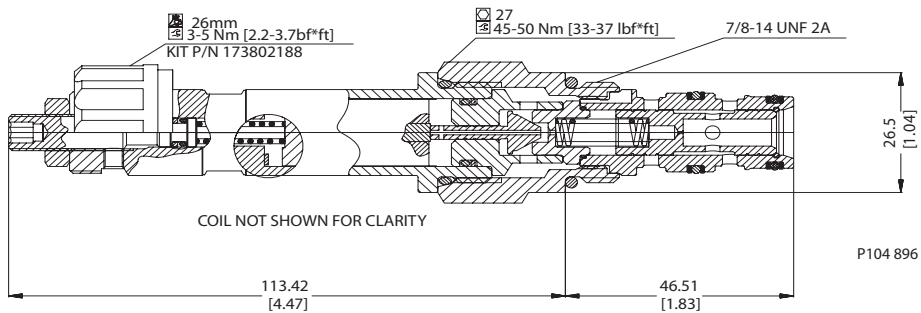


P104 895

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

#### PPR10-PAC-40-A-12D-DN-B-00

##### Cracking pressure

Code = Setting in Bar  
Std. setting  
40 = 40 bar setting (type A)  
100 = 100 bar setting (type B)  
200 = 200 bar setting (type C)

##### Pressure range

A= 20 - 60 bar [360 - 940 psi] Max inlet pressure 150 Bar  
B= 70 - 150 bar [960-2250 psi]  
C= 160 - 210 bar [2260-3120 psi]

##### Coil voltage

12D=12VDC  
24D=24VDC  
00=No Coil

##### Housing and ports

00 = Cartridge only  
6S = Al, #6 SAE  
8S = Al, #8 SAE  
SE3B = Al, 3/8" BSP  
SE4B = Al, 1/2" BSP  
Other housing available

##### Housing Nomenclature

No Body  
CP10-3-6S  
CP10-3-8S  
SDC10-3-SE3B  
SDC10-3-SE4B

##### Seals

B = Buna-N  
V = Viton

##### Seals kit

354004210  
354003719

##### Coil termination

00 = No coil, nut included  
AJ = AMP Junior  
DE = Deutsch  
DN = DIN 46650  
FL = Flying leads (140mm lead length standard)

P104 898

**OPERATION**

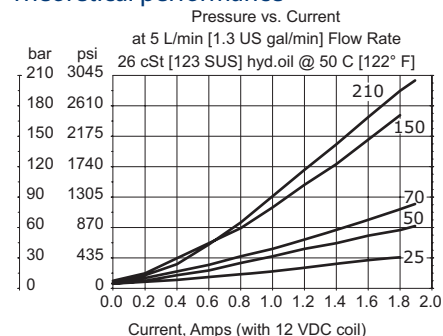
This is a pilot-operated, proportional pressure reducing/relieving valve.

**SPECIFICATIONS**

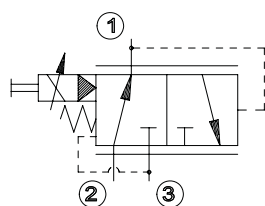
Specifications

<b>Rated pressure</b>	315 bar [4500 psi]
<b>Rated flow at 7 bar [100 psi]</b>	25 l/min [7 US gal/min]
<b>Weight</b>	0.55 kg [1.21 lb]
<b>Hysteresis</b>	3% maximum
<b>Threshold current</b>	0 A (12 VDC coil) 0 A (24 VDC coil)
<b>Maximum control current</b>	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
<b>Cavity</b>	NCS06/3
<b>Standard Coil</b>	M19P 22 Watt

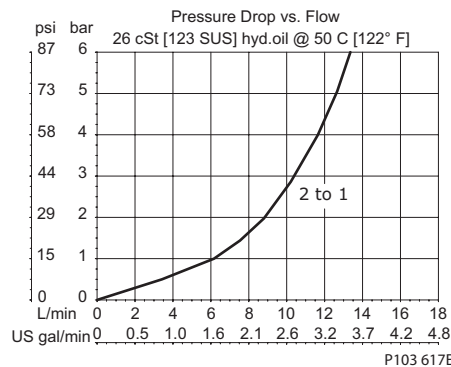
Theoretical performance



Schematic



P108 348E

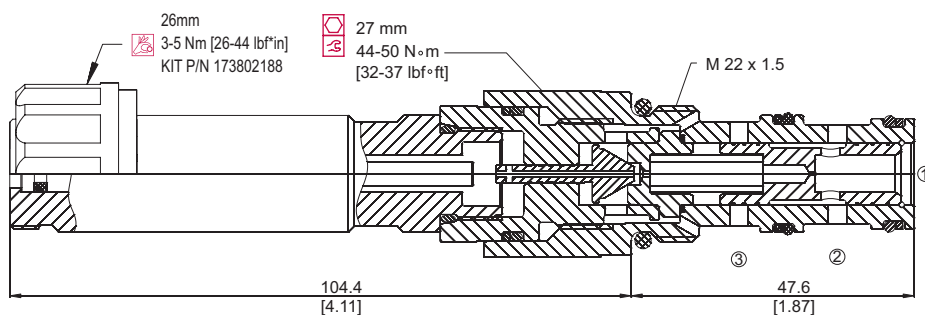


P103 617E

**DIMENSIONS**

mm [in]

Cross-sectional view



P103 612

**ORDERING INFORMATION**

XRP 06 - 70 - 12D - A - EN - 00 - V

**Setting range**

- 25 = 6-25 bar [90-360 psi]
- 50 = 6-55 bar [90-800 psi]
- 70 = 5-75 bar [90-1100 psi]
- 150 = 8-155 bar [120-2200 psi]
- 210 = 9-210 bar [130-3100 psi]

**Voltage**

- 00 = No coil
- 12D = 12VDCI
- 24D = 24VDC

**Termination**

- 00 = No connector
- A = DIN 43650
- AJ = AMP Jr
- FL600 = Lead wires
- DE = Deutsch

**Seals**

- V = Viton
- Omit = Buna-N

**Seals**

- 230000110
- 230000070

**Housing and ports**

- 00 = No Housing
- SE6S = AL, #6 SAE
- SE8S = AL, #8 SAE
- SE3/8 = AL, 3/8 BSP
- SE1/2 = AL, 1/2 BSP

**Housing P/N**

- No Housing
- NCS06/3-SE-6S
- NCS06/3-SE-8S
- NCS06/3-SE-3/8
- NCS06/3-SE-1/2

**Manual override**

- 00 = Push control (Standard)
- EN = Screw control

P103 732E

**OPERATION**

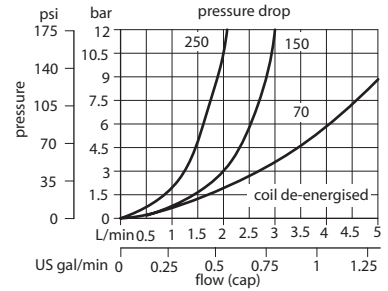
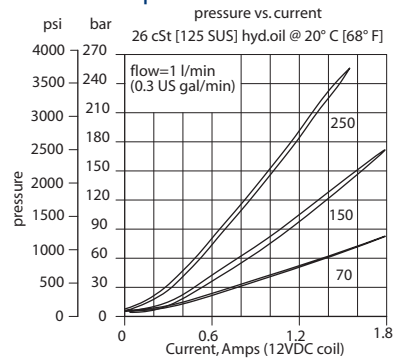
This is a direct-acting normally-open, proportional relief valve.

**SPECIFICATIONS**

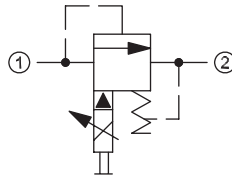
**Specifications**

Rated pressure	250 bar [3600 psi]
Rated flow	4 l/min [1 US gal/min]
Weight	0.44 kg [0.97 lb]
Hysteresis	3% maximum
Threshold current	0 A (12 VDC coil) 0 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Cavity	NCS04/2
Standard Coil	M19P 22 Watt

**Theoretical performance**



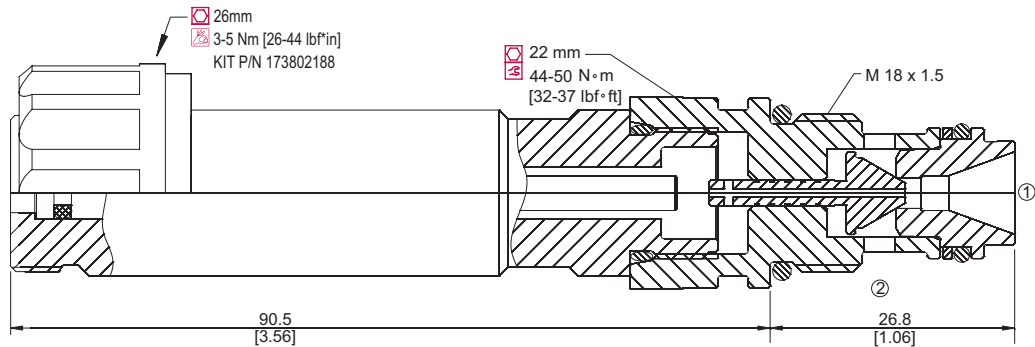
**Schematic**



**DIMENSIONS**

mm [in]

**Cross-sectional view**



P103 696E

P103 512

P103 668

**ORDERING INFORMATION**

XMD 04 - 70 - 24D - A - EN - 00 - V

**Setting range**

- 70 = 3-75 bar [44-1088 psi]
- 150 = 4-160 bar [58-2321 psi]
- 250 = 7-250 bar [102-3626 psi]

**Voltage**

- 00 = No coil
- 12D = 12VDC coil
- 24D = 24VDC coil

**Termination**

- 0 = No connector
- A = DIN 43650
- AJ = AMP Junior
- FL600 = Lead wires
- DE = Deutsch

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

**Housing and ports**

- 00 = No Housing
- DG1/4 = AL, 1/4 BSP
- DG4S = AL, #4 SAE
- DG6S = AL, #6 SAE
- Other housings available

**Seal kit**

- 230000390
- 230000190

**Housing P/N**

- No Housing
- NCS04/2-DG-1/4
- NCS04/2-DG-4S
- NCS04/2-DG-6S

**Manual override**

- 00 = Push control (Standard)
- EN = Screw control

P103 723E

**OPERATION**

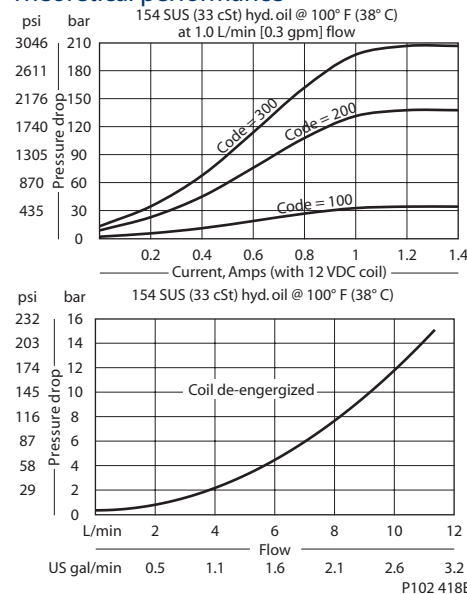
This valve is a direct acting, normally-open, proportional valve.

**SPECIFICATIONS**

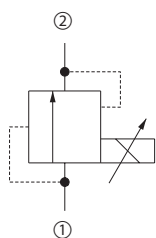
Specifications

<b>Rated pressure</b>	210 bar [3000 psi]
<b>Rated flow</b>	8 l/min [2 US gal/min]
<b>Weight</b>	0.48 kg [1.06 lb]
<b>Hysteresis</b>	10% maximum
<b>Threshold current</b>	0 A (12 VDC coil) 0 A (24 VDC coil)
<b>Maximum control current</b>	1.2 A (12 VDC coil) 0.6 A (24 VDC coil)
<b>Cavity</b>	SDC08-2
<b>Standard Coil</b>	D10 30 Watt
<b>Coil nut</b>	321978

Theoretical performance



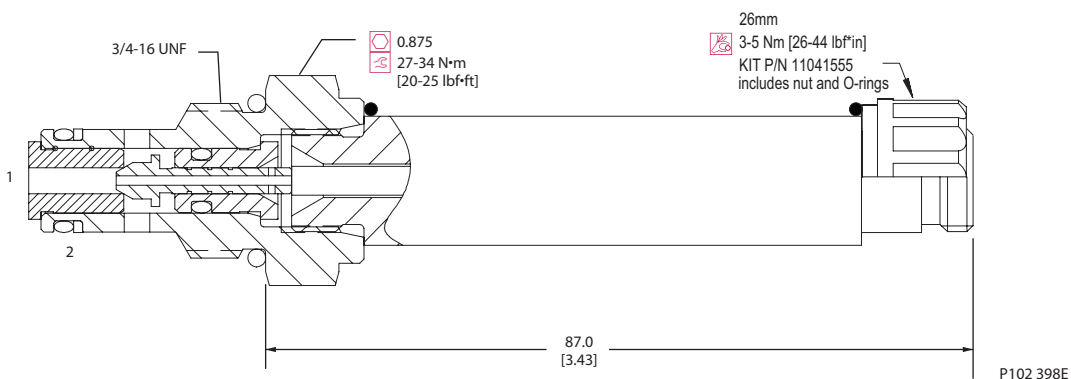
Schematic



**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

CP558 - 20 - B - 6S - 300 - 24D - H

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

**Housing and ports**  
0 = No Housing  
DG2B = AL, 1/4 BSP  
DG3B = AL, 3/8 BSP  
4S = AL, #4 SAE  
6S = AL, #6 SAE  
Other housings available

**Housing P/N**  
No Housing  
SDC08-2-DG-2B  
SDC08-2-DG-3B  
CP08-2-4S  
CP08-2-6S

**Seal kit**  
120221  
120222

**Voltage**  
000 = No coil  
12D = 12 VDC coil  
24D = 24 VDC coil

**Pressure code**  
050 = 35 bar [500 psi] max  
100 = 69 bar [1000 psi] max  
200 = 138 bar [2000 psi] max  
300 = 207 bar [3000 psi] max

**Termination**  
00 = No connector  
H = DIN 43650  
L = Lead wires  
DE = Deutsch  
M2 = Metripack 150  
Type 1  
S = Spade

P102 412E



**OPERATION**

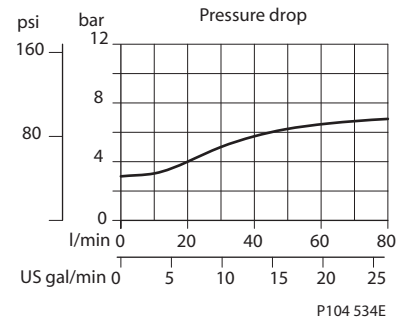
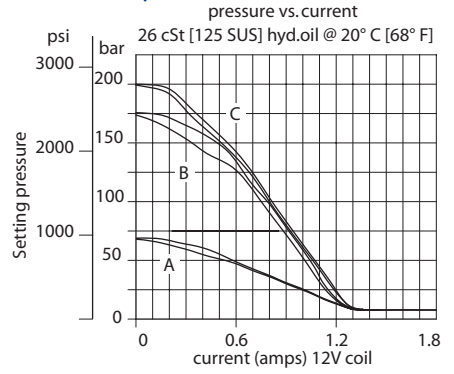
This is a normally-closed, pilot-operated, proportional relief valve.

**SPECIFICATIONS**

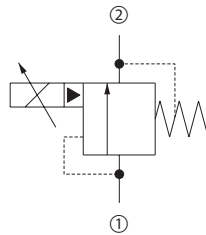
Specifications

<b>Rated pressure</b>	250 bar [3600 psi]
<b>Rated flow</b>	76 l/min [20 US gal/min]
<b>Weight</b>	0.53 kg [1.17 lb]
<b>Hysteresis</b>	10% maximum
<b>Threshold current</b>	0 A (12 VDC coil) 0 A (24 VDC coil)
<b>Maximum control current</b>	1.4 A (12 VDC coil) 0.7 A (24 VDC coil)
<b>Cavity</b>	SDC10-2
<b>Standard Coil</b>	M19P 22 Watt

Theoretical performance



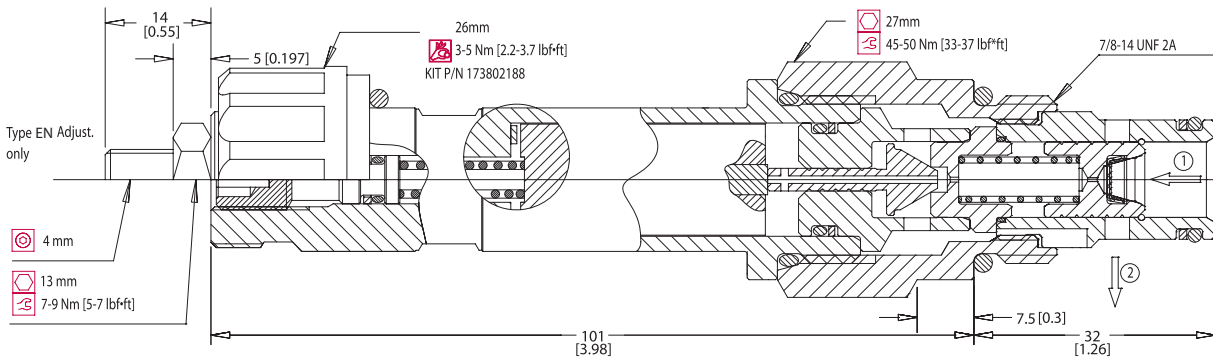
Schematic



**DIMENSIONS**

mm [in]

Cross-sectional view



**ORDERING INFORMATION**

PRV10-POC-215-C-12-DT-F-B-00

<b>Crack pressure</b> Code = Setting in bar	<b>Housing and ports</b>	<b>Housing P/N</b>
<b>Standard settings</b> 55 = 55 bar [800 psi] Range A 135 = 135 bar [1960 psi] Range B 215 = 215 bar [3120 psi] Range C	00 = No Housing DG3B = AL, 3/8 BSP DG4B = AL, 1/2 BSP 6S = AL, #6 SAE 8S = AL, #8 SAE Other housings available	No Housing SDC10-2-DG-3B SDC10-2-DG-4B CP10-2-6S CP10-2-8S
<b>Pressure range</b> A= 25 - 65 bar [360 - 940 psi] B= 65 - 155 bar [940-2250 psi] C= 155 - 215 bar [2250-3120 psi]	<b>Seals</b> B = Buna-N V = Viton	<b>Seal Kit</b> 354000719 354000819
<b>Termination</b> 0 = No connector DE = Deutsch FL = Lead wires	<b>Adjustment option:</b> E = External F = Tamper resistant H = Hidden	
<b>Voltage</b> 00 = No coil 12 = 12 VDC 24 = 24 VDC		
<b>Termination</b> AJ = AMP Jr A = DIN 43650		

P103 776E

**OPERATION**

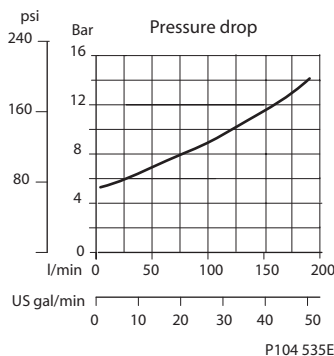
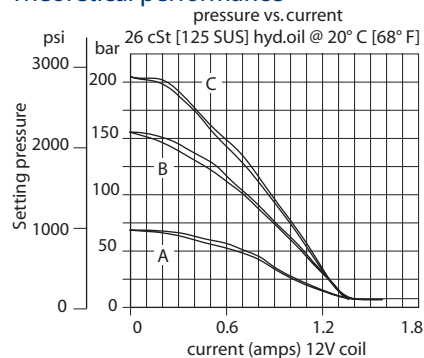
This is a normally-closed, pilot-operated, proportional relief valve.

**SPECIFICATIONS**

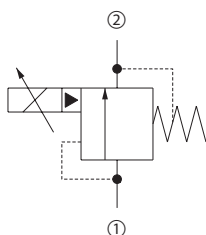
**Specifications**

Rated pressure	250 bar [3600 psi]
Rated flow	180 l/min [48 US gal/min]
Weight	0.62 kg [1.37 lb]
Hysteresis	10% maximum
Threshold current	0 A (12 VDC coil) 0 A (24 VDC coil)
Maximum control current	1.5 A (12 VDC coil) 0.8 A (24 VDC coil)
Cavity	SDC12-2
Standard Coil	M19P 22 Watt

**Theoretical performance**



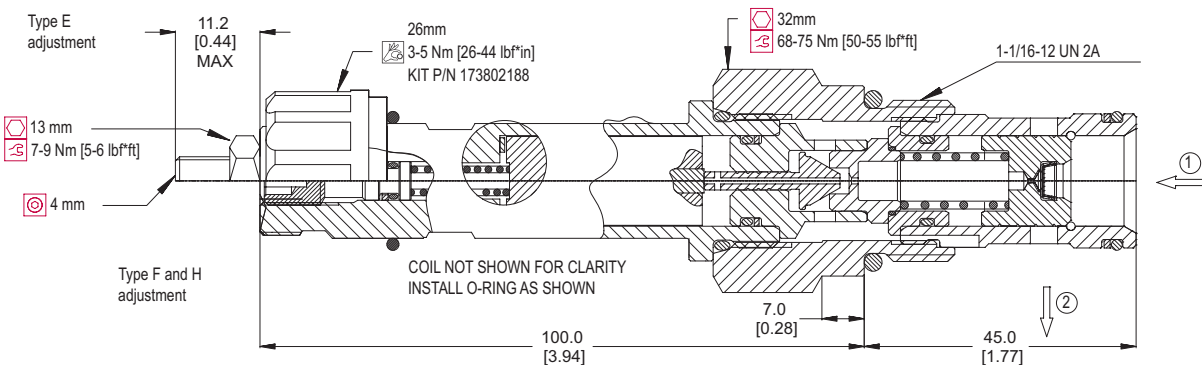
**Schematic**



**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

**PR V12-POC-215-C-12-DT-F-B 00**

<p><b>Crack pressure</b> Code = Setting in bar <b>Standard settings</b> 55 = 55 bar [800 psi] Range A 135 = 135 bar [1960 psi] Range B 215 = 215 bar [3120 psi] Range C <b>Pressure range</b> A= 25 - 65 bar [360 - 940 psi] B= 65 - 155 bar [940-2250 psi] C= 155 - 215 bar [2250-3120 psi]</p>	<p><b>Voltage</b> 00 = No coil 12 = 12 VDC 24 = 24 VDC</p>	<p><b>Housing and ports</b> 00 = No Housing DG4B = AL, 1/2 BSP DG6B = AL, 3/4 BSP 10S = AL, #10 SAE 12S = AL, #12 SAE Other housings available</p>	<p><b>Housing P/N</b> No Housing SDC12-2-DG-4B SDC12-2-DG-6B SDC-12-10S SDC-12-16S</p>
<p><b>Termination</b> 0 = No connector DE = Deutsch DN = DIN 43650 FL = Lead wires</p>	<p><b>Adjustment option:</b> E = External F = Tamper resistant H = Hidden</p>	<p><b>Seals</b> B = Buna-N V = Viton</p>	<p><b>Seal Kit</b> 354001319 354001819</p>

**OPERATION**

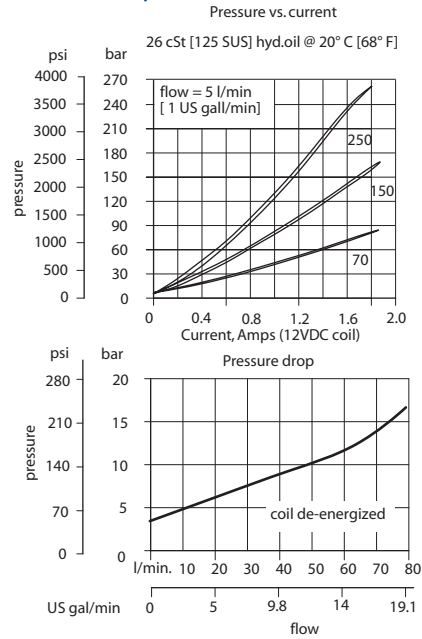
This is a pilot-operated, normally-open, proportional relief valve.

**SPECIFICATIONS**

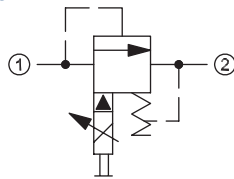
**Specifications**

Rated pressure	315 bar [4500 psi]
Rated flow	50 l/min [13 US gal/min]
Weight	0.53 kg [1.17 lb]
Hysteresis	3% maximum
Threshold current	0 A (12 VDC coil) 0 A (24 VDC coil)
Maximum control current	1.8 A (12 VDC coil) 0.9 A (24 VDC coil)
Cavity	NCS06/2
Standard Coil	M19P 22 Watt

**Theoretical performance**

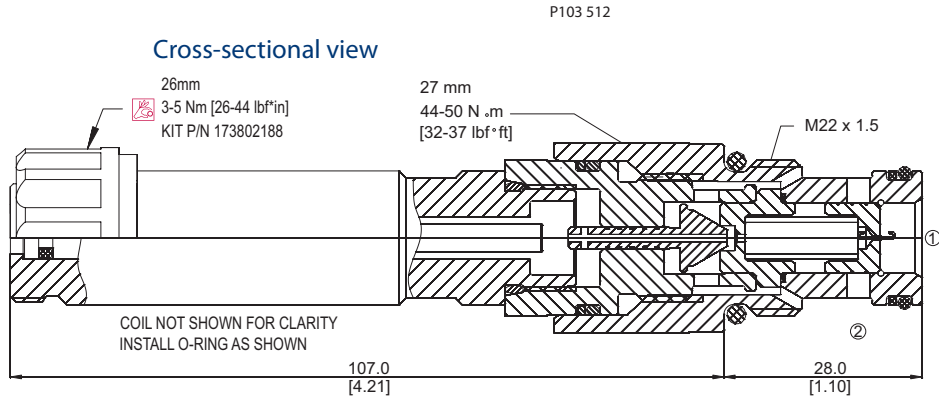


**Schematic**



**DIMENSIONS**

mm [in]



**ORDERING INFORMATION**

**XMP 06 - 70 - 24D - A - EN - 00 - V**

**Setting range**  
 70 = 3-70 bar [44-1015 psi]  
 150 = 5-150 bar [73-2176 psi]  
 250 = 7-250 bar [102-3626 psi]

**Solenoid**  
 12D-A = 12VDC  
 24D-A = 24VDC

**Connector**  
 00 = No connector  
 A = DIN 43650  
 AJ = AMP Jr  
 FL600 = Lead wires  
 DE = Deutsch

**Seals**  
 V = Viton Seals  
 Ignore for Buna-N

**Housings and Ports**  
 0 = Cartridge  
 SE-4B 1/2" BS PP, Alum  
 SE-6S #6 SAE, Alum  
 SE-8S #8 SAE, Alum  
 other styles available

**Manual override**  
 00 = With pushing control (Standard)  
 EN = With screw control

Proportional valves  
XMP 06



# Cartridge Valves Technical Information

## Proportional Valves

### Notes

