

## Cartridge Valves Technical Information

### Pressure Reducing Valves

### Quick Reference

Pressure Reducing, Non-Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-2	SDC10-3	Pressure Reducing, Non-Relieving,	40 l/min [10 US gal/min]	210 bar [3000 psi]	05.4
	PRC 06	NCS06/3	Direct Acting	40 l/min [10 US gal/min]	315 bar [4500 psi]	05.5

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-1	SDC10-3	Pressure Reducing, Relieving, Direct Acting	40 l/min [10 US gal/min]	210 bar [3000 psi]	05.6

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRR10-PVG	SDC10-3	Pressure Reducing, Relieving, Direct Acting, Designed for PVG Actuators	40 l/min [10 US gal/min]	210 bar [3000 psi]	05.7

Pressure Reducing, Non-Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP230-4	SDC10-3	Pressure Reducing, Non-Relieving,	40 l/min [10 US gal/min]	350 bar [5000 psi]	05.8
	PPRC 06	NCS06/3	Pilot Operated	40 l/min [10 US gal/min]	315 bar [4500 psi]	05.9

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRMP 064	SDC10-3	Pressure Reducing, Relieving,	40 l/min [10 US gal/min]	315 bar [4500 psi]	05.10
	CP231-3	CP12-3S	Pilot Operated	115 l/min [30 US gal/min]	350 bar [5000 psi]	05.11

Pressure Reducing, Relieving	Model No.	Cavity	Description	Flow*	Pressure	Page
	PRR10-DRD	SDC10-4	Pressure Reducing, Relieving, Direct Acting with Dampening Port	38 l/min [10 US gal/min]	207 bar [3000 psi]	05.12

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

**PRESSURE REDUCING VALVES**

Pressure reducing valves are pressure limiting devices that limit pressure in one portion of a circuit while leaving system pressure unaffected. They are available in direct-acting and pilot-operated types and as pressure reducing/relieving valves or as pressure reducing valves only.

Pressure reducing valves



F102 010

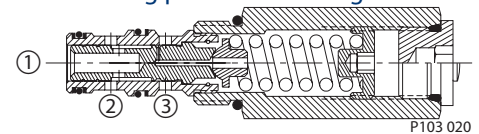
**DIRECT ACTING PRESSURE REDUCING / RELIEVING VALVES**

Direct-acting pressure reducing/relieving valves allow flow to pass from 2 to 1 until the pressure at 1 reaches the predetermined setting, at which point the spool shifts to restrict input flow from 2 (reducing mode) or to open flow from 1 to 3 (relieving mode) as needed to maintain the regulated pressure at 1.

Advantages of direct-acting pressure reducing valves are:

- Fast response
- Economical

Direct acting pressure reducing valve



P103 020

A typical application for direct-acting pressure reducing valves is for pressure control in systems requiring two or more different pressure settings. These valves are best suited for low flow applications such as hydraulic brake or motor shift.

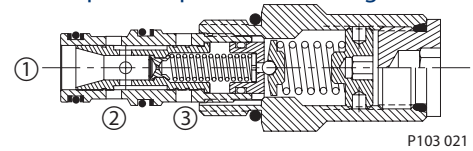
**PILOT-OPERATED  
PRESSURE REDUCING /  
RELIEVING VALVES**

Pilot-operated pressure reducing/relieving valves operate similarly to direct-acting pressure reducing/relieving valves -- the spool allows flow to pass from 2 to 1 until the pressure at 1 reaches the predetermined setting and forces the pilot poppet off its seat. This creates a pressure differential across the spool that causes the spool to shift and maintain regulated pressure at 1 in the same manner as the direct-acting pressure reducing/relieving valve.

Advantages of pilot-operated relief valves are:

- Smooth, stable response
- High pressure capability
- Precise pressure control with varying flow rates

Pilot-operated pressure reducing valve



A typical application for pilot-operated pressure reducing valves is for pressure control in systems requiring two or more different pressure settings where high pressure capability and/or extremely precise pressure control is required.

# Cartridge Valves Technical Information

## Pressure Reducing Valves

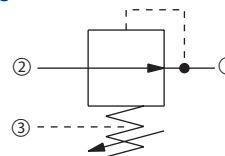
### Pressure Reducing, Non-Relieving

#### CP230-2

### OPERATION

This is a direct-acting pressure-reducing (non-relieving) valve.

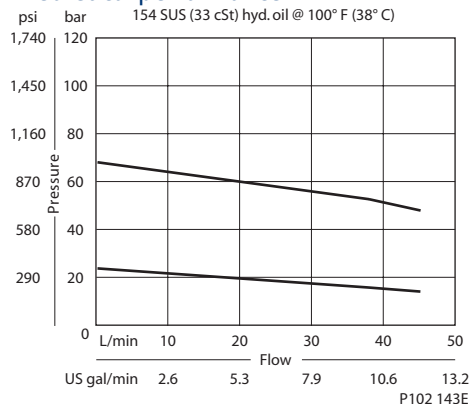
### Schematic



P102 140E

### SPECIFICATIONS

#### Theoretical performance



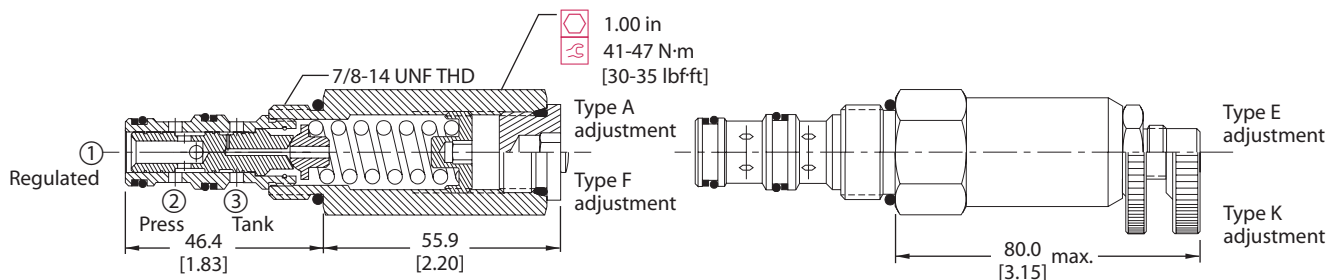
#### Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [10 US gal/min]
Weight	0.25 kg [0.56 lb]
Cavity	SDC10-3

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

#### CP230 - 2 - B - 6S - A - C - 100

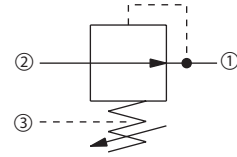
<b>Seals</b>	B = Buna-N V = Viton	<b>Seal kit</b>	120027 120028	<b>Crack pressure</b>	Code x 10 = psi Example: 100 = 1000 psi
<b>Housing and ports</b>	0 = No Housing SE3B = Al, 3/8 BSP SE4B = Al, 1/2 BSP 6S = Al, #6 SAE 8S = Al, #8 SAE Other housings available	<b>Housing P/N</b>	No Housing SDC10-3-SE-3B SDC10-3-SE-4B CP10-3-6S CP10-3-8S	<b>Pressure range</b>	bar [psi] A = 4-28 [50-400] Std. setting 17 [250] B = 5-55 [75-800] Std. setting 28 [400] C = 7-97 [100-1400] Std. setting 69 [1000] D = 34-166 [500-2400] Std. setting 103 [1500]
<b>Adjustment option</b>	A = Internal E = External F = Tamper resistant K = Knob				

P102 144E

**OPERATION**

This is a direct-acting pressure reducing (non-relieving) valve.

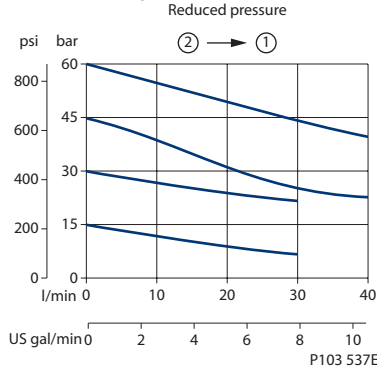
**Schematic**



P102 140E

**SPECIFICATIONS**

**Theoretical performance**



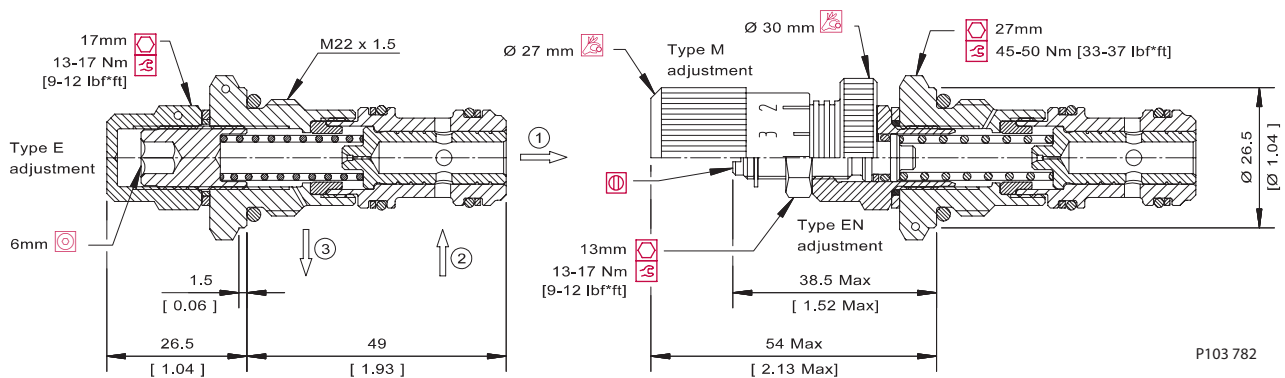
**Specifications**

Rated pressure	315 bar [4500 psi]
Rated Flow	40 l/min [10 US gal/min]
Weight	0.14 kg [0.31 lb]
Cavity	NCS06/3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



**ORDERING INFORMATION**

PRC 06 - EN - 1 - 00 - V

**Type of adjustment**

E = Internal screw  
EN = External screw  
M = Handwheel

**Setting range**

.5 = 1-10 bar [14.5-145 psi]  
1 = 10 - 25 bar [145-363 psi]  
2 = 25-80 bar [363-1160 psi]

**Seals**

V = Viton  
B = Buna-N

**Housing and ports**

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

Seal kit  
230000110  
230000070

**Housing P/N**

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

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative P103 784E

# Cartridge Valves Technical Information

## Pressure Reducing Valves

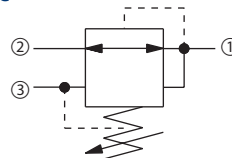
### Pressure Reducing, Relieving

#### CP230-1

### OPERATION

This is a direct-acting pressure reducing/relieving valve.

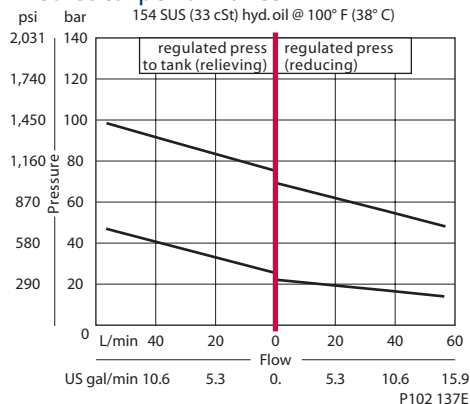
### Schematic



P102 135E

### SPECIFICATIONS

#### Theoretical performance



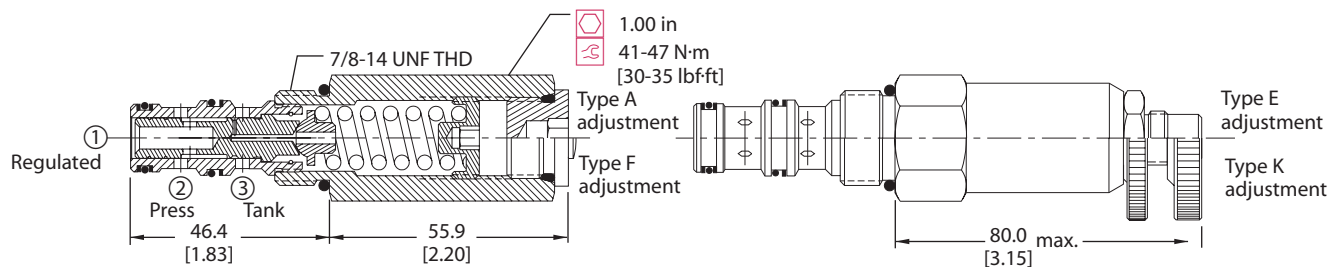
### Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [10 US gal/min]
Weight	0.23 kg [0.51 lb]
Cavity	SDC10-3

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

**CP230 - 1 - B - 6S - A - C - 100**

<b>Seals</b> B = Buna-N V = Viton	<b>Seal kit</b> 120570 120571	<b>Housing P/N</b> No Housing SDC10-3-SE-3B SDC10-3-SE-4B CP10-3-6S CP10-3-8S	<b>Pressure setting</b> Code x 10psi (0.69 bar) Example: 100 = 1000 psi (70 bar)
<b>Housing and ports</b> 0 = No Housing SE3B = Al, 3/8 BSP SE4B = Al, 1/2 BSP 6S = Al, #6 SAE 8S = Al, #8 SAE Other housings available	<b>Adjustment option</b> A = Internal E = External F = Tamper resistant K = Knob	<b>Pressure range</b>	
			bar [psi] A = 4-28 [50-400] Std. setting 17 [250] B = 5-55 [75-800] Std. setting 28 [400] C = 7-97 [100-1400] Std. setting 69 [1000] D = 34-166 [500-2400] Std. setting 103 [1500]

P102 139E

# Cartridge Valves Technical Information

## Pressure Reducing Valves

### Pressure Reducing, Relieving

#### PRR10-PVG

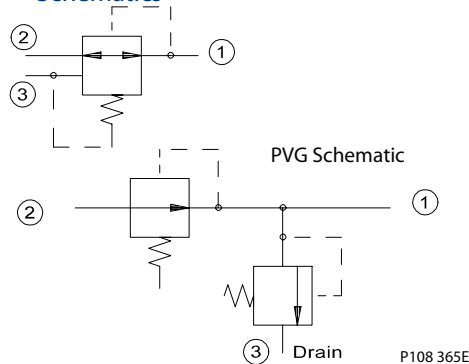
### OPERATION

This is a direct-acting pressure reducing/relieving valve, designed for PVG actuators.

### SPECIFICATIONS

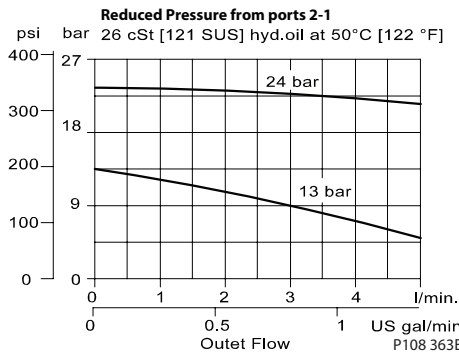
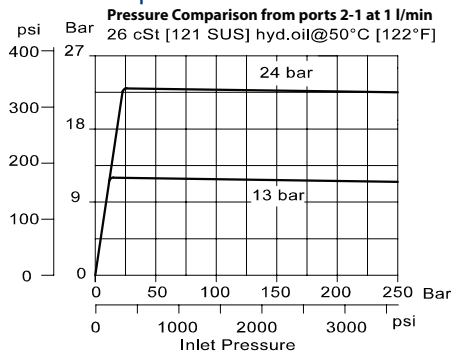
Max. pressure in port 2	210 bar [3000 psi]
Maximum flow	5 l/min [1.3 US gal/min]
Cartridge Weight	0.23 kg [0.51 lb]
Cavity	SDC10-3

### Schematics

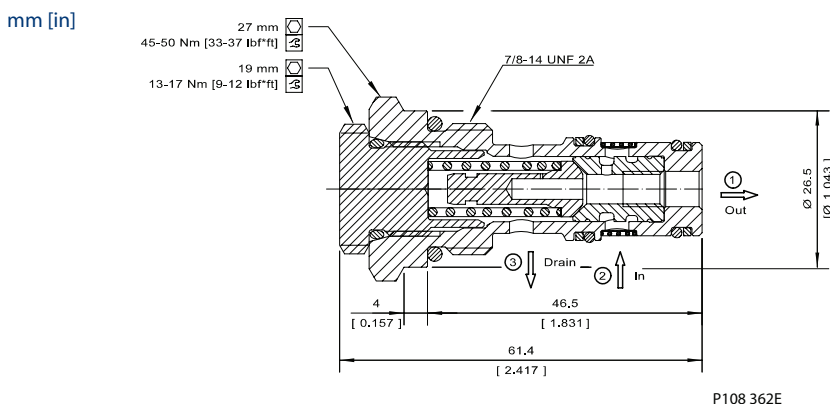


### DIMENSIONS

#### Theoretical performance



#### Cross-sectional view



### ORDERING INFORMATION

PRR10-PVG-E-13-B-F-00

Pressure setting: \_\_\_\_\_

E13 = 13 Bar for Electrical (PVE)  
 H24 = 24 Bar for Hydraulic (PVH) or High Current (PVHC)

Body and ports  
 00 = Cartridge only  
 6S = Al, #6 SAE  
 8S = Al, #8 SAE  
 SE3B = Al, 3/8 BSP  
 SE4B = Al, 1/2 BSP  
 Other housings available

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

F = FILTER 300um  
 (Omit if not required)

SEALS  
 B = Buna  
 V = Viton

SEAL KIT  
 230000650  
 354001019

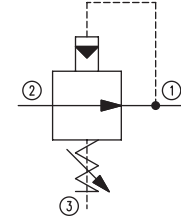
P108 364E

Pressure reducing valves  
 PRR10-PVG

**OPERATION**

This is a pilot-operated pressure-reducing (non-relieving) valve.

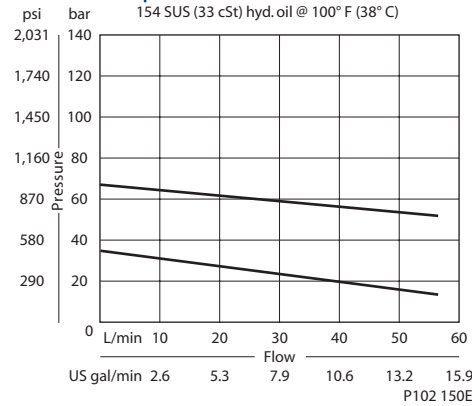
**Schematic**



P103 231

**SPECIFICATIONS**

**Theoretical performance**



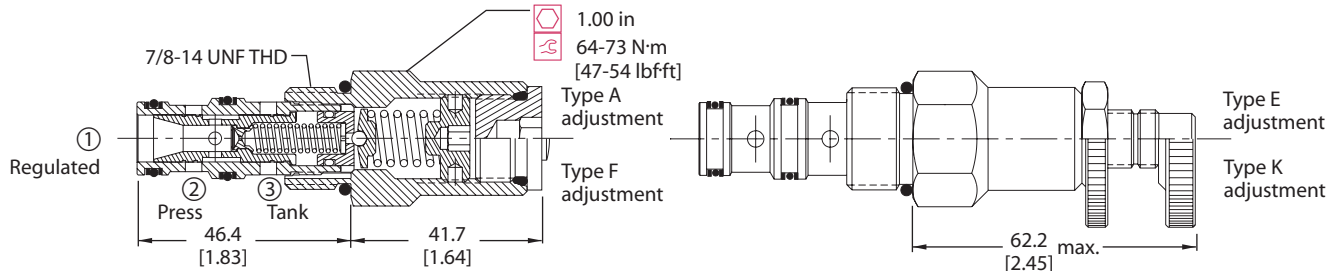
**Specifications**

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	40 l/min [10 US gal/min]
Weight	0.20 kg [0.43 lb]
Cavity	SDC10-3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P102 149E

**ORDERING INFORMATION**

**CP230 - 4 - B - 6S - A - C - 150**

**Seals**

B = Buna-N  
V = Viton

**Seal kit**

120027  
120028

**Housing and ports**

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

**Housing P/N**

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

**Adjustment option**

A = Internal  
E = External  
F = Tamper resistant  
K = Knob

**Pressure setting**

Code x 10psi (0.69 bar)  
Example: 150 = 1500 psi (105 bar)

**Pressure range**

	bar	[psi]
A	14-55	[200-800]
Standard	28	[400]
B	21-103	[300-1500]
Standard	69	[1000]
C	28-207	[400-3000]
Standard	103	[1500]
D	28-345	[400-5000]
Standard	103	[1500]

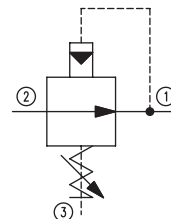
P102 152E



**OPERATION**

This is a pilot-operated pressure reducing (non-relieving) valve.

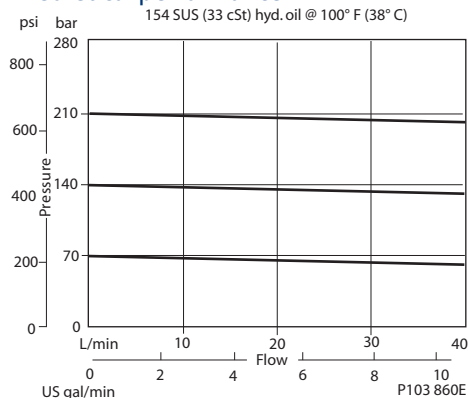
**Schematic**



P103 231

**SPECIFICATIONS**

**Theoretical performance**



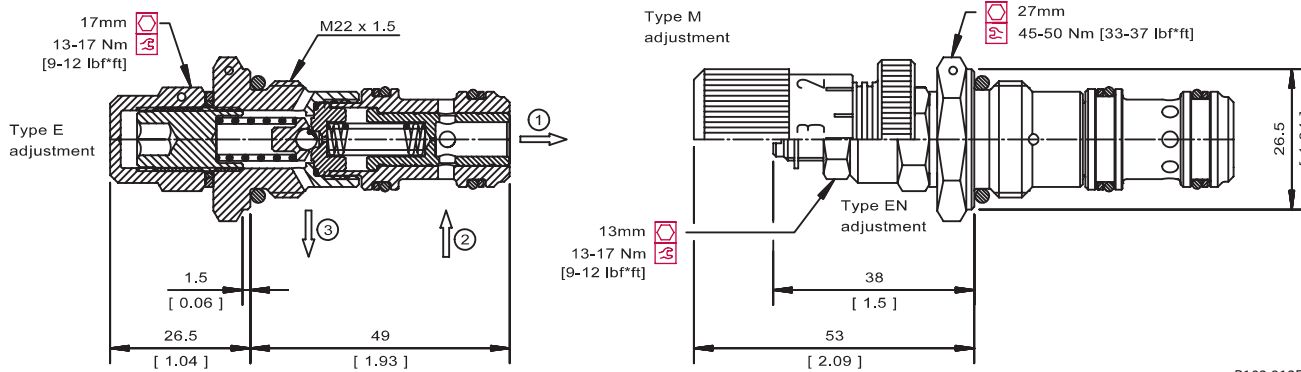
**Specifications**

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	40 l/min [10 US gal/min]
Weight	0.14 kg [0.31 lb]
Cavity	NCS06/3

**DIMENSIONS**

mm [in]

**Cross-sectional view**



P103 913E

**ORDERING INFORMATION**

PPRC 06 - EN - 1 - 00 - V

**Type of adjustment**

- E = Internal screw
- EN = External screw
- M = Handwheel

**Setting range**

- 1 = 10-70 bar [145-1015 psi]
- 2 = 30-140 bar [435-2031 psi]
- 3 = 70-210 bar [1015-3046 psi]

**Seals**

- V = Viton
- Omit = Buna-N

**Housing and ports**

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

**Seal kit**

- 230000110
- 230000070

**Housing P/N**

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

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative P103 794E

# Cartridge Valves Technical Information

## Pressure Reducing Valves

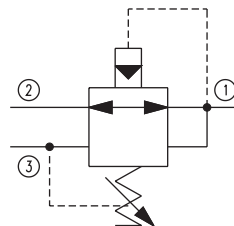
### Pressure Reducing, Relieving

#### PRMP 064

### OPERATION

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

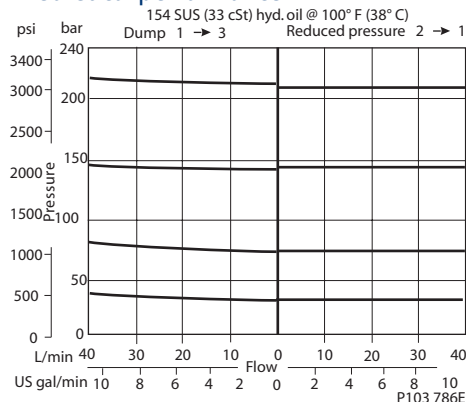
### Schematic



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### SPECIFICATIONS

#### Theoretical performance



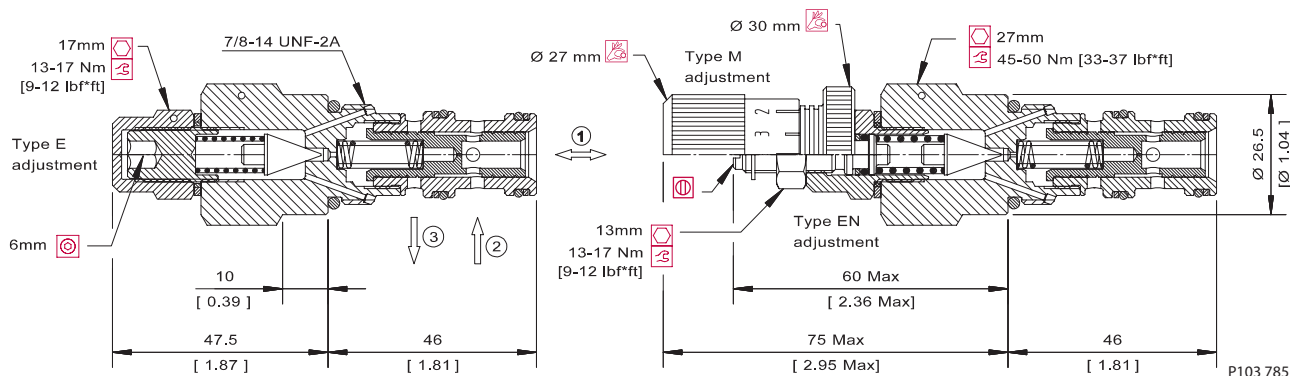
### Specifications

Rated pressure	315 bar [4500 psi]
Rated Flow	40 l/min [10 US gal/min]
Weight	0.21 kg [0.46 lb]
Cavity	SDC10-3

### DIMENSIONS

mm [in]

#### Cross-sectional view



### ORDERING INFORMATION

PRMP 064 - EN - 1 - SE3/8 - V

**Adjustment**  
E = Internal screw  
EN = External screw  
M = Handwheel

**Setting range**  
1 = 10-70 bar [145-1015 psi]  
2 = 30-140 bar [435-2031 psi]  
3 = 70-210 bar [1015-3046 psi]

**Seals Seal Kit**  
V = Viton 354003719  
Omit = Buna-N 230000070

**Housing and ports Housing P/N**  
00 = No Housing No Housing  
SE3B = Al, 3/8 BSP SDC10-3-SE-3B  
SE4B = Al, 1/2 BSP SDC10-3-SE-4B  
65 = Al, #6 SAE CP10-3-6S  
8S = Al, #8 SAE CP10-3-8S  
Other housings available

To order this valve with a specific factory setting, contact your Sauer-Danfoss representative

P103 787E

# Cartridge Valves Technical Information

## Pressure Reducing Valves

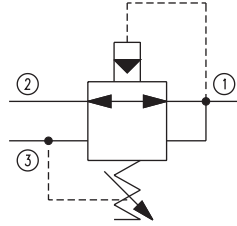
### Pressure Reducing, Relieving

#### CP231-3

### OPERATION

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

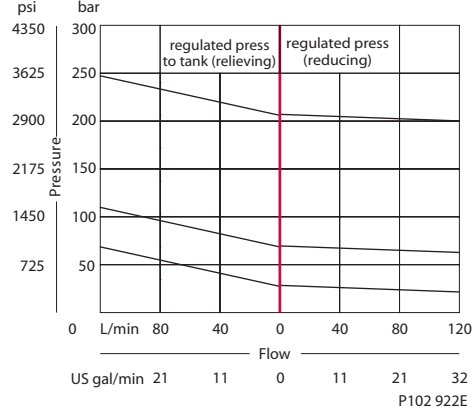
### Schematic



P103 230

### SPECIFICATIONS

#### Theoretical performance



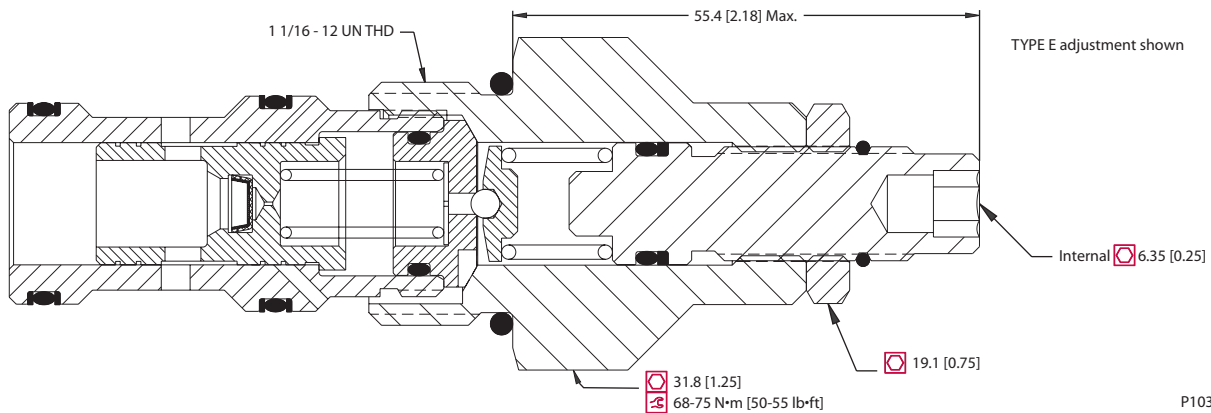
#### Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	115 l/min [30 US gal/min]
Weight	0.27 kg [0.60 lb]
Cavity	CP12-3S

### DIMENSIONS

mm [in]

#### Cross-sectional view



P103 621E

### ORDERING INFORMATION

#### CP231-3-B-10S-A-A-050

<b>Seals</b>	<b>Seal kit</b>	<b>Pressure range</b>	<b>Pressure setting</b>
B = Buna-N	120335	A = 14-55 bar [200-800 psi]	Code x 10psi (0.69 bar)
V = Viton	120336	B = 21-103 bar [300-1500 psi]	Example: 050 = 500 psi (34 bar)
		F = 27-207 bar [400-3000 psi]	
		C = 27-207 bar [400-3000 psi]	
		D = 27-345 bar [400-5000 psi]	
		<b>Housing and ports</b>	<b>Housing P/N</b>
		0 = No Housing	No Housing
		4B = Al, 1/2 BSP	CP12-3S-4B/2B
		6B = Al, 3/4 BSP	CP12-3S-6B/2B
		10S = Al, #10 SAE	CP12-3S-10S/4S
		12S = Al, #12 SAE	CP12-3S-12S/4S
		Other housings available	

P102 622E

# Cartridge Valves Technical Information

## Pressure Reducing Valves

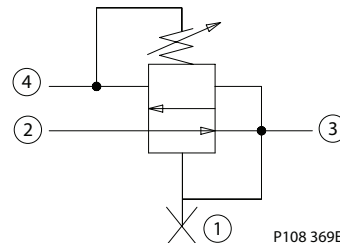
### Pressure Reducing, Relieving

#### PRR10-DRD

### OPERATION

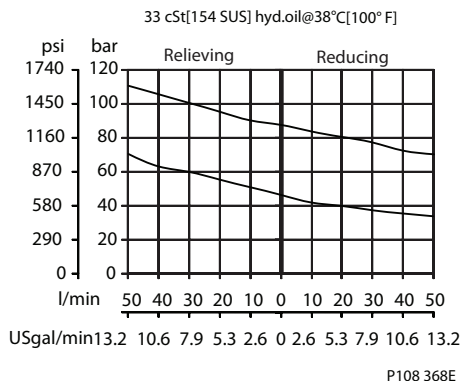
This is a direct-acting pressure reducing/relieving valve, with dampening port.

### Schematic



### SPECIFICATIONS

#### Theoretical performance



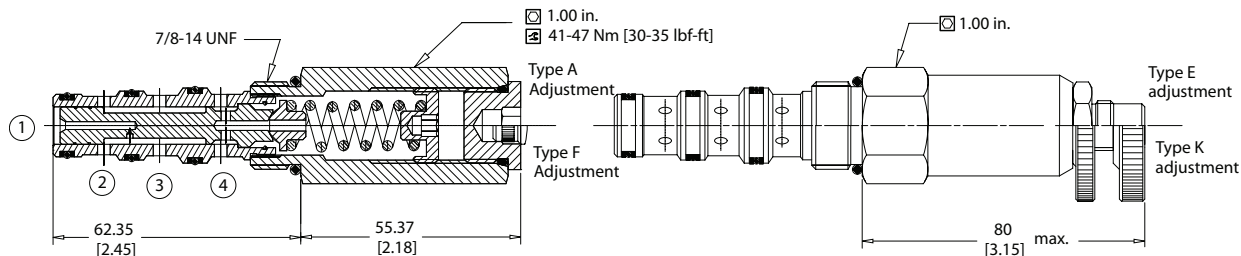
#### Specifications

Rated pressure	105 bar [1522 psi]
Rated Flow at 7 bar [100 psi]	38 l/min [10 US gal/min]
Weight	0.29 kg [0.64 lb]
Cavity	SDC10-4

### DIMENSIONS

mm [in]

#### Cross-sectional view



P108 367E

### ORDERING INFORMATION

#### PRR10-DRD-4-E-104-B-00

Pressure Range	Housing and ports	Housing Part #
1 = 4-27 bar [50-400 psi]	00 = No Housing	No Housing
Standard Setting 21 bar [300 psi]	3B = Al, 3/8 BSP	CP10-4-3B
2 = 5-55 bar [70-800 psi]	4B = Al, 1/2 BSP	CP10-4-4B
Standard Setting 35 bar [500 psi]	6S = Al, #6 SAE	CP10-4-6S
3 = 7-96 bar [100-1400 psi]	8S = Al, #8 SAE	CP10-4-8S
Standard Setting 69 bar [1000 psi]	Seals	Seal Kit
4 = 35-165 bar [500-2400 psi]	B = Buna-N	120023
Standard Setting 104 bar [1500 psi]	V = Viton	120024
Adjustment Type	Pressure Setting	
A = Internal	104 = 104 bar [1500 psi]	
E = External	XXX = Standard Setting	
F = Tamper Resistant		
K = Knob		

P108 370E