



Cartridge Valves Technical Information

Relief Valves

Quick Reference

Thermal Relief	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP208-4	SDC08-2	Relief Valve, Thermal Relief, Poppet Type	1.1 l/min [0.3 US gal/ min]	415 bar [6000 psi]	04.6

Direct Acting	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP208-3	SDC08-2	Relief Valve, Direct Acting, Poppet Type	30 l/min [8 US gal/min]	250 bar [3600 psi]	04.7
	CP200-3	SDC10-2		30 l/min [8 US gal/min]	250 bar [3600 psi]	04.8

Direct Acting	Model No.	Cavity	Description	Flow*	Pressure	Page
	RV08-DR	SDC08-2	Relief Valve, Direct Acting, Poppet Type	30 l/min [8 US gal/min]	250 bar [3600 psi]	04.9
	VEN 06	NCS06/2		40 l/min [11 US gal/min]	250 bar [3600 psi]	04.10
	VME 06	VME 06		40 l/min [11 US gal/min]	315 bar [4500 psi]	04.11
	VME 07	VME 07		50 l/min [13 US gal/min]	315 bar [4500 psi]	04.12
	VME 08	VME 08		80 l/min [21 US gal/min]	315 bar [4500 psi]	04.13

Differential Area	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP200-2	SDC10-2	Relief Valve, Differential Area, Poppet Type,	40 l/min [11 US gal/min]	350 bar [5000 psi]	04.14
	CP208-1	SDC08-2		40 l/min [11 US gal/min]	250 bar [3600 psi]	04.15
	CP200-1	SDC10-2		75 l/min [20 US gal/min]	250 bar [3600 psi]	04.16
	CP201-1	CP12-2		150 l/min [40 US gal/min]	250 bar [3600 psi]	04.17

Relief valves
Quick reference

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Quick Reference

Direct Acting	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP210-1	SDC10-2	Relief Valve, Direct Acting,	45 l/min [12 US gal/min]	210 bar [3000 psi]	04.18
	CP211-1	CP12-2	Spool Type,	75 l/min [20 US gal/min]	40 bar [600 psi]	04.19

Pilot Operated	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP210-2	SDC10-2	Relief Valve, Pilot Operated,	115 l/min [30 US gal/min]	350 bar [5000 psi]	04.20
	CP211-2	CP12-2	Spool Type	190 l/min [50 US gal/min]	350 bar [5000 psi]	04.21

Pilot Operated	Model No.	Cavity	Description	Flow*	Pressure	Page
	RV10-POP	SDC10-2	Relief Valve, Pilot Operated, Poppet Type	120 l/min [32 US gal/min]	250 bar [3625 psi]	04.22

Bi-Directional	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP200-7	SDC10-2	Relief Valve, Bi-directional	40 l/min [11 US gal/min]	250 bar [3600 psi]	04.23



Cartridge Valves Technical Information

Relief Valves

Quick Reference

Differential Area	Model No.	Cavity	Description	Flow*	Pressure	Page
	VSB 06-EN	NCS06/2	Relief Valve, Differential Area,	80 l/min [21 US gal/min]	350 bar [5000 psi]	04.24
	VSB 12-EN	NCS12/2	Poppet Type with Reverse, Free Flow Check	140 l/min [37 US gal/min]	350 bar [5000 psi]	04.25

Differential Area	Model No.	Cavity	Description	Flow*	Pressure	Page
	VSB 06-CN	NCS06/2	Relief Valve, Differential Area,	80 l/min [21 US gal/min]	350 bar [5000 psi]	04.26
	VSB 12-CN	NCS12/2	Poppet Type with Reverse Free Flow Check, Atmospheric Venting	140 l/min [37 US gal/min]	350 bar [5000 psi]	04.27

Cross-Over	Model No.	Cavity	Description	Flow*	Pressure	Page
	VA-E 06	none	Relief Valve, Cross-Over	40 l/min [11 US gal/min]	210 bar [3045 psi]	04.28
	CP220-1	none		75 l/min [20 US gal/min]	250 bar [3600 psi]	04.29
	CP221-1	none		190 l/min [50 US gal/min]	250 bar [3600 psi]	04.30

Relief valves
Quick reference

Cartridge Valves Technical Information

Relief Valves

Application Notes

APPLICATIONS

Relief valves are used as pressure limiting devices to protect hydraulic systems and components. They are available in direct-acting poppet, differential area poppet, bi-directional poppet, and pilot-operated spool types.

Relief valves



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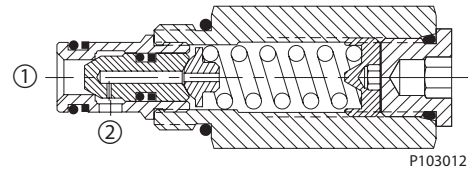
OPERATION

Direct-acting poppet

The direct-acting poppet blocks flow from 1 to 2 until sufficient pressure is present at 1 to force the spring-opposed poppet from its seat. This pressure is commonly known as the crack pressure.

The valve will remain open until the pressure drops to a level allowing the spring to close the valve. This pressure is known as the re-seat pressure and is typically 70-80% of the crack pressure. The difference between crack and re-seat pressure is commonly referred to as hysteresis.

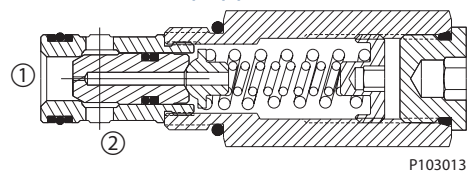
Direct acting poppet relief valve



Differential-area poppet

The differential area poppet operates in the same manner except flow is blocked from 2 to 1 until sufficient pressure is present at 2 to force the spring-opposed poppet from its seat.

Differential area poppet relief valve



Advantages of direct-acting poppet and differential area poppet relief valves are:

- Fast response
- Contamination tolerant
- Low leakage
- Low cost

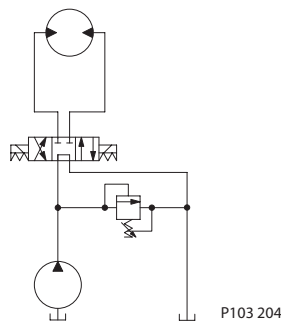
Cartridge Valves Technical Information
 Relief Valves
 Application Notes

**OPERATION
 (continued)**

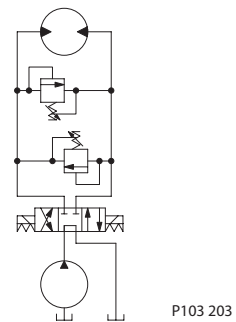
Because of these features some common applications for direct-acting and differential area poppet relief valves are:

- Main system relief valve if flow is relatively constant, or as a safety relief valve for “spike clipping” to protect components from overpressure
- Work port cross-over relief to protect a cylinder or motor from overpressure

System Relief Valve



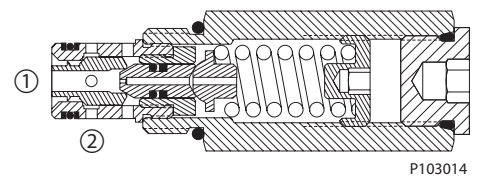
Work Port Cross-Relief Valves



Bi-directional poppet

The bi-directional poppet is a dual cross-over relief in a single cartridge. When pressure at 1 exceeds the nominal setting, the lower poppet acts as a direct-acting relief valve and opens flow from 1 to 2. When pressure at 2 exceeds the nominal setting, the upper poppet acts as a differential area relief valve and opens flow from 2 to 1. Note that the valve is designed so that the crack pressure is the same in either direction

Bi-directional poppet relief valve

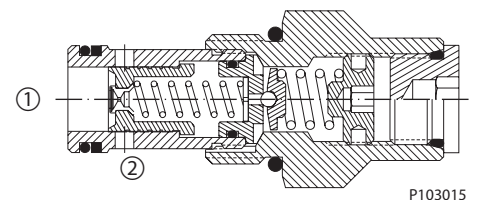


A common application for a bi-directional relief valve is as a work port cross-over relief where one bi-directional valve can replace two direct-acting valves.

Pilot operated spool

The pilot operated spool blocks flow from 1 to 2 until sufficient pressure is present at 1 to force the pilot poppet off its seat. This creates a pressure differential across the spool that causes the spool to shift and open flow from 1 to 2.

Pilot operated spool relief valve



Advantages of pilot-operated relief valves are:

- Smooth, stable response
- High flow and high pressure capability
- Precise pressure control with varying flow rates. Low pressure rise
- Low hysteresis

A common application for pilot-operated relief valves is as a main system relief where high pressure or flow capability and/or extremely precise pressure control is required.



Cartridge Valves Technical Information

Relief Valves

Thermal Relief

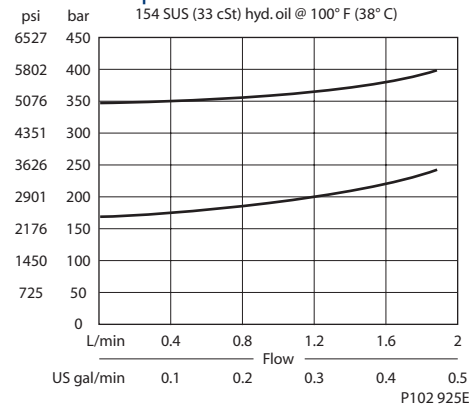
CP208-4

OPERATION

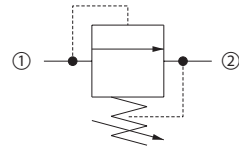
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

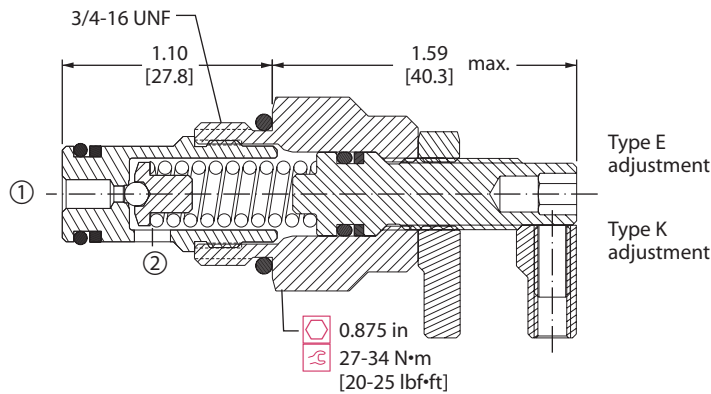
Specifications

Rated pressure	415 bar [6000 psi]
Rated flow	1.1 l/min [0.3 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.23 kg [0.50 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



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ORDERING INFORMATION

CP208-4-B-4S-E-C-300

Seals
B = Buna-N
V = Viton

Seal kits
120221
120222

Crack pressure
Code x 10 = psi
Example: 300 = 3000 psi

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

Adjustment ranges
C = 69-414 bar [1000-6000] psi
Standard 207 [3000]

Adjustment options
E = External
K = Knob

P102 614E

Relief valves
CP208-4



Cartridge Valves Technical Information

Relief Valves

Direct Acting

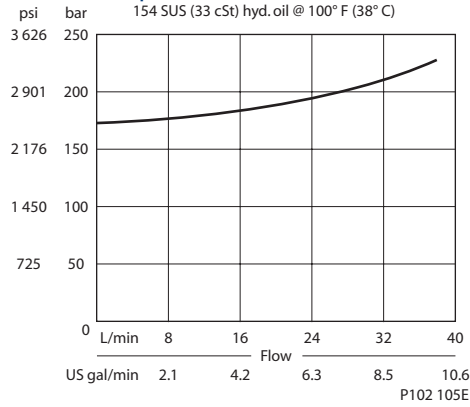
CP208-3

OPERATION

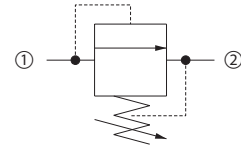
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

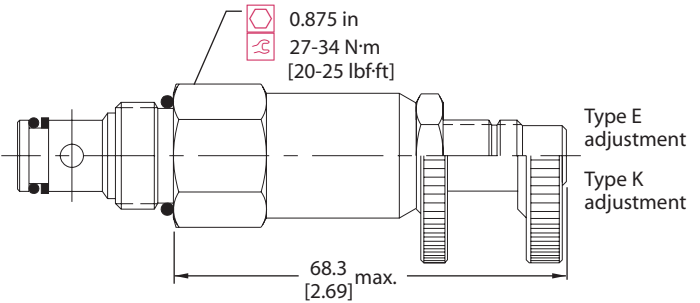
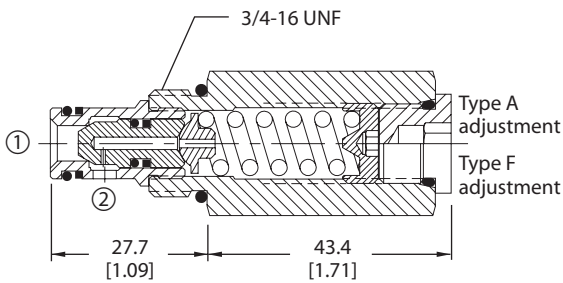
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	30 l/min [8 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.15 kg [0.32 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



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ORDERING INFORMATION

CP208 - 3 - B - 6S - A - C - 150

- 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
- Adjustment option**
A = Internal
E = External
F = Tamper resistant
K = Knob
- Seal Kit**
120221
120222
- Housing P/N**
No Housing
SDC08-2-DG-2B
SDC08-2-DG-3B
CP08-2-4S
CP08-2-6S
- Crack pressure**
Code x 10 = psi
Example: 150 = 1500 psi
- Pressure range**

	bar	[psi]
A =	7-69	[100-1000]
Standard	28	[400]
B =	14-138	[200-2000]
Standard	69	[1000]
C =	35-248	[500-3600]
Standard	103	[1500]

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Relief valves
CP208-3



Cartridge Valves Technical Information

Relief Valves

Direct Acting

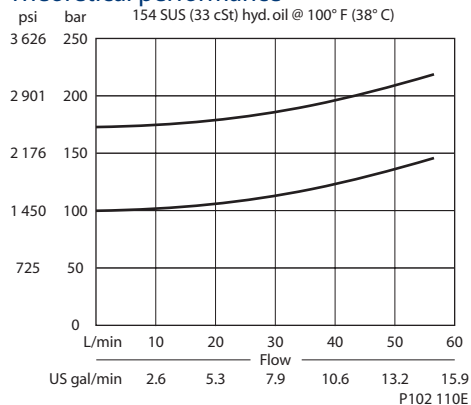
CP200-3

OPERATION

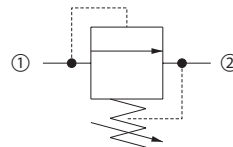
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

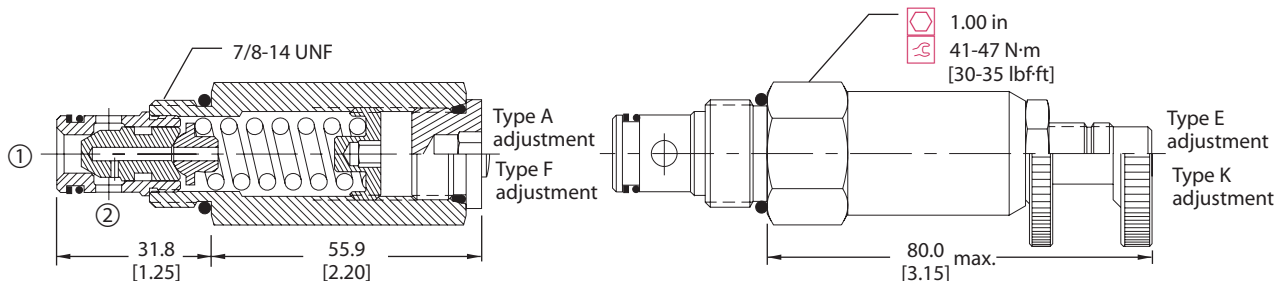
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	40 l/min [11 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.21 kg [0.47 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



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ORDERING INFORMATION

CP200 - 3 - B - 6S - A - C - 150

- Seals**
 - B = Buna-N
 - V = Viton
- Housing and ports**
 - 0 = No Housing
 - DG3B = Al, 3/8 BSP
 - DG4B = Al, 1/2 BSP
 - 6S = Al, #6 SAE
 - 8S = Al, #8 SAE
- Other housings available**
- Adjustment option**
 - A = Internal
 - E = External
 - F = Tamper resistant
 - K = Knob
- Seal kit**
 - 120015
 - 120016
- Housing P/N**
 - No Housing
 - SDC10-2-DG-3B
 - SDC10-2-DG-4B
 - CP10-2-6S
 - CP10-2-8S
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi
- Pressure range**

Code	bar	[psi]
A	7-69	[100-1000]
Standard	28	[400]
B	17-172	[250-2500]
Standard	69	[1000]
C	41-248	[600-3600]
Standard	103	[1500]

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Cartridge Valves Technical Information

Relief Valves

Direct Acting

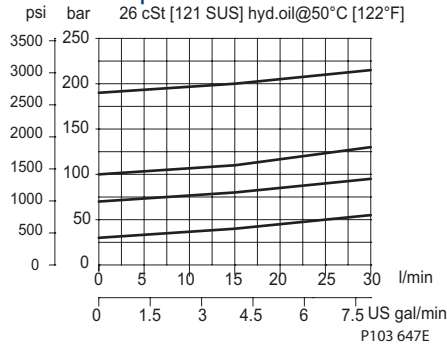
RV08-DR

OPERATION

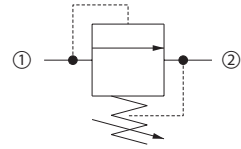
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

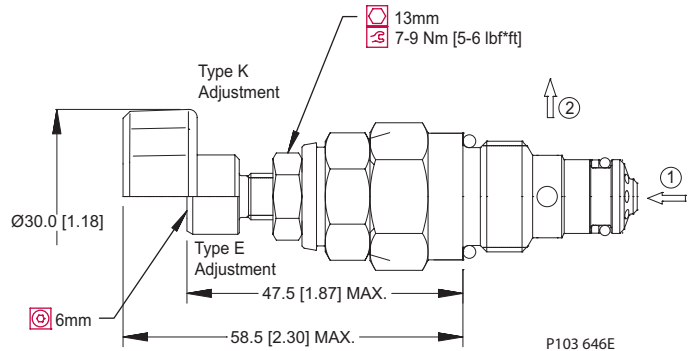
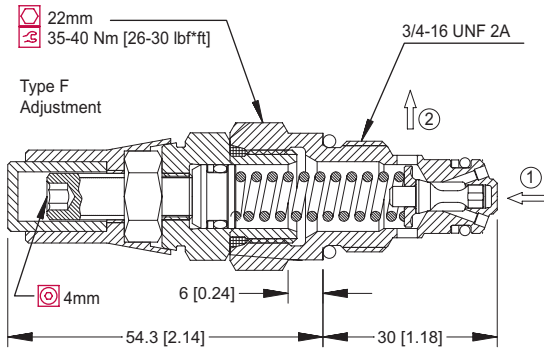
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	30 l/min [8 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.10 kg [0.22 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

RV08-DR-1-E-XXX-B-4S		
Pressure range	1 = 20-80 Bar [290-1150 psi] 2 = 35-160 Bar [500-2300 psi] 3 = 60-250 Bar [870-3600 psi]	Housing and ports
Adjustment option	E = External F = Tamper resistant K = Knob	00 = No Housing DG2B = Al, 1/4 BSP DG3B = Al, 3/8 BSP 4S = Al, #4 SAE 6S = Al, #6 SAE Other housings available
Crack pressure	Code = Setting in Bar XXX = No specific setting	Seals
		B = Buna-N V = Viton
		Seal Kit 354000119 354000219
		Housing P/N
		No Housing SDC08-2-DG-2B SDC08-2-DG-3B CP08-2-4S CP08-2-6S

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Relief valves
RV08-DR



Cartridge Valves Technical Information

Relief Valves

Direct Acting

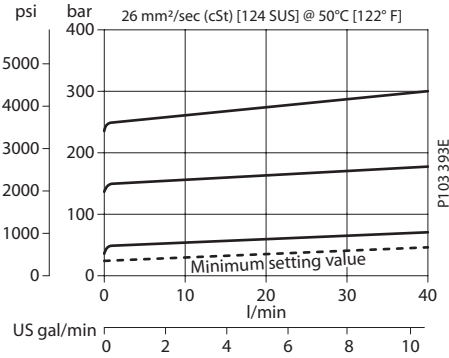
VEN 06

OPERATION

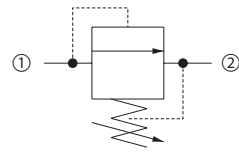
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

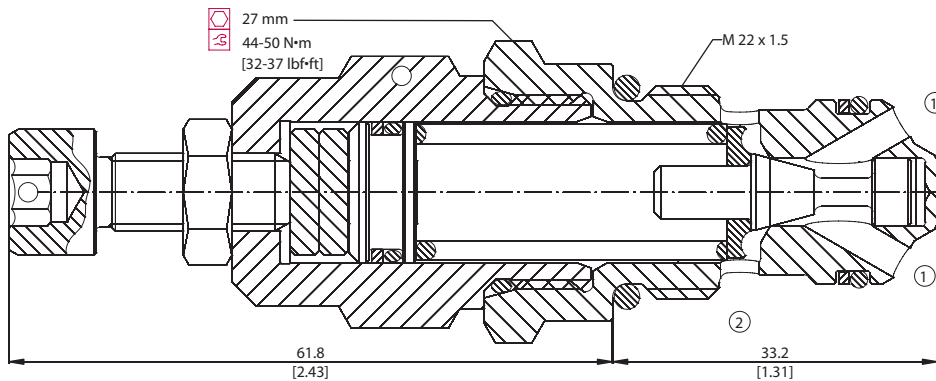
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow	40 l/min [11 US gal/min]
Weight	0.20 kg [0.44 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



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ORDERING INFORMATION

VEN 06 - M - 1 - DG3/8 - V - XXX

Type of adjustment

EN = External screw
M = Handwheel

Setting range

1 = 20 - 80 bar [290 - 1160 psi]
2 = 35 - 160 bar [508 - 2321 psi]
3 = 70 - 315 bar [1015 - 4569 psi]

Seals

V = Viton seals 230000380
Omit = Buna-N 230000060

Housing and ports

0 = No Housing
DG3/8 = AL, 3/8 BSP
DG1/2 = AL, 1/2 BSP
DG6S = AL, #6 SAE
DG8S = AL, #8 SAE
Other housings available

Housing P/N

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

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

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Cartridge Valves Technical Information

Relief Valves

Direct Acting

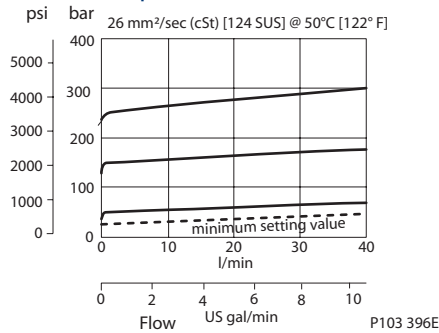
VME 06

OPERATION

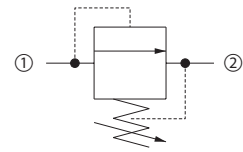
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

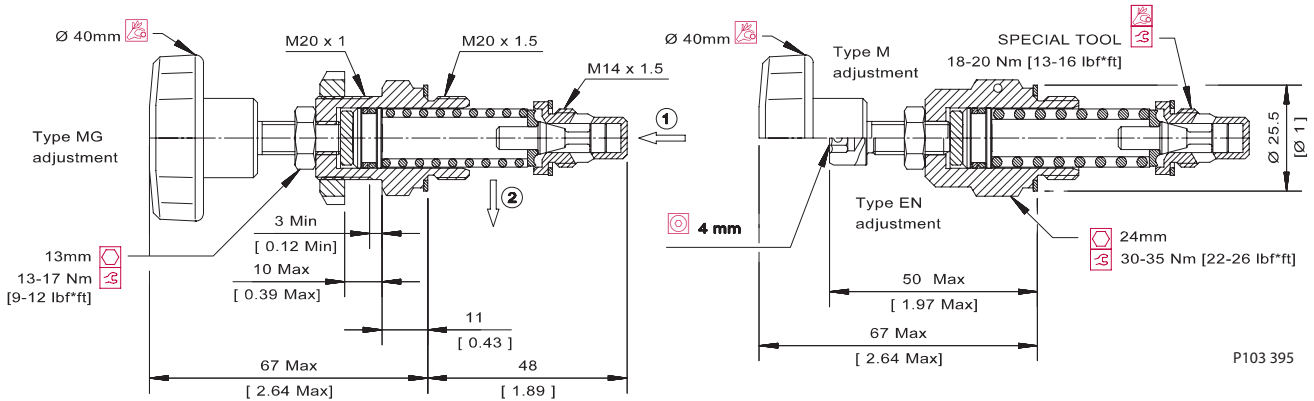
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow	40 l/min [11 US gal/min]
Weight	0.13 kg [0.29 lb]
Cavity	VME06

DIMENSIONS

mm [in]

Cross-sectional view



P103 395

ORDERING INFORMATION

VME 06 - EN - 2 - DG3/8 - V - XXX

Adjustment

- EN = External screw
- M = Handwheel
- MG = Handwheel (panel mounted)

Setting range

- 1 = 25 - 70 bar [363-1015 psi]
- 2 = 35 - 170 bar [508-2466 psi]
- 3 = 70 - 315 bar [1015-4569 psi]

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

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Housing and ports

- 00 = No Housing
- DG3/8 = Al, 3/8 BSP
- DG6S = Al, #6 SAE
- Other housings available

Housing P/N

- No Housing
- VME06-DG-3/8
- VME06-DG-6S

- ##### Seals
- V = Viton seals
 - Omit = Buna-N



Cartridge Valves Technical Information

Relief Valves

Direct Acting

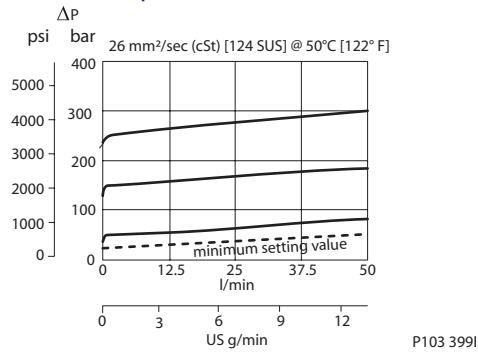
VME 07

OPERATION

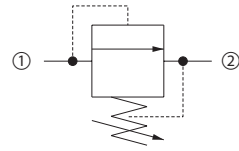
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

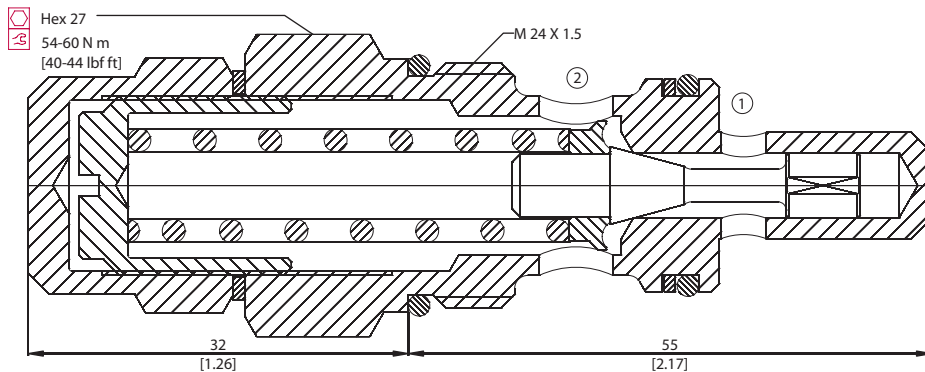
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow	50 l/min [13 US gal/min]
Weight	0.20 kg [0.44 lb]
Cavity	VME07

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

VME 07 - E - 2 - DG1/2 - V - XXX

Adjustment

E = Internal screw
M = Handwheel

Setting range

1 = 25 - 80 bar [363-1160 psi]
2 = 35 - 180 bar [508-2611 psi]
3 = 70 - 315 bar [1015-4569 psi]

Seals

V = Viton
Omit = Buna-N

Seal kit

Consult factory
Consult factory

Housing and ports

00 = No Housing
DG1/2 = Al, 1/2 BSP
DG8S = Al, #8 SAE
Other housings available

Housing P/N

No Housing
VME07-DG-1/2
VME07-DG-8S

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

P103 400E



Cartridge Valves Technical Information

Relief Valves

Direct Acting

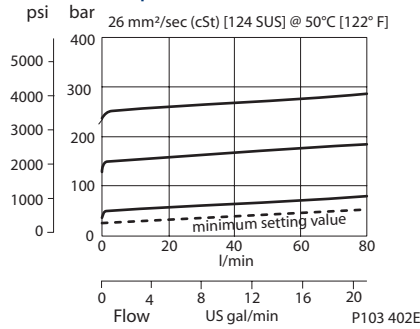
VME 08

OPERATION

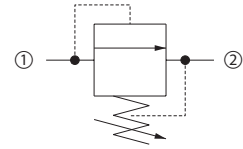
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

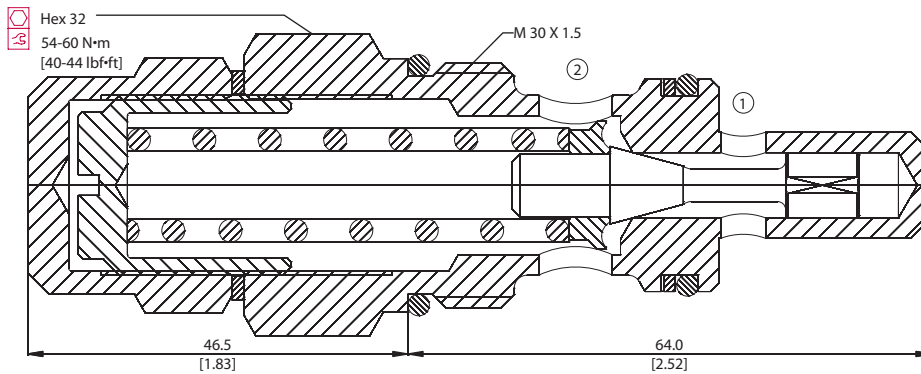
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow	80 l/min [21 US gal/min]
Weight	0.35 kg [0.77 lb]
Cavity	VME08

DIMENSIONS

mm [in]

Cross-sectional view



P103 401

ORDERING INFORMATION

VME 08 - E - 2 - DG3/4 - V - XXX

Adjustment

E = Internal screw
M = Handwheel

Setting range

1 = 25 - 80 bar [363-1160 psi]
2 = 35 - 160 bar [508-2321 psi]
3 = 70 - 315 bar [1015-4569 psi]

Seals

V = Viton
Omit = Buna-N

Seal kit

Consult factory
Consult factory

Housing and ports

00 = No Housing
DG3/4 = Al, 3/4 BSP
DG12S = Al, #12 SAE
Other housings available

Housing P/N

No Housing
VME08-DG-3/4
VME08-DG-12S

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

P103 403E



Cartridge Valves Technical Information

Relief Valves

Differential Area

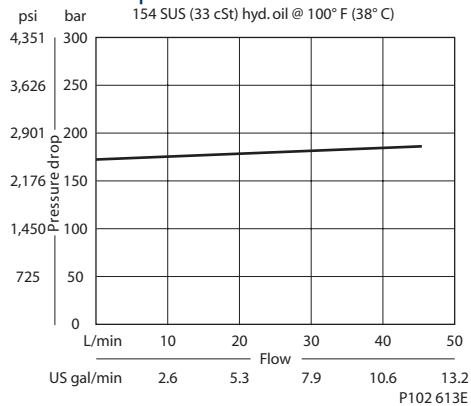
CP200-2

OPERATION

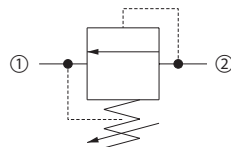
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

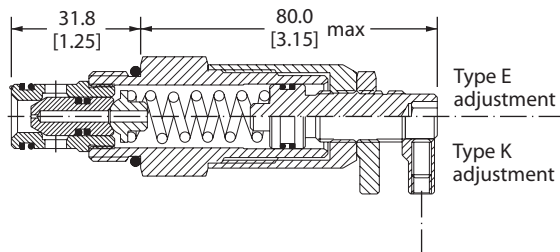
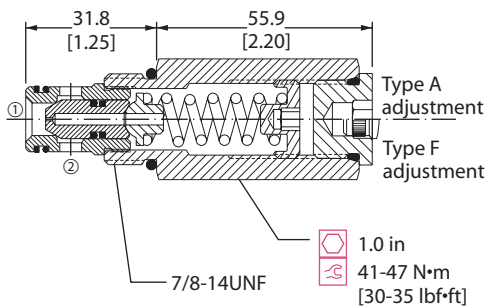
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	40 l/min [11 US gal/min]
Leakage	10 drops/min @ 80% of crack pressure
Weight	0.21 kg [0.46 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 589E

ORDERING INFORMATION

CP200-2-B-65-E-D-150

- Seals**
 - B = Buna-N Seal kits 120015
 - V = Viton Seal kits 120016
- Housing and ports**
 - 0 = No Housing
 - DG3B = Al, 3/8 BSP
 - DG4B = Al, 1/2 BSP
 - 65 = Al, #6 SAE
 - 8S = Al, #8 SAE
 - Other housings available
- Housing P/N**
 - No Housing
 - SDC10-2-DG-3B
 - SDC10-2-DG-4B
 - CP10-2-6S
 - CP10-2-8S
- Adjustment options**
 - A = Internal
 - F = Tamper resistant
 - E = External
 - K = Knob
- Adjustment ranges**
 - D = Standard
 - bar: 69-345
 - psi: [1000-5000]
 - 103 [1500]
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi

P102 590E



Cartridge Valves Technical Information

Relief Valves

Differential Area

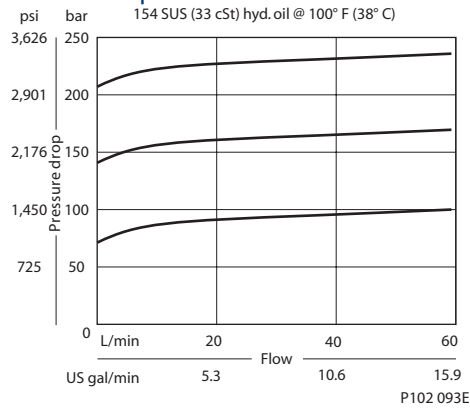
CP208-1

OPERATION

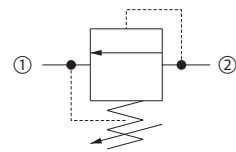
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

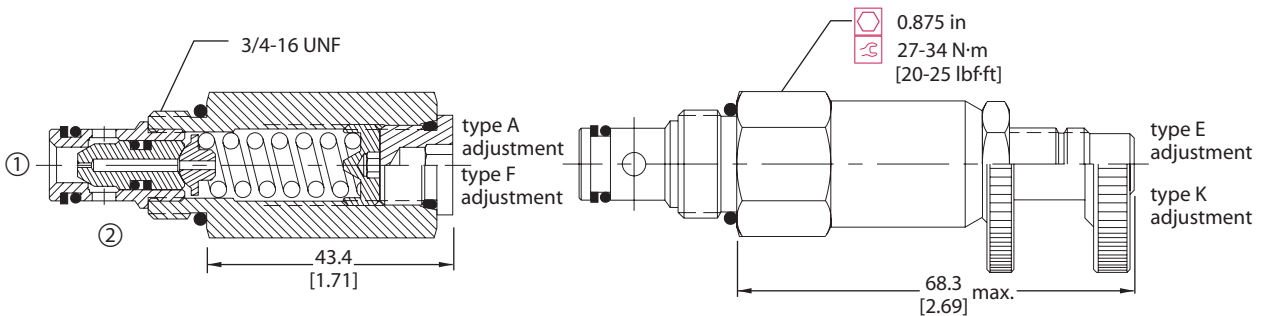
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	40 l/min [11 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.15 kg [0.32 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 092E

ORDERING INFORMATION

CP208 - 1 - B - 6S - A - C - 150 - XXX

- 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
- Adjustment option**
 - A = Internal
 - E = External
 - F = Tamper resistant
 - K = Knob
- Seal Kit**
 - 120221
 - 120222
- Housing P/N**
 - No Housing
 - SDC08-2-DG-2B
 - SDC08-2-DG-3B
 - CP08-2-4S
 - CP08-2-6S
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi
- Pressure range**

	bar	[psi]
A =	7-69	[100-1000]
Standard	28	[400]
B =	14-138	[200-2000]
Standard	69	[1000]
C =	35-248	[500-3600]
Standard	103	[1500]

P102 095E

Relief valves CP208-1



Cartridge Valves Technical Information

Relief Valves

Differential Area

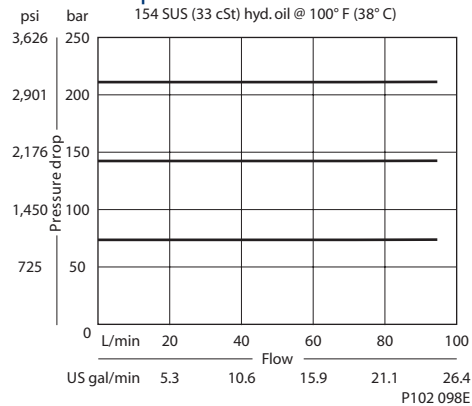
CP200-1

OPERATION

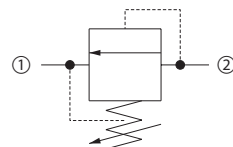
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

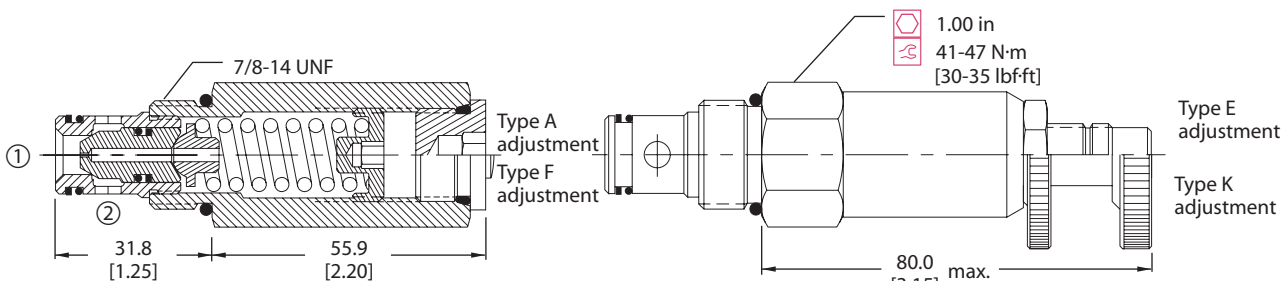
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	75 l/min [20 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.21 kg [0.46 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 096E

ORDERING INFORMATION

CP200 - 1 - B - 8S - A - C - 150

Seals

B = Buna-N
V = Viton

Housing and ports

0 = No Housing
DG3B = Al, 3/8 BSP
DG4B = Al, 1/2 BSP
6S = Al, #6 SAE
8S = Al, #8 SAE

Other housings available

Adjustment option

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

Seal kit

120015
120016

Housing P/N

No Housing
SDC10-2-DG-3B
SDC10-2-DG-4B
SDC10-2-6S
SDC10-2-8S

Crack pressure

Code x 10 = psi
Example: 150 = 1500 psi

Pressure range

Code	Pressure range (bar)	Pressure range (psi)
A	7-55	[100-800]
Standard	28	[400]
B	17-138	[250-2000]
Standard	69	[1000]
C	41-248	[600-3600]
Standard	103	[1500]

P102 099E



Cartridge Valves Technical Information

Relief Valves

Differential Area

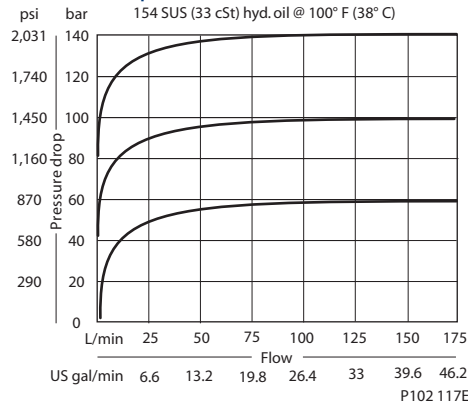
CP201-1

OPERATION

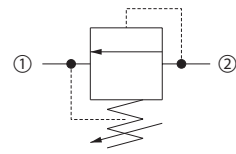
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

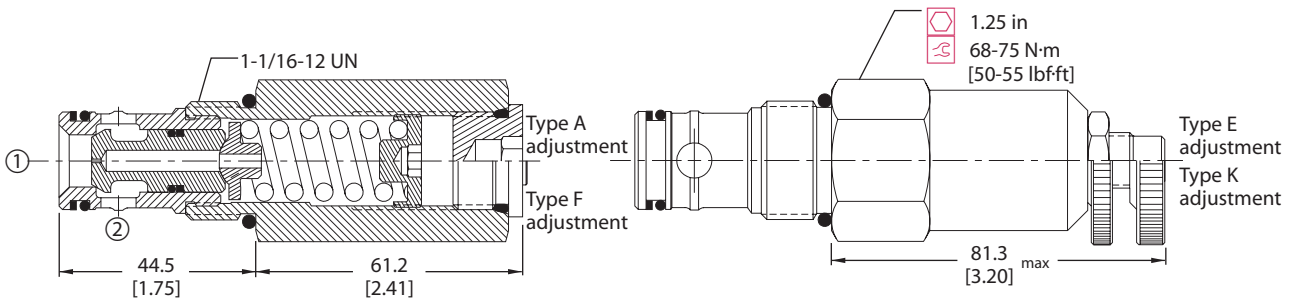
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	150 l/min [40 US gal/min]
Leakage	10 drops/min @ 80% of pressure setting
Weight	0.42 kg [0.92 lb]
Cavity	CP12-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 100E

Relief valves
CP201-1

ORDERING INFORMATION

CP201 - 1 - B - 12S - A - C - 150

- Seals**
 - B = Buna-N
 - V = Viton
- Seal kit**
 - 120017
 - 120018
- Housing and ports**
 - 0 = No Housing
 - 4B = Al, 1/2 BSP
 - 6B = Al, 3/4 BSP
 - 10S = Al, #10 SAE
 - 12S = Al, #12 SAE
 - Other housings available
- Housing P/N**
 - No Housing
 - CP12-2-4B
 - CP12-2-6B
 - CP12-2-10S
 - CP12-2-12S
- Adjustment option**
 - A = Internal
 - E = External
 - F = Tamper resistant
 - K = Knob
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi
- Pressure range**

	bar	[psi]
A =	7-69	[100-1000]
Standard	28	[400]
B =	17-172	[250-2500]
Standard	69	[1000]
C =	35-248	[500-3600]
Standard	103	[1500]

P102 103E



Cartridge Valves Technical Information

Relief Valves

Direct Acting

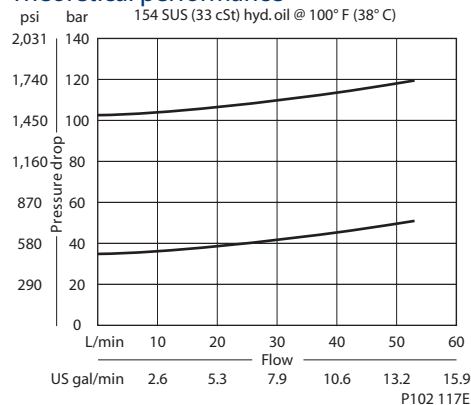
CP210-1

OPERATION

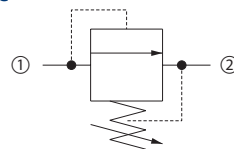
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

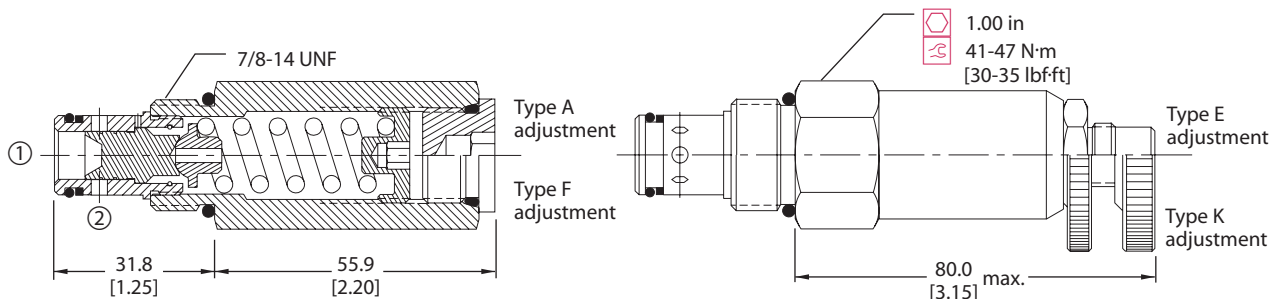
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow	45 l/min [12 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /min] @ 80% of pressure setting
Weight	0.22 kg [0.48 lb]
Cavity	SDC10-2

DIMENSIONS

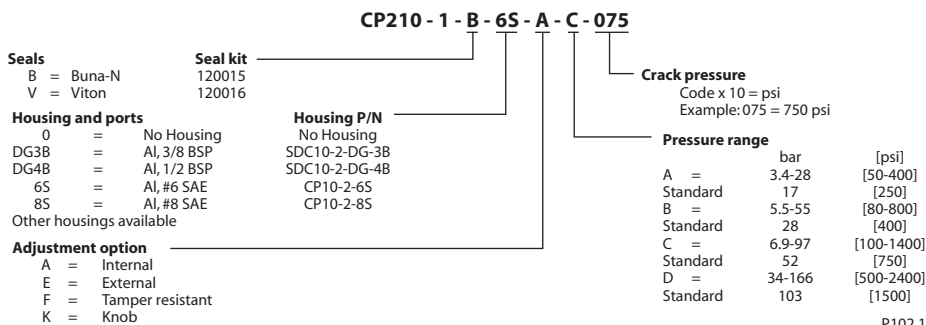
mm [in]

Cross-sectional view



P102 116E

ORDERING INFORMATION



Relief valves
CP210-1



Cartridge Valves Technical Information

Relief Valves

Direct Acting

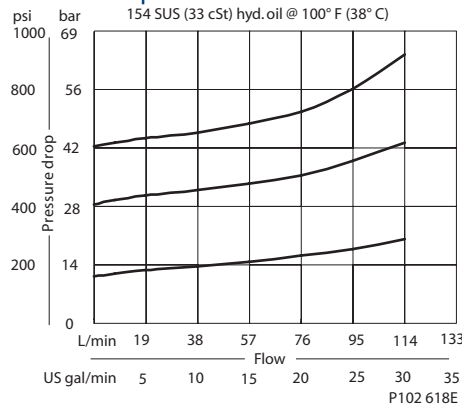
CP211-1

OPERATION

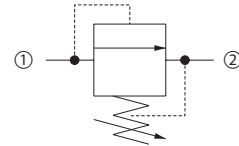
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

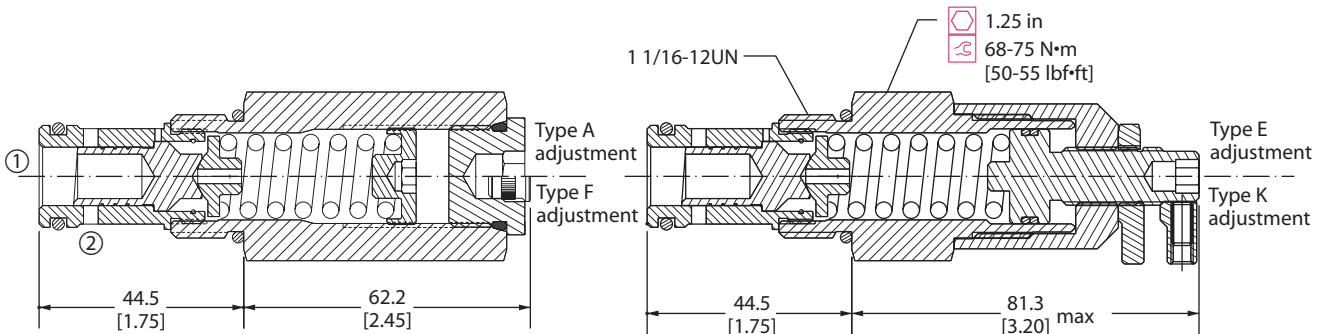
Specifications

Rated pressure	40 bar [600 psi]
Rated flow	75 l/min [20 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /min] @ 80% of pressure setting
Weight	0.41 kg [0.90 lb]
Cavity	CP12-2

DIMENSIONS

mm [in]

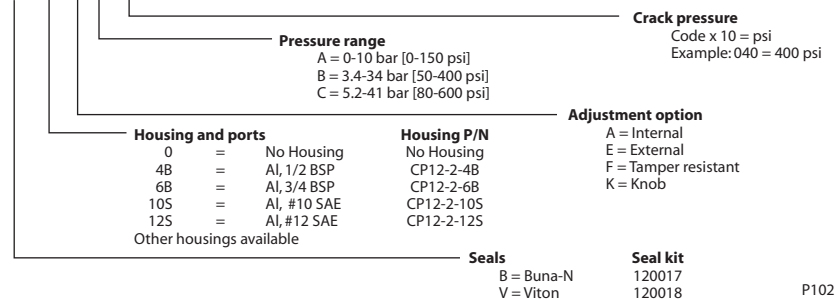
Cross-sectional view



P102 616E

ORDERING INFORMATION

CP211-1-B-10S-A-C-040



P102 617E

Relief valves CP211-1



Cartridge Valves Technical Information

Relief Valves

Pilot Operated

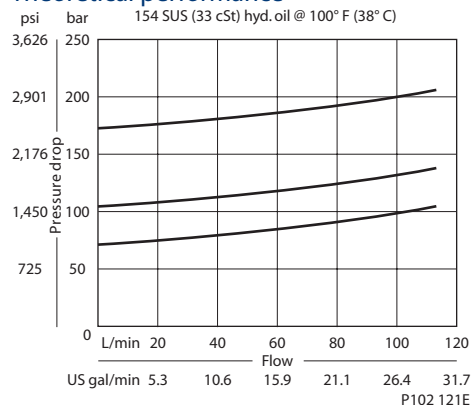
CP210-2

OPERATION

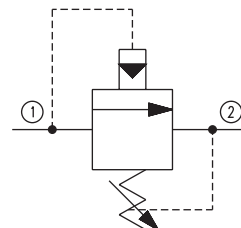
This is a pilot operated spool type relief valve that relieves pressure from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



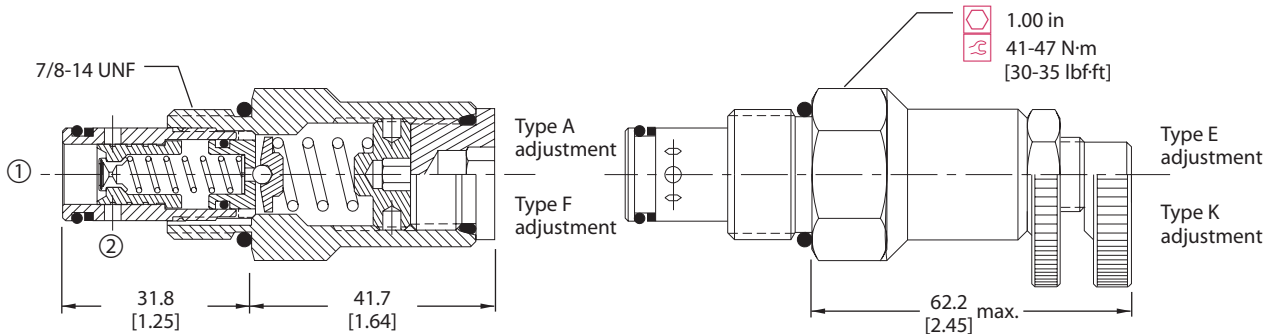
P102 629

Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	115 l/min [30 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /min] @ 207 bar [3000 psi]
Weight	0.18 kg [0.40 lb]
Cavity	SDC10-2

DIMENSIONS

Cross-sectional view



P102 120E

ORDERING INFORMATION

CP210 - 2 - B - 6S - A - C - 150

- Seals**
 - B = Buna-N
 - V = Viton
- Seal kit**
 - 120015
 - 120016
- Housing and ports**
 - 0 = No Housing
 - DG3B = Al, 3/8 BSP
 - DG4B = Al, 1/2 BSP
 - 6S = Al, #6 SAE
 - 8S = Al, #8 SAE
 - Other housings available
- Housing P/N**
 - No Housing
 - SDC10-2-DG-3B
 - SDC10-2-DG-4B
 - CP10-2-6S
 - CP10-2-8S
- Adjustment option**
 - A = Internal
 - E = External
 - F = Tamper resistant
 - K = Knob
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi
- Pressure range**

Option	Standard	bar	[psi]
A	Standard	14-69	[200-800]
B	Standard	28	[400]
C	Standard	14-103	[200-1500]
D	Standard	69	[1000]
E	Standard	28-207	[400-3000]
F	Standard	103	[1500]
G	Standard	28-345	[400-5000]
H	Standard	103	[1500]

P102 123E



Cartridge Valves Technical Information

Relief Valves

Pilot Operated

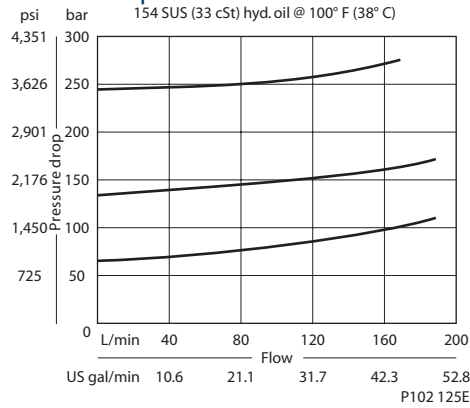
CP211-2

OPERATION

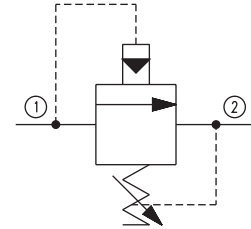
This valve relieves from 1 to 2 and is a pilot operated spool type relief.

SPECIFICATIONS

Theoretical performance



Schematic



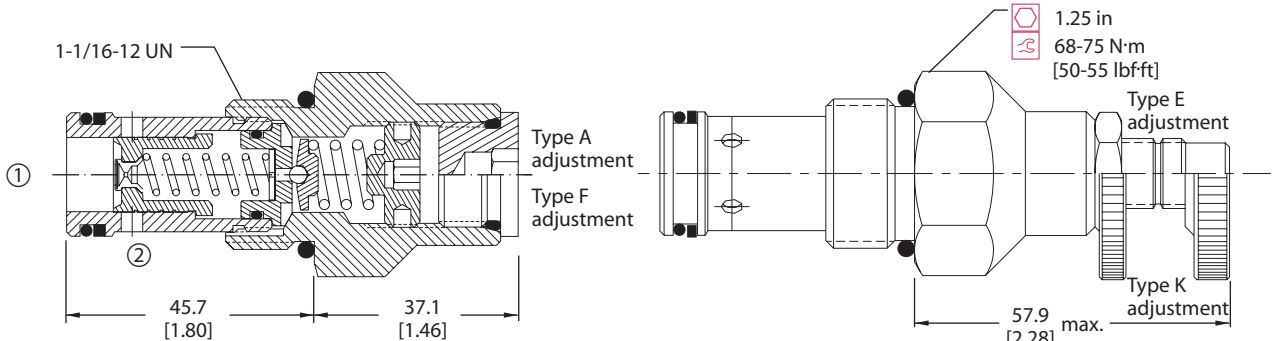
P102 629

Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	190 l/min [50 US gal/min]
Leakage	82 cm ³ /min [5 in ³ /min] @ 207 bar [3000 psi]
Weight	0.17 kg [0.37 lb]
Cavity	CP12-2

DIMENSIONS

Cross-sectional view



P102 124E

ORDERING INFORMATION

Seals
B = Buna-N
V = Viton

Housing and ports
0 = No Housing
4B = Al, 1/2 BSP
6B = Al, 3/4 BSP
10S = Al, #10 SAE
12S = Al, #12 SAE
Other housings available

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

Seal kit
120017
120018

Housing P/N
No Housing
CP12-2-4B
CP12-2-6B
CP12-2-10S
CP12-2-12S

CP211 - 2 - B - 12S - A - C - 150

Crack pressure
Code x 10 = psi
Example: 150 = 1500 psi

Pressure range

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

P102 127E



Cartridge Valves Technical Information

Relief Valves

Pilot Operated

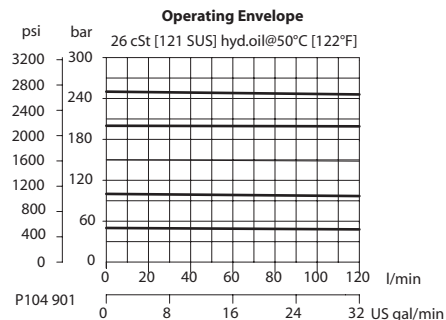
RV10-POP

OPERATION

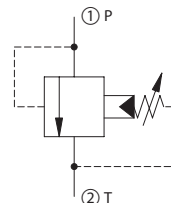
This is a pilot-operated poppet relief valve.

SPECIFICATIONS

Theoretical performance



Schematic



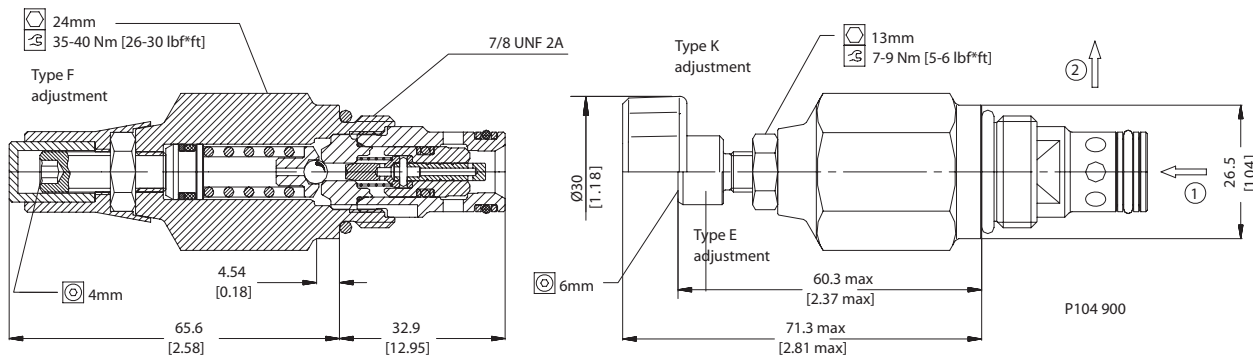
P104 899

Specifications

Rated pressure	250 bar [3625 psi]
Rated flow	120 l/min [32 US gal/min]
Leakage	6 drops/min @ 80% of pressure setting
Weight	0.22 kg [0.49 lb]
Cavity	SDC10-2

DIMENSIONS

Cross-sectional view



P104 900

ORDERING INFORMATION

RV10 - POP - 3 - E - XXX - B - 00

Pressure Range
3 = 25-250 Bar [360-3600 psi]

Adjustment option
E = External adjustment
F = Tamper resistant
K = Knob adjustment

Cracking pressure
Code = Std. setting in bar:
100 = 100 Bar [1500 psi]
XXX = No specific setting

Body and Ports
Omit = Cartridge only
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

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

Seal Kit
354004019
354003419
P104 902



Cartridge Valves Technical Information

Relief Valves

Bi-Directional

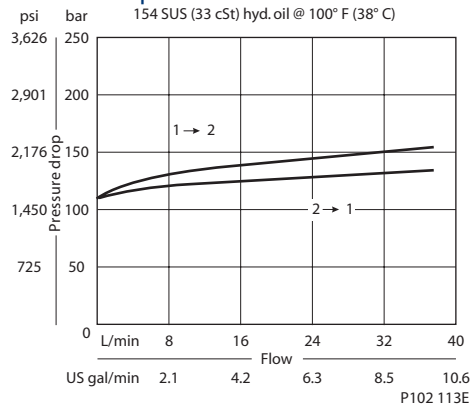
CP200-7

OPERATION

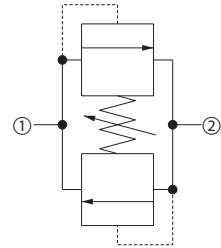
This valve relieves pressure from 1 to 2 and 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic

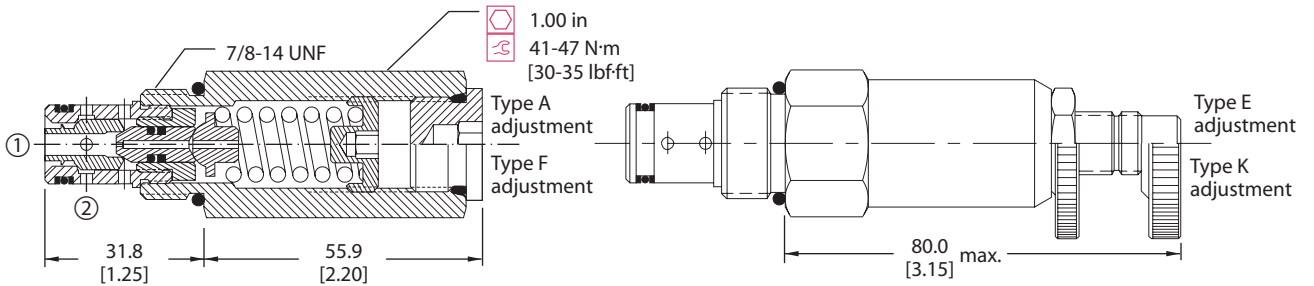


Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	40 l/min [11 US gal/min]
Leakage	5 cm ³ /min [0.3 in ³ /min] @ 80% of pressure setting
Weight	0.20 kg [0.43 lb]
Cavity	SDC10-2

DIMENSIONS

Cross-sectional view



ORDERING INFORMATION

CP200 - 7 - B - 8S - A - C - 150

Seals		Seal kit		Crack pressure	
B = Buna-N		120073		Code x 10 = psi	
V = Viton		120074		Example: 150 = 1500 psi	
Housing and ports		Housing P/N		Pressure range	
0 = No Housing		No Housing		A = 7-41 [psi]	[100-600]
DG3B = Al, 3/8 BSP		SDC10-2-DG-3B		Standard = 28 [400]	
DG4B = Al, 1/2 BSP		SDC10-2-DG-4B		B = 17-138 [250-2000]	
6S = Al, #6 SAE		CP10-2-6S		Standard = 69 [1000]	
8S = Al, #8 SAE		CP10-2-8S		C = 41-248 [600-3600]	
Other housings available				Standard = 103 [1500]	
Adjustment option					
A = Internal					
E = External					
F = Tamper resistant					
K = Knob					

P102 115E

Relief valves
CP2100-7



Cartridge Valves Technical Information

Relief Valves

Differential Area

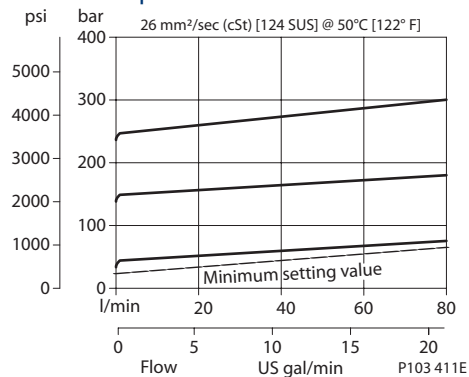
VSB 06-EN

OPERATION

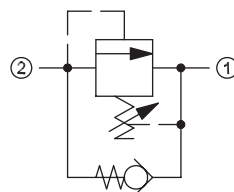
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P103 524

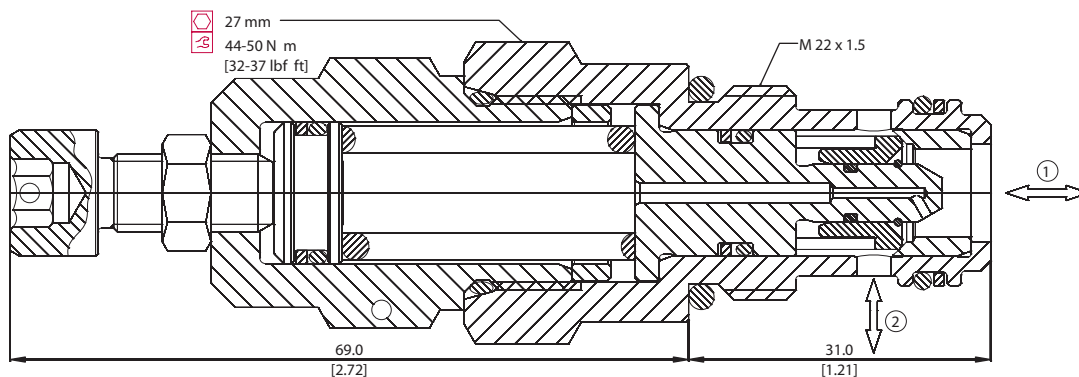
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	80 l/min [21 US gal/min]
Weight	0.22 kg [0.49 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 413

ORDERING INFORMATION

VSB 06-EN - 1 - 00 - V - XXX

Setting range

- 1 = 20 - 80 bar [363 - 2031 psi]
- 2 = 70 - 210 bar [1015 - 3046 psi]
- 3 = 105 - 350 bar [1523 - 5076 psi]

Seals
V = Viton
Omit = Buna-N

Seal Kit
230000380
230000060

Housing and ports
00 = No Housing
DG3/8 = AL, 3/8 BSP
DG1/2 = AL, 1/2 BSP
DG6S = AL, #6 SAE
DG8S = AL, #8 SAE
Other housings available

Housing P/N
No Housing
NCS06/2-DG-3/8
NCS06/2-DG-1/2
NCS06/2-DG-6S
NCS06/2-DG-8S

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

P103 414E



Cartridge Valves Technical Information

Relief Valves

Differential Area

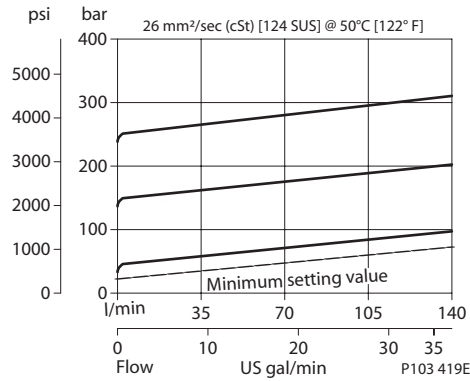
VSB 12-EN

OPERATION

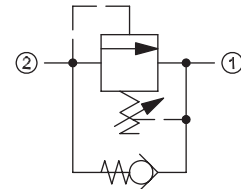
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



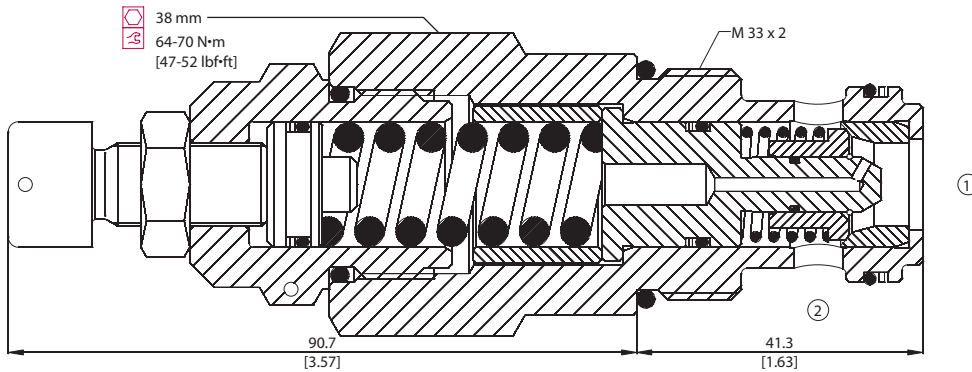
P103 524

Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	140 l/min [37 US gal/min]
Weight	0.60 kg [1.32 lb]
Cavity	NCS12/2

DIMENSIONS

Cross-sectional view



P103 421

ORDERING INFORMATION

VSB 12-EN - 1 - 00 - V - XXX

Setting range

- 1 = 25 - 170 bar [363 - 2466 psi]
- 2 = 70 - 270 bar [1015 - 3916 psi]
- 3 = 105 - 350 bar [1523 - 5076 psi]

Seals
V = Viton
Omit = Buna-N

Seal Kit
230000470
230000120

Housing and ports
00 = No Housing
DG1/2 = AL, 1/2 BSP
DG3/4 = AL, 3/4 BSP
DG8S = AL, #8 SAE
DG12S = AL, #12 SAE
Other housings available

Housing P/N
No Housing
NCS12/2-DG-1/2
NCS12/2-DG-3/4
NCS12/2-DG-8S
NCS12/2-DG-12S

P103 422E

Relief valves
VSB 12-EN



Cartridge Valves Technical Information

Relief Valves

Differential Area

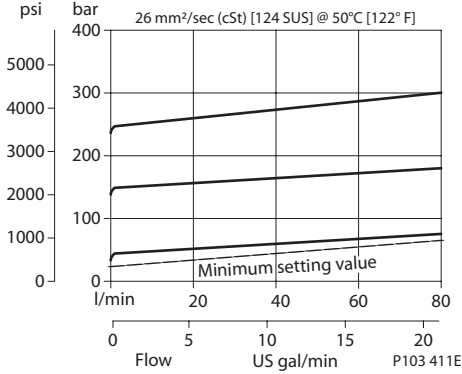
VSB 06-CN

OPERATION

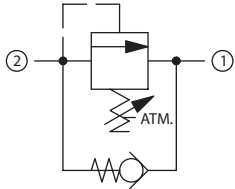
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P1

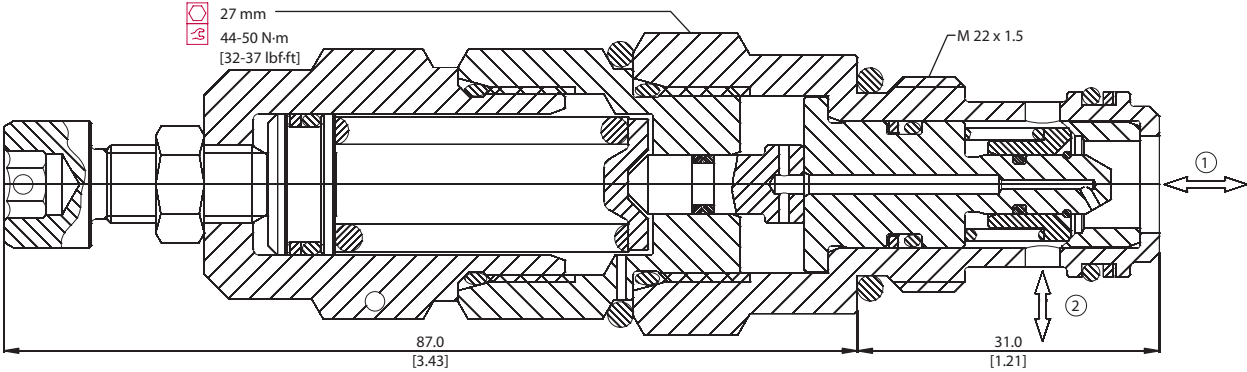
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	80 l/min [21 US gal/min]
Weight	0.29 kg [0.64 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 410

ORDERING INFORMATION

VSB 06-CN - 1 - 00 - V - XXX

- Seals**
V = Viton
Omit = Buna-N
- Seal Kit**
230000380
230000060
- Housing and ports**
00 = No Housing
DG3B = AL, 3/8 BSP
DG4B = AL, 1/2 BSP
DG6S = AL, #6 SAE
DG8S = AL, #8 SAE
Other housings available
- Housing P/N**
No Housing
NCS06/2-DG-3/8
NCS06/2-DG-1/2
NCS06/2-DG-6S
NCS06/2-DG-8S

- Setting range**
- 1 = 25 - 140 bar [363 - 2031 psi]
 - 2 = 70 - 210 bar [1015 - 3046 psi]
 - 3 = 105 - 350 bar [1523 - 5076 psi]

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

P103 412E

Relief valves
VSB 06-CN



Cartridge Valves Technical Information

Relief Valves

Differential Area

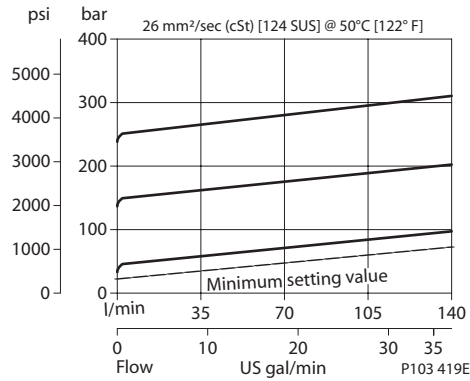
VSB 12-CN

OPERATION

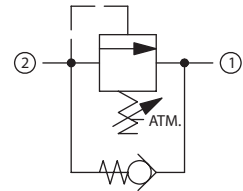
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



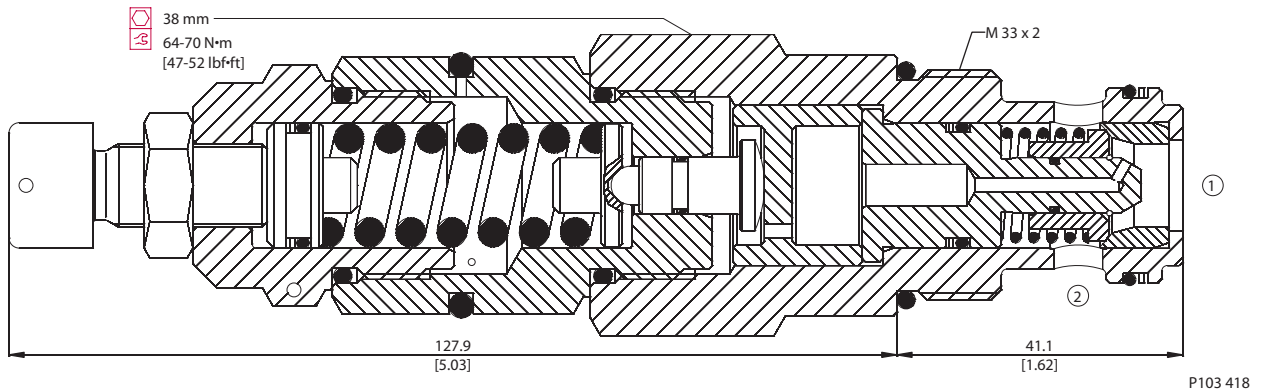
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow	140 l/min [37 US gal/min]
Weight	0.75 kg [1.65 lb]
Cavity	NCS12/2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

VSB 12-CN - 1 - 00 - V - XXX

Setting range

- 1 = 25 - 170 bar [363 - 2466 psi]
- 2 = 70 - 270 bar [1015 - 3916 psi]
- 3 = 105 - 350 bar [1523 - 5076 psi]

- Seals**
 V = Viton
 Omit = Buna-N
- Seal Kit**
 230000470
 230000120

- Housing and ports**
 00 = No Housing
 DG1/2 = AL, 1/2 BSP
 DG3/4 = AL, 3/4 BSP
 DG8S = AL, #8 SAE
 DG12S = AL, #12 SAE
 Other housings available
- Housing P/N**
 No Housing
 NCS12/2-DG-1/2
 NCS12/2-DG-3/4
 NCS12/2-DG-8S
 NCS12/2-DG-12S

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

P103 420E

Relief valves
VSB 12-CN



Cartridge Valves Technical Information

Relief Valves

Cross-Over

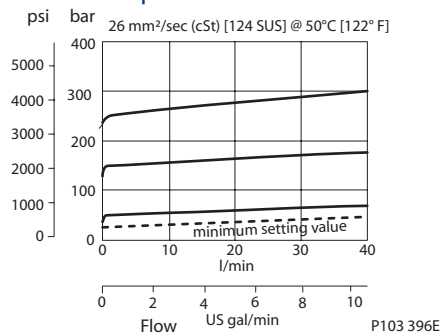
VA-E 06

OPERATION

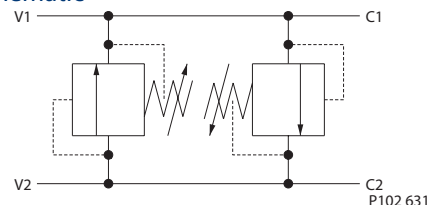
This valve is an inline cross relief. It uses two VME 06 direct-acting relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



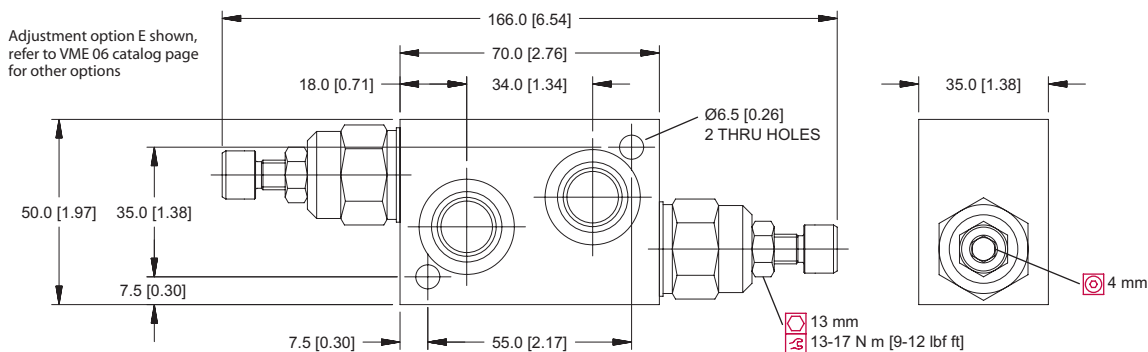
Specifications

Rated pressure	210 bar [3045 psi]
Rated flow	40 l/min [11 US gal/min]
Weight	1.11 kg [2.45 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P104 552E

ORDERING INFORMATION

VA-E 06 - EN - 2 - LG - V - XXX

Adjustment option
EN = External screw
M = Handwheel

Setting range
1 = 25 - 70 bar [360 - 1000 psi]
2 = 35 - 170 bar [510 - 2500 psi]
3 = 70 - 315 bar [1000 - 4500 psi]

Seals
V = Viton
Omit = Buna-N

Seal kit
Consult factory
Consult factory

Housing and ports
LG = AL, 3/8 BSP

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

P104 553E

Relief valves
VA-E 06



Cartridge Valves Technical Information

Relief Valves

Cross-Over

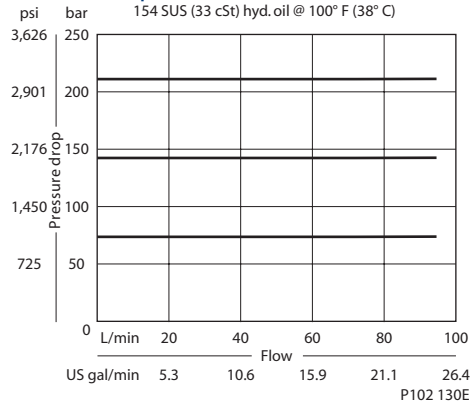
CP220-1

OPERATION

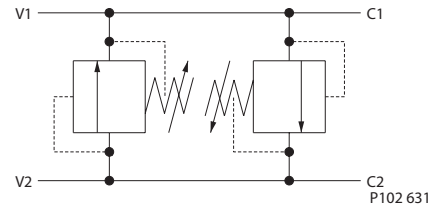
This valve is an inline cross relief. It uses two CP200-1 differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic

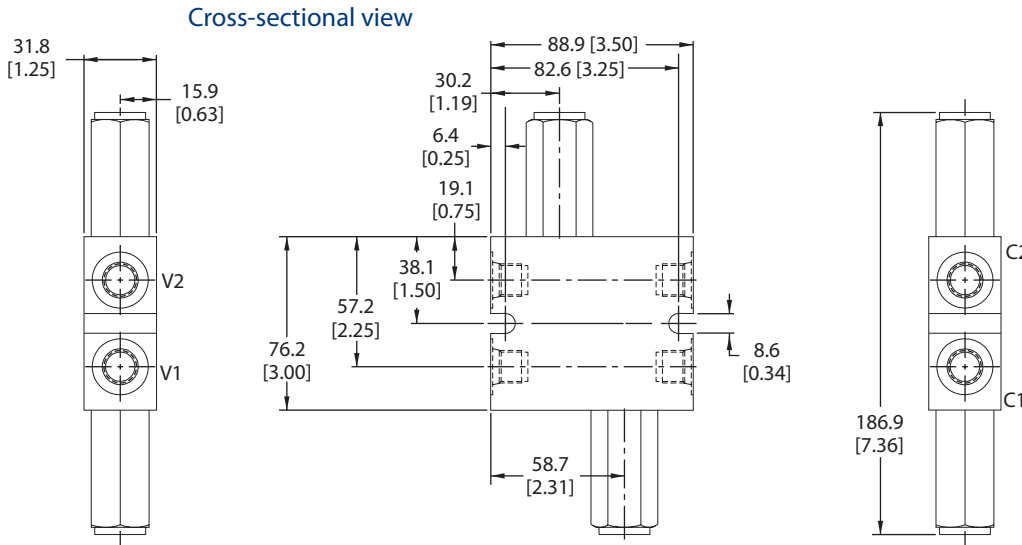


Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	75 l/min [20 US gal/min]
Weight	0.82 kg [1.80 lb]
Cavity	none

DIMENSIONS

mm [in]



P102 129

Relief valves
CP220-1

ORDERING INFORMATION

CP220 - 1 - 8S - B-0-A-C-150

Housing and ports		Housing P/N		Crack pressure	
3B = Al, 3/8 BSP		221743		Code x 10 = psi	
4B = Al, 1/2 BSP		221744		Example: 150 = 1500 psi	
6S = Al, #6 SAE		220216			
8S = Al, #8 SAE		220217			
Other housings available					
Seals		Seal kit		Pressure range	
B = Buna-N		120072		A = 7-55	bar [psi]
V = Viton		120161		Standard	28 [400]
Adjustment option				B = 17-138	[250-2000]
A = Internal				Standard	69 [1000]
E = External				C = 41-248	[600-3600]
F = Tamper resistant				Standard	103 [1500]
K = Knob					

P102 131E



Cartridge Valves Technical Information

Relief Valves

Cross-Over

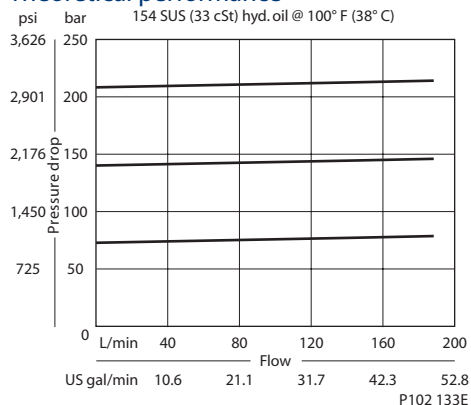
CP221-1

OPERATION

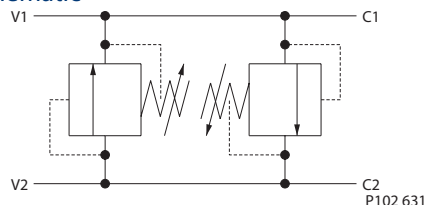
This valve is an inline cross relief. It uses two CP201-1 type differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



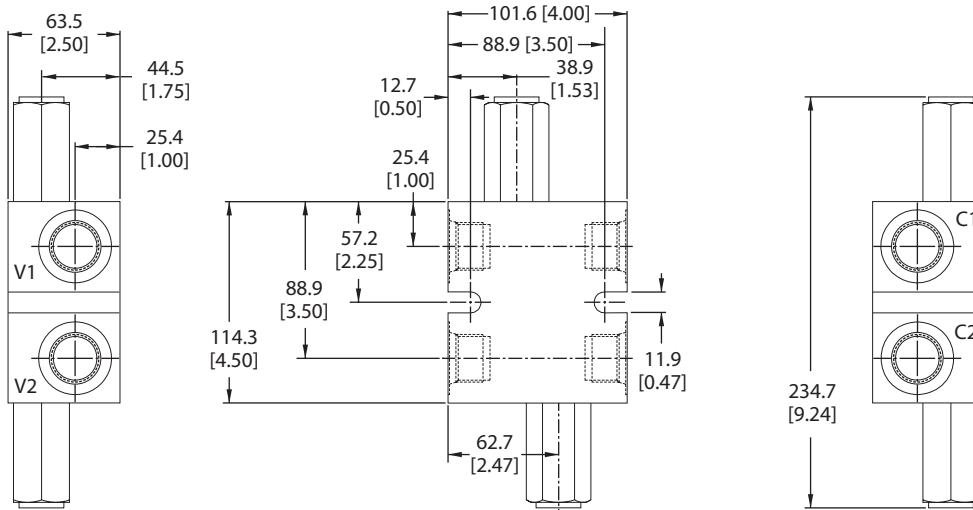
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	190 l/min [50 US gal/min]
Weight	2.25 kg [4.95 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 132

ORDERING INFORMATION

CP221 - 1 - 16S - B-0-A-C-150

Housing and ports

- 12S = AL, #12 SAE
- 16S = AL, #16 SAE
- 6B = AL, 3/4 BSP
- 8B = AL, 1 BSP

Seals

- B = Buna-N
- V = Viton

Adjustment option

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

Housing P/N

- 220223
- 220222
- 221742
- 221690

Seal kit

- 120162
- 120163

Cracking pressure

Code x 10 = psi
Example: 150 = 1500 psi

Pressure range

	bar	[psi]
A =	7-69	[100-1000]
Standard	28	[400]
B =	17-172	[250-2500]
Standard	69	[1000]
C =	41-248	[500-3600]
Standard	103	[1500]

P102 134E



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, Pilot Operated	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, Pilot Operated	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.

Cartridge Valves Technical Information

Pressure Reducing Valves

Application Notes

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

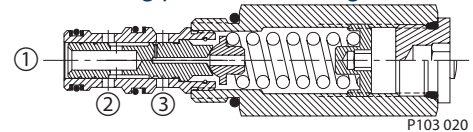
DIRECT ACTING PRESSURE REDUCING / RELIEVING VALVES

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.

Cartridge Valves Technical Information

Pressure Reducing Valves

Application Notes

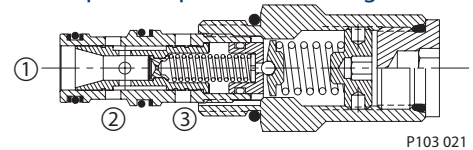
PILOT-OPERATED PRESSURE REDUCING / RELIEVING VALVES

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



P103 021

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

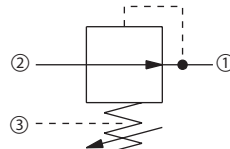
Pressure Reducing, Non-Relieving

CP230-2

OPERATION

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

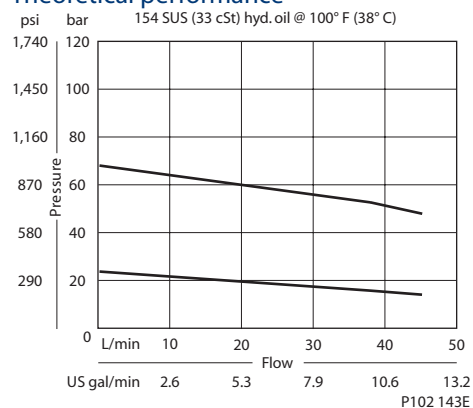
Schematic



P102 140E

SPECIFICATIONS

Theoretical performance



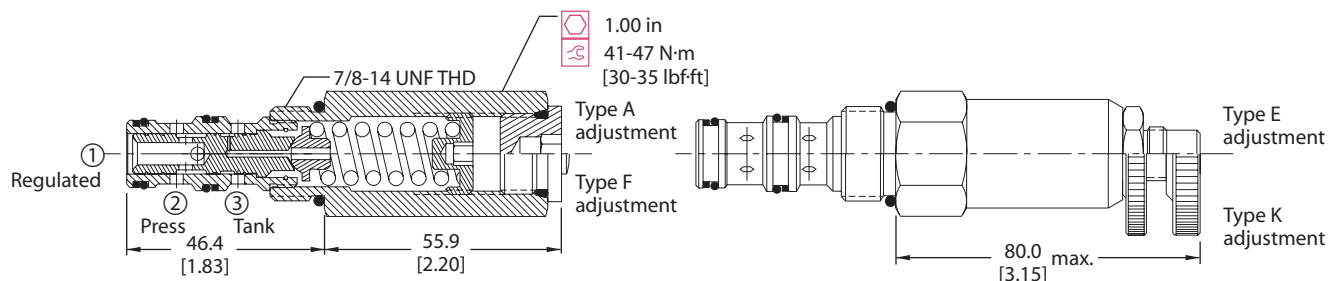
Specifications

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



P102 141E

ORDERING INFORMATION

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

- 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
- 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
- Crack pressure**
 - Code x 10 = psi
 - Example: 100 = 1000 psi
- Pressure range**

Code	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 144E

Pressure reducing valves CP230-2



Cartridge Valves Technical Information

Pressure Reducing Valves

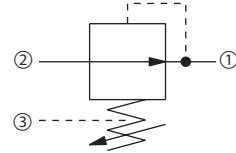
Pressure Reducing, Non-Relieving

PRC 06

OPERATION

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

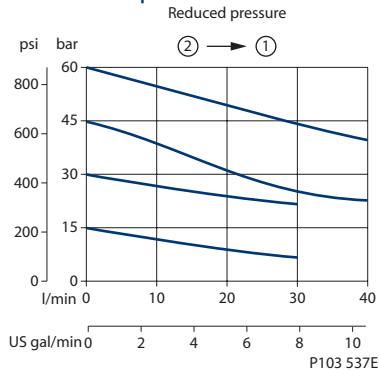
Schematic



P102 140E

SPECIFICATIONS

Theoretical performance



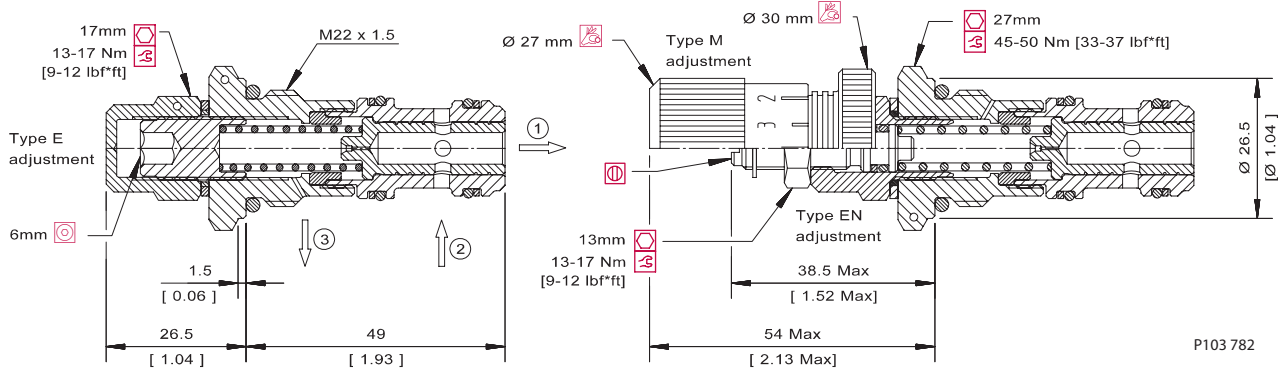
Specifications

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

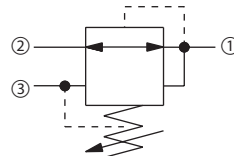
Pressure Reducing, Relieving

CP230-1

OPERATION

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

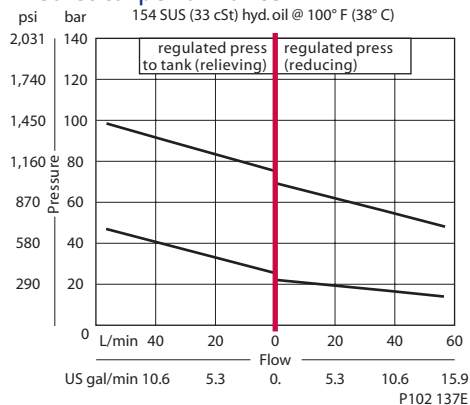
Schematic



P102 135E

SPECIFICATIONS

Theoretical performance



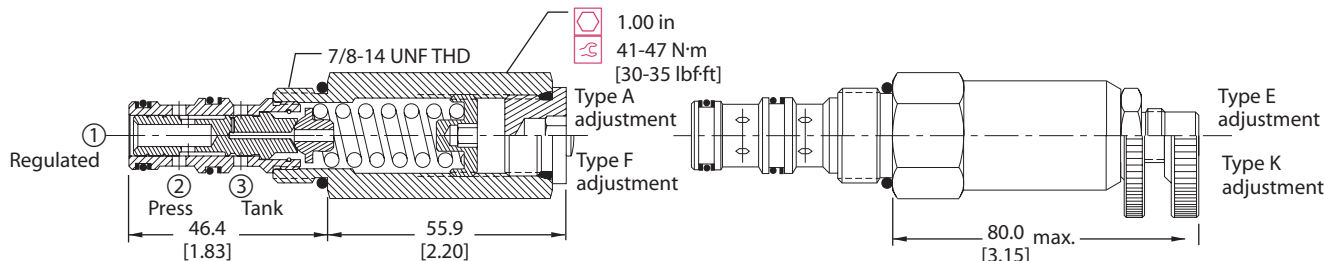
Specifications

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



P102 136E

ORDERING INFORMATION

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

Seals B = Buna-N V = Viton	Seal kit 120570 120571	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	Pressure setting Code x 10psi (0.69 bar) Example: 100 = 1000 psi (70 bar)	Pressure range <table border="1"> <thead> <tr> <th>Code</th> <th>bar</th> <th>[psi]</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4-28</td> <td>[50-400]</td> </tr> <tr> <td>Std. setting</td> <td>17</td> <td>[250]</td> </tr> <tr> <td>B</td> <td>5-55</td> <td>[75-800]</td> </tr> <tr> <td>Std. setting</td> <td>28</td> <td>[400]</td> </tr> <tr> <td>C</td> <td>7-97</td> <td>[100-1400]</td> </tr> <tr> <td>Std. setting</td> <td>69</td> <td>[1000]</td> </tr> <tr> <td>D</td> <td>34-166</td> <td>[500-2400]</td> </tr> <tr> <td>Std. setting</td> <td>103</td> <td>[1500]</td> </tr> </tbody> </table>	Code	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]
Code	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]																														

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

P102 139E

Pressure reducing valves
CP230-1



Cartridge Valves Technical Information

Pressure Reducing Valves

Pressure Reducing, Relieving

PRR10-PVG

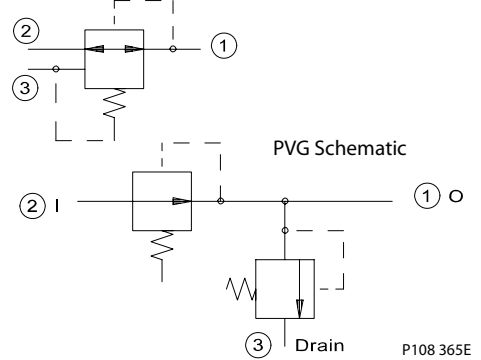
OPERATION

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

SPECIFICATIONS

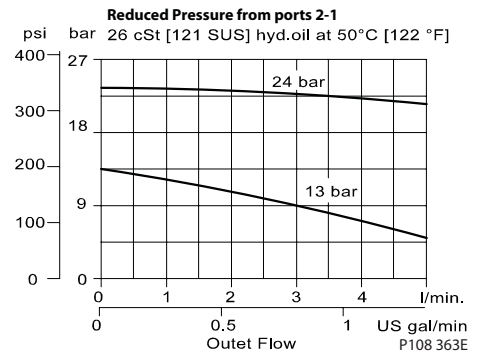
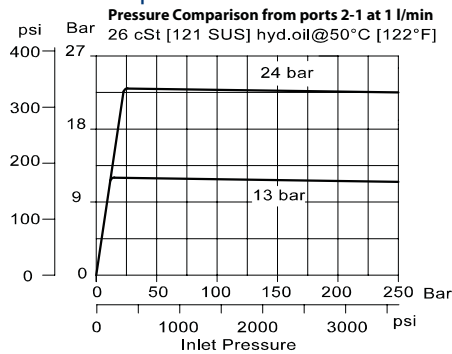
Max. pressure in port 2	210 bar [3000 psi]
Maximum flow	5 l/min [1.3 US gal/min]
Cartridge Weight	0.23 kg [0.51 lb]
Cavity	SDC10-3

Schematics



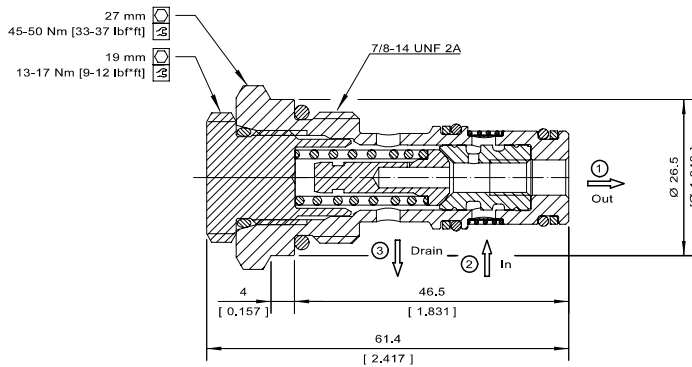
DIMENSIONS

Theoretical performance



Cross-sectional view

mm [in]



P108 362E

ORDERING INFORMATION

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

TYPE: _____

E = Electrical (PVE)
H = Hydraulic (PVH) or High Current (PVHC)

Pressure setting: _____

13 = 13 Bar for Electrical (PVE)
24 = 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

F = FILTER 300um
(Omit if not required)
(Not available for low leakage versions)

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

SEALS Omit = Buna V = Viton

SEAL KIT 230000650 354001019

P108 364E

Pressure reducing valves PRR10-PVG



Cartridge Valves Technical Information

Pressure Reducing Valves

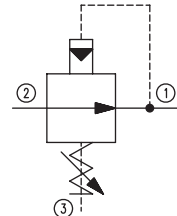
Pressure Reducing, Non-Relieving

CP230-4

OPERATION

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

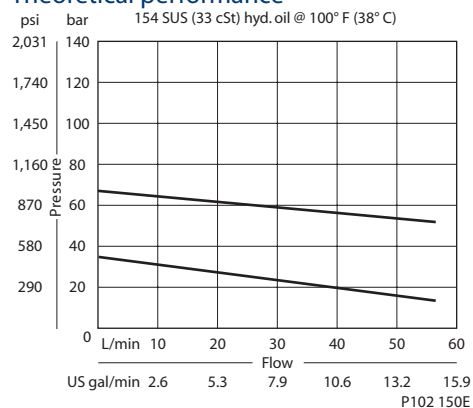
Schematic



P103 231

SPECIFICATIONS

Theoretical performance



P102 150E

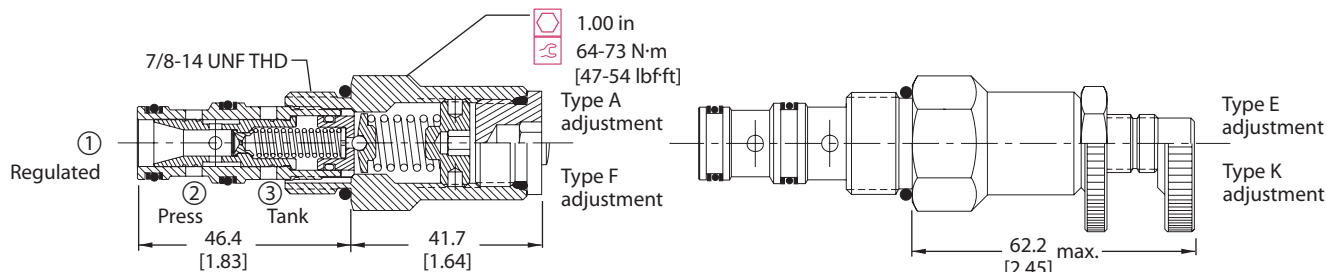
Specifications

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

Code	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



Cartridge Valves Technical Information

Pressure Reducing Valves

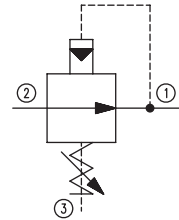
Pressure Reducing, Non-Relieving

PPRC 06

OPERATION

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

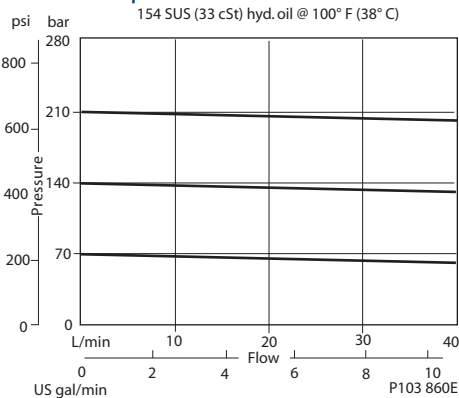
Schematic



P103 231

SPECIFICATIONS

Theoretical performance



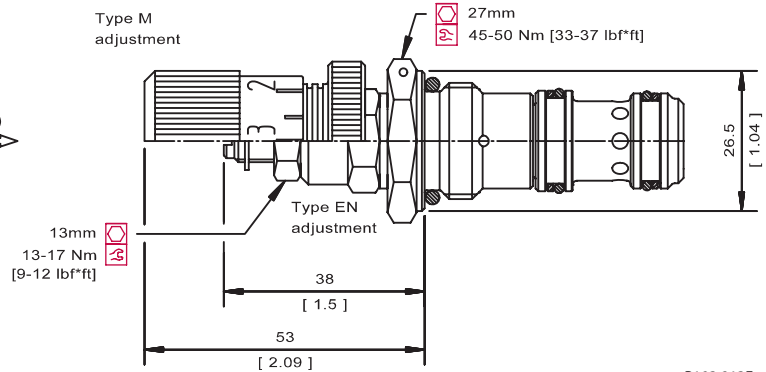
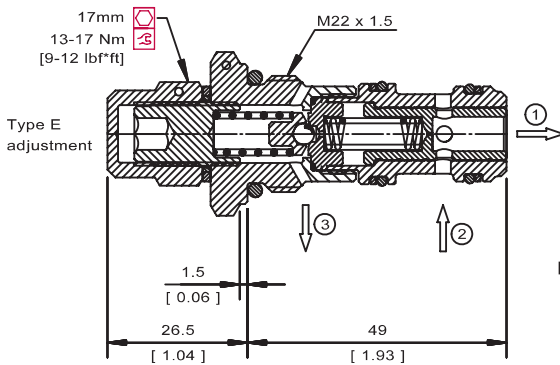
Specifications

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

Seal kit

230000110
230000070

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

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

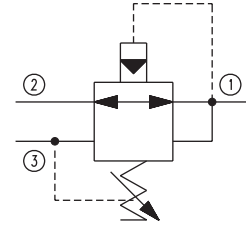
Pressure Reducing, Relieving

PRMP 064

OPERATION

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

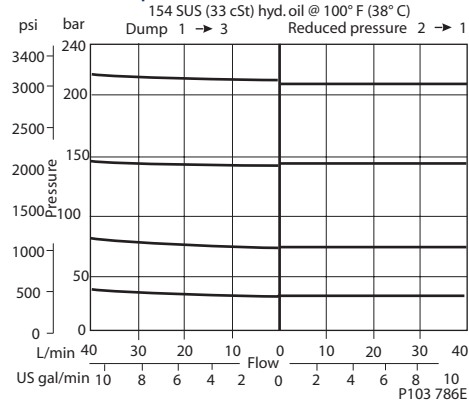
Schematic



P103 230

SPECIFICATIONS

Theoretical performance



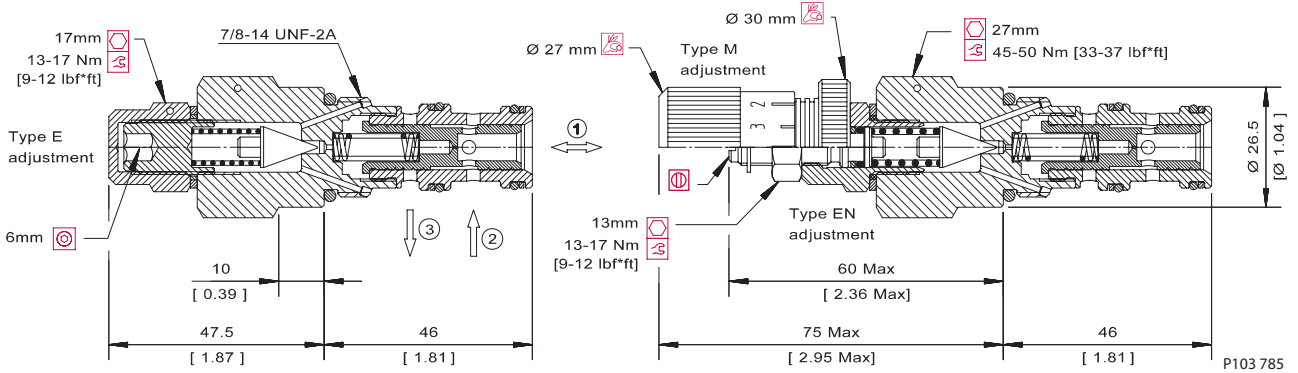
Specifications

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
6S = 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

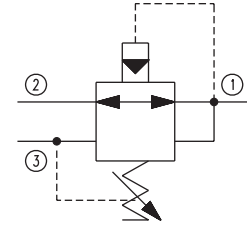
Pressure Reducing, Relieving

CP231-3

OPERATION

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

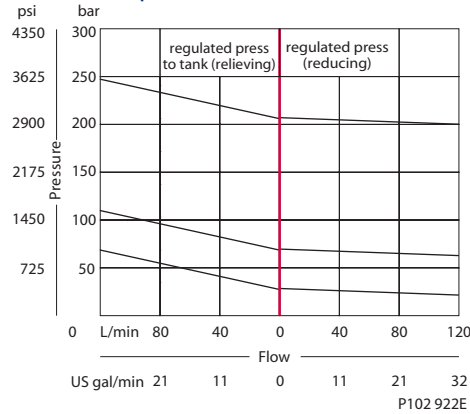
Schematic



P103 230

SPECIFICATIONS

Theoretical performance



P102 922E

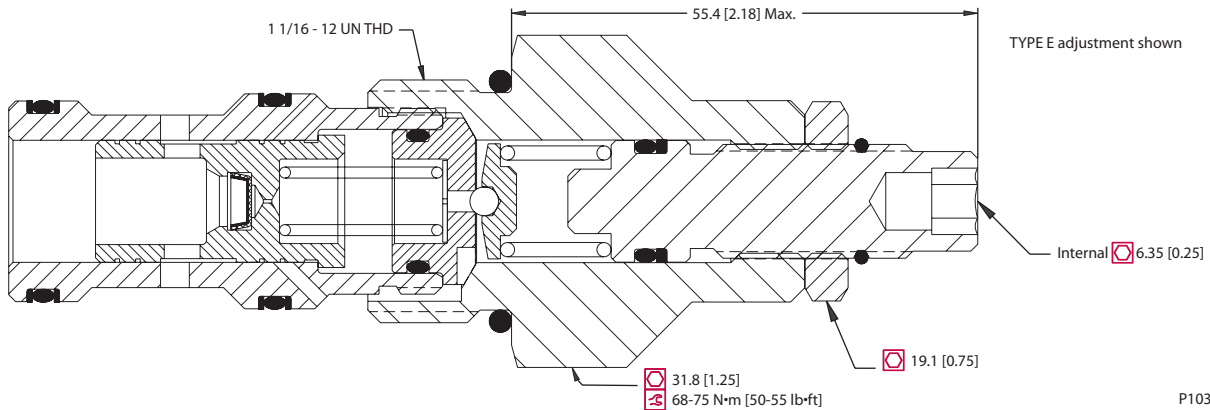
Specifications

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

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

P102 622E

Pressure reducing valves
CP231-3



Cartridge Valves Technical Information

Pressure Reducing Valves

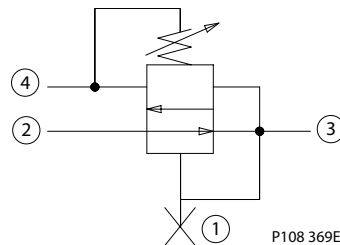
Pressure Reducing, Relieving

PRR10-DRD

OPERATION

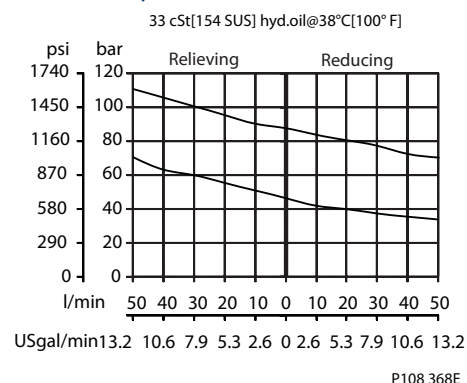
This is a pilot-operated pressure reducing/relieving valve.

Schematic



SPECIFICATIONS

Theoretical performance



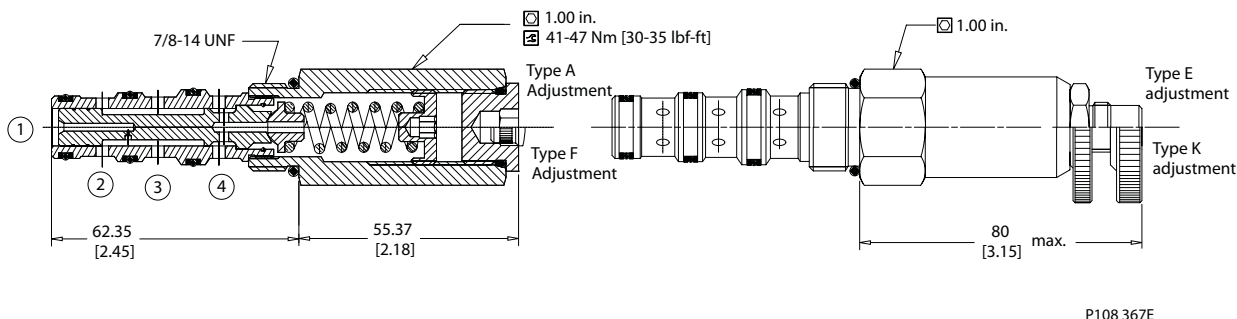
Specifications

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



ORDERING INFORMATION

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

<p>Pressure Range</p> <p>1 = 4-27 bar [50-400 psi] Standard Setting 21 bar [300 psi]</p> <p>2 = 5-55 bar [70-800 psi] Standard Setting 35 bar [500 psi]</p> <p>3 = 7-96 bar [100-1400 psi] Standard Setting 69 bar [1000 psi]</p> <p>4 = 35-165 bar [500-2400 psi] Standard Setting 104 bar [1500 psi]</p>	<p>Adjustment Type</p> <p>A = Internal E = External F = Tamper Resistant K = Knob</p>	<p>Housing and ports</p> <p>00 = No Housing DG3B = Al, 3/8 BSP DG4B = Al, 1/2 BSP 6S = Al, #6 SAE 8S = Al, #8 SAE</p>	<p>Housing Part #</p> <p>No Housing CP10-4-3B CP10-4-4B CP10-4-6S CP10-4-8S</p>
		<p>Seals</p> <p>B = Buna-N V = Viton</p>	<p>Seal Kit</p> <p>120023 120024</p>
		<p>Pressure Setting</p> <p>104 = 104 bar [1500 psi] XXX = Standard Setting</p>	

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