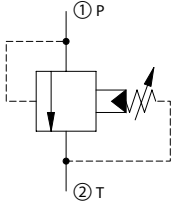
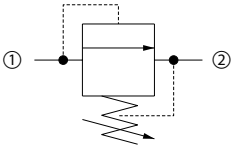
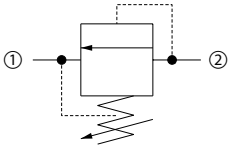
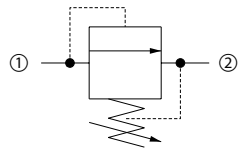


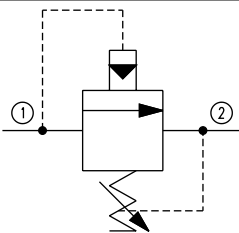
Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	RV10-POP	SDC10-2	Pilot-operated poppet relief valve	120 l/min [32 US gal/min]	250 bar [3625 psi]	04.6

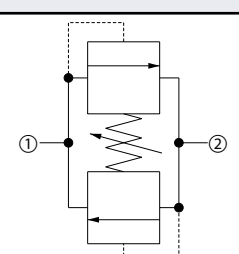
Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP208-4	SDC08-2	Relief valve (direct acting poppet)	1.1 l/min [0.3 US gal/min]	415 bar [6000 psi]	04.7
	VEN 06	NCS06/2		40 l/min [11 US gal/min]	315 bar [4500 psi]	04.8
	RV08-DR	SDC08-2		30 l/min [8 US gal/min]	250 bar [3600 psi]	04.9
	CP208-3	SDC08-2		30 l/min [8 US gal/min]	250 bar [3600 psi]	04.10
	CP200-3	SDC10-2		40 l/min [11 US gal/min]	250 bar [3600 psi]	04.11
	VME 06	VME06		40 l/min [11 US gal/min]	315 bar [4500 psi]	04.12
	VME 07	VME07		50 l/min [13 US gal/min]	315 bar [4500 psi]	04.13
	VME 08	VME08		80 l/min [21 US gal/min]	315 bar [4500 psi]	04.14

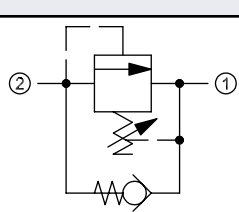
Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP208-1	SDC08-2	Relief valve (differential area poppet)	40 l/min [11 US gal/min]	250 bar [3600 psi]	04.15
	CP200-2	SDC10-2		40 l/min [11 US gal/min]	350 bar [5000 psi]	04.16
	CP200-1	SDC10-2		75 l/min [20 US gal/min]	250 bar [3600 psi]	04.17
	CP201-1	CP12-2		150 l/min [40 US gal/min]	250 bar [3600 psi]	04.18

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

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP210-1	SDC10-2	Relief valve (direct acting spool)	45 l/min [12 US gal/min]	210 bar [3000 psi]	04.19
	CP211-1	CP12-2		75 l/min [20 US gal/min]	40 bar [600 psi]	04.20

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	RPP 06	NCS06/2	Relief valve (pilot operated spool)	100 l/min [26 US gal/min]	315 bar [4500 psi]	04.21
	CP210-2	SDC10-2		115 l/min [30 US gal/min]	350 bar [5000 psi]	04.22
	CP211-2	CP12-2		190 l/min [50 US gal/min]	350 bar [5000 psi]	04.23

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP200-7	SDC10-2	Relief valve (bi-directional poppet)	40 l/min [11 US gal/min]	250 bar [3600 psi]	04.24

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	VSB 06-EN	NCS06/2	Relief valve (free reverse flow)	80 l/min [21 US gal/min]	350 bar [5000 psi]	04.25
	VSB 12-EN	NCS12/2		140 l/min [37 US gal/min]	350 bar [5000 psi]	04.26

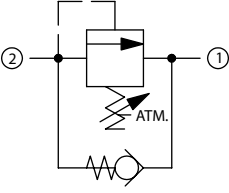
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

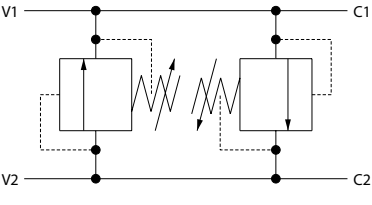


Cartridge Valves Technical Information

Relief valves

Quick reference

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	VSB 06-CN	NCS06/2	Relief valve (free reverse flow, atmospheric vent)	80 l/min [21 US gal/min]	350 bar [5000 psi]	04.27
	VSB 12-CN	NCS12/2		140 l/min [37 US gal/min]	350 bar [5000 psi]	04.28

Symbol	Model No.	Cavity	Description	Flow*	Pressure	Page
	VA-E06	none	Relief valve (cross-over)	40 l/min [11 US gal/min]	210 bar [3045 psi]	04.29
	CP220-1	none		75 l/min [20 US gal/min]	250 bar [3600 psi]	04.30
	CP221-1	none		190 l/min [50 US gal/min]	250 bar [3600 psi]	04.31

* 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

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

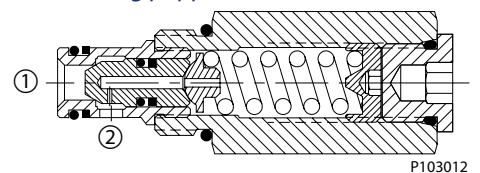


F102 012

OPERATION

Direct-acting poppet

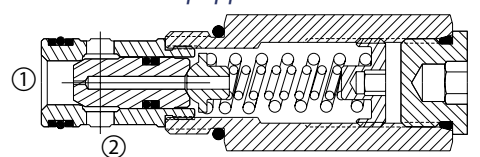
The direct-acting poppet blocks flow from ① to ② until sufficient pressure is present at ① to force the spring-opposed poppet from its seat. This pressure is commonly known as the crack pressure. The valve will remain open until the pressure drops to a level allowing the spring to close the valve. This 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

P103012

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

P103013

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

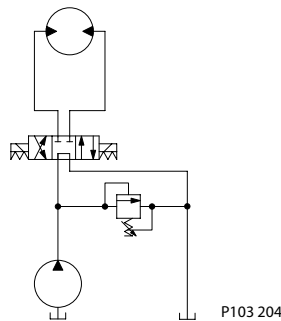
Application notes

OPERATION (continued)

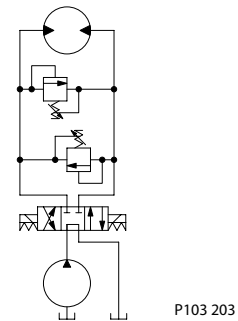
Because of these features some common applications for direct-acting and differential area poppet relief valves are:

- 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



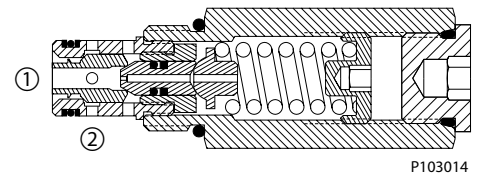
Work Port Cross-Relief Valves



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

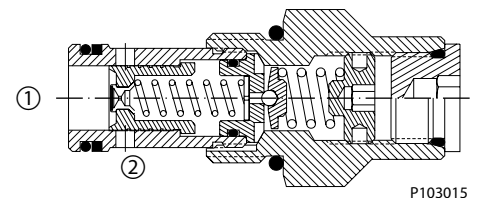


A common application for a bi-directional relief valve is as a work port cross-over relief where one bi-directional valve can replace two direct-acting valves.

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

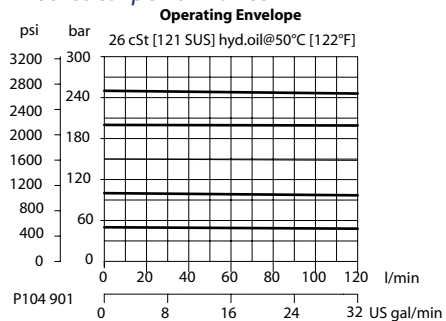
Relief valves RV10-POP

OPERATION

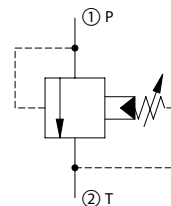
This is a pilot-operated poppet relief valve.

SPECIFICATIONS

Theoretical performance



Schematic



P104 899

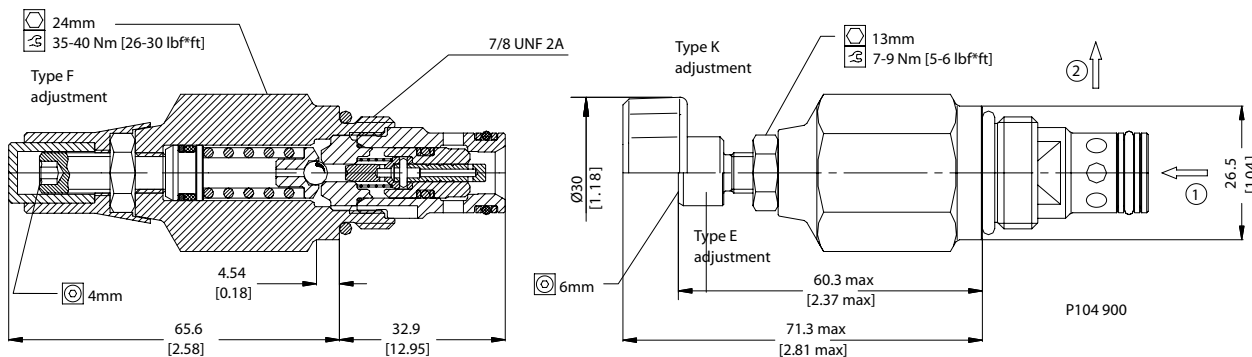
Specifications

Rated pressure	250 bar [3625 psi]
Rated flow at 7 bar [100 psi]	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

mm [in]

Cross-sectional view



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

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

P104 902

Relief valves
RV10-POP



Cartridge Valves Technical Information

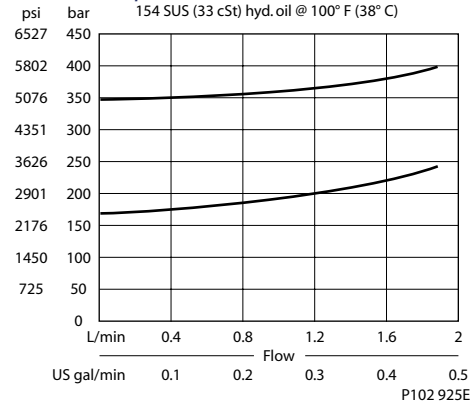
Relief valves CP208-4

OPERATION

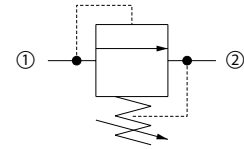
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

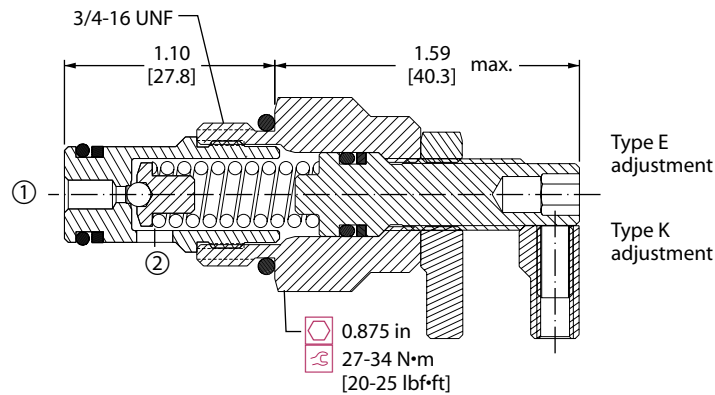
Specifications

Rated pressure	415 bar [6000 psi]
Rated flow at 7 bar [100 psi]	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

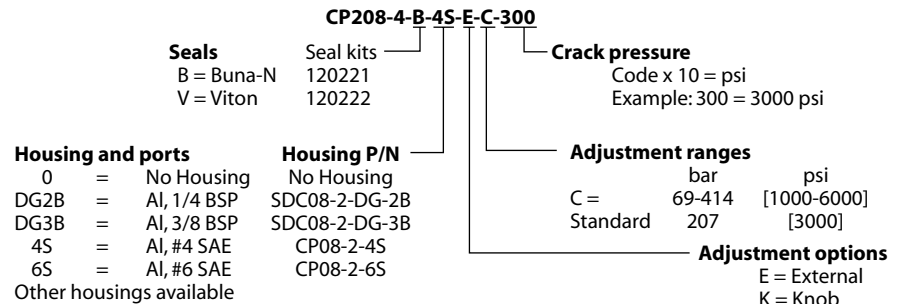
mm [in]

Cross-sectional view



P102 612E

ORDERING INFORMATION



P102 614E



Cartridge Valves Technical Information

Relief valves

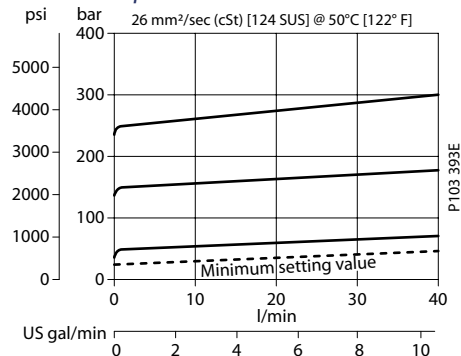
VEN 06

OPERATION

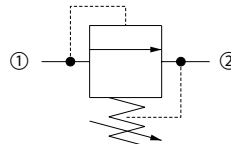
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

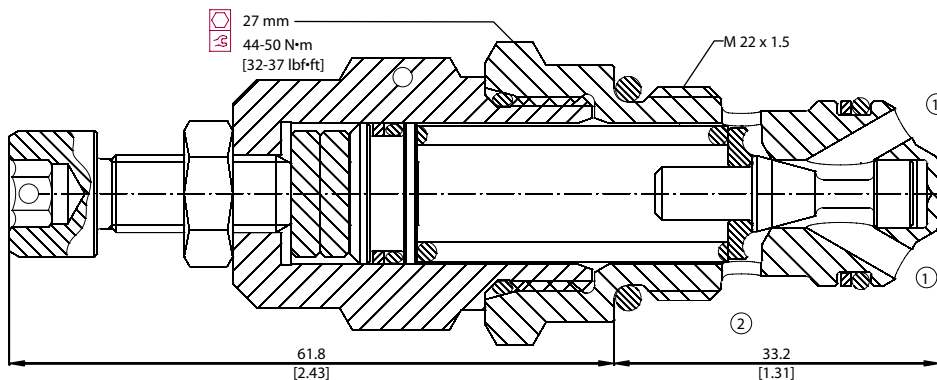
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.20 kg [0.44 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 392

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 NCS06/2-DG-3/8
DG1/2 = AL, 1/2 BSP NCS06/2-DG-1/2
DG6S = AL, #6 SAE NCS06/2-DG-6S
DG8S = AL, #8 SAE NCS06/2-DG-8S
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 394E

Relief valves
VEN 06



Cartridge Valves Technical Information

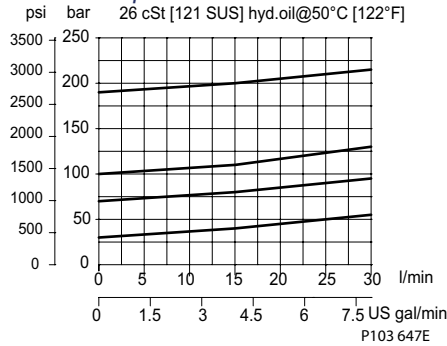
Relief valves RV08-DR

OPERATION

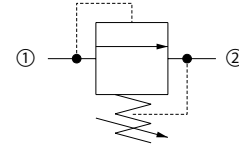
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

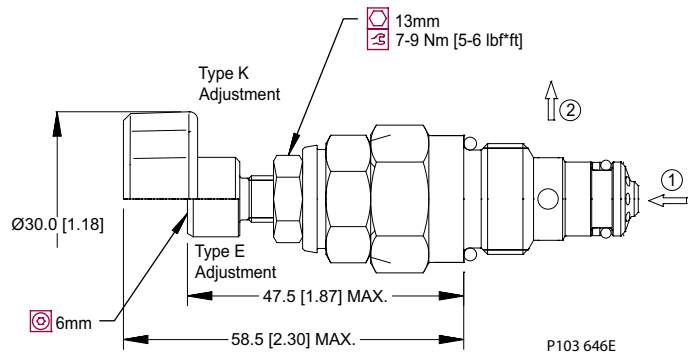
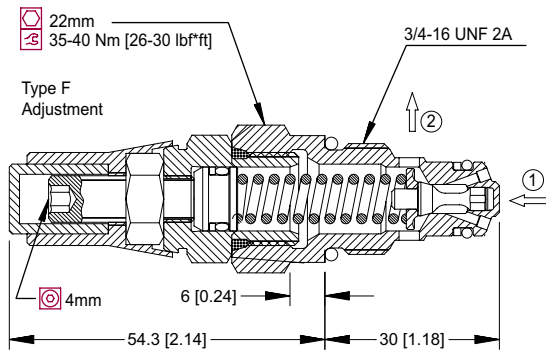
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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		Housing and ports
1 = 20-80 Bar [290-1150 psi]		00 = No Housing
2 = 35-160 Bar [500-2300 psi]		DG2B = Al, 1/4 BSP
3 = 60-250 Bar [870-3600 psi]		DG3B = Al, 3/8 BSP
		4S = Al, #4 SAE
		6S = Al, #6 SAE
		Other housings available
Adjustment option		Seals
E = External		B = Buna-N
F = Tamper resistant		V = Viton
K = Knob		Seal Kit
		B = Buna-N 35400011
		V = Viton 35400021
Crack pressure		Housing P/N
Code = Setting in Bar		No Housing
XXX = No specific setting		SDC08-2-DG-2B
		SDC08-2-DG-3B
		CP08-2-4S
		CP08-2-6S

P103 648E

Relief valves
RV08-DR



Cartridge Valves Technical Information

Relief valves

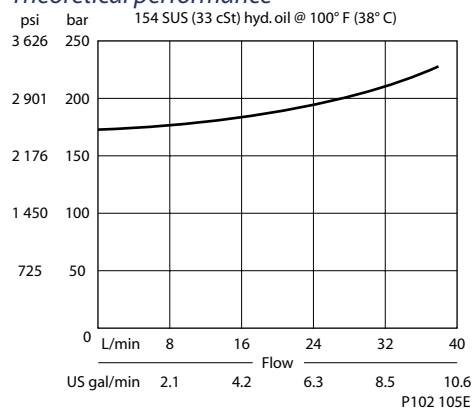
CP208-3

OPERATION

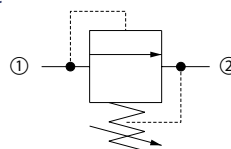
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

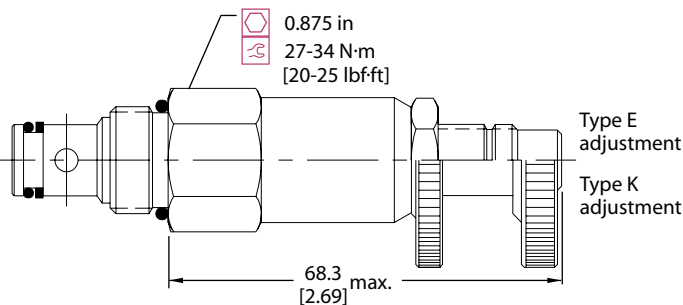
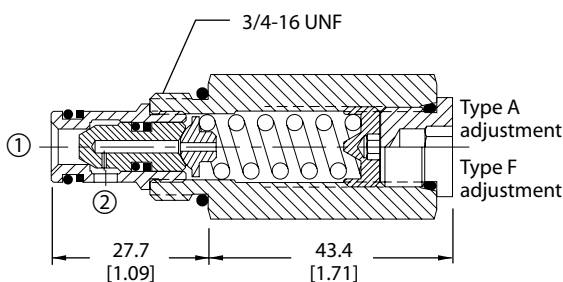
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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



P102 104E

ORDERING INFORMATION

Seals
 B = Buna-N
 V = Viton

Housing and ports
 0 = No Housing
 DG2B = Al, 1/4 BSP
 DG3B = Al, 3/8 BSP
 45 = Al, #4 SAE
 65 = 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
 CP08-2-45
 CP08-2-65

CP208-3-B-65-A-C-150

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

Pressure range

Code	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 107E



Cartridge Valves Technical Information

Relief valves

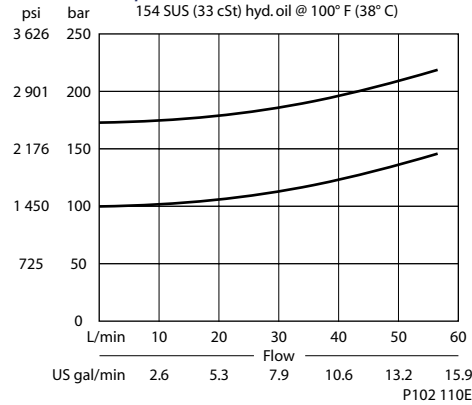
CP200-3

OPERATION

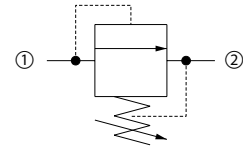
This is a direct-acting poppet type relief valves that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

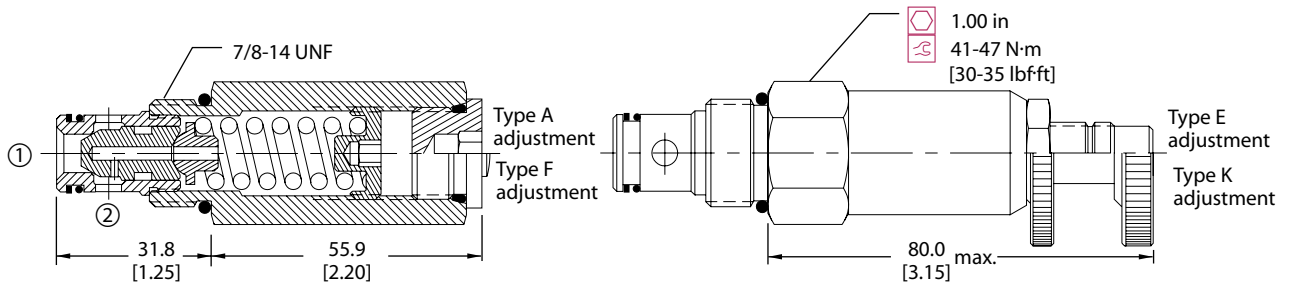
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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



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

P102 111E

Relief valves
CP200-3



Cartridge Valves Technical Information

Relief valves

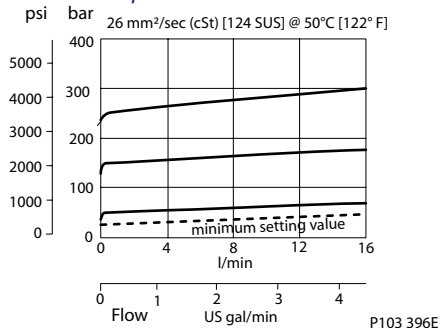
VME 06

OPERATION

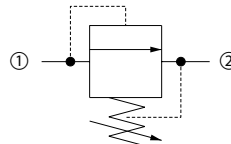
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

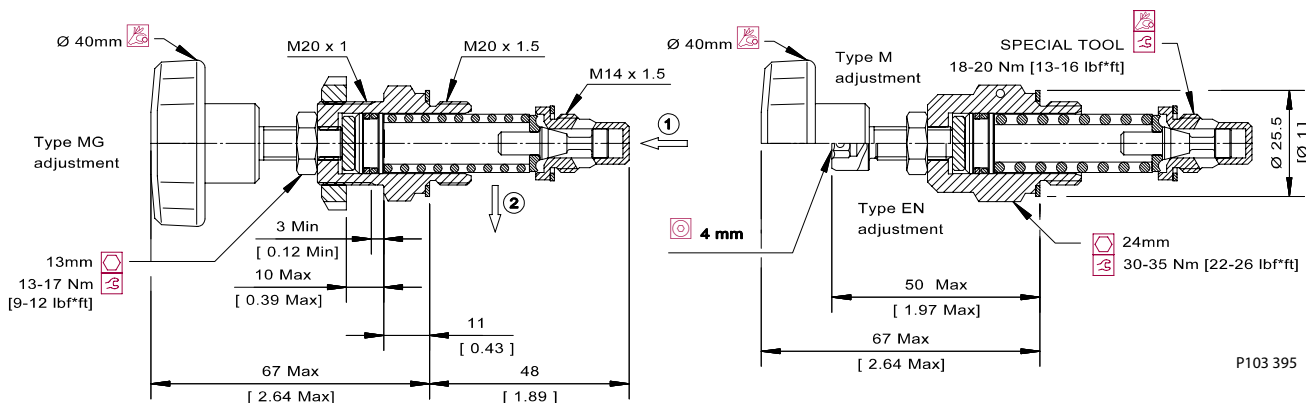
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	40 l/min [11 US gal/min]
Weight	0.13 kg [0.29 lb]
Cavity	VME06

DIMENSIONS

mm [in]

Cross-sectional view



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]

Housing and ports

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

Seals
V = Viton seals
Omit = Buna-N

Housing P/N

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

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

P103 397E

Relief valves
VME 06



Cartridge Valves Technical Information

Relief valves

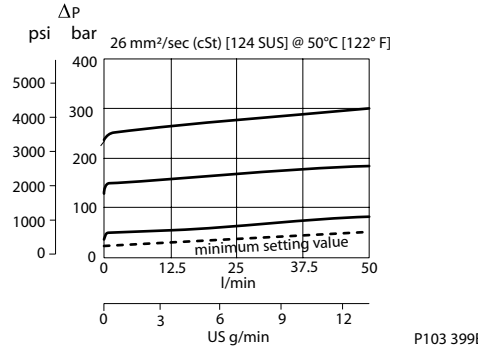
VME 07

OPERATION

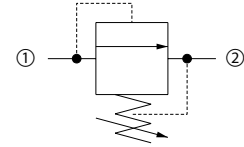
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

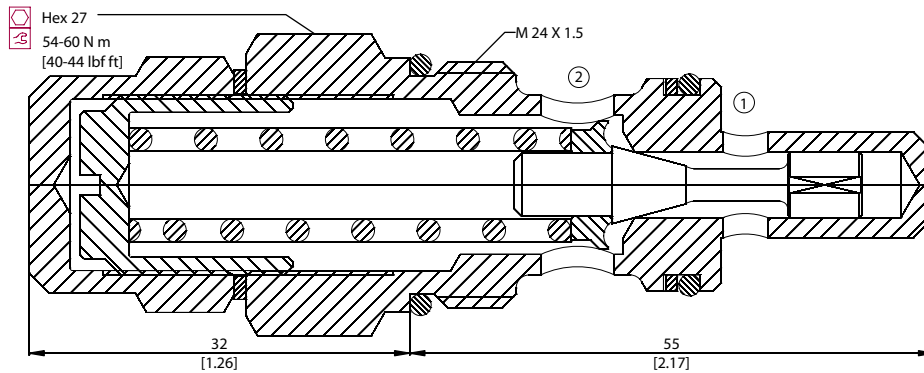
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	50 l/min [13 US gal/min]
Weight	0.20 kg [0.44 lb]
Cavity	VME07

DIMENSIONS

mm [in]

Cross-sectional view



P103 398

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

Relief valves
VME 07



Cartridge Valves Technical Information

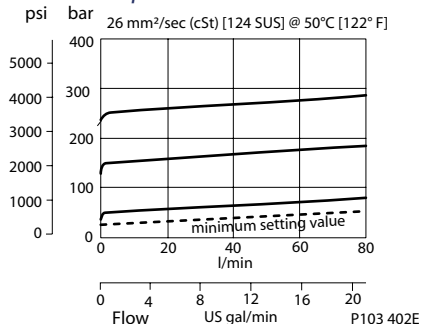
Relief valves VME 08

OPERATION

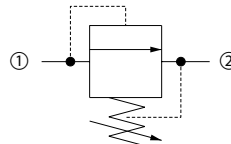
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

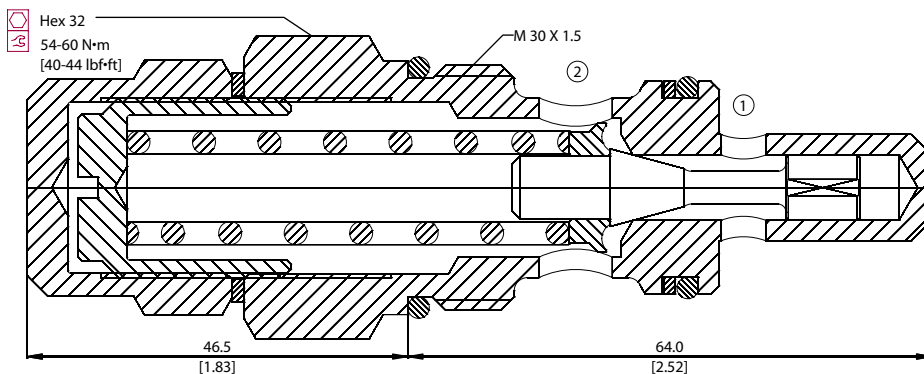
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	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

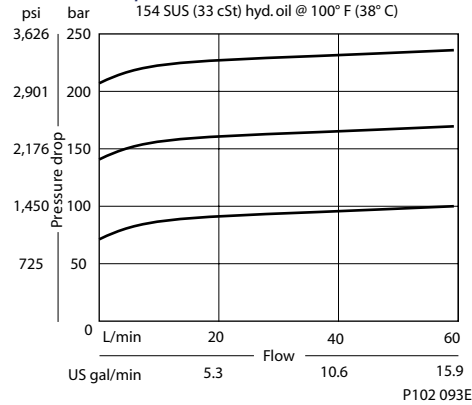
CP208-1

OPERATION

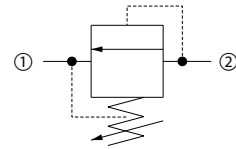
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

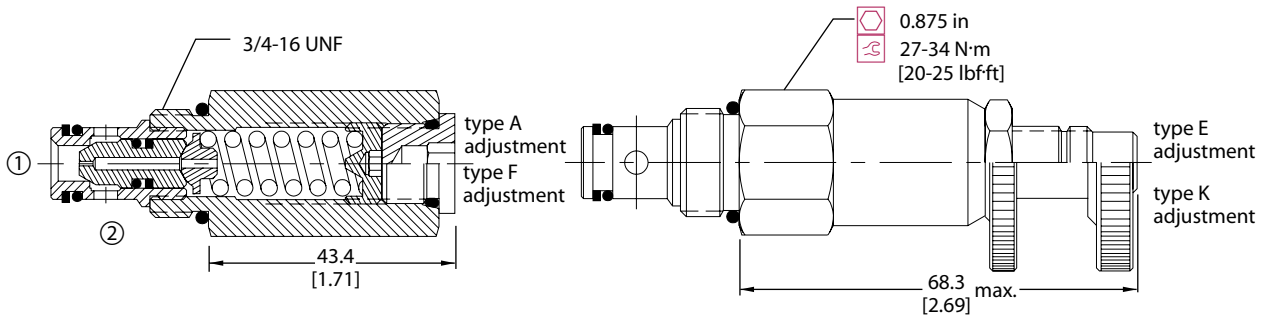
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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

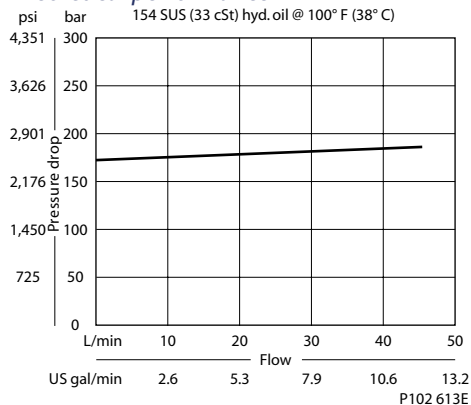
Relief valves CP200-2

OPERATION

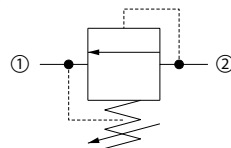
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

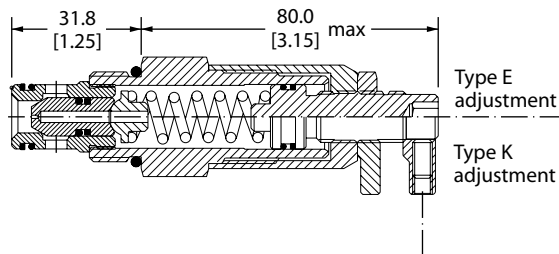
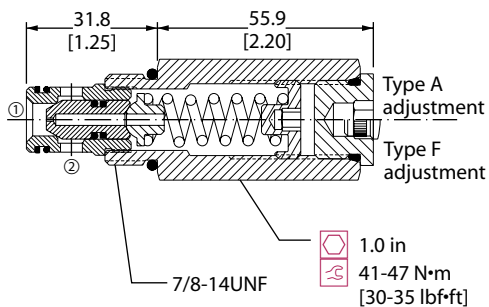
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	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

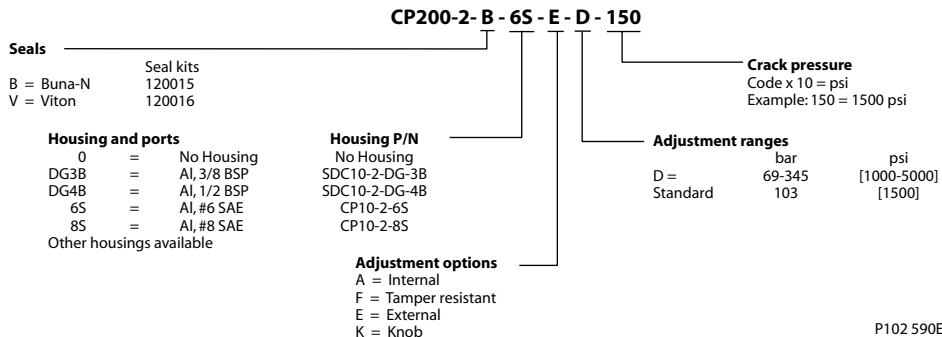
mm [in]

Cross-sectional view



P102 589E

ORDERING INFORMATION





Cartridge Valves Technical Information

Relief valves

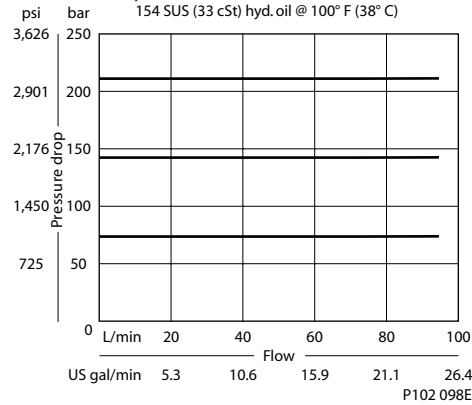
CP200-1

OPERATION

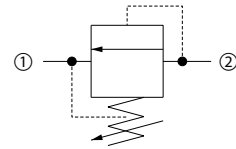
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

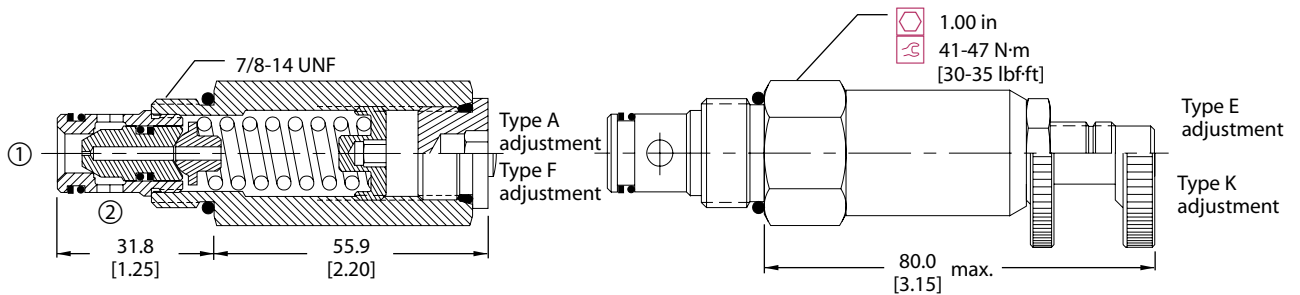
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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



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**
A = 7-55 bar [100-800] [psi]
Standard 28 [400]
B = 17-138 bar [250-2000] [psi]
Standard 69 [1000]
C = 41-248 bar [600-3600] [psi]
Standard 103 [1500]

P102 099E

Relief valves
CP200-1



Cartridge Valves Technical Information

Relief valves

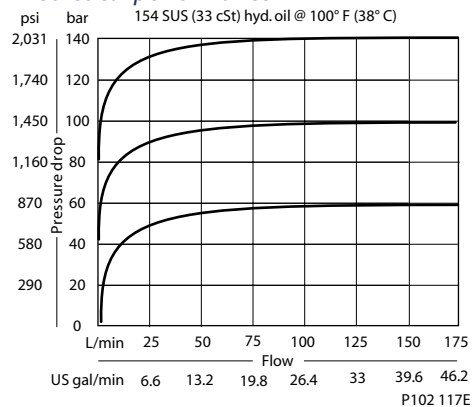
CP201-1

OPERATION

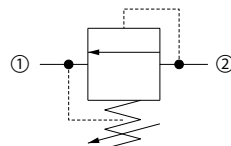
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

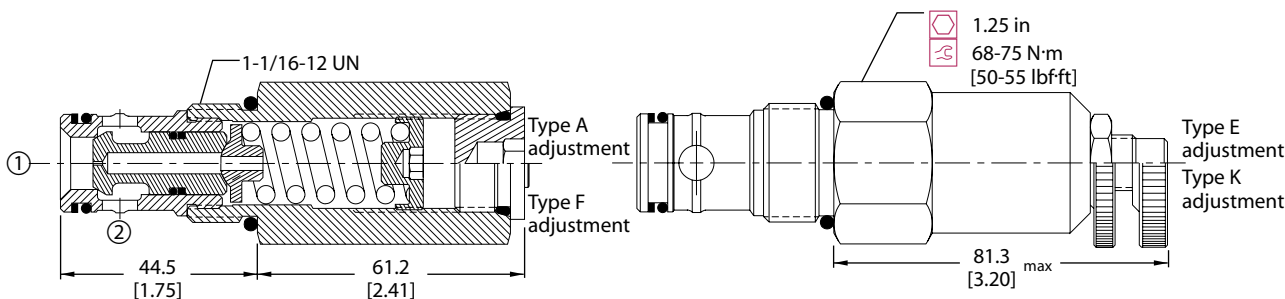
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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

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

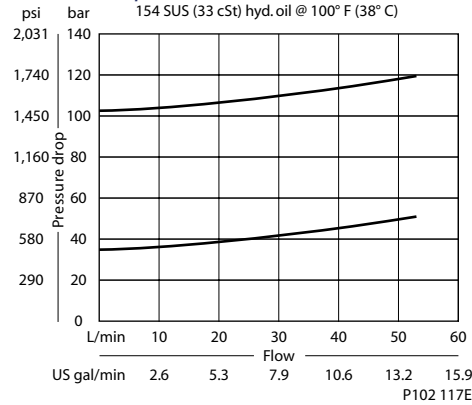
CP210-1

OPERATION

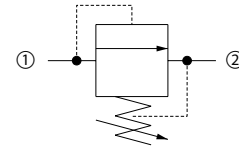
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

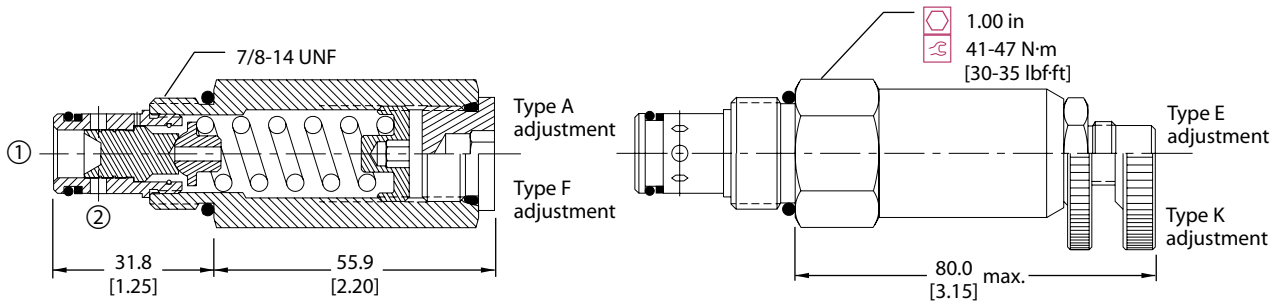
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	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

CP210 - 1 - B - 6S - A - C - 075

Seals	Seal kit	Housing P/N	Crack pressure
B = Buna-N	120015	No Housing	Code x 10 = psi
V = Viton	120016	SDC10-2-DG-3B	Example: 075 = 750 psi
Housing and ports		SDC10-2-DG-4B	Pressure range
0 = No Housing		CP10-2-6S	A = 3.4-28 [psi]
DG3B = Al, 3/8 BSP		CP10-2-8S	Standard 17 [50-400]
DG4B = Al, 1/2 BSP			B = 5.5-55 [80-800]
6S = Al, #6 SAE			Standard 28 [400]
8S = Al, #8 SAE			C = 6.9-97 [100-1400]
Other housings available			Standard 52 [750]
Adjustment option			D = 34-166 [500-2400]
A = Internal			Standard 103 [1500]
E = External			
F = Tamper resistant			
K = Knob			

P102 119E

Relief valves
CP210-1



Cartridge Valves Technical Information

Relief valves

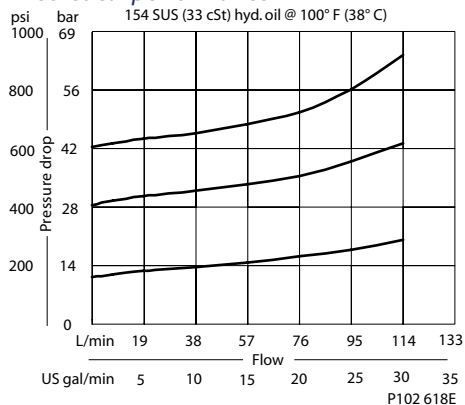
CP211-1

OPERATION

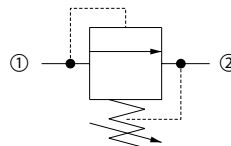
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

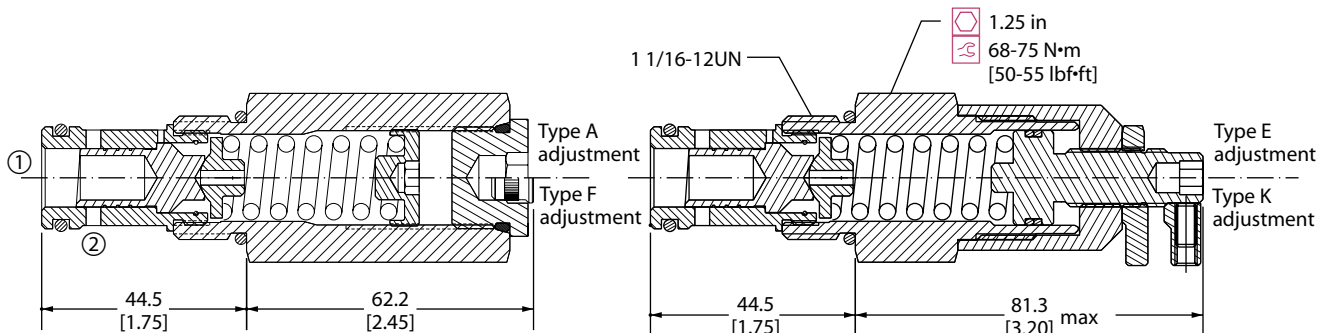
Specifications

Rated pressure	40 bar [600 psi]
Rated flow at 7 bar [100 psi]	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]

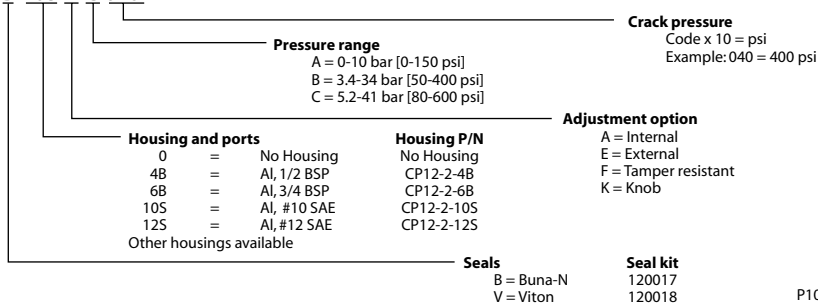
Cross-sectional view



P102 616E

ORDERING INFORMATION

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



P102 617E



Cartridge Valves Technical Information

Relief valves

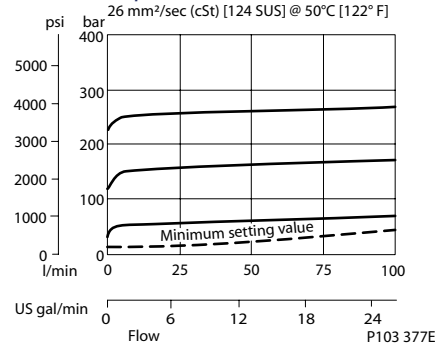
RPP 06

OPERATION

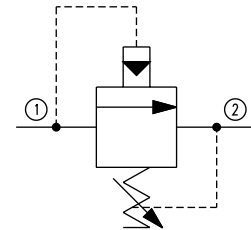
This is a pilot-operated, spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 629

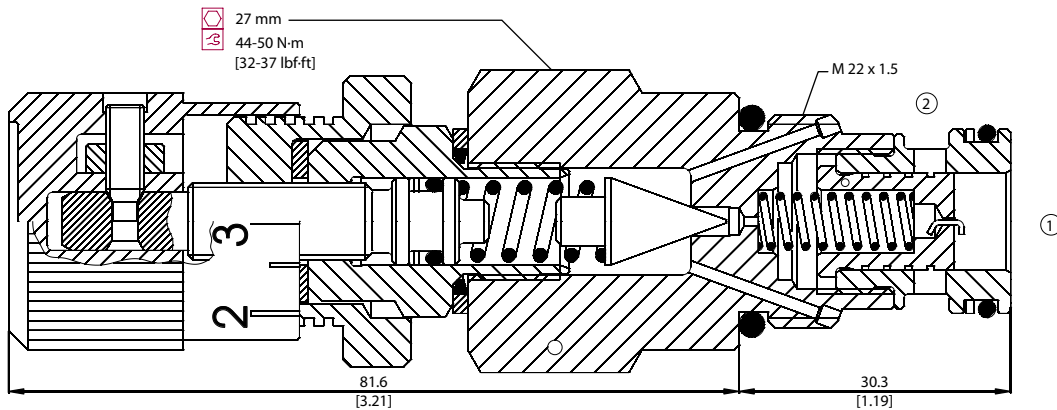
Specifications

Rated pressure	315 bar [4500 psi]
Rated flow at 7 bar [100 psi]	100 l/min [26 US gal/min]
Weight	0.27 kg [0.60 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 376

ORDERING INFORMATION

RPP 06 - EN - 1 - 00 - V - XXX

Type of adjustment

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

Setting range

- 1 = 10 - 70 bar [145 - 1015 psi]
- 2 = 30 - 170 bar [435 - 2466 psi]
- 3 = 70 - 315 bar [1015 - 4569 psi]

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

Seals

- V = Viton
- Omit = Buna-N

Seal Kit

Consult factory
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

P103 378E



Cartridge Valves Technical Information

Relief valves

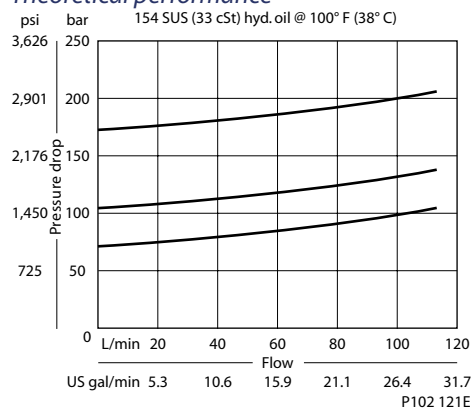
CP210-2

OPERATION

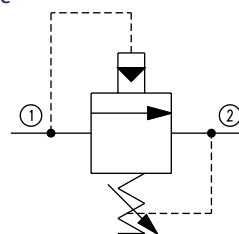
This is a pilot operated pool type relief valve that relieves pressure from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 629

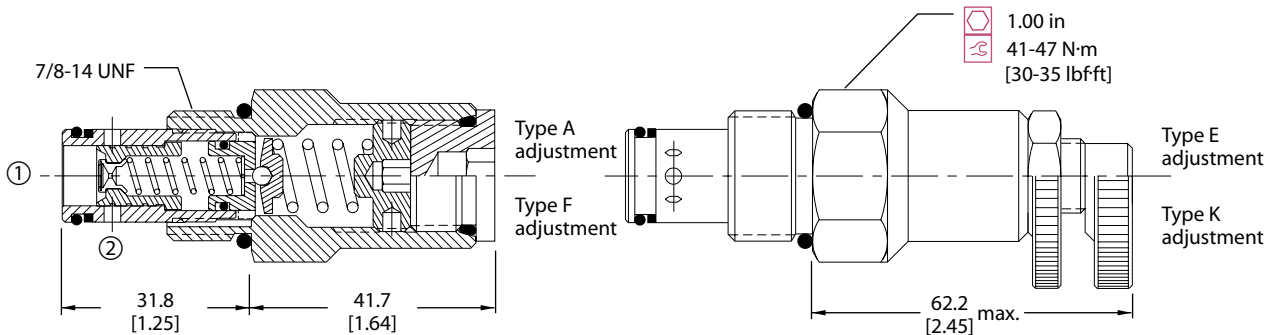
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	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

mm [in]

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

P102 123E



Cartridge Valves Technical Information

Relief valves

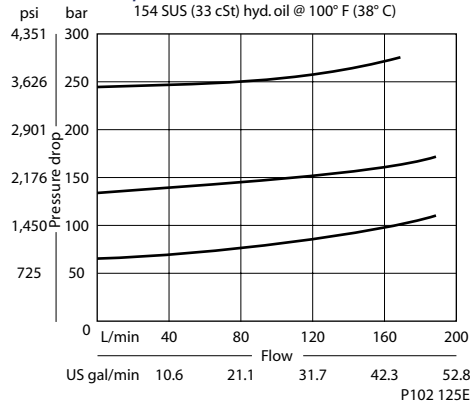
CP211-2

OPERATION

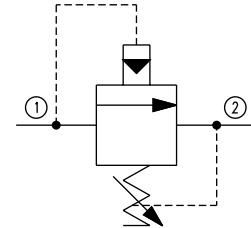
This valve relieves from 1 to 2 and is a pilot operated spool type relief.

SPECIFICATIONS

Theoretical performance



Schematic



P102 629

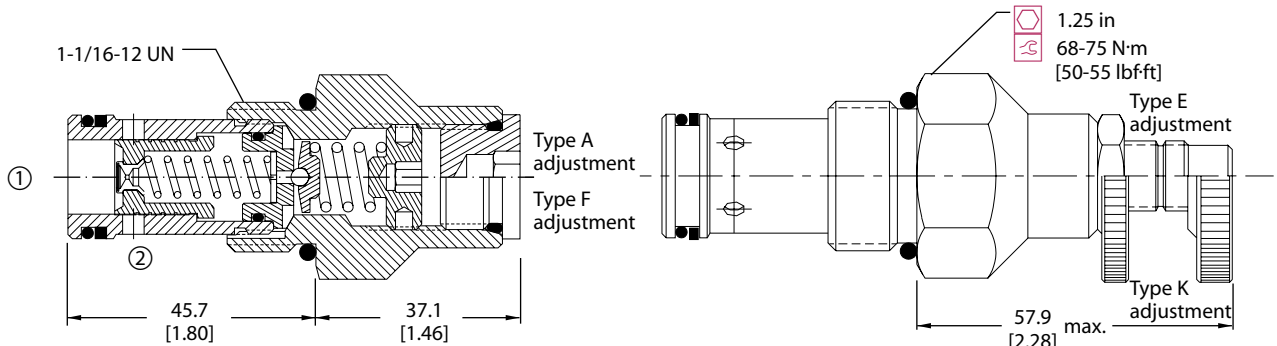
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	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

mm [in]

Cross-sectional view



P102 124E

ORDERING INFORMATION

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

- 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
- Crack pressure**
 - Code x 10 = psi
 - Example: 150 = 1500 psi
- Pressure range**

Option	bar	[psi]
A = Standard	14-69	[200-800]
B = Standard	28	[400]
C = Standard	14-103	[300-1500]
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 127E

Relief valves
CP211-2



Cartridge Valves Technical Information

Relief valves

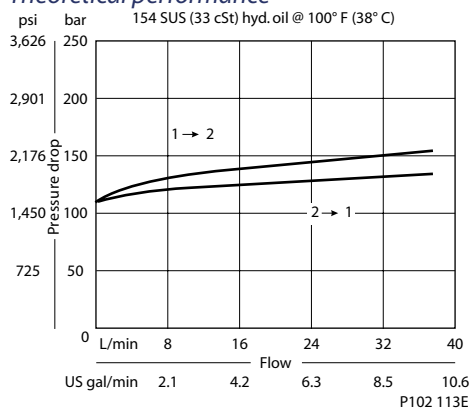
CP200-7

OPERATION

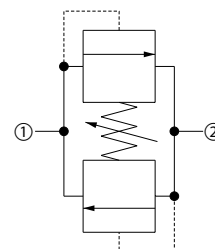
This valve relieves pressure from 1 to 2 and 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



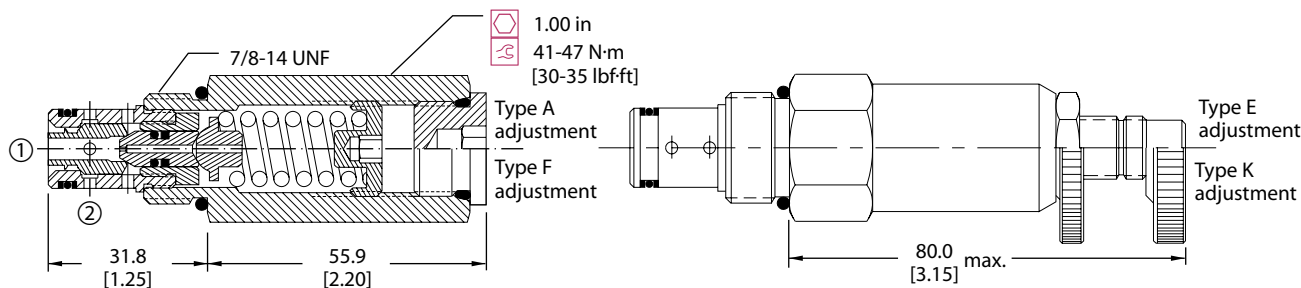
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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

mm [in]

Cross-sectional view



P102 112E

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]
DG3B = Al, 3/8 BSP		SDC10-2-DG-3B		Standard = 28	[100-600]
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



Cartridge Valves Technical Information

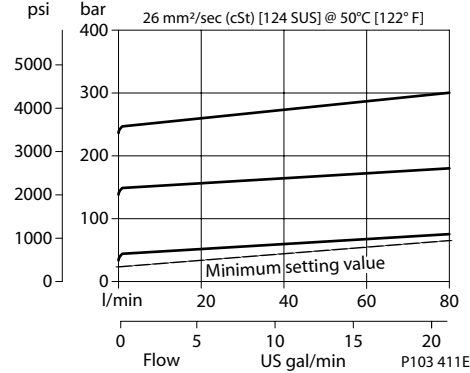
Relief valves VSB 06-EN

OPERATION

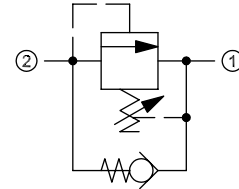
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P103 524

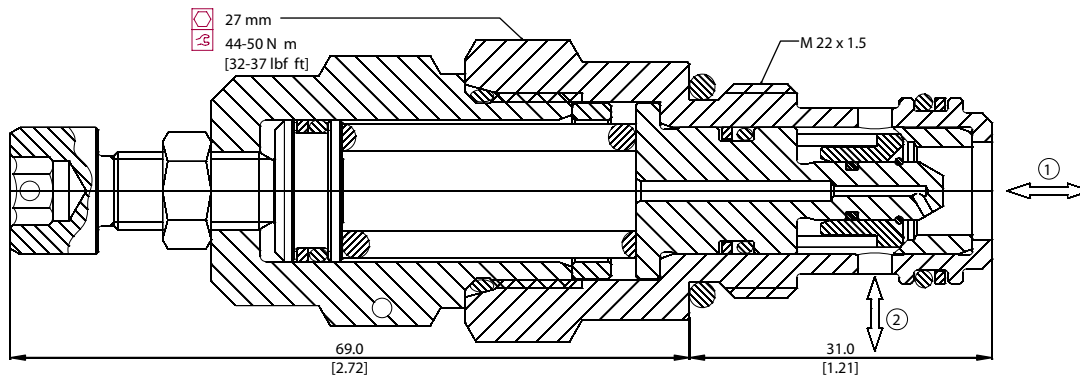
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	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]	Seals V = Viton Omit = Buna-N	Seal Kit 230000380 230000060
	2 = 70 - 210 bar [1015 - 3046 psi]		
	3 = 105 - 350 bar [1523 - 5076 psi]	Housing and ports	Housing P/N
		00 = No Housing	No Housing
		DG3/8 = AL, 3/8 BSP	NCS06/2-DG-3/8
		DG1/2 = AL, 1/2 BSP	NCS06/2-DG-1/2
		DG6S = AL, #6 SAE	NCS06/2-DG-6S
		DG8S = AL, #8 SAE	NCS06/2-DG-8S
		Other housings available	

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

P103 414E

Relief valves
VSB 06-EN



Cartridge Valves Technical Information

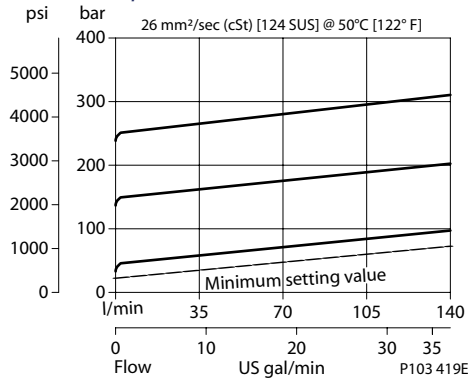
Relief valves VSB 12-EN

OPERATION

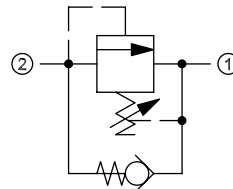
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P103 524

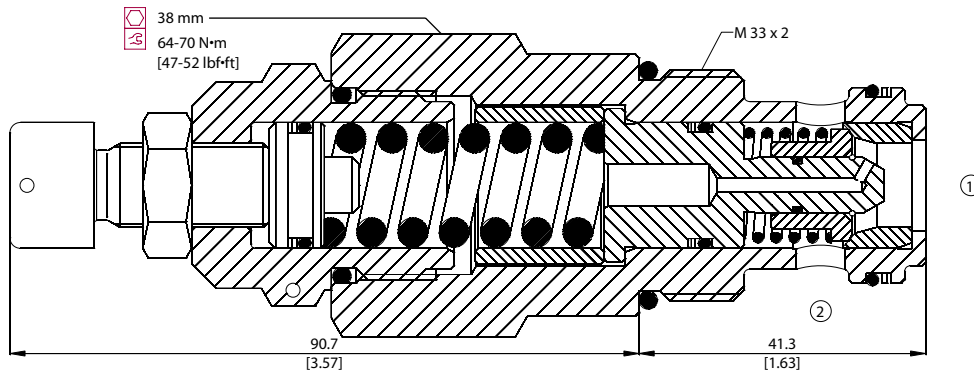
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	140 l/min [37 US gal/min]
Weight	0.60 kg [1.32 lb]
Cavity	NCS12/2

DIMENSIONS

mm [in]

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 230000470
 Omit = Buna-N 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

- Seal Kit**
 230000470
 230000120
- 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

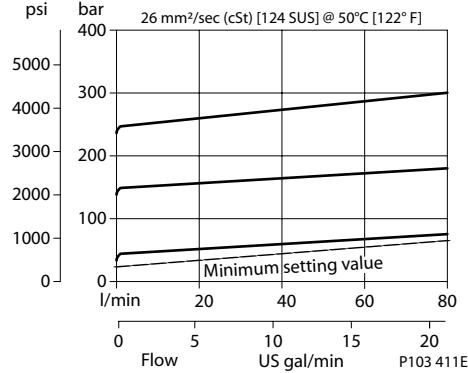
Relief valves VSB 06-CN

OPERATION

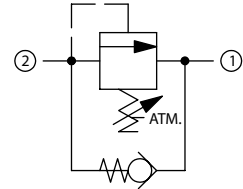
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P1

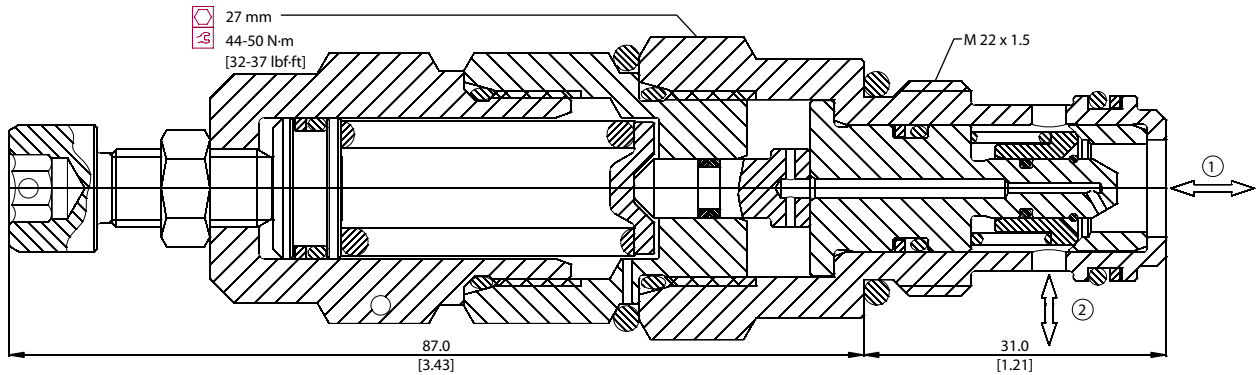
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	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

Setting range

- 1 = 25 - 140 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
 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

P103 412E

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

Relief valves
VSB 06-CN



Cartridge Valves Technical Information

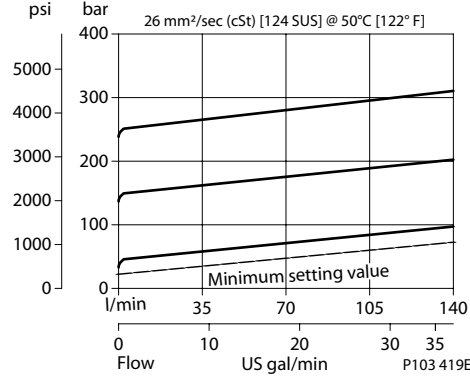
Relief valves VSB 12-CN

OPERATION

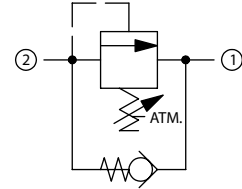
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P1

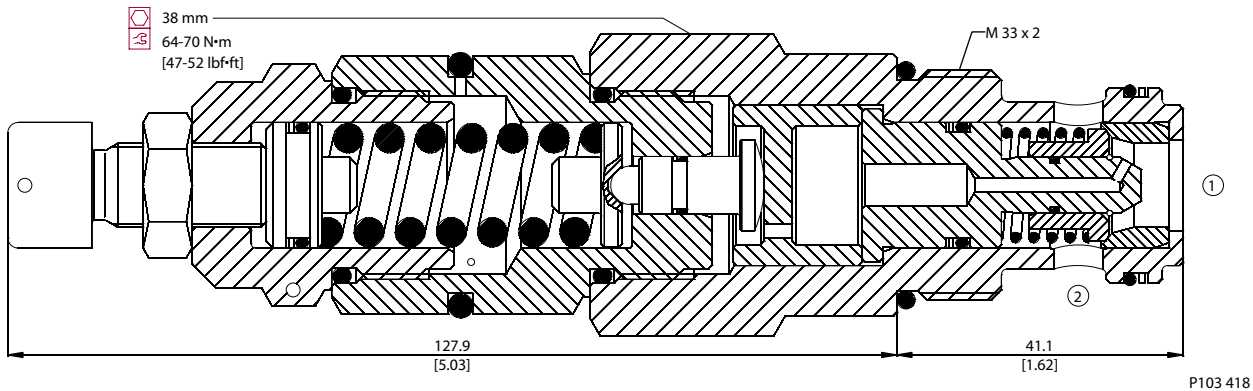
Specifications

Rated pressure	350 bar [5000 psi]
Rated flow at 7 bar [100 psi]	140 l/min [37 US gal/min]
Weight	0.75 kg [1.65 lb]
Cavity	NCS12/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 418

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]

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

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 420E



Cartridge Valves Technical Information

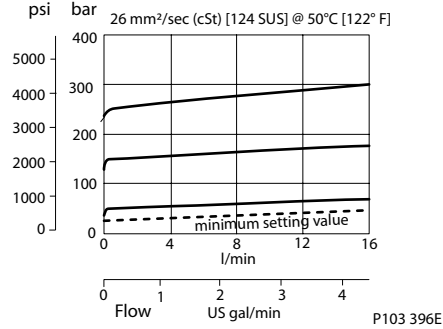
Relief valves VA-E06

OPERATION

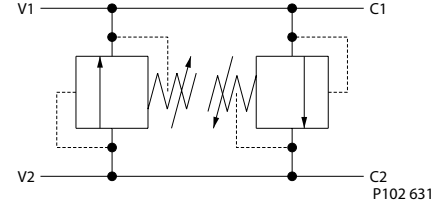
This valve is an inline cross relief. It uses two VME 06 direct-acting relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



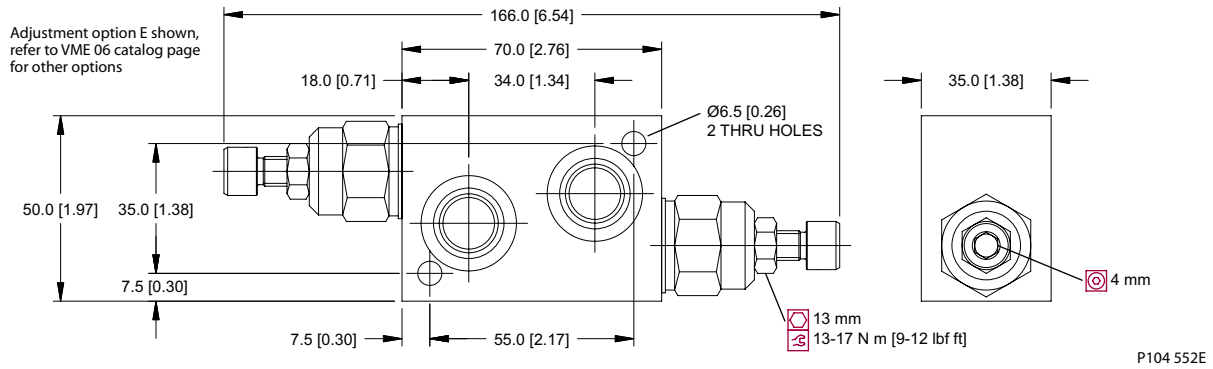
Specifications

Rated pressure	210 bar [3045 psi]
Rated flow at 7 bar [102 psi]	40 l/min [11 US gal/min]
Weight	1.11 kg [2.45 lb]
Cavity	none

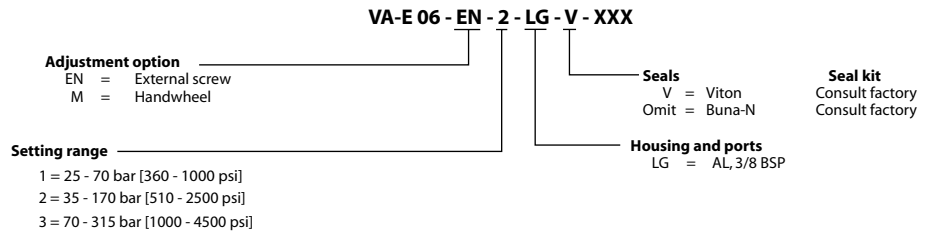
DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION



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

P104 553E



Cartridge Valves Technical Information

Relief valves

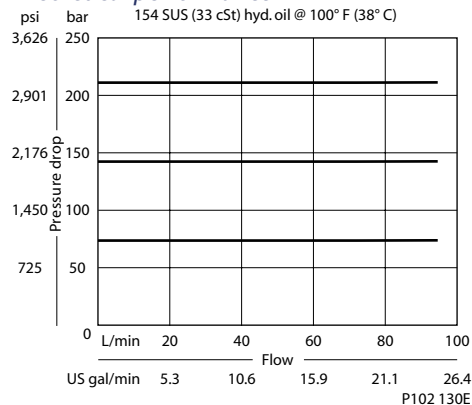
CP220-1

OPERATION

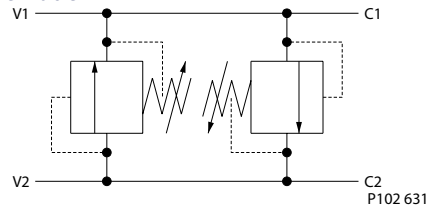
This valve is an inline cross relief. It uses two CP200-1 differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



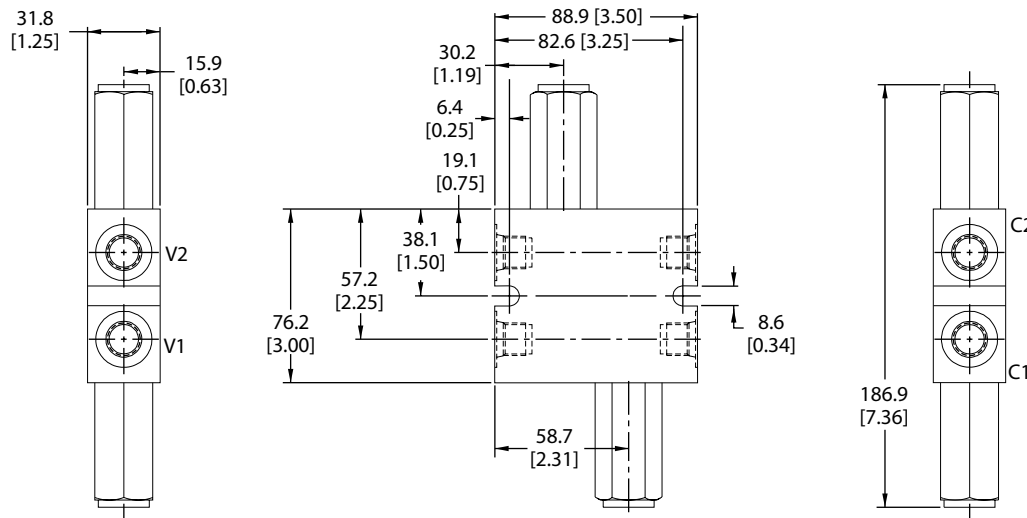
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	75 l/min [20 US gal/min]
Weight	0.82 kg [1.80 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 129

ORDERING INFORMATION

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

Housing and ports

3B	=	Al, 3/8 BSP	221743
4B	=	Al, 1/2 BSP	221744
6S	=	Al, #6 SAE	220216
8S	=	Al, #8 SAE	220217

Other housings available

Housing P/N

221743
221744
220216
220217

Seals

B	=	Buna-N
V	=	Viton

Seal kit

120072
120161

Adjustment option

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

Crack pressure

Code x 10 = psi
Example: 150 = 1500 psi

Pressure range

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

P102 131E



Cartridge Valves Technical Information

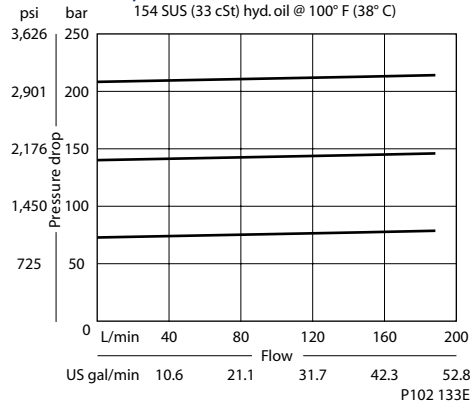
Relief valves CP221-1

OPERATION

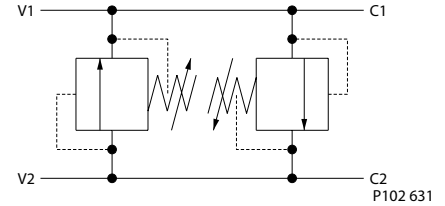
This valve is an inline cross relief. It uses two CP201-1 type differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



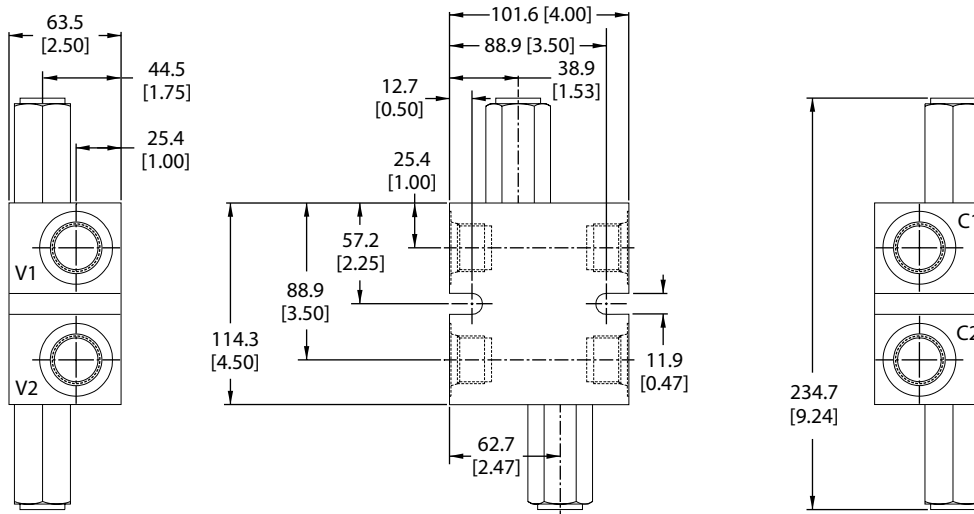
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow at 7 bar [100 psi]	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

Relief valves

Notes