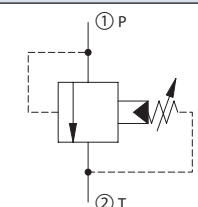
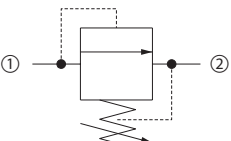
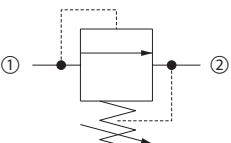
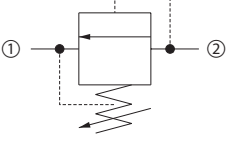


Thermal Relief	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP208-4	SDC08-2	Relief Valve, Thermal Relief, Poppet Type	1.1 l/min [0.3 US gal/ min]	415 bar [6000 psi]	04.6

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		40 l/min [11 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, Dampening, 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

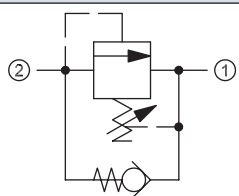
Differential Area	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP200-2	SDC10-2	Relief Valve, Differential Area, Poppet Type,	40 l/min [11 US gal/min]	350 bar [5000 psi]	04.14
	CP208-1	SDC08-2		40 l/min [11 US gal/min]	250 bar [3600 psi]	04.15
	CP200-1	SDC10-2		75 l/min [20 US gal/min]	250 bar [3600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

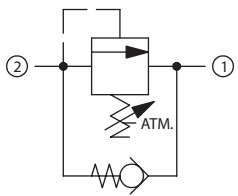
Direct Acting	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP210-1	SDC10-2	Relief Valve, Direct Acting,	45 l/min [12 US gal/min]	210 bar [3000 psi]	04.18
	CP211-1	CP12-2	Spool Type,	75 l/min [20 US gal/min]	40 bar [600 psi]	04.19

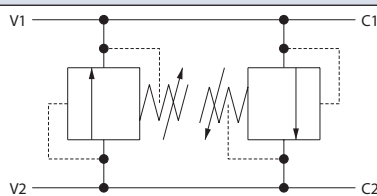
Pilot Operated	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP210-2	SDC10-2	Relief Valve, Pilot Operated,	115 l/min [30 US gal/min]	350 bar [5000 psi]	04.20
	CP211-2	CP12-2	Spool Type	190 l/min [50 US gal/min]	350 bar [5000 psi]	04.21

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

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, Catalog HIC	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

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



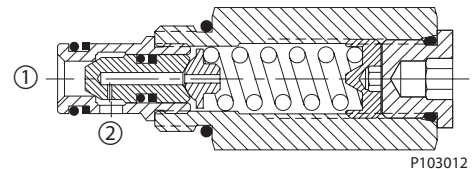
F102 012

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.

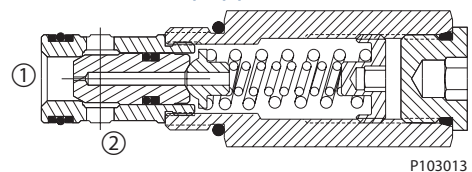
Direct acting poppet relief valve



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:

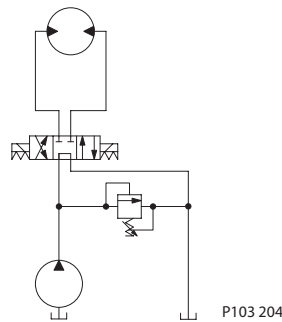
- Fast response
- Contamination tolerant
- Low leakage
- Low cost

**OPERATION
 (continued)**

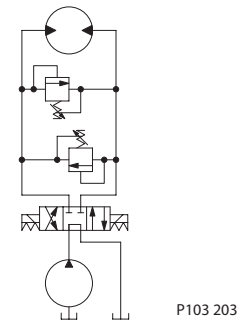
Because of these features some common applications for direct-acting and differential area poppet relief valves are:

- 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



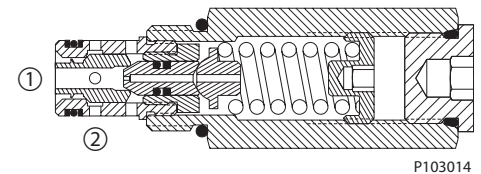
Work Port Cross-Relief Valves



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

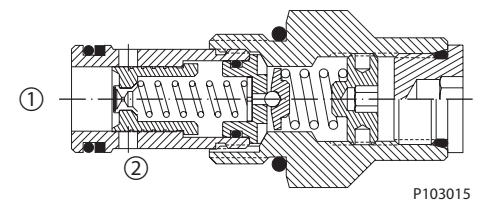


A common application for a bi-directional relief valve is as a work port cross-over relief where one bi-directional valve can replace two direct-acting valves.

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

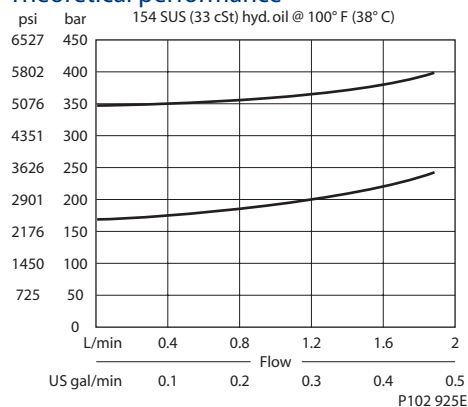
CP208-4

OPERATION

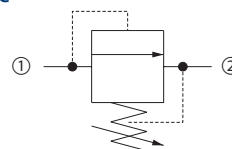
This is a direct-acting poppet type thermal relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

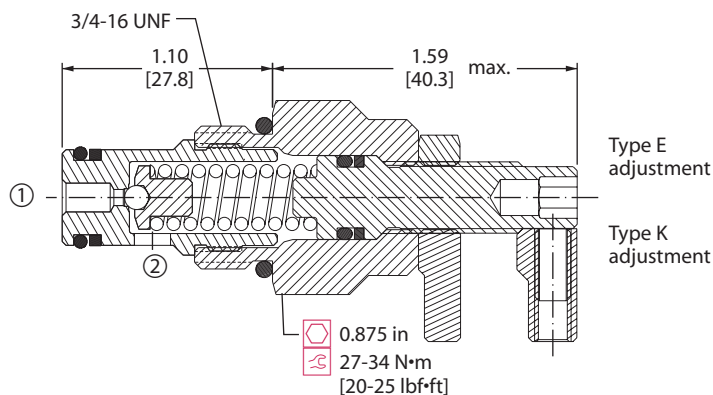
Specifications

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



P102 612E

ORDERING INFORMATION

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

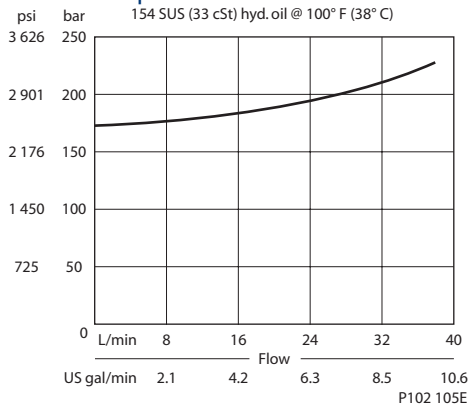
Seals	Seal kits	Crack pressure
B = Buna-N	120221	Code x 10 = psi
V = Viton	120222	Example: 300 = 3000 psi
Housing and ports	Housing P/N	Adjustment ranges
0 = No Housing	No Housing	bar psi
DG2B = Al, 1/4 BSP	SDC08-2-DG-2B	A = 2-103 [30-1500]
DG3B = Al, 3/8 BSP	SDC08-2-DG-3B	Standard 207 [1000]
4S = Al, #4 SAE	CP08-2-4S	B = 7-207 [100-3000]
6S = Al, #6 SAE	CP08-2-6S	Standard 103 [1500]
Other housings available		C = 69-414 [1000-6000]
		Standard 207 [3000]
		Adjustment options
		E = External
		K = Knob

OPERATION

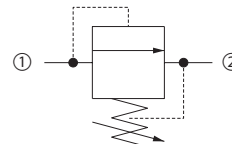
This is a direct-acting poppet type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

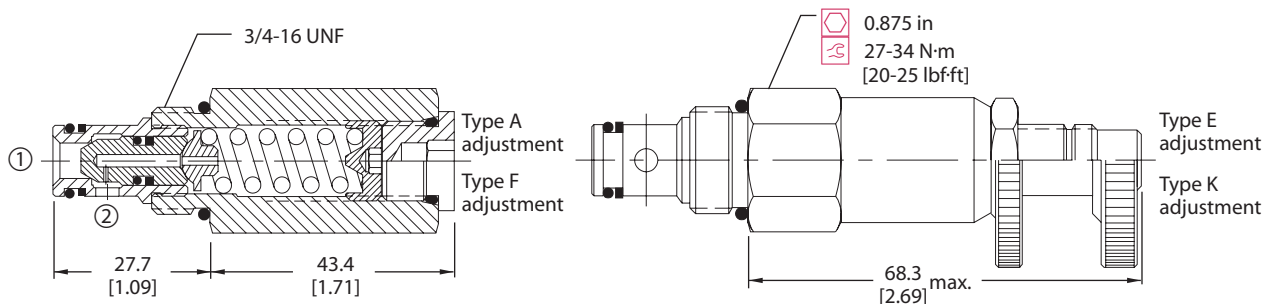
Specifications

Rated pressure	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



P102 104E

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]

P102 107E

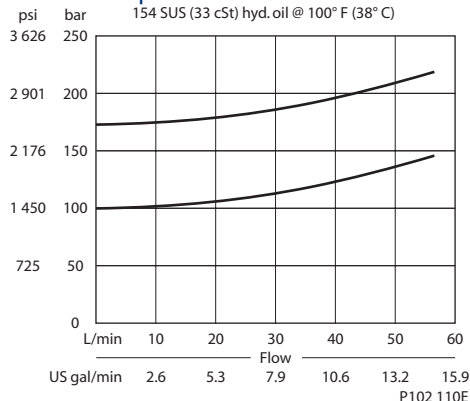
Relief valves
 CP208-3

OPERATION

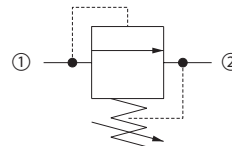
This is a direct-acting poppet type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

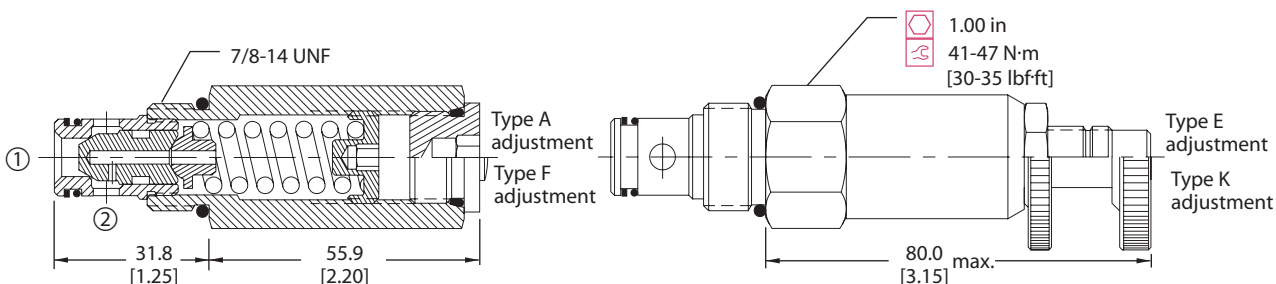
Specifications

Rated pressure	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



P102 108E

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**

	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]

P102 111E

Cartridge Valves Technical Information

Relief Valves

Direct Acting

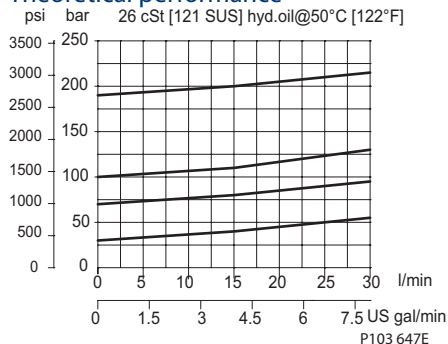
RV08-DR

OPERATION

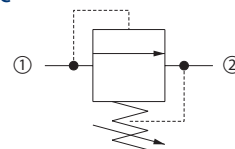
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



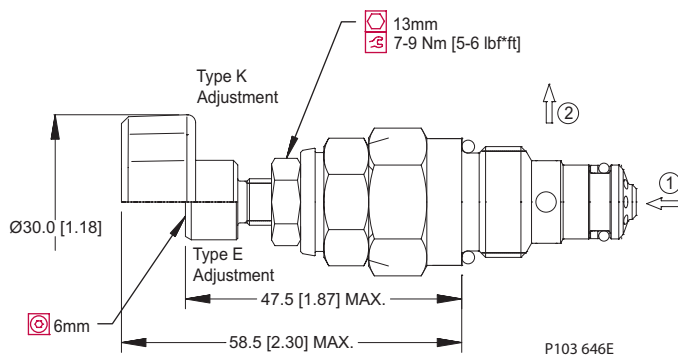
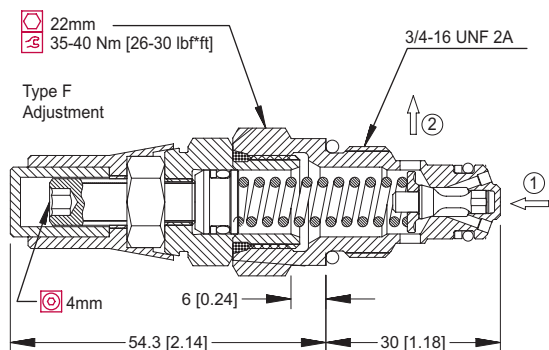
Specifications

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]

Adjustment option

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

Crack pressure

- Code = Setting in Bar
- XXX = No specific setting

Housing and ports

- 00 = 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

Seals

- B = Buna-N
- V = Viton

- Seal Kit
- 354000119
- 354000219

P103 648E

Cartridge Valves Technical Information

Relief Valves

Direct Acting

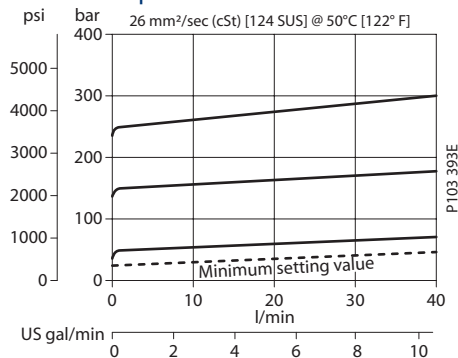
VEN 06

OPERATION

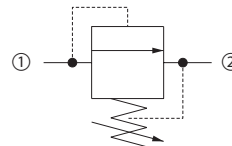
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

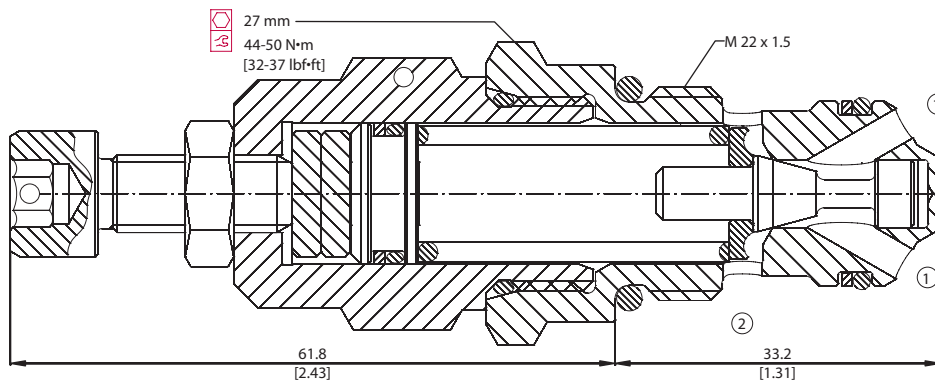
Specifications

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



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
Omit = Buna-N

Seal kit

230000380
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 Comatrol representative

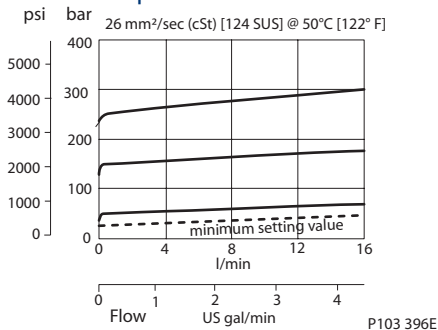
P103 394E

OPERATION

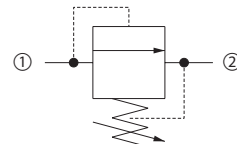
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

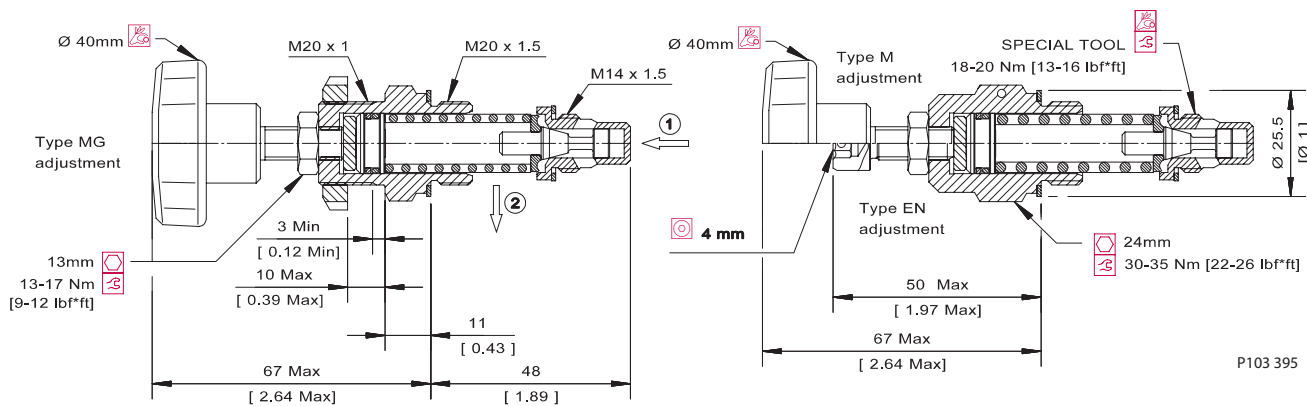
Specifications

Rated pressure	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



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 = AI, 3/8 BSP
- DG6S = AI, #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 Comatrol representative

P103 397E

Relief valves
VME 06

Cartridge Valves Technical Information

Relief Valves

Direct Acting

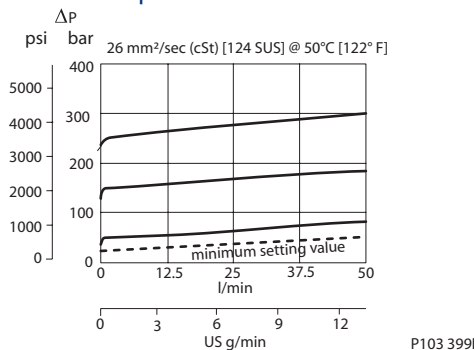
VME 07

OPERATION

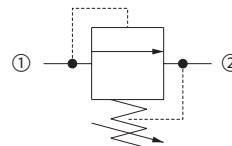
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

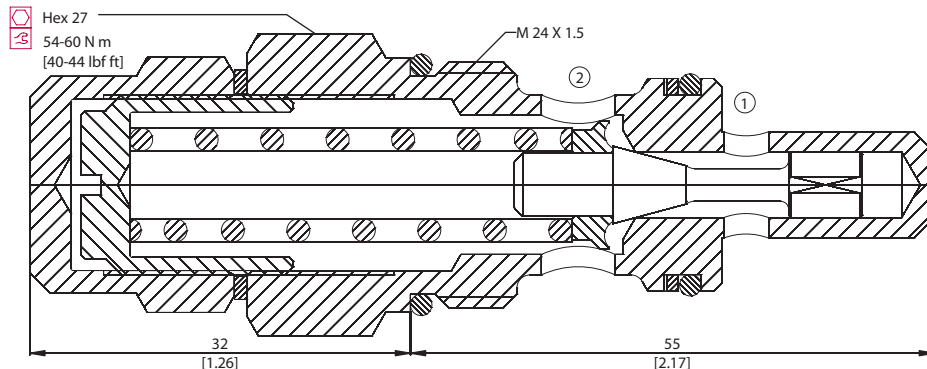
Specifications

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



P103 398

ORDERING INFORMATION

VME 07 - E - 2 - DG1/2 - V - XXX			
Adjustment	E = Internal screw M = Handwheel	Seals	V = Viton Omit = Buna-N
Setting range	1 = 25 - 80 bar [363-1160 psi] 2 = 35 - 180 bar [508-2611 psi] 3 = 70 - 315 bar [1015-4569 psi]	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
			Seal kit Consult factory Consult factory

To order this valve with a specific factory setting, contact your Comatrol representative.

P103 400E

Cartridge Valves Technical Information

Relief Valves

Direct Acting

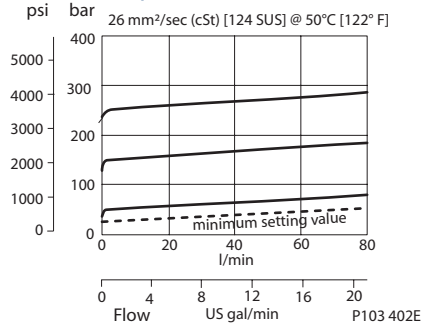
VME 08

OPERATION

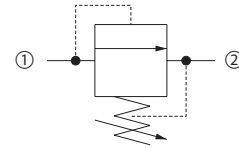
This is a direct-acting, poppet-type relief valve that relieves from 1 to 2. It features a highly damped poppet for smooth and stable response.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

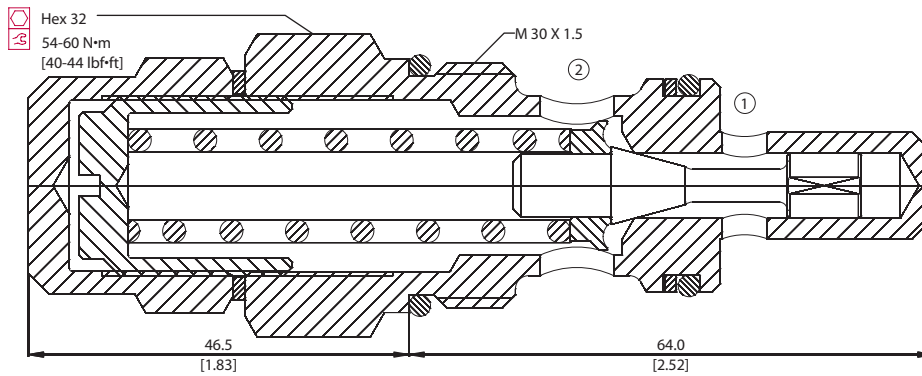
Specifications

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	Seals	Seal kit
E = Internal screw	V = Viton	Consult factory
M = Handwheel	Omit = Buna-N	Consult factory
Setting range	Housing and ports	Housing P/N
1 = 25 - 80 bar [363-1160 psi]	00 = No Housing	No Housing
2 = 35 - 160 bar [508-2321 psi]	DG3/4 = Al, 3/4 BSP	VME08-DG-3/4
3 = 70 - 315 bar [1015-4569 psi]	DG12S = Al, #12 SAE	VME08-DG-12S
	Other housings available	

To order this valve with a specific factory setting, contact your Comatrol representative

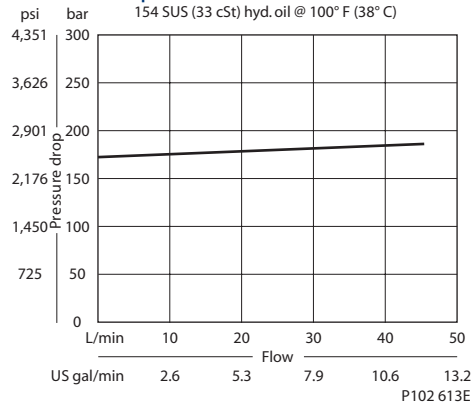
P103 403E

OPERATION

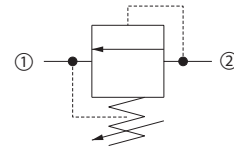
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

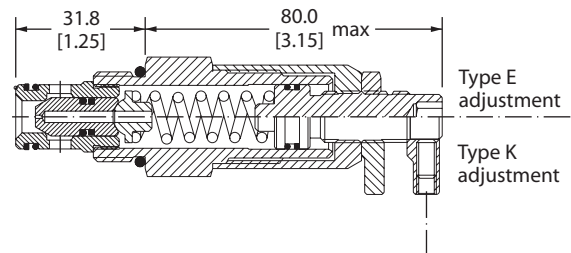
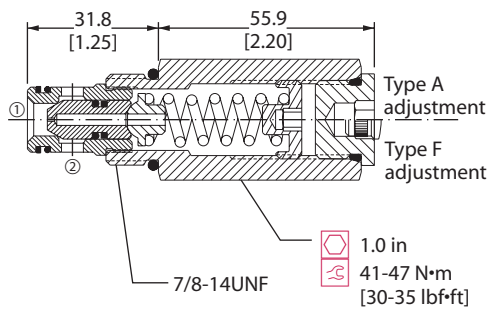
Specifications

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

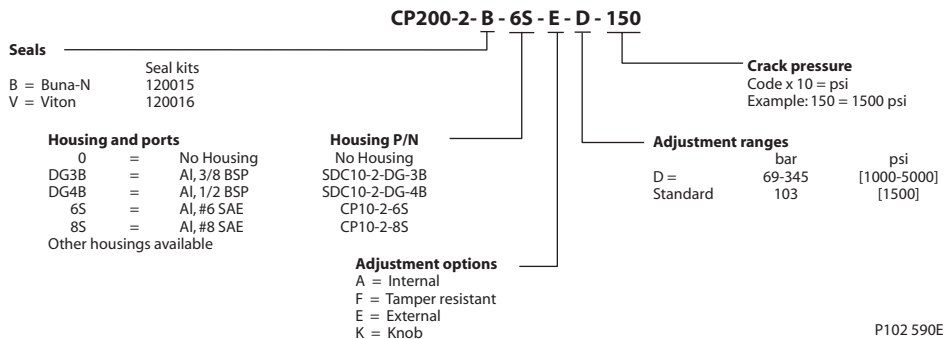
mm [in]

Cross-sectional view



P102 589E

ORDERING INFORMATION



Relief valves
 CP200-2

Cartridge Valves Technical Information

Relief Valves

Differential Area

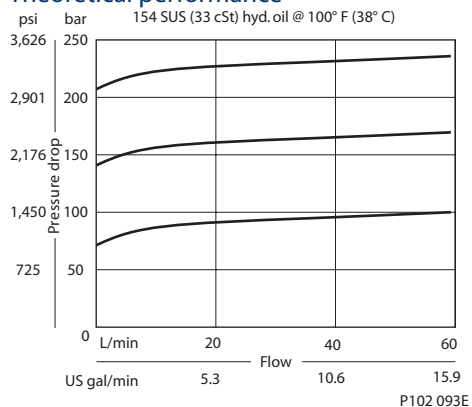
CP208-1

OPERATION

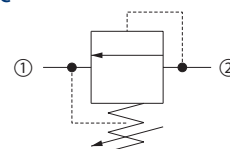
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

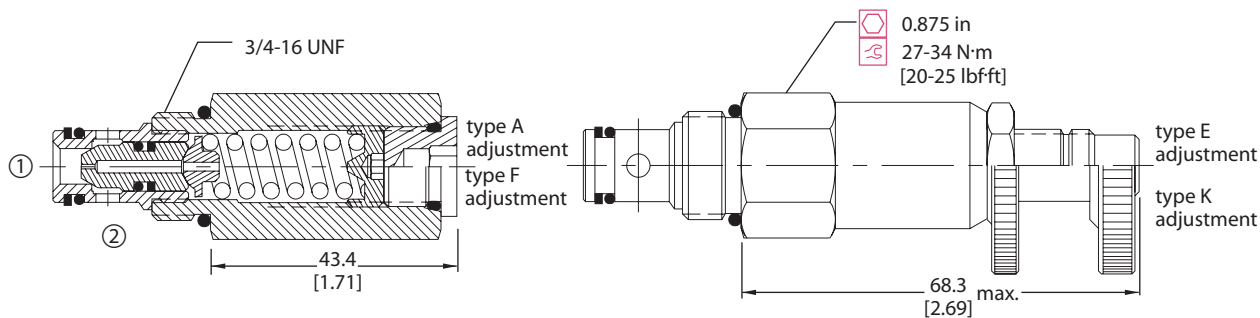
Specifications

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	Seal Kit 120221 120222	Crack pressure Code x 10 = psi Example: 150 = 1500 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	Pressure range																					
Adjustment option A = Internal E = External F = Tamper resistant K = Knob		<table border="0"> <tr> <td>A =</td> <td>bar</td> <td>[psi]</td> </tr> <tr> <td>Standard</td> <td>7-69</td> <td>[100-1000]</td> </tr> <tr> <td>B =</td> <td>28</td> <td>[400]</td> </tr> <tr> <td>Standard</td> <td>14-138</td> <td>[200-2000]</td> </tr> <tr> <td>C =</td> <td>69</td> <td>[1000]</td> </tr> <tr> <td>Standard</td> <td>35-248</td> <td>[500-3600]</td> </tr> <tr> <td></td> <td>103</td> <td>[1500]</td> </tr> </table>	A =	bar	[psi]	Standard	7-69	[100-1000]	B =	28	[400]	Standard	14-138	[200-2000]	C =	69	[1000]	Standard	35-248	[500-3600]		103	[1500]
A =	bar	[psi]																					
Standard	7-69	[100-1000]																					
B =	28	[400]																					
Standard	14-138	[200-2000]																					
C =	69	[1000]																					
Standard	35-248	[500-3600]																					
	103	[1500]																					

P102 095E

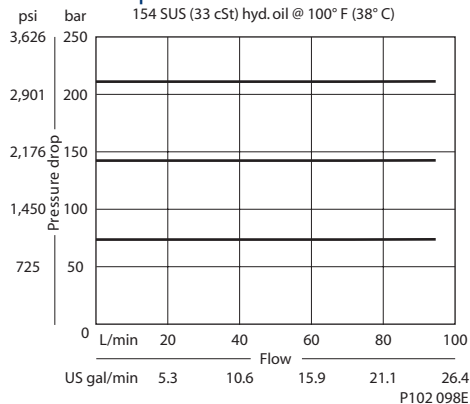
Relief valves
CP208-1

OPERATION

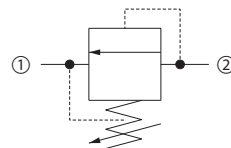
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

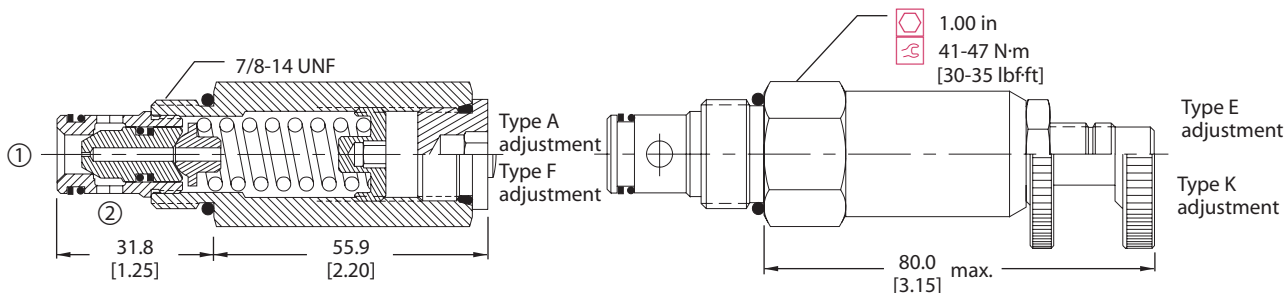
Specifications

Rated pressure	250 bar [3600 psi]
Rated flow	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

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

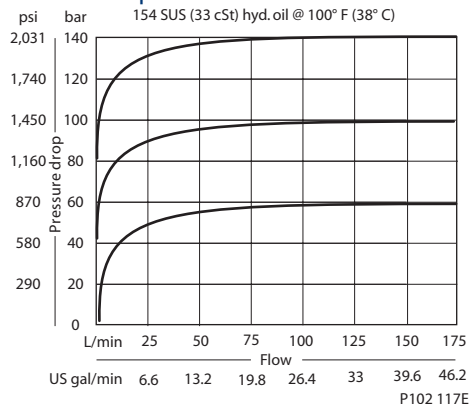
P102 099E

OPERATION

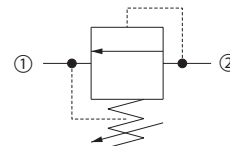
This is a direct acting differential area poppet type relief valve that relieves from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic



P102 627

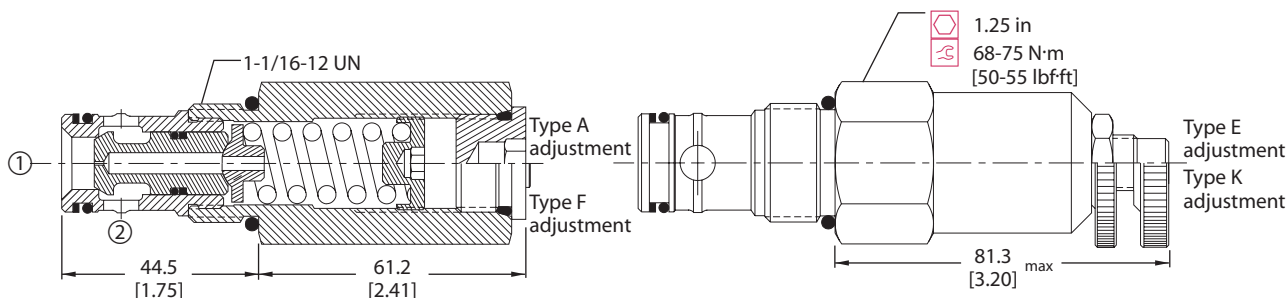
Specifications

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

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

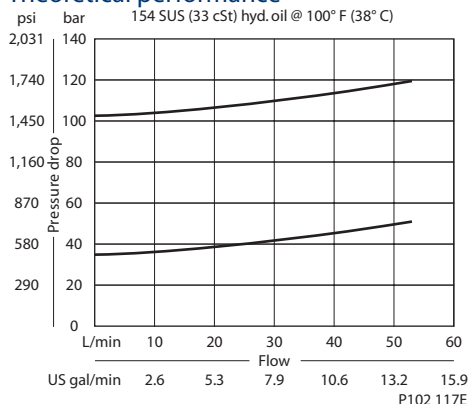
Relief valves
CP201-1

OPERATION

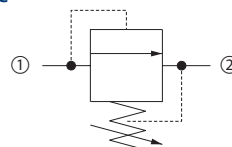
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

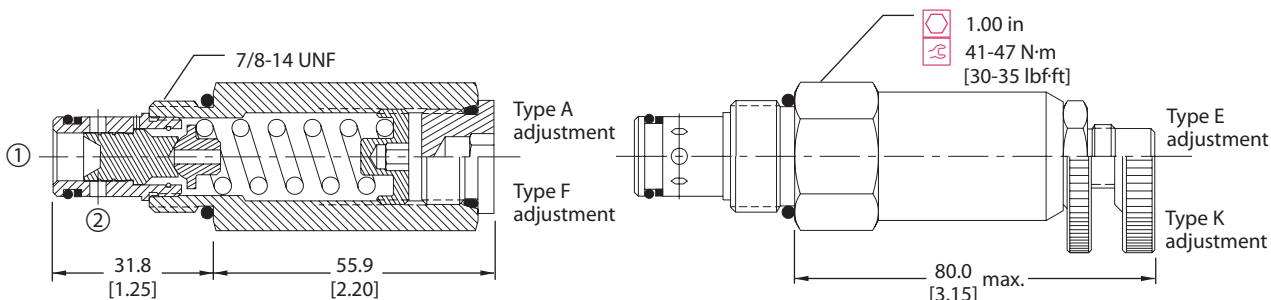
Specifications

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



ORDERING INFORMATION

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

Seals	Seal kit	Crack pressure
B = Buna-N	120015	Code x 10 = psi
V = Viton	120016	Example: 075 = 750 psi
Housing and ports	Housing P/N	Pressure range
0 = No Housing	No Housing	A = 3.4-28 [psi]
DG3B = AI, 3/8 BSP	SDC10-2-DG-3B	Standard 17 [250]
DG4B = AI, 1/2 BSP	SDC10-2-DG-4B	B = 5.5-55 [80-800]
6S = AI, #6 SAE	CP10-2-6S	Standard 28 [400]
8S = AI, #8 SAE	CP10-2-8S	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

Cartridge Valves Technical Information

Relief Valves

Direct Acting

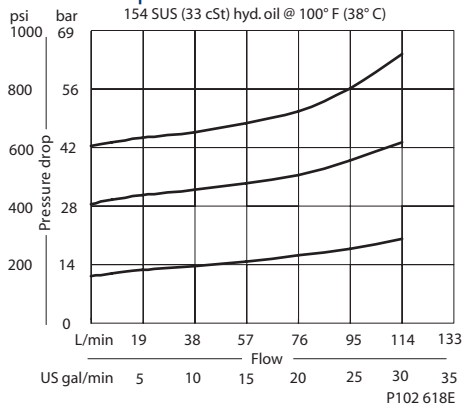
CP211-1

OPERATION

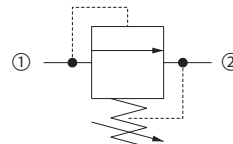
This is a direct acting spool-type relief valve that relieves from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P102 628

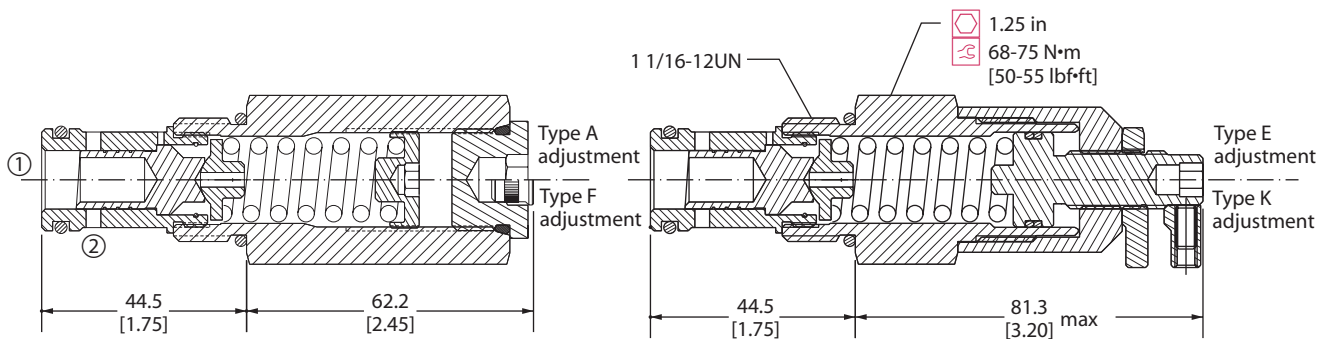
Specifications

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



ORDERING INFORMATION

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

Pressure range	Crack pressure
A = 0-10 bar [0-150 psi]	Code x 10 = psi
B = 3.4-34 bar [50-400 psi]	Example: 040 = 400 psi
C = 5.2-41 bar [80-600 psi]	
Housing and ports	Adjustment option
0 = No Housing	A = Internal
4B = Al, 1/2 BSP	E = External
6B = Al, 3/4 BSP	F = Tamper resistant
10S = Al, #10 SAE	K = Knob
12S = Al, #12 SAE	
Other housings available	
Housing P/N	Seals
No Housing	B = Buna-N
CP12-2-4B	V = Viton
CP12-2-6B	
CP12-2-10S	Seal kit
CP12-2-12S	120017
	120018

P102 617E

Relief valves
CP211-1

Cartridge Valves Technical Information

Relief Valves

Pilot Operated

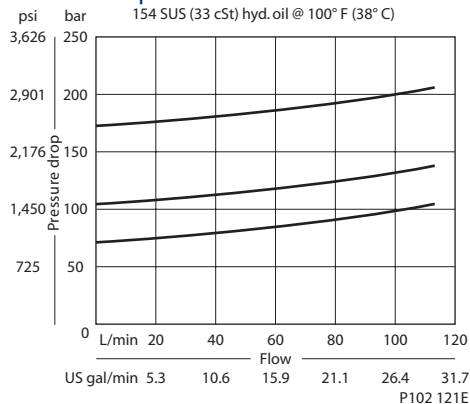
CP210-2

OPERATION

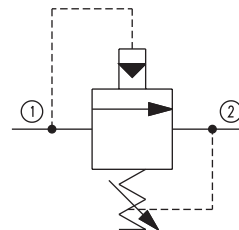
This is a pilot operated spool type relief valve that relieves pressure from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



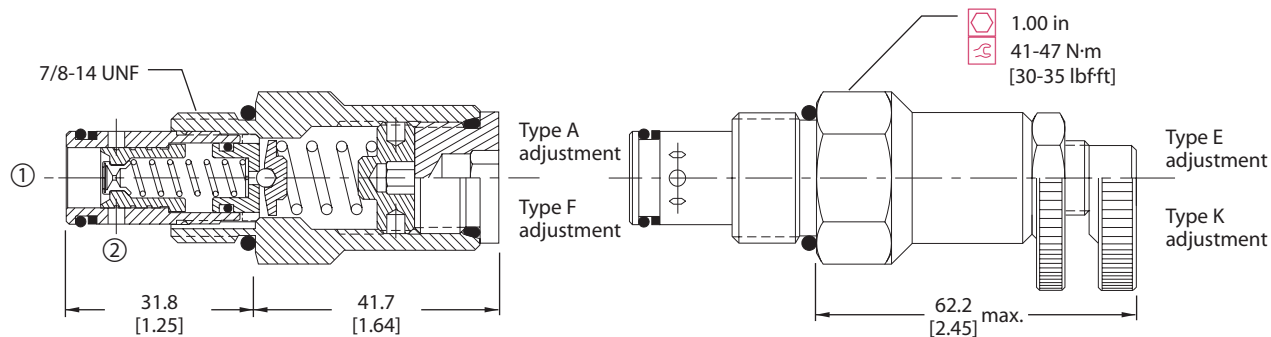
P102 629

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	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

Pilot Operated

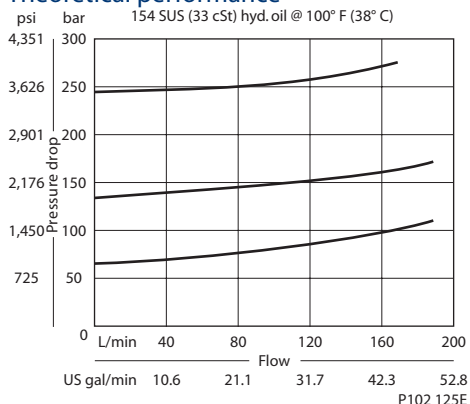
CP211-2

OPERATION

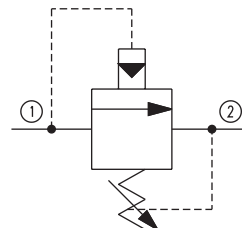
This valve relieves from 1 to 2 and is a pilot operated spool type relief.

SPECIFICATIONS

Theoretical performance



Schematic



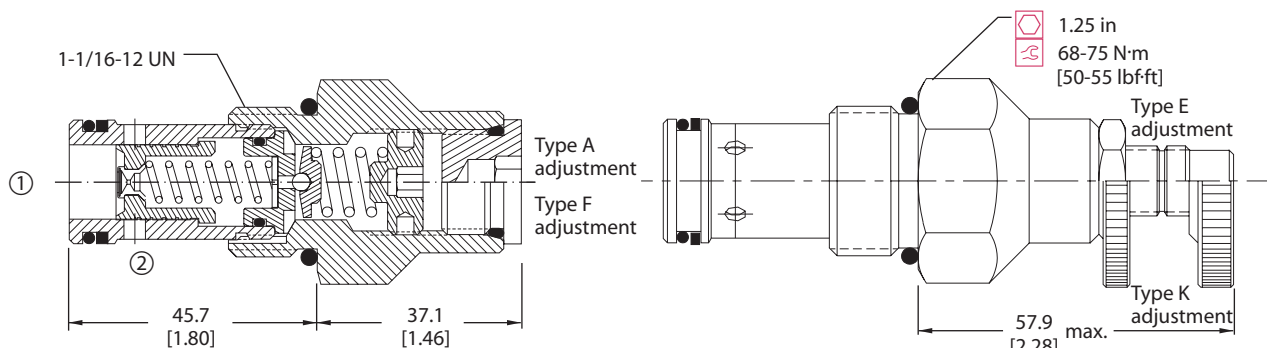
P102 629

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

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**

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

Relief valves
 CP211-2

Cartridge Valves Technical Information

Relief Valves

Pilot Operated

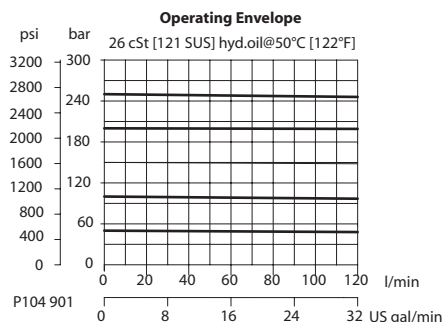
RV10-POP

OPERATION

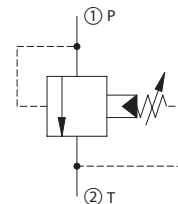
This is a pilot-operated poppet type relief valve that relieves pressure from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



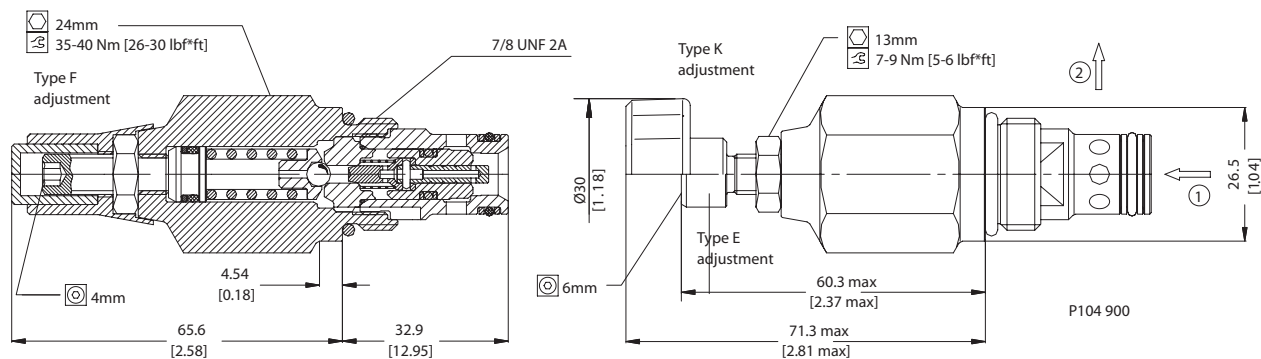
P104 899

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



ORDERING INFORMATION

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

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

Adjustment option
 E = External adjustment
 T = 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 354004019
 V = Viton seals 354003419

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

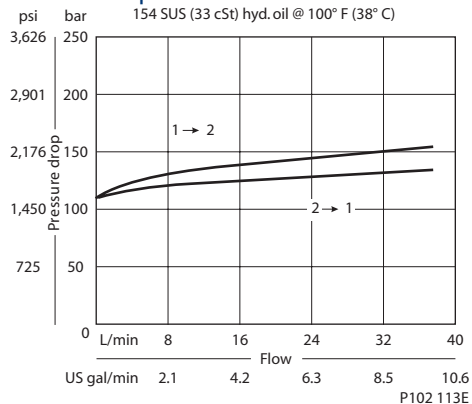
P104 902

OPERATION

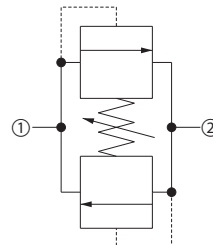
This is a bi-directional relief valve that relieves pressure from 1 to 2 and from 2 to 1.

SPECIFICATIONS

Theoretical performance



Schematic

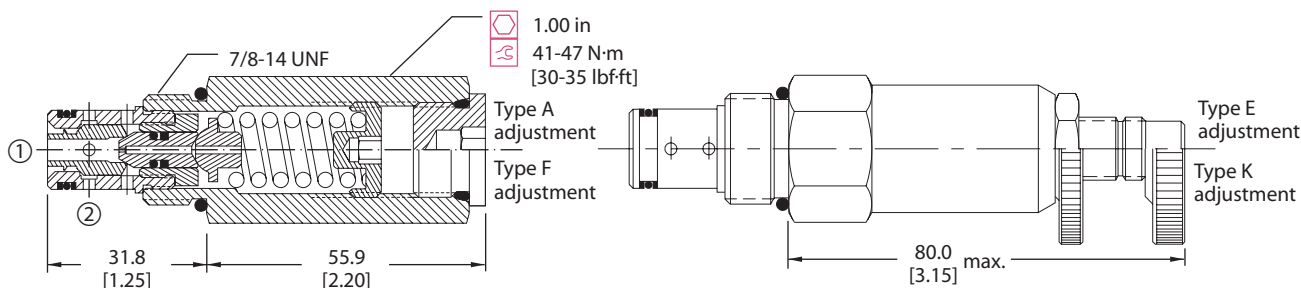


Specifications

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



P102 112E

ORDERING INFORMATION

CP200 - 7 - 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
120073
120074

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

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

P102 115E

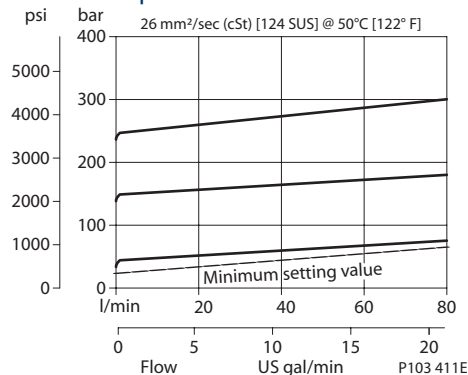
Cartridge Valves Technical Information
Relief Valves
Differential Area
VSB 06-EN

OPERATION

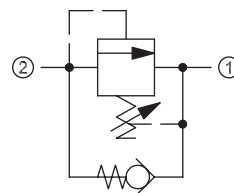
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P103 524

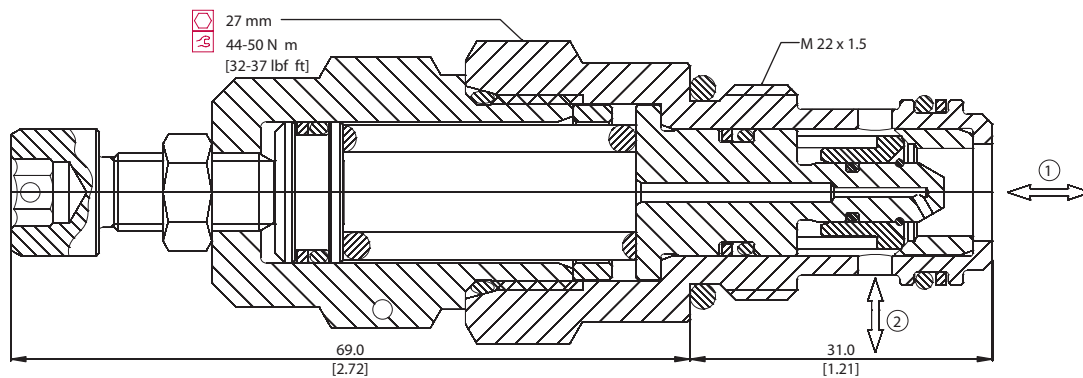
Specifications

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 Comatrol representative

P103 414E

Cartridge Valves Technical Information

Relief Valves

Differential Area

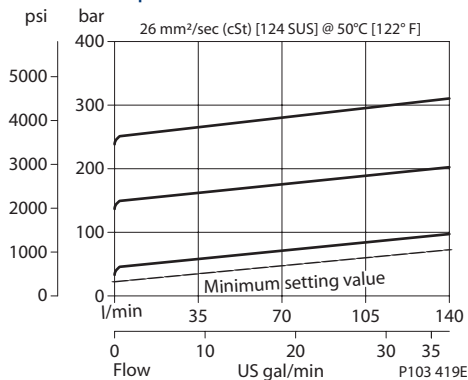
VSB 12-EN

OPERATION

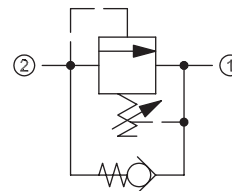
This is a direct-acting, differential area, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



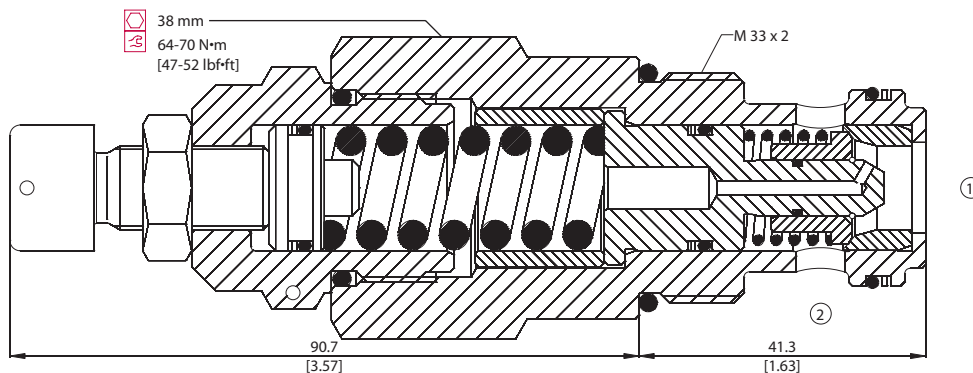
P103 524

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

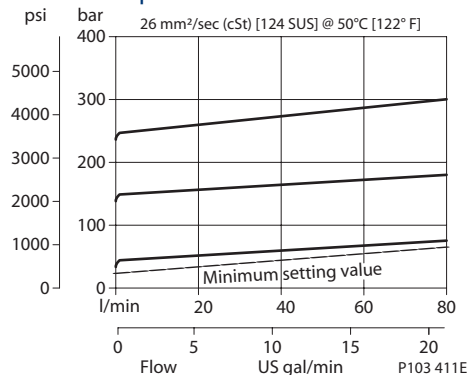
Cartridge Valves Technical Information
 Relief Valves
 Differential Area
 VSB 06-CN

OPERATION

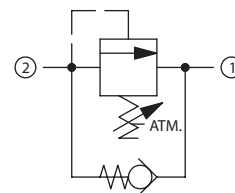
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P1

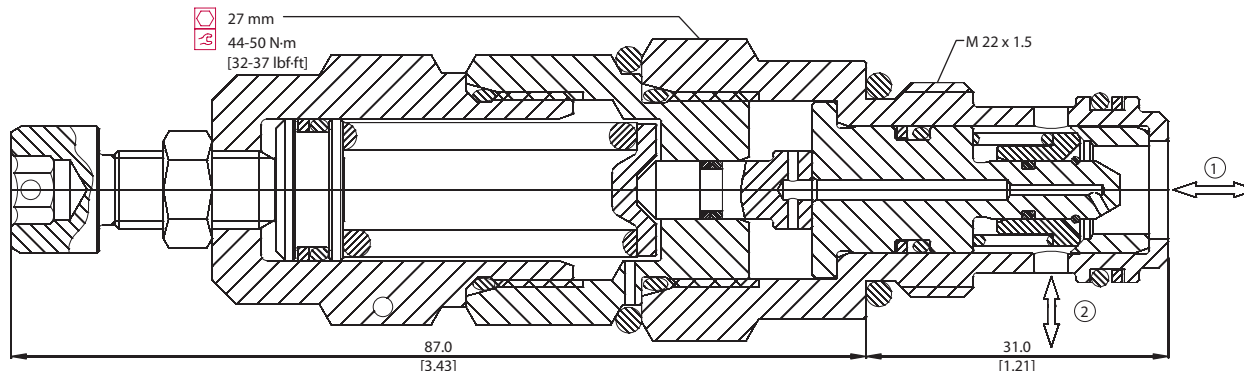
Specifications

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

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

To order this valve with a specific factory setting, contact your Comatrol representative

P103 412E

Cartridge Valves Technical Information

Relief Valves

Differential Area

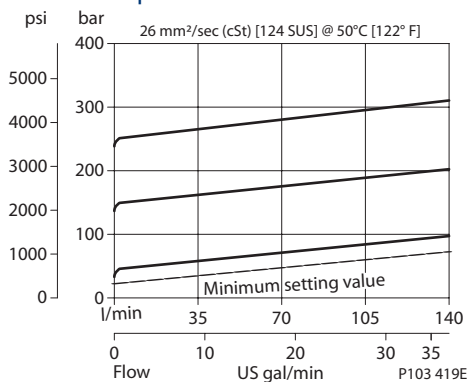
VSB 12-CN

OPERATION

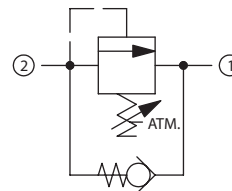
This is a direct-acting, differential area, atmospherically-vented, poppet-type relief valve that relieves from 2 to 1 with an integral free-flow check from 1 to 2.

SPECIFICATIONS

Theoretical performance



Schematic



P1

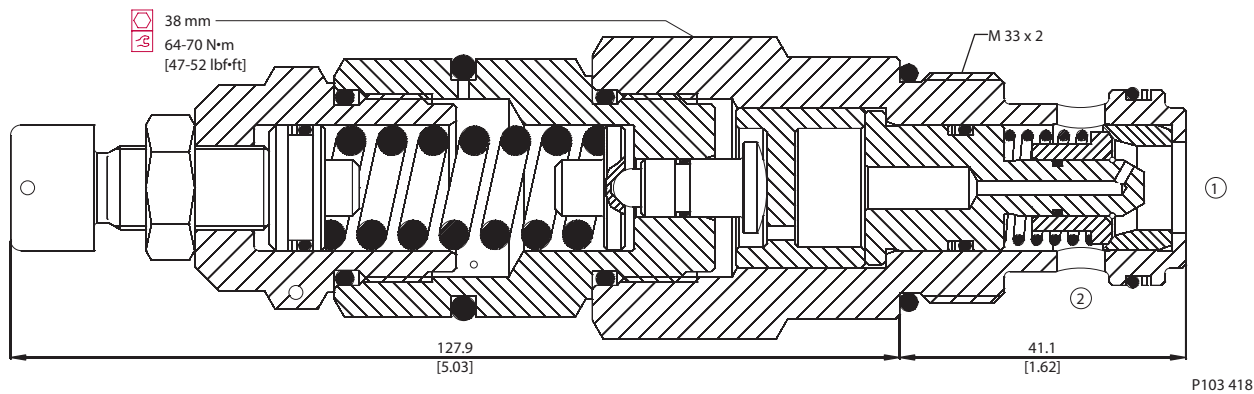
Specifications

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 Comatrol representative

P103 420E

Relief valves
VSB 12-CN

Cartridge Valves Technical Information

Relief Valves

Cross-Over

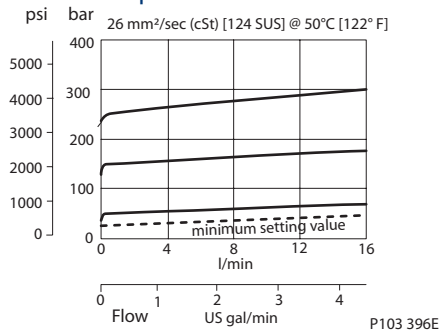
VA-E 06

OPERATION

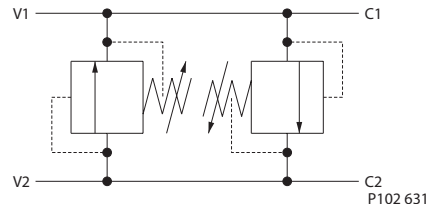
This valve is an inline cross relief. It uses two **VME 06** direct-acting relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



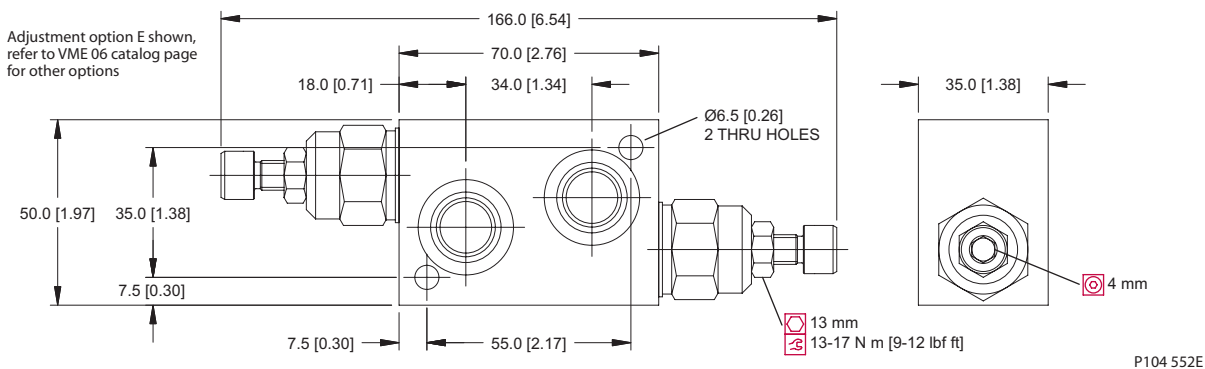
Specifications

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



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 Comatrol representative

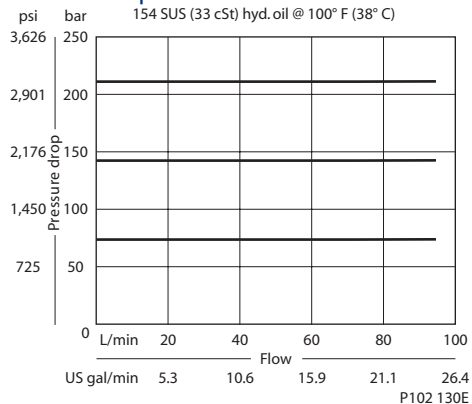
P104 553E

OPERATION

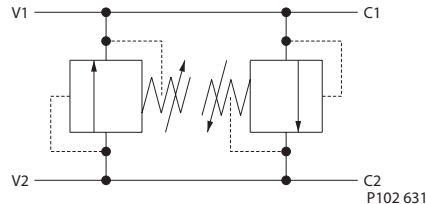
This valve is an inline cross relief. It uses two CP200-1 differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



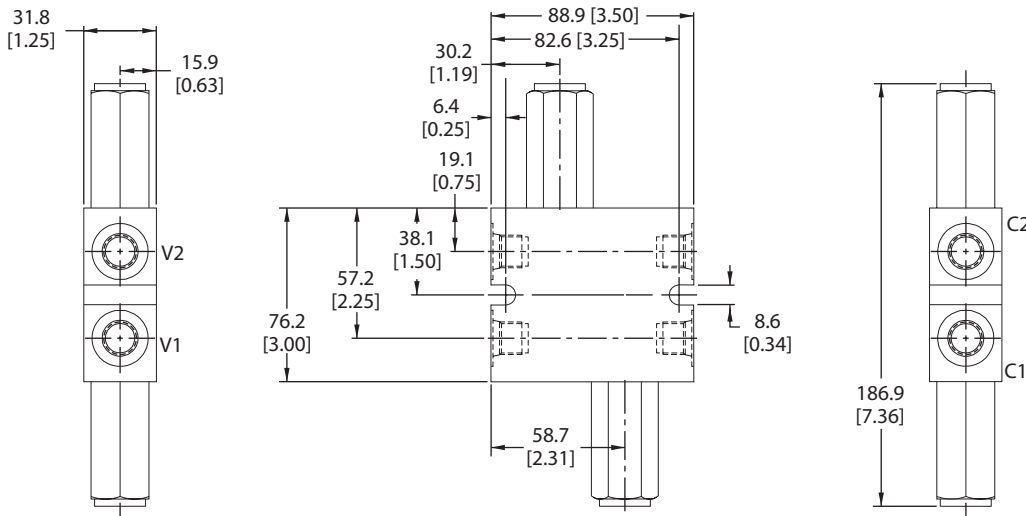
Specifications

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]

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

P102 131E

Relief valves
 CP220-1

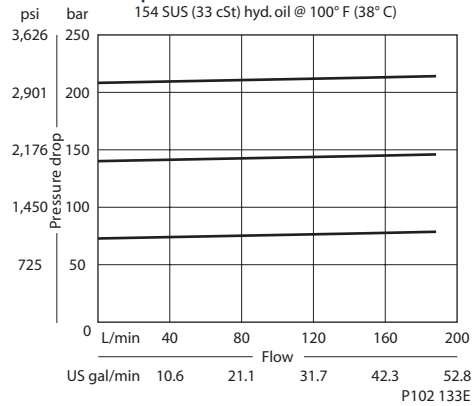
Cartridge Valves Technical Information
 Relief Valves
 Cross-Over
 CP221-1

OPERATION

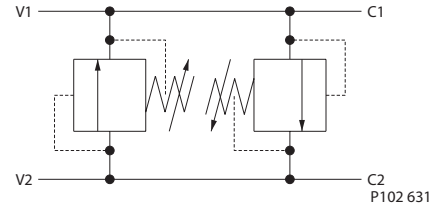
This valve is an inline cross relief. It uses two CP201-1 differential area relief valves.

SPECIFICATIONS

Theoretical performance



Schematic



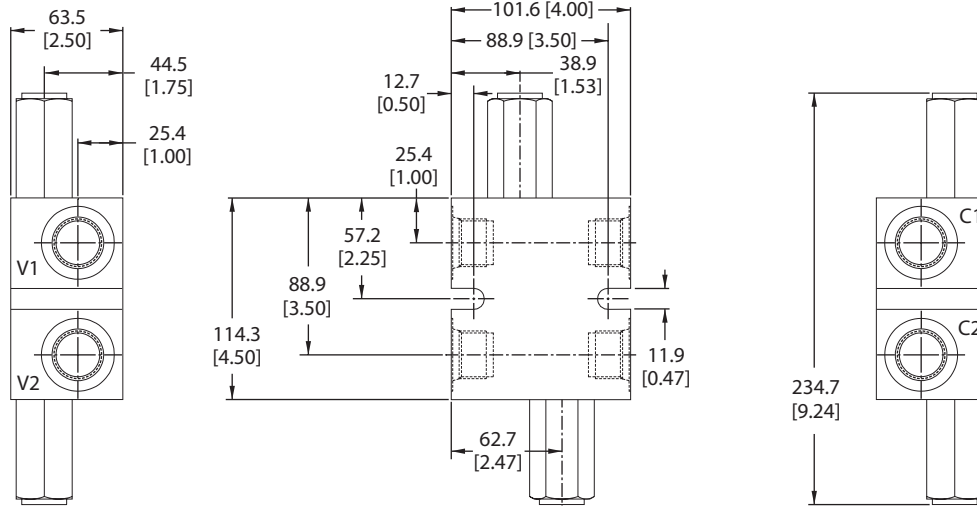
Specifications

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	Housing P/N	Cracking pressure	
12S = AL, #12 SAE	220223	Code x 10 = psi	
16S = AL, #16 SAE	220222	Example: 150 = 1500 psi	
6B = AL, 3/4 BSP	221742		
8B = AL, 1 BSP	221690		
Seals	Seal kit	Pressure range	
B = Buna-N	120162	A = 7-69	[100-1000]
V = Viton	120163	Standard	28 [400]
Adjustment option		B = 17-172	[250-2500]
A = Internal		Standard	69 [1000]
E = External		C = 41-248	[500-3600]
F = Tamper resistant		Standard	103 [1500]
K = Knob			

P102 134E