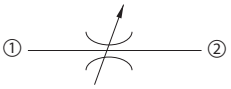
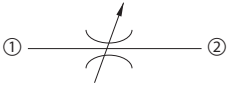


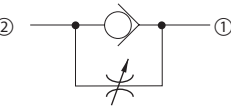
Cartridge Valves Technical Information

Flow Control Valves

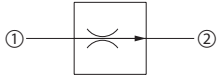
Quick reference

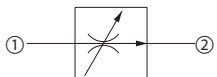
Needle Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP618-6	SDC08-2	Needle Valve, Bi-Directional, Fine Metering	10 l/min [3 US gal/min]	210 bar [3000 psi]	7.8

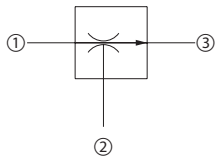
Needle Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP618-1	SDC08-2	Needle Valve, Bi-Directional	25 l/min [7 US gal/min]	210 bar [3000 psi]	7.9
	CP618-2	SDC08-2		45 l/min [12 US gal/min]	210 bar [3000 psi]	7.10
	CP610-1	SDC10-2		50 l/min [13 US gal/min]	210 bar [3000 psi]	7.11
	CP610-2	SDC10-2		50 l/min [13 US gal/min]	210 bar [3000 psi]	7.12
	CP611-2	CP12-2		115 l/min [30 US gal/min]	210 bar [3000 psi]	7.13
	CP612-1	SDC16-2		190 l/min [50 US gal/min]	210 bar [3000 psi]	7.14
	CP612-2	SDC16-2		190 l/min [50 US gal/min]	210 bar [3000 psi]	7.15
	CP613-1	SDC20-2		380 l/min [100 US gal/min]	210 bar [3000 psi]	7.16

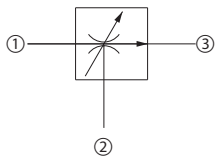
Needle Valves	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP610-7	SDC10-2	Needle Valve, Bi-Directional, Fine Metering, Reverse Free Flow	55 l/min [15 US gal/min]	210 bar [3000 psi]	7.17

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

Pressure-Compensated, Restrictive Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP308-1	SDC08-2	Flow Control Valve, Fixed Setting, Restrictive Type	15 l/min [4 US gal/min]	210 bar [3000 psi]	07.18
	CP300-1	SDC10-2		23 l/min [6 US gal/min]	210 bar [3000 psi]	07.19
	CP301-1	CP12-2		60 l/min [16 US gal/min]	210 bar [3000 psi]	07.20

Pressure-Compensated, Restrictive Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP308-2	SDC08-2	Flow Control Valve, Adjustable, Restrictive Type	15 l/min [4 US gal/min]	210 bar [3000 psi]	07.21
	CP300-2	SDC10-2		23 l/min [6 US gal/min]	210 bar [3000 psi]	07.22
	VR 06	NCS06/2		30 l/min [8 US gal/min]	315 bar [4500 psi]	07.23
	VR 12	NCS12/2		60 l/min [16 US gal/min]	315 bar [4500 psi]	07.24

Pressure-Compensated, Priority Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP310-1	SDC10-3	Flow Control Valve, Fixed Setting, Priority Type	23 l/min [6 US gal/min]	210 bar [3000 psi]	07.25
	VRF 06	NCS06/3		30 l/min [8 US gal/min]	315 bar [4500 psi]	07.26
	CP311-1	CP12-3		45 l/min [12 US gal/min]	210 bar [3000 psi]	07.27
	CP312-1	SDC16-3		65 l/min [17 US gal/min]	210 bar [3000 psi]	07.28

Pressure-Compensated, Priority Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP310-2	SDC10-3	Flow Control Valve, Adjustable, Priority Type	23 l/min [6 US gal/min]	210 bar [3000 psi]	07.29
	VRC 06	NCS06/3		50 l/min [13 US gal/min]	315 bar [4500 psi]	07.30
	VRC 12	NCS12/3		100 l/min [26 US gal/min]	315 bar [4500 psi]	07.31

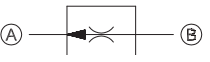
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

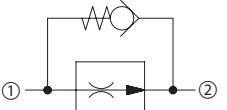
Cartridge Valves Technical Information

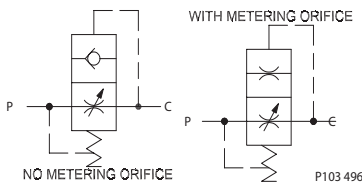
Flow Control Valves

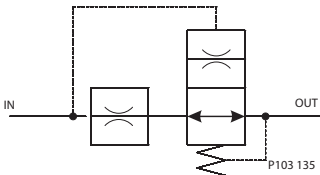
Quick reference

Pressure-Compensated, Priority Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP300-6	SDC10-3	Flow Control Valve, Fixed Setting,	23 l/min [6 US gal/min]	210 bar [3000 psi]	07.32
	FCH10-BD	SDC10-3	Bi-Directional	23 l/min [6 US gal/min]	350 bar [5076 psi]	07.33

In-line	Model No.	Cavity	Description	Flow*	Pressure	Page
	SC 10	none	Flow Control Valve, In-line	16 l/min [4 US gal/min]	210 bar [3000 psi]	07.34
	SC 13	none		47 l/min [12 US gal/min]	210 bar [3000 psi]	07.35

In-line	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP9014-1	none	Load Lowering Valve	113 l/min [30 US gal/min]	210 bar [3000 psi]	07.36

In-line	Model No.	Cavity	Description	Flow*	Pressure	Page
	BC 06	none	Velocity Fuse	30 l/min [8 US gal/min]	210 bar [3000 psi]	07.37
	BC 10	none		60 l/min [16 US gal/min]	210 bar [3000 psi]	07.38
	BC 13	none		85 l/min [22 US gal/min]	210 bar [3000 psi]	07.39

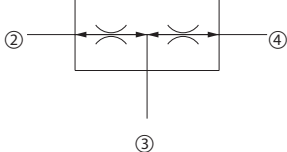
In-line	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP330-3	#10 SAE Port	Velocity Fuse	110 l/min [29 US gal/min]	207 bar [3000 psi]	07.50

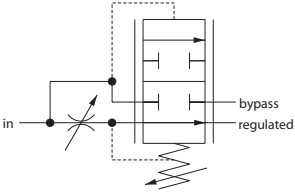
* Flow ratings are based on a pressure drop of 7 bar [100 psi] unless otherwise noted. They are for comparison purposes only.

Cartridge Valves Technical Information

Flow Control Valves

Quick reference

Flow Divider/Combiner	Model No.	Cavity	Description	Flow*	Pressure	Page
	CP340-1	SDC10-4	Flow Divider, Divider/Combiner	45 l/min [12 US gal/min]	210 bar [3000 psi]	07.40
	VDF 06	NCS06/4		45 l/min [12 US gal/min]	210 bar [3000 psi]	07.41
	CP341-1	CP12-4		75 l/min [20 US gal/min]	210 bar [3000 psi]	07.42
	CP342-1	CP16-4		150 l/min [40 US gal/min]	210 bar [3000 psi]	07.43
	CP342-3	CP16-4		150 l/min [40 US gal/min]	450 bar [6500 psi]	07.44
	CP343-1	SDC20-4		340 l/min [90 US gal/min]	210 bar [3000 psi]	07.45

Pressure-Compensated, Priority Flow Control	Model No.	Cavity	Description	Flow*	Pressure	Page
	2F94-01	none	Flow Control Valve, Catalog HIC	30 l/min [8 US gal/min]	210 bar [3000 psi]	07.46
	2F95-01	none		60 l/min [16 US gal/min]	210 bar [3000 psi]	07.47
	2F96-01	none		95 l/min [25 US gal/min]	210 bar [3000 psi]	07.48
	2F97-01	none		190 l/min [50 US gal/min]	210 bar [3000 psi]	07.49

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

OVERVIEW

Pressure compensated flow control valves are used to limit or regulate flow. Three basic types of cartridges are available; restrictive-type, priority-type, and divider/combiner type. Combination valves in manifolds for additional features such as fully adjustable flow or free reverse flow are also available.

Flow control valves



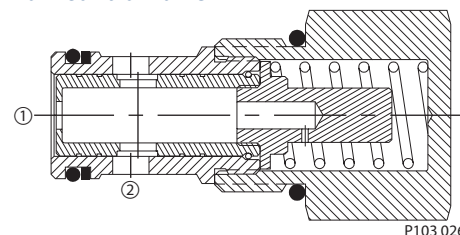
F102 003

RESTRICTED-TYPE PRESSURE COMPENSATED

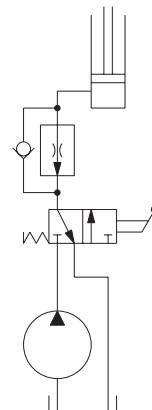
Restrictive-type pressure compensated flow control valves are two-port valves that maintain a constant flow rate from 1 to 2 regardless of load pressure changes in the circuit downstream of 2. The control orifice in the spool is factory set to the flow specification. The valve begins to respond to load changes when flow through the valve creates a pressure differential across the control orifice of approximately 7 bar [100 psi], and accurately maintains flow within +/- 10% across the range of 35-207 bar [500-3000 psi]. Reverse flow from 2 to 1 returns through the control orifice and is non-compensated.

Restrictive-type flow control valves can be used in meter-in or meter-out applications to control actuator speeds.

Restricted-type pressure compensated flow control valve



Actuator speed control circuit



P103 051

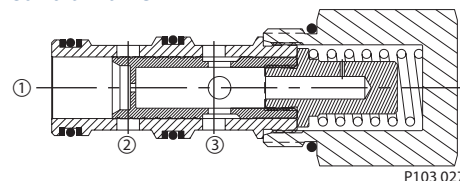
PRIORITY- TYPE PRESSURE COMPENSATED

Priority-type pressure compensated flow control valves are three-ported valves that maintain a constant flow rate from 1 to 3 regardless of load pressure changes in the priority circuit downstream of 3 or in the bypass circuit downstream of 2. The control orifice in the spool is factory set to the flow specification. The valve begins to respond to load pressure changes when flow to 3 creates a pressure differential across the control orifice of approximately 7 bar [100 psi]. The valve accurately maintains flow to the priority circuit across the range of 35-207 bar [500-3000 psi], with any excess inlet flow bypassing to 2. Note that both 2 and 3 may be fully and independently pressurized. Also note that if 2 is blocked, the valve will function as a restrictive-type flow control.

Priority-type flow control valves are used in meter-in applications. A common application is to direct a fixed flow rate to a priority function, such as steering, while secondary flow is available to other intermittent functions.

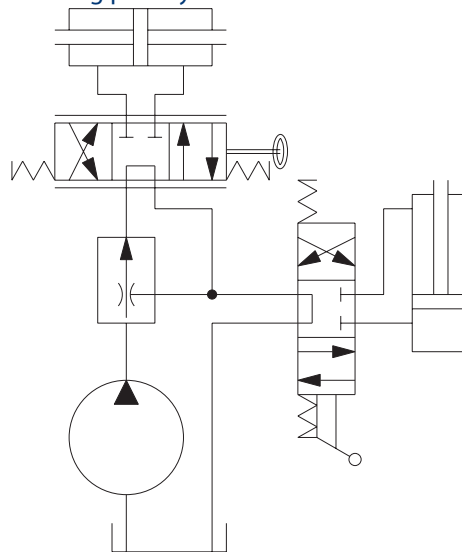
Flow divider/combiners are pressure

Priority-type pressure compensated flow control valve



P103 027

Steering priority circuit

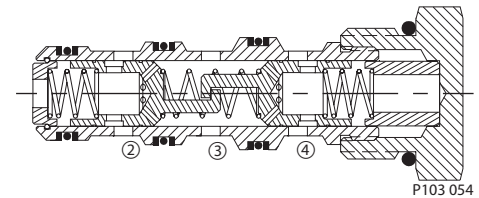


P103 053

FLOW DIVIDER / COMBINER

compensated valves. When the valve is functioning as a divider, it will divide input flow from 3 to the two outputs at 2 and 4 according to a preset ratio. This ratio is unaffected by pressure. When the valve is functioning as a combiner, it will combine the flow from the two inputs from 2 and 4 into one output at 3. Note that a flow divider/combiner is specified with a nominal flow rate for each leg. When operating with flow rates higher than specified, the dividing and combining ratios will be maintained, but at a cost of higher pressure drop and associated heat generation. When operating with lower flow rates than specified, the dividing and combining ratios are also maintained, but at a cost of accuracy. For example, a 22 l/min [5.8 US gal/min] : 22 l/min [5.8 US gal/min] flow divider will divide flow in a 50:50 ratio with an accuracy of $\pm 10\%$ (± 2.2 l/min [± 0.58 US gal/min]) per leg. With an input flow of 8.0 l/min [2.1 US gal/min], the flow division will be 4.0 ± 2.2 l/min [1.1 ± 0.58 US gal/min] per leg.

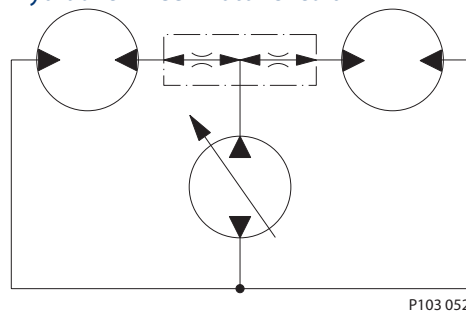
Flow divider / combiner



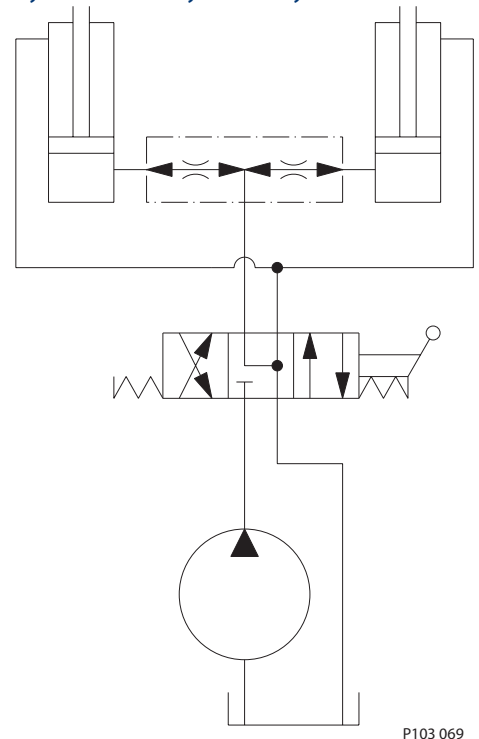
Common applications for flow divider/combiners include:

- ☐ Combining flow (forward) or dividing flow (reverse) to hydraulic wheel motors for vehicle drive application. Note that an external orifice is added to allow more flow to one motor than the other while turning a corner (not shown).
- ☐ Synchronizing motion of hydraulic cylinders. Note that if circuit operation results in a blockage of one cylinder port, the other port will also close. Consult factory for details.

Hydraulic wheel motor circuit



Synchronized hydraulic cylinders circuit



Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP618-6

OPERATION

This valve is a non-pressure compensated, fine-metering, adjustable flow control valve.

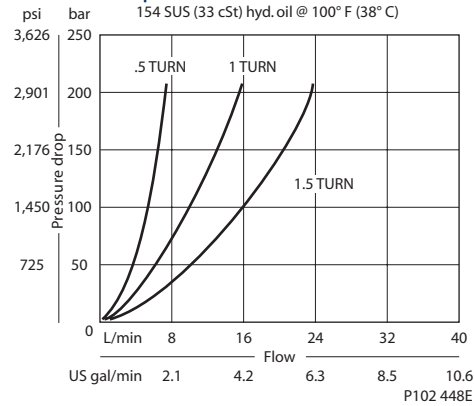
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



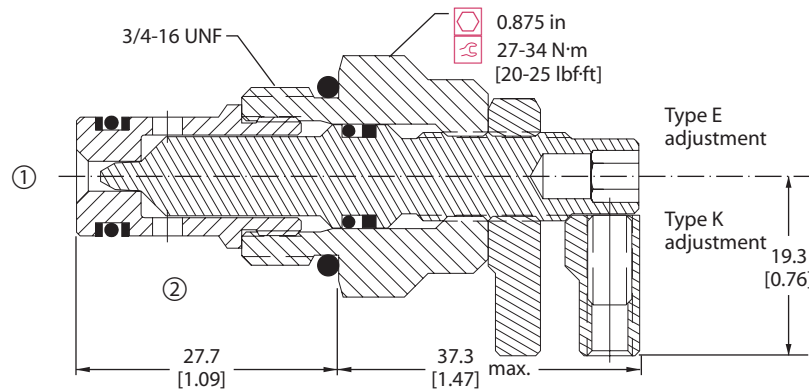
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	10 l/min [3 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.12 kg [0.26 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP618 - 6 - B - 6S - K			
Seals			
B = Buna-N		Seal kit	
V = Viton		120227	
		120228	
Housing and ports		Housing P/N	
0 = No Housing		No Housing	
DG2B = AL, 1/4 BSP		SDC08-2-DG-2B	
DG3B = AL, 3/8 BSP		SDC08-2-DG-3B	
DG4S = AL, #4 SAE		CP08-2-4S	
DG6S = AL, #6 SAE		CP08-2-6S	
Other housings available			
		Adjustment option	
		E = External	
		K = Knob	

P102 458E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP618-1

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

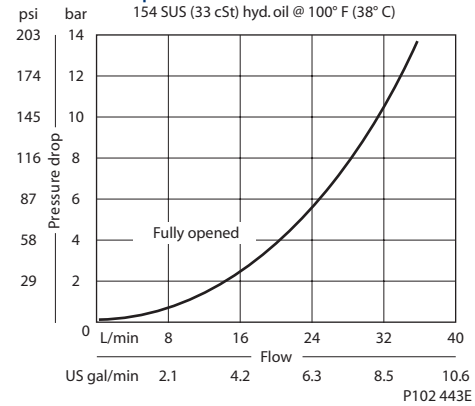
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



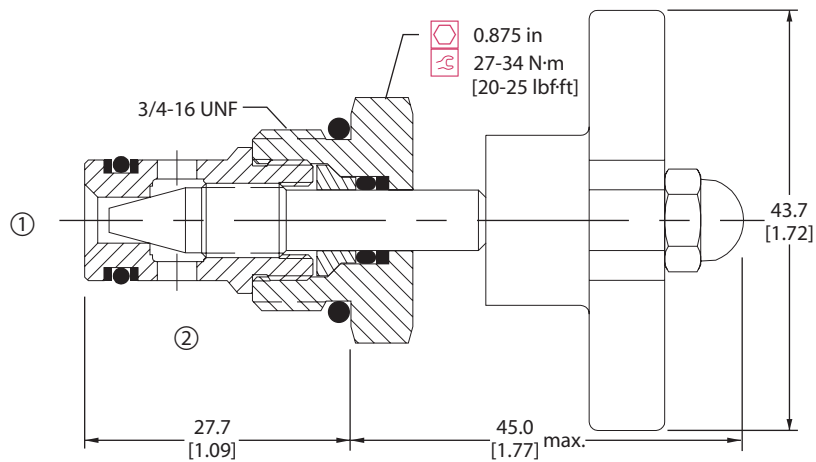
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	25 l/min [7 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.07 kg [0.15 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 434E

ORDERING INFORMATION

CP618 - 1 - B - 6S - B			
Seals			
B = Buna-N	Seal kit		
V = Viton	120227		
	120228		
Housing and ports	Housing P/N		Knob option
0 = No Housing	No Housing		B = Black
DG2B = AL, 1/4 BSP	SDC08-2-DG-2B		R = Red
DG3B = AL, 3/8 BSP	SDC08-2-DG-2B		
DG4S = AL, #4 SAE	CP08-2-4S		
DG6S = AL, #6 SAE	CP08-2-6S		
Other housings available			

P102 452E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP618-2

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

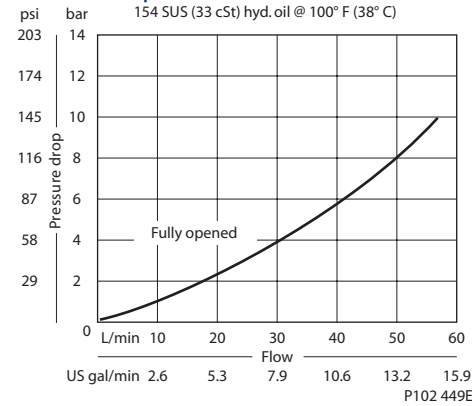
Schematic



P102 460E

SPECIFICATIONS

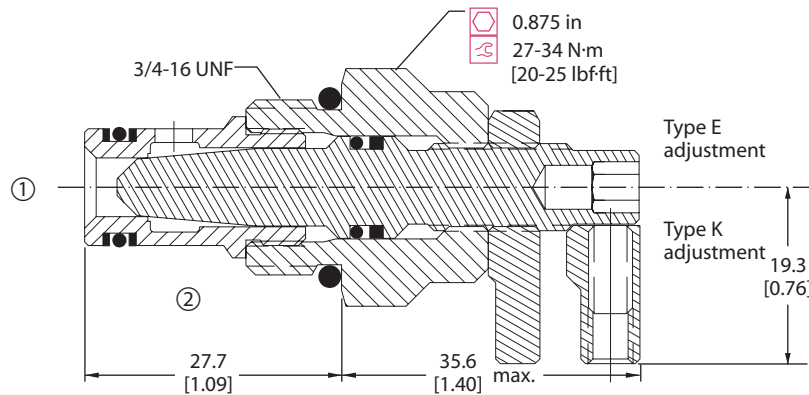
Theoretical performance



Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.09 kg [0.20 lb]
Cavity	SDC08-2

Cross-sectional view



P102 441E

DIMENSIONS

mm [in]

ORDERING INFORMATION

CP618 - 2 - B - 6S - K			
Seals		Seal kit	
B = Buna-N		120227	
V = Viton		120228	
Housing and ports		Housing P/N	
0 = No Housing		No Housing	
DG2B = AL, 1/4 BSP		SDC08-2-DG-2B	
DG3B = AL, 3/8 BSP		SDC08-2-DG-2B	
DG4S = AL, #4 SAE		CP08-2-4S	
DG6S = AL, #6 SAE		CP08-2-6S	
Other housings available		Adjustment option	
		E = External adjustment	
		K = Knob adjustment	

P102 459E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP610-1

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

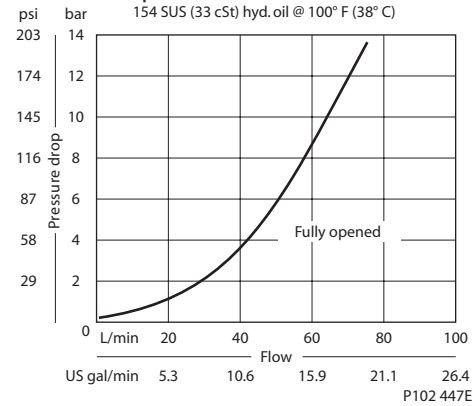
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



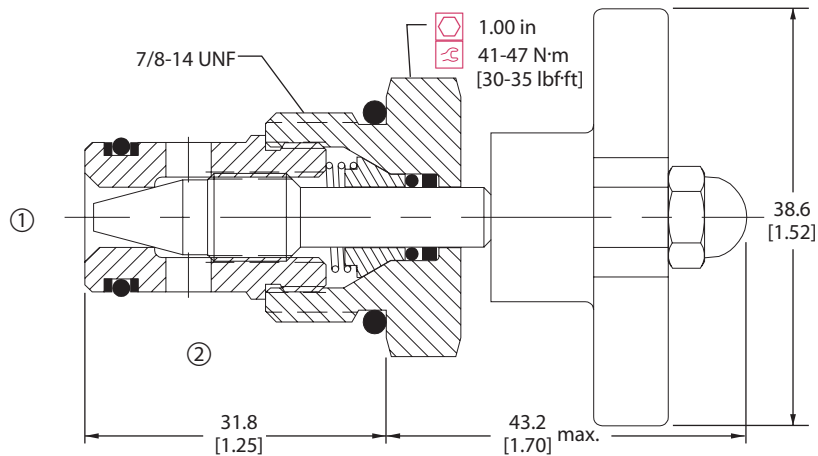
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	50 l/min [13 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.10 kg [0.22 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 439E

ORDERING INFORMATION

CP610 - 1 - B - 8S - B			
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			
Seal kit			
120073			
120074			
Housing P/N			
No Housing			
SDC10-2-DG-3B			
SDC10-2-DG-4B			
CP10-2-6S			
CP10-2-8S			
Knob option			
B = Black			
R = Red			

P102 457E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP610-2

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

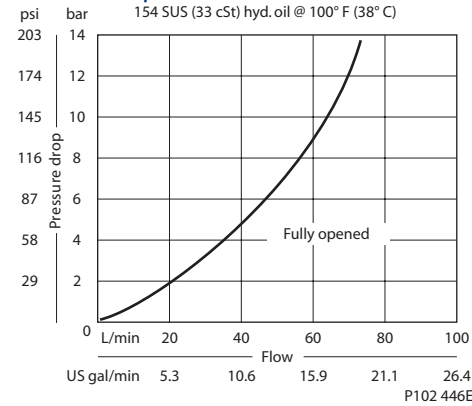
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



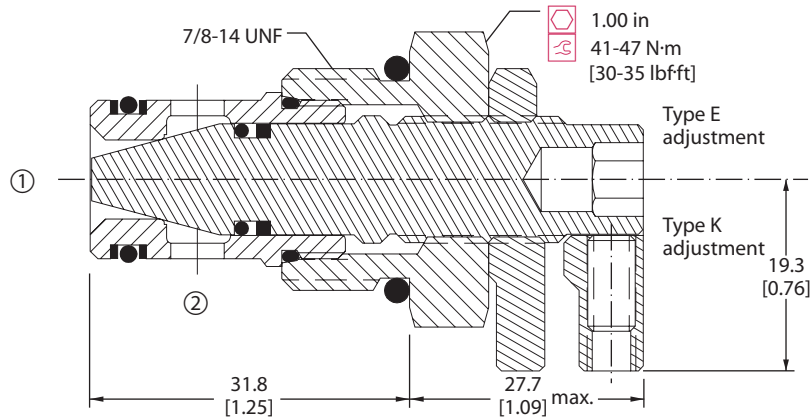
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	50 l/min [13 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.13 kg [0.29 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 438E

ORDERING INFORMATION

CP610 - 2 - B - 8S - K

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

Seal kit
120073
120074

Housing P/N
No Housing
SDC10-2-DG-3B
SDC10-2-DG-4B
CP10-2-6S
CP10-2-8S

Adjustment option

E = External
K = Knob

P102 456E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP611-2

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

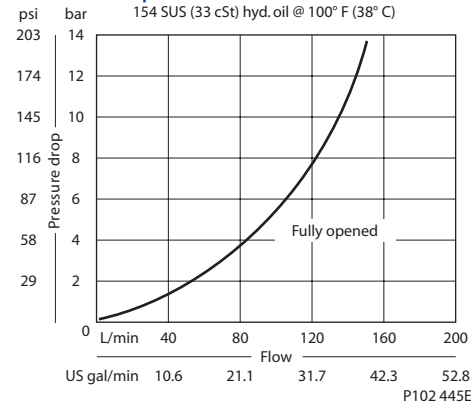
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



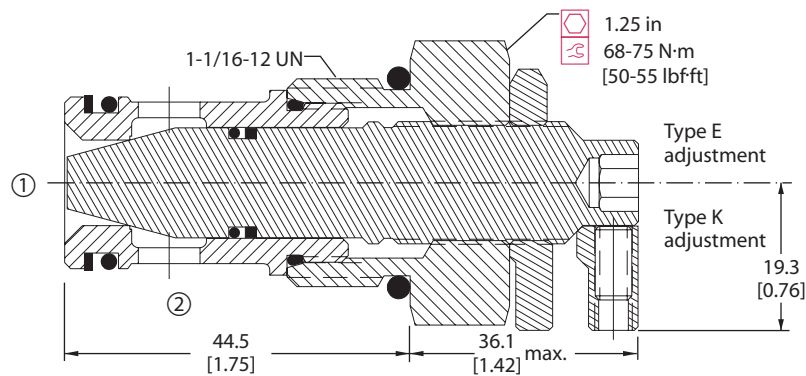
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	115 l/min [30 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.26 kg [0.57 lb]
Cavity	CP12-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 436E

ORDERING INFORMATION

CP611 - 2 - B - 12S - K			
Seals		Adjustment option	
B = Buna-N	Seal kit 120017	E = External	
V = Viton	Seal kit 120018	K = Knob	
Housing and ports		Housing P/N	
0 = No housing	No housing	CP12-2-4B	
4B = Al, 1/2 BSP		CP12-2-6B	
6B = Al, 3/4 BSP		CP12-2-10S	
10S = Al, #10 SAE		CP12-2-12S	
12S = Al, #12 SAE			

P102 454E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP612-1

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

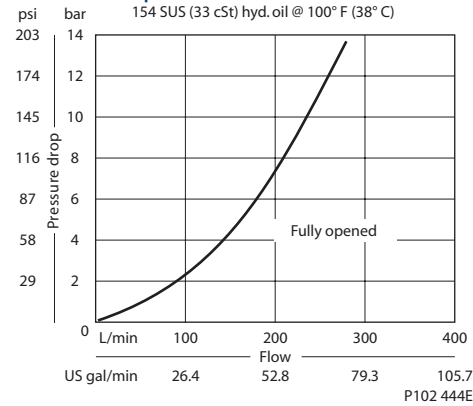
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



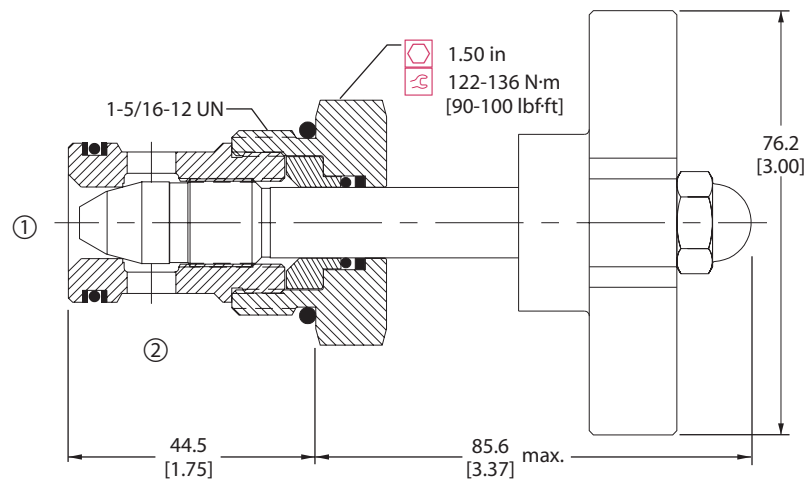
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	190 l/min [50 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.31 kg [0.68 lb]
Cavity	SDC16-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 435E

ORDERING INFORMATION

CP612 - 1 - B - 16S

Seals

B = Buna-N
 V = Viton

Seal kit
 120567
 120568

Housing and ports

0 = No Housing
 DG6B = AL, 3/4 BSP
 DG8B = AL, 1 BSP
 12S = AL, #12 SAE
 16S = AL, #16 SAE
 Other housings available

Housing P/N

No Housing
 SDC16-2-DG-6B
 SDC16-2-DG-8B
 SDC16-2-12S
 SDC16-2-16S

P102 453E

Cartridge Valves Technical Information

Flow Control Valves

Needle Valves

CP612-2

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

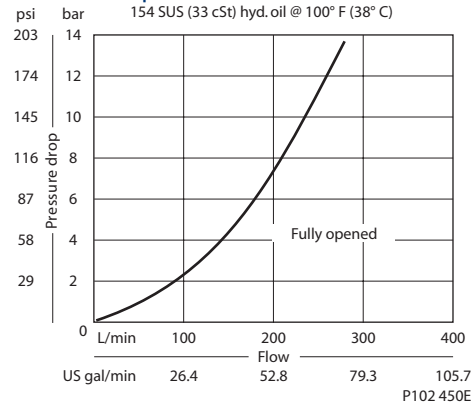
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



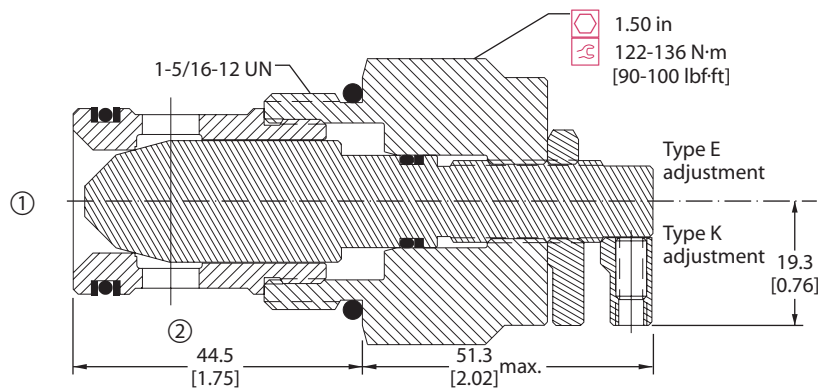
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	190 l/min [50 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.48 kg [1.06 lb]
Cavity	SDC16-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP612 - 2 - B - 16S - K

Seals

B = Buna-N
V = Viton

Seal kit
120567
120568

Housing and ports

0 = No Housing
DG6B = AL, 3/4 BSP
DG8B = AL, 1 BSP
12S = AL, #12 SAE
16S = AL, #16 SAE
Other housings available

Housing P/N

No Housing
SDC16-2-DG-6B
SDC16-2-DG-8B
SDC16-2-12S
SDC16-2-16S

Adjustment option

E = External
K = Knob

P102 451E

Cartridge Valves Technical Information

Flow Control Valves

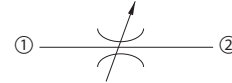
Needle Valves

CP613-1

OPERATION

This valve is a non-pressure compensated, adjustable flow control valve.

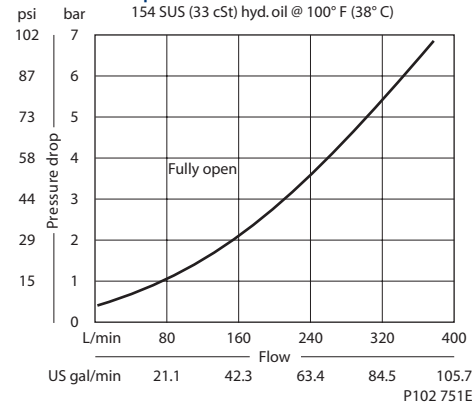
Schematic



P102 460E

SPECIFICATIONS

Theoretical performance



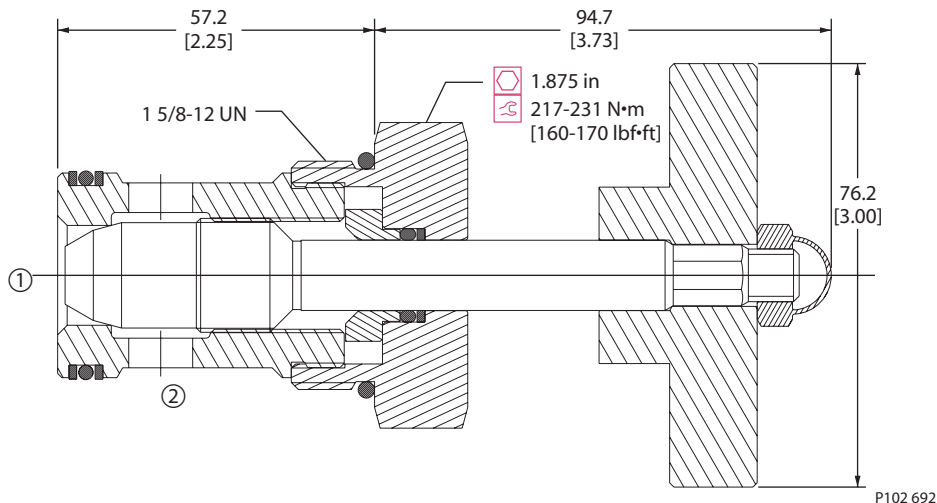
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	380 l/min [100 US gal/min]
Leakage	6 drops/min @ Rated pressure
Weight	0.85 kg [1.87 lb]
Cavity	SDC20-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP613-1-B-16S

Housing and ports

- 0 = No Housing
- 8B = AL, 1 BSP
- 10B = AL, 1-1/4 BSP
- 16S = AL, #16 SAE
- 20S = AL, #20 SAE
- Other housings available

Seals

B = Buna-N 120172
V = Viton 120173

Housing P/N

No Housing
CP20-2-8B
CP20-2-10B
CP20-2-16S
CP20-2-20S

P102 693E

Cartridge Valves Technical Information

Flow Control Valves

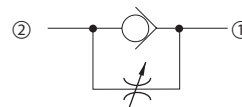
Needle Valves

CP610-7

OPERATION

This valve is an adjustable orifice with free reverse flow.

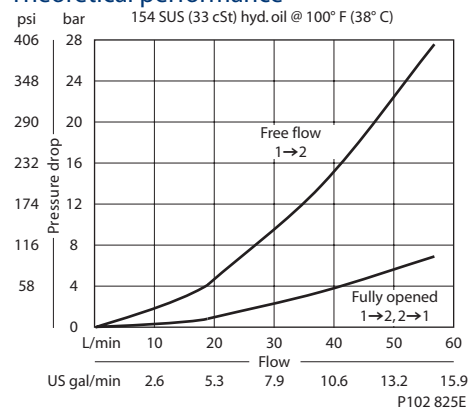
Schematic



P102 824

SPECIFICATIONS

Theoretical performance



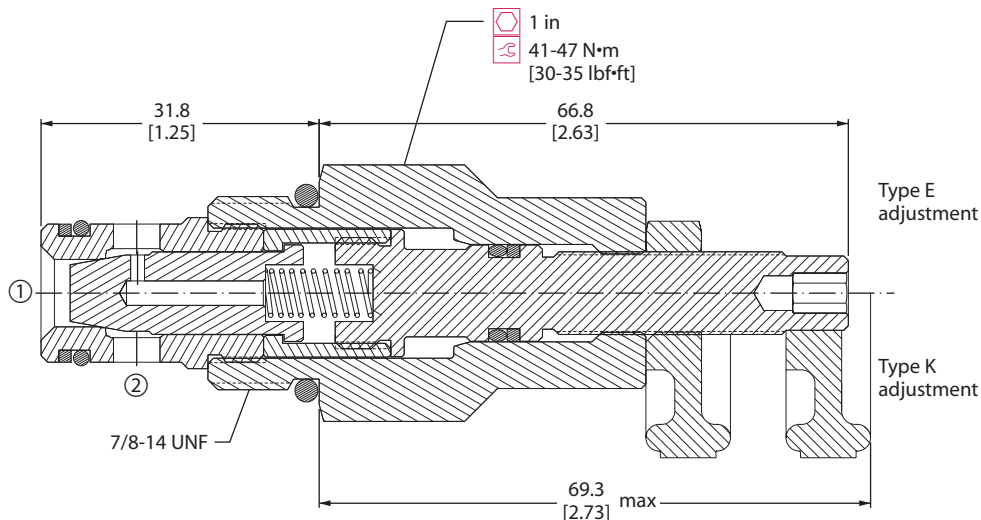
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	55 l/min [15 US gal/min]
Leakage	30 drops/min @ Rated pressure
Weight	0.18 kg [0.40 lb]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

CP610 - 7 - B - 8S - K

Seals		
B = Buna-N	Seal kit 120015	
V = Viton	Seal kit 120016	
Housing and ports	Housing P/N	Adjustment option
0 = No Housing	No Housing	E = External
DG3B = AL, 3/8 BSP	SDC10-2-DG-3B	K = Knob
DG4B = AL, 1/2 BSP	SDC10-2-DG-4B	
6S = AL, #6 SAE	CP10-2-6S	
8S = AL, #8 SAE	CP10-2-8S	
Other housings available		

P102 763E

Cartridge Valves Technical Information

Flow Control Valves

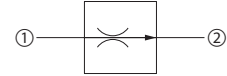
Pressure-Compensated, Restrictive Flow Control

CP308-1

OPERATION

This valve is a fixed pressure compensated flow control valve.

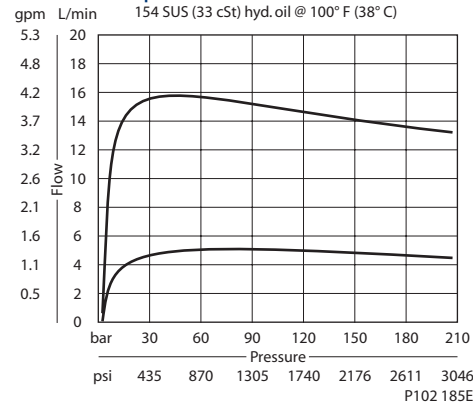
Schematic



P102 183E

SPECIFICATIONS

Theoretical performance



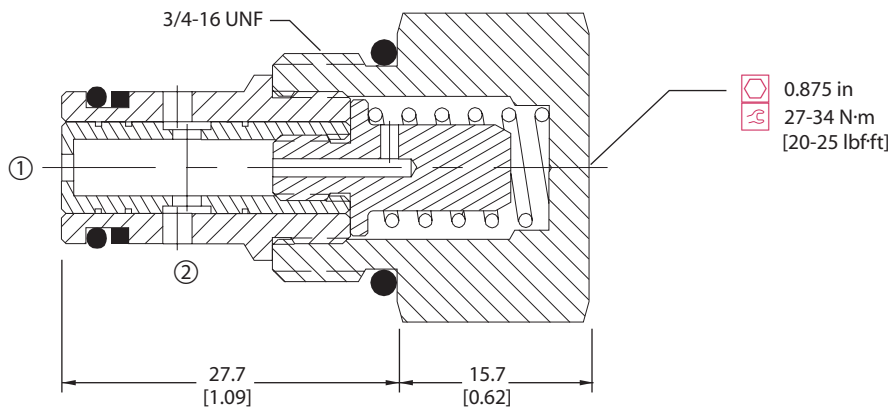
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	15 l/min [4 US gal/min]
Weight	0.08 kg [0.17 lb]
Accuracy ± 20%	0.4-2.2 l/min [0.1-0.6 US gal/min]
± 15%	2.3-6.8 l/min [0.6-1.8 US gal/min]
± 10%	6.9-15.1 l/min [1.8-4 US gal/min]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 184E

ORDERING INFORMATION

CP308 - 1 - B - 6S - 1.0			
Seals	Seal kit		
B = Buna-N	120221		
V = Viton	120022		
Housing and ports	Housing P/N		
0 = No Housing	No Housing		
DG2B = Al, 1/4 BSP	SDC08-2-DG-2B		
DG3B = Al, 3/8 BSP	SDC08-2-DG-3B		
4S = Al, #4 SAE	CP08-2-4S		
6S = Al, #6 SAE	CP08-2-6S		
Other housings available			
		Regulated Flow	
		L/min	[US gal/min]
		0.1 = .4	[0.1]
		To	
		4.0 = 15.1	[4.0]

P102 187E

Cartridge Valves Technical Information

Flow Control Valves

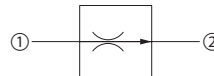
Pressure-Compensated, Restrictive Flow Control

CP300-1

OPERATION

This valve is a fixed pressure compensated flow control valve.

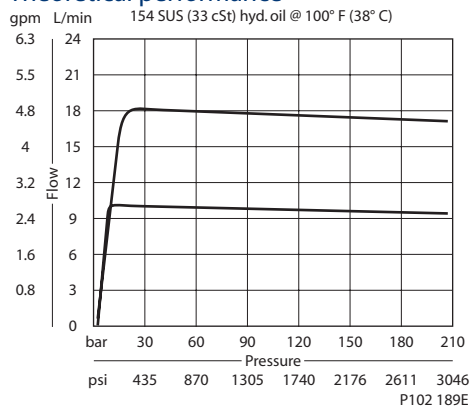
Schematic



P102 183E

SPECIFICATIONS

Theoretical performance



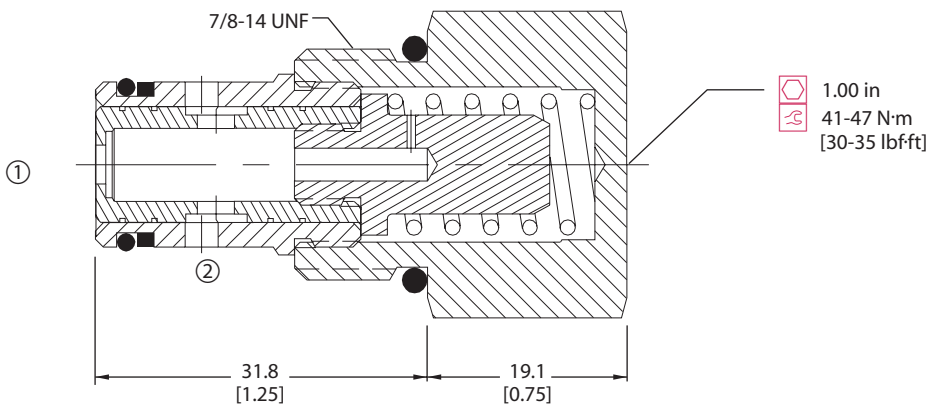
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	23 l/min [6 US gal/min]
Weight	0.12 kg [0.26 lb]
Accuracy ± 20%	0.4-2.2 l/min [0.1-0.6 US gal/min]
± 15%	2.3-6.8 l/min [0.6-1.8 US gal/min]
± 10%	6.9-22.7 l/min [1.8-6 US gal/min]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 188E

ORDERING INFORMATION

Seals		Seal kit		Regulated Flow	
B	= Buna-N	120015		L/min	[US gal/min]
V	= Viton	120016		0.5 = 1	[0.5]
Housing and ports		Housing P/N		to	
0	= No Housing	No Housing		6.0 = 22.7	[6.0]
DG3B	= Al, 3/8 BSP	SDC10-2-DG-3B			
DG4B	= Al, 1/2 BSP	SDC10-2-DG-4B			
6S	= Al, #6 SAE	CP10-2-6S			
8S	= Al, #8 SAE	CP10-2-8S			
Other housings available					

P102 191E

Cartridge Valves Technical Information

Flow Control Valves

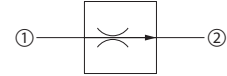
Pressure-Compensated, Restrictive Flow Control

CP301-1

OPERATION

This valve is a fixed pressure compensated flow control valve.

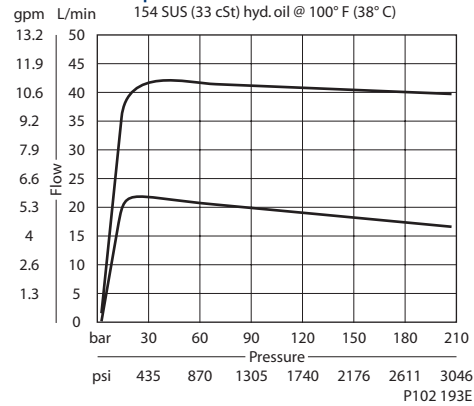
Schematic



P102 183E

SPECIFICATIONS

Theoretical performance



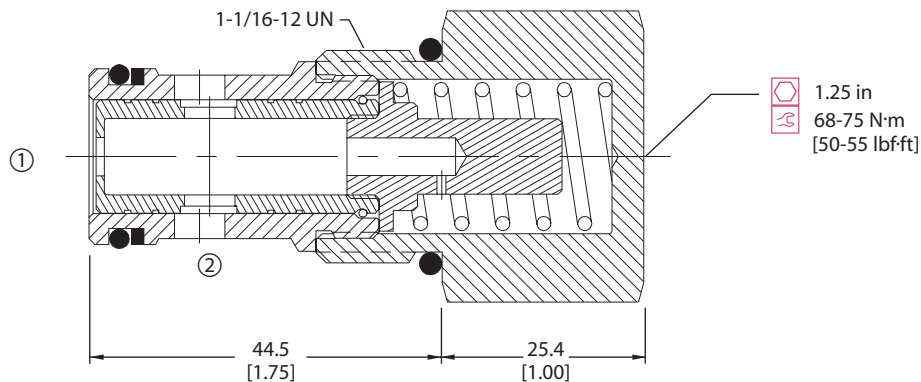
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	57 l/min [15 US gal/min]
Weight	0.24 kg [0.52 lb]
Accuracy ± 15%	1.9-7.5 l/min [0.5-2 US gal/min]
± 10%	7.6-56.8 l/min [2-15 US gal/min]
Cavity	CP12-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 192E

ORDERING INFORMATION

CP301 - 1 - B - 12S - 10.0				
Seals		Seal kit		
B = Buna-N		120017		
V = Viton		120018		
			Regulated Flow	
Housing and ports		Housing P/N	L/min	[US gal/min]
0 = No Housing	No Housing		0.5 = 1.9	[0.5]
4B = Al, 1/2 BSP	CP12-2-4B		to	
6B = Al, 3/4 BSP	CP12-2-6B		15.0 = 56.8	[15.0]
10S = Al, #10 SAE	CP12-2-10S			
12S = Al, #12 SAE	CP12-2-12S			
Other housings available				
P102 195E				

P102 195E

Cartridge Valves Technical Information

Flow Control Valves

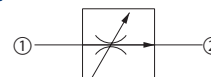
Pressure-Compensated, Restrictive Flow Control

CP308-2

OPERATION

This valve is a limited adjustment pressure compensated flow control valve.

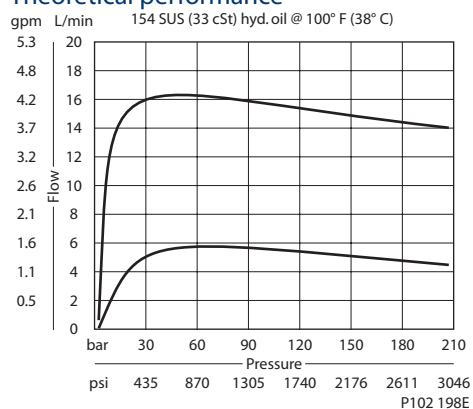
Schematic



P102 196E

SPECIFICATIONS

Theoretical performance



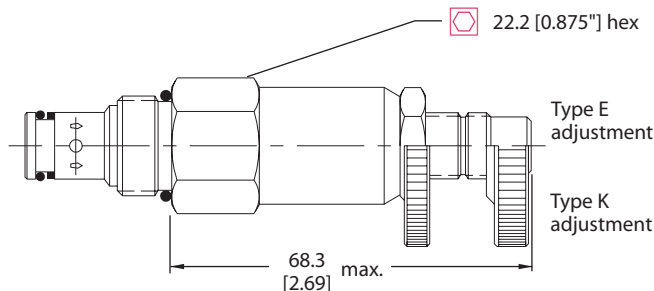
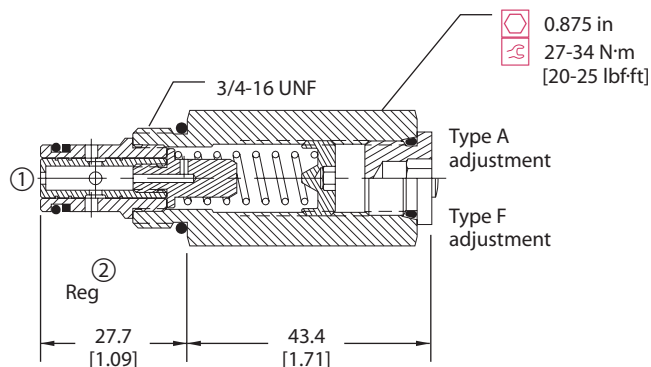
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	15 l/min [4 US gal/min]
Weight	0.15 kg [0.32 lb]
Cavity	SDC08-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 197E

ORDERING INFORMATION

CP308 - 2 - B - 6S - A - 1.0			
Seals	Seal kit	Regulated Flow	
B = Buna-N	120221	L/min [US gal/min]	
V = Viton	120222	0.1 = .4 [0.1]	
		To	
		4.0 = 15.1 [4.0]	
Housing and ports	Housing P/N	Adjustment option	
0 = No Housing	No Housing	A = Internal	
DG2B = Al, 1/4 BSP	SDC08-2-DG-2B	E = External	
DG3B = Al, 3/8 BSP	SDC08-2-DG-3B	F = Tamper resistant	
4S = Al, #4 SAE	CP08-2-4S	K = Knob	
6S = Al, #6 SAE	CP08-2-6S		
Other housings available			

P102 200E

Cartridge Valves Technical Information

Flow Control Valves

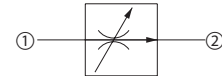
Pressure-Compensated, Restrictive Flow Control

CP300-2

OPERATION

This valve is a limited adjustment pressure compensated flow control valve.

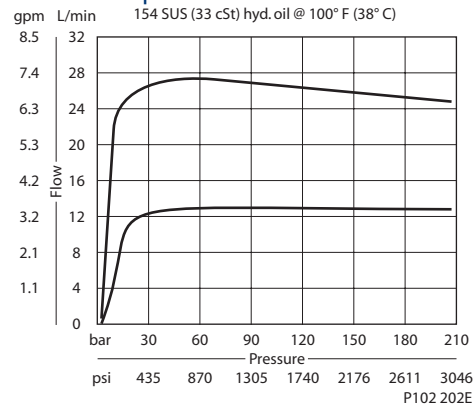
Schematic



P102 196E

SPECIFICATIONS

Theoretical performance



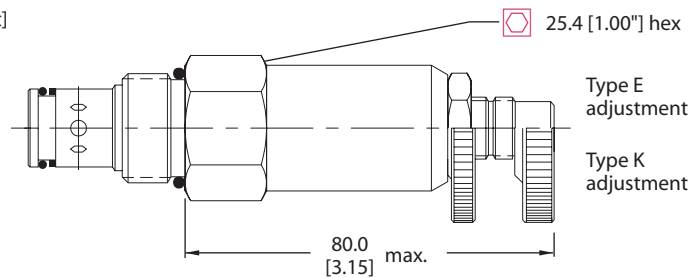
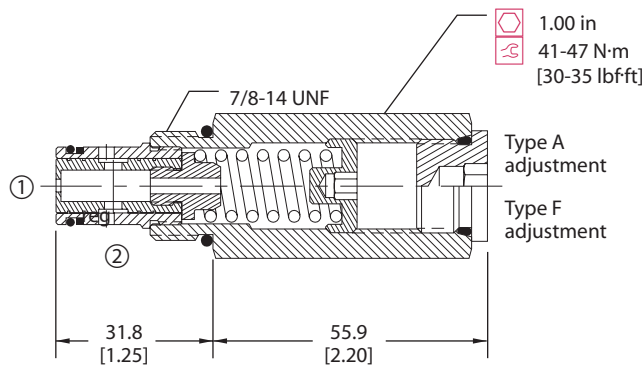
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	23 l/min [6 US gal/min]
Weight	0.24 kg [0.52 lb]
Accuracy ± 20%	0.5-2.2 l/min [0.1-0.5 US gal/min]
± 15%	2.3-6.8 l/min [0.5-1.5 US gal/min]
± 10%	6.8-27.3 l/min [1.5-6 US gal/min]
Cavity	SDC10-2

DIMENSIONS

mm [in]

Cross-sectional view



P102 201E

ORDERING INFORMATION

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

Seal kit

120015
120016

Housing P/N

No Housing
SDC10-2-DG-3B
SDC10-2-DG-4B
CP10-2-6S
CP10-2-8S

CP300 - 2 - B - 8S - A - 2.5

Regulated Flow

L/min [US gal/min]
0.5 = 2.4 [0.5]
To
6.0 = 22.7 [6.0]

Adjustment option

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

P102 204E

Cartridge Valves Technical Information

Flow Control Valves

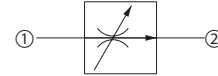
Pressure-Compensated, Restrictive Flow Control

VR 06

OPERATION

This valve is a limited adjustment, pressure compensated, restrictive-type flow control valve.

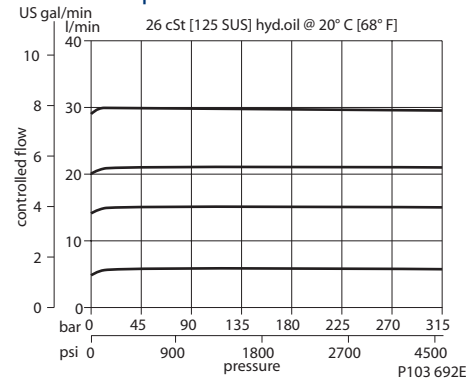
Schematic



P102 196E

SPECIFICATIONS

Theoretical performance



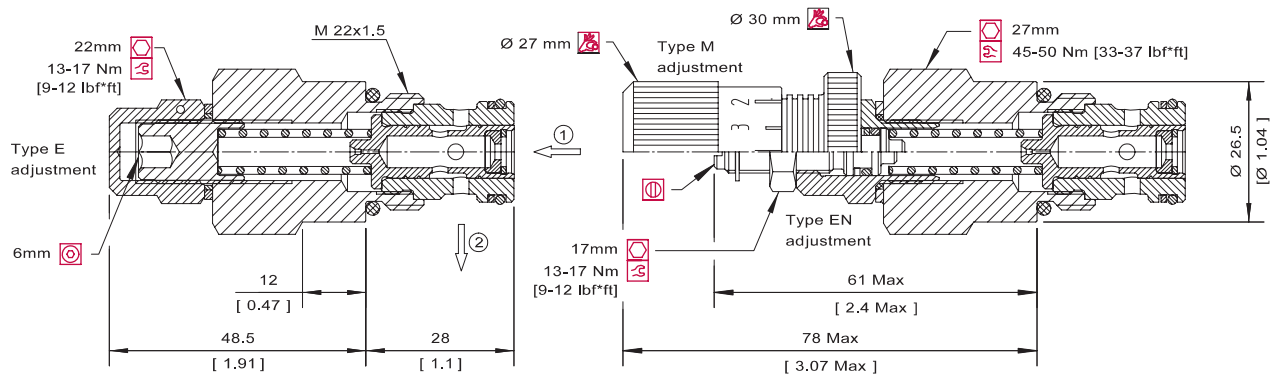
Specifications

Rated pressure	315 bar [4500 psi]
Max regulated flow	30 l/min [8 US gal/min]
Weight	0.19 kg [0.42 lb]
Cavity	NCS06/2

DIMENSIONS

mm [in]

Cross-sectional view



P103 664

ORDERING INFORMATION

VR 06 - EN-1.25 - 00 - V

Adjustment

E = Internal screw
EN = External screw
M = Handwheel

Orifice size

mm	L/min	[US gal/m]
1.25	= 1-4	[0.3-1.1]
2.00	= 3-10	[0.8-2.6]
3.00	= 6-20	[1.6-5.3]
3.50	= 10-30	[2.6-7.9]
other orifices available consult factory		

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

P103 718E

Cartridge Valves Technical Information

Flow Control Valves

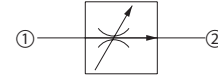
Pressure-Compensated, Restrictive Flow Control

VR 12

OPERATION

This valve is a limited adjustment, pressure compensated, restrictive-type flow control valve.

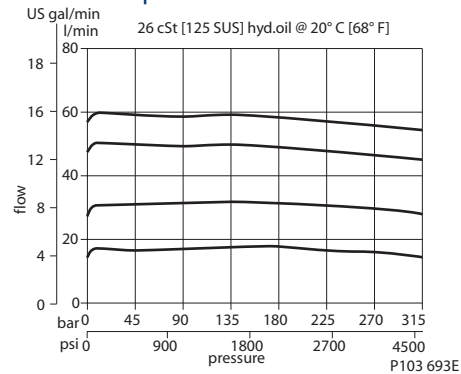
Schematic



P102 196E

SPECIFICATIONS

Theoretical performance



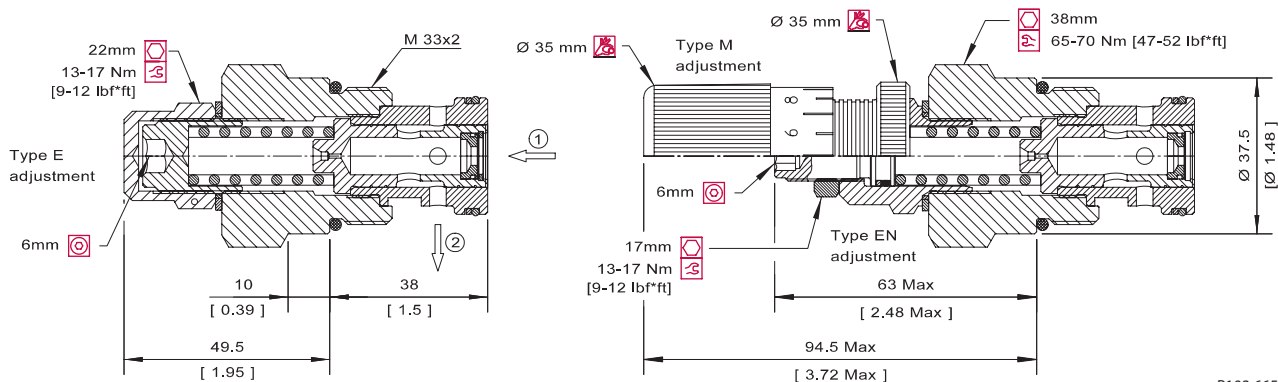
Specifications

Rated pressure	315 bar [4500 psi]
Max regulated flow	60 l/min [16 US gal/min]
Weight	0.44 kg [0.97 lb]
Cavity	NCS12/2

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

VR 12 - EN-1.25 - 00 - V

Adjustment

E = Internal screw
EN = External screw
M = Handwheel

Orifice size

mm	L/min	[US gal/m]
1.50	= 2.5-6.5	[0.7-1.7]
2.50	= 6-16	[1.6-4.2]
4.00	= 16-40	[4.2-10.6]
5.00	= 25-60	[6.6-15.8]

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 719E

Cartridge Valves Technical Information

Flow Control Valves

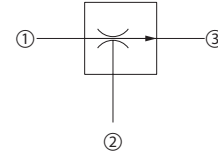
Pressure-Compensated, Priority Flow Control

CP310-1

OPERATION

This valve is a fixed, pressure compensated priority-type flow control valve.

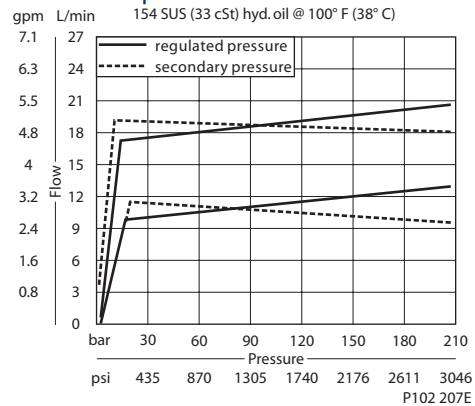
Schematic



P102 205E

SPECIFICATIONS

Theoretical performance



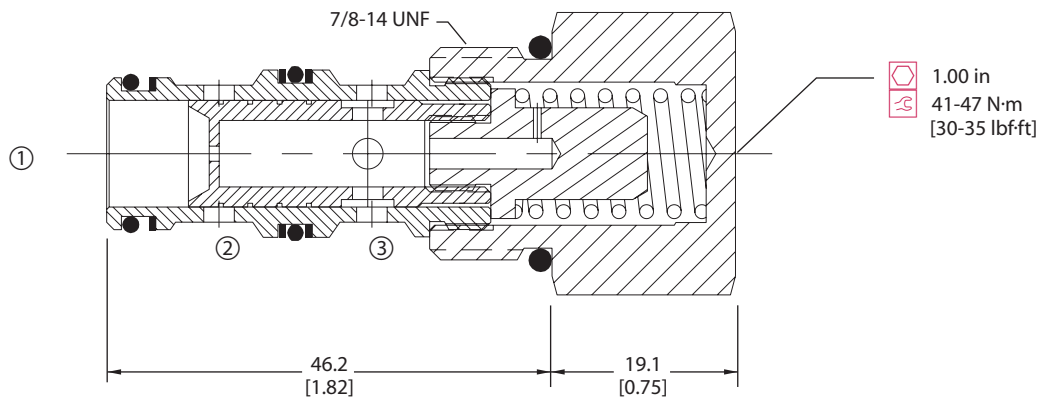
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	23 l/min [6 US gal/min]
Max inlet flow	38 l/min [10 US gal/min]
Weight	0.13 kg [0.29 lb]
Accuracy ± 20%	0.4-2.2 l/min [0.1-0.6 US gal/min]
± 15%	2.3-6.8 l/min [0.6-1.8 US gal/min]
± 10%	6.9-22.7 l/min [1.8-6 US gal/min]
Cavity	SDC10-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 206E

ORDERING INFORMATION

Seals

B = Buna-N
V = Viton

Housing and ports

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

Seal kit

120240
120241

Housing P/N

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

CP310 - 1 - B - 8S - 2.5

Regulated Flow

L/min [US gal/m]
0.1 = 0.4 [0.1]
6.0 = 22.7 [6.0]

P102 209E

Cartridge Valves Technical Information

Flow Control Valves

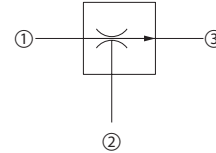
Pressure-Compensated, Priority Flow Control

VRF 06

OPERATION

This valve is a fixed, pressure compensated, priority-type flow control.

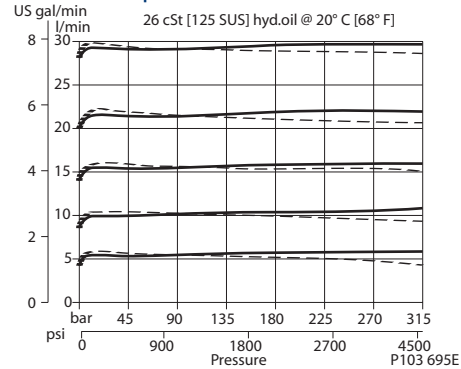
Schematic



P102 205E

SPECIFICATIONS

Theoretical performance



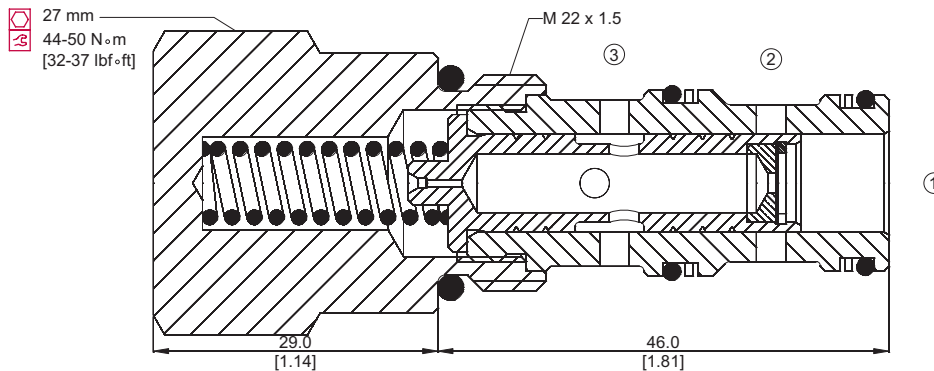
Specifications

Rated pressure	315 bar [4500 psi]
Max regulated flow	26 l/min [7 US gal/min]
Max inlet flow	50 l/min [13 US gal/min]
Weight	0.19 kg [0.42 lb]
Accuracy ± 10%	2.3-25.5 l/min [0.5-6.8 US gal/min]
Cavity	NCS06/3

DIMENSIONS

mm [in]

Cross-sectional view



P103 667

ORDERING INFORMATION

VRF 06 - 1.5 - SE3/8 - V

Orifice size

Orifice	L/min	flow	[US gal/min]
0.75	= 1.5	[0.4]	
1.00	= 2.0	[0.53]	
1.25	= 3.5	[0.92]	
1.50	= 4.5	[1.19]	
1.75	= 6	[1.58]	
2.00	= 9.0	[1.38]	
2.25	= 10	[2.64]	
2.50	= 12	[3.30]	
2.75	= 15	[3.96]	
3.00	= 18	[4.75]	
3.25	= 21.5	[5.68]	
3.50	= 25	[6.73]	

Seals

V = Viton
Omit = Buna-N

Seal kit

230000110
230000070

Housing and ports

00 = No Housing
SE3/8 = AL, 3/8 BSP
SE1/2 = AL, 1/2 BSP
SE65 = AL, #6 SAE
SE85 = AL, #8 SAE
Other housings available

Housing P/N

No Housing
NCS06/3-SE-3/8
NCS06/3-SE-1/2
NCS06/3-SE-65
NCS06/3-SE-85

P103 722E

Cartridge Valves Technical Information

Flow Control Valves

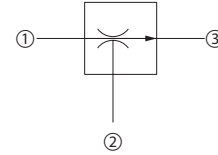
Pressure-Compensated, Priority Flow Control

CP311-1

OPERATION

This valve is a fixed, pressure compensated priority-type flow control valve.

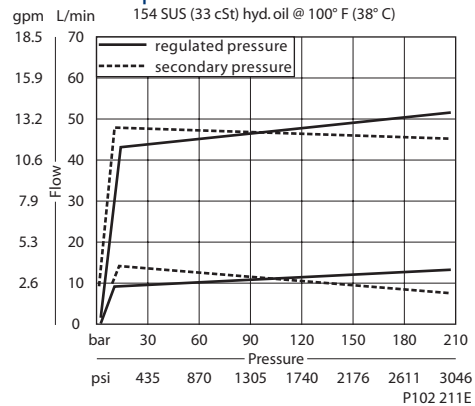
Schematic



P102 205E

SPECIFICATIONS

Theoretical performance



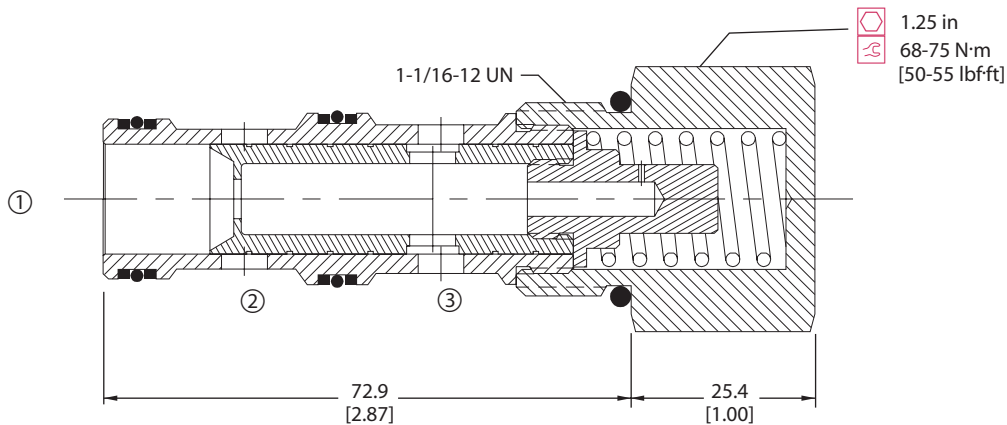
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	45 l/min [12 US gal/min]
Max inlet flow	95 l/min [25 US gal/min]
Weight	0.28 kg [0.61 lb]
Accuracy ± 15%	1.9-7.5 l/min [0.5-2 US gal/min]
± 10%	7.6-45.4 l/min [2-12 US gal/min]
Cavity	CP12-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 210E

ORDERING INFORMATION

CP311 - 1 - B - 12S - 10.0			
Seals	Seal kit		
B = Buna-N	120053		
V = Viton	120052		
Housing and ports	Housing P/N		
0 = No Housing	No Housing		
4B = Al, 1/2 BSP	CP12-3-4B		
6B = Al, 3/4 BSP	CP12-3-6B		
10S = Al, #10 SAE	CP12-3-10S		
12S = Al, #12 SAE	CP12-3-12S		
Other housings available			
		Regulated Flow	
		L/min	[US gal/min]
		0.5	= 1.9 [0.5]
		12.0	= 45.4 [12.0]

P102 213E

Cartridge Valves Technical Information

Flow Control Valves

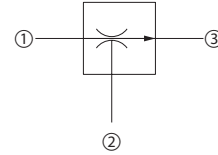
Pressure-Compensated, Priority Flow Control

CP312-1

OPERATION

This valve is a fixed, pressure compensated priority-type flow control valve.

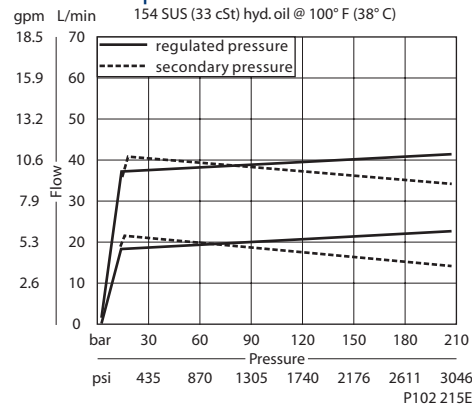
Schematic



P102 205E

SPECIFICATIONS

Theoretical performance



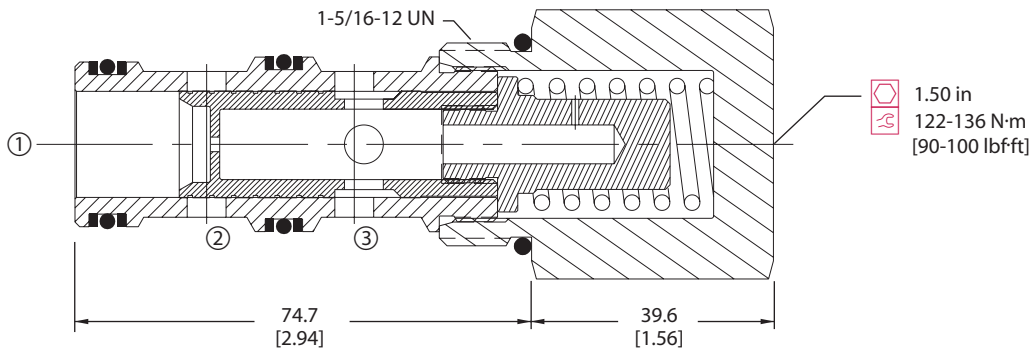
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	64 l/min [17 US gal/min]
Max inlet flow	130 l/min [34 US gal/min]
Weight	0.53 kg [1.17 lb]
Accuracy ± 15%	1.9-7.5 l/min [0.5-2 US gal/min]
± 10%	7.6-64.3 l/min [2-17 US gal/min]
Cavity	SDC16-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 214E

ORDERING INFORMATION

CP312 - 1 - B - 16S - 10.0			
Seals	Seal kit	Regulated flow	
B = Buna-N	120202	L/min	[US gal/min]
V = Viton	120203	0.5 = 1.9	[0.5]
		To	
		17.0 = 64.3	[17.0]
Housing and ports	Housing P/N		
0 = No Housing	No Housing		
SE6B = Al, 3/4 BSP	SDC16-3-SE-6B		
SE8B = Al, 1 BSP	SDC16-3-SE-8B		
12S = Al, #12 SAE	CP16-3-12S		
16S = Al, #16 SAE	CP16-3-12S		
Other housings available		P102 217E	

P102 217E

Cartridge Valves Technical Information

Flow Control Valves

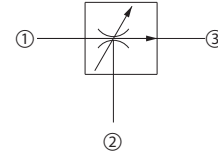
Pressure-Compensated, Priority Flow Control

CP310-2

OPERATION

This valve is a limited adjustment, pressure compensated, priority-type flow control valve.

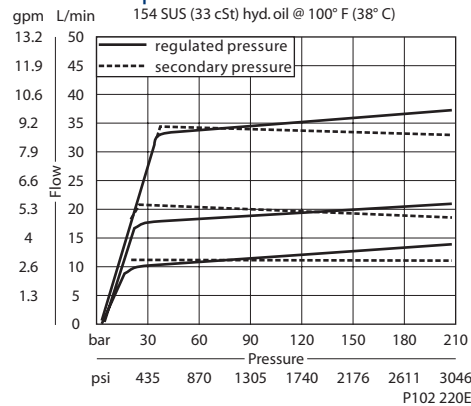
Schematic



P102 218E

SPECIFICATIONS

Theoretical performance



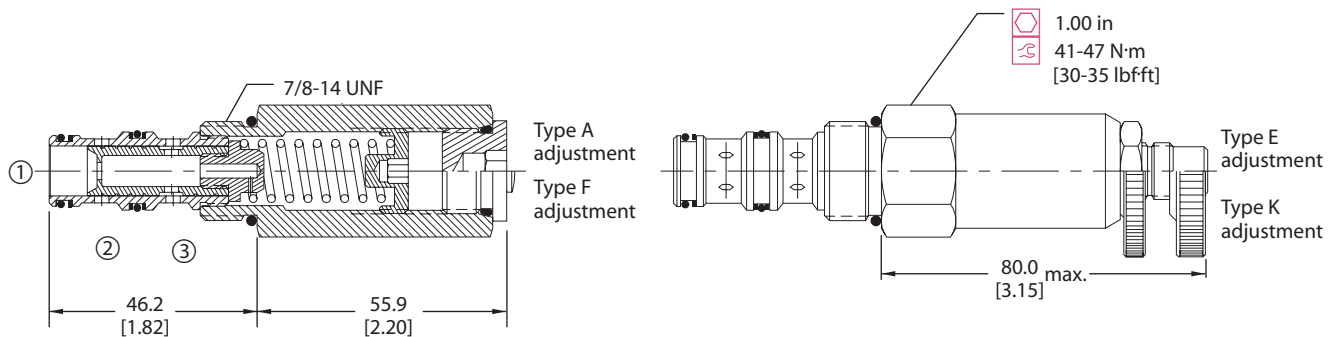
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	23 l/min [6 US gal/min]
Max inlet flow	38 l/min [10 US gal/min]
Weight	0.24 kg [0.52 lb]
Cavity	SDC10-3

DIMENSIONS

mm [in]

Cross-sectional view



P102 219E

ORDERING INFORMATION

Seals		Seal kit		Regulated Flow	
B	= Buna-N	120240		L/min	[US gal/min]
V	= Viton	120241		0.1 = .4	[0.1]
Housing and ports		Housing P/N		To	
0	= No Housing	No Housing		6.0 = 22.7	[6.0]
SE3B	= Al, 3/8 BSP	SDC10-3-SE-3B		Adjustment option	
SE4B	= Al, 1/2 BSP	SDC10-3-SE-4B		A	= Internal
6S	= Al, #6 SAE	CP10-3-6S		E	= External
8S	= Al, #8 SAE	CP10-3-8S		F	= Tamper resistant
Other housings available				K	= Knob

P102 222E

Cartridge Valves Technical Information

Flow Control Valves

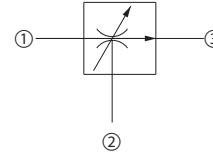
Pressure-Compensated, Priority Flow Control

VRC 06

OPERATION

This valve is a limited adjustment, pressure compensated, priority-type flow control valve.

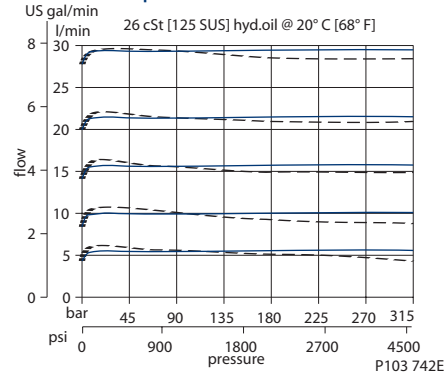
Schematic



P102 218E

SPECIFICATIONS

Theoretical performance



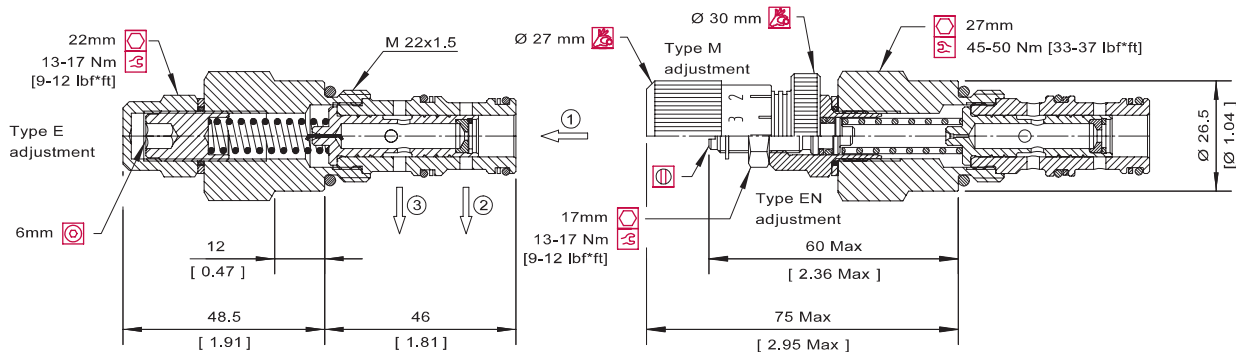
Specifications

Rated pressure	315 bar [4500 psi]
Max regulated flow	30 l/min [8 US gal/min]
Max inlet flow	50 l/min [13 US gal/min]
Weight	0.21 kg [0.46 lb]
Cavity	NCS06/3

DIMENSIONS

mm [in]

Cross-sectional view



P103 741

ORDERING INFORMATION

VRC 06 - EN-2.0 - SE3/8 - V			
Type of adjustment E = Internal screw EN = External screw M = Handwheel		Seals V = Viton Omit = Buna-N	Seal kit 230000110 230000070
Orifice size mm L/min [US gal/m] 1.25 = 1-4 [0.3-1.1] 2.0 = 3-10 [0.8-2.5] 3.0 = 6-20 [1.6-5.3] 3.5 = 10-30 [2.6-7.9] other orifices available consult factory		Housing and ports 00 = No Housing SE3/8 = AL, 3/8 BSP SE1/2 = AL, 1/2 BSP SE65 = AL, #6 SAE SE85 = AL, #8 SAE Other housings available	
		Housing P/N No Housing NCS06/3-SE-3/8 NCS06/3-SE-1/2 NCS06/3-SE-65 NCS06/3-SE-85	

P103 720E

Cartridge Valves Technical Information

Flow Control Valves

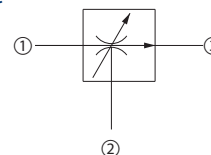
Pressure-Compensated, Priority Flow Control

VRC 12

OPERATION

This valve is a limited adjustment, pressure compensated, priority-type flow control valve.

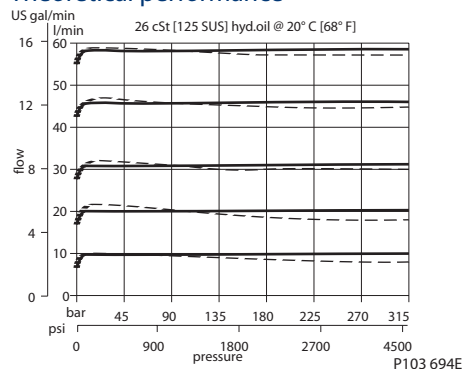
Schematic



P102 218E

SPECIFICATIONS

Theoretical performance



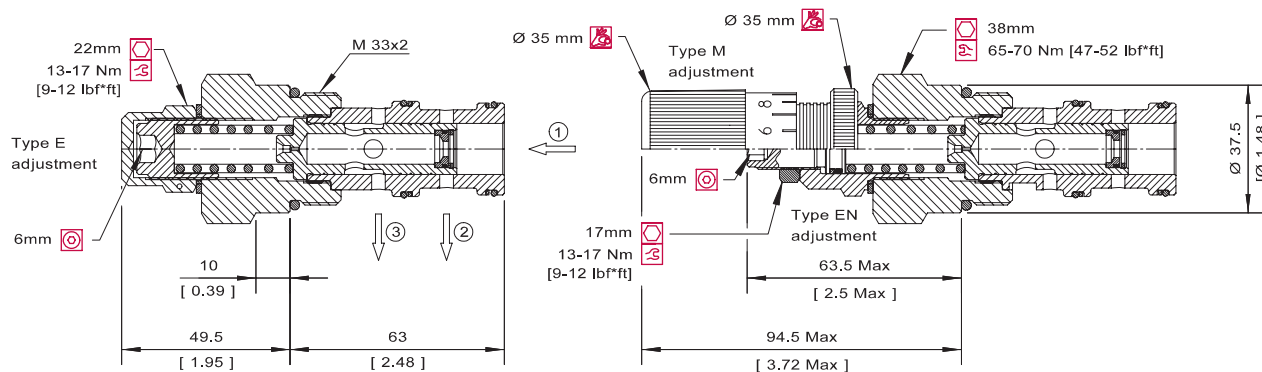
Specifications

Rated pressure	315 bar [4500 psi]
Max regulated flow	73 l/min [19 US gal/min]
Max inlet flow	100 l/min [26 US gal/min]
Weight	0.50 kg [1.10 lb]
Cavity	NCS12/3

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

VRC 12 - EN-1.5 - SE1/2 - V

Adjustment

E = Internal screw
EN = External screw
M = Handwheel

Orifice size

mm	L/min	[US gal/min]
1.25	= 2.5-6.5	[0.7-1.7]
2.50	= 6-16	[1.6-4.2]
3.50	= 9-32	[2.4-8.4]
4.00	= 16-40	[4.2-10.6]
5.00	= 25-60	[6.6-15.8]
5.75	= 30-73	[7.9-19.3]

Seals

V = Viton
Omit = Buna-N

Seal kit

230000360
230000130

Housing and ports

00 = No Housing
SE1/2 = AL, 1/2 BSP
SE3/4 = AL, 3/4 BSP
SE8S = AL, #8 SAE
SE12S = AL, #12 SAE
Other housings available

Housing P/N

No Housing
NCS12/3-SE-1/2
NCS12/3-SE-3/4
NCS12/3-SE-8S
NCS12/3-SE-12S

P103 721E

Cartridge Valves Technical Information

Flow Control Valves

Pressure-Compensated, Priority Flow Control

CP300-6

OPERATION

This valve is a fixed setting, pressure compensated, bi-directional flow control valve. NOTE: Port 1 must be blocked for proper operation.

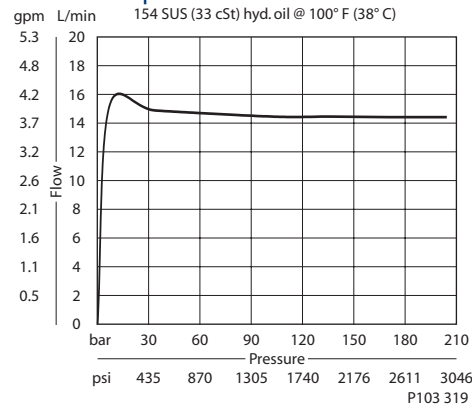
Schematic



P103 508

SPECIFICATIONS

Theoretical performance



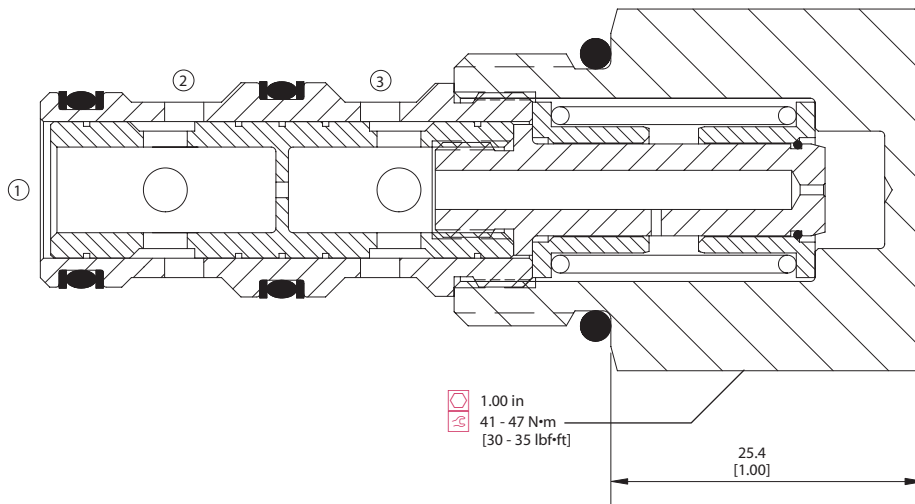
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	23 l/min [6 US gal/min]
Weight	0.13 kg [0.29 lb]
Accuracy ± 20%	0.4-2.2 l/min [0.1-0.6 US gal/min]
± 15%	2.4-6.8 l/min [0.6-1.8 US gal/min]
± 10%	6.9-23 l/min [1.8-6 US gal/min]
Cavity	SDC10-3

DIMENSIONS

mm [in]

Cross-sectional view



P103 256

ORDERING INFORMATION

CP300 - 6 - B - 8S - 2.5

Seals

B = Buna-N
V = Viton

Seal kit

120009
120010

Housing and ports

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

Housing P/N

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

Regulated Flow

L/min	[US gal/min]
0.1	[0.1]
6.0	[6.0]

P103 255

Cartridge Valves Technical Information

Flow Control Valves

Pressure-Compensated, Priority Flow Control

FCH10-BD

OPERATION

This valve is a fixed setting, pressure compensated, bi-directional flow control valve. NOTE: Port 1 must be blocked for proper operation.

Schematic



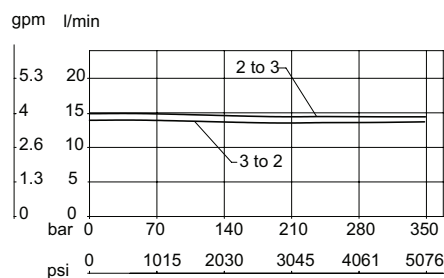
P103 508

SPECIFICATIONS

Theoretical performance

Performance

33 cSt [154 SUS] hyd.oil @ 38°C [100° F]



P108 379E

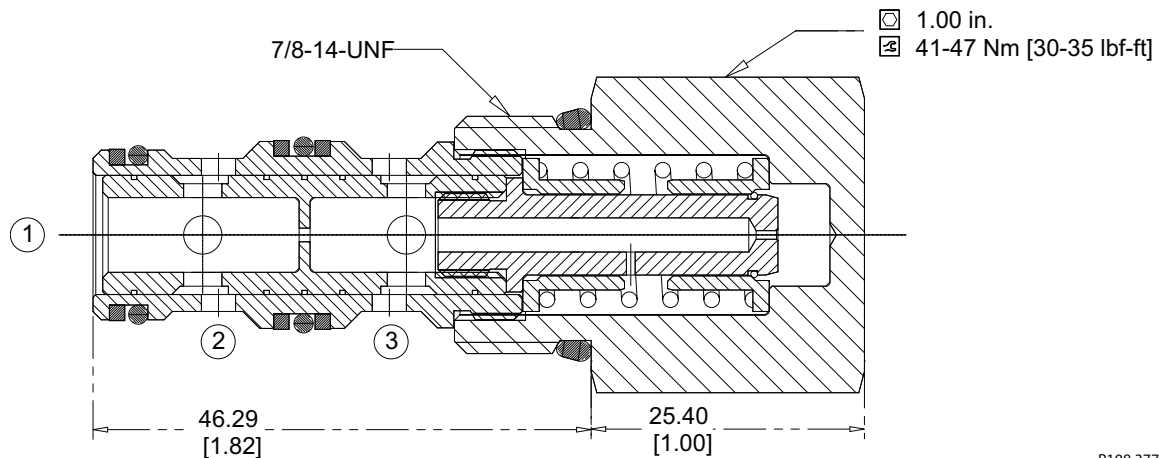
Specifications

Rated pressure	350 bar [5075 psi]
Max regulated flow	23 l/min [6 US gal/min]
Weight	0.14 kg [0.34 lb]
Accuracy ± 20%	0.4-2.2 l/min [0.1-0.6 US gal/min]
± 15%	2.3-22.7 l/min [0.6-6.0 US gal/min]
Cavity	SDC10-3

DIMENSIONS

mm [in]

Cross-sectional view



P108 377E

ORDERING INFORMATION

FCH10-BD-3.8-U-00

Regulated Flow
0.4 = 0.4 lpm [0.1 gpm]
to
22.7 = 22.7 lpm [6.0 gpm]

Housing and ports
00 = No Housing
DG-3B = Al, 3/8 BSP
DG-4B = Al, 1/2 BSP
6S = Al, #6 SAE
8S = Al, #8 SAE

Housing Part #
No Housing
SDC10-3-DG-3B
SDC10-3-DG-4B
CP10-3-6S
CP10-3-8S

Seals
U = Urethane

Seal Kit
120726

P108 376E

Cartridge Valves Technical Information

Flow Control Valves

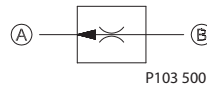
In-line

SC 10

OPERATION

This is an in-line restrictive type flow control valve.

Schematic



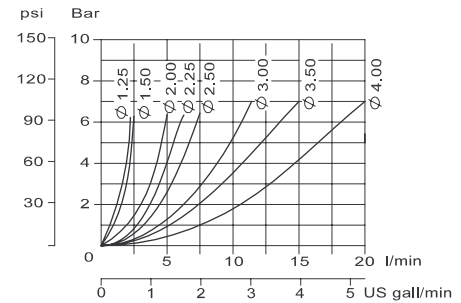
SPECIFICATIONS

Specifications

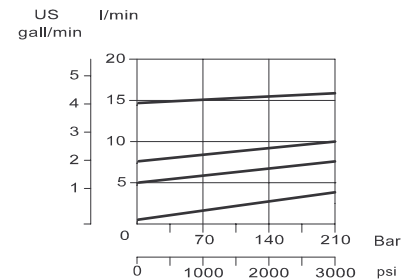
Pressure rating	210 bar [3000 psi]
Max regulated flow	16 l/min [4.2 US gal/min]
Cavity	Consult factory

Theoretical performance

Pressure drop from A $\Rightarrow$ B according to orifice diameter
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]

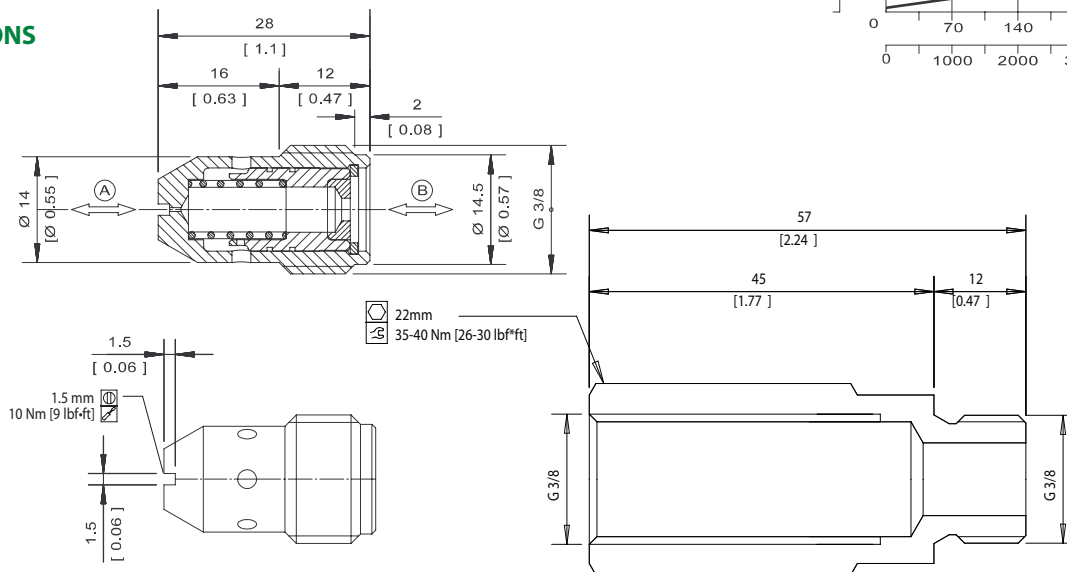


Variation in controlled flow from B $\Rightarrow$ A according to pressure
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



P103 941E

DIMENSIONS



P103 926E

ORDERING INFORMATION

SC10 - 1.25 - G - 00

Orifice diameter mm	Flow at 100 bar [1450 psi] l/min [US gal/min]	00 = Cartridge only L = 3/8 BSP
1.25 =	2.0[0.53]	
1.50 =	3.0[0.79]	
2.00 =	4.0[1.06]	
2.25 =	5.0[1.32]	
2.50 =	6.0[1.59]	
3.00 =	9.0[2.38]	
3.50 =	11.0[2.91]	
4.00 =	16.0[4.23]	

P103 851E

Cartridge Valves Technical Information

Flow Control Valves

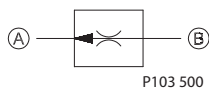
In-line

SC 13

OPERATION

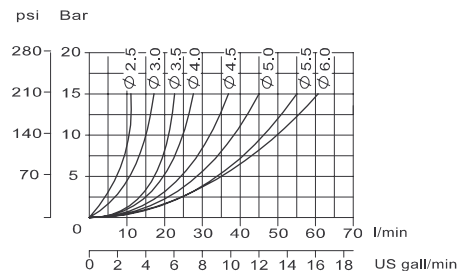
This is an in-line restrictive type flow control valve.

Schematic

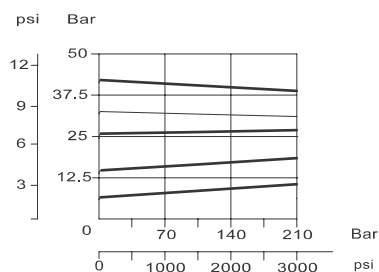


Theoretical performance

Pressure drop from A $\Rightarrow$ B according to orifice diameter
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



Variation in controlled flow from B $\Rightarrow$ A according to pressure
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]

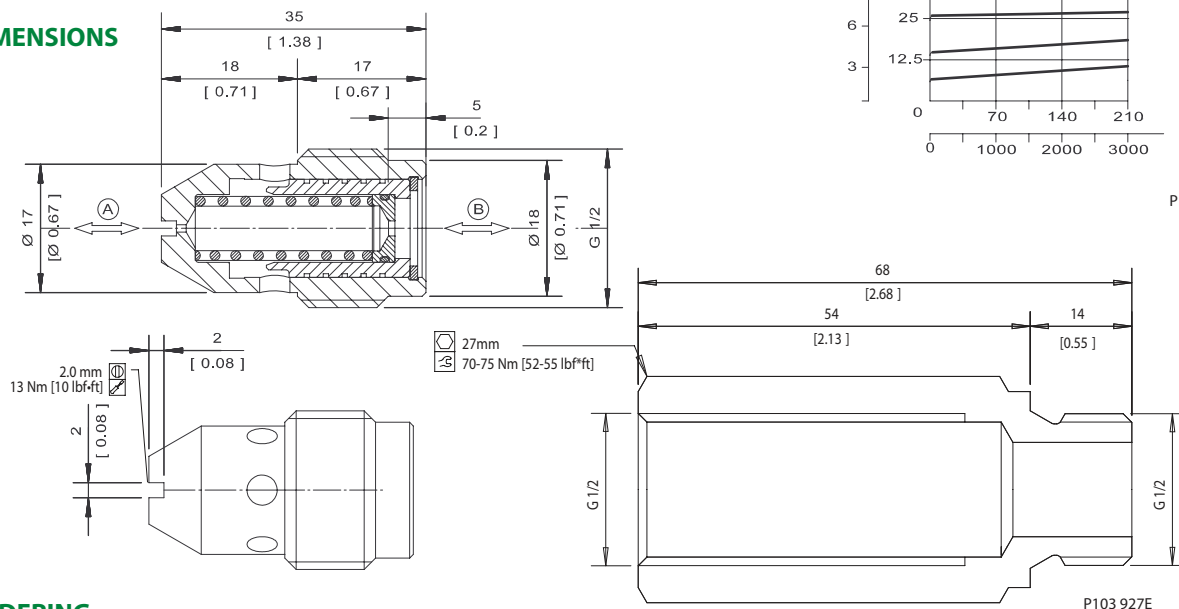


SPECIFICATIONS

Specifications

Pressure rating	207 bar [3000 psi]
Max regulated flow	47 l/min [12 US gal/min]
Cavity	Consult factory

DIMENSIONS



ORDERING INFORMATION

SC13/4.5 - G - 00

Orifice flow		00 = Cartridge only
Orifice diameter	Flow at 100 bar [1450 psi]	L = 1/2 BSP
mm	l/min [US gal/min]	
2.50	= 9 [2.38]	
3.00	= 12 [3.17]	
3.50	= 17 [4.49]	
4.00	= 21 [5.55]	
4.50	= 27 [7.13]	
5.00	= 32 [8.45]	
5.50	= 40 [10.57]	
6.00	= 47 [12.42]	

P103 852E

Cartridge Valves Technical Information

Flow Control Valves

In-line

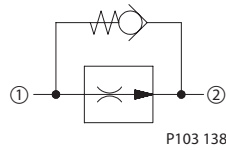
CP9014-1

OPERATION

This is an in-line restrictive type flow control valve with free reverse flow.

SPECIFICATIONS

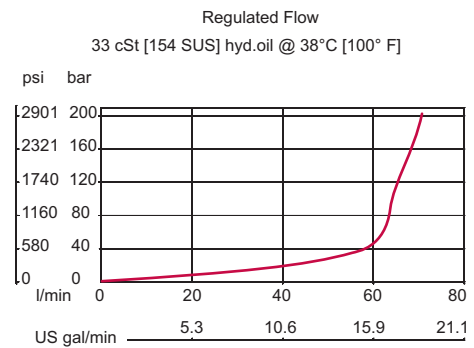
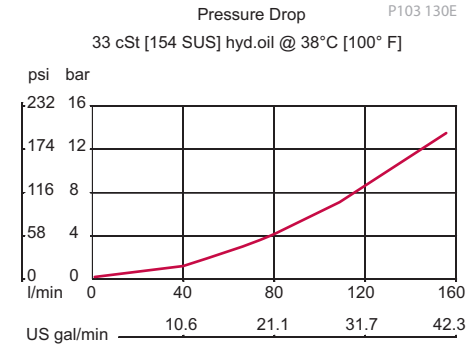
Schematic



Specifications

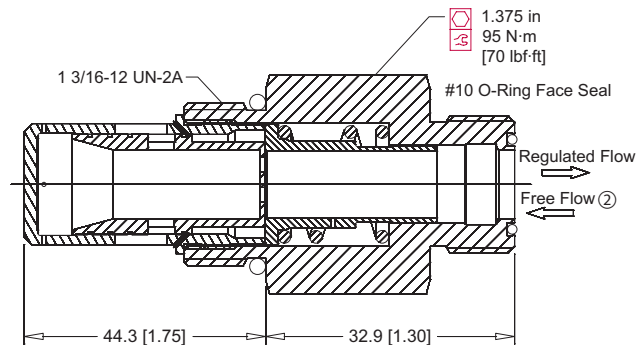
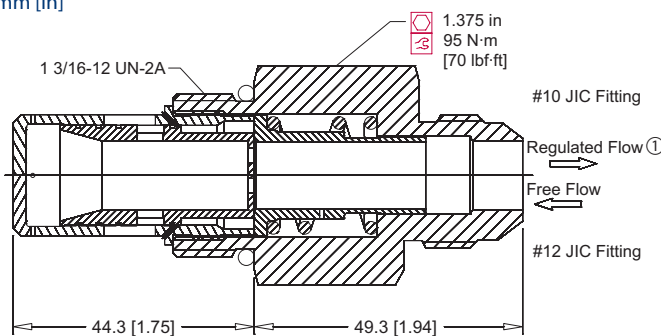
Specifications

Pressure rating	207 bar [3000 psi]
Rated Free Flow at 7 bar [100 psi]	113 l/min [30 US gal/min]
Max regulated flow	106 l/min [28 US gal/min]
Cavity	Modified SAE #14 port



DIMENSIONS

mm [in]



P103 126

ORDERING INFORMATION

CP9014-1-B-10-24

Seals
B = Buna-N
V = Viton

Seal kit
720025
720363

Flow Setting

	l/min	USgal/min
18 =	68.1	18
24 =	90.8	24
28 =	106.0	28

Consult factory for complete list of flows.

Connection (Port2)

10 = #10SAE37° JIC Fitting	7/8-14UNC-2A
12 = #12SAE37° JIC Fitting	11/16-12UN-2A
FS10 = #10SAEO-Ring Face Seal	17/16-12UN-2A

P103 134E

Cartridge Valves Technical Information

Flow Control Valves

In-line

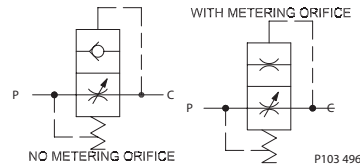
BC 06 Velocity Fuse

OPERATION

SPECIFICATIONS

This is an in-line flow limiter that closes and then provides non-compensated restricted flow when the specified flow setting is exceeded. The valve provides free reverse flow when operated in the opposite direction.

Schematic

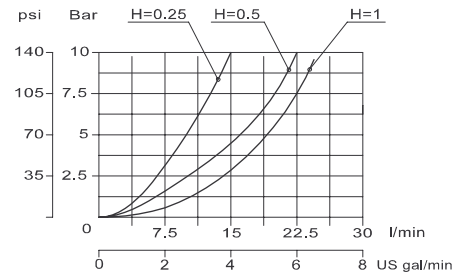


Specifications

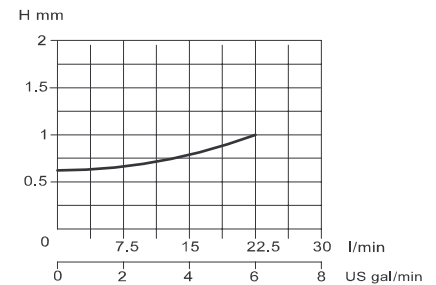
Pressure rating	210 bar [3000 psi]
Rated Free Flow at 7 bar [100 psi]	30 l/min [8 US gal/min]
Cavity	Consult factory

Theoretical performance

Pressure drop from P $\Rightarrow$ C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



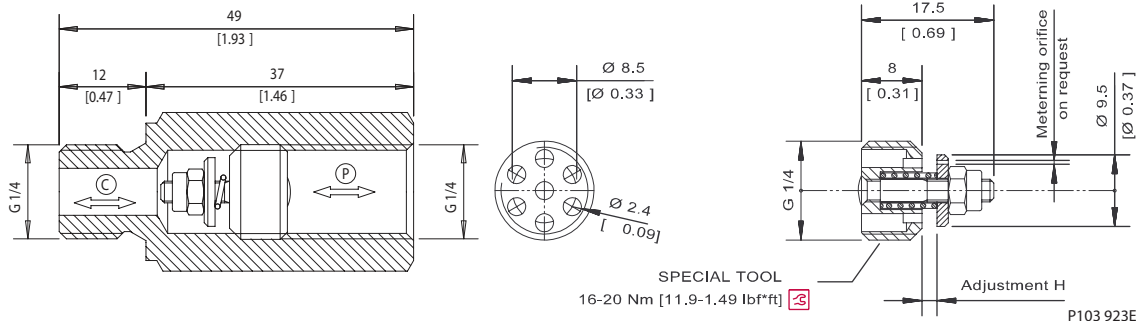
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



P104 568E

DIMENSIONS

mm [in]



ORDERING INFORMATION

BC 06 - 1.0 - G - 00 - S1.5	
Adjustment H	Metering orifice
00 = No factory adjustment	Omit = No orifice
0.25 = 0.25 mm [in]	S0.5 = 0.5 mm [in]
0.5 = 0.5 mm [in]	S0.7 = 0.7 mm [in]
1.0 = 1.0 mm [in]	S1.0 = 1.0 mm [in]
1.5 = 1.5 mm [in]	S1.5 = 1.5 mm [in]
2.0 = 2.0 mm [in]	S2.0 = 2.0 mm [in]
00 = Cartridge only	
L = 1/4 BSP	

P103 853E

Cartridge Valves Technical Information

Flow Control Valves

In-line

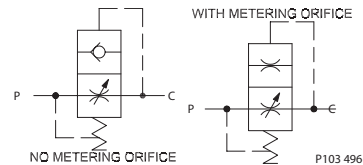
BC 10 Velocity Fuse

OPERATION

SPECIFICATIONS

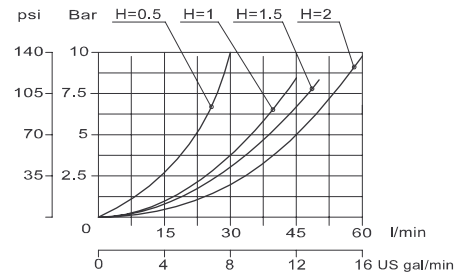
This is an in-line flow limiter that closes and then provides non-compensated restricted flow when the specified flow setting is exceeded. The valve provides free reverse flow when operated in the opposite direction.

Schematic

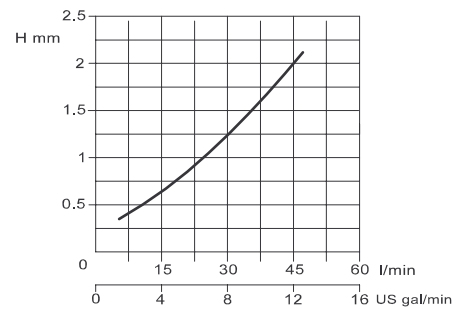


Theoretical performance

Pressure drop from P $\Rightarrow$ C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



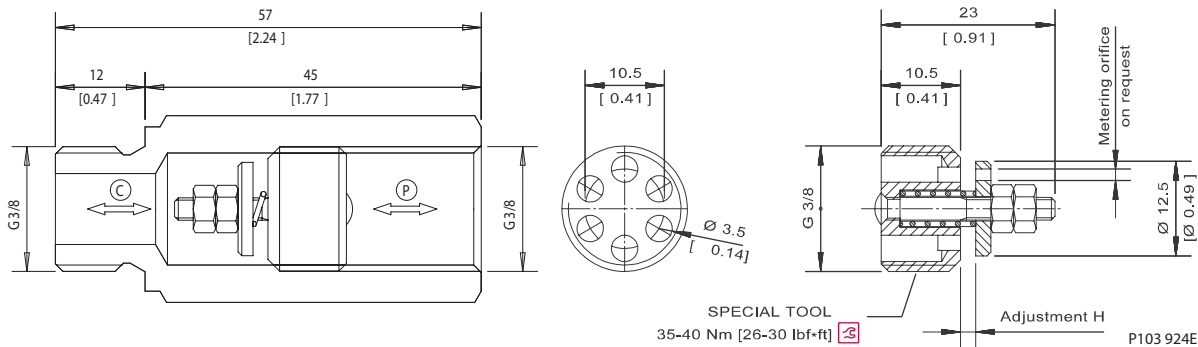
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



P103 939E

DIMENSIONS

mm [in]



P103 924E

ORDERING INFORMATION

BC 10 - 1.0 - G - 00 - S1.5

Adjustment H
00 = No factory adjustment
0.25 = 0.25 mm [in]
0.5 = 0.5 mm [in]
1.0 = 1.0 mm [in]
1.5 = 1.5 mm [in]
2.0 = 2.0 mm [in]

Metering orifice
Omit = No orifice
S0.5 = 0.5 mm [in]
S0.7 = 0.7 mm [in]
S1.0 = 1.0 mm [in]
S1.5 = 1.5 mm [in]
S2.0 = 2.0 mm [in]

Coupling
00 = Cartridge only
L = 3/8 BSP

P103 847E

Cartridge Valves Technical Information

Flow Control Valves

In-line

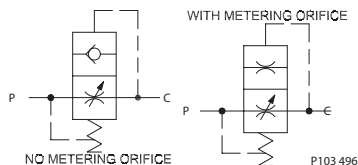
BC 13 Velocity Fuse

OPERATION

This is an in-line flow limiter that closes and then provides non-compensated restricted flow when the specified flow setting is exceeded. The valve provides free reverse flow when operated in the opposite direction.

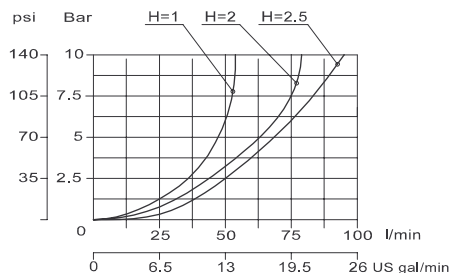
SPECIFICATIONS

Schematic

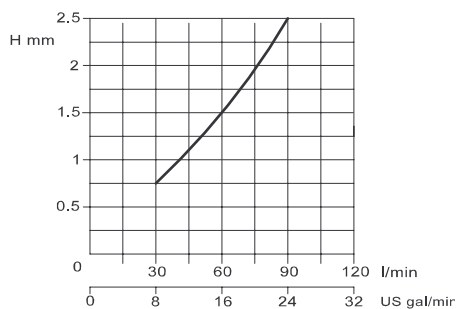


Theoretical performance

Pressure drop from P $\Rightarrow$ C according to Adjustment H
26 cSt [121 SUS] hyd.oil at 50°C [122 °F]



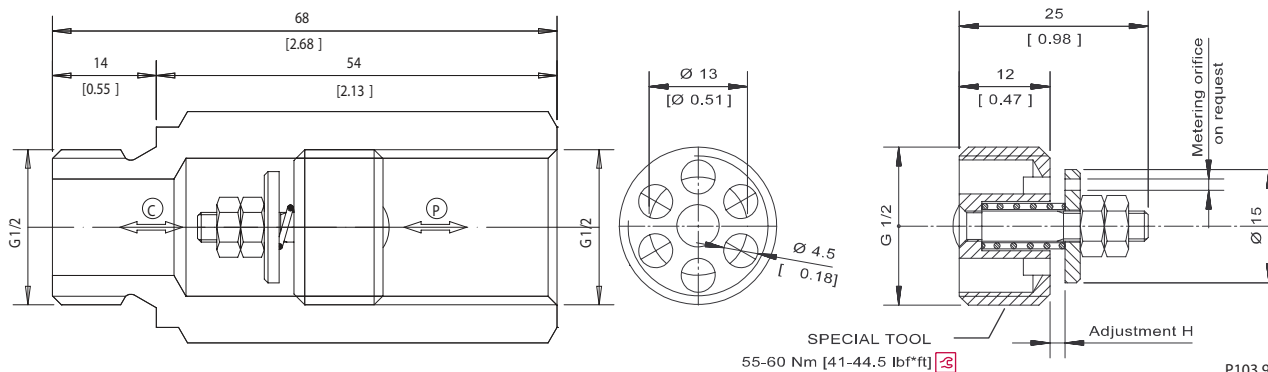
Values for adjustment H are guideline only, being conditioned by a variety of factors (oil temperature and viscosity, volume and flexibility of circuits).



P103 940E

DIMENSIONS

mm [in]



SPECIAL TOOL
55-60 Nm [41-44.5 lbf*ft]

P103 92

ORDERING INFORMATION

BC 13 - 1.0 - G - 00 - S1.5

Adjustment H
00 = No factory adjustment
0.25 = 0.25 mm [in]
0.5 = 0.5 mm [in]
1.0 = 1.0 mm [in]
1.5 = 1.5 mm
2.0 = 2.0 mm

Metering orifice
Omit = No orifice
S0.5 = 0.5 mm [in]
S0.7 = 0.7 mm [in]
S1.0 = 1.0 mm [in]
S1.5 = 1.5 mm [in]
S2.0 = 2.0 mm [in]

Coupling
00 = Cartridge only
L = 3/8 BSP

P103 848E

Cartridge Valves Technical Information

Flow Control Valves

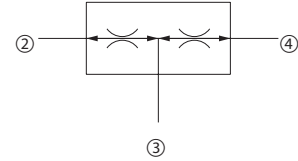
Flow Divider/Combiner

CP340-1

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

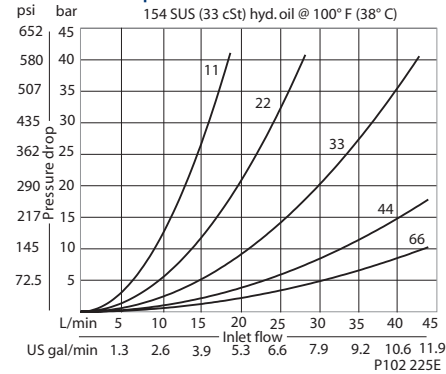
Schematic



P102 223

SPECIFICATIONS

Theoretical performance



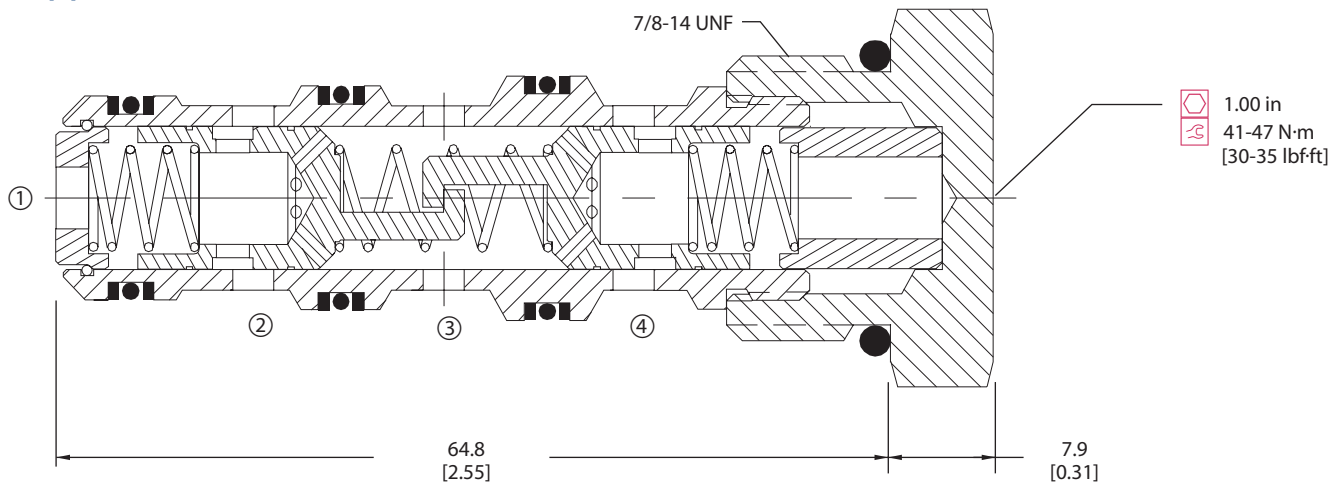
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Weight	0.11 kg [0.24 lb]
Cavity	SDC10-4

DIMENSIONS

mm [in]

Cross-sectional view



P102 224E

ORDERING INFORMATION

CP340 - 1 - B - 6S - 44			
Seals	Seal kit	Flow settings	Total flow
B = Buna-N V = Viton	120023 120024	Code Flow ratio Port 2:Port 4	
Housing and ports	Housing P/N		
0 = No Housing	No Housing	11 1:1	7.6 L/min [2 gpm]
3B = Al, 3/8 BSP	CP10-4-2B-X1	22 1:1	15 L/min [4 gpm]
4B = Al, 1/2 BSP	CP10-4-3B-X1	33 1:1	23 L/min [6 gpm]
4S = Al, #4 SAE	CP10-4-4S-X1	36 1:2	34 L/min [9 gpm]
6S = Al, #6 SAE	CP10-4-6S-X1	44 1:1	30 L/min [8 gpm]
Other housings available		46 2:3	38 L/min [10 gpm]
		63 2:1	34 L/min [9 gpm]
		64 3:2	38 L/min [10 gpm]
		66 1:1	45 L/min [12 gpm]

P102 227E

Cartridge Valves Technical Information

Flow Control Valves

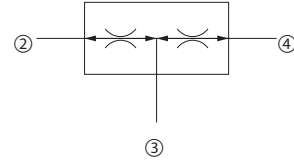
Flow Divider/Combiner

VDF 06

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

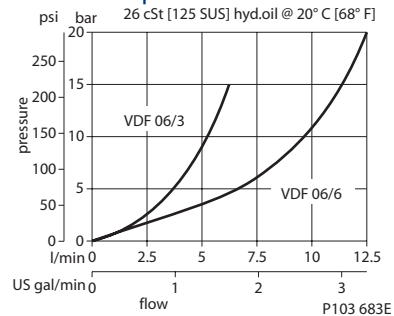
Schematic



P102 223

SPECIFICATIONS

Theoretical performance

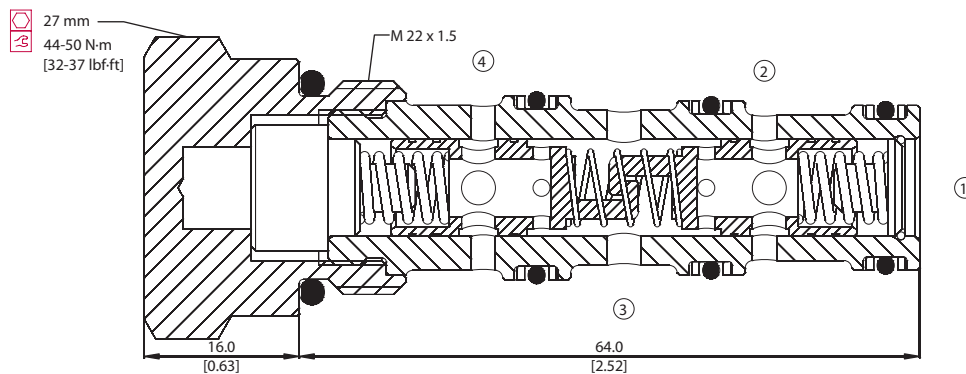


Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	45 l/min [12 US gal/min]
Weight	0.15 kg [0.33 lb]
Cavity	NCS06/4

DIMENSIONS

Cross-sectional view



P103 656

ORDERING INFORMATION

VDF 06 - 10 - 00 - V

Flow rate

l/min [US gal/min]
3 = Min 3 [0.8] Max 6.5 [1.7]
6 = Min 6 [1.6] Max 12.5 [3.3]
10 = Min 10 [2.6] Max 25 [6.6]
25 = Min 22 [5.8] Max 45 [11.9]

Seals

V = Viton
Omit = Buna-N

Seal kit

230000350
230000610

Housing and ports

00 = No Housing
L3/8 = AL, 3/8 BSP
L3/4 = AL, 3/4 BSP
L6S = AL, #6 SAE
L8S = AL, #8 SAE
Other housings available

Housing P/N

No Housing
NCS06/4-L-3/8
NCS06/4-L-1/2
NCS06/4-L-6S
NCS06/4-L-8S

P103 710E

Cartridge Valves Technical Information

Flow Control Valves

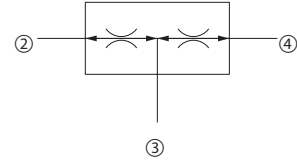
Flow Divider/Combiner

CP341-1

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

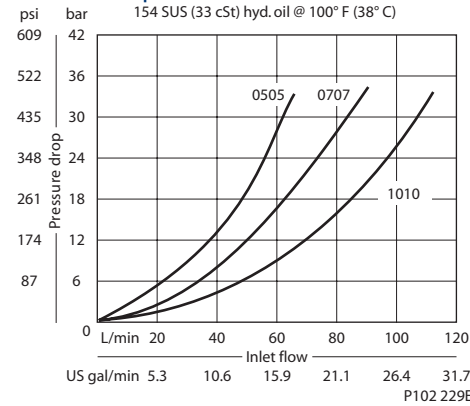
Schematic



P102 223

SPECIFICATIONS

Theoretical performance

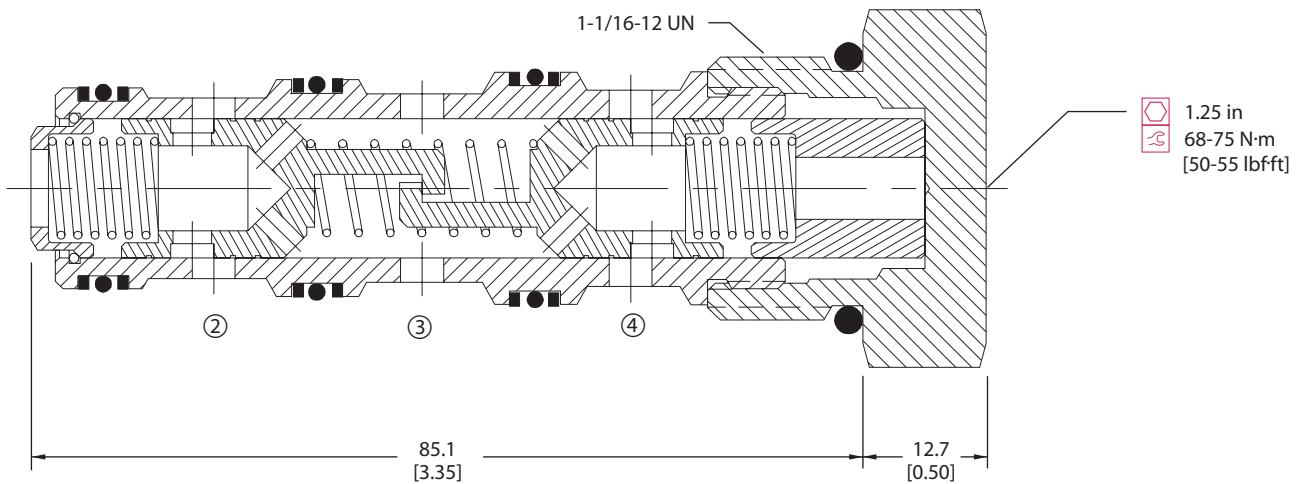


Specifications

Rated pressure	210 bar [3000 psi]
Rated flow	75 l/min [20 US gal/min]
[100 psi]	
Weight	0.23 kg [0.50 lb]
Cavity	CP12-4

DIMENSIONS

Cross-sectional view



P102 228E

ORDERING INFORMATION

Seals

B = Buna-N
V = Viton

Housing and ports

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

Seal kit

120262
120263

Housing P/N

No Housing
CP12-4-4B-X1
CP12-4-6B-X1
CP12-4-10S-X1
CP12-4-12S-X1

CP341 - 1 - B - 10S - 0707

Flow settings

Code	Flow ratio Port 2:Port 4	Total flow
0505	1:1	38 L/min [10 gpm]
0507	5:7	45 L/min [12 gpm]
0510	1:2	57 L/min [15 gpm]
0707	1:1	53 L/min [14 gpm]
0710	7:10	64 L/min [17 gpm]
1010	1:1	76 L/min [20 gpm]

P102 231E

Cartridge Valves Technical Information

Flow Control Valves

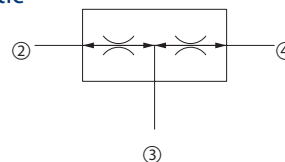
Flow Divider/Combiner

CP342-1

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

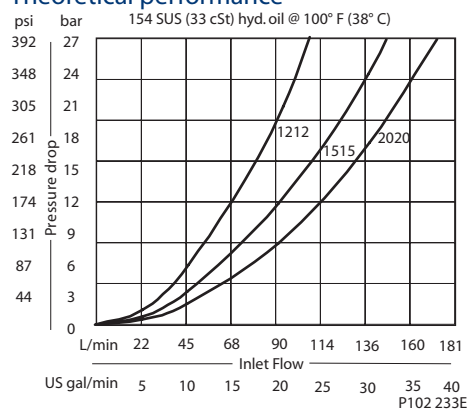
Schematic



P102 223

SPECIFICATIONS

Theoretical performance



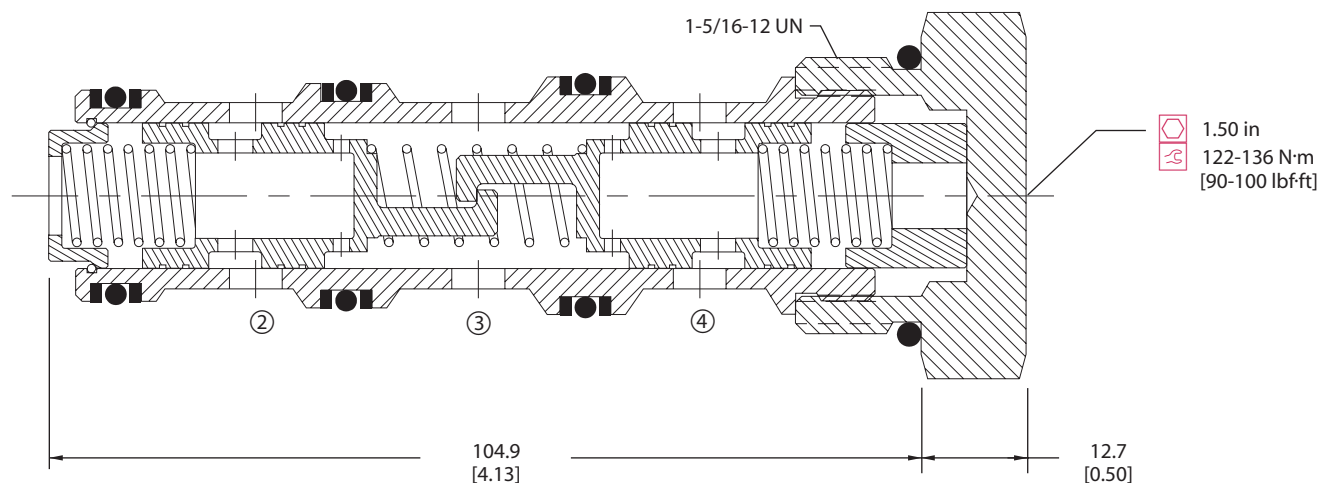
Specifications

Rated pressure	210 bar [3000 psi]
Rated flow [100 psi]	150 l/min [40 US gal/min]
Weight	0.37 kg [0.81 lb]
Cavity	CP16-4

Flow control valves
CP342-1

DIMENSIONS

Cross-sectional view



P102 232E

ORDERING INFORMATION

Seals

B = Buna-N
V = Viton

Housing and ports

0 = No Housing
6B = Al, 3/4 BSP
8B = Al, 1 BSP
12S = Al, #12 SAE
16S = Al, #16 SAE
Other housings available

P102 235E

Seal kit

120025
120026

Housing P/N

No Housing
CP16-4-6B-X1
CP16-4-8B-X1
CP16-4-12S-X1
CP16-4-16S-X1

CP342 - 1 - B - 16S - 1515

Flow settings

Code	Flow ratio Port 2:Port 4	Total flow
1020	1:2	30 gpm [114 L/min]
1212	1:1	24 gpm [91 L/min]
1215	4:5	27 gpm [102 L/min]
1220	3:5	32 gpm [121 L/min]
1512	5:4	27 gpm [102 L/min]
1515	1:1	30 gpm [114 L/min]
1520	3:4	35 gpm [132 L/min]
2012	5:3	32 gpm [121 L/min]
2015	4:3	35 gpm [132 L/min]
2020	1:1	40 gpm [151 L/min]

Cartridge Valves Technical Information

Flow Control Valves

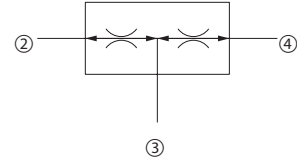
Flow Divider/Combiner

CP342-3

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

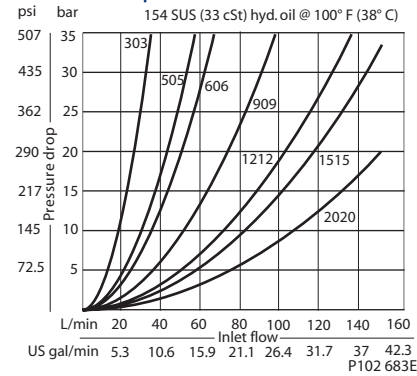
Schematic



P102 223

SPECIFICATIONS

Theoretical performance

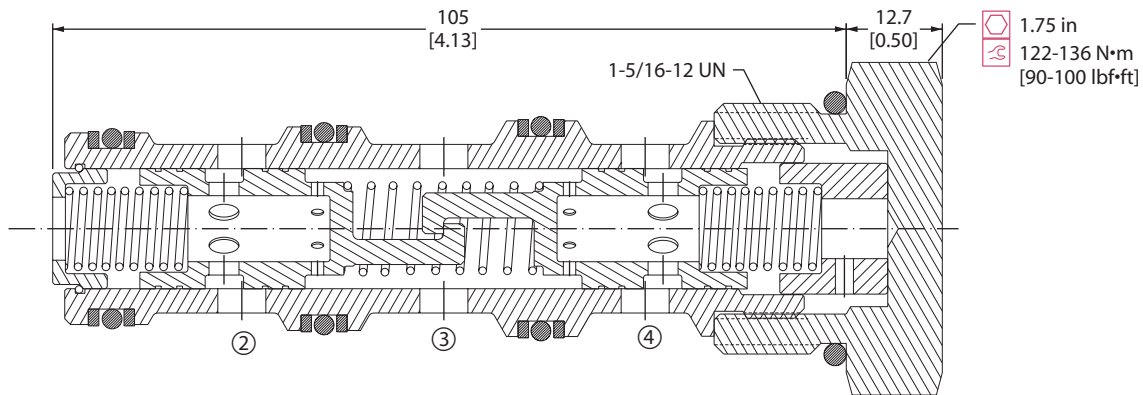


Specifications

Rated pressure	450 bar [6500 psi]
Rated flow [100 psi]	150 l/min [40 US gal/min]
Weight	0.37 kg [0.81 lb]
Cavity	CP16-4

DIMENSIONS

Cross-sectional view



P102 652

ORDERING INFORMATION

CP342-3-U-16S-0505		Flow settings		Flow ratio	Total flow
		Code		Port 2:Port 4	
Seals U = Urethane	Seal kit 120677	0303		1:1	23 L/min [6 gpm]
		0505		1:1	38 L/min [10 gpm]
		0606		1:1	45 L/min [12 gpm]
		0909		1:1	68 L/min [18 gpm]
		1212		1:1	91 L/min [24 gpm]
Housing and ports	Housing P/N	1515		1:1	114 L/min [30 gpm]
		2020		1:1	151 L/min [40 gpm]
		1220		3:5	121 L/min [32 gpm]
		1215		4:5	102 L/min [27 gpm]
		1520		3:4	132 L/min [35 gpm]
		2012		5:3	121 L/min [32 gpm]
		1512		5:4	102 L/min [27 gpm]
		2015		4:3	132 L/min [35 gpm]
		1020		1:2	114 L/min [30 gpm]
P102 899E					

Cartridge Valves Technical Information

Flow Control Valves

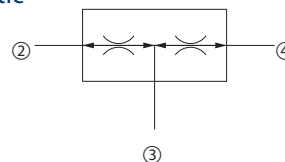
Flow Divider/Combiner

CP343-1

OPERATION

This valve is a fixed ratio, pressure compensated flow divider/combiner.

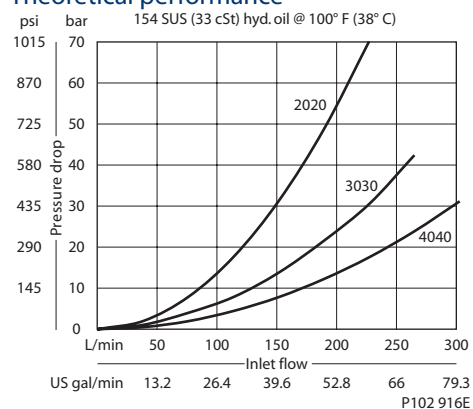
Schematic



P102 223

SPECIFICATIONS

Theoretical performance

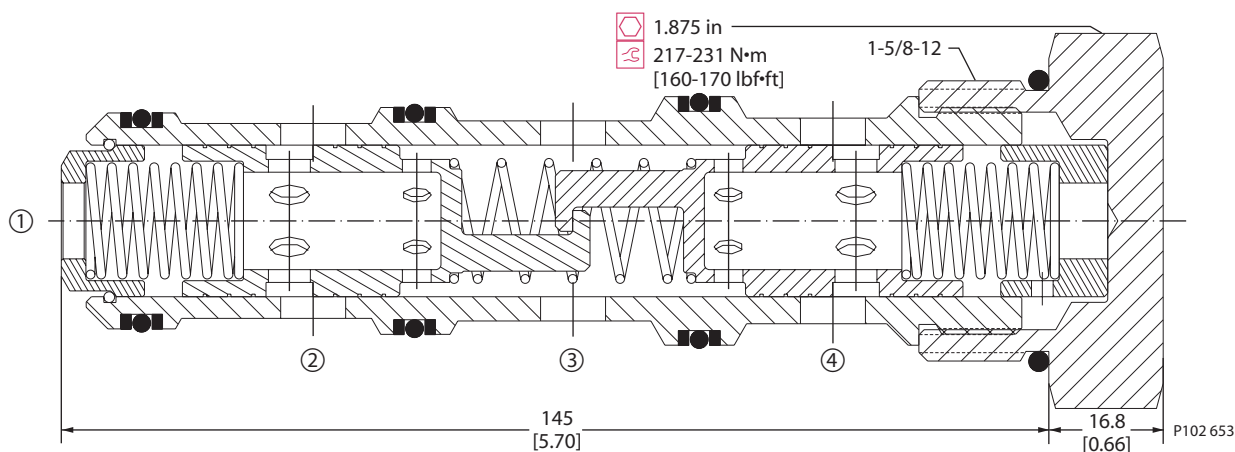


Specifications

Rated pressure	210 bar [3000 psi]
Rated flow at 7 bar [100 psi]	340 l/min [90 US gal/min]
Weight	1.13 kg [2.50 lb]
Cavity	SDC20-4

DIMENSIONS

Cross-sectional view



ORDERING INFORMATION

CP343-1-B-16S-4545

Housing and ports

0	= No Housing
8B	= Al, 1 BSP
10B	= Al, 1-1/4 BSP
16S	= Al, #16 SAE
20S	= Al, #20 SAE
Other housings available	

Housing P/N

No Housing
SDC20-4-8B-X1
SDC20-4-10B-X1
SDC20-4-16S-X1
SDC20-4-20S-X1

Flow settings

Code	Flow ratio Port 2:Port 4	Total flow
2020	1:1	151 L/min [40 gpm]
2525	1:1	189 L/min [50 gpm]
3030	1:1	227 L/min [60 gpm]
3535	1:1	265 L/min [70 gpm]
4020	2:1	227 L/min [60 gpm]
4040	1:1	303 L/min [80 gpm]
4530	3:2	284 L/min [75 gpm]
4545	1:1	341 L/min [90 gpm]

Seals

B = Buna-N
V = Viton

Seal kit

120181
120182

P102 898E

Cartridge Valves Technical Information

Flow Control Valves

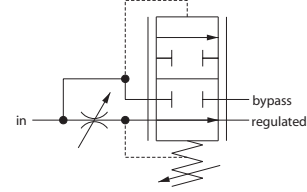
Catalog HIC

2F94-01

OPERATION

This valve is an adjustable, priority-type, pressure compensated flow control valve.

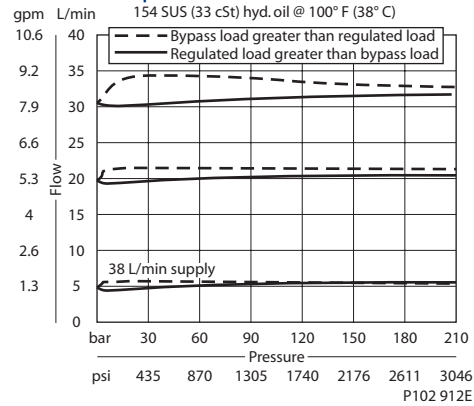
Schematic



P102 682

SPECIFICATIONS

Theoretical performance



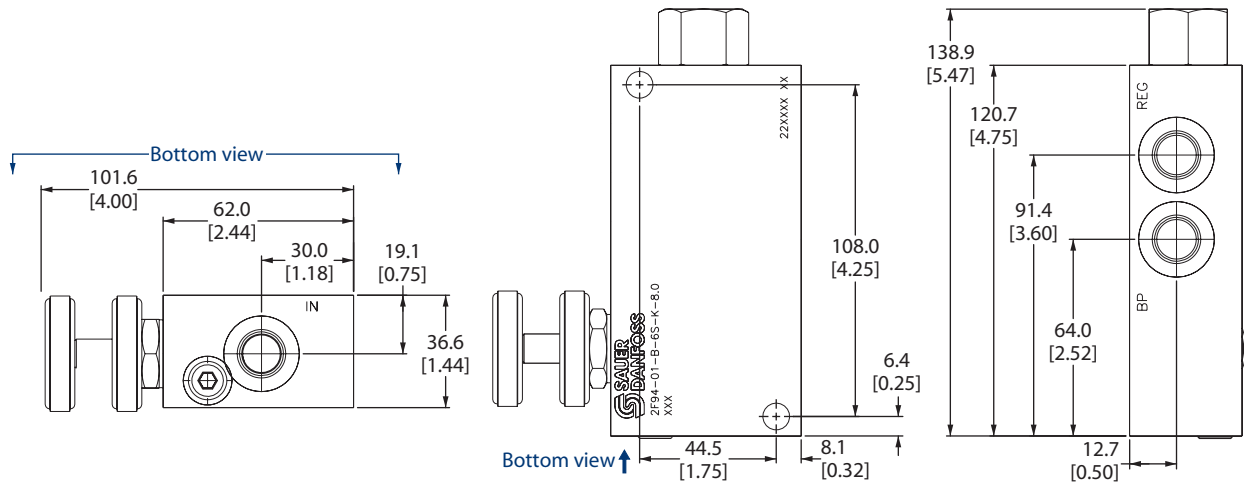
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	30 l/min [8 US gal/min]
Max inlet flow	60 l/min [16 US gal/min]
Weight	1.00 kg [2.20 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 678

ORDERING INFORMATION

2F94-01-B-6S-E-8.0

Adjustment options

E = External adjustment
K = Knob adjustment

Body and ports

6S = Aluminum, #6 SAE

Seals

B = Buna-N
V = Viton

Seal kits
Consult Factory
Consult Factory

Adjustment range
Code = 0-8 gpm

P102 648E

Cartridge Valves Technical Information

Flow Control Valves

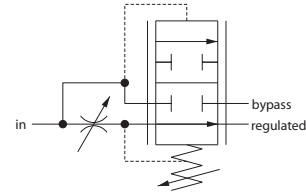
Catalog HIC

2F95-01

OPERATION

This valve is an adjustable, priority-type, pressure compensated flow control valve.

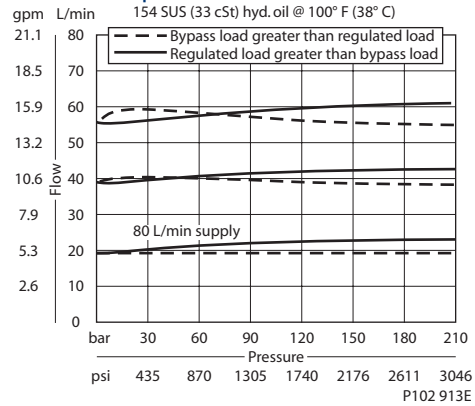
Schematic



P102 682

SPECIFICATIONS

Theoretical performance



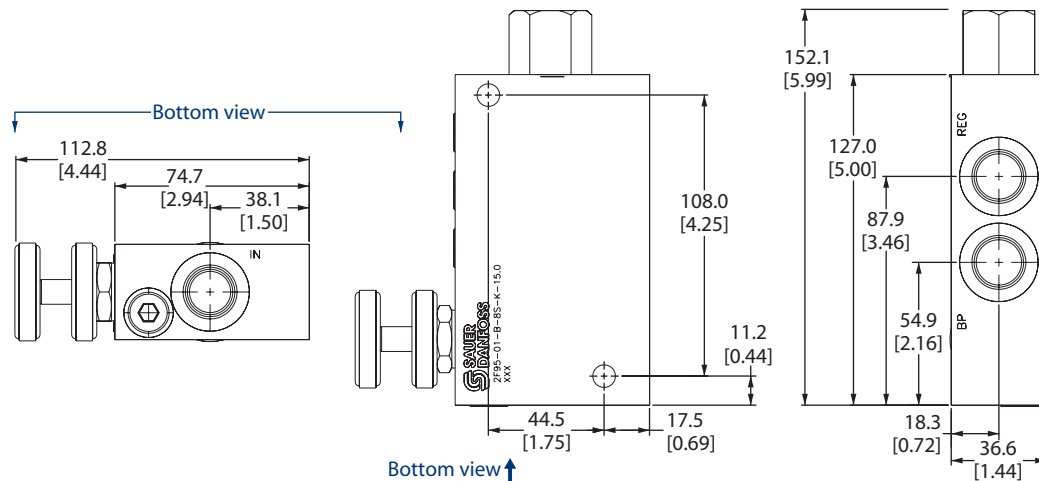
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	60 l/min [16 US gal/min]
Max inlet flow	95 l/min [25 US gal/min]
Weight	1.00 kg [2.20 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



ORDERING INFORMATION

2F95-01-B-8S-E-15

Adjustment options
E = External adjustment
K = Knob adjustment

Body and ports
8S = Aluminum, #8 SAE

Seals
B = Buna-N
V = Viton

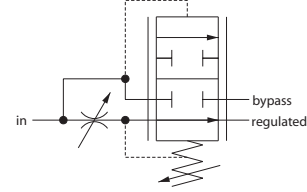
Seal kits
Consult Factory
Consult Factory

P102 649E

OPERATION

This valve is an adjustable, priority-type, pressure compensated flow control valve.

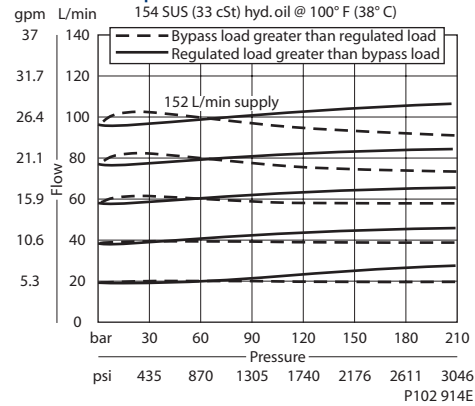
Schematic



P102 682

SPECIFICATIONS

Theoretical performance



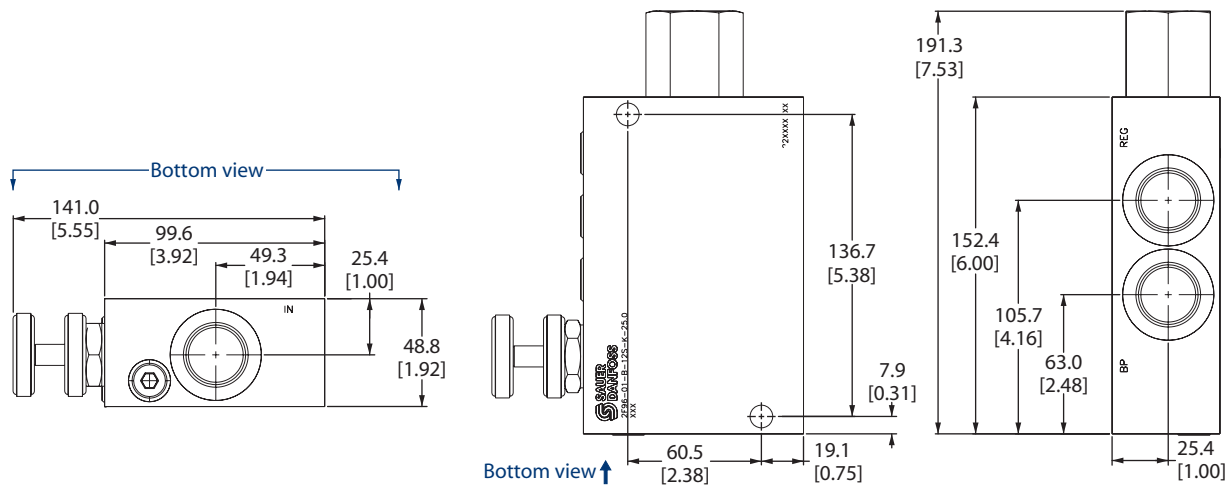
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	95 l/min [25 US gal/min]
Max inlet flow	150 l/min [40 US gal/min]
Weight	1.77 kg [3.90 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 680

ORDERING INFORMATION

2F96-01-B-12S-E-25

Adjustment options

E = External adjustment
K = Knob adjustment

Body and ports

12S = Aluminum, #12 SAE

Seals

B = Buna-N Consult Factory
V = Viton Consult Factory

Adjustment range
Code = 0-25 gpm

P102 650E

Cartridge Valves Technical Information

Flow Control Valves

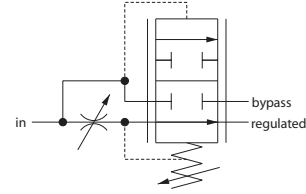
Catalog HIC

2F97-01

OPERATION

This valve is an adjustable, priority-type, pressure compensated flow control valve.

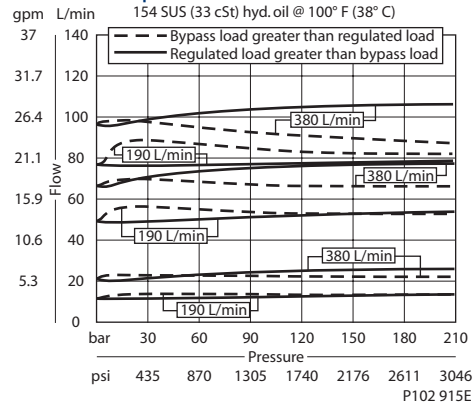
Schematic



P102 682

SPECIFICATIONS

Theoretical performance



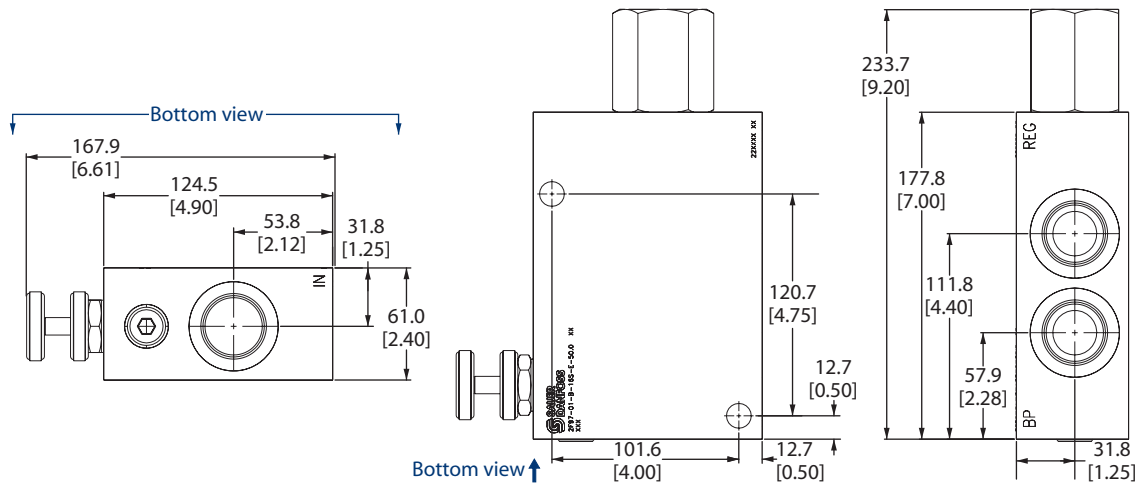
Specifications

Rated pressure	210 bar [3000 psi]
Max regulated flow	190 l/min [50 US gal/min]
Max inlet flow	380 l/min [100 US gal/min]
Weight	3.81 kg [8.40 lb]
Cavity	none

DIMENSIONS

mm [in]

Cross-sectional view



P102 681

ORDERING INFORMATION

2F97-01-B-16S-E-50

Adjustment options
E = External adjustment
K = Knob adjustment

Body and ports
16S = Aluminum, #16 SAE

Seals
B = Buna-N
V = Viton

Adjustment range
Code = 0-50 gpm
Seal kits
Consult Factory
Consult Factory

P102 651E

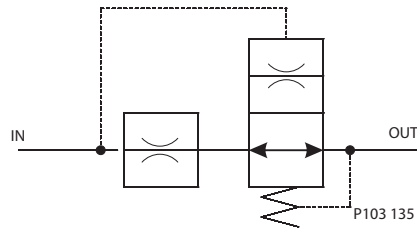
Velocity Fuse CP330-3

OPERATION

This is an in-line flow limiter that closes and then provides non-compensated restricted flow when the specified flow setting is exceeded. The valve provides free reverse flow when operated in the opposite direction.

SPECIFICATIONS

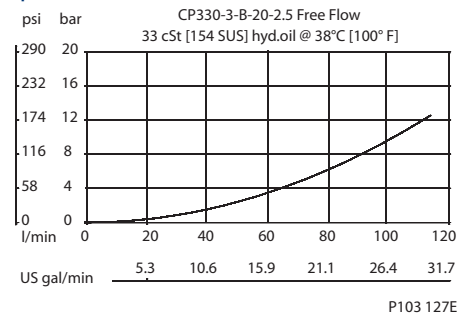
Schematic



Specifications

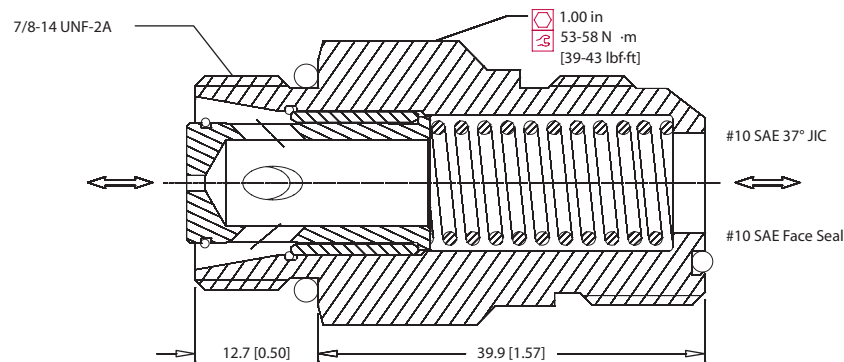
Pressure rating	207 bar [3000 psi]
Max Trip Flow	110 l/min [29 US gal/min]
Bypass Flow	9.5 lpm [2.5 gal/min]
Weight	0.12 kg [0.26 lbs]
Cavity	#10 SAE Port

Specifications



DIMENSIONS

mm [in]



P103 123

ORDERING INFORMATION

CP330-3-B-FS10-17-2.5			
Seals		Bypass Flow @ 48 bar [700 psi]	
B = BUNA-N		l/min	USgal/min
V = VITON		2.5 = 9.5	2.5
Fitting Type		Flow Setting	
Omit = #10SAE37° JIC		l/min	USgal/min
FS10 = #10SAE face seal		17 = 64.4	17
		20 = 75.7	20
		23 = 87.1	23
		26 = 98.4	26
		29 = 109.8	29

P103 131E