

Sleeve valve for line mounting

Flow control

Designation	Description	Cavity	Data sheet	Page
Sleeve valves for line mounting fixed orifice restrictor with reverse flow check	VF-MF	G 1/4	18316-01	597
Sleeve valves for line mounting fixed orifice restrictor with reverse flow check	GSU	G 1/4; G 3/8; G 1/2	18316-02	599
Sleeve valves for line mounting fixed orifice restrictor with poppet type reverse flow check	SF	G 1/4; G 3/8; M 18X1,5; G 1/2; G 3/4; G 1	18316-03	601
Sleeve valves for line mounting adjustable bidirectional flow restrictor	RD	G 1/4; G 3/8; G 1/2; G 3/4	18316-04	603
Sleeve valves for line mounting adjustable bidirectional flow restrictor	RDF	G 1/4; G 3/8; G 1/2; G 3/4	18316-05	605
Sleeve valves for line mounting adjustable barrel type bidirectional restrictor	SD	G 1/4; G 3/8; M 18X1,5; G 1/2; G 3/4; G 1; G 1 1/4	18316-06	607
Sleeve valves for line mounting adjustable barrel type restrictor with poppet type reverse flow check	FO	G 1/2; G 3/4; G 1; G 1 1/4	18316-09	609
Sleeve valves for line mounting adjustable barrel type restrictor with ball type reverse flow check	SU	G 1/4; G 3/8; M 18X1,5; G 1/2; G 3/4; G 1	18316-08	611
Sleeve valves for line mounting adjustable restrictor with ball type reverse flow check	SUM38	G 3/8	18316-07	613
Sleeve valves for line mounting adjustable restrictor with poppet type reverse flow check	RU	G 1/4; G 3/8; G 1/2; G 3/4	18316-10	615
Sleeve valves for line mounting adjustable restrictor with poppet type reverse flow check	RUF	G 1/4; G 3/8; G 1/2; G 3/4	18316-11	617
Sleeve valves for line mounting pressure compensated fixed setting flow regulator, with female sleeve	SFC-FF	G 1/4; G 3/8; G 1/2	18316-12	619
Sleeve valves for line mounting pressure compensated fixed setting flow regulator, with male-female sleeve	SFC-MF	G 1/4; G 3/8; G 1/2	18316-13	621
Sleeve valves for line mounting pressure compensated partially adjustable flow regulator, with female sleeve	VCDC-H-MC	G 1/4; G 3/8	18316-14	623
Sleeve valves for line mounting pressure compensated partially adjustable flow regulator, with female sleeve	VCDC-H-MC	G 1/2; G 3/4	18316-15	625
Sleeve valves for line mounting pressure compensated partially adjustable flow regulator, with male-female sleeve	VCDC-H-MF	G 1/4; G 3/8	18316-16	627

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RE 90010-05/07.2016, **Bosch Rexroth AG**

Sleeve valve for line mounting

Flow control

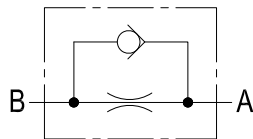
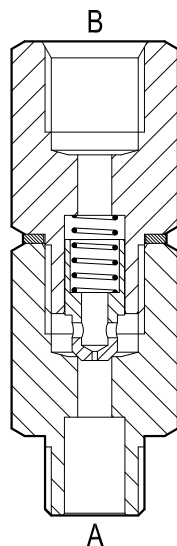
Designation	Description	Cavity	Data sheet	Page
Sleeve valves for line mounting pressure compensated partially adjustable flow regulator, with male-female sleeve	VCDC-H-MF	G 1/2; G 3/4	18316-17	629
Sleeve valves for line mounting pressure compensated adjustable flow regulator with reverse flow check	VCST 1/4	G 1/4	18316-18	631
Sleeve valves for line mounting pressure compensated adjustable flow regulator with reverse flow check	VCST 3/8	G 3/8	18316-19	633
Sleeve valves for line mounting pressure compensated adjustable flow regulator with reverse flow check	VCST 1/2	G 1/2	18316-20	635
Sleeve valves for line mounting pressure compensated adjustable flow regulator with reverse flow check	VCD-RU	G 3/8	18316-21	637
Sleeve valves for line mounting hose burst valve, with female threaded sleeve	VPN-FF	G 1/4; G 3/8	18316-85	639
Sleeve valves for line mounting hose burst valve, with female threaded sleeve	VPN-FF	G 1/2; G 3/4	18316-86	641
Sleeve valves for line mounting hose burst valve, with male-female sleeve	VPN-MF	G 1/4; G 3/8	18316-87	643
Sleeve valves for line mounting hose burst valve, with male-female sleeve	VPN-MF	G 1/2; G 3/4	18316-88	645

Flow control valves

Fixed orifice restrictor with reverse flow check

VF-MF

04.46.03.00-Y-Z



Description

The "B-A" flow is restricted by a calibrated orifice, while flow "A-B" is always allowed through the incorporated check valve. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity.

The valve is assembled with two hexagonal threaded sleeves and an internal check poppet. The drawing shows the valve with Male port A and Female port B: the two sleeves can be assembled in the reversed order and the result will be Female A port and Male B port.

Technical data

Port	Pressure P_{max} bar (psi)	Flow Q_{max} l/min (gpm)	Weight kg (lbs)
G 1/4	350 (5000)	10 (3)	0.10 (0.22)

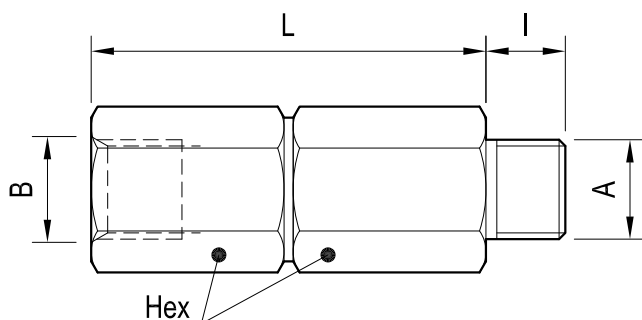
Steel body, zinc plated.

Installation torque: 33 - 37 Nm (24 - 27 ft-lb)

Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	I mm (inches)	Hex mm (inches)
09	G 1/4	52 (2.05)	10.5 (0.41)	19 (0.75)

The valve is only available with G 1/4 ports, with different size restriction orifices, as indicated by the table of orifices.

Calibrated orifices

Z	09	06	00	07	10	12	11	03	08	05	01
Calibrated orifice Ø mm (inches)	0.3* (0.012*)	0.4 (0.016)	0.5 (0.020)	0.6 (0.024)	0.7 (0.028)	0.8 (0.032)	0.9 (0.035)	1.0 (0.039)	1.3 (0.051)	1.5 (0.059)	1.75 (0.069)

* Hole Ø 0.5 mm (0.020 inch.) with Ø 0.4 mm (0.016 inch.) wire.

Applications

In a variety of cases when a one-way restrictor is needed, especially for cushioning a control circuit (like servo-controls), or delaying brake engagement, etc.

- Control of delay for brake disengagement.
- Dampening of pressure peaks in joystick controlled lines.
- Simple and cost-effective solution for a one-way flow control.

Ordering code

04.46.03.00	Y	Z
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Calibrated orifices see table "Z"

Fixed orifice restrictor
with reverse flow check

Ports size / Dimensions see table "Y"

Type	Material number
04460300090000A	R930000645
04460300090100A	R930000646
04460300090300A	R930000647
04460300090500A	R930000648
04460300090600A	R930000649
04460300090700A	R930000650
04460300090800A	R930000651
04460300090900A	R930000652
04460300091000A	R930000653
044603000911000	R930000654

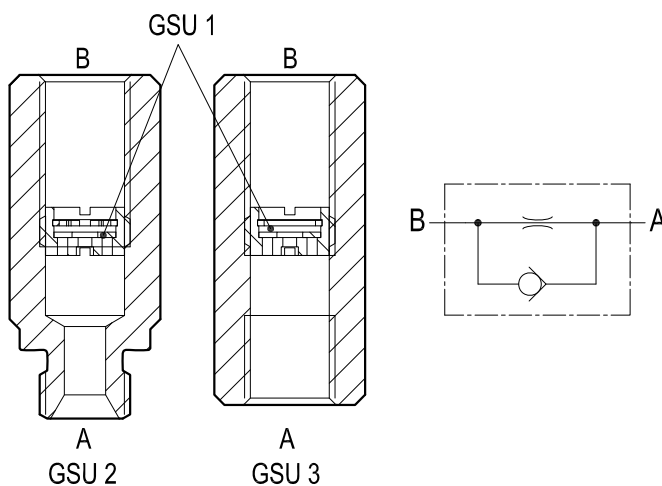
Type	Material number
044603000912000	R930000655

Type	Material number

Flow control valves

Fixed orifice restrictors with reverse flow check

GSU Series

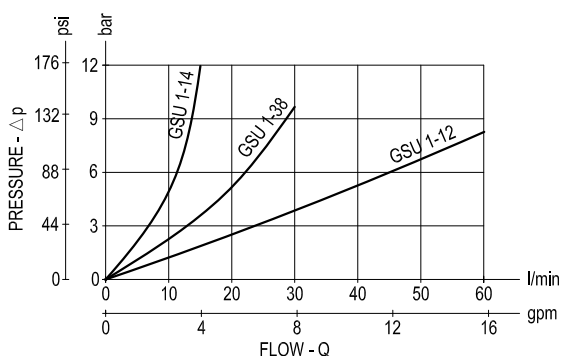


Description

The "B-A" flow is restricted by a calibrated orifice, while flow "A-B" is always allowed through the incorporated check valve. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity.

The valve is composed by an hexagonal threaded sleeve with a special inserted cartridge (GSU1): the cartridge is available in different orifice sizes, and can be fitted in either direction (see drawing).

Performance



Δp curves vs. flow in "A-B" free flow direction

Advantages

- Compact design and inline mounting for space saving.
- Three sizes provide great adaptability to the system.
- Mounting position is unrestricted.
- Low Δp in the free flow direction.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
GSU 2-14	300 (4300)	15 (4)	0.07 (0.15)
GSU 2-38	300 (4300)	30 (8)	0.1 (0.22)
GSU 2-12	300 (4300)	70 (18)	0.19 (0.42)
GSU 3-14	300 (4300)	15 (4)	0.08 (0.18)
GSU 3-38	300 (4300)	30 (8)	0.1 (0.22)
GSU 3-12	300 (4300)	70 (18)	0.17 (0.37)

Steel body, zinc plated

Ports size / Dimensions

Code	Ports size A-B	L mm (inches)	L1 mm (inches)	L2 mm (inches)	L3 mm (inches)	Hex mm (inches)
GSU 2-14	G 1/4	10 (0.39)	50 (1.96)	/	/	19 (0.75)
GSU 2-38	G 3/8	12 (0.47)	55 (2.17)	/	/	22 (0.87)
GSU 2-12	G 1/2	14 (0.55)	70	/	/	27 (1.06)
GSU 3-14	G 1/4	/	/	13 (0.51)	48 (1.89)	19 (0.75)
GSU 3-38	G 3/8	/	/	13 (0.51)	52 (2.05)	22 (0.87)
GSU 3-12	G 1/2	/	/	14 (0.55)	60 (2.36)	27 (1.06)

GSU		.	**	.	xxx
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= Port size (see below)

= 2	= 14	= 38	= 12
= 3			

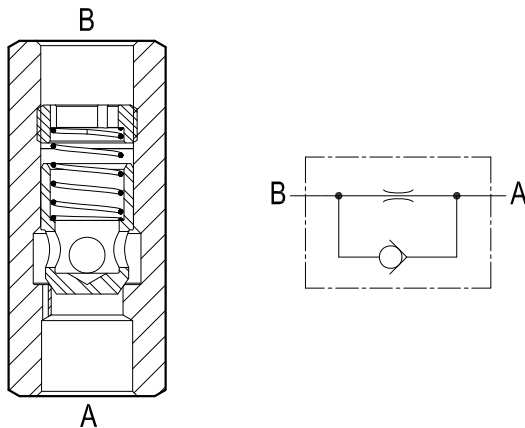
Ports size	G 1/4	G 3/8	G 1/2

Type	Material number	Type	Material number	Type	Material number
GSU2.12.000	R932006954	GSU3.12.000	R932006959		
GSU2.12.100	R932006953	GSU3.12.075	R932006957		
GSU2.12.200	R932006955	GSU3.12.150	R932006958		
GSU2.14.000	R932006926	GSU3.14.000	R932006960		
GSU2.14.075	R932500236	GSU3.14.075	R932500245		
GSU2.14.200	R932006956	GSU3.14.150	R932500248		
GSU2.38.000	R932006927	GSU3.38.000	R932006961		
GSU2.38.075	R932500237	GSU3.38.100	R932500249		
GSU2.38.100	R932500239	GSU3.38.150	R932500250		

Flow control valves

Fixed orifice restrictors with poppet type reverse flow check

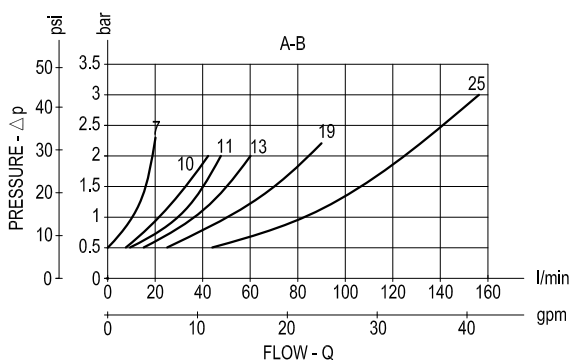
SF Series



Description

This line mounted valve provides a one-way fixed type restriction, in B-A direction. It has no pressure compensation and flow depends from pressure drop and oil viscosity. Free flow is allowed from A to B by an incorporated check valve, when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat.

Performance



Δp curves vs. flow in "A-B" free flow direction (refer to the specific table).

Cracking pressure is always 0,5 bar.

Different size orifices, (with ID $\geq 0,4$ mm) are available.

The orifice ID must be specified when ordering (see order code).

Technical data

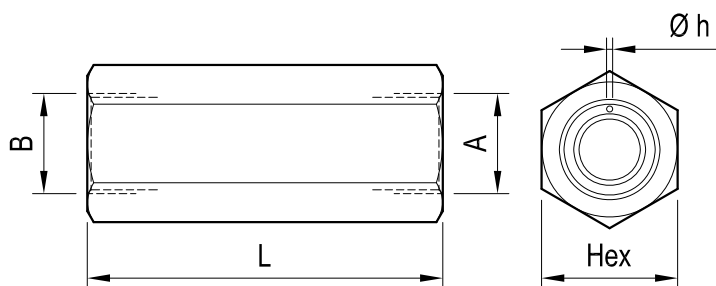
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
SF 7	350 (5000)	25 (7)	0.10 (0.22)
SF 10	350 (5000)	50 (13)	0.18 (0.40)
SF 11	350 (5000)	50 (13)	0.18 (0.40)
SF 13	350 (5000)	80 (21)	0.22 (0.49)
SF 19	250 (3600)	100 (26)	0.48 (1.06)
SF 25	250 (3600)	160 (42)	0.93 (2.05)

Steel body, zinc plated

Advantages

- Compact design and inline mounting for space saving.
- Six sizes provide great adaptability to the system.
- Cost effectiveness.
- Mounting position is unrestricted.
- Low Δp in the free flow direction.

Dimensions



Ports size / Dimensions

Code	Ports size A-B	Hex mm (inches)	L mm (inches)
SF 7	G 1/4	19 (0.75)	62 (2.44)
SF 10	G 3/8	24 (0.95)	70 (2.76)
SF 11	M18x1.5	24 (0.94)	70 (2.76)
SF 13	G 1/2	27 (1.06)	79 (3.11)
SF 19	G 3/4	36 (1.42)	94 (3.70)
SF 25	G 1	46 (1.81)	114 (4.49)

Applications

In a variety of cases when a one-way restrictor is needed like building-up some back pressure at the discharge side of of an hydraulic motor.

Ordering code

SF		/	**
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series 7	= 7
series 10	= 10
series 11	= 11
series 13	= 13
series 19	= 19
series 25	= 25

Specify the orifice bore in mm (min 0.4)

Cracking pressure (free flow) is always 0.5 bar (7.25 psi)

Type	Material number
SF 7/0.5	R932500585
SF 7/0.8	R932500588
SF 7/1	R932500590
SF 7/1.5	R932006941
SF 7/2	R932006942
SF 10/0.5	R932500591
SF 10/0.8	R932500593
SF 10/1	R932500594
SF 10/2	R932500597
SF 11/1	R932006943

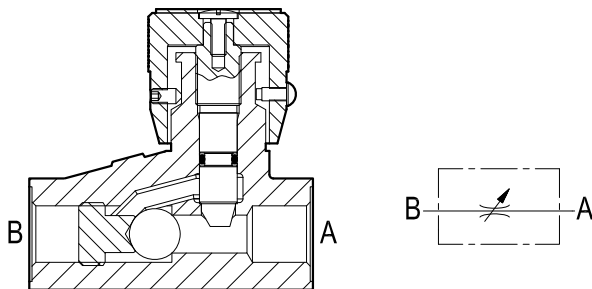
Type	Material number
SF 11/1.5	R932006944
SF 11/2	R932006945
SF 13/0.5	R932006947
SF 13/1	R932500598
SF 13/1.5	R932006962
SF 19/1	R932500599
SF 19/1.5	R932006949
SF 25/2	R932006950
SF 25/3	R932006951

Type	Material number

Flow control valves

Adjustable bidirectional flow restrictors

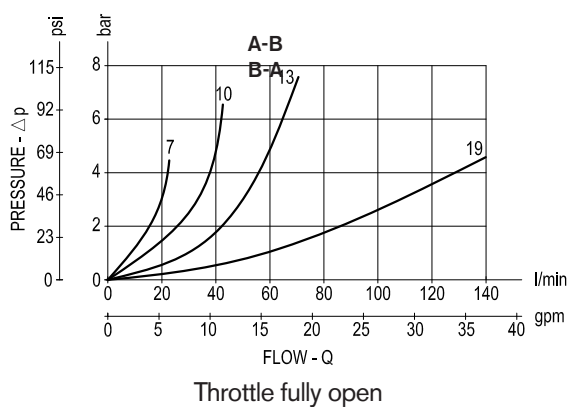
RD Series



Description

This line mounted valve provides a fully adjustable orifice restriction. Even though the Performance curves shown in the tables refer to the A-B flow direction, the valve is actually bi-directional and the performance curves can be assumed almost accurate also for the reverse flow direction B-A. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity.

Performance



Technical data

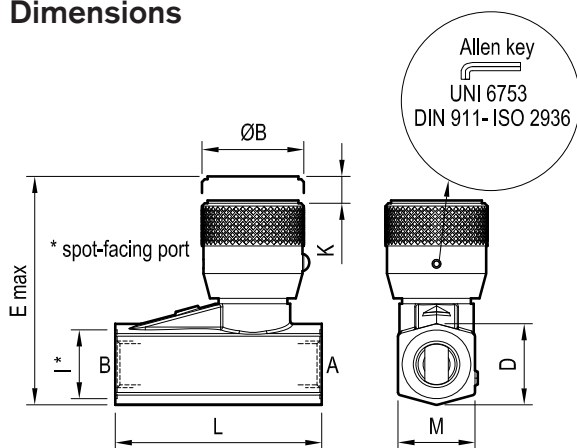
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
RD 7	350 (5000)	25 (7)	0.28 (0.62)
RD 10	350 (5000)	45 (12)	0.48 (1.06)
RD 13	350 (5000)	70 (19)	0.85 (1.87)
RD 19	350 (5000)	140 (37)	1.58 (3.48)

Cast iron, zinc plated with aluminium hand knob

Advantages

- Compact design
- Four sizes provide great adaptability to the system.
- Fine adjustment.
- Mounting position is unrestricted.

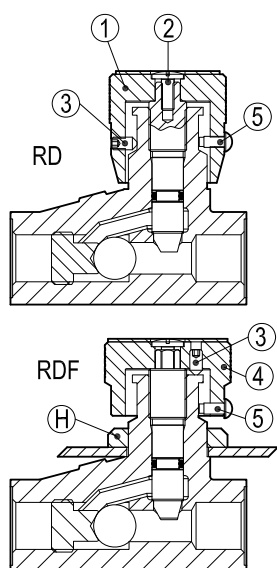
Dimensions



Post size / Dimensions

Code	Ports size A-B	I* mm (inches)	L mm (inches)	Ø B mm (inches)	E max mm (inches)	D mm (inches)	M mm (inches)
RD 7	G 1/4	21 (0.83)	64 (2.52)	33 (1.30)	63.5 (2.5)	24 (0.95)	24 (0.95)
RD 10	G 3/8	25 (0.98)	75 (2.95)	40 (1.58)	73 (2.87)	30 (1.18)	28 (1.10)
RD 13	G 1/2	29 (1.14)	92 (3.62)	45 (1.77)	93 (3.66)	36 (1.42)	35 (1.38)
RD 19	G 3/4	36.5 (1.44)	115 (3.62)	53 (2.09)	120 (4.72)	43 (1.69)	43 (1.69)

The RD series valves can be converted into panel mounted version (like RDF) by removing and adding the items here indicated.



code	Remove from RD valve				Add For panel mounting			
	Screw (3)	Rivet (5)	Screw (2)	Hand Knob (1)	Ring Nut (H)	Hand Knob (4)	Screw (3)	Rivet (5)
RD 7 RDF 7	M3 x 6 UNI 5927.67 code: 0771432.01	4M x 6.5 code: 0771352.01	M4 x 10 code: 0771432.04	0771431.01	20 x 1 code: 0811131.16	081.1431.05	M3 x 6 UNI 5927.67 code: 0771432.01	4M x 6.5 code: 0771352.01
RD 10 RDF 10	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02	M4 x 10 code: 0771432.04	078.1431.02	25 x 1.5 code: 0821131.17	082.1431.06	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02
RD 13 RDF 13	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02	M5 x 12 0791432.05	079.1431.03	30 x 1.5 code: 0831131.18	083.1431.07	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02
RD 19 RDF 19	M5 x 10 UNI 5927.67 code: 0801432.03	10M x 9.5 code: 0801352.03	M5 x 12 + rivet Ø 5 (0.20) UNI 6593-69 code: 0791432.05	080.1431.04	35 x 1.5 code: 0841131.19	084.1431.08	M5 x 10 UNI 5927.67 code: 0801432.03	10M x 9.5 code: 0801352.03

Ordering code

RD

series 7	=	7
series 10	=	10
series 13	=	13
series 19	=	19

Adj. travel (only bar value see below)

	RD 7	RD 10	RD 13	RD 19
K mm (inch)	7 (0.28)	8 (0.31)	11 (0.43)	14 (0.55)

Type	Material number
RD7	R932500528
RD10	R932500529
RD13	R932500530
RD19	R932500531

Type	Material number

Type	Material number

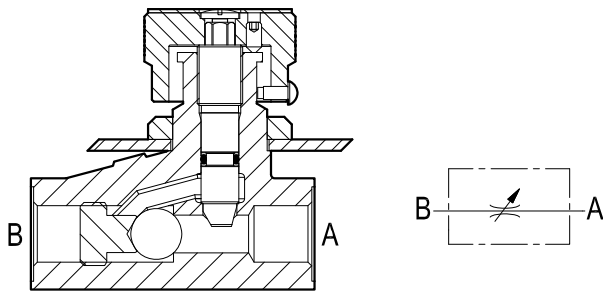
Applications

The RD Series valve is a fully and easily adjustable non-compensated flow control which can be employed many applications where a non-compensated bidirectional flow control is desired.

Flow control valves

Adjustable bidirectional flow restrictors

RDF Series



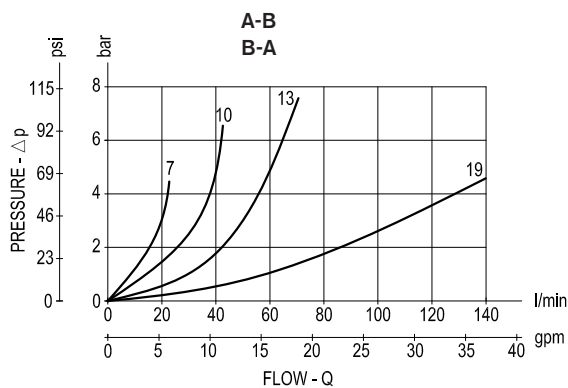
Description

This valve provides a fully adjustable orifice restriction. Even though the Performance curves shown in the tables refer to the A-B flow direction, the valve is actually bi-directional and the performance curves can be assumed almost accurate also for the reverse flow direction B-A.

Pressure compensation is not provided and flow depends from pressure drop and oil viscosity.

This RDF flow restrictor can be line mounted or panel mounted and the hand-knob can be locked after adjustment.

Performance



Technical data

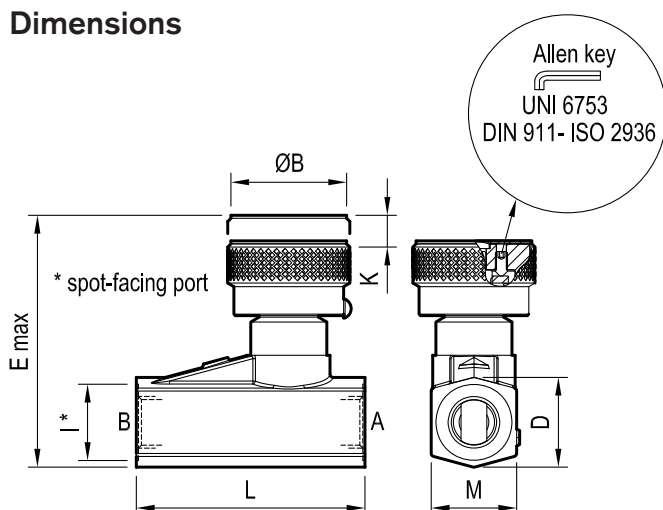
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
RDF 7	350 (5000)	25 (7)	0.28 (0.62)
RDF 10	350 (500)	45 (12)	0.48 (1.06)
RDF 13	350 (5000)	70 (19)	0.85 (1.87)
RDF 19	350 (5000)	140 (37)	1.58 (3.48)

Cast iron, zinc plated with aluminium hand knob

Advantages

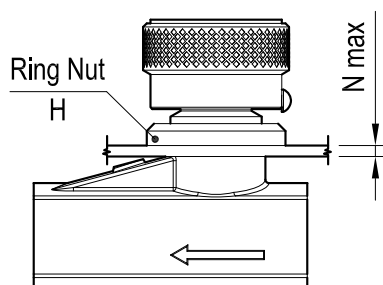
- Compact design.
- Panel mounting.
- Four sizes provide great adaptability to the system.
- Fine adjustment.
- Mounting position is unrestricted.

Dimensions



Ports size / Dimensions

Code	Ports size A-B	I* mm (inches)	L mm (inches)	Ø B mm (inches)	E max mm (inches)	D mm (inches)	M mm (inches)
RDF 7	G 1/4	21 (0.83)	64 (2.52)	33 (1.30)	63.5 (2.5)	24 (0.95)	24 (0.95)
RDF 10	G 3/8	25 (0.98)	75 (2.95)	40 (1.58)	73 (2.87)	30 (1.18)	28 (1.10)
RDF 13	G 1/2	29 (1.14)	92 (3.62)	45 (1.77)	93 (3.66)	36 (1.42)	35 (1.38)
RDF 19	G 3/4	36.5 (1.44)	115 (3.62)	53 (2.09)	120 (4.72)	43 (1.69)	43 (1.69)



Code	N max mm (inches)	H
RDF 7	5.5 (0.22)	M20 x 1
RDF 10	5.5 (0.22)	M25 x 1.5
RDF 13	7.5 (0.30)	M30 x 1.5
RDF 19	7.5 (0.30)	M35 x 1.5

Applications

The RDF Series valve is a fully and easily adjustable non-compensated flow control which can be employed many applications where a non-compensated bidirectional flow control is desired.

Ordering code

RDF

series 7	=	7
series 10	=	10
series 13	=	13
series 19	=	19

Adj. travel (only bar value see below)

	RDF 7	RDF 10	RDF 13	RDF 19
K mm (inch)	7 (0.28)	8 (0.31)	11 (0.43)	14 (0.55)

Type	Material number
RDF7	R932500532
RDF10	R932500533
RDF13	R932500534
RDF19	R932500535

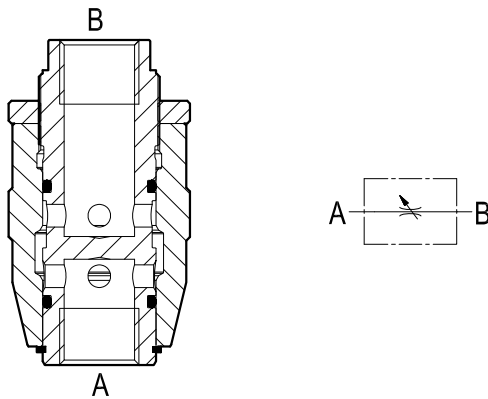
Type	Material number

Type	Material number

Flow control valves

Adjustable barrel type bidirectional restrictors

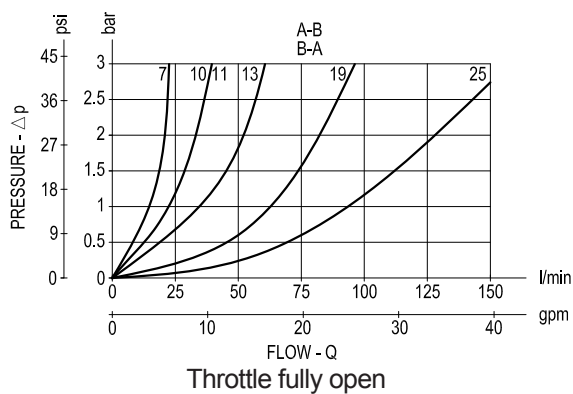
SD Series



Description

This line mounted valve provides a fully adjustable restriction. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity. Once the flow is adjusted, lock the knurled ring nut (H) in order to maintain the desired opening. Minor leakage in both directions can be expected with valve fully closed.

Performance



Advantages

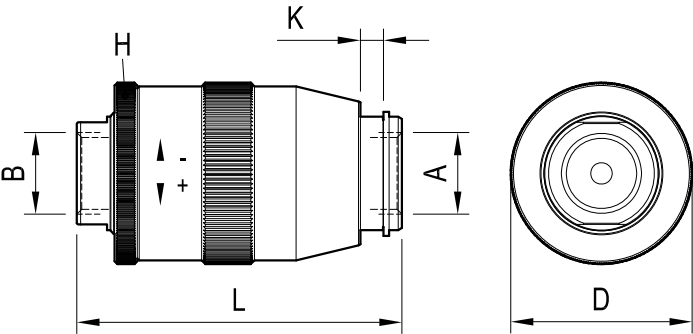
- Compact design and inline mounting for space saving.
- Seven sizes provide great adaptability to the system.
- Easiness of adjustment.
- Mounting position is unrestricted.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
SD 7	350 (5000)	12 (3)	0.29 (0.64)
SD 10	350 (5000)	30 (8)	0.39 (0.86)
SD 11	350 (5000)	30 (8)	0.40 (0.88)
SD 13	350 (5000)	45 (12)	0.69 (1.52)
SD 19	250 (3600)	80 (21)	1.08 (2.38)
SD 25	250 (3600)	140 (37)	3.0 (6.6)
SD 32	250 (3600)	250 (66)	2.9 (6.4)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Code	Ports size A-B	Ø D mm (inches)	L mm (inches)	K mm (inches)
SD 7	G 1/4	35 (1.38)	62 (2.44)	5 (0.20)
SD 10	G 3/8	38 (1.50)	72 (2.84)	7 (0.28)
SD 11	M18x1.5	38 (1.50)	72 (2.84)	7 (0.28)
SD 13	G 1/2	48 (1.89)	86 (3.39)	8 (0.32)
SD 19	G 3/4	55 (2.17)	100 (3.94)	11 (0.43)
SD 25	G 1	79 (3.11)	126 (4.96)	12 (0.47)
SD 32	G 1-1/4	79 (3.11)	143 (5.63)	12 (0.47)

Applications

The SD Series valve is a fully and easily adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The cost effectiveness and the easiness of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Ordering code

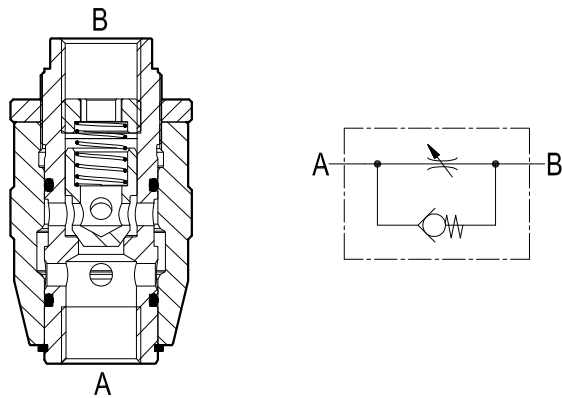
SD	
series 7	= 7
series 10	= 10
series 11	= 11
series 13	= 13
series 19	= 19
series 25	= 25
series 32	= 32

Type	Material number	Type	Material number	Type	Material number
SD 7	R932500579				
SD 10	R932500580				
SD 11	R932006966				
SD 13	R932500581				
SD 19	R932500582				
SD 25	R932500583				
SD 32	R932500584				

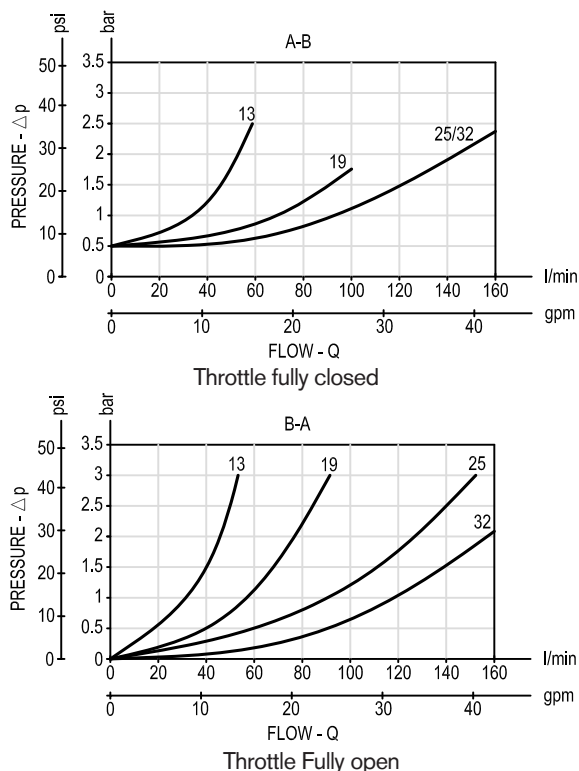
Flow control valves

Adjustable barrel type restrictors with poppet type reverse flow check

FO Series



Performance



Description

This line mounted restrictor throttles and limits the flow from B to A; it has an adjustable built-in restriction which can be tuned by rotating the external pinecone-type knurled sleeve from fully closed to fully open. Flow will increase by rotating the sleeve toward (+) direction. Once the desired adjustment is achieved, the sleeve can be locked by tightening the knurled ring nut (H) in order to prevent inadvertent changes or motion due to line vibrations. The maximum adjustment stroke is identified as K and, for different valve sizes, is shown by the specific table. This valve is a variable adjustable restriction, non-pressure-compensated: the actual flow through the valve will be determined by the pressure differential available between inlet B and outlet A, and also by the oil viscosity. Unrestricted reverse flow from A to B is permitted through a poppet type check valve, with cracking pressure 0,5 bar (7 psi) regardless of valve adjustment. The valve is available in different sizes for different flow ranges, as specified by the tables of the Technical data and Dimensions.

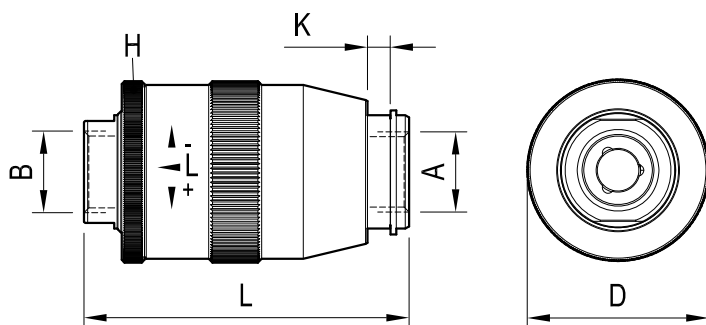
Minor leakage "B-A" can be expected with valve fully closed. Free reverse flow "A-B" is always allowed through the incorporated poppet check valve with 0.5 bar cracking pressure.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
FO 13	350 (5000)	80 (21)	0.74 (1.63)
FO 19	250 (3600)	100 (26)	1.18 (2.60)
FO 25	250 (3600)	160 (42)	2.9 (6.4)
FO 32	250 (3600)	160 (42)	3.0 (6.6)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Code	Ports size A-B	Ø D mm (inches)	L mm (inches)	K mm (inches)
FO 13	G 1/2	48 (1.89)	86 (3.39)	8 (0.32)
FO 19	G 3/4	55 (2.17)	103 (4.06)	11 (0.43)
FO 25	G 1	79 (3.11)	123 (4.84)	12 (0.47)
FO 32	G 1-1/4	79 (3.11)	143 (5.63)	11.1 (0.44)

Advantages

Advantages

- Compact design and inline mounting for space saving.
- Five sizes provide great adaptability to the system.
- Easiness of adjustment.
- Mounting position is unrestricted
- Low Δp in the free flow direction

Applications

The FO Series valve is a fully and easily adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The easiness of installation and of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Ordering code

FO	
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Cracking pressure (free flow) is always 0.5 bar (7.25psi)

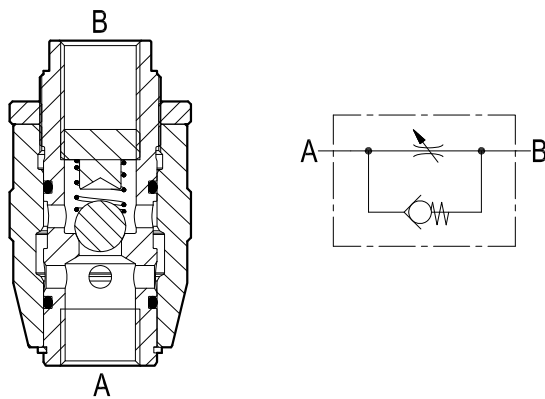
series 13	= 13
series 19	= 19
series 25	= 25
series 32	= 32

Type	Material number	Type	Material number	Type	Material number
FO 13	R932500203				
FO 19	R932500204				
FO 25	R932500205				
FO 32	R932500206				

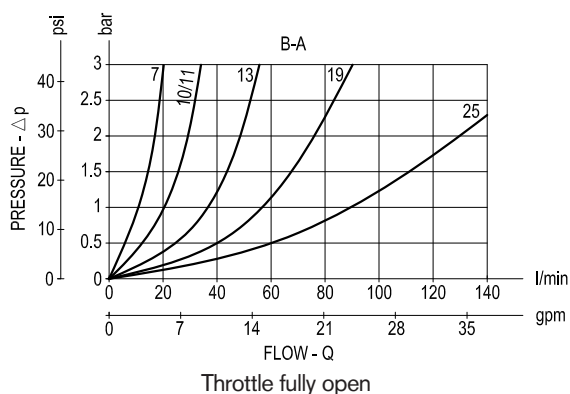
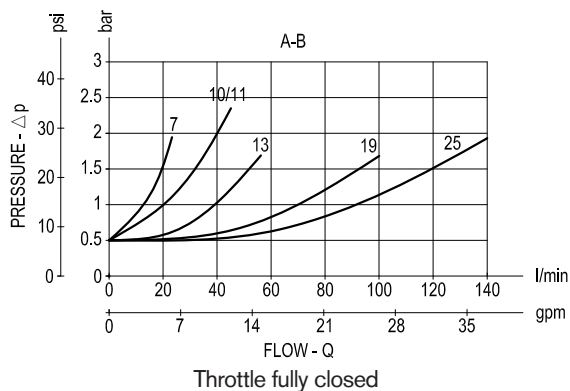
Flow control valves

Adjustable barrel type restrictors with ball type reverse flow check

SU Series



Performance



Description

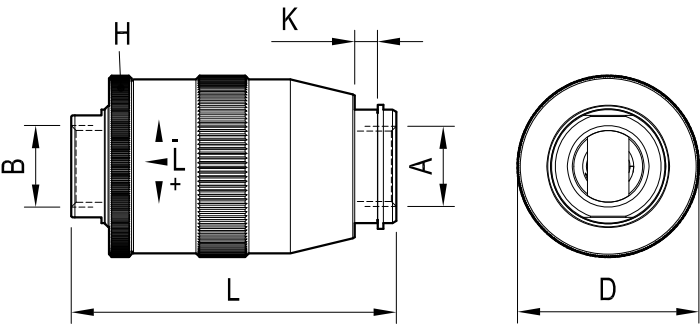
This line mounted restrictor throttles and limits the flow from B to A; it has an adjustable built-in restriction which can be tuned by rotating the external pinecone-type knurled sleeve from fully closed to fully open. Flow will increase by rotating the sleeve toward (+) direction. Once the desired adjustment is achieved, the sleeve can be locked by tightening the knurled ring nut (H) in order to prevent inadvertent changes or motion due to line vibrations. The maximum adjustment stroke is identified as K and, for different valve sizes, is shown by the specific table. This valve is a variable adjustable restriction, non-pressure-compensated: the actual flow through the valve will be determined by the pressure differential available between inlet B and outlet A, and also by the oil viscosity. The valve is available in different sizes for different flow ranges, as specified by the tables of the Technical data and Dimensions. Minor leakage "B-A" can be expected with valve fully closed. Free reverse flow "A-B" is always allowed through the incorporated poppet check valve with 0.5 bar cracking pressure.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
SU 7	350 (5000)	12 (3)	0.30 (0.66)
SU 10	350 (5000)	30 (8)	0.40 (0.88)
SU 11	350 (5000)	30 (8)	0.40 (0.88)
SU 13	350 (5000)	45 (12)	0.70 (1.54)
SU 19	250 (3600)	80 (21)	1.12 (2.47)
SU 25	250 (3600)	140 (37)	3.0 (6.6)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Code	Ports size A-B	Ø D mm (inches)	L mm (inches)	K mm (inches)
SU 7	G 1/4	35 (1.38)	62 (2.44)	5 (0.20)
SU 10	G 3/8	38 (1.50)	72 (2.84)	7 (0.28)
SU 11	M 18x1.5	38 (1.50)	72 (2.84)	7 (0.28)
SU 13	G 1/2	48 (1.89)	86 (3.39)	8 (0.32)
SU 19	G 3/4	55 (2.17)	100 (3.94)	11 (0.43)
SU 25	G 1	79 (3.11)	126 (4.96)	12 (0.47)

Advantages

- Compact design and inline mounting for space saving.
- Six sizes provide great adaptability to the system.
- Easiness of adjustment.
- Mounting position is unrestricted.
- Low Δp in the free flow direction.

Applications

The SU Series valve is a fully and easily adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The cost effectiveness and the easiness of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Ordering code

SU	
----	--

Cracking pressure (free flow) is always 0.5 bar (7.25psi)

series 7	= 7
series 10	= 10
series 11	= 11
series 13	= 13
series 19	= 19
series 25	= 25

Type	Material number
SU7	R932500602
SU10	R932500603
SU11	R932500604
SU13	R932500605
SU19	R932500606
SU25	R932500607

Type	Material number

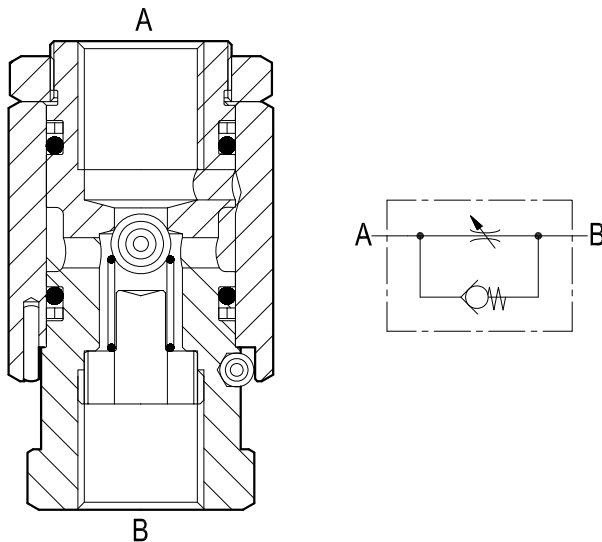
Type	Material number

Flow control valves

Adjustable restrictors with ball type reverse flow check

SUM38

OE.21.01.04.02

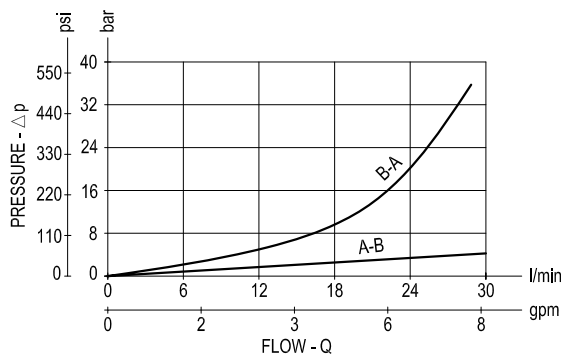


Description

This line mounted restrictor throttles and limits the flow from B to A; it has an adjustable built-in restriction which can be tuned by rotating the external hexagonal 32mm (1.26 inches) sleeve from fully closed to fully open, as indicated by the arrow. Once the desired adjustment is achieved, the sleeve can be locked by tightening the hexagonal 30 mm (1.18 inches) ring nut in order to prevent inadvertent changes or motion due to line vibrations. This valve is a variable adjustable restriction, non-pressure-compensated: the actual flow through the valve will be determined by the pressure differential available between inlet B and outlet A, and also by the oil viscosity.

Minor leakage "B-A" can be expected with valve fully closed. Free reverse flow "A-B" is always allowed through the incorporated check valve with minimum cracking pressure.

Performance



Δp curves vs. flow in "A-B" free flow direction

Technical data

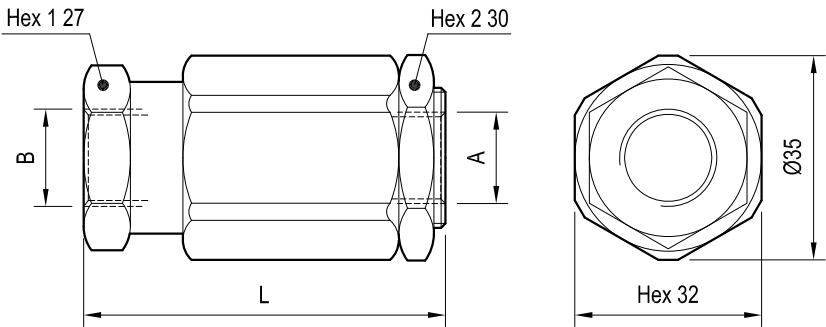
Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
210 (3000)	1-25 (0.3-7)	0.37 (0.82)

Steel body, zinc plated

Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp in the free flow direction.

Dimensions



Ports size / Dimensions

Ports A-B	L mm (inches)
G 3/8	62 (2.44)

Applications

The SUM Series valve is a fully and easily adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The cost effectiveness and the easiness of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Ordering code

OE.21.01.04.02

Adjustable restrictors with ball type reverse flow check

Type	Material number
OE2101040200000	R934001678

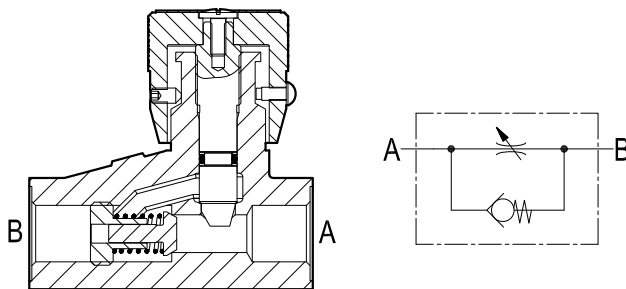
Type	Material number

Type	Material number

Flow control valves

Adjustable restrictors with poppet type reverse flow check

RU Series

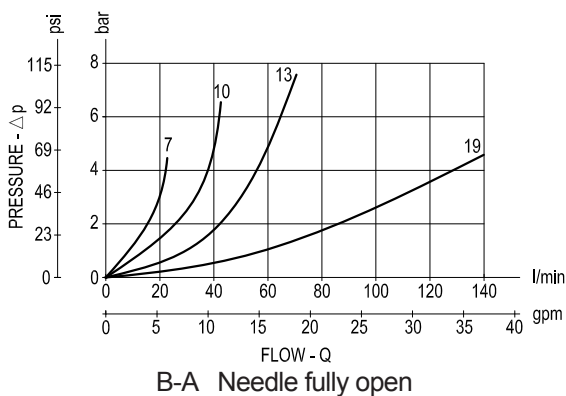
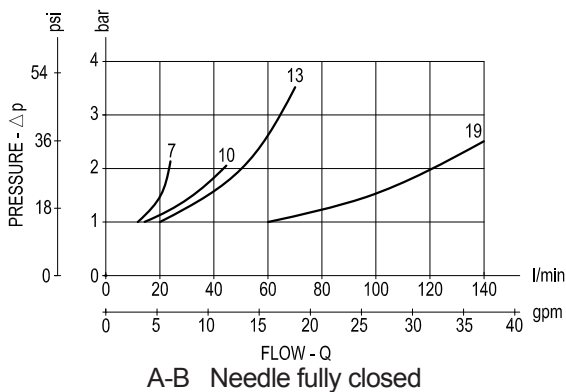


Description

With flow from B to A this line mounted valve provides a fully adjustable orifice restriction. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity.

Free flow is allowed from A to B by an incorporated check valve, when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat.

Performance



Technical data

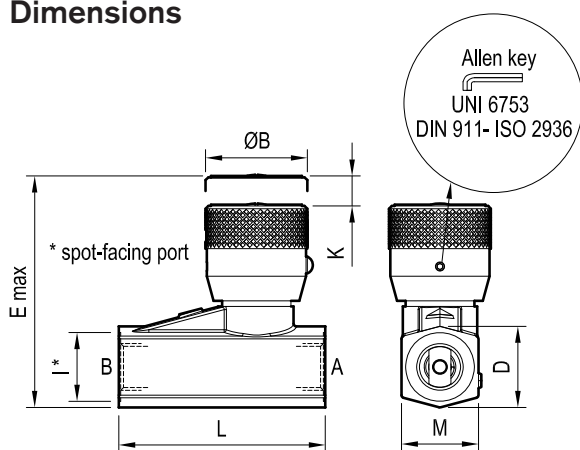
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
RU 7	350 (5000)	25 (7)	0.28 (0.62)
RU 10	350 (5000)	45 (12)	0.48 (1.06)
RU 13	350 (5000)	70 (19)	0.85 (1.87)
RU 19	350 (5000)	140 (37)	1.58 (3.48)

Cast iron, zinc plated with aluminium hand knob

Advantages

- Compact design.
- Four sizes provide great adaptability to the system.
- Fine adjustment.

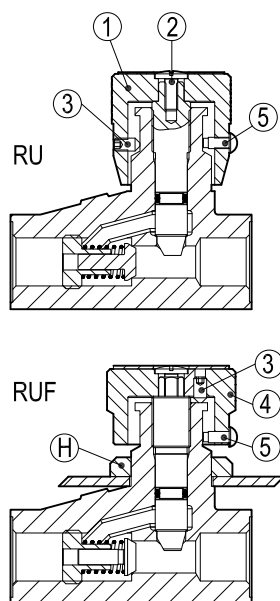
Dimensions



Ports size / Dimensions

Code	Ports size A-B	I* mm (inches)	L mm (inches)	Ø B mm (inches)	E max mm (inches)	D mm (inches)	M mm (inches)
RU 7	G 1/4	21 (0.83)	64 (2.52)	31 (1.22)	70.5 (2.78)	24 (0.95)	24 (0.95)
RU 10	G 3/8	25 (0.98)	75 (2.95)	37 (1.46)	81 (3.19)	30 (1.18)	28 (1.10)
RU 13	G 1/2	29 (1.14)	92 (3.62)	42 (1.65)	104 (4.09)	36 (1.42)	35 (1.38)
RU 19	G 3/4	36.5 (1.44)	115 (3.62)	50 (1.97)	134 (5.28)	43 (1.69)	43 (1.69)

The RU series valves can be converted into panel mounted version (like RUF) by removing and adding the items here indicated.



code	Remove from RU valve				Add For panel mounting			
	Screw (3)	Rivet (5)	Screw (2)	Hand Knob (1)	Ring Nut (H)	Hand Knob (4)	Screw (3)	Rivet (5)
RU 7 RUF 7	M3 x 6 UNI 5927.67 code: 0771432.01	4M x 6.5 code: 0771352.01	M4 x 10 code: 0771432.04	077.1431.01	20 x 1 code: 0811131.16	081.1431.05	M3 x 6 UNI 5927.67 code: 0771432.01	4M x 6.5 code: 0771352.01
RU 10 RUF 10	M4 x 8 UNI 5927.67 code: 0781432.02	4M x 8 code: 0781352.02	M4 x 10 code: 0771432.04	078.1431.02	25 x 1.5 code: 0821131.17	082.1431.06	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02
RU 13 RUF 13	M4 x 8 UNI 5927.67 code: 0781432.02	4M x 8 code: 0781352.02	M5 x 12 0791432.05	079.1431.03	30 x 1.5 code: 0831131.18	083.1431.07	M4 x 8 UNI 5927.67 code: 0781432.02	6M x 8 code: 0781352.02
RU 19 RUF 19	M5 x 10 UNI 5927.67 code: 0801432.03	10M x 9.5 code: 0801352.03	M5 x 12 + rivet Ø 5 (0.20) UNI 6593-69 code: 0791432.05	080.1431.04	35 x 1.5 code: 0841131.19	084.1431.08	M5 x 10 UNI 5927.67 code: 0801432.03	10M x 9.5 code: 0801352.03

Ordering code

RU

series 7	=	7
series 10	=	10
series 13	=	13
series 19	=	19

Adj. travel (only bar value see below)

	RU 7	RU 10	RU 13	RU 19
K mm (inch)	7 (0.28)	8 (0.31)	11 (0.43)	14 (0.55)

Cracking pressure (free flow) is always 1 bar (14.5psi)

Type	Material number
RU7	R932500550
RU10	R932500552
RU13	R932500553
RU19	R932500554

Type	Material number

Type	Material number

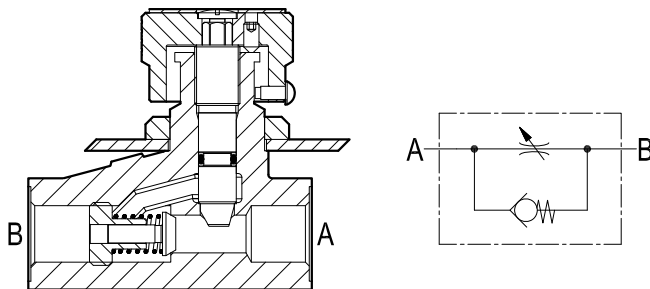
Applications

The RU Series valve is a fully and easily adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The easiness of installation and of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Flow control valves

Adjustable restrictors with poppet type reverse flow check

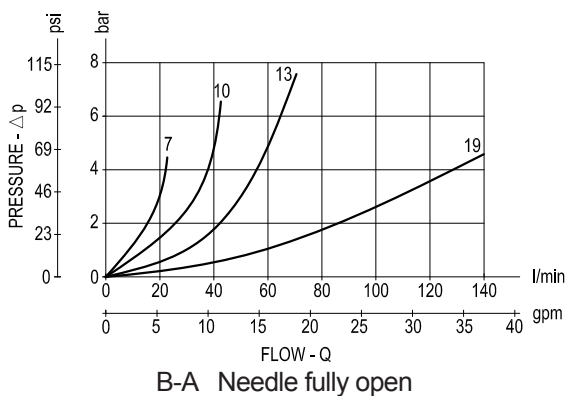
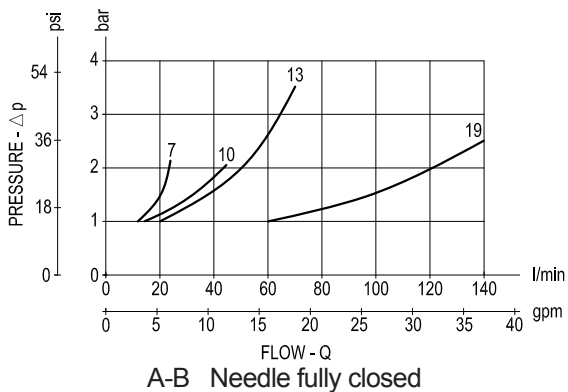
RUF Series



Description

With flow from B to A this valve provides a fully adjustable orifice restriction. Pressure compensation is not provided and flow depends from pressure drop and oil viscosity. Free flow is allowed from A to B by an incorporated check valve, when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. This RUF flow restrictor can be line mounted or panel mounted and the hand-knob can be locked after adjustment.

Performance



Technical data

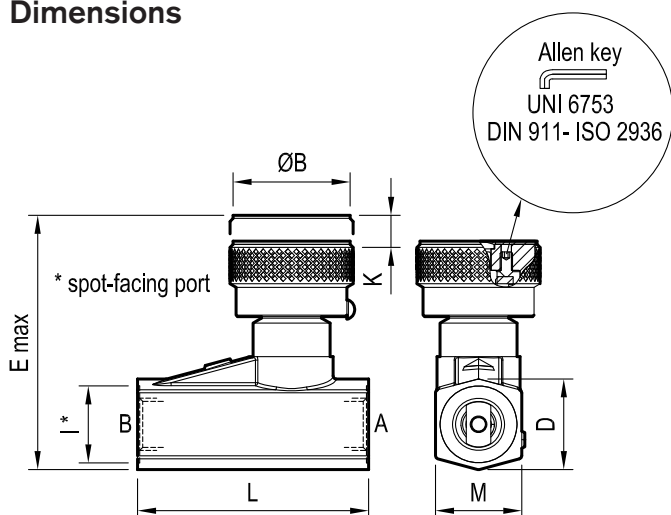
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
RUF 7	350 (5000)	25 (7)	0.28 (0.62)
RUF 10	350 (5000)	45 (12)	0.48 (1.06)
RUF 13	350 (5000)	70 (19)	0.85 (1.87)
RUF 19	350 (5000)	140 (37)	1.56 (3.48)

Cast iron, zinc plated with aluminium hand knob

Advantages

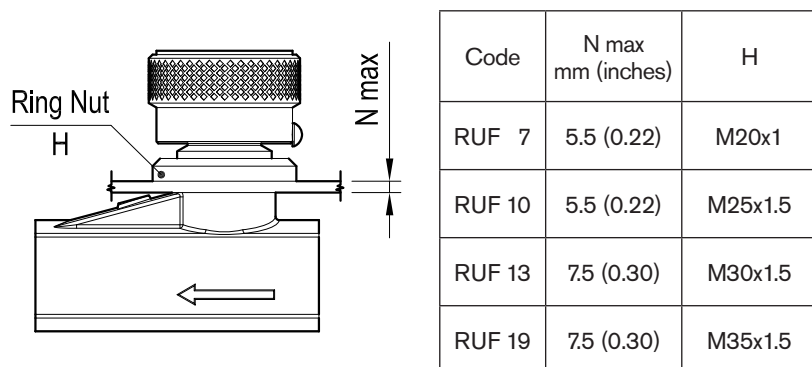
- Compact design.
- Panel mounting.
- Four sizes provide great adaptability to the system.
- Fine adjustment.

Dimensions



Ports size / Dimensions

Code	Ports size A-B	I* mm (inches)	L mm (inches)	Ø B mm (inches)	E max mm (inches)	D mm (inches)	M mm (inches)
RUF 7	G 1/4	21 (0.83)	64 (2.52)	33 (1.30)	63.5 (2.5)	24 (0.95)	24 (0.95)
RUF 10	G 3/8	25 (0.98)	75 (2.95)	40 (1.58)	73 (2.87)	30 (1.18)	28 (1.10)
RUF 13	G 1/2	29 (1.14)	92 (3.62)	45 (1.77)	93 (3.66)	36 (1.42)	35 (1.38)
RUF 19	G 3/4	36.5 (1.44)	115 (3.62)	53 (2.09)	120 (4.72)	43 (1.69)	43 (1.69)



Code	N max mm (inches)	H
RUF 7	5.5 (0.22)	M20x1
RUF 10	5.5 (0.22)	M25x1.5
RUF 13	7.5 (0.30)	M30x1.5
RUF 19	7.5 (0.30)	M35x1.5

Applications

The RUF Series valve is a panel mounted fully and adjustable non-compensated flow control which can be employed for meter-in (Port A connected to the actuator inlet) or meter-out (Port B connected to the actuator outlet in order to control the oil flow from the actuator). The easiness of installation and of adjustment make it suitable for many circuits and many applications where a non-compensated flow control is desired.

Ordering code

RUF	
series 7	= 7
series 10	= 10
series 13	= 13
series 19	= 19

Adj. travel (only bar value see below)

	RUF 7	RUF 10	RUF 13	RUF 19
K (inch)	7 (0.28)	8 (0.31)	11 (0.43)	14 (0.55)

Cracking pressure (free flow) is always 1 bar (14.5psi)

Type	Material number
RUF7	R932500556
RUF10	R932500558
RUF13	R932500559
RUF19	R932500560

Type	Material number

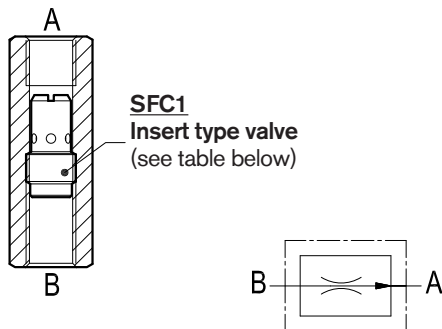
Type	Material number

Flow control valves

Pressure compensated fixed setting flow regulators,
with female sleeve

SFC-FF

OE.F1.01.01-Y-Z



Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (SFC1); it controls the oil flow from B to A, and prevents it from exceeding the selected value regardless of working pressure, while establishing a minimum pressure differential between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a pre-determined flow (see "Z" table of Regulated Flow. In the reverse direction, A to B, flow is locked.

Technical data

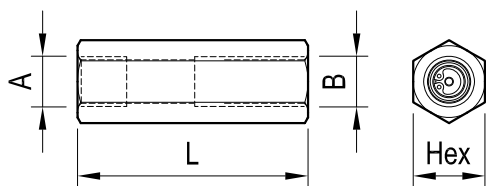
SFC1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F1.01.00.09...	G 1/4	210 (3000)	10 (3)	0.01 (0.02)
0T.F1.01.00.02...	G 3/8	210 (3000)	16 (4)	0.02 (0.04)
0T.F1.01.00.03...	G 1/2	210 (3000)	45 (12)	0.05 (0.11)

Steel body, zinc plated

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-75).

Dimensions



Posts size / Dimensions

Y	Ports A-B	L mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	61 (2.40)	19 (0.75)	OC.51.02.023
02	G 3/8	63 (2.48)	22 (0.87)	OC.51.02.024
03	G 1/2	72.5 (2.85)	27 (1.06)	OC.51.02.025

Z	REGULATED FLOW RANGE ($\pm 10\%$) at 100 bar (1450 psi) l/min (gpm)									
	01	02	03	04	05	06	07	08	09	10
G 1/4	1 (0.3)	2 (0.5)	3 (0.8)	4 (1.1)	5 (1.3)	6 (1.9)	7 (1.9)	8 (2.1)	9 (2.4)	10 (2.6)
G 3/8	4 (1.1)	5 (1.3)	6 (1.6)	8 (2.1)	10 (2.6)	12 (3.2)	14 (3.7)	16 (4.2)	-	-
G 1/2	12 (3.2)	16 (4.2)	20 (5.3)	25 (6.6)	30 (7.9)	35 (9.3)	40 (10.6)	45 (11.9)	-	-

Applications

Typical applications are the limitation of the flow into a line; it can also be used as a Meter-OUT device in order to limit the flow out from a one-way working line. The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OE.F1.01.01	Y	Z
Pressure compensated fixed setting flow regulator, with female sleeve		Regulated flow range see table "Z"
Ports size / Dimensions see table "Y"		

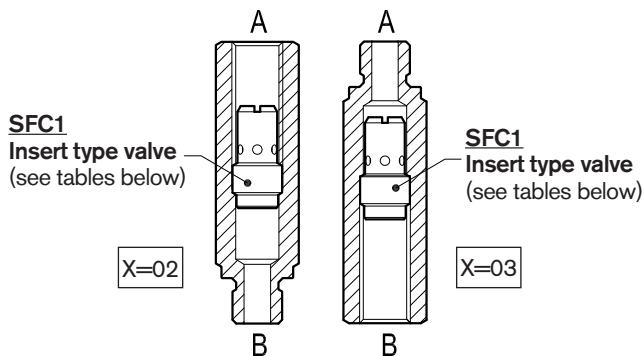
Type	Material number	Type	Material number	Type	Material number
OEF101010201	R932007157	OEF101010303	R932007167	OEF101010905	R932007151
OEF101010202	R932007158	OEF101010304	R932007168	OEF101010906	R932007152
OEF101010203	R932007159	OEF101010305	R932007169	OEF101010907	R932007153
OEF101010204	R932007160	OEF101010306	R932007170	OEF101010908	R932007154
OEF101010205	R932007161	OEF101010307	R932007171	OEF101010909	R932007155
OEF101010206	R932007162	OEF101010308	R932007172	OEF101010910	R932007156
OEF101010207	R932007163	OEF101010901	R932007147		
OEF101010208	R932007164	OEF101010902	R932007148		
OEF101010301	R932007165	OEF101010903	R932007149		
OEF101010302	R932007166	OEF101010904	R932007150		

Flow control Valves

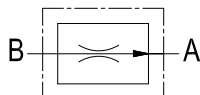
Pressure compensated fixed setting flow regulators, with male-female sleeve

SFC-MF

OE.F1.01-X-Y-Z



X	Male or female regulated port
02	female regulated port A
03	male regulated port A



Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (SFC1); it controls the oil flow from B to A, and prevents it from exceeding the selected value regardless of working pressure, while establishing a minimum pressure differential between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a pre-determined flow (see "Z" table of Regulated Flow). In the reverse direction, A to B, flow is locked. The valve can be ordered with MALE "A" port (X = 02), or FEMALE "A" port (X = 03).

Technical data

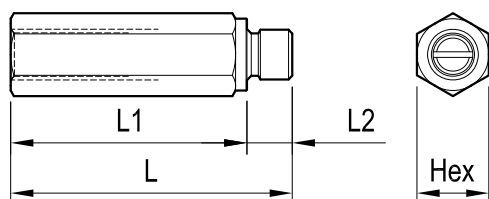
SFC1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F1.01.00.09...	G 1/4	210 (3000)	10 (3)	0.01 (0.02)
0T.F1.01.00.02...	G 3/8	210 (3000)	16 (4)	0.02 (0.04)
0T.F1.01.00.03...	G 1/2	210 (3000)	45 (12)	0.05 (0.11)

Steel body, zinc plated

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-75).

Dimensions



Ports size / Dimensions

Y	Ports	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	74.5 (2.93)	62.5 (2.46)	12 (0.47)	19 (0.75)	OC.51.01.072
02	G 3/8	78.5 (3.09)	66.5 (2.62)	12 (0.47)	22 (0.87)	OC.51.01.073
03	G 1/2	93 (3.66)	79 (3.11)	14 (0.55)	27 (1.06)	OC.51.01.074

Z	REGULATED FLOW RANGE ($\pm 10\%$) at 100 bar (1450 psi) l/min (gpm)									
	01	02	03	04	05	06	07	08	09	10
G 1/4	1 (0.3)	2 (0.5)	3 (0.8)	4 (1.1)	5 (1.3)	6 (1.9)	7 (1.9)	8 (2.1)	9 (2.4)	10 (2.6)
G 3/8	4 (1.1)	5 (1.3)	6 (1.6)	8 (2.1)	10 (2.6)	12 (3.2)	14 (3.7)	16 (4.2)	-	-
G 1/2	12 (3.2)	16 (4.2)	20 (5.3)	25 (6.6)	30 (7.9)	35 (9.3)	40 (10.6)	45 (11.9)	-	-

Applications

Typical applications are the limitation of the flow into a line; it can also be used as a Meter-OUT device in order to limit the flow out from a one-way working line. The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OEF.F1.01	X	Y	Z
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Pressure compensated fixed setting flow regulators, with male-female sleeve

Regulated flow range see table "Z"

Male e female regulated port see table "X"

Ports size / Dimensions see table "Y"

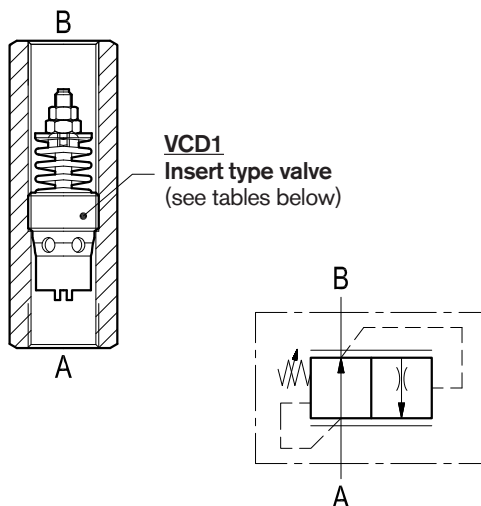
Type	Material number	Type	Material number	Type	Material number
OEF101020201	R932007094	OEF101020905	R932007131	OEF101030307	R932007125
OEF101020202	R932007095	OEF101020906	R932007132	OEF101030308	R932007126
OEF101020203	R932007096	OEF101020907	R932007133	OEF101030901	R932007137
OEF101020204	R932007097	OEF101020908	R932007134	OEF101030902	R932007138
OEF101020205	R932007098	OEF101020909	R932007135	OEF101030903	R932007139
OEF101020206	R932007099	OEF101020910	R932007136	OEF101030904	R932007140
OEF101020207	R932007100	OEF101030201	R932007102	OEF101030905	R932007141
OEF101020208	R932007101	OEF101030202	R932007103	OEF101030906	R932007142
OEF101020301	R932007111	OEF101030203	R932007104	OEF101030907	R932007143
OEF101020302	R932007112	OEF101030204	R932007105	OEF101030908	R932007144
OEF101020303	R932007113	OEF101030205	R932007106	OEF101030909	R932007145
OEF101020304	R932007114	OEF101030206	R932007107	OEF101030910	R932007146
OEF101020305	R932007115	OEF101030207	R932007108		
OEF101020306	R932007116	OEF101030208	R932007109		
OEF101020307	R932007117	OEF101030301	R932007119		
OEF101020308	R932007118	OEF101030302	R932007120		
OEF101020901	R932007127	OEF101030303	R932007121		
OEF101020902	R932007128	OEF101030304	R932007122		
OEF101020903	R932007129	OEF101030305	R932007123		
OEF101020904	R932007130	OEF101030306	R932007124		

Flow control valves

Pressure compensated partially adjustable flow regulators, with female sleeve

VCDC-H-MC (G1/4 - G3/8)

OE.22.03.01-Y-Z

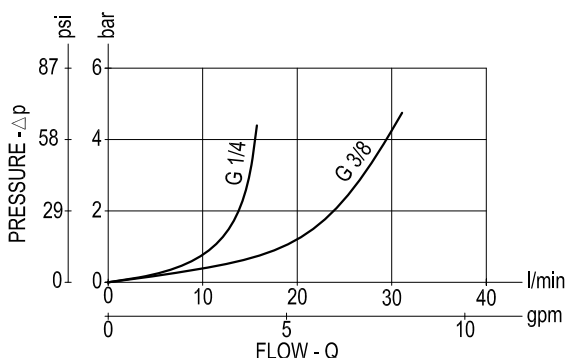


Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (VCD1); it controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential between 3 bar and 8 bar (45 psi and 115 psi) approximately between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a specific flow range (see Performance Diagram and Flow Range "Z" table). For each selected size and flow range, the pressure compensated flow can be tuned finely by changing the spring load (see table of Dimensions).

In the reverse direction, A to B, the valve behaves as a fixed restriction, and it allows free flow depending from the pressure available (see Performance diagram).

Performance



Technical data

VCD1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
OT.F3.01.02.09...	G 1/4	315 (4500)	10 (3)	0.01 (0.02)
OT.F3.01.02.02...	G 3/8	315 (4500)	25 (7)	0.03 (0.07)

Steel body, zinc plated

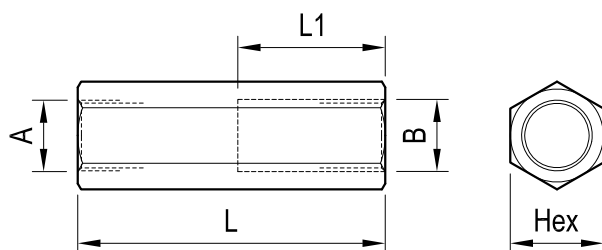
Special ports available on request.

Note: the inserted flow regulator cartridge is available with a number of different orifices for different flow ranges, as specified by the "Z" table: when ordering please specify the needed Flow Range ("Z table"), as well as the needed Port Size ("Y table"). Customer tailored flow adjustments are available on request: for details, please consult us.

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-80).

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	L1 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	66 (3.07)	39 (1.54)	19 (0.75)	OC.51.02.006
02	G 3/8	70 (2.76)	42 (1.65)	22 (0.87)	OC.51.02.007

Z	REGULATED FLOW RANGE l/min (gpm)			
	G 1/4	G 3/8	G 1/2	G 3/4
01	-	2.5-4.0 (0.66-1.06)	16-21 (4.23-5.55)	37-50 (9.78-13.21)
02	1-1.6 (0.26-0.43)	4.0-6.3 (1.06-1.67)	21-28 (5.55-7.40)	50-67 (13.21-17.7)
03	1.6-2.5 (0.43-0.66)	6.3-10 (1.67-2.64)	28-37 (7.40-9.78)	67-90 (17.7-23.78)
04	2.5-4.0 (0.66-1.06)	10-16 (2.64-4.23)	37-50 (9.78-13.21)	90-120 (23.78-31.7)
05	4.0-6.3 (1.06-1.67)	16-25 (4.23-6.61)	50-67 (13.21-17.7)	120-150 (31.7-39.63)
06	6.3-10 (1.67-2.64)	-	-	-

Applications

Typical applications are the control of the maximum speed of an actuator (double or single acting cylinder, or motor), which is generally achieved by regulating the maximum flow out from the actuator (or meter-OUT). The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OE.22.03.01	Y	Z
Pressure compensated partially adjustable flow regulators, with female sleeve		Regulated flow range see table "Z"
Ports size / Dimensions see table "Y"		

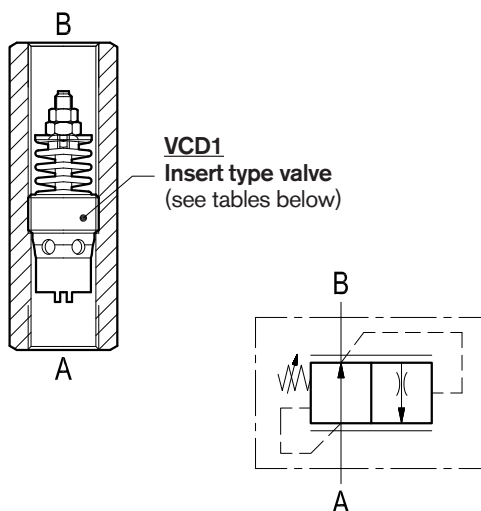
Type	Material number	Type	Material number	Type	Material number
OE2203010902	R932007277				
OE2203010903	R934001704				
OE2203010904	R934001706				
OE2203010905	R934001707				
OE2203010906	R934001709				
OE2203010201	R934003199				
OE2203010202	R934001682				
OE2203010203	R932007278				
OE2203010204	R934001684				
OE2203010205	R934001688				

Flow control valves

Pressure compensated partially adjustable flow regulators, with female sleeve

VCDC-H-MC (G1/2 - G3/4)

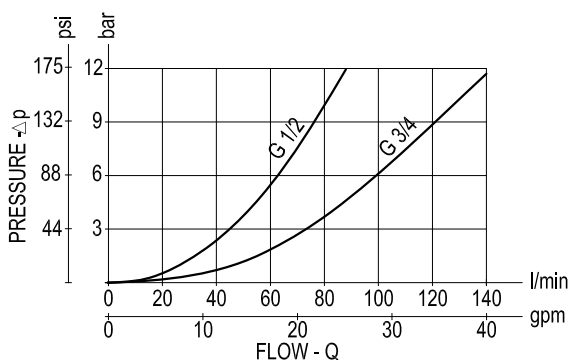
OE.22.03.01-Y-Z



Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (VCD1); it controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential between 3 bar and 8 bar (45 psi and 115 psi) approximately between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a specific flow range (see Performance Diagram and Flow Range "Z" table). For each selected size and flow range, the pressure compensated flow can be tuned finely by changing the spring load (see table of Dimensions). In the reverse direction, A to B, the valve behaves as a fixed restriction, and it allows free flow depending from the pressure available (see Performance diagram).

Performance



Note: the inserted flow regulator cartridge is available with a number of different orifices for different flow ranges, as specified by the "Z" table: when ordering please specify the needed Flow Range ("Z table"), as well as the needed Port Size ("Y table"). Customer tailored flow adjustments are available on request: for details, please consult us.

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-80).

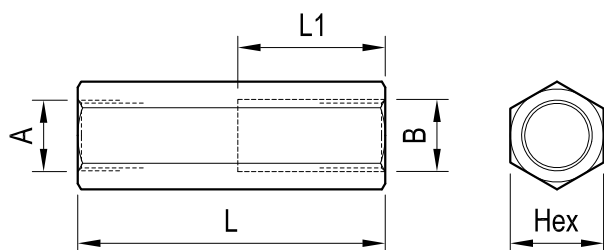
Technical data

VCD1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F3.01.02.03...	G 1/2	315 (4500)	67 (18)	0.04 (0.09)
0T.F3.01.02.04...	G 3/4	315 (4500)	150 (40)	0.07 (0.15)

Steel body, zinc plated

Special ports available on request.

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	L1 mm (inches)	Hex mm (inches)	Sleeve code
03	G 1/2	80 (3.15)	48 (1.89)	27 (1.06)	OC.51.02.008
04	G 3/4	100 (3.94)	59 (2.32)	32 (1.26)	OC.51.02.009

Z	REGULATED FLOW RANGE l/min (gpm)			
	G 1/4	G 3/8	G 1/2	G 3/4
01	-	2.5-4.0 (0.66-1.06)	16-21 (4.23-5.55)	37-50 (9.78-13.21)
02	1-1.6 (0.26-0.43)	4.0-6.3 (1.06-1.67)	21-28 (5.55-7.40)	50-67 (13.21-17.7)
03	1.6-2.5 (0.43-0.66)	6.3-10 (1.67-2.64)	28-37 (7.40-9.78)	67-90 (17.7-23.78)
04	2.5-4.0 (0.66-1.06)	10-16 (2.64-4.23)	37-50 (9.78-13.21)	90-120 (23.78-31.7)
05	4.0-6.3 (1.06-1.67)	16-25 (4.23-6.61)	50-67 (13.21-17.7)	120-150 (31.7-39.63)
06	6.3-10 (1.67-2.64)	-	-	-

Applications

Typical applications are the control of the maximum speed of an actuator (double or single acting cylinder, or motor), which is generally achieved by regulating the maximum flow out from the actuator (or meter-OUT). The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OE.22.03.01	Y	Z
Pressure compensated partially adjustable flow regulators, with female sleeve		Regulated flow range see table "Z"
Ports size / Dimensions see table "Y"		

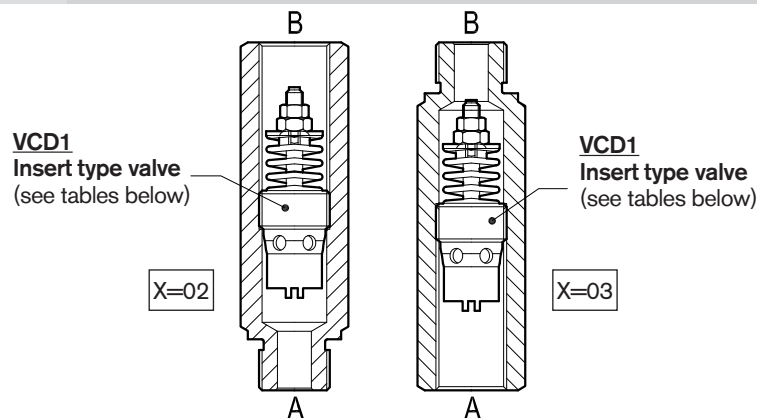
Type	Material number	Type	Material number	Type	Material number
OE2203010301	R934001694				
OE2203010302	R934001695				
OE2203010303	R934001697				
OE2203010304	R934001699				
OE2203010305	R934001700				
OE2203010401	R932007279				
OE2203010402	R934001701				
OE2203010403	R934001702				
OE2203010404	R932007280				
OE2203010405	R932007281				

Flow control valves

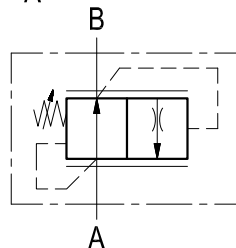
Pressure compensated partially adjustable flow regulators, with male-female sleeve

VCDC-H-MF (G1/4 - G3/8)

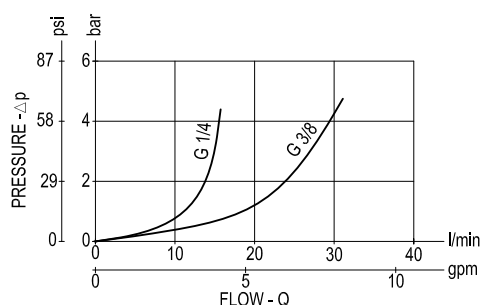
OE.22.03-X-Y-Z



X	Male or female regulated port
02	female regulated port B
03	male regulated port B



Performance



Note: the inserted flow regulator cartridge is available with a number of different orifices for different flow ranges, as specified by the "Z" table: when ordering please specify the needed Flow Range ("Z table"), as well as the needed Port Size ("Y table"). Customer tailored flow adjustments are available on request: for details, please consult us.

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-80).

Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (VCD1); it controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential between 3 bar and 8 bar (45 psi and 115 psi) approximately between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a specific flow range (see Performance Diagram and Flow Range "Z" table). For each selected size and flow range, the pressure compensated flow can be tuned finely by changing the spring load (see table of Dimensions).

In the reverse direction, A to B, the valve behaves as a fixed restriction, and it allows free flow depending from the pressure available (see Performance diagram).

The valve can be ordered with MALE "A" port (X = 02), or FEMALE "A" port (X = 03).

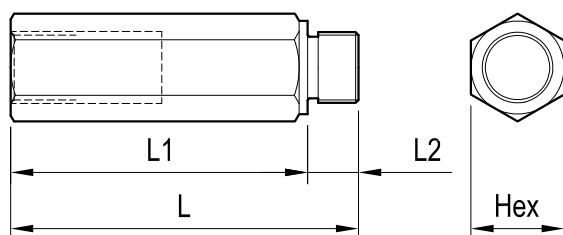
Technical data

VCD1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F3.01.02.09...	G 1/4	315 (4500)	10 (3)	0.01 (0.02)
0T.F3.01.02.02...	G 3/8	315 (4500)	25 (7)	0.03 (0.07)

Steel body, zinc plated

Special ports available on request.

Dimensions



Ports size / Dimensions

Y	Ports	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	78 (3.07)	66 (2.60)	12 (0.47)	19 (0.75)	OC.51.01.025
02	G 3/8	82 (3.23)	70 (2.76)	12 (0.47)	22 (0.87)	OC.51.01.026

Z	REGULATED FLOW RANGE l/min (gpm)			
	G 1/4	G 3/8	G 1/2	G 3/4
01	-	2.5-4.0 (0.66-1.06)	16-21 (4.23-5.55)	37-50 (9.78-13.21)
02	1-1.6 (0.26-0.42)	4.0-6.3 (1.06-1.67)	21-28 (5.55-7.40)	50-67 (13.21-17.7)
03	1.6-2.5 (0.42-0.66)	6.3-10 (1.67-2.64)	28-37 (7.40-9.78)	67-90 (17.7-23.78)
04	2.5-4.0 (0.66-1.06)	10-16 (2.64-4.23)	37-50 (9.78-13.21)	90-120 (23.78-31.7)
05	4.0-6.3 (1.06-1.66)	16-25 (4.23-6.61)	50-67 (13.21-17.7)	120-150 (31.7-39.63)
06	6.3-10 (1.66-2.64)	-	-	-

Applications

Typical applications are the control of the maximum speed of an actuator (double or single acting cylinder, or motor), which is generally achieved by regulating the maximum flow out from the actuator (or meter-OUT). The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OE.22.03	X	Y	Z
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Pressure Compensated partially adjustable flow regulators, with male-female sleeve

Regulated flow range see table "Z"

Male or female regulated port see table "X"

Ports size / Dimensions see table "Y"

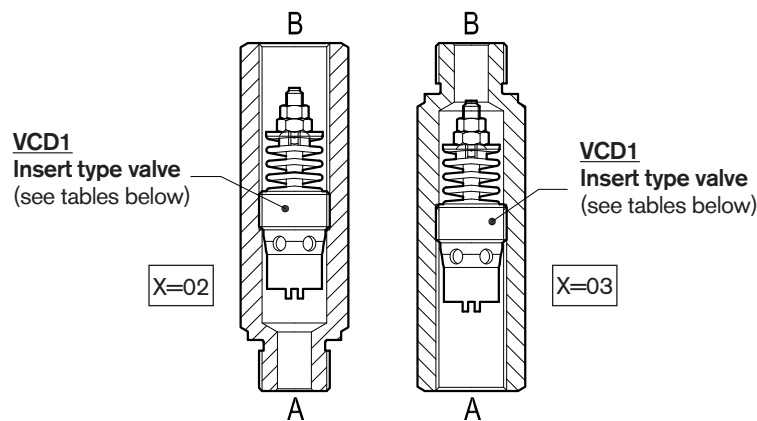
Type	Material number	Type	Material number	Type	Material number
OE2203020201	R934003432	OE2203030201	R931000446		
OE2203020202	R932007287	OE2203030202	R931000447		
OE2203020203	R932007288	OE2203030203	R931000449		
OE2203020204	R932007289	OE2203030204	R931000450		
OE2203020205	R932007290	OE2203030205	R934001715		
OE2203020902	R934003200	OE2203030902	R932007285		
OE2203020903	R932007282	OE2203030903	R931000440		
OE2203020904	R934003433	OE2203030904	R931000442		
OE2203020905	R932007283	OE2203030905	R931000444		
OE2203020906	R932007284	OE2203030906	R932007286		

Flow control valves

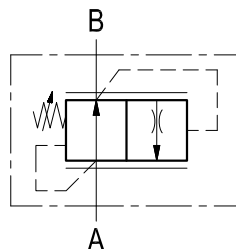
Pressure compensated partially adjustable flow regulators, with male-female sleeve

VDCD-H-MF (G1/2 - G3/4)

OE.22.03-X-Y-Z



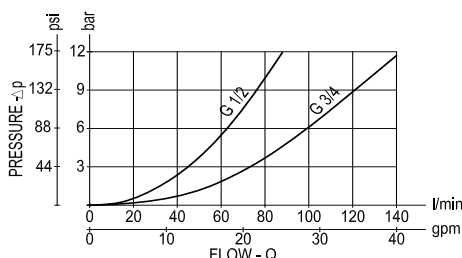
X	Male or female regulated port
02	female regulated port B
03	male regulated port B



Description

This valve is composed by a sleeve with an inserted pressure compensated flow regulator cartridge (VCD1); it controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential between the two ports. The inserted cartridge is available in different sizes (as well as the sleeve), and each size is available with different orifices, each one for a specific flow range (see Performance Diagram and Flow Range "Z" table). For each selected size and flow range, the pressure compensated flow can be tuned finely by changing the spring load (see table of Dimensions). In the reverse direction, A to B, the valve behaves as a fixed restriction, and it allows free flow depending from the pressure available (see Performance diagram). The valve can be ordered with MALE "A" port (X = 02), or FEMALE "A" port (X = 03).

Performance



Note: the inserted flow regulator cartridge is available with a number of different orifices for different flow ranges, as specified by the "Z" table: when ordering please specify the needed Flow Range ("Z" table), as well as the needed Port Size ("Y" table).

Customer tailored flow adjustments are available on request: for details, please consult us.

Advantages

- Compact design and inline mounting for space saving.
- Mounting position is unrestricted
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (see data sheet RE 18329-80).

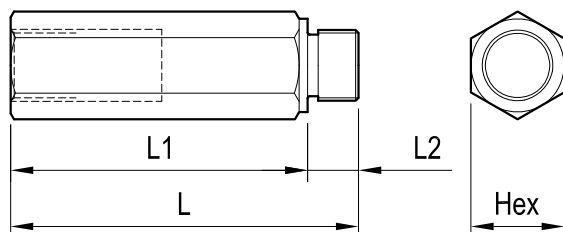
Technical data

VCD1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F3.01.02.03...	G 1/2	315 (4568)	67 (18)	0.04 (0.09)
0T.F3.01.02.04...	G 3/4	315 (4568)	150 (40)	0.07 (0.15)

Steel body, zinc plated

Special ports available on request.

Dimensions



Ports size / Dimensions

Y	Ports	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
03	G 1/2	96 (3.78)	82 (3.23)	14 (0.55)	27 (1.06)	OC.51.01.027
04	G 3/4	110 (4.33)	94 (3.70)	16 (0.63)	32 (1.26)	OC.51.01.028

Z	REGULATED FLOW RANGE l/min (gpm)			
	G 1/4	G 3/8	G 1/2	G 3/4
01	-	2.5-4.0 (0.66-1.06)	16-21 (4.23-5.55)	37-50 (9.78-13.21)
02	1-1.6 (0.26-0.42)	4.0-6.3 (1.06-1.67)	21-28 (5.55-7.40)	50-67 (13.21-17.7)
03	1.6-2.5 (0.42-0.66)	6.3-10 (1.67-2.64)	28-37 (7.40-9.78)	67-90 (17.7-23.78)
04	2.5-4.0 (0.66-1.06)	10-16 (2.64-4.23)	37-50 (9.78-13.21)	90-120 (23.78-31.7)
05	4.0-6.3 (1.06-1.66)	16-25 (4.23-6.61)	50-67 (13.21-17.7)	120-150 (31.7-39.63)
06	6.3-10 (1.66-2.64)	-	-	-

Applications

Typical applications are the control of the maximum speed of an actuator (double or single acting cylinder, or motor), which is generally achieved by regulating the maximum flow out from the actuator (or meter-OUT). The flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure.

Ordering code

OE.22.03	X	Y	Z
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Pressure compensated partially adjustable flow regulators, with male-female sleeve

Regulated flow range see table "Z"

Male or female regulated port see table "X"

Ports size / Dimensions see table "Y"

Type	Material number	Type	Material number	Type	Material number
OE2203020301	R932007291	OE2203030301	R932007295		
OE2203020302	R934001711	OE2203030302	R934001716		
OE2203020303	R932007292	OE2203030303	R931000432		
OE2203020304	R932007293	OE2203030304	R931000434		
OE2203020305	R932007294	OE2203030305	R931001457		
OE2203020401	R932007296	OE2203030401	R934001717		
OE2203020402	R934001712	OE2203030402	R932007298		
OE2203020403	R934001713	OE2203030403	R932007299		
OE2203020404	R934001714	OE2203030404	R934001718		
OE2203020405	R932007297	OE2203030405	R932007300		

Flow control valves

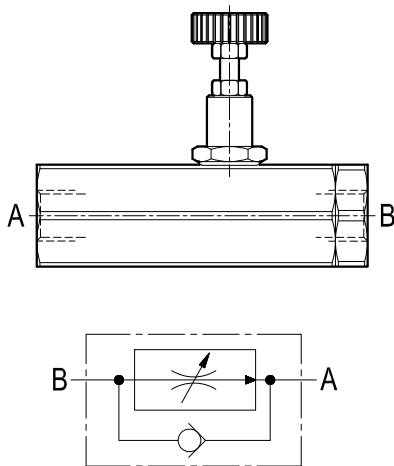
Pressure compensated adjustable flow regulator with reverse flow check

VCST (G1/4) Series



Description

This pressure compensated flow regulator controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential of approximately 5 bar (75 psi) between the two ports. The valve is available in different sizes and versions for different flow ranges, as specified by the tables of the Technical data, Dimensions and Performance diagrams. The fine setting of the output flow at A can be achieved by rotating the hand knob which can be locked in position by the locking nut in order to prevent inadvertent changes. Unrestricted reverse flow "A-B" is permitted through a check valve with zero cracking pressure, regardless of valve adjustment.

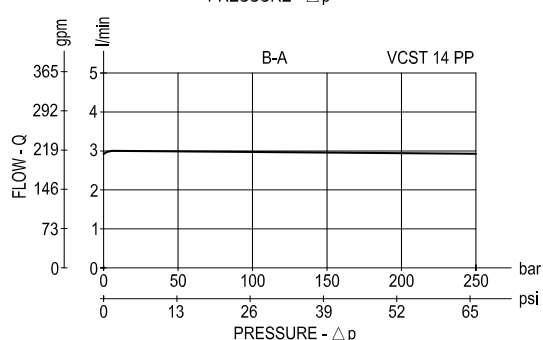
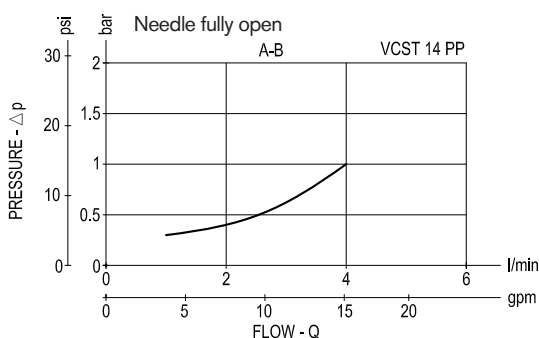
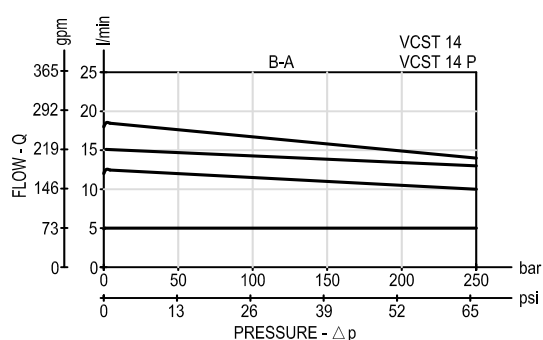
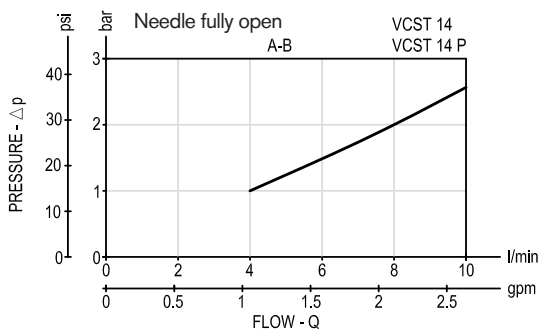


Technical data

Code	Pressure P max bar (psi)	Flow Q l/min (gpm)	Weight kg (lbs)
VCST 14	250 (3600)	4 - 10 (1 - 3)	0.35 (0.77)
VCST 14 P		1 - 4 (0.3 - 1)	
VCST 14 PP			

Performance

Steel body, zinc plated



RE 18316-19/03.16

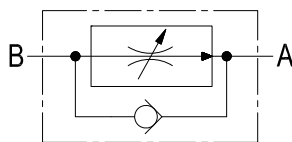
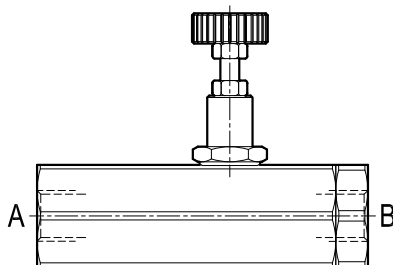
1/2

Replaces: 18316-19/10.09

Flow control valves

Pressure compensated adjustable flow regulator with reverse flow check

VCST (G 3/8) Series



Description

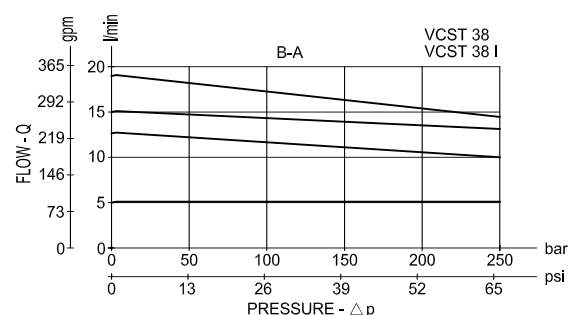
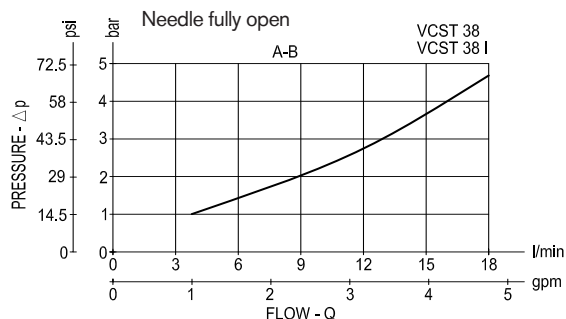
This pressure compensated flow regulator controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential of approximately 5 bar (75 psi) between the two ports. The valve is available in different sizes and versions for different flow ranges, as specified by the tables of the Technical data, Dimensions and Performance diagrams. The fine setting of the output flow at A can be achieved by rotating the hand knob which can be locked in position by the locking nut in order to prevent inadvertent changes. Unrestricted reverse flow "A-B" is permitted through a check valve with zero cracking pressure, regardless of valve adjustment.

Technical data

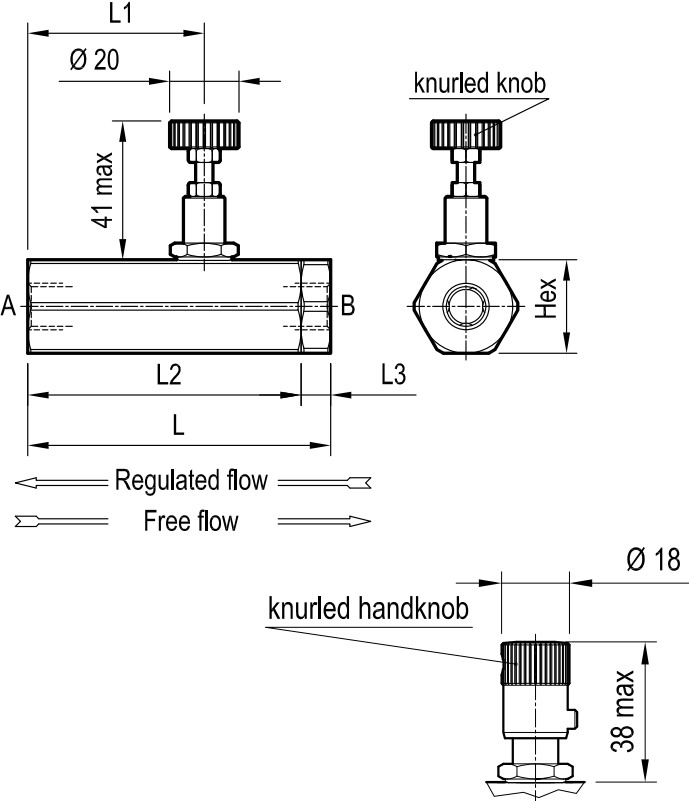
Code	Pressure P max bar (psi)	Flow Q l/min (gpm)	Weight kg (lbs)
VCST 38	250 (3600)	4 - 18 (1 - 5)	0.34 (0.75)
VCST 38 I			

Steel body, zinc plated

Performance



Dimensions



Ports size / Dimensions

	VCST 38	VCST 38 I
knurled knob		x
hand knob	x	
Port size A-B	G 3/8	
L mm (inches)	87.5 (3.45)	
L3 mm (inches)	8.5 (0.34)	
L2 mm (inches)	79 (3.11)	
L1 mm (inches)	51 (2.01)	
Hex mm (inches)	27 (1.06)	

The " I " version is stainless steel made.

Advantages

- Compact design and inline mounting for space saving.
- Flow setting can be locked by the locking nut.
- Mounting position is unrestricted.
- Zero cracking pressure for free reverse flow "A-B".
- Three sizes, each with hand knob or knurled hand knob, provide great adaptability to the system.

Application

The VCST is a normally open, two ports, restrictive type flow regulator, with incorporated check valve for free reverse flow. Typical applications are the control of the maximum speed of an actuator (cylinder or motor), which is achieved by regulating the maximum flow A into or out from the actuator (meter-IN, or meter-OUT). The maximum flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure. If the valve is used to control the flow from a constant flow line, only the regulated flow will pass through the valve; any excess flow will normally be forced out of the line and delivered to tank through the system relief valve.

Ordering code

VCST -		
series 38	= 38	G 3/8 Standard version with hand knob
series 38 I	= 38 I	G 3/8 Stainless version with knob

Type	Material number	Type	Material number	Type	Material number
VCST-38	R932500621				
VCST-38I	R932500622				

Flow control valves

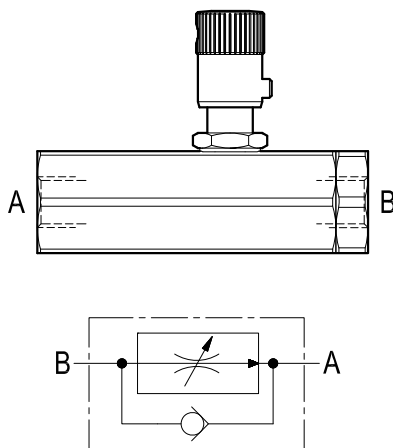
Pressure compensated adjustable flow regulator with reverse flow check

VCST (G 1/2) Series

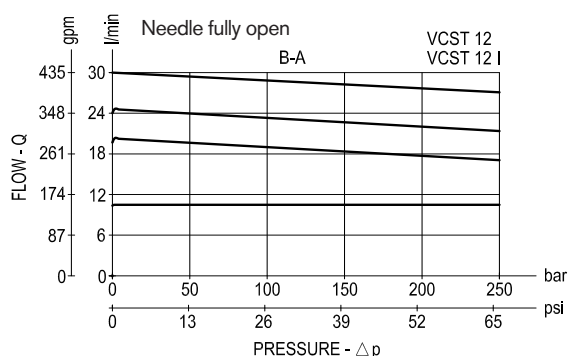
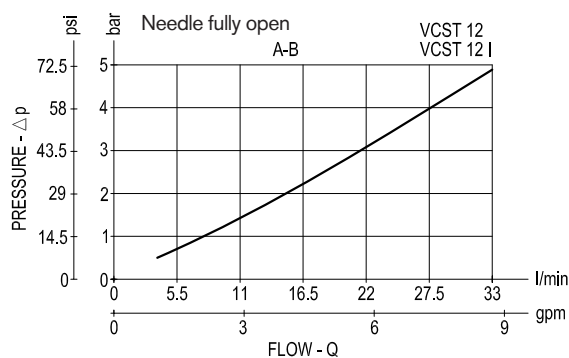


Description

This pressure compensated flow regulator controls the oil flow from B to A, and prevents it from exceeding the adjusted value regardless of working pressure, while establishing a minimum pressure differential of approximately 5 bar (75 psi) between the two ports. The valve is available in different sizes and versions for different flow ranges, as specified by the tables of the Technical data, Dimensions and Performance diagrams. The fine setting of the output flow at A can be achieved by rotating the hand knob which can be locked in position by the locking nut in order to prevent inadvertent changes. Unrestricted reverse flow "A-B" is permitted through a check valve with zero cracking pressure, regardless of valve adjustment.



Performance



Technical data

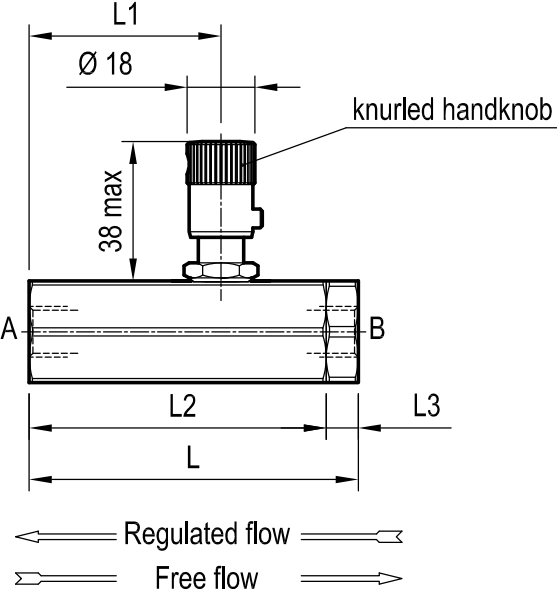
Code	Pressure P max bar (psi)	Flow Q l/min (gpm)	Weight kg (lbs)
VCST 12	250 (3600)	4 - 33 (1 - 9)	0.7 (1.54)
VCST 12 I			

Steel body, zinc plated

Advantages

- Compact design and inline mounting for space saving.
- Flow setting can be locked by the locking nut.
- Mounting position is unrestricted.
- Zero cracking pressure for free reverse flow "A-B".

Dimensions



Ports size / Dimensions

	VCST 12	VCST 12 I
Port size A-B	G 1/2	
L mm (inches)	107 (4.21)	
L3 mm (inches)	11 (0.43)	
L2 mm (inches)	96 (3.78)	
L1 mm (inches)	61 (2.40)	
Hex mm (inches)	36 (1.42)	

The "I" version is stainless steel made.

Ordering code

VCST -

series 12	= 12
series 12 I	= 12 I

G 1/2 Standard version with handknob

G 1/2 Stainless version with handknob

Application

The VCST is a normally open, two ports, restrictive type flow regulator, with incorporated check valve for free reverse flow. Typical applications are the control of the maximum speed of an actuator (cylinder or motor), which is achieved by regulating the maximum flow A into or out from the actuator (meter-IN, or meter-OUT). The maximum flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure. If the valve is used to control the flow from a constant flow line, only the regulated flow will pass through the valve; any excess flow will normally be forced out of the line and delivered to tank through the system relief valve.

Type	Material number
VCST-12	R932500615
VCST-12I	R932006952

Type	Material number

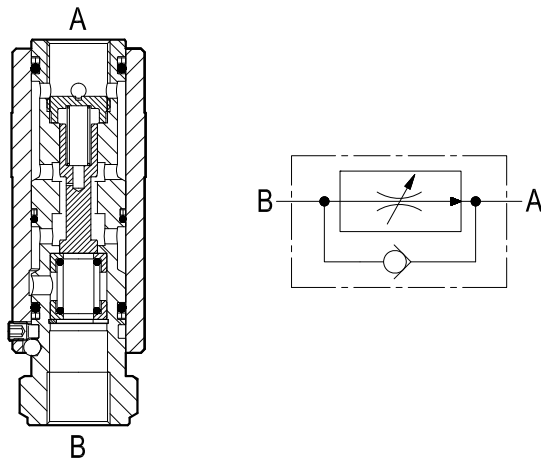
Type	Material number

Flow control valves

Pressure compensated adjustable flow regulator with reverse flow check

VCD-RU-38

OE.22.01.04.02

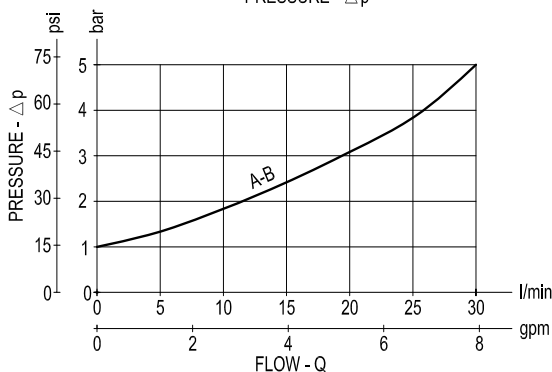
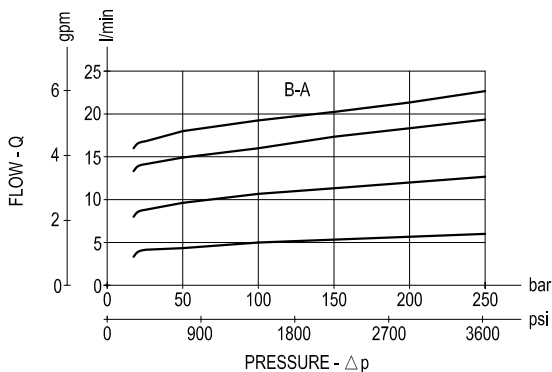


Description

This line mounted pressure compensated flow regulator limits the flow from B to A to the preset value, regardless of inlet pressure at B port. The internal metering restriction can be enlarged or reduced by rotating the external cylindrical sleeve in the (+) or (-) direction in order to increase or decrease the regulated flow. Once the desired adjustment is achieved, the sleeve can be locked in position by tightening external locking screw (with a 2,5 mm Allen key) in order to prevent inadvertent changes of motion due to line vibrations. Minor leakage "B-A" can be expected with valve fully closed.

Free reverse flow "A-B" is always allowed when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat: cracking pressure is 1 bar.

Performance



Δp curves vs. flow in "A-B" free flow direction.

Technical data

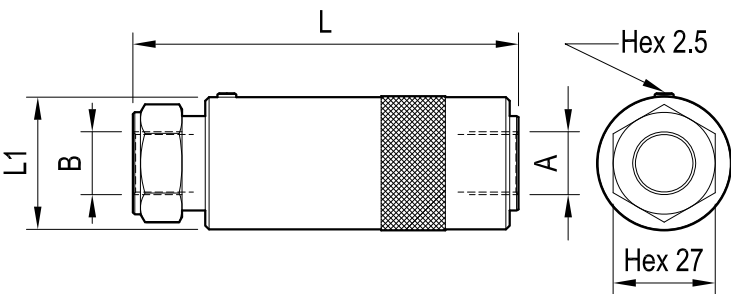
Pressure P_{max} bar (psi)	Flow Q_{max} l/min (gpm)	Weight kg (lbs)
210 (3000)	1-18 (0.26-4.76)	0.33 (0.73)

Steel body, zinc plated

Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.

Dimensions



Ports size / Dimensions

Ports A-B	L mm (inches)	L1 mm (inches)
G 3/8	102 (4.02)	35 (1.38)

Applications

The VCD-RU is a normally open, two ports, restrictive type flow regulator, with incorporated check valve for free reverse flow. Typical applications are the control of the maximum speed of an actuator (cylinder or motor), which is achieved by regulating the maximum flow A into or out from the actuator (meter-IN, or meter-OUT). The maximum flow, and consequently the maximum actuator speed, will vary slightly with changes in fluid viscosity, but will be largely independent from the load and from the working pressure. If the valve is used to control the flow from a constant flow line, only the regulated flow will pass through the valve; any excess flow will normally be forced out of the line and delivered to tank through the system relief valve.

Ordering code

OE.22.01.04.02

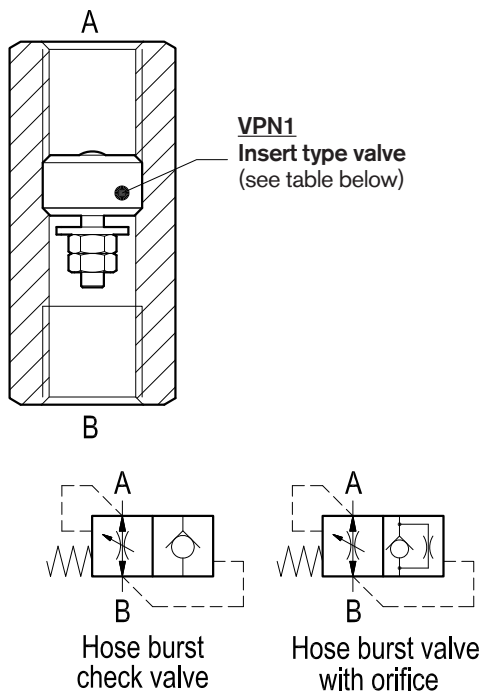
Pressure compensated
adjustable flow regulator
with reverse flow check

Type	Material number	Type	Material number	Type	Material number
OE2201040200000	R934001680				

Hose burst insert type check valves With female threaded sleeve

VPN-FF (G1/4 - G3/8)

OE.F4.01.01-Y-Z



Description

This valve is composed by a sleeve with an inserted "Hose Burst" steel made cartridge type VPN1 (refer to RE 18329-85). Flow is always allowed to pass from A to B according to the Δp curves included in the Performance diagrams. The reverse flow "B" to "A", or reaction flow, is unrestricted up to the pre-set value, above which the pressure drop across the floating disc will push the disc against the valve body, and will determine immediate closing of the line in a checked, leak free mode. The valve will remain closed (checked) from B to A until pressure is removed from the B, or until the A port pressure equalizes the B pressure. To help re-setting, or shorten the time for the disc to go back to the open position, the inserted cartridge can be supplied with the Extra Orifice "F" on request. The orifice diameter has to be specified when ordering (refer to table "Z"). Precision machining and hardening processes allow virtually leak free performance in the checked condition.

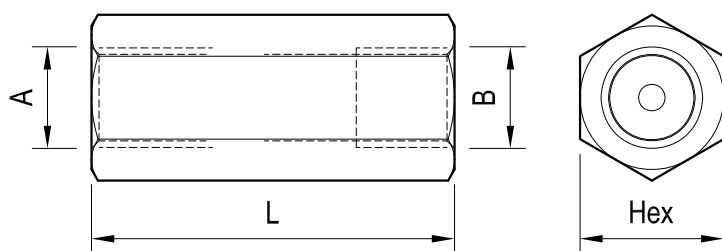
Technical data

VPN1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
OT.F4.01.03.09...	G 1/4	315 (4568)	4-25 (1-7)	0.01 (0.02)
OT.F4.01.03.02...	G 3/8	315 (4568)	6-50 (2-13)	0.03 (0.07)

Steel body, zinc plated

Special, Metric, UNF: sizes available on request.

Dimensions



Ports size / Dimensions

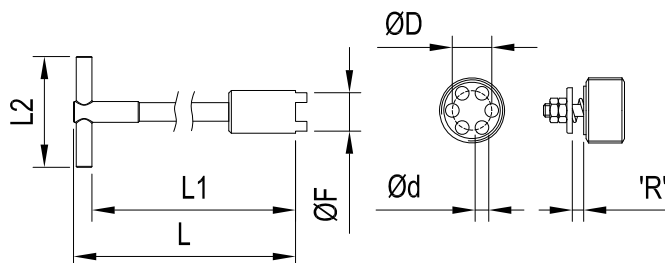
Y	Ports A-B	L mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	48 (1.89)	19 (0.75)	OC.51.02.014
02	G 3/8	52 (2.05)	22 (0.87)	OC.51.02.010

Fitting tool dimension

Z	ORIFICE DIAMETER mm (inches)		
00	no orifice	06	1 (0.039)
01	0.5 (0.019)	07	1.2 (0.047)
02	0.6 (0.023)	08	1.3 (0.051)
03	0.7 (0.027)	09	1.5 (0.059)
04	0.8 (0.031)	10	1.9 (0.074)
05	0.9 (0.035)	11	2 (0.078)

VPN1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.F4.01.03.09... G 1/4	11.3 (0.45)	120 (4.72)	110 (4.33)	60 (2.36)	8.5 (0.34)	2.4 (0.10)	2 Nm (1.5)ft-lb	AVA18
OT.F4.01.03.02... G 3/8	15 (0.59)	120 (4.72)	108 (4.25)	80 (3.15)	10.5 (0.41)	3.5 (0.14)	3 Nm (2)ft-lb	AVA18-01

'R' = GAP corresponding to the maximum desired free flow.



NOTE

The complete valve here shown is supplied with the Gap "R" Factory adjusted at 0.5 mm, corresponding to:
Approx. (10–14) l/min, for size G 1/4, and
Approx. (16–20) l/min, for size G 3/8, depending from oil viscosity.
For special settings consult us.

Important: the pre-set R gap corresponds to the theoretical shut-off flow: please make sure that the selected shut-off flow is at least 50% higher than the actual Maximum Working Flow, in order to prevent inadvertent valve shutting with cold oil.

Applications

In a variety of cases when oil flow must be immediately stopped in case of failure of an hose in order to prevent the load from falling freely. The smallest size G 1/4 is often employed in pressure pick-up lines from cylinders.

Ordering code

OE.F4.01.01

Y

Z

With female threaded sleeve

Orifice diameter see table "Z"

Ports size / Dimensions see table "Y"

Type	Material number
OEF401010200	R931001665
OEF401010201	R932007227
OEF401010202	R932007228
OEF401010203	R932007229
OEF401010204	R932007230
OEF401010205	R932007231
OEF401010206	R931001669
OEF401010207	R932007232
OEF401010208	R932007233
OEF401010209	R932007234

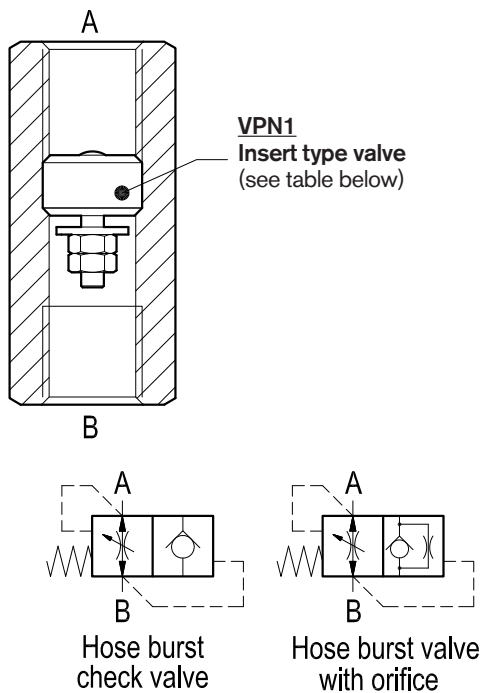
Type	Material number
OEF401010210	R932007235
OEF401010211	R932007236
OEF401010900	R931001660
OEF401010901	R932007216
OEF401010902	R932007218
OEF401010903	R932007219
OEF401010904	R932007220
OEF401010905	R932007221
OEF401010906	R931001663
OEF401010907	R920207222

Type	Material number
OEF401010908	R932007223
OEF401010909	R932007224
OEF401010910	R932007225
OEF401010911	R932007226

Hose burst insert type check valves With female threaded sleeve

VPN-FF (G1/2 - G3/4)

OE.F4.01.01-Y-Z



Description

This valve is composed by a sleeve with an inserted "Hose Burst" steel made cartridge type VPN1 (refer to RE 18329-85). Flow is always allowed to pass from A to B according to the Δp curves included in the Performance diagrams. The reverse flow "B" to "A", or reaction flow, is unrestricted up to the pre-set value, above which the pressure drop across the floating disc will push the disc against the valve body, and will determine immediate closing of the line in a checked, leak free mode. The valve will remain closed (checked) from B to A until pressure is removed from the B, or until the A port pressure equalizes the B pressure. To help re-setting, or shorten the time for the disc to go back to the open position, the inserted cartridge can be supplied with the Extra Orifice "F" on request. The orifice diameter has to be specified when ordering (refer to table "Z"). Precision machining and hardening processes allow virtually leak free performance in the checked condition.

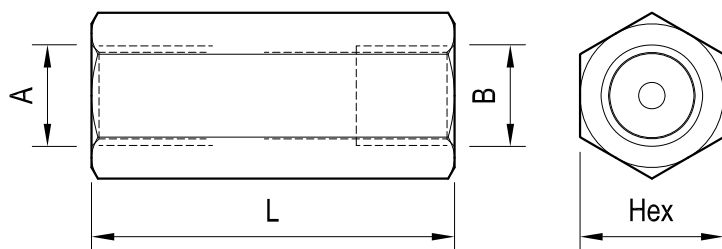
Technical data

VPN1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F4.01.03.03...	G 1/2	315 (4500)	16-80 (4-21)	0.04 (0.09)
0T.F4.01.03.04...	G 3/4	315 (4500)	25-150 (7-40)	0.07 (0.15)

Steel body, zinc plated

Special, Metric, UNF: sizes available on request.

Dimensions



Ports size / Dimensions

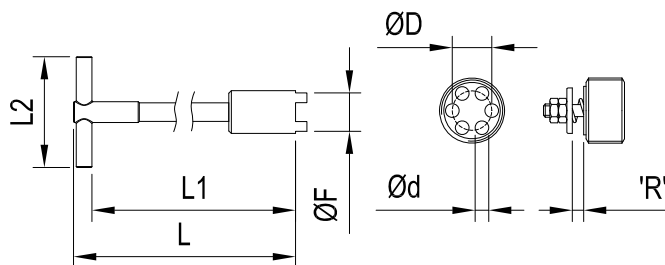
Y	Ports A-B	L mm (inches)	Hex mm (inches)	Sleeve code
03	G 1/2	60 (2.36)	27 (1.06)	OC.51.02.011
04	G 3/4	72 (2.84)	32 (1.26)	OC.51.02.017

Fitting tool dimension

Z	ORIFICE DIAMETER mm (inches)		
00	no orifice	06	1 (0.039)
01	0.5 (0.019)	07	1.2 (0.047)
02	0.6 (0.023)	08	1.3 (0.051)
03	0.7 (0.027)	09	1.5 (0.059)
04	0.8 (0.031)	10	1.9 (0.074)
05	0.9 (0.035)	11	2 (0.078)

VPN1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.F4.01.03.03... G 1/2	18.8 (0.74)	120 (4.72)	108 (4.25)	80 (3.15)	13 (0.51)	4.5 (0.18)	4 Nm (3)ft-lb	AVA18-02
OT.F4.01.03.04... G 3/4	24 (0.95)	120 (4.72)	108 (4.25)	80 (3.15)	16 (0.63)	6 (0.24)	10 Nm (7)ft-lb	AVA18-03

'R' = GAP corresponding to the maximum desired free flow.



Applications

In a variety of cases when oil flow must be immediately stopped in case of failure of an hose in order to prevent the load from falling freely.

NOTE

The complete valve here shown is supplied with the Gap "R" Factory adjusted at 0.7 mm, corresponding to:
Approx. (32–37) l/min, for size G 1/2, and
Approx. (53–58) l/min, for size G 3/4, depending from oil viscosity.
For special settings consult us.

Important: the pre-set R gap corresponds to the theoretical shut-off flow: please make sure that the selected shut-off flow is at least 50% higher than the actual Maximum Working Flow, in order to prevent inadvertent valve shutting with cold oil.

Ordering code

OE.F4.01.01	Y	Z
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With female threaded sleeve

Orifice diameter see table "Z"

Ports size / Dimensions see table "Y"

Type	Material number
OEF401010300	R931001656
OEF401010301	R932007237
OEF401010302	R932007238
OEF401010303	R932007239
OEF401010304	R932007240
OEF401010305	R932007241
OEF401010306	R932007242
OEF401010307	R932007243
OEF401010308	R932007244
OEF401010309	R932007245

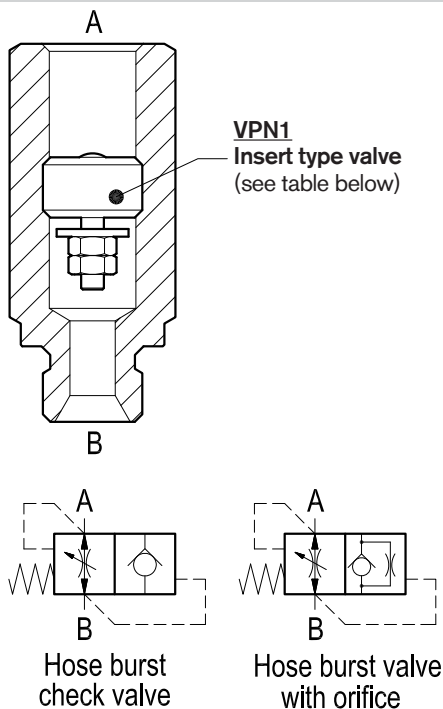
Type	Material number
OEF401010310	R932007246
OEF401010311	R932007247
OEF401010400	R931001664
OEF401010401	R932007248
OEF401010402	R932007249
OEF401010403	R932007250
OEF401010404	R932007251
OEF401010405	R932007252
OEF401010406	R932007253
OEF401010407	R932007254

Type	Material number
OEF401010408	R932007255
OEF401010409	R932007256
OEF401010410	R932007257
OEF401010411	R932007258

Hose burst insert type check valves With male-female threaded sleeve

VPN-MF (G1/4 - G3/8)

OE.F4.01.02-Y-Z



Description

This valve is composed by a sleeve with an inserted "Hose Burst" steel made cartridge type VPN1 (refer to RE 18329-85). Flow is always allowed to pass from A to B according to the Δp curves included in the Performance diagrams. The reverse flow "B" to "A", or reaction flow, is unrestricted up to the pre-set value, above which the pressure drop across the floating disc will push the disc against the valve body, and will determine immediate closing of the line in a checked, leak free mode. The valve will remain closed (checked) from B to A until pressure is removed from the B, or until the A port pressure equalizes the B pressure. To help re-setting, or shorten the time for the disc to go back to the open position, the inserted cartridge can be supplied with the Extra Orifice "F" on request. The orifice diameter has to be specified when ordering (refer to table "Z"). Precision machining and hardening processes allow virtually leak free performance in the checked condition.

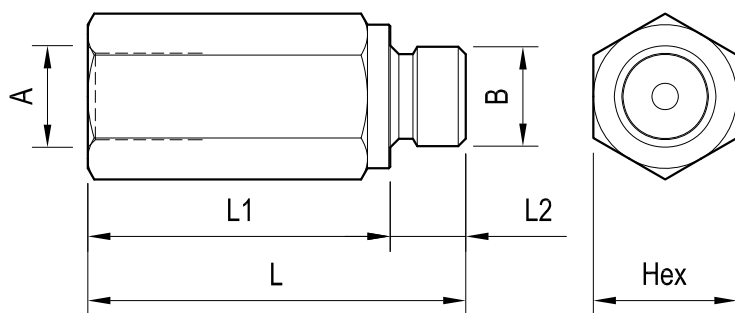
Technical data

VPN1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.F4.01.03.09...	G 1/4	315 (4500)	4-25 (1-7)	0.01 (0.02)
0T.F4.01.03.02...	G 3/8	315 (4500)	6-50 (2-13)	0.03 (0.07)

Steel body, zinc plated

Special, Metric, UNF: sizes available on request.

Dimensions



Ports size / Dimensions

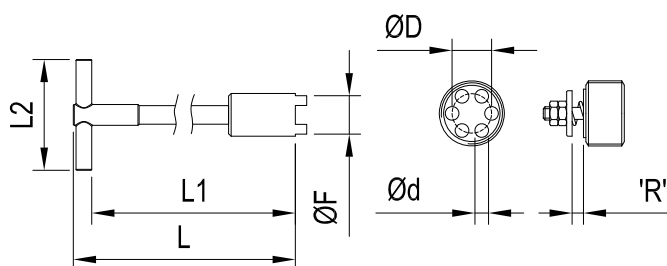
Y	Ports A-B	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	50 (1.97)	40 (1.58)	10 (0.39)	19 (0.75)	OC.51.01.014
02	G 3/8	55 (2.17)	43 (1.69)	12 (0.47)	22 (0.87)	OC.51.01.015

Fitting tool dimension

Z	ORIFICE DIAMETER mm (inches)		
00	no orifice	06	1 (0.039)
01	0.5 (0.019)	07	1.2 (0.047)
02	0.6 (0.023)	08	1.3 (0.051)
03	0.7 (0.027)	09	1.5 (0.059)
04	0.8 (0.031)	10	1.9 (0.074)
05	0.9 (0.035)	11	2 (0.078)

VPN1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.F4.01.03.09... G 1/4	11.3 (0.45)	120 (4.72)	110 (4.33)	60 (2.36)	8.5 (0.34)	2.4 (0.10)	2 Nm (1.5)ft-lb	AVA18
OT.F4.01.03.02... G 3/8	15 (0.59)	120 (4.72)	108 (4.25)	80 (3.15)	10.5 (0.41)	3.5 (0.14)	3 Nm (2)ft-lb	AVA18-01

'R' = GAP corresponding to the maximum desired free flow.



NOTE

The complete valve here shown is supplied with the Gap "R" Factory adjusted at 0.5 mm, corresponding to:
 Approx. (10 – 14) l/min, for size G 1/4 , and
 Approx. (16 – 20) l/min, for size G 3/8, depending from oil viscosity.
 For special settings consult us.

Important: the pre-set R gap corresponds to the theoretical shut-off flow: please make sure that the selected shut-off flow is at least 50% higher than the actual Maximum Working Flow, in order to prevent inadvertent valve shutting with cold oil.

Applications

In a variety of cases when oil flow must be immediately stopped in case of failure of an hose in order to prevent the load from falling freely. The smallest size G 1/4 is often employed in pressure pick-up lines from cylinders.

Ordering code

OE.F4.01.02

Y

Z

With male-female threaded sleeve

Orifice diameter see table "Z"

Ports size / Dimensions see table "Y"

Type	Material number
OEF401020200	R931001646
OEF401020201	R932007183
OEF401020202	R932007184
OEF401020203	R932007185
OEF401020204	R932007186
OEF401020205	R932007187
OEF401020206	R932007188
OEF401020207	R932007189
OEF401020208	R932007190
OEF401020209	R932007191

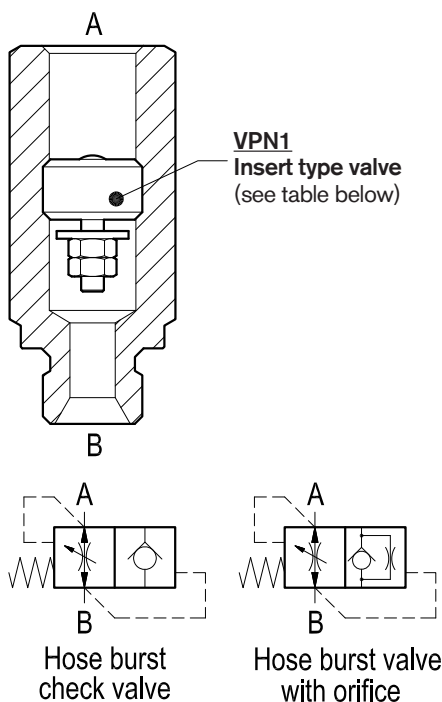
Type	Material number
OEF401020210	R932007192
OEF401020211	R932007193
OEF401020900	R931001641
OEF401020901	R932007173
OEF401020902	R932007174
OEF401020903	R932007175
OEF401020904	R932007176
OEF401020905	R932007177
OEF401020906	R932007217
OEF401020907	R932007178

Type	Material number
OEF401020908	R932007179
OEF401020909	R932007180
OEF401020910	R932007181
OEF401020911	R932007182

Hose burst insert type check valves With male-female threaded sleeve

VPN-MF (G1/2 - G3/4)

OE.F4.01.02-Y-Z



Description

This valve is composed by a sleeve with an inserted "Hose Burst" steel made cartridge type VPN1 (refer to RE 18329-85). Flow is always allowed to pass from A to B according to the Δp curves included in the Performance diagrams. The reverse flow "B" to "A", or reaction flow, is unrestricted up to the pre-set value, above which the pressure drop across the floating disc will push the disc against the valve body, and will determine immediate closing of the line in a checked, leak free mode. The valve will remain closed (checked) from B to A until pressure is removed from the B, or until the A port pressure equalizes the B pressure. To help re-setting, or shorten the time for the disc to go back to the open position, the inserted cartridge can be supplied with the Extra Orifice "F" on request. The orifice diameter has to be specified when ordering (refer to table "Z"). Precision machining and hardening processes allow virtually leak free performance in the checked condition.

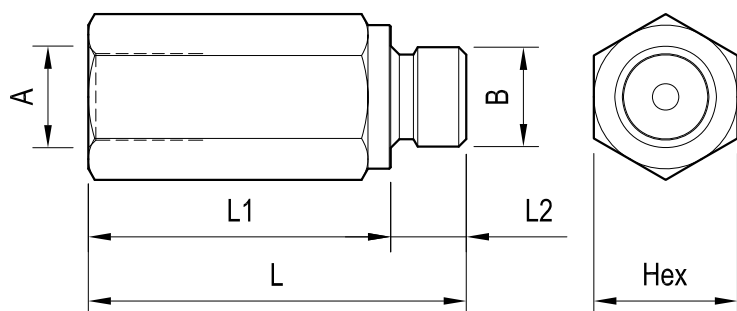
Technical data

VPN1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
OT.F4.01.03.03...	G 1/2	315 (4500)	16-80 (4-21)	0.04 (0.09)
OT.F4.01.03.04...	G 3/4	315 (4500)	25-150 (7-40)	0.07 (0.15)

Steel body, zinc plated

Special, Metric, UNF: sizes available on request.

Dimensions



Ports size / Dimensions

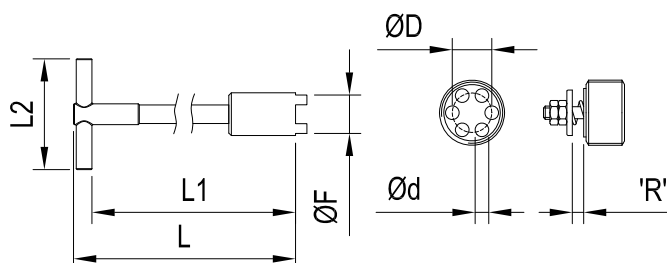
Y	Ports A-B	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
03	G 1/2	70 (2.76)	56 (2.21)	14 (0.55)	27 (1.06)	OC.51.01.016
04	G 3/4	75 (2.95)	59 (2.32)	16 (0.63)	36 (1.42)	OC.51.01.017

Fitting tool dimension

Z	ORIFICE DIAMETER mm (inches)		
00	no orifice	06	1 (0.039)
01	0.5 (0.019)	07	1.2 (0.047)
02	0.6 (0.023)	08	1.3 (0.051)
03	0.7 (0.027)	09	1.5 (0.059)
04	0.8 (0.031)	10	1.9 (0.074)
05	0.9 (0.035)	11	2 (0.078)

VPN1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.F4.01.03.03... G 1/2	18.8 (0.74)	120 (4.72)	108 (4.25)	80 (3.15)	13 (0.51)	4.5 (0.18)	4 Nm (3)ft-lb	AVA18-02
OT.F4.01.03.04... G 3/4	24 (0.95)	120 (4.72)	108 (4.25)	80 (3.15)	16 (0.63)	6 (0.24)	10 Nm (7)ft-lb	AVA18-03

'R' = GAP corresponding to the maximum desired free flow.



NOTE

The complete valve here shown is supplied with the Gap "R" Factory adjusted at 0.7 mm, corresponding to:
Approx. (32 – 37) l/min, for size G 1/2, and
Approx. (53 – 58) l/min, for size G 3/4, depending from oil viscosity.
For special settings consult us.

Important: the pre-set R gap corresponds to the theoretical shut-off flow:
please make sure that the selected shut-off flow is at least 50% higher than the actual Maximum Working Flow, in order to prevent inadvertent valve shutting with cold oil.

Applications

In a variety of cases when oil flow must be immediately stopped in case of failure of an hose in order to prevent the load from falling freely.

Ordering code

OE.F4.01.02

Y

Z

With male-female threaded sleeve

Orifice diameter see table "Z"

Ports size / Dimensions see table "Y"

Type	Material number
OEF401020300	R931001639
OEF401020301	R932007194
OEF401020302	R932007195
OEF401020303	R932007196
OEF401020304	R932007197
OEF401020305	R932007198
OEF401020306	R932007199
OEF401020307	R932007200
OEF401020308	R932007201
OEF401020309	R932007202

Type	Material number
OEF401020310	R932007203
OEF401020311	R932007204
OEF401020400	R931001644
OEF401020401	R932007205
OEF401020402	R932007206
OEF401020403	R932007207
OEF401020404	R932007208
OEF401020405	R932007209
OEF401020406	R932007210
OEF401020407	R932007211

Type	Material number
OEF401020408	R932007212
OEF401020409	R932007213
OEF401020410	R932007214
OEF401020411	R932007215

Sleeve valve for line mounting

Check and pilot operated check

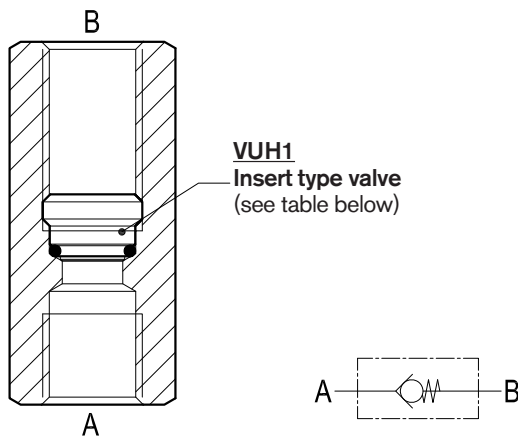
Designation	Description	Cavity	Data sheet	Page
Sleeve valves for line mounting poppet type with insert, female-female threaded sleeve	VUH-FF	G 1/4; G 3/8; G 1/2	18316-33	649
Sleeve valves for line mounting poppet type with insert, male-female threaded sleeve	VUH-MF	G 1/4; G 3/8; G 1/2	18316-34	651
Sleeve valves for line mounting ball type with insert, female threaded sleeve	VULN-FF	G 1/4; G 3/8; G 1/2; G 3/4	18316-31	653
Sleeve valves for line mounting ball type with insert, male-female threaded sleeve	VULN-MF	G 1/4; G 3/8; G 1/2; G 3/4	18316-32	655
Sleeve valves for line mounting poppet type with female threaded sleeve	CA	G 1/4; G 3/8; M 18X1,5; G 1/2; G 3/4; G 1; G 1 1/4; G 1 1/2; G 2	18316-35	657
Sleeve valves for line mounting poppet type with male-female threaded sleeve	VU-MF	G 1/2; G 3/4	18316-36	659
Sleeve valves for line mounting poppet type with male-female threaded sleeve	VU-MF	G 1; G 1 1/4	18316-37	661
Sleeve valves for line mounting poppet type with adjustable cracking pressure	LCA 7 / 10	G 1/4; G 3/8	18316-38	663
Sleeve valves for line mounting poppet type with adjustable cracking pressure	LCA 13 / 19	G 1/2; G 3/4	18316-39	665
Sleeve valves for line mounting double acting poppet type	CAB	G 3/8; G 1/2; G 3/4	18316-45	667
Sleeve valves for line mounting single poppet p.o. check	OV	G 1/4; G 3/8; G 1/2; G 3/4; G 1; G 1 1/4"	18316-50	669
Sleeve valves for line mounting poppet type p.o. check with pre-opening	OVP	G 3/4; G 1	18316-51	671

Check valves

Poppet type with insert and female-female threaded sleeve

VUH-FF

OE.U5.01.01-Y-Z



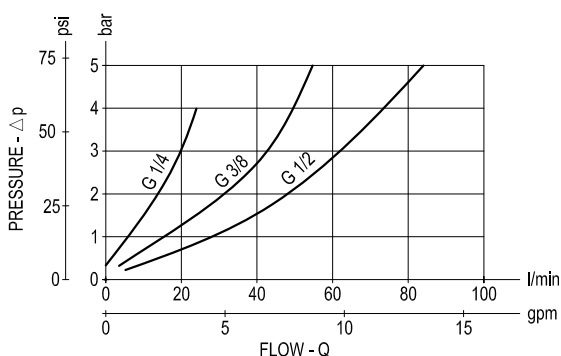
Description

This valve is composed by a sleeve with an inserted poppet type check cartridge type VUH1.

Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the ball is pushed from the seat. The valve is normally closed (checked) from B to A.

The inserted cartridge can be screwed-in or screwed-out with an Allen type key 6 or 8 mm, depending from the cartridge size.

Performance



Δp curves vs. flow in "A-B" free flow direction

As seen on the diagram, the cracking pressure is very low.

Advantages

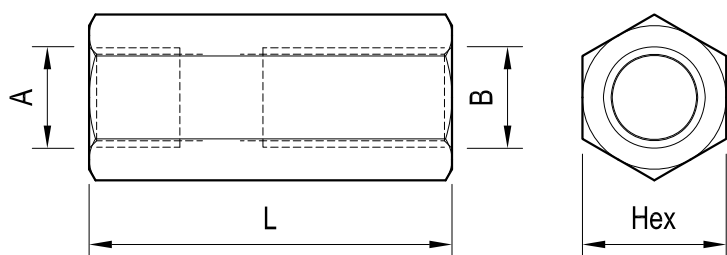
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Three sizes provide great adaptability to the system.
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (ref. Catalogue RE 18329-61).

Technical data

VUH1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.U5.01.00.09.00	G 1/4	350 (5000)	22 (6)	0.01 (0.02)
0T.U5.01.00.02.00	G 3/8	350 (5000)	50 (13)	0.02 (0.04)
0T.U5.01.00.03.00	G 1/2	350 (5000)	80 (21)	0.02 (0.04)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

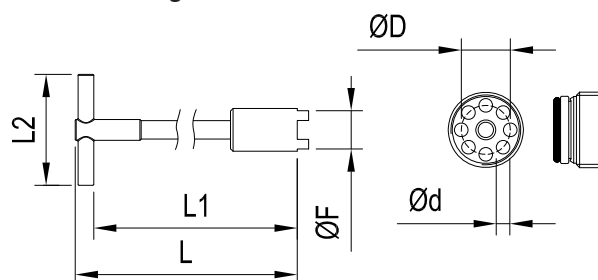
Y	Ports A-B	L mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	48 (1.89)	19 (0.75)	OC.51.02.001
02	G 3/8	52 (2.05)	22 (0.87)	OC.51.02.002
03	G 1/2	62 (2.44)	27 (1.06)	OC.51.02.003

Fitting tool dimension

Z	Cracking pressure bar (psi)
00	<0.5 (<7)

VUH1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.U5.01.00.09.00 G 1/4	11.3 (0.45)	120 (4.72)	110 (4.33)	60 (2.36)	8.5 (0.34)	2.2 (0.09)	6 Nm (4)ft-lb	AVA17
OT.U5.01.00.02.00 G 3/8	14.9 (0.59)	120 (4.72)	108 (4.25)	80 (3.15)	10.8 (0.43)	3 (0.12)	6Nm (4)ft-lb	AVA17-01
OT.U5.01.00.03.00 G 1/2	18.6 (0.73)	120 (4.72)	108 (4.25)	80 (3.15)	14.2 (0.56)	3.8 (0.15)	10Nm (7)ft-lb	AVA17-02

More details on RE 18329-61 catalogue.



Ordering code

OE.U5.01.01	Y	Z
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Poppet type with insert and male-female threaded sleeve

Cracking pressure see table "Z"

Ports size / Dimensions see table "Y"

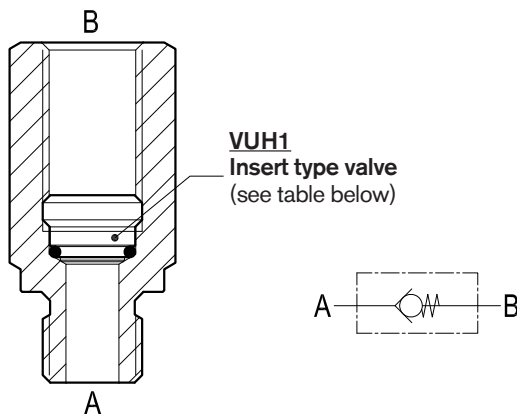
Type	Material number	Type	Material number	Type	Material number
OEU501010200	R932007302				
OEU501010300	R932007303				
OEU501010900	R932007301				

Check valves

Poppet type with insert and male-female threaded sleeve

VUH-MF

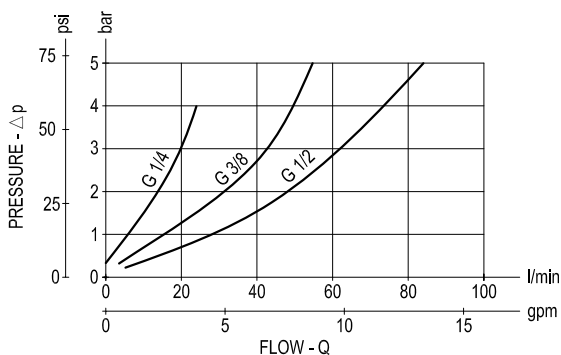
OE.U5.01.02-Y-Z



Description

This valve is composed by a sleeve with an inserted poppet type check cartridge type VUH1. Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the ball is pushed from the seat. The valve is normally closed (checked) from B to A. The inserted cartridge can be screwed-in or screwed-out with an Allen type key 6 or 8 mm, depending from the cartridge size.

Performance



Δp curves vs. flow in "A-B" free flow direction

As seen on the diagram, the cracking pressure is very low.

Technical data

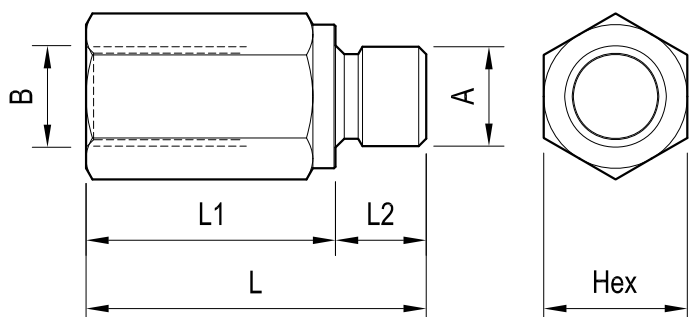
VUH1 Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
OT.U5.01.00.09.00	G 1/4	350 (5000)	22 (6)	0.01 (0.02)
OT.U5.01.00.02.00	G 3/8	350 (5000)	50 (13)	0.02 (0.04)
OT.U5.01.00.03.00	G 1/2	350 (5000)	80 (21)	0.02 (0.04)

Steel body, zinc plated

Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Three sizes provide great adaptability to the system.
- The inserted flow regulator cartridge can be purchased separately for easy service or for modifications to the original flow adjustment (ref. Catalogue RE 18329-61).

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	45 (1.77)	33 (1.30)	12 (0.47)	19 (0.75)	OC.51.01.068
02	G 3/8	47.5 (1.87)	35.5 (1.40)	12 (0.47)	22 (0.87)	OC.51.01.069
03	G 1/2	55.5 (2.19)	41.5 (1.63)	14 (0.55)	27 (1.06)	OC.51.01.070

Fitting tool dimension

Z	Cracking pressure bar (psi)
00	<0.5 (<7)

VUH1 code thread	ØF	L	L1	L2	ØD	Ød	Inst. torque	Tool code
OT.U5.01.00.09.00 G 1/4	11.3 (0.45)	120 (4.72)	110 (4.33)	60 (2.36)	8.5 (0.34)	2.2 (0.09)	6 Nm (4)ft-lb	AVA17
OT.U5.01.00.02.00 G 3/8	14.9 (0.59)	120 (4.72)	108 (4.25)	80 (3.15)	10.8 (0.43)	3 (0.12)	6Nm (4)ft-lb	AVA17-01
OT.U5.01.00.03.00 G 1/2	18.6 (0.73)	120 (4.72)	108 (4.25)	80 (3.15)	14.2 (0.56)	3.8 (0.15)	10Nm (7)ft-lb	AVA17-02

More details on RE 18329-61 catalogue.

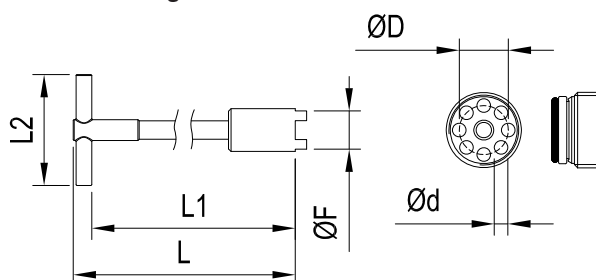
Ordering code

OE.U5.01.02	Y	Z
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Poppet type with insert and male-female threaded sleeve

Cracking pressure see table "Z"

Ports size / Dimensions see table "Y"



Type	Material number
OEU501020200	R932007305
OEU501020300	R932007306
OEU501020900	R932007304

Type	Material number

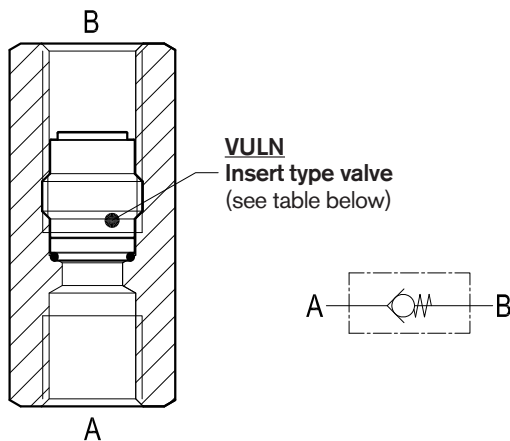
Type	Material number

Check valves

Ball type with insert and female threaded sleeve

VULN-FF

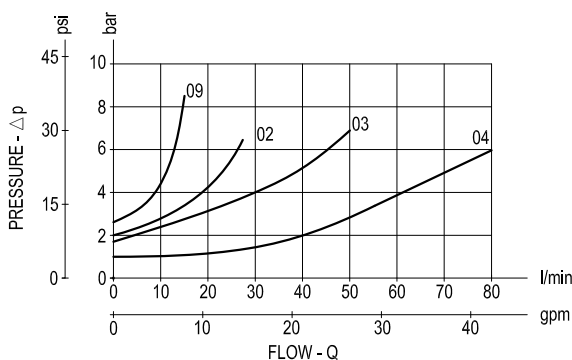
OE.U4.01.01-Y-Z



Description

This valve is composed by a sleeve with an inserted ball type check cartridge. Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the ball is pushed from the seat. The valve is normally closed (checked) from B to A. The inserted cartridge can be reached from either port in order to be screwed-in or screwed-out with an Allen type key 3-4-5-6-8 mm, depending from the cartridge size, and from the port used.

Performance



Δp curves vs. flow in "A-B" free flow direction

As seen on the diagram, the cracking pressure is very low.

Advantages

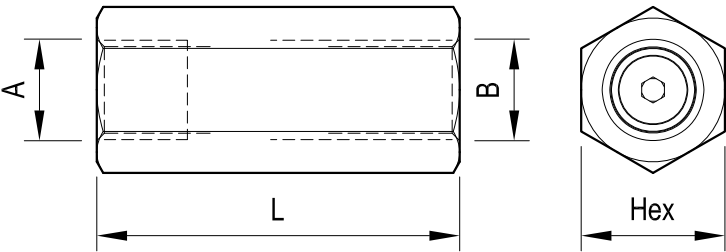
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Four sizes provide great adaptability to the system.

Technical data

VULN Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.U4.01.00.09.00	G 1/4	210 (3000)	15 (4)	0.02 (0.04)
0T.U4.01.00.02.00	G 3/8	210 (3000)	30 (8)	0.03 (0.07)
0T.U4.01.00.03.00	G 1/2	210 (3000)	50 (13)	0.04 (0.09)
0T.U4.01.00.04.00	G 3/4	210 (3000)	80 (21)	0.07 (0.15)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	48 (1.89)	19 (0.75)	OC.51.02.001
02	G 3/8	52 (2.05)	22 (0.87)	OC.51.02.002
03	G 1/2	62 (2.44)	27 (1.06)	OC.51.02.003
04	G 3/4	70 (2.76)	36 (1.42)	OC.51.02.004

Z	CRACKING PRESSURE bar (psi)			
	G 1/4	G 3/8	G 1/2	G 3/4
00	2.3 (33.4)	1.75 (25.4)	1.75 (25.4)	0.3 (4.4)

Ordering code

OE.U4.01.01				Y	Z
Ball type with insert and female threaded sleeve				Cracking pressure see table "Z"	
				Ports size / Dimensions see table "Y"	

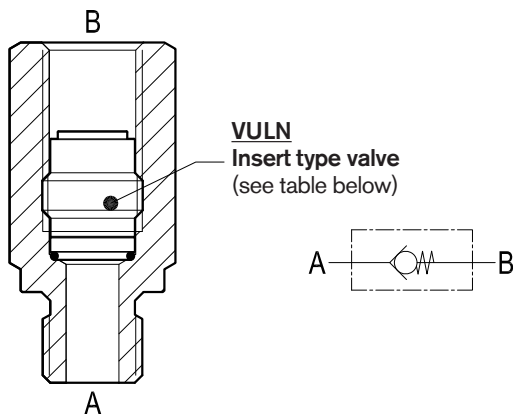
Type	Material number	Type	Material number	Type	Material number
OEU401010201	R932007264				
OEU401010301	R932007265				
OEU401010401	R932007266				
OEU401010901	R932007263				

Check valves

Ball type with insert and male-female threaded sleeve

VULN-MF

OE.U4.01.02-Y-Z

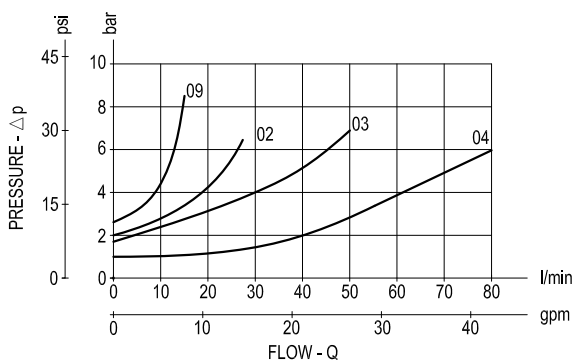


Description

This valve is composed by a sleeve with an inserted ball type check cartridge. Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the ball is pushed from the seat. The valve is normally closed (checked) from B to A.

The inserted cartridge can be reached from either port in order to be screwed-in or screwed-out with an Allen type key 3-4-5-6-8 mm, depending from the cartridge size, and from the port used.

Performance



Δp curves vs. flow in "A-B" free flow direction

For cracking pressure range refer to the specific table.

Advantages

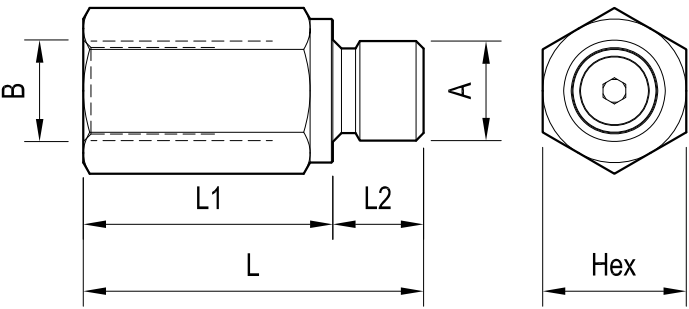
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Four sizes provide great adaptability to the system.

Technical data

VULN Code	Ports A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
0T.U4.01.00.09.00	G 1/4	210 (3000)	15 (4)	0.02 (0.04)
0T.U4.01.00.02.00	G 3/8	210 (3000)	30 (8)	0.03 (0.07)
0T.U4.01.00.03.00	G 1/2	210 (3000)	50 (13)	0.04 (0.09)
0T.U4.01.00.04.00	G 3/4	210 (3000)	80 (21)	0.07 (0.15)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Y	Ports A-B	L mm (inches)	L1 mm (inches)	L2 mm (inches)	Hex mm (inches)	Sleeve code
09	G 1/4	45 (1.77)	33 (1.30)	12 (0.47)	19 (0.75)	OC.51.01.068
02	G 3/8	47.5 (1.87)	35.5 (1.40)	12 (0.47)	22 (0.87)	OC.51.01.069
03	G 1/2	55.5 (2.19)	41.5 (1.63)	14 (0.55)	27 (1.06)	OC.51.01.070
04	G 3/4	62 (2.44)	46 (1.81)	16 (0.63)	36 (1.42)	OC.51.01.071

Z	CRACKING PRESSURE l/min (gpm)			
	G 1/4	G 3/8	G 1/2	G 3/4
00	2.3 (33.4)	1.75 (25.4)	1.75 (25.4)	0.3 (4.4)

Ordering code

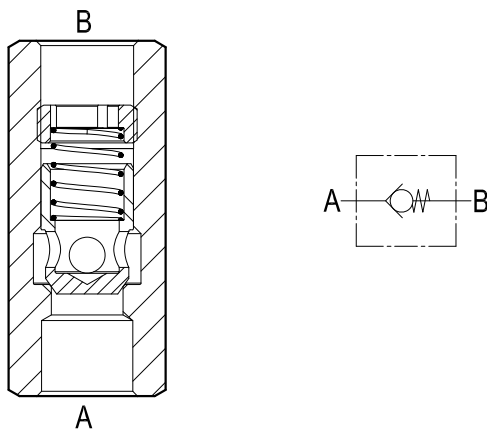
OE.U4.01.02				Y	Z
Ball type with insert and male-female threaded sleeve				Cracking pressure see table "Z"	
				Ports size / Dimensions see table "Y"	

Type	Material number	Type	Material number	Type	Material number
OEU401020200	R932007260				
OEU401020300	R932007261				
OEU401020400	R932007262				
OEU401020900	R932007259				

Check valves

Poppet type with female threaded sleeve

CA Series



Description

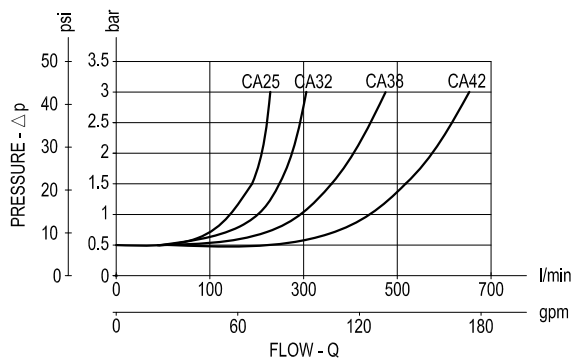
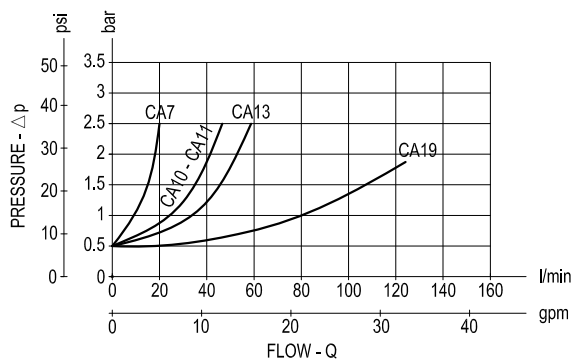
Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The valve is normally closed (checked) from B to A.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
CA 7	350 (5000)	25 (7)	0.11 (0.24)
CA 10	350 (5000)	50 (13)	0.19 (0.42)
CA 11	350 (5000)	50 (13)	0.19 (0.42)
CA 13	350 (5000)	80 (21)	0.25 (0.55)
CA 19	250 (3600)	100 (26)	0.52 (1.15)
CA 25	250 (3600)	160 (42)	1.04 (2.29)
CA 32	250 (3600)	300 (79)	1.67 (3.68)
CA 38	250 (3600)	450 (119)	2 (4.4)
CA 42	250 (3600)	700 (185)	3.6 (7.9)

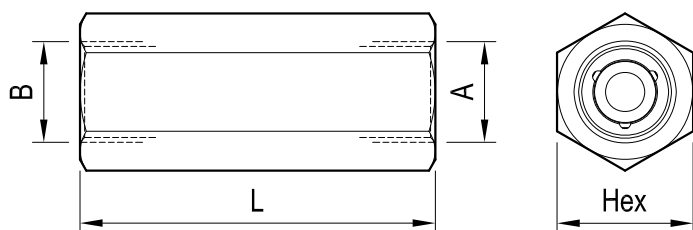
Steel body, zinc plated

Performance



NOTE: the valve is available also with a choice of special cracking pressures, as shown by the relevant table: when ordering NON-Standard cracking pressure, please specify the desired cracking pressure expressed in "bar" value in the code position (**). Without such specification, the valve will be supplied with standard cracking pressure = 0.5 bar.

Dimensions



Advantages

- Very compact design and inline mounting for space saving.
- Nine sizes provide great adaptability to the system.
- Mounting position is unrestricted.
- Very low Δp in the free flow direction.
- Different values of cracking pressure are available for A-B flow (see the relevant table).

Ports size / Dimensions

Code	Ports size A-B	Hex mm (inches)	L mm (inches)
CA 7	G 1/4	19 (0.75)	62 (2.44)
CA 10	G 3/8	24 (0.95)	70 (2.76)
CA 11	M 18x1.5	24 (0.95)	71 (2.80)
CA 13	G 1/2	27 (1.06)	79 (3.11)
CA 19	G 3/4	36 (1.42)	94 (3.70)
CA 25	G 1	46 (1.81)	114 (4.49)
CA 32	G 1-1/4	55 (2.17)	138 (5.43)
CA 38	G 1-1/2	60 (2.36)	148 (5.83)
CA 42	G 2	75 (2.95)	168 (6.61)

Ordering code

CA		/	**
----	--	---	----

= Cracking pressure (only bar value see table below)

	series 7	= 7	CA 7	CA 10	CA 11	CA 13	CA 19	CA 25	CA 32	CA 38	CA 42
series 10	= 10		2 (29)	2 (29)	4 (58)	2 (29)	2 (29)	2 (29)	2 (29)	2 (29)	2 (29)
series 11	= 11		4 (58)	4 (58)		4 (58)	4 (58)	4 (58)	4 (58)	4 (58)	4 (58)
series 13	= 13		5 (72.5)	5 (72.5)		5 (72.5)	5 (72.5)	5 (72.5)	5 (72.5)	5 (72.5)	8 (116)
series 19	= 19		8 (116)	8 (116)		8 (116)	8 (116)	8 (116)	8 (116)	8 (116)	
series 25	= 25			15 (217.5)		10 (145)	10 (145)	10 (145)			
series 32	= 32					15 (217.5)	15 (217.5)				
series 38	= 38										
series 42	= 42										

Do not specify for the standard cracking pressure 0.5 bar (7.25 psi)

Type	Material number
CA7	R932500066
CA7/2	R932500067
CA7/4	R932500070
CA7/5	R932500071
CA7/8	R932500072
CA10	R932500074
CA10/2	R932500077
CA10/4	R932500080
CA10/5	R932500081
CA10/8	R932500083
CA10/15	R932500076
CA11	R932500085
CA11/4	R932006965
CA13	R932500086
CA13/2	R932500089
CA13/4	R932500092

Type	Material number
CA13/5	R932500093
CA13/8	R932500094
CA13/10	R932500088
CA13/15	R932006923
CA19	R932500096
CA19/2	R932500102
CA19/4	R932500105
CA19/5	R932500106
CA19/8	R932500109
CA19/10	R932500100
CA19/15	R932500101
CA25	R932500114
CA25/2	R932500119
CA25/4	R932500122
CA25/5	R932500124
CA25/8	R932500125

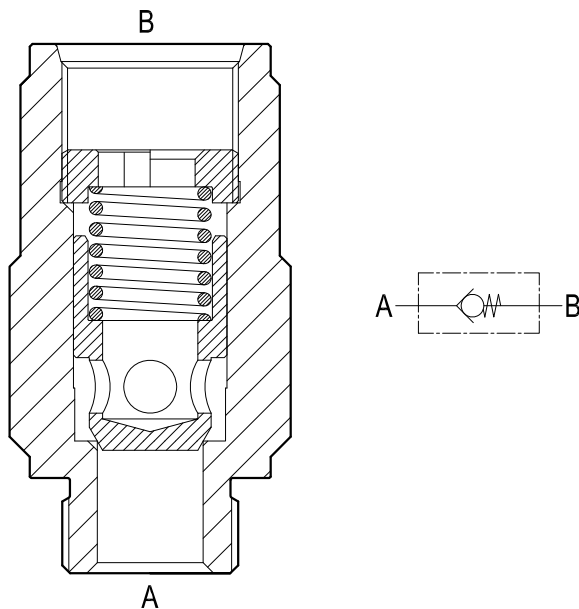
Type	Material number
CA25/10	R932500118
CA32	R932500129
CA32/2	R932500132
CA32/4	R932500135
CA32/5	R932500136
CA32/8	R932500137
CA38	R932500138
CA38/2	R932500141
CA38/4	R932500143
CA38/5	R932500144
CA38/8	R932500145
CA42	R932500146
CA42/2	R932500147
CA42/4	R932500148
CA42/8	R932500149

Check valves

Poppet type with male-female threaded sleeve

VU-MF (G1/2 - G3/4)

04.31.17.00-Y-Z



Description

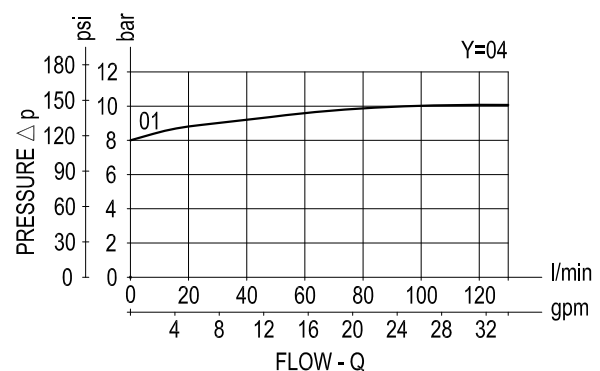
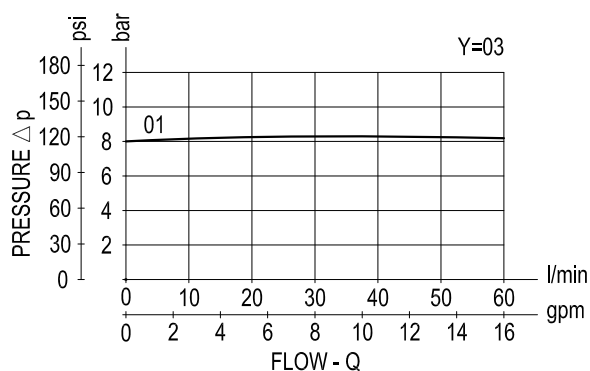
Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The valve is normally closed (checked) from B to A. Precision machining and hardening processes allow virtually leak free performance in the checked condition.

Technical data

Ports	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
G 1/2	350 (5000)	60 (16)	0.30 (0.66)
G 3/4	350 (5000)	130 (34)	0.44 (0.97)

Steel body, zinc plated

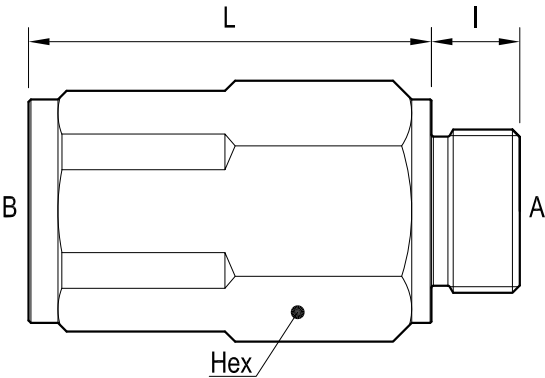
Performance



Δp curves vs. flow in "A-B" free flow direction

For cracking pressure range refer to the specific table.

Dimensions



Ports size / Dimensions

Y	Ports A - B	L mm (inches)	I mm (inches)	Hex mm (inches)
03	G 1/2	57 (2.24)	14 (0.55)	30 (1.18)
04	G 3/4	69 (2.72)	16 (0.63)	36 (1.42)

Springs				
Z	Cracking pressure		Ordering code	Ordering code
	bar	psi	Y=03	Y=04
01	8	116	03.51.01.428	03.51.01.450

Advantages

- Very compact design and inline mounting for space saving.
- Four sizes (see also next page) provide great adaptability to the system.
- Mounting position is unrestricted.
- Very low Δp in the free flow direction.

Ordering code

04.31.17.00	Y	Z
Poppet type with male-female threaded sleeve		Springs see table "Z"
		Ports size / Dimensions see table "Y"

Type	Material number	Type	Material number	Type	Material number
043117000301000	R930000444				
043117000401000	R930000445				

Check valves

Poppet type with male-female threaded sleeve

VU-MF (G1 - G1-1/4)

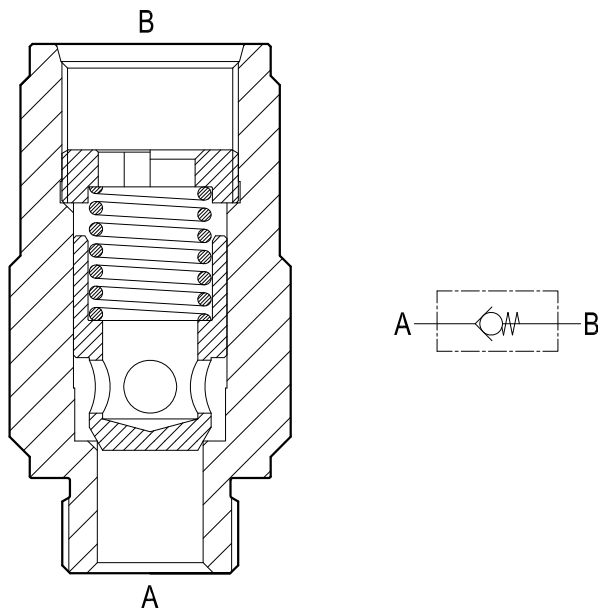
04.31.17.00-Y-Z



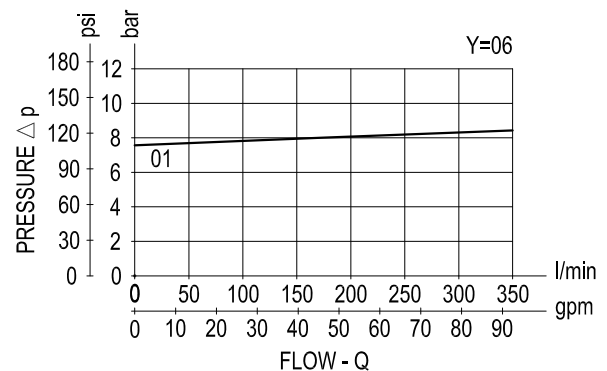
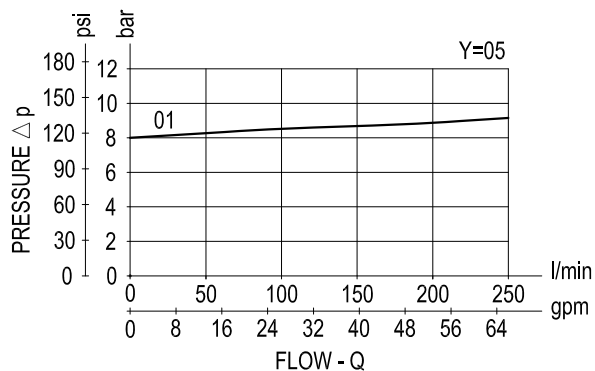
Description

Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat.

The valve is normally closed (checked) from B to A. Precision machining and hardening processes allow virtually leak free performance in the checked condition.



Performance



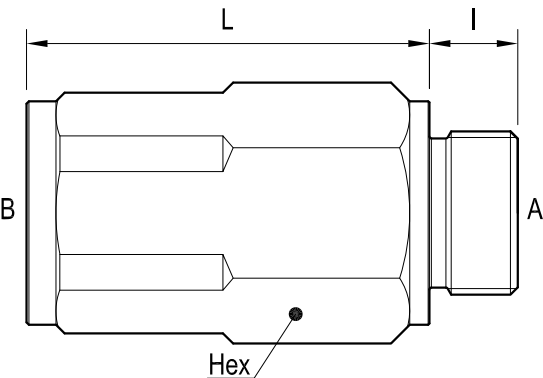
Δp curves vs. flow in "A-B" free flow direction

For cracking pressure range refer to the specific table.

Technical data

Ports	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
G 1	350 (5000)	250 (66)	0.90 (1.98)
G 1-1/4	350 (5000)	350 (93)	1.50 (3.31)

Dimensions



Ports size / Dimensions

Y	Ports A - B	L mm (inches)	I mm (inches)	Hex mm (inches)
05	G 1	82 (3.23)	0.71 (46)	46 (1.81)
06	G 1-1/4	102 (4.02)	0.79 (55)	55 (2.17)

Springs

Z	Cracking pressure		Ordering code	Ordering code
	bar	psi	Y=05	Y=06
01	8	116	03.51.01.430	03.51.01.429

Advantages

- Very compact design and inline mounting for space saving.
- Four sizes (see also previous page) provide great adaptability to the system.
- Mounting position is unrestricted.
- Very low Δp in the free flow direction.

Ordering code

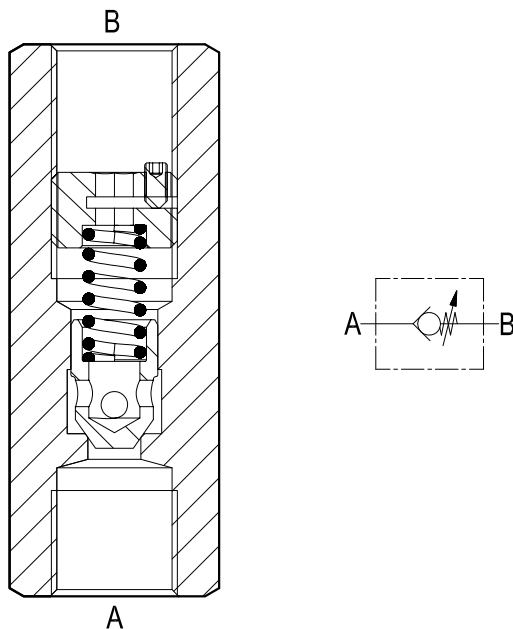
04.31.17.00	Y	Z
Poppet type with male-female threaded sleeve		Springs see table "Z"
		Ports size / Dimensions see table "Y"

Type	Material number	Type	Material number	Type	Material number
043117000501000	R930000446				
043117000601000	R930000447				

Check valves

Line mounted poppet type,
with adjustable cracking pressure

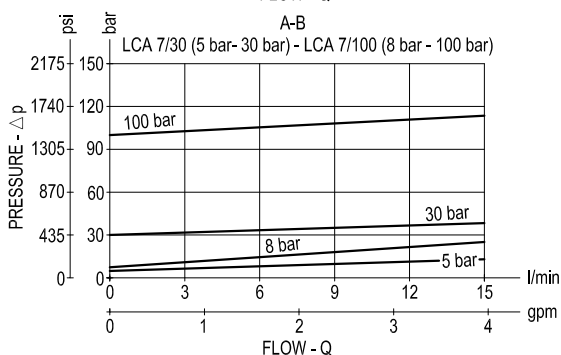
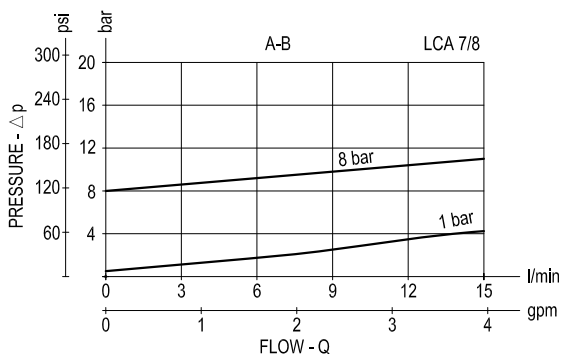
LCA 7 Series/LCA 10 Series



Description

Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The spring load is adjustable by turning the internal ring nut with a 4 mm allen wrench for LCA7 (5 mm allen wrench for LCA10): screwing down increases the spring load and increases the cracking pressure (in order to turn the Ring Nut, loosen first the little locking screw with a 1.5 mm Allen wrench; tighten it again once the spring load is adjusted). The valve is normally closed (checked) from B to A.

Performance

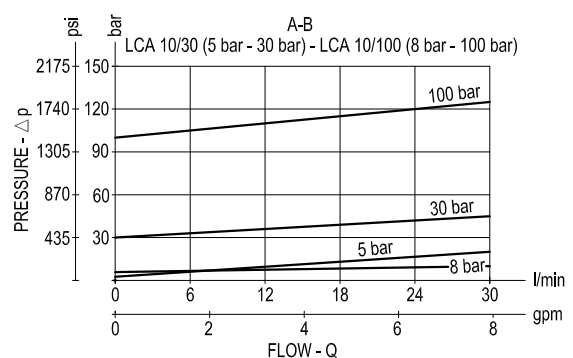


Technical data

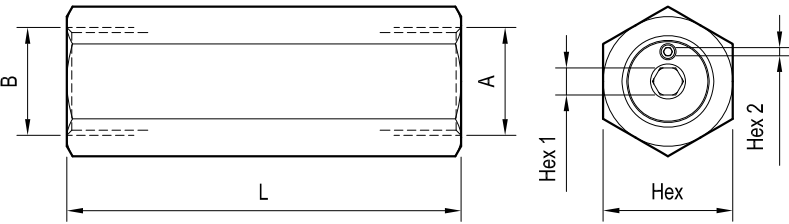
Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)
LCA 7	350 (5000)	25 (7)
LCA 10	350 (5000)	30 (8)

Steel body, zinc plated

Δp curves vs. flow in "A-B" free flow direction.
For cracking pressure range refer to the specific table.



Dimensions



Ports size / Dimensions

Code	Ports size A-B	L mm (inches)	Hex mm (inches)	Hex 1 mm (inches)	Hex 2 mm (inches)
LCA 7	G 1/4	73 (2.87)	19 (0.75)	4 (0.16)	1.5 (0.06)
LCA 10	G 3/8	73 (2.87)	24 (0.95)	5 (0.20)	1.5 (0.06)

Note: when ordering the valves Factory set please, specify the desired cracking pressure expressed in “bar”. Without such specification, the valves will be supplied non adjusted.

Ordering code

LCA	
series 7/8	= 7/8
series 7/30	= 7/30
series 7/100	= 7/100
series 10/30	= 10/30
series 10/100	= 10/100

Pressure range (only bar value see below)

	LCA 7/8	LCA 7/30	LCA 7/100	LCA 10/30	LCA 10/100
Pressure range bar (psi)	min 1 (14.5) max 8 (116)	min 5 (72.5) max 30 (435)	min 8 (116) max 100 (1450)	min 5 (72.5) max 30 (435)	min 8 (116) max 100 (1450)

Type	Material number
LCA 7/8	R932006929
LCA 7/30	R932500275
LCA 7/100	R932006928
LCA10/30	R932500279
LCA 10/100	R932500277

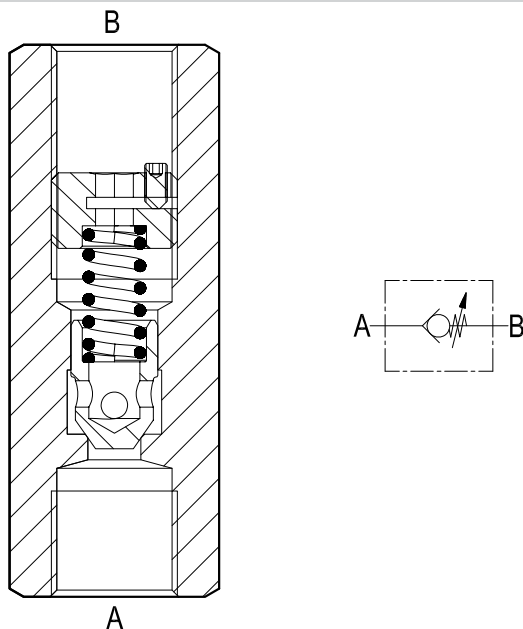
Type	Material number

Type	Material number

Check valves

Line mounted poppet type,
with adjustable cracking pressure

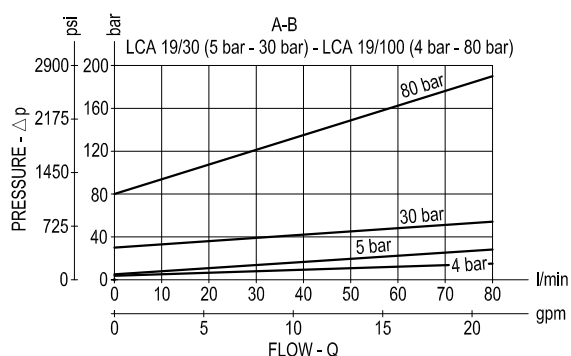
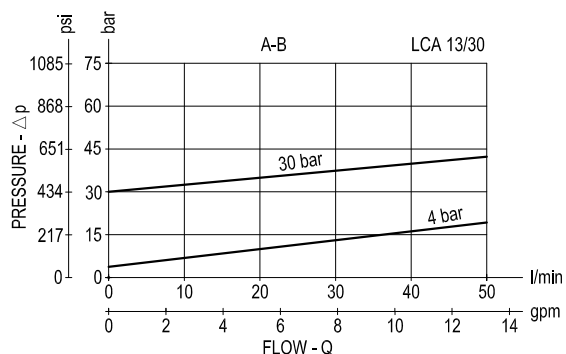
LCA 13 Series/LCA 19 Series



Description

Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The spring load is adjustable by turning the internal ring nut with an 8 mm Allen wrench: screwing down increases the spring load and increases the cracking pressure (in order to turn the Ring Nut, loosen first the little locking screw with a 2 mm Allen wrench; tighten it again once the spring load is adjusted). The valve is normally closed (checked) from B to A.

Performance



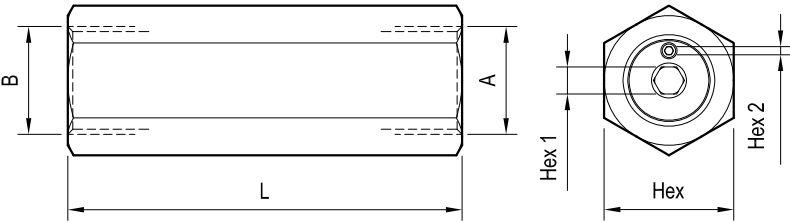
Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)
LCA 13	250 (3600)	50 (13)
LCA 19	250(3600)	80 (21)

Steel body, zinc plated

Δp curves vs. flow in "A-B" free flow direction.
For cracking pressure range refer to the specific table

Dimensions



Ports size / Dimensions

Code	Ports size A-B	L mm (inches)	Hex mm (inches)	Hex 1 mm (inches)	Hex 2 mm (inches)
LCA 13	G 1/2	110 (4.33)	27 (1.06)	8 (0.32)	2 (0.08)
LCA 19	G 3/4	110 (4.33)	36 (1.42)	8 (0.32)	2 (0.08)

Note: when ordering the valves Factory set please, specify the desired cracking pressure expressed in “bar”. Without such specification, the valves will be supplied non adjusted.

Ordering code

LCA	
series 13/30	= 13/30
series 19/30	= 19/30
series 19/100	= 19/100

Pressure range (only bar value see below)

	LCA 13/30	LCA 19/30	LCA 19/100
Pressure range bar (psi)	min 4 (58) max 30 (435)	min 5 (72.5) max 30 (435)	min 4 (58) max 80 (1160)

Type	Material number
LCA 13/30	R932500281
LCA 19/30	R932500288
LCA 19/100	R932006930

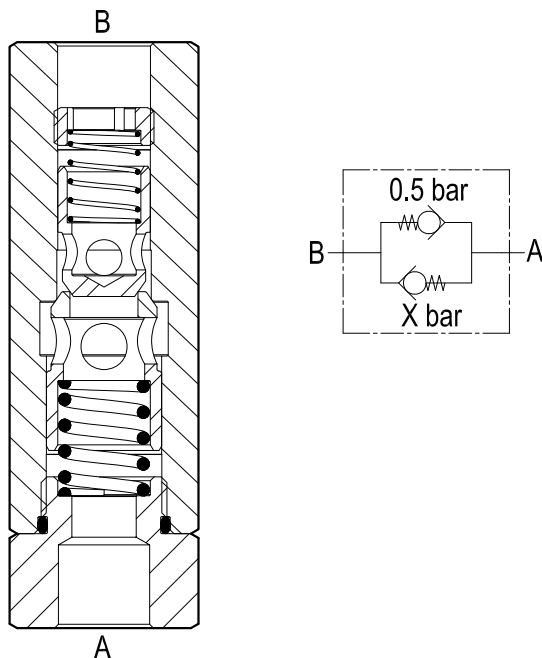
Type	Material number

Type	Material number

Bi-directional check valves

Line mounted double acting poppet type

CAB Series



Description

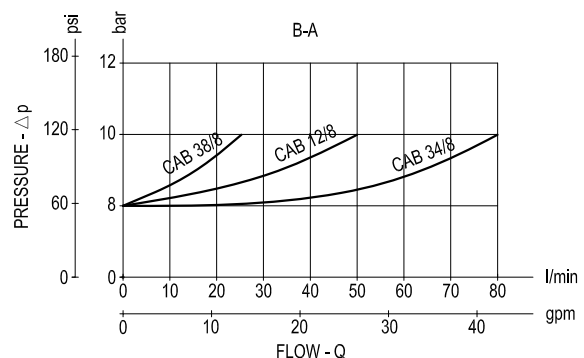
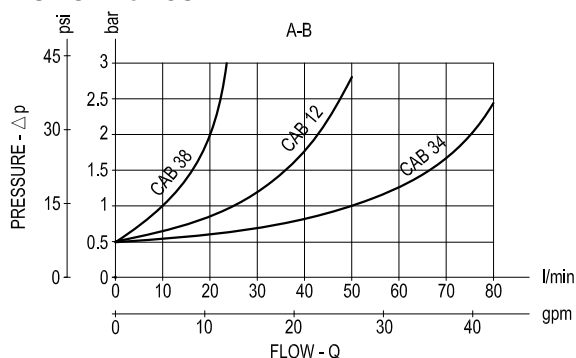
Flow is always allowed to pass from A to B when pressure at A rises above 0.5 bar (7.25 psi). Reverse flow from B to A is possible only when pressure at B rises above the return spring bias pressure; the return B to A cracking pressure can be chosen among the various X values available (see table).

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
CAB 38	350 (5000)	25 (7)	0.48 (1.06)
CAB 12	350 (5000)	50 (13)	0.88 (1.94)
CAB 34	250 (3600)	80 (21)	1.71 (3.77)

Steel body, zinc plated

Performance

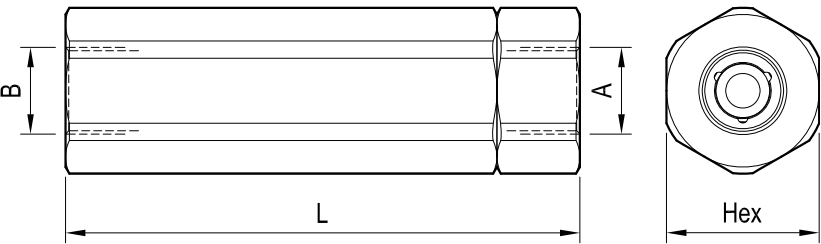


Advantages

- Very compact design and inline mounting for space saving.
- Three sizes provide great adaptability to the system.
- Mounting position is unrestricted.
- Very low Δp .
- Different values of cracking pressure are available for B-A flow (see the relevant table).

NOTE: the valve is available also with a choice of cracking pressures B-A, as shown by the relevant table: when ordering please specify the desired B-A cracking pressure expressed in "bar" value in the code position (**). In direction A-B the cracking pressure is always 0.5 bar.

Dimensions



Ports size / Dimensions

Code	Ports size A-B	Hex mm (inches)	L mm (inches)
CAB 38	G 3/8	30 (1.18)	102 (4.02)
CAB 12	G 1/2	36 (1.42)	130 (5.12)
CAB 34	G 3/4	46 (1.81)	155 (6.10)

Applications

They can be fitted in line either when it is necessary to build-up some pressure “B-A” before feeding an actuator (ex.: opening of the mechanical safety brake before starting a motor), or they can be employed to allow free upstream flow “A-B”, and build-up some back pressure “B-A” to hold or stabilize the reverse motion.

Ordering code

CAB

/

**

ports G 3/8 = 38

ports G 1/2 = 12

ports G 3/4 = 34

= Specify cracking pressure “B-A” (only bar value see table below)

	CAB 38	CAB 12	CAB 34
Cracking pressure Controlled flow bar (psi)	5 (72.5)	5 (72.5)	4 (58)
	8 (116)	8 (116)	8 (116)
	15 (217.5)	10 (145)	10 (145)
		15 (217.5)	15 (217.5)

Cracking pressure (free flow A-B) is always 0.5 bar (7.25 psi)

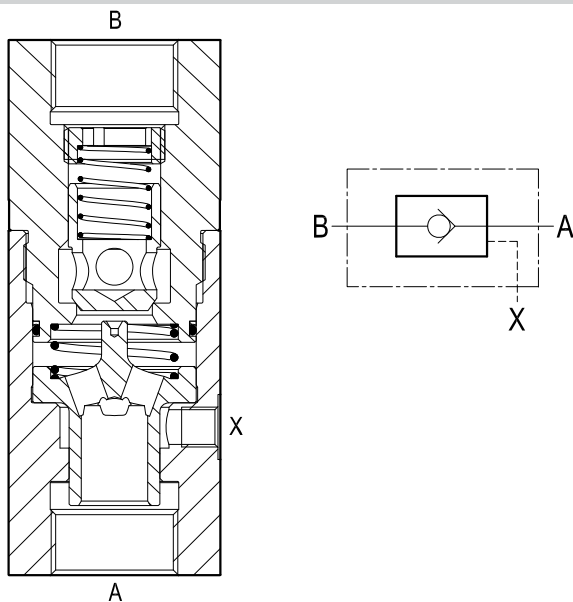
Type	Material number
CAB 12/5	R932500153
CAB 12/8	R932500154
CAB 12/10	R932500151
CAB 12/15	R932500152
CAB 34/4	R932006924
CAB 34/8	R932500157
CAB 34/10	R932500155
CAB 34/15	R932500156
CAB 38/5	R932500159
CAB 38/8	R932500160

Type	Material number
CAB 38/15	R932500158

Type	Material number

Pilot operated check valves Single poppet type

OV Series



Description

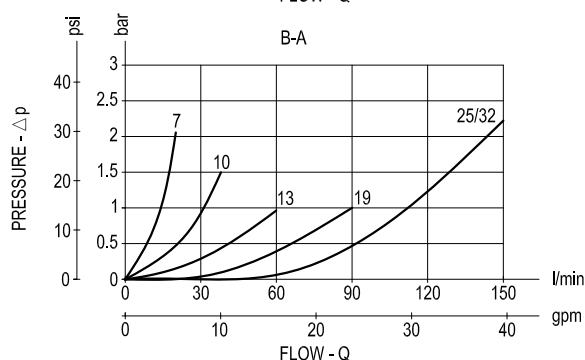
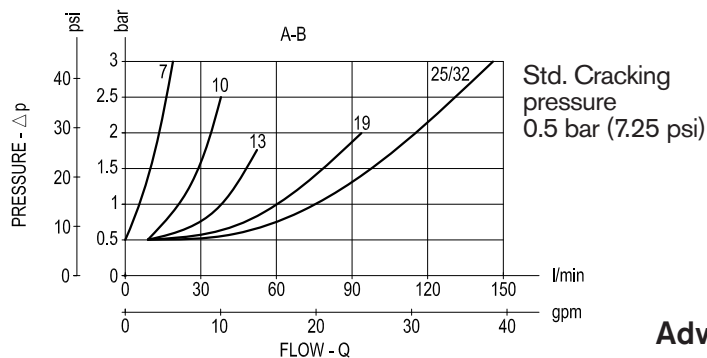
Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The valve is normally closed (checked) from B to A; when sufficient pilot pressure is present at Pil port (X), the annular pilot area pushes the poppet from its seat and flow is allowed from B to A. Precision machining and hardening process allow virtually leak-free performance in the checked condition. The valve is available in different sizes and versions for different flow ranges, as specified by the tables of the Technical data, Performance diagrams and Dimensions.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)	Pilot ratio
OV 7	350 (5000)	15 (4)	0.75 (1.65)	14 : 1
OV 10	350 (5000)	35 (9)	1.04 (2.29)	5 : 1
OV 13	350 (5000)	50 (13)	1.42 (3.13)	5 : 1
OV 19	250 (3600)	100 (26)	2.3 (5.1)	3.2 : 1
OV 25	250 (3600)	150 (40)	4.3 (9.5)	3.2 : 1
OV 32	250 (3600)	150 (40)	4.5 (9.9)	3.2 : 1

Steel body, zinc plated

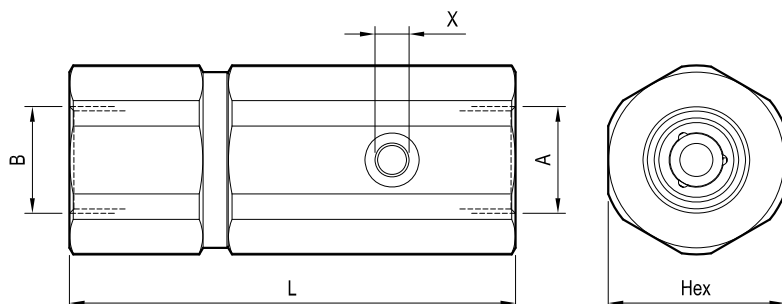
Performance



Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Different values of cracking pressure are available for A-B flow (see the relevant table).
- Six sizes provide great adaptability to the system.

Dimensions



Ports size / Dimensions

Code	Ports size		Hex mm (inches)	L mm (inches)
	A-B	X		
OV 7	G 1/4	G 1/4	36 (1.42)	98 (3.86)
OV 10	G 3/8	G 1/4	41 (1.61)	106 (4.17)
OV 13	G 1/2	G 1/4	46 (1.81)	119 (4.69)
OV 19	G 3/4	G 1/4	55 (2.17)	139 (5.47)
OV 25	G 1	G 1/4	70 (2.76)	169 (6.65)
OV 32	G 1-1/4	G 1/4	70 (2.76)	177 (6.97)

Applications

Ideal to lock cylinders in a leak free mode in order lock or clamp loads. They are non-modulating ON-OFF valves suitable for holding applications, but unsuitable to control the motion of overrunning loads which would cause a loss of pilot pressure. They should not be used for paired cylinders and, when fitted to the cylinder annular chamber, the valve pilot ratio should be significantly higher than the cylinder ratio. In case of doubt, please consult us.

Ordering code

OV		/	
----	--	---	--

= Cracking pressure (only bar value see below)

series 7	= 7
series 10	= 10
series 13	= 13
series 19	= 19
series 25	= 25
series 32	= 32

	OV 7	OV 10	OV 13	OV 19	OV 25
Cracking pressure free flow bar (psi)	4 (58)	4 (58)	4 (58)	4 (58)	4 (58)
		5 (72.5)	5 (72.5)	8 (116)	8 (116)
				15 (217.5)	10 (145)

Do not specify for the standard pressure 0.5 bar (7.25 psi)

Note: The OV32 cracking pressure is 0.5 bar (7.25 psi)

Type	Material number
OV 7	R932500363
OV 7/4	R932006931
OV 10	R932500364
OV 10/4	R932006932
OV 10/5	R932006933
OV 13	R932500366
OV 13/4	R932006934
OV 13/5	R932006935
OV 19	R932500367
OV 19/4	R932500368

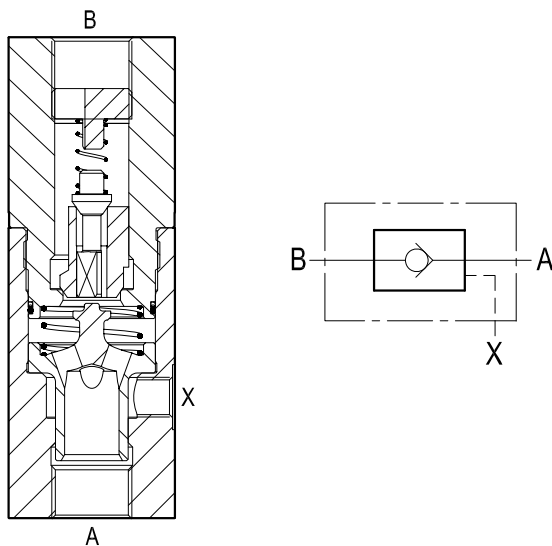
Type	Material number
OV 19/8	R932006936
OV 19/15	R932006937
OV 25	R932500369
OV 25/4	R932006938
OV 25/8	R932006939
OV 25/10	R932006940
OV 32	R932500370

Type	Material number

Pilot operated check valves

Poppet type, with pre-opening

OVP Series



Description

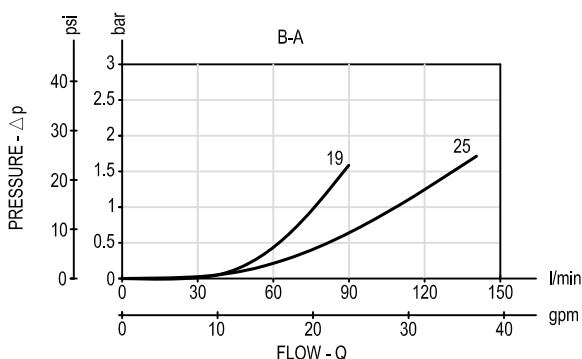
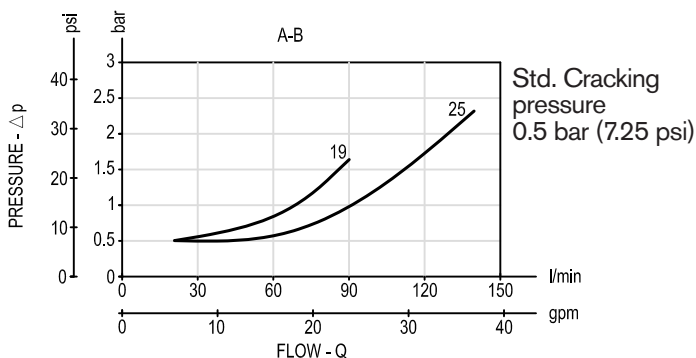
Flow is always allowed to pass from A to B when pressure at A rises above the spring bias pressure and the poppet is pushed from the seat. The valve is normally closed (checked) from B to A; when sufficient pilot pressure is present at Pil port (X), the annular pilot area pushes the pre-opening poppet from its seat and oil starts flowing from B to A; as pilot pressure increases, also the main poppet is lifted from its seat and the opening area B-A becomes larger. Precision machining and hardening process allow virtually leak-free performance in the checked condition. The valve is available in different sizes and versions for different flow ranges, as specified by the tables of the Technical data, Performance diagrams and Dimensions.

Technical data

Code	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)	Pilot ratio	
				Main opening	Pre opening
OVP 19	250 (3600)	100 (26)	2.6 (5.8)	1:4.5	1:11
OVP 25	250 (3600)	150 (40)	5.0 (11)	1:4	1:13

Steel body, zinc plated

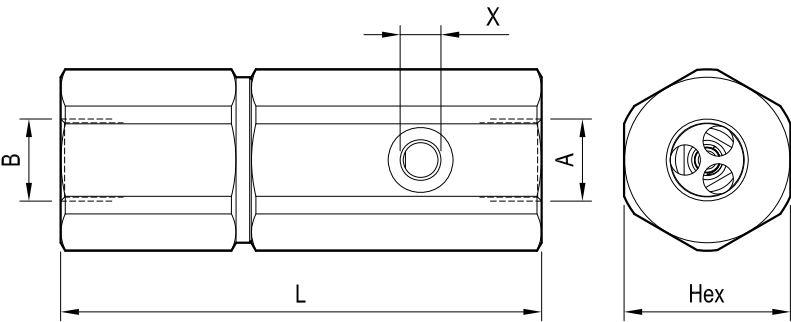
Performance



Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Three sizes provide great adaptability to the system.

Dimensions



Ports size / Dimensions

Code	Ports size		Hex mm (inches)	L mm (inches)
	A-B	X		
OVP 19	G 3/4	G 1/4	55 (2.17)	159 (6.26)
OVP 25	G 1	G 1/4	70 (2.76)	186 (7.32)

Applications

Ideal to lock cylinders in a leak free mode in order lock or clamp loads. They are ON-OFF valves suitable for holding applications; the pre-opening does provide a degree of smooth opening and allows some motion control, but these valves are not designed to control overrunning loads which would cause a loss of pilot pressure. They should not be used for paired cylinders and, when fitted to the cylinder annular chamber, the main pilot ratio should be significantly higher than the cylinder ratio. In case of doubt, please consult us.

Ordering code

OVP	
series 19	= 19
series 25	= 25

Cracking pressure (free flow) is always 0.5 bar (7.25psi)

Type	Material number
OVP19	R932500377
OVP25	R932500378

Type	Material number

Type	Material number

Sleeve valve for line mounting

Sequence

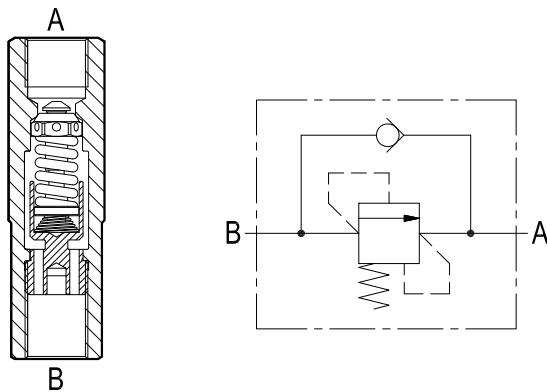
Designation	Description	Cavity	Data sheet	Page
Sleeve valves for line mounting sequence valve direct acting poppet type	VSQ-20-LM	G 3/8	18316-60	675
Sleeve valves for line mounting sequence valve direct acting poppet type	VSQ-30-LM	G 1/2	18316-62	677
Sleeve valves for line mounting sequence valve direct acting poppet type, JIC series	VSQ-60-LM	JIS	18316-61	679
Sleeve valves for line mounting sequence valve direct acting poppet type	VSQ-30-LM	G 3/4	18316-63	681
Sleeve valves for line mounting sequence valve direct acting poppet type pressure compensated	VSQ-CC-LM	G 3/8	18316-64	683
Sleeve valves for line mounting sequence valve direct acting poppet type pressure compensated	VSQ-CC-LM	G 1/2	18316-65	685

Sequence valves

Direct acting poppet type

VSQ-20-LM (G3/8)

0T.S1.01.00.02-Z-W



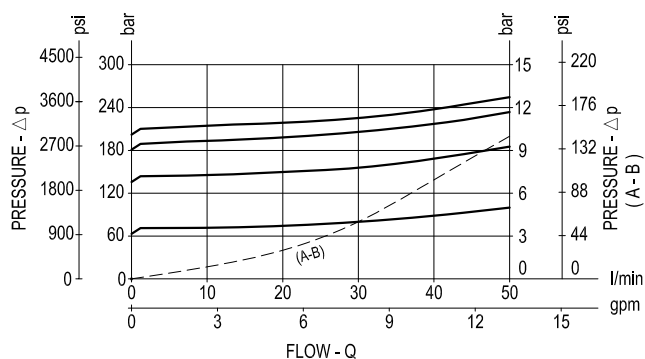
Description

They are composed by a relief valve (opening "B-A") and by a reverse flow check valve "A-B".

Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized. The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Note that pressure at A needed to operate the second actuator is additive to the relief setting, and, for this reason, this valve is successfully employed to energize a secondary actuator which only requires low pressure.

Performance



Advantages

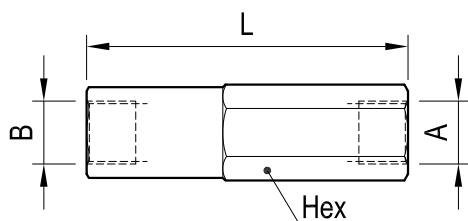
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp for B-A flow.
- Different springs available for different pressure ranges (see the "Z" table).

Technical data

Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
350 (5000)	50 (13)	0.18 (0.40)

Steel body, zinc plated

Dimensions



Ports size / Dimensions

Ports A-B	L mm (inches)	Hex mm (inches)
G 3/8	85 (3.35)	22 (0.87)

Springs	
Z	Adj. press. range bar (psi)
05	20-70 (290-1015)
10	80-130 (1160-1885)
20	140-200 (2030-2900)
35	210-350 (3045-5075)

The valve is supplied with Factory set opening pressure and is non-adjustable. Refer to the table. Standard pressure setting are specified in the relevant "W" table. For special pressure settings, consult us.

Std. SETTING bar (psi) Q= 5 l/m				
W	Z=05	Z=10	Z=20	Z=35
01		80 (1160)	140 (2030)	210 (3045)
02	20 (290)	90 (1305)	150 (2175)	220 (3190)
03	30 (435)	100 (1450)	160 (2320)	230 (3335)
04	40 (580)	110 (1595)	170 (2465)	240 (3480)
05	50 (725)	120 (1740)	180 (2610)	250 (3625)
06	60 (870)	130 (1885)	190 (2755)	260 (3770)
07	70 (1015)		200(2900)	270 (3915)

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator must be allowed to move only after the first actuator has performed a certain function. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

0T.S1.01.00.02	Z	W
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Direct acting poppet type

Std. setting see table "W"

Springs see table "Z"

Type	Material number
OTS10100020502	R931000074
OTS10100020503	R931000075
OTS10100020504	R931000076
OTS10100020505	R931000077
OTS10100020506	R931000078
OTS10100020507	R931000079
OTS10100021001	R931000083
OTS10100021002	R931000084
OTS10100021003	R931000085
OTS10100021004	R931001978

Type	Material number
OTS10100021005	R931000086
OTS10100021006	R931001980
OTS10100022001	R931000088
OTS10100022002	R931001981
OTS10100022003	R931000657
OTS10100022004	R931001982
OTS10100022005	R931000089
OTS10100022006	R931001983
OTS10100022007	R931001862
OTS10100023501	R931001985

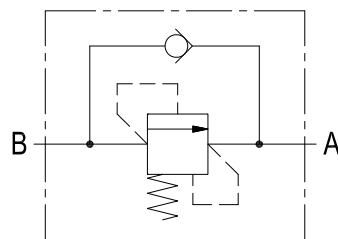
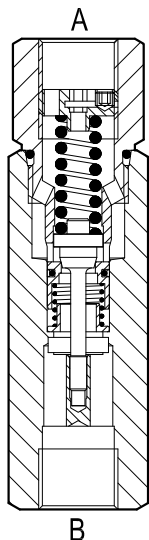
Type	Material number
OTS10100023502	R931000656
OTS10100023503	R931001988
OTS10100023504	R931001990
OTS10100023505	R931001991
OTS10100023506	R931001992
OTS10100023507	R931001993

Sequence valves

Direct acting poppet type

VSQ-30-LM (G1/2)

05.21.16.00.03-Z

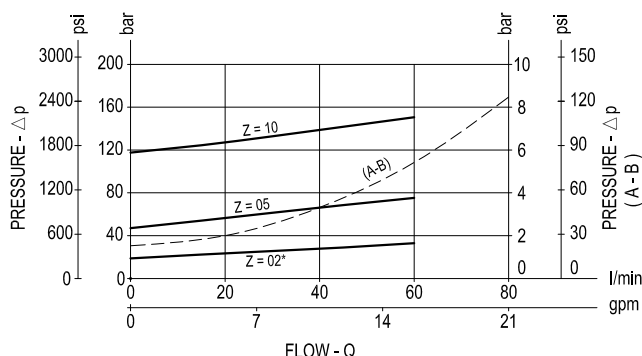


Description

They are composed by a relief valve (opening "B-A") with hydraulic dampening, and by a reverse flow annular check valve "A-B". Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized. The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Note that pressure at A needed to operate the second actuator is additive to the relief setting, and, for this reason, this valve is successfully employed to energize a secondary actuator which only requires low pressure.

Performance



Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp for B-A flow.
- Different springs available for different pressure ranges (see the "Z" table).

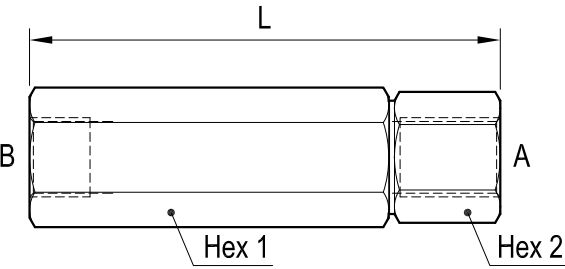
Technical data

Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
350 (5000)	80 (21)	0.6 (1.32)

Steel body, zinc plated

Pressure drop curves are shown with zero back pressure on "A" port.

Dimensions



Ports size / Dimensions

Ports A-B	L mm (inches)	Hex 1 mm (inches)	Hex 2 mm (inches)
G 1/2	124 (4.88)	32 (1.26)	30 (1.18)

Springs					
Z	Adj. press. range bar (psi)	Pres. increase bar/turn (psi/turn)	Std. setting bar (psi) Q=5 l/min	Ordering code	Colour
02*	10-30 (145-435)	9 (131)	20 (290)	03.51.01.155	green
05	25-70 (360-1000)	21 (305)	50 (725)	03.51.01.106	green
10	30-120 (435-1750)	47 (682)	120 (1750)	03.51.01.171	yellow

The relief setting is adjustable by turning the internal ring nut: to turn the nut loosen first the little locking screw, then tighten it again after the adjustment. For the spring selection, refer to the table.

(*) Z= 02 is only supplied for special applications.

This valve is successfully employed when the pressure needed to move the secondary actuator is not very high.

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator must be allowed to move only after the first actuator has performed a certain function. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

05.21.16.00.03	Z
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Direct acting poppet type

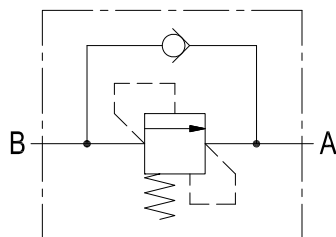
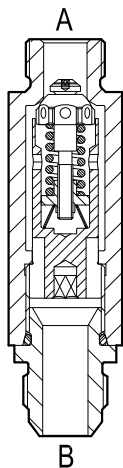
Type	Material number	Type	Material number	Type	Material number
05211600030200A	R901187620				
05211600030500A	R930001441				
05211600031000A	R930001444				

Sequence valves

JIC series direct acting poppet type

VSQ-60-LM

0T.S1.03.00.03-Z-W



Description

They are composed by a relief valve (opening "B-A") and by a reverse flow check valve "A-B".

Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized. The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Note that pressure at A needed to operate the second actuator is additive to the relief setting, and, for this reason, this valve is successfully employed to energize a secondary actuator which only requires low pressure.

Technical data

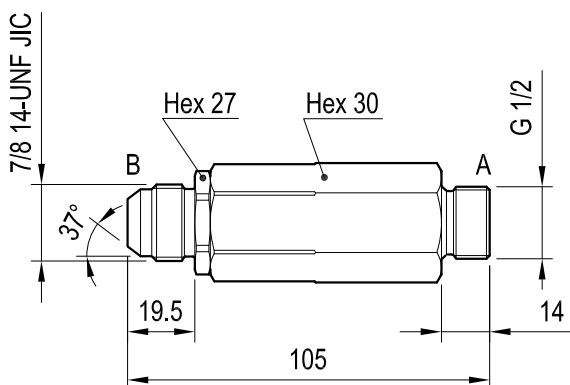
Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
350 (5000)	60 (16)	0.37 (0.82)

Steel body, zinc plated

Advantages

- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Different springs available for different pressure ranges (see the "Z" , table).

Dimensions



Springs	
Z	Adj. press. range bar (psi)
05	20-100 (290-1450)
10	110-170 (1595-2465)
20	180-230 (2610-3335)
35	240-350 (3480-5075)

The valve is supplied with the relief setting requested by the customer and is non-adjustable. Refer to the table. Standard pressure setting are specified in the relevant "W" table. For special pressure setting, consult us.

Std. SETTING bar (psi) Q= 5 l/m				
W	Z=05	Z=10	Z=20	Z=35
01	20 (290)	110 (1595)	180 (2610)	240 (3480)
02	30 (435)	120 (1740)	190 (2755)	250 (3625)
03	40 (580)	130 (1885)	200 (2900)	260 (3770)
04	50 (725)	140 (2030)	210 (3045)	270 (3915)
05	60 (870)	150 (2175)	220 (3190)	280 (4060)
06	70 (1015)	160 (2320)	230 (3335)	290 (4205)
07	80 (1160)	170 (2465)		300 (4350)
08	90 (1305)			310 (4495)
09	100 (1450)			320 (4640)

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator must be allowed to move only after the first actuator has performed a certain function. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

OTS103.00.03
Z
W

Std. Setting see table "W"

Jic series direct acting poppet type

Springs see table "Z"

Type	Material number
OTS10300030501	R931001994
OTS10300030502	R931001995
OTS10300030503	R931001996
OTS10300030504	R931001997
OTS10300030505	R931000099
OTS10300030506	R931001998
OTS10300030507	R931002000
OTS10300030508	R931002004
OTS10300030509	R931002005
OTS10300031001	R931002009
OTS10300031002	R931002010
OTS10300031003	R931002011

Type	Material number
OTS10300031004	R931002012
OTS10300031005	R931002013
OTS10300031006	R931002014
OTS10300031007	R931002015
OTS10300032001	R931002016
OTS10300032002	R931002017
OTS10300032003	R931002018
OTS10300032004	R931002019
OTS10300032005	R931002020
OTS10300032006	R931002021
OTS10300033501	R931002022
OTS10300033502	R931002024

Type	Material number
OTS10300033503	R931002025
OTS10300033504	R931002026
OTS10300033505	R931002027
OTS10300033506	R931002028
OTS10300033507	R931002029
OTS10300033508	R931002030
OTS10300033509	R931002031

Sequence valves

Direct acting poppet type

VSQ-30-LM (G3/4)

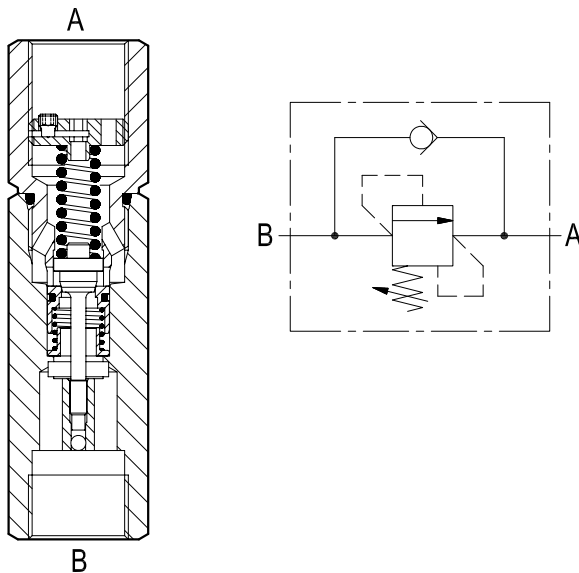
05.21.16.00.04-Z



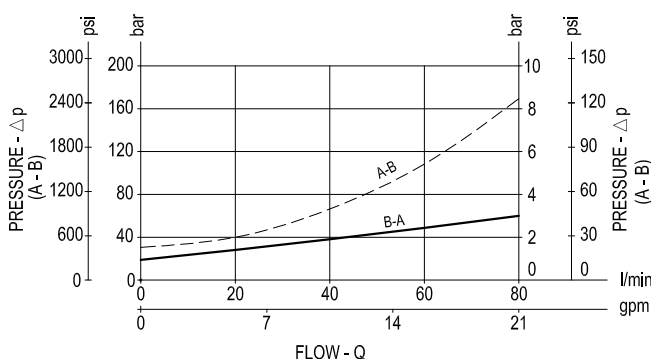
Description

They are composed by a relief valve (opening "B-A") with hydraulic dampening, and by a reverse flow annular check valve "A-B". Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized. The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Note that pressure at A needed to operate the second actuator is additive to the relief setting, and, for this reason, this valve is successfully employed to energize a secondary actuator which only requires low pressure.



Performance



Advantages

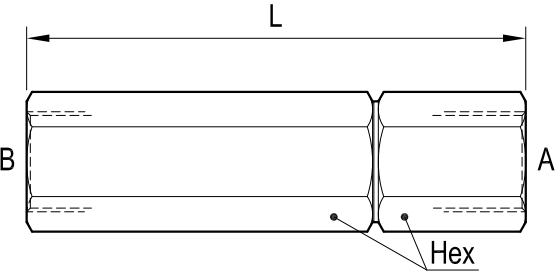
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp for B-A flow.
- Different springs available for different pressure ranges (see the "Z" table).

Technical data

Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
350 (5000)	80 (21)	0.6 (1.32)

Steel body, zinc plated

Dimensions



Port size / Dimensions

Ports A - B	L mm (inches)	Hex mm (inches)
G 3/4	132 (5.2)	32 (1.26)

Springs					
Z	Adj. press. range bar (psi)	Pres. increase bar/turn (psi/turn)	Std. setting bar (psi) Q=5 l/min	Ordering code	Colour
05	20-70 (290-1000)	21 (305)	20 (290)	03.51.01.106	green

The relief setting is adjustable by turning the internal ring nut: to turn the nut loosen first the little locking screw, then tighten it again after the adjustment. For the spring selection, refer to the table.

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator must be allowed to move only after the first actuator has performed a certain function. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

05.21.16.00.04	Z
Direct acting poppet type	Springs see table "Z"

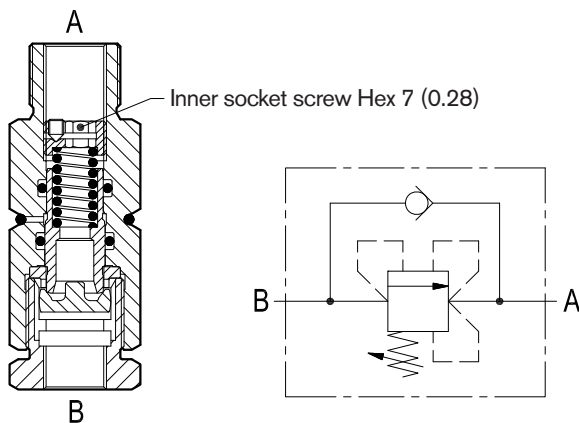
Type	Material number	Type	Material number	Type	Material number
052116000405010	R930001447				

Sequence valves

Direct acting poppet type pressure compensated

VSQ-CC-LM (G3/8)

05.21.19.00-Y-Z



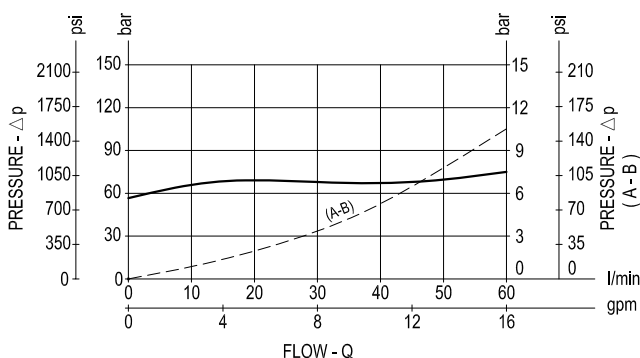
Description

They are composed by a pressure compensated relief valve (opening "B-A"), and by an annular check valve "A-B". Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized.

The valve applies a balanced relief piston allowing relief operation at the valve setting independent of back-pressure at A (back-pressure is not additive). With line pressure equal or higher than setting, after valve opening, the full pressure is transferred from B to A.

The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Performance



Advantages

- The pressure compensation allows to transfer the full system pressure to the second actuator.
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp for B-A flow.

Technical data

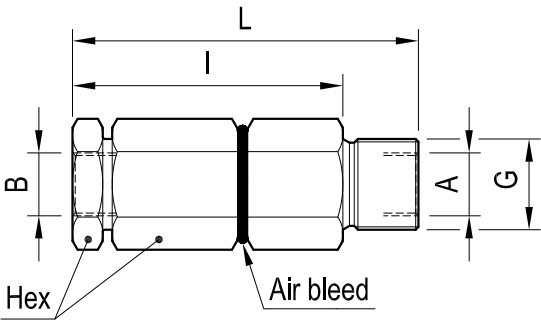
Port A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
G 3/8	350 (5000)	60 (16)	0.38 (0.84)

Steel body, zinc plated

Installation torque: 88 - 90 Nm (65 - 67 ft-lb)

For a good performance, the pressure in the secondary circuit should not drop below 20 bar (290 psi).

Dimensions



Ports size / Dimensions

Y	Port A-B	L mm (inches)	I mm (inches)	Hex mm (inches)	G
02	G 3/8	91.5 (3.6)	71.5 (2.82)	30 (1.18)	M24x1.5

Springs				
Z	Adj. press. range bar (psi)	Pres. increase bar/turn (psi/turn)	Std. setting bar (psi) Q=5 l/min	Ordering code
01	50-140 (725-2000)	25 (363)	100 (1450)	03.51.01.256

The relief setting is adjustable by turning the internal ring nut (hexagon 7 mm): to turn the nut loosen first the little locking screw, then tighten it again after the adjustment. For the spring selection, refer to the table.

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator requires less pressure to move, but the pressure needed is not negligible. The pressure at A needed to operate the second actuator is not additive to the relief setting and this results also in energy saving. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

05.21.19.00	Y	Z
Direct acting poppet type pressure compensated	Springs see table "Z"	
Ports size / Dimensions see table "Y"		

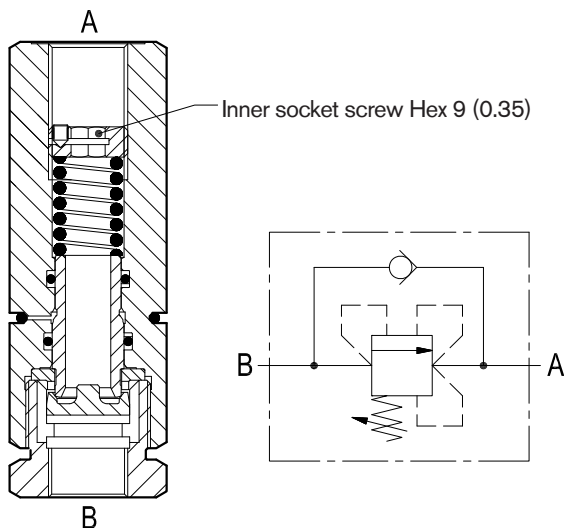
Type	Material number	Type	Material number	Type	Material number
052119000201000	R901187639				

Sequence valves

Direct acting poppet type pressure compensated

VSQ-CC-LM (G1/2)

05.21.17.00-Y-Z



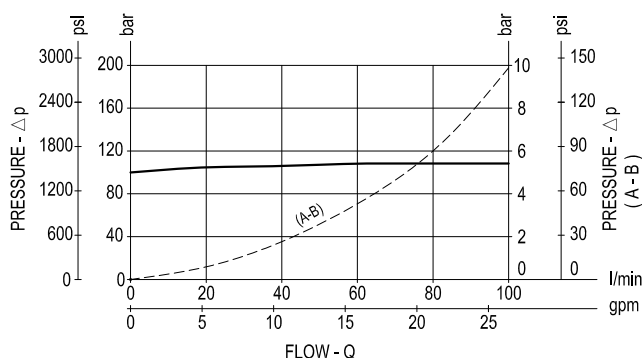
Description

They are composed by a pressure compensated relief valve (opening "B-A"), and by an annular check valve "A-B". Initially the flow goes to a first line connected in parallel to the B side, not shown here, and pressure increases until reaching the selected relief setting; then the relief valve opens and the second circuit is supplied out of A port, while the actuator connected to the B side remains pressurized.

The valve applies a balanced relief piston allowing relief operation at the valve setting independent of back-pressure at A (back-pressure is not additive). With line pressure equal or higher than setting, after valve opening, the full pressure is transferred from B to A.

The incorporated check valve allows the reverse motion of the actuators which happens without specific control of the sequence, only depending from the load/pressure conditions.

Performance



Advantages

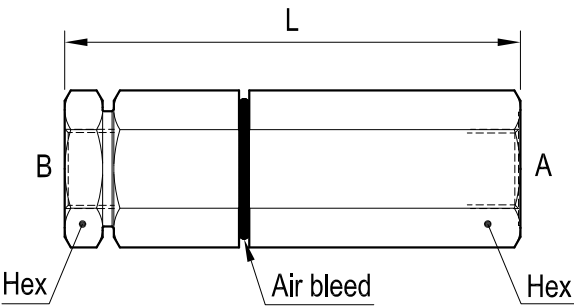
- The pressure compensation allows to transfer the full system pressure to the second actuator.
- Very compact design and inline mounting for space saving.
- Mounting position is unrestricted.
- Low Δp for B-A flow.

Technical data

Port A-B	Pressure P max bar (psi)	Flow Q max l/min (gpm)	Weight kg (lbs)
G 1/2	350 (5000)	100 (27)	0.38 (0.84)

For a good performance, the pressure in the secondary circuit should not drop below 20 bar (290 psi).

Dimensions



Ports size / Dimensions

Y	Port A-B	L mm (inches)	Hex mm (inches)
03	G 1/2	120.5 (4.74)	36 (1.42)

Springs				
Z	Adj. press. range bar (psi)	Pres. increase bar/turn (psi/turn)	Std. setting bar (psi) Q=5 l/min	Ordering code
10	50-140 (725-2000)	20 (290)	100 (1450)	03.51.01.251

The relief setting is adjustable by turning the internal ring nut (hexagon 9 mm): to turn the nut loosen first the little locking screw, then tighten it again after the adjustment. For the spring selection, refer to the table.

Applications

They are employed to control the sequence of two or more cylinders or motors, when the second actuator requires less pressure to move, but the pressure needed is not negligible. The pressure at A needed to operate the second actuator is not additive to the relief setting and this results also in energy saving. The incorporated check valve allows free reverse motion without specific control of the sequence.

Ordering code

05.21.17.00

Y

Z

Direct acting poppet type pressure compensated

Springs see table "Z"

Ports size / Dimensions see table "Y"

Type	Material number	Type	Material number	Type	Material number
052117000310000	R930001451				

Sleeve valve for line mounting

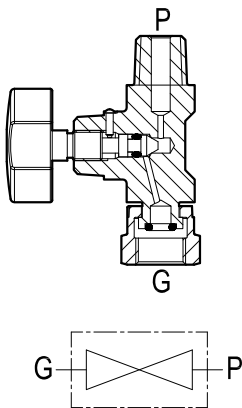
Shut-off pressure gauge

Designation	Description	Cavity	Data sheet	Page
Sleeve valves for line mounting shut-off valve for in-line pressure gauge mounting	EM	G 1/4	18316-75	689
Sleeve valves for line mounting shut-off valve for 90° pressure gauge mounting	EMT	G 1/4	18316-76	691

Shut-off valve for pressure gauge

Shut-off valves for in-line pressure gauge mounting

EM Series



Description

The port G for pressure gauge installation includes a swivelling nut in order to lock the gauge in the preferred direction; further, the G port is available with:
O-Ring (EM 14 version) for gauges with BSPP, cylindrical, thread
Copper washer (EM 14C version) for gauges with BSPT, tapered, thread.
The hand-knob can lock the P port and prevent the pressure gauge from being pressurized at all times.

Technical data

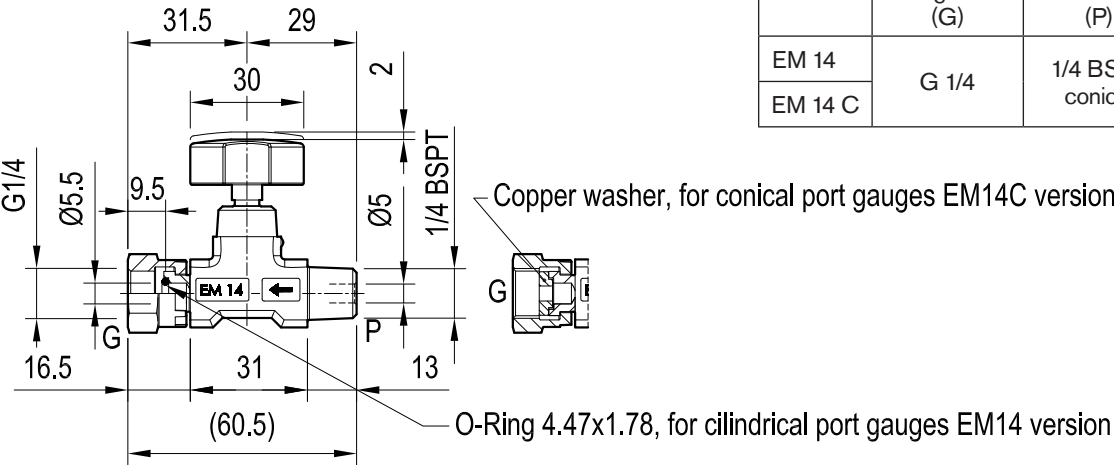
Code	Pressure P max bar (psi)	Weight kg (lbs)
EM 14	350 (5000)	0.12 (0.26)
EM 14 C	350 (5000)	0.12 (0.26)

Brass body, plastic hand knob

Advantages

-Mounting position is optional.

Dimensions



Code	Port size		Hand Knob turns
	Gauge side (G)	Pressure side (P)	
EM 14	G 1/4	1/4 BSPT conical	2
EM 14 C			

Ordering code

EM	
series 14	= 14
series 14 C	= 14 C

Type	Material number
EM14	R932500182
EM14C	R932500183

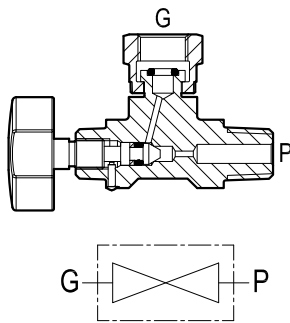
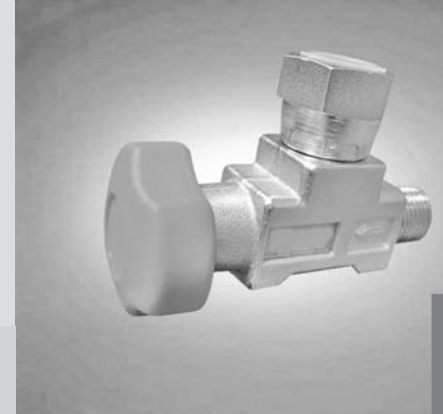
Type	Material number

Type	Material number

Shut-off valves for pressure gauge

Shut-off valves for 90° pressure gauge mounting

EMT Series



Description

The port G for pressure gauge installation includes a swivelling nut in order to lock the gauge in the preferred direction; further, the G port is available with:

O-Ring (EM 14 version) for gauges with BSPP, cylindrical, thread

Copper washer (EM 14C version) for gauges with BSPT, tapered, thread

The hand-knob can lock the P port and prevent the pressure gauge from being pressurized at all times.

Technical data

Code	Pressure P max bar (psi)	Weight kg (lbs)
EM 14 T	350 (5000)	0.12 (0.26)
EM 14 T C	350 (5000)	0.12 (0.26)

Brass body, plastic hand knob

Advantages

-Mounting position is optional.

