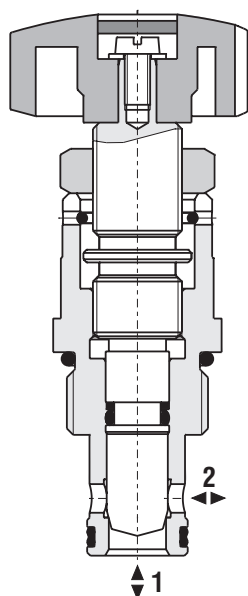


Needle - Restrictor Valve

ST21A-B2

7/8-14 UNF • Q_{max} 140 l/min (37 GPM) • p_{max} 350 bar (5100 PSI)



Technical Features

- › Hardened precision parts
- › Fine low-torque adjustment
- › Linear adjustment and positive seat overlap
- › Optionally adjustable by hand screw
- › Desired settings may be locked down
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227. Enhanced surface protection for mobile sector available for the steel parts (ISO 9227, 520 h salt spray)

Functional Description

A hydraulic flow restrictor valve in the form of a screw-in cartridge. The valve restricts flow in both directions, making it ideal for fine control of an uncompensated system or for use as a shut-off valve.

Model Code	ST21A-B2
Symbol	

Technical Data

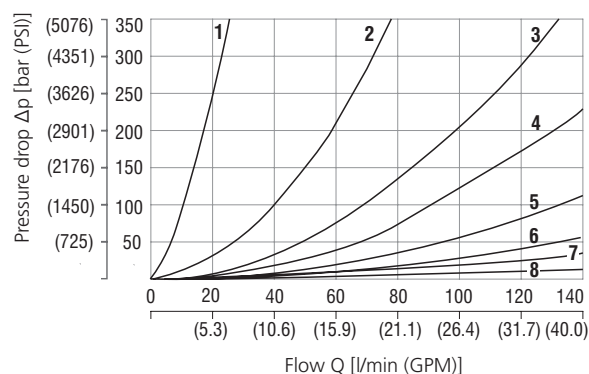
Valve size / Cartridge cavity		7/8-14 UNF-2A / B2 (C-10-2)
Max. flow	l/min (GPM)	140 (37)
Max. operating pressure	bar (PSI)	350 (5100)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)
Weight	kg (lbs)	0.3 (0.66)

		Datasheet	Type
General information		HA 0060	Products and operating conditions
Valve bodies	In-line mounted	HA 0018	SB-B2*
	Sandwich mounted	HA 0028	SB-*B2*
Cavity details / Form tools		HA 0019	SMT-B2*
Spare parts		HA 8010	

Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Pressure drop related to flow rate

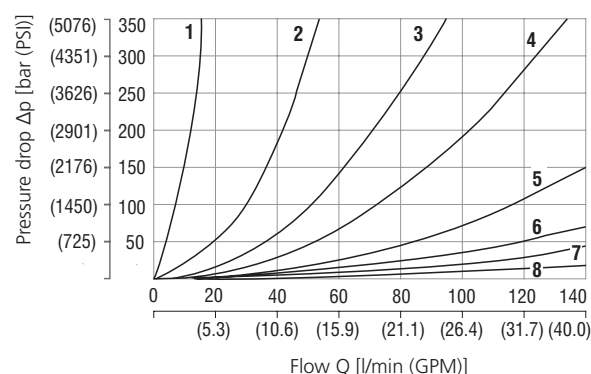
Flow direction 1 - 2



Number of half turns (180°) of the adjust. screw							
1	2	3	4	5	6	7	8

Pressure drop related to flow rate

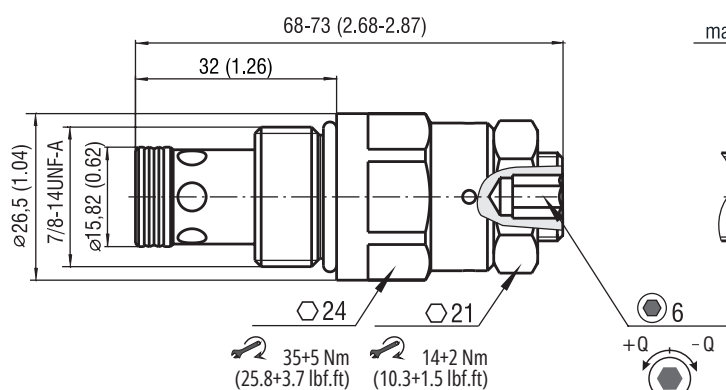
Flow direction 2 - 1



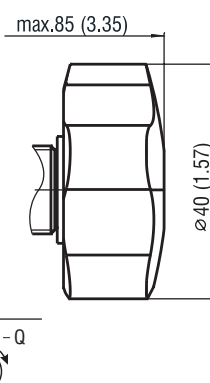
Number of half turns (180°) of the adjust. screw							
1	2	3	4	5	6	7	8

Dimensions in millimeters (inches)

Model S



Model RP



Ordering Code

ST21A-B2 / H 140 ☐ ☐ - ☐

Needle - restrictor valves

Valve cavity

7/8-14 UNF (C-10-2)

Version

High performance

Flow rate

140 l/min (37 GPM)

140

A
B

Surface treatment

zinc-coated (ZnCr-3), ISO 9227 (240h)

zinc-coated (ZnNi), ISO 9227 (520h)

No designation

V

Seals

NBR

FPM (Viton)

Adjustment option

allen key (hex. 6), without protective cap

hand screw, plastic

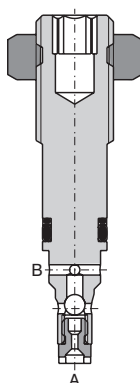
S
RP

Needle - Restrictor Valve with Reverse Flow Check, Fine Adjustable

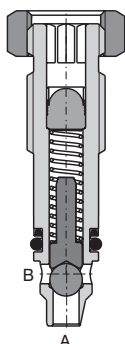
VSV2

M12x1 • Q_{max} 20 l/min (5 GPM) • p_{max} 320 bar (4600 PSI)

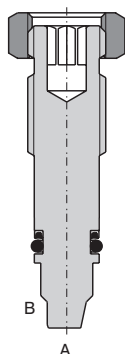
VSV2-QC2/J2



VSV2-QC2/J1



VSV2-QC2/1



Technical Features

- › Reverse flow check option
- › Hardened precision parts
- › Fine low-torque adjustment
- › Linear adjustment and positive seat overlap
- › Optionally adjustable by allen key or hand screw
- › Desired settings may be locked down
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227. Enhanced surface protection for mobile sector available for the steel parts (ISO 9227, 520 h salt spray)

Functional Description

A hydraulic flow restrictor valve in the form of a screw-in cartridge with an optional by-pass check valve. After loosening the lock nut the valve may be unscrewed up to the red marked safety notch. Beyond the marking, the valve may get completely unscrewed, leading to leakage.

Model Code	VSV2-QC2/1	VSV2-QC2/J1	VSV2-QC2/J2
Symbol	A B	A B	A B

Technical Data

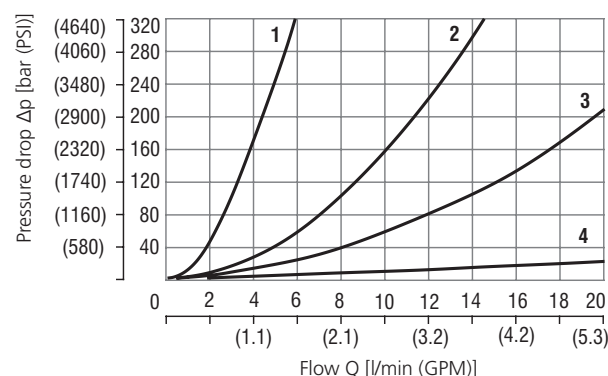
Valve size / Cartridge cavity		M12x1 / QC2
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	320 (4600)
Fluid temperature range (NBR)	°C (°F)	-30 ... +100 (-22 ... +212)
Weight	kg (lbs)	0.11 (0.24)

	Datasheet	Type
General information	HA 0060	Products and operating conditions
Cavity details	HA 0019	SMT-QC2*
Spare parts	HA 8010	

Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Pressure drop related to flow rate

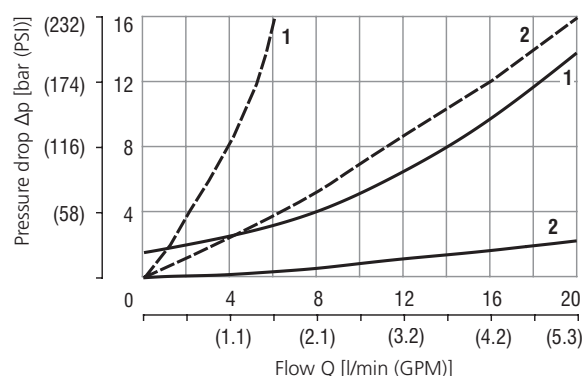
Flow direction B→A VSV2-QC2/1, VSV2-QC2/J1
Flow direction A→B VSV2-QC2/1, VSV2-QC2/J2



Number of turns of the adjustment screw			
1	2	3	4

Pressure drop related to flow rate

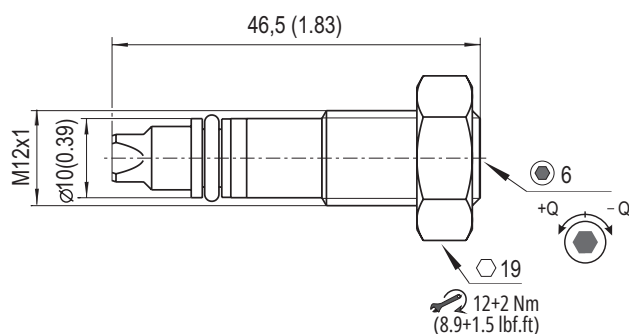
Flow direction A→B (free flow) VSV2-QC2/J1 —
Flow direction B→A VSV2-QC2/J2 - - -



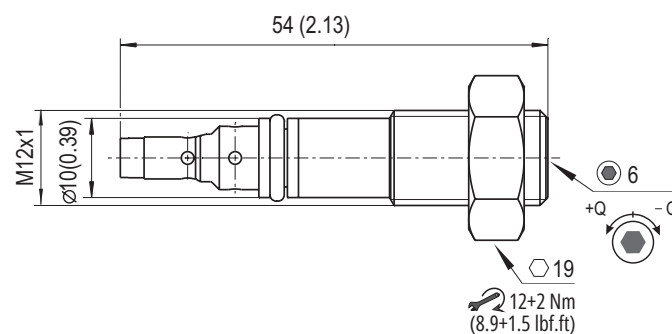
Throttle valve closed	Throttle valve opened
1	2

Dimensions in millimeters (inches)

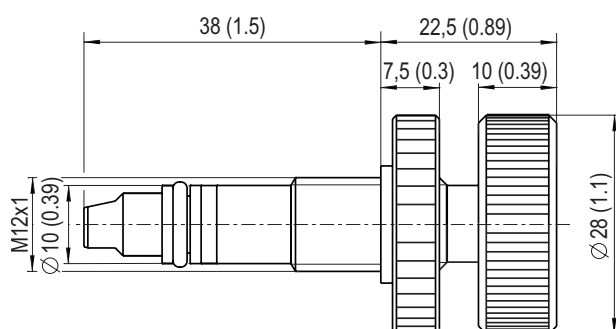
Models S: VSV2-QC2/1, VSV2-QC2/J1



Model S: VSV2-QC2/J2



Model RS: VSV2-QC2/1, VSV2-QC2/J1, VSV2-QC2/J2



Ordering Code

VSV2 - QC2 /			
Needle - restrictor valve with reverse flow check, fine adjustable	M12x1	A B	Surface treatment
			zinc-coated (ZnCr-3), ISO 9227 (240h) zinc-coated (ZnNi), ISO 9227 (520h)
Model		No designation	Seals
			NBR
without check valve	1	S RS	Adjustment option
			allen key (hex. 6), without protective cap hand screw, metal*
with check valve, unregulated flow A → B	J1		
with check valve, unregulated flow B → A	J2		

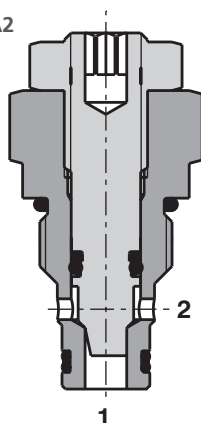
*Comfortable pressure adjustment using the metal hand screw **RS** is possible for configuration 1 and J1 when throttling in the B → A direction up to input pressure 150 bar.

Needle - Restrictor Valve with/without Reverse Flow Check

ST2(C)1A-A2

3/4-16 UNF • Q_{max} 20 l/min (5 GPM) • p_{max} 320 bar (4600 PSI)

ST21A-A2



Technical Features

- › Reverse flow check option
- › Hardened precision parts
- › Fine low-torque adjustment
- › Linear adjustment and positive seat overlap
- › Optionally adjustable by allen key or hand screw
- › Desired settings may be locked down
- › In the standard version, the valve is zinc-coated for 240 h protection acc. to ISO 9227.
Enhanced surface protection for mobile sector available for the steel parts (ISO 9227, 520 h salt spray)

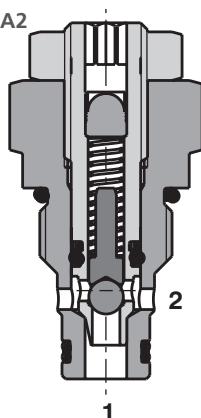
Functional Description

A hydraulic flow restrictor valve in the form of a screw-in cartridge with an optional by-pass check valve. After loosening the lock nut the valve may be unscrewed up to the red marked safety notch.

NOTICE:

Beyond the marking, the valve may get completely unscrewed, leading to leakage.

ST2C1A-A2



Model Code	ST21A-A2	ST2C1A-A2
Symbol	2  1	2  1

Technical Data

Valve size / Cartridge cavity	3/4-16 UNF-2A / A2 (C-8-2)	
Max. flow	l/min (GPM)	20 (5.3)
Max. operating pressure	bar (PSI)	320 (4600)
Fluid temperature range (NBR)	°C (°F)	-30 ...+100 (-22 ...+212)
Weight	kg (lbs)	0.2 (0.44)

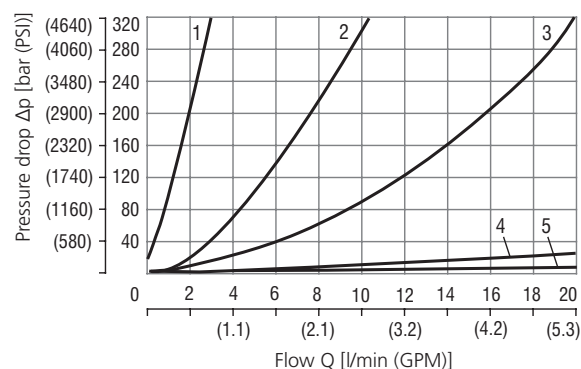
		Datasheet	Type
General information		HA 0060	Products and operating conditions
Valve bodies	In-line mounted	HA 0018	SB-A2*
	Sandwich mounted	HA 0028	SB-*A2*
Cavity details / Form tools		HA 0019	SMT-A2*
Spare parts		HA 8010	

Characteristics measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Pressure drop related to flow rate

Flow direction 2→1

ST21A-A2/L20*, ST2C1A-A2/L20*

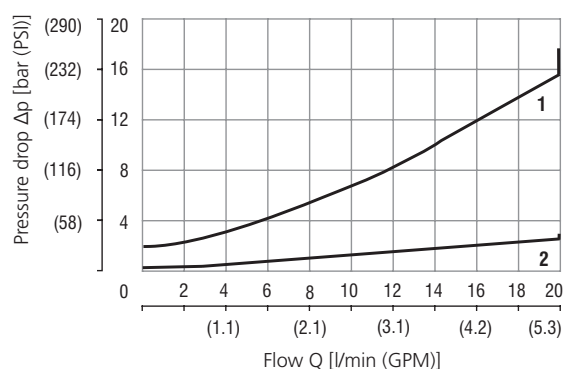


Number of turns of the adjustment screw				
1	2	3	4	5

Check valve pressure drop related to flow rate

Flow direction 1→2

ST2C1A-A2/L20*

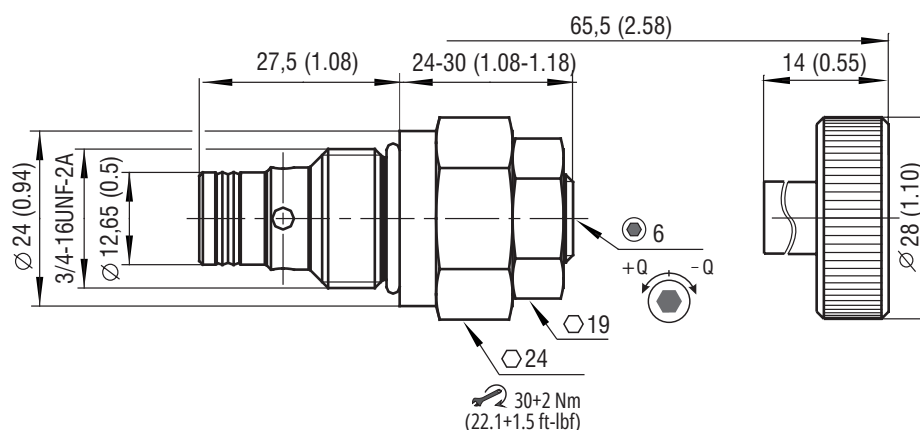


Trottle valve closed	Trottle valve opened
1	2

Dimensions in millimeters (inches)

Model S

Model RS



Ordering Code

ST2 - A2 / L 20 -

Needle - restrictor valve

without reverse flow check
with reverse flow check (by-pass check valve)

1A
C1A

Valve cavity
3/4-16 UNF-2A (C-8-2)

Version
Lightline

Flow rate
20 lpm (5 GPM)

Surface treatment

A zinc-coated (ZnCr-3), ISO 9227 (240h)
B zinc-coated (ZnNi), ISO 9227 (520h)

Seals

No designation
V

NBR
FPM (Viton)

Adjustment option

allen key (hex. 6), without protective cap
hand screw, metal

S
RS