Double throttle/check valve

RA 27506/02.03 1/6
Replaces: 06.98

Model Z2FS 6

Nominal size 6
Series 4X
Maximum operating pressure 315 bar (4600 PSI)
Maximum flow 80 L/min (21 GPM)

Table of contents

Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 Form A, **without** locating pin hole (standard)
- Porting pattern to ISO 4401-**3**, NFPA T3.4.1M R1 and ANSI B93.7 **D 03**
- Four adjustment elements:
  - Screw with locknut and protective cap
  - Lockable rotary knob with scale
  - Spindle with internal hexagon and scale
  - Rotary knob with scale
- For limiting the main or pilot flow of two actuator connections
- For meter-in or meter-out control

Ordering details

Z2FS	6		– 4X/	V		*

Double throttle/check valve

Nominal size 6 = **6**

Throttle/check valve ports A and B = – [1]
Throttle/check valve port A = **A**
Throttle/check valve port B = **B**

Adjustment element
Screw with locknut and protective cap = **2**
Lockable rotary knob with scale = **3** [2]
Spindle with internal hexagon and scale = **5**
Rotary knob with scale = **7**

Further details in clear text

No code = **Without** locating pin hole
/60 [3] = **With** locating pin hole

V = FKM seals (other seals on request)
⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

1Q = With fine control
2Q = Standard version

4X = Series 40 to 49
(40 to 49: unchanged installation and connection dimensions)

[1] Has the same adjustment elements on ports A and B

[2] H-key with Material No. **R900008158** is included within the scope of supply

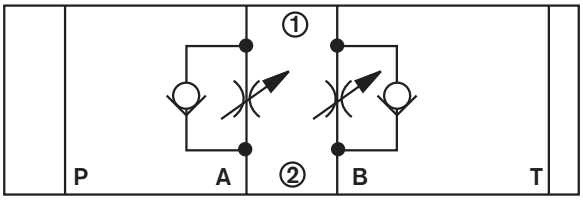
[3] Locating pin 3 x 8 DIN EN ISO 8752, Material No. **R900005694** (separate order)

Standard types

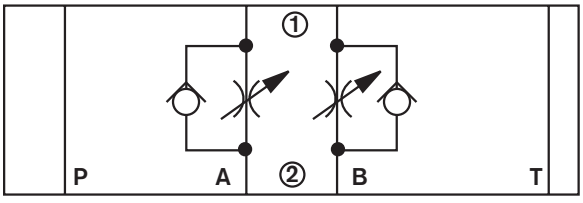
Type	Material No.
Z2FS 6 A2-4X/1QV	**R900581526**
Z2FS 6-A2-4X/2QV	**R900439389**
Z2FS 6-B2-4X/1QV	**R900438760**
Z2FS 6-B2-4X/2QV	**R900440565**
Z2FS 6-2-4X/1QV	**R900481623**
Z2FS 6-2-4X/2QV	**R900481624**

Symbol (① = component side, ② = subplate side)

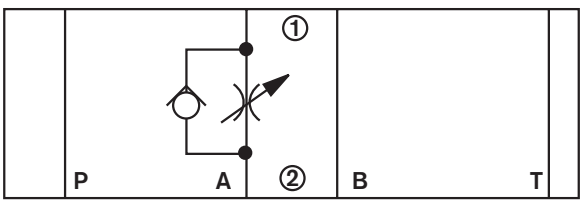
Z2FS 6 –.. –4X/.. (meter-in)



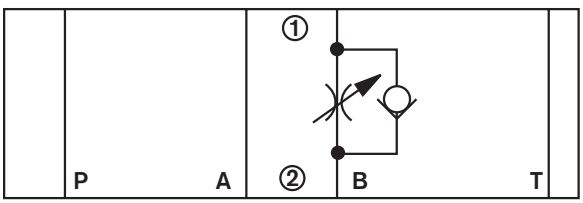
Z2FS 6 –.. –4X/.. (meter-out)



Z2FS 6 A.. –4X/.. (meter-out)



Z2FS 6 B ..–4X/.. (meter-in)



Functional decription, cross-section

Valves type Z2FS 6 are double throttle/check valves of sandwich plate design.

They are used to limit the main or pilot flow of one or two actuators.

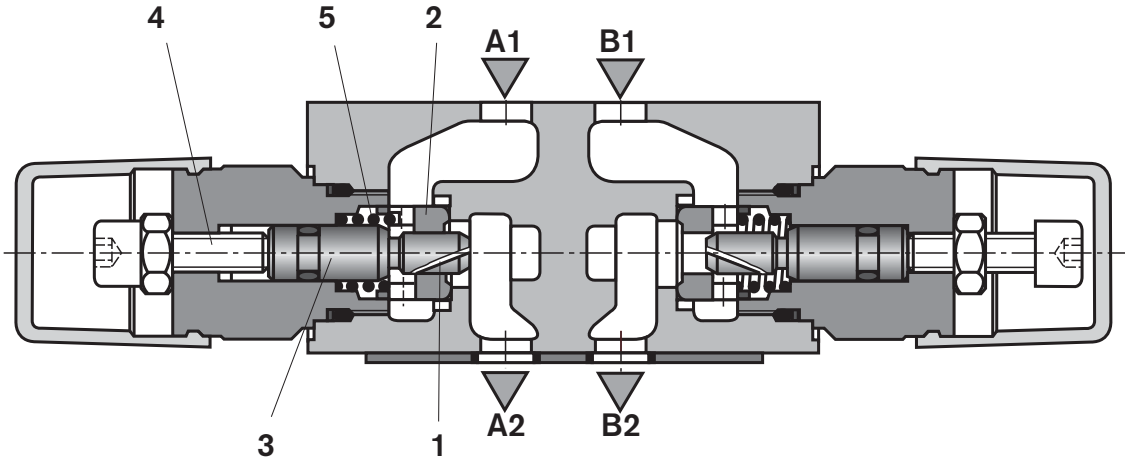
Two symmetrically arranged throttle/check valves limit the flow in one direction and allow free-flow in the opposite direction.

For meter-in control fluid passes from port A1 to port A2 via the throttling point (1), which is made up of the valve seat (2) and the throttling spool (3). The throttling spool (3) is axially adjustable via the adjustment screw (4), thus allowing the throttling point (1) to be adjusted.

Flow flowing back from the actuator port A2 moves the valve seat (2) against spring (5) in the direction of the throttling spool (3), causing the valve to act as a check valve and allowing free-flow. Depending upon the way in which the valve is installed, the throttling effect can be arranged as a meter-in or meter-out control.

Limiting the main fluid flow (version ..2Q..)
In order to change the velocity of an actuator (main fluid flow), the double throttle/check valve is installed between the directional valve and the subplate.

Limiting the pilot fluid flow (version ..1Q..)
In pilot operated directional control valves, the double throttle/check valve is installed as a pilot choke adjustment (pilot fluid flow). It is fitted between the main valve and the pilot valve.



Type Z2FS 6 –2–4X/… (meter-in)

Technical data (for applications outside these parameters, please consult us!)

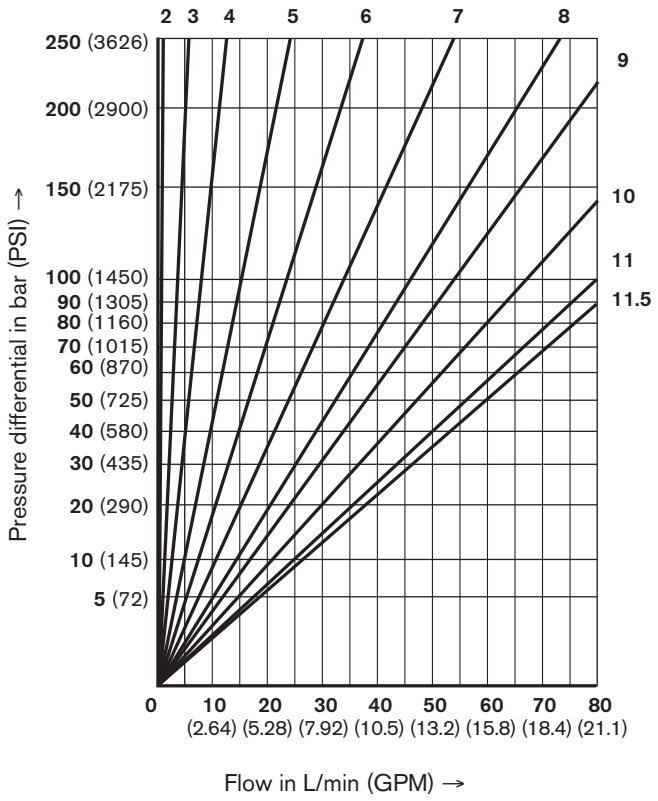
General		
Installation		Optional
Ambient temperature range	°C (°F)	–20 to +80 (–4 to 176)
Weight	kg (lbs)	Approx. 0.8 (1.8)
Hydraulic		
Maximum operating pressure	bar (PSI)	315 (4600)
Maximum flow	L/min (GPM)	80 (21.1)
Pressure fluid		Mineral oil (HL, HLP) to DIN 51 524; Fast bio-degradable pressure fluids to VDMA 24 568 (also see RE 90 221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic ester); Other pressure fluids on request
Pressure fluid temperature range	°C (°F)	–20 to +80 (–4 to 176)
Viscosity range	mm^2/s (SUS)	10 to 800 (60 to 3710)
Cleanliness class to ISO code		Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 [1]

[1] The cleanliness class stated for the components must be adhered to in hydraulic systems.
Effective filtration prevents faults from occurring and at the same time increases the component service life.
For the selection of filters see catalogue sheets RE 50 070, RE 50 076 and RE 50 081.

Characteristic curves – measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C (104 °F ±41 °F)

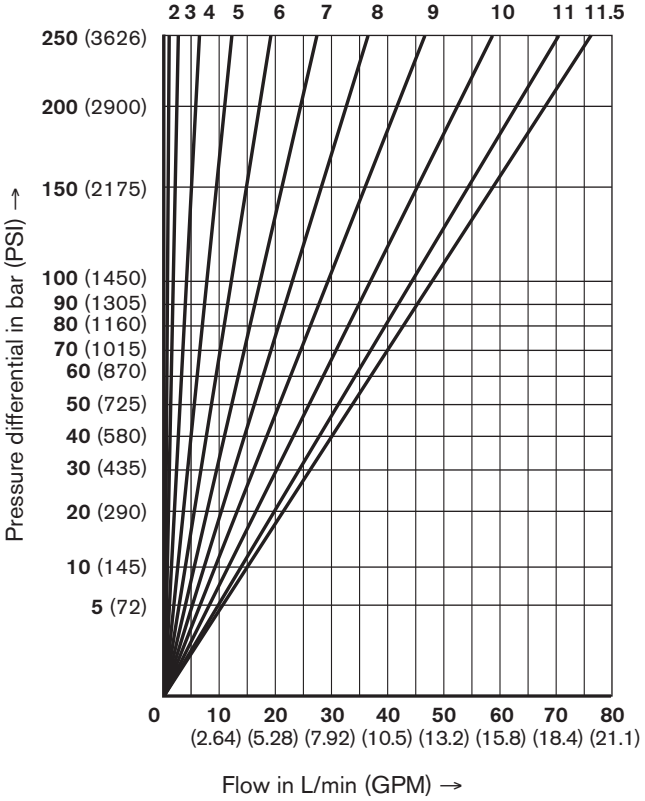
Δp–q_V–characterisic curves – Type Z2FS 6 ..–4X/**2Q**V

Throttle setting in turns

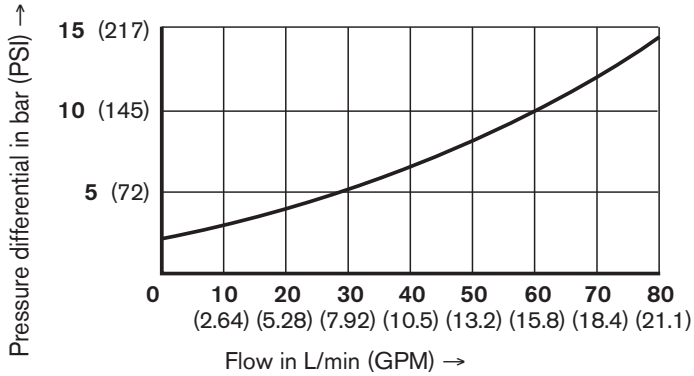


Δp–q_V–characterisic curves – Type Z2FS 6 ..–4X/**1Q**V

Throttle setting in turns

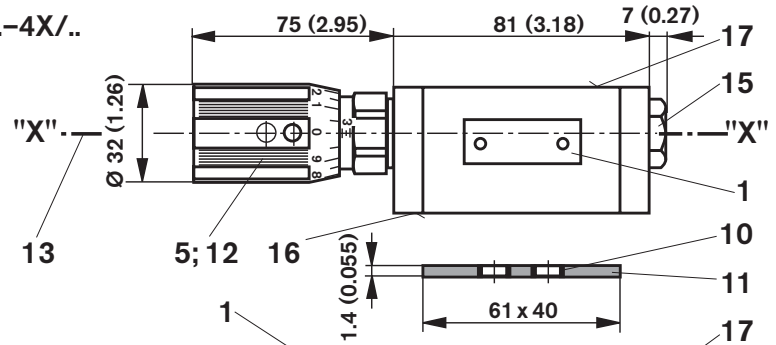


Δp–q_V–characteristic curves over the check valve (throttle closed)

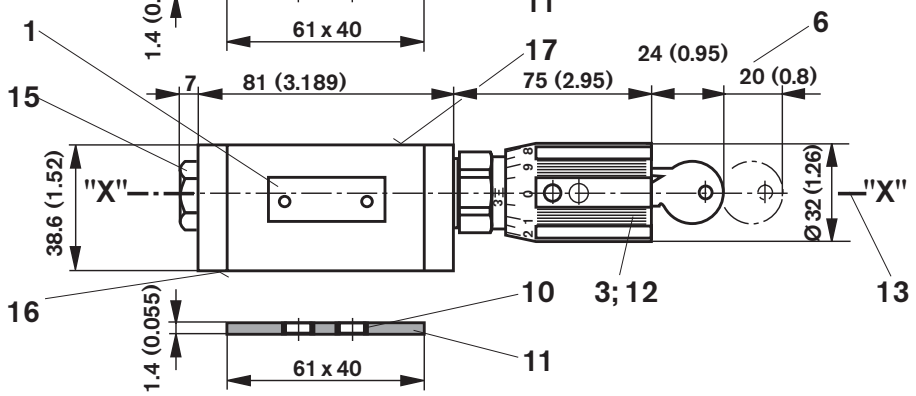


Unit dimensions – dimensions in millimeters (inches)

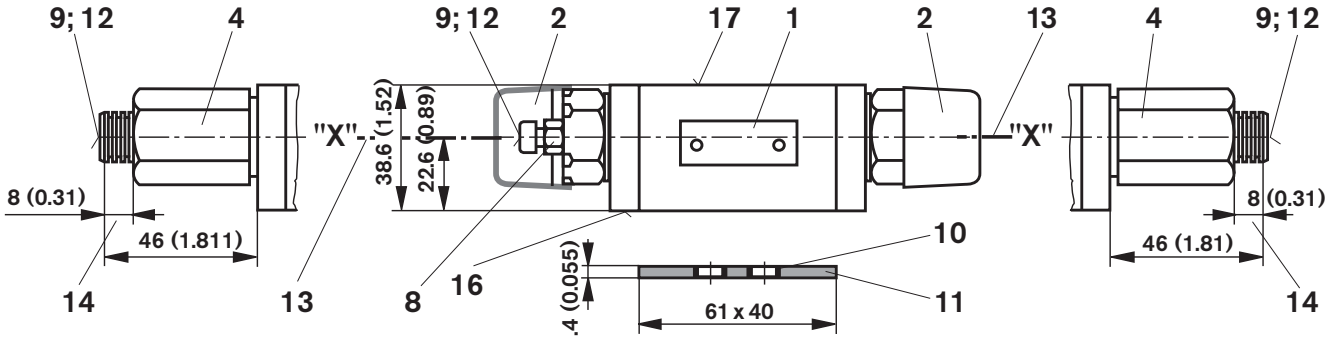
Type Z2FS 6 A..–4X/..

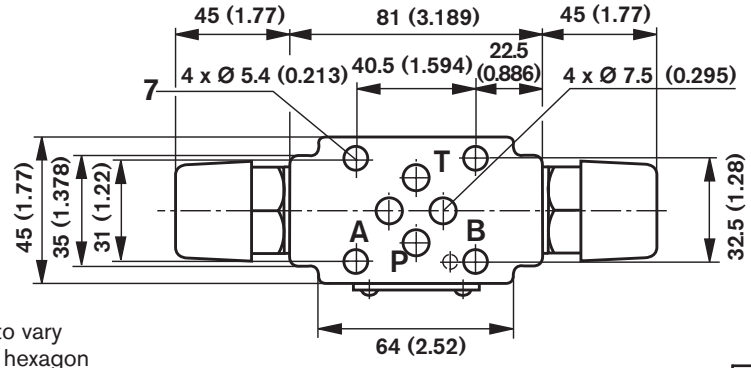


Type Z2FS 6 B..–4X/..



Type Z2FS 6 –..–4X/..





1 Name plate

2 Adjustment element “2”

3 Adjustment element “3”

4 Adjustment element “5”

5 Adjustment element “7”

6 Space required to remove the key

7 Valve fixing holes

8 Locknut 10A/F

9 Adjustment screw/spindle to vary flow cross-section (internal hexagon 5A/F)

10 Identical seal rings for ports A, B, P and T

11 Seal ring plate

12 For all adjustment elements:
Anti-clockwise = increases flow
Clockwise = decreases flow

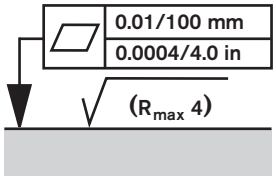
13 To change from meter-in to meter-out, rotate the unit about the “X“ – “X“ axis

14 Stroke

15 Plug 22A/F

Valve fixing screws
M5 DIN 912-10.9 (10-24 UNC), tightening torque M_A = 8.9 Nm (6.5 lb-ft), must be ordered separately

16 Porting pattern to ISO 4401 and CETOP-RP 121 H with locating pin hole Ø 3 x 5 mm (0.118 in x 0.196 in) deep for locating pin Ø 3 x 8 (0.118 in x 0.324 in) DIN EN ISO 8752, Material No. **R900005694** (separate order)



Required surface finish of the mating piece

17 Porting pattern to ISO 4401 and CETOP-RP 121 H with locating pin hole Ø 4 x 4 mm (0.157 in x 0.157 in) deep

Notes

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