RE 27 518/08.97

Replaces: 08.93

engineering
mannesmann
Rexroth

Double throttle/check valve Type Z2FS 10

Nominal size 10
Series 3X
Maximum operating pressure 315 bar
Maximum flow 160 L/min

H/A/D 5556/96•

Type Z2FS 10 –5-3X/.V

Contents

Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 form A, ISO 4401 and CETOP–RP 121 H
- For limiting the main or pilot fluid flow of 2 actuator connections
- 3 adjustment elements:
  - Lockable rotary knob with scale
  - Spindle with internal hexagon and scale
  - Rotary knob with scale
- For meter-in or meter-out control

Ordering details

Z2FS	10		–3X/	V	*

Double throttle/check valve

Nominal size 10 = **10**

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

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

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

[2] H-key with material no. 00008158 is included with the scope of supply

Preferred types and standard components are highlighted in the RPS (Rexroth Price list Standard).

Further details in clear text

V = FPM seals (other seals on request)

⚠ Attention!
The compatibility of the seals and pressure fluid has to be taken into account!

No code = (With two throttle/check valves) Meter-in /meter-out throttling, (this valve can be turned)

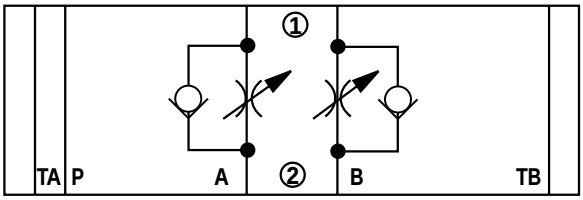
S = (...A.–3X/S) meter-in on port A
(...B.–3X/S) meter-in on port B

S2 = (...A.–3X/S2) meter-out on port A
(...B.–3X/S2) meter-out on port B

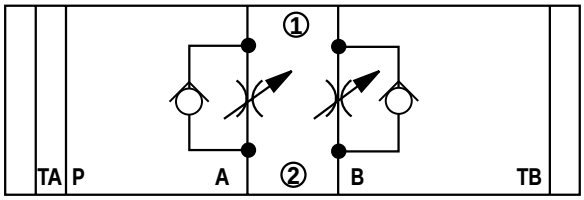
3X = Series 30 to 39
(30 to 39: unchanged installation and connection dimensions)

Symbols (① = valve side, ② = sub-plate)

Z2FS 10 ..–3X/.. (meter-in)



Z2FS 10 ..–3X/.. (meter-out)



Function, section

Valve type Z2FS 10 is a double throttle/check valve in sandwich plate design.

It is 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 oppostie direction.

For meter-in control fluid passes from port A1 to port A2 via the throttling point (1), which is made up to the valve seat (2) and the throttling spool (3.1). The throttling spool (3.1) is axially adjustable via the spindle (4), thus allowing the throttling point (1) to be adjusted.

At the same time the fluid in port A1 reaches spool side (6) via bore (5). The pressure present in addition to the spring force holds the throttle spool (3.1) in its throttling position.

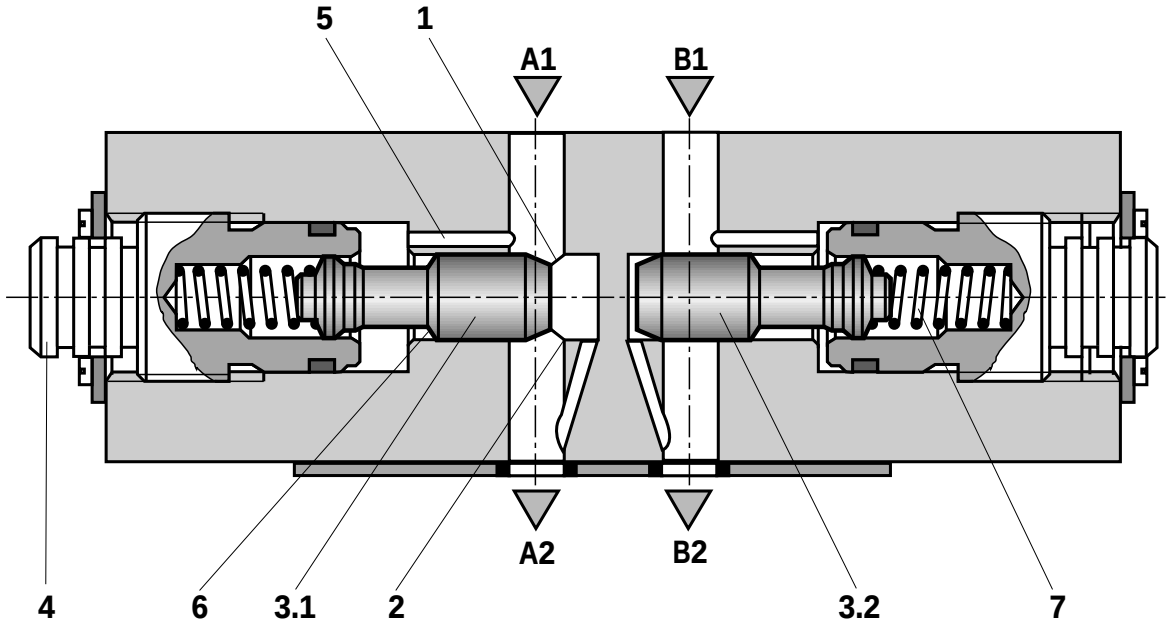
Flow flowing back from the service port B2 moves the throttle spool (3.2) against the spring (7) causing the valve to act as a check valve and allowing free-flow. Depending upon the way in which the valve is installed, the throttling effect can be arranged as a meter-in or meter-out control.

Limiting the main fluid flow

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 sub-plate.

Limiting the pilot fluid flow

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.



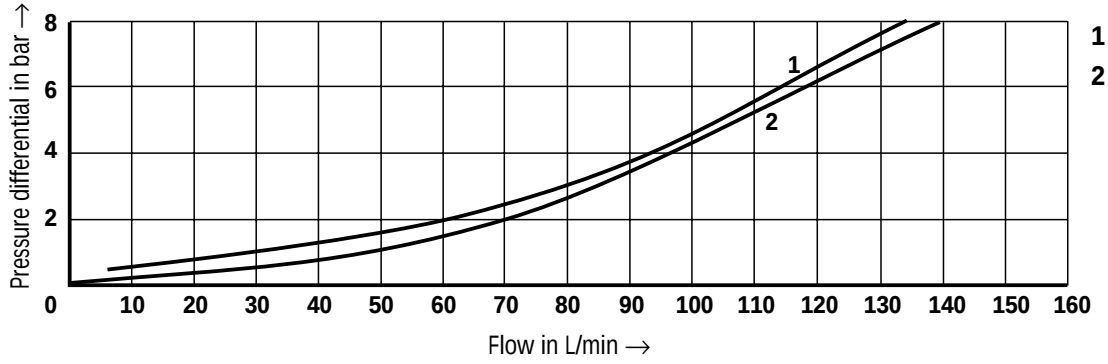
Type Z2FS 10 –5–3X/.V (meter-in)

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

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 (polyglycol); HEES (synthetic ester); other fluids on request
Pressure fluid temperature range	°C	– 20 to + 80 (for FPM seals)
Viscosity range	mm^2/s	10 to 800
Degree of contaminaion		Maximum permissible degree of contamination of the fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$.
Maximum working pressure	bar	315
Maximum flow	L/min	160
Weight	kg	approx. 3.1

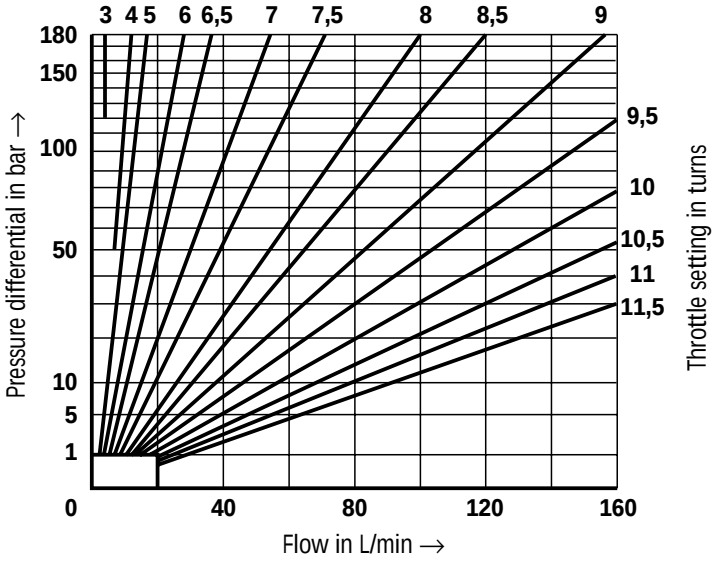
Characterisic curves (measured at $\nu = 41\ mm^2/s$ and $\vartheta = 50\ °C$)

Pressure differential Δp in relation to the flow q_V across the check valve

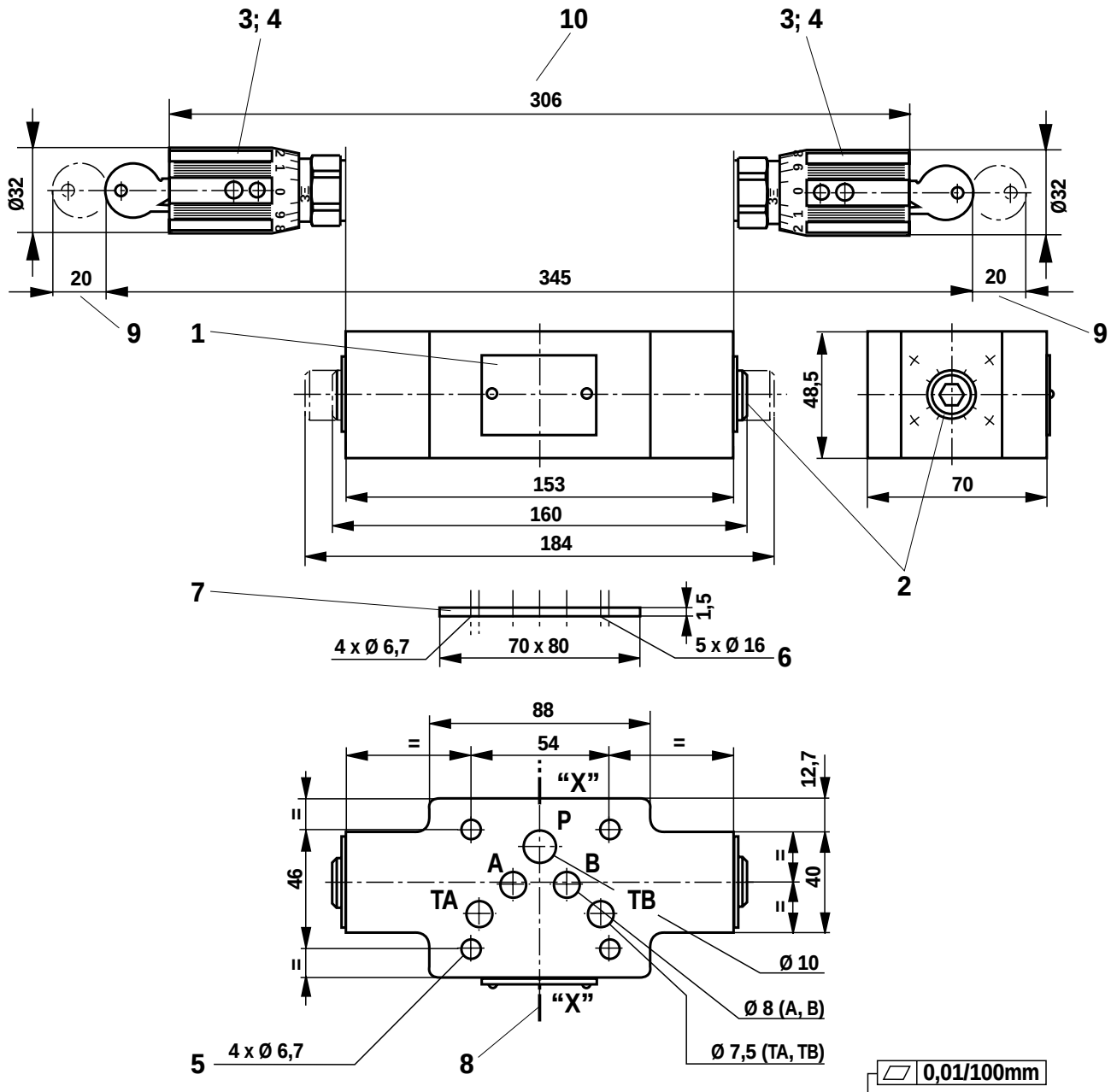


1 Throttle closed
2 Throttle open

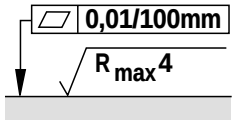
Pressure differential Δp in relation to the flow q_V at constant throttle setting



Unit dimensions: type Z2FS 10 –.–3X/… (Dimensions in mm)



⚠ Attention!
Where drillings for X and Y ports are required order version **SO30**!
(e.g. for pilot operated directional valve size 10)



Required surface finish of mating piece

1 Name plate

2 Adjustment "5"
Spindle to set flow cross-section (internal hexagon 8 A/F)
- turn anti-clockwise = increases flow
- turn clockwise = decreases flow

3 Adjustment "3"

4 Adjustment "7"

5 4 through holes for valve fixing screws

6 R-ring 13 x 1.6 x 2 for ports A, B, P, TA, TB

7 R-ring plate

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

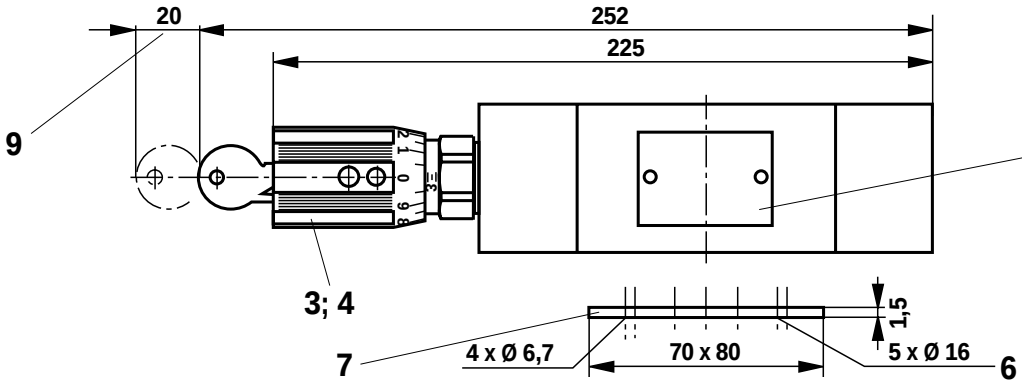
9 Space required to remove key

10 Only for adjustment "7"

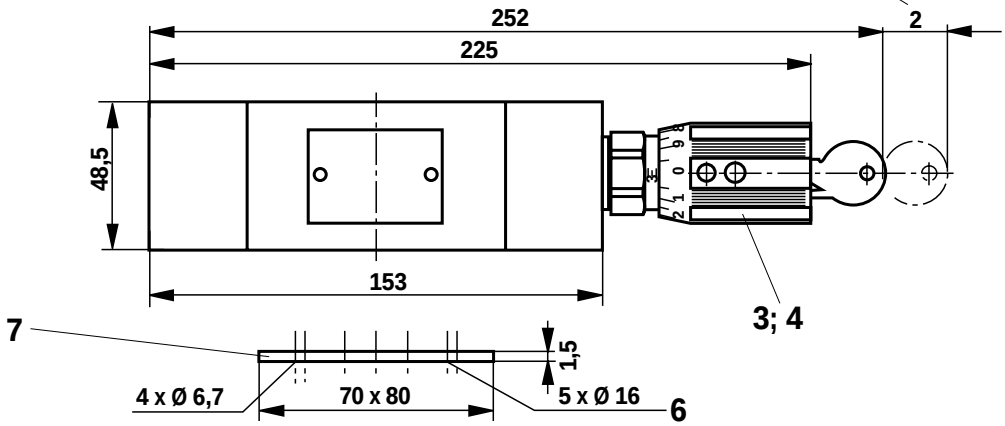
Valve fixing screws
M6 DIN 912-10.9,
tightening torque M_A = 15.5 Nm
must be ordered separately.

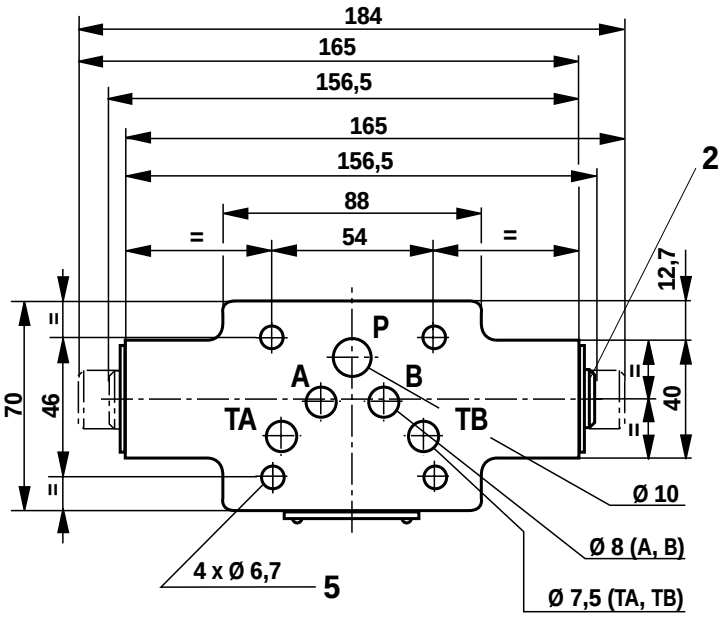
Unit dimensions: types Z2FS 10 A… and Z2FS 10 B… (Dimensions in mm)

Type Z2FS 10 A.–3X/…



Type Z2FS 10 B.–3X/…





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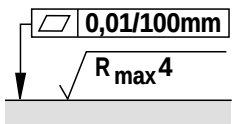

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tightening torque M_A = 15.5 Nm
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Notes

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