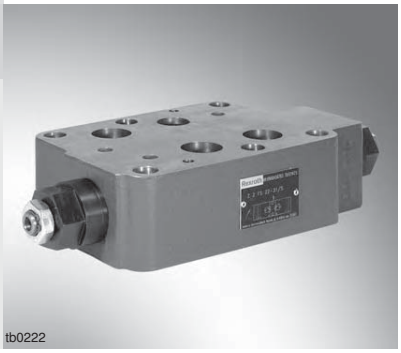
Throttle check valve

RE 27536/05.08 1/8
Replaces: 04.02

Type Z2FS

Size 25
Component series 3X
Maximum operating pressure 350 bar *[5076 psi]*
Maximum flow 360 l/min *[95 US gpm]*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Features

- Sandwich plate valve
- Porting pattern to ISO 4401-08-08-0-05 and NFPA T3.5.1 R2-D08
- For limiting the flow of 2 actuator ports
- Adjustment element: Spindle with hexagon socket
- For meter-in or meter-out throttling

Ordering code

Z2FS	22		8 –3X/		*

Throttle check valve, sandwich plate design

Size 25 = 22

Throttle check valve, sides A and B = –
Throttle check valve, side A = A
Throttle check valve, side B = B

Adjustment element
Spindle with hexagon socket = 8

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

Further details in clear text

Seal material
No code = NBR seals
V = FKM seals
(other seals on request)

⚠ Attention!
Observe compatibility of seals with the hydraulic fluid used

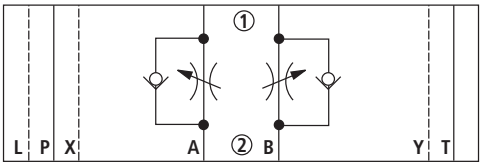
S = (…A8–3X/S) meter-in throttling on side A
(…B8–3X/S) meter-in throttling on side B
(…–8–3X/S) meter-in throttling on sides A and B

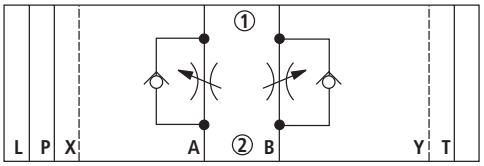
S2 = (…A8–3X/S2) meter-out throttling on side A
(…B8–3X/S2) meter-out throttling on side B
(…–8–3X/S2) meter-out throttling on sides A and B

Symbols (① = component side, ② = plate side)

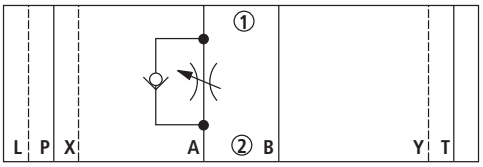
Meter-in throttling "S" | **Meter-out throttling "S2"**

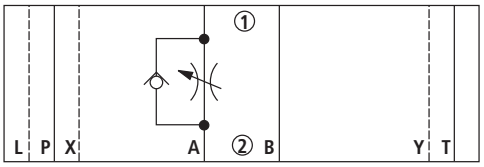
Variant "–"



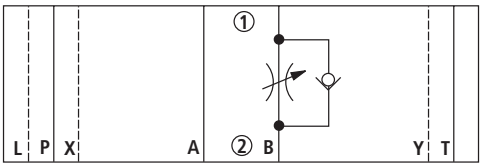


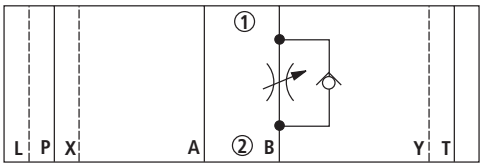
Variant "A"





Variant "B"





Function, section

Valves of type Z2FS are throttle check valves of sandwich plate design. They are used to limit the flow of one or two actuator ports.

Two throttle check valves, which are symmetrically arranged to each other, limit the flow (by means of adjustable throttle spools) in one direction and allow a free flow in the opposite direction.

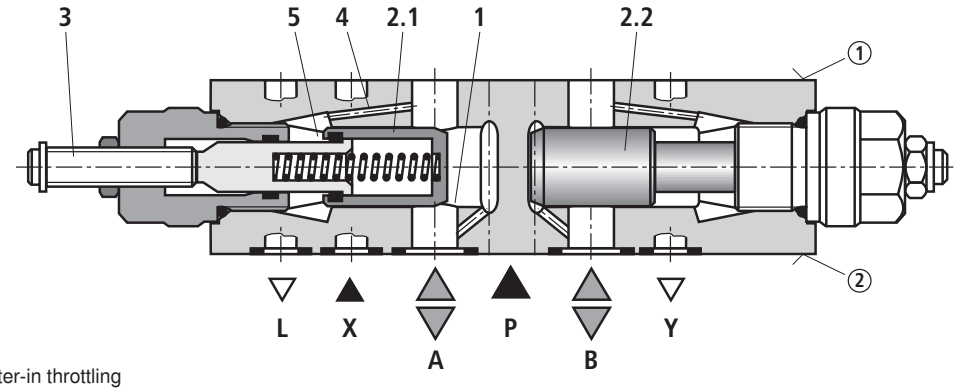
In the case of meter-in throttling the hydraulic fluid is fed through channel A1 via throttling point (1) to actuator A2. Throttle spool (2.1) can be axially adjusted by means of spindle (3), thus allowing throttling point (1) to be adjusted.

At the same time, the hydraulic fluid present in channel A1 is fed via bore (4) to spool side (5). In addition to the spring force, the applied pressure holds throttle spool (2.1) in the throttling position.

The hydraulic fluid returning from actuator B2 shifts throttle spool (2.2) and thus provides an unhindered flow as with a check valve. Depending on the variant (“S“ or “S2“) throttling can be effective on the supply or return side.

Flow limitation

To change the velocity of an actuator, the throttle check valve can be installed between the directional valve and the subplate.



Meter-in throttling

① = component side
② = plate side

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

General

Weight	kg *[lbs]*	ca. 8 *[17.6]*
Installation orientation		Optional
Ambient temperature range	°C *[°F]*	–30 to +50 *[–22 to +122]* (NBR seals) –20 to +50 *[–4 to +122]* (FKM seals)

Hydraulic

Maximum operating pressure	bar *[psi]*	350 *[5076]*
Maximum flow	l/min *[US gpm]*	360 *[95]*
Hydraulic fluid		Mineral oil (HL, HLP) to DIN 51524 [1]; fast bio-degradable hydraulic fluids to VDMT 24568 (see also RE 90221); HETG (rape seed oil) [1]; HEPG (polyglycols) [2]; HEES (synthetic esters) [2]; other hydraulic fluids on request
Hydraulic fluid temperature range	°C *[°F]*	–30 to +80 *[–22 to +176]* (NBR seals) –20 to +80 *[–4 to +176]* (FKM seals)
Viscosity range	mm^2/s *[SUS]*	2.8 to 380 *[13 to 1760]*
Permissible max. degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)		Class 20/18/15 [3]

[1] Suitable for NBR and FKM seals

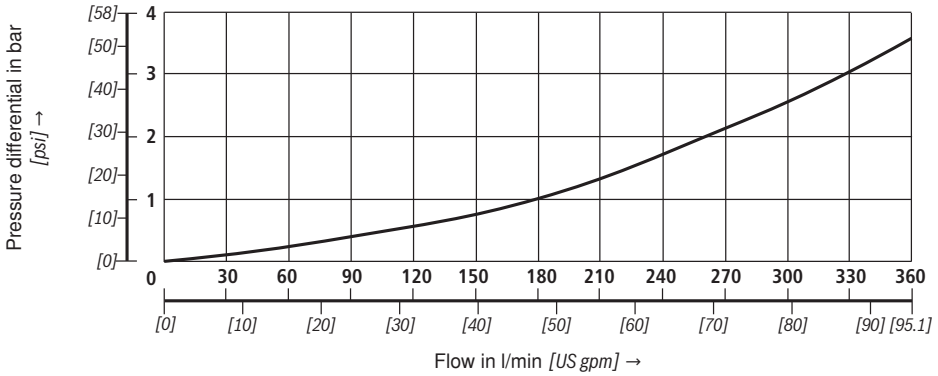
[2] Suitable for FKM seals only

[3] The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components.

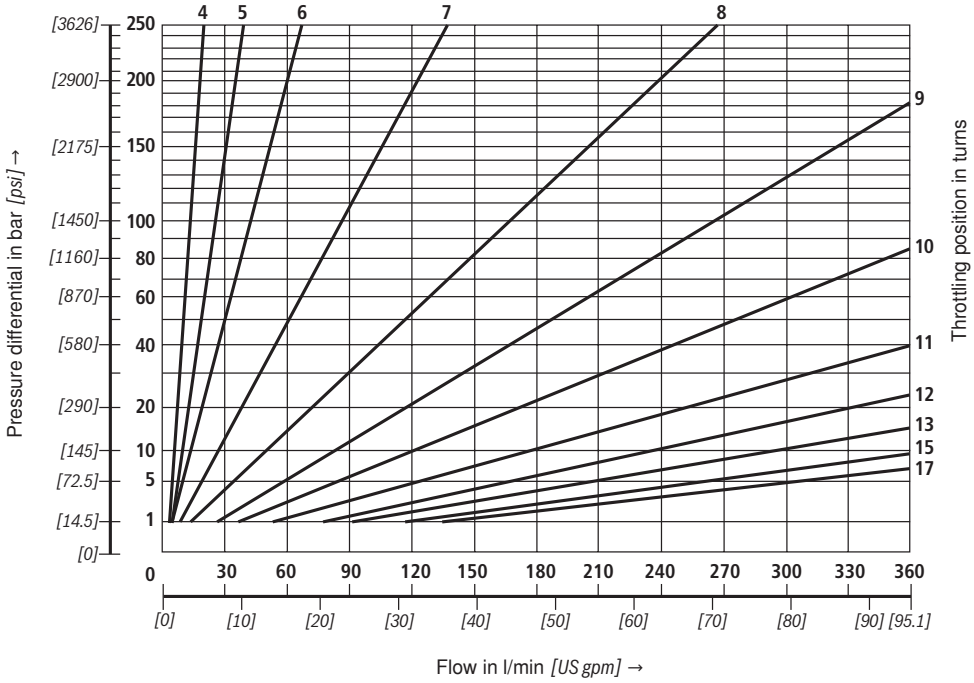
For the selection of filters, see data sheets RE 50070, RE 50076, RE 50081, RE 50086, RE 50087 and RE 50088.

Characteristic curves (measured with HLP46, $\vartheta_{oil\ (\nu\ =\ 190\ SUS)}$ = 40 °C ±5 °C *[104 °F ± 9 °F]*)

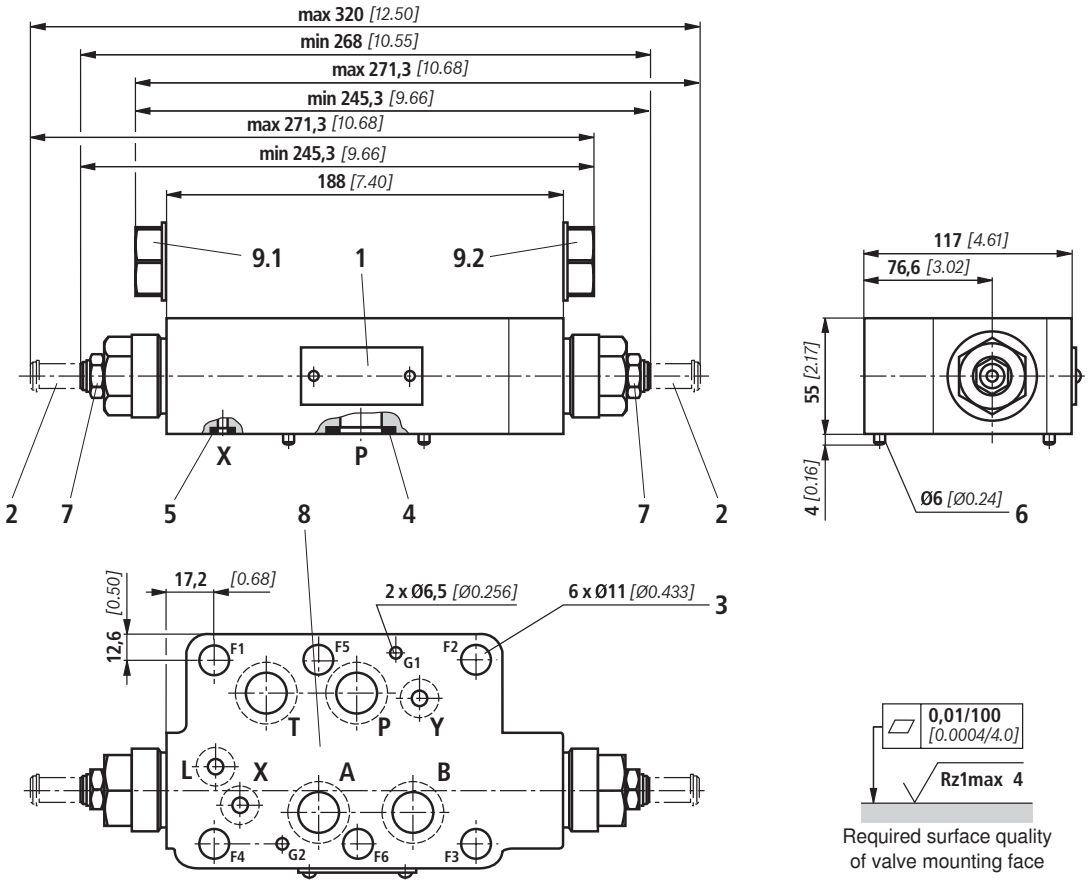
Δ*p*-q_V characteristic curves (via check valve, with closed throttle)



Δ*p*-q_V characteristic curves (constant throttling position)



Unit dimensions (dimensions in mm *[inch]*)



Required surface quality of valve mounting face

1 Nameplate

2 Adjustment element “8“
Spindle for adjusting the flow cross-section (hexagon socket 6 A/F)
- Turning counter-clockwise = greater flow
- Turning clockwise = smaller flow

3 Through-bores for valve mounting

4 Identical seal rings for ports A, B, P, T

5 Identical seal rings for ports X, Y, L

6 Locating pin (included in the scope of supply)

7 Hexagon 22 A/F, tightening torque M_T = 25 Nm *[18.4 ft-lbs]*

8 Porting pattern to ISO 4401-08-08-0-05 and NFPA T3.5.1 R2-D08

9.1 Plug screw for variant “B“

9.2 Plug screw for variant “A“

Valve mounting screws (separate order)

– Metric
6 hexagon socket head cap screws
ISO 4762 - M12 - 10.9-flZn-240h-L

– UNC
6 hexagon socket head cap screws 5/8-11 UNC

☞ **Note!**

The length and tightening torque of valve mounting screws must be calculated taking account of the components mounted above and below the sandwich plate valve.

Notes