

Throttle check valve, seawater-resistant

RE 27518-M/01.08
Replaces: 09.00

1/8

Type Z2FS...J

Size 10
Component series 3X
Maximum operating pressure 315 bar [4569 psi]
Maximum flow 160 l/min [42.3 US gpm]



tb0208

Table of contents

Content
Features
Ordering code
Symbols
Function, section
Technical data
Characteristic curves
Unit dimensions

Features

Page	Features
1	– Sandwich plate valve
2	– Porting pattern to ISO 4401-05-04-0-05 and NFPA T3.5.1 R2
2	– Outer parts made of metal; housing and plug screws galvanized
3	– Adjustment element:
4	Spindle with hexagon socket
5	– Adjustment element corrosion-protected by a cap
6	– For limiting the main or pilot flow of 2 actuator ports
	– For meter-in or meter-out throttling

Information on available spare parts:
www.boschrexroth.com/spc

Ordering code

Z2FS	10	-	5	-3X/	J	V	*
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Throttle check valve, sandwich plate design

Size 10 = 10

Throttle check valve, side A and B = -¹⁾

Adjustment element

Spindle with hexagon socket = 5

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

Further details in clear text

Seal material

FKM seals

(other seals on request)

⚠ Attention!

Observe compatibility of seals with hydraulic fluid used!

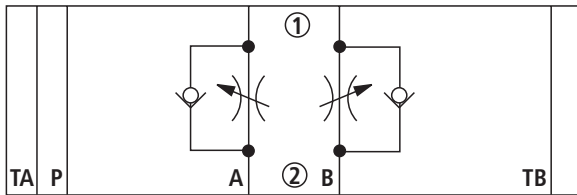
J = Seawater-resistant

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

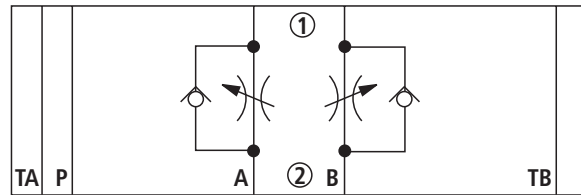
¹⁾ Identical adjustment elements on sides A and B.

Symbols (① = valve side, ② = subplate side)

Meter-in throttling



Meter-out throttling



Function, section

Valves of type Z2FS 10...J are throttle check valves of sandwich plate design in a seawater-resistant variant. They are used to limit the main or pilot oil flow of one or two actuator ports.

Two throttle check valves, which are arranged symmetrically to each other, limit flows in one direction and allow a free return flow in the opposite direction.

With meter-in throttling, hydraulic fluid flows through channel A1 via throttling point (1), which is formed by control land (2) and throttling spool (3.1), to actuator A2. Throttling spool (3.1) can be axially adjusted by means of spindle (4), thus allowing throttling point (1) to be adjusted.

At the same time, hydraulic fluid present in channel A1 flows through bore (5) to the opposite spool side (6). Together with the spring force, the pressure applied holds throttling spool (3.1) in the throttling position.

The hydraulic fluid returning from actuator B2 shifts throttling spool (3.2) against spring (7), thus allowing an unrestricted flow like with a check valve. Depending on the installation position, throttling can be effective in the supply or return line.

Main flow limitation

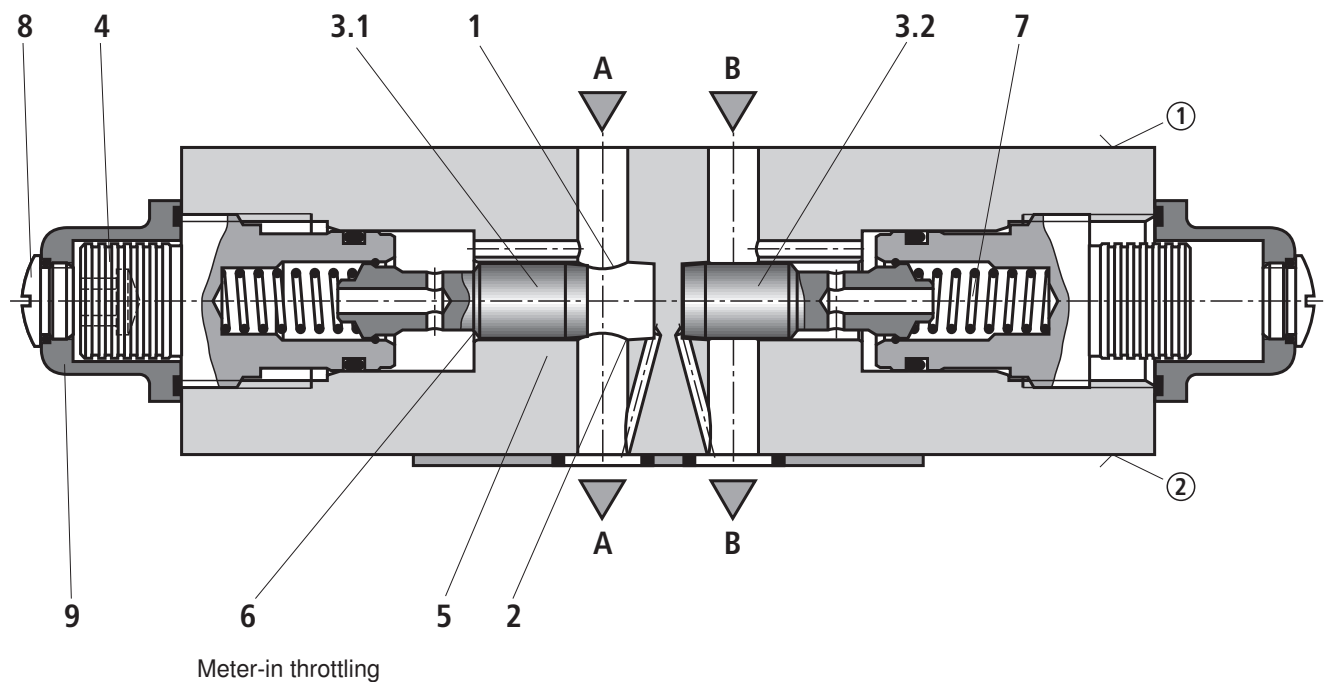
To change the velocity of an actuator (main flow limitation), the throttle check valve must be installed between the directional valve and the subplate.

Pilot oil flow limitation

In conjunction with pilot operated directional valves, the throttle check valve can be used for adjusting the actuating time (pilot oil flow limitation). In this case, it is installed between the pilot and the main valve.

⚠ Attention!

For adjusting spindle (4) only the plug screw (8) may be loosened. Cover (9) must not be removed! The maximum torque of 40 Nm of spindle (4) must not be exceeded!



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

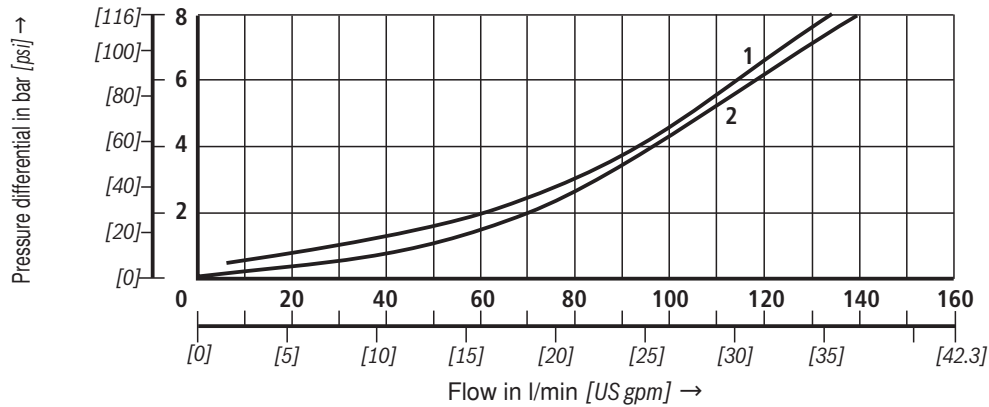
General		
Weight	kg [lbs]	ca. 3.1 [6.8]
Installation position		Optional
Ambient temperature range	°C [°F]	-20 to +80 [-4 to +176]
Hydraulic		
Maximum operating pressure	bar [psi]	315 [4569]
Maximum flow	l/min [US gpm]	160 [42.2]
Hydraulic fluid		Mineral oil (HL, HLP) to DIN 51524; fast bio-degradable hydraulic fluids to VDMA 24568 (see also RE 90221); HETG (rape seed oil); HEPG (polyglycols); HEES (synthetic esters); other hydraulic fluids on request
Hydraulic fluid temperature range	°C [°F]	-20 to +80 [-4 to +176]
Viscosity range	mm ² /s [SUS]	10 to 800 [60 to 3710]
Permissible max. degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)		Class 20/18/15 ¹⁾

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.

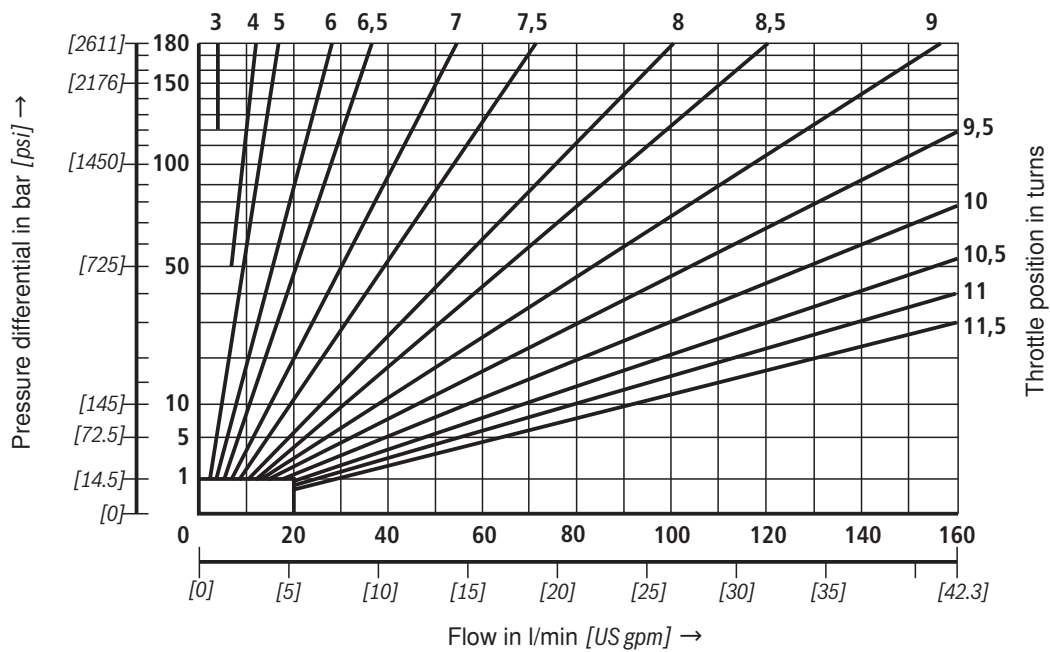
Characteristic curves (measured with HLP46, $\vartheta_{oil} (v = 190 \text{ SUS}) = 40 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C} [104 \text{ }^\circ\text{F} \pm 9 \text{ }^\circ\text{F}]$)

Δp - q_v characteristic curves (via check valve)

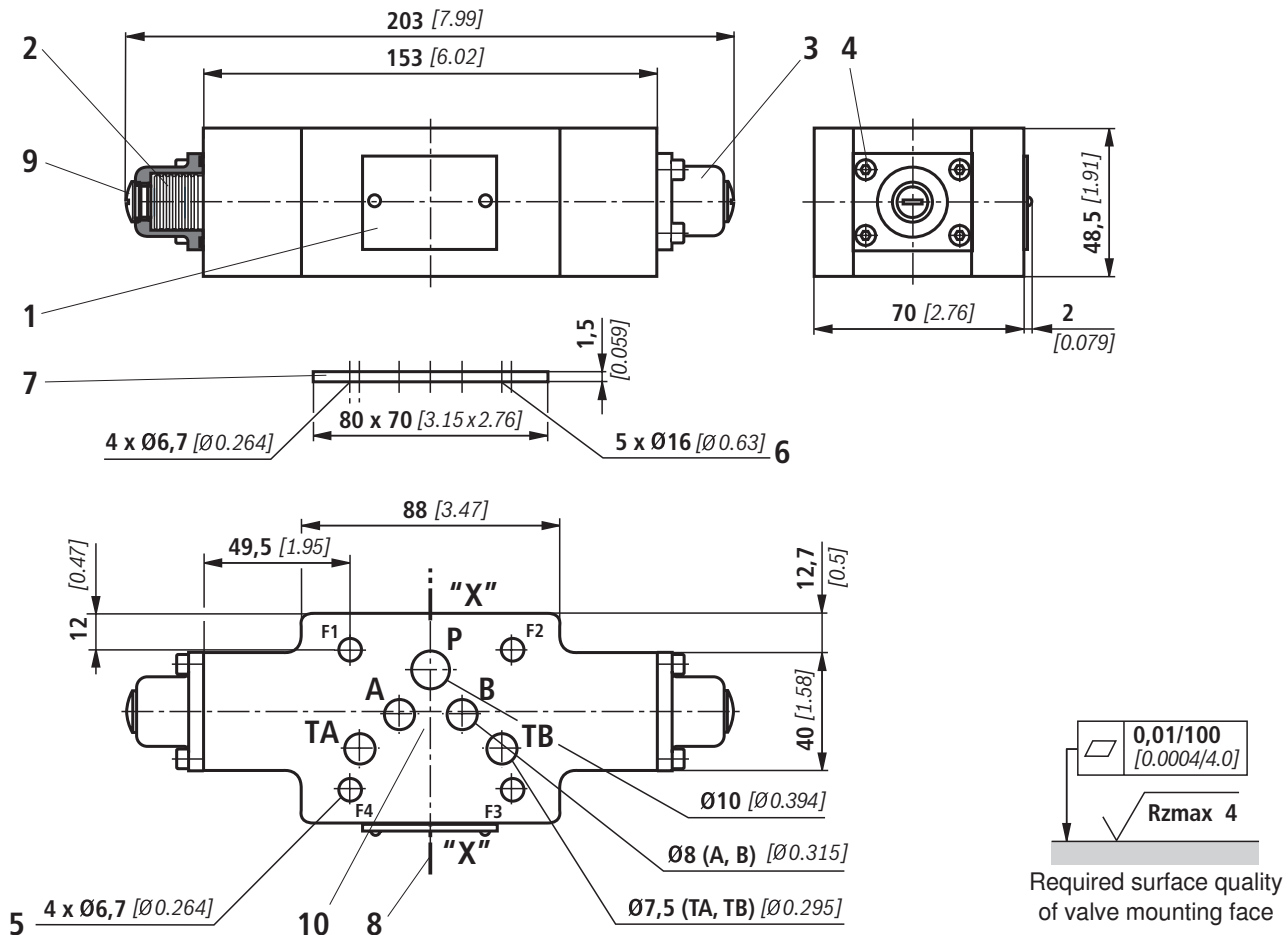


- 1 Throttle closed
- 2 Throttle open

Δp - q_v characteristic curves (throttle position constant)



Unit dimensions (dimensions in mm [inch])



- 1 Nameplate
- 2 Adjustment element "5"
Spindle for adjusting the flow cross-section (hexagon socket 8A/F; maximum torque 40 Nm)
 - Loosen plug screw (9)
 - Turning counter-clockwise = larger flow
 - Turning clockwise = smaller flow

⚠ Attention!
For adjusting the spindle, only plug screw (9) may be loosened. Cover (3) must not be removed!
- 3 Cover
- 4 4 hexagon socket head cap screws
- 5 4 through-bores for valve mounting
- 6 Identical seal rings for ports A, B, P, TA, TB
- 7 R-ring plate
- 8 The conversion from meter-in into meter-out throttling can be accomplished by turning the valve around the axis "X"-"X"
- 9 Plug screw
- 10 Porting pattern to ISO 4401-05-04-0-05 and NFPA T3.5.1 R2

Valve mounting screws (separate order)

4 hexagon socket head cap screws
ISO 4762 - M6 - 10.9-fIZn-240h-L

4 hexagon socket head cap screws UNC on request

👉 Note!

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

⚠ Attention!

If bores are required for X- and Y-port (e.g. for pilot operated directional valve size 10) variant **SO30** must be selected!

Notes

Notes

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