Rexroth
Bosch Group

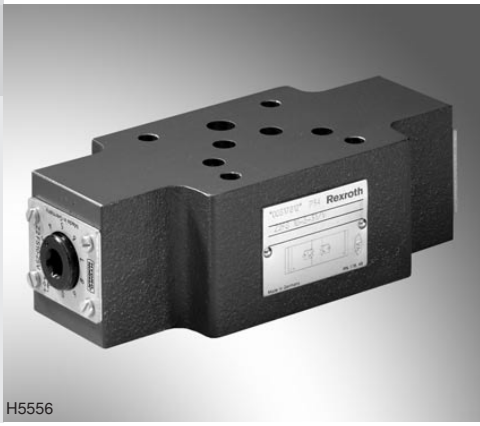
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Throttle check valve

RE 27518/10.07 1/8
Replaces: 02.03

Type Z2FS

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



H5556

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Features

- Sandwich plate valve
- Porting pattern to ISO 4401-05-04-0-05, NFPA T3.5.1 R2 and ANSI B93-7 D05
- For limiting the main or pilot oil flow of 2 actuator ports
- 3 adjustment elements:
  - Lockable rotary knob with scale
  - Spindle with hexagon socket and scale
  - Rotary knob with scale
- For meter-in and meter-out throttling

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

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Ordering code

Z2FS	10		–3X/	V	*

Throttle check valve, sandwich plate design

Size 10 = **10**

Throttle check valve, sides A and B = **–** [1]
Throttle check valve, side A = **A**
Throttle check valve, side B = **B**

Adjustment element
Lockable rotary knob with scale = **3** [2]
Spindle with hexagon socket and scale = **5**
Rotary knob with scale = **7**

[1] Identical adjustment elements on sides A and B.

[2] H-key, Material no. **R900008158,** included in the scope of supply.

Standard types and components can be found in the EPS (standard price list).

Further details in clear text

Seal material
V = FKM seals (other seals on request)
⚠ Attention! Observe compatibility of seals with hydraulic fluid used!

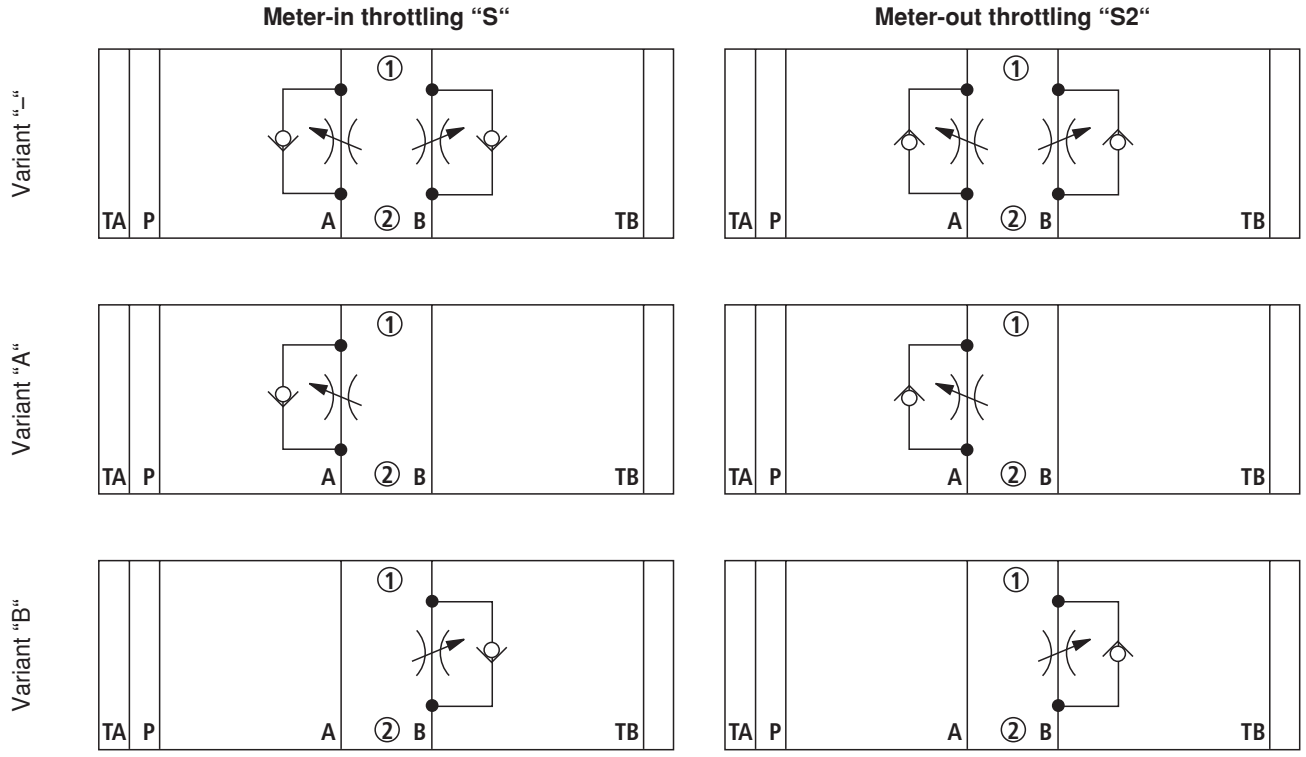
No code = With two throttle check valves, meter-in or meter-out throttling (valve can be rotated)

S = (…A.–3X/S) meter-in throttling on side A
(…B.–3X/S) meter-in throttling on side B

S2 = (…A.–3X/S2) meter-out throttling on side A
(…B.–3X/S2) meter-out throttling on side B

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

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



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Function, section

Valves of type Z2FS 10 are throttle check valves of sandwich plate design. 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.

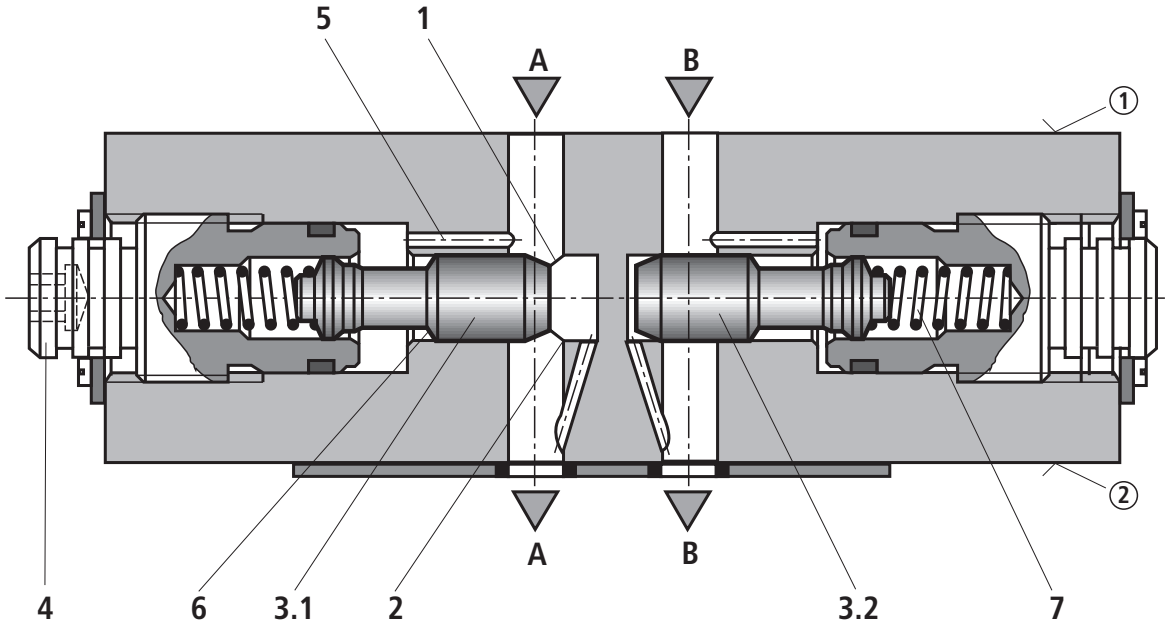
The hydraulic fluid returning from actuator B2 shifts throttling spool (3.2) against spring (7), thus allowing an unrestricted flow like with a check valve. Depending on the installation position, throttling can be effective in the supply or return line.

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.



Meter-in throttling

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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)]

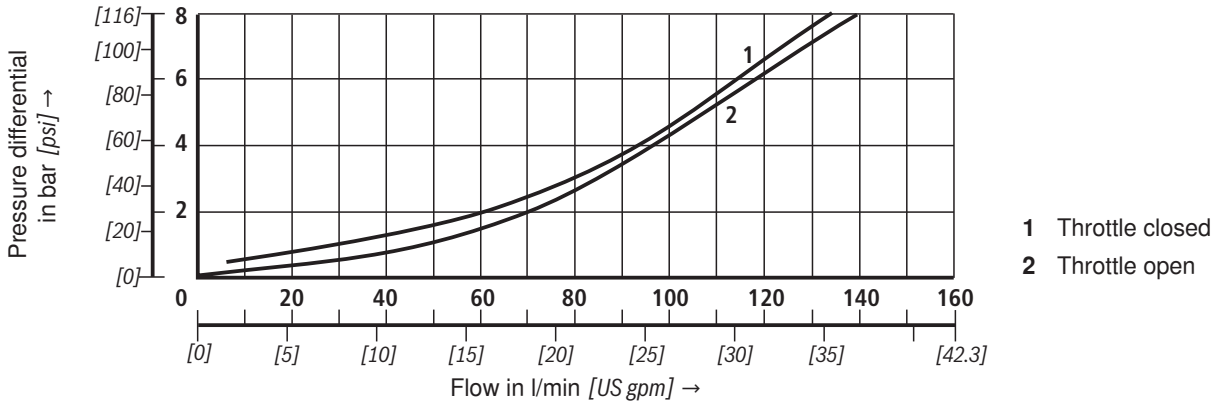
[1)] The cleanliness classes specified for components must be adhered to in hydraulic systems. Effective filtration prevents malfunction and, at the same time, prolongs the service life of components.

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

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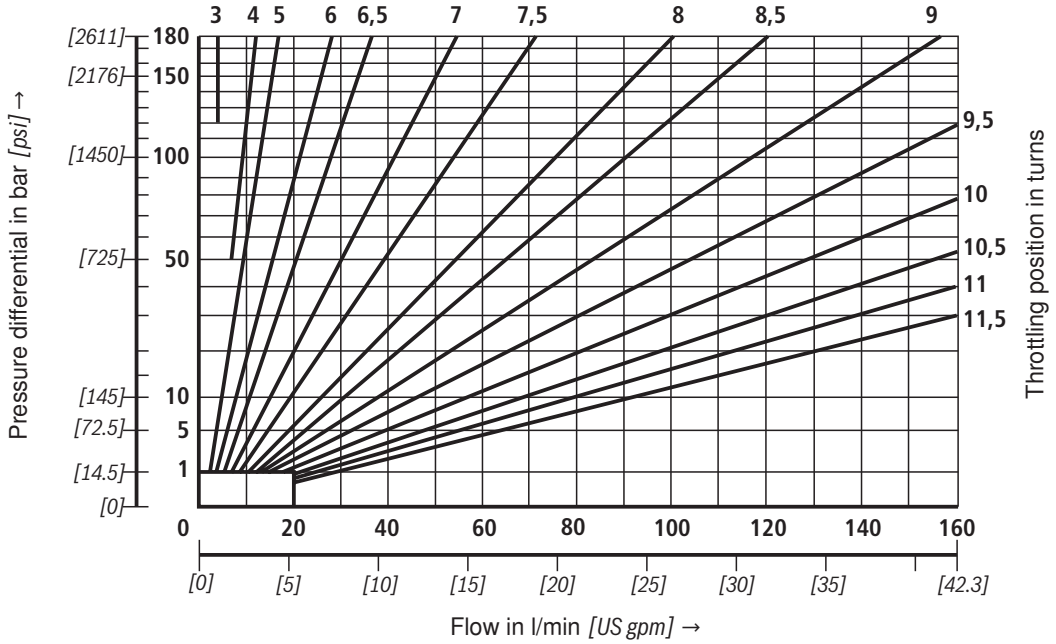
Characteristic curves (measured with HLP46, $\vartheta_{oil\ (\nu\ =\ 190\ SUS)}$ = 40 °C ± 5 °C *[104 °F ± 9 °F]*)

Δp-q_V characteristic curves (via check valve)



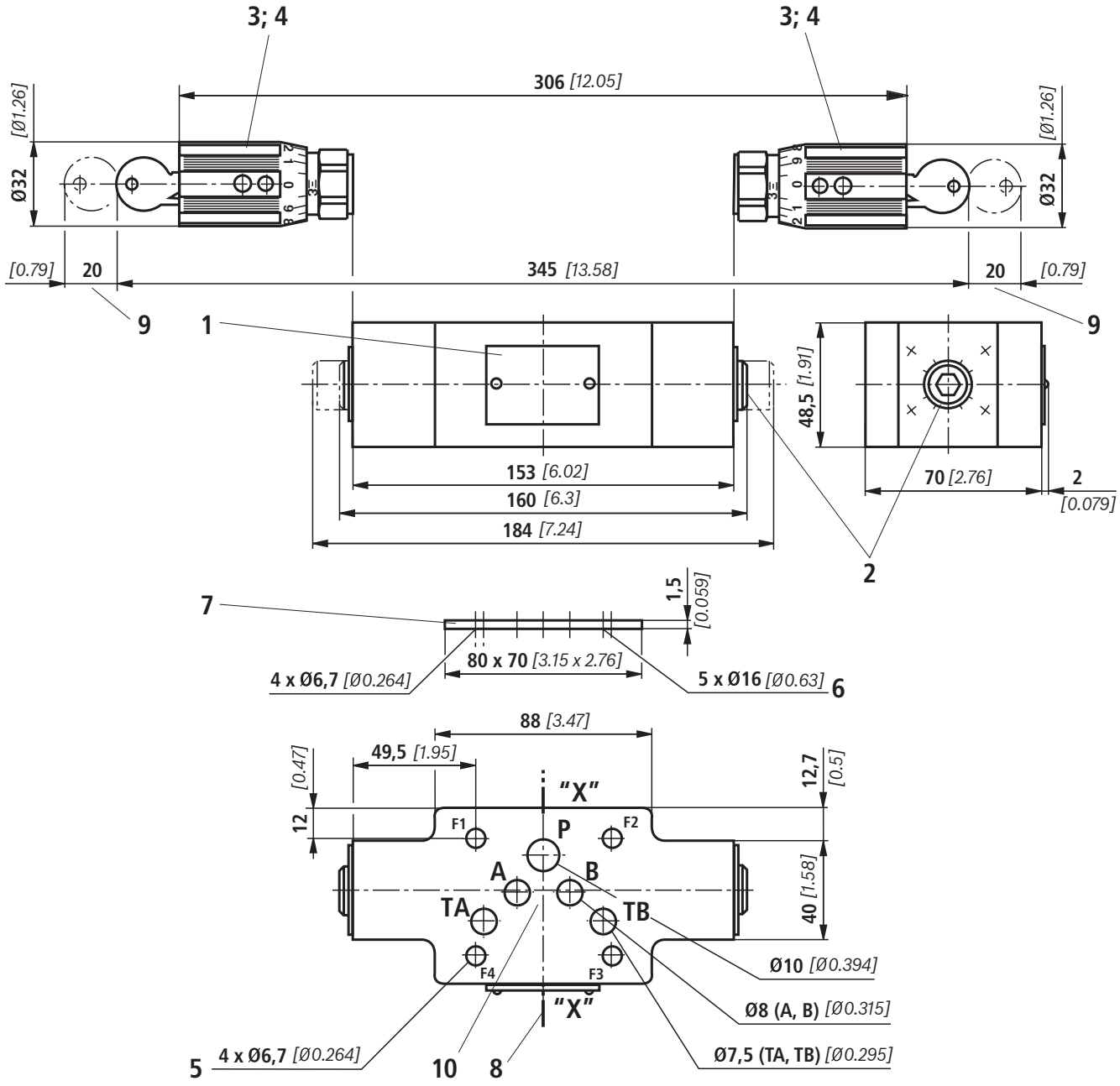
1 Throttle closed
2 Throttle open

Δp-q_V characteristic curves (constant throttling position)



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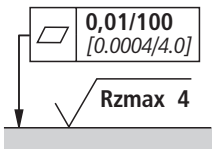
Unit dimensions: Variant "–" (dimensions in mm)



⚠ Attention!

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

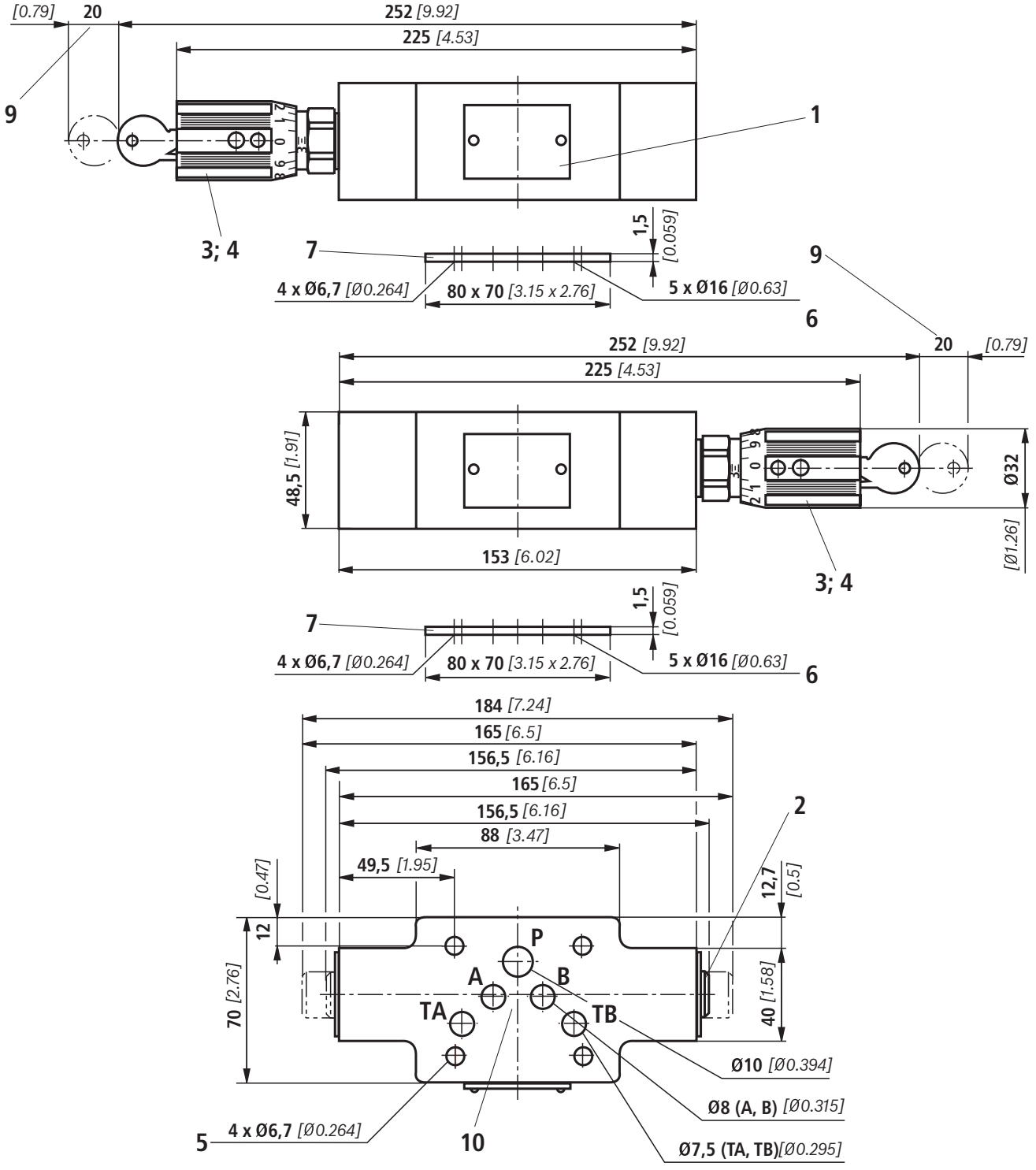
For explanations of items and **valve mounting screws,** see page 8.



Required surface quality of the valve mounting face

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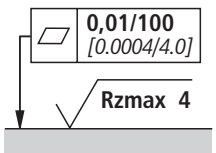
Unit dimensions: Variants “A“ and “B“ (dimensions in mm)



⚠ Attention!

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

For explanations of items and **valve mounting screws,** see page 8.



Required surface quality of the valve mounting face

Unit dimensions

1 Nameplate

2 Adjustment element “5“
Spindle for adjusting the flow cross-section (hexagon socket 8 A/F)
- Turning counter-clockwise = larger flow
- Turning clockwise = smaller flow

3 Adjustment element “3“

4 Adjustment element “7“

5 4 through-bores for valve mounting

6 Identical seal rings for ports A, B, P, TA, TB

7 R-ring plate

8 To change over from meter-in to meter-out throttling, turn the device about the axis “X“–“X“ (only with variant “–“)

9 Space required to remove key

10 Porting pattern to ISO 4401-05-04-0-05, NFPA T3.5.1 R2 and ANSI B93-7 D05

Valve mounting screws (separate order)

4 hexagon socket head cap screws ISO 4762 - M6 - 10.9

4 hexagon socket head cap screws 1/4-20 UNC

☞ **Note!**

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

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