

RE 25 761/02.03

Replaces: 12.95

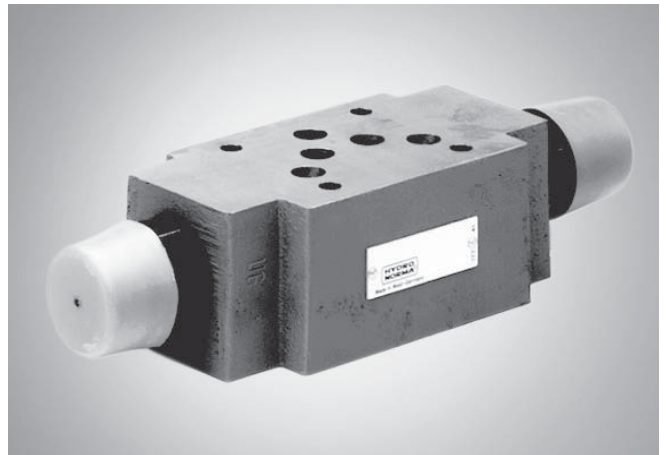
**Pressure relief valve,
pilot operated,
Types ZDB and Z2DB**

Nominal size 10

Series 4X

Maximum operating pressure 315 bar

Maximum flow 100 L/min



K 4257/15

Type Z2DB 10 VD 2-4X...V

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Features

- Sandwich plate valve
- Porting pattern to DIN 24 340 Form A, ISO 4401 and CETOP-RP 121 H
- 4 pressure stages
- 6 circuit options
- With 1 or 2 pressure relief cartridges
- 4 adjustment elements:
 - Rotary knob
 - Sleeve with hexagon and protective cap
 - Lockable rotary knob with scale
 - Rotary knob with scale



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Ordering details

Z	DB	10	-4X	V	*
Sandwich plate = Z					Further details in clear text
With 2 pressure valve cartridges (only for versions VC and VD) = 2				V =	FKM seals (other seals on request)
Pressure relief valve = DB					⚠ Attention! The compatibility of the seals and pressure fluid has to be taken into account!
Nominal size 10 = 10					
Relief function from – to:					
A – TA = VA				50 =	Settable pressure up to 50 bar
P – TA = VP				100 =	Settable pressure up to 100 bar
TB1 – TA2 = VT				200 =	Settable pressure up to 200 bar
B – TB = VB				315 =	Settable pressure up to 315 bar
A – TA and B – TB = VC				4X =	Series 40 to 49 (40 to 49: unchanged installation and connection dimensions)
A – B and B – A = VD					Adjustment element
				1 =	Rotary knob
				2 =	Sleeve with hexagon and protective cap
				3 =	Lockable rotary knob with scale ¹⁾
				7 =	Rotary knob with scale

¹⁾ H-key to Material No. **R900008158** is included within the scope of supply

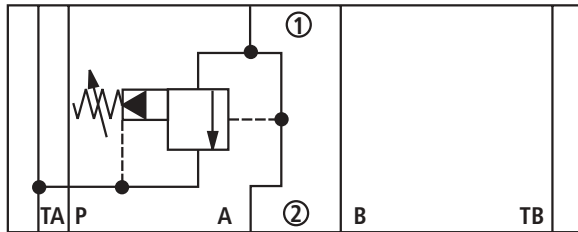
Preferred types (readily available)

Material No.	Type
R900423244	ZDB 10 VA2-4X/50V
R900424537	ZDB 10 VA2-4X/100V
R900409955	ZDB 10 VA2-4X/315V
R900425723	ZDB 10 VB2-4X/50V
R900409951	ZDB 10 VB2-4X/100V
R900409956	ZDB 10 VB2-4X/315V
R900422752	ZDB 10 VP2-4X/50V
R900409959	ZDB 10 VP2-4X/100V
R900409958	ZDB 10 VP2-4X/315V
R900441974	Z2DB 10 VC2-4X/50V
R900425700	Z2DB 10 VC2-4X/100V
R900411430	Z2DB 10 VC2-4X/315V

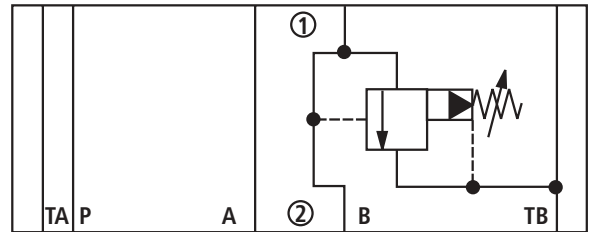
Further preferred types and standard components can be found in the EPS (Standard Price List).

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

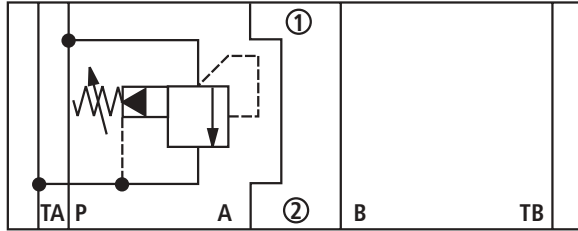
Type ZDB 10 VA..



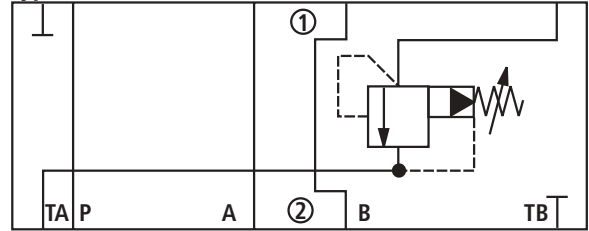
Type ZDB 10 VB..



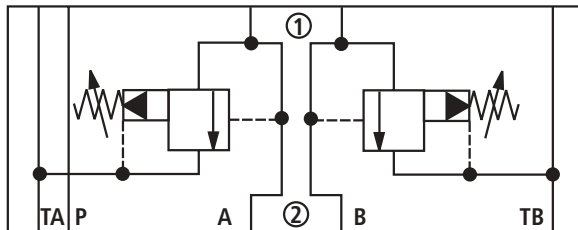
Type ZDB 10 VP..



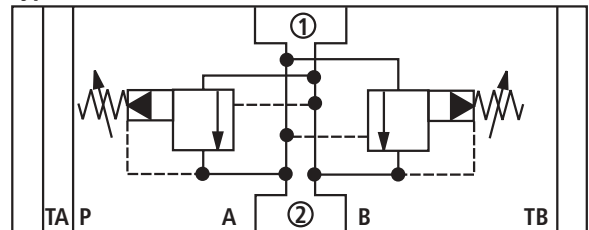
Type Z2DB 10 VT..



Type Z2DB 10 VC..



Type Z2DB 10 VD..



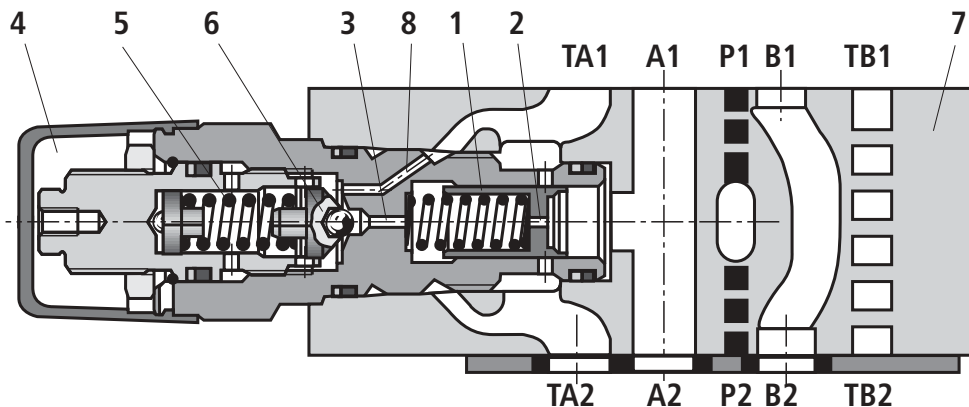
Function, section

Pressure valves types ZDB and Z2DB are pilot operated pressure relief valves of sandwich plate design. They are used to limit the pressure within a hydraulic system. They basically consist of the housing (7) together with one or two pressure relief valve cartridges. The system pressure is set by means of the adjustment element (4).

At rest, the valve is closed. Pressure in port A acts on the spool (1). At the same time pressure is applied via orifice (2), on to the spring loaded side of the spool (1) and via orifice (3) on to the pilot poppet (6). If the pressure in port A rises above the value set on spring (5),

then the pilot poppet (6) opens. Fluid can now flow from the spring loaded side of spool (1), orifice (3) and channel (8) into port T. The resulting pressure drop moves the spool (1) causing this to open the connection from A to T, while the pressure set at spring (5) is maintained.

Pilot oil return from the two spring chambers is taken externally via port T.



Type ZDB 10 VA2-4X/...V

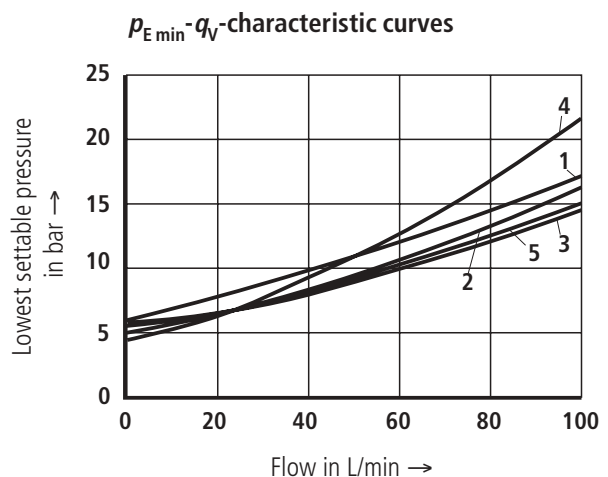
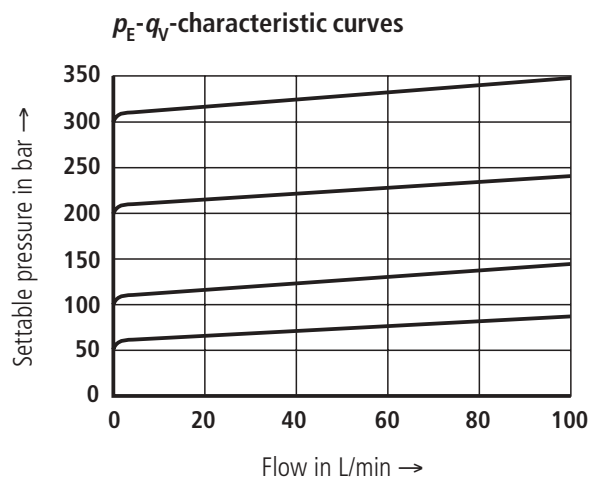
Technical data (for applications outside these parameters, please consult us!)

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 (polyglycols); HEES (synthetic ester); Other pressure fluids on request		
Pressure fluid temperature range	°C	-20 to +80	
Viscosity range	mm ² /s	10 to 800	
ISO code cleanliness class	Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15 ¹⁾		
Maximum operating pressure	bar	315	
Maximum settable pressure	bar	50; 100; 200; 315	
Maximum flow	L/min	100	
Weight	Type ZDB 10	kg	Approx. 2.4
	Type Z2DB 10	kg	Approx. 2.6

¹⁾ The cleanliness class stated for the components must be adhered too 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.

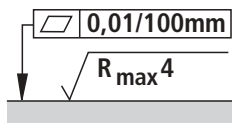
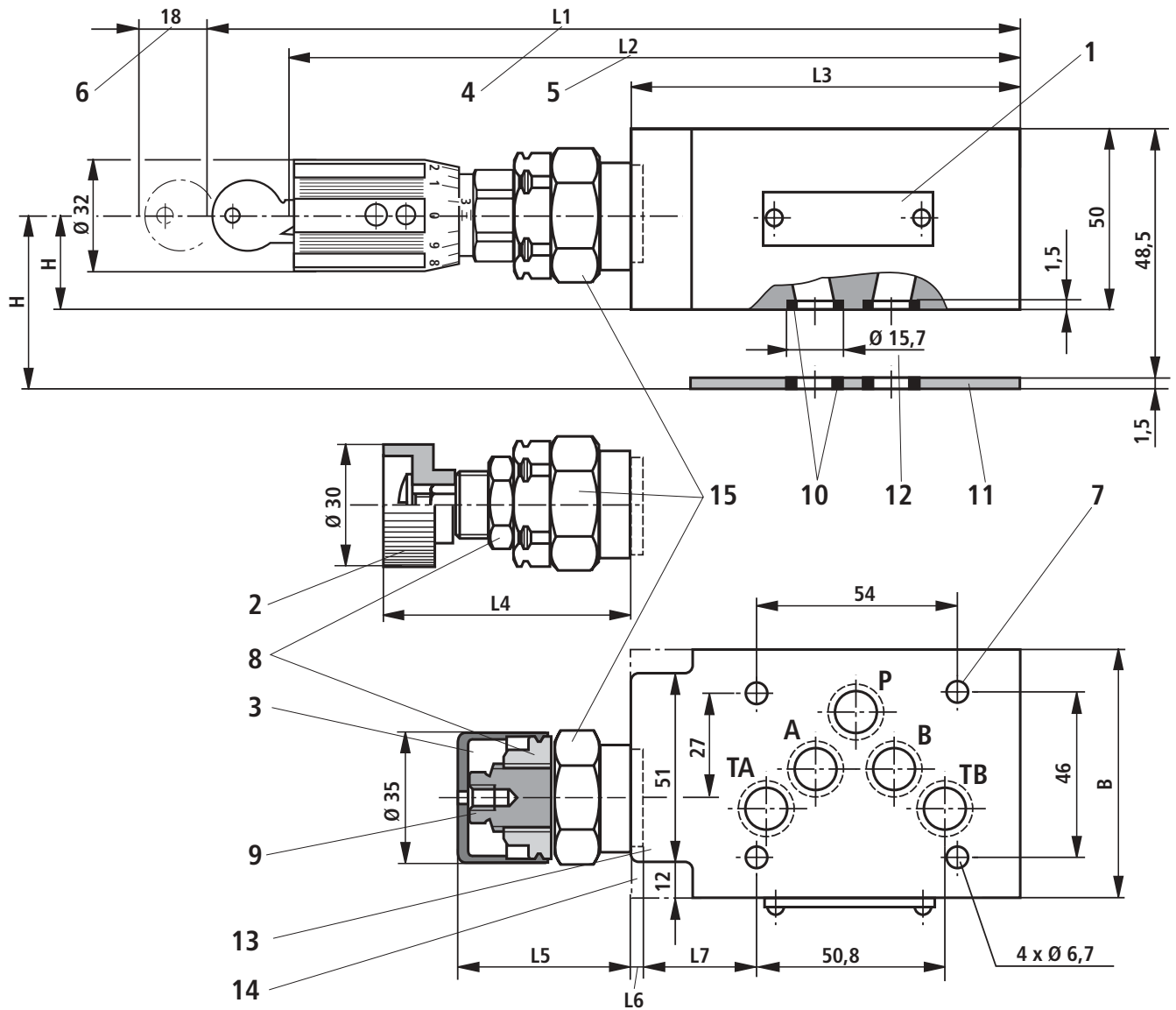
Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40 \text{ °C} \pm 5 \text{ °C}$)



The characteristic curves are valid for the outlet pressure = zero over the entire flow range!

- 1 VD (A to B)
- 2 VA
- 3 VB, VC
- 4 VP, VD (B to A)

Unit dimensions: types ZDB 10 VA, VP and VT (dimensions in mm)



Required surface finish of the mating piece

	VA and VP	VT
B	69	70
H	26	25
L1	227	218
L2	203	194
L3	117	105
L4	57.6	60.9
L5	50.3	53.6
L6	4	0.7
L7	41.5	31.8

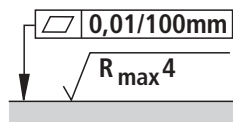
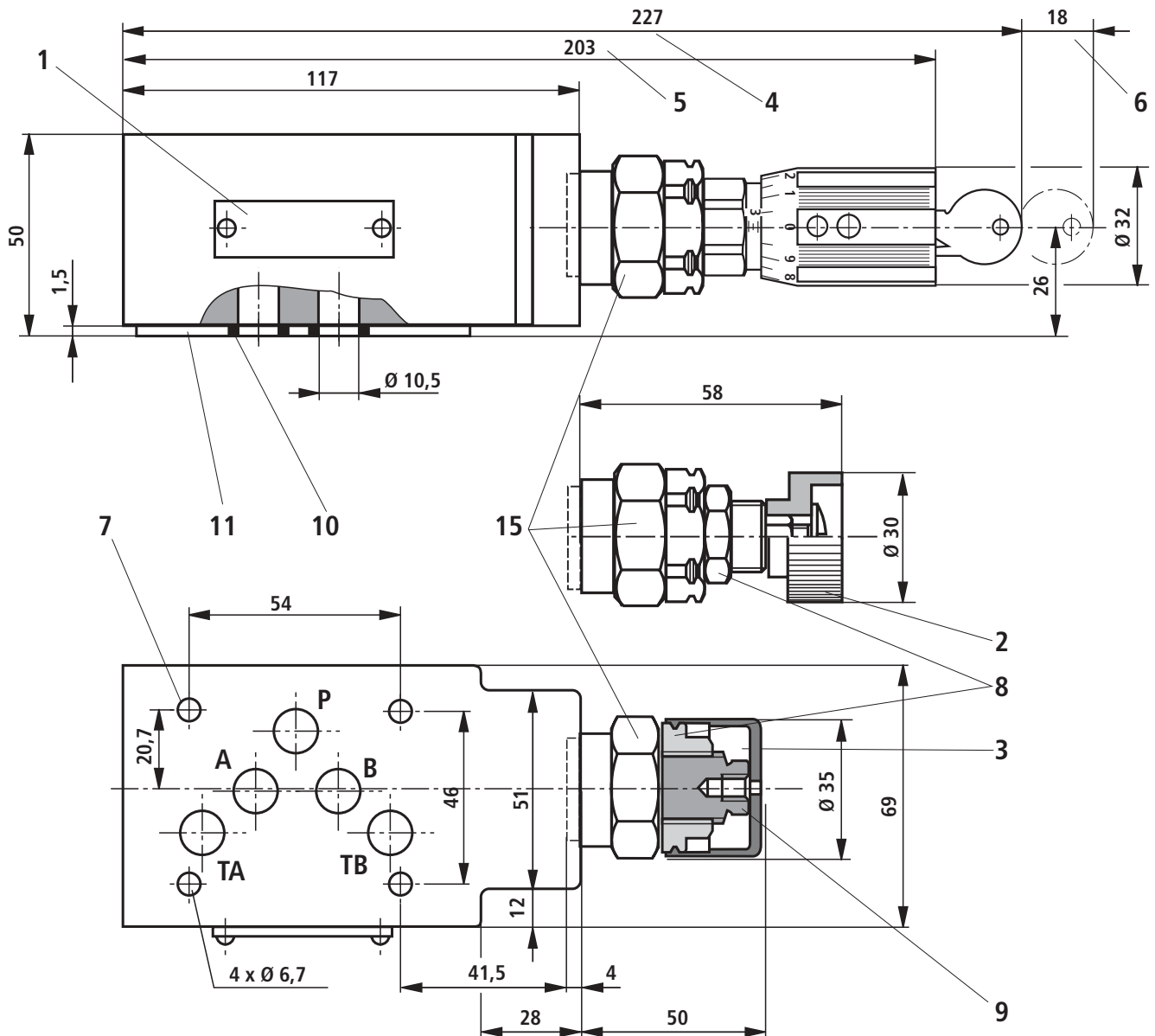
- 1 Name plate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Locknut 24A/F
- 9 Hexagon 10A/F
- 10 Identical seal rings for ports A2, B2, P2, TA2, TB2
- 11 Seal plate 70 x 80 x 1.5 (only for versions VA and VP)
- 12 Counter bores (only for version VT)
- 13 Versions ZDB 10 VA and VP
- 14 Version ZDB 10 VT
- 15 Hexagon 30A/F, tightening torque $M_A = 50$ Nm

Valve fixing screws

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

For X and Y ports (e.g. for NS 10 pilot operated directional valves) the special version SO30 is required!

Unit dimensions: type ZDB 10 VB (dimensions in mm)



Required surface finish of the mating piece

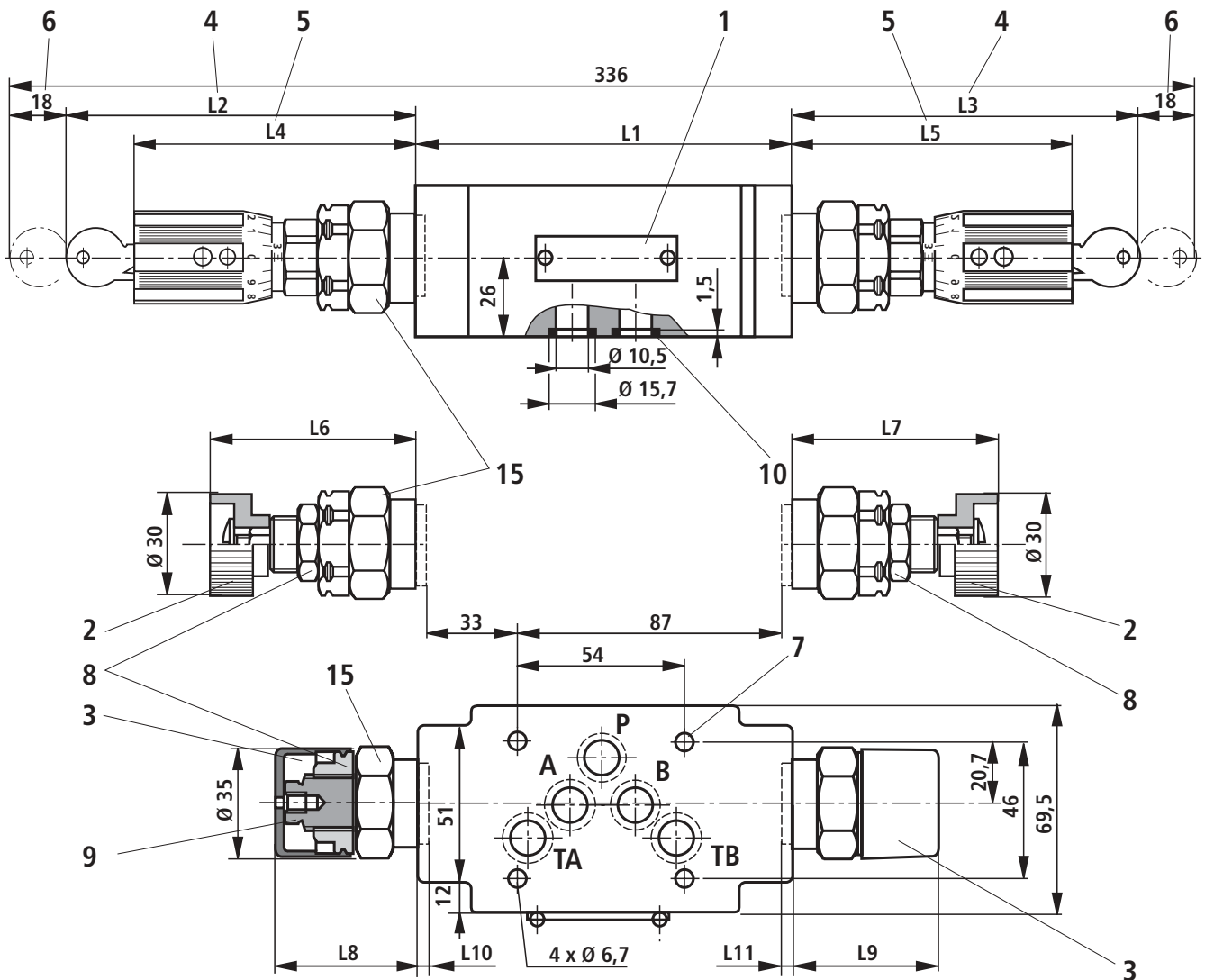
- 1 Name plate
- 2 Adjustment element "1"
- 3 Adjustment element "2"
- 4 Adjustment element "3"
- 5 Adjustment element "7"
- 6 Space required to remove the key
- 7 Valve fixing holes
- 8 Locknut 24A/F
- 9 Hexagon 10A/F
- 10 Identical seal rings for ports A2, B2, P2, TA2, TB2
- 11 Seal plate 70 x 80 x 1.5
- 15 Hexagon 30A/F, tightening torque $M_A = 50 \text{ Nm}$

Valve fixing screws

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Unit dimensions: types Z2DB 10 VC and VD (dimensions in mm)



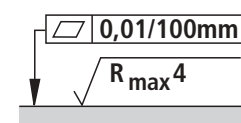
	VC	VD
L1	123	132
L2	111	107
L3	112	112
L4	89	85
L5	90	90
L6	59	56
L7	60	56
L8	52	49
L9	53	49
L10	2	6
L11	1	6

- 1** Name plate
- 2** Adjustment element "1"
- 3** Adjustment element "2"
- 4** Adjustment element "3"
- 5** Adjustment element "7"
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Valve fixing screws

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Required surface finish of the mating piece

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