

# Pressure relief valve, direct operated

## Type ZDBYD, Z2DBYD

**RE 25722**

Edition: 2012-08

Replaces: 01.09



tb0237

- ▶ Size 6
- ▶ Component series 1X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 60 l/min

### Features

- ▶ Sandwich plate valve
- ▶ Porting pattern according to ISO 4401-03-02-0-05
- ▶ 3 pressure ratings, optional
- ▶ 5 directions of action, optional
- ▶ With 1 or 2 pressure valve cartridges
- ▶ 2 adjustment types, optionally:
  - Sleeve with internal hexagon
  - Lockable rotary knob with scale

### Contents


Features	1
Contents	1
Ordering code	2
Symbols	3
Function, section	3
Technical data	4
Characteristic curves	5, 6
Device dimensions	7 ... 9
More information	10

## Ordering code

01	02	03	04	05	06	07	08	09	10	11	12	13			
Z		DB	Y	6	D			-	1X	/		V	/	60	*

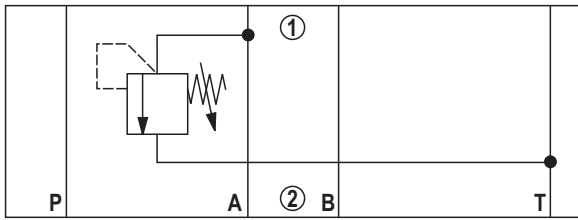
01	Sandwich plate valve	Z
02	1 pressure valve cartridge (only with version "A" "B" and "P")	no code
	2 pressure valve cartridges (only with version "C" and "D")	2
03	Pressure relief valve	DB
04	Porting pattern according to ISO 4401-03-02-0-05	Y
05	Size 6	6
06	Direct operated	D
07	<b>Relief function from - to:</b>	
	P – T	P
	A – T	A
	B – T	B
	A – T and B – T	C
A – B and B – A	D	
08	<b>Adjustment type</b>	
	Sleeve with internal hexagon	2
	Lockable rotary knob with scale (only version "80") <sup>1)</sup>	3
09	Component series 10 to 19 (10 to 19: unchanged installation and connection dimensions)	1X
10	<b>Pressure rating</b>	
	Set pressure up to 80 bar	80
	Set pressure up to 160 bar	160
	Set pressure up to 315 bar	315
11	<b>Seal material</b>	
	FKM seals (other seals upon request) Attention! Observe compatibility of seals with hydraulic fluid used!	V
12	Porting pattern according to ISO 4401-03-02-0-05	60
13	Further details in the plain text	

<sup>1)</sup> H-key with the Material no. **R900008158** is included in the scope of delivery.

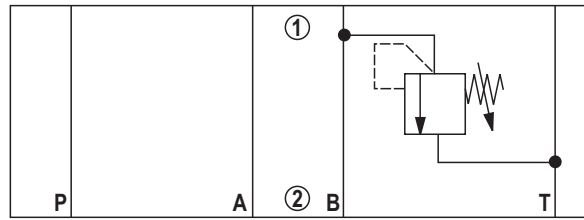
 **Notice!** Preferred types and standard units are contained in the EPS (standard price list).

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

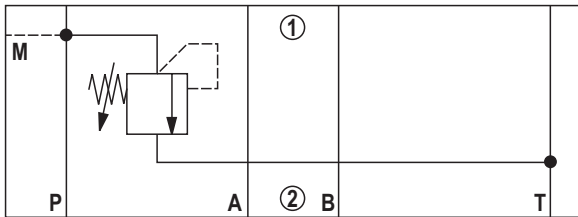
Version "A"



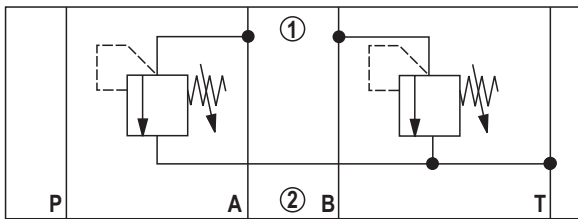
Version "B"



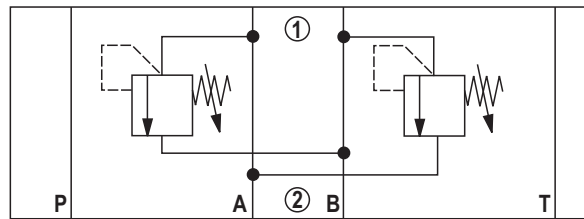
Version "P"



Version "C"



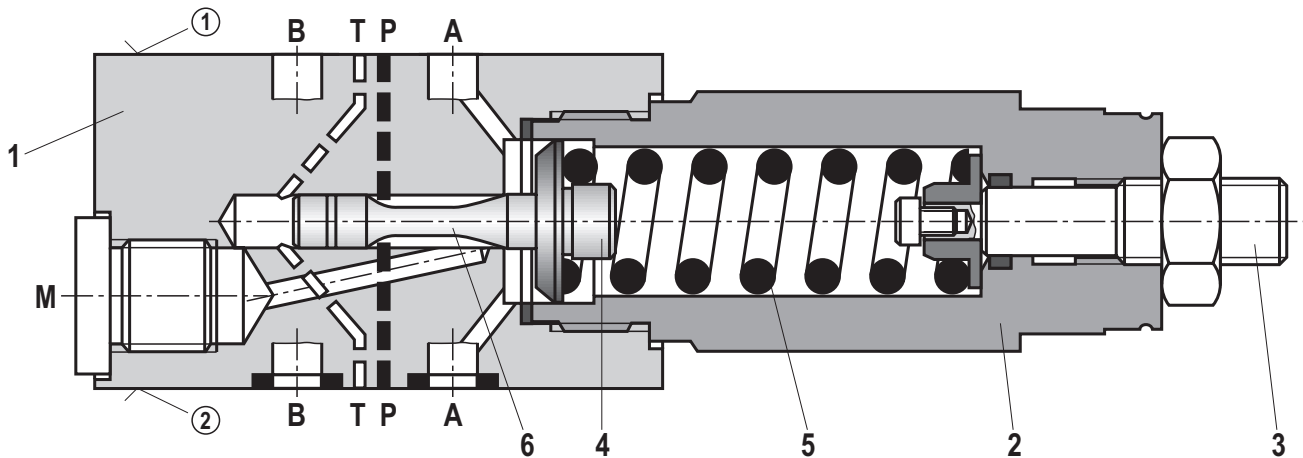
Version "D"



**Function, section**

Pressure valves of type ZDBY and Z2DBY are direct operated pressure relief valves in sandwich plate design. They are used for limiting a system pressure. The valves basically consist of the housing (1) and one or two pressure valve cartridges (2). The system pressure can be set via the adjustment type (3).

In the initial position the valves are closed. The pressure in channel A acts on the spool (4). If the pressure in channel A exceeds the value set at the spring (5), the pilot poppet (6) opens. Hydraulic fluid flows from channel P into channel T. The pilot oil return from the spring chambers is implemented internally via channel T.



Type ZDBY 6 DP2 ...


**Technical data**

(For applications outside these parameters, please consult us!)

general			
Weight	- Version "2"	kg	1.4
	- Version "3"	kg	1.8
Installation position			any
Ambient temperature range		°C	-15 ... +80

hydraulic		
Maximum operating pressure	bar	315
Maximum counter pressure (port T)	bar	160
Maximum set pressure	bar	80; 160; 315
Maximum flow	l/min	60
Hydraulic fluid		see table below
Hydraulic fluid temperature range	°C	-15 ... +80
Viscosity range	mm <sup>2</sup> /s	10 ... 500
Maximum permitted degree of contamination of the hydraulic fluid - cleanliness class according to ISO 4406 (c)		Class 20/18/15 <sup>1)</sup>

Hydraulic fluid	Classification	Suitable sealing materials	Standards
Mineral oils and related hydrocarbons	HL, HLP, HLPD	FKM	DIN 51524
Bio-degradable - insoluble in water	HETG	FKM	VDMA 24568
	HEES	FKM	
- soluble in water	HEPG	FKM	VDMA 24568

 **Important information on hydraulic fluids!**

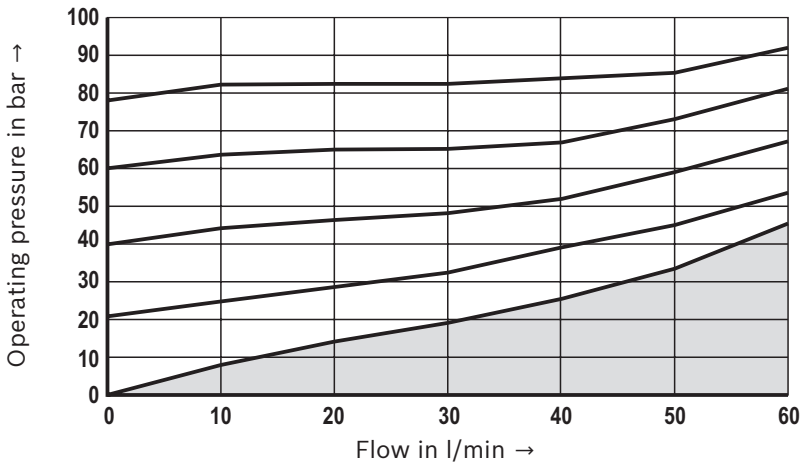
► For more information and data on the use of other hydraulic fluids refer to data sheet 90220 or contact us!

► There may be limitations regarding the technical valve data (temperature, pressure range, service life, maintenance intervals, etc.)!

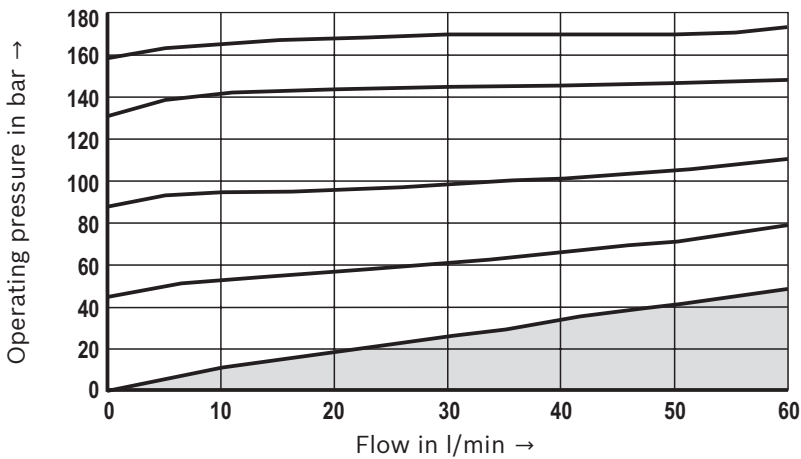
<sup>1)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the service life of the components. For the selection of the filters see [www.boschrexroth.com/filter](http://www.boschrexroth.com/filter).

**Characteristic curves:** Version "A", "B", "P" and "C"  
 (measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$ )

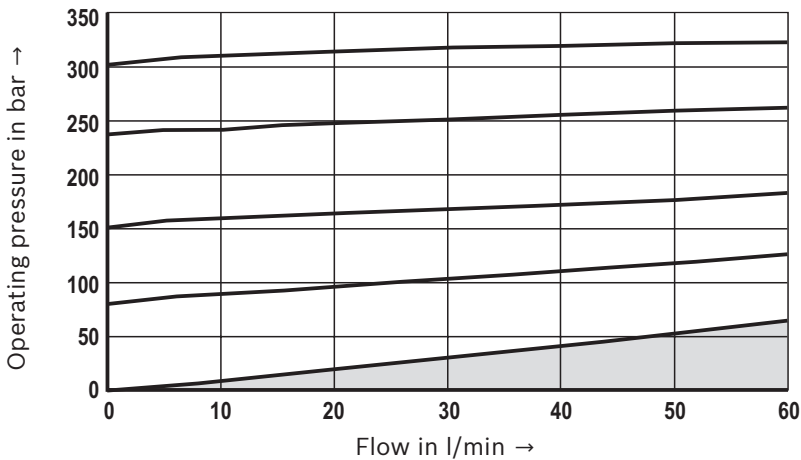
**$p$ - $q_v$  characteristic curves - version "80"**



**$p$ - $q_v$  characteristic curves - version "160"**

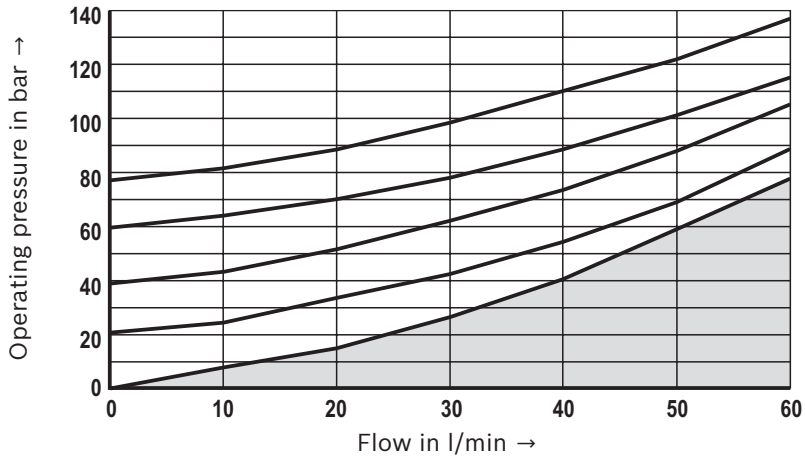


**$p$ - $q_v$  characteristic curves - version "315"**

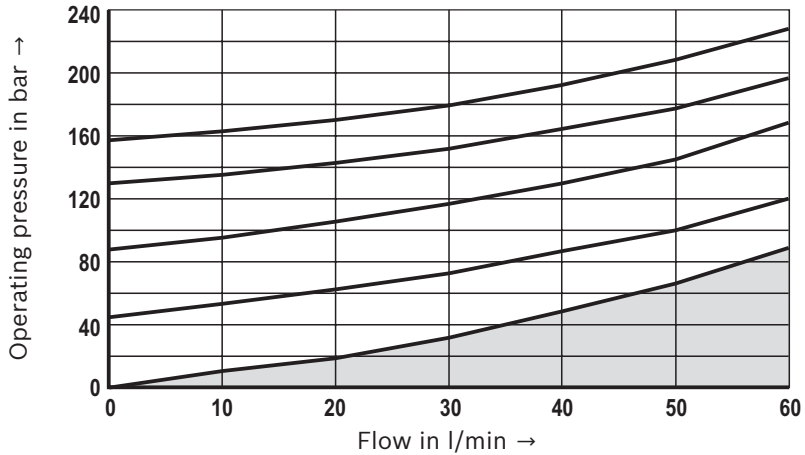


**Characteristic curves:** Version "D"  
 (measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$ )

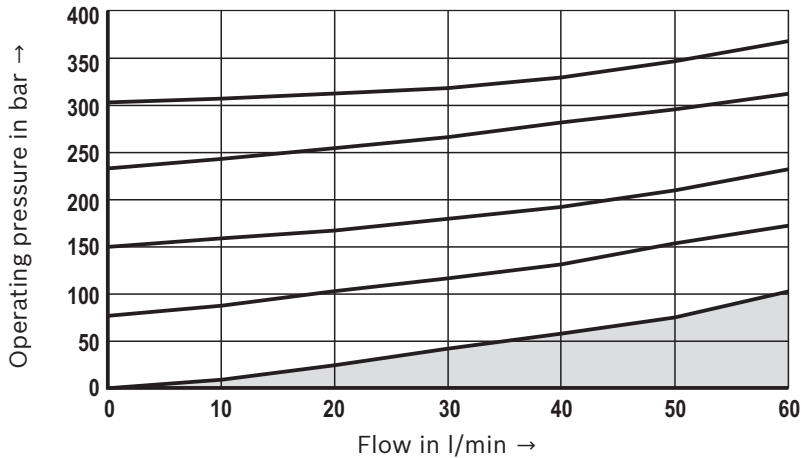
**$p$ - $q_v$  characteristic curves – version "80"**



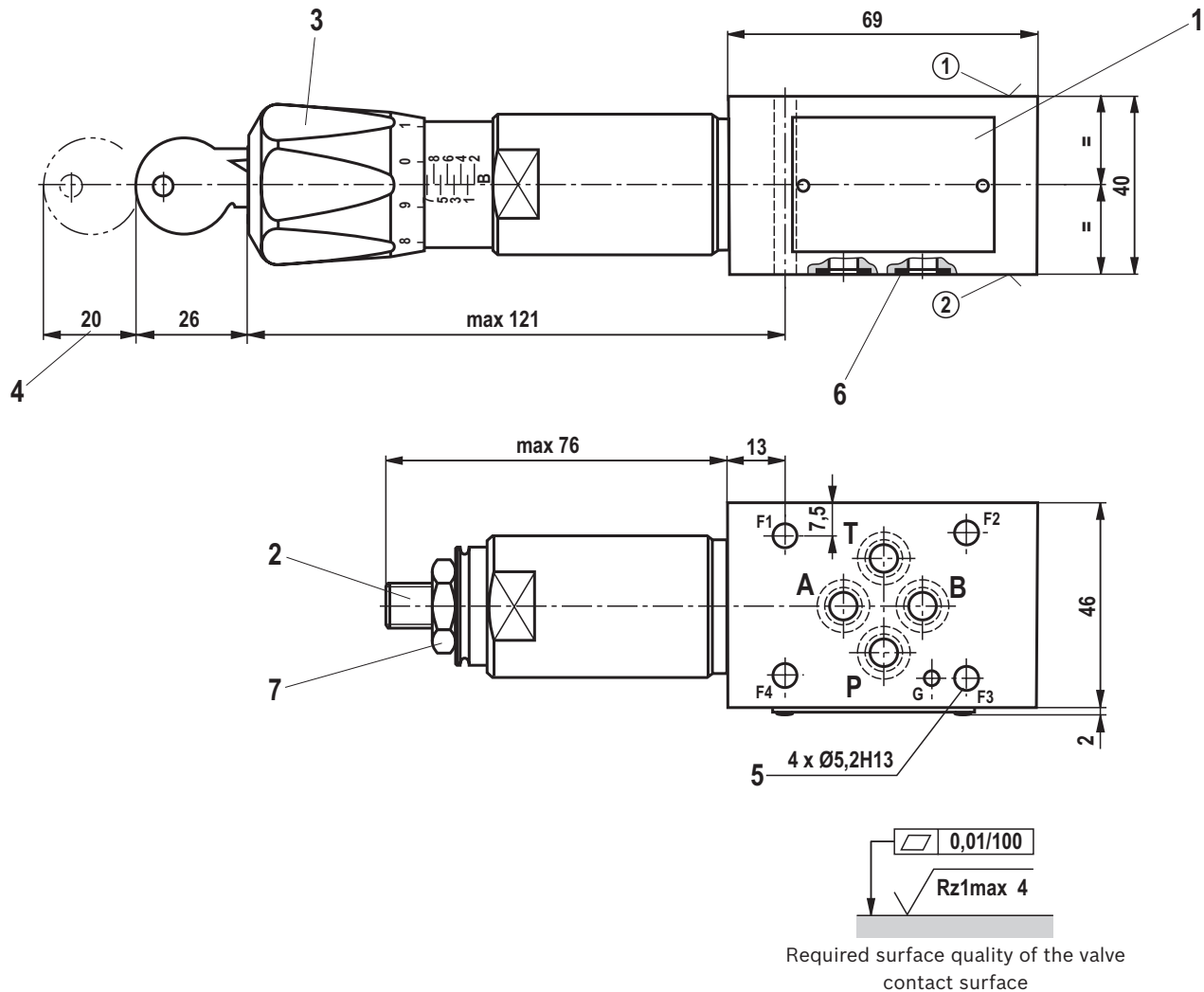
**$p$ - $q_v$  characteristic curves – version "160"**



**$p$ - $q_v$  characteristic curves – version "315"**



**Device dimensions:** Version "A"  
(dimensions in mm)



- ① component side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 4 \times 4$  mm deep)
- ② plate side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 3 \times 5$  mm deep for locking pin ISO 8752-3x8-St, material no. **R900005694**, separate order)

- 1 Name plate
- 2 Adjustment type "2"
- 3 Adjustment type "3"
- 4 Space required to remove the key
- 5 Valve mounting bores
- 6 Identical seal rings for ports A, B, P, T (plate side)
- 7 Lock nut SW17, tightening torque  $M_A = 10^{+5}$  Nm

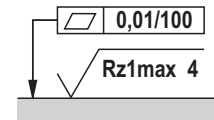
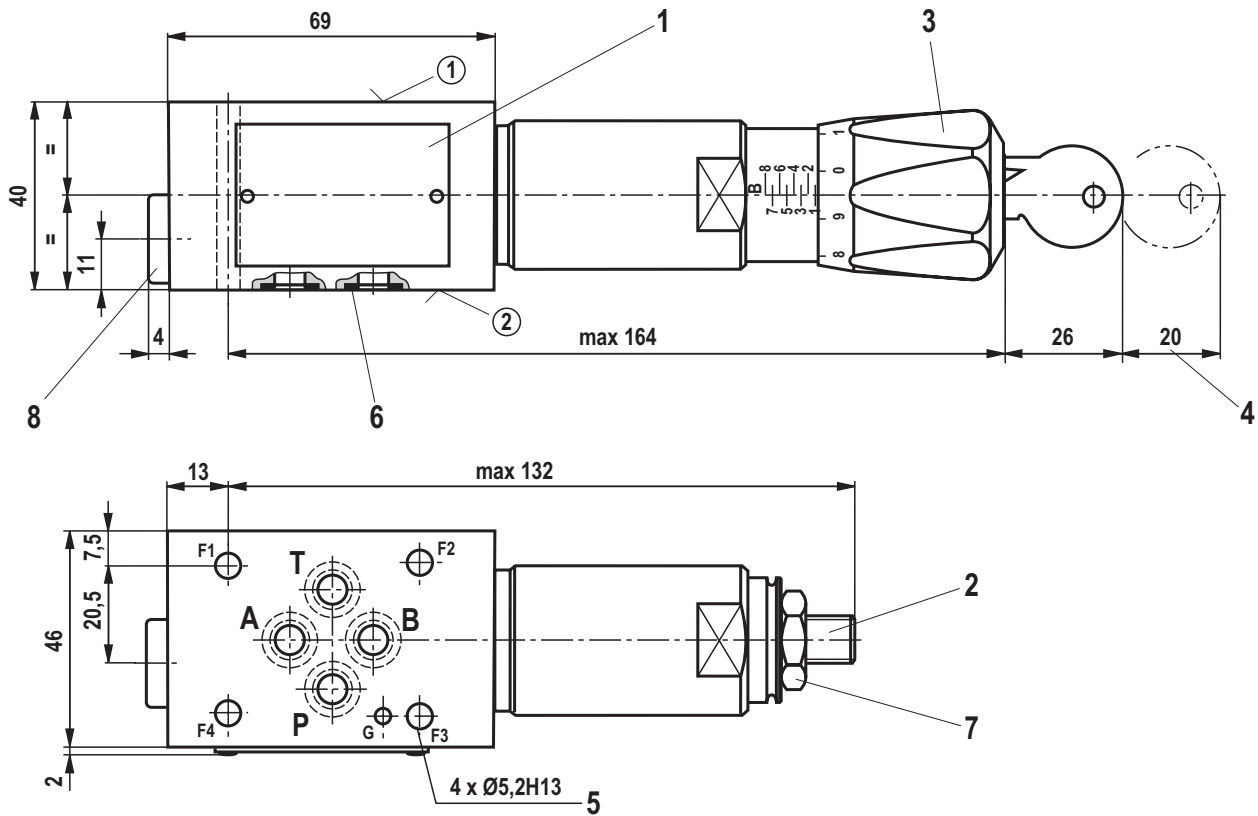
**Valve mounting screws** (separate order)

**4 hexagon socket head cap screws ISO 4762 - M5 - 10.9**

**Notice!**

Length and tightening torque of the valve mounting screws must be calculated according to the components mounted under and over the sandwich plate valve.

**Device dimensions:** Version "B" and "P"  
(dimensions in mm)



Required surface quality of the valve contact surface

- ① component side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 4 \times 4$  mm deep)
- ② plate side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 3 \times 5$  mm deep for locking pin ISO 8752-3x8-St, material no. **R900005694**, separate order)

- 1 Name plate
- 2 Adjustment type "2"
- 3 Adjustment type "3"
- 4 Space required to remove the key
- 5 Valve mounting bores
- 6 Identical seal rings for ports A, B, P, T (plate side)
- 7 Lock nut SW17, tightening torque  $M_A = 10^{+5}$  Nm
- 8 Measuring port (only version "P")

**Valve mounting screws** (separate order)

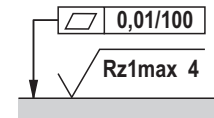
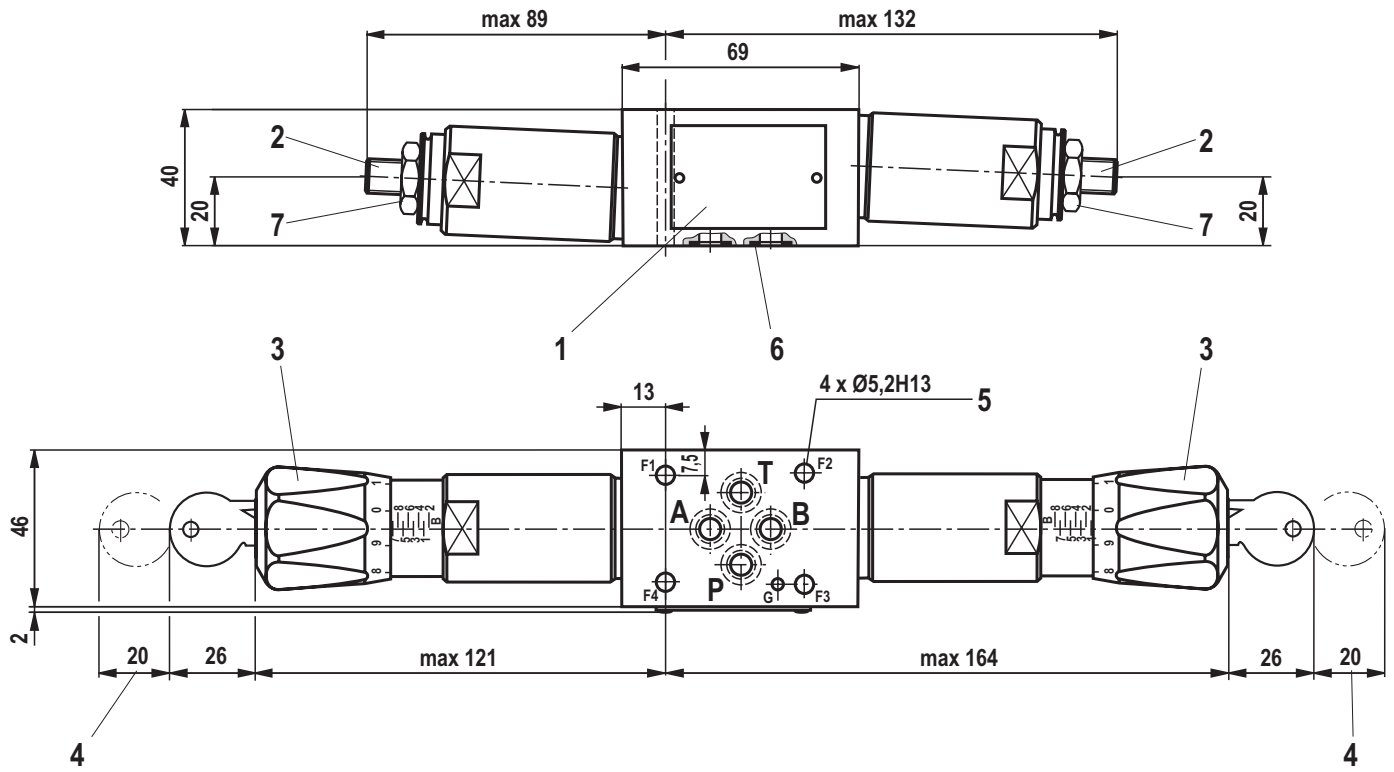
**4 hexagon socket head cap screws ISO 4762 - M5 - 10.9**

**Notice!**

Length and tightening torque of the valve mounting screws must be calculated according to the components mounted under and over the sandwich plate valve.



**Device dimensions:** Version "C" and "D"  
(dimensions in mm)



Required surface quality of the valve contact surface

- ① component side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 4 \times 4$  mm deep)
- ② plate side – Porting pattern according to ISO 4401-03-02-0-05 (with locating hole  $\varnothing 3 \times 5$  mm deep for locking pin ISO 8752-3x8-St, material no. **R900005694**, separate order)

- 1 Name plate
- 2 Adjustment type "2"
- 3 Adjustment type "3"
- 4 Space required to remove the key
- 5 Valve mounting bores
- 6 Identical seal rings for ports A, B, P, T (plate side)
- 7 Lock nut SW17, tightening torque  $M_A = 10^{+5}$  Nm

**Valve mounting screws** (separate order)

**4 hexagon socket head cap screws ISO 4762 - M5 - 10.9**

**Notice!**

Length and tightening torque of the valve mounting screws must be calculated according to the components mounted under and over the sandwich plate valve.

## More information

- ▶ Subplates
- ▶ Hydraulic fluids on mineral oil basis
- ▶ Reliability characteristics according to EN ISO 13849
- ▶ General product information on hydraulic products
- ▶ Assembly, commissioning and maintenance of industrial valves
- ▶ Selection of the filters

Data sheet 45053

Data sheet 90220

Data sheet 08012

Data sheet 07008

Data sheet 07003

[www.boschrexroth.com/filter](http://www.boschrexroth.com/filter)

Bosch Rexroth AG  
Hydraulics  
Zum Eisengießer 1  
97816 Lohr am Main, Germany  
Phone+49 (0) 93 52 / 18-0  
[documentation@boschrexroth.de](mailto:documentation@boschrexroth.de)  
[www.boschrexroth.de](http://www.boschrexroth.de)

© This document, as well as the data, specifications and other information set forth in it, are the exclusive property of Bosch Rexroth AG. It may not be reproduced or given to third parties without its consent.  
The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

## Notes

Bosch Rexroth AG  
Hydraulics  
Zum Eisengießer 1  
97816 Lohr am Main, Germany  
Phone+49 (0) 93 52 / 18-0  
documentation@boschrexroth.de  
www.boschrexroth.de

© This document, as well as the data, specifications and other information set forth in it, are the exclusive property of Bosch Rexroth AG. It may not be reproduced or given to third parties without its consent.

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

## Notes

Bosch Rexroth AG  
Hydraulics  
Zum Eisengießer 1  
97816 Lohr am Main, Germany  
Phone+49 (0) 93 52 / 18-0  
documentation@boschrexroth.de  
www.boschrexroth.de

© This document, as well as the data, specifications and other information set forth in it, are the exclusive property of Bosch Rexroth AG. It may not be reproduced or given to third parties without its consent.

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.