Rexroth
Bosch Group

Proportional pressure reducing valve

RE 29281/03.10 1/8
Replaces: 10.08

Type DRE 4 K

Size 4
Component series 4X
Maximum operating pressure 45 bar
Maximum flow 6 l/min

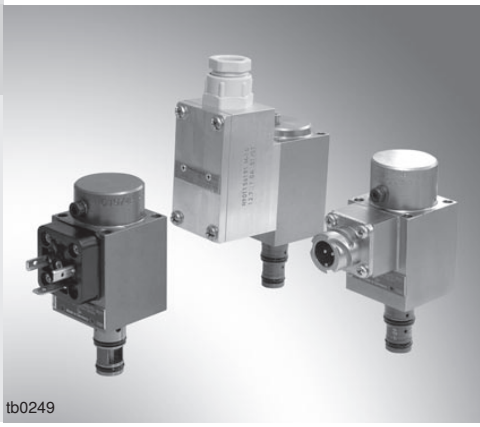
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Table of contents

Features

- Direct operated proportional valve for reducing the pressure in port A
- Cartridge valve
- Suitable for controlling directional valves (especially for mobile applications)
- External control electronics
  • Analog amplifier
  (separate order – see page 4)

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

Ordering code

DRE	4	K – 4X/					*

Proportional pressure reducing valve

Size 4 **= 4**

Cartridge valve **= K**

Component series 40 to 49 **= 4X**
(40 to 49: unchanged installation and connection dimensions)

Max. set pressure in port A 18 bar **= 18**
Max. set pressure in port A 30 bar **= 30**
Max. set pressure in port A 45 bar **= 45**

Voltage 24 VDC; Max. control current 1.0 A **= G24-10**

Voltage 12 VDC; Max. control current 2.2 A (not for 45 bar version) **= G12-22**

With manual override (possible with K4 only) **= N9**

Without manual override **= No code**

Further information in clear text

M = NBR seals, suitable for mineral oil (HL, HLP) according to DIN 51524

V = FKM seals

Electrical connection

K4 = Wth plug-in connector according to DIN EN 175301-803, without mating connector

K26 = With plug-in connector, two-pin CA 02 COM-E10SL-4P-B according to DIN 72585 (No earthing present!)

JZ2 = Cable connection via terminal box version with sea water protection

Function, section, symbol

The proportional pressure-reducing valve of type DRE 4 K reduces the pressure in port A proportionally to the solenoid current. It largely works independent of the pressure in port P. The valve is suitable for actuating directional valves, especially from in mobile applications. The hydraulic pressure in port A counteracts the magnetic force via a spool. When the proportional solenoid is de-energized the return spool on the piston opens the connection from port A to port T.

☞ **Note!**
In order to achieve the optimal function of the valve, the same has to be bled during the commissioning procedure:

- Set command value “0V” on the valve,
- loosen bleed screw item 1 and unscrew the same by one turn,
- when air bubbles are no longer emitted, screw in item 1 again.
- Prevent the tank pipes from running dry. In case of corresponding installation conditions, a pre-load valve has to be installed.

Please note:
The pre-load pressure adds to the setting pressure.

Symbol

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

General

Weight			kg	0.6
Installation position				any
Storage temperature range			°C	–20 to +80
Ambient temperature range			°C	–20 to +70

Hydraulic (measured with HLP46, ϑ_{oil} = 40 °C ±5 °C)

Maximum set pressure	Port A	Pressure rating 18 bar	bar	18
		Pressure rating 30 bar	bar	30
		Pressure rating 45 bar	bar	45
Maximum inlet pressure	Port P		bar	100
Counterpressure	Port T			Depressurized (pressure in A is controlled) up to max. 100 bar (spool open from P to A)
Maximum oil flow			l/min	6
Leakage oil flow	Port T		cm^3/min	< 50
Hydraulic fluid				Mineral oil (HL, HLP) according to DIN 51524, other hydraulic fluids upon request
Hydraulic fluid temperature range			°C	–20 to +80
Viscosity range			mm/s	10 to 380
Maximum degree of contamination of the hydraulic fluid; cleanliness level according to ISO 4406 (c)				Class 20/18/15 [1]
Hysteresis			%	< 5 of maximum pressure
Repeatability			%	< ±2 of maximum pressure

Step response $T_u + T_g$	Pressure rating 18 bar	10 → 90 %	ms	~ 50	measured with approx. 110 ml isolated oil volume
		90 → 10 %	ms	~ 15	
	Pressure rating 30 bar	10 → 90 %	ms	~ 50	
		90 → 10 %	ms	~ 15	
	Pressure rating 45 bar	10 → 90 %	ms	~ 50	
		90 → 10 %	ms	~ 15	

[1] The cleanliness classes stated for the components need to be maintained 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 data sheets RE 50070, RE 50076, RE 50081, RE 50086, and RE 50088.

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

Electric

Type of voltage			Direct voltage	
Voltage value		VDC	24	12
Maximum control current		A	1.0 at 100% command value	2.2 at 100% command value
Coil resistance	at 20 °C	Ω	12	2.4
	at 80 °C	Ω	18.24	3.65
Duty cycle		%	100	100
Electrical connection	K4		With plug-in connector according to DIN EN 175301-803	
			Mating connector according to DIN EN 175301-803 [1)]	
	K26		With plug-in connector according to DIN 72585	
			Mating connector according to DIN 72585	
Protection class according to EN 60529 (VDE 0470-1), DIN 40050-9	K4		IP65 with mounted and locked mating connector	
	K26		IP67 with mounted and locked mating connector	
	JZ2		IP68	

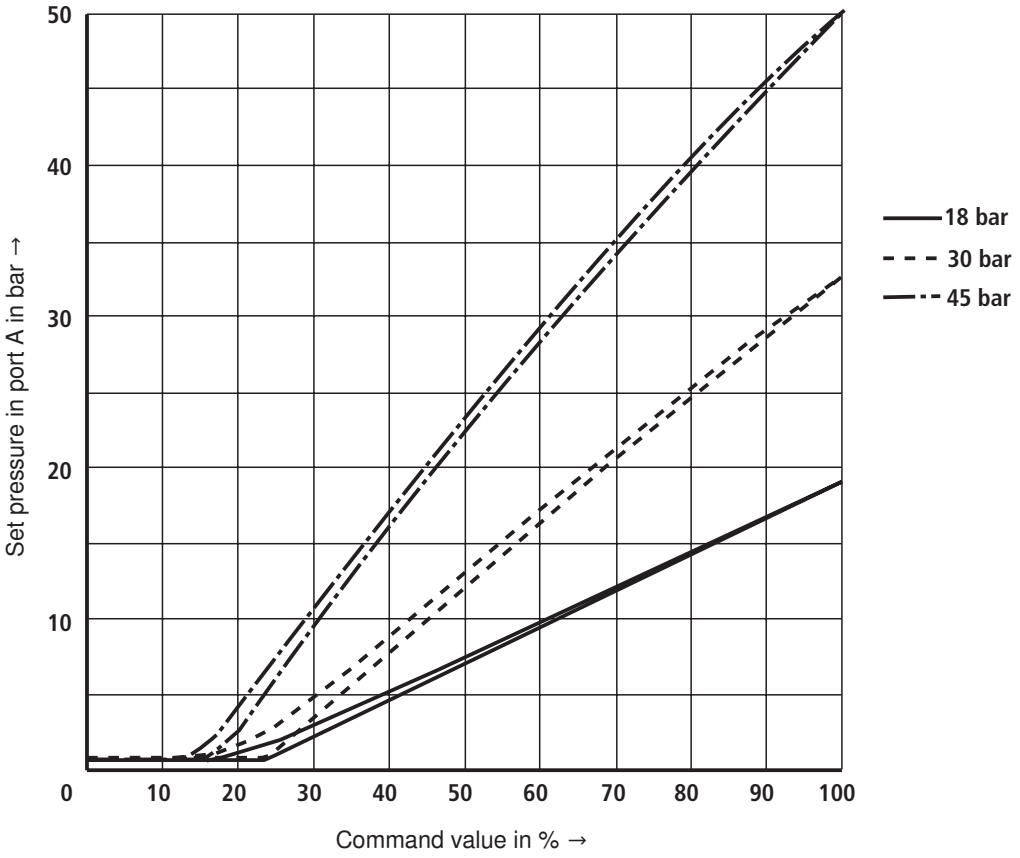
[1)] Separate order – see RE 08006

Control electronics (separate order)

Analog amplifiers (amplifier modules)	24 V; 1.0 A
	VT11550 to VT11552 according to RE 29870

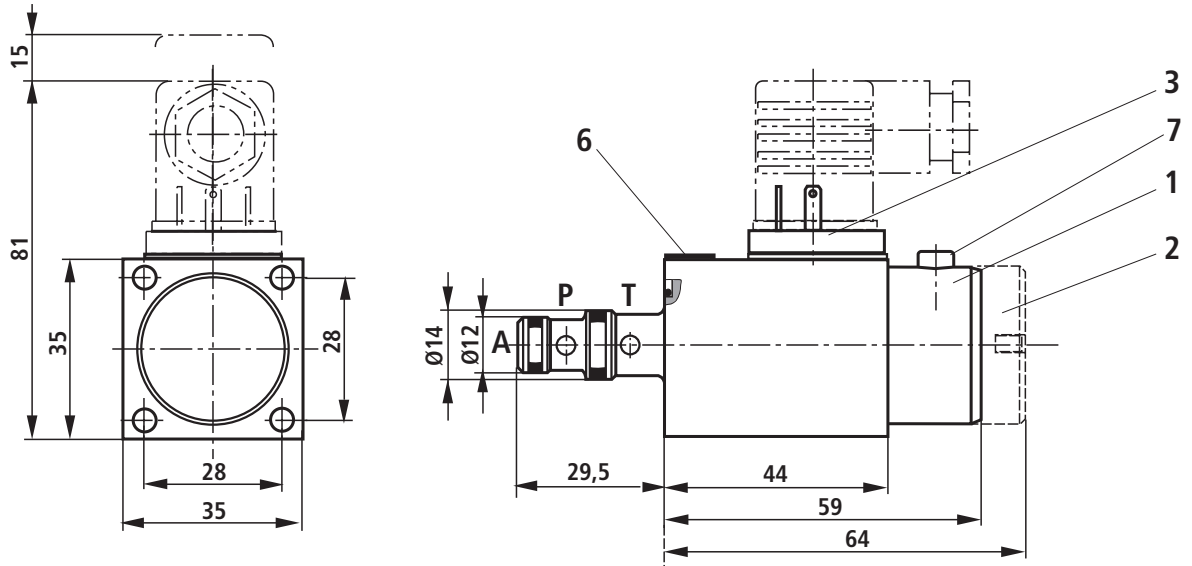
Characteristic curves (measured with HLP46, ϑ_{oil} = 40 °C ±5 °C)

Command value / pressure characteristic curves

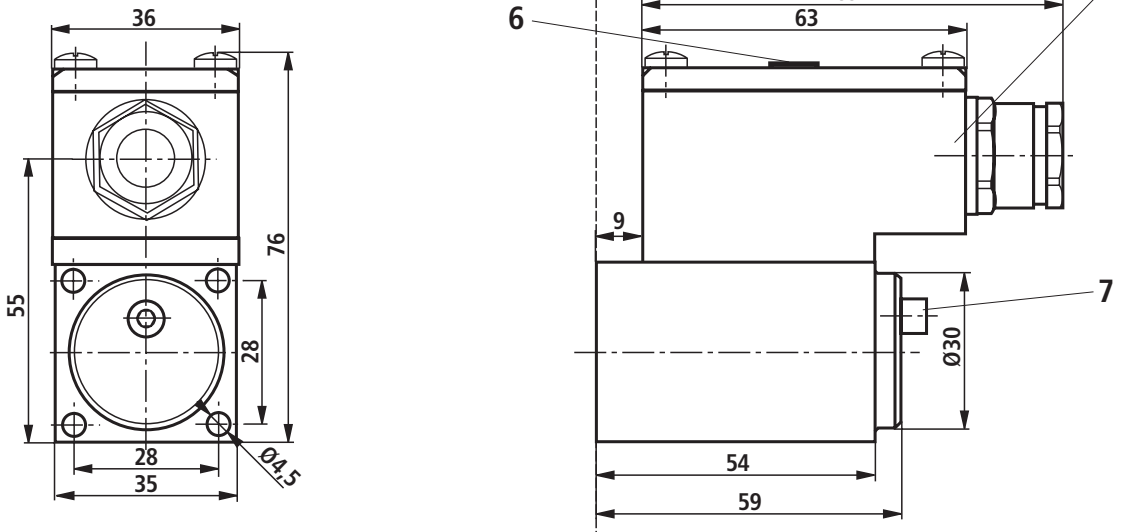


Unit dimensions (dimensions in mm)

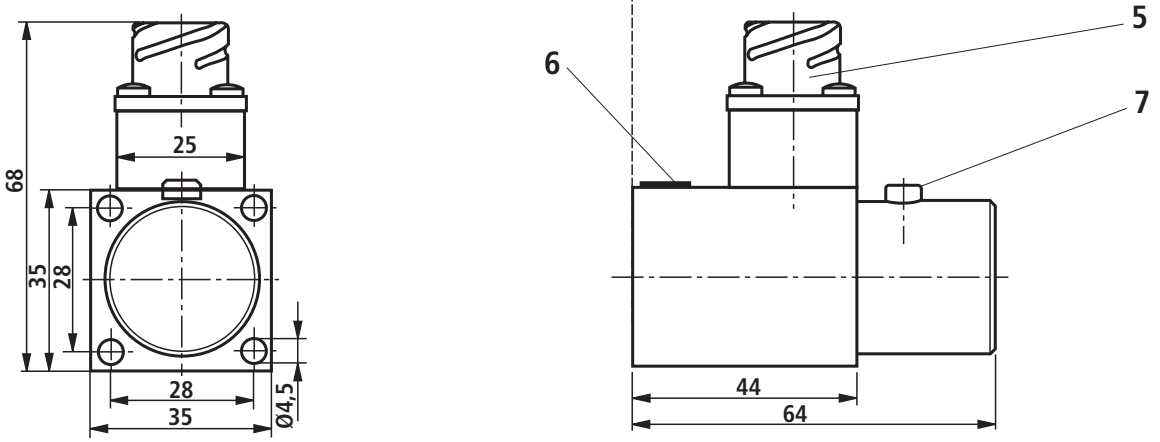
Model “K4”



Model “JZ2”



Model “K26”



Explanation of items on the following page

Unit dimensions (dimensions in mm)

Explanation of items

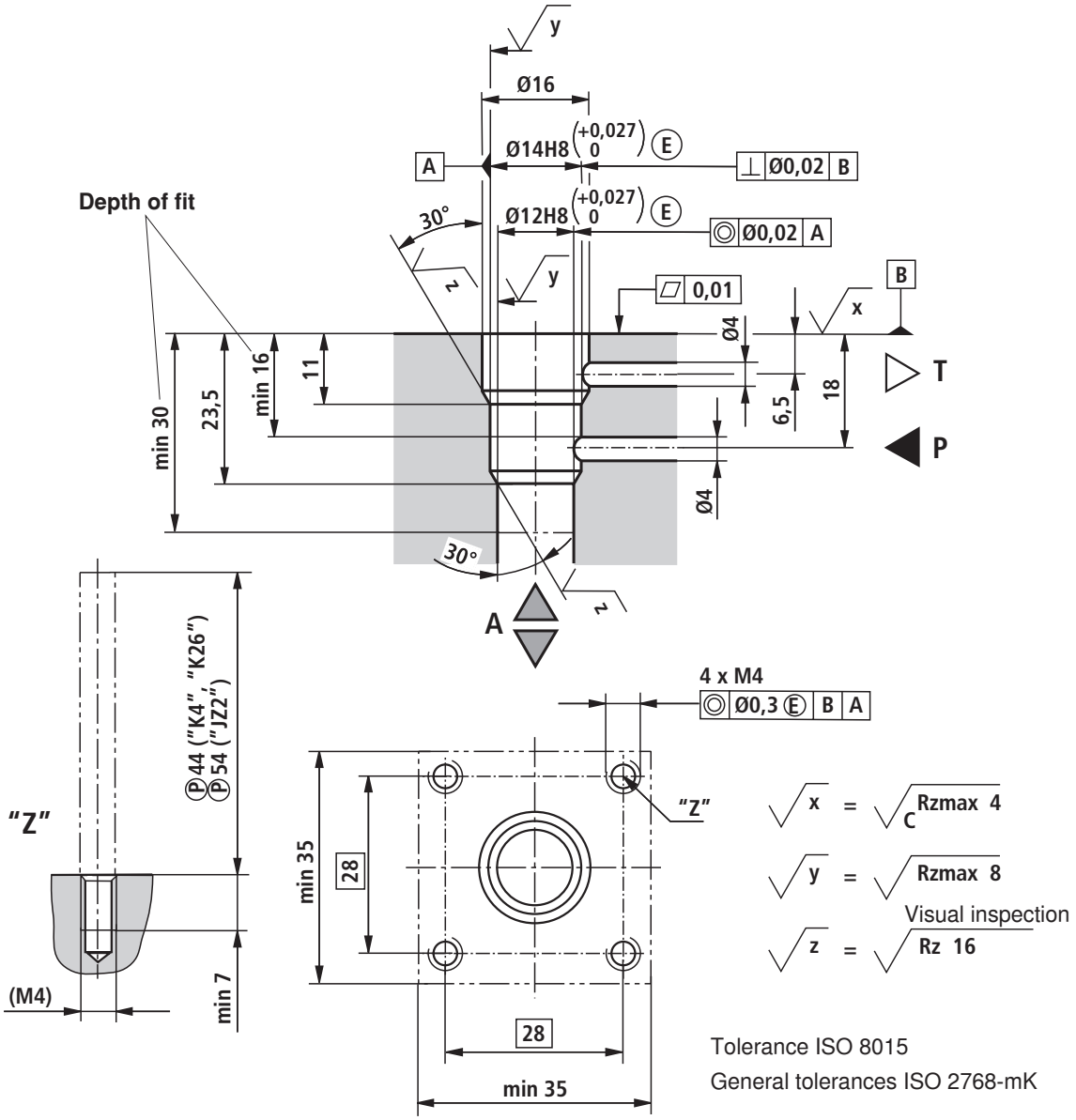
1 Proportional solenoid **without** manual override
2 Proportional solenoid **with** manual override
3 Plug-in connector according to DIN EN 175301-803
4 Terminal box with cable gland
5 Plug-in connector according to DIN 72585
6 Nameplate
7 Bleed screw
Description see page 2

Valve mounting bolts
(must be ordered separately)

4 Hexagon socket head cap screws
For models “K4” and “K26”:
ISO4762-M4x50-10.9-flZn-240h-L
(friction coefficient 0.09 to 0.14 according to VDA 235-101);
tightening torque M_T = 2Nm ±10%

For model “JZ2”:
ISO4762-M4x60-10.9-flZn-240h-L
(friction coefficient 0.09 to 0.14 according to VDA 235-101);
tightening torque M_T = 2Nm ±10%

Mounting cavity (dimensions in mm)



Notes

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