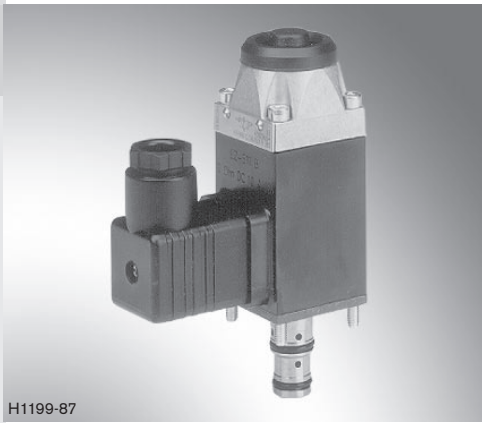
Rexroth
Bosch Group

Proportional pressure reducing valve of 3-way design

RE 29181/05.06 1/6
Replaces: 05.02

Type DRE 4 K



Size 4
Component series 3X
Maximum operating pressure 30 bar
Maximum flow 6 l/min

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Features

- Direct operated proportional valve for reducing the pressure in port A
- Cartridge valve
- Suitable for controlling directional valves (especially in mobile applications)
- External control electronics (separate order – see page 4)
  - Analogue amplifiers
  - Electronic signal encoders
  - Power supply modules

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

Function

Proportional pressure reducing valves of type DRE 4 K reduce the pressure in port A proportionally to the solenoid current. They are largely independent of the pressure in port P. These valves are suitable for controlling directional valves, in particular in mobile applications. The hydraulic pressure in port A acts via a spool against the magnetic force. When the proportional solenoid is de-energised, a return spring at the spool opens the connection from port A to port T.

The valves are provided for a nominal voltage of 24 VDC. (12 VDC version on enquiry).

A programmable remote control type THE 6 is available for controlling the valves (separate order, see page 4).

Further electronic signal encoders and electrical amplifier modules for controlling the valves are available (separate order, see page 4).

Ordering code

DRE	4	K – 3X /				K4	M	*

Size 4 **= 4**

Cartridge valve **= K**

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

Max. pressure setting in port A 18 bar **= 18**

Max. pressure setting in port A 30 bar **= 30**

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

Voltage rating 12 VDC; max. control current 2.2 A **= G12-22**
(on enquiry)

Further details in clear text

Seal material

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

Electrical connection

K4 = Without plug-in connector
Individual connection by means of coupler plug to DIN EN 175301-803
Plug-in connector – separate order, see page 5

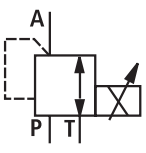
N = With manual override

No code = Without manual override

Standard types

Type	Material number
DRE 4 K-3X/18G24-10K4M	R900959368
DRE 4 K-3X/30G24-10K4M	R900959369
DRE 4 K-3X/30G24-10NK4M	R900959370

Symbol



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

General

Sizes			Size	4
Weight			kg	0.6
Installation orientation				Optional
Storage temperature range			°C	– 20 to +80
Ambient temperature range			°C	– 20 to +70

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

Max. set pressure	Port A	– Pressure stage 18 bar	bar	18
		– Pressure stage 30 bar	bar	30
Max. permissible inlet pressure	Port P		bar	100
Counterpressure	Port T			Pressureless (pressure in A is controlled) up to max. 100 bar (spool opened from P to A)
Max. permissible flow			l/min	6
Leakage flow	Port T		cm^3/min	< 50
Hydraulic fluid				Mineral oil (HL, HLP) to DIN 51524; other hydraulic fluids on enquiry
Hydraulic fluid temperature range			°C	– 20 to + 80
Viscosity range			mm^2/s	10 to 380
Max. permissible degree of contamination of the hydraulic fluid - cleanliness class to ISO 4406 (c)				Class 20/18/15 [1]
Hysteresis			%	< 5
Repeatability			%	< ± 2 of 18 or 30 bar
Step response				
Pressure stage 18 bar with control block SM12		0 → 100 %	ms	< 150
		100 → 0 %	ms	< 150
Pressure stage 30 bar		0 → 100 %	ms	< 200
		100 → 0 %	ms	< 200

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

For the selection of 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!)

Electrical

Type of voltage			DC voltage	
Voltage		VDC	24	12 [1]
Max. 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			Coupler plug to DIN EN 175301-803	
			Plug-in connector to DIN EN 175301-803 [2]	
Type of protection to EN 60529 (VDE 0470-1), DIN 40050-9			IP65 with plug-in connector mounted and locked	

[1] on enquiry

[2] separate order – see page 5

When establishing the electrical connection, properly connect the protective earth conductor (PE ⏚).

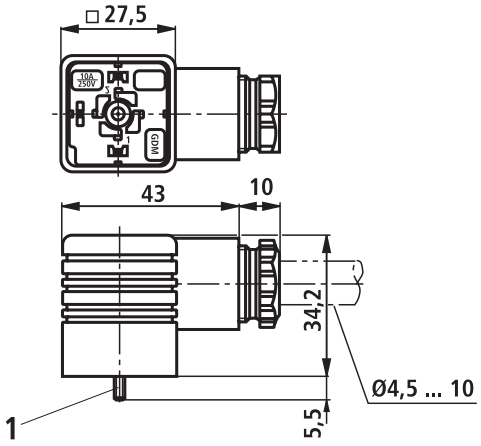
Control electronics (separate order)

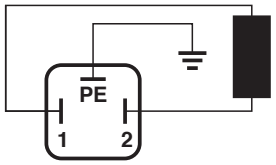
Analogue amplifiers (amplifier modules)	VT 11026 to RE 30226
	VT 11031 to RE 29760
	VT 11032 and VT 11165 to RE 29764
	VT 11550 to VT 11552 to RE 29870
Electronic signal encoders	VT 10468 to RE 29753
	VT 10406 to RE 29754
	VT 10399 to RE 29755
Power supply modules	VT 11005 to RE 29732
	VT 11006 to RE 29729

Electrical connection, plug-in connector (nominal dimensions in mm)

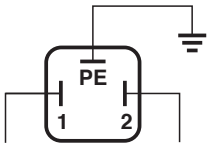
Plug-in connector to DIN EN 175301-803

Separate order stating material no. **R901017011**
(plastic version)





Connection to plug-in connector



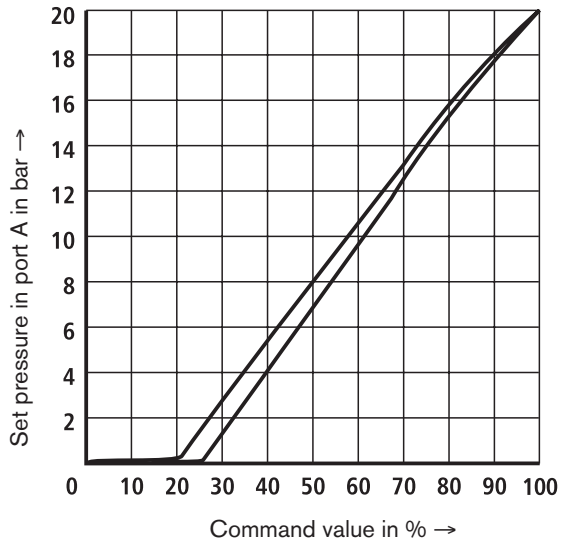
to amplifier

1 Fixing screw M3
Tightening torque $M_T = 0.5$ Nm

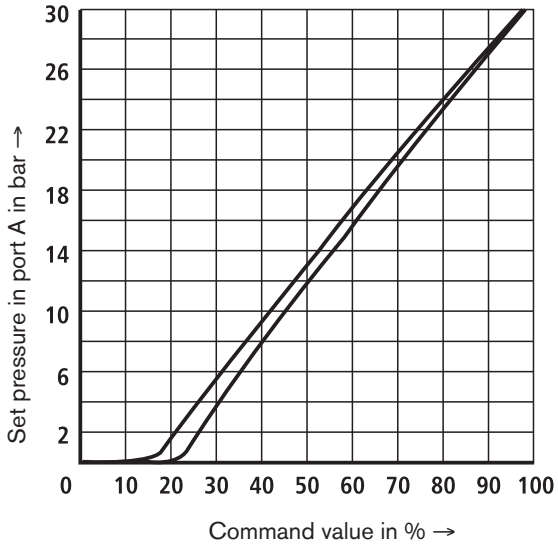
Further details, see RE 08006!

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

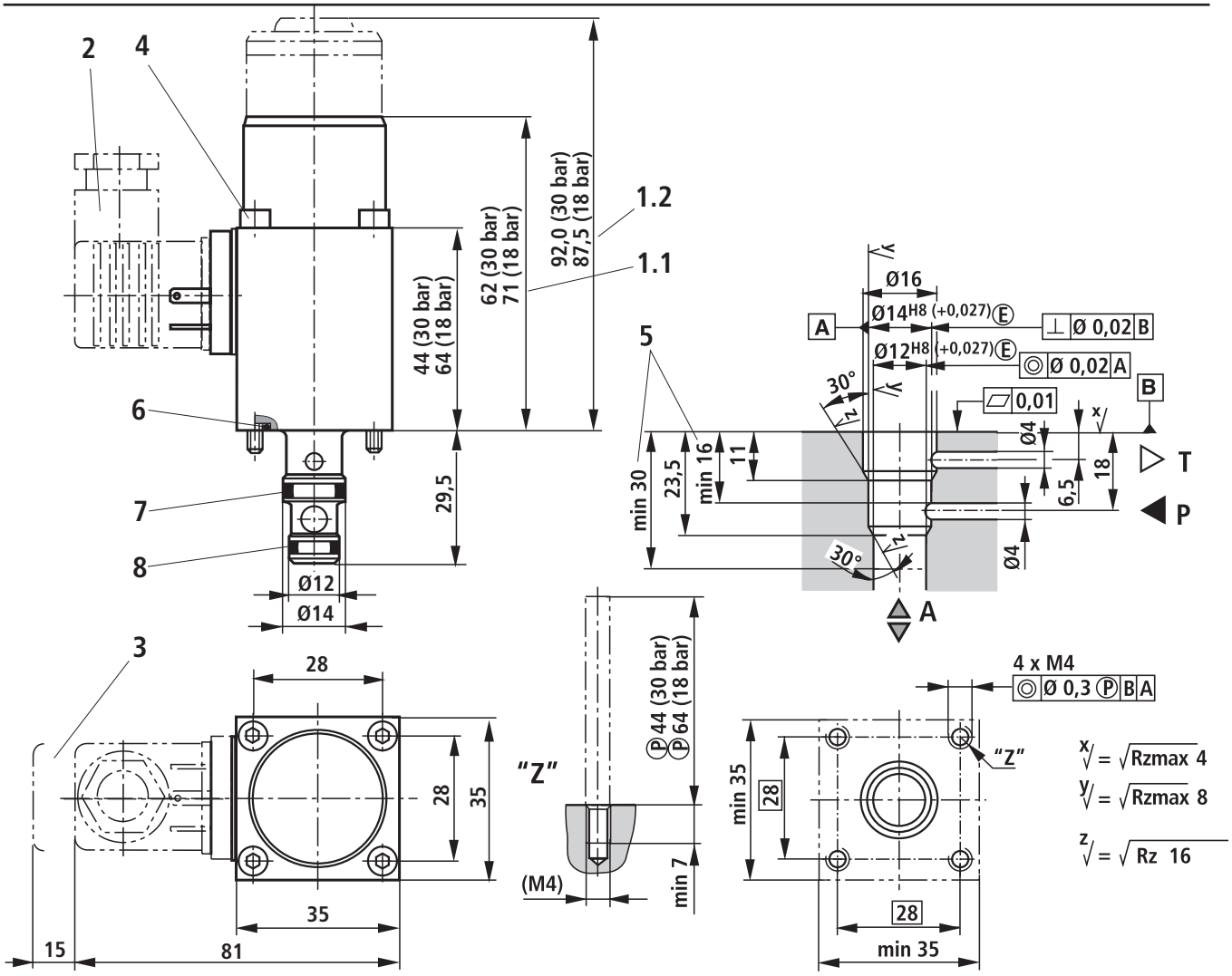
Pressure stage 18 bar



Pressure stage 30 bar



Unit dimensions, mounting cavity and porting pattern (nominal dimensions in mm)



1.1 Proportional solenoid **without** manual override

1.2 Proportional solenoid **with** manual override

2 Plug-in connector (separate order, see page 5)

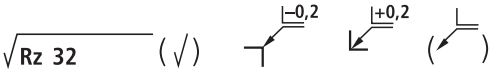
3 Space required to remove plug-in connector

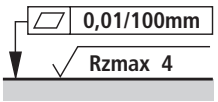
4 Valve fixing screws
(included in the scope of supply)

4 socket head cap screws ISO 4762 - M4x50 - 10.9-flZn240h-L
(friction coefficient 0.09 to 0.14 to VDA 235-101);
tightening torque $M_T = 2$ Nm ± 10% (at 30 bar)
or

4 socket head cap screws ISO 4762 - M4x70 - 10.9-flZn240h-L
(friction coefficient 0.09 to 0.14 to VDA 235-101);
tightening torque $M_T = 2$ Nm ± 10% (at 18 bar)

Tolerances to: – General tolerances ISO 2768-mK
– Tolerating principle ISO 8015





Required surface quality of the valve mounting face

5 Depth of fit

6 O-ring 25.12 x 1.78

7 O-ring 10.82 x 1.78

8 O-ring 9.25 x 1.78

Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52 / 18-0
Fax +49 (0) 93 52 / 18-23 58
documentation@boschrexroth.de
www.boschrexroth.de

Notes

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