RE 29283
Edition: 2023-01
Replaces: 2021-04

rexroth
A Bosch Company

Proportional pressure reducing valve, pilot-operated, with or without integrated digital electronics (OBED)

Type 3DRE(E)(A) and Z3DRE(E)(A)

H8172+8173

- Size 6
- Component series 2X
- Maximum operating pressure 350 bar
- Maximum flow 60 l/min

CE

UK CA

IO-Link

Features

- Pressure-controlled, optional
- Pressure reduction in ports A and P① with pressure limitation
- For subplate mounting or sandwich plate design
- With integrated digital electronics (OBED), optional
- CE conformity according to EMC Directive 2014/30/EU
- Linear command value pressure characteristic curve
- With integrated and external pressure sensor, optional
- Pressure sensor adjustable for various applications
- Digital (IO-Link, Bluetooth®) and analoge interfaces, optional
- Optional via Bluetooth®, fast and easy analysis and structural adjustment by means of app function

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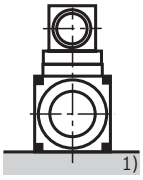
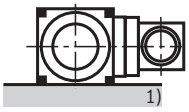
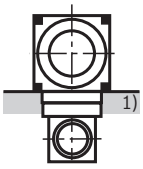
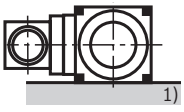
Ordering code

01	02	03	04	05	06	07		08		09	10	11	12	13	14	15	16	17
	3	**DRE**		**6**			**–**	**2X**	**/**			**G24**						*****

01	Subplate mounting	**no code**
	Sandwich plate	**Z**
02	3-way version	**3**
03	Proportional pressure reducing valve	**DRE**
04	For external control electronics	**no code**
	With integrated electronics (OBED)	**E**
	With integrated electronics (OBED), pressure-controlled	**A**
05	Size 6	**6**
06	Pressure reduction in channel A (subplate mounting)	**no code**
	Pressure reduction in channel P① (sandwich plate)	**VP**

Position of the mating connector (only sandwich plate design)

07	 1)	**1**
	 1)	**2**
	 1)	**3**
	 1)	**4**
08	Component series 20 ... 29 (20 ... 29: unchanged installation and connection dimensions)	**2X**

Pressure rating

09	50 bar	**50**
	100 bar	**100**
	200 bar	**200**
	315 bar	**315**

Pressure sensor

10	Internal	**no code**
	External (only with integrated electronics "A," pressure-controlled)	**A** 2)

Supply voltage

11	Direct voltage 24 V	**G24**

Coil

12	1600 mA	**no code**
	800 mA (only with external control electronics)	**-8**

Ordering code

01	02	03	04	05	06	07		08		09	10	11	12	13	14	15	16	17
	3	**DRE**		**6**			**–**	**2X**	**/**			**G24**						*****

Electrical connection

13	**– Type (Z)3DRE**	
	Without mating connector; connector DIN EN 175301-803	**K4** [3]
	– Type (Z)3DREE and (Z)3DREA – Version "A1," "F1"	
	Without mating connector; connector DIN EN 175201-804	**K31** [3]
	– Type (Z)3DREE and (Z)3DREA – Version "L1"	
	Without mating connector; connector cable sets M12, 4-pole	**K24** [3]

Electronics interface

14	External control electronics	**no code**
	Command value input and actual value output 0 ... 10 V [4]	**A1**
	Command value input and actual value output 4 ... 20 mA [4]	**F1**
	IO-Link interface (only with integrated electronics "E" and "A"; for class B) [5]	**L1**

Accessories, service interface

15	Without Bluetooth® interface	**no code**
	With Bluetooth® interface (only with integrated electronics "E" and "A")	**B**

Seal material (observe compatibility of seals with hydraulic fluid used, see page 8)

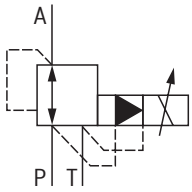
16	NBR seals	**M**
	FKM seals	**V**

17	Further details in the plain text	*****

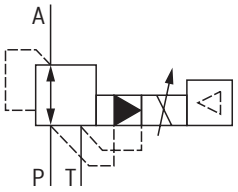
1) Valve contact surface (seal ring recesses in the housing)
2) Pressure sensor adjustment via "easy2connect app" (for electrical connections and assignment, see page 11; pressure sensor, separate order, see page 27)
3) Mating connectors and cable sets, separate order, see page 27 and data sheet 08006.
4) Command value input switchable via Bluetooth® interface "B" ("A1" ↔ "F1")
5) Only for use in the industrial sector according to IO-Link specification and EN 61131-9. When used in the household / small businesses, additional EMC measures are required for the I/O-Link system.

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

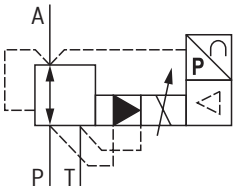
Type 3DRE



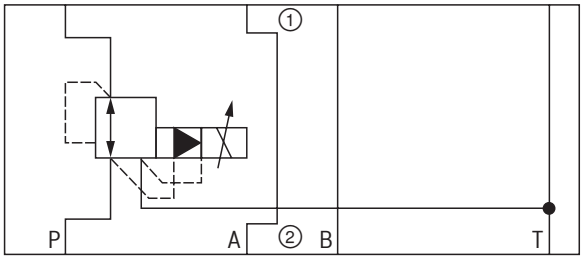
Type 3DREE; 3DREA ...A



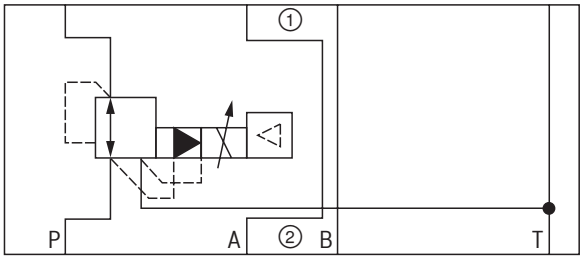
Type 3DREA



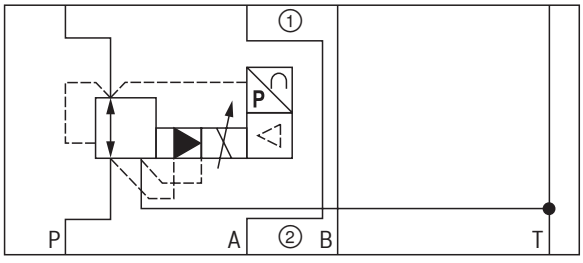
Type Z3DRE



Type Z3DREE, Z3DREA ...A



Type Z3DREA



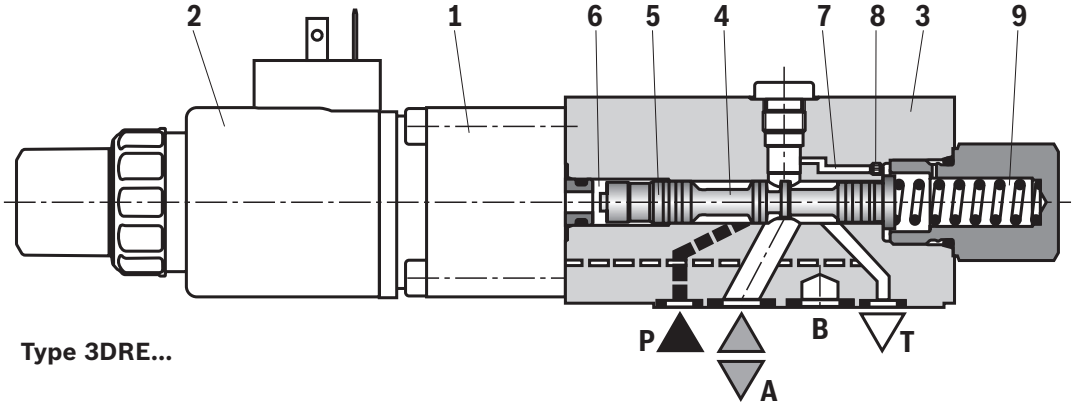
Function, section: Type (Z)3DRE

Valves of type 3DRE and Z3DRE are electrically pilot-operated 3-way pressure reducing valves with pressure limitation of the actuator. They are used for reducing a system pressure.
The valve basically consists of a pilot control valve (1), proportional solenoid (2), main valve (3) with main control spool (4).

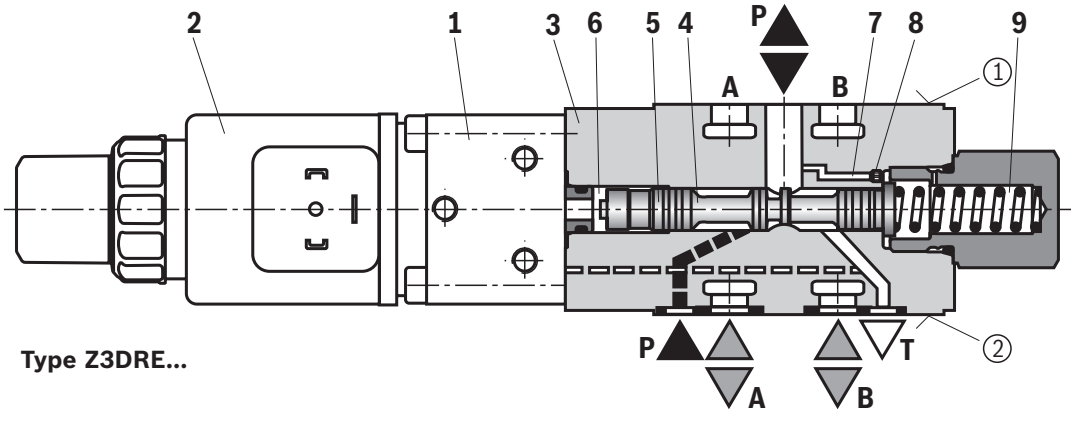
General
In rest position, i.e., without pressure in channel P, the spring holds the main control spool in the initial position. This opens the connection from A (P①) to T and blocks the connection from P to A (P①).
With pressure connection from port P, pilot oil flows via the flow controller (5) and nozzle, and the throttle gap to the pilot control valve (1) and afterwards flows to channel T.
The command value-dependent setting of the pressure to be reduced in channel A (P①) is effected using the proportional solenoid.

Type 3DRE
The pilot pressure builds up in the control chamber (6) as a function of the command value. This moves the main control spool (4) to the right, hydraulic fluid flows from P to A.
The actuator pressure in channel A is applied to the spring chamber (9) via the channel (7) and the nozzle (8). If the pressure in port A increases to the set pressure of the pilot control valve, this leads to movement of the main control spool (4) to the left. The pressure in port A is almost identical to the set pressure at the pilot control valve.
If, however, the pressure in port A exceeds the set pressure of the pilot control valve, the main control spool (4) is moved further to the left so that the connection from A to T is opened. In this way, the pressure in port A is limited to the set command value.

Type Z3DRE
In principle, the function of this valve version corresponds to the function of type 3DRE.
The pressure reduction is, however, effected in channel P①.



Type 3DRE...



Type Z3DRE...

Function: Type (Z)3DREE and (Z)3DREA

Type (Z)3DREE – with integrated digital electronics (OBED)
With regard to function and set-up, this version corresponds to type (Z)3DRE.
The digital on-board electronics (OBED) (10) are mounted on the proportional solenoid. It may be equipped with different electric interfaces:

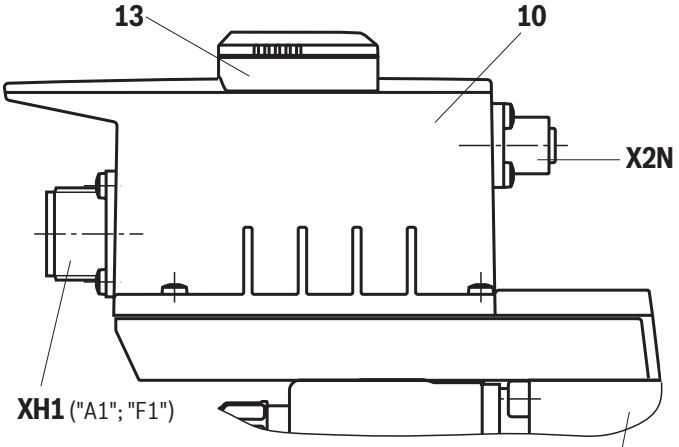
- Analog interface (XH1)
  - Interface "A1" (command value 0 ... 10 V)
  - Interface "F1" (command value 4 ... 20 mA)
- Digital interface (XH5)
  - IO-Link "L1"

Type (Z)3DREA – with integrated digital electronics (OBED) and pressure control
With regard to function and set-up, this version corresponds to type (Z)3DREE.
This valve version also has a pressure transducer (11). The latter is either directly attached on the carrier (12) or may be externally integrated in the system via the interface (X2N).
The pressure transducer (11) records the pressure in channel P, which is then regulated independently of the flow via the integrated electronics (10).
The pressure in channel A (P①) is output via the connector (XH1, XH5) as analog or digital actual value (0 ...10 V or 4 ... 20 mA or in the unit [bar]).
If the command value is zero, the integrated electronics only apply the minimum control current to the proportional solenoid and the minimum set pressure is applied.

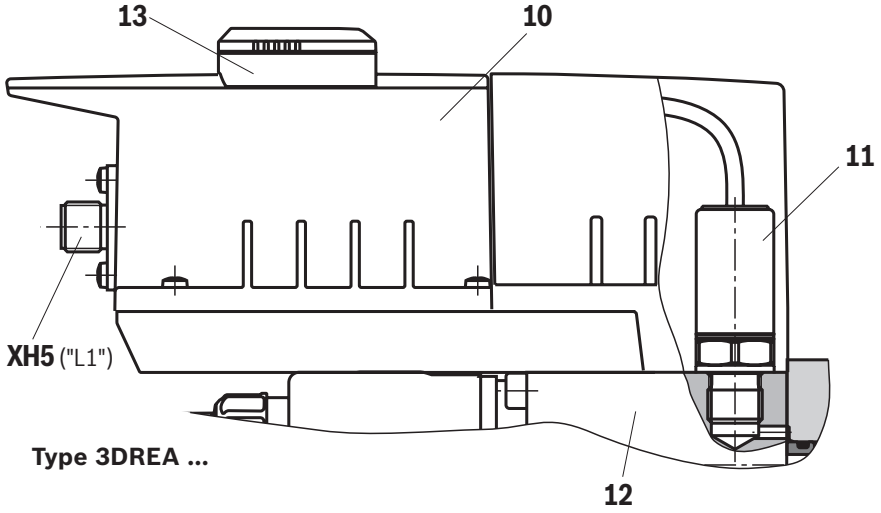
Bluetooth® function
The digital on-board electronics (OBED) provide the user with a digital diagnosis interface via a Bluetooth® dongle (Bluetooth® Low Energy). It may also be ordered as an accessory and retrofitted. The Bluetooth® dongle may only be attached when the valve is de-energized.
By means of the "easy2connect app", the valve status can be displayed and configurations at the valve can be carried out via the Bluetooth® dongle (13).

☞ **Notice:**

- The "easy2connect app" can be downloaded in the App Store (iOS) or Google Play Store (Android).
- Further information on the Bluetooth® dongle VT-ZBT-1-1X (R901505294) as well as set-up and installation of the app is available in data sheet 30581 and operating instructions 30581-B.



Type 3DREA...A



Type 3DREA ...

Technical data

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

General			
Type of connection			Subplate mounting
Porting pattern			ISO 4401-03-02-0-05
Weight	▶ Type (Z)3DRE	kg	2.6
	▶ Type (Z)3DREE	kg	3.1
	▶ Type (Z)3DREA	kg	3.5
Installation position			Any (preferably horizontal)
Ambient temperature range	▶ Without "OBED"	°C	–20 ... +80
	▶ With "OBED"	°C	–20 ... +60
Storage temperature range		°C	–20 ... +80
Maximum storage time		Years	1 (if the storage conditions are observed, refer to the operating instructions 07600-B)
Maximum relative humidity (no condensation)		%	97
Protection class according to EN 60529			IP65 (if suitable and correctly mounted mating connectors are used)
$MTTF_D$ value according to EN ISO 13849		Years	150 (for further details see data sheet 08012) [1]
Sine test according to DIN EN 60068-2-6			10 ... 2000 Hz / maximum of 10 g / 10 cycles / 3 axes
Noise test according to DIN EN 60068-2-64			20 ... 2000 Hz / 10 g_{RMS} / 30 g peak / 24 h / 3 axes
Transport shock according to DIN EN 60068-2-27			15 g / 11 ms / 3 shocks / 3 axes
Conformity	▶ CE according to EMC directive 2014/30/EU, tested according to		EN 61000-6-2 and EN 61000-6-3
	▶ UKCA according to EMC directive SI 2016/1091, tested according to		EN 61000-6-2 and EN 61000-6-3
	▶ RoHS directive		2011/65/EU [2]

Hydraulic			
Maximum operating pressure	▶ Port P, P②	bar	350
	▶ Port P①, A, B	bar	315
	▶ Port T	bar	Separate and depressurized to the tank
Hydraulic fluid			See table page 8
Hydraulic fluid temperature range		°C	–20 ... +80
Viscosity range	▶ Recommended	mm^2/s	30 ... 46
	▶ Maximum admissible	mm^2/s	20 ... 380
Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c)			Class 20/18/15 [3]
Maximum flow		l/min	60
Maximum set pressure [4]	▶ Port P①, A	bar	50; 100; 200; 315
Minimum set pressure with command value 0	▶ Port P①, A	bar	See characteristic curves page 15
Pilot flow		l/min	0.5

1) "OBED" voltage supply switched off.

2) The product fulfills the substance requirements of the RoHS directive 2011/65/EU.

3) 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 life cycle of the components.

4) Can be adjusted by the customer by ±10% via IO-Link and app.

Technical data

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

Hydraulic fluid		Classification	Suitable sealing materials	Standards	Data sheet
Mineral oils		HL, HLP, HLPD, HVLP, HVLPD	NBR, FKM	DIN 51524	90220
Bio-degradable	▶ Insoluble in water	HETG	FKM	ISO 15380	90221
		HEES	FKM		
	▶ Soluble in water	HEPG	FKM	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	FKM	ISO 12922	90222
		HFDU (ester base)	FKM		
		HFDR	FKM		
	▶ Containing water	HFC (Fuchs: Hydrotherm 46M, Fuchs Renosafe 500; Petrofer: Ultra Safe 620; Houghton: Safe 620; Union: Carbide HP5046)	NBR	ISO 12922	90223

☞ **Important information on hydraulic fluids:**

- ▶ For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- ▶ There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- ▶ The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.
- ▶ **Bio-degradable and flame-resistant – containing water:**
  If components with galvanic zinc coating (e.g., version "J3" or "J5") or parts containing zinc are used, small amounts of dissolved zinc may get into the hydraulic system and cause accelerated aging of the hydraulic fluid. Zinc soap may form as a chemical reaction product, which may clog filters, nozzles and solenoid valves – particularly in connection with local heat input.
- ▶ **Flame-resistant – containing water:**
  - – Due to the increased cavitation tendency with the use of HFC hydraulic fluids, the life cycle of the component may be reduced by up to 30% as compared to the use with mineral oil HLP.
  - – Dependent on the hydraulic fluid used, the maximum environment and hydraulic fluid temperature must not exceed 50 °C. In order to reduce the heat input into the component, the command value profile is to be adjusted for proportional and high-response valves.

Static/dynamic							
Type			(Z)3DRE		(Z)3DREE	(Z)3DREA
			1600 mA	800 mA		
Hysteresis [5]		%	<6	<8	<6	<2
Range of inversion [5]		%	<0.5	<0.5	<0.5	< 0.25
Response sensitivity [5]		%	<0.5	<0.5	<0.5	< 0.25
Manufacturing tolerance [5]		%	±6	±6	±2	±1
Temperature drift	▶ Electronics	%/10K	–	–	<0.3	<0.3
	▶ Pressure sensor					
	– Pressure rating "50"	%/10K	–	–	–	<0.4
	– Pressure rating "100"	%/10K	–	–	–	<0.2
	– Pressure rating "200"	%/10K	–	–	–	<0.1
	– Pressure rating "315"	%/10K	–	–	–	<0.1
Repetition accuracy [5]		%	±1	±1	±1	±0.5
Linearity [5]		%	±2	±2	±2	±1
Step response $T_u + T_g$ [6]	▶ 10% → 90%	ms	150	250	85 [7]	85 [7]
	▶ 90% → 10%	ms	150	250	85 [7]	85 [7]

[5] Of the maximum set pressure

[6] Line volume <20 cm³, q_V = 0 l/min

[7] Adjustment possible up to 70 ms

Technical data

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

Electrical				
Version			"G24"	"G24-8"
Supply voltage	▶ Nominal value	VDC	24	
Minimum solenoid current		mA	<100	
Maximum solenoid current		mA	1600 ±10 %	800 ± 5%
Solenoid coil resistance	▶ Cold value at 20 °C	Ω	5.5	20.6
	▶ Maximum hot value	Ω	8.05	33
Relative duty cycle time according to VDE 0580		%	S1 (continuous operation)	

Electrical, integrated electronics (OBE) – Interface "A1"			
Supply voltage	▶ Nominal value	VDC	24
	▶ Minimum	VDC	18
	▶ Maximum	VDC	30
	▶ Maximum residual ripple	Vpp	2.5
	▶ Maximum power consumption	VA	30
	▶ Peak current	A	3.2
	▶ Fuse protection, external	A_T	2.5 (time-lag)
Relative duty cycle time according to VDE 0580		%	S1 (continuous operation)
Functional ground and screening			See pin assignment on page 11 (CE-compliant installation)
Command value (differential amplifier)	▶ Measurement range	V	0 ... 10
	▶ Input resistance	kΩ	>100
Actual value (test signal)	▶ Output range	V	0 ... 10
	▶ Minimum load impedance	kΩ	>2

Electrical, integrated electronics (OBE) – Interface "F1"			
Supply voltage	▶ Nominal value	VDC	24
	▶ Minimum	VDC	18
	▶ Maximum	VDC	30
	▶ Maximum residual ripple	Vpp	2.5
	▶ Maximum power consumption	VA	30
	▶ Peak current	A	3.2
	▶ Fuse protection, external	A_T	2.5 (time-lag)
Relative duty cycle time according to VDE 0580		%	S1 (continuous operation)
Functional ground and screening			See pin assignment on page 11 (CE-compliant installation)
Command value	▶ Input current range	mA	4 ... 20
	▶ Input resistance	Ω	100 (+2 V diode path)
Actual value (test signal)	▶ Output range	mA	4 ... 20
	▶ Maximum load	Ω	475

Technical data

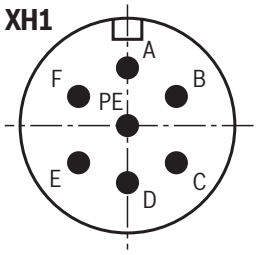
(For applications outside these values, please consult us!)

Electrical, integrated electronics (OBE) – Interface "L1"			
Supply voltage	▶ Valve amplifiers		
	– Nominal value	VDC	24
	– Minimum	VDC	18
	– Maximum	VDC	30
	– Maximum residual ripple	Vpp	2.5
	– Maximum power consumption	VA	30
	– Peak current	A	3.2
	▶ IO-Link interface		
	– Nominal value	VDC	24
	– Minimum	VDC	18
	– Maximum	VDC	30
	– Maximum residual ripple	Vpp	1.3
	– Maximum power consumption	VA	1.2
	– Minimum process cycle time	ms	1
Relative duty cycle time according to VDE 0580		%	S1 (continuous operation)
Functional ground and screening			Provide via valve block
Bit rate COM3		kBaud (kbit/s)	230.4
Required master port class			Class B
Directive			IO-Link Interface and System Specification Version 1.1.2

Electrical connections and assignment

Contact	Interface assignment	
	"A1" (6 + PE)	**"F1"** (6 + PE)
A	Supply voltage	Supply voltage
B	GND	GND
C	Reference potential actual value to F (connect to ground on the control side)	Reference potential actual value to F (connect to ground on the control side; current loop $I_{F\text{-}C}$ feedback)
D	Command value	Command value
E	Reference potential command value (connect to ground on the control side)	Reference potential command value (connect to ground on the control side, current loop $I_{D\text{-}E}$ feedback)
F	Actual value	Actual value
FE	Functional ground (directly connected to the valve housing)	

XH1

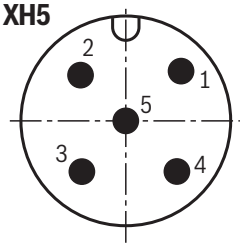


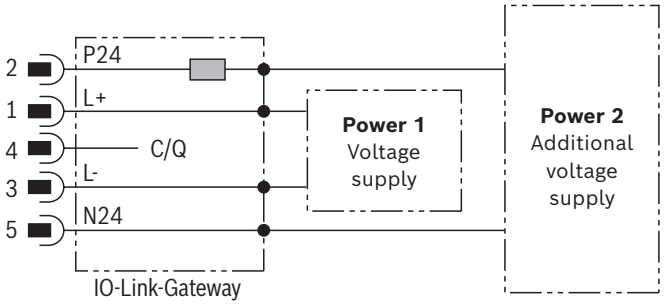
Command value	▶ Positive command value (0 ... 10 V or 4 ... 20 mA) at D and reference potential at E
Connection cable	▶ Up to 20 m cable length type LiYCY 7 x 0.75 mm²
	▶ Up to 40 m cable length type LiYCY 7 x 1.0 mm²
	▶ EMC-compliant installation: – Apply screening to both line ends – Use metal mating connector (see page 27) ▶ Alternatively up to 30 m cable length admissible – Apply screening on supply side – Plastic mating connector (see page 27) can be used

☞ **Notice:**
Mating connectors, separate order, see page 27 and data sheet 08006.

Connector pin assignment "L1" (M12-5, A-coded, class B)

XH5





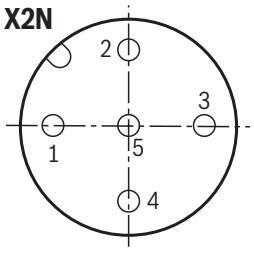
☞ **Notice:**
- ▶ M12 sensor/actuator connection line, 5-pole; M12 connector/bush, A-coded, without shield, maximum cable length 20 m. Observe the voltage drop over the cable. Wire cross-section at least 0.34 mm².
- ▶ Mating connectors, separate order, see page 27 and data sheet 08006.
- ▶ For communication and parameter description, see functional description 29283-FK

Pin	Signal	Allocation interface "L1"
1	L+	Voltage supply IO-Link
2	P24	Voltage supply for valve electronics, pressure sensor, Bluetooth® dongle (incl. LEDs etc.) and power section of max. 1.6 A continuous current and up to 2 A as making current. Potential is galvanically separated from supply L+ and L-.
3	L-	Reference potential pin 1
4	C/Q	Data line IO-Link (SDCI)
5	N24	Reference potential pin 2 (galvanically separated from supply L+ and L-)

Electrical connections and assignment

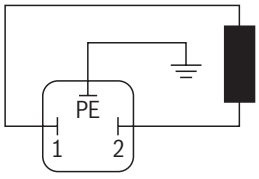
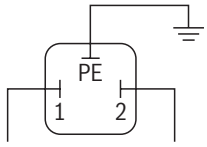
Connector pin assignment for analog configurable pressure sensor interface "X2N" (coding A), M12, 5-pole, socket

Pin	Signal	Interface
1	U_S	Voltage supply for pressure sensor from the valve supply +U_B or P24, max. 50 mA (short-circuit-proof). Observe the voltage range of the pressure sensor.
2	I_{Meas}	Current input 4 ... 20 mA, connected to GND via 100 Ω load resistance +2 V diode path. Measuring input configurable via Bluetooth® or IO-Link.
3	GND	Reference potential; do not connect in the case of two-wire system (current input).
4	U_{Meas}	Voltage input 0 ... 10 V (Re_{min} = 50 kΩ)
5	n.c.	No connection; insulated bore in the socket.
Thread	Shield (functional ground)	Connected to the housing via the thread.



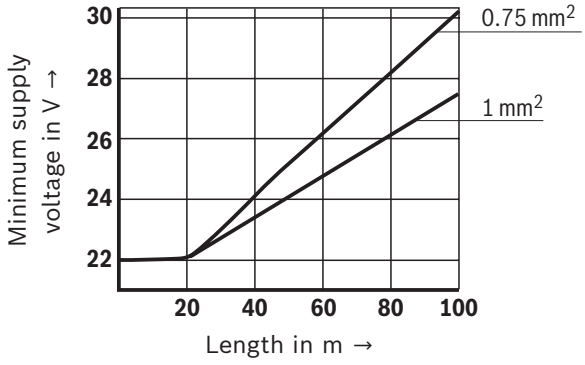
Notice:
- In the condition as supplied, the actual value input PIN 4 0.1 ... 10 V of the pressure sensor interface is configured.
- Connection cable up to 10 m cable length with screening connected to both line ends.
- The pressure sensor signal interface is always configured to voltage signal.
- The pressure sensor signal can be independently changed via IO-Link or via the Bluetooth® interface by means of "easy2connect app".

Type (Z)3DRE

Connection at connector	Connection at mating connector
	

Connection cable (recommendation):
- 2-wire, 0.75 or 1 mm² plus protective grounding conductor and screening
- Only connect the screening to PE on the supply side
- Maximum admissible length = 100 m

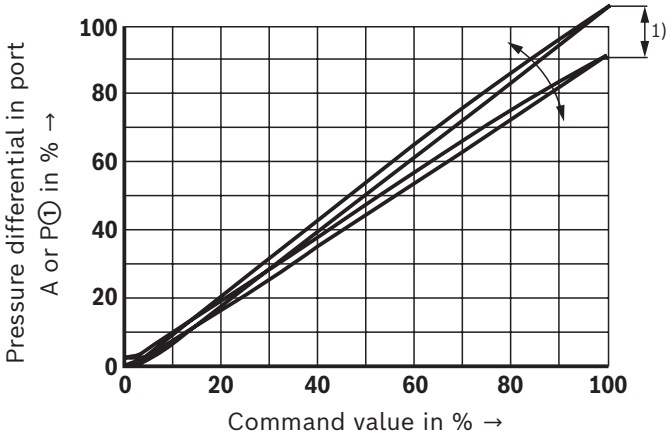
The minimum supply voltage at the power supply unit depends on the length of the supply line (see diagram).



Characteristic curves

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

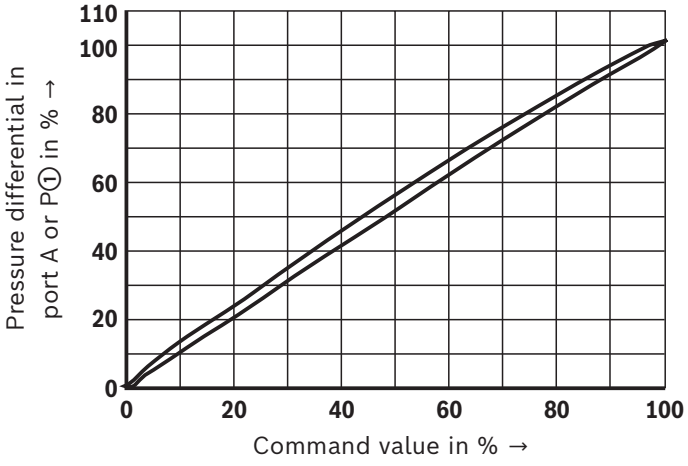
Reduced pressure in port A or P① of the command value (manufacturing tolerance)



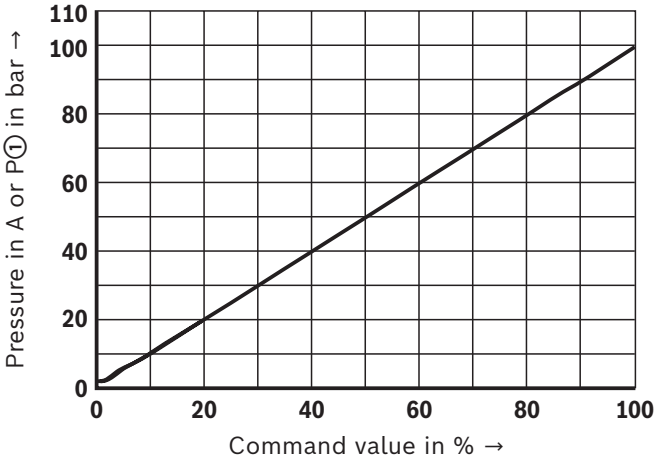
1) In order to be able to adjust several valves to the same characteristic curve, the manufacturing tolerance can - with version "(Z)3DRE" - be changed at the external amplifier (see page 27) using the command value attenuator "G," In this connection, do not set the pressure higher than the maximum set pressure of the pressure rating with command value 100%.

Pressure in port A or P① dependent on the command value(flow 0 l/min)
Pressure rating 100 bar (exemplary of all pressure ratings)

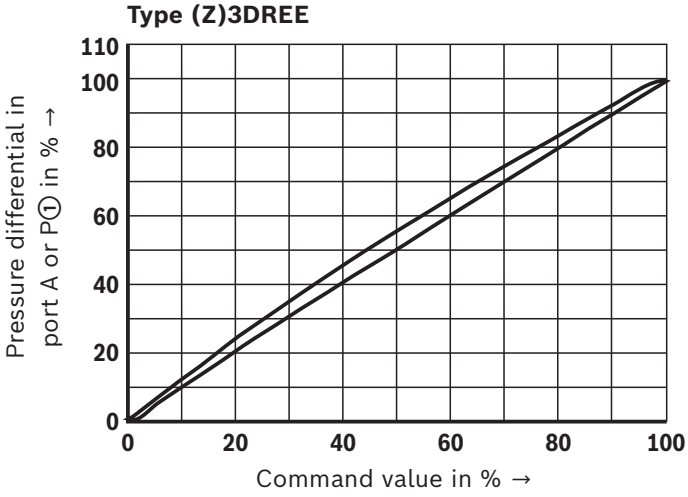
Type (Z)3DRE



Type (Z)3DREA



Type (Z)3DREE



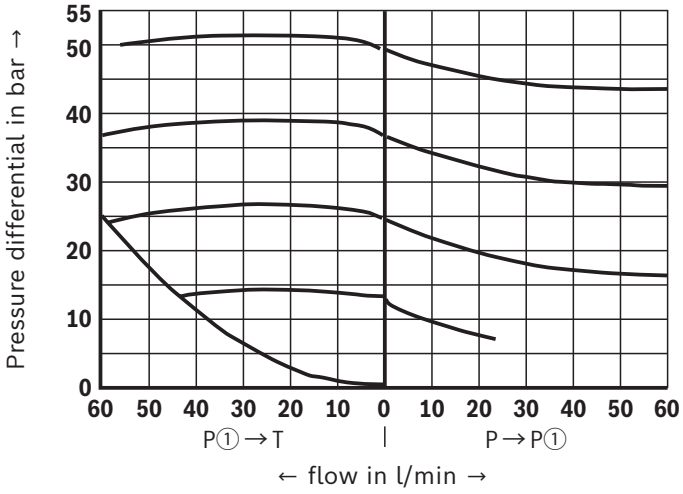
☞ **Notice:**

- The characteristic curves apply for output pressure p_T = 0 bar in the entire flow range.
- System pressure = nominal pressure + 50 bar (minor dead volume).

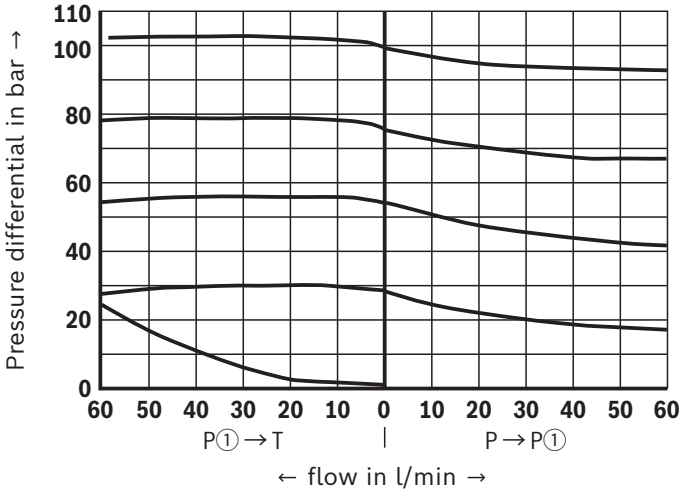
Characteristic curves: Type Z3DRE and Z3DREE (measured with HLP46, ϑ_{oil} = 40 ±5 °C)

Δp-q_V characteristic curves

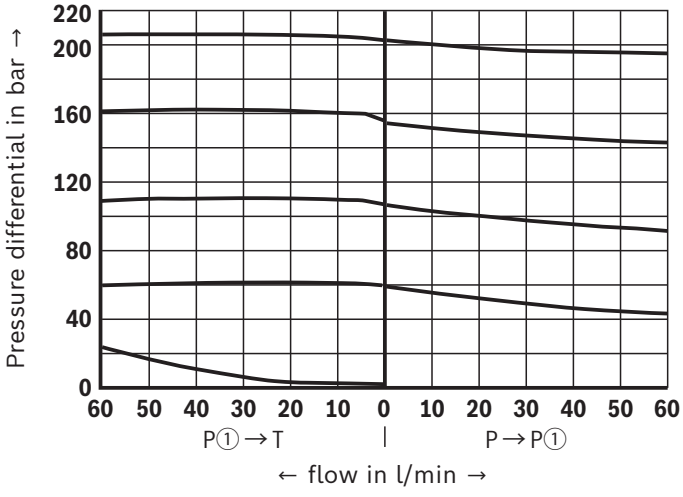
Pressure rating 50 bar



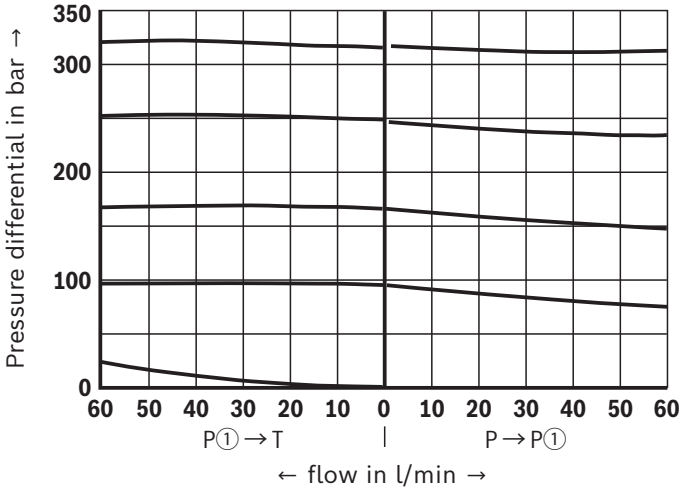
Pressure rating 100 bar



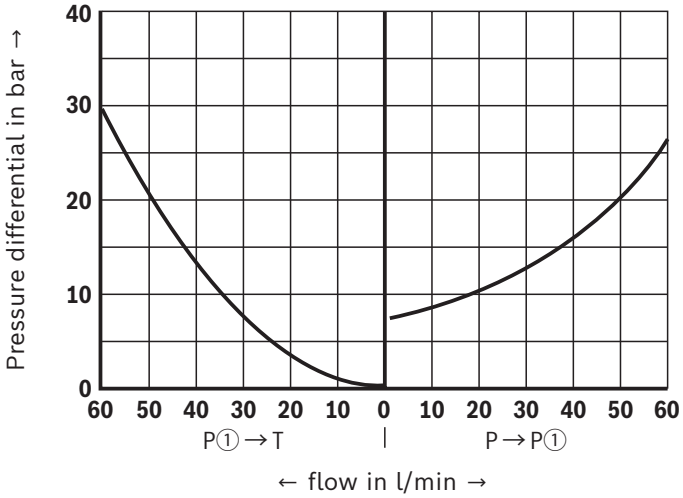
Pressure rating 200 bar



Pressure rating 315 bar



p-q_V characteristic curves

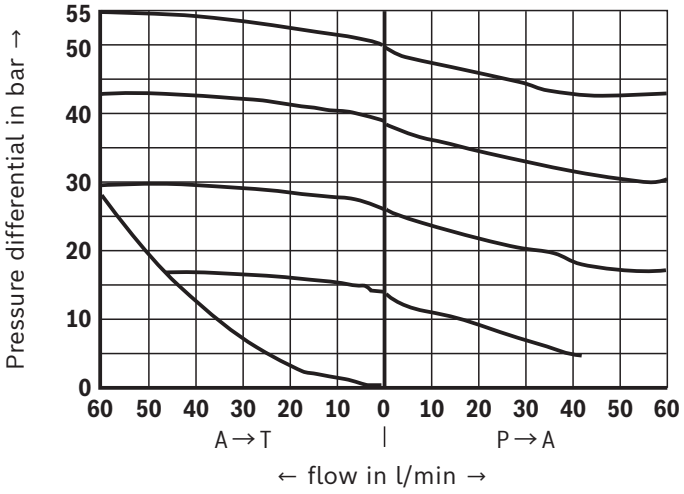


Notice:
- The characteristic curves apply for output pressure p_T = 0 bar in the entire flow range.
- System pressure = nominal pressure + 50 bar (minor dead volume).

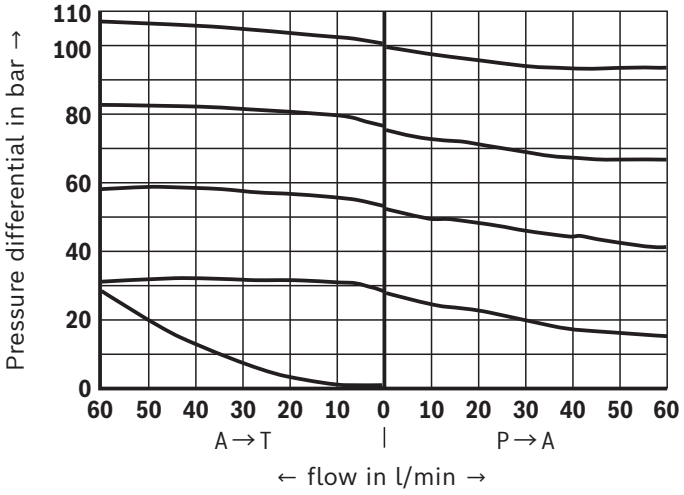
Characteristic curves: Type 3DRE and 3DREE (measured with HLP46, ϑ_{oil} = 40 ±5 °C)

Δp-q_V characteristic curves

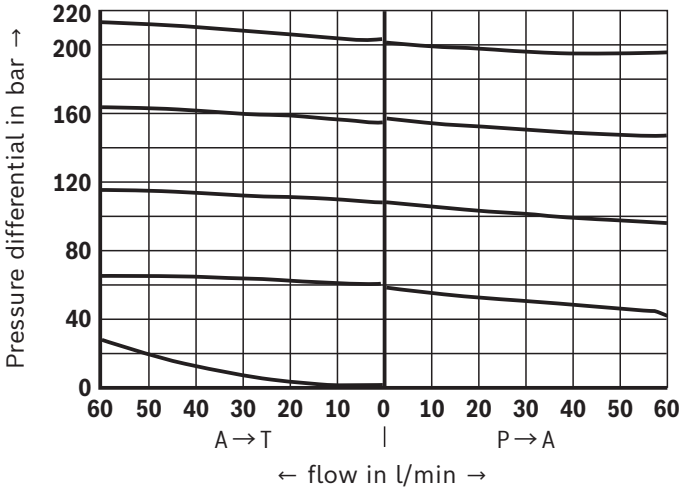
Pressure rating 50 bar



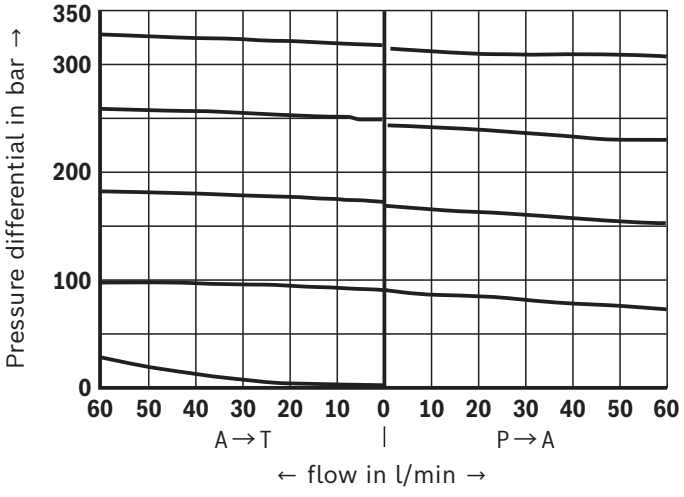
Pressure rating 100 bar



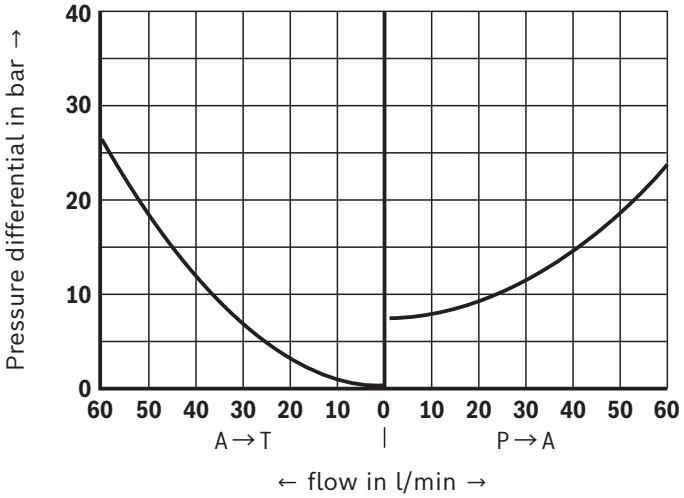
Pressure rating 200 bar



Pressure rating 315 bar



p-q_V characteristic curves



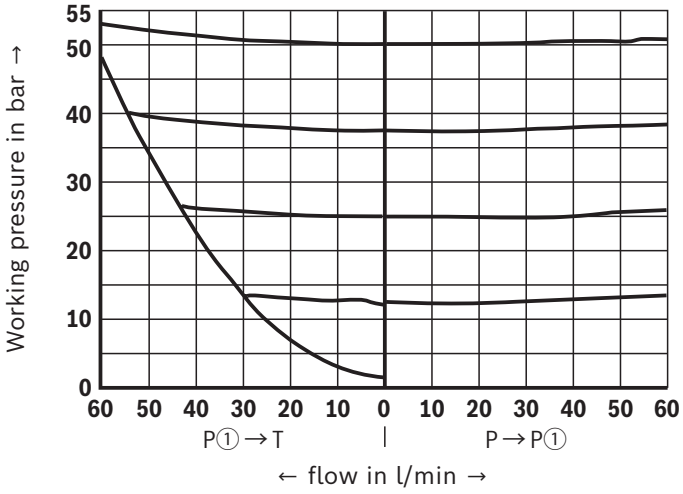
Notice:

- The characteristic curves apply for output pressure p_T = 0 bar in the entire flow range.
- System pressure = nominal pressure + 50 bar (minor dead volume).

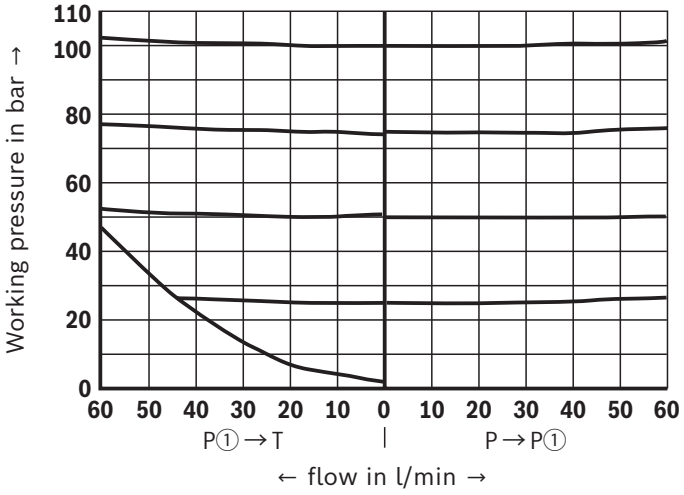
Characteristic curves: Type Z3DREA
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

p-q_V characteristic curves

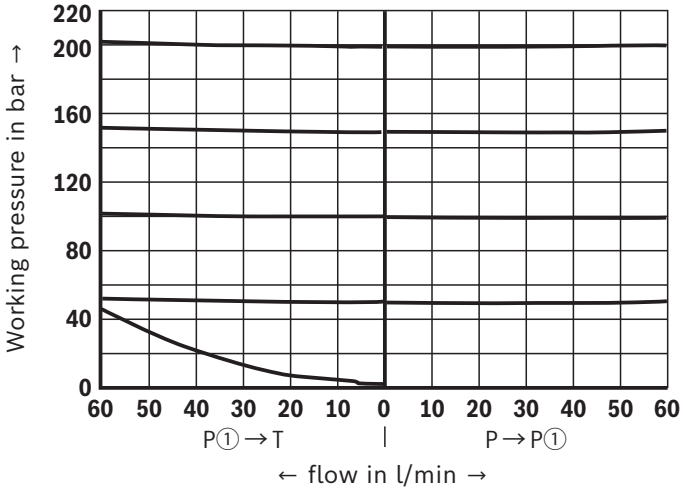
Pressure rating 50 bar



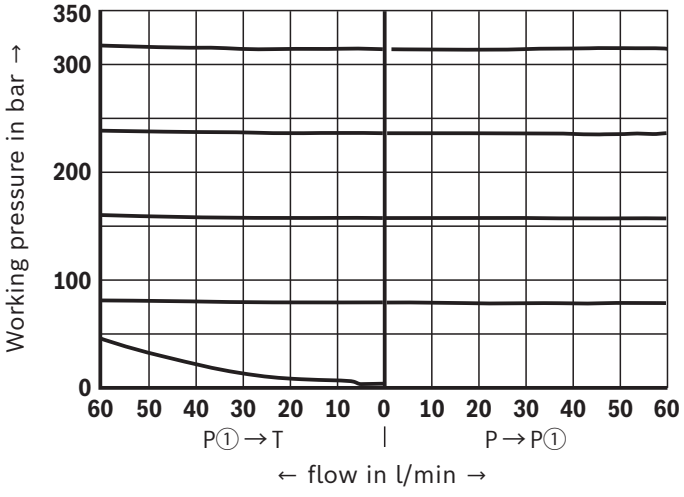
Pressure rating 100 bar



Pressure rating 200 bar



Pressure rating 315 bar

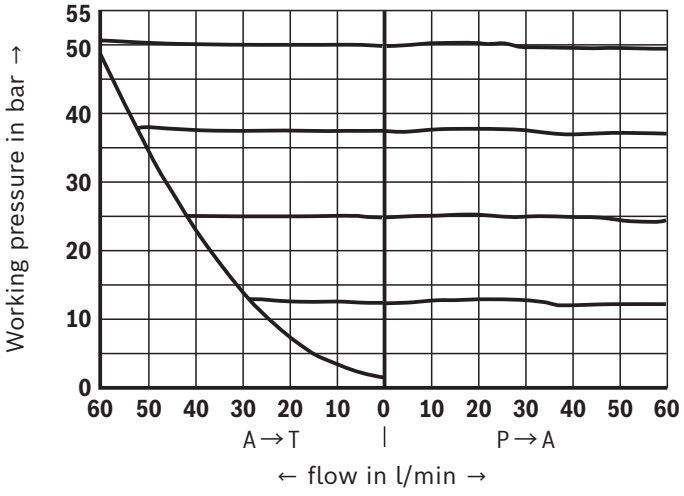


☞ **Notice:**
- The characteristic curves apply for output pressure p_T = 0 bar in the entire flow range.
- System pressure = nominal pressure + 50 bar (minor dead volume).

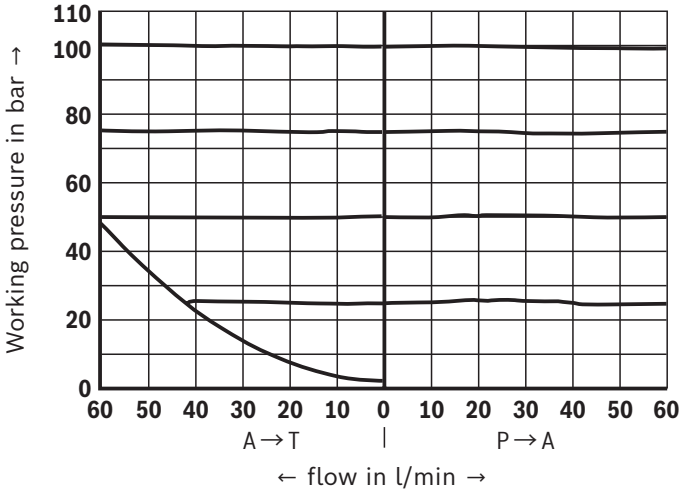
Characteristic curves: Type 3DREA
(measured with HLP46, ϑ_{oil} = 40 ±5 °C)

p-q_V characteristic curves

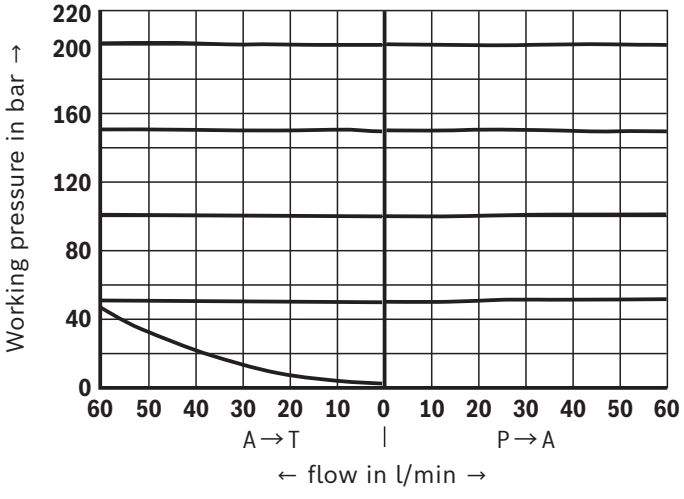
Pressure rating 50 bar



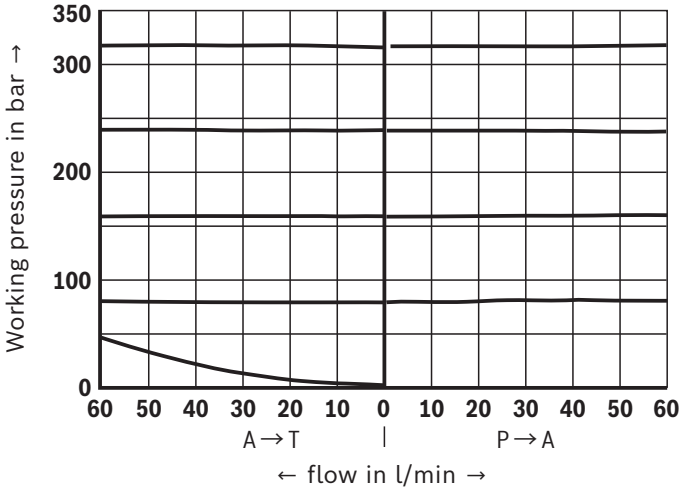
Pressure rating 100 bar



Pressure rating 200 bar

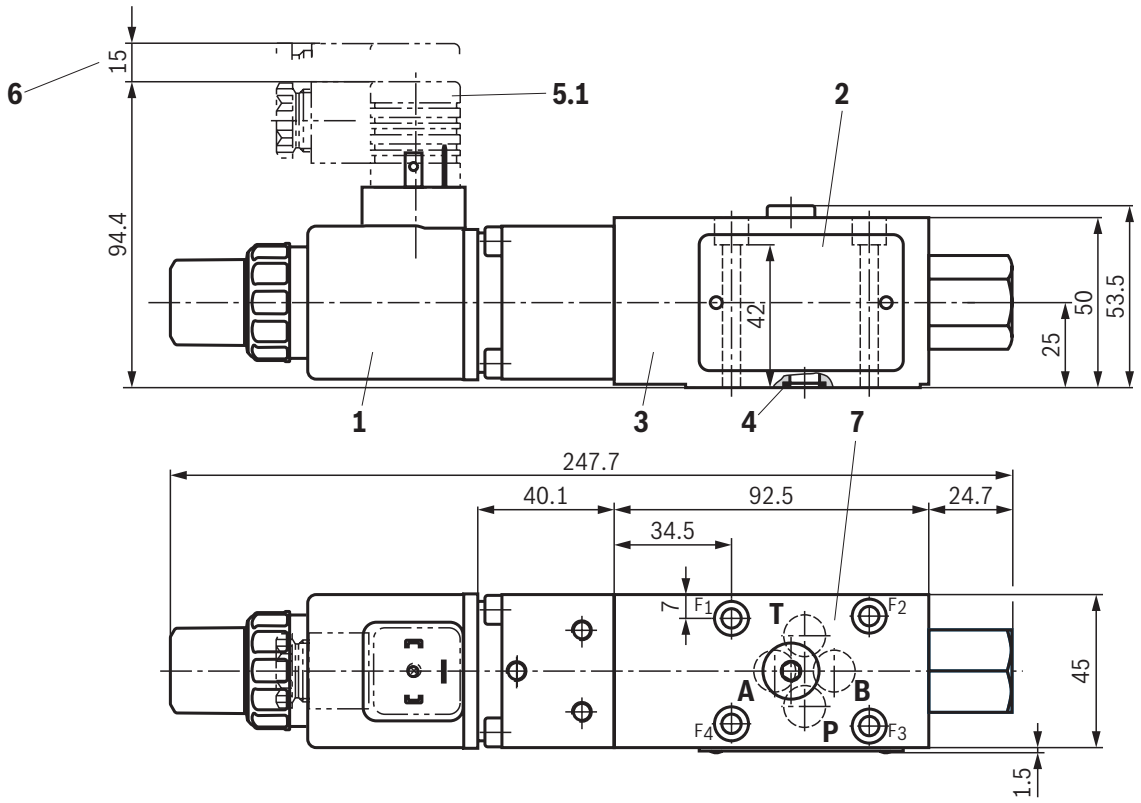


Pressure rating 315 bar

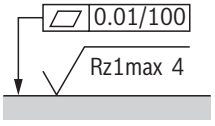


Notice:
- The characteristic curves apply for output pressure p_T = 0 bar in the entire flow range.
- System pressure = nominal pressure + 50 bar (minor dead volume).

Dimensions: Type 3DRE
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.1 Mating connector **without** circuitry for connector "K4" (separate order, see page 27 and data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05

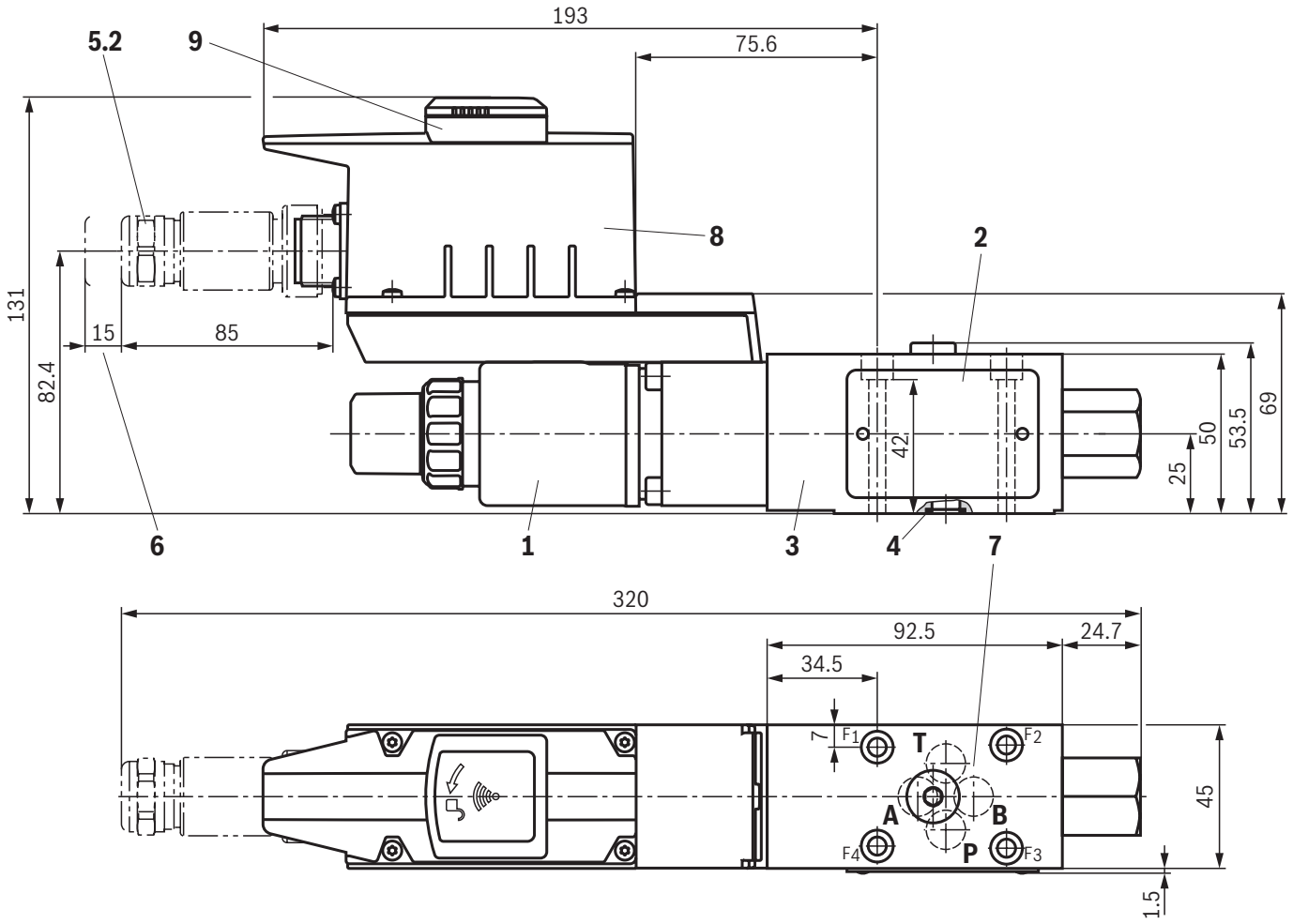


Required surface quality of the valve contact surface

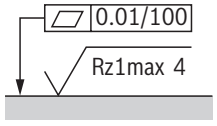
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type 3DREE
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.2 Mating connectors with version "A1" and "F1" (separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)

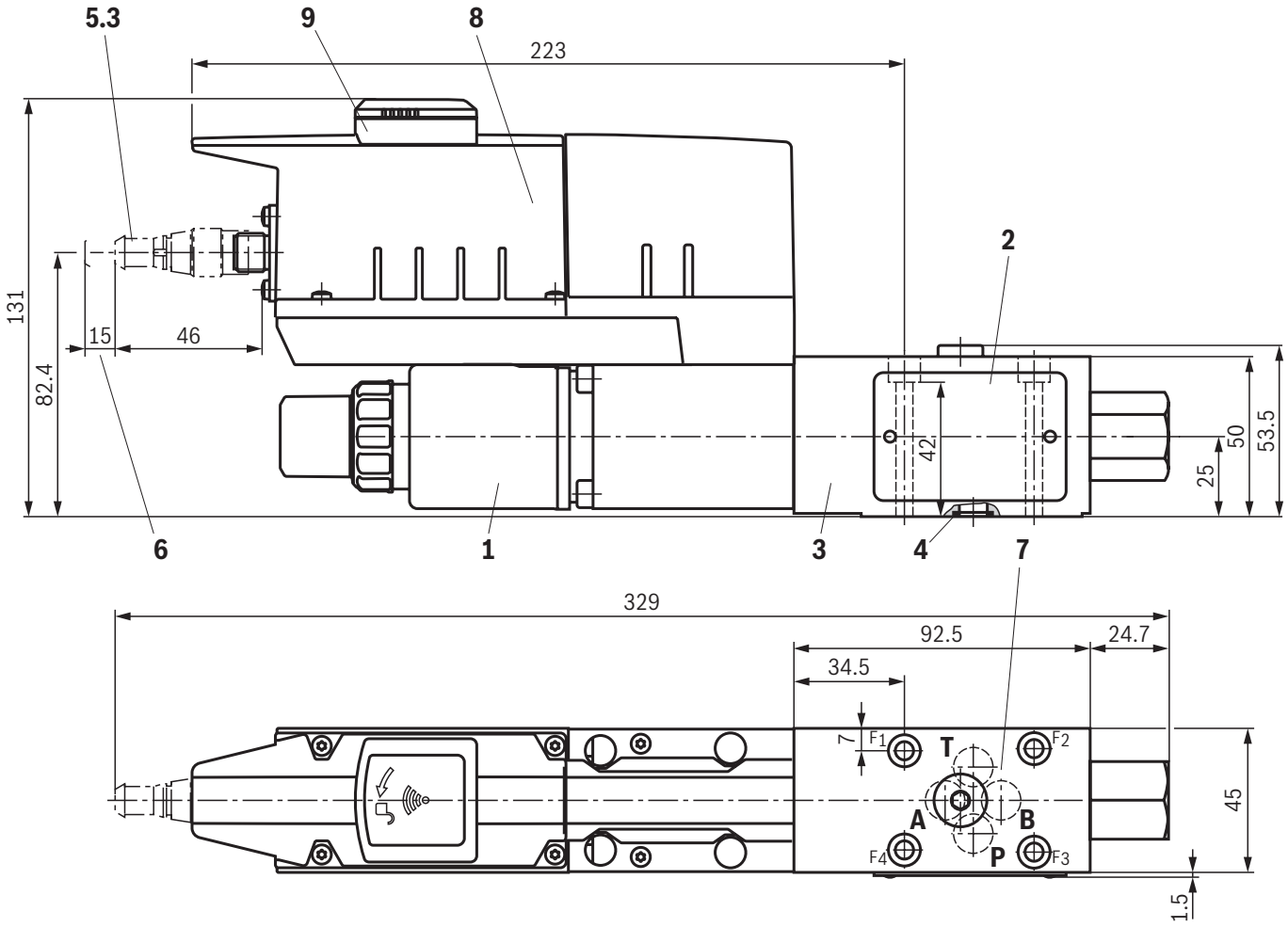


Required surface quality of the valve contact surface

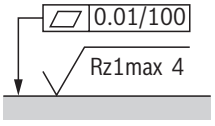
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type 3DREA
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.3 Mating connectors with version "L1" (separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)

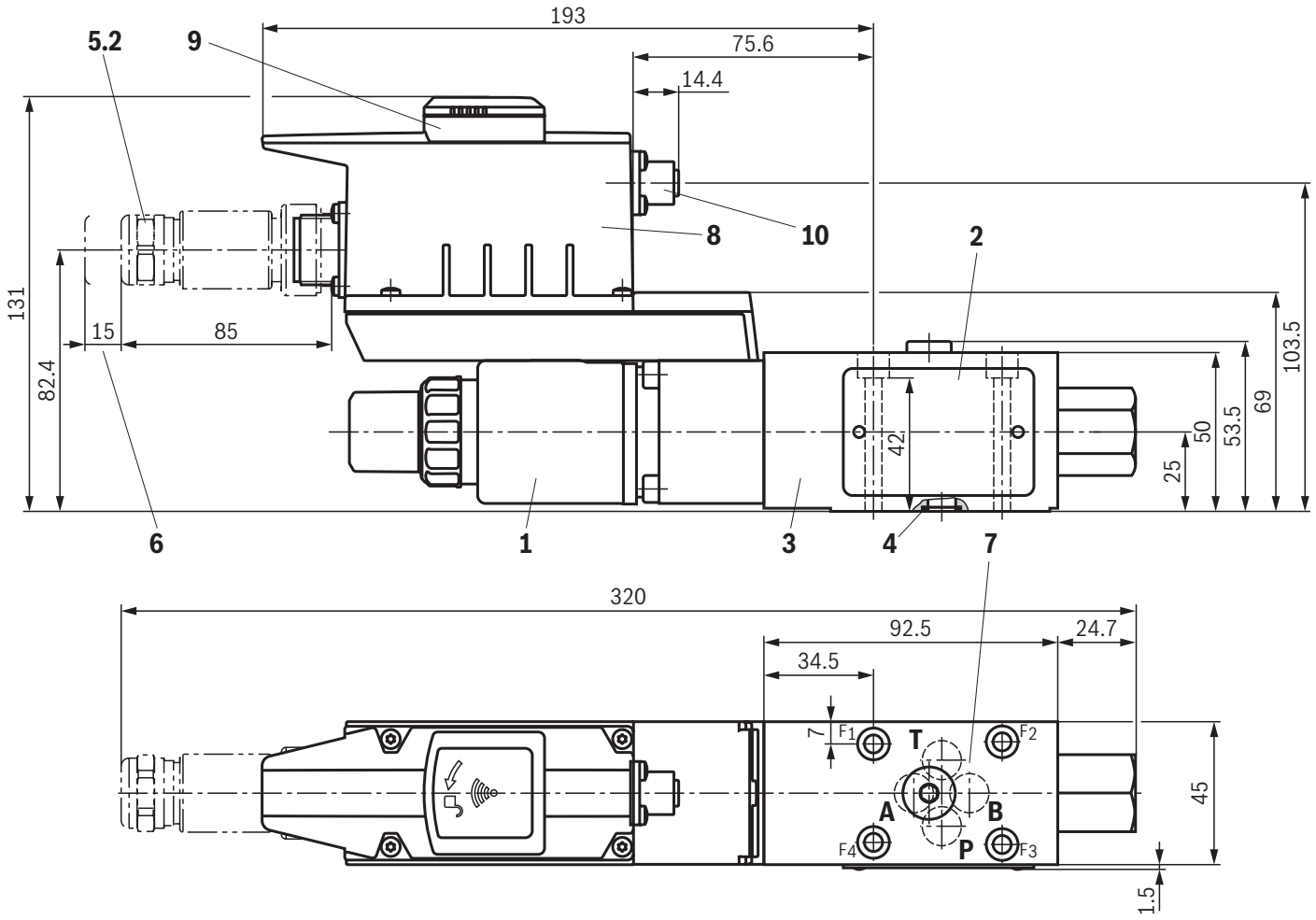


Required surface quality of the valve contact surface

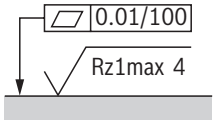
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type 3DREA...A
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.2 Mating connectors with version "A1" and "F1" (separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)
10 External connection for pressure sensor (pressure sensor, separate order, see page 27)

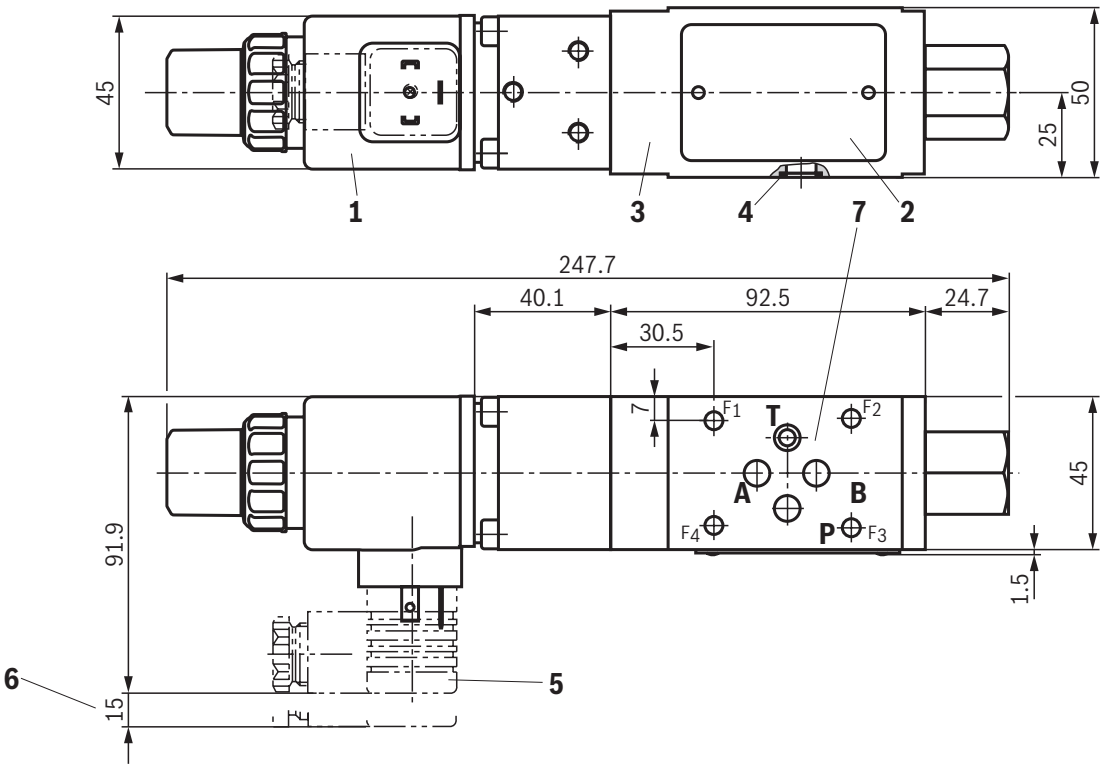


Required surface quality of the valve contact surface

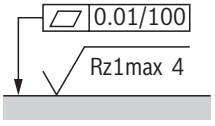
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type Z3DRE
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.1 Mating connector **without** circuitry for connector "K4" (separate order, see page 27 and data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05

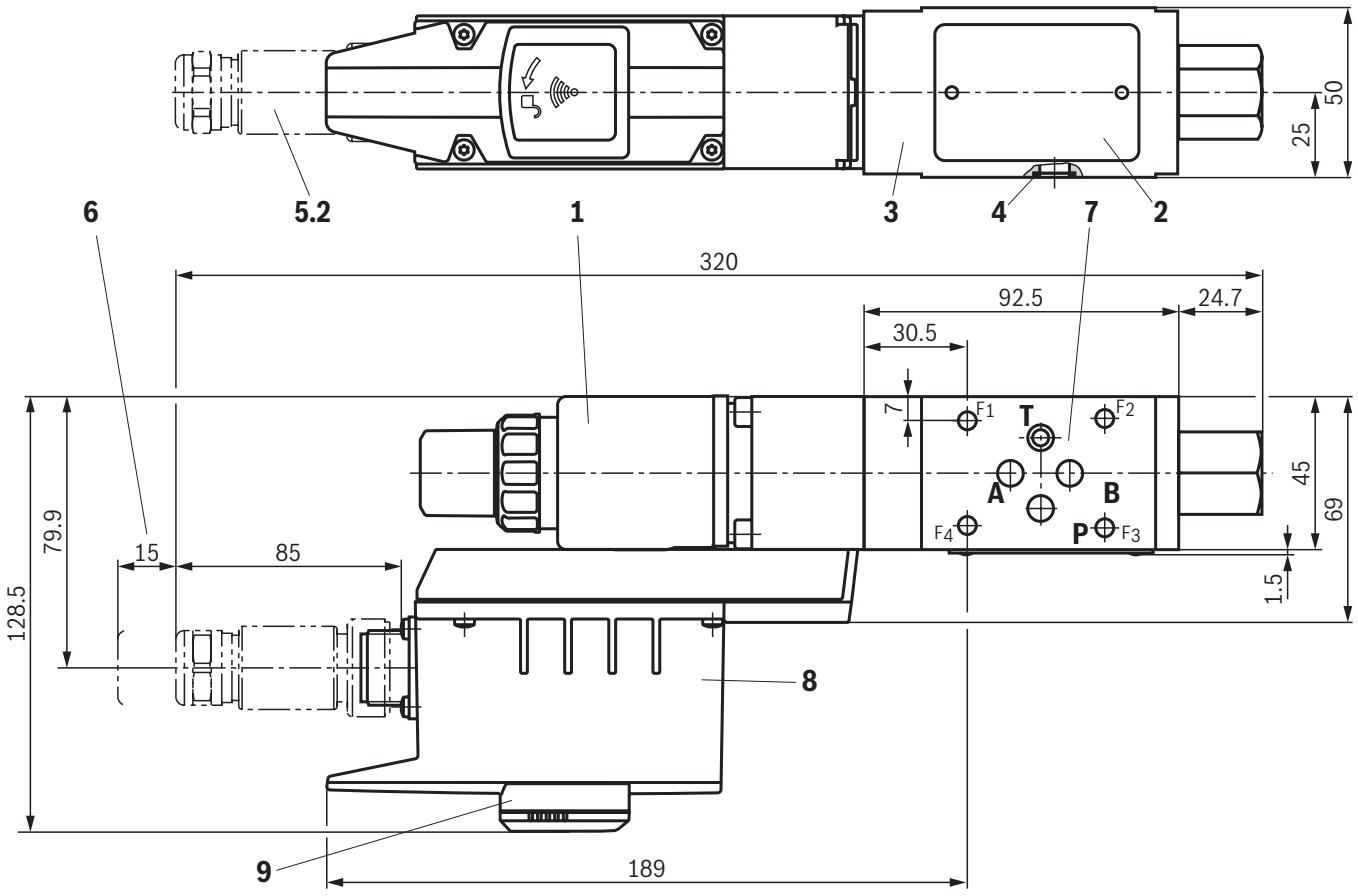


Required surface quality of the valve contact surface

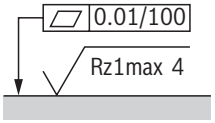
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type Z3DREE
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.2 Mating connectors with version "A1" and "F1" (separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)

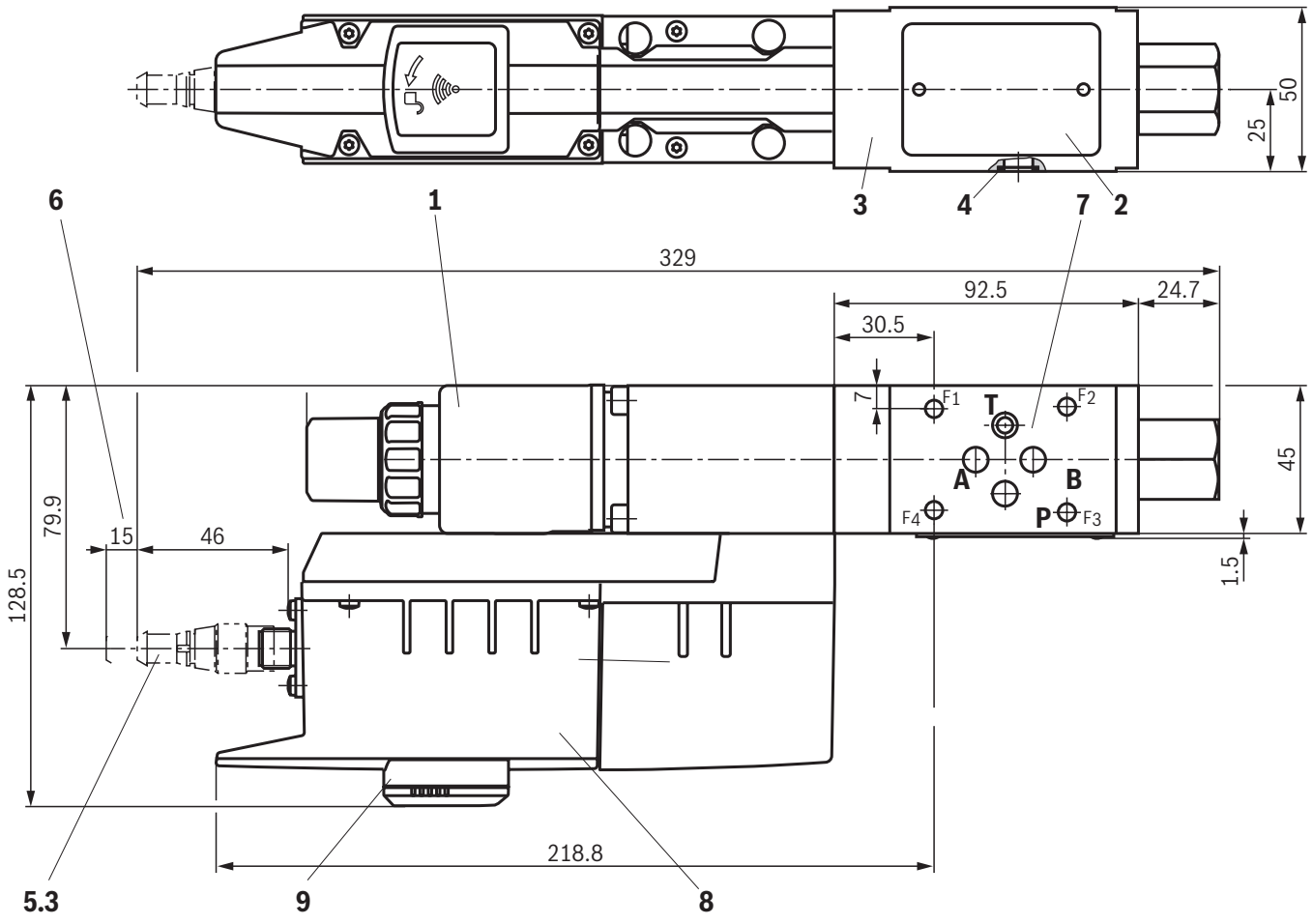


Required surface quality of the valve contact surface

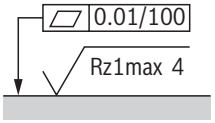
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type Z3DREA
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.3 Mating connectors with version "L1"
(separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)

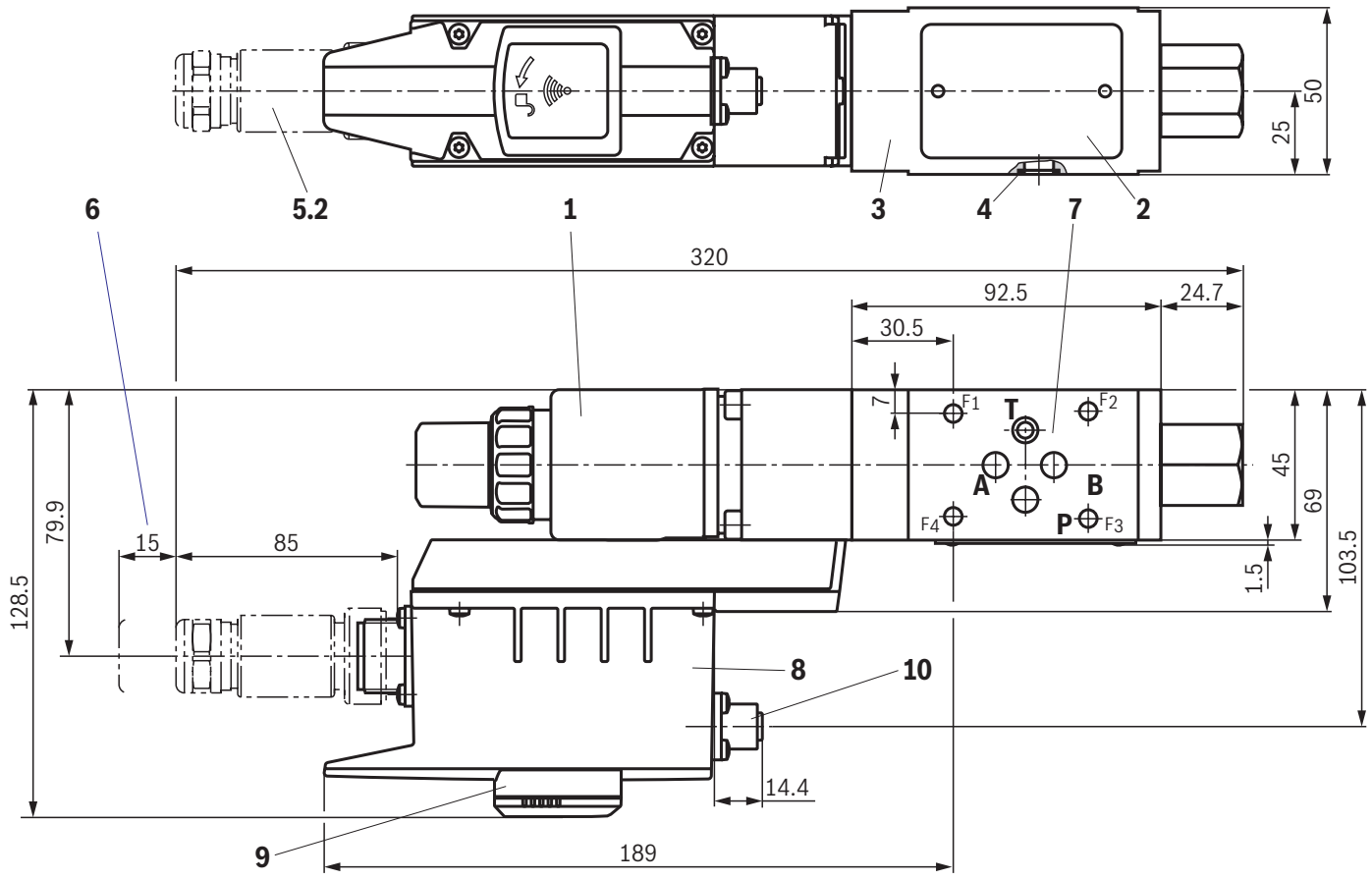


Required surface quality of the valve contact surface

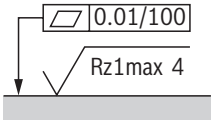
Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type Z3DREA...A
(dimensions in mm)



1 Proportional solenoid
2 Name plate
3 Valve housing
4 Identical seal rings for ports A, B, P and T
5.2 Mating connectors with version "A1" and "F1" (separate order, see page 27 data sheet 08006)
6 Space required for removing the mating connector
7 Porting pattern according to ISO 4401-03-02-0-05
8 Digital on-board electronics (OBED)
9 Bluetooth® dongle (separate order, see page 27)
10 External connection for pressure sensor (pressure sensor, separate order, see page 27)



Required surface quality of the valve contact surface

Valve mounting screws and **subplates**, see page 26.

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions

Valve mounting screws (separate order)

Type	Quantity	Hexagon socket head cap screws	Material number
3DRE …	4	**ISO 4762 - M5 x 50 - 10.9-CM-Fe-ZnNi-5-Cn-T0-H-B** Friction coefficient μ_{total} = 0.09 … 0.14; tightening torque M_A = 7 Nm ±10%	**R913043758**
Z3DRE …	4	**ISO 4762 - M5 - 10.9-CM-Fe-ZnNi-5-Cn-T0-H-B** Friction coefficient μ_{total} = 0.09 … 0.14; tightening torque M_A = 7 Nm ±10%	**–**

☞ **Notice:**
The tightening torque of the hexagon socket head cap screws refers to the maximum operating pressure.

Subplates (separate order) with porting pattern according to ISO 4401-03-02-0-05 see data sheet 45100.

Accessories (separate order)

Pressure sensor for external connection of pressure sensor (without connection line)

Type	Material number	Data sheet
HM20-2X/400-H-K35-N	**R901466598**	–

Bluetooth® dongle

	Material number	Data sheet
Bluetooth® dongle	**R901505294**	30581-B
Empty cover (for valves without Bluetooth® dongle)	**R961013819**	–

Valves with integrated electronics

Mating connectors 6-pole + PE	Design	Version	Material number	Data sheet
For the connection of valves with integrated electronics, round connector 6+PE, line cross-section 0.5 ... 1.5 mm²	Straight	Metal	**R900223890**	08006
	Straight	Metal with mechanical locking	**R901044595**	–
	Straight	Plastic	**R900021267**	08006
	Angled	Plastic	**R900217845**	–

Cable set 6-pole + PE	**Length** in m	Material number	Data sheet
For the connection of valves with integrated electronics, round connector 6+PE, straight connector, shielded, potted-in mating connector, line cross-section 0.75 mm²	3.0	**R901420483**	08006
	5.0	**R901420491**	
	10.0	**R901420496**	
	20.0	**R901448068**	–

Cable set (analog sensors)	**Length** in m	Material number	Data sheet
For connection of the Rexroth pressure sensors type HM20, shielded, 5-pole, A-coding, PUR/PVC, straight connector M12, on straight socket M12, line cross-section 0.34 mm²	0.6	**R901111709**	–
	1.0	**R901111712**	–
	2.0	**R901111713**	–

External control electronics

	Type	Data sheet
Modular design	VT-MSPA1-2X	30232

Test and service devices

	Material number	Data sheet
Service case with test device for continuous control valves with integrated electronics (OBE)	**R901049737**	29685

IO-Link gateways

Designation	Description	Material number
S67E-PN-IOL8-DI4-M12-6P	IndraControl S67E PROFINET device in plastic housing 8 IO-Link ports (4 x class A and 4 x class B), 4 digital inputs, 24 VDC, M12 quick connection technology	**R911174436**
S67E-S3-IOL8-DI4-M12-6P	IndraControl S67E Sercos device in plastic housing 8 IO-Link ports (4 x class A and 4 x class B), 4 digital inputs, 24 VDC, M12 quick connection technology	**R911174437**

Safety instructions

IT security
The operation of installations, systems and machines basically requires the implementation of a holistic IT security concept which is state-of-the-art in terms of technology.
Accordingly, Bosch Rexroth products and their properties must be considered as components of installations, systems and machines for their holistic IT security concept.

Unless otherwise documented, Bosch Rexroth products are designed for operation in local, physically and logically secured networks with access restrictions for authorized persons, and they are not classified according to IEC 62443-4-2.

Certification

Title	Document number
EU declaration of conformity	DCTC-31000-175
China certificate	DCTC-31000-181
India certificate	DCTC-31000-182
South Korea certificate	DCTC-31000-183
US certificate	DCTC-31000-184

☞ **Notice:**
The Bluetooth® dongle is certified for the regions and/or economic areas included in the table.

Project planning information

- For valves with Bluetooth interface, the password should be changed using the "easy2connect app" during commissioning. For further information, see functional description 29283-FK.

Further information

▶ Hydraulic valves for industrial applications	Operating instructions 07600-B
▶ Subplates	Data sheet 45100
▶ Hydraulic fluids on mineral oil basis	Data sheet 90220
▶ Environmentally compatible hydraulic fluids	Data sheet 90221
▶ Flame-resistant, water-free hydraulic fluids	Data sheet 90222
▶ Flame-resistant hydraulic fluids – containing water (HFAE, HFAS, HFB, HFC)	Data sheet 90223
▶ Bluetooth® dongle	Data sheet 30581
▶ Reliability characteristics according to EN ISO 13849	Data sheet 08012
▶ Hexagon socket head cap screw, metric/UNC	Data sheet 08936
▶ Assembly, commissioning and maintenance of hydraulic systems	Data sheet 07900
▶ Proportional pressure reducing valve	Functional description 29283-FK
▶ Bluetooth® dongle	Operating instructions 30581-B
▶ Information on available spares	www.boschrexroth.com/spc

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