

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

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



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



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 analogue interfaces, optional
- ▶ Optional via Bluetooth®, fast and easy analysis and structural adjustment by means of app function

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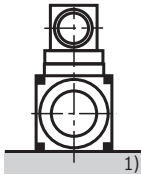
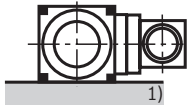
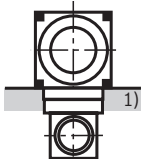
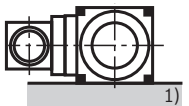
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Ordering code

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
		2
		3
		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)	A²⁾

Supply voltage

11	Direct voltage 24 V	G24
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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⁾
13	- 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 26)

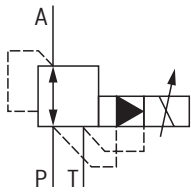
3) Mating connectors and cable sets, separate order, see page 26
and data sheet 08006.

4) Command value input switchable via Bluetooth® interface "B"
("A1" ↔ "F1")

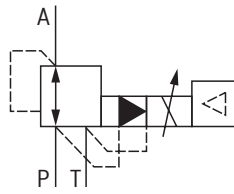
5) Only for use in the industrial area according to IO-Link
specification and EN 61131-9. When used in the
household / small business area, additional EMC measures are
required for the I/O-Link system.

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

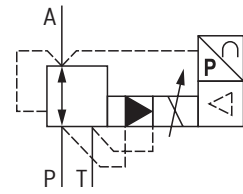
Type 3DRE



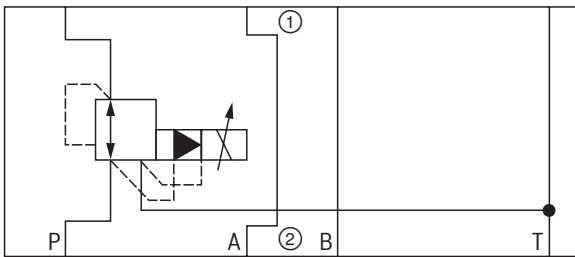
Type 3DREE; 3DREA ...A



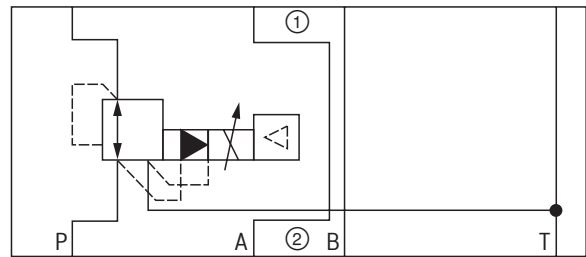
Type 3DREA



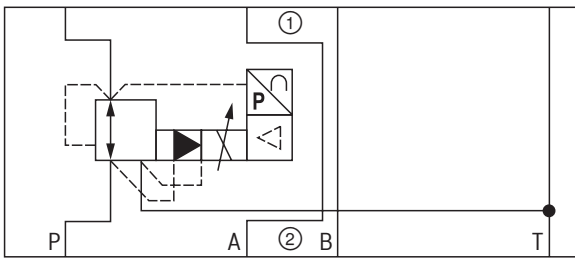
Type Z3DRE



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 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 flow controller (5) and nozzle and throttle gap to the pilot control valve (1) and afterwards flows off 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 function of the command value. This moves the main control spool (4) to the right, hydraulic fluid flows from P to A.

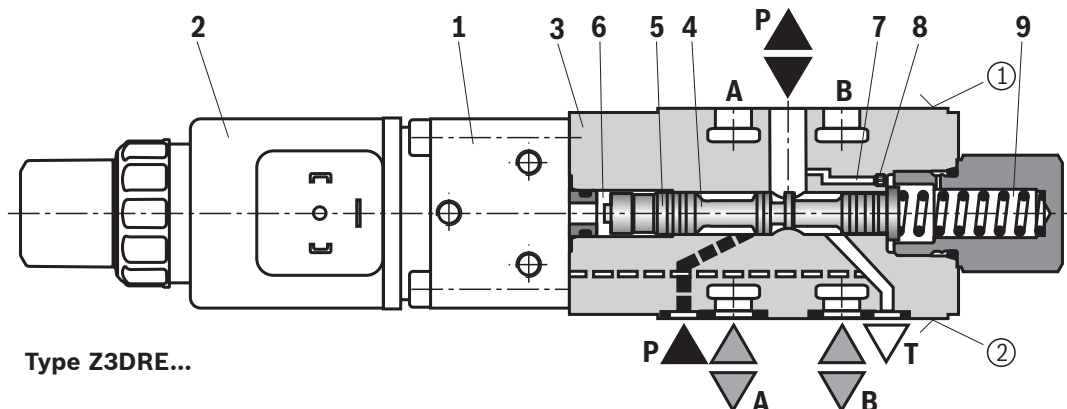
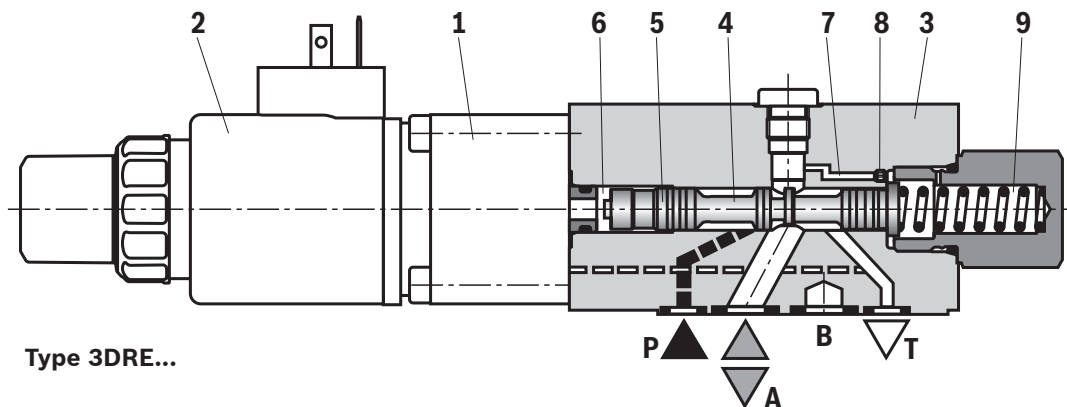
The actuator pressure in channel A is applied to the spring chamber (9) via the channel (7) and the nozzle (8). If the pressure in port A increases to the set pressure of the pilot control valve, this leads to the movement of the main control spool (4) to the left. The pressure in port A is almost identical with 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 pending 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.



Function: Type (Z)3DREE and (Z)3DREA**Type (Z)3DREE** – with integrated digital electronics (OBED)

With regard to function and set-up, they correspond to valve type (Z)3DRE.

On the proportional solenoid, there is the digital on-board electronics (OBED) (10). 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, they correspond to valve type (Z)3DREE.

This valve version moreover 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 in channel P is captured by means of the pressure transducer (11) and regulated independently of the flow via the integrated electronics (10).

The pressure in channel A (P①) is made available 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 applies the minimum control current to the proportional solenoid and the minimum set pressure is applied.

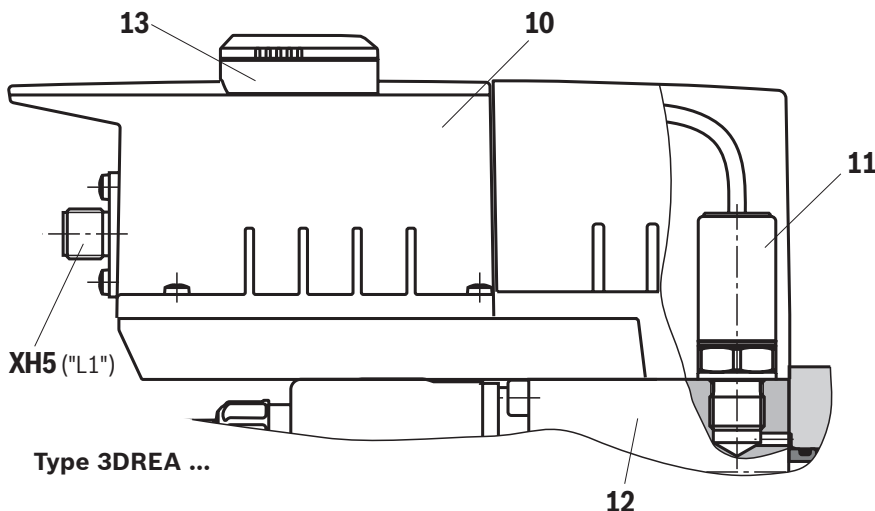
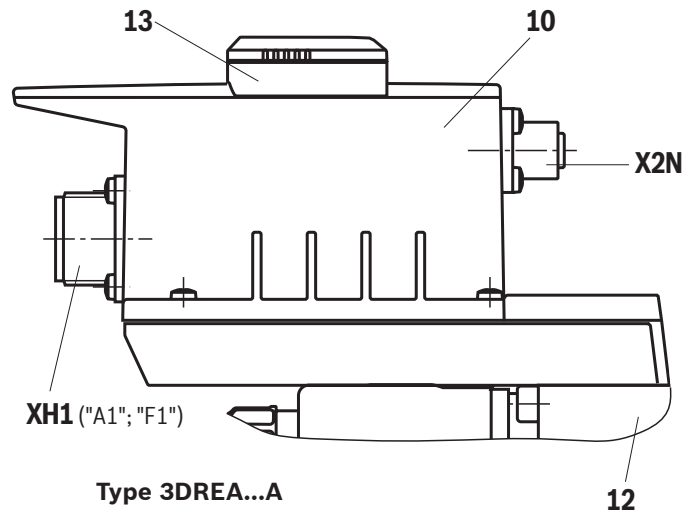
Bluetooth® function

The digital on-board electronics (OBED) provides the user with a digital diagnosis interface via a Bluetooth® dongle (Bluetooth® Low Energy). It may also be ordered as 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.



Technical data

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

General			
Weight	▶ Type (Z)3DRE	kg	2.6
	▶ Type (Z)3DREE	kg	3.1
	▶ Type (Z)3DREA	kg	3.5
Installation position			any (preferably horizontal)
Storage temperature range		°C	-20 ... +80
Ambient temperature range	▶ without "OBED"	°C	-20 ... +80
	▶ with "OBED"	°C	-20 ... +60
Maximum storage time		Years	1 (if the storage conditions are observed; refer to the operating instructions 07600-B)
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 / 30 min. / 3 axes
Transport shock according to DIN EN 60068-2-27			15 g / 11 ms / 3 shocks / 3 axes
Maximum relative humidity (no condensation)		%	97
MTTF _d value according to EN ISO 13849		Years	150 (for further details see data sheet 08012) ¹⁾

Hydraulic			
Maximum operating pressure	▶ Port P, P [⊗]	bar	350
	▶ Port P [⊙] , A, B	bar	315
	▶ Port T	bar	separately and to the tank at zero pressure
Maximum set pressure	▶ Port P [⊙] , A	bar	50; 100; 200; 315
Minimum set pressure with command value 0	▶ Port P [⊙] , A	bar	see characteristic curves page 14
Maximum flow		l/min	60
Pilot flow		l/min	0.5
Hydraulic fluid			see table page 8
Hydraulic fluid temperature range		°C	-20 ... +80
Viscosity range	▶ recommended	mm ² /s	10 ... 100
	▶ maximum admissible	mm ² /s	10 ... 380
Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c)			Class 20/18/15 ²⁾

1) "OBED" voltage supply switched off.

2) The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components. For the selection of filters, see www.boschrexroth.com/filter.

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	ISO 15380	90221
		HEES		
	▶ Soluble in water	HEPG	ISO 15380	
Flame-resistant	▶ Water-free	HFDU (glycol base)	ISO 12922	90222
		HFDU (ester base)		
		HFDR		
	▶ Containing water	HFC (Fuchs: Hydrotherm 46M, Renosafe 500; Petrofer: Ultra Safe 620; Houghton: Safe 620; Union: Carbide HP5046)	ISO 12922	90223

**Important notices 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 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 ³⁾	%	<6	<8	<6	<2	
Range of inversion ³⁾	%	<0.5	<0.5	<0.5	< 0.25	
Response sensitivity ³⁾	%	<0.5	<0.5	<0.5	< 0.25	
Manufacturing tolerance ³⁾	%	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 ³⁾	%	±1	±1	±1	±0.5	
Linearity ³⁾	%	±2	±2	±2	±1	
Step response $T_u + T_g$ ⁴⁾	▶ 10% → 90%	ms	150	250	85 ⁵⁾	85 ⁵⁾
	▶ 90% → 10%	ms	150	250	85 ⁵⁾	85 ⁵⁾

³⁾ Of the maximum set pressure

⁴⁾ Line volume <20 cm³, $q_V = 0$ l/min

⁵⁾ Adjustment possible up to 70 ms

Technical data

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

Electrical			
Version		"G24"	"G24-8"
Supply voltage	VDC	24	
Minimum control current	mA	<100	
Maximum control current	mA	1600 ±10%	800 ±5%
Solenoid coil resistance	▶ Cold value at 20 °C	Ω	5.5
	▶ Maximum hot value	Ω	8.05
Relative duty cycle	%	100 (continuous operation)	
Conformity		▶ RoHS Directive 2011/65/EU	

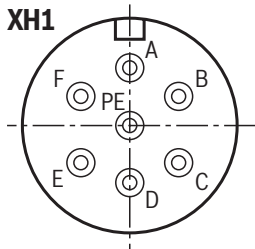
Electrical, integrated electronics (OBE) – Interface "A1" and "F1"			
Protection class according to EN 60529		IP65 (If suitable and correctly mounted mating connectors are used)	
Supply voltage	▶ Nominal voltage	VDC	24
	▶ Lower limit value	VDC	18
	▶ Upper limit value	VDC	30
Current consumption	A	≤1.6 (impulse current 3 A)	
Fuse protection, external	A _T	2.5 (time-lag)	
Input (pressure command value)	Version "A1"	VDC	0 ... +10
	Version "F1"	mA	4 ... 20
Output (actual pressure value)	Version "A1"	VDC	0 ... 10 (0 ... 100% nominal pressure)
	Version "F1"	mA	4 ... 20 (0 ... 100% nominal pressure)
Conformity		▶ CE according to EMC Directive 2014/30/EU, tested according to EN 61000-6-2 and EN 61000-6-3 ▶ RoHS Directive 2011/65/EU	

Electrical, integrated electronics (OBED) – Interface "L1"			
Relative duty cycle	%	100 (continuous operation)	
Protection class according to EN 60529		IP65 (If suitable and correctly mounted mating connectors are used)	
Supply voltage	▶ Valve amplifier	VDC	24
	– Pin 2	VDC	min. 18 / max. 30
	– Pin 5	VDC	0
	▶ IO-Link interface	VDC	24
	– Pin 1	VDC	min. 18 / max. 30
	– Pin 3	VDC	0
Maximum current consumption	▶ Valve amplifier	A	1.6 (impulse current 3 A)
	▶ IO-Link interface	mA	50
Maximum residual ripple	V _{pp}	1.3	
Minimum process cycle time	ms		
Bit rate COM3	kBaud (kbit/s)	230.4	
Required master port class		IO-Link class B	
Resolution	▶ A/D transformer	Bit	12
Functional ground		Provide via valve block	
Directive		IO-Link Interface and System Specification Version 1.1.2	
Conformity		▶ CE according to EMC Directive 2014/30/EU, tested according to EN 61000-6-2 and EN 61000-6-3 ▶ RoHS Directive 2011/65/EU	

Electrical connections and assignment

Connector pin assignment "A1" and "F1"

Contact	Interface	
	"A1" (6 + PE)	"F1" (6 + PE)
A	24 VDC supply voltage ($u(t) = 18 \dots 30 \text{ V}$); $I_{\max} \leq 2 \text{ A}$	
B	0 V (ground)	
C	Reference potential actual value to F (connect to ground on the control side)	
D	Command value 0 ... 10 V ($R_e > 100 \text{ k}\Omega$)	Command value 4 ... 20 mA ($R_e = 100 \Omega + 2 \text{ V diode distance}$)
E	Reference potential command value to D (connect to ground on the control side)	
F	Actual value 0 ... 10 V; $I_{\max} = 5 \text{ mA}$	Actual value 4 ... 20 mA (load max. 475 Ω)
FE	Functional ground (directly connected to the valve housing)	



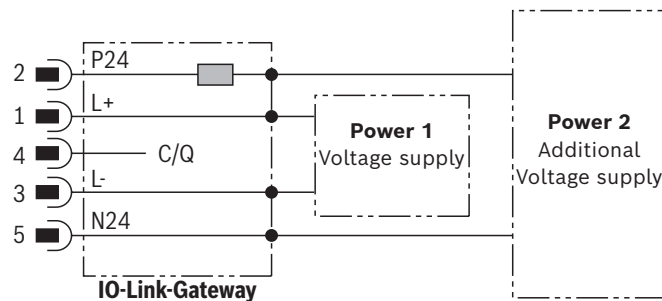
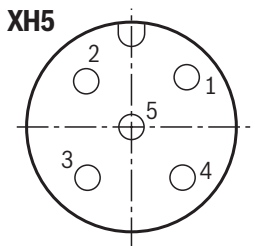
Connection cable:	▶ Up to 20 m cable length type LiYCY 7 x 0.75 mm ²
	▶ Up to 40 m cable length type LiYCY 7 x 1.0 mm ²
	▶ EMC-compliant installation: - Apply screening to both line ends - Use metal mating connector (see page 26)



Notices:

- ▶ Configurable via Bluetooth® interface.
- ▶ Mating connectors, separate order, see page 26 and data sheet 08006.

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



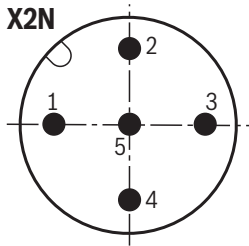
Notices:

- ▶ 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 26 and data sheet 08006.
- ▶ Communication and parameter description see data sheet 29283-FK

Pin	Signal	Interface "L1"
1	L+	Voltage supply IO-Link
2	P24	24 V 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 (galvanically separated from supply L+ and L-)

Electrical connections and assignment

Connector pin assignment "Analogously configurable pressure sensor interface" (M12-5, A-coded, bush)

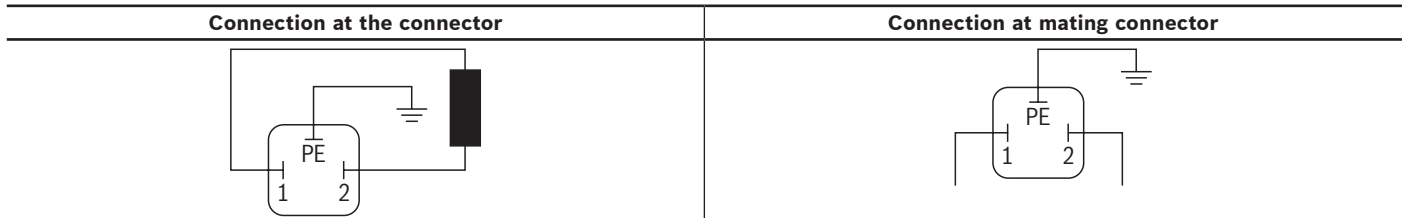


Notices:

- ▶ In the condition as supplied, the actual value input PIN 4 0.1 ... 10 V of the pressure sensor interface is configured.
- ▶ At the factory, the interface is set for a 400 bar pressure sensor (0.1 ... 10 V).
- ▶ 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".

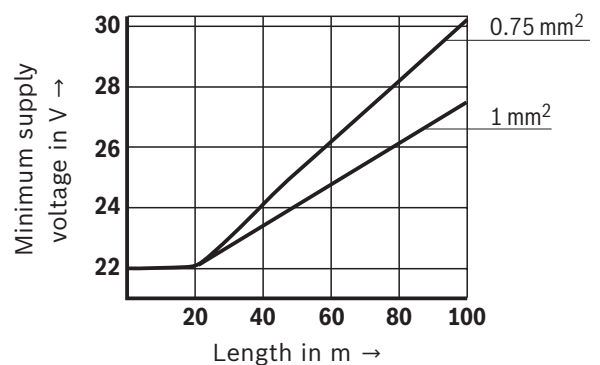
Pin	Signal	Interface
1	U_S	Voltage supply for pressure sensor from the valve supply $+U_B$ or P24, max. 50 mA (short-circuit-proof). Observe the voltage range of the pressure sensor.
2	I_{Meas}	Current input 4 ... 20 mA, connected to GND via 100 Ω load resistance +2 V diode connector. Measuring input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

Type (Z)3DRE



Connection cable (recommendation):

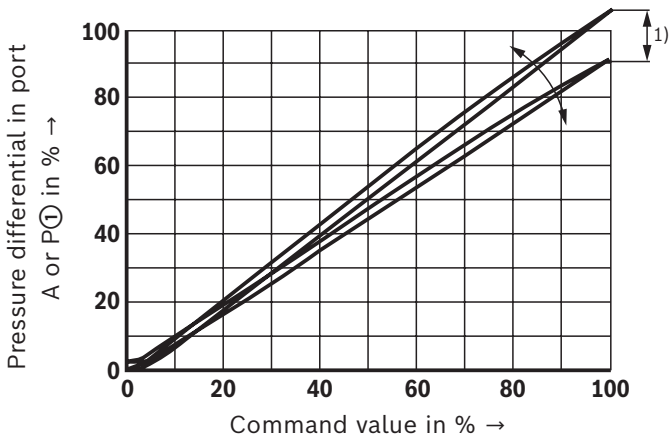
- ▶ 2-wire, 0.75 or 1 mm² plus protective grounding conductor and screening
 - ▶ Only connect the screening to PE on the supply side
 - ▶ Maximum admissible length = 100 m
- The minimum supply voltage at the power supply unit depends on the length of the supply line (see diagram).



Characteristic curves

(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$)

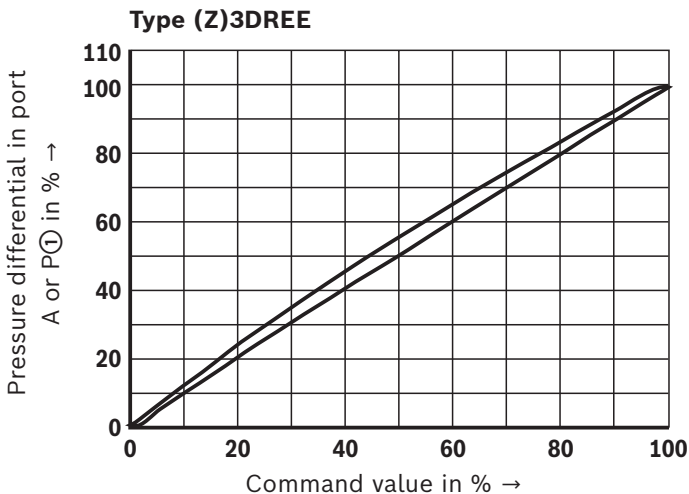
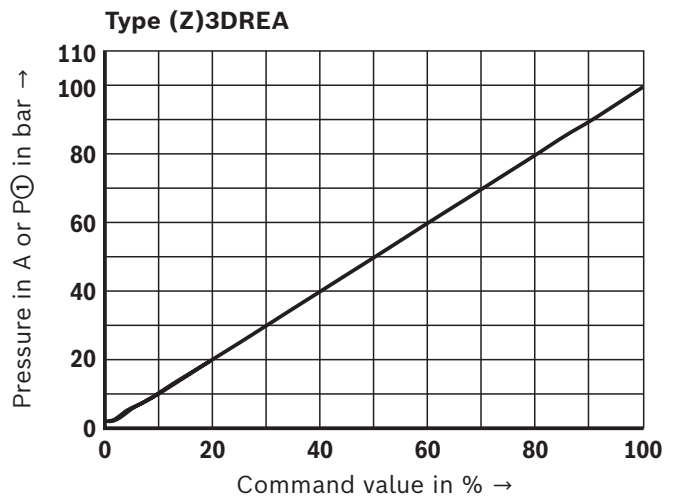
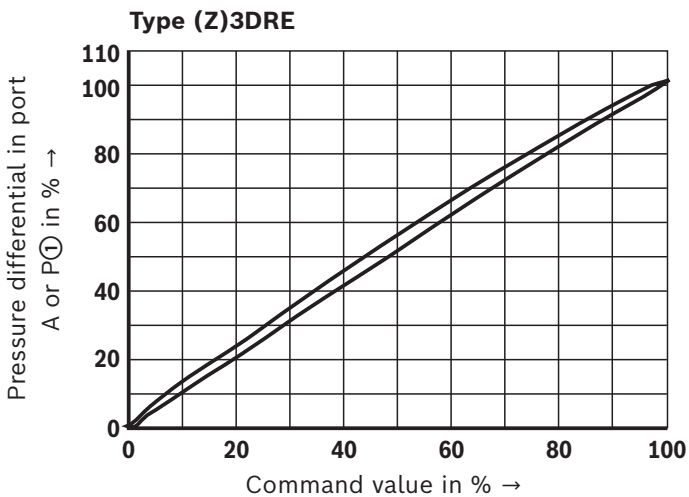
Reduced pressure in port A or P① of the command value (manufacturing tolerance)



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 26) 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)

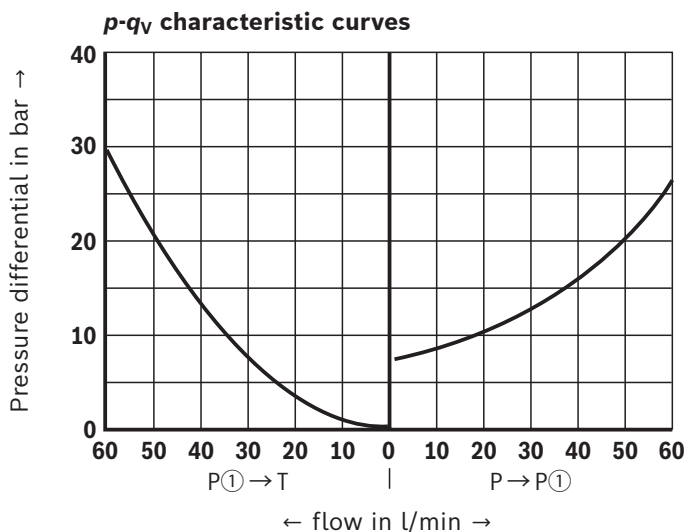
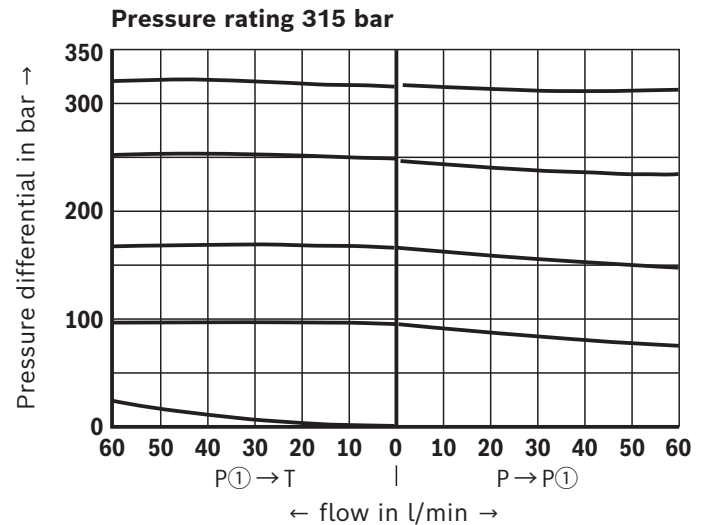
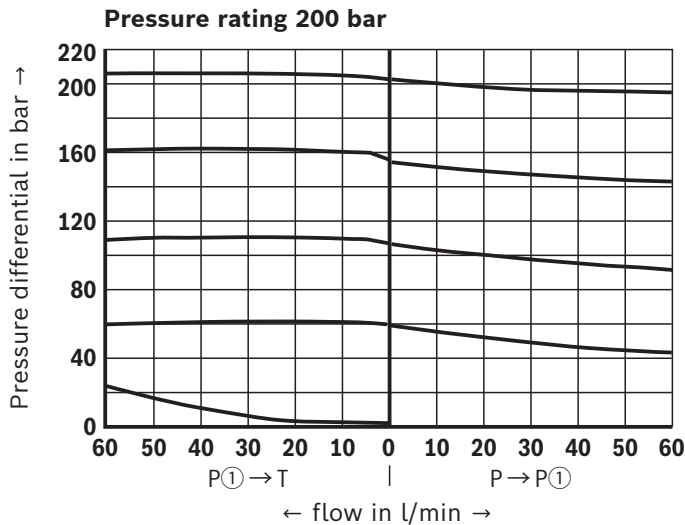
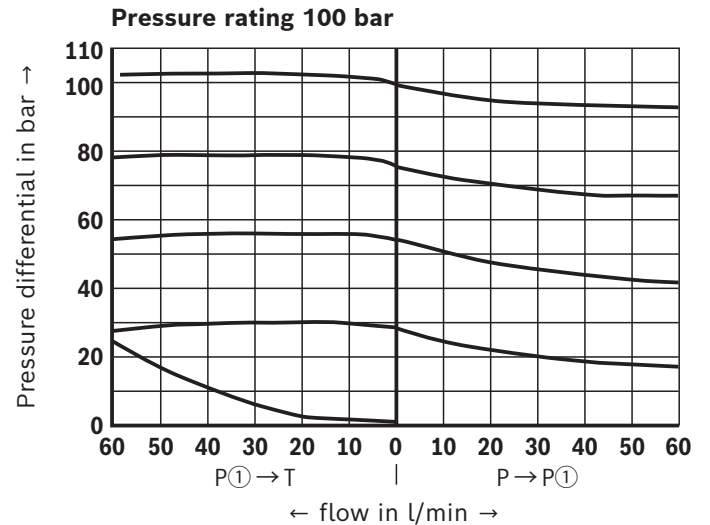
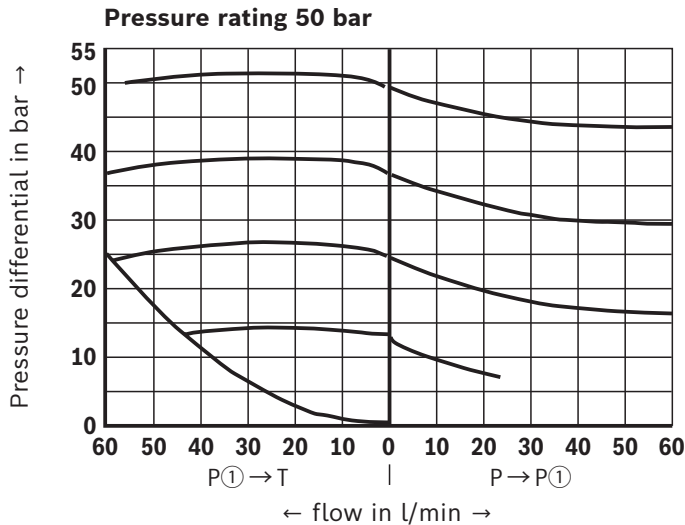


Notices:

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

Characteristic curves: Type Z3DRE and Z3DREE
 (measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$)

Δp - q_v characteristic curves

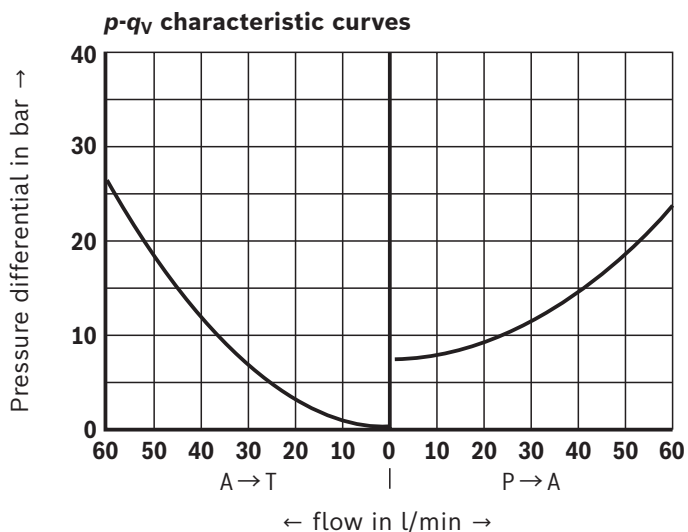
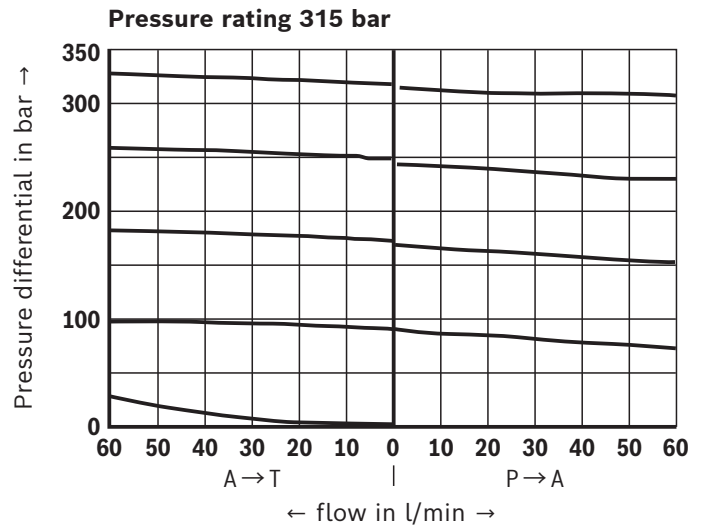
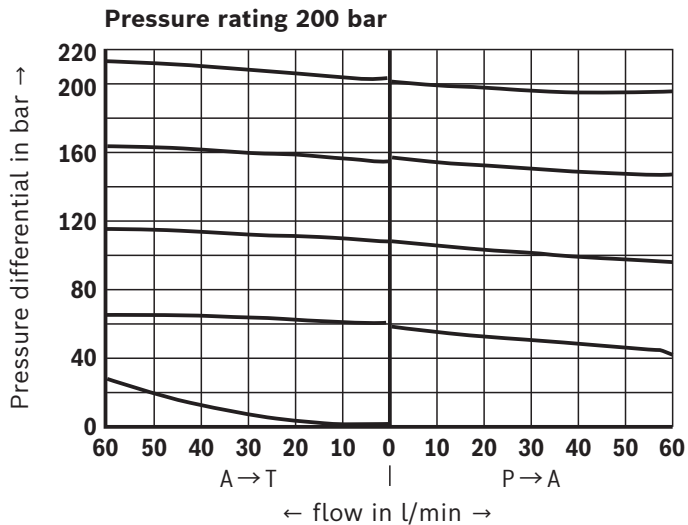
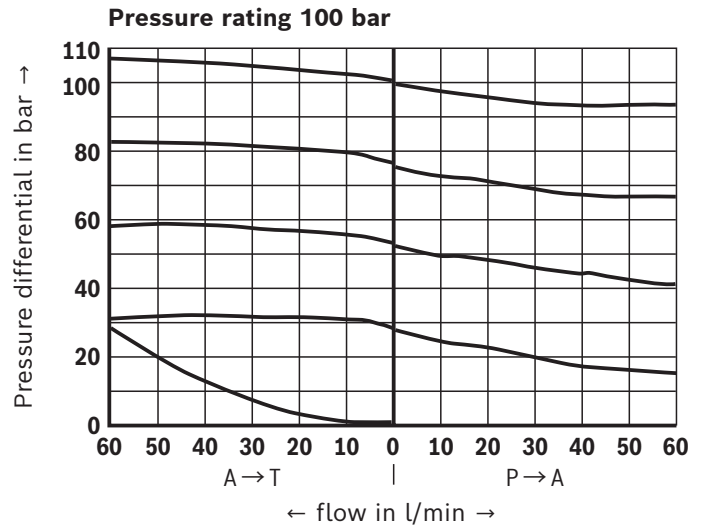
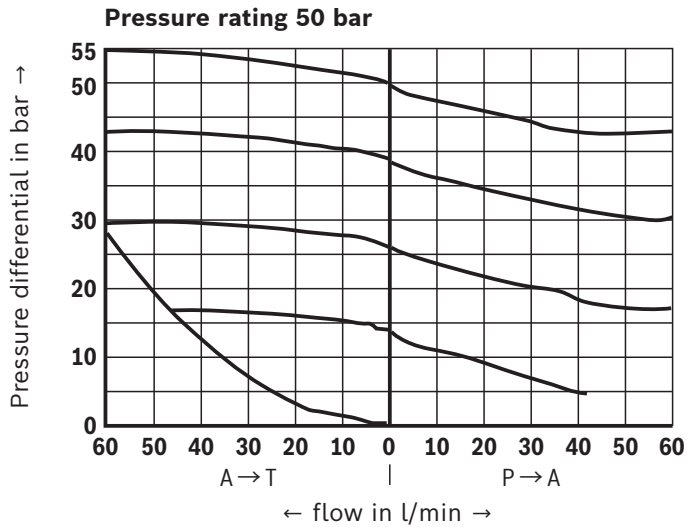


Notices:

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

Characteristic curves: Type 3DRE and 3DREE
(measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ }^\circ\text{C}$)

Δp - q_v characteristic curves

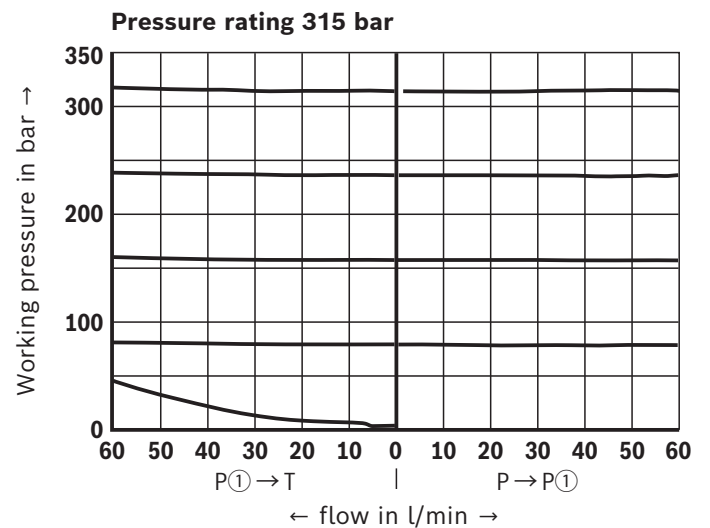
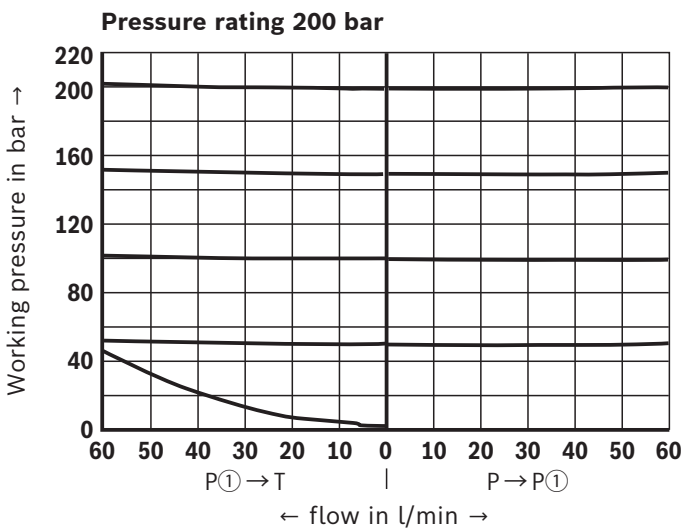
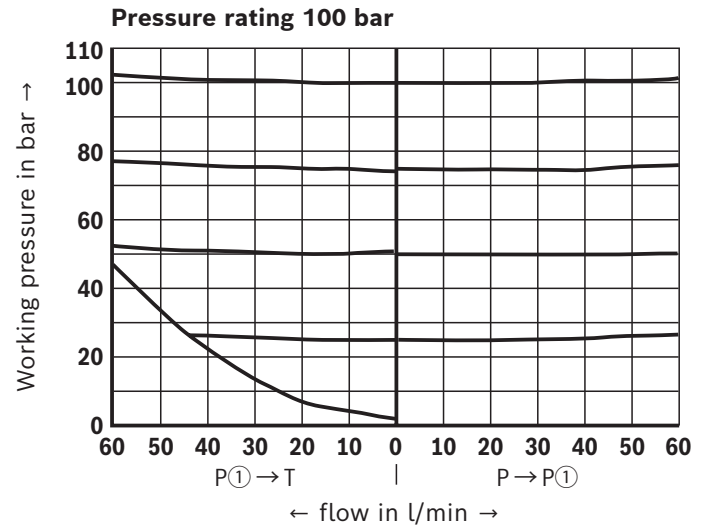
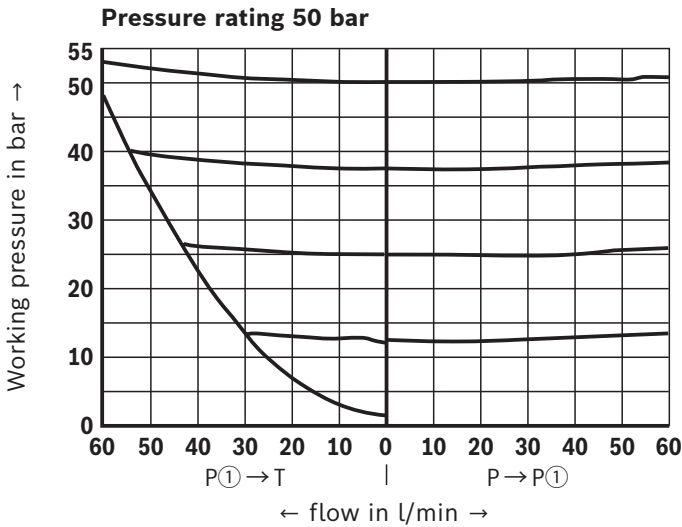


Notices:

- ▶ 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, $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$)

p - q_V characteristic curves

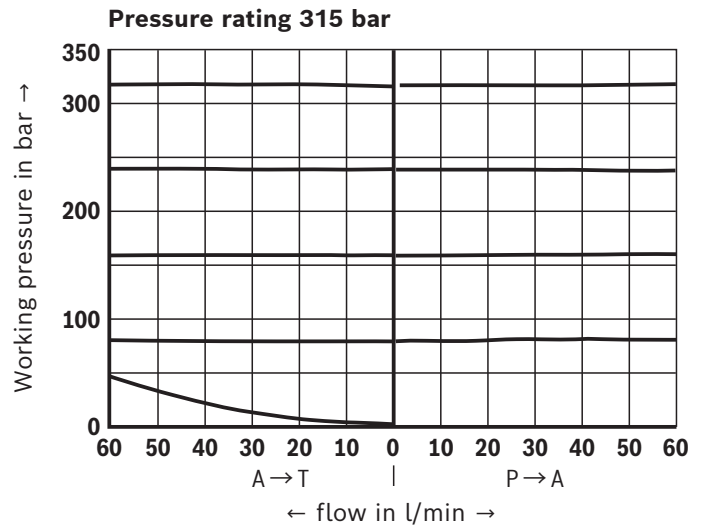
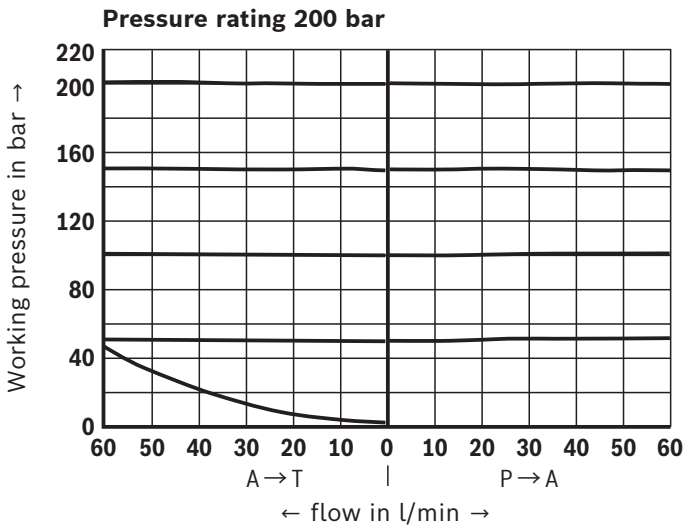
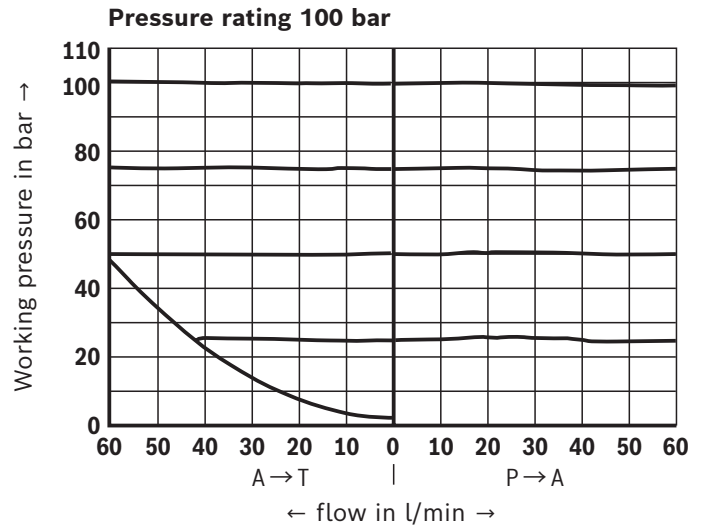
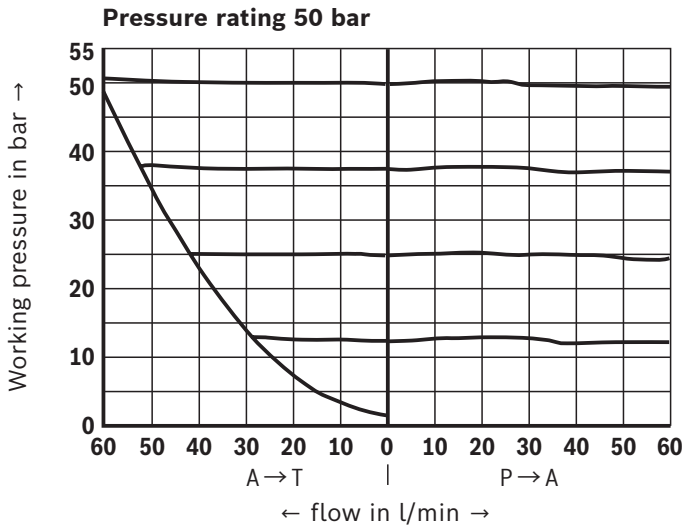


Notices:

- ▶ 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, $\vartheta_{oil} = 40 \pm 5 \text{ } ^\circ\text{C}$)

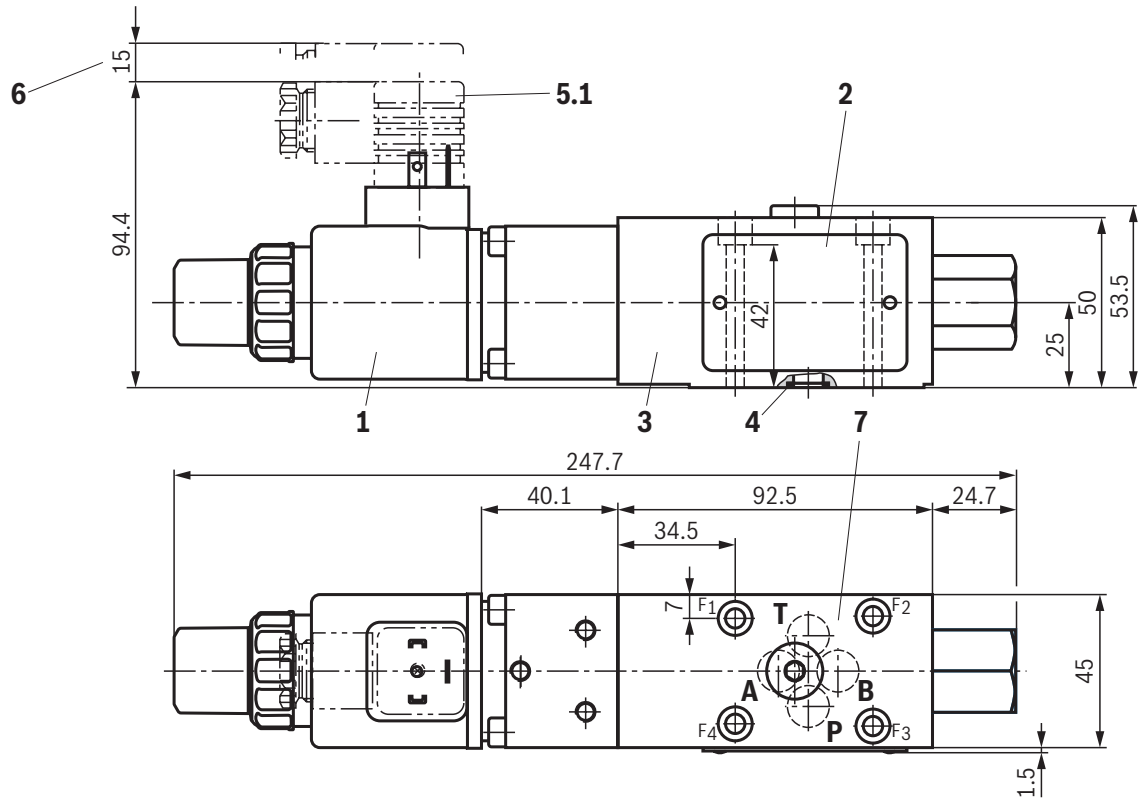
p-q_v characteristic curves



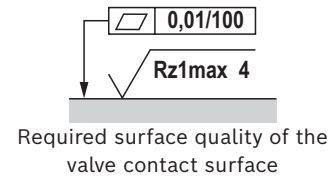
Notices:

- ▶ The characteristic curves apply for output pressure $p_T = 0 \text{ bar}$ 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 26 and data sheet 08006)
- 6 Space required for removing the mating connector
- 7 Porting pattern according to ISO 4401-03-02-0-05



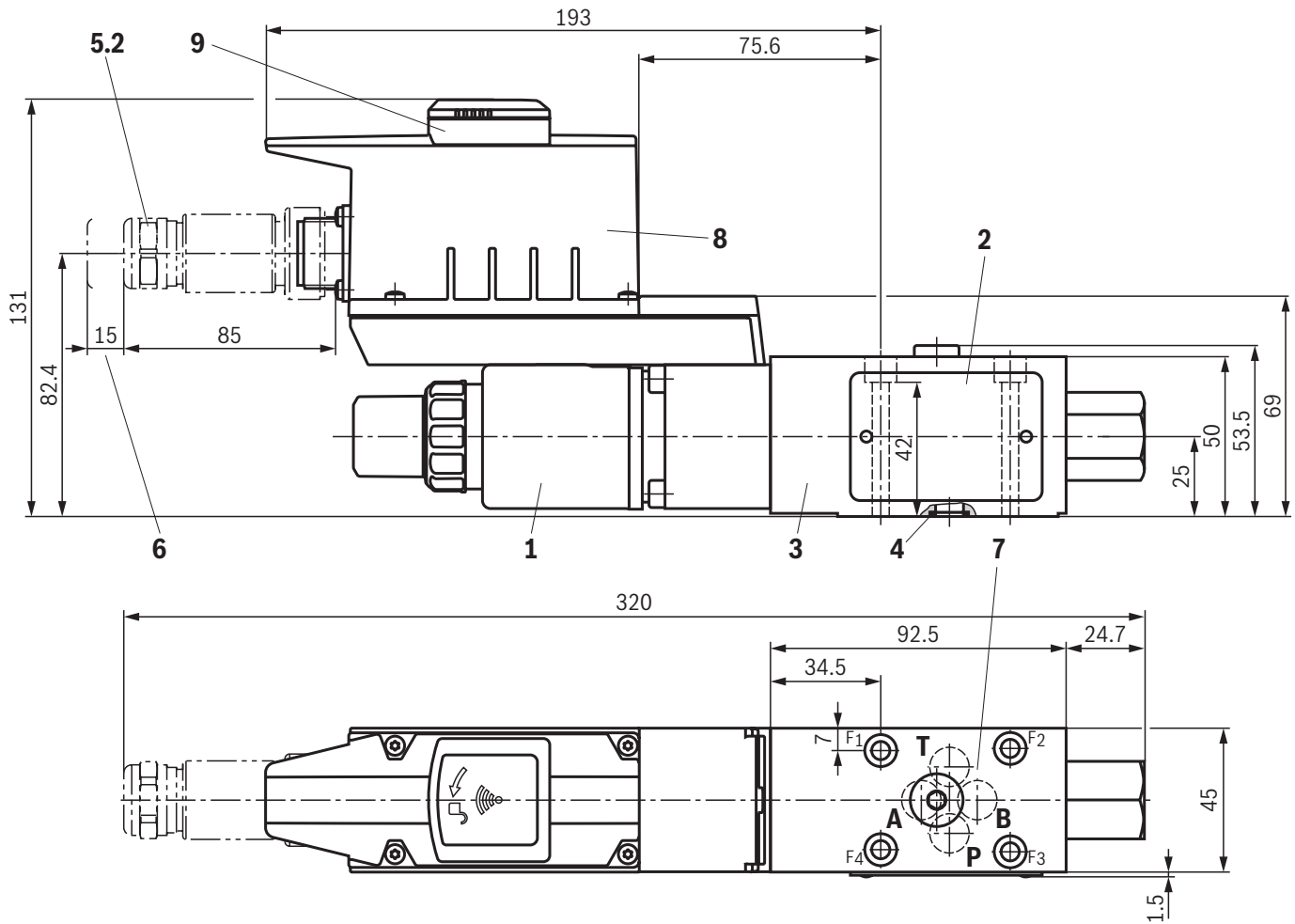
Valve mounting screws and **subplates**, see page 25.



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 26 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 26)

Required surface quality of the
 valve contact surface

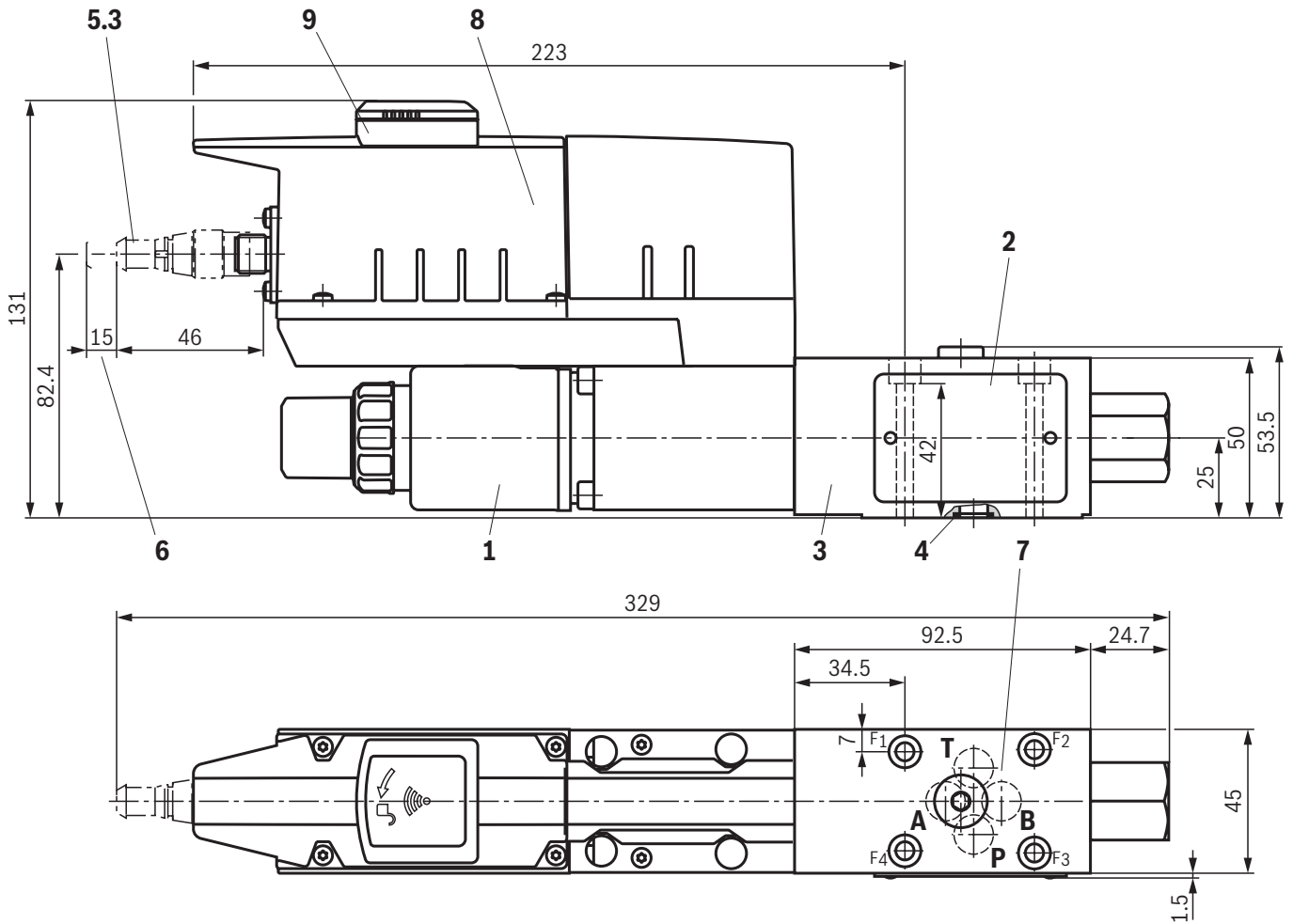
Valve mounting screws and subplates, see page 25.



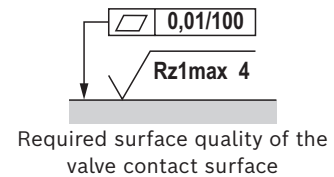
Notice:

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 26 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 26)



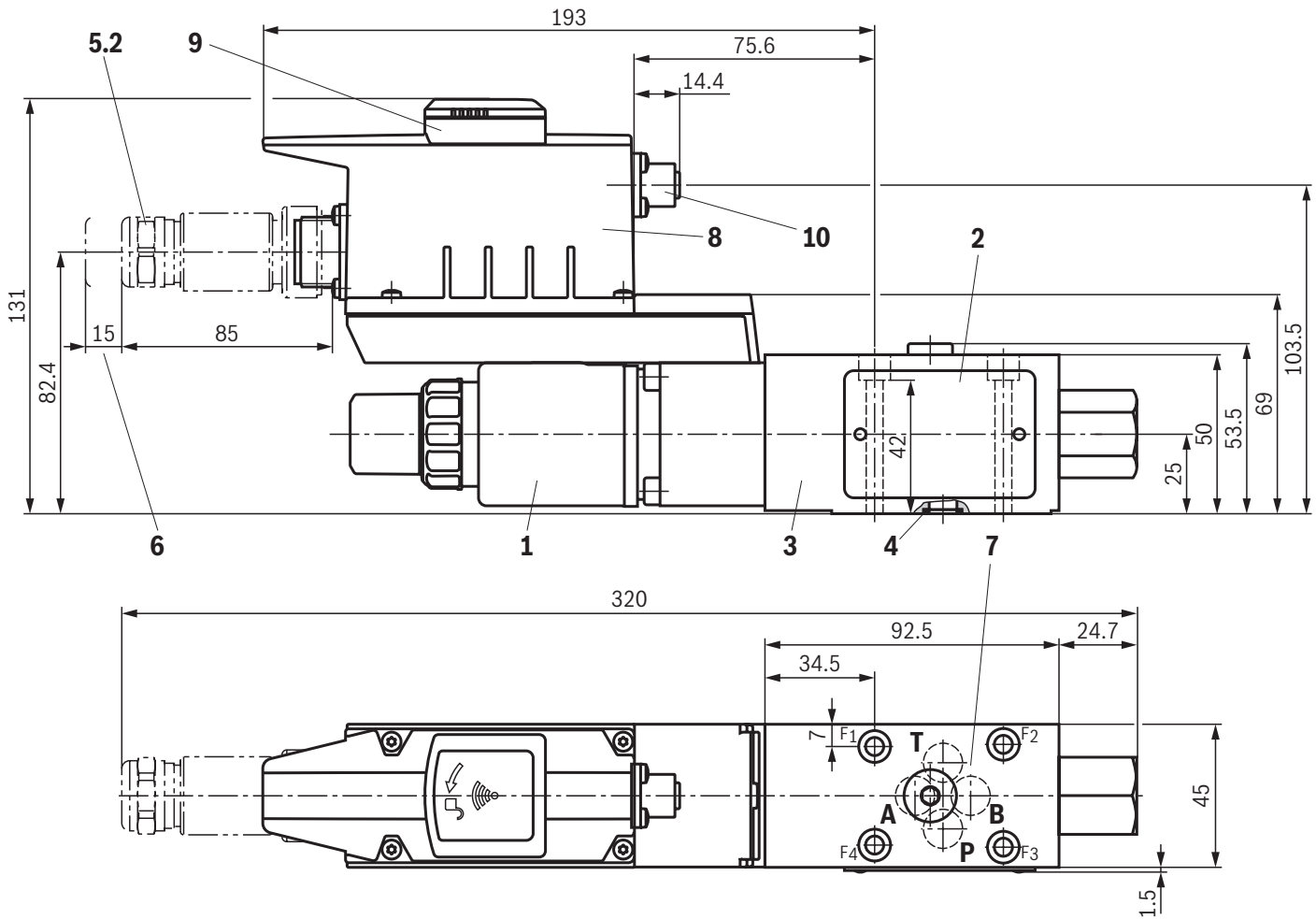
Valve mounting screws and subplates, see page 25.



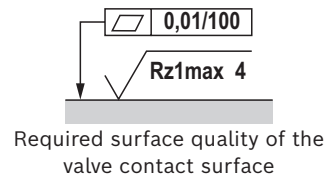
Notice:

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 26 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 26)
- 10 External connection for pressure sensor (pressure sensor,
separate order, see page 26)



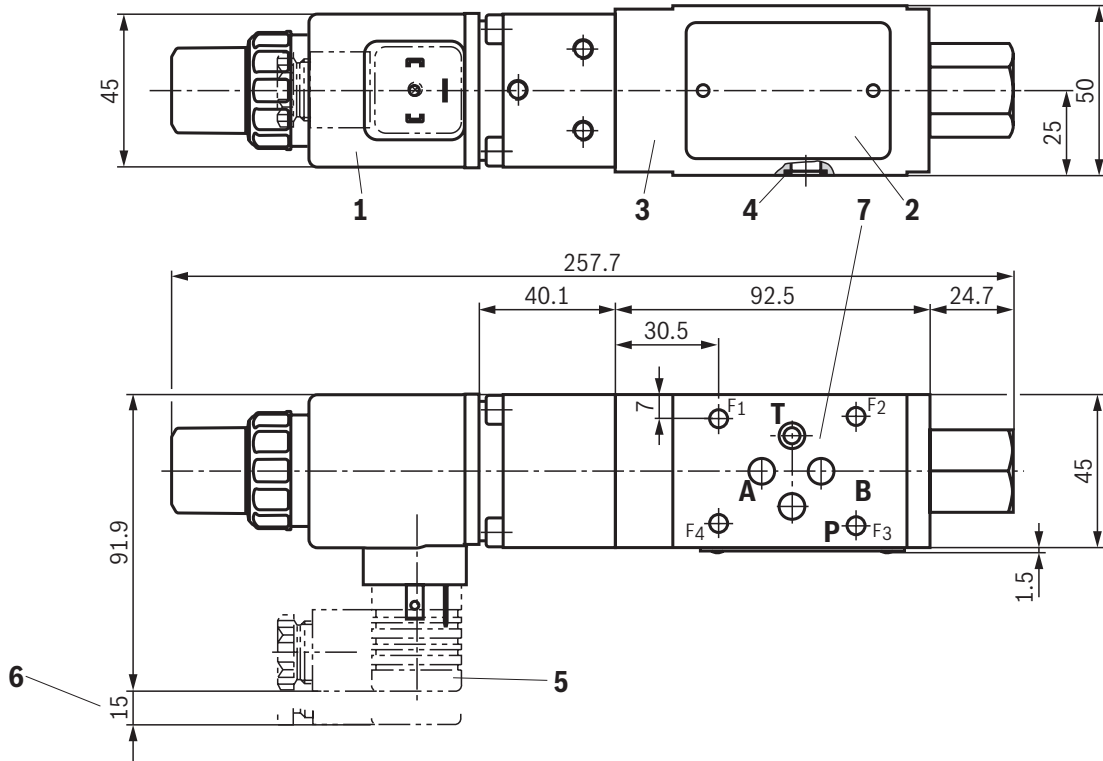
Valve mounting screws and subplates, see page 25.



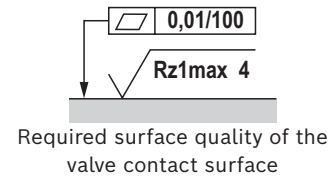
Notice:

The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Type Z3DRE
(dimensions in mm)



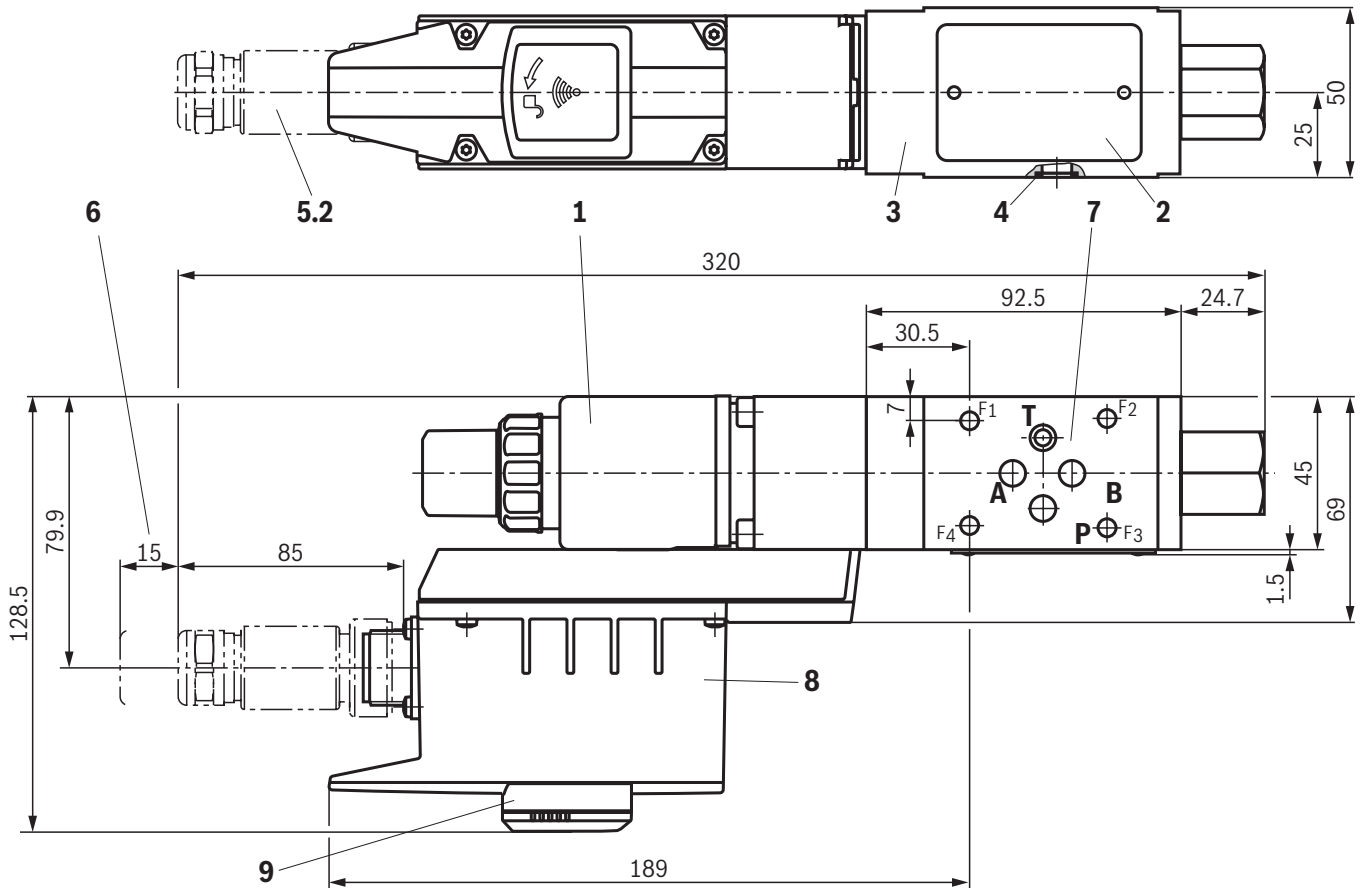
- 1 Proportional solenoid
- 2 Name plate
- 3 Valve housing
- 4 Identical seal rings for ports A, B, P and T
- 5.1 Mating connector **without** circuitry for connector "K4"
(separate order, see page 26 and data sheet 08006)
- 6 Space required for removing the mating connector
- 7 Porting pattern according to ISO 4401-03-02-0-05



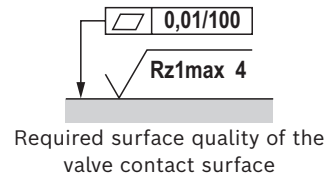
Valve mounting screws and **subplates**, see page 25.

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 26 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 26)



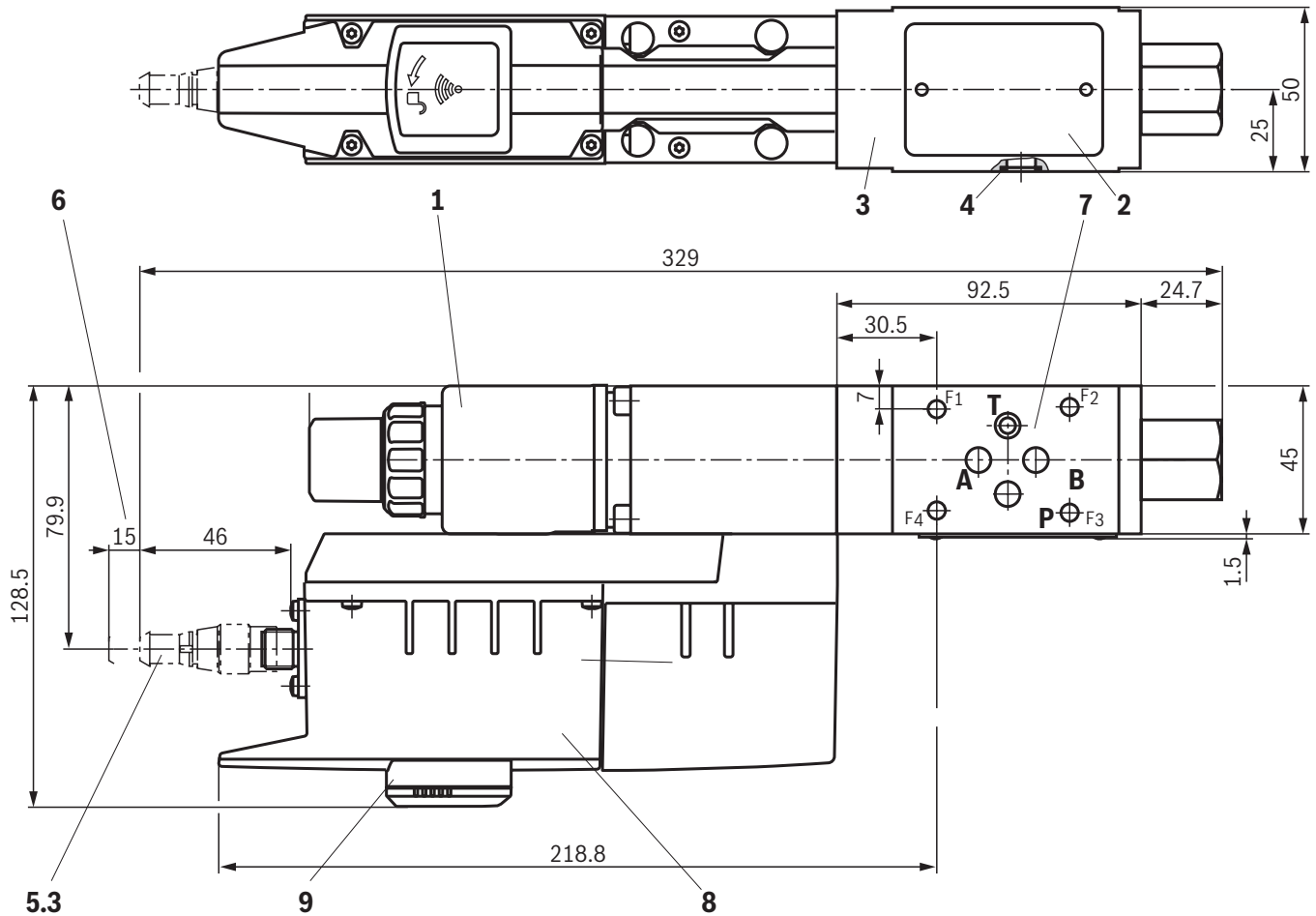
Valve mounting screws and subplates, see page 25.



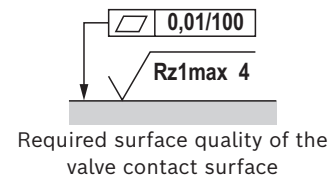
Notice:

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 26 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 26)



Valve mounting screws and subplates, see page 25.



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 $\mu_{\text{total}} = 0.09 \dots 0.14$; tightening torque $M_A = 7 \text{ Nm} \pm 10\%$	R913043758
Z3DRE ...	4	ISO 4762 - M5 - 10.9-CM-Fe-ZnNi-5-Cn-T0-H-B Friction coefficient $\mu_{\text{total}} = 0.09 \dots 0.14$; tightening torque $M_A = 7 \text{ Nm} \pm 10\%$	-



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**

Type	Material number	Data sheet
HM 20-2X/400-H-C19-0,16-N	R901518764	–

Bluetooth® dongle

	Material number	Data sheet
Bluetooth® dongle	R901505294	30581-B
Empty cover (for valves without Bluetooth® dongle)	R901521063	–

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 mm ²	Straight	Metal	R900223890	08006
		Metal with mechanical locking	R901044595	–

Cable set (analog sensors)	Length in m	Material number	Data sheet
Cable set 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 mm ²	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 proportional servo 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 the 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 the 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.

Further information

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

Notes

Bosch Rexroth AG
Industrial Hydraulics
Zum Eisengießer 1
97816 Lohr am Main, Germany
Phone +49 (0) 93 52/40 30 20
my.support@boschrexroth.de
www.boschrexroth.de

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It must be remembered that our products are subject to a natural process of wear and aging.