

Proportional pressure reducing valve

DRE10-6X/50YG24K4M

Manufacturer: Bosch Rexroth
Manufacturer part number / published order designation: R901324518
Published model: DRE10-6X/50YG24K4M

About this compilation

Prepared by Hydmaster from selected manufacturer documentation. Original technical pages follow without cropped drawings, rewritten data or altered units. This cover and index are Hydmaster editorial material, not a manufacturer-issued exact-execution datasheet.

Coverage: selected pages relevant to the identified size and configuration. Other options or neighbouring models retained on an original page apply only where explicitly identified.

Execution notes and conditions

Actual delivered pressure adjustment not verified.

No unqualified response-time or IP rating assigned.

G24 external-coil voltage class is not promoted as an OBE supply voltage.

Source-page index

Source page numbers below are physical pages of each complete original PDF. The original printed page labels and technical content remain unchanged. Compiled page numbers count this cover/index.

Source A: Bosch Rexroth Dre Dree Series 6X Re29276 2011 Original

Original pages	Compiled pages	Relevant content
1-4	2-5	DRE/DREE family overview and archived edition; Exact DRE10/6X type key: external electronics, pressure class, check valve and NBR seal; DRE with check-valve hydraulic symbol; other variants are contextual; DRE pressure-reduction operating function; mechanical-limiter panel is contextual
6-8	6-8	Nominal size 10 hydraulic limits, fluid requirements and measurement conditions; 1600 mA electrical coil data and hydraulic-fluid qualifications; OBE columns are contextual; K4 external-amplifier connection and separately ordered mating connector; K31 panel is contextual
10-12	9-11	Nominal size 10 minimum pressure and flow-dependent characteristics under printed conditions; 1600 mA command-pressure characteristics under printed amplifier conditions; DRE nominal size 10 external-electronics installation envelope; size 25 table row is contextual
14	12	DRE size 10 ISO 5781 mounting pattern, drawing legend and separate-order mounting requirements

Proportional pressure reducing valve, pilot operated

RE 29276/03.11
Replaces: 01.10

1/16

Type DRE(M) and DRE(M)E

Sizes 10 and 25 ¹⁾
 Component series 6X
 Maximum operating pressure 315 bar
 Maximum flow 300 l/min

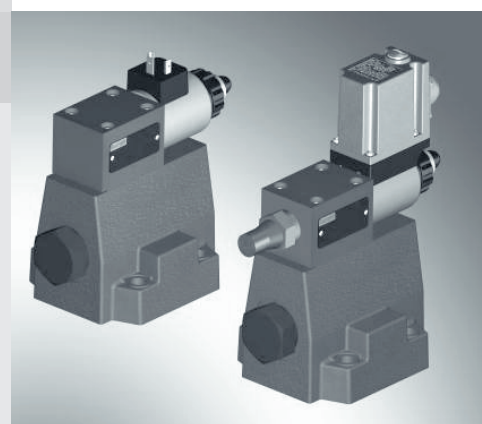


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Electrical connection, mating connectors	8
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Features

- Valve for reducing an operating pressure
- Operation by means of proportional solenoids
- Proportional solenoid with rotatable and detachable coil
- For subplate mounting:
Porting pattern according to ISO 5781,
Subplates according to data sheet RE 45062
(separate order), see page 11
- Third path A to Y (Ø 7.5 mm)
- Minimum setting pressure 2 bar with command value zero
- Linearized command value-pressure characteristic curve
- Good transient response
- Optional check valve between A and B
- Maximum pressure limitation optional
- Type DRE(M)E with integrated electronics (OBE):
 - Little manufacturing tolerance of the command value-pressure characteristic curve

¹⁾ Size 32 see data sheet RE 29278

Ordering code

DRE				-6X/	Y		G24					*
without maximum pressure limitation	= no code											Further details in the plain text
with maximum pressure limitation ¹⁾	= M											
For external control electronics	= no code											Seal material M = NBR seals V = FKM seals
with integrated electronics (OBE)	= E											
Size 10	= 10											Interface electronics A1 = Command value 0 to 10 V F1 = Command value 4 to 20 mA no code = with DRE
Size 25	= 20											
Component series 60 to 69 (60 to 69: Unchanged installation and connection dimensions)	= 6X											Electrical connection for DRE(M): K4 = without mating connector, with connector according to DIN EN 175301-803 Mating connector - separate order see page 8 for DRE(M)E: K31 = without mating connector, with connector according to DIN EN 175201-804 Mating connector - separate order see page 8
Pressure rating												
50 bar	= 50											no code = 1600 mA design - 8 = 800 mA design ²⁾
100 bar	= 100											
200 bar	= 200											
315 bar	= 315											
Pilot oil return always external separately and at zero pressure to the tank	= Y											Supply voltage of the control electronics G24 = Direct voltage 24 V
with check valve between A and B	= no code											
without check valve	= M											
Accessories (not included in scope of delivery)												
– External control for type DRE (only standard version G24												

Accessories (not included in scope of delivery)

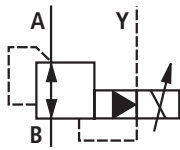
- External control for type DRE (only standard version G24 (1.6 A solenoid)):
 - Analog amplifier VT-MSPA1-11-1X/ in modular design according to data sheet RE 30223
 - Digital amplifier VT-VSPD-2 in Eurocard format according to data sheet RE 30523
 - Analog amplifier VT-VSPA1-11-1X/ in Eurocard format according to data sheet RE 30100
 - Proportional plug-in amplifier VT-SSPA1-1-1X plug-in amplifier according to data sheet RE 30116 connection M12 - 4-pole
- Mating connectors (details, see page 8)
 - For DRE(M): According to DIN EN 175301-803, Material no. **R901017011**
 - For DRE(M)E: According to DIN EN 175201-804, Material no. **R900021267** or **R900223890**

¹⁾ In case of an error (e.g. in case of contamination or overcurrent), the maximum pressure limitation prevents an inadmissibly high overpressure at the valve.

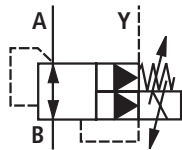
²⁾ Replacement series 5X (Attention! External amplifiers only suitable for G24 = 1.6 A solenoid), see accessories.

Symbols

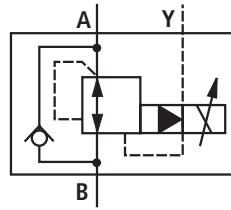
DRE -6X/...YM...



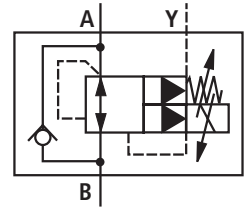
DREM -6X/...YM...



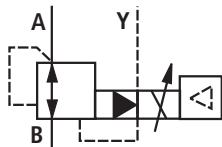
DRE -6X/...Y...



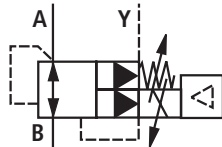
DREM -6X/...Y...



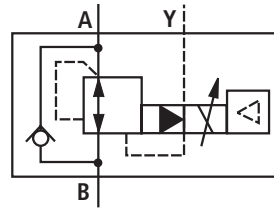
DREE -6X/...YM...



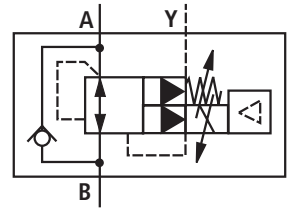
DREME -6X/...YM...



DREE -6X/...Y...



DREME -6X/...Y...



Technical Data (For applications outside these parameters, please consult us!)**general**

Size		Size	10	25
Weight	– DRE and DREM	kg	4.7	6.0
	– DREE and DREME	kg	4.8	6.1
Installation position			Any	
Storage temperature range		°C	–20 to +80	
Ambient temperature range	– DRE(M)	°C	–20 to +70	
	– DRE(M)E	°C	–20 to +50	

hydraulic (measured with HLP 46, $\vartheta_{oil} = 40 \text{ °C} \pm 5 \text{ °C}$)

Size		Size	10	25
Max. operating pressure	– Port A and B	bar	315	
	– Port Y		Separately and to the tank at zero pressure (internal pipe $\varnothing \geq 5 \text{ mm}$; pipe length < 2500 mm)	
Max. setting pressure in channel A	– Pressure rating 50 bar	bar	50	
	– Pressure rating 100 bar	bar	100	
	– Pressure rating 200 bar	bar	200	
	– Pressure rating 315 bar	bar	315	
Min. setting pressure in channel A with command value zero		bar	2	
Maximum pressure limitation (fixedly set)			Set in the factory:	
		– Pressure rating 50 bar	bar	To 70 bar
		– Pressure rating 100 bar	bar	To 130 bar
		– Pressure rating 200 bar	bar	To 230 bar
		– Pressure rating 315 bar	bar	To 350 bar
Max. flow of the main valve		l/min	200	300
Pilot flow		l/min	0.8	
Hydraulic fluid			On mineral oil basis and related hydrocarbons (HL, HLP, HLPD, HLPP) according to DIN 51524 ¹⁾ Flame-resistant – water-free (HFUD(G), HFUD(E), HFDR) according to ISO12922 ^{2), 4)} Flame-resistant – containing water (HFC: Fuchs Hydrotherm 46M, Petrofer Ultra Safe 620) according to ISO12922 ^{3), 4)}	
Hydraulic fluid temperature range		°C	–20 to +80	
Viscosity range		mm ² /s	15 to 380	
Max. admissible degree of contamination of the hydraulic fluid Cleanliness class according to ISO 4406 (c)			Class 20/18/15 ⁵⁾	
Hysteresis		%	± 3.5 of the max. setting pressure ⁶⁾	
Repeatability		%	< ± 2 of the max. setting pressure ⁶⁾	
Linearity		%	± 2 of the max. setting pressure ⁶⁾	
Manufacturing tolerance of the command value pressure characteristic curve, related to the hysteresis characteristic curve, pressure increasing	– DRE(M)	%	± 3.5 of the max. setting pressure ⁶⁾	
	– DRE(M)E	%	± 1.5 of the max. setting pressure ⁶⁾	
Step response $T_u + T_g$	10 → 90 %	ms	~130	Measured with standing hydraulic fluid column, 1 liter at port A
	90 → 10 %	ms	~160	
Step response $T_u + T_g$	10 → 90 %	ms	~150	Measured with standing hydraulic fluid column, 5 liters at port A
	90 → 10 %	ms	~150	

Foot notes see next page

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

- 1) Suitable with NBR **and** FKM seals
- 2) Suitable **only** with FKM seals
- 3) Suitable **only** with NBR seals
- 4) When using flame-resistant hydraulic fluids HFC, the following limitations are to be observed:
- Max. operating pressure 210 bar
 - Max. hydraulic fluid temperature 60 °C
 - Expected service life 30...100 % as compared to HLP
- 5) The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the service life of the components.
- For the selection of the filters see www.boschrexroth.com/filter
- 6) Does not apply to types "G24 - 8"

electric			"G24"	"G24-8"
Minimum solenoid current		mA	≤ 100	≤ 100
Maximum solenoid current		mA	1600 ± 10 %	800 ± 5 %
Solenoid coil resistance	Cold value at 20 °C	Ω	5.5	20.6
	Max. hot value	Ω	8	33
Duty cycle		%	100	100

electrical, integrated electronics (OBE)

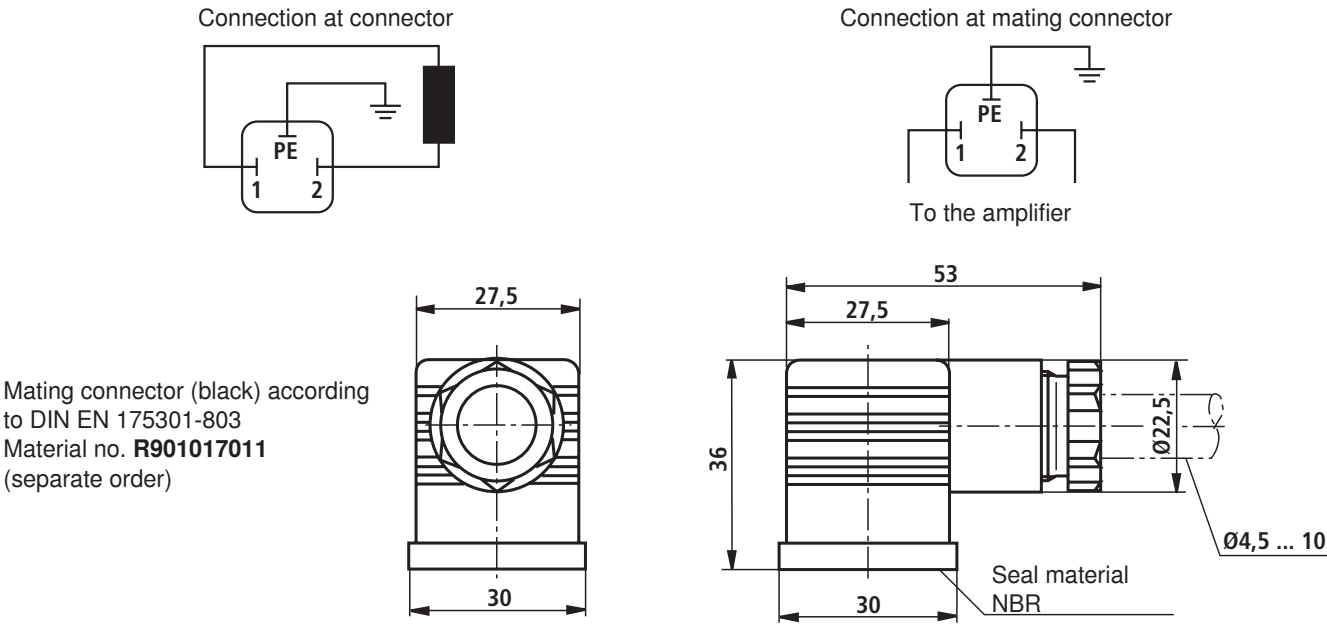
Supply voltage	Nominal voltage	VDC	24
	Lower limit value	VDC	21
	Upper limit value	VDC	35
Current consumption		A	≤ 1.5
Required fuse protection		A	2, time-lag
Inputs	Voltage	V	0 to 10
	Current	mA	4 to 20
Output	Actual current value	mV	1 mV ± 1 mA
Protection class of the valve according to EN 60529			IP 65 with mating connector mounted and locked

Caution!

With an ambient temperature of 70 °C and a duty cycle of 100 % with max. current, the coil of the 800 mA solenoid reaches temperatures of up to 170 °C. In case of contact with the coil, this may lead to burns.

Electrical connection (dimensions in mm)

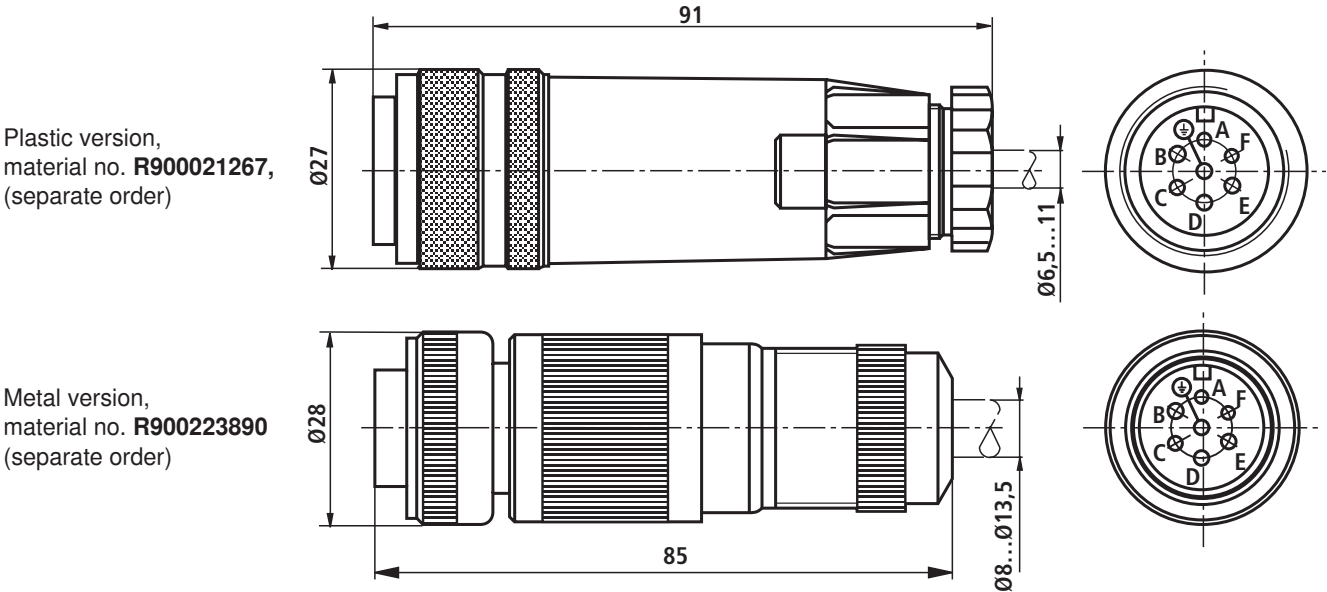
DRE(M)



DRE(M)E

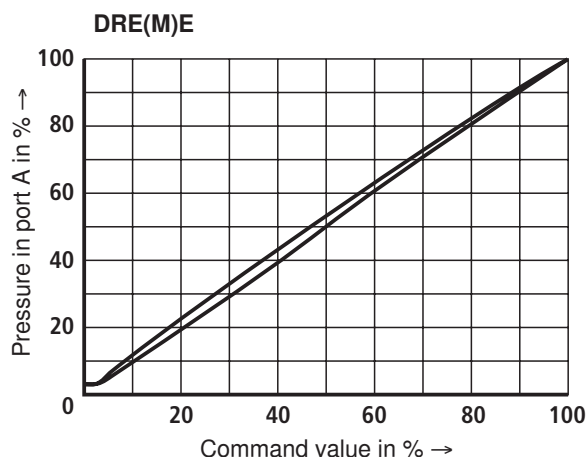
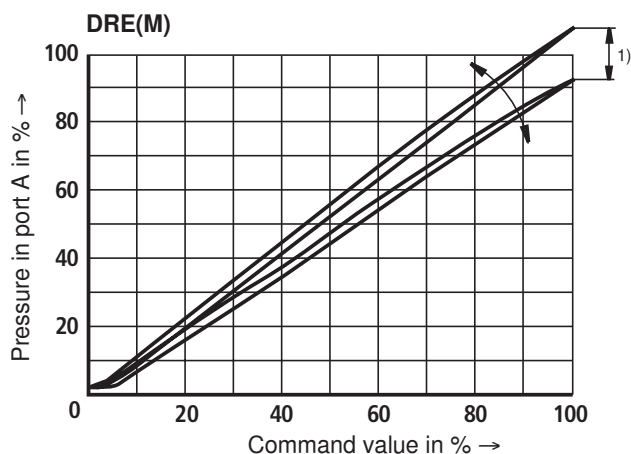
Device connector allocation	Contact	Allocation interface "A1"	Allocation interface "F1"
Supply voltage	A	24 VDC ($u(t) = 21\text{ V to }35\text{ V}$); $I_{\text{max}} \leq 1.5\text{ A}$	
	B	0 V	
Reference potential actual value	C	Reference contact F; 0 V	Reference contact F; 0 V
Differential amplifier input	D	0 to 10 V; $R_E = 100\text{ k}\Omega$	4 to 20 mA; $R_E = 100\text{ k}\Omega$
	E	Reference potential command value	
Measuring output (actual value)	F	0 to 1.6 V actual value ($1\text{ mV} \triangleq 1\text{ mA}$) Load resistance $> 10\text{ k}\Omega$	
	PE	Connected to solenoid and valve housing	

Mating connectors according to DIN EN 175201-804, solder contacts for line cross-section 0.5 to 1.5 mm²



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

Pressure in port A depending on the command value (flow = 0.8 l/min)

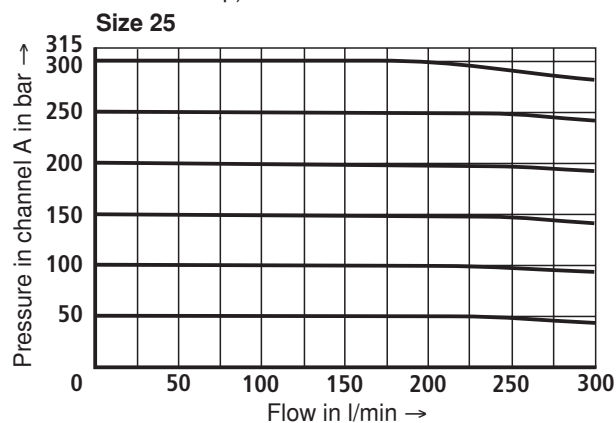
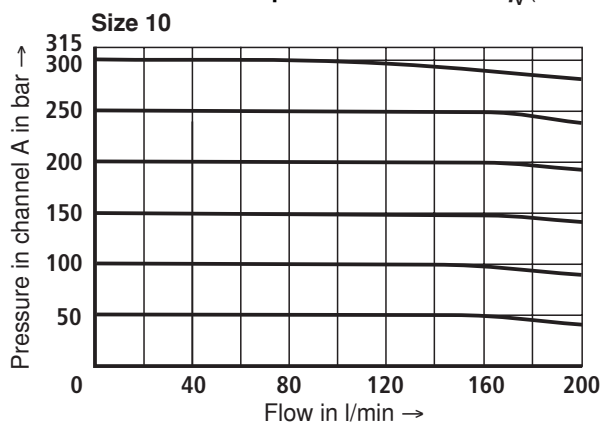


¹⁾ With valve DRE(M), the manufacturing tolerance at the **external amplifier** (type and data sheet see page 2) can be changed using the command value attenuator potentiometer "Gw". With the digital amplifier, the setting is made using the "Limit" parameter.

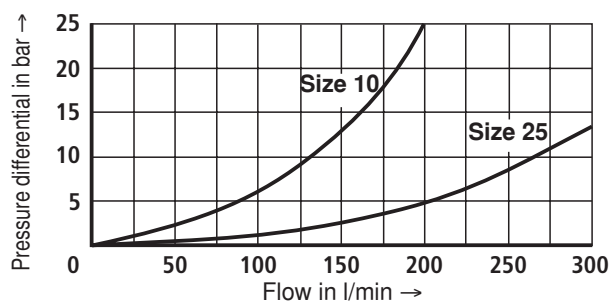
In this connection, the control current according to the technical data must not be exceeded.

In order to be able to adjust several valves to the same characteristic curve, the pressure must - with a command value of 100 % - at no valve not exceed the maximum setting pressure of the relevant pressure rating.

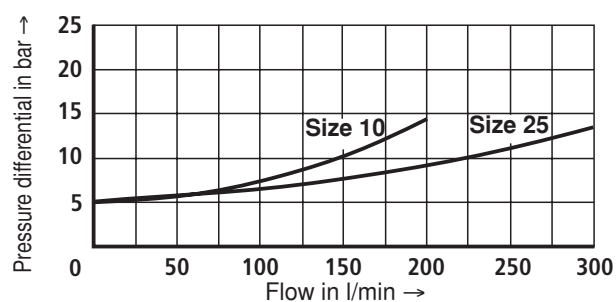
Pressure in channel A dependent on the flow q_v (characteristic curve with constant Δp)



Pressure differential via the check valve from A to B

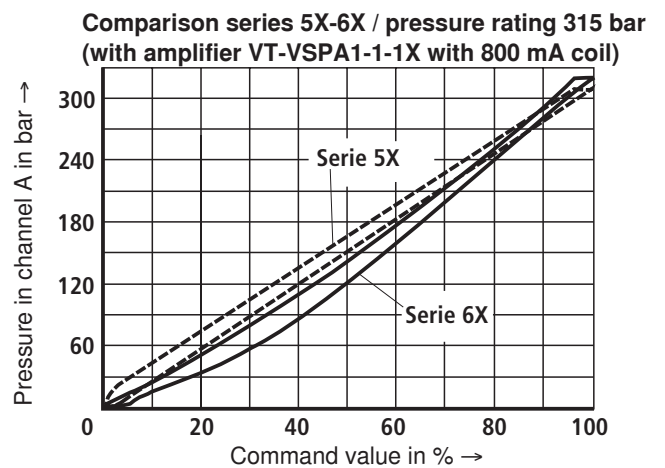
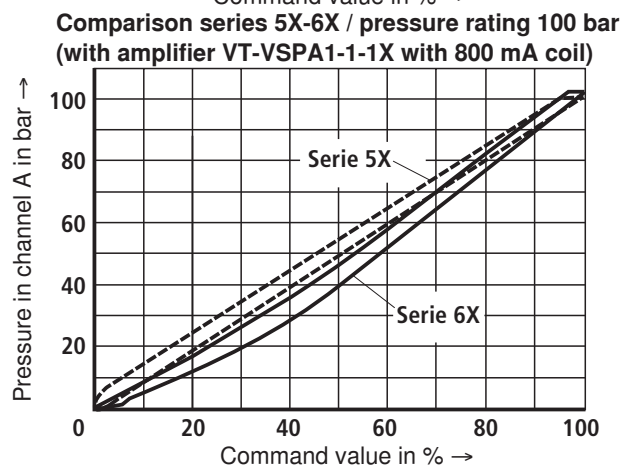
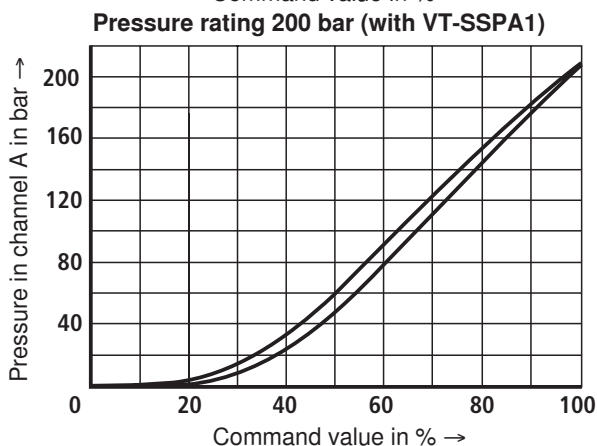
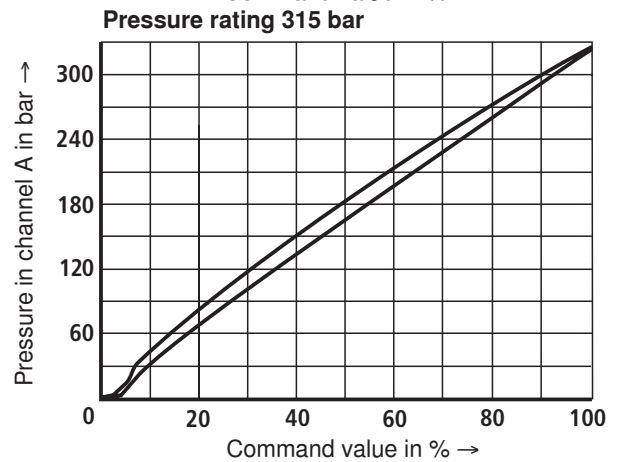
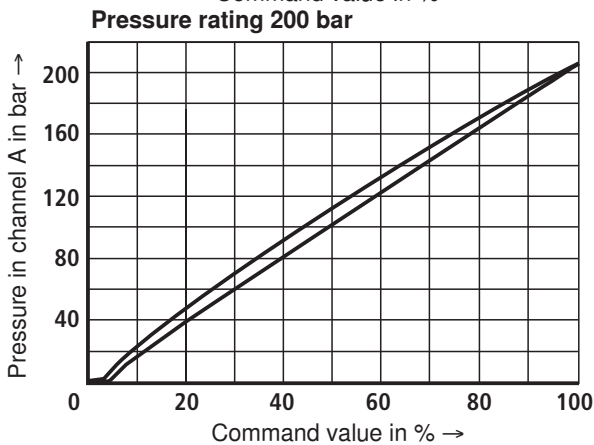
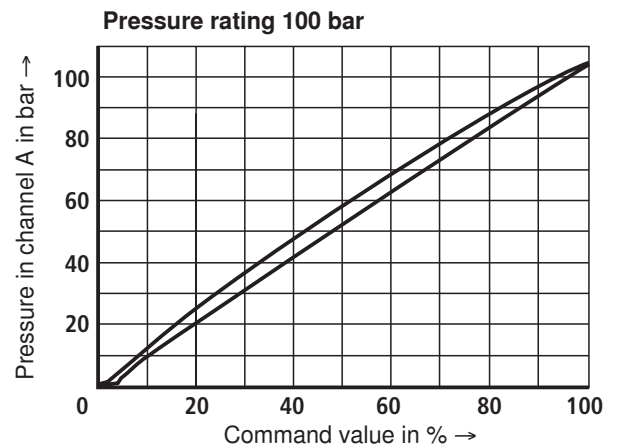
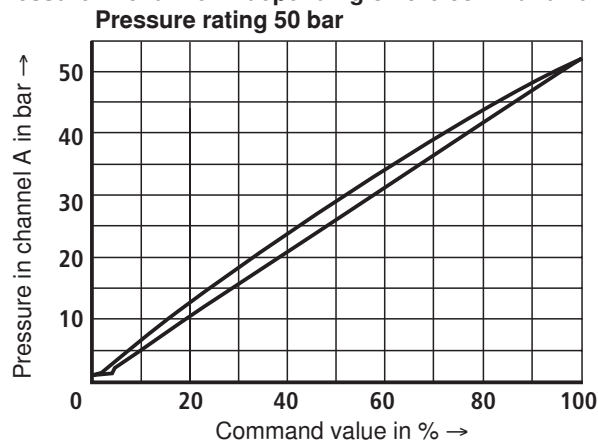


Pressure differential from B to A

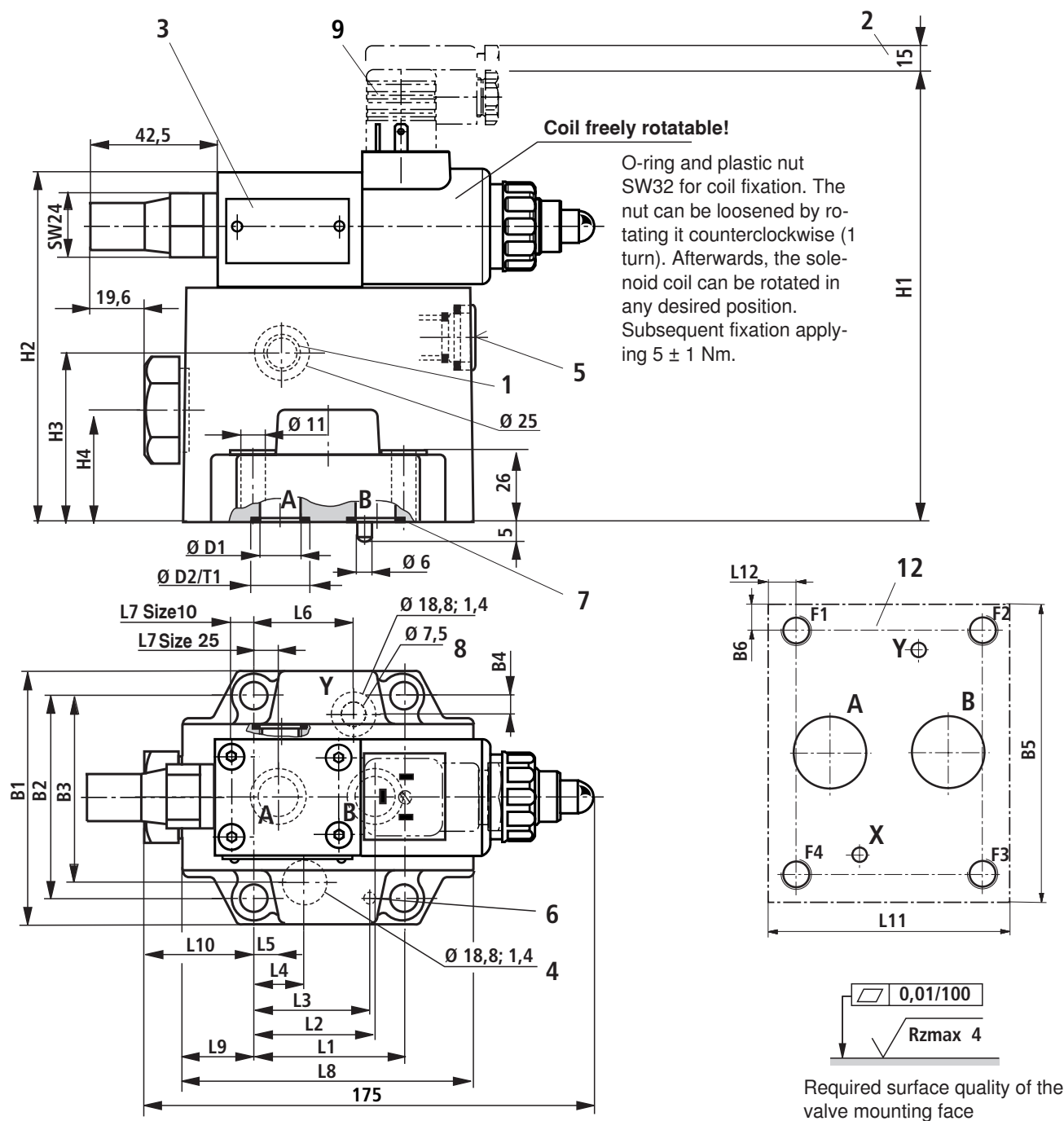


Characteristic curves (measured with HLP46, $\vartheta_{oil} = 40 \text{ }^{\circ}\text{C} \pm 5 \text{ }^{\circ}\text{C}$ and amplifier VT VSPA1-11-1X, 1600 mA coil...)

Pressure in channel A depending on the command value



Unit dimensions type DRE(M) (dimensions in mm)



Size	B1	B2	B3	B4	ØD1	ØD2 ^{H11}	H1	H2	H3	H4	
10	85	66.7	58.8	7.9	15	21.8	171	123	58	36	
25	102	79.4	73	6.4	25	34.8	185	137	64	44	
Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	T1
10	42.9	35.8	31.8	21.5	7.2	21.5	5	116	44.5	59.5	2.0
25	60.3	49.2	44.5	20.6	11.1	39.7	12.2	116	27.3	42	2.9
Size	B5	B6	L11	L12							
10	84	8.65	61	9.05							
25	97	8.8	78	8.85							

Unit dimensions (continued)

- 1 Upon delivery, this port (G1/4) is closed. After removal of the blanking plug, an external and separate pilot oil return at zero pressure to the tank is, however, also possible here.
- 2 Space required for removing the mating connector
- 3 Name plate
- 4 Blind counterbore
- 5 Check valve, optional
- 6 Locating pin
- 7 Identical seal rings for ports A and B
Identical seal rings for port Y and blind counterbore (item 4)
- 8 Pilot oil return always external and separately at zero pressure to the tank, or optionally at item 1
- 9 Mating connector according to DIN EN 175301-803
- 10 Integrated electronics (OBE), type DRE(M)E with connector "K31"
- 11 Mating connector according to DIN EN 175201-804
- 12 Processed installation surface, porting pattern according to
ISO 5781-06-07-0-00 (size 10)
ISO 5781-08-10-0-00 (size 25)
- 13 Cable fastening
- 14 Maximum pressure limitation with version DREM and DREME

Subplates according to data sheet RE 45062 and valve mounting screws must be ordered separately.

Subplates:

Size 10: G 460/01 (G 3/8)
G 461/01 (G 1/2)

Size 25: G 412/01 (G 3/4)
G 413/01 (G 1)

Valve mounting screws:

4 hexagon socket head cap screws

ISO 4762-M10x45-10.9-flZn-240h-L

(friction coefficient $\mu_{\text{total}} = 0.09$ to 0.14 ,
Tightening torque $M_A = 59 \text{ Nm} \pm 10 \%$

or

4 hexagon socket head cap screws ISO 4762-M10x45-10.9

(friction coefficient $\mu_{\text{total}} = 0.12$ to 0.17)
Tightening torque $M_A = 75 \text{ Nm} \pm 10 \%$