

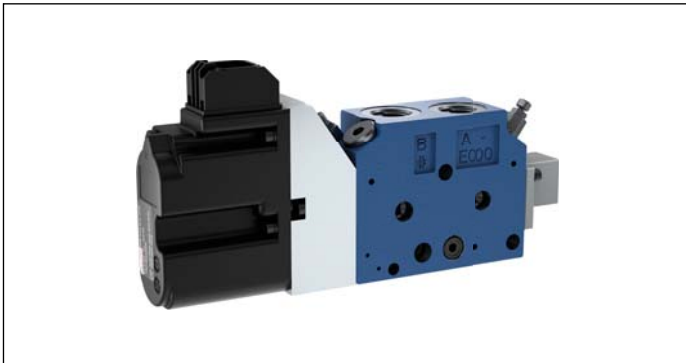
4/3 Proportional directional valve elements with LS - On Board Electronics

EDG-OBE

RE 18301-35

Edition: 05.2025

Replaces: 03.2025



- ▶ Size 6
- ▶ Maximum operating pressure:
 - 350 bar (5000 psi) on pump side
 - 350 bar (5000 psi) on consumer side
- ▶ Maximum flow at 11 bar (160 psi) bias spring:
60 l/min (15.8 gpm)
- ▶ Ports connections G 1/2 - SAE8

Note

The CAN-Bus (OBE) manual is available here: [RE 18301-34](#)

General specifications

The inlet section can be configured for either a fixed displacement pump or load-sense variable displacement pump. When simultaneous machine functions are actuated, the pre-compensators will automatically adjust to the highest load pressure via a shuttle arrangement, making the system circuit independent of variations in loads and pump pressures. Thanks to modularity concept, it's possible to combine stacks of flexible sections across the entire EDG family. The new On Board Electronics (OBE) module ensures the maximum efficiency in all working conditions, thanks to a control loop that allows an integration and communication between sensors and hydraulic components.

Main Field of Application

- ▶ Truck mounted applications
- ▶ Forestry machinery
- ▶ Forklifts and Telehandler
- ▶ Municipal vehicles
- ▶ Cranes
- ▶ Construction machines
- ▶ Mobile elevating working platforms
- ▶ Heavy duty vehicles
- ▶ Agricultural machines

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Ordering details

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
EDH	-	OBE	-	---	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-

Family

00	Directional Valve elements EDG Size 6	EDG
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Type and configuration

01	Electro - Piloted with On Board Electronics	OBE
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Ports & Connections

02	G 1/2 DIN 3852	G12
	3/4-16 UNF 2-B (SAE8)	S08

Local compensator bias spring

03	8 bar (116 psi)	2
	11 bar (160 psi)	4

Flange configuration

04	With P-TA-TB-LS-YA-YB-X-Y lines	2
	With P-TA-TB-LS-YA-YB-X-Y lines and LS return line	3

Hydraulic connections in neutral

05	P, A, B closed and LS to T	B
	P closed and A, B, LS to T	E

Spool variants

06	4/3 operated both sides A and B	2
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Flow rates over valve connection (according to table 1)

07	Flow rate P>A	-
08	Flow rate P>B	-
09	Nominal flow rate (A>T)	-⁴⁾
10	Nominal flow rate (B>T)	-⁴⁾

CAN-Bus protocol

11	SAE J1939 (default)	J⁵⁾
	CAN Open	C

CAN-Bus baud rate

12	250 kbit/s (default)	2⁵⁾
	500 kbit/s	5

CAN-Bus node ID

13	00 (default)...15	-⁵⁾
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Secondary valve types

14	Without secondary valve	00
	Double or single full relief valve with Anticavitation (VMA) or anticavitation only (VUM) or plug	M0²⁾
	Double or single LS relief valve (VMGLS) or plug	0M³⁾
	Combination of M0 and 0M options together	MM

Secondary valve config. setting:

Full Relief or Anticavitation selection (according to table 2)

15	A>TA setting @5lpm	-¹⁾
16	B>TB setting @5lpm	-¹⁾

Secondary valve config. setting: LS Relief (VMGLS) (according to table 3)

17	LSA>T setting range @1.5lpm	-¹⁾
18	LSB>T setting range @1.5lpm	-¹⁾

Override option & Emergency Lower

19	Without override	00
	Lever type manual override on A side - Horizontal	HA
	Lever type manual override on A side - Vertical	VA
	Prepared for lever type manual override on A side	XA
	Lever type manual override on A side - Horizontal 180° rotated	H1
	Lever type manual override on A side - Vertical 180° rotated	V1
	Prepared for lever type manual override on A side - 180° rotated	X1

1) "0" option is the only one available for "Without secondary valves" selection.

2) For fixed setting relief valve data sheet see Data Sheet RE 18329-11. For anticavitation valve data sheet see Data Sheet RE 18329-51.

3) See Table 3.

4) Asymmetrical spools available on request.

5) If not specified the default CAN-Bus configuration is CAN-Bus protocol=SAE J1939 – baud rate=250 kbit/s – node ID=0. Instructions to set or change the CAN-Bus node ID, the CAN-Bus protocol and the CAN-Bus baud rate are available into the user manual RE18301-34

Ordering details

Table 1

	Spring Setting	
	8 bar	11 bar
	3333	28
	33	
Spool Variant	6666	38
	45	
	9999	52
	60 ¹⁾	

¹⁾ Considering inlet standby pressure at least 18 bar

Table 2

Full relief valve configuration setting

0				9				8			
Without valve cavity on both sides (not drilled)				With valve cavity plugged (Normally closed plug)				With anti-cavitation valve			
A	B	C	D	E	F	G	H	I	J	K	
50 bar	60 bar	70 bar	80 bar	90 bar	100 bar	110 bar	120 bar	130 bar	140 bar	150 bar	
725 psi	870 psi	1015 psi	1160 psi	1305 psi	1450 psi	1595 psi	1740 psi	1885 psi	2030 psi	2175 psi	
L	M	N	O	P	Q	R	S	T	U	V	X
160 bar	170 bar	180 bar	190 bar	200 bar	210 bar	220 bar	230 bar	240 bar	250 bar	270 bar	290 bar
2320 psi	2465 psi	2611 psi	2756 psi	2901 psi	3046 psi	3191 psi	3336 psi	3481 psi	3626 psi	3916 psi	4206 psi

Note

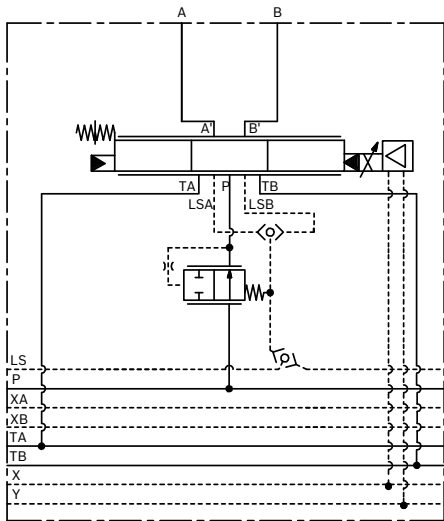
For pressure higher than 290 bar (4206 psi), contact factory.

Table 3

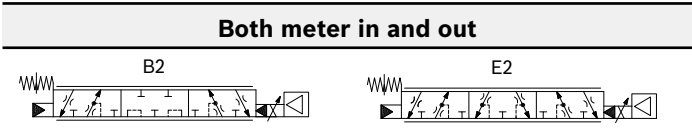
LS relief valve configuration setting

Option selection	Description	Standard setting (bar)
0	without valve cavity	-
1	30-90 bar (Setting range)	70
2	80-140 bar (Setting range)	110
3	135-225 bar (Setting range)	180
4	210-310 bar (Setting range)	250
5	290-380 bar (Setting range)	300
9	Normally closed plug	R930082023

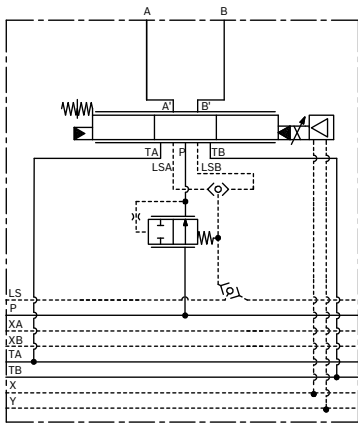
Hydraulic layouts



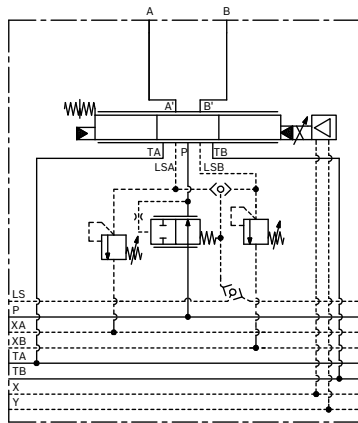
06 - Spool Variants



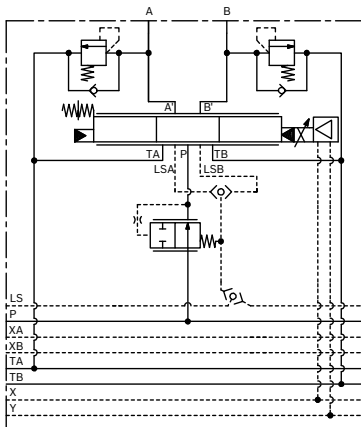
11 - Secondary valve types



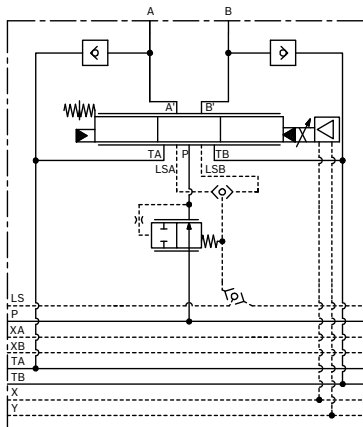
00
No secondary valves



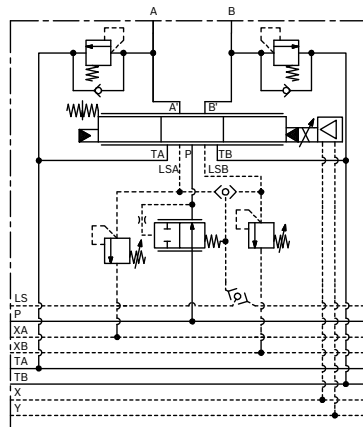
0M
LS relief valves option



M0
Relief valves with
anticavitation option

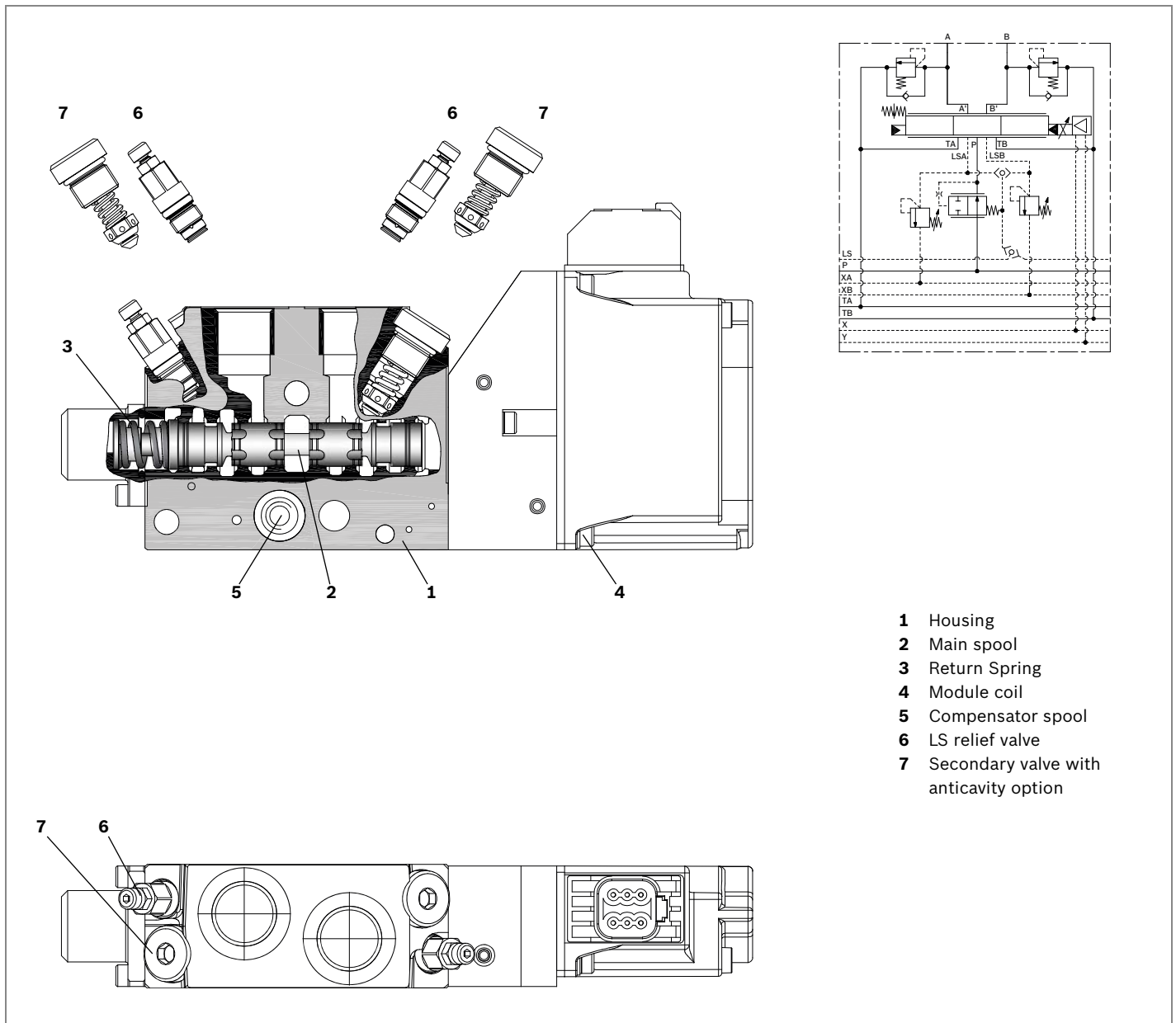


M0
Anticavitation
valves option



MM
Combination of
M0 and OM options

Functional description



The EDG OBE pilot operated proportional sectional valves with pressure compensation controls the oil flow to actuators with a close loop.

These elements consist of a stackable housing (1) with a control spool (2), an On Board Electronics (OBE) module (4), one return spring (3). The OBE module (4) displaces the control spool from its neutral-central position "0" proportionally to the current received, with a control in close loop. When the spool is shifted and the metering notch is open, flow delivery starts and is controlled by a 2 way pressure compensator (5) ($P > A$; $P > B$).

Load pressure compensation

The pressure compensator (5) keeps the pressure differential on the main spool (2). The flow to the consumers remains constant, despite varying loads. Port relief valves with anti-cavitation function on A and B (7) protect the system against pressure peaks and cavitation. LS relief valves (6), for each consumer port, can be adjusted according to specific application requirements.

Technical data

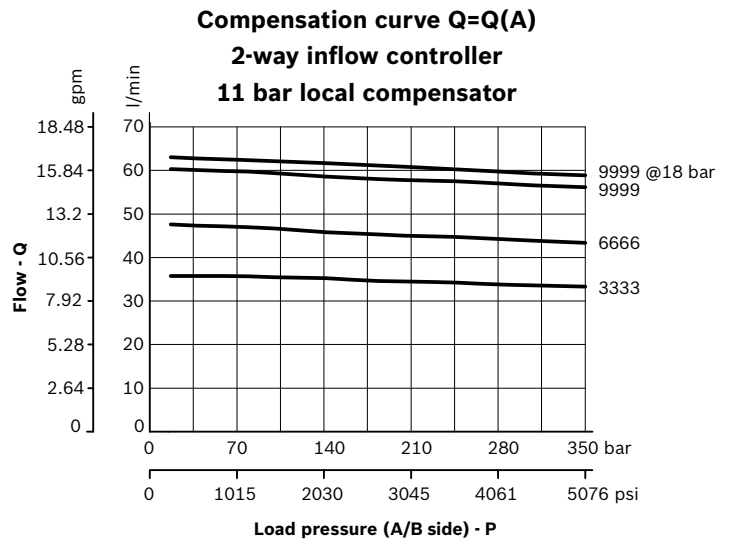
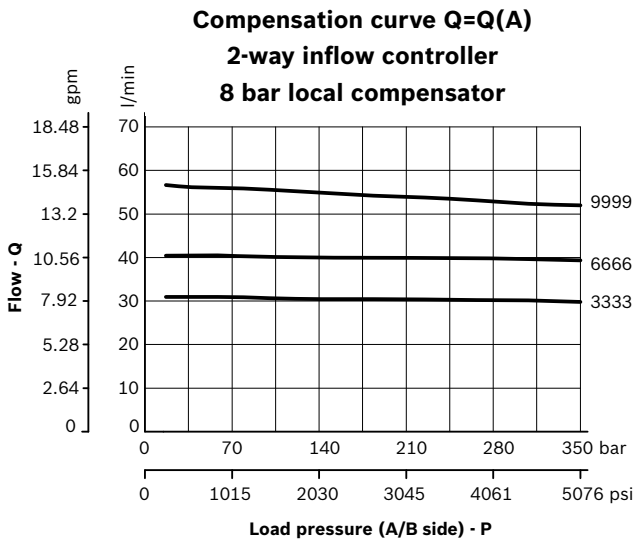
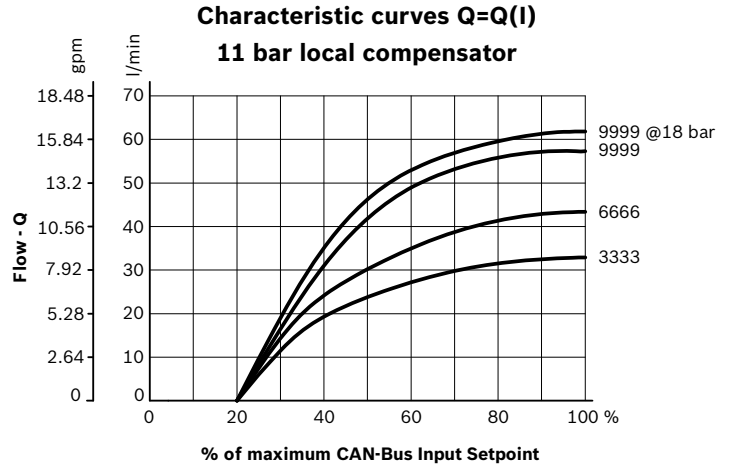
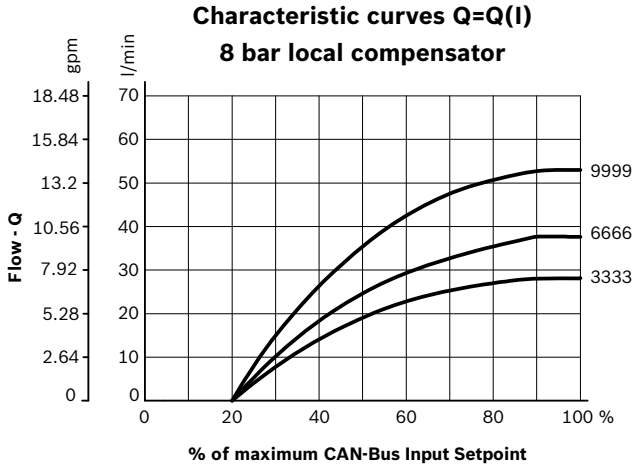
General		
Valve element	kg (lbs)	2.7 (5.95)
Ambient Temperature	°C (°F)	-30...+50 (-22...+122)
Hydraulic		
Maximum pressure at P, A and B ports	bar (psi)	350 (5000)
Piloting pressure range (X)	bar (psi)	12 ÷ 35 (175 ÷ 508)
Maximum static pressure at T	bar (psi)	210 (3050)
Maximum drain line (Y) back pressure	bar (psi)	20 (290)
Max. regulated flow at 8 bar (116 psi)	l/min (gpm)	60 (15.8)
For E schemes symmetrical spool pattern in neutral position (connection A to T and B to T).		Approx. 2% of the nominal cross-section
Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems.		Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.
Fluid Temperature	°C (°F)	-30....+100 (-22....+212) (NBR seals)
Permissible degree of fluid contamination		ISO 4572: $\beta_{x \geq 75} X=12...15$ ISO 4406: class 20/18/15 NAS 1638: class 9
Viscosity range	mm ² /s	20....380 (optimal 30....46)
Electrical		
Voltage range	V	8,5 ÷ 30
Maximum current consumption	mA	1000
Input signal		CAN BUS SAE-J1939
Output signal		CAN BUS SAE-J1939
Output spool position signal	V	0÷5
Enviromental protection level		IP69K
Node ID		0 (default) adjustable
EMC (Emission & Immunity)		EN13766 - EN14982
Connector type		DT04-6P MALE DEUTSCH

Note

For applications with different specifications consult us.

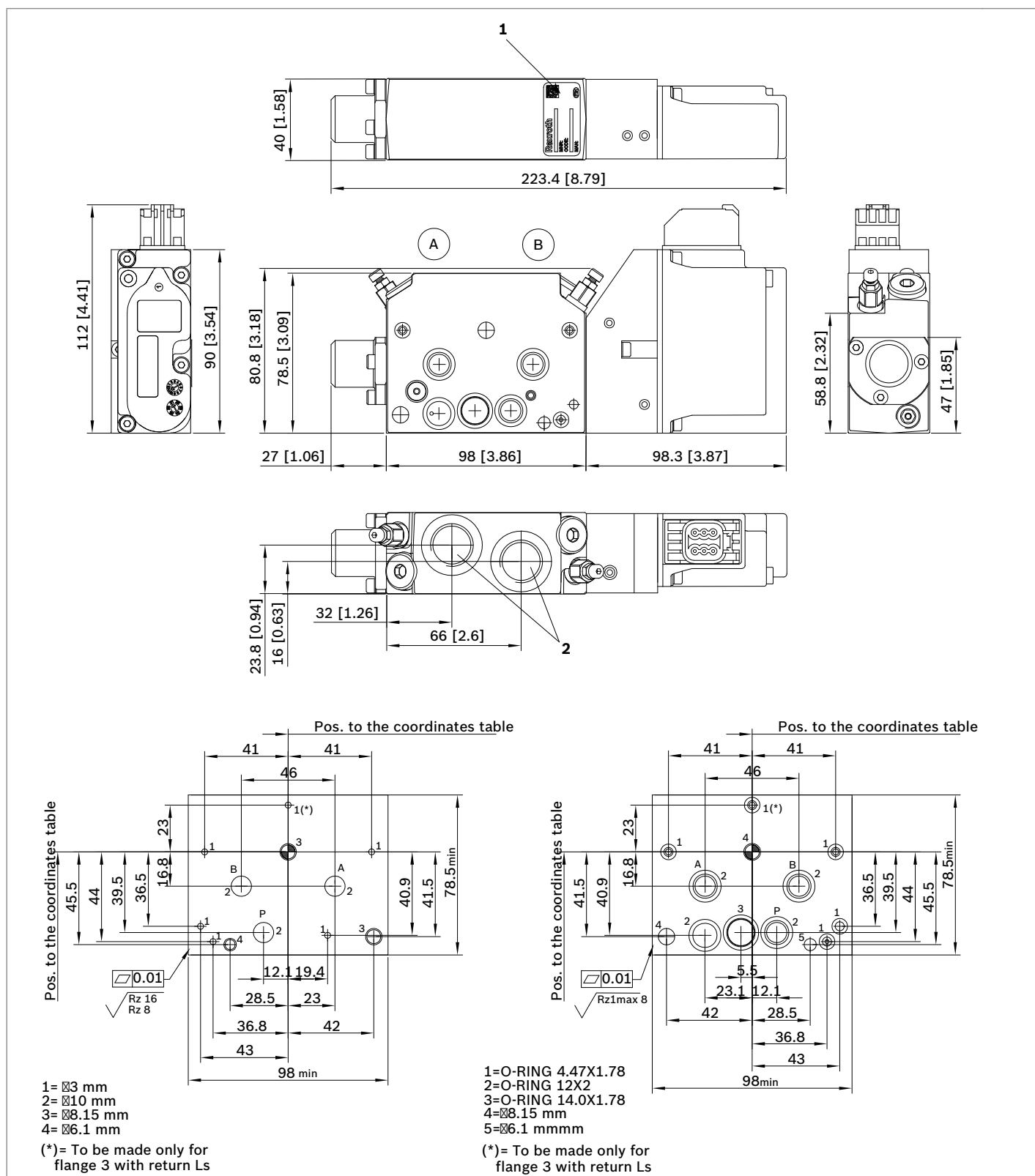
* In addition to relief valve pressure setting value.

Characteristic curves



Measured with hydraulic fluid ISO-VG32 at 45° ±5 °C (113° ±9 °F); ambient temperature 20 °C (68 °F).

External dimensions and fittings - Standard version

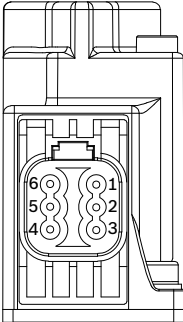


- 1 Identification label.
- 2 Flange specifications. For tie rod and tightening torque information see data sheet RE 18301-92.

Electric connections

DT04-6P

Protection class: IP 69K with connector properly fitted.



DT04-6P MALE DEUTSCH
Connector-Pin OUT

Pin	D/C0 VER.
1	+V (Power Supply)
2	CAN-L
3	N.C. (Pos. feedback)
4	N.C. (Analog IN)
5	CAN-H
6	-V (Ground Power Supply)