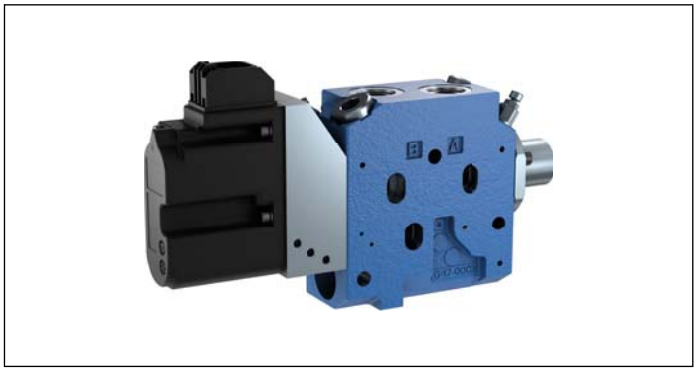
4/3 Proportional directional valve elements with LS - On Board Electronics

RE 18301-37
Edition: 05.2025

EDH-OBE



- Size 10
- Maximum operating pressure:
  - 350 bar (5000 psi) on pump side
  - 350 bar (5000 psi) on consumer side
- Maximum flow at 8 bar (116 psi) bias spring:
  100 l/min (26.4 gpm)
- Ports connections G 1/2 - SAE10

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 EDH and 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.

Contents

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

Ordering details

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
EDH	-	E	-	_	-	_	-	0	-	_	2	_ _ _ _	-	_	-	_	-	_ _	_ _	_	_	_	-	_	-	_	-	_ _	-	_

Family

00	Directional Valve elements EDH Size 10 proportional	**EDH**

Type

01	Electro - Piloted	**E**

Flange (define the following directional valve)

02	EDH	**H**
	EDG	**G**[1]

Ports & Connections

03	G 1/2 DIN 3852	**4**
	7/8-14 UNF (SAE10)	**D**

Local compensator bias spring

04	8 bar (116 psi)	**0**

Hydraulic connections in neutral

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

Spool variants

06	4/3 operated both sides a and b	**2**

Flow rates over valve connection (according to table 1)

07	Flow rate P>A	**-**
	Flow rate P>B	**-**
	Nominal flow rate (A>T)	**-**
	Nominal flow rate (B>T)	**-**

CAN-Bus protocol

08	SAE J1939 (default)	**J**[6]
	CAN Open	**C**

CAN-Bus baud rate

09	250 kbit/s (default)	**2**[6]
	500 kbit/s	**5**

CAN-Bus node ID

10	00 (default)...15	**_ _**[6]

Secondary valve types

11	Without secondary valve	**00**
	Double or single full relief valve with Anticavitation (VMA) or anticavitation only (VUM) or plug	**M0**[3]
	Double or single LS relief valve (VMGLS) or plug	**0M**
	Combination of M0 and 0M options together	**MM**

Secondary valve config. setting:
Full Relief or Anticavitation selection (according to table 2)

12	A>Ta setting @5lpm	**_**[2]
13	B>Tb setting @5lpm	**_**[2]

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

14	LSA>T setting range @1.5lpm	**_**
15	LSB>T setting range @1.5lpm	**_**

Auxiliary ports on LSA and LSB

16	Cavity not drilled / No option	**0**
	Both LSA and LSB G 1/8 DIN 3852	**1**

Emergency lever

17	No option	**0**
	Lever type manual override on A side – Horizontal	**H**
	Lever type manual override on A side – Vertical	**V**
	Prepared for lever type manual override on A side – stroke limitator	**X**

LS signal management[5]

18	No option	**00**
	LS cut-off - 2/2 cartridge valve normally open KKDER8 P rif. RE18136-08	**NO**
	LS cut-off - 2/2 cartridge valve normally closed KKDER8 N rif. RE18136-08	**NC**
	LS pressure control - Proportional pressure relief valve, increasing characteristic curve KBPS.8A rif. RE18139-04	**A_**[4]
	LS pressure control - Proportional pressure relief valve, decreasing characteristic curve KBPS.8B rif. RE18139-05	**B_**[4]

Spool sensor

19	No option	**0**
	12V	**B**
	24V	**C**

1) For combined valve blocks EDH+EDG the last EDH section must be selected with flange "G"
2) "**0**" option is the only one available for "without secondary valves" selection.
3) For fixed setting relief valve data sheet see Data Sheet RE 18329-12. For anti-cavitation valve data sheet see Data Sheet RE 18329-52.
4) For pressure rating selection refer to table 4.
5) Standard electric connection of LS signal management cartridge valve is with DEUTSCH DT04-2P IP69K. For different needs please contact factory.
6) 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

Spool Variant*	Nominal flow rate
5555	**80 lpm**
9999	**100 lpm**

* Other variants available on request

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) R930080486		With anti-cavitation valve R901109792					
A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
30 bar	50 bar	60 bar	80 bar	100 bar	120 bar	140 bar	150 bar	160 bar	170 bar
435 psi	725 psi	870 psi	1160 psi	1450 psi	1740 psi	2030 psi	2175 psi	2321 psi	2466 psi
K	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
180 bar	190 bar	200 bar	210 bar	220 bar	230 bar	240 bar	250 bar	260 bar	270 bar
2611 psi	2756 psi	2901 psi	3046 psi	3191 psi	3336 psi	3481 psi	3626 psi	3771 psi	3916 psi
U	**V**	**W**	**X**	**Y**	**Z**				
280 bar	300 bar	310 bar	320 bar	350 bar	380 bar				
4061 psi	4351 psi	4496 psi	4641 psi	5076 psi	5511 psi				

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

Table 4

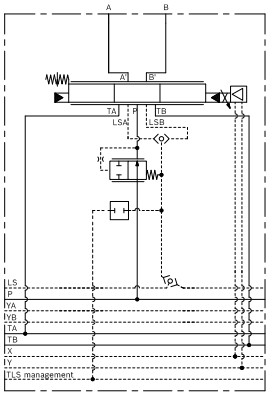
Pressure rating	Pressure range selection
up to 30 bar	**B**
up to 50 bar	**C**
up to 100 bar	**F**
up to 150 bar	**H**
up to 210 bar	**L**
up to 250 bar	**N**
up to 315 bar	**P**
up to 350 bar	**R**

Hydraulic layouts

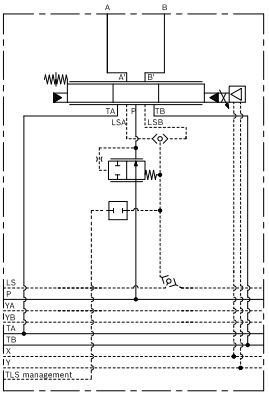
06 - Spool Variants

Both meter in and out	
B2	E2

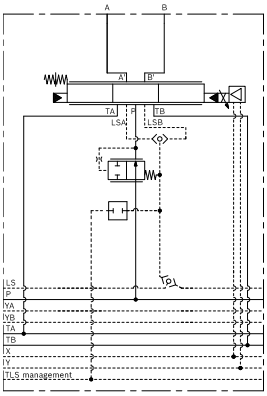
Standard version flange H



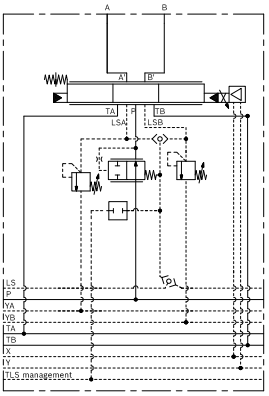
Standard version flange G



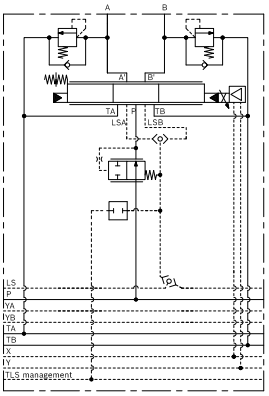
10 - Secondary valve types



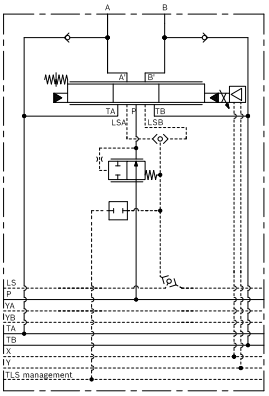
00
No secondary valves



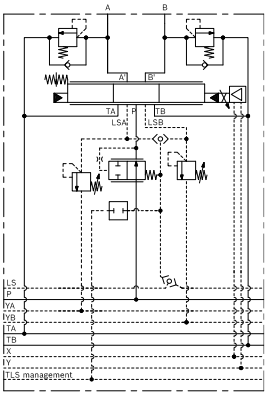
0M
LS relief valves option



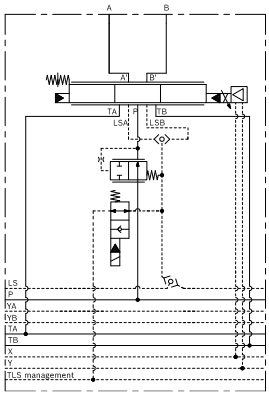
M0
Relief valves with anticavitation option



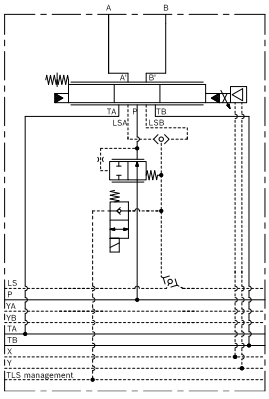
M0
Anticavitation valves option



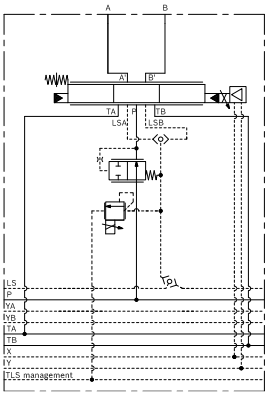
MM
Combination of M0 and 0M options



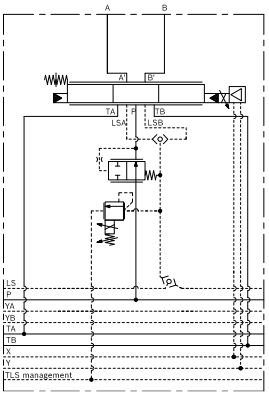
NO
LS cut-off -2/2 cartridge valve normally open
KKDER8 P ref. RE18136-08



NC
LS cut-off -2/2 cartridge valve normally closed
KKDER8 N ref. RE18136-08

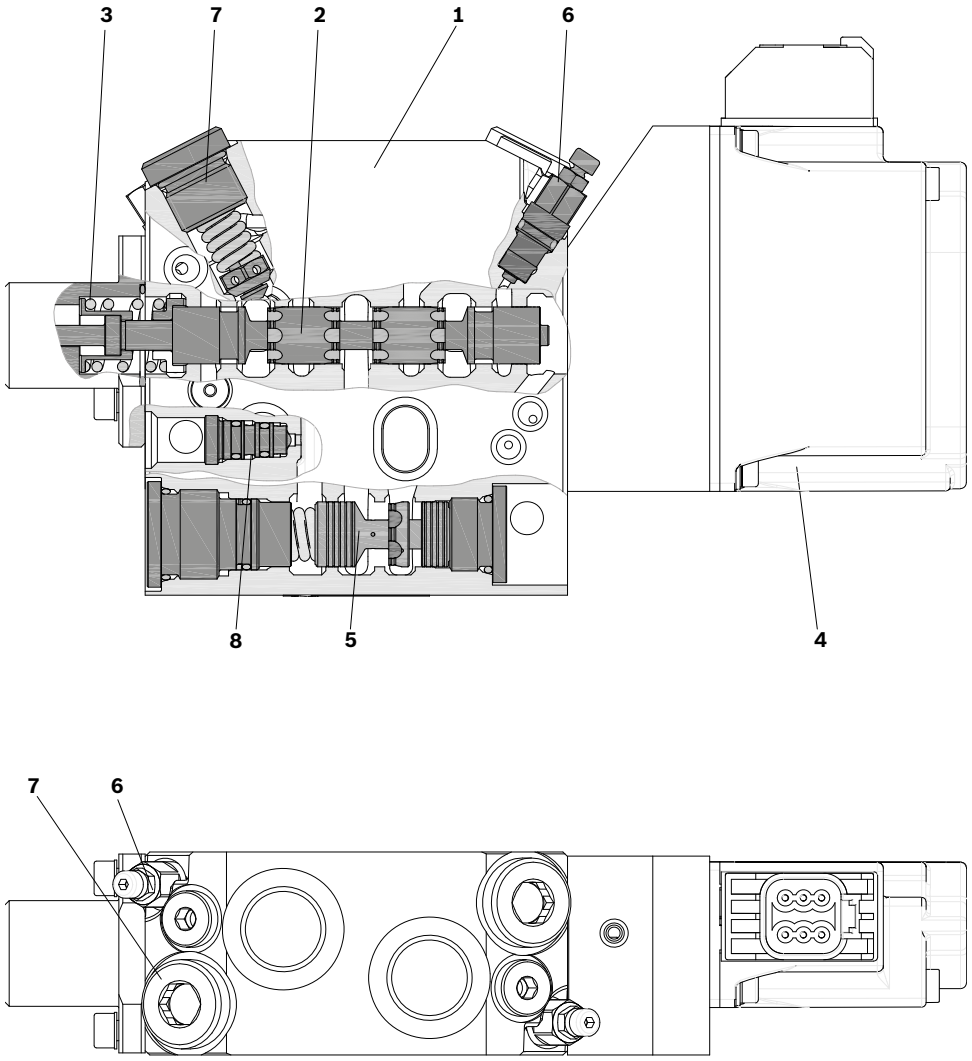


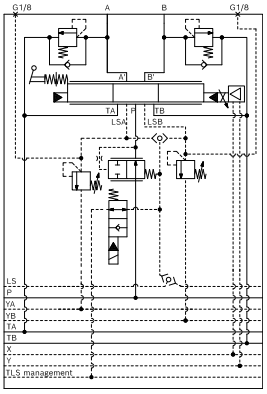
Ax
LS pressure contro - Proportional pressure relief valve increasing curve



Bx
LS pressure contro - Proportional pressure relief valve decreasing curve

Functional description





1 Housing
2 Main spool
3 Return Spring
4 Module coil
5 Compensator spool
6 LS relief valve
7 Secondary valve with anticavity option
8 LS shuttle valve

The EDH 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. The highest load pressure on the pump is signaled via the LS line and the integrated shuttle valve **(8)**.
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

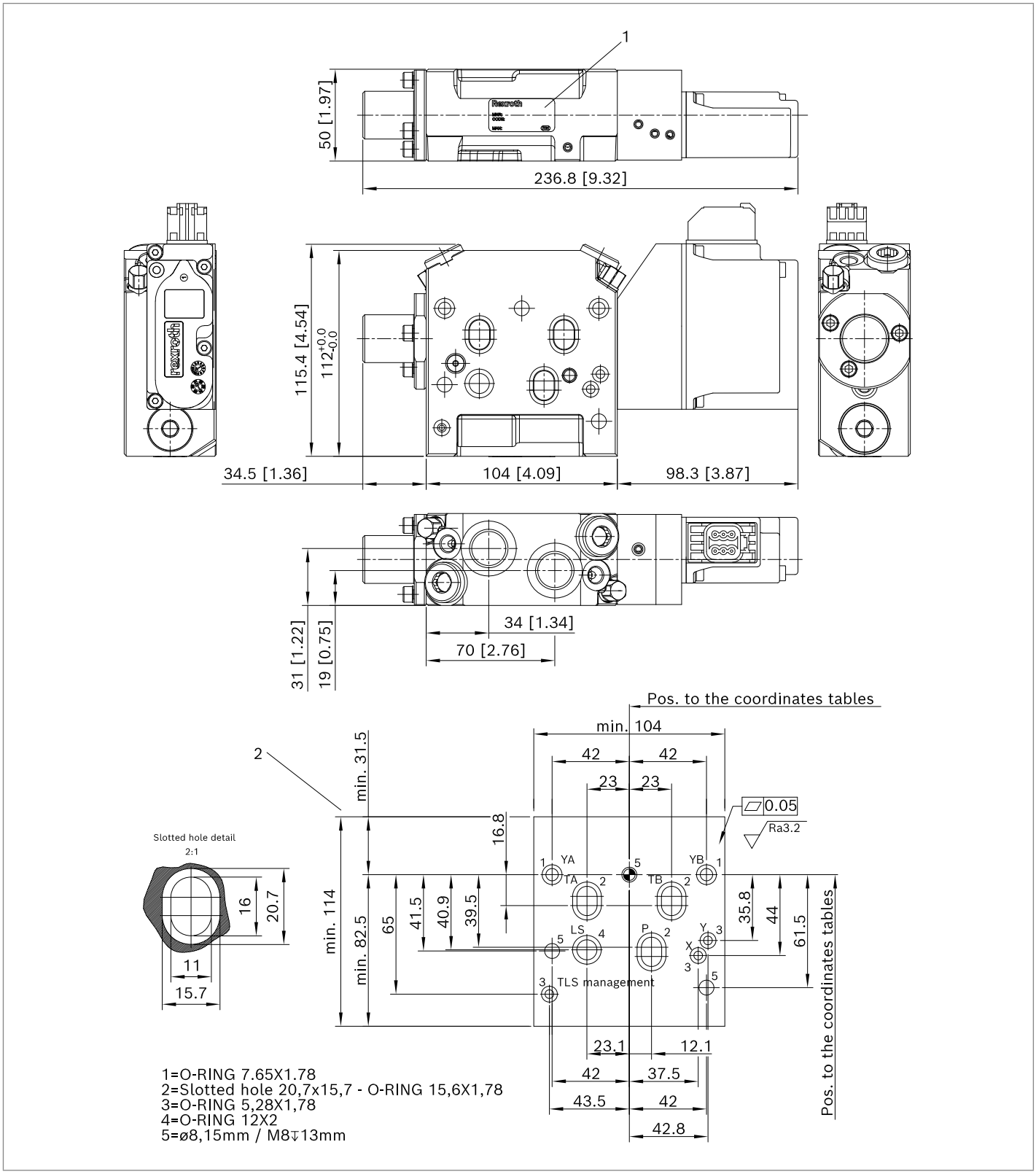
General		
Valve element	kg (lbs)	4.2 (9.26)
Ambient Temperature	°C (°F)	-30...+80 (-22...+176)
Body valve zinc plating treatment for higher corrosion resistance protection	h	up to 500
Hydraulic		
Maximum pressure at P, A and B ports	bar (psi)	350 (5000) [1)]
Maximum static pressure at T	bar (psi)	30 (435)
Piloting pressure range	bar (psi)	(X) = 12÷35 (175÷508)
Max. regulated flow at 8 bar (116 psi)	l/min (gpm)	100 (26.4)
For E schemes symmetrical spool pattern in neutral position (connection A to T and B to T).		Approx. 3% 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

[1)] For detailed information about duty cycles or specific requirements please contact factory.

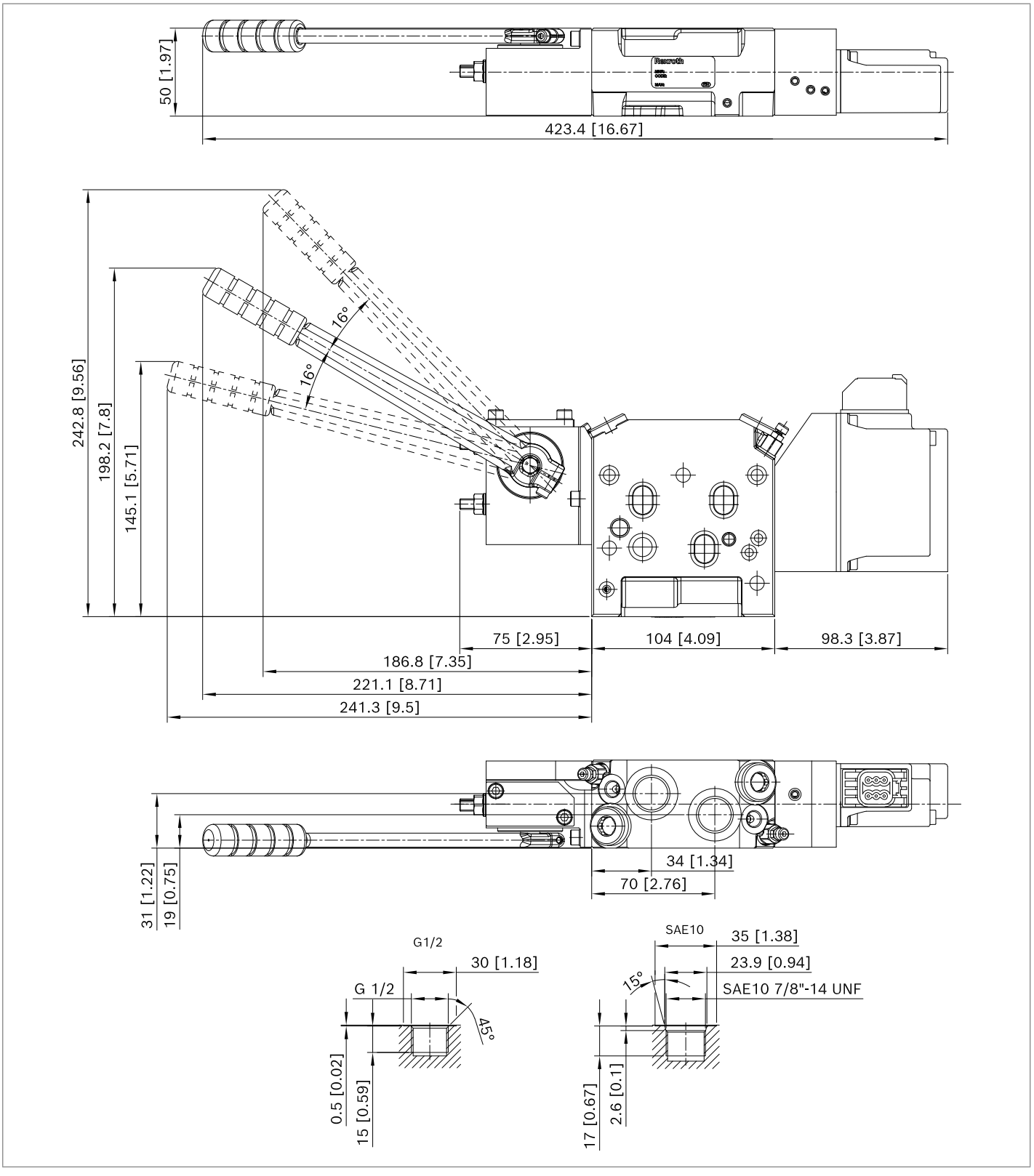
External dimensions and fittings - Standard version



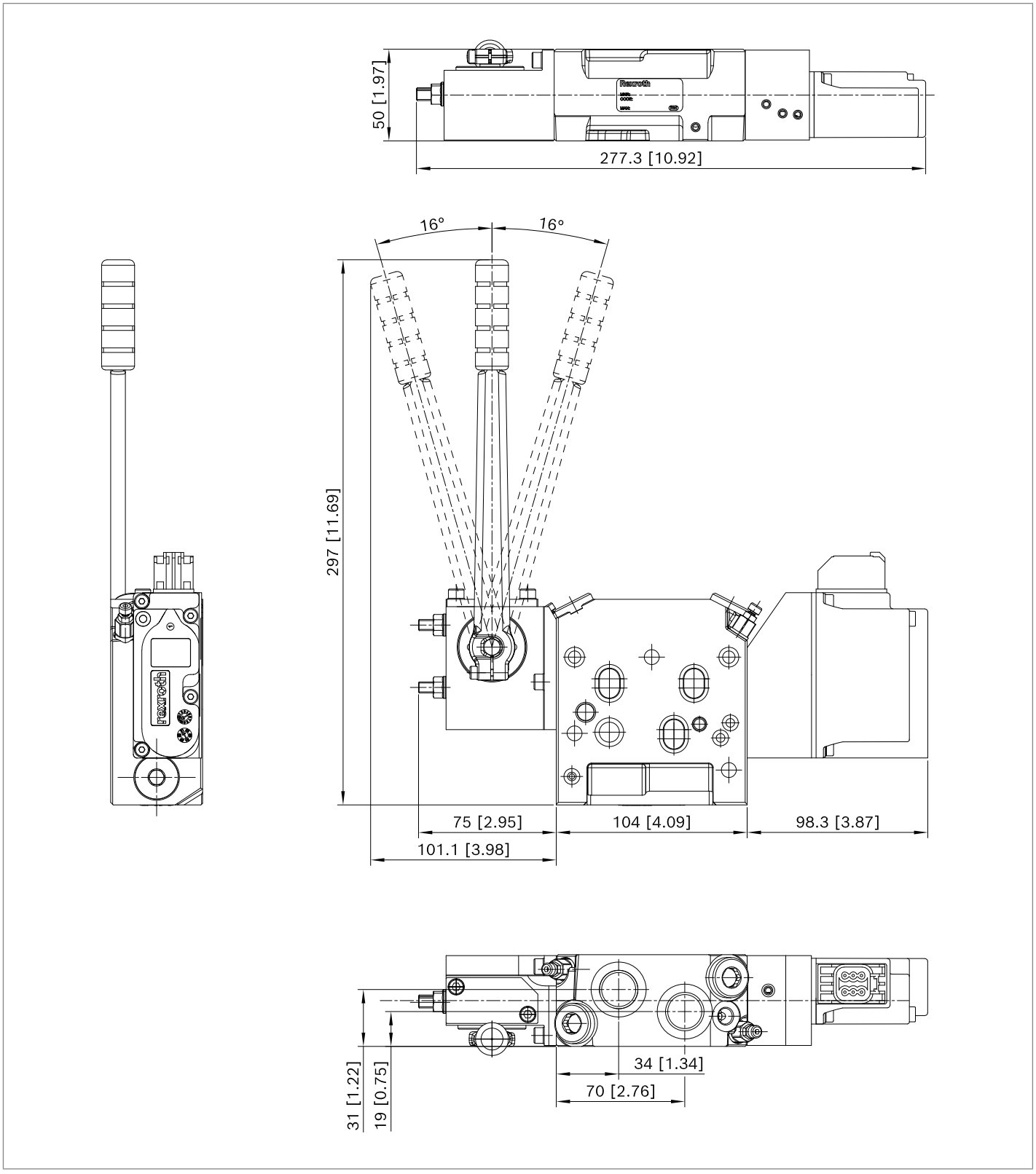
1 Identification label.

2 Flange specifications. For tie rod and tightening torque information see data sheet RE 18300-40.

External dimensions and fittings - Emergency Lever option (H)

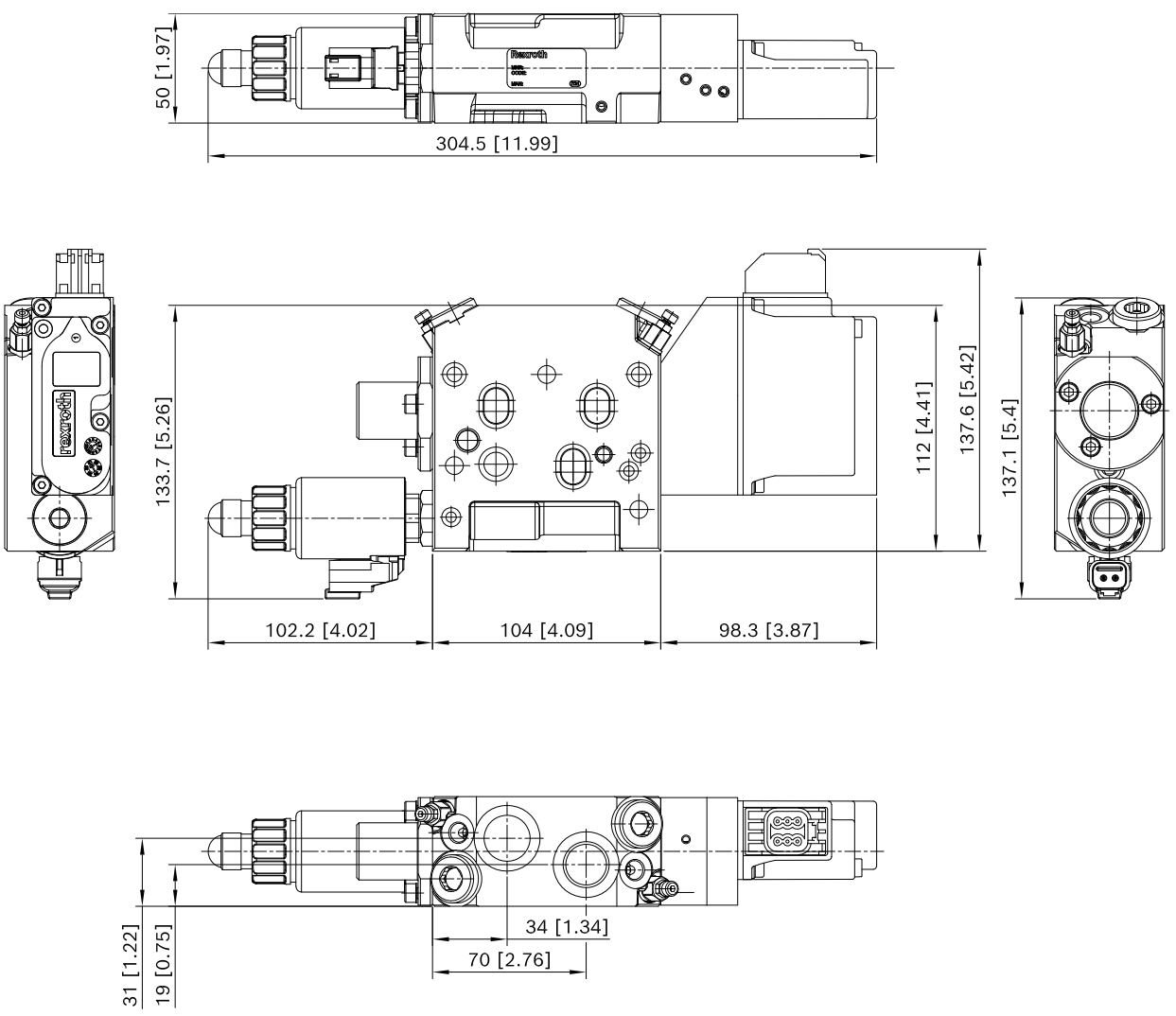


External dimensions and fittings - Emergency Lever option (V)



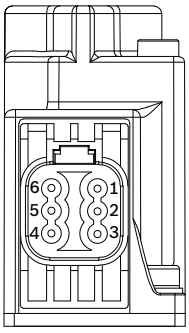
Dimensions: mm [inches]

External dimensions and fittings - Ls signal management option



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)

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Oleodinamica LC Division
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