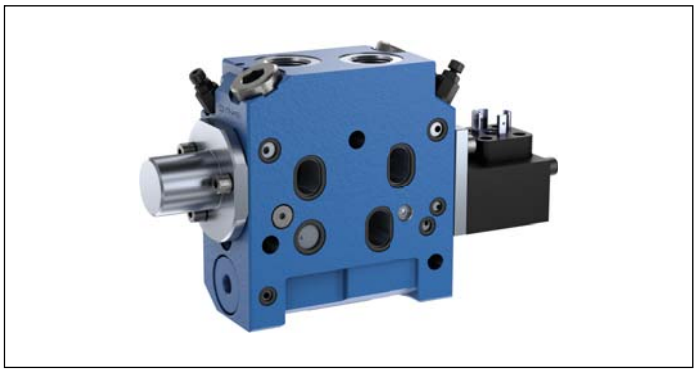
4/3 and 4/2 Proportional directional valve elements with LS - Electrohydraulic actuation

EDH

RE 18301-36
Edition: 01.2025
Replaces: 06.2024



- Size 10
- Maximum operating pressure: up to 350 bar (5000 psi)*
- Maximum flow at 8 bar bias spring (116 psi): 100 l/min (26.4 gpm)
- Ports connections: G 1/2 - SAE10
- C-Samples available

Note
Spool position sensor available for this valve.
See RE18300-30

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 family; this enables to build up a valve group that meets specific requirements.
Furthermore: compactness, power density and energy efficiency thanks to low Dp complete the best in class performance.

Contents

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

* For detailed information about duty cycles or specific requirements please contact factory.

Ordering details

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

Family

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

Type

01	Electro - Piloted	**P**

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**
	4/2 operated sides a	**3**
	4/2 operated sides b	**4**

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)	**-**

Voltage supply		**01**	**03**	**07**	
08	12V DC	●	●	●	**OB**
	24V DC	●	●	●	**OC**

● = Available – = Not available

Electric connections [2]

09	With coils, with connection DIN EN 175301-803	**01**[2]
	With coils, with connection vertical Amp - Junior	**03**
	With coils, with connection DT04-4P	**07**

Secondary valve types

10	Without secondary valve	**00**
	Double or single full relief valve with Anticavitation (VMA) or anticavitation only (VUM) or plug	**M0**[4]
	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)

11	A>Ta setting @5lpm	**_**[3]
12	B>Tb setting @5lpm	**_**[3]

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

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

Auxiliary ports on LSA and LSB

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

Emergency lever

16	No option	**0**
	Lever type manual override on A side – Horizontal	**H**[6]
	Lever type manual override on A side – Vertical	**V**[6]
	Prepared for lever type manual override on A side – stroke limitator	**X**

LS signal management [7]

17	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_**[5]
	LS pressure control - Proportional pressure relief valve, decreasing characteristic curve KBPS.8B rif. RE18139-05	**B_**[5]

Spool sensor

18	No option	**0**
	Spool sensor on side "A"	**S**[6]

1) For combined valve blocks EDH+EDG the last EDH section must be selected with flange "G"
2) For mating connectors ordering code see data sheet RE 18325-90.
3) "**0**" option is the only one available for "without secondary valves" selection.
4) For fixed setting relief valve data sheet see Data Sheet RE 18329-12. For anticavitation valve data sheet see Data Sheet RE 18329-52.
5) For pressure rating selection refer to table 4.
6) The Spool Sensor option is not available in combination with the emergency lever.
7) Electric connection of LS signal management cartridge valve in accordance with field "09".

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

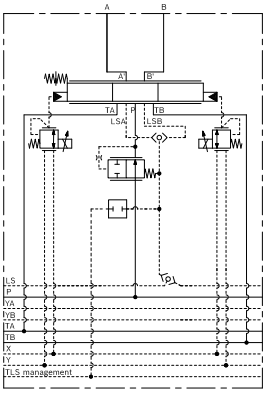
Option selection	Description	Standard setting (bar)
0	without valve cavity	-
1	30-90 bar (Setting range)	70
2	80-140 bar (Setting range)	110
3	135-225 bar (Setting range)	180
4	210-310 bar (Setting range)	250
5	290-380 bar (Setting range)	300
9	Normally closed plug	R930082023

Table 4

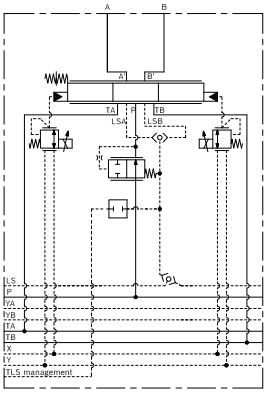
Pressure rating	Pressure range selection
up to 30 bar	**B**
up to 50 bar	**C**
up to 100 bar	**F**
up to 150 bar	**H**
up to 210 bar	**L**
up to 250 bar	**N**
up to 315 bar	**P**
up to 350 bar	**R**

Hydraulic layouts

Standard version flange H



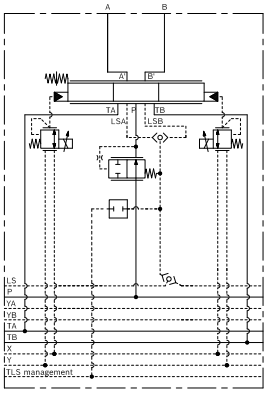
Standard version flange G



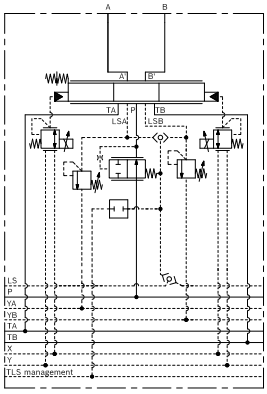
06 - Spool variants

Both meter in and out	
B2	E2
B3	E3
B4	E4

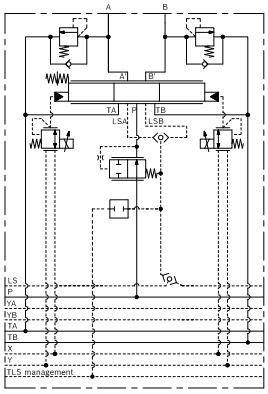
10 - Secondary valve types



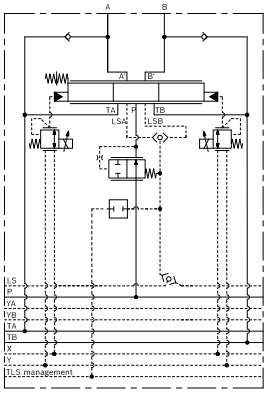
00
No secondary valves



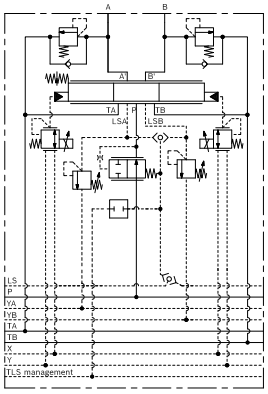
0M
LS relief valve option



M0
Relief valves with anticavitation option

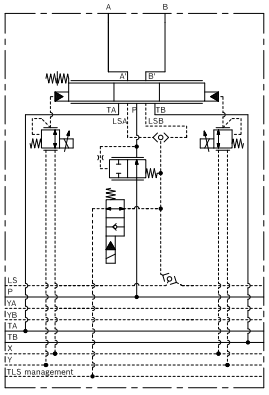


M0
Anticavitation valves option

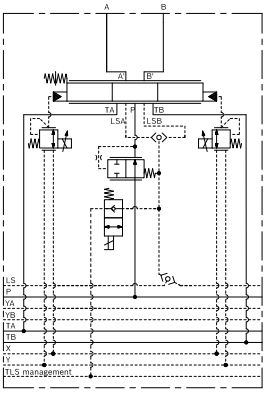


MM
Combination of M0 and M0 option

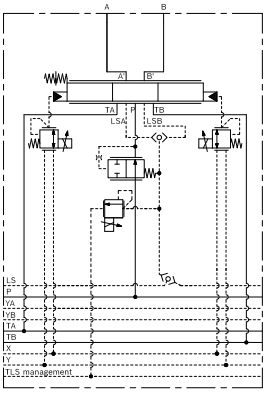
17 - LS signal management



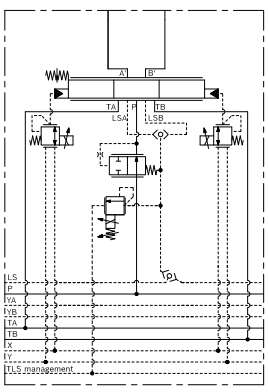
NO
LS cut-off - 2/2 cartridge valve normally open
KKDER8 P rif. RE18136-08



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

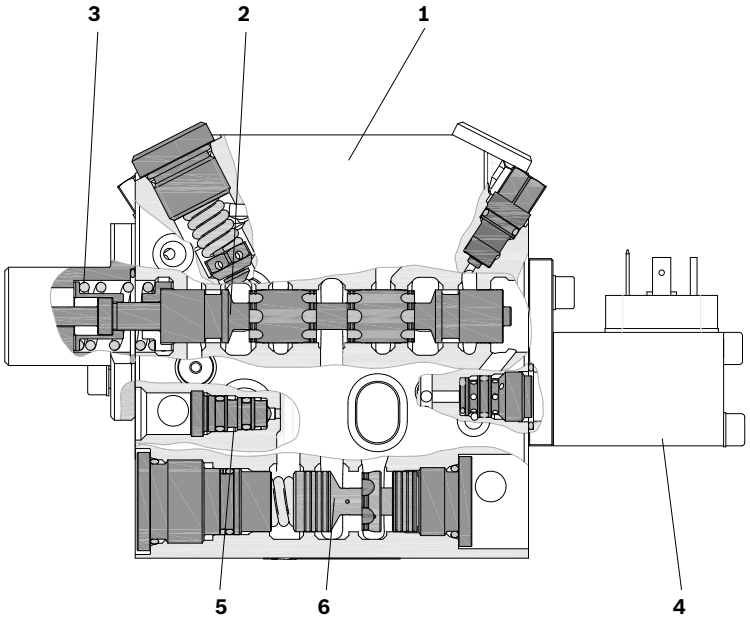


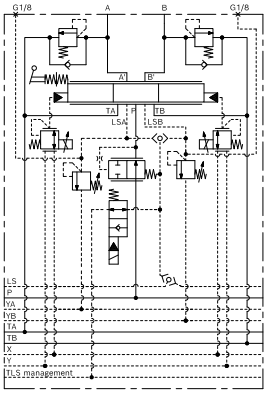
Ax
LS pressure control
Proportional pressure relief valve increasing curve

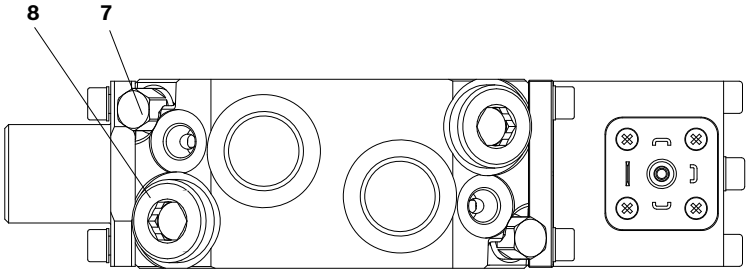


Bx
LS pressure control
Proportional pressure relief valve decreasing curve

Functional description







1 Housing
2 Main spool
3 Return Spring
4 Piloting module
5 LS shuttle valve
6 Compensator spool
7 LS relief valve (VMGLS)
8 Secondary valve with anticavitation option

The EDH pilot operated proportional sectional valves with pressure compensation control the oil flow to actuators. These elements consist of a stackable housing **(1)** with a control spool **(2)**, a piloting module **(4)**, one return spring **(3)**. The piloting module **(4)**, energized by PWM regulator, displaces the control spool from its neutral-central position “0” proportionally to the current received. When the spool is shifted and the metering notch is open, flow delivery starts and is controlled by a 2 way pressure compensator **(6)** (P > A; P > B).
When the pilot module is de-energized, the return spring pushes the spool back in its neutral-central position.

Load pressure compensation
The pressure compensator **(6)** 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 **(5)**.
Port relief valves with anti-cavitation function on A and B **(8)** protect the system against pressure peaks and cavitation. LS relief valves **(7)**, for each consumer port, can be adjusted according to specific application requirements.

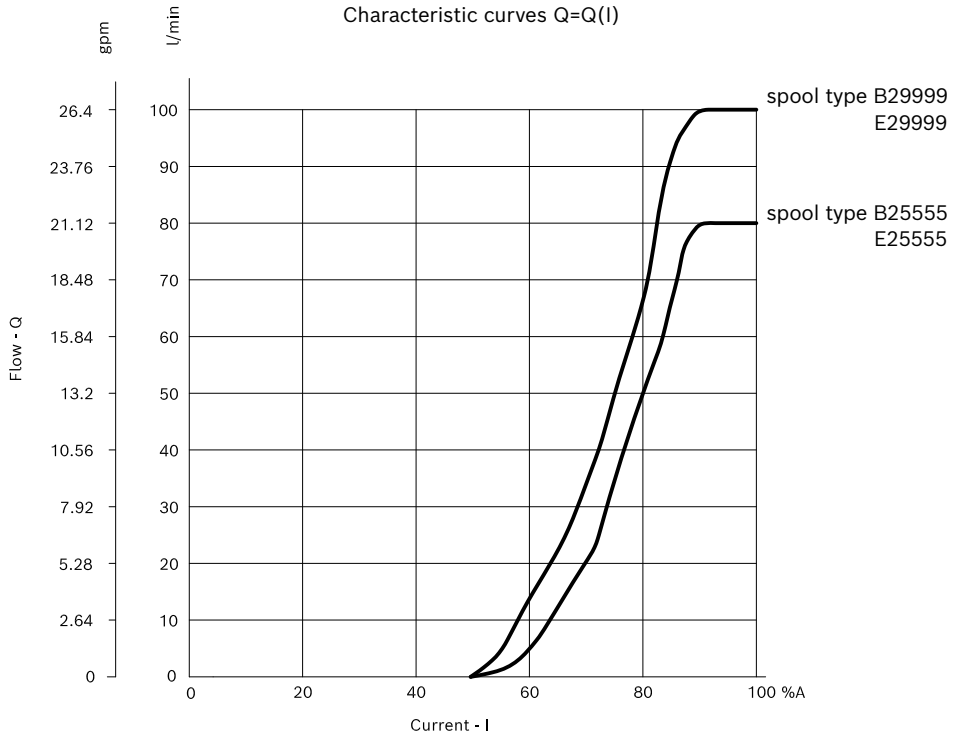
Technical data

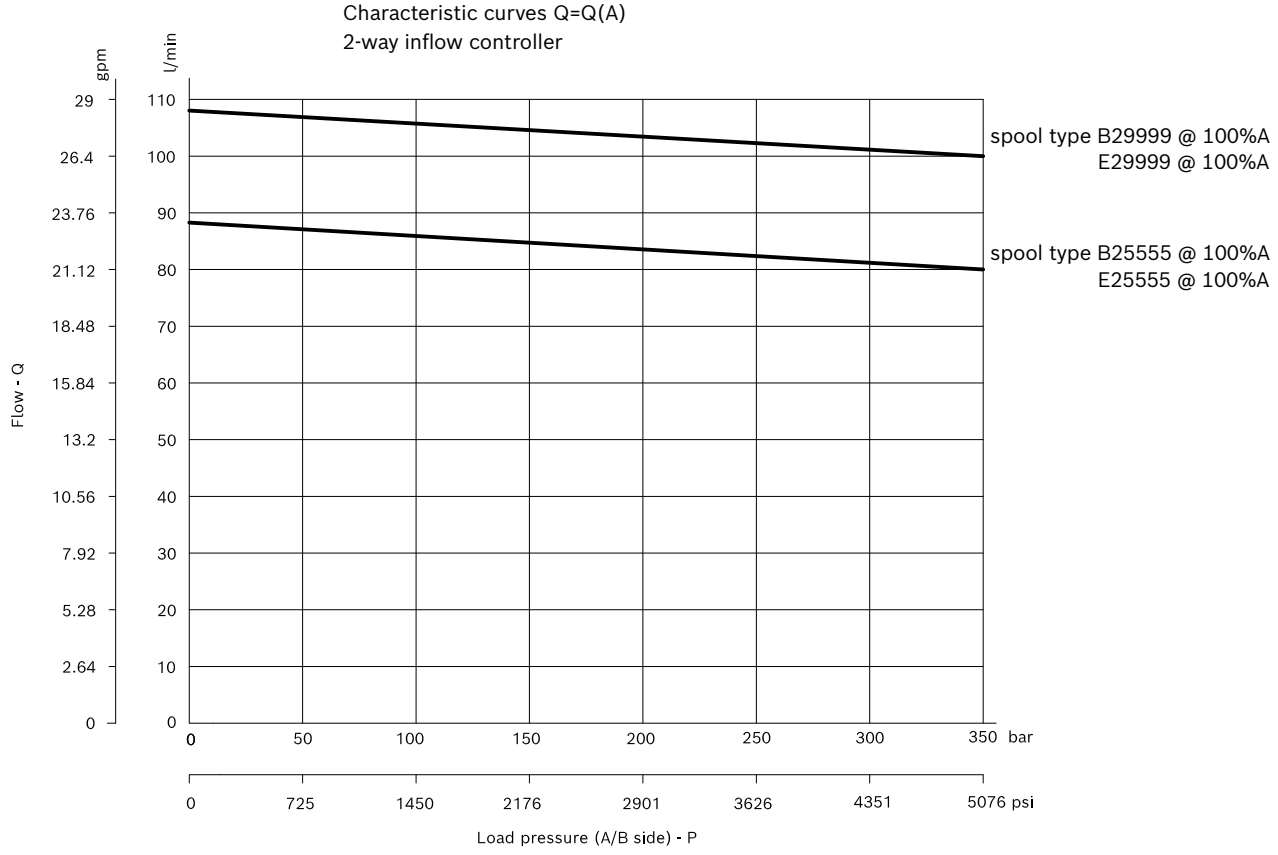
General		
Valve element	kg (lbs)	3.8 (8.35)
Ambient Temperature	°C (°F)	-30...+80 (-22...+176)
Body valve zinc plating treatment for higher corrosion resistance protection	h	up to 500
Hydraulic		
Maximum pressure at P, A and B ports	bar (psi)	350 (5000) [1)]
Maximum static pressure at T	bar (psi)	30 (435)
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 type	PWM	200 Hz
Voltage tolerance (nominal voltage)	%	-10 .... +10
Insulation class		F
Compliance with		Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC
Pilot module weight	kg (lbs)	0.15 (0.33)
Voltage	V	12 24
Nominal 100% current	A	1.26 0.63
Nominal Coil Resistance at 20°C (68°F)	Ω	6.3 27

Note

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

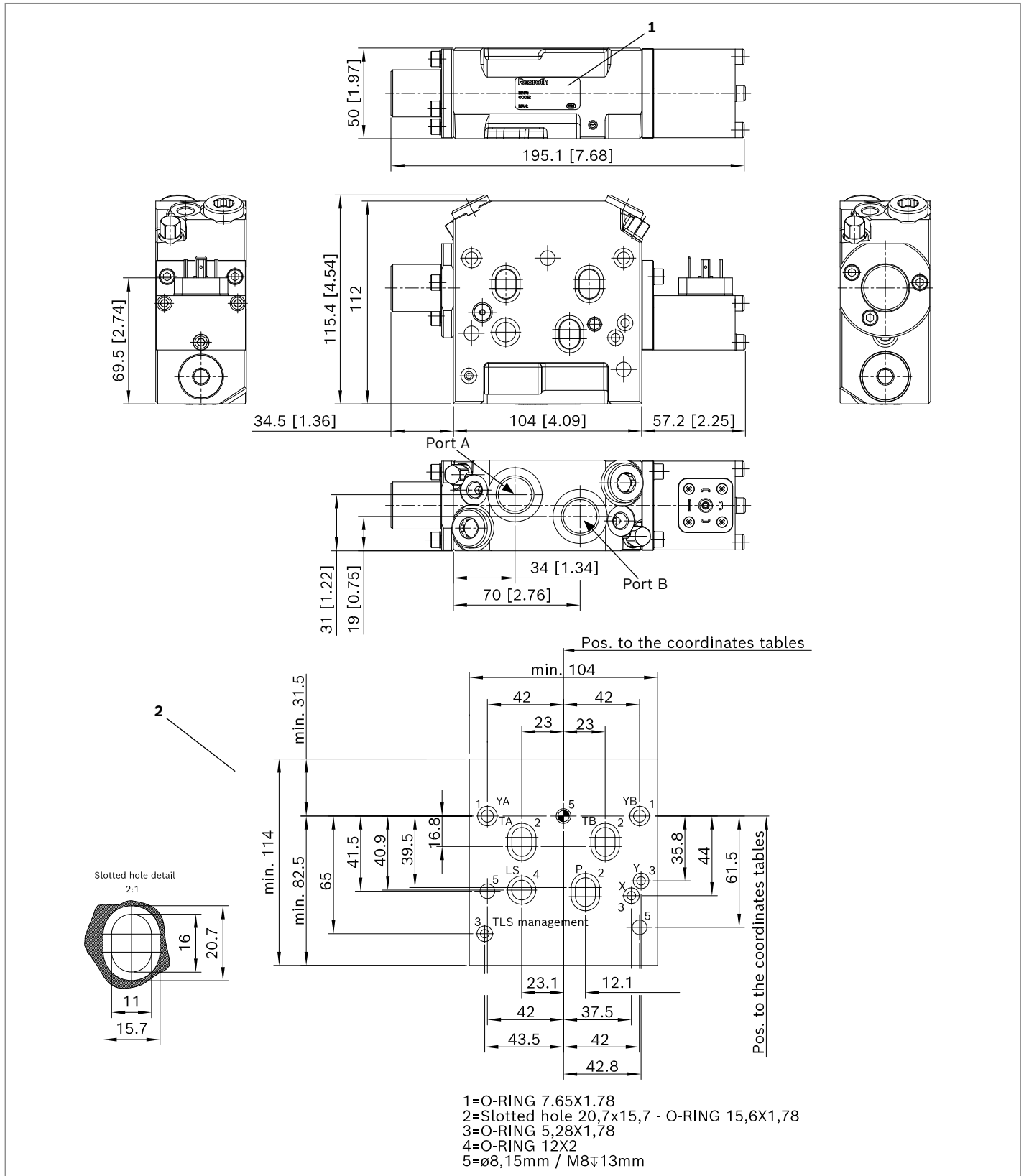
Characteristic curves





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

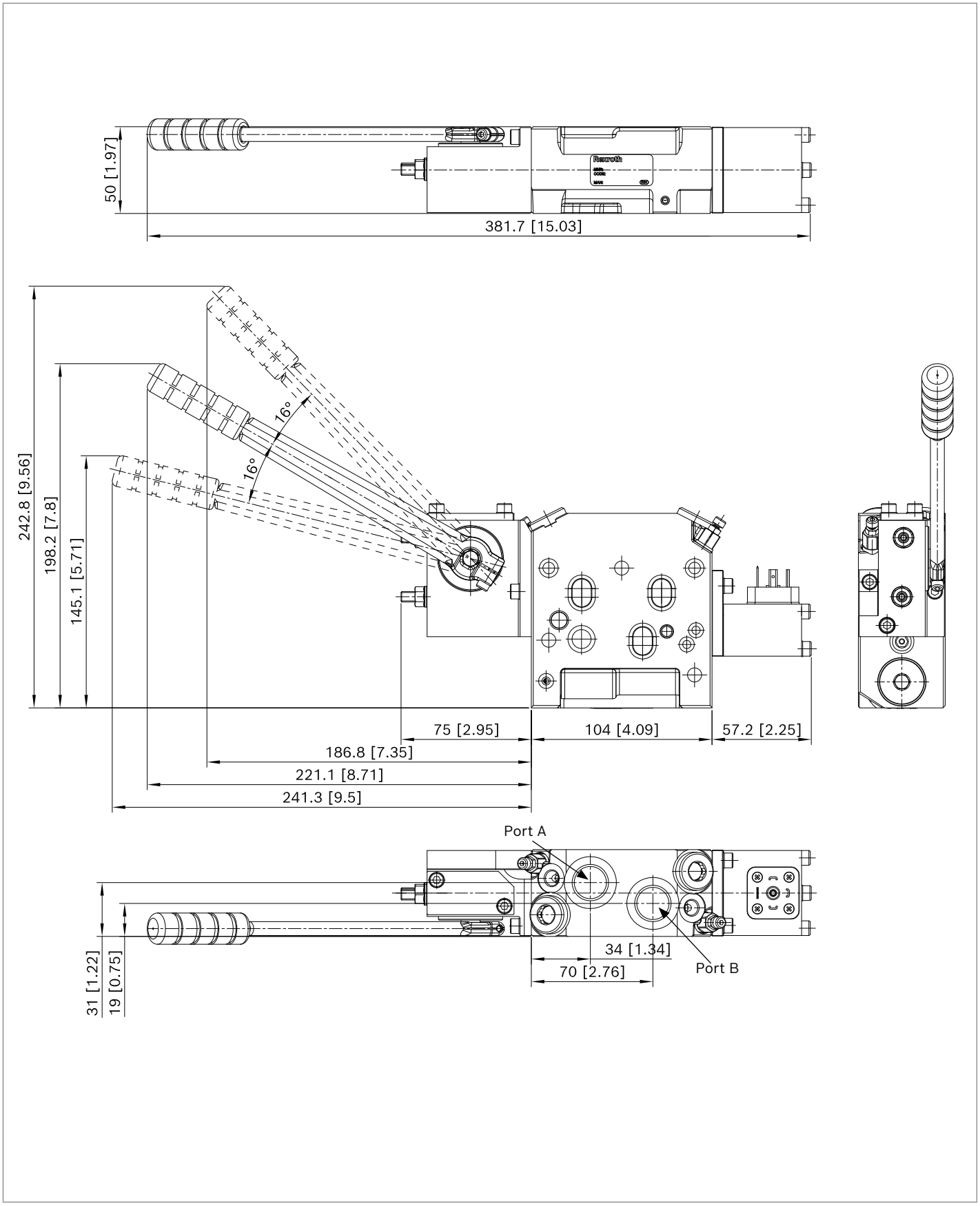
External dimensions and fittings - Standard version



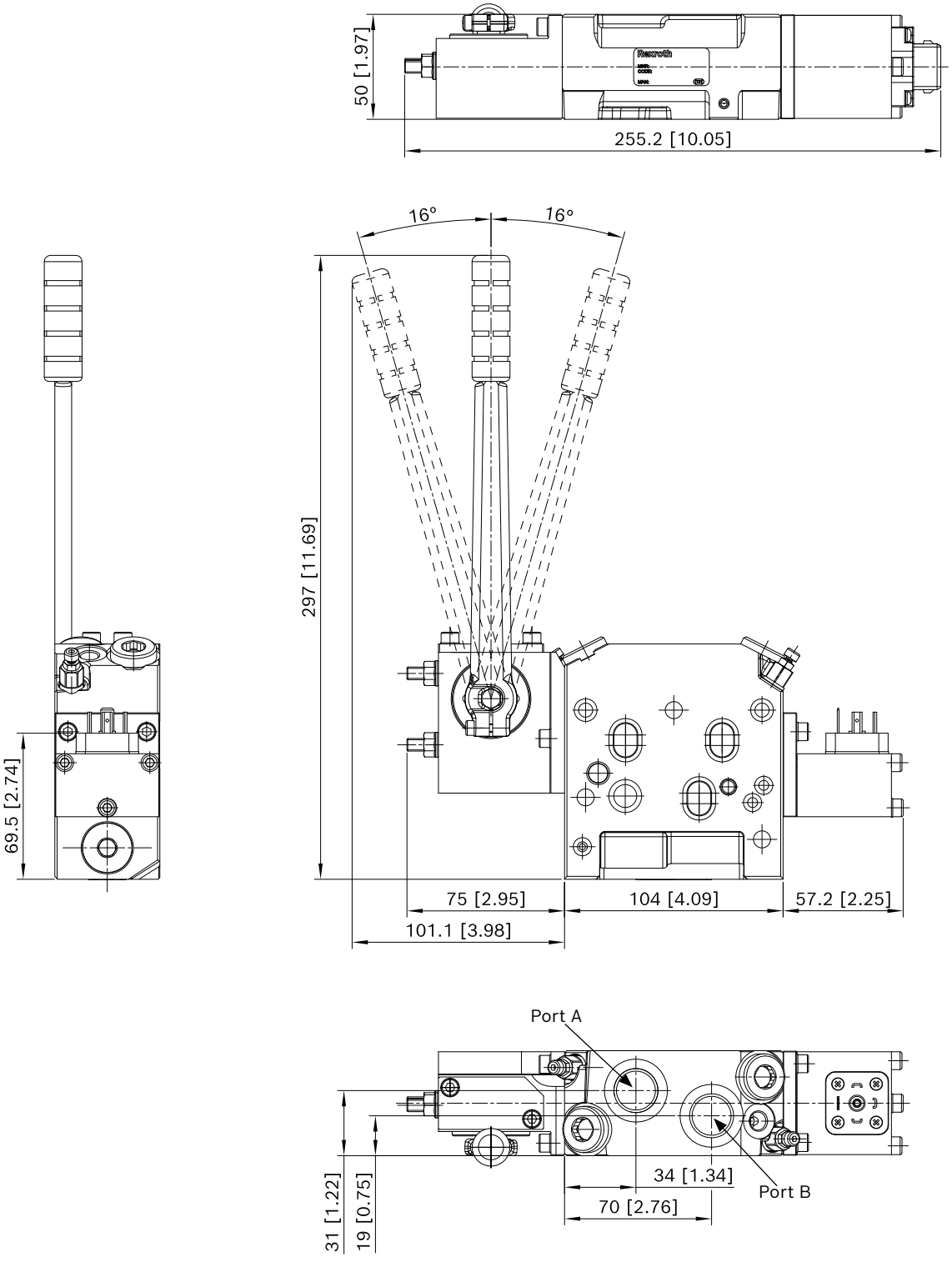
1=O-RING 7.65X1.78
2=Slotted hole 20,7x15,7 - O-RING 15,6X1,78
3=O-RING 5,28X1,78
4=O-RING 12X2
5=ø8,15mm / M8↧13mm

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

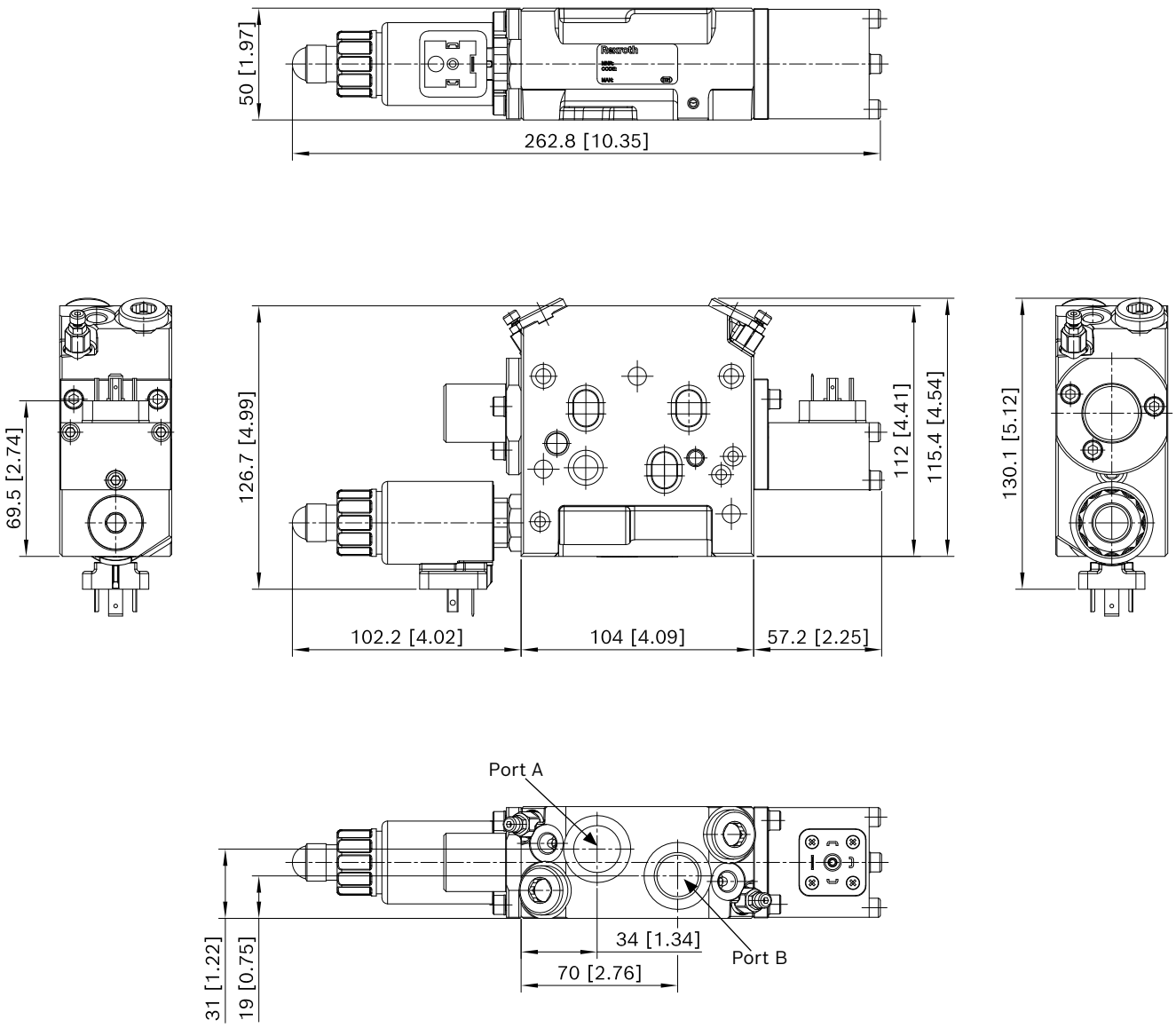
External dimensions and fittings - Horizontal emergency lever option (H)



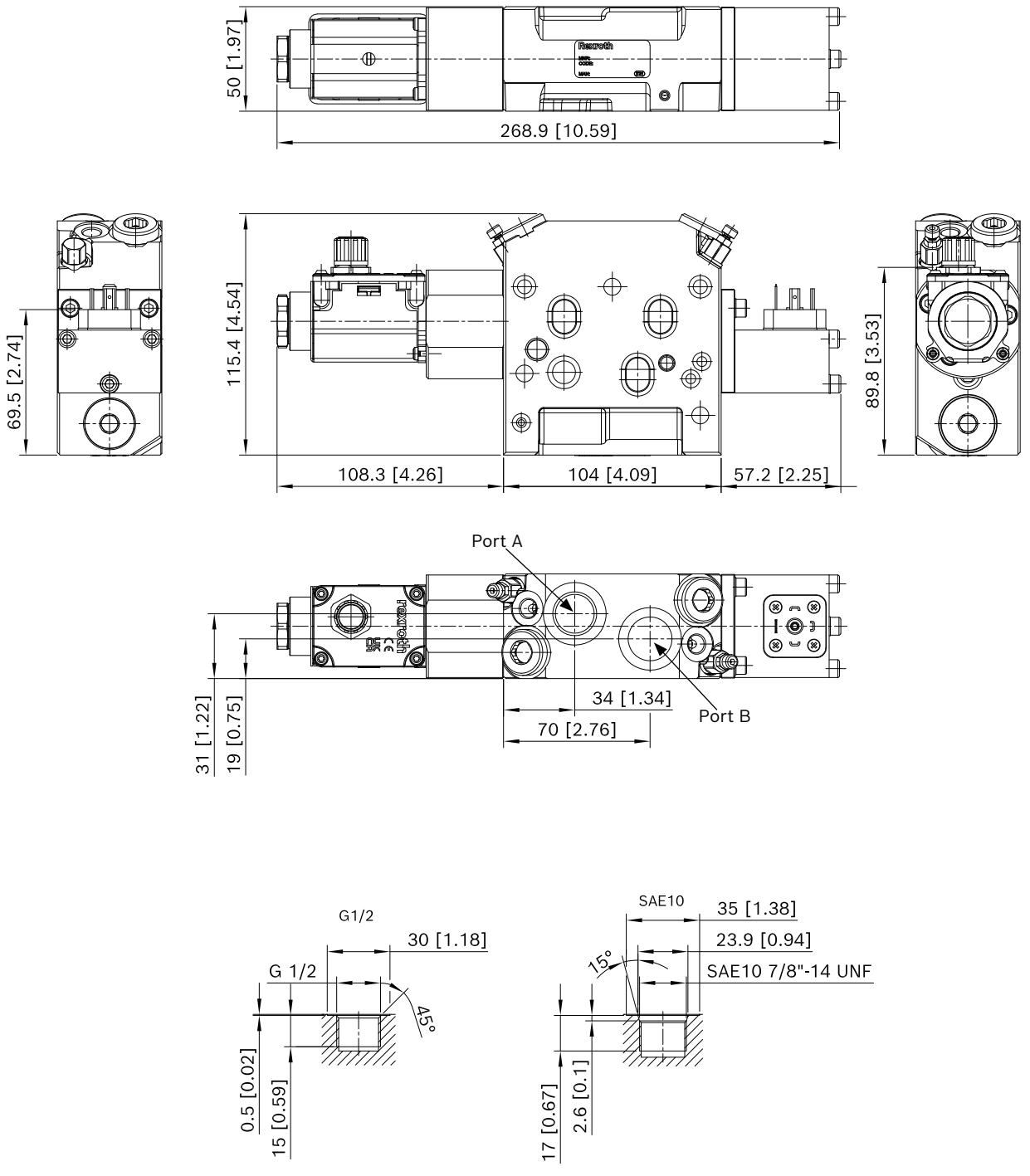
External dimensions and fittings - Vertical emergency lever option (V)



External dimensions and fittings - LS signal management option

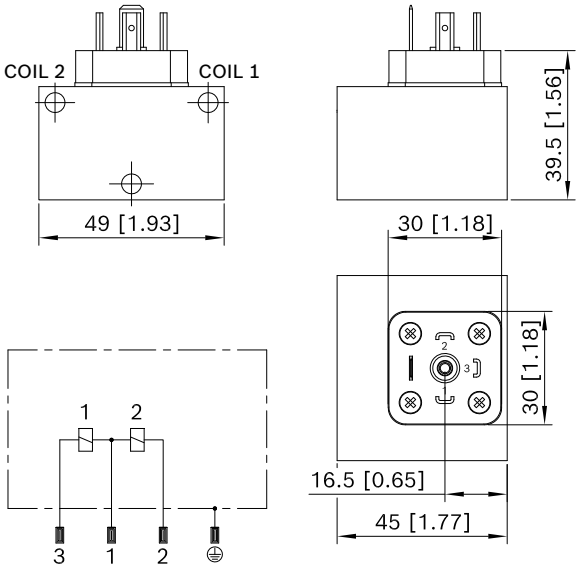


External dimensions and fittings - Spool sensor option

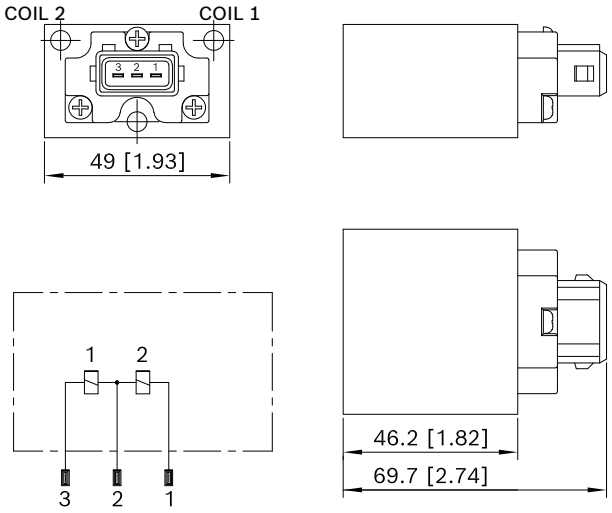


Electric connections

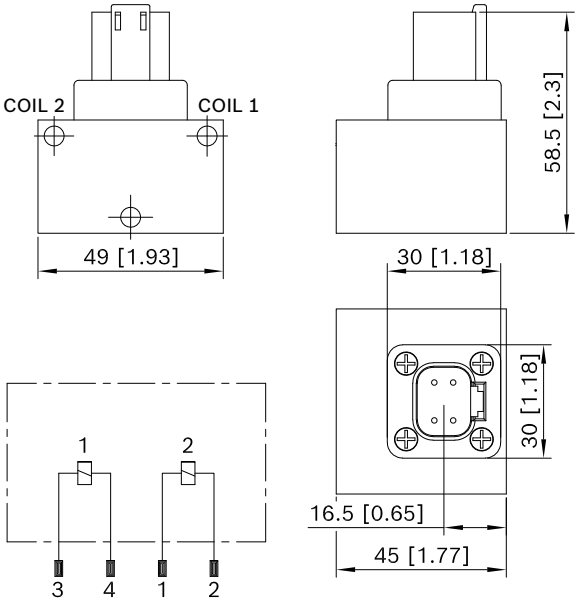
01 Protection class: IP 67 when connector with seal is properly screwed down



03 Protection class: IP 67 with female connector properly fitted (see drawing).

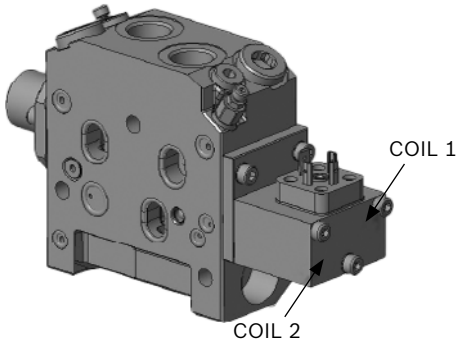


07 Protection class: IP 67 with female connector properly fitted (see drawing).



ELECTRIC ACTIVATION

All the modules have the same electric activation concept:
By energizing the coil 1 the main spool is piloted on B side and realizes the hydraulic connections P>A B>T.
By energizing the coil 2 the main spool is piloted on A side and realizes the hydraulic connections P>B A>T.
The physical position of the coils is the same for all the connector types as per the picture below



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