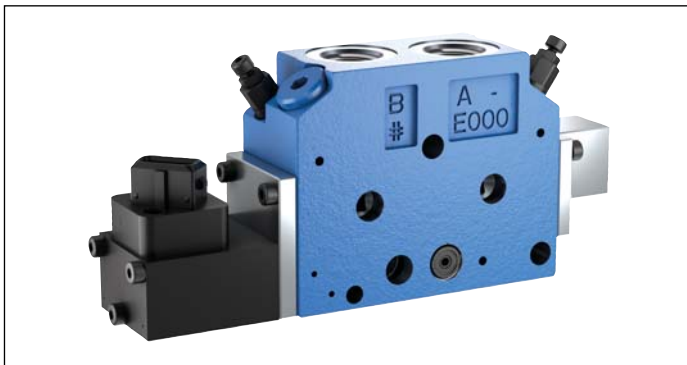


4/3 and 4/2 Proportional directional valve elements with LS - Electrohydraulic actuation

RE 18301-24

Edition: 10.2022

EDG-PP...
Component Series 1



- ▶ Size 6
- ▶ Series 1
- ▶ Maximum operating pressure:
 - ▶ 350 bar (5000 psi) on pump side
 - ▶ 350 bar (5000 psi) on consumer side
- ▶ Maximum flow at 8 bar bias spring (116 psi):
60 l/min (15.8 gpm)
- ▶ Ports connections G 3/8 - G 1/2 - SAE8

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; 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.

Main Field of Application

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

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New Series 1 features:

- Label
- Flange with drain line for VMGLS and combination for EDG Electrohydraulic actuation
- Body valve zinc plating treatment for higher corrosion resistance protection up to 500h

Ordering details

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18						
EDG	-	P	P	-	---	-	-	2	-	-	2	9	9	9	9	-	--	--	-	--	-	-	-	-

Family

00	Directional Valve elements EDG Size 6 proportional	EDG
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Type

01	Electro - Piloted	P
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Configuration

02	Proportional	P
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Ports & Connections

03	G 3/8 DIN 3852	G38
	G 1/2 DIN 3852	G12
	3/4-16 UNF 2-B (SAE8)	S08

Local compensator bias spring

04	4 bar (58 psi)	1
	6 bar (87 psi)	2
	8 bar (116 psi)	3

Flange configuration

05	With P-TA-TB-LS-Xa-Xb-X-Y lines	2
----	---------------------------------	----------

Hydraulic connections in neutral

06	P, A, B closed LS to T	B
	P closed A, B, LS to T	E

Spool variants

07	4/3 operated both sides a and b	2
----	---------------------------------	----------

Flow rates over valve connection (according to table 1)

08	Flow rate P>A	9
09	Flow rate P>B	9
10	Nominal flow rate (A>T)	9⁵⁾
11	Nominal flow rate (B>T)	9⁵⁾

Voltage supply

	03	01	
12	12V DC	•	•
	24V DC	•	•

• = Available - = Not available

Electric connections ¹⁾

13	With coils, with connection DIN EN 175301-803	01¹⁾
	With coils, with connection vertical Amp - Junior	03

Secondary valve types

14	Without secondary valve	00
	Double or single full relief valve with Anticavitation (VMA) or anticavitation only (VUM) or plug	M0³⁾
	Double or single LS relief valve (VMGLS) or plug	0M⁴⁾
	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	-²⁾
16	B>Tb setting @5lpm	-²⁾

Secondary valve config. setting: LS Relief (VMGLS)

(according to table 3)

17	LSA>T setting range @1.5lpm	-²⁾
18	LSB>T setting range @1.5lpm	-²⁾

1) For mating connectors ordering code see data sheet RE 18325-90.

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 18329-11.
For anticavitation valve data sheet see Data Sheet RE 18329-51.

4) See Table 3.

5) Only symmetrical spools available.

Ordering details

Table 1

Notches dimension selection --> Flow Rate	Local compensator bias spring		
	4bar	6bar	8bar
9 *	50 l/min	55 l/min	60 l/min

*Note: standard spool types (symmetrical):
9999

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 2

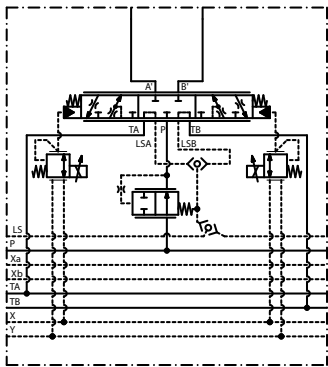
Full relief valve configuration setting

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

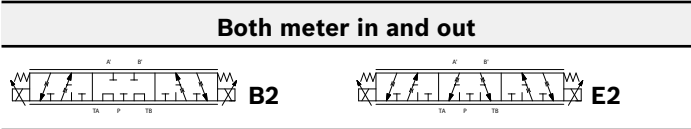
Note

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

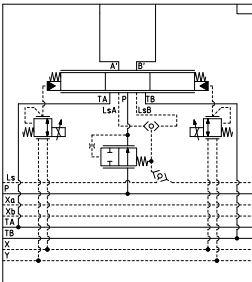
General hydraulic layout



07 - Spool Variants

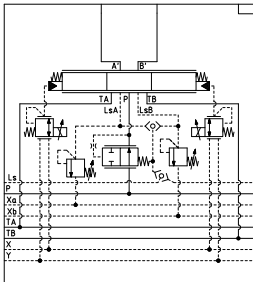


14 - Secondary valve types



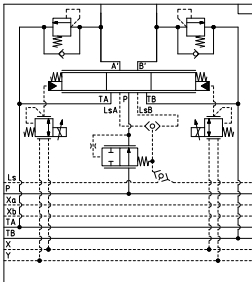
00

No secondary valves



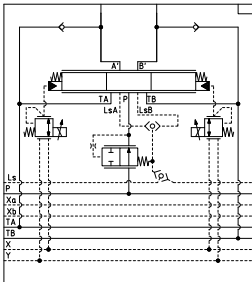
0M

LS relief valves option



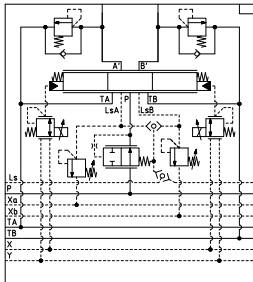
M0

Relief valves with
anticavitation option



M0

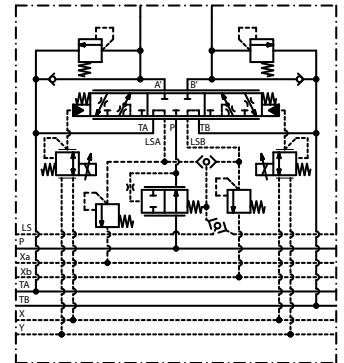
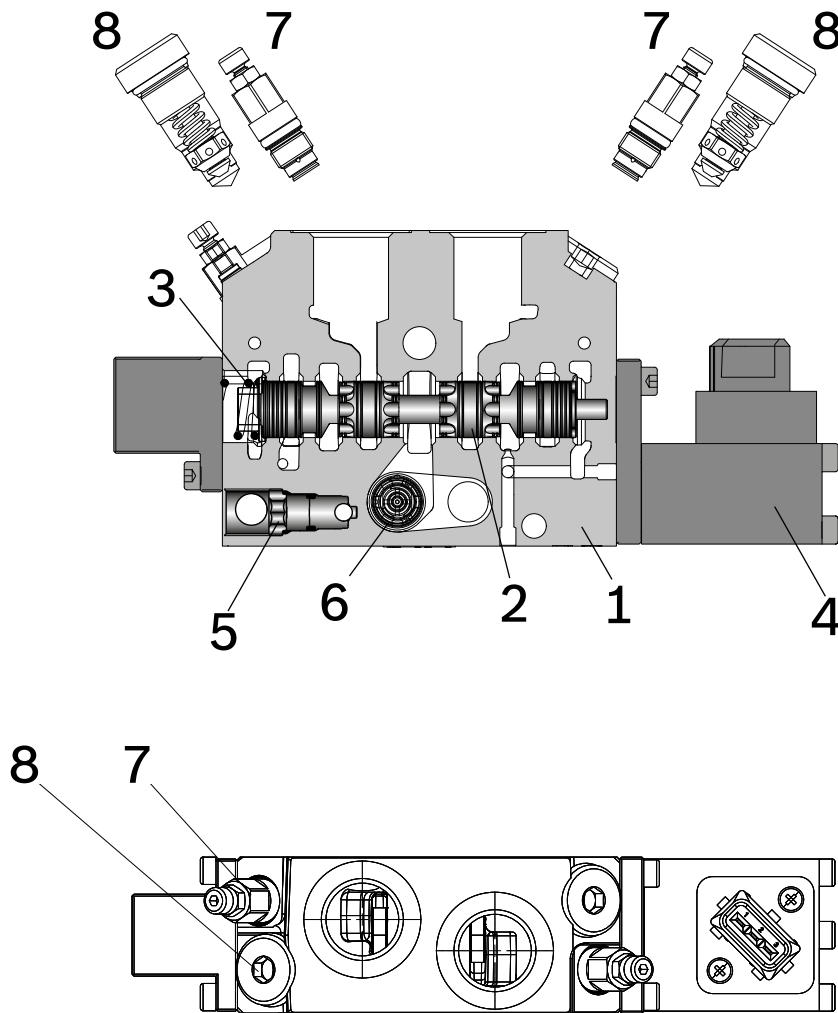
Anticavitation
valves option



MM

Combination of
M0 and 0M options

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 EDG 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)	2.2 (4.85)	
Ambient Temperature	°C (°F)	-30...+50 (-22...+122)	
Hydraulic			
Maximum pressure at P, A and B ports	bar (psi)	350 (5000)	
Maximum pilot line (X) pressure	bar (psi)	50 (725)	
Maximum static pressure at T	bar (psi)	210 (3050)	
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	mm²/s	20....380 (optimal 30....46)	
Electrical			
Voltage type	PWM	120 Hz	
Voltage tolerance (nominal voltage)	%	-10 +10	
Insulation class		H	
Compliance with		Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC	
Pilot module weight	kg (lbs)	0.400 (0.881)	
Voltage	V	12	24
Nominal 100% current	A	0.98	0.49
Nominal Coil Resistance at 20°C (68°F)	Ω	6.9	27.8

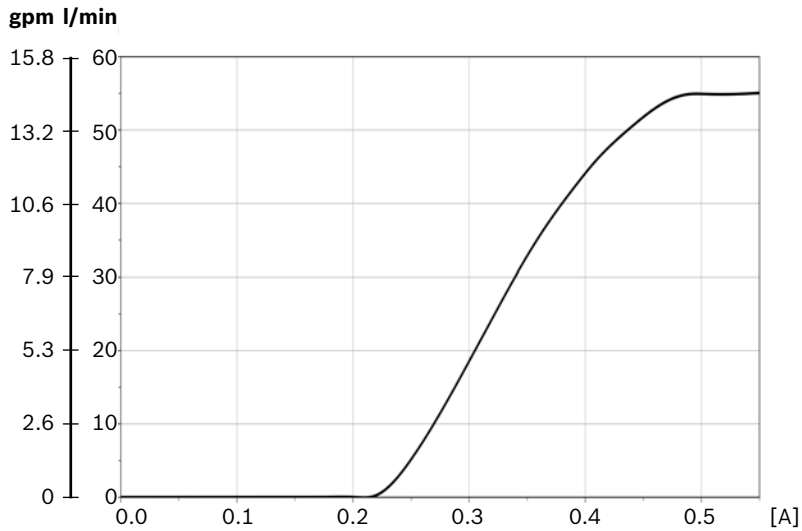
Note

For applications with different specifications consult us.

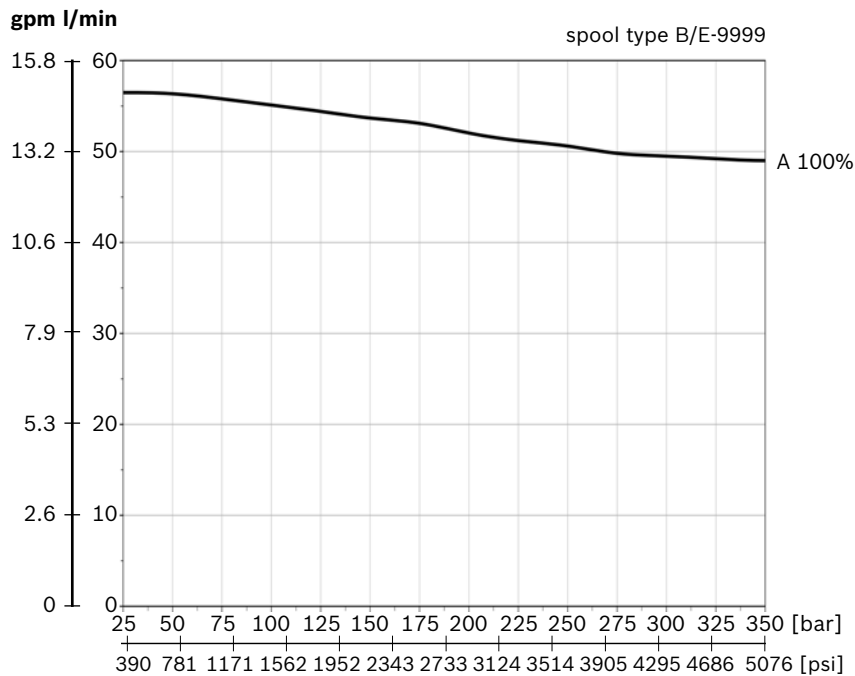
* In addition to relief valve pressure setting value.

Characteristic curves

Characteristic curves $Q=Q(I)$ at 6bar

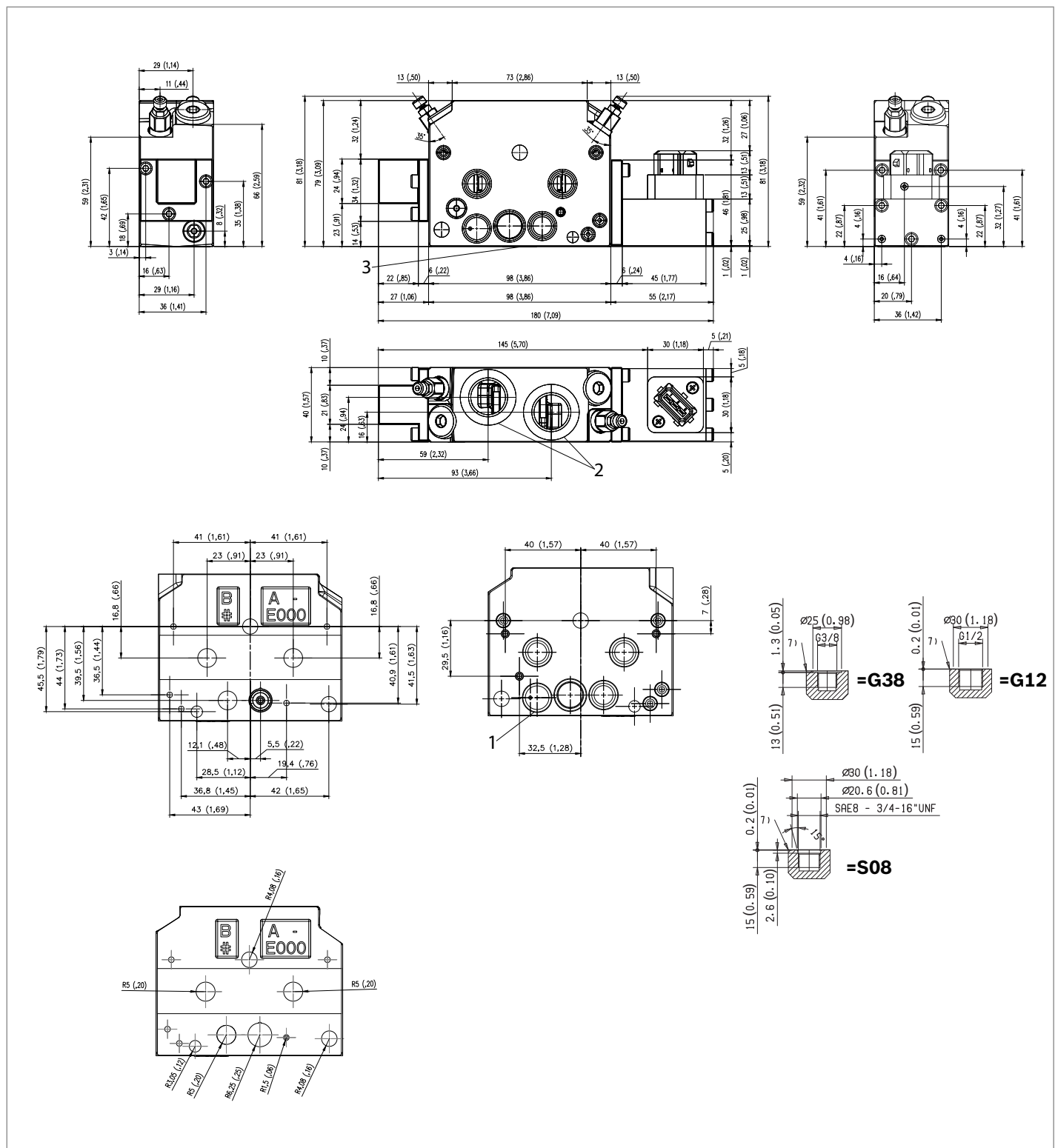


2-way inflow controller



Measured with hydraulic fluid ISO-VG32 at $45^{\circ} \pm 5^{\circ} \text{C}$
($113^{\circ} \pm 9^{\circ} \text{F}$); ambient temperature 20°C (68°F).

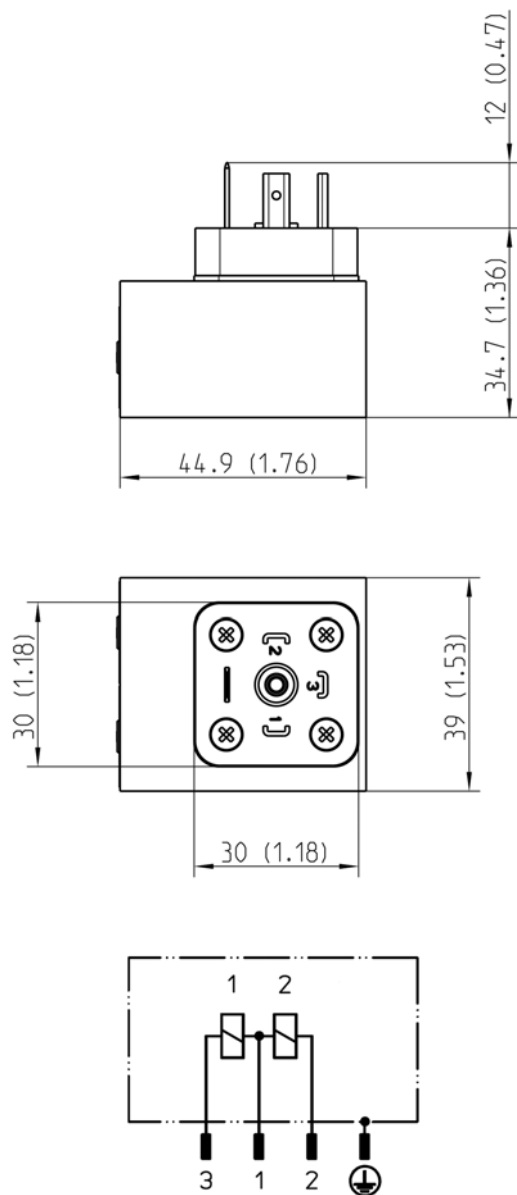
External dimensions and fittings



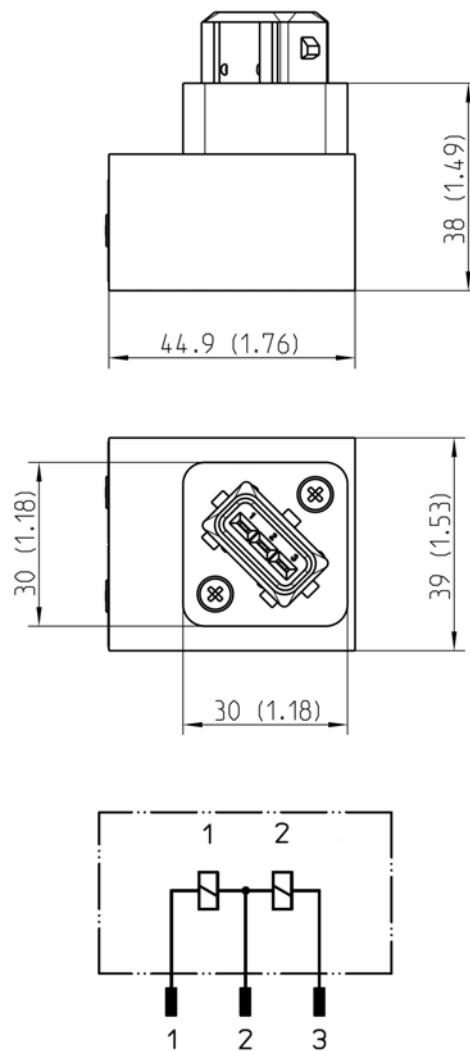
- 1** Flange specifications. For tie rod and tightening torque information see data sheet RE 18301-92.
- 2** A and B ports.
- 3** Identification label.

Electric connection

- 01** Protection class: IP 65 when connector with seal is properly screwed down.



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



10 **EDG-PP...** | 4/3 and 4/2 Proportional directional valve elements
Electric connection

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