

4/3 - 4/2 Directional valve elements with proportional control and with or without LS connections

RE 18300-55/07.12
Replaces: 10.09

1/8

B8_80... (EDB-P)

Size 4
Series 00
Maximum operating pressure 310 bar [4500 psi]
Maximum flow 17 l/min [4.5 gpm]
Port connections G 3/8 - SAE6 - M16x1.5



DVI0075

Summary

Description	Page
General specifications	1
Ordering details	2
Configuration	2
Spool variants	3
Principles of operation, cross section	3
Technical Data	4
$\Delta p-Q_v$ characteristic curves	5
External Dimensions and Fittings	6
Electric connections	7
Electronic feed regulator	8

General specifications

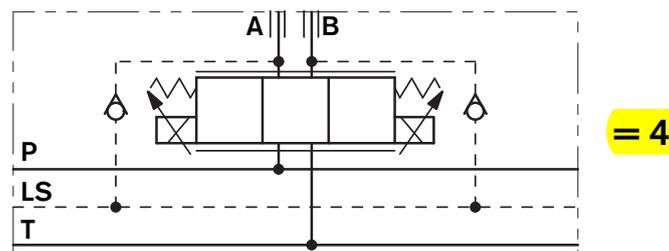
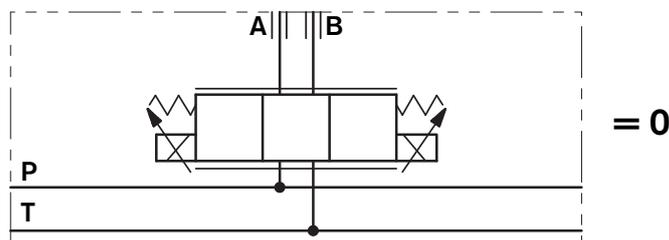
- Valve element with direct proportional control of spool.
- Control spools operated by solenoids with removable coils.
- In the de-energized condition, the control spool is held in the central position by return springs.
- Wet pin proportional tubes for DC coils, with push rod for mechanical override; nickel plated surface.
- Manual override (push-button or screw type) available as option.

Ordering Details

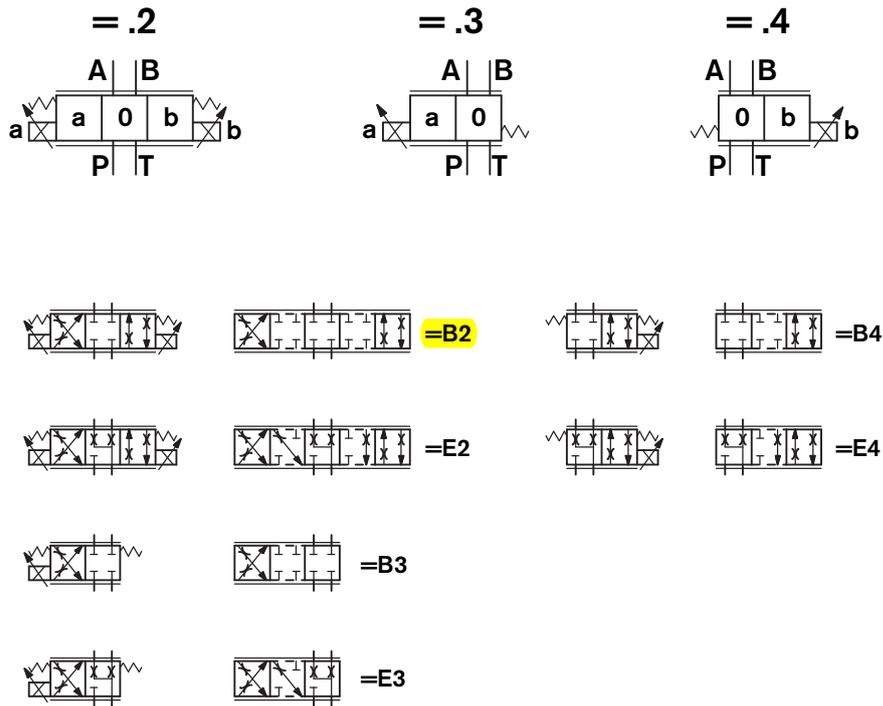
B 8 - 8 0 - - S - - - - 0 0 -											
Family Directional valve elements EDB										Options No code = No options 0 = Standard F = Screw type manual override	
Type Size 4 proportional										Ports 3 = G 3/8 DIN 3852 U = M 16x1,5 DIN 3852 B = 9/16-18 UNF 2-B (SAE6)	
Configuration Standard = 0 With Load Sensing control = 4										Electric connections 00 = Without coils 01** = With coils, without mating connector DIN EN 175301-803 03 = With coils, with bi-directional diode, without mating connector vertical Amp-Junior	
Coil type P45										Voltage supply Without coil OB = 12V DC OC = 24V DC	
Spool variants ¹⁾ 4/3 operated both sides a and b; P – T closed in neutral = B2 4/2 operated on side a only; P – T closed in neutral = B3 4/2 operated on side b only; P – T closed in neutral = B4 4/3 operated on both sides a and b; A and B to T in neutral = E2 4/2 operated on side a only; A and B to T in neutral = E3 4/2 operated on side b only; A and B to T in neutral = E4											
Flow pattern Symmetrical											
Nominal flow * 4 l/min [1.06gpm] = 3 9 l/min [2.38gpm] = 4 17 l/min [4.50gpm] = 5											

¹⁾ The required hydraulic symbol and spool variant can be chosen by consulting page 3.
* With Δp (P > T) 10 bar [145 psi], corresponding approx. to Δp P>A,B 5 bar [73 psi].
** For connectors ordering code see data sheet RE 18325-90.

Configuration



Spool variants



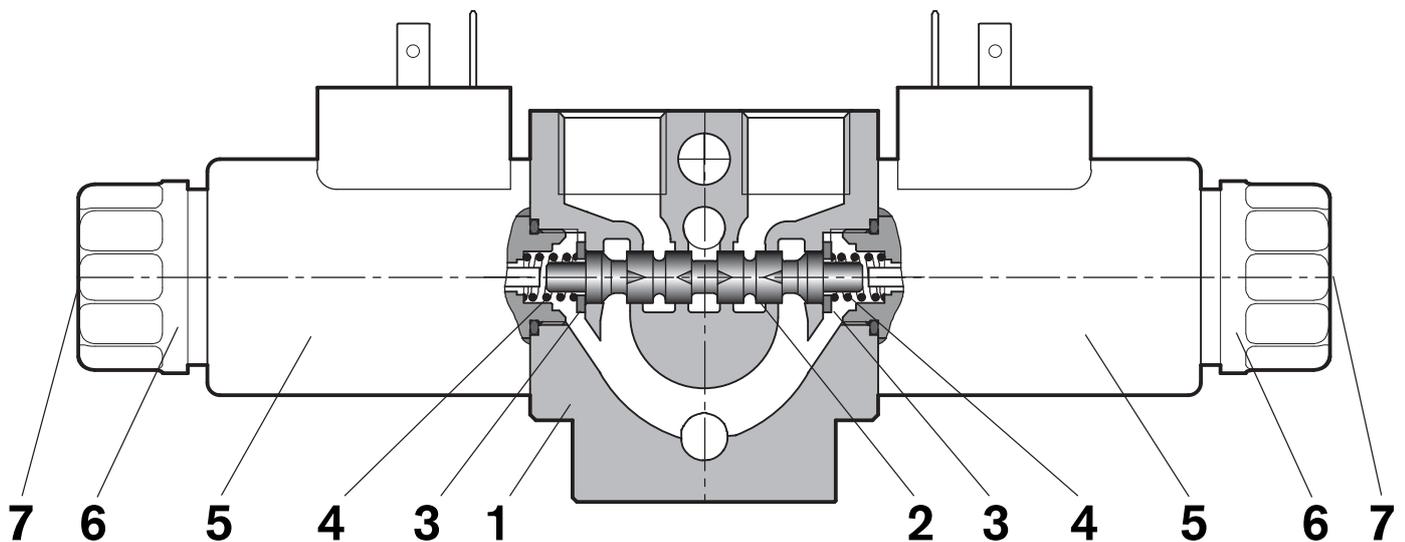
Principles of operation, cross section

The sandwich plate design directional valve elements B8080... are compact direct operated proportional solenoid valves which control the start, the stop, the direction and the quantity of the oil flow. These elements basically consist of a stackable housing (1) with a control spool (2), one or two solenoids (5), and one or two return springs (4).

Energized by an electronic feed regulator, each solenoid (5) displaces the control spool (2) from its neutral-central position "0" proportionally to the current received, in open loop mode;

a regulated oil flow P to A , or P to B, is achieved. Once the solenoid is de-energized, the return spring (4) pushes the spool thrust washer (3) back against the housing and the spool (2) returns in its neutral-central position "0".

Each coil is fastened to the solenoid tube (5) by a ring nut (6). A pin (7) allows to push the spool (2) in emergency conditions, when the solenoid cannot be energized, like in case of voltage shortage.



Electronic control

Electronic feed regulators ⁽¹⁾

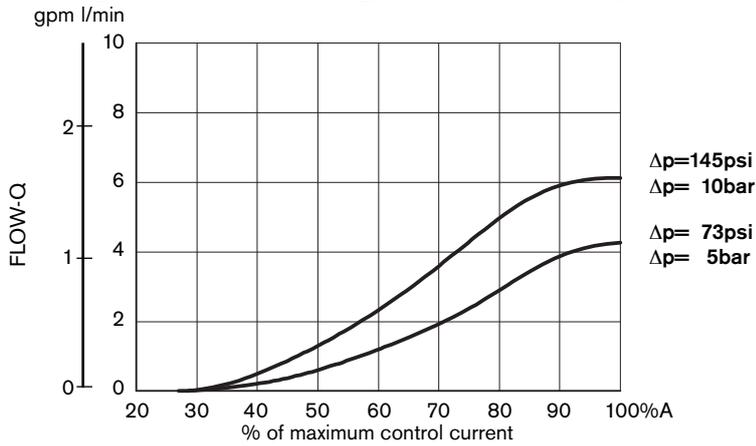
Upon request

¹⁾ An electronic, open loop type, regulator with plug-in pins EN 175301-803 is available and can be fitted onto the solenoid directly. For valve elements with two solenoids, two electronic regulators are needed.

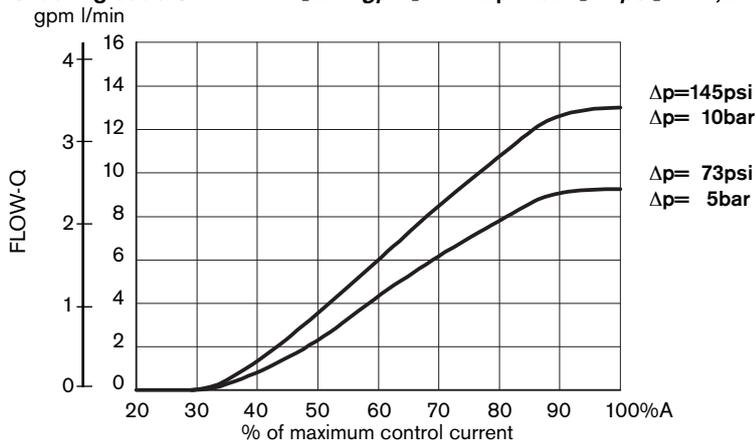
Characteristic curves

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

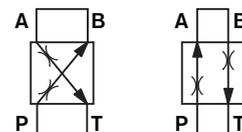
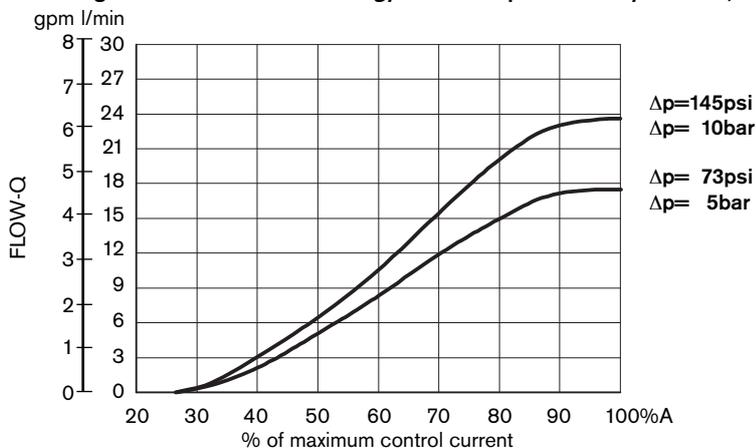
Ordering code S3: 4 l/min [1.06 gpm] with Δp 5 bar [73 psi] P>A,B.



Ordering code S4: 9 l/min [2.38 gpm] with Δp 5 bar [73 psi] P>A,B.

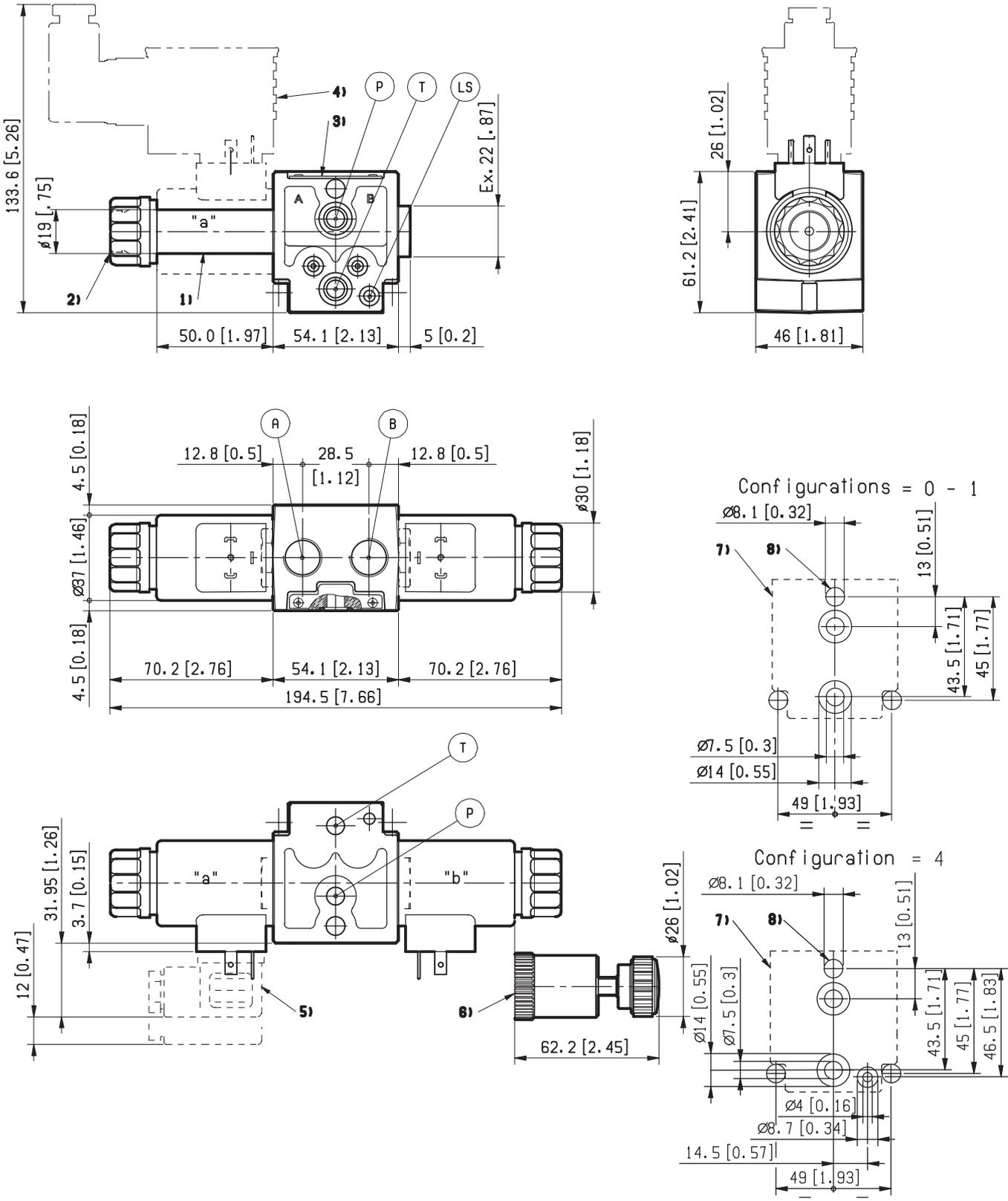


Ordering code S5: 17 l/min [4.50 gpm] with Δp 5 bar [73 psi] P>A,B.



Δp= valve pressure differential (inlet pressure Pp minus load PI and minus return pressure Pt).

External Dimensions and Fittings



1 Solenoid tube $\phi 19$ mm [0.75 inch].

2 Ring nut for coil locking $\phi 30$ mm [1.18 in]; torque 6–7 Nm [4.4 – 5.2 ft-lb].

3 Identification label.

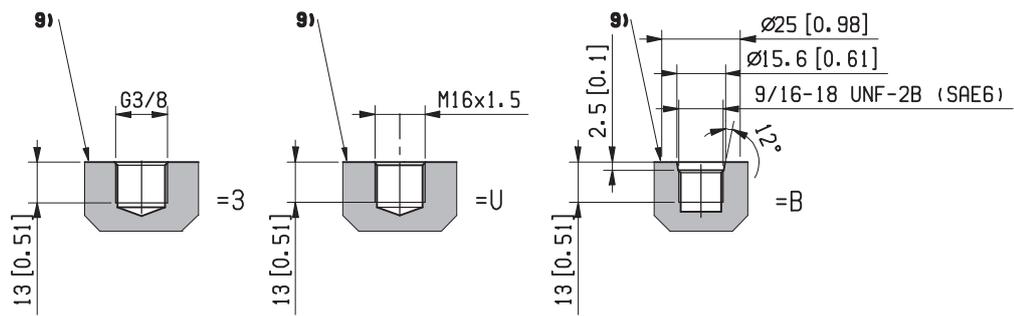
4 Dimension with electronic feed regulator.

5 Clearance needed for connector removal.

6 Optional screw type manual override, EF type, for spool opening: it is screwed (torque 6-7 [4.4-5.2 ft-lb]) to the tube as replacement of the coil ring nut.

Mat no. R933003848.

External Dimensions and Fittings

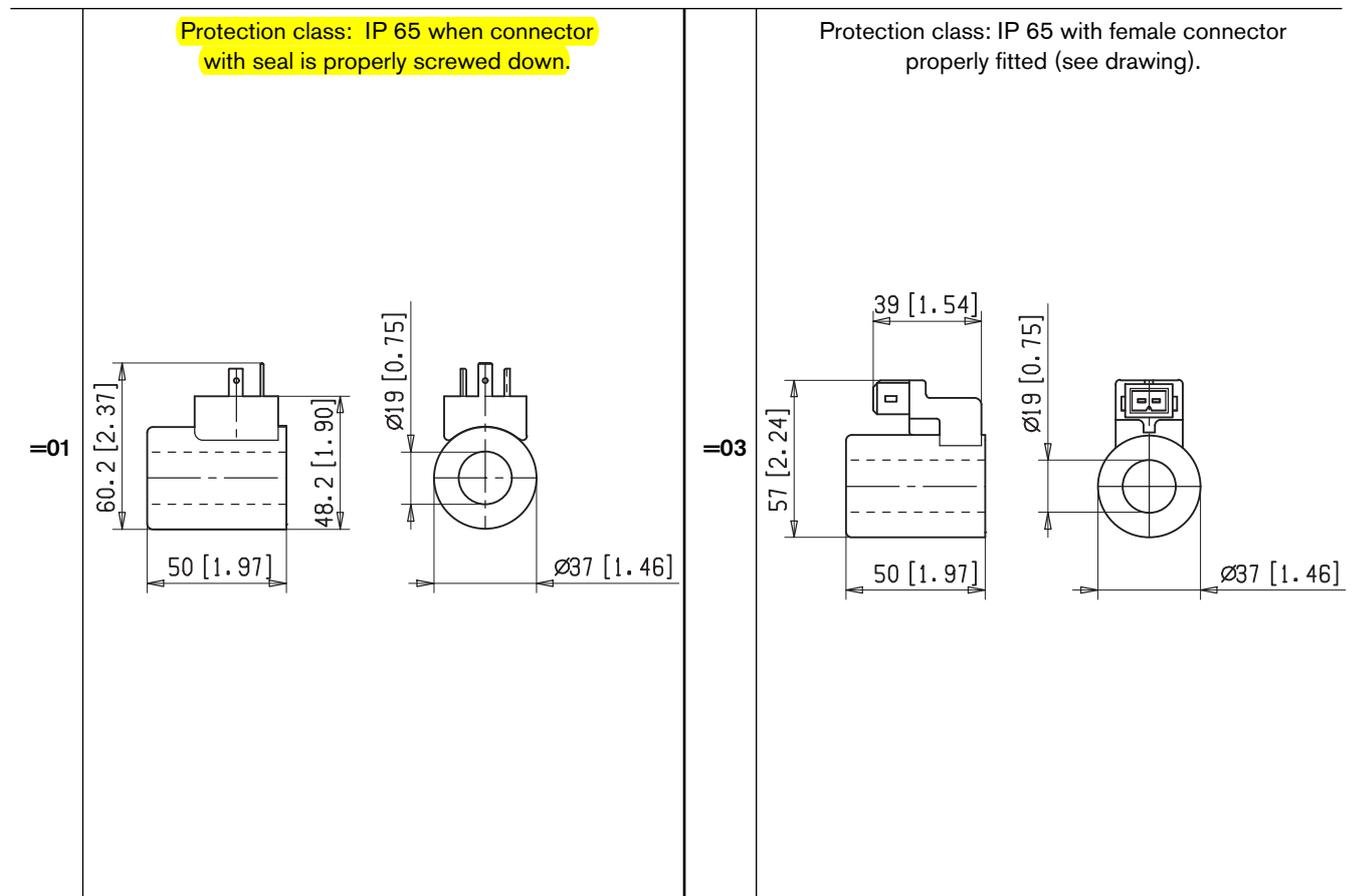


7 Flange specifications for coupling to ED intermediate elements.

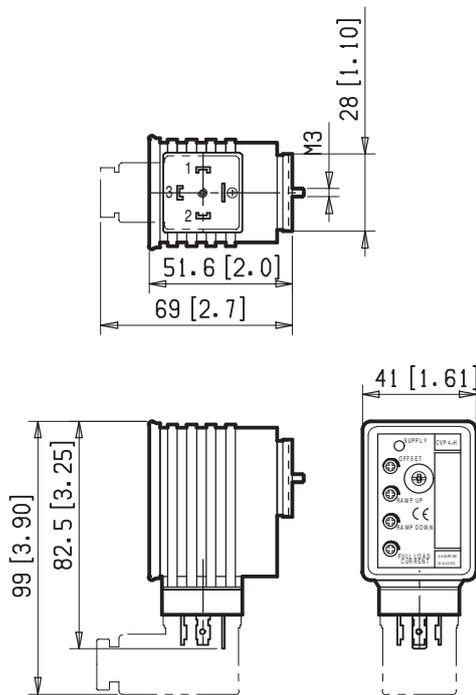
9 A and B ports.

8 For tie rod and tightening torque information see data sheet RE 18301-90.

Electric connections



Electronic feed regulator



Supply: yellow LED, lit up with power ON.

Off Set: minimum current adjustment. Adjust solenoid current so that the desired minimum value is obtained. Clockwise rotation increases current.

Ramp up: Ramping up time adjustment.

Ramp down: Ramping down time adjustment.

For longer ramping times, turn potentiometers clockwise; for shorter ramping times, turn the potentiometers counter-clockwise.

Full load current: Maximum current adjustment. Adjust solenoid current so that the desired maximum value is obtained (up to 2A). Clockwise rotation increases current.

Frequency adjustment: it is possible to set the PWM frequency obtaining the desired control sensitivity. After removing the external plastic cover, turn the adjusting screw; clockwise rotation increases frequency from 100 to 500 Hz.

Regulator ordering code	R933003290
Supply voltage	12-30 VDC
Control Signal	0-10 VDC
Max. output current	2 A
Minimum output current	0....0.6 A
Ramp adjustment up/down	0.110 s
PWM Frequency adjustment (pre-set 120 Hz)	100....500 Hz
Ambient operating temperature	-10....+60 °C [14....+140 °F]
Weight	0.12Kg [26.4 lbs]
Electromagnetic compatibility	EN50081-1/2EN61000-4-2/3/4/5/6
Potentiometer resistance	5....10 k Ω