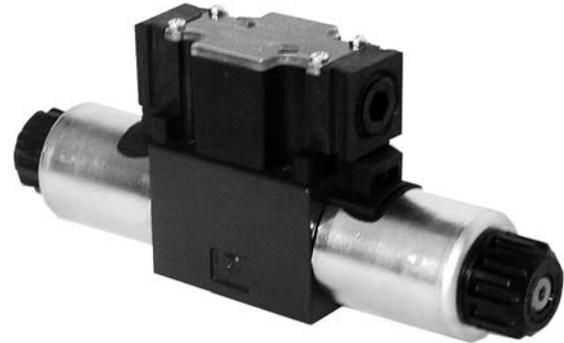
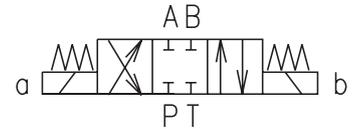


- 4/3-, 4/2- way directional control valves
- Enclosure type to IP65
- Push button manual override
- Installation dimensions to DIN 24 340 / ISO 4401 / CETOP RP121-H
- Subplates see data sheet HA 0002



Functional Description

The RPEA3 directional control valves consist of housing (1), a control spool (5) with two centering springs (4), cylindrical operating solenoids (2, 3), electric wirebox (9) and connector (6).

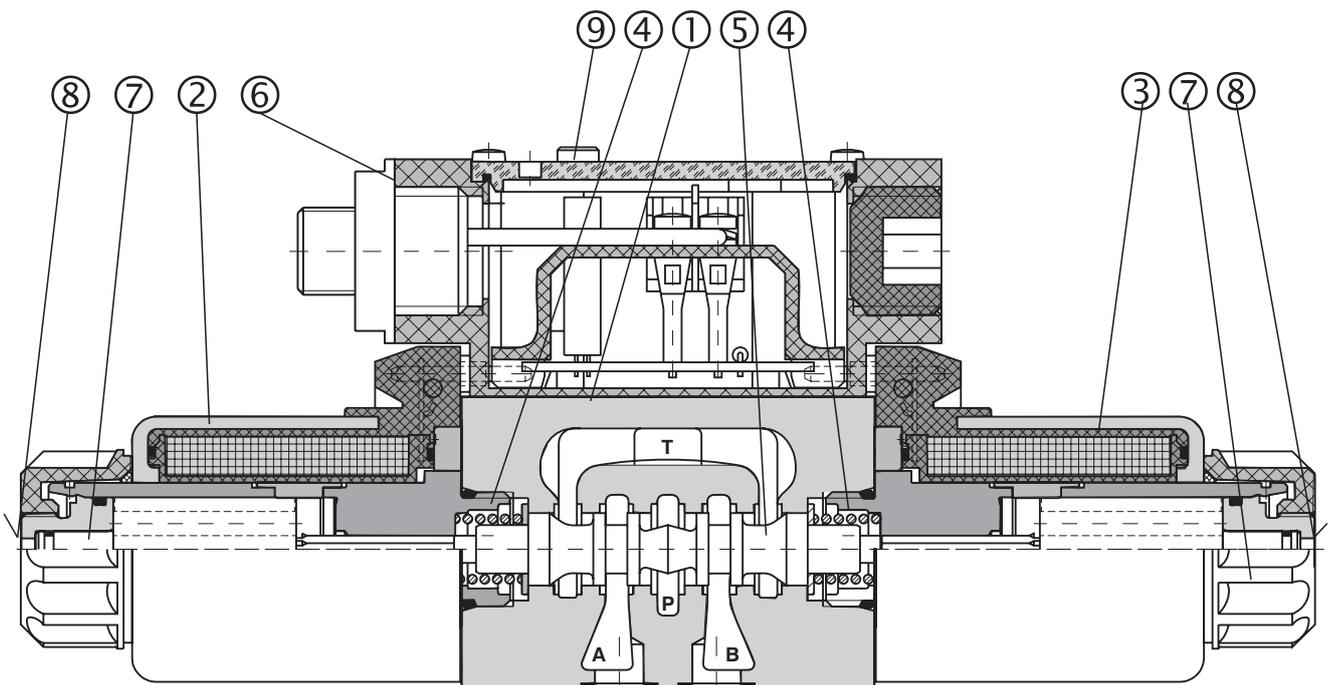
The three-position directional control valves are fitted with two solenoids and two springs. Two-position directional control valves have either one solenoid and one return spring or two solenoids and a detent assembly.

The solenoids are supplied with DC voltage through the Ports on the wirebox optional on both sides or through Connector Item (5 - Pin) M12, see wiring diagram (page

6). The wires are connected to a terminal plate inside the wirebox. Optional lights are installed on this terminal plate for shift indication. The lights are visible as raised arrows on the valve label. The solenoids are retained by the Nut (7) and plug-in to the wirebox. Plug-in design allows easy removal without wire change.

In the case of solenoid malfunction or power failure, the spool of the valve can be shifted by manual override (8), provided the pressure in T- port does not exceed 25 bar (362,5 PSI).

The valve housing (1) is phosphate coated and the solenoids (2, 3) are zinc coated.



Ordering Code

RPEA3-06 /

**Solenoid - Operated
Directional Control
Valves with 8W Coil**

Nominal Size

Number of Valve Positions

two positions
three positions

2
3

Spool Symbols

see the table spool symbols

Rated Supply Voltage of Solenoids

24 V DC / 0.33 A

02400

**Type of Solenoid Coil for Wiring Box
(Plug-In-Coil)**

DC solenoid 8W

EW1

Type of Wirebox

Wirebox for DC and AC

K

Solenoid identification
no designation standard ISO
A US Standard ANSI-B93.9

Seals
no designation
V NBR
FPM (Viton)

Orifice in P Port
no designation without orifice
D1 Ø1.0 mm (0.039 in)
D2 Ø1.5 mm (0.059 in)
D3 Ø2.0 mm (0.079 in)
D4 Ø2.2 mm (0.087 in)
D5 Ø2.5 mm (0.098 in)

Manual Override
no designation standard
N1 covered with retaining nut
N2 covered with rubber boot

Wirebox Configurations

- 63** Wiring box with 5 PIN connector M12 mounted on A-side (B-side plugged)
- 64** Wiring box with 5 PIN connector M12 mounted on B-side (A-side plugged)
- 65** Wiring box with 5 PIN connector M12 mounted on A-side with LED diode (B-side plugged)
- 66** Wiring box with 5 PIN connector M12 mounted on B-side with LED diode (A-side plugged)

Technical Data

Valve size	mm (US)	06 (D 03)
Maximum flow	L/min (GPM)	see p-Q characteristics
Max. operating pressure at porte P, A, B	bar (PSI)	350 (5076)
Max. operating pressure at port T	bar (PSI)	210 (3000)
Pressure drop	bar (PSI)	see Δp -Q characteristics
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524
Fluid temperature range for NBR seals	°C (°F)	-30 ... +80 (-22 ... +176)
Fluid temperature range for FPM seals	°C (°F)	-20 ... +80 (-4 ... +176)
Ambient temperature max.	°C (°F)	+50 (+122)
Viscosity range	mm ² /s (SUS)	20 ... 400 (98 ... 1840)
Maximum degree of fluid contamination		Class 21/18/15 to ISO 4406
Max. allowable voltage variation	%	DC: ± 10
Max. switching frequency	h ⁻¹	15 000
Switching time, on: at $v=32$ mm ² /s (156 SUS)	ms	DC: 30 ... 50
Switching time, off: at $v=32$ mm ² /s (156 SUS)	ms	DC: 10 ... 50
Duty cycle	%	100
Service life	cycles	10 ⁷
Enclosure type to EN 60529		IP 65
Weight - valve with 1 solenoid - valve with 2 solenoids	kg (lbs)	1,3 (2.9) 1,9 (4.2)
Mounting position		unrestricted

Functional Symbols

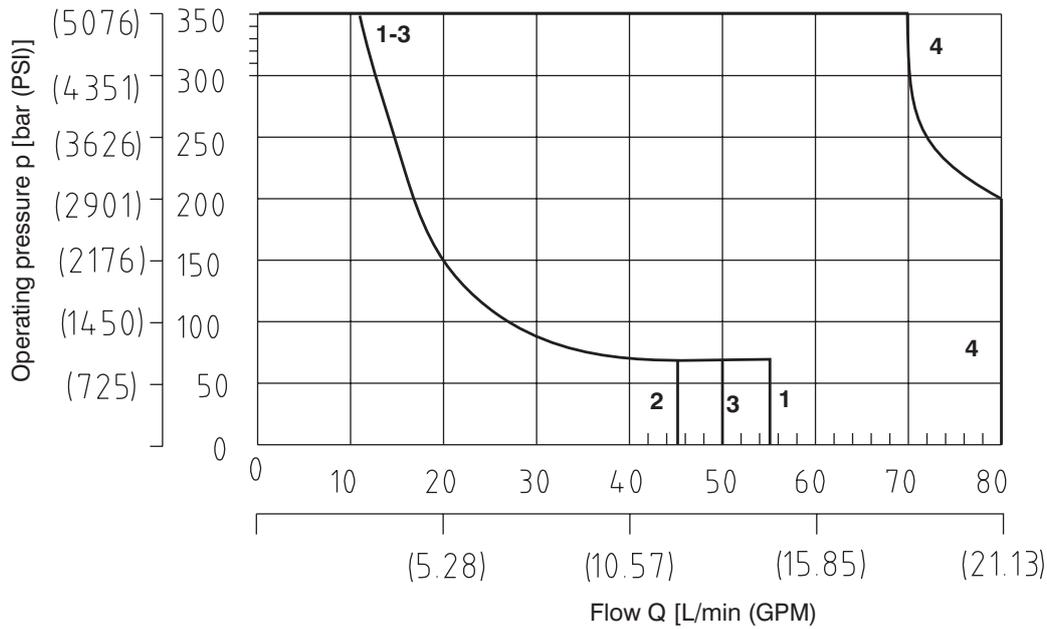
Type	Symbol	Crossover	Type	Symbol	Crossover
Z11			C51		
C11			Z51		
P11			Z11		
Y11			X11		
R11			C11		
P51			Y11		
Y51			P11		

Note: Contrary to the European Norm, the US Standard ANSI-B93.9 states that the solenoid routing on energizing the oil flow to port **A** be marked with **a**, and the solenoid routing on energizing the oil flow to port **B** be marked with **b**. This rule is valid independently from the solenoid lay-out.

p-Q Characteristics

Measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Operating limits for maximum hydraulic power transferred by the directional valve.

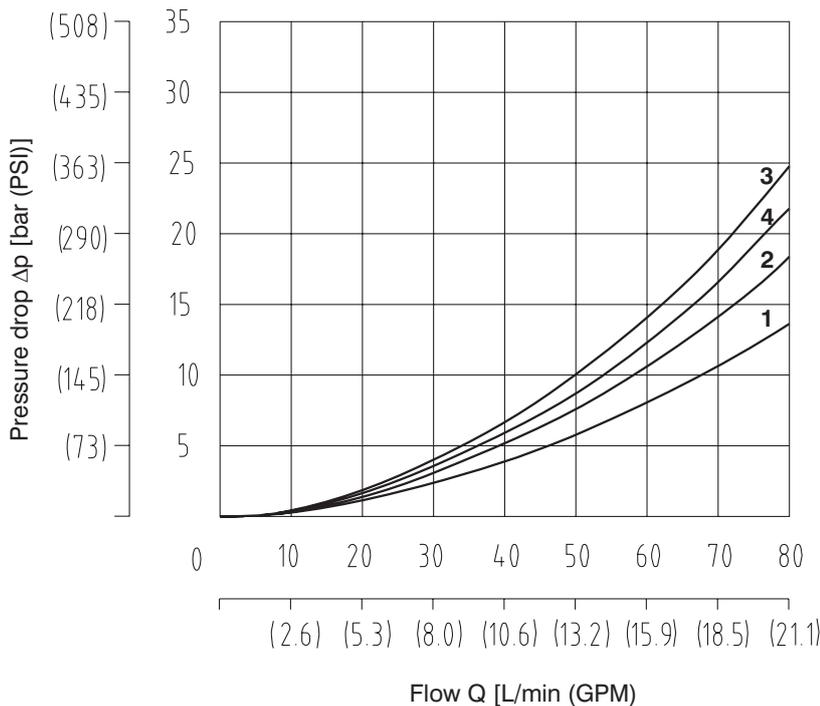


Z11	C11	P11	Y11	R11	P51	Z51	C51	X11	Y51
1	3	4	1	2	4	1	3	2	1

Δp-Q Characteristics

Measured at $v = 32 \text{ mm}^2/\text{s}$ (156 SUS)

Pressure drop Δp related to flow rate.

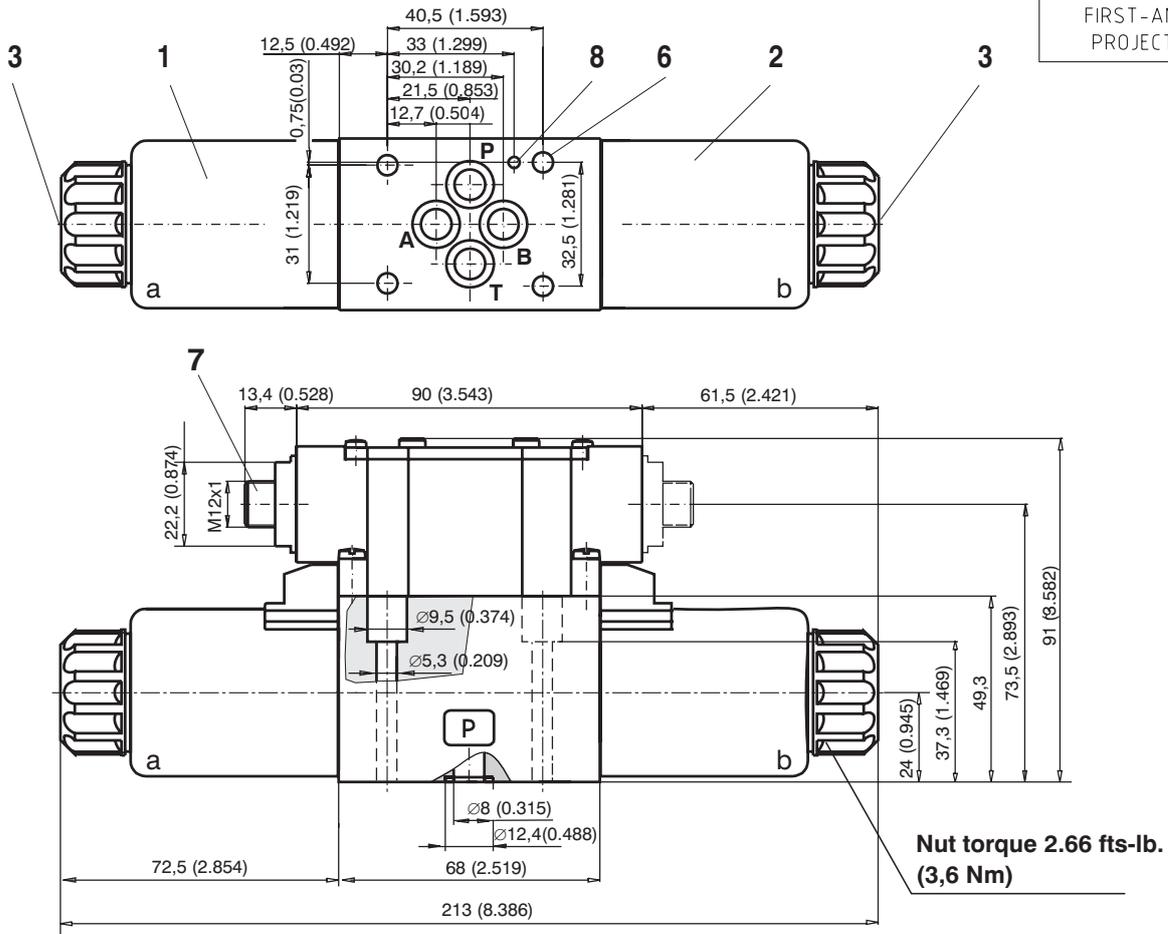
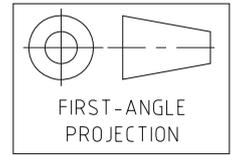


	P-A	P-B	A-T	B-T	P-T
Z11	2	2	2	2	
C11	2	2	2	2	3
P11	2	2	4	4	
Y11	2	2	1		
R11	2	2	4	2	
X11	2	2	4	2	
Z51		2	2		
C51	2			2	3
P51		1	1		
Y51		2	4		

Valve Dimensions

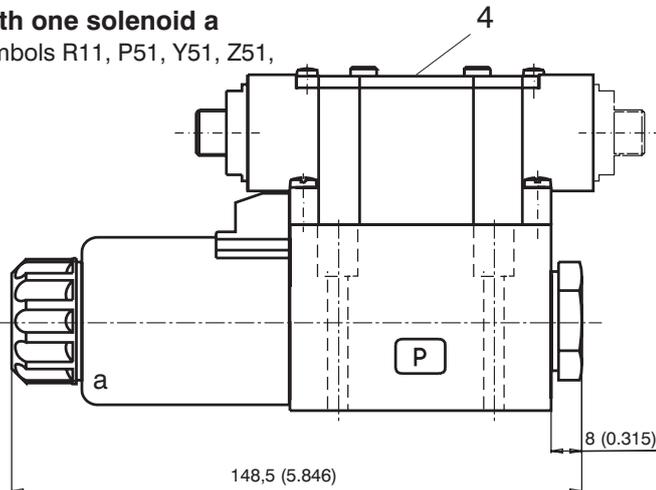
Dimensions in millimeters (inches)

Valve with two solenoids



Valve with one solenoid a

Spool symbols R11, P51, Y51, Z51, C51

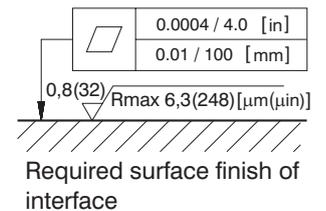
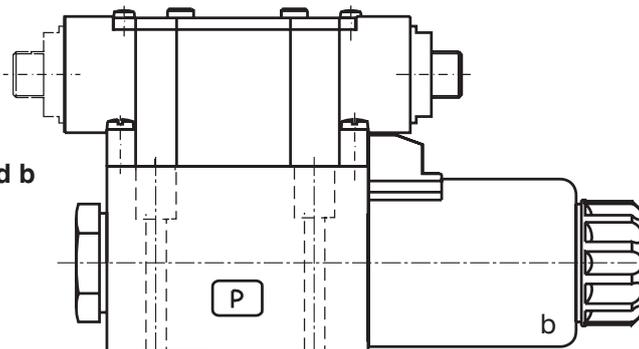


- 1 Solenoid a*
- 2 Solenoid b*
- 3 Manual override
- 4 Name plate
- 5 Square ring (4 pcs.)
0.36 x 0.66 (9.25 x 1.68 mm)
supplied with valve
- 6 4 mounting holes
- 7 Electrical connector
- 8 Pin hole

*Note: On valves with solenoid identification according to US Standard ANSI-B93.9 can the solenoid designation vary from this arrangement, this is based on the function symbol.

Valve with one solenoid b

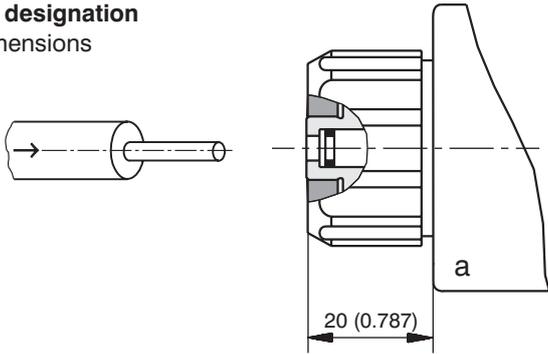
Spool symbols X11, Z11, C11, Y11, P11



Manual Override

STANDARD

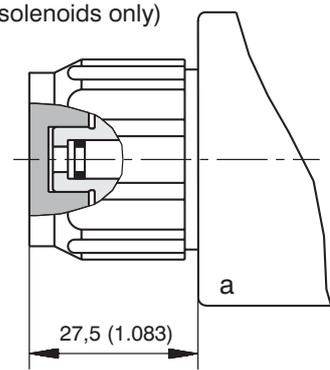
No designation
Dimensions



Standard model of the manual override.
Standard retaining nut of the solenoid.

CLOSED NUT

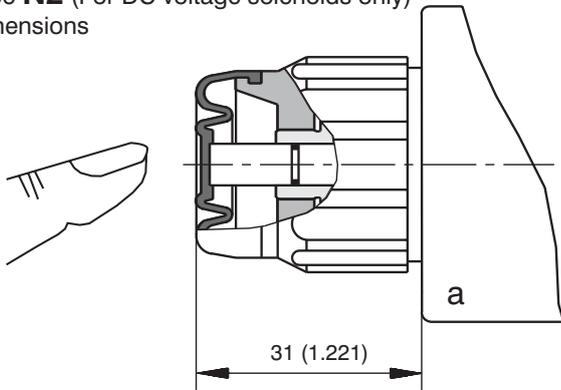
Type **N1** (For DC voltage solenoids only)
Dimensions



Manual override with retaining nut.
Can be used after removing nut.

RUBBER BOOT

Type **N2** (For DC voltage solenoids only)
Dimensions



Manual override protected by rubber boot.

Orifice in P-Port

Type	ØD mm (inch)	Dimensions	Description
D1	1,0 (0.039)		P-Port orifices limit the flow into the directional control valve. Attention: When the orifice in P port is additionally mounted the standard used square ring NBR is replaced with O-ring from Viton.
D2	1,5 (0.059)		
D3	2,0 (0.079)		
D4	2,2 (0.087)		
D5	2,5 (0.098)		

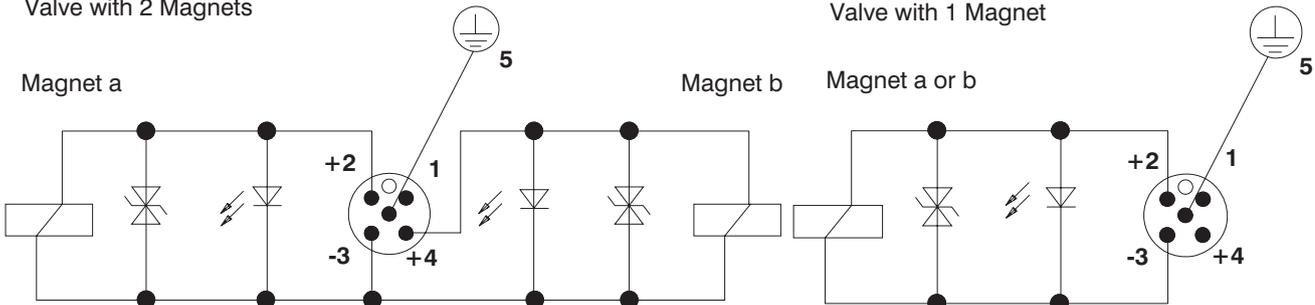
Connector - M12

Pin - location

Valve with 2 Magnets

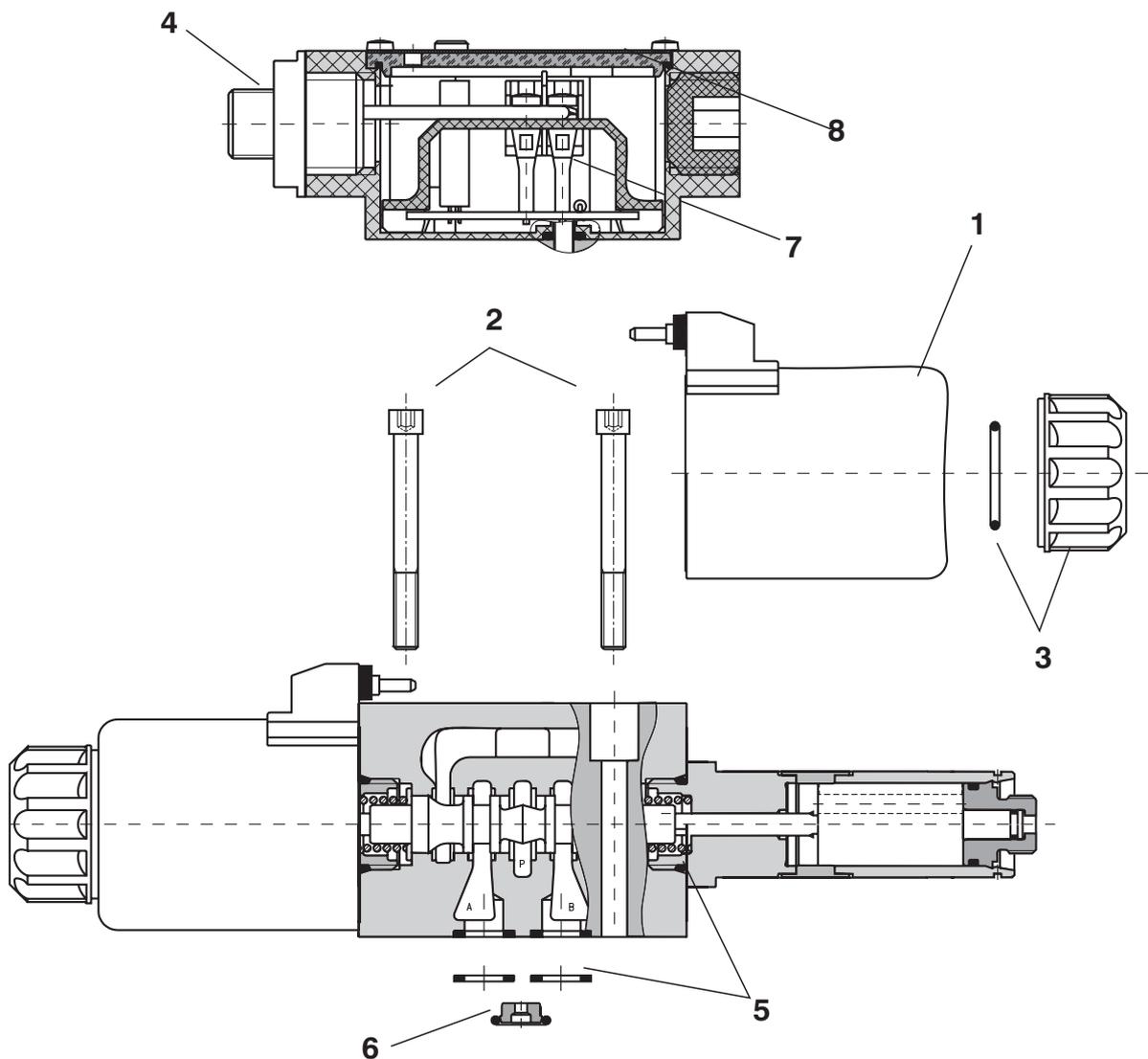
Pin - location

Valve with 1 Magnet



Note: On valves with solenoid identification according to US Standard ANSI-B93.9 wiring will be different from above: on valves with one (1) solenoid always Pin 2 for the *a*-Solenoid and Pin 4 for the *b*-Solenoid. This is independent from the actual physical location of the solenoid.

Spare parts



- 1 - Solenoid coil (DC solenoid)
- 2 - Mounting bolts
- 3 - Nut with seal (Nut torque 3 Nm (2.21lbf))
- 4 - Connector M12
- 5 - Seal kit
- 6 - Orifice in P port with seal ring
- 7 - Terminal plate
- 8 - Wiring box

Wiringbox				
Type			Ordering number	
Wiring box without terminal plate			16203600	
Terminal Plates				
Type			Ordering number	
Terminal plate 24V - preventive A+B			28572900	
Terminal plate 24V - preventive A			24007600	
Terminal plate 24V - preventive B			28572800	
Terminal plate 24V - LED diode and preventive A+B			24007700	
Terminal plate 24V - LED diode and preventive A			24007800	
Terminal plate 24V - LED diode and preventive B			28572800	
Solenoid Coil				
Voltage rating		Type	Ordering number	
24 V DC		EW1	24014000	
Solenoid Retaining Nut with Seal				
Type of the nut		Seal ring	Ordering number	
Standard nut		22 x 2	15844600	
Closed nut (DC only)			15844700	
Nut with rubber boot (DC only)			15844800	
Electrical Connector M12				
Type			Ordering number	
Male 5 PIN			24007900	
Orifice in P-Port				
Type	ØD mm (inch)		Ordering number	
D1	1.0 (0.039)		9.25 x 1.75	
D2	1.5 (0.059)			
D3	2.0 (0.079)			
D4	2.2 (0.087)			
D5	2.5 (0.098)			
Seal Kit				
Type	Dimensions, quantity			Ordering number
Standard - NBR70	9.25 x 1.68 (4 pcs.)	17 x 1.8 (2 pcs.)	9.25 x 1.75 (1 pc)	21483800
Viton	9.25 x 1.78 (4 pcs.)	17.17 x 1.78 (2 pcs.)		15845400
Bolt Kit (for studs see HU 0030)				
Dimensions, quantity		Bolt torque	Ordering number	
M5 x 45 DIN 912-10.9 (4 pcs.)		8.9 Nm (6.6 lbf)	15845100	
Caution!				
<ul style="list-style-type: none"> When the distributor contains two electromagnets any of the two electromagnets can be switched on only after the other one switches off. Distributors with other interconnections than those shown in the catalogue can be supplied on request. The packaging foil can be recycled The transport base plate can be returned to the manufacturer. Mounting screws M5 x 45 DIN 912-10.9 or bolts must be ordered separately. The screws tightening torque is 8.9 Nm (6.6 ft-lbs). The mentioned data only serve to describe the product and in no case are to be understood in terms of law as guaranteed characteristics. 				
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