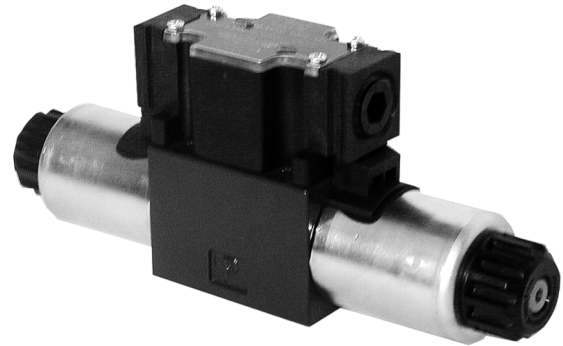
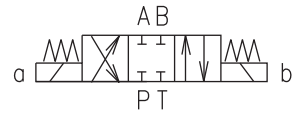


- 4/3, 4/2 way directional control valves
- Enclosure type to IP65
- Push button manual override
- Installation dimensions to DIN 24 340 / ISO 4401 / CETOP RP121-H
- Subplates see data sheet HA 0002



## 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).

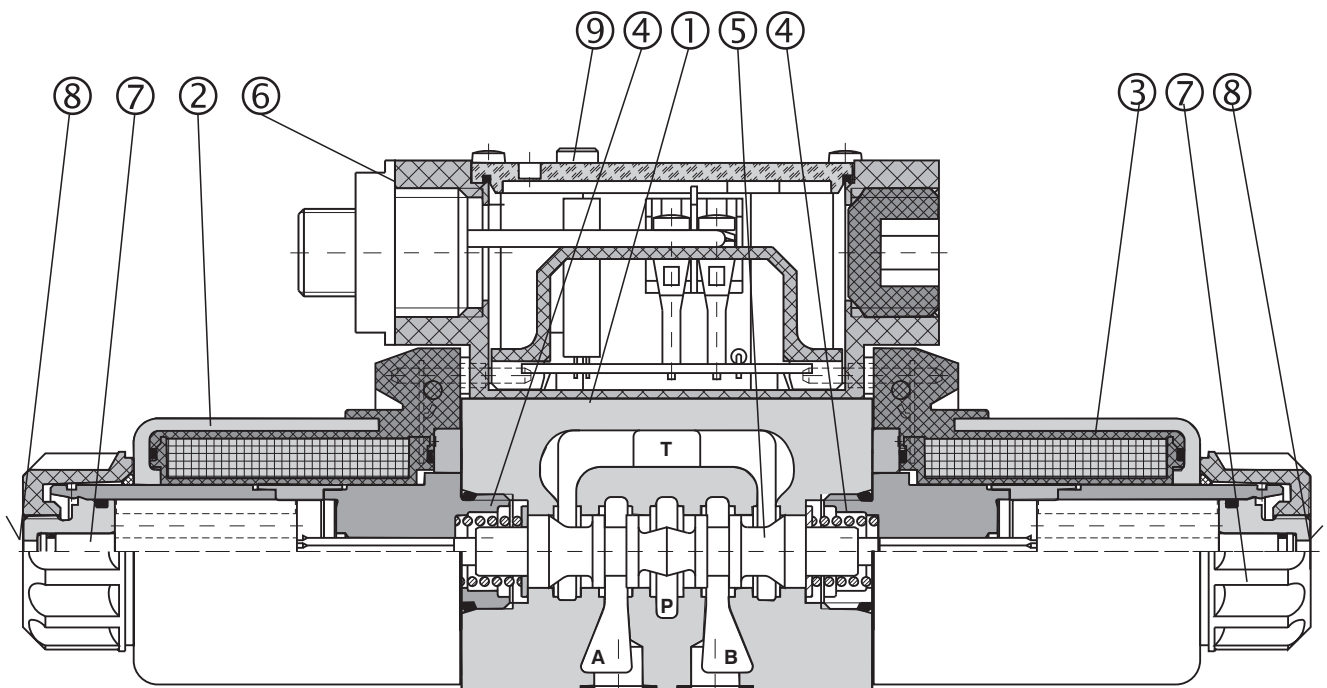
The three-position directional control valves are fitted with two solenoids and two springs. Two-position directional control valves have either one solenoid and one return spring or two solenoids and a detent assembly.

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.

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



# Ordering Code

**RPEA3-06**   /

**Solenoid Operated Directional Control Valve 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 NBR  
**V** FPM (Viton)

**Orifice in P Port**  
no designation without orifice  
**D1** Ø1.0 mm  
**D2** Ø1.5 mm  
**D3** Ø2.0 mm  
**D4** Ø2.2 mm  
**D5** Ø2.5 mm

**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		
Nominal size	mm	06
Maximum flow	L/min	see p-Q characteristics
Max. operating pressure at porte P, A, B	bar	320
Max. operating pressure at port T	bar	210
Pressure drop	bar	see Δp-Q characteristics
Hydraulic fluid		Hydraulic oils of power classes (HL, HLP) to DIN 51524
Fluid temperature range - NBR	°C	-30 ... +80
Fluid temperature range - Viton	°C	-20 ... +80
Ambient temperature, max.	°C	+50
Viscosity range	mm <sup>2</sup> /s	20 ... 400
Maximum degree of fluid contamination		Class 21/18/15 to ISO 4406 (1999)
Max. allowable voltage variation	%	DC: ± 10
Max. switching frequency	1/h	15 000
Switching time, on: at v=32 mm <sup>2</sup> /s	ms	DC: 30 ... 50
Switching time, off: at v=32 mm <sup>2</sup> /s	ms	DC: 10 ... 50
Duty cycle	%	100
Service life	cycles	10 <sup>7</sup>
Enclosure type to EN 60529		IP 65
Weight - valve with 1 solenoid - valve with 2 solenoids	kg	1.3 1.9
Mounting position		optional

### Functional Symbols

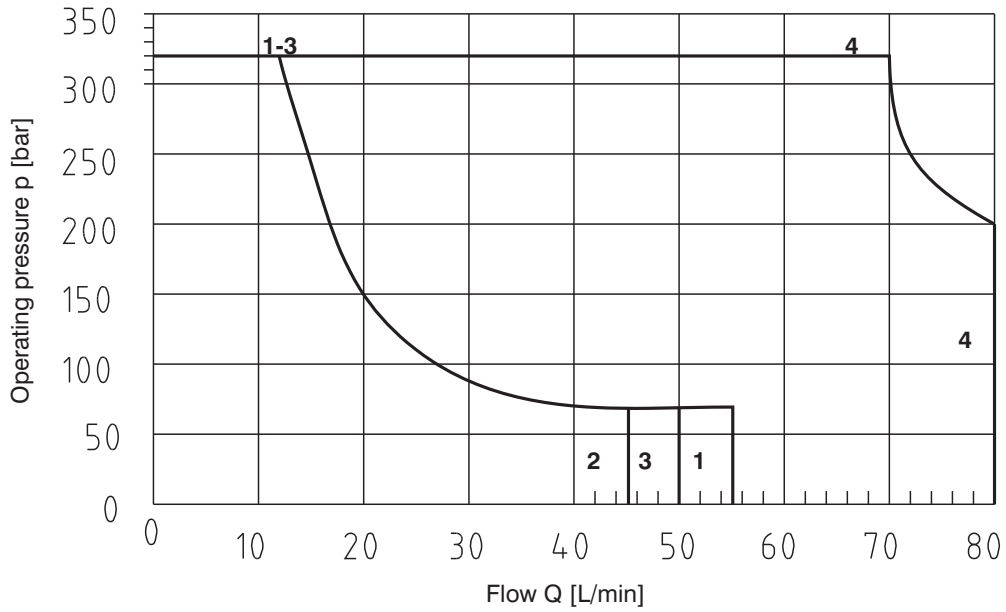
Designation	Symbol	Interposition	Designation	Symbol	Interposition
Z11			C51		
C11			Z51		
P11			Z11		
Y11			X11		
R11			C11		
P51			Y11		
Y51			P11		

**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  $v = 32 \text{ mm}^2/\text{s}$

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

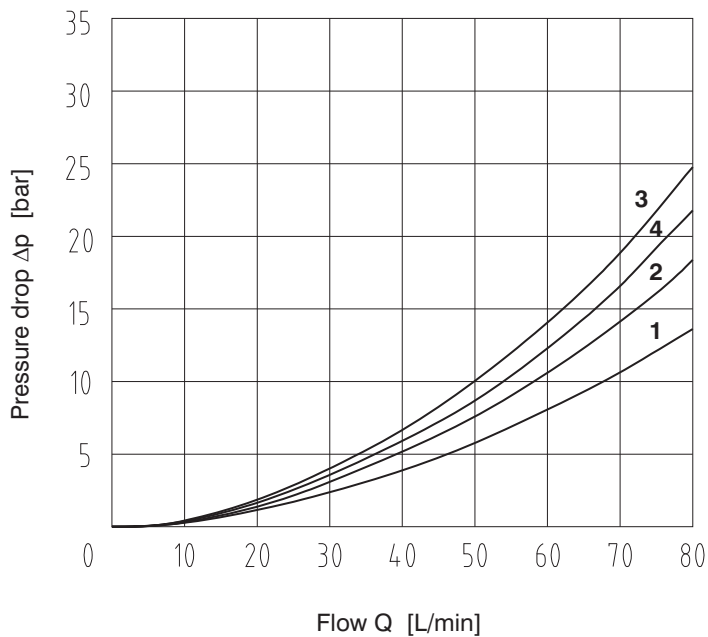


Z11	C11	P11	Y11	R11	P51	Z51	C51	X11	Y51
1	3	4	1	2	4	1	3	2	1

# $\Delta p$ -Q Characteristics

Measured at  $v = 32 \text{ mm}^2/\text{s}$

Pressure drop  $\Delta p$  related to flow rate.

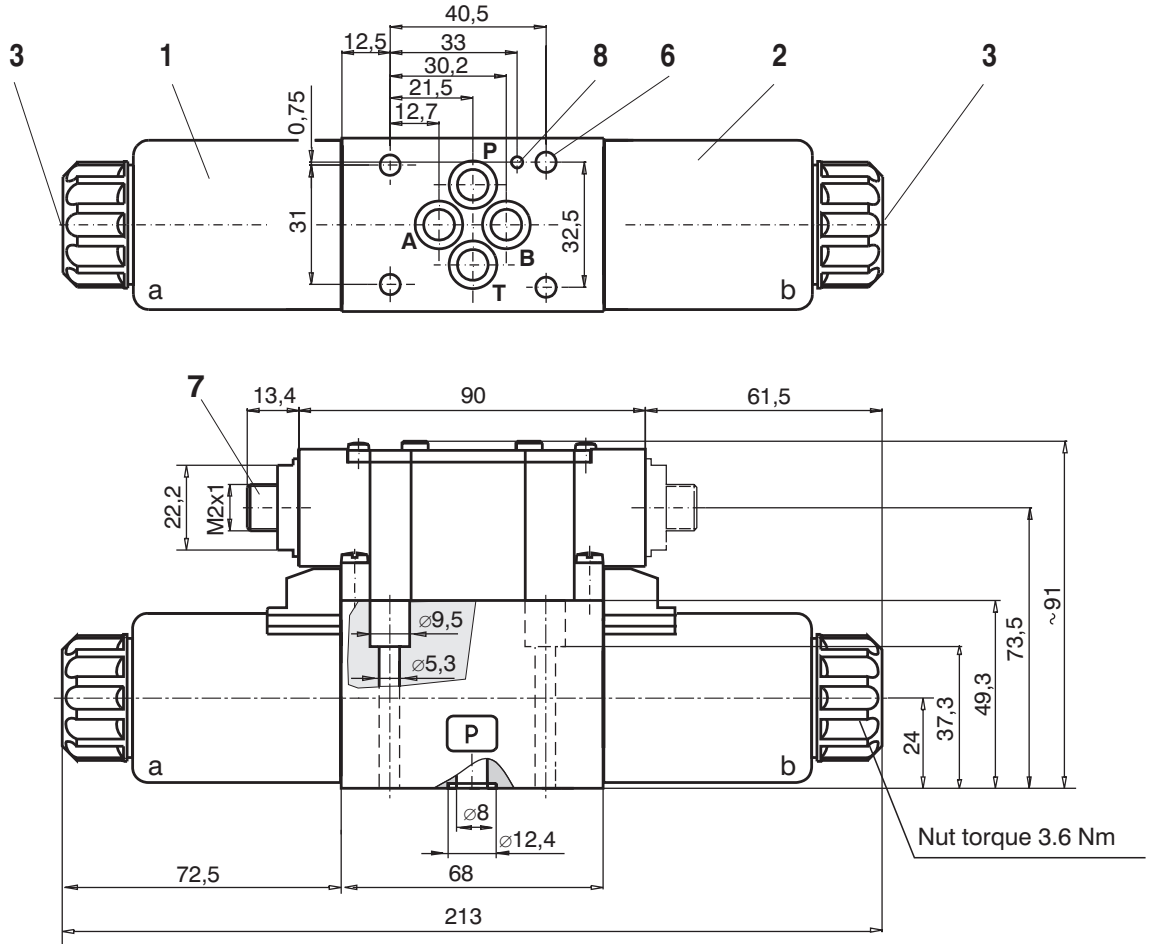


	P-A	P-B	A-T	B-T	P-T
Z11	2	2	2	2	
C11	2	2	2	2	3
P11	2	2	4	4	
Y11	2	2	1		
R11	2	2	4	2	
X11	2	2	4	2	
Z51		2	2		
C51	2			2	3
P51		1	1		
Y51		2	4		

# Valve Dimensions

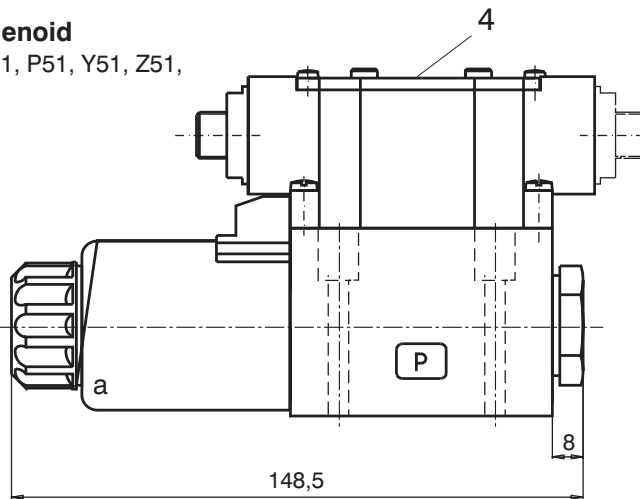
Dimensions in millimetres

## Valve with 2 solenoids



## Valve with 1 solenoid

Spool symbols R11, P51, Y51, Z51, C51

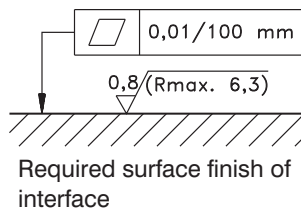
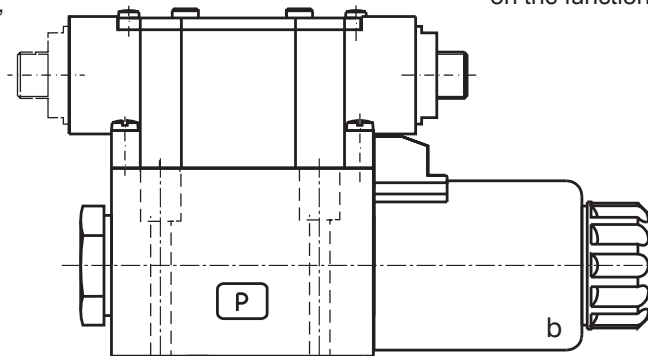


- 1 Solenoid a\*
- 2 Solenoid b\*
- 3 Manual override
- 4 Name plate
- 5 Square ring 9.25 x 1.68 (4 pcs.) supplied with valve
- 6 4 mounting holes
- 7 Electrical connector
- 8 Pin hole

**\*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 1 solenoid

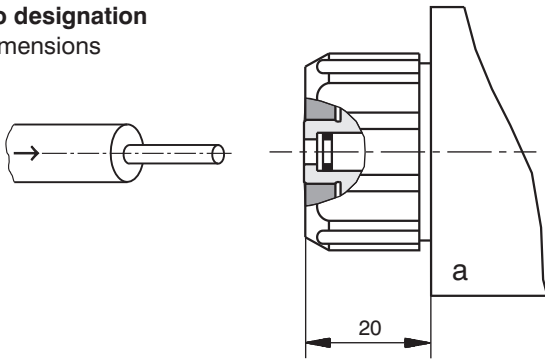
Spool symbols X11, Z11, C11, Y11, P11



# Manual Override

## STANDARD

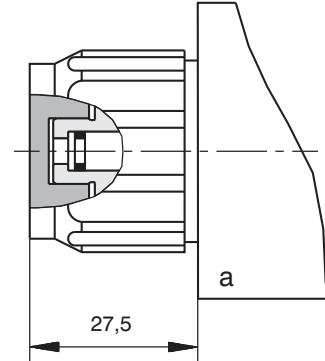
No designation  
Dimensions



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

## CLOSED NUT

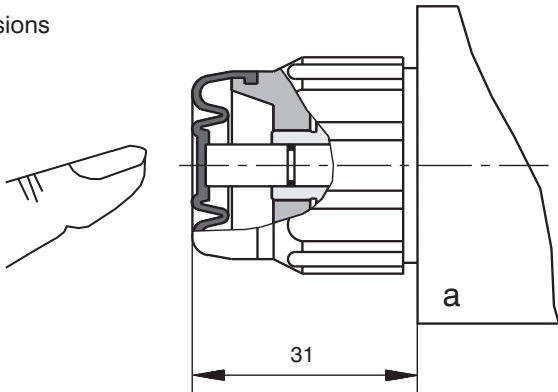
Type **N1**  
Dimensions



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

## RUBBER BOOT

Type **N2**  
Dimensions



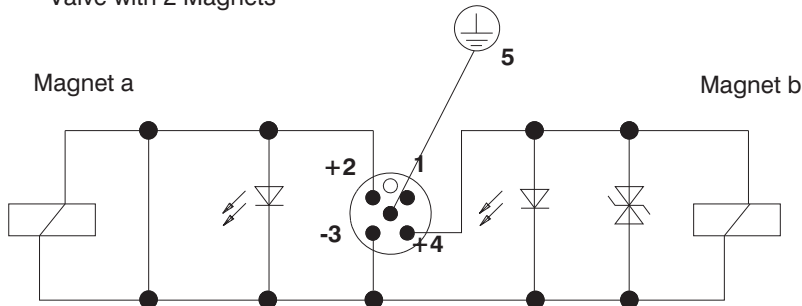
Manual override protected by rubber boot.

# Orifice in P-Port

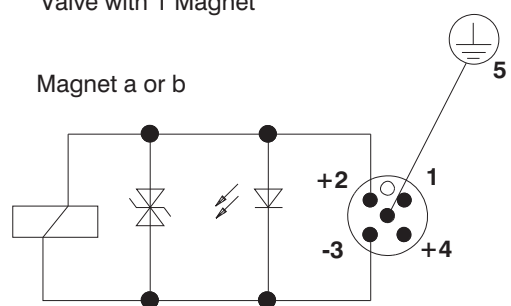
Type	∅D mm	Dimensions	Description
<b>D1</b>	1.0		P-Port orifices limit the flow into the directional control valve.  <b>Attention:</b> When the orifice in P port is additionally mounted the standard used square ring NBR is replaced with O-ring from Viton.
<b>D2</b>	1.5		
<b>D3</b>	2.0		
<b>D4</b>	2.2		
<b>D5</b>	2.5		

# Connector - M12

**Pin - location**  
Valve with 2 Magnets

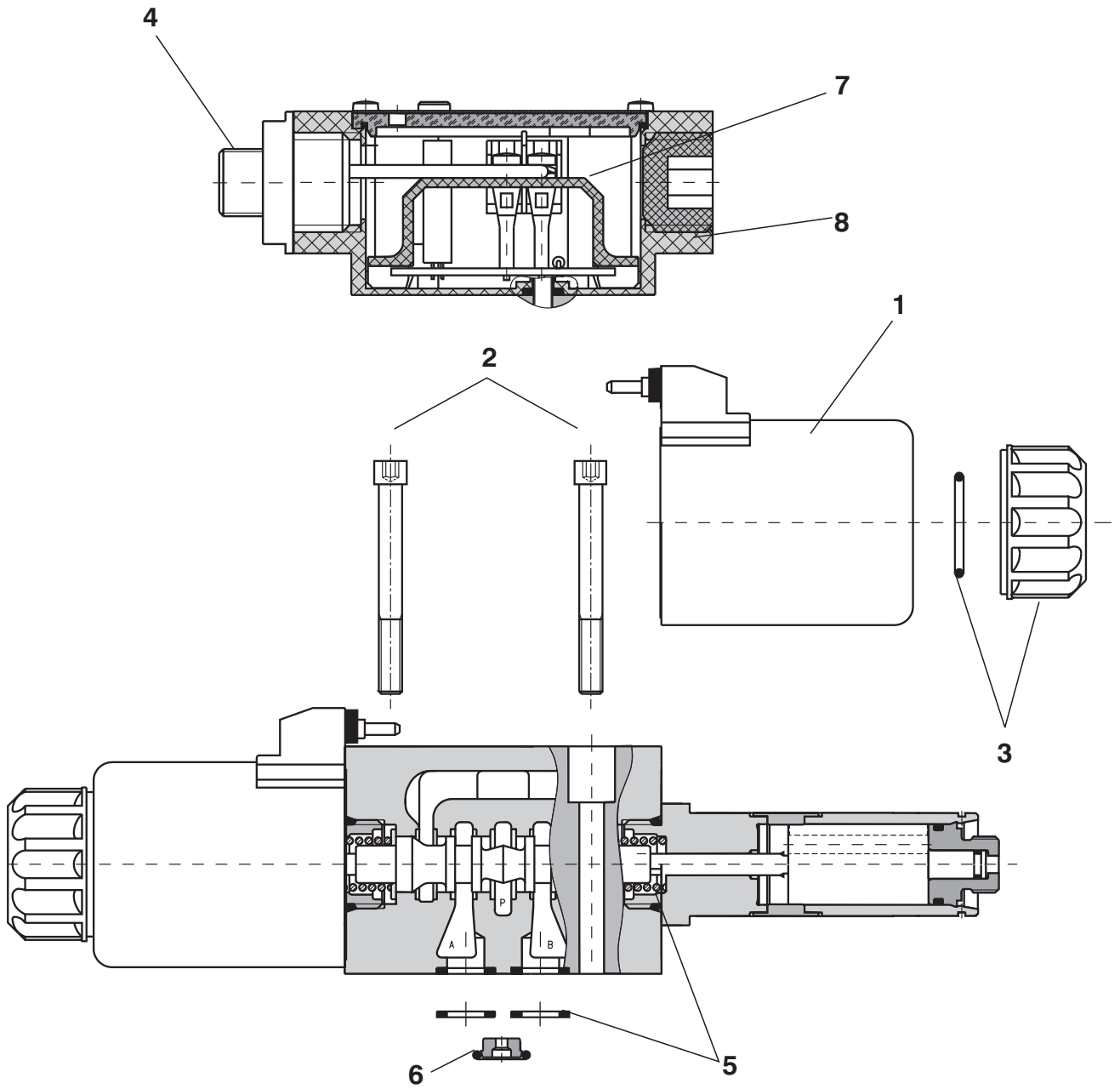


**Pin - location**  
Valve with 1 Magnet



**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
- 2 Mounting bolts
- 3 Nut with seal
- 4 Connector M12
- 5 Seal kit
- 6 Orifice in P port with seal ring
- 7 Terminal plate
- 8 - Wiringbox

<b>Wiringbox</b>				
Type			Ordering number	
Wiring box without terminal plate			937-0608	
<b>Terminal Plates</b>				
Type			Ordering number	
Terminal plate 24V - preventive A+B			937-0642	
Terminal plate 24V - preventive A			937-0643	
Terminal plate 24V - preventive B			937-0644	
Terminal plate 24V - LED diode and preventive A+B			937-0645	
Terminal plate 24V - LED diode and preventive A			937-0646	
Terminal plate 24V - LED diode and preventive B			937-0647	
<b>Solenoid Coil</b>				
Voltage rating		Type	Ordering number	
24 V DC		EW1	937-0728	
<b>Solenoid Retaining Nut with Seal</b>				
Type of the nut		Seal ring	Ordering number	
Standard nut		22 x 2	484-9951	
Closed nut			484-9952	
Nut with rubber boot			484-9953	
<b>Connector M12</b>				
Type			Ordering number	
5 PIN			937-0648	
<b>Orifice in P-Port</b>				
Type	ØD mm		Seal ring	Ordering number
D1	1.0		9.25 x 1.75	484-9973
D2	1.5			484-9974
D3	2.0			484-9975
D4	2.2			484-9977
D5	2.5			484-9976
<b>Seal Kit</b>				
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)	484-9965
Viton	9.25 x 1.78 (4 pcs.)	17.17 x 1.78 (2 pcs.)		484-9971
<b>Bolt Kit</b>				
Dimensions, quantity		Bolt torque	Ordering number	
M5 x 45 DIN 912-10.9 (4 pcs.)		8.9 Nm	484-9958	
<b>Caution!</b>				
<ul style="list-style-type: none"> <li>• For applications outside the given parameters, please consult us.</li> <li>• For directional control valves with two solenoids, one solenoids must be without power before the other solenoid can be powered charged.</li> <li>• The packing foil is recyclable. The protective plate can be returned to manufacturer.</li> <li>• Mounting bolts or studs must be ordered separately.</li> <li>• The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.</li> </ul>				
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