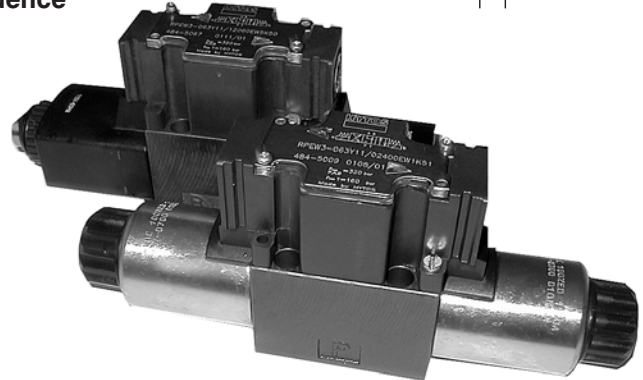
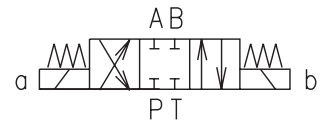


- 4/3, 4/2 way directional control valves
- Four-land spool - reduced functional dependence on fluid viscosity
- Push button manual override
- Installation dimensions to DIN 24 340 / ISO 4401 / CETOP RP121-H
- Subplates see Data Sheet HA 0002
- CSA Upon request



Functional Description

The RPEW4 directional control valves consist of housing (1), a control spool (5) with two centering springs (4) and cylindrical operating solenoids (2, 3), electric wirebox (9) and connector (6).

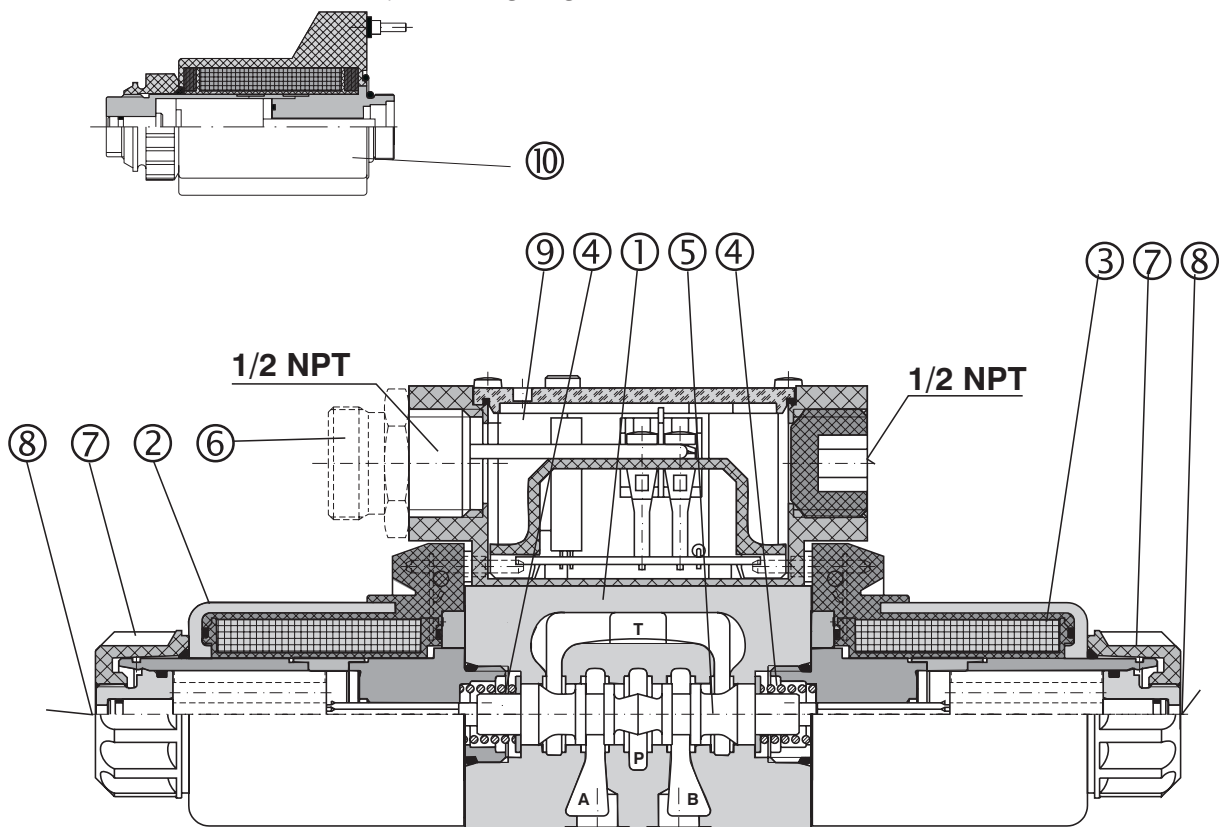
The three-position directional control valves are fitted with two solenoids and two springs. Two-position directional control valves have either one solenoid and one return spring or two solenoids and a detent assembly.

The solenoids are supplied with DC and AC (10) - voltage through the 1/2 NPT Ports on the wirebox (optional on both sides) or through Connector Item (3 - Pin single solenoid, 5 - Pin - double solenoid) see wiring diagram

(page 7). 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

RPEW4-06 /

**Solenoid Operated
Directional Control Valve
with Wirebox**

Nominal Size

Number of Valve Positions
two positions **2**
three positions **3**

Spool Symbols
see the table spool symbols

Rated Supply Voltage of Solenoids


(at the wirebox terminals)

12 V DC / 2.64 A  **01200**
24 V DC / 1.32 A  **02400**
120V AC / 60Hz* **** 12060**

* AC coils only for type of wirebox **K**
or
DC coils with rectifier in wirebox only for
type of wirebox **R**

** CSA for DC voltage only

Note: For other voltages consult factory

CSA Upon request 

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

DC solenoid **EW1**
DC solenoid with quenching diode **EW2**
AC solenoid **EW5**

Type of Wirebox

Wirebox for DC and AC **K**
Wirebox AC (rectifier in wirebox) **R**

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

Spool Speed Control Orifice
no designation without damping
T1 orifice Ø0.7 mm in solenoid*
* for DC voltage only

Manual Override
no designation standard
N1 covered with retaining nut*
N2 covered with rubber boot*
* for DC voltage only

Wirebox Configurations

- 50** Standard wiring box with 1/2 NPT both ends
(Either side can be used for wiring, Remove cover -plug accordingly)
- 51** Standard wiring box with 1/2 NPT both ends and LED diodes (B- side plugged, A - side covert for shipping)
- 52** Wiring box with 3 PIN connector ANSI/B93.55M mounted on A-side (B-side plugged, only for single solenoid valves)
- 53** Wiring box with 3 PIN connector ANSI/B93.55M mounted on B-side (A-side plugged, only for single solenoid valves)
- 54** Wiring box with 3 PIN connector ANSI/B93.55M mounted on A-side with LED diode, (B-side plugged only for single solenoid valves)
- 55** Wiring box with 3 PIN connector ANSI/B93.55M mounted on B-side with LED diode, (A-side plugged only for single solenoid valves)
- 56** Wiring box with 5 PIN connector ANSI/B93.55M mounted on A-side (B-side plugged, only for double solenoid valves)
- 57** Wiring box with 5 PIN connector ANSI/B93.55M mounted on B-side (A-side plugged, only for double solenoid valves)
- 58** Wiring box with 5 PIN connector ANSI/B93.55M mounted on A-side with LED diode (B-side plugged, only for double solenoid valves)
- 59** Wiring box with 5 PIN connector ANSI/B93.55M mounted on B-side with LED diode only for double (A-side plugged,only for double solenoid valves)

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 for NBR seals	°C	-30 ... +80		
Fluid temperature range for FPM seals	°C	-20 ... +80		
Ambient temperature, max.	°C	+50		
Viscosity range	mm ² /s	20 ... 400		
Maximum degree of fluid contamination		Class 21/18/15 to ISO 4406 (1999).		
Max. allowable voltage variation	%	DC: ± 10 / AC: ±10		
Max. switching frequency	1/h	15 000		
Switching time, on: at v=32 mm ² /s	ms	DC: 30 ... 50	AC direct: CF	AC rec.: 30 ... 40
Switching time, off: at v=32 mm ² /s	ms	DC: 10 ... 50	AC direct: CF	AC rec.: 30 ... 70
Duty cycle	%	100		
Service life	cycles	10 ⁷		
Enclosure type to EN 60529		IP 65		
Weight - valve with 1 solenoid	kg	1.3		
- valve with 2 solenoids		1.9		
Mounting position		optional		

Functional Symbols

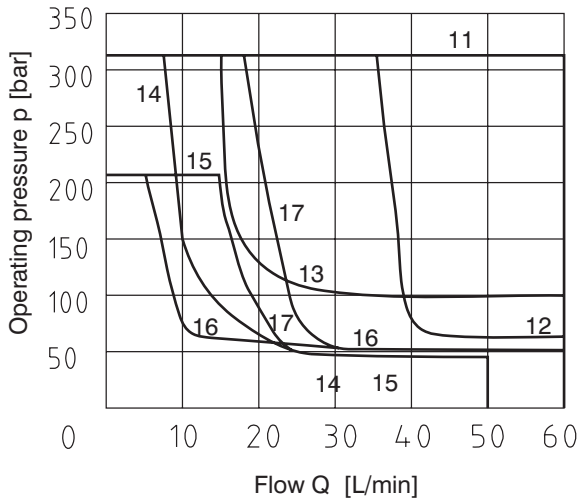
Designation	Symbol	Interposition	Designation	Symbol	Interposition
Z11			X25		
C11			Y51		
H11			C51		
P11			Z51		
Y11			H51		
L21			F51		
B11			Z11		
Z21			X11		
F11			C11		
R11			H11		
R21			N11		
A51			F11		
P51			J15		
			J75		

p-Q Characteristics

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

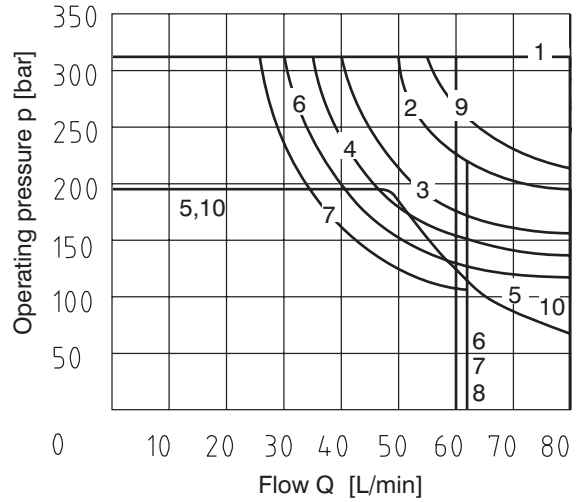
Operating limits for maximum hydraulic power transferred by the directional valve. For respective spool type - see Functional Symbols.

AC characteristics



AC		AC		AC	
Z51	12	Z11	12	J15	11
Y11	12	C11	13	R21	15
Y51	12	X11	17	R11	17
C51	13	P11	11		
H11	14	L21	14		
H51	14	F11	14		
B11	12	F51	14		
N11	12	A51	16		
P51	11	J75	16		

DC characteristics

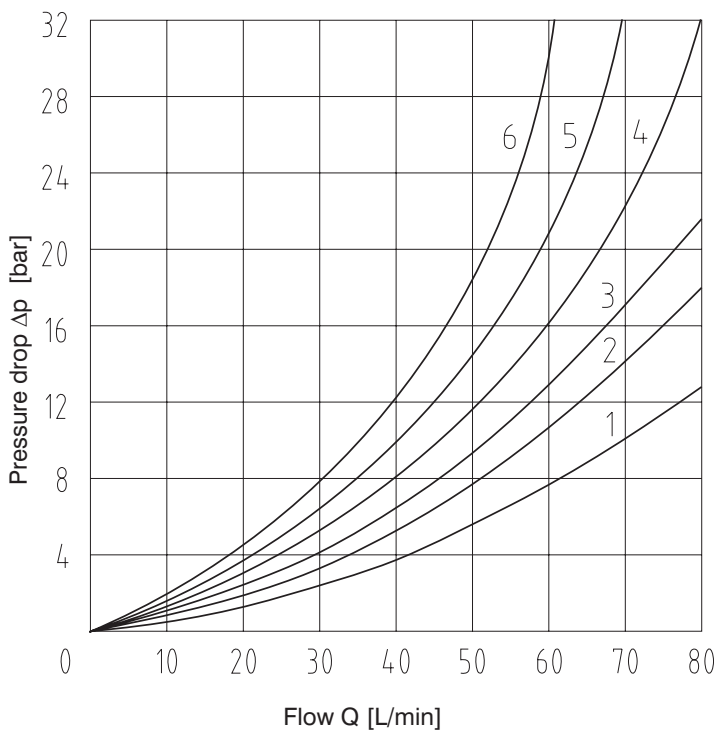


DC		DC		DC	
Z11	1	J75	9	H51	7
C11	6	F11	5	F51	7
H11	3	R11	3	X11	3
P11	1	R21	4	N11	7
Y11	2	A51	5	X25	10
L21	5	P51	1		
B11	8	Y51	2		
J15	1	C51	6		
Z21	1	Z51	1		

Δp -Q Characteristics

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

Pressure drop Δp related to flow rate.

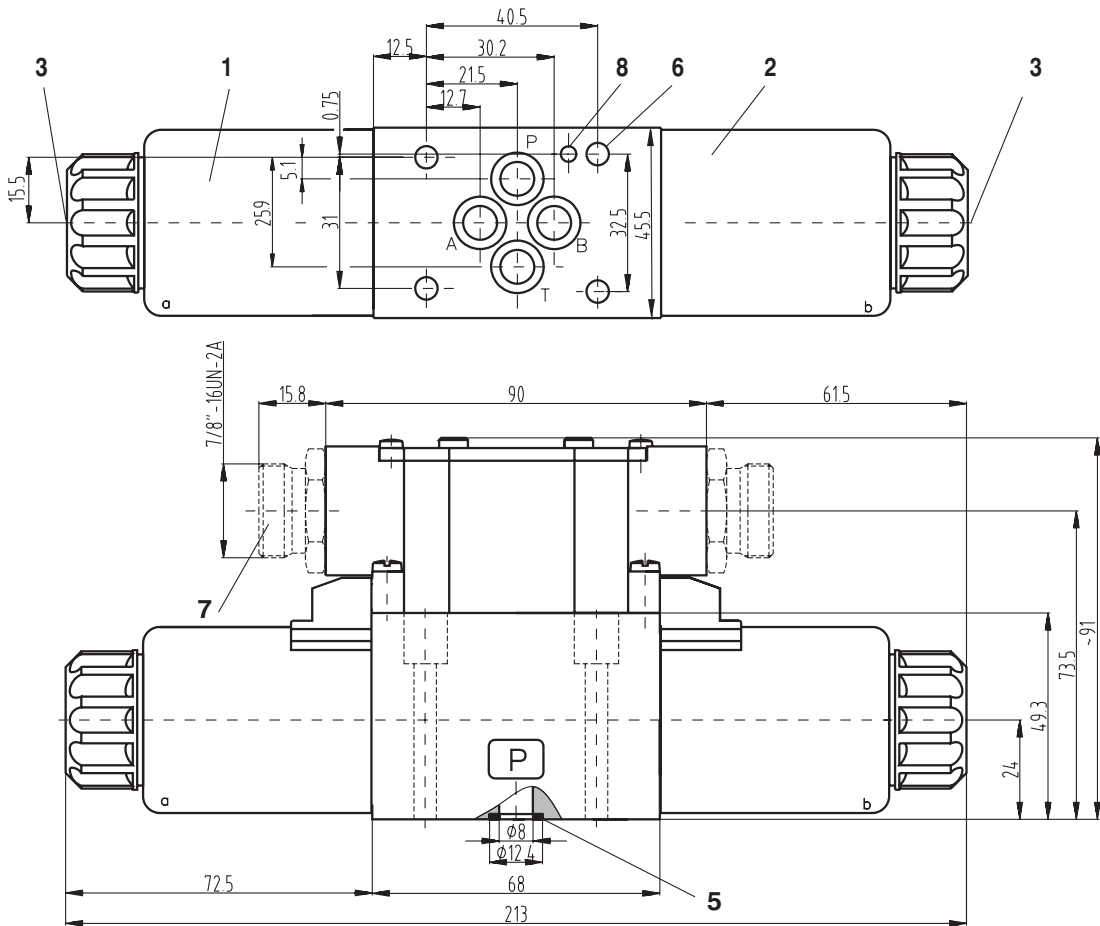


	P-A	P-B	A-T	B-T	P-T
Z11	2	2	3	3	
C11	5	5	5	6	3
H11	2	2	2	3	3
P11	1	1	3	3	
Y11	2	2	2	2	
L21	2	2	3	3	
B11	2	2	3	3	
Z21		2	3		
F11	1	2		3	3
R11	2	2	3	3	
R21	2	2	3	3	
A51	2	2			
P51		1	3		
Y51		2	2		
C51	2			3	4
Z51		2	3		
H51		2	3		
F51		2	3		
X11	2	2	3	3	
N11	2	2	3	3	
J15	2	2	3	3	
J75	2	2			

Valve Dimensions

Dimensions in millimetres

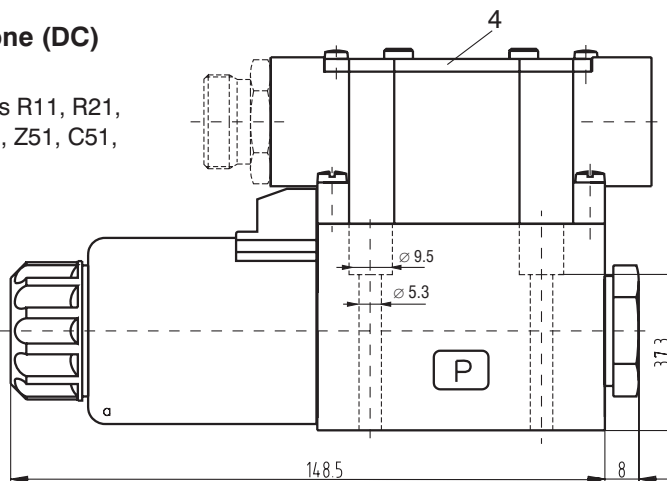
Valve with two DC voltage supplied solenoids and AC rectified (Code R)



Valve with one (DC)

solenoid a

Spool symbols R11, R21, A51, P51, Y51, Z51, C51, H51, F51

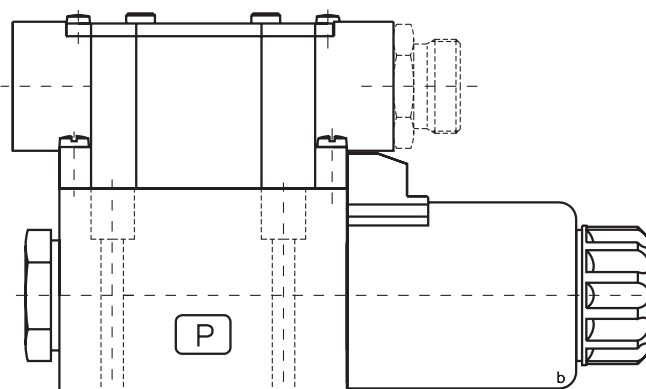
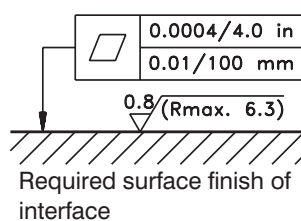


- 1 Solenoid a (Nut torque 3 Nm)
- 2 Solenoid b (Nut torque 3 Nm)
- 3 Manual override
- 4 Name plate
- 5 Square ring (4 pcs.) 0,36 x 0,66 supplied with valve
- 6 4 mounting holes
- 7 Electrical connector
- 8 Pin hole

Valve with one (DC)

solenoid b

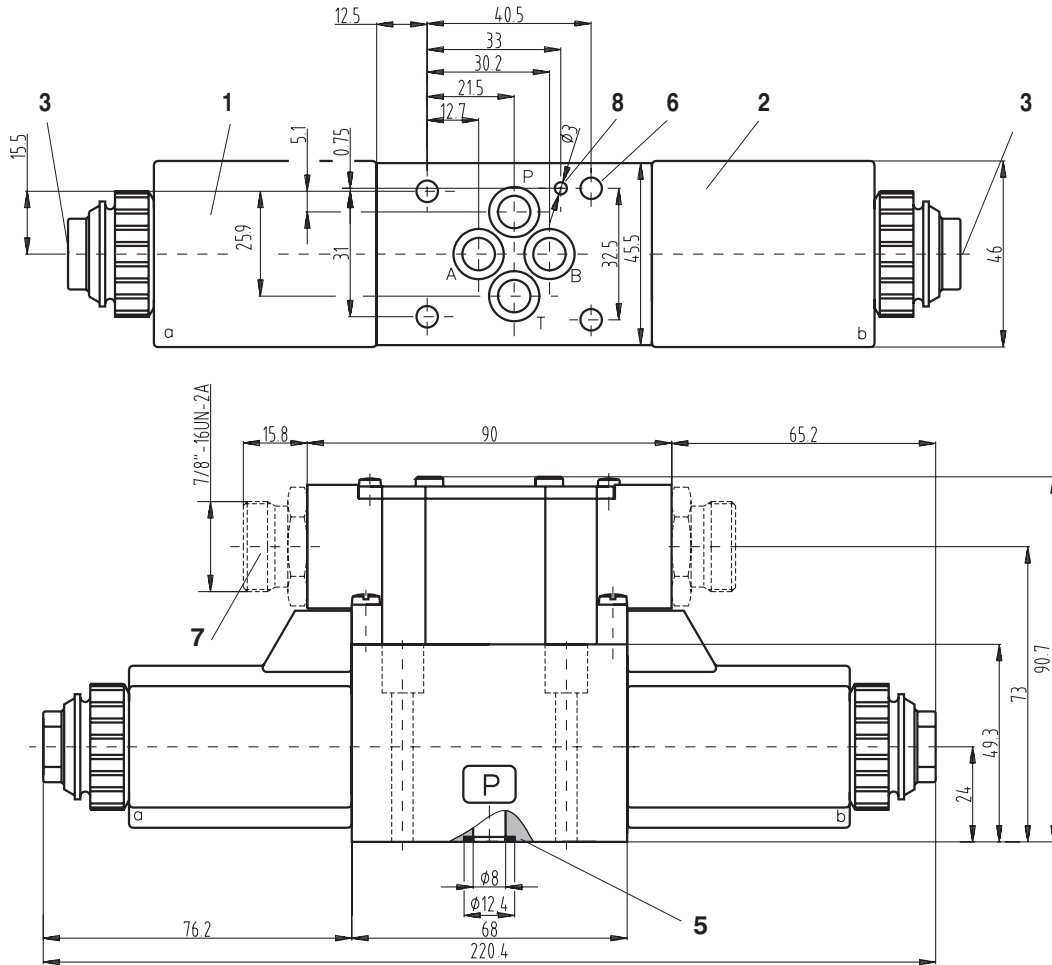
Spool symbols X11, Z11, C11, H11, N11, F11



Valve Dimensions

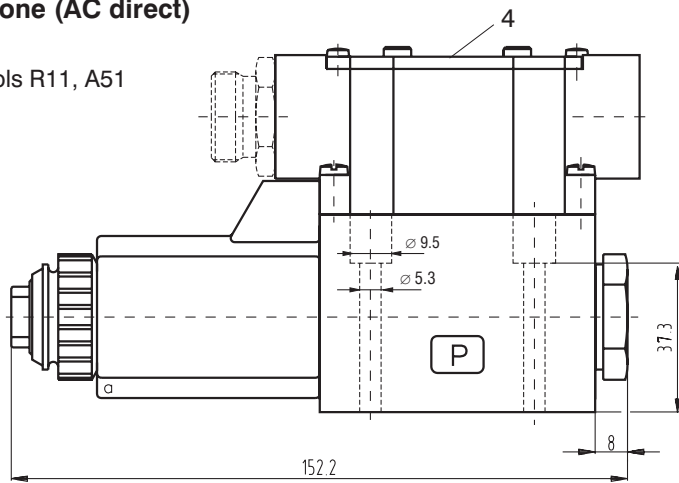
Dimensions in millimetres

Valve with two AC direct voltage supplied solenoids



Valve with one (AC direct) solenoid a

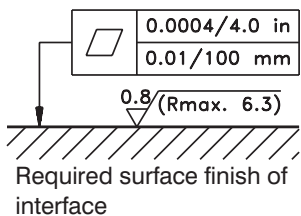
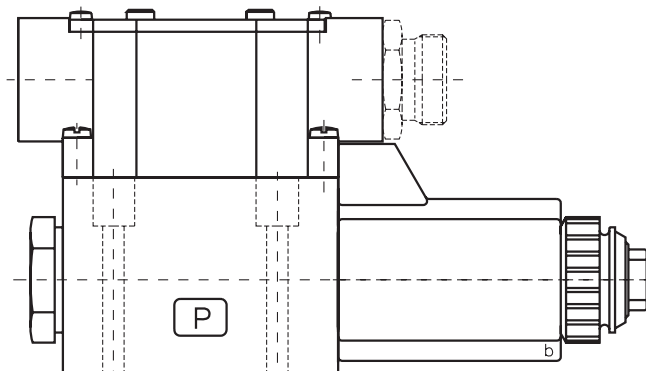
Spool symbols R11, A51



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

Valve with one (AC) solenoid b

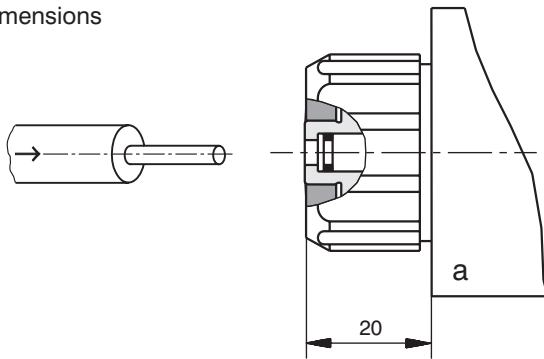
Spool symbols Z11, C11, H11



Manual Override

STANDARD

Dimensions

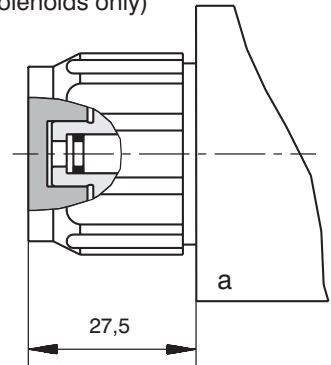


Standard model of the manual override.
Standard retaining nut of the solenoid.

CLOSED NUT

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

Dimensions

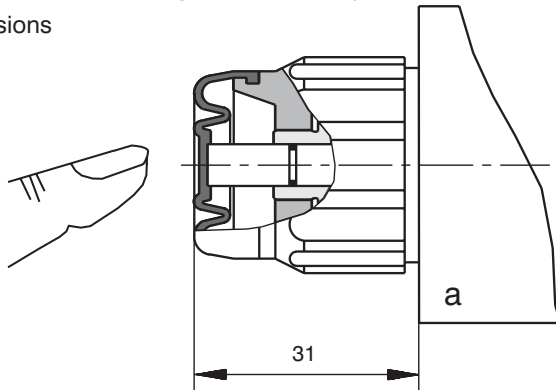


Manual override with retaining nut.
Can be used after removing nut.

RUBBER BOOT

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

Dimensions

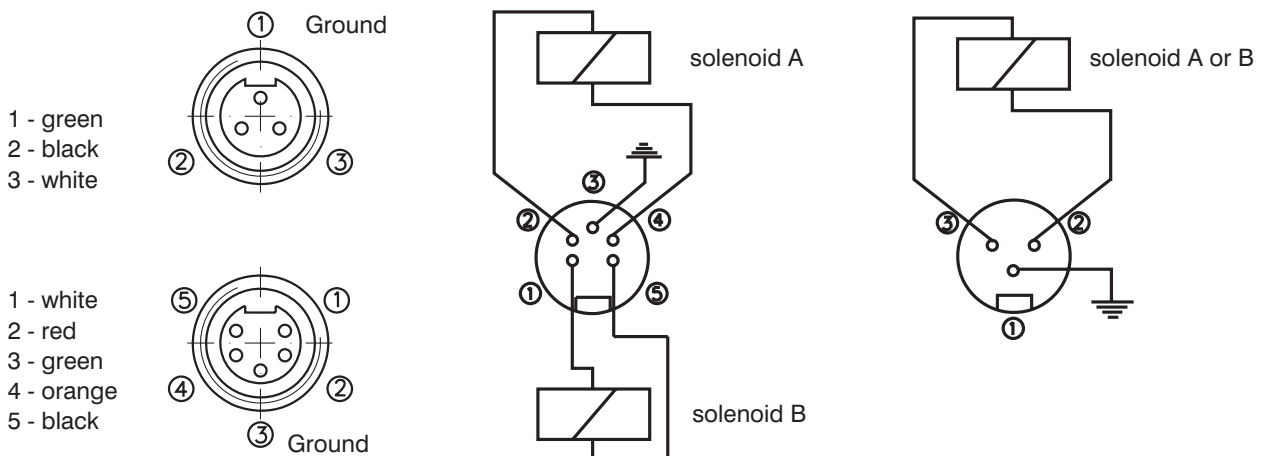


Manual override protected by rubber boot.

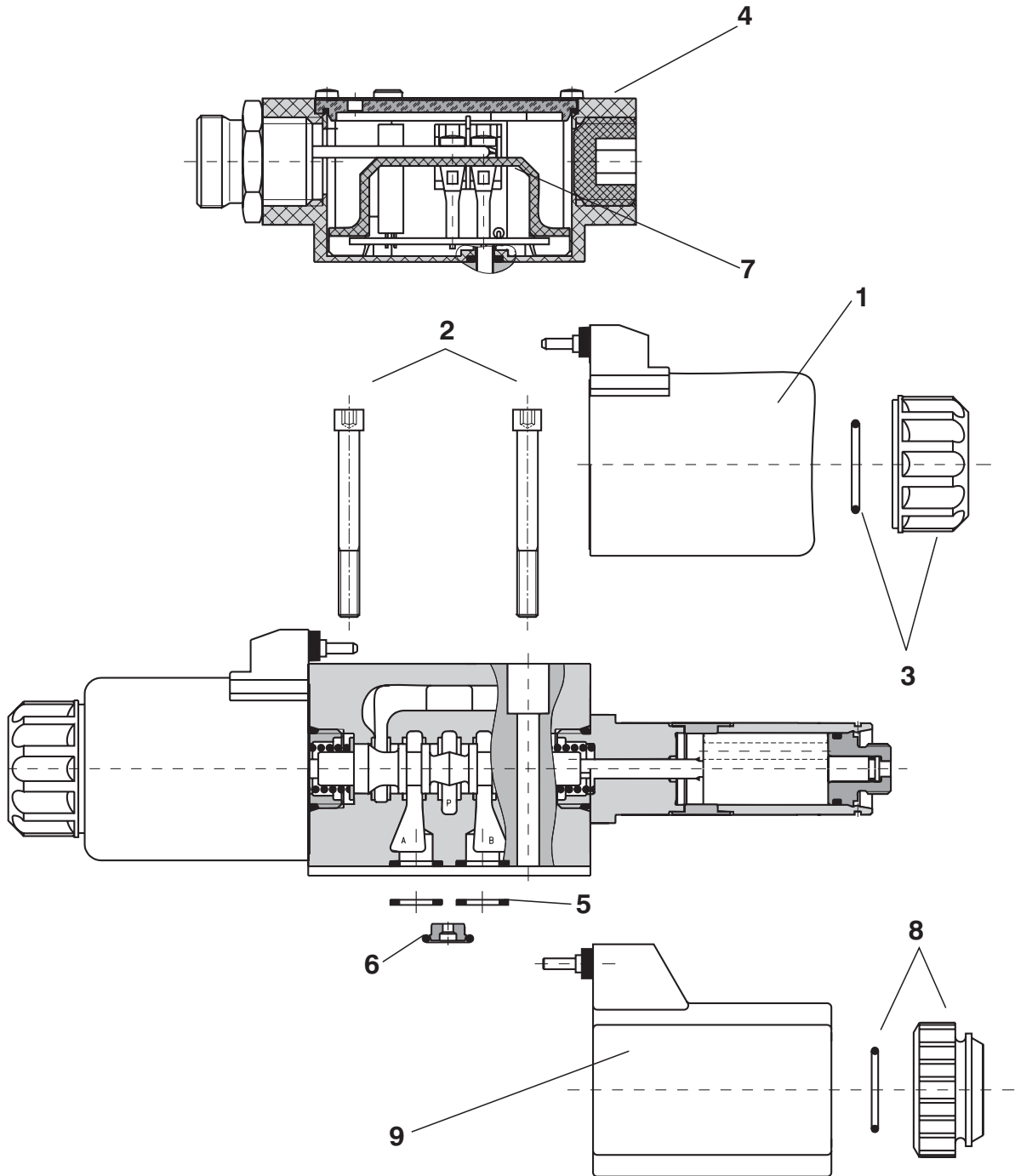
Orifice in P-Port

Type	ØD mm	Dimensions	Description
D1	1.0		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		
D3	2.0		
D4	2.2		
D5	2.5		

Connector - US - Standard - ANSI/B93.55M



Spare Parts



- 1 Solenoid coil (DC solenoid)
- 2 Mounting bolts
- 3 Nut with seal (Nut torque 3 Nm)
- 4 Wiring box + connector
- 5 Seal kit
- 6 Orifice in P port with seal ring
- 7 Terminal plate
- 8 Nut with seal (AC solenoid)
- 9 AC voltage supplied solenoid

Spare Parts

Wiringbox		
Type	Ordering number	
Wiring box without terminal plate	937-0668	
Terminal Plates		
Type	Ordering number	
Terminal plate - basic design A+B	937-0669	
Terminal plate A - basic design	937-0696	
Terminal plate B - basic design	937-0671	
Terminal plate 12V DC - LED diodes A+B	937-0672	
Terminal plate 24V DC - LED diodes A+B	937-0675	
Terminal plate 12V DC - LED diode A	937-0673	
Terminal plate 12V DC - LED diode B	937-0674	
Terminal plate 24V DC - LED diode A	937-0676	
Terminal plate 24V DC - LED diode B	937-0677	
Terminal plate 120V AC - LED diodes A+B	937-0678	
Terminal plate 120V AC - LED diode A	937-0679	
Terminal plate 120V AC - LED diode B	937-0680	
Terminal plate 120V AC - rectifier A+B	937-0684	
Terminal plate 120V AC - rectifier A	937-0685	
Terminal plate 120V AC - rectifier B	937-0686	
Terminal plate 120V AC - rectifier A+B and LED diodes A+B	937-0687	
Terminal plate 120V AC - rectifier and LED diode A	937-0688	
Terminal plate 120V AC - rectifier and LED diode B	937-0689	
Solenoid Coil		
Voltage rating	Type	Ordering number
01200 DC	EW1	937-0701
*01200 DC	EW1	944-0005
02400 DC	EW1	937-0700
*02400 DC	EW1	944-0006
10600 DC (120V/60Hz rectifier)	EW1	937-0702
12060 AC	EW5	937-0703
01200 DC	EW2	937-0710
02400 DC	EW2	937-0711
Solenoid Retaining Nut with Seal		
Type of the nut	Seal ring	Ordering number
Standard nut	22 x 2	484-9951
Nut with detent assembly (DC only)		484-9954
Closed nut (DC only)		484-9952
Nut with rubber boot (DC only)		484-9953
Standard nut for AC voltage supplied solenoid	18 x 1,5	486-9010
Electrical Connector, ANSI/B93.55M		
Type	Ordering number	
3 PIN	937-0616	
5 PIN	937-0617	
* CSA Upon request		

Orifice in P-Port			
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

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)	484-9965
Viton	9.25 x 1.78 (4 pcs.)	17.17 x 1.78 (2 pcs.)		484-9971

Bolt Kit (for studs see HA 0030)			
Dimensions, quantity		Bolt torque	Ordering number
M5 x 45 DIN 912-10.9 (4 pcs.)		8.9 Nm	484-9958

Caution!

- For applications outside the given parameters, please consult us.
- For directional control valves with two solenoids, one solenoid must be without power before the other solenoid can be powered charged. Switching time for directional valves with detent assembly (impulse control) should not be shorter than 60 ms. With directional valves with cushioned spool shifting, the switching time must correspond with the shifting time.
- Other for spool symbols on request.
- The packing foil is recyclable.
- The protective plate can be returned to manufacturer.
- Mounting bolts or studs must be ordered separately.
- 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.

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