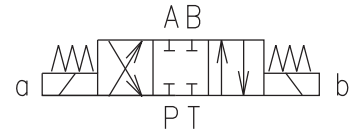


- 4/3, 4/2 way directional control valves with solenoid control



- Solenoids can be turned around their axis to any position

- Push button manual override



## Functional Description

The RPEK1-03 directional control valves consist of cast iron housing (1), control spool (5) with two centering springs (4) and operating solenoids (2, 3).

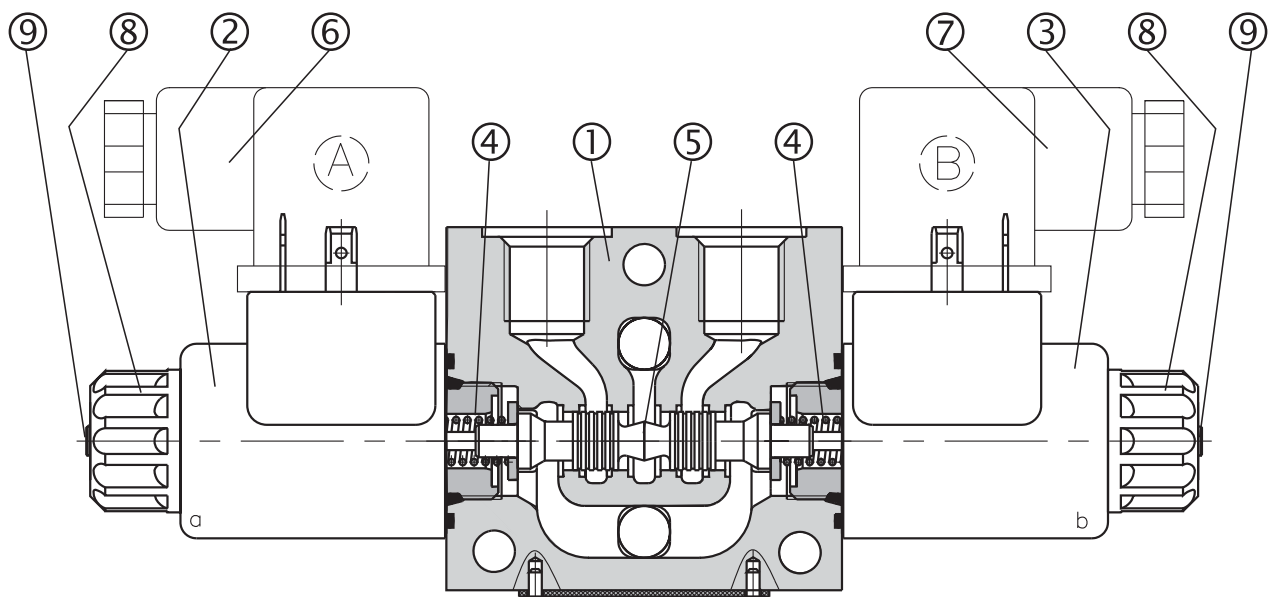
The three-position directional valves are fitted with two solenoids and two springs. Two-position directional valves have either one solenoid and one return spring or two solenoids and a detent assembly.

The operating solenoids are DC solenoids supplied through connectors A, B (6, 7). For AC supply the solenoids are provided with rectifiers, which are

integrated directly into the connectors A, B (6, 7) or inside the coil. By loosening the nut (8), the solenoid can be turned around its axis up to 360°.

In the case of solenoid malfunction or power failure, the spool of the valve can be repositioned by manual override (9), provided the pressure in the T-port does not exceed 363 PSI (25 bar).

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



# Ordering Code

**RPEK1-03**    /

**Directional Control Valve  
Solenoid Operated**

no designation  
V

**Seals**  
NBR  
FPM (Viton)

**Nominal size**

no designation

**Manual override**  
standard

**Type of connection**

G1/4

**G**

**E1**

**Type of solenoid coil**  
with terminal for the connector,  
EN 1745301-803

**Number of valve positions**

two positions

**2**

three positions

**3**

**Functional symbols**

see the table functional symbols

**Rated supply voltage of solenoids**

(at the coil terminals)

12 V DC / 1,83 A

**01200**

24 V DC / 0,92 A

**02400**

\*205 V DC / 0,08 A

**20500**

Other voltages per request

**Note:** Electrical connectors have to be ordered separately. See page 10.

**FOR PREFERRED TYPES SEE BOLD TYPING IN ORDERING CODE, FUNCTIONAL SYMBOLS  
AND TABLE OF PREFERRED TYPES ON PAGE 10**

\*Recommended solenoid coils used with electrical connector with rectifiers - type designation K3, K4, see page 6.

Rated supply source voltage  
(permissible rated voltage variation ± 10 %)

Type designation of the solenoid voltage

230 V AC / 0,08 A / 50 (60) Hz

20500

Technical Data		
Nominal size	mm	03
Maximum flow	L/min	see p-Q characteristics
Maximum operating pressure at ports P, A, B	bar	250
Maximum operating pressure at port T	bar	210
Pressure drop	bar	see $\Delta p$ -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).
Maximum allowable voltage variation	%	AC: $\pm 10$ DC: $\pm 10$
Maximum switching frequency	1/h	15 000
Switching time, ON; at $v = 32 \text{ mm}^2/\text{s}$	ms	30 ... 50
Switching time, OFF; at $v = 32 \text{ mm}^2/\text{s}$	ms	AC: 70 ... 100                      DC: 30 ... 50
Duty cycle	%	100
Service life	cycles	$10^7$
Enclosure type to EN 60 529		IP 65
Weight - valve with 1 solenoid	kg	0.90
- valve with 2 solenoid		1,05

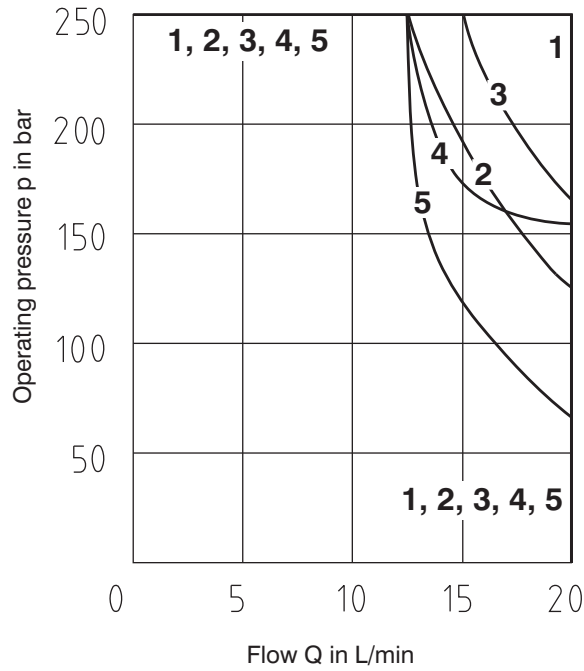
### Functional Symbols

Designation	Symbol	Interposition	Designation	Symbol	Interposition
<b>Z11</b>			R21		
<b>C11</b>			Y51		
<b>H11</b>			C51		
<b>Y11</b>			Z51		
<b>R11</b>			H11		

### p-Q Characteristic

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

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

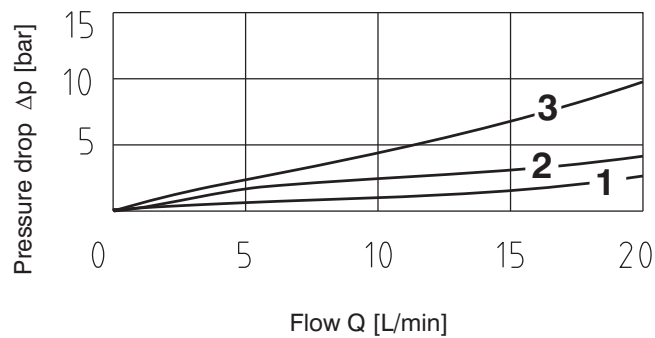


Z11	Z51	R11	R21	C11	C51	H11	Y11	Y51
1	1	1	5	2	2	3	4	4

### $\Delta p$ -Q Characteristic

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

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

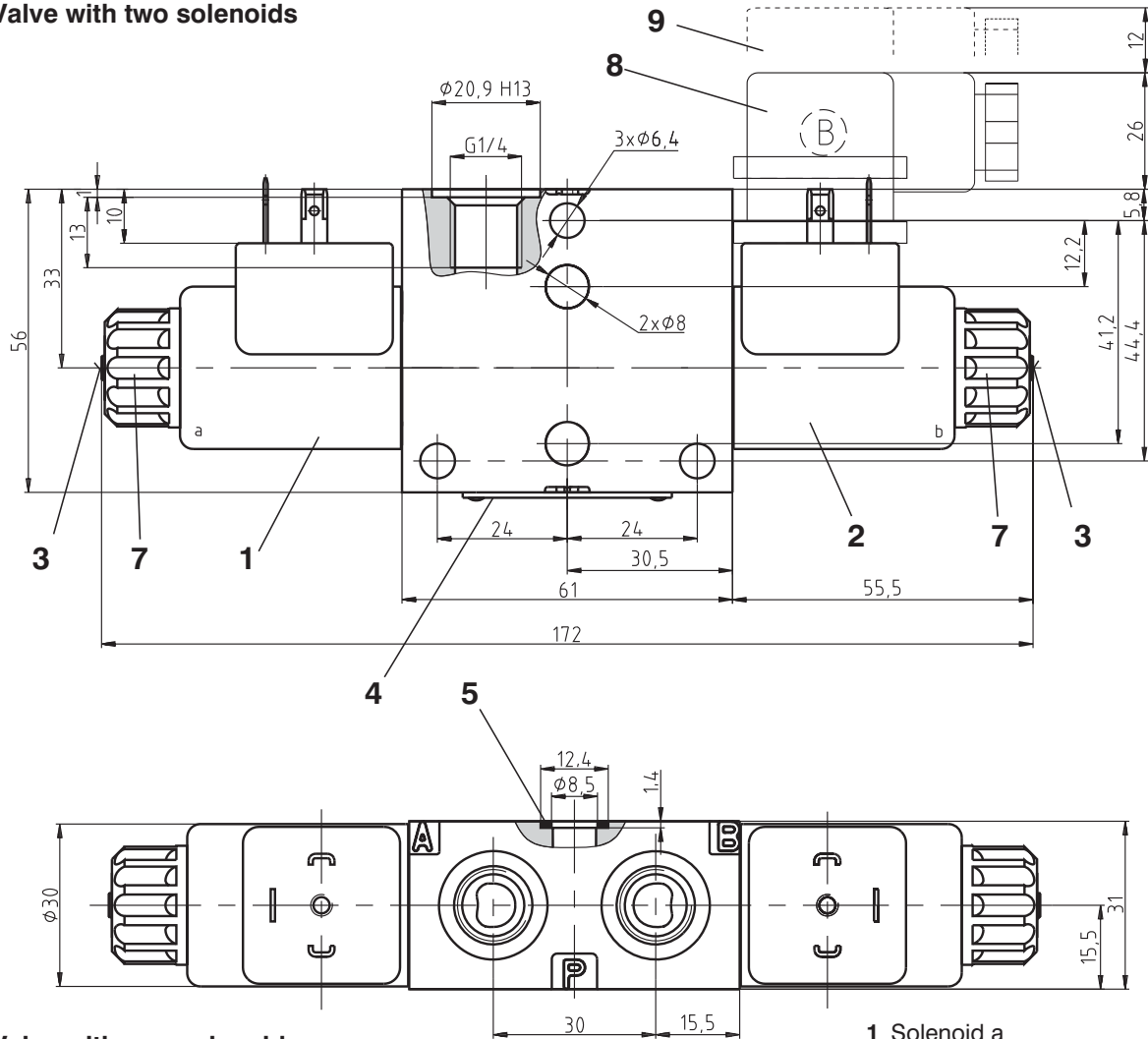


	Z11	C11	H11	Y11	R11	R21	Y51	C51	Z51
P-A	1	3	1	1	2	2		3	
P-B	1	3	1	1	2	2	1		1
A-T	1	3	1	1	2	2	1		1
B-T	1	3	1	1	2	2		3	
P-T		2	2					2	

# Valve Dimensions

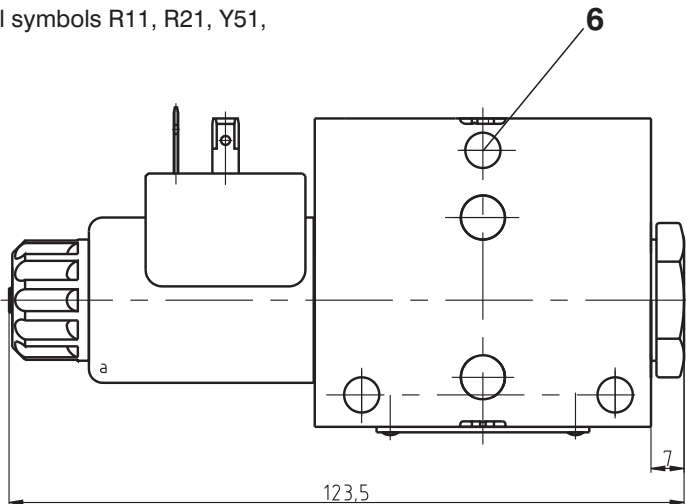
Dimensions in millimeters

## Valve with two solenoids

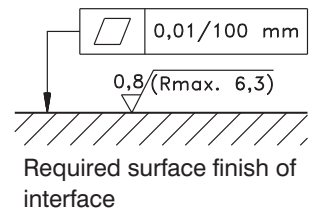


## Valve with one solenoid a

Functional symbols R11, R21, Y51, C51, Z51

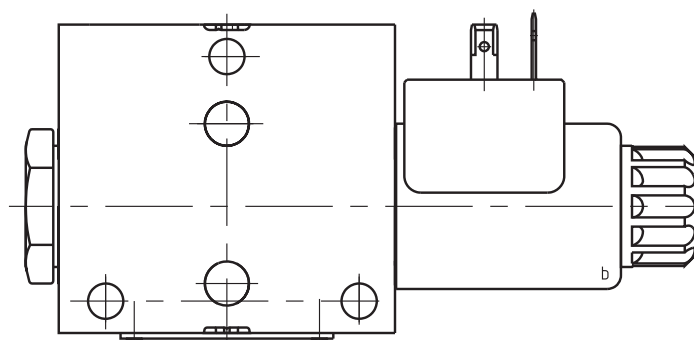


- 1 Solenoid a
- 2 Solenoid b
- 3 Manual override
- 4 Name plate
- 5 Square ring 9,25 x 1,68 (2 pcs.) supplied with valve
- 6 3 mounting holes
- 7 Retaining nut of the solenoid
- 8 Electrical connector, EN 1745301-803
- 9 Space required to remove connector

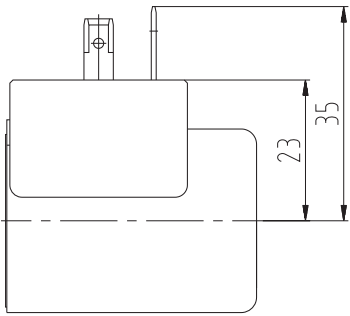


## Valve with one solenoid b

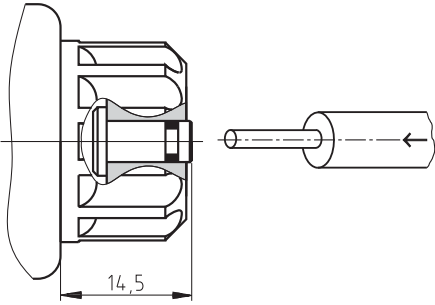
Functional symbols H11



## Type of the Solenoid Coil

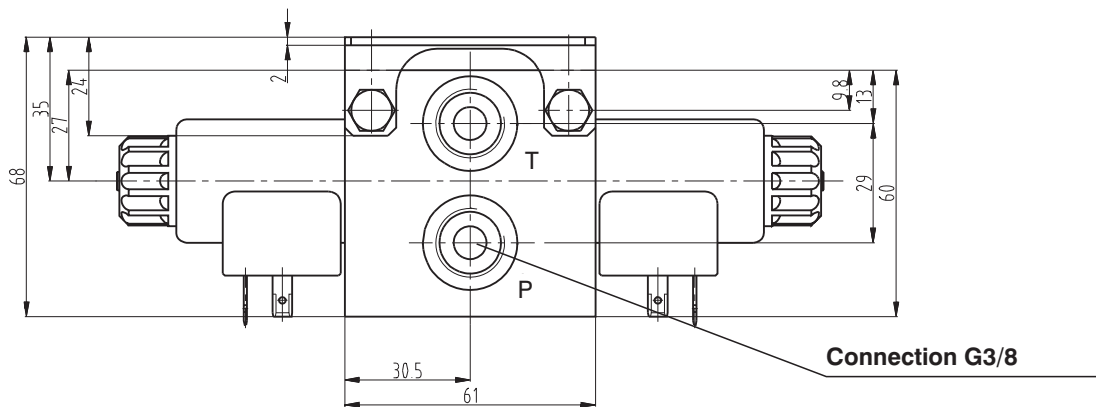
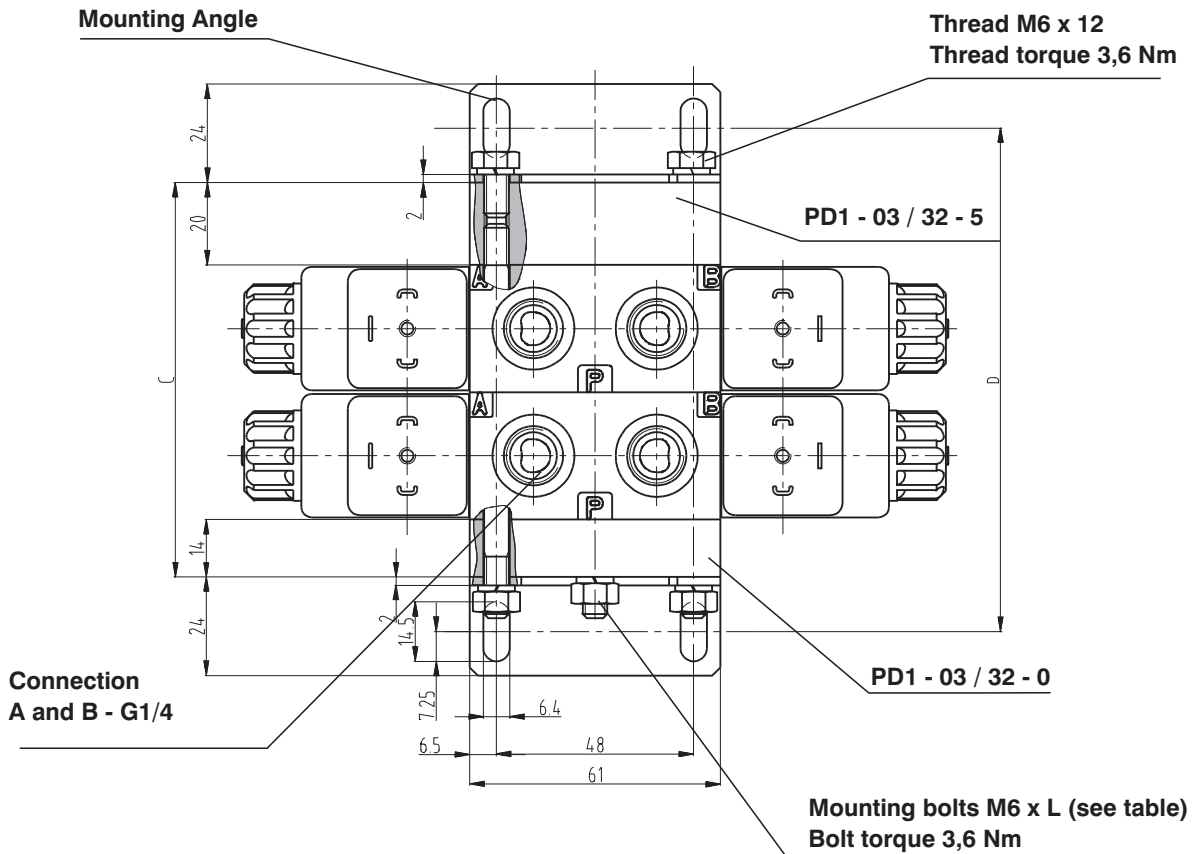
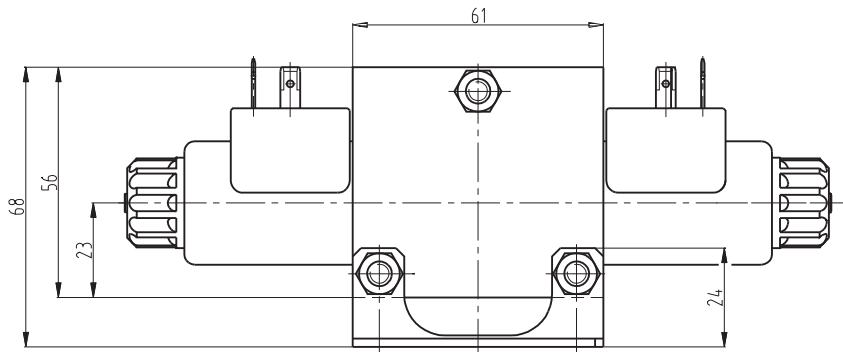
Designation	Dimensional sketch	Description
E1	 <p>The sketch shows a solenoid coil with a terminal. It features a dashed horizontal line representing the coil's length. Two vertical dimension lines on the right indicate a height of 23 and a total height of 35. A terminal is shown at the top with a small circle and a cross symbol.</p>	Solenoid coil with terminal for the electrical connector, EN 1745301-803.

## Manual Override

STANDARD	Dimensional sketch	Description
Without designation	 <p>The sketch shows a manual override assembly. On the left is a cross-section of the override mechanism with a dimension line indicating a width of 14,5. On the right is a separate retaining nut with a dashed line and an arrow pointing left, indicating its insertion into the assembly.</p>	Standard model of the manual override. Standard retaining nut of the solenoid.

# Block Assembly

Dimensions in millimeters

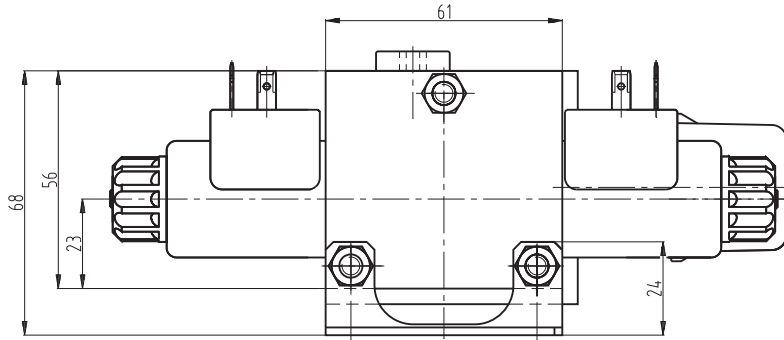


## Dimensions

Number of section	1	2	3	4	5	6	7	8
Dimension C [mm]	65	96	127	158	189	220	251	282
Dimension D [mm]	91,5	122,5	153,5	184,5	215,5	264,5	277,5	308,5
Dimension L [mm]	55	100	133	163	194	224	256	287

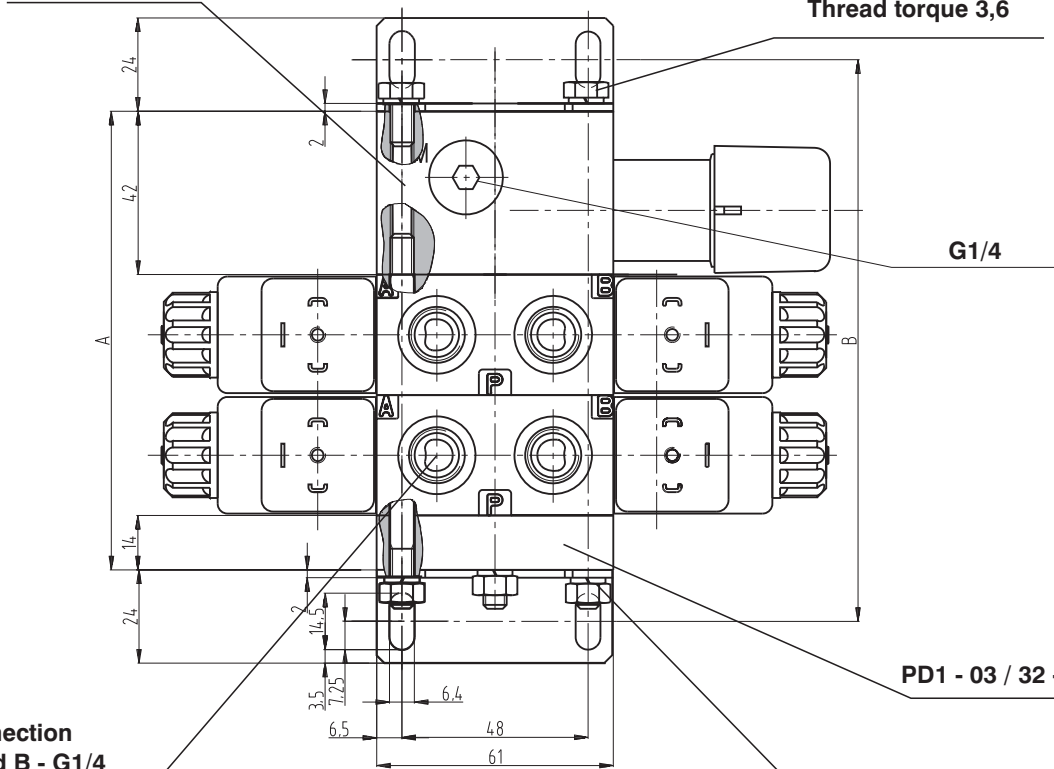
# Block Assembly

Dimensions in millimeters



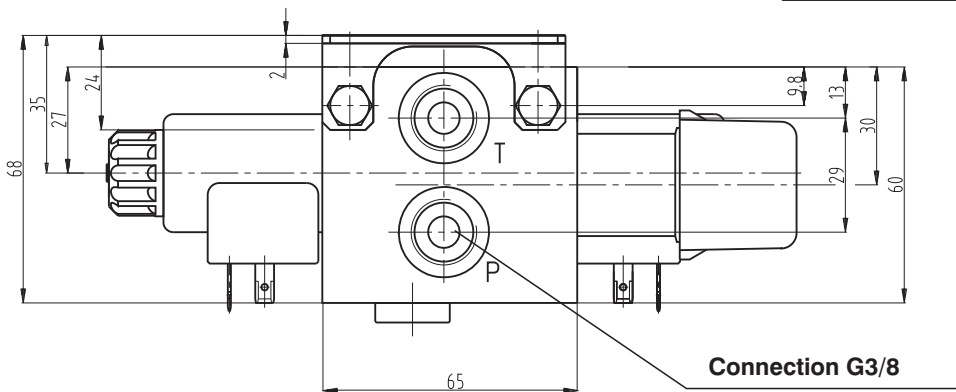
PD1 - 03 / 32 - 7

Thread M6 x 12  
Thread torque 3,6



Connection  
A and B - G1/4

Mounting Bolts M6 x L (see table)  
Bolt torque 3,6 Nm



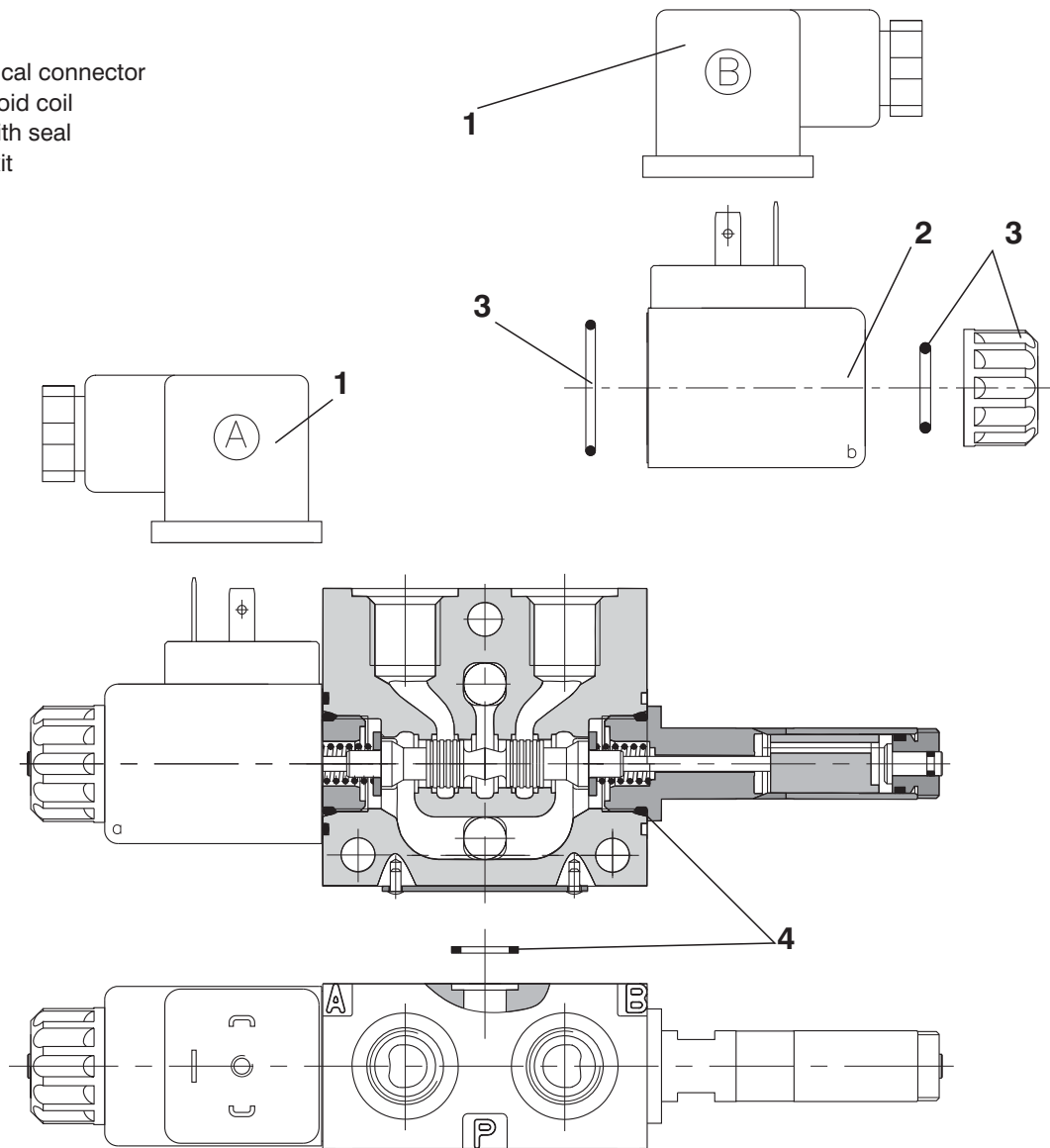
## Dimensions

Number of section	1	2	3	4	5	6	7	8
Dimension A [mm]	87	118	149	180	211	242	273	304
Dimension B [mm]	113,5	144,5	175,5	206,5	237,5	268,5	299,5	330,5
Dimension L [mm]	55	100	133	163	194	224	256	287



## Spare Parts

- 1 Electrical connector
- 2 Solenoid coil
- 3 Nut with seal
- 4 Seal kit



## Subplates and Connecting Material

### Subplates

Number	Type	Ordering number
Subplate No. 5	PD1 - 03 / 32 - 5 ( G3/8 )	479-9105
Subplate No. 7	PD1 - 03 / 32 - 7 ( G3/8 VPP2-04/S-32S )*	479-9107
Endplate No. 0	PD1 - 03 / 32 - 0	479-9102

### Connecting material + Mounting Angle

Number of section	3 pcs. Bolt + 3 pcs. Nut + 3 pcs. Washer (thread torque 3,6 Nm)	Ordering number
1	M6 x 55	479-9001
2	M6 x 100	479-9002
3	M6 x 133	479-9003
4	M6 x 163	479-9004
5	M6 x 194	479-9005
6	M6 x 224	479-9006
7	M6 x 256	479-9007
8	M6 x 287	479-9008
	2 pcs. Mounting angle + 2 pcs. Thread (M6 x 12) + 2 pcs. Washer (thread torque 3,6 Nm)	479-9900

\* For other pressure steps see ARGO-HYTOS data sheet HA 5093.

## Spare Parts

### Solenoid retaining nut with seal

Type of the nut	Seal ring		Ordering number
Standard nut	13 x 2	21,95 x 1,78	479-9502

### Electrical connector, EN 1745301-803

Type designation	Model	Max. input voltage	Connector A grey	Connector B black
			Ordering number	
K1	without rectifier - M16x1,5 (bushing bore Ø 6-8 mm)	230 V AC/DC	936-9902	936-9901
K2	without rectifier with LED and quenching diode -M16x1,5 (bushing bore Ø 6-8 mm)	12...24 V DC	936-9908	936-9907
K3	with rectifier-M16x1,5 (bushing bore Ø 6-8 mm)	230 V AC	936-9904	936-9903
K4	with rectifier with LED and quenching diode -M16x1,5 (bushing bore Ø 6-8 mm)	230 V AC	936-9910	936-9909
K5	without rectifier - M16x1,5 (bushing bore Ø 4-6 mm)	230 V AC/DC	936-9906	936-9905

### Seal kit

Type	Dimensions, number		Ordering number
	Square ring	O-ring	
Standard NBR70	9,25 x 1,68 (2 pcs.)	16 x 1,8 (2 pcs.)	479-9500
Viton	9,25 x 1,78 (2 pcs.)	16 x 2 (2 pcs.)	479-9501

### Solenoids

Type	E1	E1	E1
Voltage	01200	02400	20500
Ordering number	941-1005	941-1007	941-1009

## Preferred Types of Valves

Type	Ordering number	Type	Ordering number
RPEK1-03G2Z11/01200E1	479-0007	RPEK1-03G3Y11/02400E1	479-0016
RPEK1-03G2R11/01200E1	479-0005	PD1-03/32-5(G3/8)	479-9105
RPEK1-03G3Y11/01200E1	479-0048	PD1-03/32-7(G3/8VPP2-04/S-32S)	479-9107
RPEK1-03G2Z11/20500E1	479-0080	PD1-03/32-0	479-9102
RPEK1-03G2R11/20500E1	479-0081	M6 x 133	479-9003
RPEK1-03G3Y11/20500E1	479-0082	M6 x 194	479-9005
RPEK1-03G2Z11/02400E1	479-0052	M6 x 256	479-9007
RPEK1-03G2R11/02400E1	479-0045	2 pcs. Mounting angle + 2 pcs. Thread (M6 x 12) + 2 pcs. Washer (thread torque 3,6 Nm)	479-9900

## Caution!

- For directional valves with two solenoids, one solenoid must be without power before the other solenoid can be powered.
- Other functional symbols on request.
- The packing foil is recyclable.
- The protecting plate can be returned to the manufacturer.
- 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.

ARGO-HYTOS s.r.o. CZ - 543 15 Vrchlabí  
Tel.: +420-499-403111, Fax: +420-499-403421  
E-mail: sales.cz@argo-hytos.com  
www.argo-hytos.com