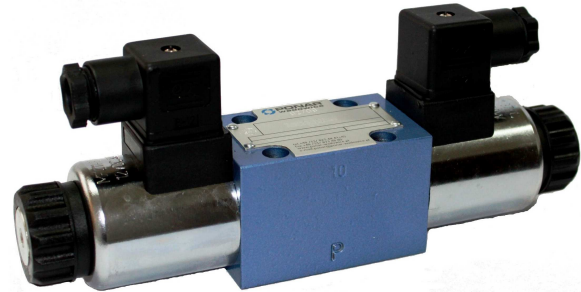


### DATA SHEET - OPERATION MANUAL

#### APPLICATION

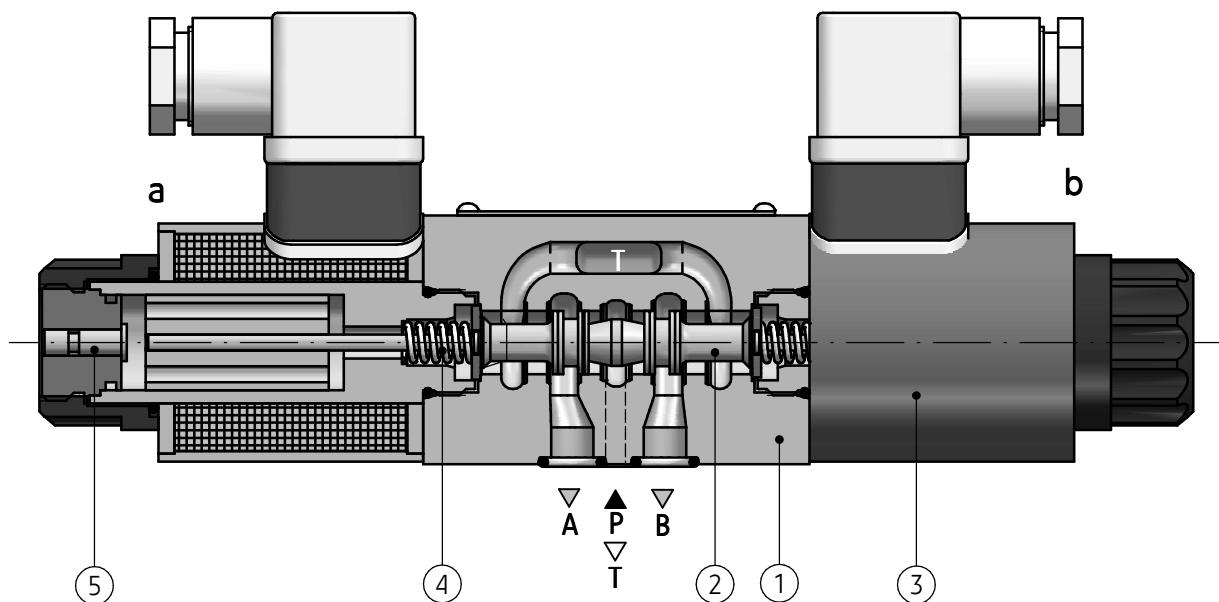
Directional spool valves type WE6... electrically operated are intended for change in direction of fluid flow in a hydraulic system and thus it allows to change direction of movement of a receiver - mostly piston rod of a cylinder or hydraulic motor as well to use functions: *on* and *off*. These directional spool valves are used for subplate mounting in any position in a hydraulic system.

The product is compliant with the regulations of directive 2014/35/UE.



#### DESCRIPTION OF OPERATION

4WE6 E -32/G24NZ4

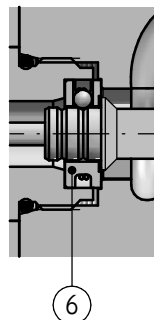


Main elements of directional spool valve type WE6... are: housing (1), solenoids (3), control spool (2), centering springs (4) and manual overrides (5). The spool (2) is shifted when it is moved into one of end positions by the force of solenoid (3) affecting it. The return of the spool into neutral position and centering are secured by the centering springs (4). The shape of the spool (control edge spacing) affects the configuration of connections among the ports: **A**, **B**, **P** and **T**. Function of ports:

- P** - supply port
- T** - oil return to the tank
- A**, **B** - ports for a receiver

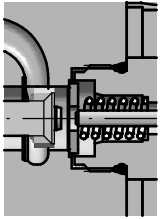
In case of emergency, the spool can be shifted manually by means of the override (5) - only for version with manual override.

When the situation is anticipated, directional spool valve must be mounted in the way as to be available.

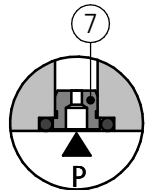


Version WE6.../OF...- only for spools: **A**, **C**, **D**, **EA**, **GA**, **HA**, **JA**, **MA**, **EB**, **GB**, **HB**, **JB**, **MB**. 2-position directional spool valve without return springs with detent. The spool (2) is positioned and supported with detent (6), and its shift results from supplying voltage to one solenoid (3).

## DESCRIPTION OF OPERATION



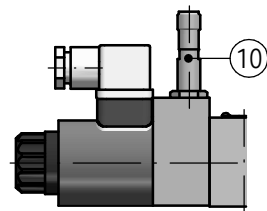
Version WE6.../O... - only for spools: **A, C, D, EA, GA, HA, JA, MA, EB, GB, HB, JB, MB**. 2-position directional spool valve without return springs. The spool is positioned and supported with attached solenoid. There is no neutral position as the spool is not positioned.



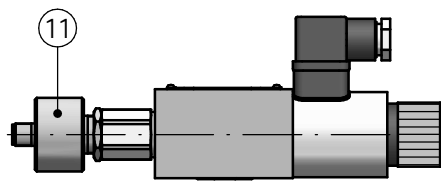
Version WE6.../...**B**... - directional spool valve designation like that, has throttle insert (7) in port **P**.

Directional control valve type **WE6**... is also available in versions with optional equipment: manual operation lever (8) - version WE6.../...**H**... - see page 10 to 11; manual operation lever with a lock (9) - version WE6.../...**HF**... - see page 12 to 15 or/and inductive sensor of spool position control (10) type **S** - version WE6.../...-**S** - see page 18 to 20; inductive sensor of spool position control (11) type **M** - version WE6.../...-**M** - see page 21 to 23.

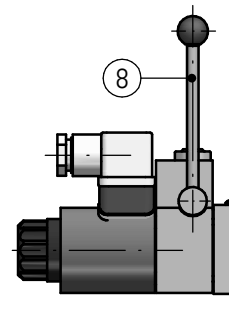
WE6.../...- S



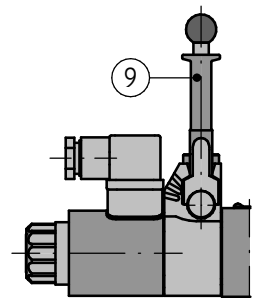
WE6.../...- M



WE6.../...H...



WE6.../... HF...



## TECHNICAL DATA

Hydraulic fluid	mineral oil		
<b>Required fluid cleanliness class</b>	<b>ISO 4406 class 20/18/15</b>		
Nominal fluid viscosity	37 mm <sup>2</sup> /s at temperature 55 °C		
Viscosity range	2,8 up to 380 mm <sup>2</sup> /s		
Fluid temperature range (in a tank)	recommended	40°C up to 55°C	
	max	-20°C up to +70°C	
Ambient temperature range	- 20°C up to +50°C		
<b>Maximum operating pressure</b>	<b>ports P, A, B</b>	<b>35 MPa</b>	
	<b>port T</b>	<b>21 MPa</b>	
Flow section for spool <b>W</b> in central position (diagrams on page 5)	3 % nominal flow		
Weight	with 1 solenoid	WE6...- 1,5 kg	WE6...H...- 2,8 kg
	with 2 solenoids	WE6...- 2,1 kg	WE6...H...- 3,4 kg
<b>Supply voltage of solenoids</b>	<b>DC</b>		<b>AC</b>
			(plug-in connector with rectifier)
	<b>12V</b>	<b>24V</b>	<b>110V</b>
	<b>230V-50Hz</b>	<b>220V- 50Hz</b>	<b>110V- 50Hz</b>
Supply voltage tolerance	±10%		±10%
Power requirement (DC)	30 W		–
Holding power (AC)	–		50 VA
Switch-on power (AC)	–		300 VA
Switching time	ON up to 60 ms		ON up to 40 ms
	OFF up to 40 ms		OFF up to 25 ms
Maximum switching frequency	15000 on/h		12000 on/h
<b>Degree of protection</b>	<b>IP 65</b>		
Solenoid coil temperature	max 150 °C		

## INSTALLATION AND OPERATION REQUIREMENTS

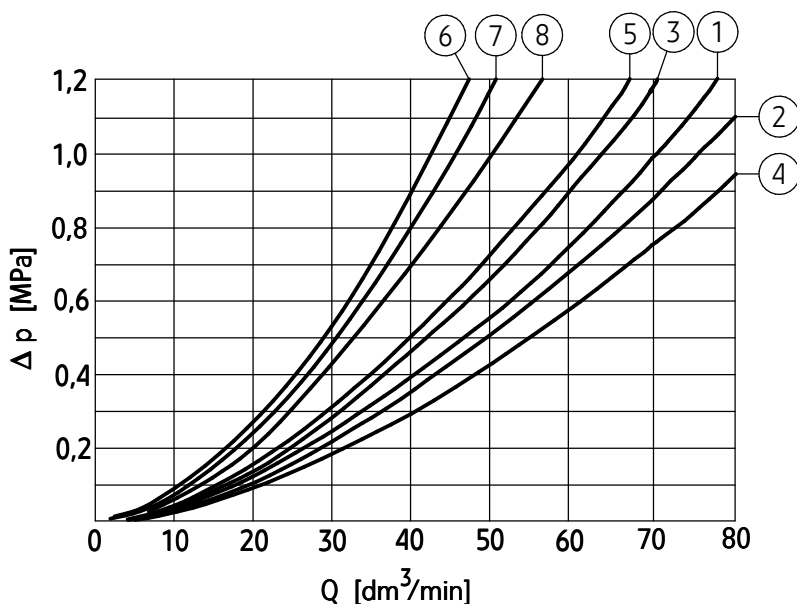
1. Only fully functional and operational valve, properly connected to electrical installation must be used. Connecting or disconnecting the valve to an electrical installation must only be carried out by qualified personnel.
2. Ground connection ( $\text{PE} \text{ } \overline{\text{V}}$ ) must be connected with protective earth wire ( $\text{PE} \text{ } \overline{\text{V}}$ ) in supply system according to appropriate instructions.
3. Solenoid plug shall precisely adhere to socket and shall be secured with thread bolt screwed in securely in a place. It is forbidden to operate the valve if the tightness and suitable clamp of cable in the plug gland are not ensured.
4. For the ...W230 - 50... versions, simultaneous joining of two solenoids of the same valve should not be permitted (partial overriding of the valve can overheat and damage the winding coils).
5. During the period of operation must be kept fluid viscosity acc. to requirements defined in this Data Sheet - Operation Manual
6. In order to ensure failure free and safe operation the following must be checked:
  - condition of the electrical connection
  - proper working of the valve
  - cleanliness of the hydraulic fluid
7. Due to heating of solenoid coils to high temp., the valve shall be placed in such way to eliminate the risk of accidental contact with solenoid during operation or to apply suitable covers acc. to European standards: PN - EN ISO 13732 - 1 and PN - EN 4413.
8. In order to provide proper tightness of the valve connection to the hydraulic system, one should keep the dimensions of the sealing rings, tightening torques values and valve operation parameters, specified in this Data Sheet - Operation Manual.
9. Valve with spool position sensor is adjusted at factory and it is not allowed to change its settings. In case of any damages of the sensor or valve one must change complete valve. Inductive sensors cannot be joined in series.
10. A person that operates the valve must be thoroughly familiar with this Data Sheet - Operation Manual.

## PERFORMANCE CURVES

measured at viscosity  $\nu = 41 \text{ mm}^2/\text{s}$  and temperature  $t = 50^\circ\text{C}$

Flow resistance curves

characteristic curves  $\Delta p(Q)$  for directional spool valve type WE6... for various spool types



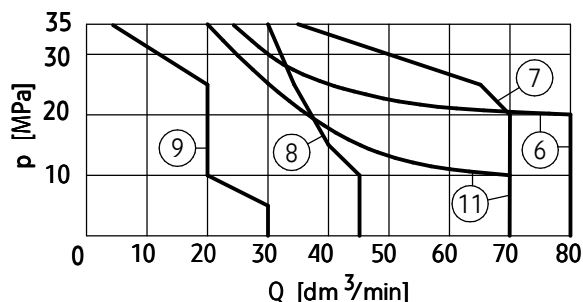
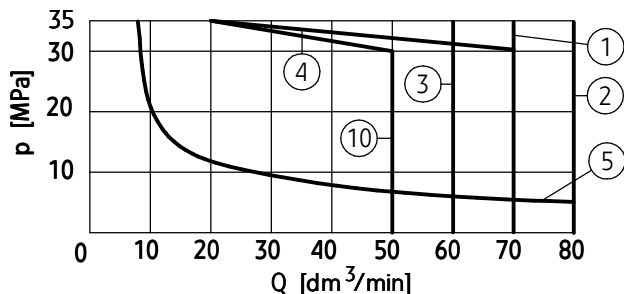
spool symbol	performance diagram number				
	flow direction				
shifted positions diagrams according to pages 5, 6	flow direction				
	P → A	P → B	A → T	B → T	
	A, B	3	3	-	-
	C	1	1	3	1
	D, Y	5	5	3	3
	E	3	3	1	1
	F	2	3	3	5
	G	7	7	6	6
	H	2	4	2	2
	J	1	1	2	1
	L, W	1	1	2	2
	M	2	4	3	3
	P	2	3	3	5
	U	3	1	3	3
	D1	5	-	-	5
	Y1	-	5	5	-
central position diagram according to page 5	flow direction				
	P → A P → B	P → T	A → T B → T	B → A	
G	-	8	-	-	

## PERFORMANCE CURVES

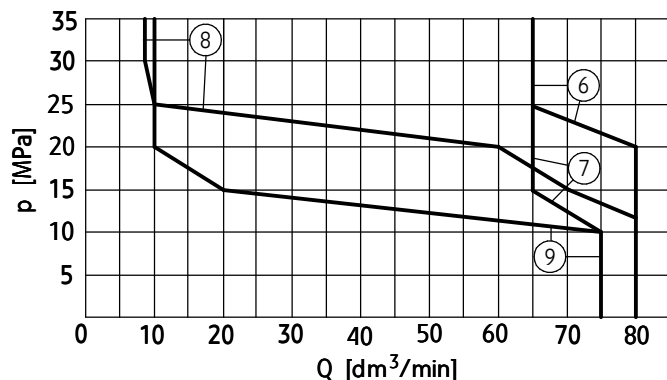
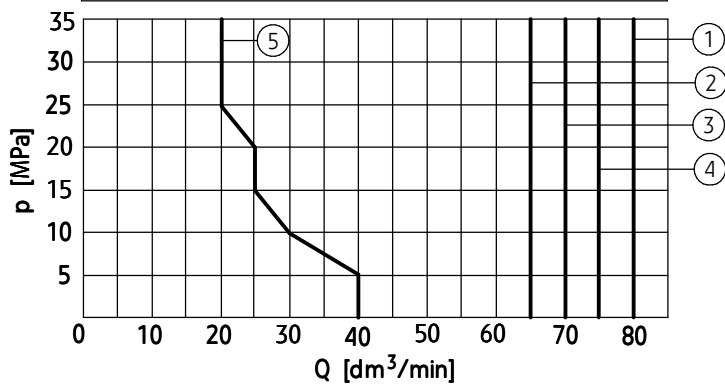
measured at viscosity  $\nu = 41 \text{ mm}^2/\text{s}$  and temperature  $t = 50^\circ\text{C}$

### Operating limits

characteristic curves  $p$ - $Q$  for directional spool valve type WE6... with DC solenoids for various spool types



characteristic curves  $p$ - $Q$  for directional spool valve type WE6... with AC solenoids with direct supply for various spool types



### NOTES:

Above operating limits are related to symmetrical flow through all ports i.e. if the oil flows from port P to port A, then the same flow rate is from port B to port

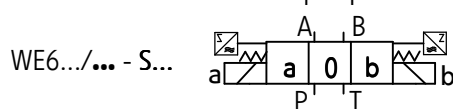
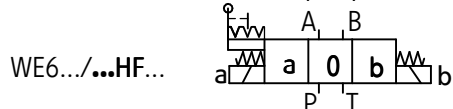
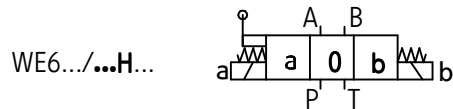
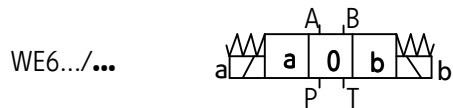
T (applied to directional control valves with 4 service ports). Degree of asymmetry affects adversely the parameters.

spool symbol diagrams according to pages 5, 6	performance diagram number
E, EA/O, EB/O, MA/O, MB/O, EA/OF, EB/OF, MA/OF, MB/OF	1
H, M, L, U, JA/O, JB/O, C/OF, D/OF, JA/OF, JB/OF, HA/OF, HB/OF	2
C/O, D/O	3
C, D, Y	4
A, B	5
A/O	6
J	7
G	8
F, P	9
D1, Y1	10
GA/O, GB/O, GA/OF, GB/OF	11

spool symbol diagrams according to pages 5, 6	performance diagram number
C, D, H, D/O, HA/O, HB/O, EA/O, EB/O, JA/O, JB/O, D/OF, HA/OF, HB/OF, EA/OF, EB/OF, JA/OF, JB/OF, C/OF	1
W	2
E, MA/O, MB/O, MA/OF, MB/OF	3
L	4
G	5
J	6
M	7
A	8
GA/O, GB/O, GA/OF, GB/OF	9

# DIAGRAMS

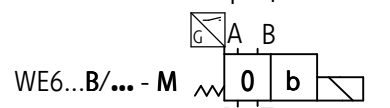
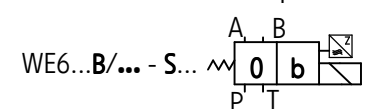
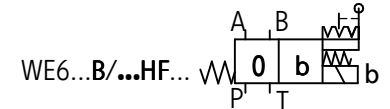
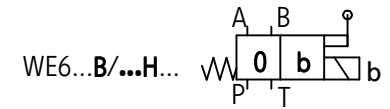
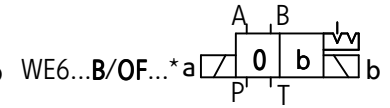
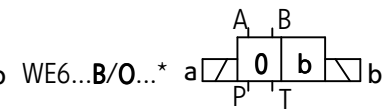
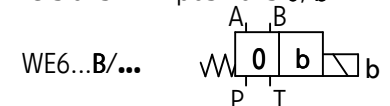
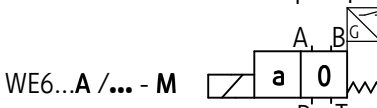
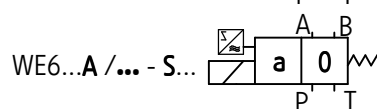
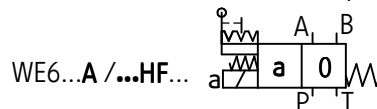
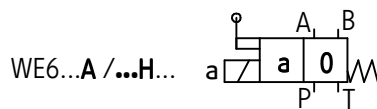
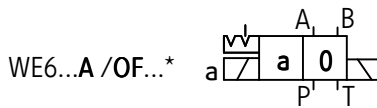
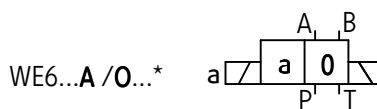
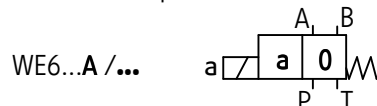
## Diagrams for 3-position directional spool valves



## Diagrams for 2-position directional spool valves

versions with positions a, 0

versions with positions 0, b



## Diagrams for spools

working and indirect positions

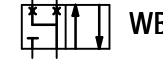
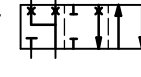
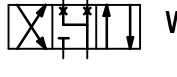
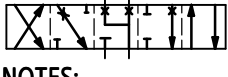
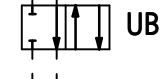
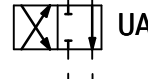
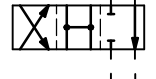
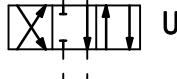
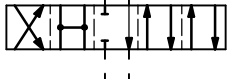
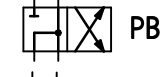
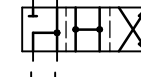
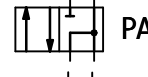
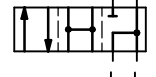
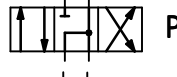
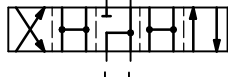
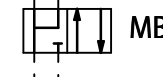
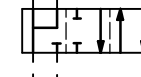
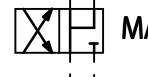
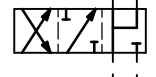
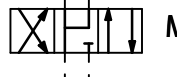
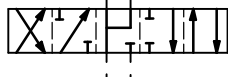
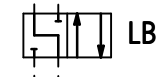
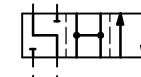
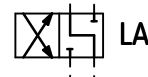
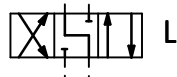
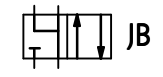
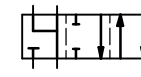
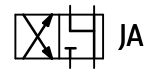
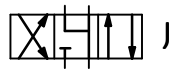
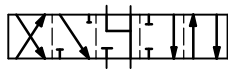
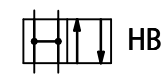
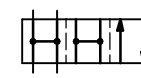
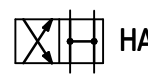
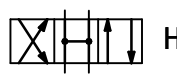
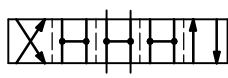
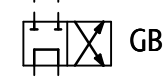
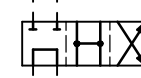
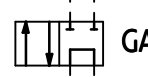
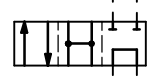
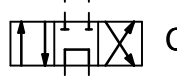
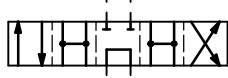
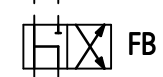
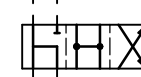
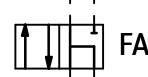
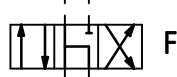
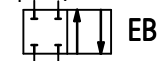
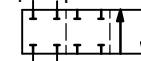
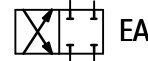
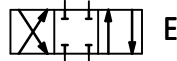
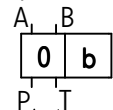
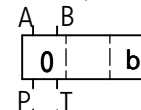
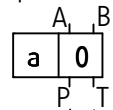
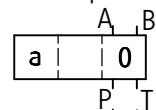
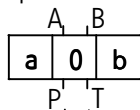
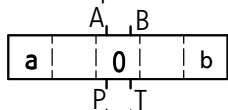
working positions

working and indirect positions

working positions

working and indirect positions

working positions



### NOTES:

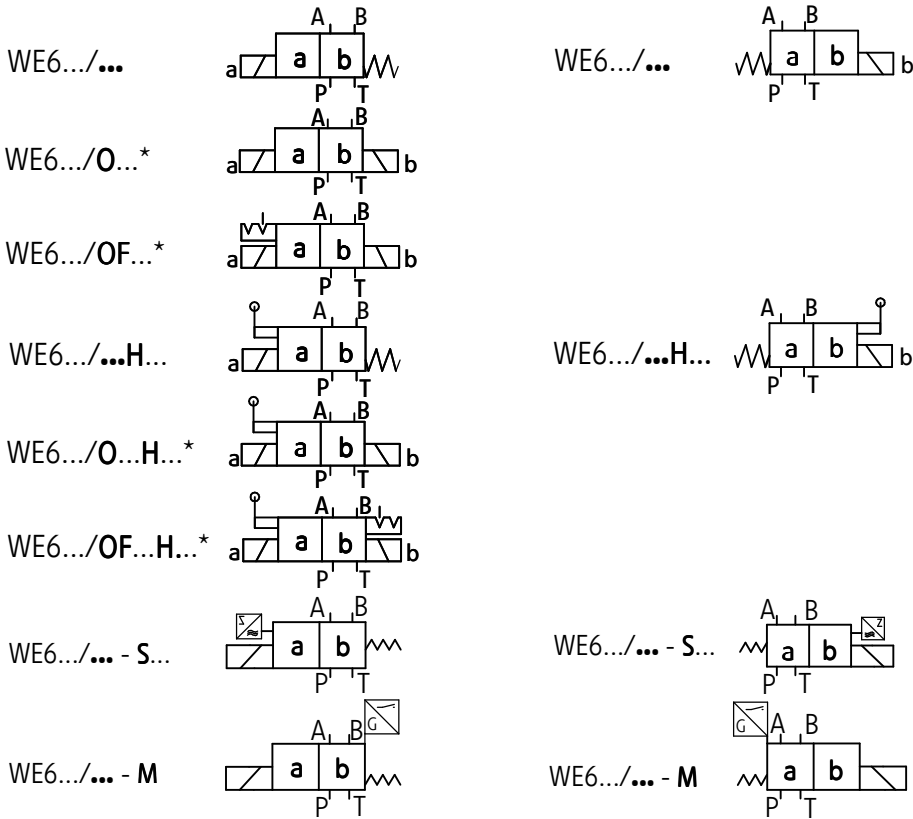
(\*) - versions available only for spools - diagrams: EA, GA, HA, JA, MA, EB, GB, HB, JB, MB

(\*\*) - flow section for spool W in central position - 3 % nominal flow

# DIAGRAMS

Diagrams for 2-position directional spool valves

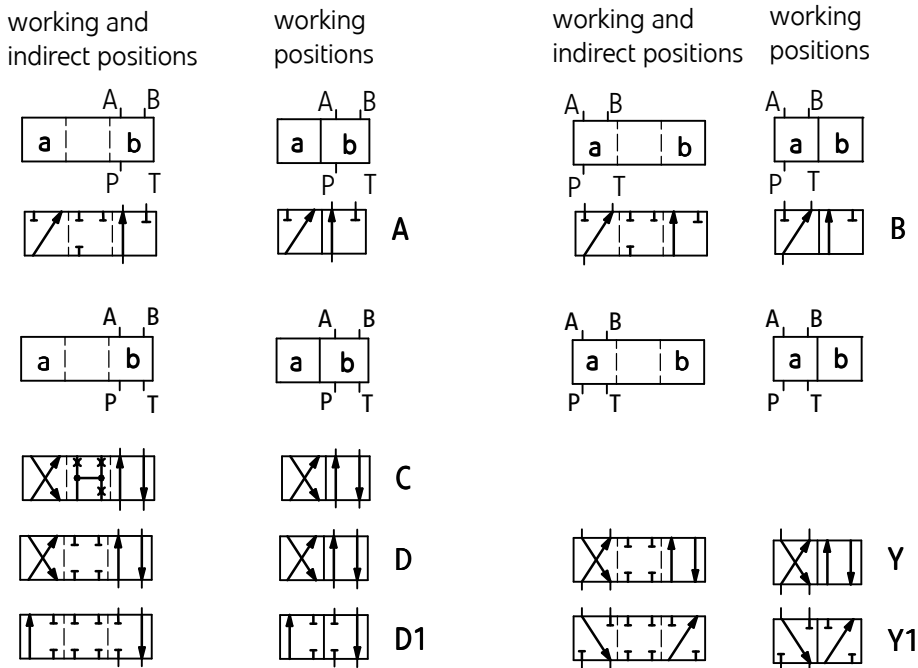
versions with positions a, b



**NOTE:**

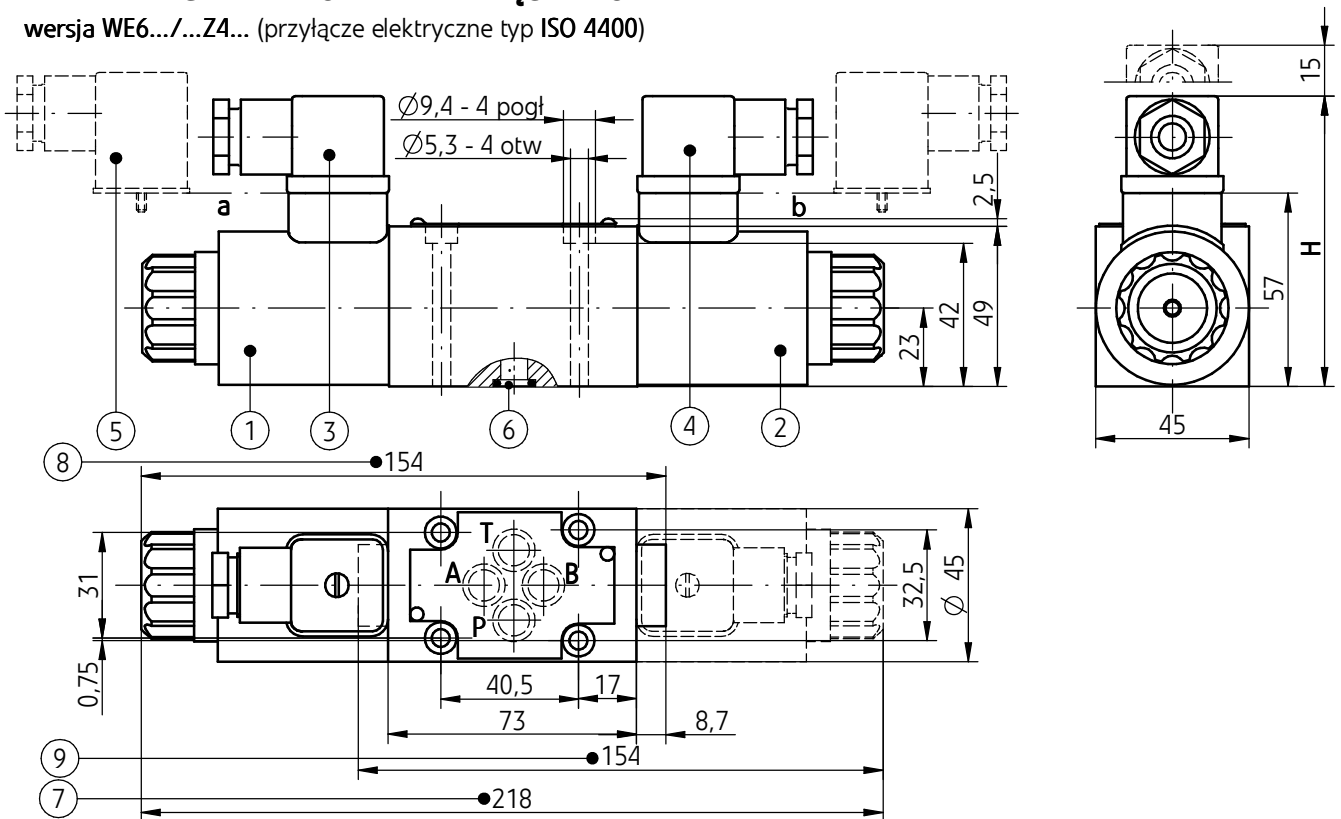
(\*) - versions available only for spools - diagrams: A, C, D

**Diagrams for spools**

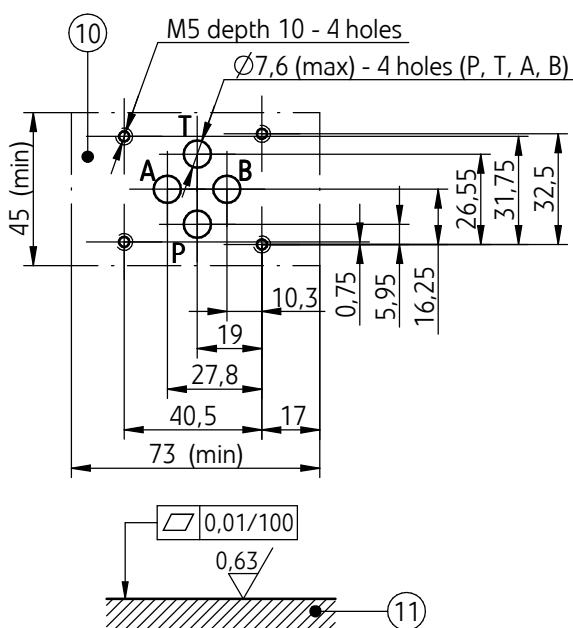


# WYMIARY GABARYTOWE I PRZYŁĄCZENIOWE

wersja WE6.../...Z4... (przyłącze elektryczne typ ISO 4400)



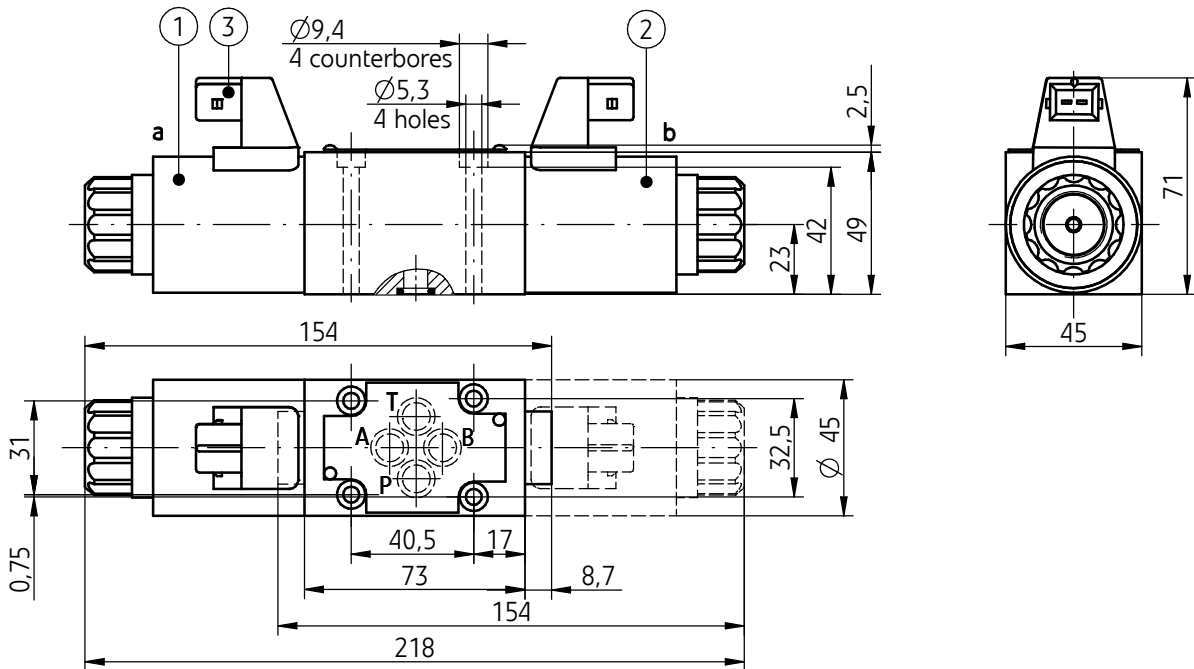
Option of connection ...Z4... (ISO 4400)		dimension H
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A)	supply voltage DC <b>12V, 24V, 110V</b>	86
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A) with rectifier	supply voltage AC <b>110V, 220V, 230V</b>	93



- 1 - Solenoid on side a
- 2 - Solenoid on side b
- 3 - Plug-in connector on side a - ISO 4400 type (DIN 43650 - A)
- 4 - Plug-in connector on side b - ISO 4400 type (DIN 43650 - A)
- 5 - Plug-in connector - ISO 4400 type (DIN 43650 - A) with rectifier
- 6 - O-ring 9,25 x 1,78 - pcs 4/set (P, T, A, B)
- 7 - Directional spool valve dimension with 2 solenoids on side a, b:
  - 3-position springs centered (spool diagrams: E, F, G, H, J, L, M, P, U, W - according to page 5)
  - 2-position without return springs
  - 2-position without springs and with detent (versions WE6.../O...; .../OF...; spool diagrams: A, C, D, EA, GA, HA, JA, MA, EB, GB, HB, JB, MB - acc. to pages 5, 6)
- 8 - Directional spool valve dimension with 1 solenoid - on side a
  - 2-position springs centered (spool diagrams: A, C, D, D1, EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - according to pages 5, 6)
- 9 - Directional spool valve dimension with 1 solenoid - on side b
  - 2-position springs centered (spool diagrams: B, Y, Y1, EB, FB, GB, HB, JB, LB, MB, PB, UB, WB - according to pages 4, 5)
- 10 - Porting pattern of the subplate surface compliant with ISO 4401 standard; designation ISO 4401-03-02-0-94 (CETOP 03); fixing screws M5 x 50 - 10.9 in accordance with PN - EN ISO 4762 - pcs 4/set; tightening torque Md = 9 Nm
- 11 - Subplate surface required

## OVERALL AND CONNECTION DIMENSIONS

versions: WE6.../...G12...J...; ...G24...J... (electrical connection type AMP Junior Timer)



### NOTES:

Description of other elements of the valve drawing; porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

1 - Solenoid on side **a**

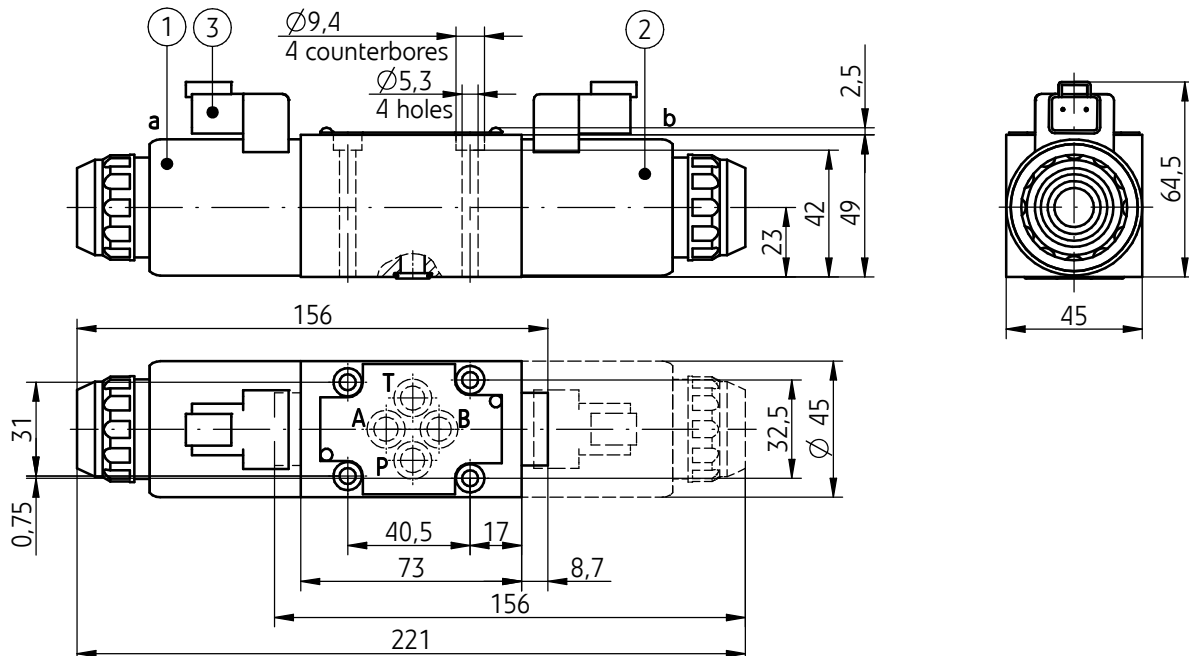
2 - Solenoid on side **b**

3 - Connector type **AMP Junior Timer male 2-pole**

(plug-in connectors not shown in the drawing

must be ordered separately - Data Sheet **WK 499 963**)

versions: WE6.../...G12...D...; G24...D... (electrical connection type Deutsch)



### NOTES:

Description of other elements of the valve drawing; porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

1 - Solenoid on side **a**

2 - Solenoid on side **b**

3 - **Deutsch DT04 - 2P** type connector

(plug-in connectors **Deutsch DT06 - 2S** type not shown

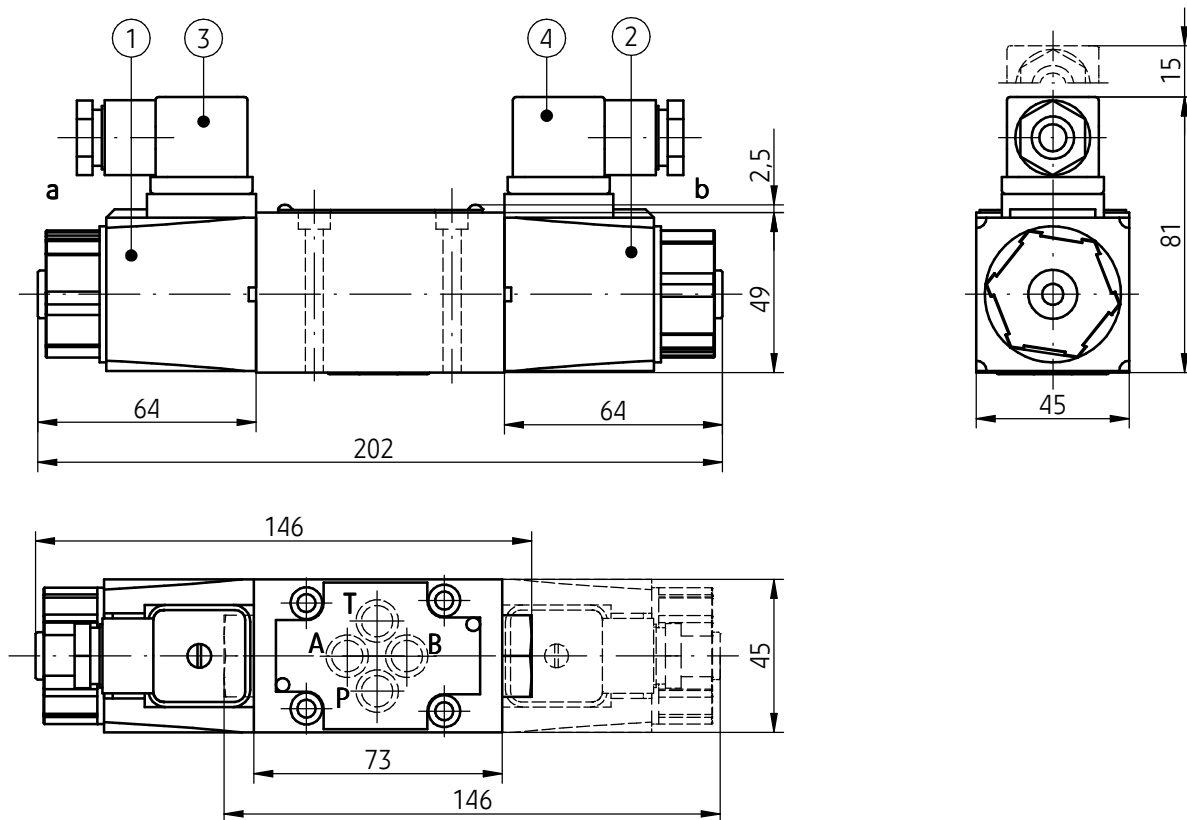
in the drawing must be ordered separately - Data Sheet

**WK 499 963**)



## OVERALL AND CONNECTION DIMENSIONS

version WE6.../...W230 - 50...Z4... (AC solenoids; electrical connection type ISO 4400)



### NOTES:

- other dimensions, description of other elements of the valve drawing; porting pattern and requirements of the surface state of the subplate - as in version WE6.../...Z4... with DC solenoids, see page 7
- details of the WE6.../...W230 - 50...H Z4... version (with a manual control lever) - as in version WE6.../...H Z4... with DC solenoids, see page 10 - 11

- 1 - AC solenoid (with direct supply) from the **a** side
- 2 - AC solenoid (with direct supply) from the **b** side

### NOTE:

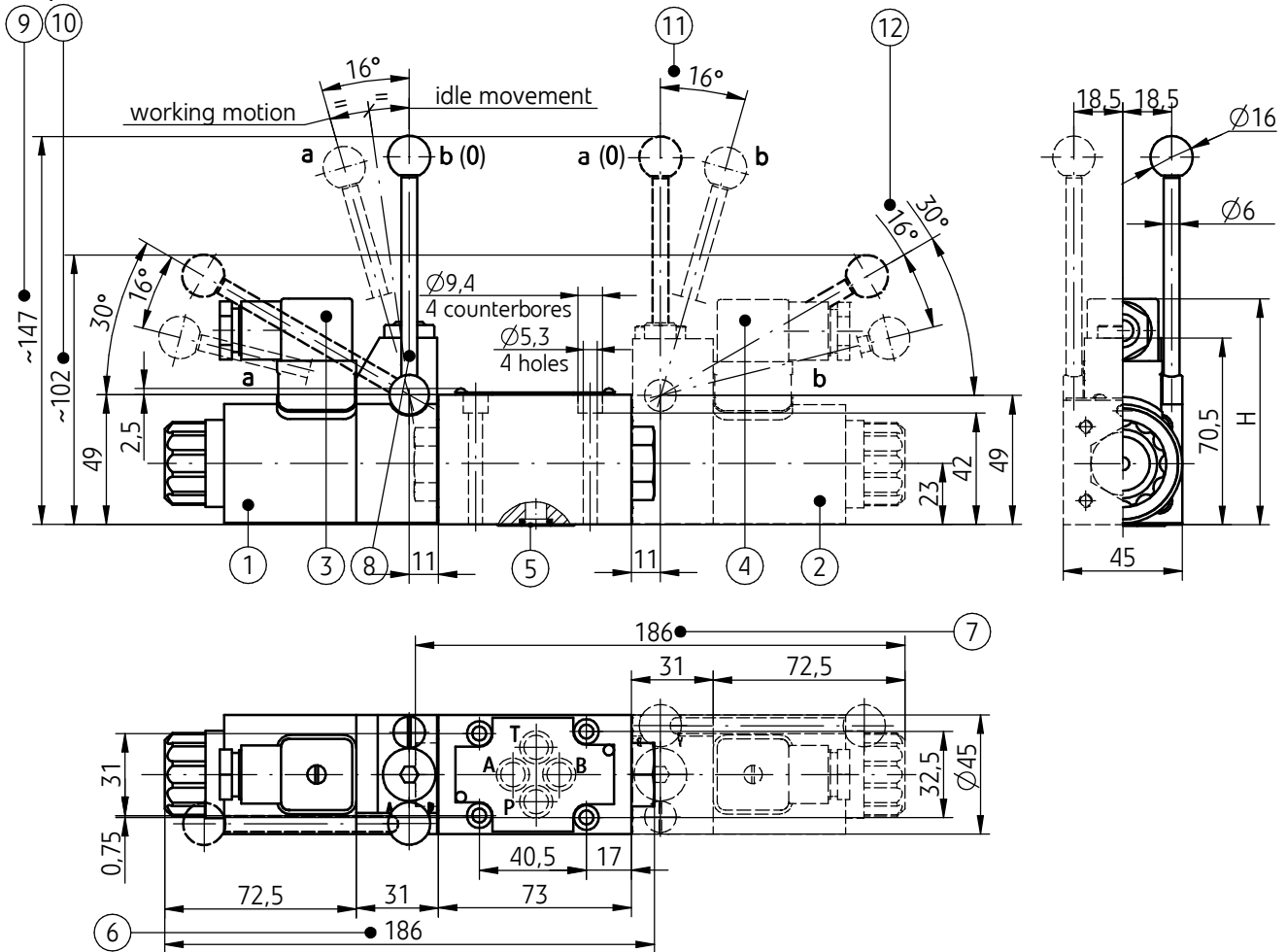
**simultaneous joining of two solenoids of the same valve should not be permitted (partial overriding of the valve can overheat and damage the winding coils)**

- 3 - Plug-in connector on side **a** - type ISO 4400 (DIN 43650 - A)
- 4 - Plug-in connector on side **b** - type ISO 4400 (DIN 43650 - A)



## OVERALL AND CONNECTION DIMENSIONS

2-position versions WE6.../...H Z4...; ...HS Z4...



Option of connection ...Z4... (ISO 4400)		dimension H
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A)	supply voltage <b>DC</b> <b>12V, 24V, 110V</b>	86
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A) with rectifier	supply voltage <b>AC</b> <b>110V, 220V, 230V</b>	93

### NOTES:

- versions WE6.../...H...; ...HS... with other electrical connections, see page 16
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

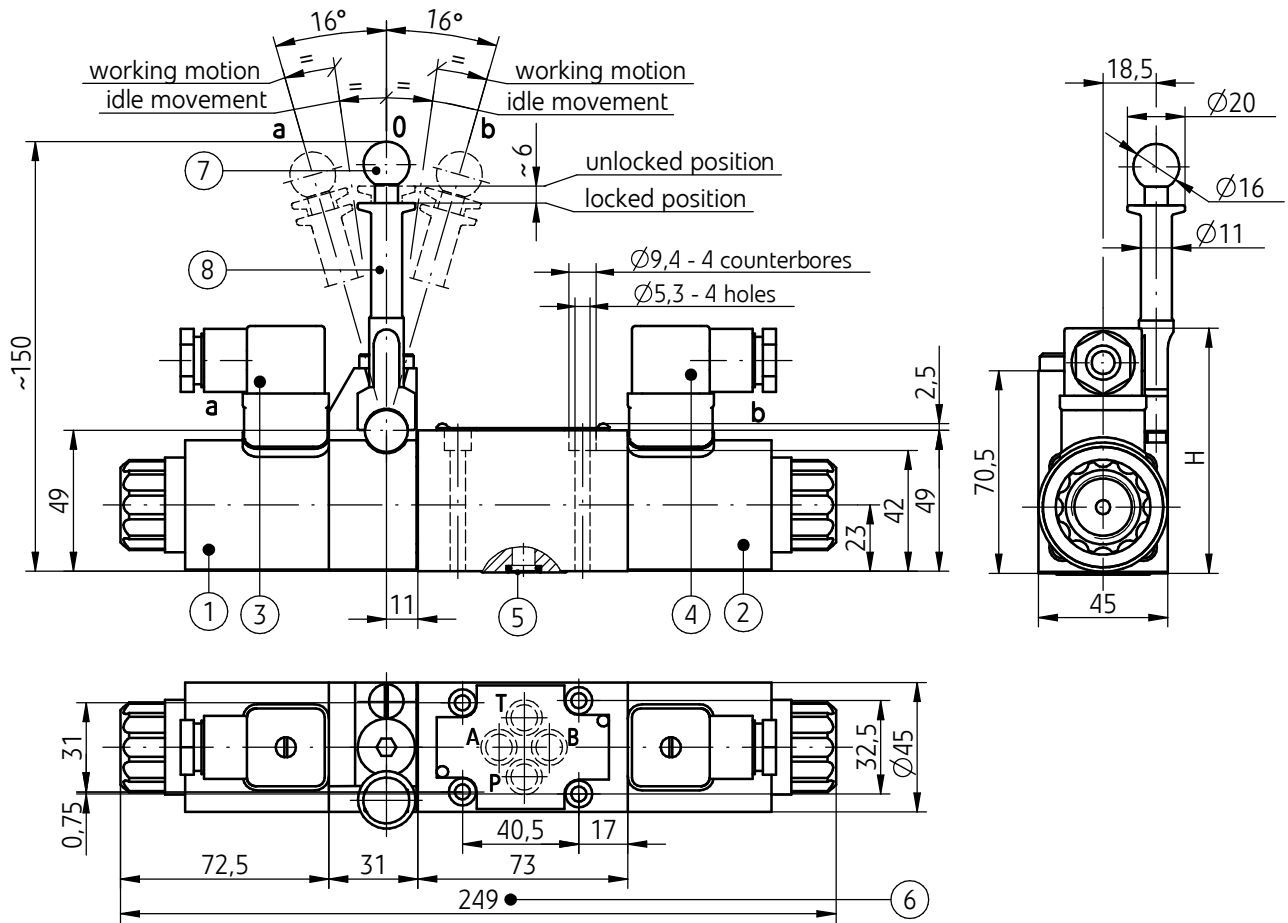
### NOTES:

The valve is switched by the manual control lever - item 8 return of the lever to the initial (neutral) state occurs automatically. After switching the valve by using the solenoid - item 1, 2, the lever - item 8 remains inactive.

- Solenoid on side **a**
- Solenoid on side **b**
- Plug-in connector on side **a** - type **ISO 4400** (DIN 43650 - A)
- Plug-in connector on side **b** - type **ISO 4400** (DIN 43650 - A)
- O-ring **9,25 x 1,78** - pcs 4/set (P, T, A, B)
- Directional spool valve dimension with **1 solenoid** - on side **a**, **2-position with return spring** (spool diagrams: **A, C, D, D1, EA, FA, GA, HA, JA, LA, MA, PA, UA, WA** - according to pages 5, 6)
- Directional spool valve dimension with **1 solenoid** - on side **b**, **2-position with return spring** (spool diagrams: **B, Y, Y1, EB, FB, GB, HB, JB, LB, MB, PB, UB, WB** - according to pages 5, 6)
- Manual control lever
- Manual control lever positions in versions: WE6.../...H... with **1 solenoid** - on side **a**
- Manual control lever positions in versions: WE6.../...HS... with **1 solenoid** - on side **a**
- Manual control lever positions in versions: WE6.../...H... with **1 solenoid** - on side **b**
- Manual control lever positions in versions: WE6.../...HS... with **1 solenoid** - on side **b**

## OVERALL AND CONNECTION DIMENSIONS

3-position versions WE6.../...HF Z4...



Option of connection ...Z4... (ISO 4400)		dimension H
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A)	supply voltage <b>DC</b> <b>12V, 24V, 110V</b>	86
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A) with rectifier	supply voltage <b>AC</b> <b>110V, 220V, 230V</b>	93

### NOTES:

- versions WE6.../...HF... with other electrical connections, see page 17
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

### NOTES:

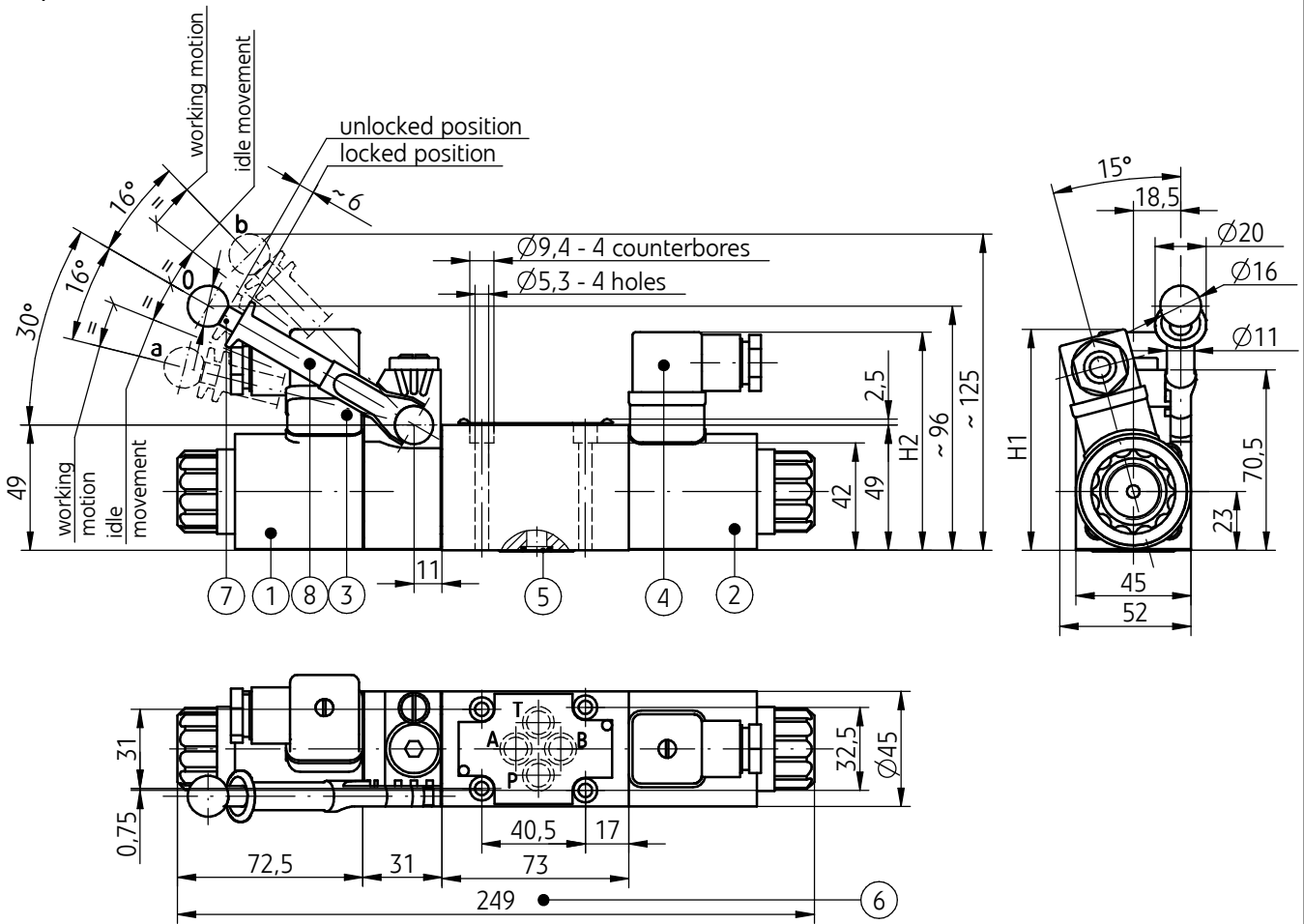
The valve is switched by the manual control lever - item 7, return of the lever to the initial (neutral) state occurs automatically. In order for the lever - item 7 to remain in switched position, one should move the lock sleeve - item 8 to the lower position until it stops.

After switching the valve by using the solenoid - item 1 or 2, the lever - item 7 remains inactive.

- 1 - Solenoid on side **a**
- 2 - Solenoid on side **b**
- 3 - Plug-in connector on side **a** - type **ISO 4400** (DIN 43650 - A)
- 4 - Plug-in connector on side **b** - type **ISO 4400** (DIN 43650 - A)
- 5 - O-ring **9,25 x 1,78** - pcs 4/set (P, T, A, B)
- 6 - Directional spool valve dimension with **2 solenoids** on side **a, b: 3-position springs centered** version WE6.../...HF... (spool diagrams: E, F, G, H, J, L, M, P, U, W - according to page 5)
- 7 - Manual control lever
- 8 - Manual control lever lock sleeve

# OVERALL AND CONNECTION DIMENSIONS

3-position versions WE6.../...HSF Z4...



Option of connection ...Z4... (ISO 4400)		dimension	
		H1	H2
plug-in connector type ISO 4400 (DIN 43650 - A)	supply voltage DC 12V, 24V, 110V	87	86
plug-in connector type ISO 4400 (DIN 43650 - A) with rectifier	supply voltage AC 110V, 220V, 230V	94	93

**NOTES:**

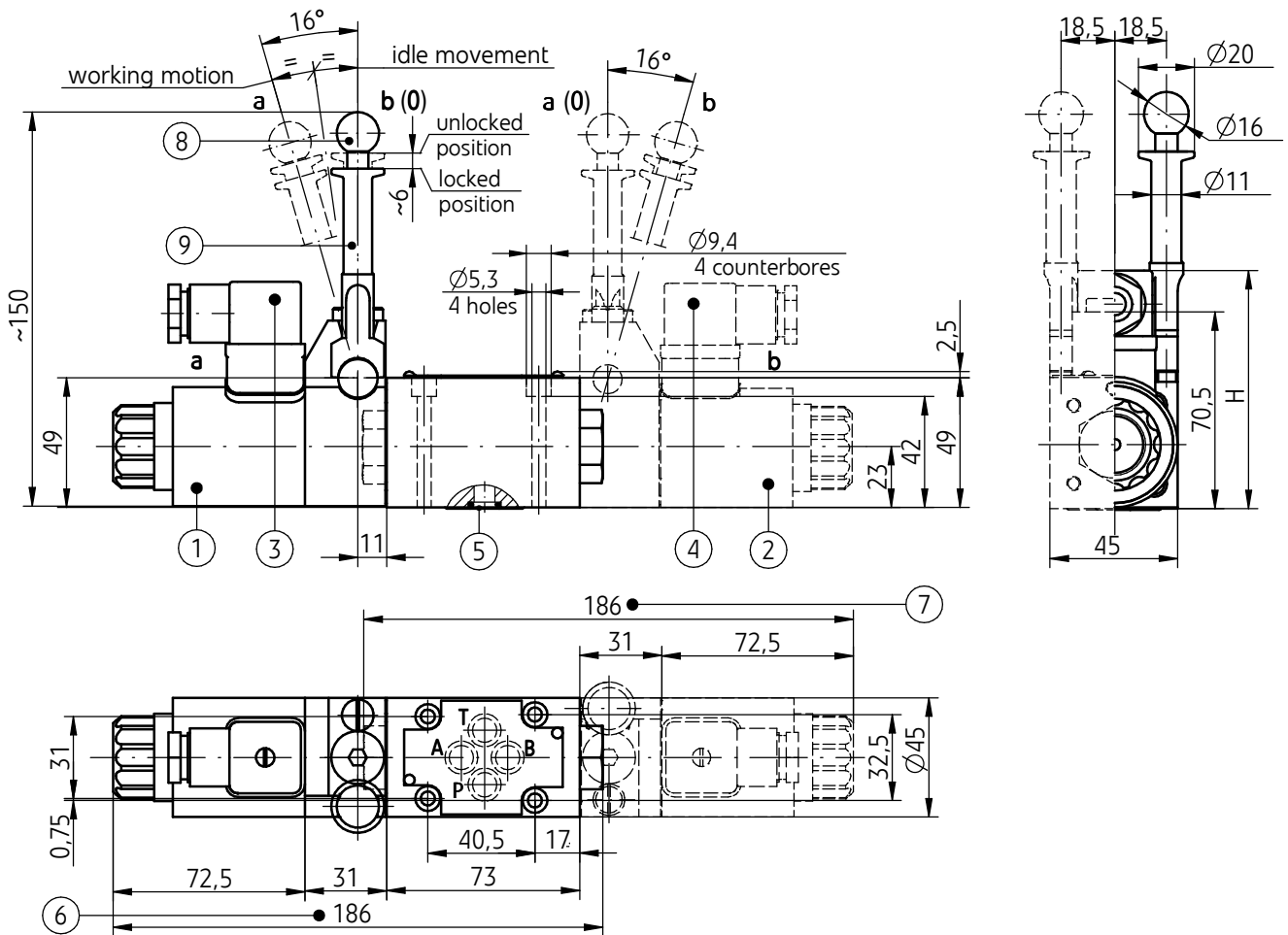
- versions WE6.../...HSF... with other electrical connections, see page 17
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

**NOTES:**  
The valve is switched by the manual control lever - item 7, return of the lever to the initial (neutral) state occurs automatically. In order for the lever - item 7 to remain in switched position, one should move the lock sleeve - item 8 to the lower position until it stops.  
After switching the valve by using the solenoid - item 1 or 2, the lever - item 7 remains inactive.

- 1 - Solenoid on side a
- 2 - Solenoid on side b
- 3 - Plug-in connector on side a - type ISO 4400 (DIN 43650 - A)
- 4 - Plug-in connector on side b - type ISO 4400 (DIN 43650 - A)
- 5 - O-ring 9,25 x 1,78 - pcs 4/set (P, T, A, B)
- 6 - Directional spool valve dimension with 2 solenoids on side a, b: 3-position springs centered version WE6.../...HF... (spool diagrams: E, F, G, H, J, L, M, P, U, W - according to page 5)
- 7 - Manual control lever
- 8 - Manual control lever lock sleeve

## OVERALL AND CONNECTION DIMENSIONS

2-position versions WE6...A/...HF Z4...; ...B/...HF Z4...



Option of connection ...Z4... (ISO 4400)		dimension H
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A)	supply voltage <b>DC</b> <b>12V, 24V, 110V</b>	86
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A) with rectifier	supply voltage <b>AC</b> <b>110V, 220V, 230V</b>	93

### NOTES:

- versions WE6...A/...HF...; ...B/...HF... with other electrical connections, see page 17
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

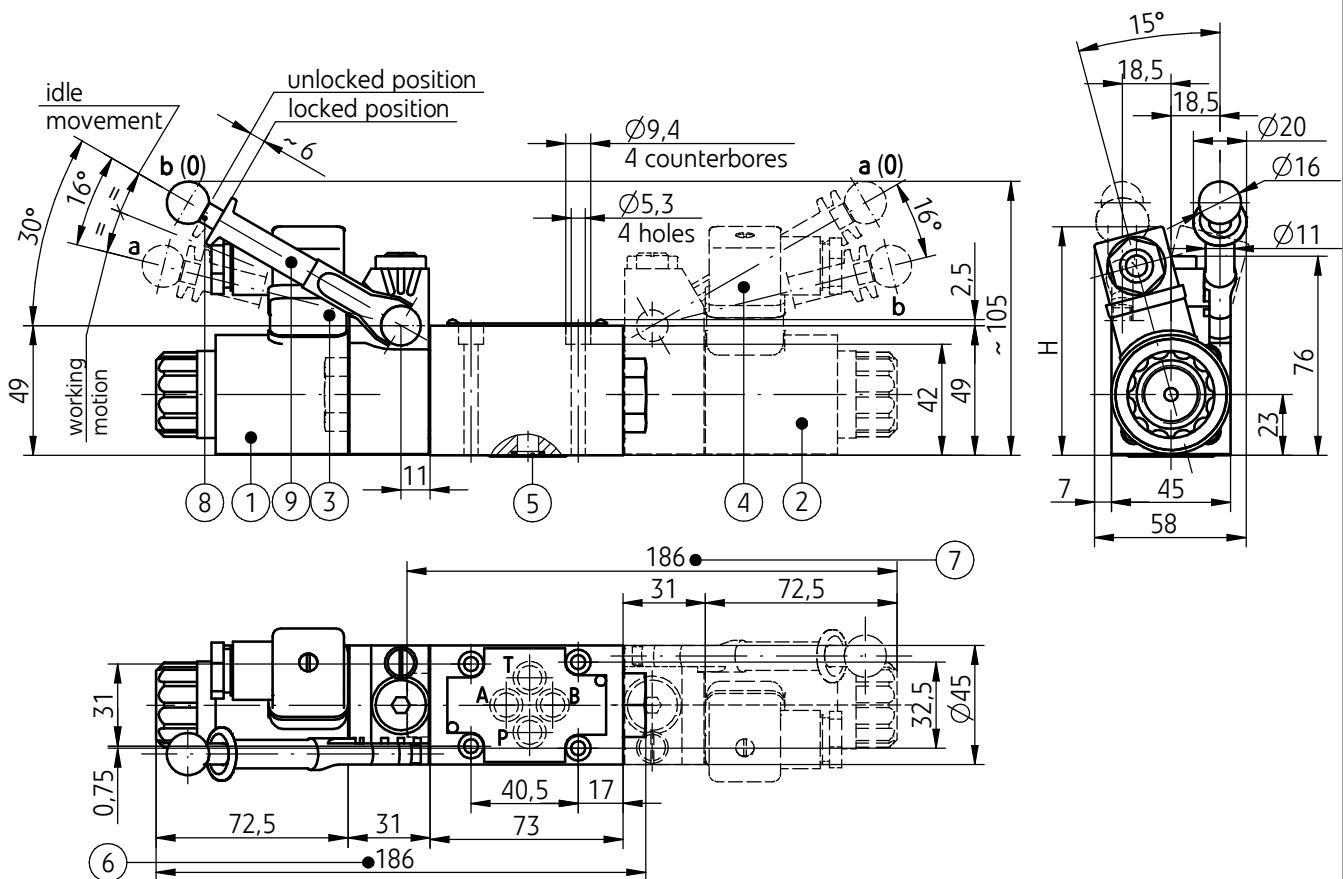
### NOTES:

The valve is switched by the manual control lever - item 8, return of the lever to the initial (neutral) state occurs automatically. In order for the lever - item 8 to remain in switched position, one should move the lock sleeve - item 9 to the lower position until it stops.  
After switching the valve by using the solenoid - item 1 or 2, the lever - item 8 remains inactive.

- Solenoid on side **a**
- Solenoid on side **b**
- Plug-in connector on side **a** - type **ISO 4400** (DIN 43650 - A)
- Plug-in connector on side **b** - type **ISO 4400** (DIN 43650 - A)
- O-ring **9,25 x 1,78** - pcs 4/set (P, T, A, B)
- Directional spool valve dimension with **1 solenoid** - on side **a**, **2-position with return spring** - version WE6...A/...HF...  
(spool diagrams: EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - according to page 5)
- Directional spool valve dimension with **1 solenoid** - on side **b**, **2-position with return spring** - version WE6...B/...HF...  
(spool diagrams: EB, FB, GB, HB, JB, LB, MB, PB, UB, WB - according to page 5)
- Manual control lever
- Manual control lever lock sleeve

# WYMIARY GABARYTOWE I PRZYŁĄCZENIOWE

wersje 2-poloziowe: WE6...A/...HSF Z4...; ...B/...HSF Z4...



Option of connection ...Z4... (ISO 4400)		dimension H
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A)	supply voltage <b>DC</b> <b>12V, 24V, 110V</b>	86
plug-in connector type <b>ISO 4400</b> (DIN 43650 - A) with rectifier	supply voltage <b>AC</b> <b>110V, 220V, 230V</b>	93

## NOTES:

- versions WE6...A/...HSF...; ...B/...HSF... with other electrical connections, see page 17
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4..., see page 7

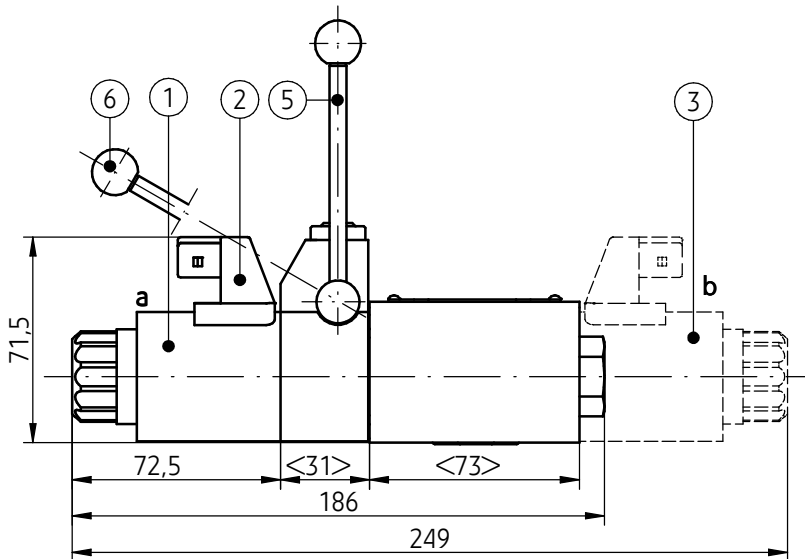
## NOTES:

The valve is switched by the manual control lever - item 8, return of the lever to the initial (neutral) state occurs automatically. In order for the lever - item 8 to remain in switched position, one should move the lock sleeve - item 9 to the lower position until it stops.  
After switching the valve by using the solenoid - item 1 or 2, the lever - item 8 remains inactive.

- Solenoid on side **a**
- Solenoid on side **b**
- Plug-in connector on side **a** - type **ISO 4400** (DIN 43650 - A)
- Plug-in connector on side **b** - type **ISO 4400** (DIN 43650 - A)
- O-ring **9,25 x 1,78** - pcs 4/set (P, T, A, B)
- Directional spool valve dimension with **1 solenoid** - on side **a**, **2-position with return spring** - version WE6...A/...HSF... (spool diagrams: EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - according to page 5)
- Directional spool valve dimension with **1 solenoid** - on side **b**, **2-position with return spring** - version WE6...B/...HSF... (spool diagrams: EB, FB, GB, HB, JB, LB, MB, PB, UB, WB - according to page 5)
- Manual control lever
- Manual control lever lock sleeve

## OVERALL AND CONNECTION DIMENSIONS

versions: WE6.../...H...G12...J...; ...H...G24...J...; ...HS...G12...J...; ...HS...G24...J...  
(electrical connection type **AMP Junior Timer**)

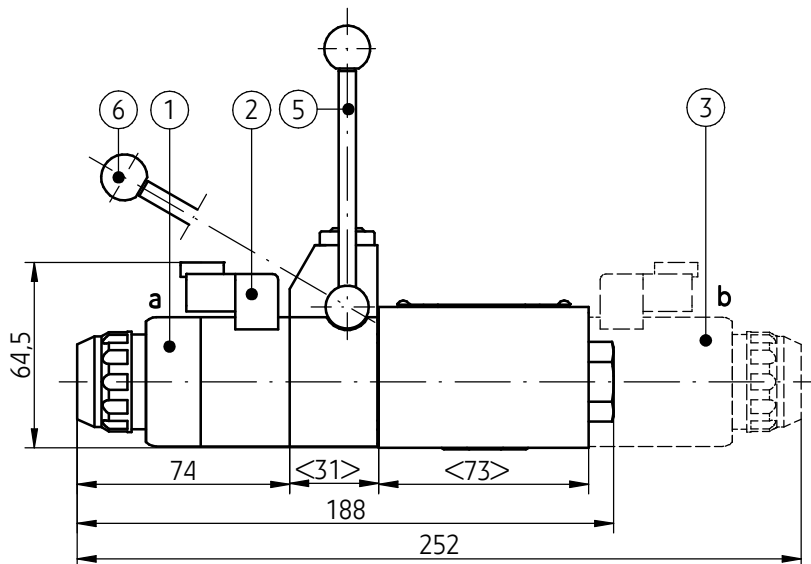


### NOTES:

- other dimensions, description of elements of the valve drawing as in version WE6.../...H...Z4... - see page 10
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4... - see page 7

- 1 - Solenoid on side **a**
- 2 - Solenoid on side **b**
- 3 - **2-poles male AMP Junior Timer** type connector (plug-in connectors not shown in the drawing must be ordered separately - Data Sheet **WK 499 963**)
- 4 - Versions: ...H...G12...J...; ... H...G24...J...
- 5 - Versions: ...HS...G12...J...; ... HS...G24...J...

versions: WE6.../...H...G12...D...; ...H...G24...D...; ...HS...G12...D...; ...HS...G24...D...  
(electrical connection type **Deutsch**)



### NOTES:

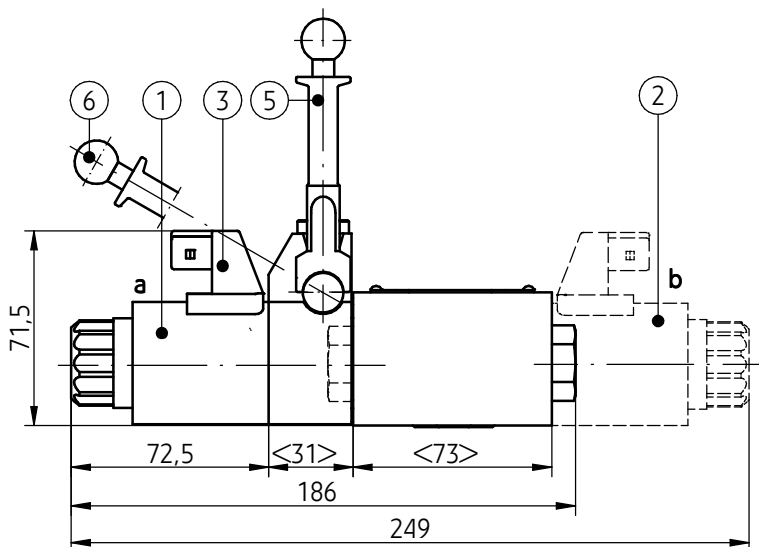
- other dimensions, description of elements of the valve drawing as in version WE6.../...H...Z4... - see page 10
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4... - see page 7

- 1 - Solenoid on side **a**
- 2 - Solenoid on side **b**
- 3 - **Deutsch DT04 - 2P** type connector (plug-in connectors **Deutsch DT06 - 2S** type not shown in the drawing must be ordered separately - Data Sheet **WK 499 963**)
- 4 - Versions: ...H...G12...D...; ... H...G24...D...
- 5 - Versions: ...HS...G12...D...; ... HS...G24...D...



## OVERALL AND CONNECTION DIMENSIONS

versions: WE6.../...HF...G12...J...; ...HF...G24...J...; ...HSF...G12...J...; ...HSF...G24...J...  
(electrical connection type **AMP Junior Timer**)

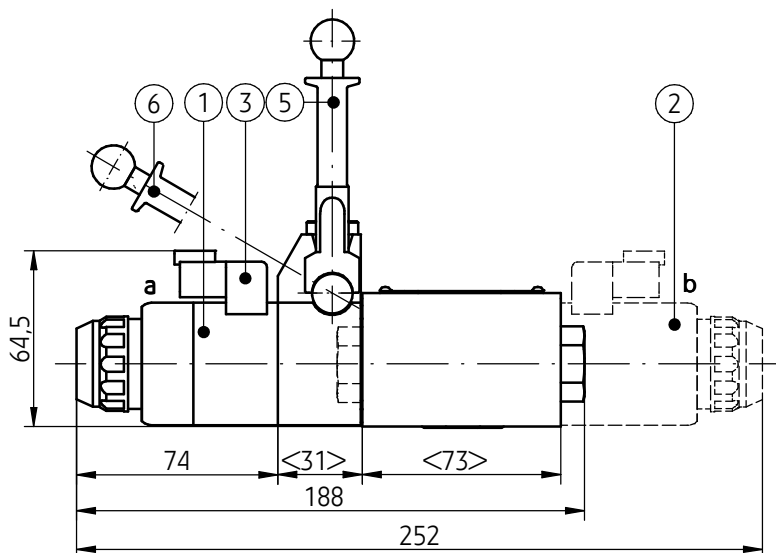


### NOTES:

- other dimensions, description of elements of the valve drawing as in versions: WE6.../...HF...Z4...; ...HSF...Z4... - see pages 12 to 15
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4... - see page 7

- 1 - Solenoid on side **a**
- 2 - Solenoid on side **b**
- 3 - **2-poles male AMP Junior Timer** type connector (plug-in connectors not shown in the drawing must be ordered separately - Data Sheet **WK 499 963**)
- 4 - Versions: ...HF...G12...J...; ...HF...G24...J...
- 5 - Versions: ...HSF...G12...J...; ...HSF...G24...J...

versions: WE6.../...HF...G12...D...; ...HF...G24...D...; ...HSF...G12...D...; ...HSF...G24...D...  
(electrical connection type **Deutsch**)



### NOTES:

- other dimensions, description of elements of the valve drawing as in versionS: WE6.../...HF...Z4...; ...HSF...Z4... - see pages 12 to 15
- porting pattern and requirements of surface state of the subplate - as in version WE6.../...Z4... - see page 7

- 1 - Solenoid on side **a**
- 2 - Solenoid on side **b**
- 3 - **Deutsch DT04 - 2P** type connector (plug-in connectors **Deutsch DT06 - 2S** type not shown in the drawing must be ordered separately - Data Sheet **WK 499 963**)
- 4 - Versions: ...HF...G12...D...; ...HF...G24...D...
- 5 - Versions: ...HSF...G12...D...; ...HSF...G24...D...

# ACCESSORIES

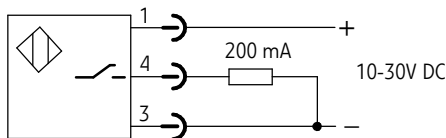
## Spool position switch type S

Additional technical data

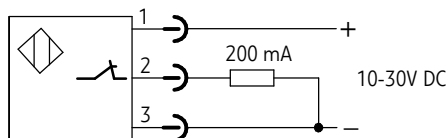
Switch type	PNP inductive proximity switch
Range of supply voltage for switch	10 - 30V DC
Max load current	200 mA
Connection type of switch	switch with M12x1 external thread; male connection; 4 contacts (pins)
Degree of protection	IP 65
Weight of directional valve	
with 1 solenoid and 1 switch	2,1 kg
with 2 solenoids and 1 switch	2,7 kg
with 2 solenoids and 2 switches	3,3 kg

### Diagrams of electrical connection of inductive switch type S

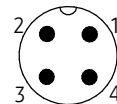
type S1



type S2



contact allocation (pins of switch connector)



### Diagrams for directional control valves and initial positions of switches

#### initial position of inductive switch type S depending on the spool position

0 - off neutral state on output contact  
1 - on state on output contact

#### diagram for directional valve

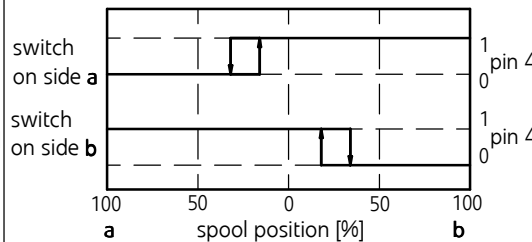
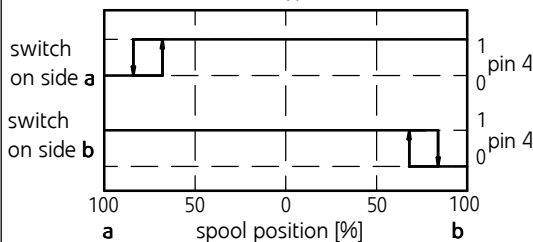
##### 3-position version

position monitored a and b

position monitored 0

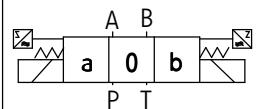
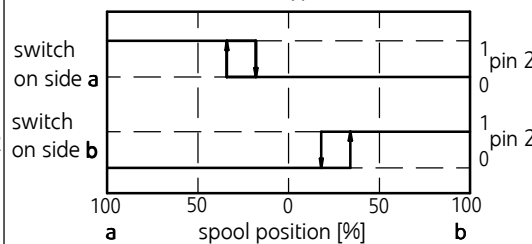
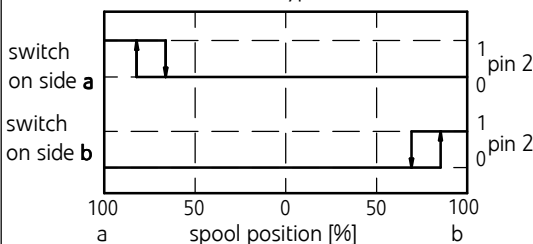
switch type S1

switch type S1



switch type S2

switch type S2



# ACCESSORIES

## Spool position switch type S

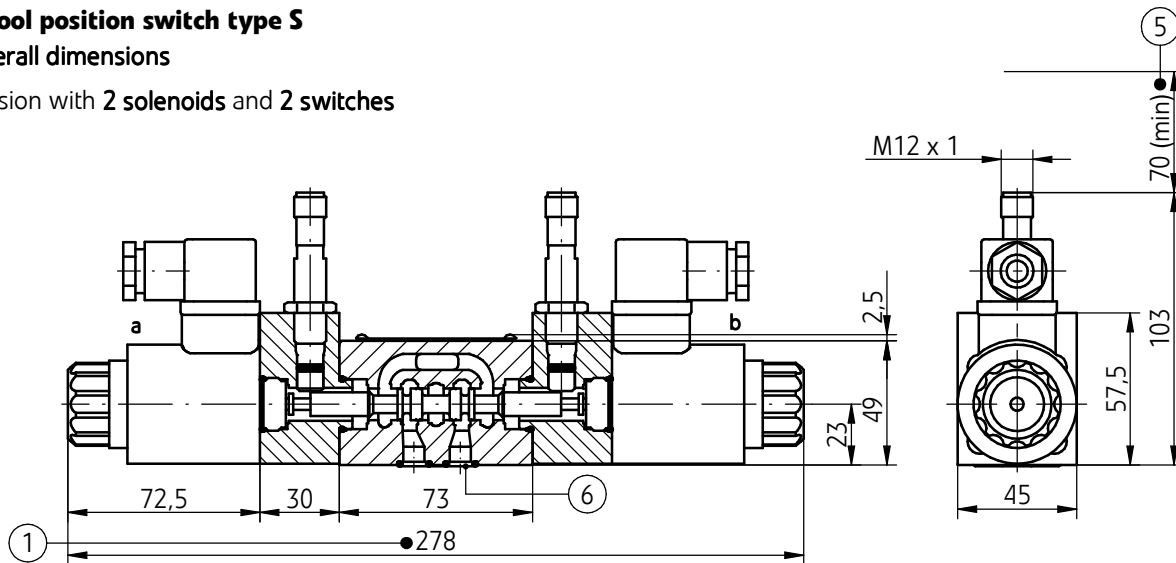
initial position of inductive switch depending on the spool position		diagram for directional valve
<b>2-position versions WE6...A... (positions: a, 0)</b> <b>solenoid and switch on side a</b>		
<b>position monitored a</b> 	<b>position monitored 0</b> 	
<b>2-position versions WE6...B... (positions: 0, b)</b> <b>solenoid and switch on side b</b>		
<b>position monitored 0</b> 	<b>position monitored b</b> 	
<b>2-position versions WE6A...; ...C...; ...D...; .../O...; .../OF...</b> <b>switch on side a</b>		
<b>position monitored a</b> 	<b>position monitored b</b> 	
<b>2-position versions WE6B...; ...Y...</b> <b>switch on side b</b>		
<b>position monitored a</b> 	<b>position monitored b</b> 	

## ACCESSORIES

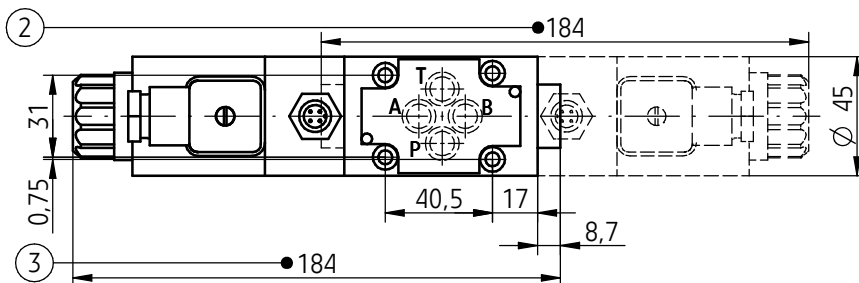
### Spool position switch type S

#### Overall dimensions

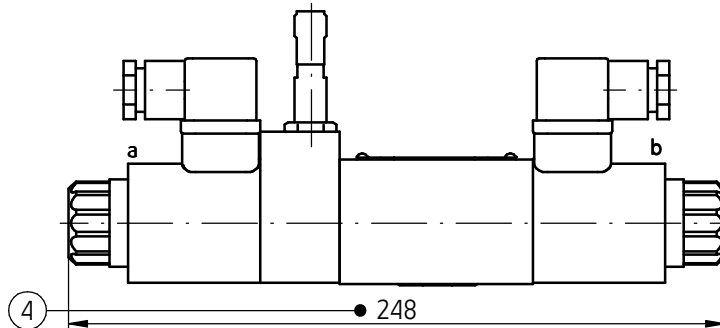
version with 2 solenoids and 2 switches



version with 1 solenoid and 1 switch



version with 2 solenoids and 1 switch



#### NOTES:

- directional valve with spool position switch is adjusted; any adjustments can be made only by the manufacturer
- in case of a faulty switch or valve complete directional valve must be changed

**NOTE:** other elements of the valve drawing; porting pattern and requirements of surface state of the subplate acc. to page 7

1 - Dimension of directional valve with 2 solenoids - on side a, b and 2 position switches

• 3-position, springs centered

versions WE6.../...S1...; ...S2... (spool diagrams: E, F, G, H, J, L, M, P, U, W - acc. to page 5)

2 - Dimension of directional control valve with 1 solenoid - on side a and 1 position switch

• 2-position, with return spring

versions WE6.../...S1...; ...S2... (spool diagrams: A, C, D, EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - acc. to pages 5, 6)

3 - Dimension of directional valve with 1 solenoid - on side b and 1 position switch

• 2-position, with return spring

versions WE6.../...S1... ...S2... (spool diagrams:

B, Y, EB, FB, GB, HB, JB, LB, MB, PB, UB, WB

- acc. to pages 5, 6)

4 - Dimension of directional valve with 2 solenoids - on side a, b and 1 position switch on side a

• 2-position, without spring return

versions WE6.../O...S1...; ...S2...

• 2-position, without spring return, with detent

versions WE6.../OF...S1...; ...S2...

(spool diagrams: A, C, D - acc. to page 6)

5 - Distance for mounting plug-in connector and cable of switch (plug-in connectors not showed in the drawing must be ordered separately according to data sheet WK 499 963)

6 - O - ring 9,25 x 1,78 - pcs 4/set (P, T, A, B)

## ACCESSORIES

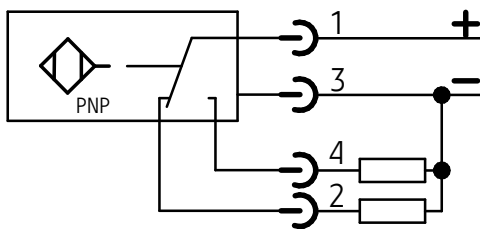
### Spool position sensor type M

(only for 2-position versions with return spring)

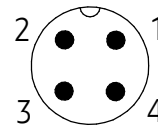
#### Technical data

Type of spool position sensor	inductive sensor type <b>M</b> with two alternative <b>PNP</b> type outputs
Supply voltage range of the sensor	24 VDC <sup>+20%</sup> <sub>-10%</sub>
Max sensor load current	40 0 mA
Sensor connection type	external thread <b>M12 x1; 4 poles (pins)</b>
Degree of protection	<b>IP 65</b>
Weight (directional valve with switch)	1,8 kg
<b>WARNING: M type inductive sensors must not be connected serially.</b>	

#### Diagrams of electrical connection



contact allocation  
(pins of sensor connector)



#### Diagrams for directional valves and status of sensors

status of sensor type M depending on position of the spool 0 - off, neutral, potential-free state at the output contact 1 - on, voltage state at the output contact		diagram for directional valve
<b>2-position versions WE6...A... (positions: a, 0)</b> solenoid on side <b>a</b> and sensor on side <b>b</b>		
<p>position monitored <b>a</b></p>	<p>position monitored <b>0</b></p>	
<b>2-position versions WE6...B... (positions: 0, b)</b> solenoid on side <b>b</b> and sensor on side <b>a</b>		
<p>position monitored <b>0</b></p>	<p>position monitored <b>b</b></p>	

## ACCESSORIES

### Spool position sensor type M

(only for 2-position versions with return spring)

Diagrams for directional valves and status of sensors

status of sensor type M depending on position of the spool 0 - off, neutral, potential-free state at the output contact 1 - on, voltage state at the output contact		diagram for directional valve
<b>2-position versions WE6A...; ...C...; ...D...; ...D1...</b> sensor on side <b>b</b>		
position monitored <b>a</b> 	position monitored <b>b</b> 	
<b>2-position versions WE6B...; ...Y...; ...Y1...</b> sensor on side <b>a</b>		
position monitored <b>a</b> 	position monitored <b>b</b> 	

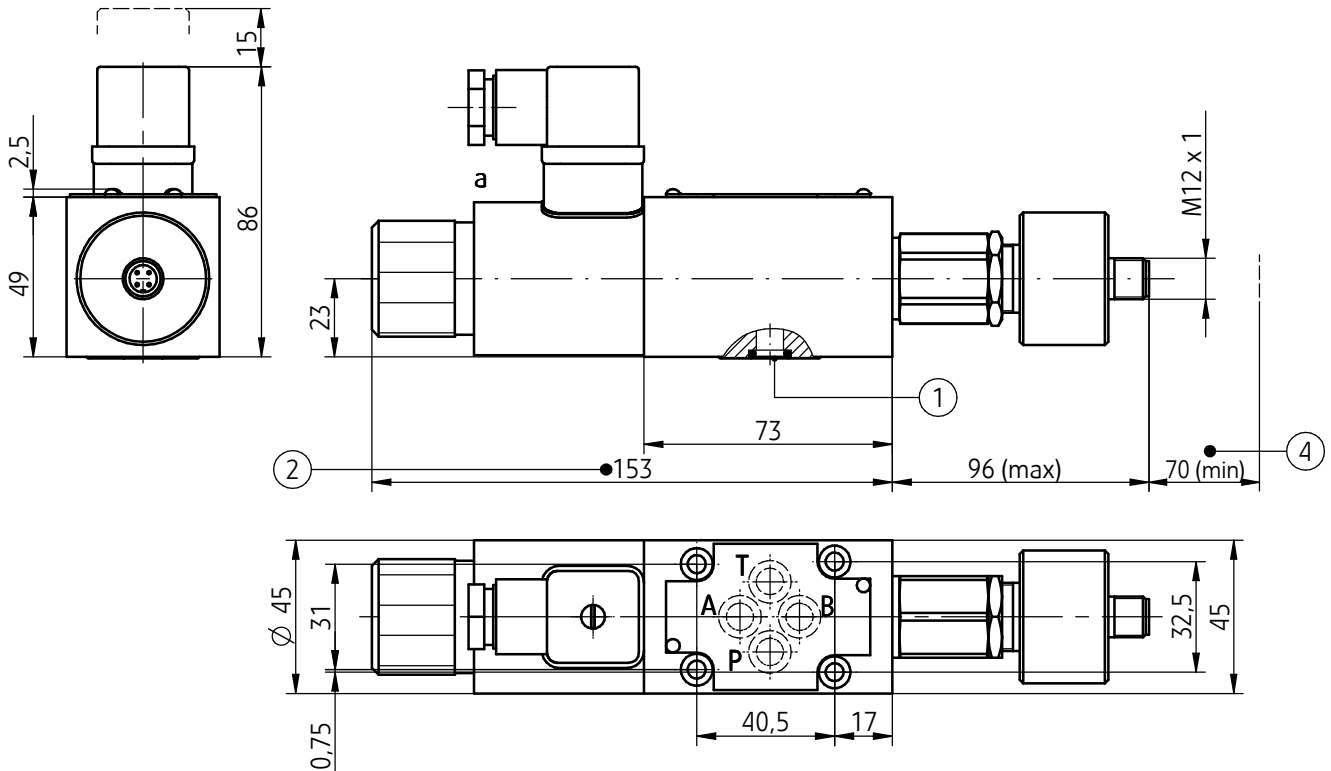
## ACCESSORIES

### Spool position sensor type M

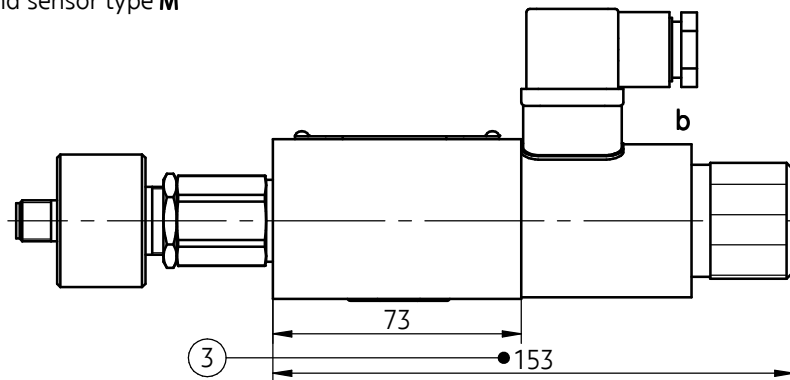
(only for 2-position versions with return spring)

#### Overall dimensions

version with solenoid on side **a** and sensor type **M**



version with solenoid on side **a** and sensor type **M**



**NOTE:** other elements of the valve drawing; porting pattern and requirements of surface state of the subplate acc. to page 7

- 1 - O-ring 9,25 x 1,78 - pcs 4/set (P, T, A, B)
- 2 - Dimension of directional valve 2-position, with return spring with 1 solenoid - on side **a** and switch type **M**  
(spool diagrams: A, C, D, D1, EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - acc. to pages 5, 6)
- 3 - Dimension of directional valve 2-position, with return spring with 1 solenoid - on side **b** and switch type **M**  
(spool diagrams: B, Y, Y1, EB, FB, GB, HB, JB, LB, MB, PB, UB, WB - acc. to pages 5, 6)
- 4 - Distance for mounting plug-in connector and cable of switch (plug-in-connectors not showed in the drawing must be ordered separately according to data sheet **WK 499 963**)

#### NOTES:

- directional valve with spool position sensor is adjusted; any adjustments can be made only by the manufacturer
- in case of a faulty sensor or valve complete directional valve must be changed

## HOW TO ORDER

	<b>WE</b>	<b>6</b>	<b>+</b>	<b>/</b>					
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### Number of service ports

**3-way** - only for spools A, B = **3**  
**4-way** - for the other spools = **4**

### Nominal size (NS)

**NS6** = **6**

### Spool symbol

**spool diagrams** - according to **pages 5, 6**

### Series number

(30 - 39) - connection and installation dimensions unchanged = 3X  
**series 32** = **32**

### Spool centering/positioning

**spring centering** = **no designation**  
without springs return\* = O  
without springs return with detent\* = OF

#### NOTE:

(\*) - options available only for versions with spools: A, C, D, EA, GA, HA, JA, MA, EB, GB, HB, JB, MB)

### Supply voltage for solenoids

12V DC = G12  
**24V DC** = **G24**  
110V DC = G110  
110V AC 50Hz (plug-in connector with rectifier) = W110R  
220V AC 50Hz (plug-in connector with rectifier) = W220R  
**230V AC 50Hz** (plug-in connector with rectifier) = **W230R**  
230V AC 50 Hz (direct supply with AC current) = W230-50

### Manual override

**solenoids with manual override** = **N**  
solenoids without manual override (only for version with inductive sensor type M) = no designation

### Manual lever control

**no manual control lever** = **no designation**  
with a manual control lever positioned vertically = H  
with a manual control lever positioned vertically with lock sleeve = HF  
with a manual control lever positioned at an angle = HS  
with a manual control lever positioned at an angle with lock sleeve = HSF

#### NOTES:

options with a manual control lever (...H...; ...HS...; ...HF...; ...HSF...) for versions: WE6 ...A/O...; ...A/OF...; ...B/O...; ...B/OF... z suwakami EA, GA, HA, JA, MA, EB, GB, HB, JB, MB available after consultation with the manufacturer

### Electrical connection

**plug-in connector type ISO 4400** (DIN 43650 - A) **without LED** = **Z4**  
plug-in connector type ISO 4400 (DIN 43650 - A) with LED = Z4L  
without plug-in connector, with 2-poles male **AMP Junior Timer** type connector (exists for ...G12...; ...G24... options only) = J  
without plug-in connector, with **Deutsch** type connector (exists for ...G12...; ...G24... options only) = D



## HOW TO ORDER

+	+	+	★
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### Further requirements in clear text

(to be agreed with the manufacturer)

### Monitored position of the spool

without spool position monitoring	= no designation
monitored position <b>0 - zero</b> ( <i>3- position and 2- position versions with positions (a, 0) or (0, b)</i> )	= 0
monitored position <b>a</b> ( <i>2- position versions with positions (a, 0) or (a, b)</i> )	= A
monitored position <b>b</b> ( <i>2- position versions with positions (0, b) or (a, b)</i> )	= B
monitored position <b>a and b</b> ( <i>3- position versions</i> )	= AB

### Spool position sensor

without spool position sensor	= no designation
spool position switch type <b>S1</b>	= S1
spool position switch type <b>S2</b>	= S2
spool position sensor type <b>M</b> ( <i>only for 2-positions versions with return spring</i> )	= M

#### NOTE:

Optional versions with a spool position sensor and a manual control lever (options ...H...; ...HS...; ...HF...; ...HSF...) available after consultation with the manufacturer.

### Sealing

<b>NBR</b> (for fluids on mineral oil base)	= <b>no designation</b>
FKM (for fluids on phosphate ester base)	= V

### Throttle insert (in port P)

<b>without throttle insert</b>	= <b>no designation</b>
throttle insert $\phi$ 0,8	= B 08
throttle insert $\phi$ 1,0	= B 10
throttle insert $\phi$ 1,2	= B 12

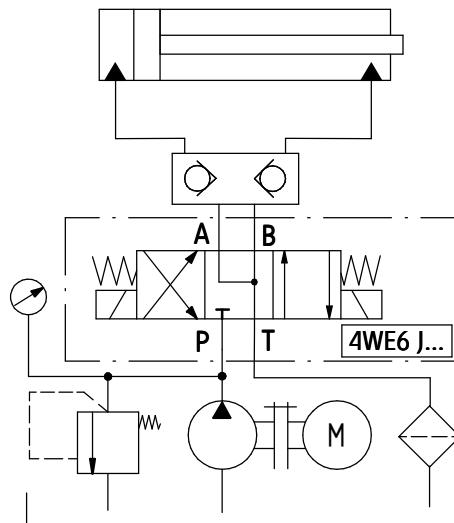
### NOTES:

Directional spool valve should be ordered according to the above coding.

The symbols in bold are the preferred versions available in short delivery time.

Coding example: 4WE6 E - 32/G24 N Z4 B08 - S1 - AB

## EXAMPLE OF APPLICATION IN HYDRAULIC SYSTEM



### SUBPLATES AND FIXING SCREWS

Subplates must be ordered according to catalogue sheet **WK 496 480**. Subplate symbols:

G 341/01 - threaded connections G 1/4

**G 342/01** - threaded connections **G 3/8**

G 502/01 - threaded connections G 1/2

G 341/02 - threaded connections M14 x 1,5

G 342/02 - threaded connections M16 x 1,5

#### NOTE:

Subplate symbol in bold is the preferred version available in short delivery time.

Subplates and screws fixing directional valve **M5 x 50 - 10,9** in accordance with **PN - EN ISO 4762** - pcs 4/set must be ordered separately.

Tightening torque **Md = 9 Nm**.

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