

Directional spool valve electrically operated type WE6

NS 6 | p_{max} 35 MPa | Q_{max} 80 dm³/min | WK 420 970

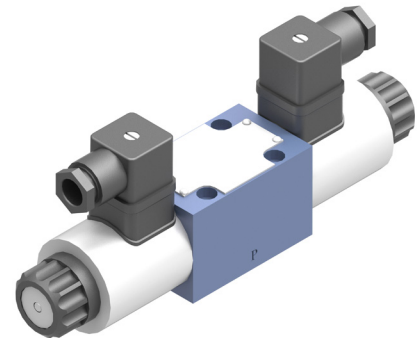


DATA SHEET - OPERATION MANUAL

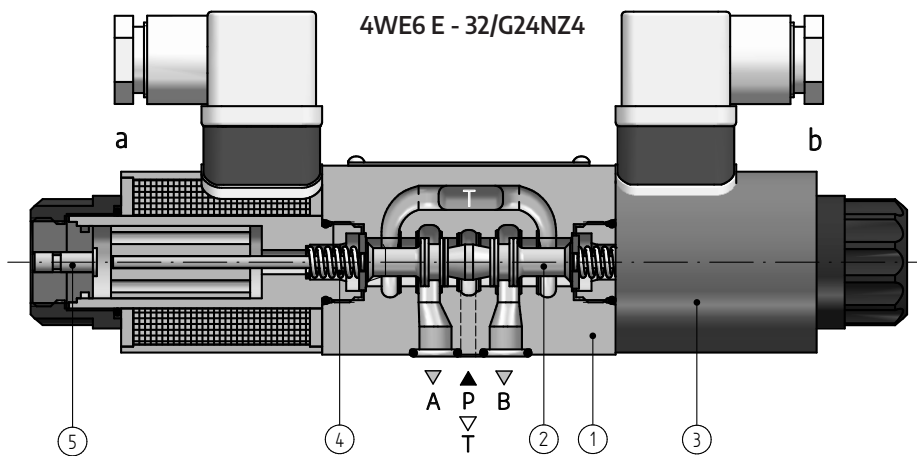
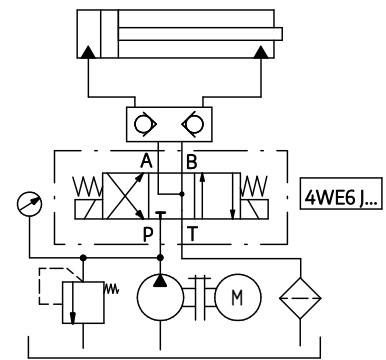
APPLICATION

Directional spool valves type **WE6...** electrically operated are used to change direction of fluid flow in a hydraulic system which allows to change direction of movement of an actuator (usually a piston rod of a cylinder or a hydraulic motor) and to control functions: **start** and **stop**. These valves are used for subplate mounting in any position in a hydraulic system.

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



EXAMPLE OF APPLICATION in a hydraulic system



DESCRIPTION OF OPERATION

Main elements of directional spool valve type **WE6...** : housing **1**, solenoids **3**, spool **2**, centering springs **4** and manual override **5**. The valve is shifted when spool **2** is moved into one of end positions by the force of solenoid **3**. The return of the spool into neutral (de-energized) position is caused by the centering springs **4**. The shape of the spool affects connections of ports: **A, B, P** and **T**.

Function of ports: **P** - supply port; **T** - oil return to the tank; **A, B** - ports for an actuator (a cylinder or a hydraulic motor). In case of emergency, the spool can be shifted manually by the override **5** - only for version with manual override option. Directional spool valve should be mounted in easily accessible way.

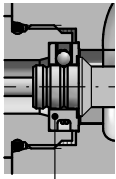
TECHNICAL DATA

hydraulic fluid	mineral oil	supply voltage	DC	AC - plug with rectifier	AC-direct power
cleanliness class	ISO 4406 class 20/18/15	of solenoids	12V; 24V; 110V	230V-50Hz; 110V-50Hz	supply 230V/50Hz
nominal fluid viscosity	37 mm ² /s at temperature 55°C	supply voltage tolerance	± 10%		
viscosity range	2,8 ÷ 380 mm ² /s	power consumption (DC)	30 W		
fluid temperature range (in the tank)	recommended: 40 ÷ 55 °C; max.: -20 ÷ 70 °C	holding power (AC)	-		
ambient temperature range	-20 ÷ 50 °C	switch-on power (AC)	-		
maximum operating pressure	35 MPa (ports P, A, B); 21 MPa (port T)	max. switching frequency	15 000/h		12 000/h
weight	with 1 solenoid	WE6...	1,5 kg		
		WE6...H...	2,7 kg		
	with 2 solenoids	WE6...	2,1 kg		
		WE6...H...	3,3 kg		
Flow cross-section (spool position 0)	spool W: 3% of nominal cross-section				
switching time*	ON	5% of pressure change 30 ÷ 60 ms			
		95% of pressure change 30 ÷ 70 ms			
switching time*	OFF	5% of pressure change 15 ÷ 50 ms			
		5% of pressure change 30 ÷ 60 ms			
protection class	IP 65				
solenoid coil temperature	max. 150 °C				

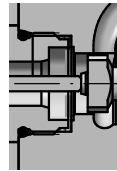
* switching time according to ISO 6403 with a directional control valve in horizontal position

assembly and operation requirements at www.operating-conditions.ponar.pl

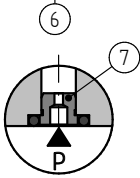
SPOOL CENTERING VERSIONS OF... and O...



Version **WE6.../OF...** - 2-position directional spool valve without spring return, with detent. The spool **2** is positioned and fixed with detent **6** and shift is caused by providing voltage impulse to the solenoid.



Version **WE6.../O...** - 2-position directional spool valve without spring return. The spool is positioned and fixed with activated solenoid. The valve has no defined natural position in the de-energized condition.

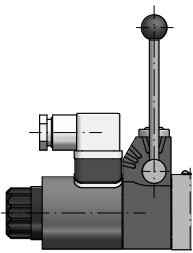


VERSION WITH THROTTLE INSERT

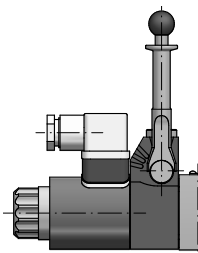
Version **WE6.../...B...** - directional spool valve has throttle insert **7** in port **P**.

ADDITIONAL EQUIPMENT (OPTIONAL)

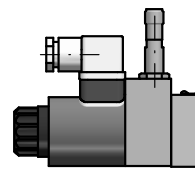
manual control lever	WE6.../...H...
manual control lever with a lock	WE6.../...HF...
inductive position switch type S	WE6.../... - S
inductive position switch type M	WE6.../... - M



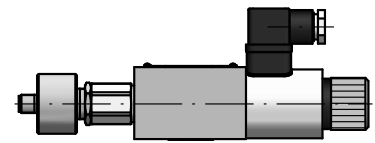
WE6.../...H



WE6.../...HF



WE6.../...- S

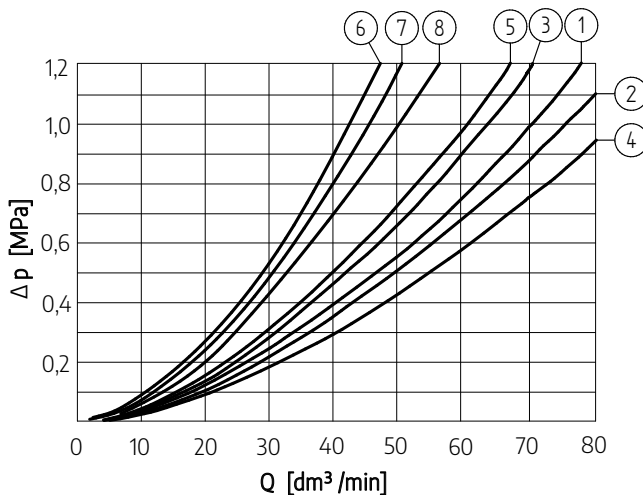


WE6.../...- M

CHARACTERISTIC CURVES

flow resistance characteristic curves (measured at viscosity $\nu = 41 \text{ mm}^2/\text{s}$ and temperature $t = 50 \text{ }^\circ\text{C}$)

characteristic curves Δp (**Q**) for directional spool valve type **WE6...** for various spool types

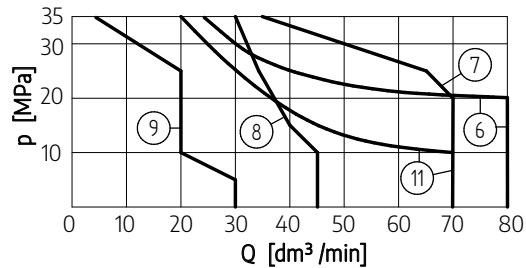
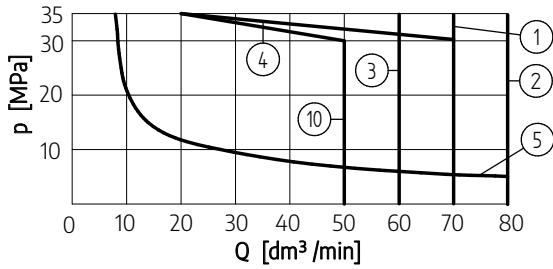


spool symbol working positions see pages 4; 5	characteristic curve			
	direction of flow			
	P → A	P → B	A → T	B → T
A; B	3	3	-	-
C	1	1	3	1
D; Y	5	5	3	3
E	3	3	1	1
F	2	3	3	5
G	7	7	6	6
H	2	4	2	2
J	1	1	2	1
L; W	1	1	2	2
M	2	4	3	3
P	2	3	3	5
U	3	1	3	3
D1	5	-	-	5
Y1	-	5	5	-
central position see pages 4; 5	direction of flow			
	P → A P → B	P → T	A → T B → T	B → A
G	-	8	-	-

PERFORMANCE CURVES

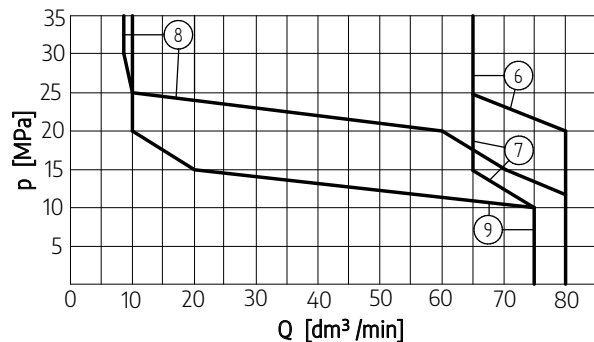
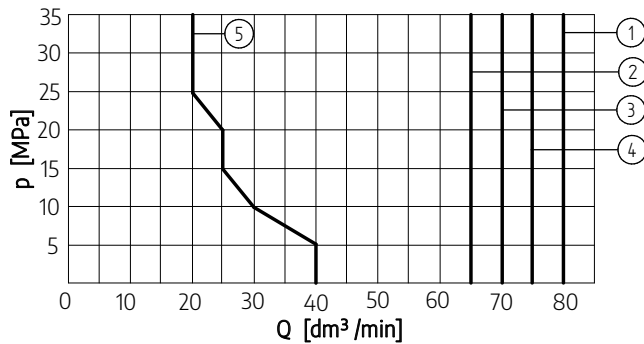
Performance limits

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



spool symbol (see pages 4; 5)	characteristic curve
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

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



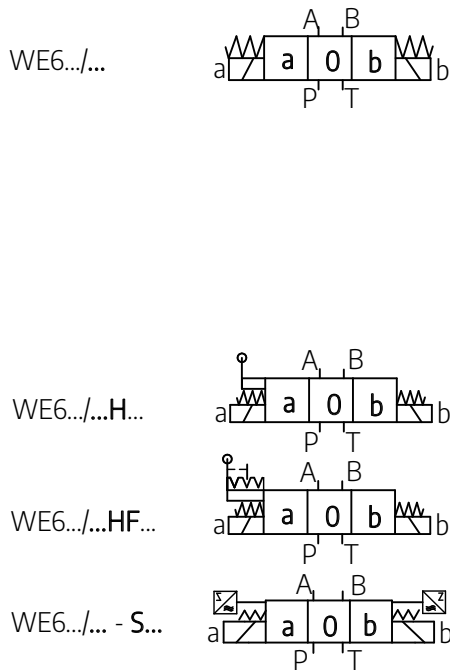
spool symbol (see pages 4; 5)	characteristic curve
C; D; H; D/O; HA/O; HB/O; EA/O; EB/O; JA/O; JB/O; D/OF; HA/OF; HB/OF; EA/OF; EB/OF; JA/OF; JB/OF; C/OF	1
W	2
E; MA/O; MB/O; MA/OF; MB/OF	3
L	4
G	5
J	6
M	7
A	8
GA/O; GB/O; GA/OF; GB/OF	9

NOTES:

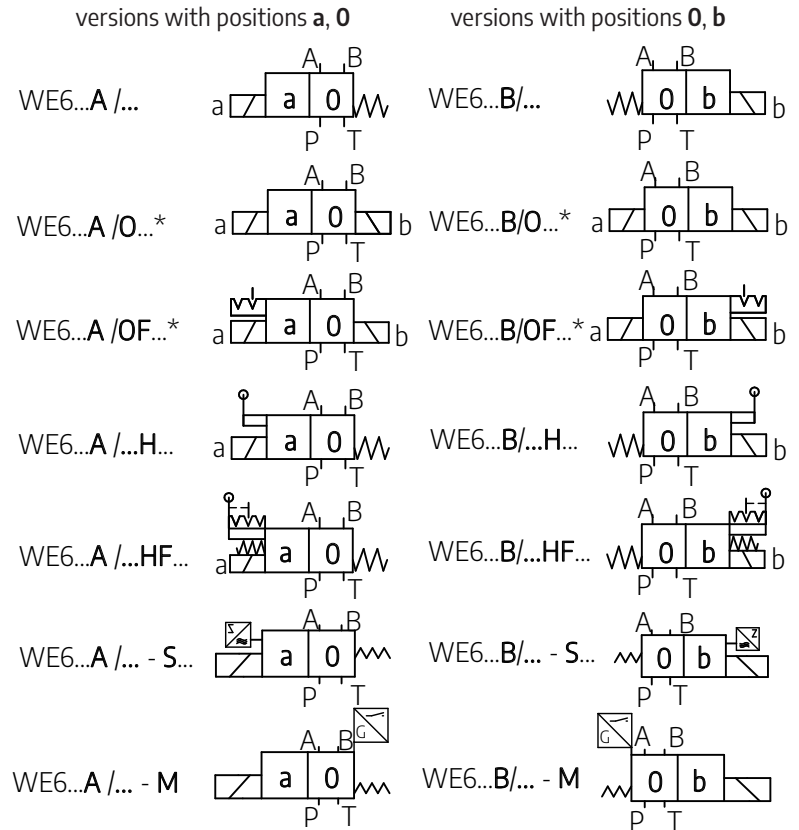
The above operating limits are related to symmetrical flow through all ports i.e. if the oil flows from **P** to **A**, then the same flow rate is from **B** to **T** (for directional control valves with 4 service ports). Asymmetry in flow affects the parameters negatively.

SYMBOLS

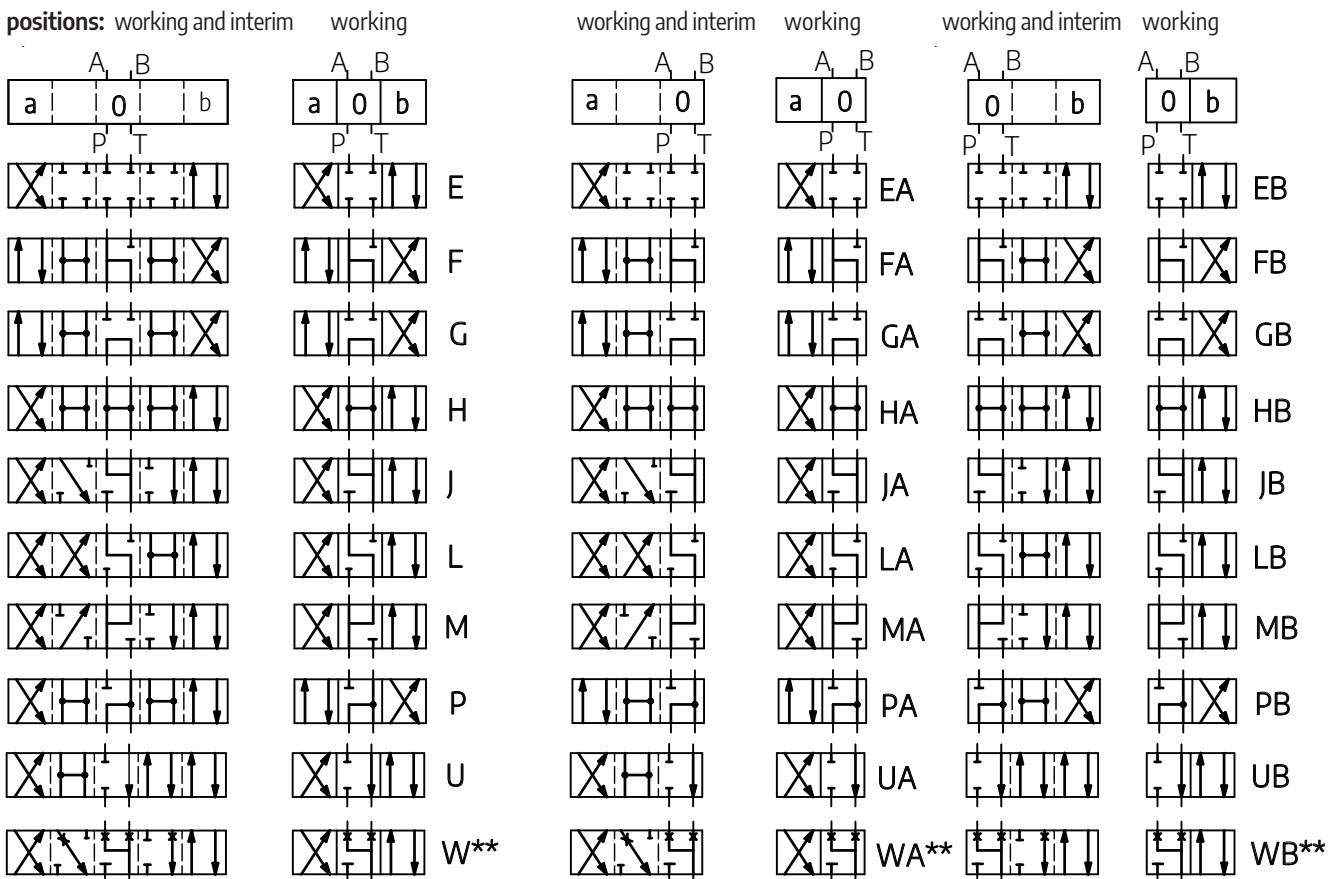
symbols for 3-position directional spool valves



symbols for 2-position directional spool valves



DIAGRAMS OF SPOOLS



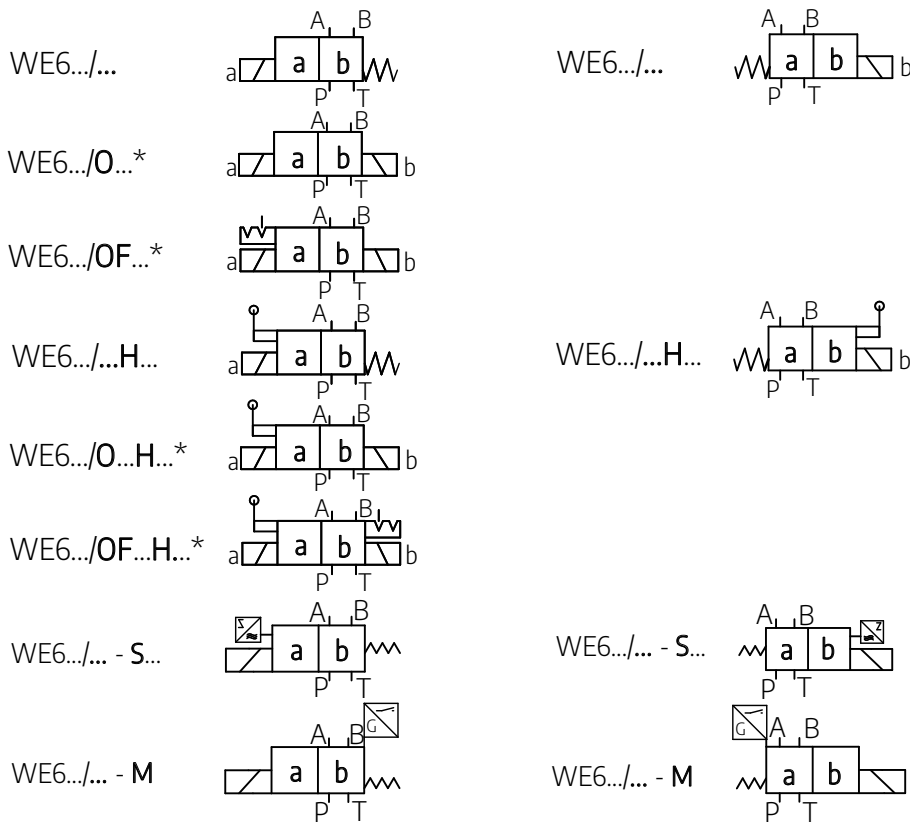
(*) - versions available only with spools: EA, GA, HA, JA, MA, EB, GB, HB, JB, MB

(**) - flow cross-section for spool W (position O) - 3% of nominal flow

SYMBOLS

symbols for 2-position directional spool valves

versions with positions **a**, **b**



NOTE: * - versions available only with spools: **A**, **C**, **D**

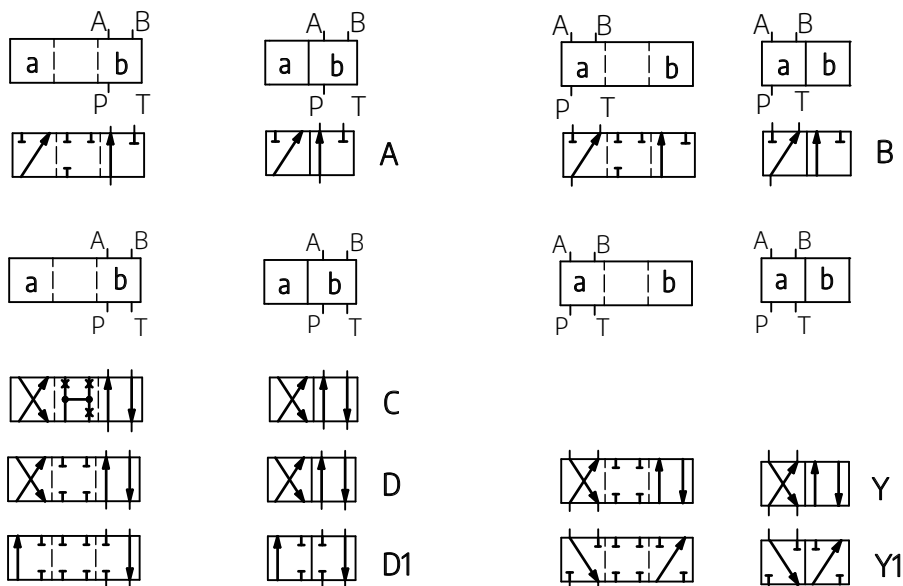
DIAGRAMS OF SPOOLS

positions: working and interim

working

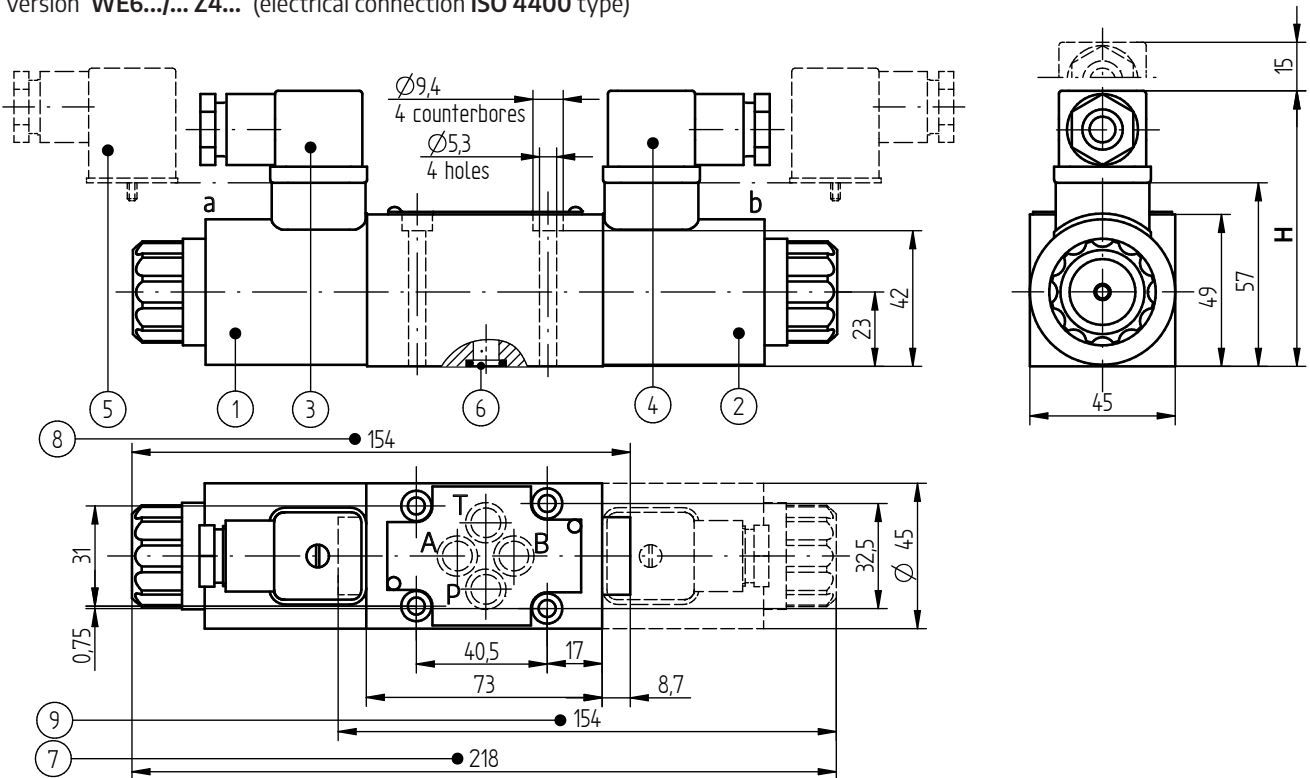
working and interim

working



OVERALL AND CONNECTION DIMENSIONS

version WE6.../... Z4... (electrical connection ISO 4400 type)



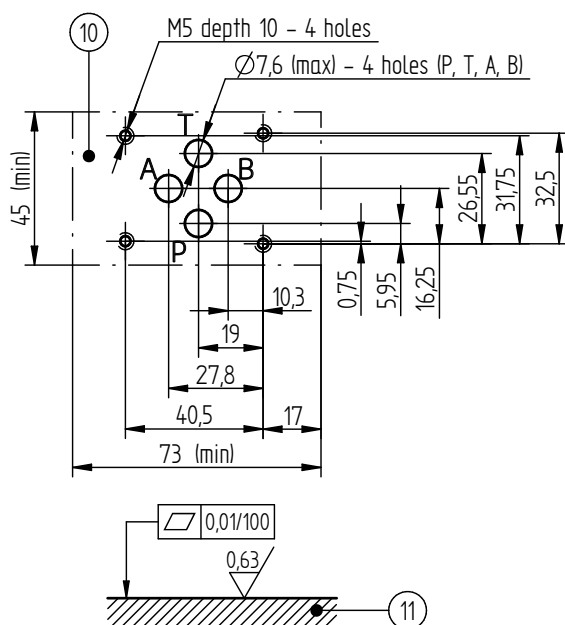
electrical connection option ...Z4... (ISO 4400)

connector type	supply voltage	dimension H
ISO 4400 (DIN 43650-A)	DC: 12V; 24V; 110V	86
ISO 4400 (DIN 43650-A) with rectifier	AC: 110V; 220V; 230V	93

NOTES:

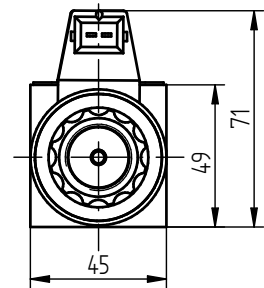
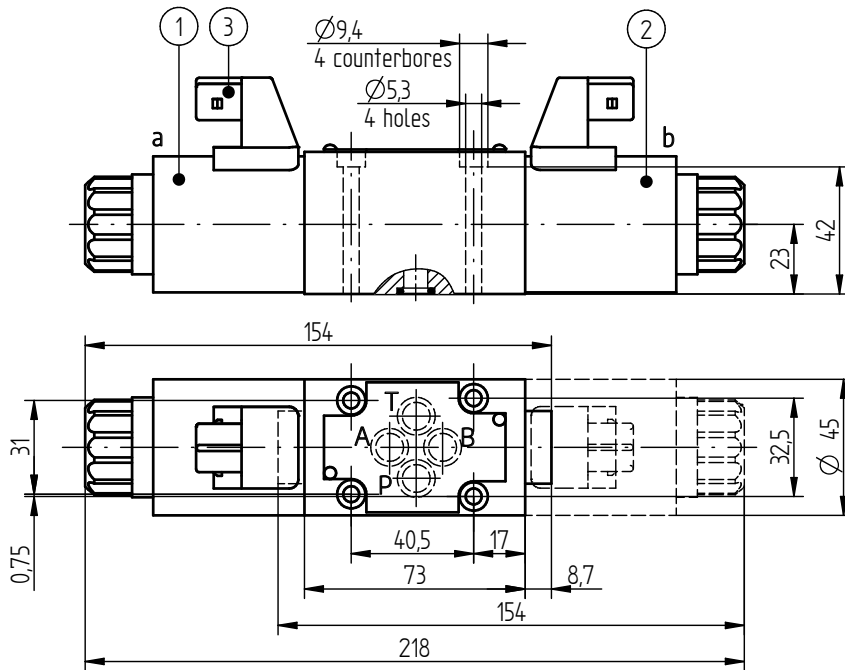
- versions of WE6... DC solenoids with other connectors, see page 7
- versions of WE6... AC solenoids with direct power supply, see page 8

- solenoid on a side
- solenoid on b side
- connector on a side - ISO 4400 type (DIN 43650 - A)
- connector on b side - ISO 4400 type (DIN 43650 - A)
- connector - ISO 4400 type (DIN 43650 - A) with rectifier
- o-ring 9,25 × 1,78 - pcs. 4 /set (P, T, A, B)
- directional spool valve dimension with 2 solenoids on side - a, b
 - 3-position with spring return (spool diagrams: E, F, G, H, J, L, M, P, U, W - see page 4)
 - 2-position without spring return
 - 2-position without spring return and with detent (versions WE6.../O...; .../OF...; spools: A, C, D, EA, GA, HA, JA, MA, EB, GB, HB, JB, MB - see pages 4, 5)
- directional spool valve dimension with 1 solenoid on a side
 - 2-position with spring return (spools: A, C, D, D1, EA, FA, GA, HA, JA, LA, MA, PA, UA, WA - see pages 4, 5)
- directional spool valve dimension with 1 solenoid on b side
 - 2-position with spring return (spools: B, Y, Y1, EB, FB, GB, HB, JB, LB, MB, PB, UB, WB - see pages 4, 5)
- porting pattern of subplate surface compliant with ISO 4401 designation ISO 4401-03-02-0-94 (CETOP 03) mounting screws M5 × 50 -10.9 in accordance with PN-EN ISO 4762 (PN/M-82302) - pcs. 4 /set tightening torque Md = 9 Nm.
- required surface quality of the valve contact surface



OVERALL AND CONNECTION DIMENSIONS

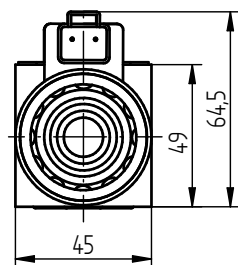
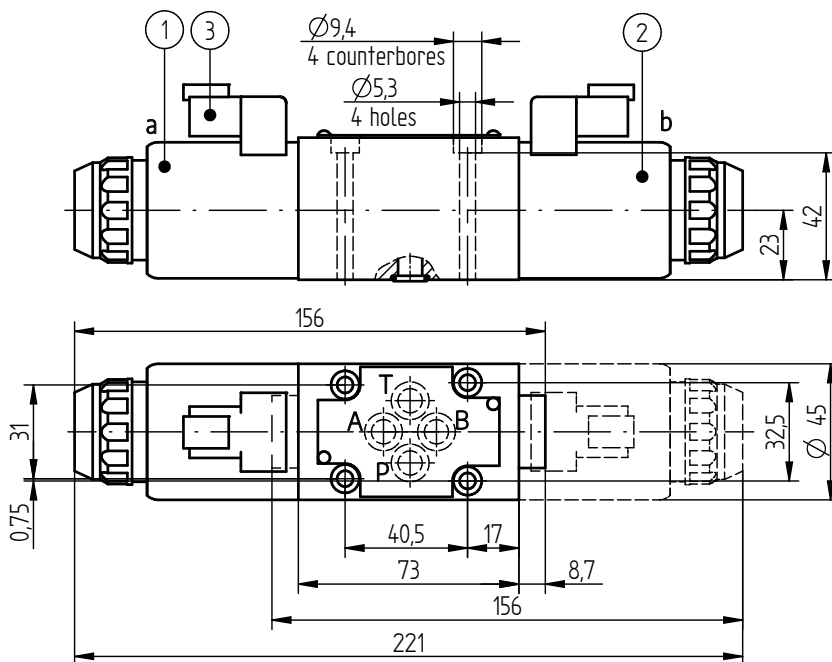
version WE6.../... G12...J...; ...G24...J... (electrical connection AMP Junior Timer type)



1. solenoid on **a** side
2. solenoid on **b** side
3. connector **AMP Junior Timer** male 2-pole

(connectors not shown in the drawing must be ordered separately - Data Sheet WK 499 963)

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



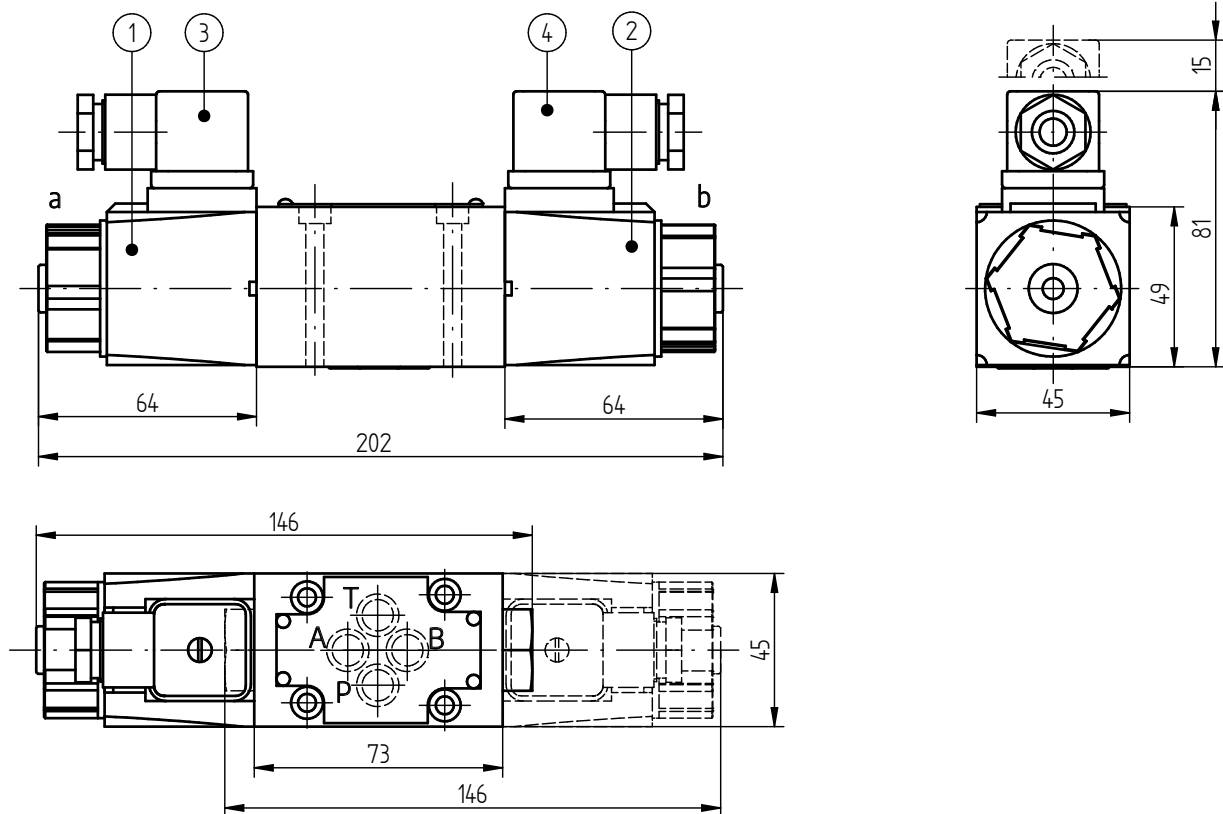
1. solenoid on **a** side
2. solenoid on **b** side
3. connector **Deutsch DT04 -2P** type

(connectors **Deutsch DT04 -2S** not shown in the drawing must be ordered separately - Data Sheet WK 499 963)

NOTES: description of other elements of the valves drawings; porting pattern and required surface quality of the valve contact surface - as in version WE6.../...Z4... (see page 6)

OVERALL AND CONNECTION DIMENSIONS

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



1. AC solenoid (with direct power supply) on a side
2. AC solenoid (with direct power supply) on b side
3. connector on a side - ISO 4400 type (DIN 43650 - A)
4. connector on b side - ISO 4400 type (DIN 43650 - A)

WARNING: Any simultaneous actuation of 2 solenoids of one valve must be ruled out (incomplete switch of solenoid is causing coil overheat and damage).

NOTE: Description of other elements of the valve drawing; porting pattern and required surface quality of the valve contact surface - as in version WE6.../...Z4... (see page 6)

CONTACT

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ul. Wojska Polskiego 29
34-100 Wadowice

tel. +48 33 488 21 00
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Manual operation lever for directional spool valve WE6 s. 32

Directional spool valve WE6... type is also available in versions with optional equipment:

- manual control lever - versions WE6.../...H...; WE6.../...HS...
- manual control lever with a lock - versions WE6.../...HF...; WE6...HSF...

DESCRIPTION OF OPERATION

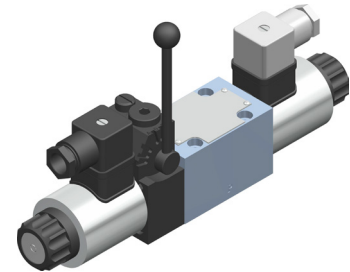
After switching the valve by manual control lever (options ...H...; ...HS... without a lock), the lever returns to the initial (neutral) position automatically.

After switching the valve by solenoid, the manual control lever does not change its neutral position and is not active.

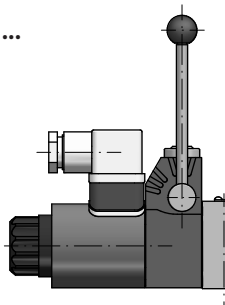
In order to switch the spool valve by using manual control lever (options ...HF...; ...HSF... with a lock), one should move the block sleeve up and change the angle of the lever. In order to keep the lever in the switched position, move the block sleeve down to the stop.

After unlocking, the lever returns automatically to the initial (neutral) position.

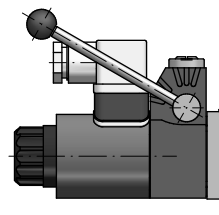
During switching the valve by solenoid, the lever should be in the middle (neutral) position, where it is not active and does not block the position of the spool.



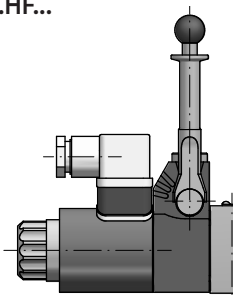
WE6.../...H...



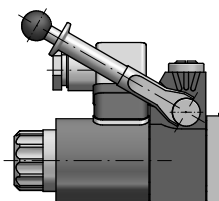
WE6.../...HS...



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



WE6.../...HSF...

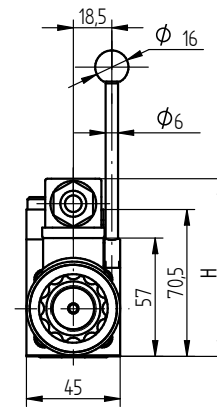
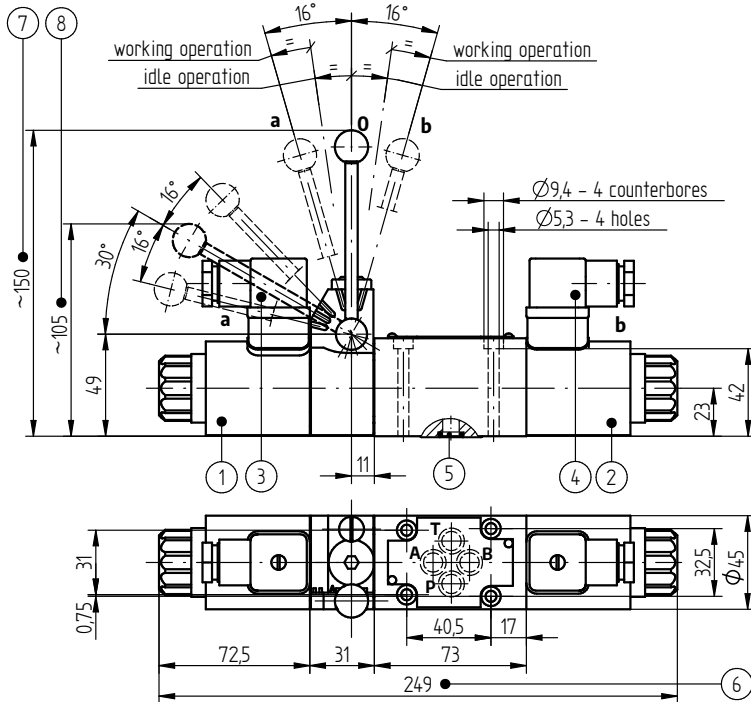


OVERALL AND CONNECTION DIMENSIONS

3-position versions: **WE6.../...H Z4...; .../...HS Z4...**

2-position versions: **WE6.../O...H Z4...; .../OF... H Z4...**

WE6.../O...HS Z4...; .../OF...HS Z4...



option of electrical connection ...Z4... (ISO 4400)

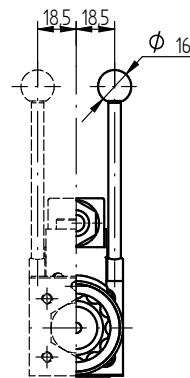
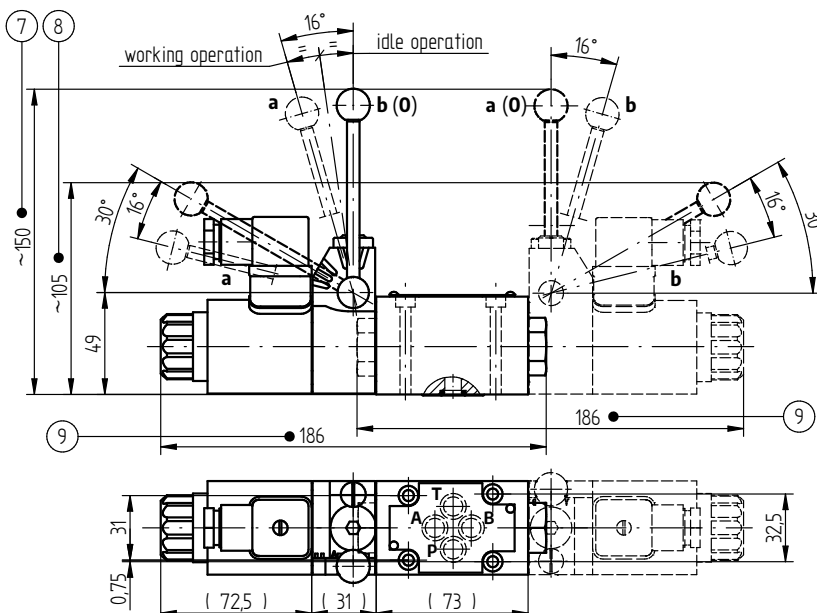
connector type	supply voltage	dimension H
ISO 4400 (DIN 43650-A)	DC: 12V; 24V; 110V	86
ISO 4400 (DIN 43650-A) with rectifier	AC: 110V; 220V; 230V	93

NOTES:

versions **WE6.../...H...; .../O...H...; .../OF...H...;**
WE6.../...HS...; .../O...HS...; .../OF...HS...;
 with other electrical connectors, see page 15

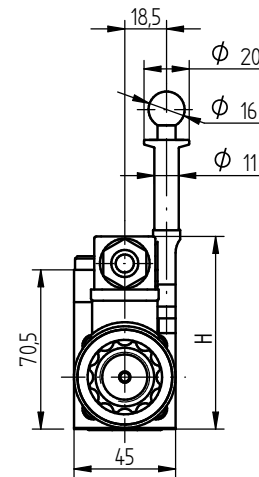
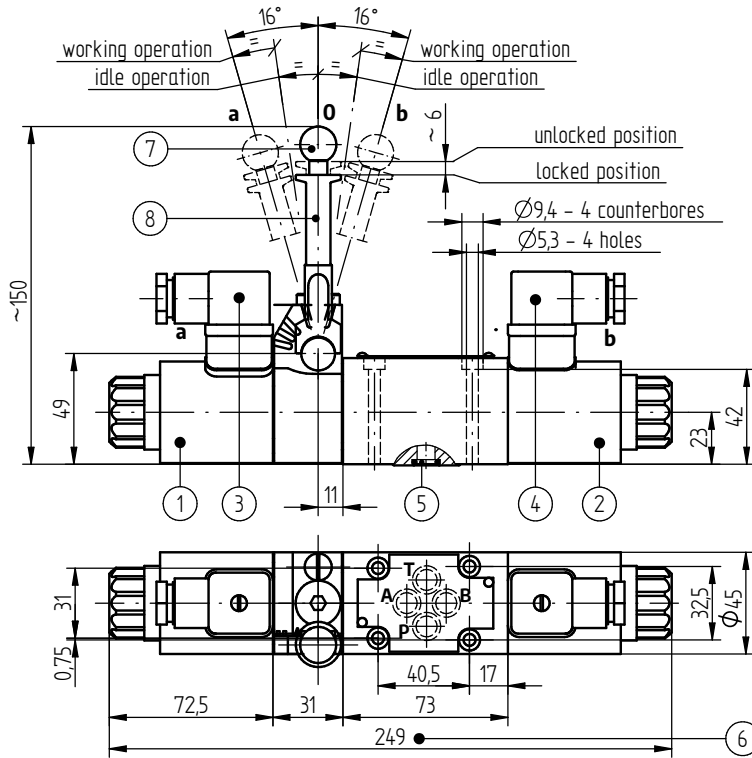
1. solenoid on a side
2. solenoid on b side
3. connector on a side - ISO 4400 type (DIN 43650 - A)
4. connector on b side - ISO 4400 type (DIN 43650 - A)
5. o-ring 9,25 × 1,78 - 4 pcs./set (P, T, A, B)
6. dimension of directional spool valve with 2 solenoids - a, b
 - 3-position with spring return; versions **WE6.../...H...; .../...HS...**
 - 2-position without spring return; versions **WE6.../O...H...; .../O...HS...**
 - 2-position without spring return and with detent; versions **WE6.../OF...H...; .../OF...HS...;**
7. dimension of the spool valve in version **WE6.../...H...**
8. dimension of the spool valve in version **WE6.../...HS...**
9. dimensions of a spool valve with 1 solenoid - a or b 2-position, with spring return

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



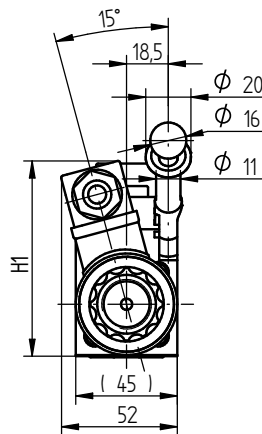
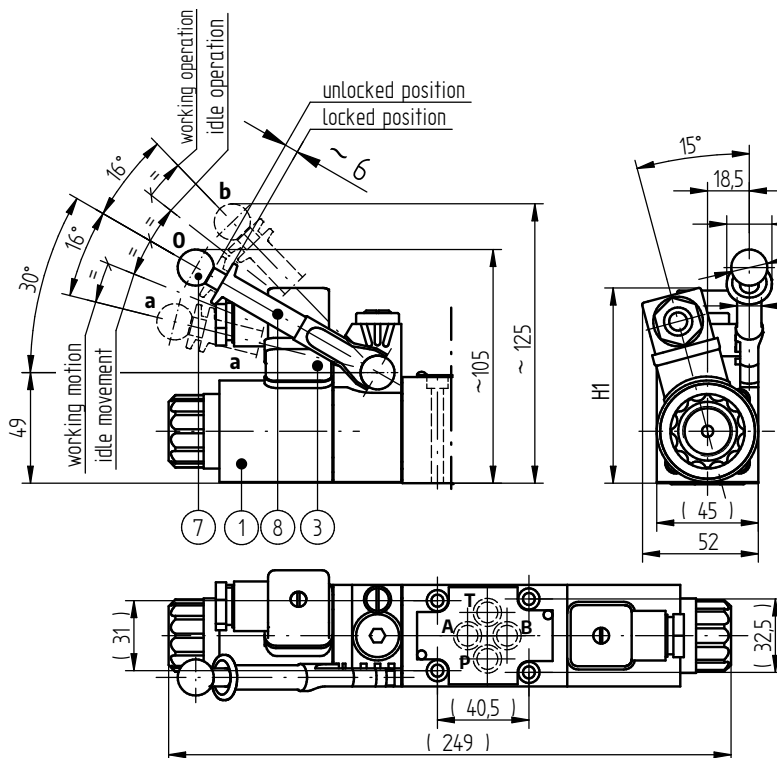
OVERALL AND CONNECTION DIMENSIONS

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



1. solenoid on a side
2. solenoid on b side
3. connector on a side - ISO 4400 type (DIN 43650 - A)
4. connector on b side - ISO 4400 type (DIN 43650 - A)
5. o-ring 9,25×1,78 - 4 pcs./set (P, T, A, B)
6. dimension of directional spool valve with 2 solenoids - a, b
3-position with spring return
WE6.../...HF...; ...HSF...
7. manual control lever
8. manual control lever lock sleeve

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



option of electrical connection ...Z4... (ISO 4400)

connector type	supply voltage	dimension	
		H	H1
ISO 4400 (DIN 43650-A)	DC: 12V; 24V; 110V	86	87
ISO 4400 (DIN 43650-A) with rectifier	AC: 110V; 220V; 230V	93	94

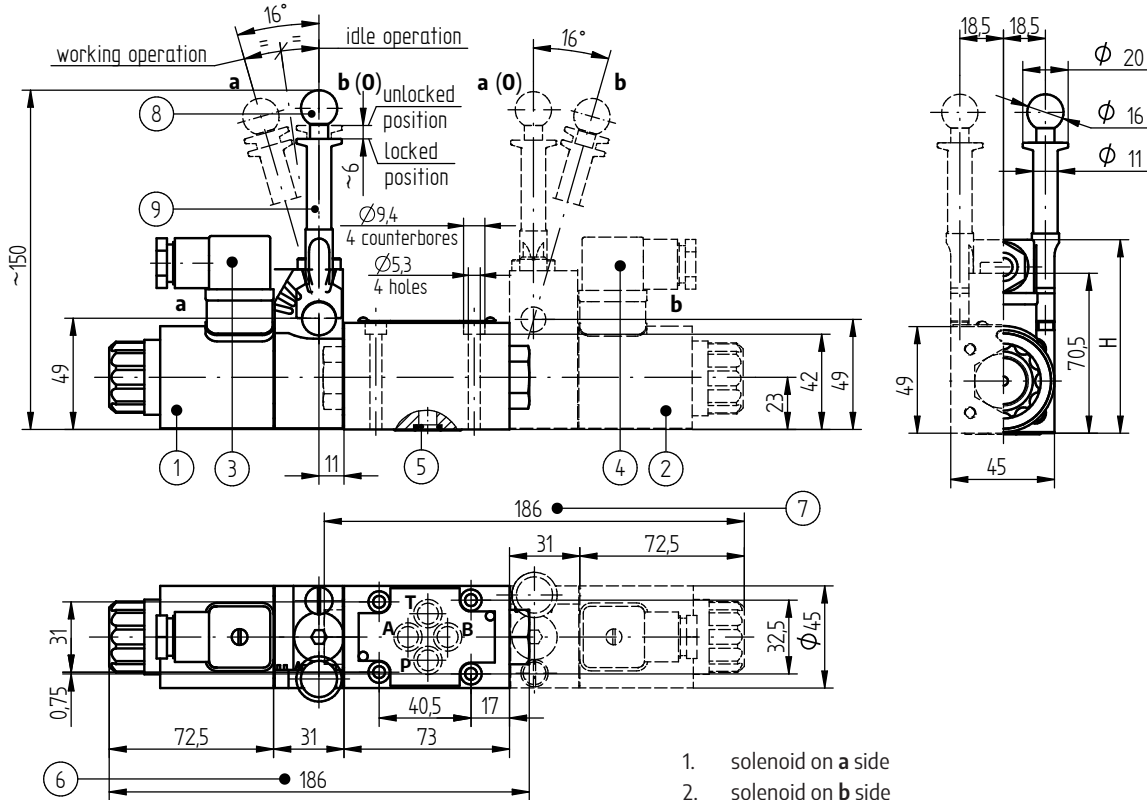
NOTES:

versions **WE6.../...HF...; WE6.../...HSF...**
with other electrical connectors, see page 15

OVERALL AND CONNECTION DIMENSIONS

ADDITIONAL EQUIPMENT

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

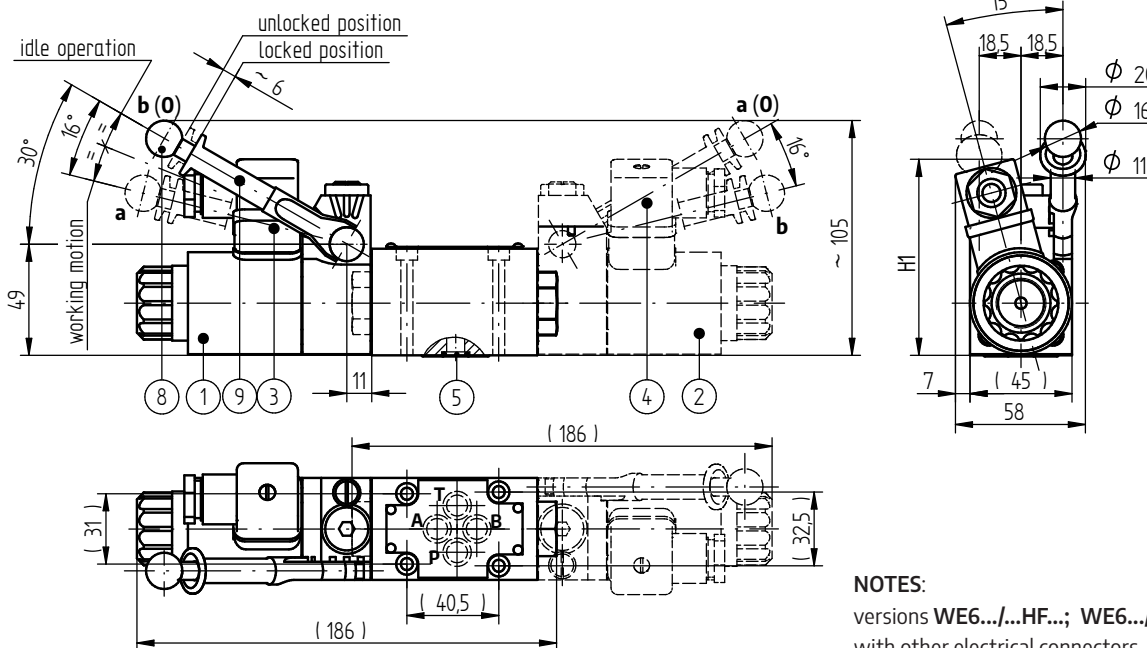


1. solenoid on a side
2. solenoid on b side
3. connector on a side - ISO 4400 type (DIN 43650 - A)
4. connector on b side - ISO 4400 type (DIN 43650 - A)
5. o-ring 9,25 × 1,78 - 4 pcs./set (P, T, A, B)
6. dimension of directional spool valve with 1 solenoid on a side, 2-position with spring return; versions WE6...A/...HF...; ...A/...HSF... (spool diagrams: EA, FA, GA, HA, JA, LA, MA, PA, UA, WA)
7. dimension directional spool valve with 1 solenoid on b side, 2-position with spring return; versions WE6...B/...HF...; ...B/...HSF... (spool diagrams: EB, FB, GB, HB, JB, LB, MB, PB, UB, WB)
8. manual control lever lock sleeve

option of electrical connection ...Z4... (ISO 4400)

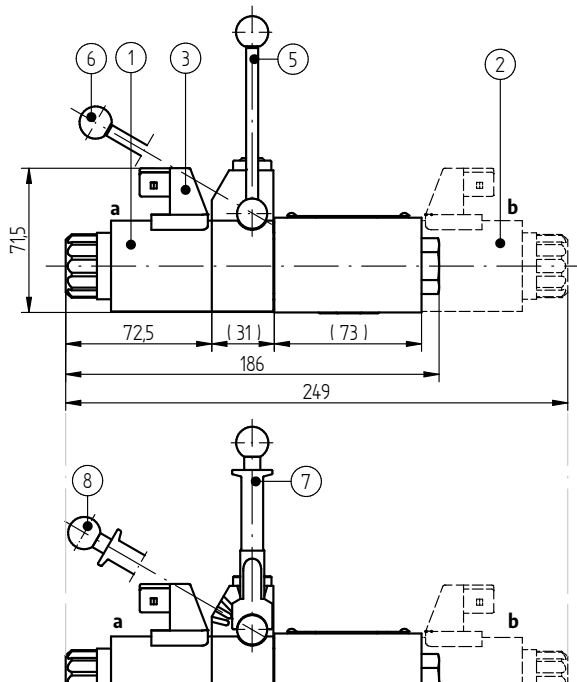
connector type	supply voltage	dimension	
		H	H1
ISO 4400 (DIN 43650-A)	DC: 12V; 24V; 110V	86	87
ISO 4400 (DIN 43650-A) with rectifier	AC: 110V; 220V; 230V	93	94

2-position versions: WE6...A/...HSF Z4...; ...B/...HSF Z4...



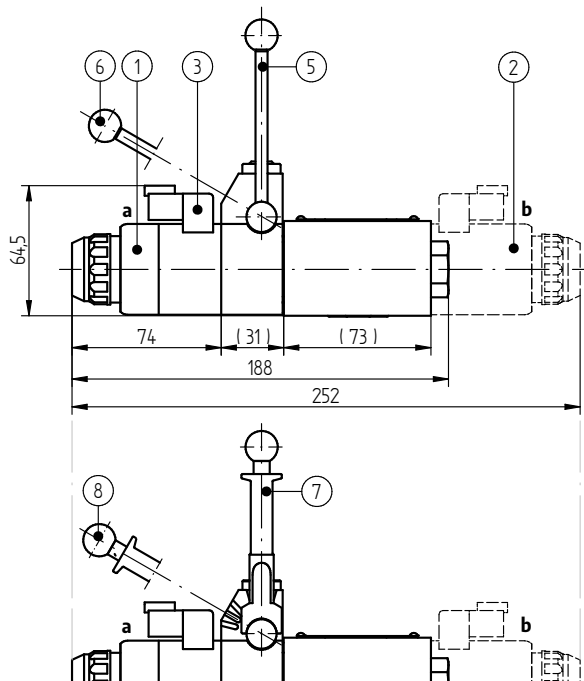
NOTES:
versions WE6.../...HF...; WE6.../...HSF...
with other electrical connectors, see page 15

OVERALL AND CONNECTION DIMENSIONS

 version WE6.../... G12...J...; ...G24...J... (electrical connection **AMP Junior Timer** type)


1. solenoid on **a** side
2. solenoid on **b** side
3. 2-poles male **AMP Junior Timer** connector
(connectors not shown in the drawing **must be ordered separately** - Data Sheet **WK 499 963**)

5. versions: ...H...G12...J...; ...H...G24...J...
6. versions: ...HS...G12...J...; ...HS...G24...J...
7. versions: ...HF...G12...J...; ...HF...G24...J...
8. versions: ...HSF...G12...J...; ...HSF...G24...J...

 version WE6.../... G12...D...; ...G24...D... (electrical connection **Deutsch** type)


1. solenoid on **a** side
2. solenoid on **b** side
3. connector **Deutsch DT04 -2P**

(connectors Deutsch DT04 -2S type not shown in the drawing **must be ordered separately** - Data Sheet **WK 499 963**)

5. versions: ...H...G12...D...; ...H...G24...D...
6. versions: ...HS...G12...D...; ...HS...G24...D...
7. versions: ...HF...G12...D...; ...HF...G24...D...
8. versions: ...HSF...G12...D...; ...HSF...24...D...

NOTES:

Description of other elements of the valve drawing; porting pattern and required surface quality of the valve contact surface- as in version **WE6.../...Z4...** (see page 6)

CONTACT

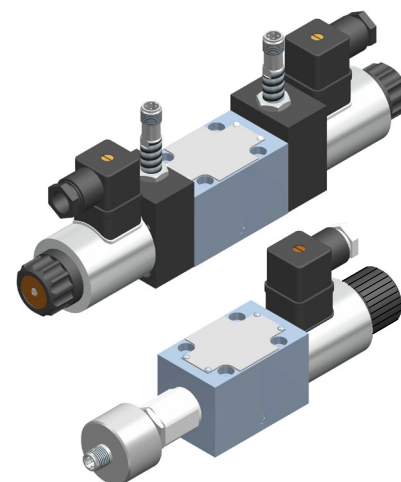
PONAR Wadowice S.A.
ul. Wojska Polskiego 29
34-100 Wadowice

tel. +48 33 488 21 00
www.ponar-wadowice.pl

Inductive spool position switch for directional spool valve WE6 s. 32

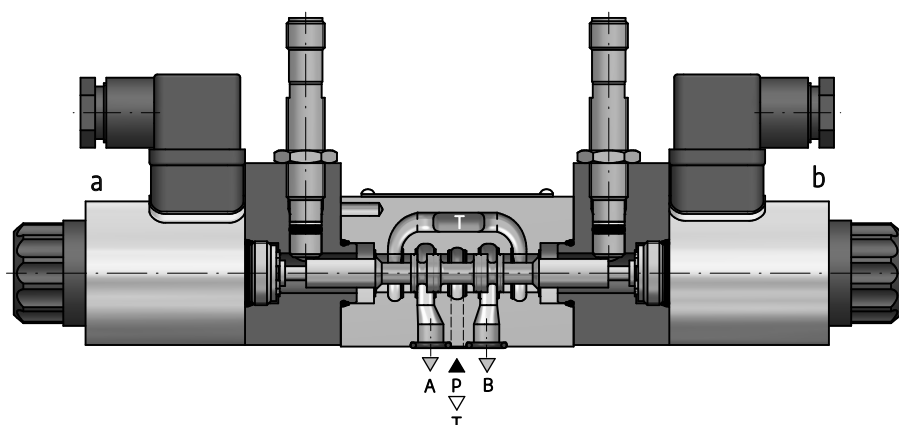
Directional spool valve WE6... type is also available in versions with optional equipment:

- S type inductive spool position switch - version WE6.../...-S...
- M type inductive spool position switch - version WE6.../...-M...



ADDITIONAL EQUIPMENT OF THE DIRECTIONAL SPOOL VALVE

S type Inductive spool position switch
version WE6.../...-S...

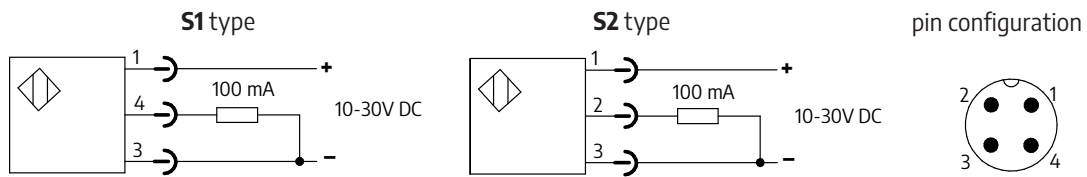


SUPPLEMENTARY TECHNICAL PARAMETERS

type of spool position switch	PNP inductive proximity switch	
supply voltage range of the switch	10 ÷ 30V DC	
max load current of the switch	100 mA	
switch connection type	M12x1 external thread; 4 pins	
protection class	IP 65	
weight of the directional spool 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

Diagrams of S type inductive switch electrical connection



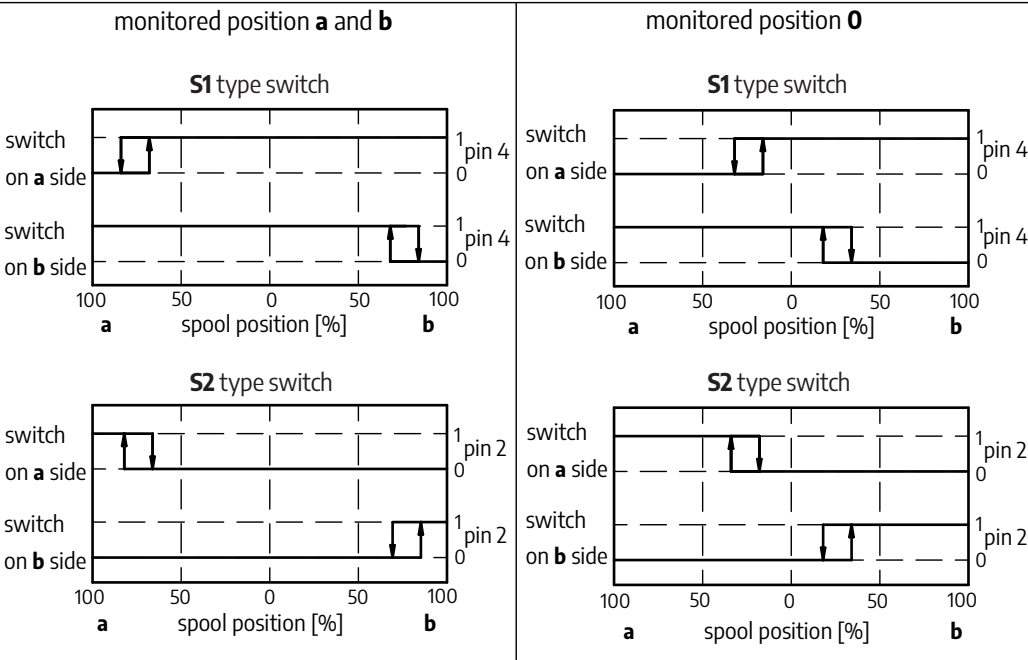
Symbols for directional spool valves and initial positions of switches

Initial position of S type inductive switch depending on the spool position

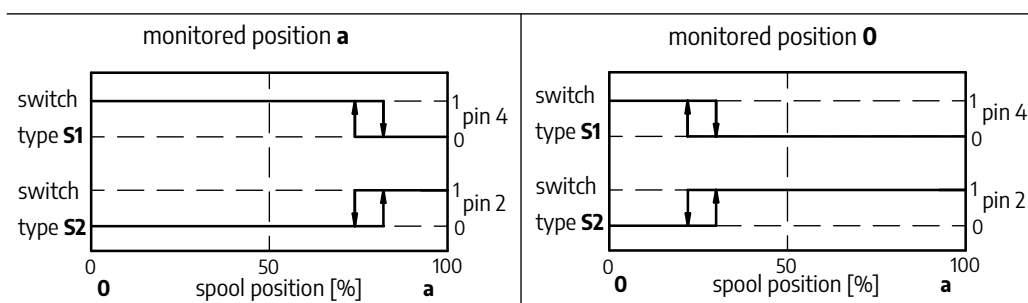
- 0 - voltage free state of output contact
- 1 - voltage state of output contact

symbol for directional valve

3-position version



2-position versions WE6...A... (positions: a, 0)
solenoid and switch on a side



DIAGRAMS

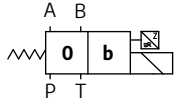
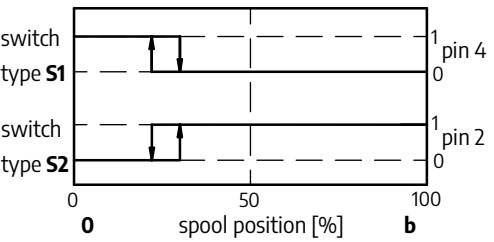
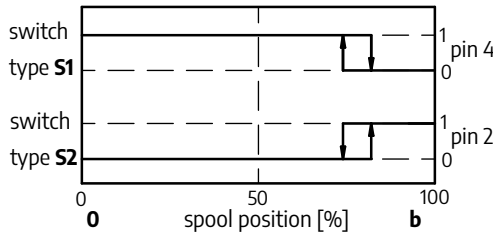
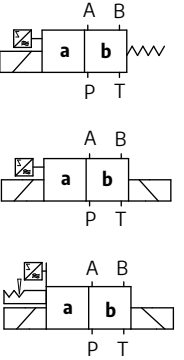
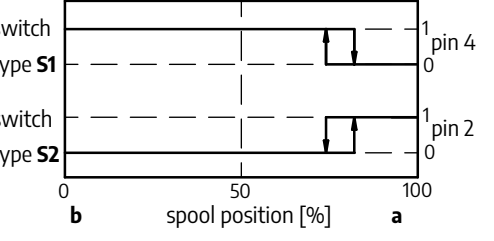
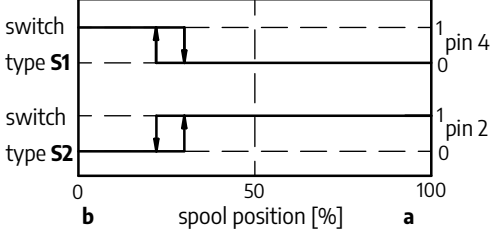
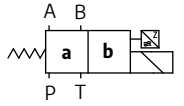
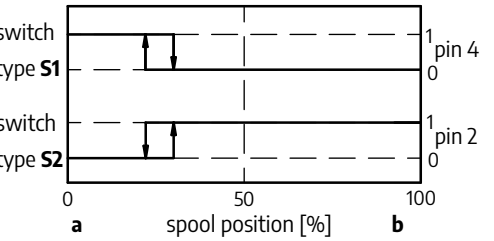
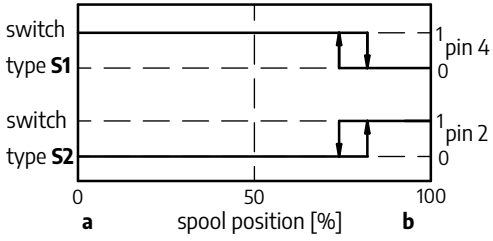
Symbols for directional spool valves and initial positions of switches

Initial position of S type inductive switch depending on the spool position

0 - voltage free state of output contact

1 - voltage state of output contact

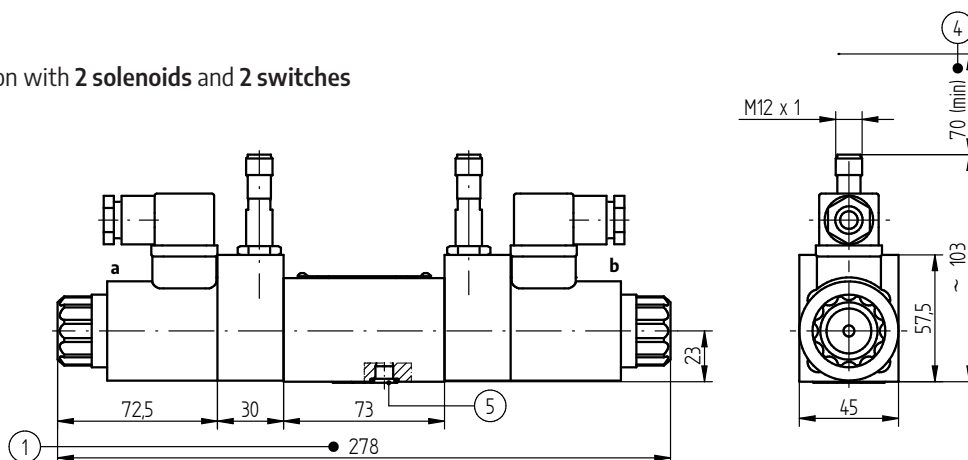
**symbol for
directional valve**

2-position versions WE6...B... (positions: 0, b) solenoid and switch on b side		
<p>monitored position 0</p> 	<p>monitored position b</p> 	
2-position versions WE6A...; ...C...; ...D...; .../O...; .../OF... switch on a side		
<p>monitored position a</p> 	<p>monitored position b</p> 	
2-position versions WE6B...; ...Y... switch on b side		
<p>monitored position a</p> 	<p>monitored position b</p> 	

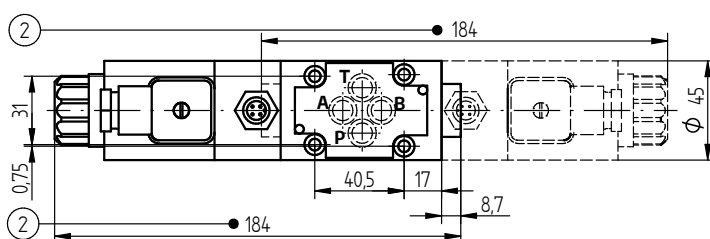
OVERALL AND CONNECTION DIMENSIONS

spool position switch S type

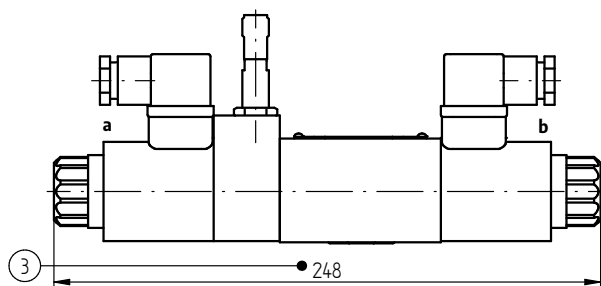
version with **2 solenoids** and **2 switches**



version with **1 solenoid** and **1 switch**



version with **2 solenoids** and **1 switch**



- dimension of directional spool valve with **2 solenoids** and **2 position switches**:
 - 3-position, with spring return; versions **WE6.../...-S1...; S2...**
 - 2-position, without spring return; versions **WE6.../0...-S1...; S2...**
 - 2-position without spring return and with detent; versions **WE6.../0F...-S1...; S2...**
- dimensions of directional spool valve with **1 solenoid** and **1 position switch** on **a** or **b** side
2-position with spring return
- dimension of directional valve with **2 solenoids** and **1 position switch**:
 - 3-position, with spring return; versions **WE6.../...-S1...; S2...**
 - 2-position without spring return; versions **WE6.../0...-S1...; S2...**
 - 2-position without spring return, with detent; versions **WE6.../0F...-S1...; S2...**
- dimension for connector and switch cables mounting (connectors not shown in the drawing must be ordered separately according to data sheet **WK 499 963**)
- o-ring **9,25 × 1,78** - 4 pcs./set (**P, T, A, B**)

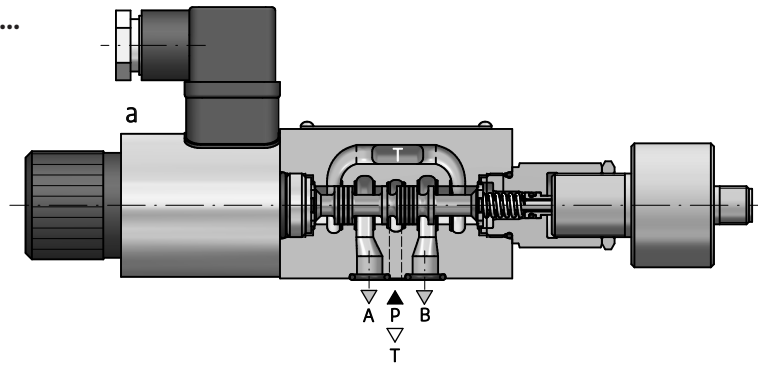
NOTES:

Directional spool valve with a spool position switch is factory pre-set; any adjustments to the valve can be made only by the Manufacturer. In case of a switch or a valve failure, the complete directional spool valve should be replaced.

ADDITIONAL EQUIPMENT OF THE DIRECTIONAL SPOOL VALVE

Spool position switch M type

version WE6.../...-M...



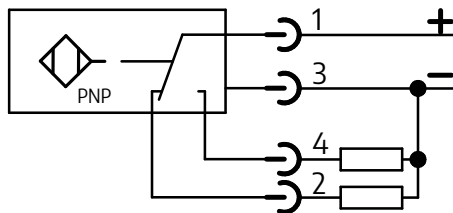
SUPPLEMENTARY TECHNICAL PARAMETERS

type of spool position switch	M type inductive switch with two alternative PNP outputs
supply voltage range of the switch	24 V DC $^{+20}_{-10}$ %
max load current of the switch	400 mA
switch connection type	M12 x 1 external thread; 4 pins
protection class	IP 65
weight of directional spool valve	1,8 kg

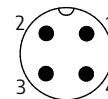
WARNING: M type inductive switches must not be connected in series.

DIAGRAMS

Diagrams of M type inductive switch electrical connection



pin configuration



Symbols for directional spool valves and initial positions of switches

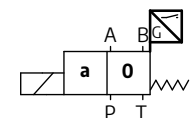
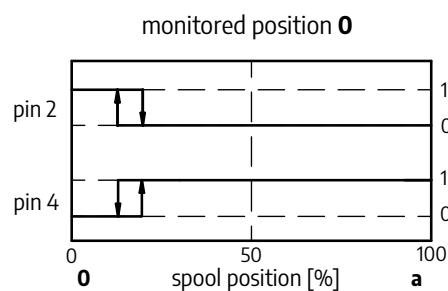
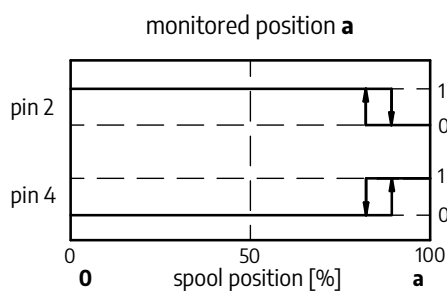
Initial position of M type inductive switch depending on the spool position

0 - voltage free state of output contact

1 - voltage state of output contact

symbol for directional valve

2-position versions WE6...A... (positions: a, 0) solenoid on a side and switch on b side



DIAGRAMS

Diagrams for directional spool valves and initial positions of switches

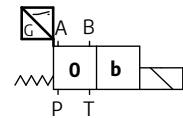
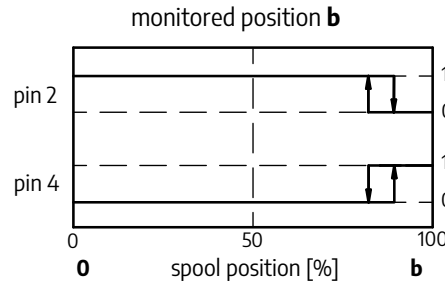
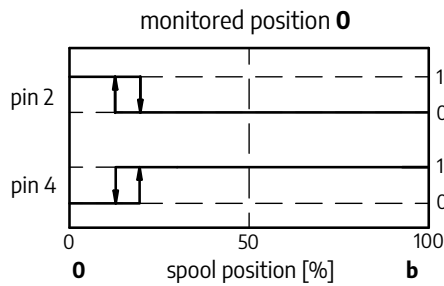
Initial position of M type inductive switch depending on the spool position

0 - voltage free state of output contact

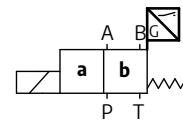
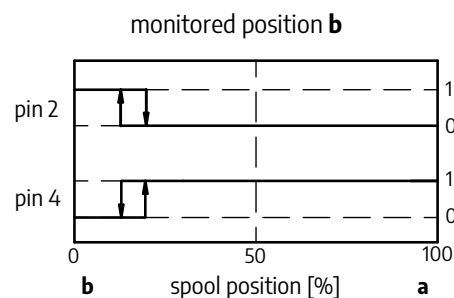
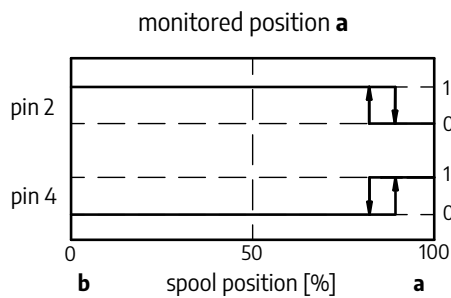
1 - voltage state of output contact

symbol for
directional valve

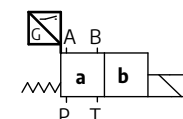
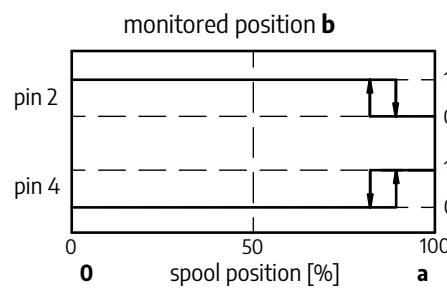
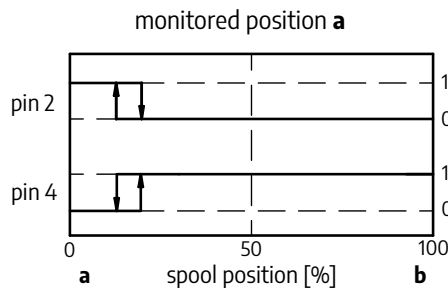
**2-position versions WE6...B... (positions: 0, b)
solenoid on b side and switch on a side**



**2-position versions WE6A...; ...C...; ...D...; ...D1...
switch on b side**



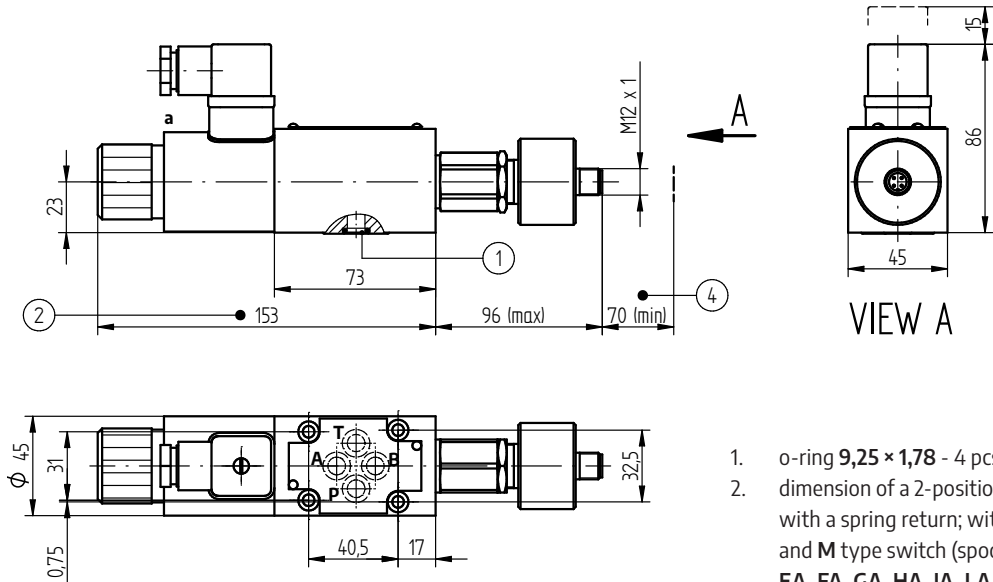
**2-position versions WE6B...; ...Y...; ...Y1...
switch on a side**



OVERALL AND CONNECTION DIMENSIONS

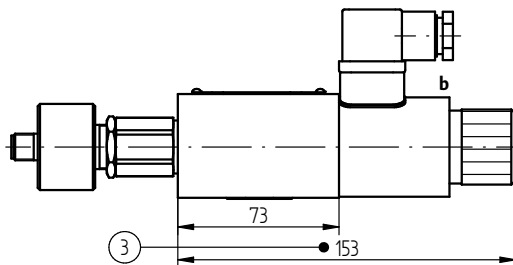
Spool position switch M type
(only for 2-position versions with spring return)

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



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

version with solenoid on **b** side and **M** type switch



NOTES:

Directional spool valve with a spool position switch is factory pre-set; any adjustments to the valve can be made only by the Manufacturer. In case of a switch or a valve failure, the complete directional spool valve should be replaced.

CONTACT

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