



## Directional valves with wet pin DC or AC solenoids, type WE 6...L6X



Size 6

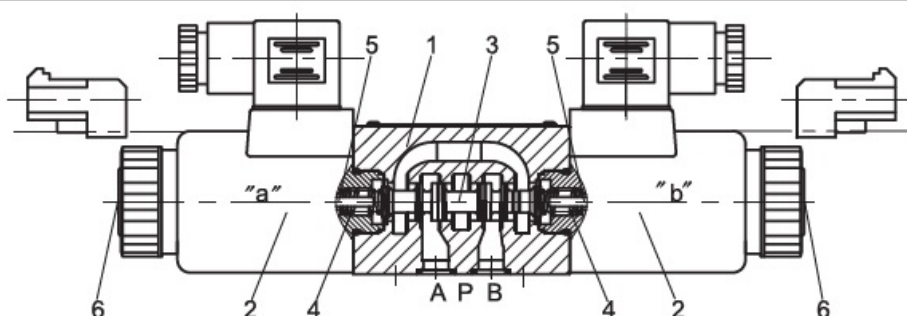
up to 31.5 MPa

up to 80 L/min

- Direct operated directional solenoid valve is the standard version
- Porting pattern to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H
- Wet pin DC or AC solenoids with removable coil
- Solenoid coil can be rotated through 90°
- It is not necessary to drain oil when the coil is replaced
- Fault override button, optional
- Waterproof pin plug, optional
- Large-scope suitable voltage, optional



### Function



Type WE valves are solenoid operated directional spool valves. They control the start, stop and direction of flow.

The directional control valves consist of housing (1), one or two solenoids (2), the control spool (3), and one or two return springs (4).

In the de-energised condition the control spool (3) is held in the neutral or initial position by means of return springs (4) (except for impulse spools). The control spool (3) is actuated via wet pin solenoids (2).

To guarantee satisfactory operation care should be taken to ensure that the solenoid pressure chamber is filled with oil.

The control spool (3) is moved to the expected position by solenoid (2) and pushing rod (5). This gives free-flow from P to A and B to T or P to B and A to T.

When solenoid (2) is de-energised, the control spool (3) is returned to its initial position by means of the return springs (4).

The solenoids may also control the control spool (3) by an optional override button (6) under the de-energised condition.

Type 4WE 6..L6X/O... (only possible for symbols A, C and D)

This version has 2 switched positions and 2 solenoids without detent.

Type 4WE 6..L6X/OF... (impulse spool, only for symbols A, C and D)

This version has 2 switched positions, 2 solenoids and a detent. Both switched positions are thus fixed alternately and so it is unnecessary to continually energise the solenoid.

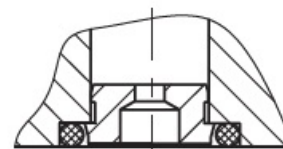
Cartridge throttle (type 4WE 6..L6X/.../B..)

The cartridge throttle is necessary since actual flow may be larger than the performance limits of the valve during switching process.

This is inserted in the P channel of the directional control valve.

For application in voltage pulsation, solenoids with large scope voltage are recommended.

For application in high protective grade, waterproof plug should be used.



P△

Cartridge throttle

## Specification

3 ways (For spool A, A9, B and B9) = 3  
4 ways = 4

Directional valve with wet pin solenoids

Nominal size 6 = 6

Symbols e.g. C, E etc.

Series L60 to L69 = L6X  
(L60 to L69: unchanged installation and connection dimensions)

Return spring = No code

Without return spring = O

Without return spring, and with detent = OF

Standard solenoid = E

Large-scope solenoid (Only for 12V and 24V) = N

24V DC = G24

220V AC 50 Hz = W220-50

Plug rectification 220V = W220R

Other voltage see next page

With fault inspection override button = N

No code = NBR seals  
V = FPM seals

No code = Without cartridge throttle

B08 = Throttle Ø 0.8 mm

B10 = Throttle Ø 1.0 mm

B12 = Throttle Ø 1.2 mm

B15 = Throttle Ø 1.5 mm

B20 = Throttle Ø 2.0 mm

B25 = Throttle Ø 2.5 mm

B30 = Throttle Ø 3.0 mm

Z4 = Electrical plug without lamp  
(Not suit rectification AC)

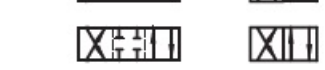
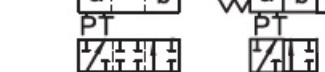
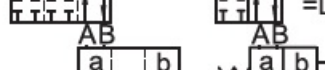
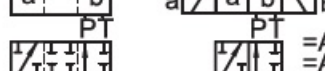
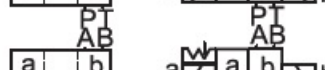
Z5L = Electrical plug with lamp

ZC = Pin-style waterproof plug  
(Including plug, pin, seals)

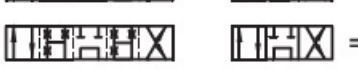
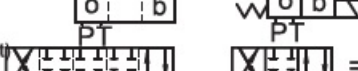
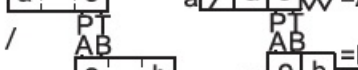
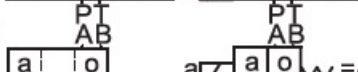
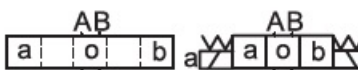
Notes: If use AC electric source, the rectification AC is recommended.

## Symbols

Transition position Spool valve symbols



Transition position Spool valve symbols



Example: If solenoid is fixed at position 'a', the ordering code is ...EA

= M

= P

= Q

= R

= T

= U

= V

= W

Notes: Spool symbols A9, B9, D9, Y9 are only for type without .../O... and .../OF... and are only used as pilot valves

Technical data				
Fixing position			Optional	
Environment temperature range		°C	-30 to +50 (NBR seal)	
			-20 to +50(FPM seal)	
Weight	Single solenoid	kg	1.5	
	Double solenoids	kg	2.0	
Max.operating pressure	Port A,B,P	MPa	35	
	Port T	MPa	21(DC),16(AC), when the operating pressure exceed the permission value, port T must be used as drain port for spool symbol A and B	
Max. flow-rate		L/min	80(DC), 60(AC)	
Flow cross section (switching neutral position )		mm <sup>2</sup>	for symbol Q 6% of nominal cross section	
		mm <sup>2</sup>	for symbol W 3% of nominal cross section	
Fluid		Mineral oil suitable for NBR and FPM seal		
		Phosphate ester for FPM seal		
Fluid temperature range		°C	-30 to +80 (NBR seal)	
			-20 to +80(FPM seal)	
Viscosity range		mm <sup>2</sup> /s	2.8 to 500	
Degree of contamination		Maximum permissible degree of fluid contamination: Class 9. NAS 1638 or 20/18/15, ISO4406		
Electric Date				
Voltage version			DC	AC 50Hz
Usable voltage		V	12,24,48,96 110,205,220	110,127,220
Permissible voltage (deviation)		%	Standard solenoid:+10~-15, large-scope solenoid:+20~-30	
Input power		W	30	32
Current		VA	-	50
Impact current		VA	-	220
loadable rate			Continuous working	
Switched time		Open	ms	25 to 45
Accord with ISO 6403		Closed	ms	10 to 25
Switched frequency		times/h	to 15000	to 7200
Preventive grade according to DIN 40050			IP65(Z4,Z5L plug), IP66 (waterproof plug)	
Max. coils tamperature		°C	+150	+180
Caution: If in electric link, preventive wire $\frac{1}{2}$ must earth as corrsponding regularization.				





## Directional valves with wet pin DC or AC solenoids, type WE 10 ..L3X



Size 10

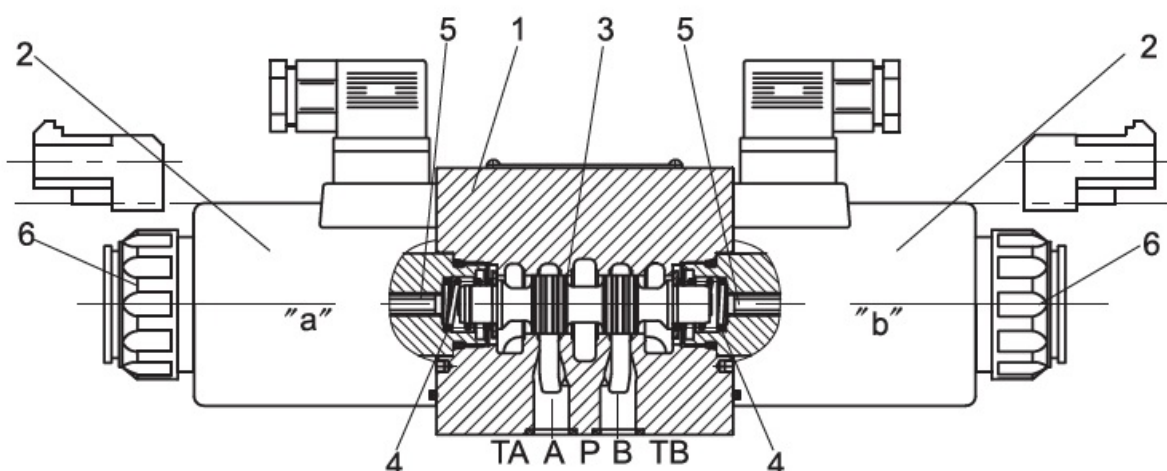
up to 31.5 MPa

up to 120 L/min

- Direct operated directional solenoid valve is the standard version
- Porting pattern to DIN 24 340 form A, ISO 4401 and CETOP-RP 121 H
- Wet pin DC or AC solenoids with removable coil
- Solenoid coil can be rotated through 90°
- It is not necessary to drain oil when the coil is replaced
- Fault override button, optional
- Waterproof pin plug, optional
- Large-scope suitable voltage, optional



### Function



Type WE valves are solenoid operated directional spool valves. They control the start, stop and direction of flow.

The directional control valves consist of housing (1), one or two solenoids (2), the control spool (3), and one or two return springs (4).

In the de-energised condition the control spool (3) is held in the neutral or initial position by means of return springs (4) (except for pulse spools). The control spool (3) is actuated via wet pin solenoids (2).

To guarantee satisfactory operation care should be taken to ensure that the solenoid pressure chamber is filled with oil.

The control spool(3) is moved to the expected position by solenoid(2) and pushing rod(5), and this gives free-flow from P to A and B to T or P to B and A to T.

When solenoid (2) is de-energised, the control spool (3) is returned to its neutral position by means of the return springs (4).

The solenoids may also control the control spool (3) by an optional override button(6) under the de-energised condition.

For application in voltage pulsation, solenoids with large scope voltage are recommended.

For application in high protective grade, waterproof plug should be used.

## Function and section

Type 4WE10.. L3X/OC... (Only for symbols A, C and D)

This version has 2 switched positions and 2 solenoids without detent, one of the solenoids must be energised and the spool position is not defined when the solenoids are de-energised.

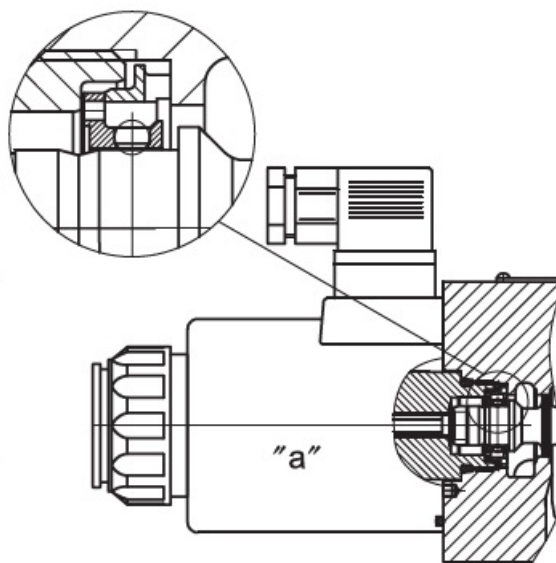
Type 4WE10.. L3X/OFC... (Pulse spool, only for symbols A, C and D)

This version has 2 switched positions, 2 solenoids and a detent. Both switched positions are thus fixed alternately and so it is unnecessary to continually energise the solenoid.

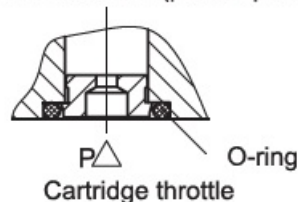
Cartridge throttle (type 4WE10...L3X/.../B..)

The cartridge throttle is necessary since actual flow may be larger than the performance limits of the valve during switching process.

This cartridge throttle is inserted in the P channel of the directional control valve.



Type 4WE10.. L3X/OF... (pulse spool)



## Spool symbols

Transition position	Spool valve symbols	Transition position	Spool valve symbols	Example: If solenoid is fixed at position 'a', the ordering code is ...EA.

Note :Spool symbols B9,Y9 are only for type without .../O... and .../OF... .



## Directional valves pilot operated type 4WEH...

**Sizes 10 to 32**

**up to 28/31.5 MPa**

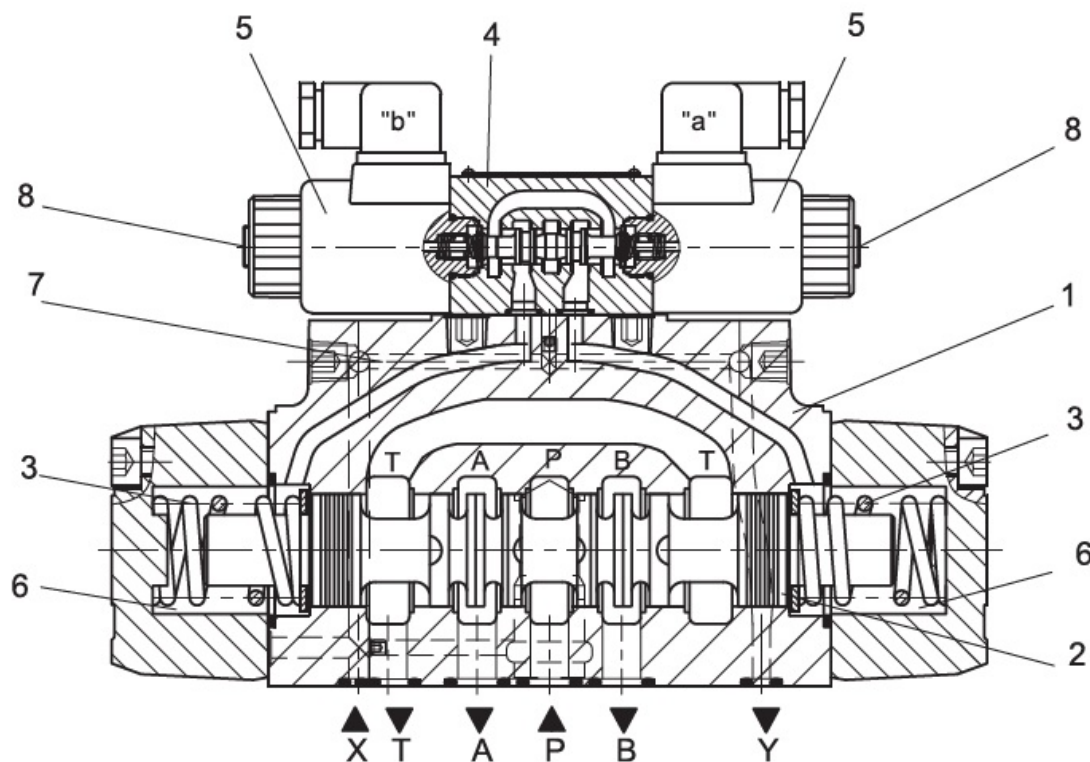
**up to 1100L/min**



Electro-hydraulic directional valves type WEH use solenoids as pilot control. It is for sub-plate mounting, and its porting pattern accords with DIN 24 340 and ISO 4401.

There are many different features and additional device for selection.

Solenoids of pilot valve are wet-pin DC or AC. The main valve uses spring or hydraulic centered and spring or hydraulic offset. With or without shifting time adjustment; With or without stroke adjustment; Pre-load valve or throttle insert can be installed in the main valve. Pressure reducing valve can be installed when operating pressure exceeds 25 MPa.



Structure configuration of directional valves type WEH25 with spring centred

- |               |                      |                  |
|---------------|----------------------|------------------|
| 1 Housing     | 2 Main control spool | 3 Return spring  |
| 4 Pilot valve | 5 Solenoid           | 6 Spring chamber |
| 7 Pilot line  | 8 Manual override    |                  |



4/2 Directional Valves (This valve has four different model versions)

1. Type 4WEH.../.....

This type of valve has return springs in both pilot valve and main valve, and spring reset is by spring.

2. Type 4WEH...H.../...

This type of pilot valve has a return spring, making the pilot valve held in initial position, so flow direction of the main control spool is operated by pressure oil.

3. Type 4WEH...H.../O...

This type of pilot valve has two solenoids. Instead of return springs, flow direction of pilot valve and main valve is operated by solenoids and pressure oil respectively. Therefore a solenoid is always in working position.

4. Type 4WEH...H.../OF...

This type of pilot valve has two solenoids and localizers, making the pilot valve held in the working position (pulse valve). The main control spool has no location installation, but under action of pressure oil it will move to the corresponding working position.

The above-mentioned 2,3,4 versions are all hydraulic offset. The main control spool only, under the action of pressure oil, can remain in the working position.

Throttle insert

A throttle insert can be fitted in the P channel of the pilot valve to limit flow into pilot valve ( see Specification details ).

Pilot oil supply

1. Type WEH10

(1) Changeover of pilot oil supply

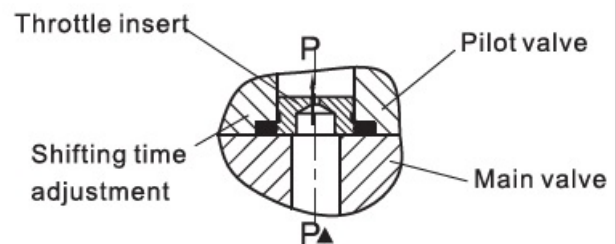
External supply: The screw M6 (2) is in channel P of main valve.

Internal supply: Take down the screw M6 (2) out of channel P

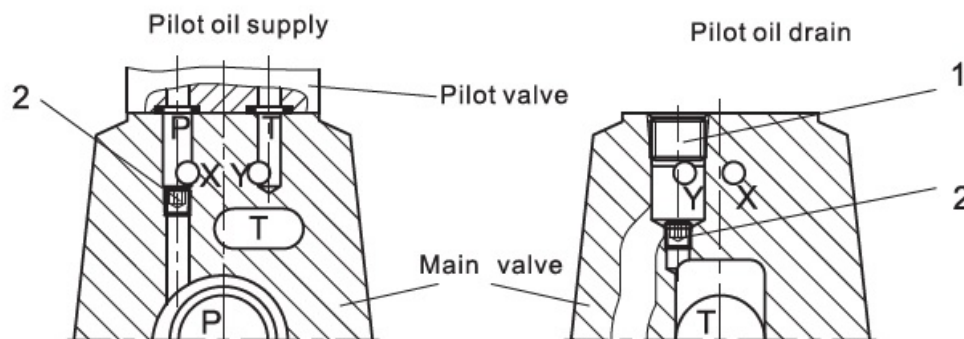
(2) Changeover of pilot oil drain

Internal drain: The screw M6 (2) is removed.

External drain: The plug screw (1) removed and the screw M6 (2) inserted.



Structure chart of throttle insert



Structure configuration of pilot oil supply and drain type WEH10

## 2. Type WEH16

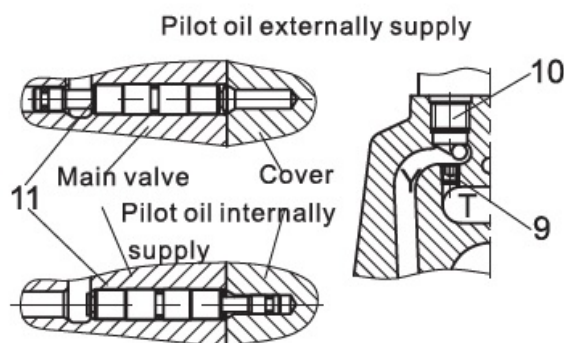
(1) Changeover internal to external pilot oil supply  
Remove the cover, insert the plugs(11) small end towards main valve inside and get external supply.

And turn it end-for-end, insert plugs(11) in the opposite direction and get Internal supply.

(2) Changeover from internal to external pilot oil drain when the plugs(10) of main valve is removed,

Internal drain: the screw M6 (9) is removed,

External drain: the screw M6 (9) is inserted.



Structure chart of pilot oil supply and drain type WEH16

## 3. Type WEH25

(1) Changeover from internal to external pilot oil supply when the cover is removed.

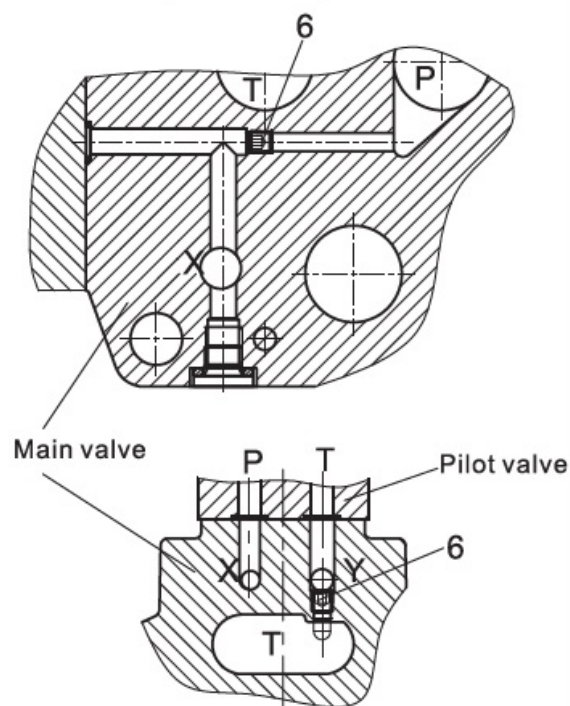
Internal supply: screw M6 (6) is removed.

External supply: screw M6 (6) is insert.

(2) Changeover from internal to external pilot oil drain.

Internal drain: screw M6 (6) is removed from channel T of main valves.

external drain: screw M6 (6) is inserted into channel T of main valves.



Structure chart of pilot oil supply and drain type WEH25

## 4. Type WEH32

(1) Changeover form internal to external pilot oil supply.

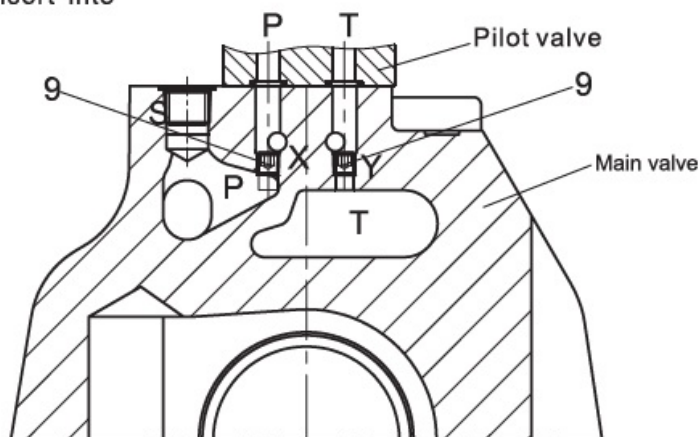
Internal supply: the screw M6 (9) is removed from channel P of main valves.

External supply: the screw M6 (9) is inserted into channel P of main valves.

(2) Changerover internal to external pilot oil drain.

Internal drain: the screw M6 (9) is removed from channel T of main valves.

External drain: the screw M6 (9) is insert into channel T of main valves.



Structure configuration of pilot oil supply and drain type WEH32

### Notes:

Internal supply: the port X in the sub-plate must be plugged.

Internal drain: the port Y in the sub-plate must be plugged.