

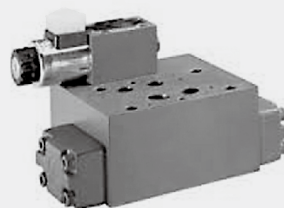


2.19

4/2 and 4/3 way isolator valve

Type Z4WEH/Z4WH16 ..L5X

Size 16
Up to 315 bar
Up to 300 L/min



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Features

- Directional spool valve, pilot operated
- 2 types of actuation
 - Electro-hydraulic (type WEH)
 - Hydraulic (type WH)
- Functions as; an isolating/free-flow valve or as an isolating/free-flow short circuit valve
- P and T have free-flow in all switched positions
- Porting pattern to ISO4401-07-07-0-05
- Wet-pin DC or AC voltage solenoids, optional
- Manual override, optional

Function and configuration

Valves of type Z4WEH are directional spool valve with electro-hydraulic actuation. They control the start and stop of a flow.

These directional valves basically consist of the main valve with housing (1), main control spool (2), one or two return springs (3.1 and 3.2), as well as the pilot valve (4).

Main control spool (2) in the main valve is held by the springs in the zero or initial position. In the initial position, the two spring chambers (6) and (7) are connected pressureless to tank via pilot valve (4). The pilot valve is supplied with pilot oil via pilot channel (11). The pilot oil supply can be provided internally or externally (externally via port X in the sandwich plate).

When the pilot valve is operated, e.g. solenoid "a", the pilot spool (not shown on the drawing) is pushed to the left, and consequently spring chamber (7) is pressurized to pilot pressure. Spring chamber (6) remains pressureless.

The pilot pressure acts on the left side of main control spool (2) and pushes it against spring (3.1). As a result of this, the connections on the component side and on the plate side are opened according to the relevant symbols.

When the solenoid is de-energized, the pilot spool returns to the initial position. Pressure chamber (7) is unloaded to the tank.

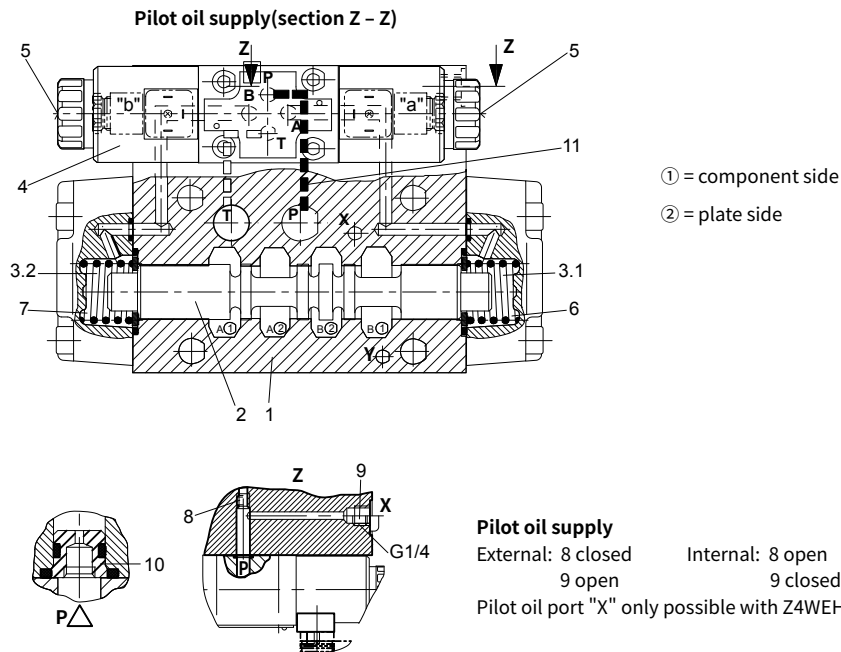
The pilot oil is drained from spring chamber (7) internally via pilot valve (4) into channel T (Y).

An optional manual override (5) allows the pilot spool to be moved without energization of the solenoid.

Throttle insert

The use of throttle insert (10) is required, if the pilot oil supply in channel P of the pilot valve is to be limited.

Throttle insert (10) is to be installed in channel P of the pilot valve.



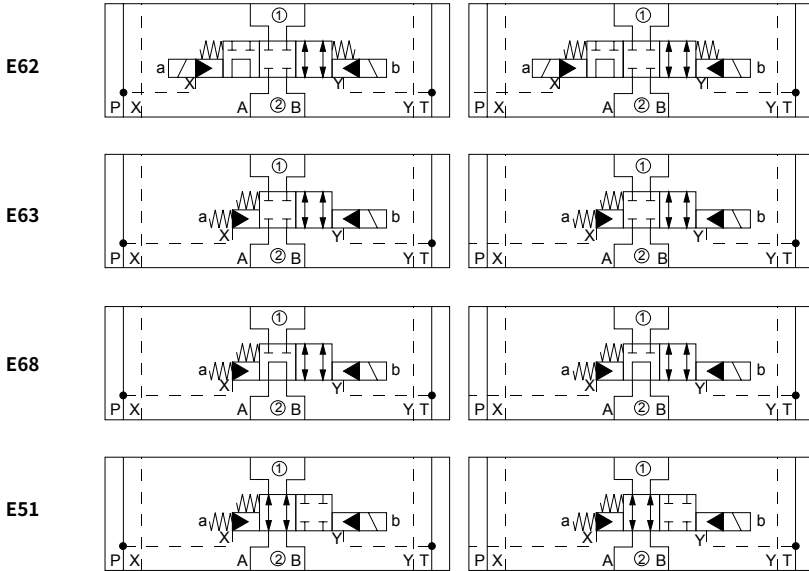
Spool symbols

Type Z4WEH (① = component side, ② = plate side)

Ordering code

Version "ET"

Version "T"



02

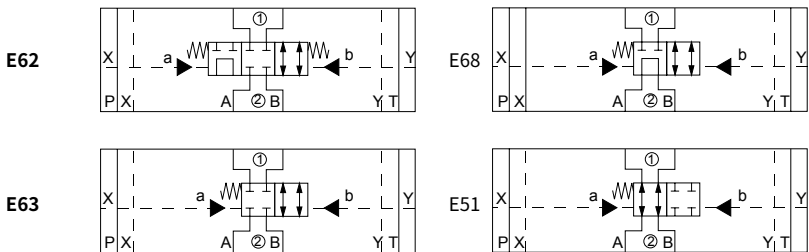
Type Z4WH (① = component side, ② = plate side)

Ordering code

Version "No code"

Ordering code

Version "No code"



Ordering code

Z4	16	L5X/6E	N																	*
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Electrohydraulic = WEH
Hydraulic = WH

Nominal size 16 =16

Symbols e.g. C, E etc.

Series L50 to L59 =L5X
(L50 to L59: unchanged installation and connection dimensions)

Pilot valve
High-performance valve = 6E

24V DC = G24
220V AC 50 Hz = W220-50

With manual override button = N

External pilot oil supply, external pilot oil drain = No code
Internal pilot oil supply, internal pilot oil drain (standard) = ET
External pilot oil supply, internal pilot oil drain =T
(with type Z4WH...only "No code" possible!)

Without switching time adjustment = No code
Switching time adjustment as meter-in control = S
Switching time adjustment as meter-out control = S2

Square plugs(not applicable for the integer) = Z4
Square plugs with lamps = Z5L
With light and protect the diodes = Z5L2
DIN4365sockets without plugs =K4
Deutsch connector assembly,without plugs =K7
Junction boxes with lead wires and lamps =DL
(M22×1.5 interface)

Further details
in clear text

No code = NBR seals
V = FKM seals

No code= Without
pressure reducing valve
D3= With pressure
reducing valve
(to be used, if pilot
pressure > 210 bar)

No code = Without
cartridge throttle
B08 = Throttle Ø0.8 mm
B10 = Throttle Ø1.0 mm

No code= Stroke adjustment
10= Without stroke adjustment
11= Stroke adjustment on sides A and B
12= Stroke adjustment on side A
Stroke adjustment on side B
For further details, see page

No code= Spool position monitoring
Without position switch
QMAG24=Monitored spool position "a"
QMBG24=Monitored spool position "b"
QMABG24= Monitored spool
positions "a" and "b"
QM0G24= Monitored rest position
(not for valves with 2 spool positions)

Technical data

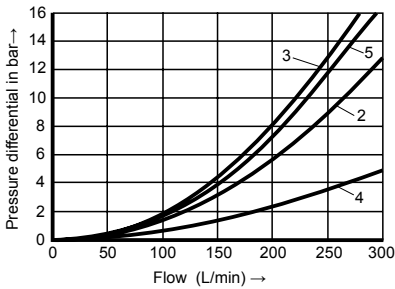
Fixing position		Optional	
Environment temperature range		°C	-30 to +50 (NBR seal) -20 to +50 (FKM seal)
Weight	Single solenoid	kg	14.1
	Double solenoids	kg	14.4
	Valve with hydraulic actuation	kg	13.3
	Switching time adjustment	kg	0.8
	Pressure reducing valve	kg	0.4
Plate for version "T"		kg	0.5
Max. operating pressure	Port A,B,X,Y	bar	315
	Port T	bar	160 (version "WEH" with AC solenoid)
			315 (version "WH")
			210 (version "WEH" with DC solenoid)
	Port P	bar	315
External pilot oil supply	bar	315	
Internal pilot oil supply	bar	210 (without pressure reducing valve)	
		315 (with pressure reducing valve)	
Max. flow-rate		L/min	300
Fluid		Mineral oil suitable for NBR and FKM seal Phosphate ester for FKM seal	
Fluid temperature range		°C	-30 to +80 (NBR seal) -20 to +80 (FKM seal)
Viscosity range		mm ² /s	10 to 500
Minimum pilot pressure		bar	12
Maximum pilot pressure		bar	250
Degree of contamination		Maximum permissible degree of contamination of the pressure fluid is to ISO 4406 (C) class 20/18/15	

Caution: with electrical connections the protective conductor (PE \perp) must be connected according to the relevant regulations.

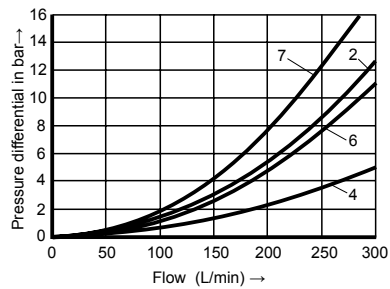
Characteristic curves (Measured at $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using HLP46)

Δp - q_v characteristic curves

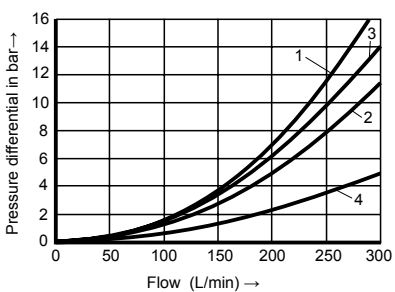
Version "E62"



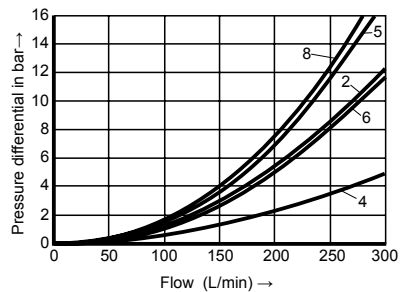
Version "E63"



Version "E51"



Version "E68"

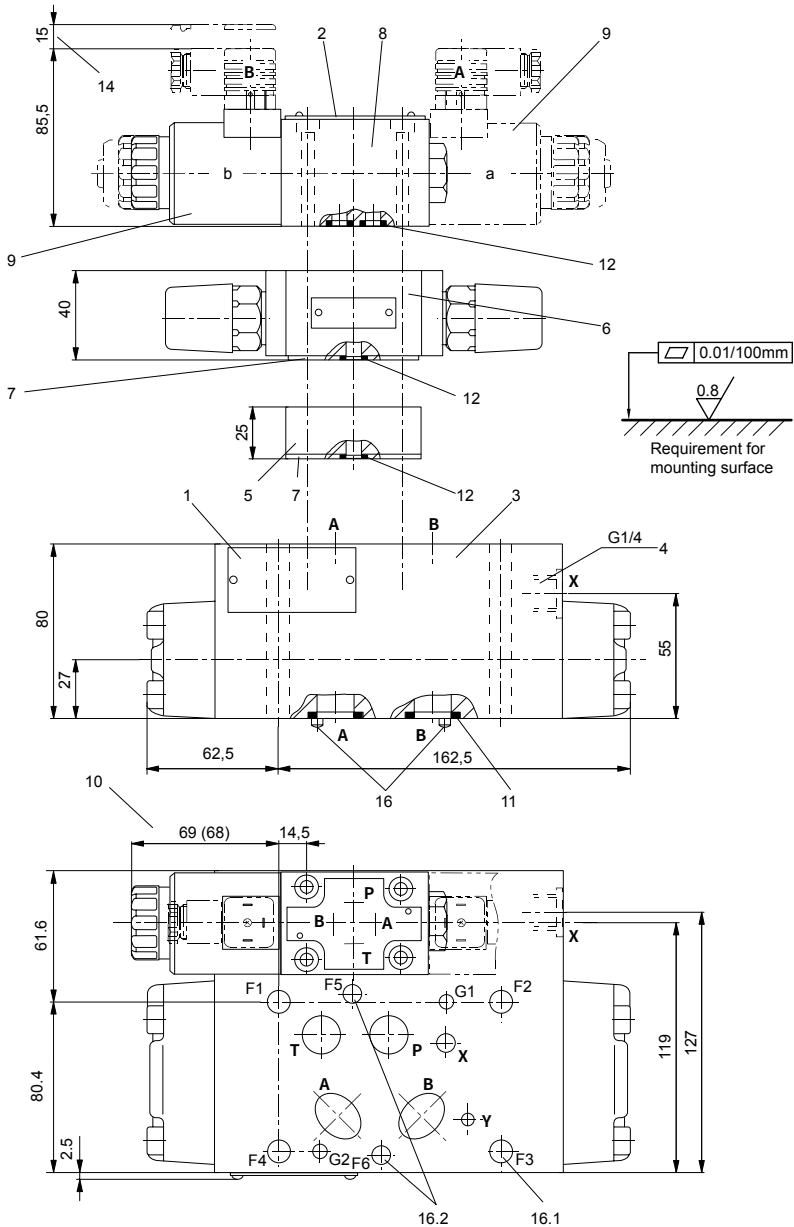


- 1 A2 → A1
- 2 B1 → B2
- 3 A1 → A2; B2 → B1
- 4 P1 → P2; T1 → T2
- 5 A2 → B2; A2 → A1
- 6 A1 → A2
- 7 A2 → A1; B2 → B1
- 8 B2 → B1

Unit dimensions

(dimensions in mm)

Type Z4WEH16

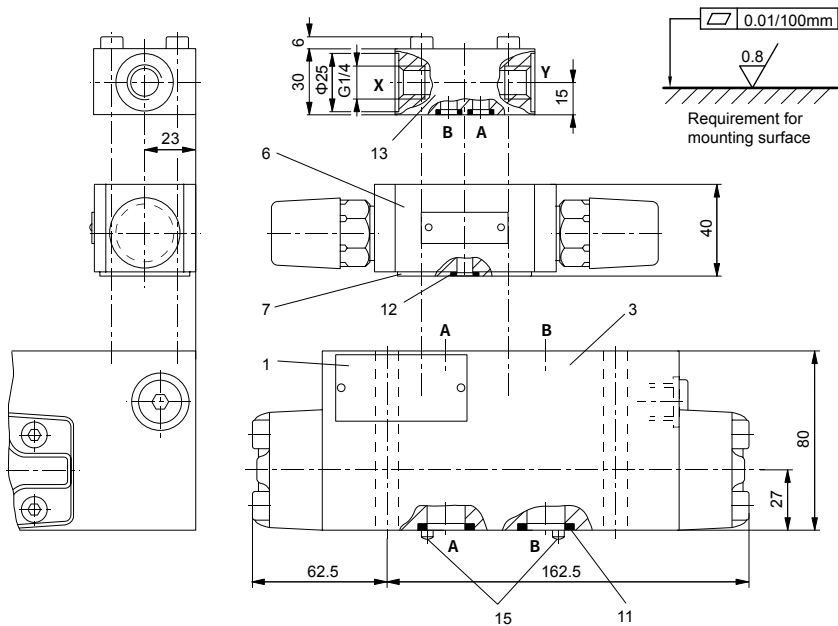


02

Unit dimensions

(dimensions in mm)

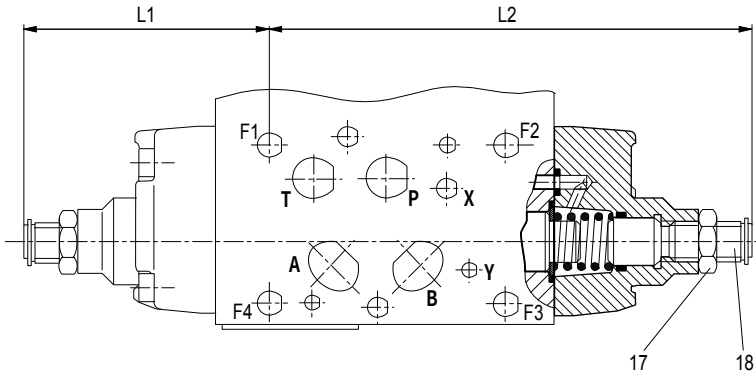
Type Z4WEH10



- | | |
|---|---|
| <p>1 Nameplate of complete valve</p> <p>2 Nameplate of pilot valve</p> <p>3 Main valve</p> <p>4 Port X (G1/4) for external pilot control</p> <p>5 Pressure reducing valve "D3"
(must be used in the case of pilot pressures above 250 bar; only with version "Z4WEH")</p> <p>6 Switching time adjustment (for throttle check valve);
Depending on the installation position, meter-in or meter-out control (illustration: meter-in control)</p> <p>7 O-ring plate</p> <p>8 Pilot valve
– Type 4WE 6 J.. for symbol E62
– Type 4WE 6 Y.. for symbol E51, E63, E68</p> <p>9 Solenoids "a" and "b" (can be rotated 90°)</p> <p>10 Dimension for valve with manual override "N";
dimensions () for valve with AC solenoid</p> | <p>11 Identical seal rings for ports A, B, P, T (main valve)</p> <p>12 Identical seal rings for ports A, B, P, T</p> <p>13 Pilot oil subplate</p> <p>14 Space required to remove mating connector</p> <p>15 Locating pin</p> <p>16.1 Valve mounting bores
Valve mounting screws (separate order)
4 hexagon socket head cap screws
ISO 4762 - M10 - 10.9</p> <p>16.2 Valve mounting bores
Valve mounting screws (separate order)
2 hexagon socket head cap screws
ISO 4762 - M6 - 10.9</p> |
|---|---|

Stroke adjustment, attachment options

(dimensions in mm)



17 Locknut 27 A/F

18 Adjustment spindle, hexagon socket 6 A/F

The stroke adjustment feature limits the stroke of the main spool. The spool stroke can be reduced by loosening locknut (19) and turning adjustment spindle (20) clockwise. The control chamber must be pressureless during this process.

Stroke 10 mm (1 turn = 1.5 mm stroke)

Attachment options	Ordering code	L1	L2
Stroke adjustment on side A and B	10	108	208
Stroke adjustment on side A	11	108	
Stroke adjustment on side B	12		208

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