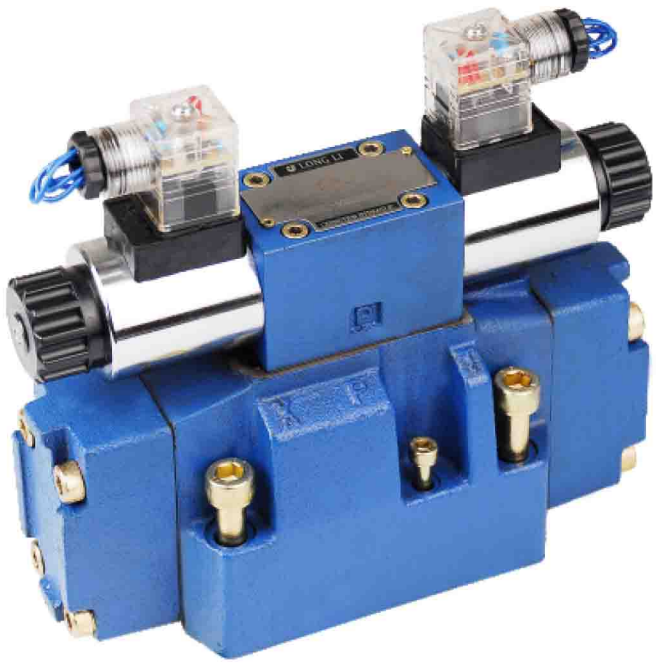
LONG LI HYDRAULIC

# Directional Valves Electro-hydraulically operated

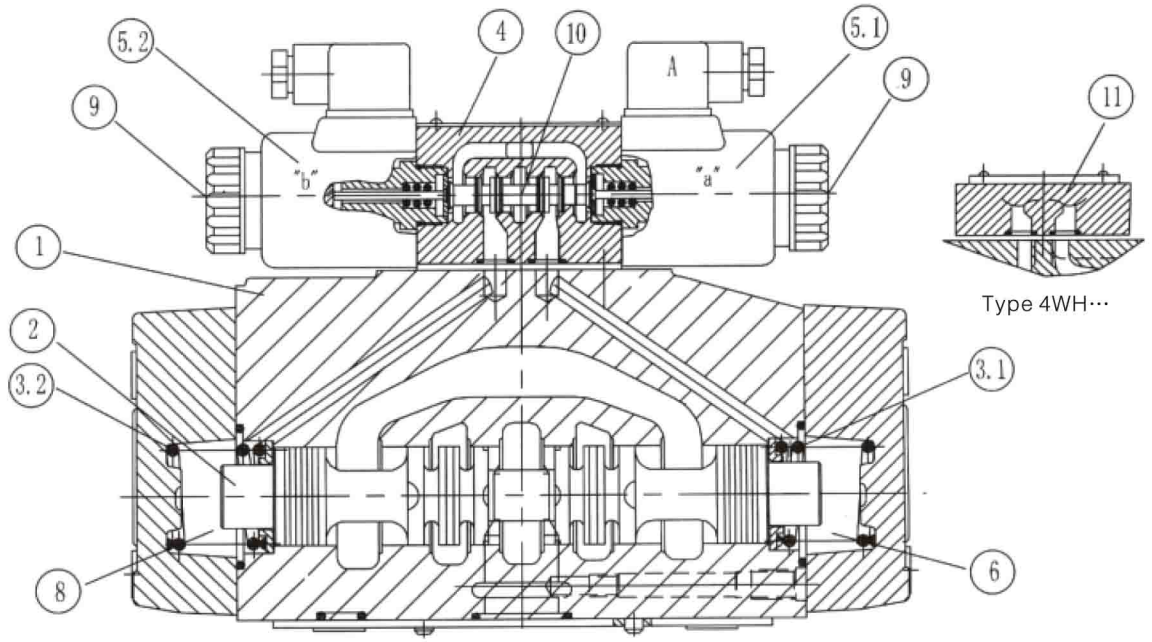
Sizes 10 to 32 up to 35 MPa up to 1100 L/min

Features:
– Valves used to control the start, stop and direction of a fluid flow
– Electro–hydraulic operation (WEH), hydraulic operation (WH)
– For subplate mounting
– Spring or pressure–centered, spring or hydraulic offset
– Wet–pin DC or AC solenoids, optional
– Manual override, optional
– Electrical connection as individual or central connection
– Shifting time adjustment, optional
– Pre–load valve in the P–channel of the main valve, optional
– Auxiliary equipment:
Stroke adjustment at main spool, optional
Stroke adjustment and/or end position indicator, optional
Mechanical or inductive limit switch (proximity type) at the main spool, optional



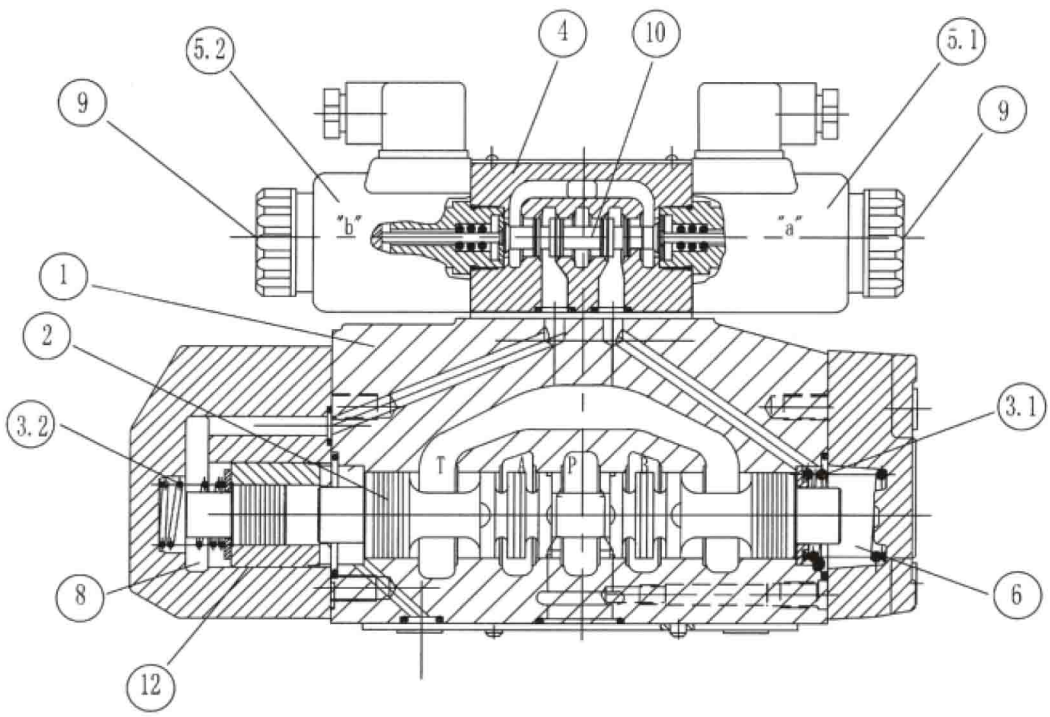
Type 4WEH 16···H···

## Functional description, section




Directional valves type 4WEH...
Valves of type WEH are directional spool valves with electro–hydraulic operation .They control the start, stop and direction of a fluid flow.The 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), and the pilot valve (4) with one or twosolenoids"a"(5.1) and/or "b" (5.2).
The main control spool (2) in the main valve is held in the neutral or in the initial position either by the springs or by means of pressure.
In the initial position, the two spring chambers (6) and (8) are connected to the tank without pressure via the pilot valve (4)
The pilot valve is supplied with pilot fluid via the pilot line. The pilot oil supply can be either internal or external (external via port X).
When the pilot valve is operated, e.g. solenoid "a", the pilot spool (1 0) is shifted to the left and thus spring chamber (8) is pressurized with pilot pressure. Spring chamber (6) remains un–pressurized.
The pilot pressure acts on the left side of the main control spool (2) and pushes it against the spring (3.1). As a consequence, the ports P to B and A to T are connected in the main valv3.
When the solenoid is de–energized, the pilot spool returns to its initial position (exception: detente spool). The spring chamber (8) is unloaded to tank.
The pilot oil is expelled from the spring chamber via the pilot valve into the Y channel.
The pilot oil supply and drain are internal or external (external via port Y).
An optional manual override (9) permits pilot spool (10) to be operated without energizing the solenoid.

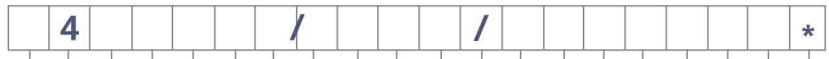
Directional valves type 4WH...
Valves of type WH are directional spool valves with hydraulic operation. They control the start, stop and direction of a fluid flow.
The directional valves basically consist of the valve housing (1), the main control spool (2), one or two return springs (3.1) and (3.2) in case of valves with spring return or spring centring, and the pilot connecting plate (11).
The control spool (2) is operated directly by means hydraulic pressure. The control spool (2) is held in the neutral or in the initial position either by the springs or by means of pressure. Pilot oil supply and pilot oil drain are external (see page 2).
4/3 –way directional valve with spring centring of the control spool
In this model, the main control spool (2) is held in the neutral position by two return springs (3.1) and (3.2). The two spring chambers (6) and (8) are connected to ports X and Y via the connector plate (11).
When one of the two ends of the main control spool (2) is pressurized with pilot pressure, the spool is moved to the shifted position. The required ports in the valve are then opened to flow.
When the pilot pressure is removed, the spring on the opposite side to the pressurized spool area causes the spool to return to its neutral or initial position.




Type 4WEH 16···H···

4/3 –way directional valve with pressure centring
of the main control spool Type 4WEH···H
The main control spool (2) in the main valve is held in the neutral
position by pressurization of the two front faces. A centring
sleeve (12) is supported in the housing and holds the spool in position.
By removing the pressure from one of the spool ends,
the main control spool (2) is moved to the shifted position.
The unloaded spool area displaces the returning pilot
oil via the pilot valve into the Y channel (external).

## Ordering details




Pressure of operation
Up to 28MPa = No code
Up to 35MPa = H–

4–way design =4

Types of operation
Electro–hydraulic = WEH
Hydraulic = WH

Size
Size 10 = 10
Size 16 = 16
Size 16 = 25
Size 32 = 32

Hydraulic = H
By means of springs = No code

Symbols

Series 40 to 49(size 10) = 40
Series 60 to 69(size 16.25.32) = 60

Spool return in the pilot valve for 2–position valve and 2 solenoids only possible with spools C, D, K, Z and hydraulic spool return in the main valve:
Without spring return = O
Without spring return with detent 2 = OF

Pilot valve with wet–pin solenoid
Standard valve = A
High–performance valve = E

24V DC 24V = G24
230V AC 50Hz/60Hz = W230
DC solenoid commuting automatically

No code = Without manual override
N = With manual override
N9 = With protected manual override

No code = Pilot fluid feed internal, return internal
E = Pilot fluid feed external, return internal
ET = Pilot fluid feed internal, return external
T = Pilot fluid feed external, return external
Type 4WH...only avaiable as No code

No code = Without shifting time adjustment
S = Shifting time adjustment as meter–in control
S2 = Shifting time adjustment as meter–out control

Electrical connections(see Additional equipment)
K4 =with component plug

Additional equipment NO.

No code = Without throttle insert
B08 = throttle Φ 0.8mm
B10 = throttle Φ 1.0mm
B12 = throttle Φ 1.2mm
B15 = throttle Φ 1.5mm

Pre–loading valve(not for size 10)
No code = Without pre–loading valve
P 4.5 = With pre–loading valve

No code = Without pressure reducing valve
D3 = With pressure reducing valve

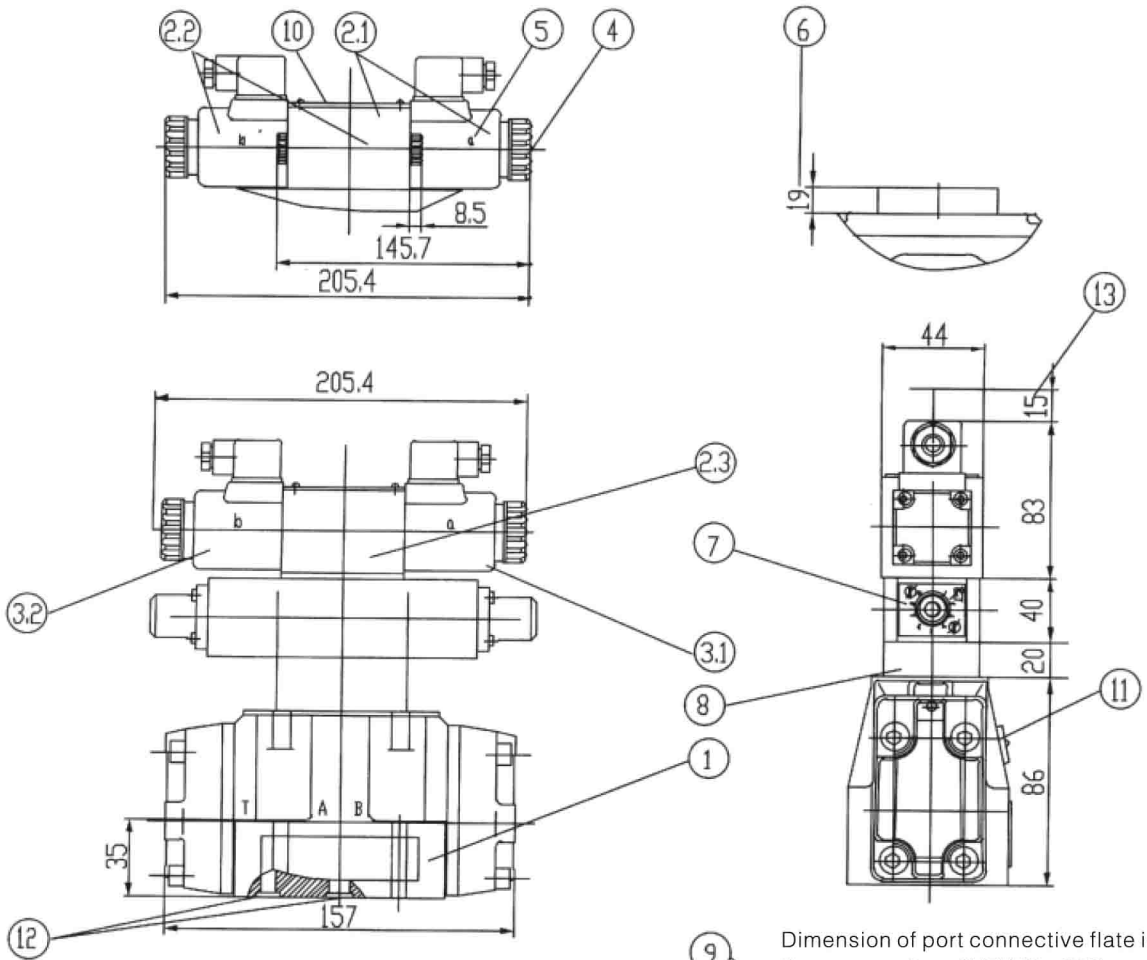
No code = Mineral oil
V = Phospate ester

Further details in clear text

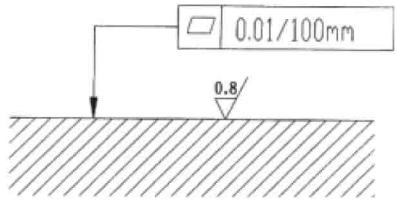
## Unit dimensions

Dimensions in mm

4WEH10...



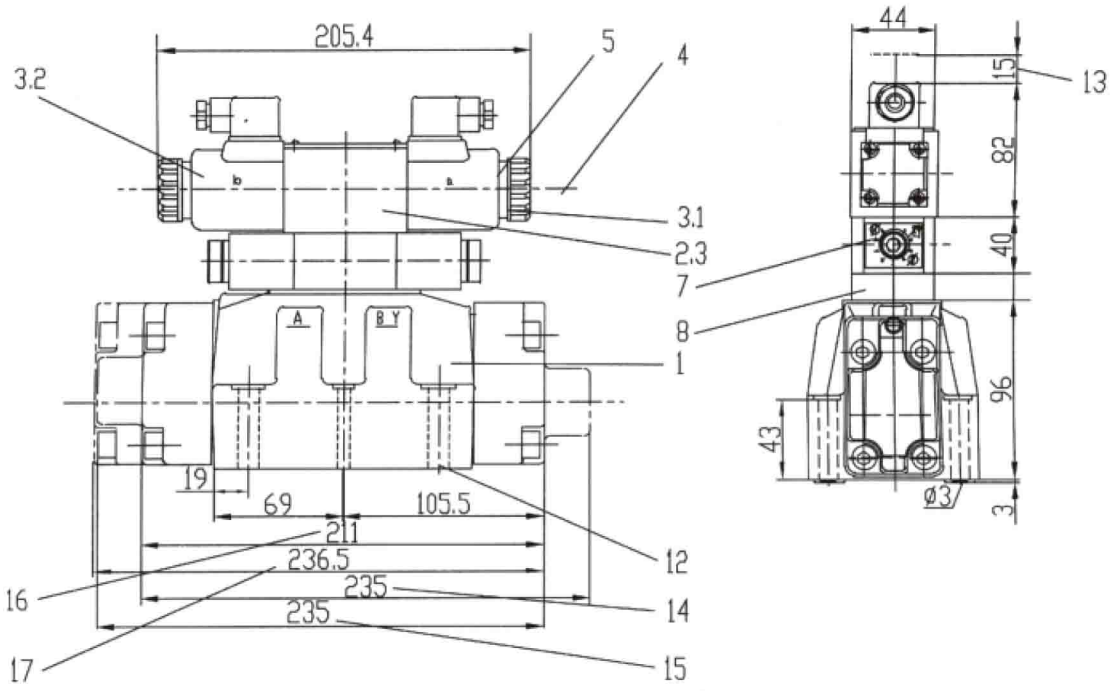

Required surface finish
of mating piece

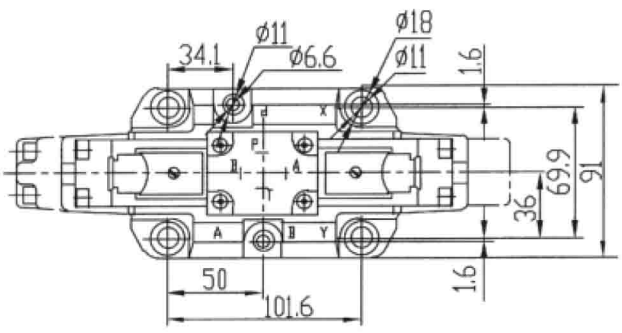


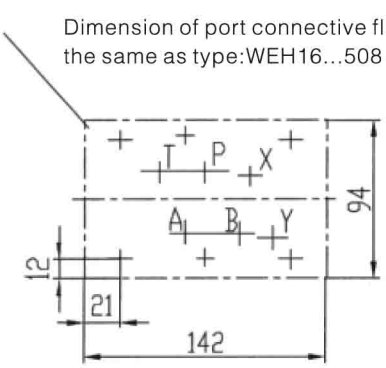
## Unit dimensions

Dimensions in mm

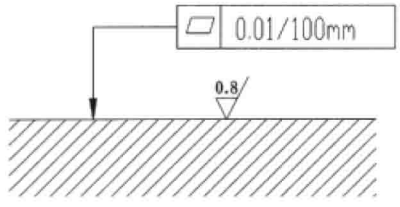
4WEH16...



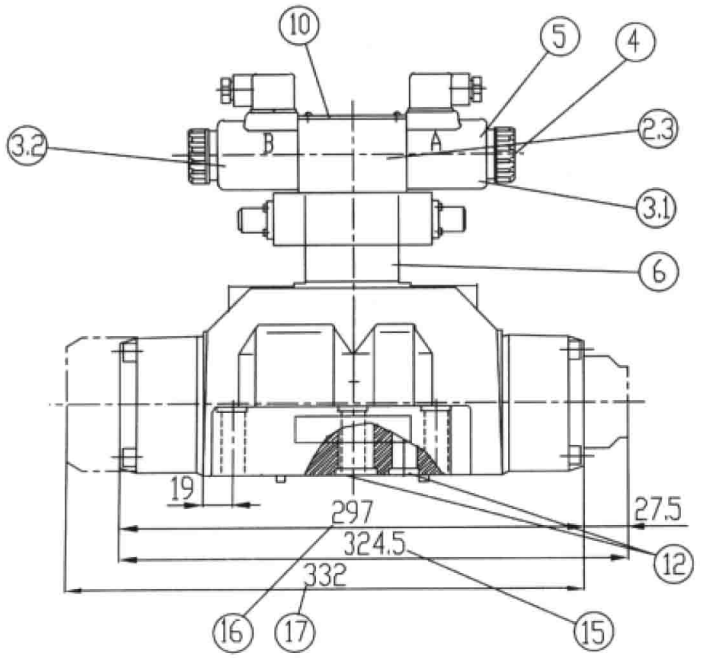



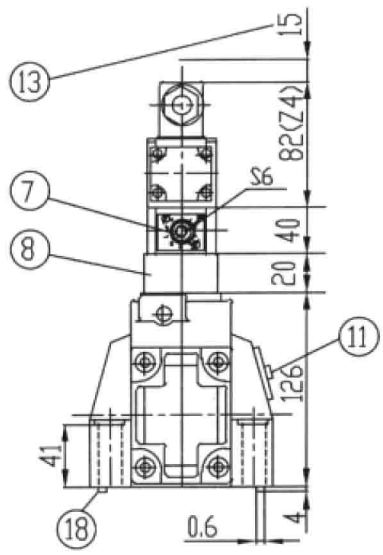



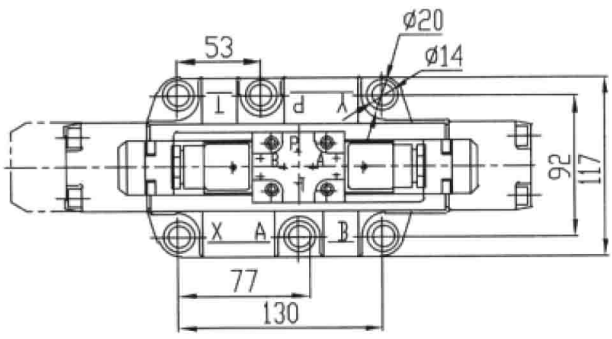

Required surface finish
of mating piece

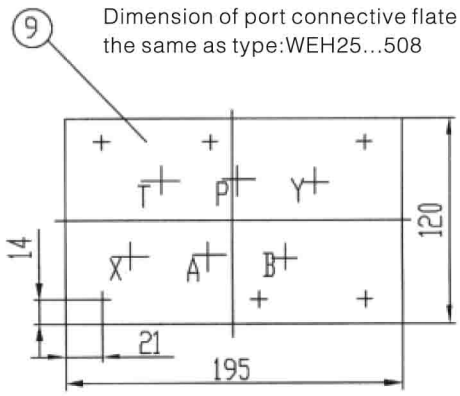


4WEH25...



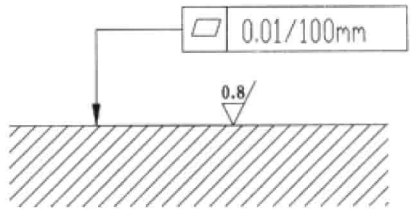



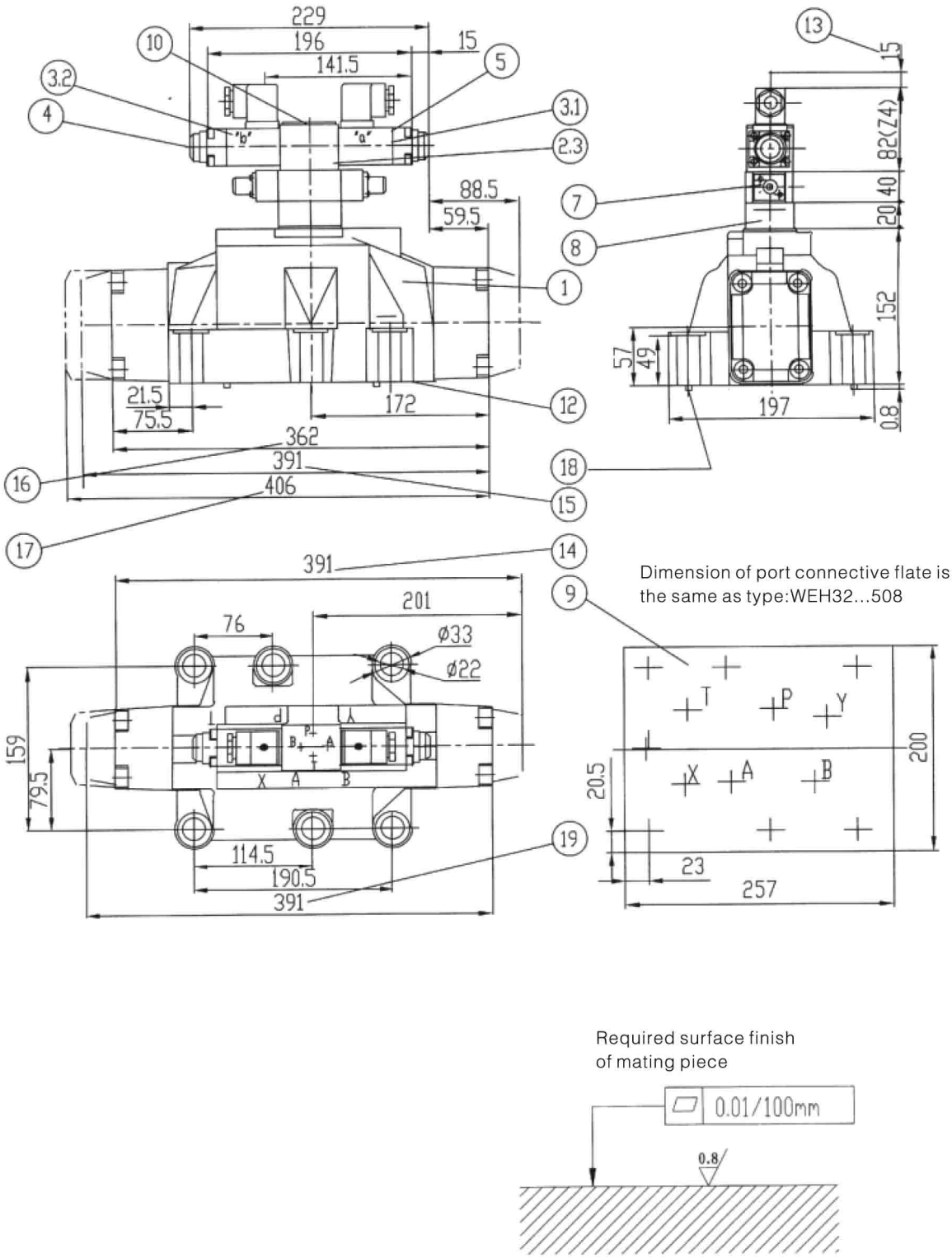




Dimension of port connective flate is the same as type:WEH25...508

Required surface finish of mating piece



4WEH32...


229
196
141.5
15
88.5
59.5
21.5
75.5
172
362
391
406
391
201
76
Ø33
Ø22
159
79.5
114.5
190.5
391
82(74)
40
20
152
57
49
197
0.8
Dimension of port connective flate is
the same as type:WEH32...508
T
P
Y
X
A
B
200
20.5
23
257
Required surface finish
of mating piece
0.01/100mm
0.8