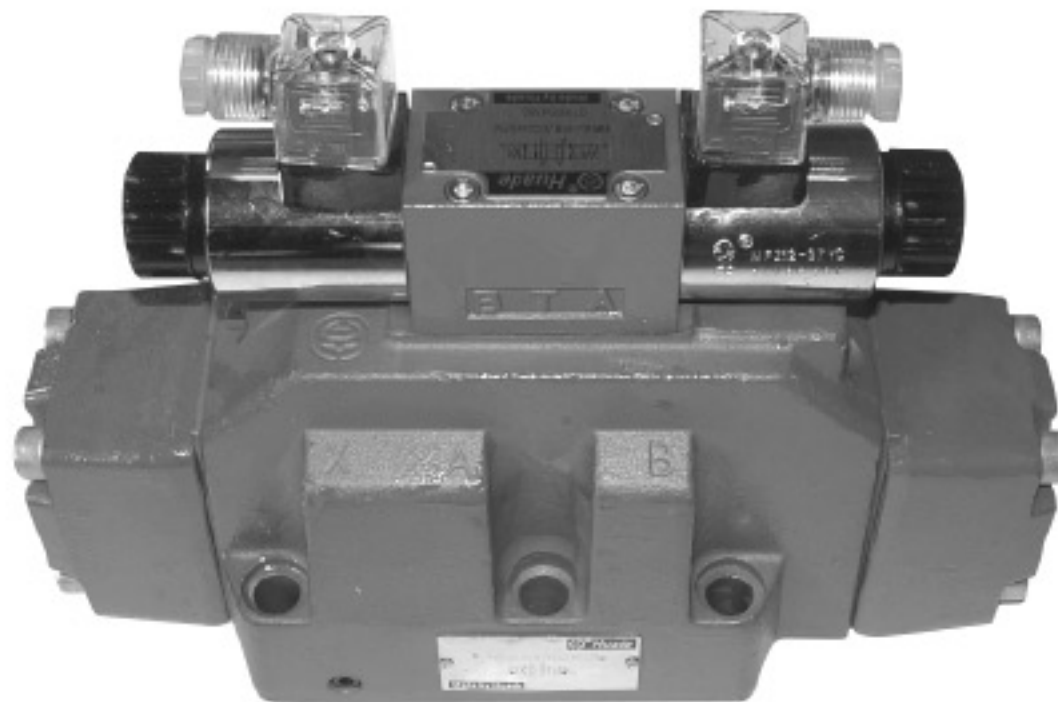


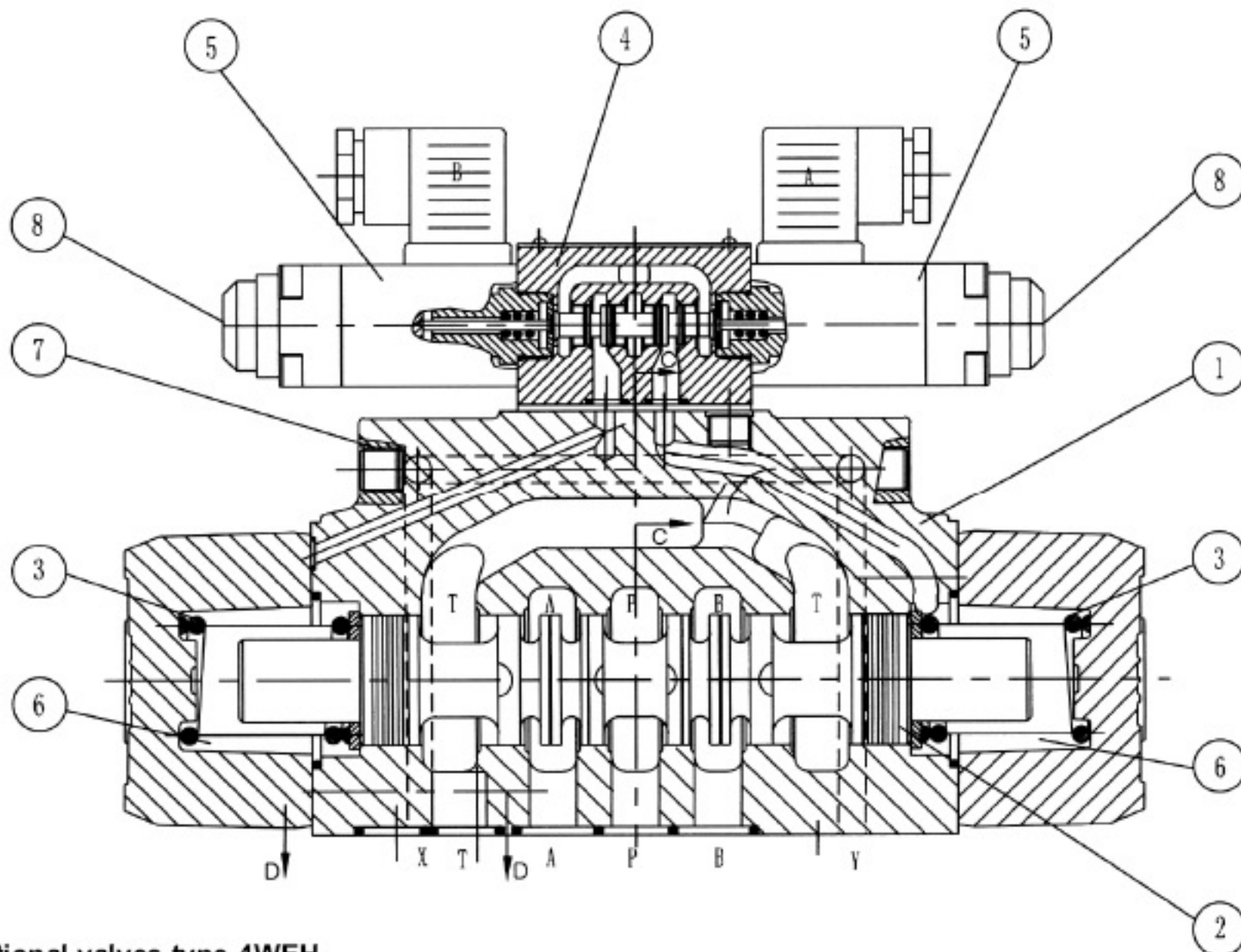
BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Directional valves electro-hydraulically operated			RE24750/12.2004
	Size10 to 32	up to 28/35 MPa	up to 1 100 L/min	Replaces: RE 24750/05.2001

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-centred, 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 to data sheet
- 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
- Porting pattern to Din 24 340 form A, ISO 4401 and CETOP-RP 121H



Functional description, section



Directional valves type 4WEH...

Valves of type WEH are directional spool valves with electro-hydraulic operation.

The directional valves basically consist of the main valve with housing (1), main control spool (2), one or two return springs, and the pilot valve (4) with one or two solenoids.

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. The pilot oil supply can be either internal or external (external via port X). 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).

4/3-way directional valve with spring centring of the control spool, type 4WEH...

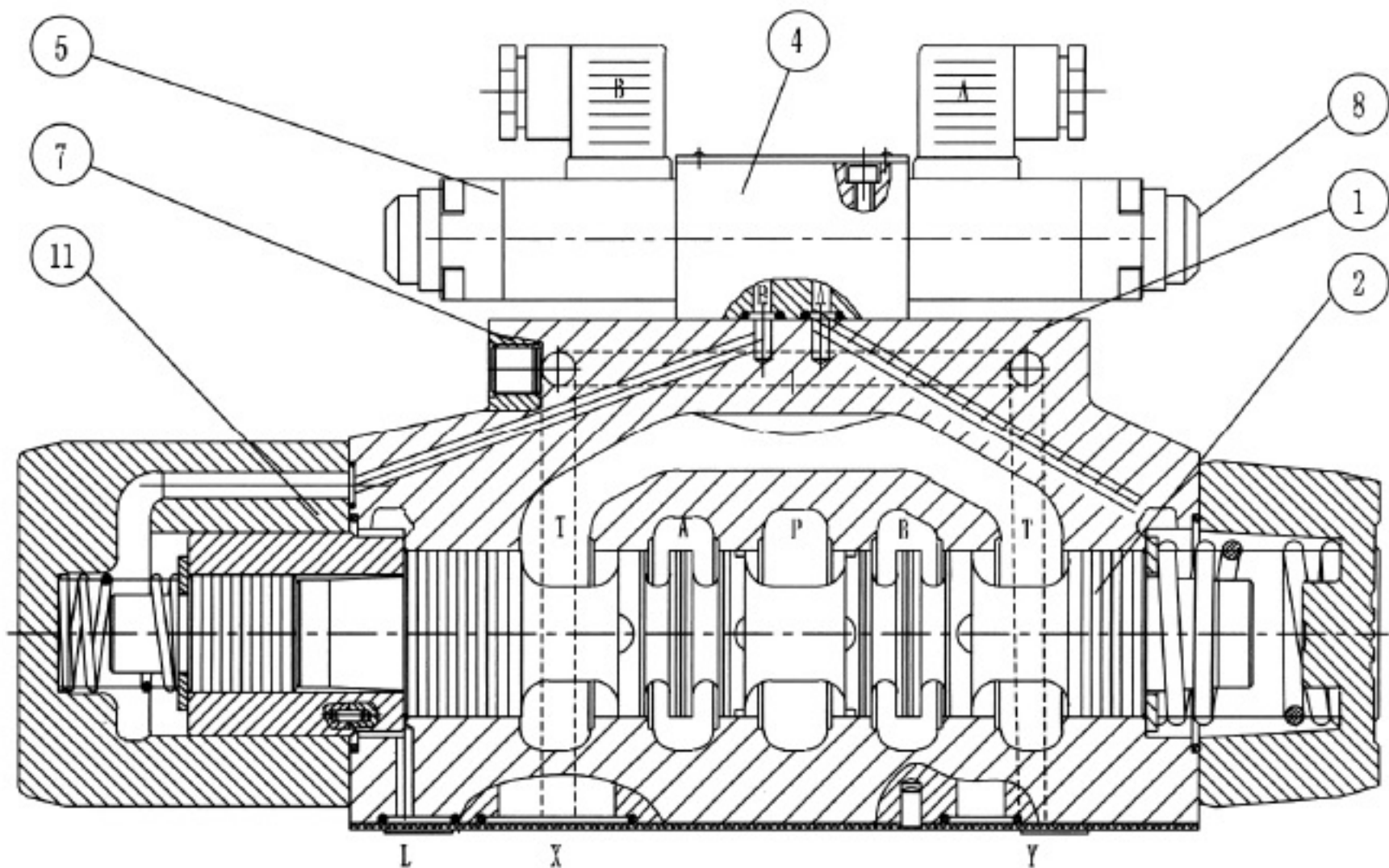
In this model, the main control spool (2) is held in the neutral position by two return springs. The two spring chambers (6) are connected to ports X and Y via the connector plate. When one of the two ends of the main control spool (2) is pressurized with pilot pressure, the

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 pressurised spool area causes the spool to return to its neutral or initial position.

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 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).



Type WEH...H.../...

Directional valves type 4WH...

Valves of type WH are directional spool valves with hydraulic operation.

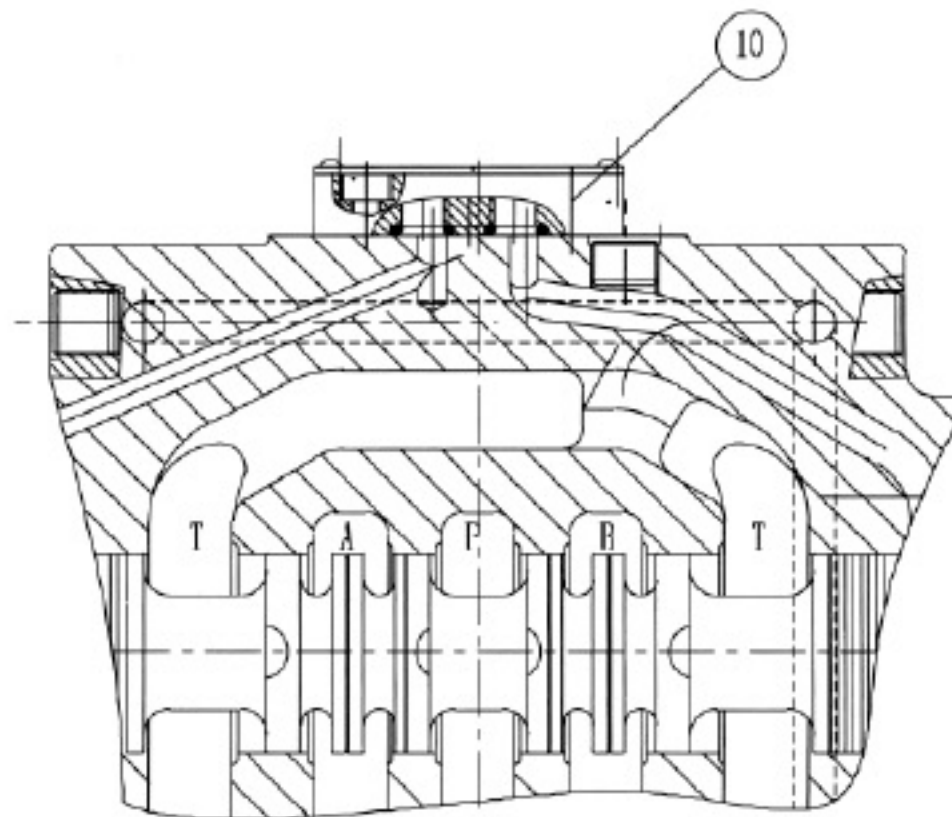
They control the start, stop and direction of a fluid flow.

The directional valves basically consist of the valve housing(1),the main control spool(2), one or two return springs(3) and in the case of valves with spring return

or spring centring, and the pilot connecting plate .

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 springs or by means of pressure. Pilot oil supply and pilot oil drain are external .



Type WH...

Pilot oil supply

4WEH- ...and 4WH...

The pilot oil supply is sourced externally via channel X from a separate circuit.

The pilot oil drain is led externally via channel Y to tank.

4WEH...E...

The pilot oil supply is sourced internally from channel P of the main valve.

The pilot oil drain is led externally via channel Y to tank. Port X in the subplate is plugged.

Change over from external to internal or from internal to external pilot oil supply (size 16): Remove the cover on the solenoid side "a", remove the plugs and turn end-for-end, insert plugs and re-place the cover.

4WEH...ET...

The pilot oil supply is sourced internally from channel P of the main valve.

The pilot oil drain is led internally via channel T to tank. Ports X and Y in the subplate are plugged.

4WEH...T...

The pilot oil supply is sourced externally via channel X from a separate circuit. The pilot oil drain is led internally via channel T to tank. Port Y in the subplate is plugged.

1 Plug screw M6-8.8 pilot oil drain

2 Plug screws M6-8.8 pilot oil supply

3 Plug screws M8-8.8 for external sealing

Tightening torques M_A for cover fixing screws:

Size 16: 35 Nm

Size 25: 68 Nm

Tightening torque M_A for pilot valve fixing screws:

Sizes 10 to 32: 9 Nm

Size 10 main valve

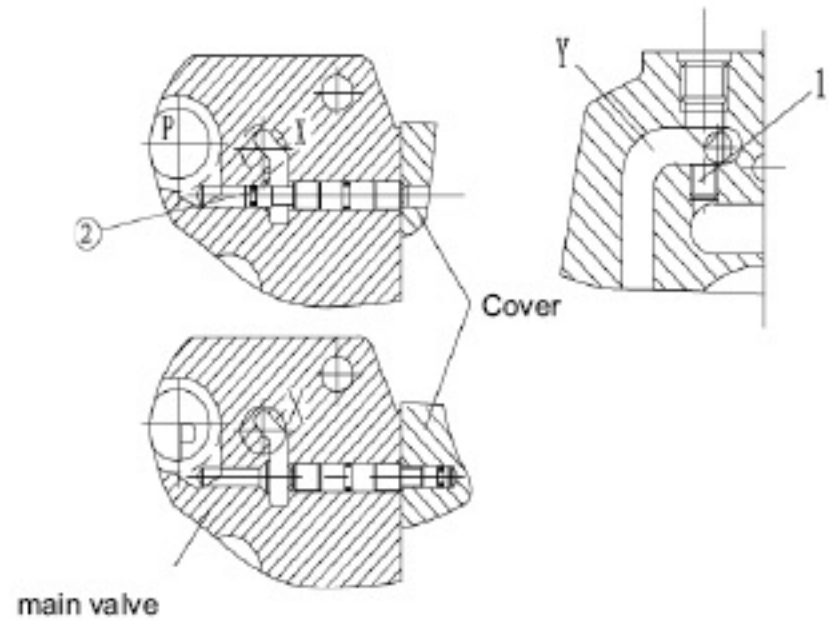
Pilot oil supply
external: 2 plugged
internal: 2 open

Pilot oil drain
external: 1 plugged
internal: 1 open

Size 16

Pilot oil supply
external: 2 plugged
internal: 2 open

Pilot oil drain
external: 1 plugged
1 open

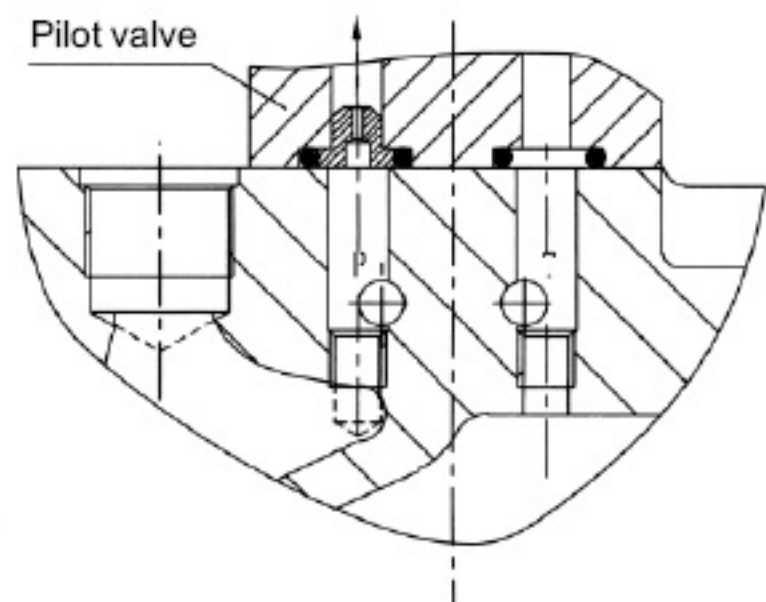


Size 25

Pilot oil supply
external: 2 plugged
internal: 2 open

Pilot oil drain
external: 1 plugged
internal: 1 open

Size 32

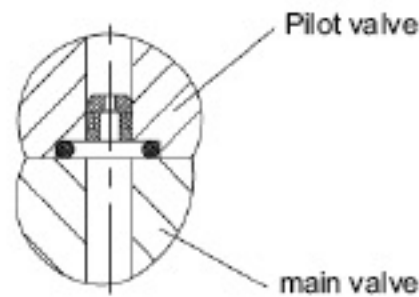


Pilot oil supply
external: 2 plugged
internal: 2 open

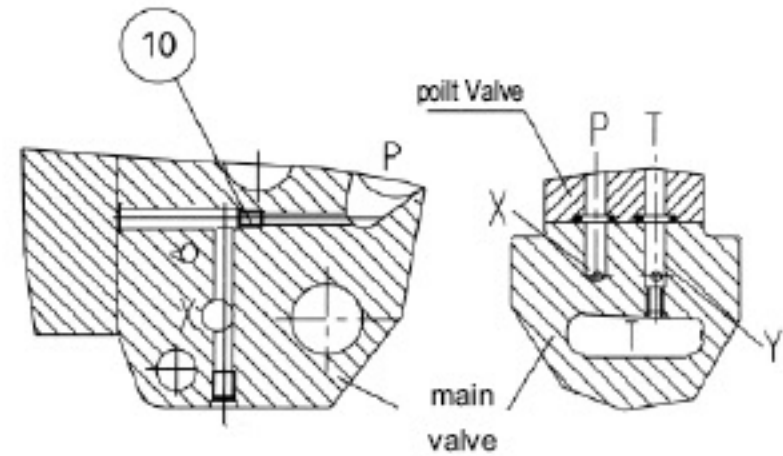
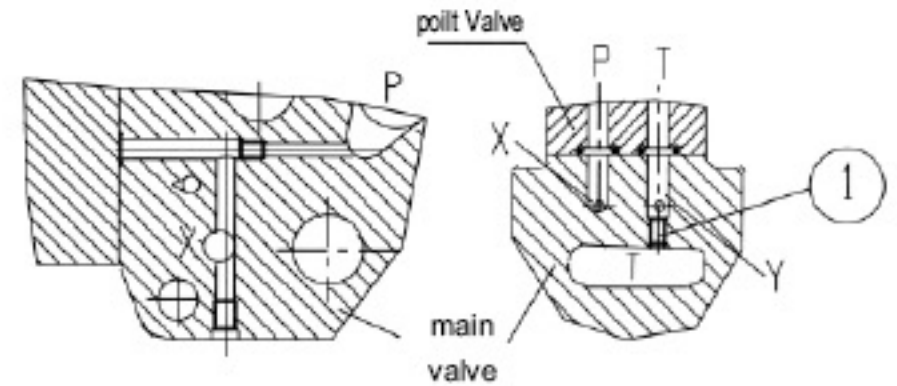
Pilot oil drain
external: 1 plugged
internal: 1 open

Throttle insert

The use of a throttle insert is required if the pilot oil supply in the P channel of the pilot valve is to be limited. This throttle is inserted in the P channel of the pilot valve.



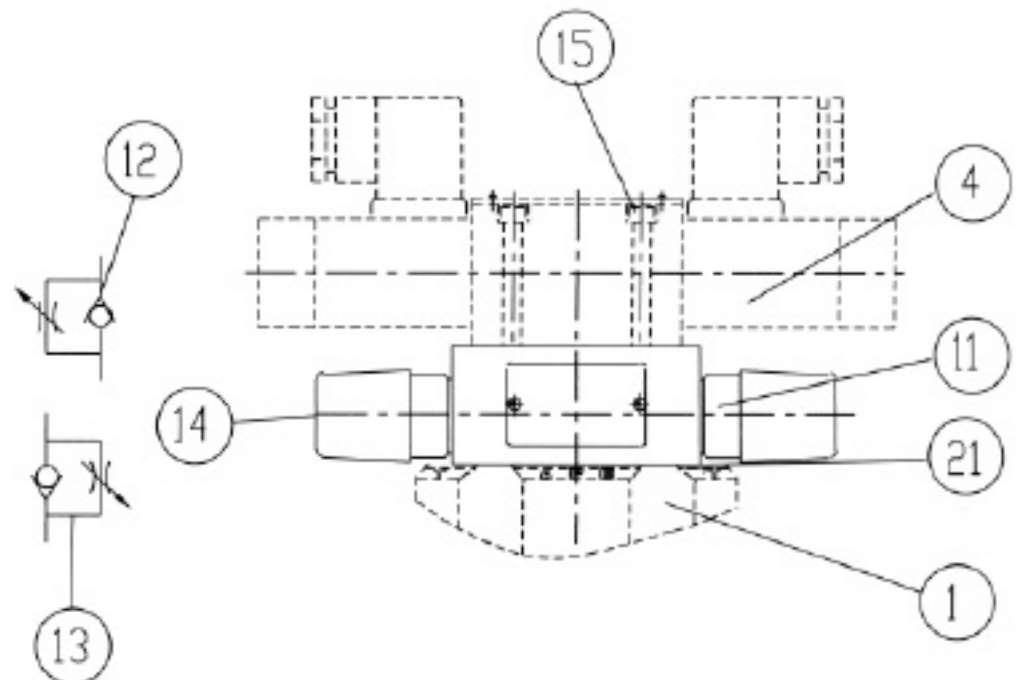
Throttle insert



Shifting time adjustment

In order to influence the shifting time of the main valve a double throttle check valve (type Z2 FS 6) is installed.

Change over from meter-in (13) to meter-out control (12): Remove the pilot valve (4) (leave the O-ring support plate (21) in place), rotate the throttle check valve (11) about its longitudinal axis and refit it, replace the pilot valve (4).



Type WEH.../...S

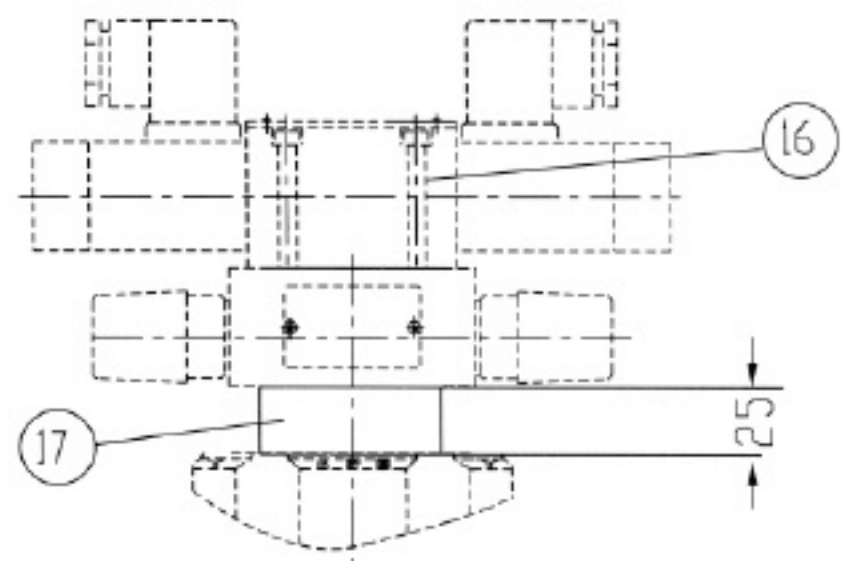
Pressure reducing valve "D3"

The pressure reducing valve (17) must be used if the pilot pressure is higher than 25 MPa.

Thus, the secondary pressure is held constant at 4.5 MPa.

Attention!

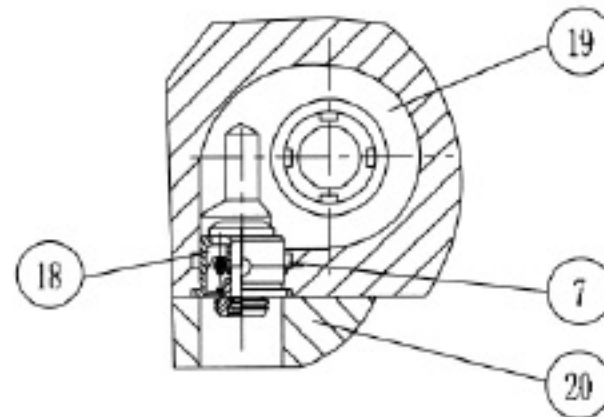
When using a pressure reducing valve "D3" (17), a throttle insert "B10" must be installed in the P channel of the pilot valve.



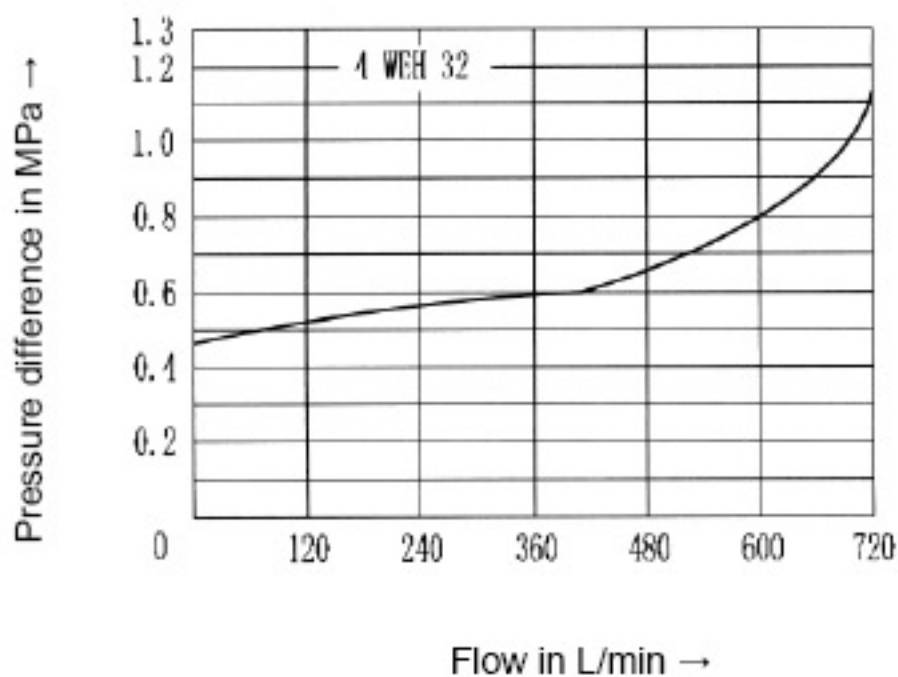
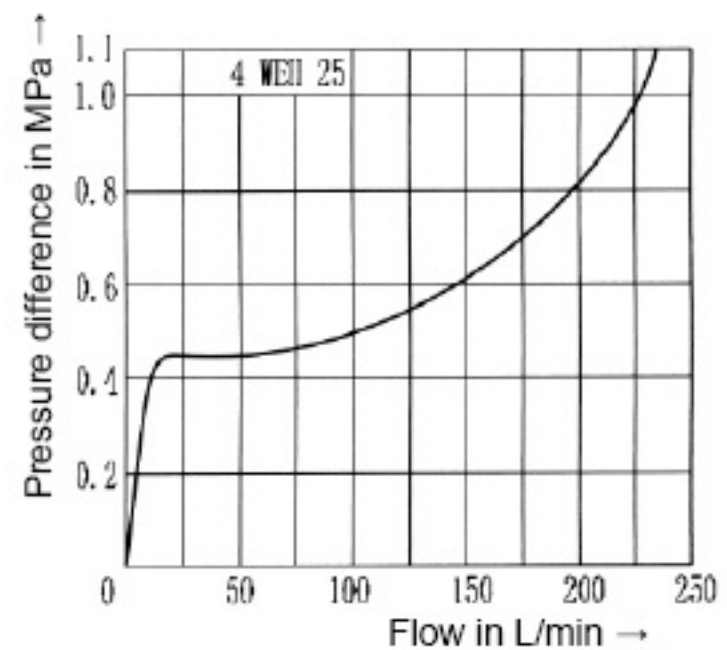
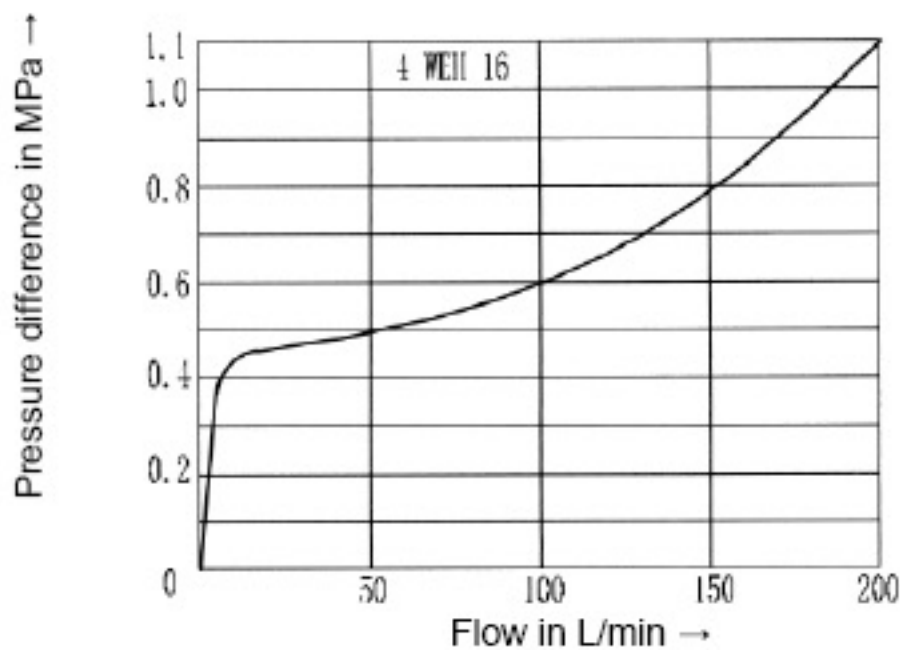
Type WEH.../...S..D3

Pre-load valve (not for size 10)

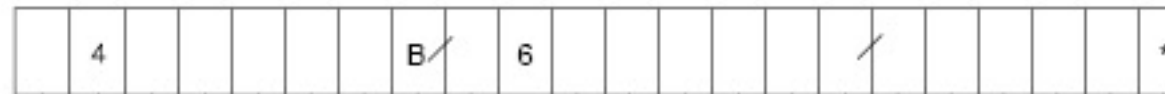
In valves with pressureless by-pass and internal pilot oil supply, a pre-load valve (18) must be installed in the P channel of the main valve to build up the minimum pilot pressure. The pressure difference of the pre-load valve must be added to the pressure difference of the main valve (see characteristic curve) in order to determine the actual value. The cracking pressure of this valve is approx. 0.45 MPa.



Dp/q_v characteristic curve



Ordering code



Up to 28 MPa = No code
Up to 35 MPa = H

Further details in clear text

4-way design = 4

No code= mineral oils
V= phosphate ester

Electro-hydraulic = WEH
Hydraulic = WH

No code = Without pressure
reducing valve
D1 = With pressure reducing valve

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

No code = Without pre-load valve
P 4,5 = With pre-load valve
($P_{crack} = 0.45 \text{ MPa}$)

Spool return
By means of springs = No code
Hydraulic = H

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

For symbols, see next page

Additional equipment NO.
(see Additional equipment)

Series 20(NG10) = 20 (20 to 29 unchanged installation and connection dimensions)
Series 50(NG16, 25, 32) = 50 (50 to 59 unchanged installation and connection dimensions)

Type of Electrical connection (see type of Electrical connection dimensions)

Technology of Beijing Huade Hydraulic =B

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

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 = OF

No code= Pilot oil supply external, drain external
E= Pilot oil supply internal, drain external
ET= Pilot oil supply internal, drain internal
T= Pilot oil supply external, drain internal
Type 4WH...only available as No code!
Versions ET and T as 3-position valve with pressure centring only possible if $p_{pilot} \geq 2 \times p_{tank} + p_{pilot\ min}$!

Pilot valve with wet-pin solenoids
Standard valve = A
High-performance valve = E

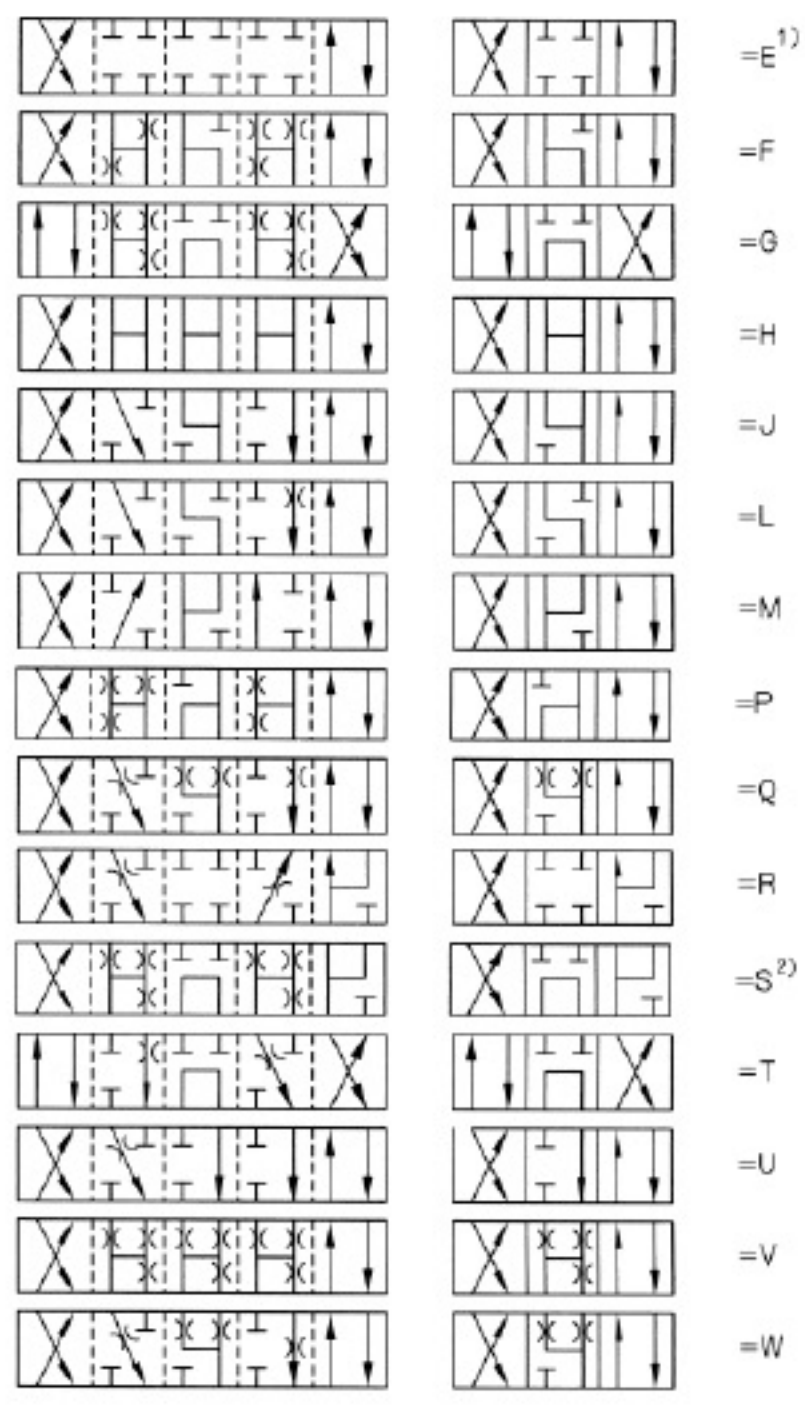
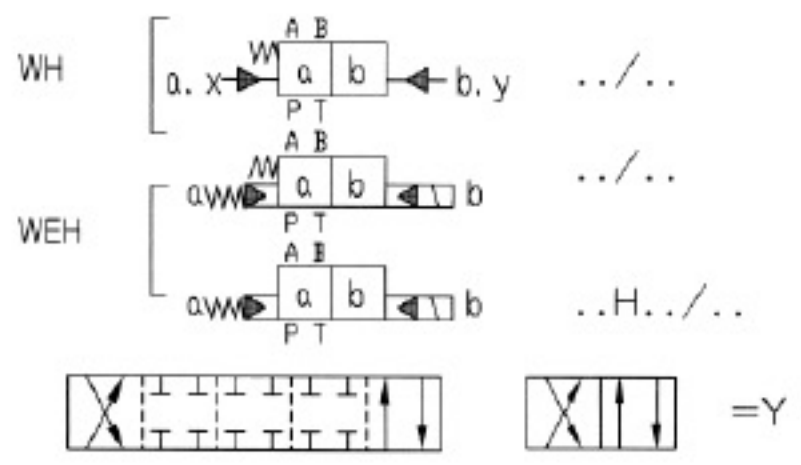
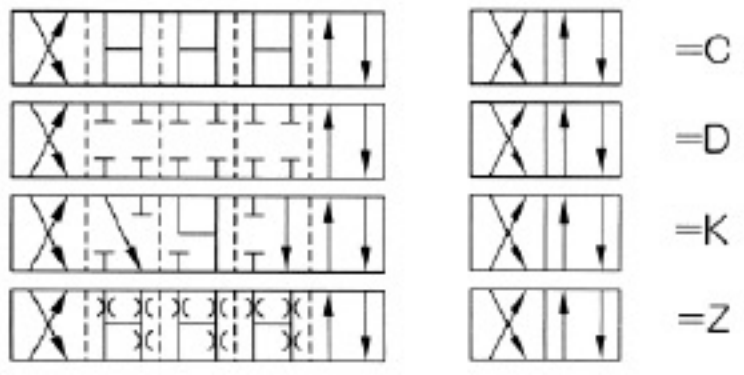
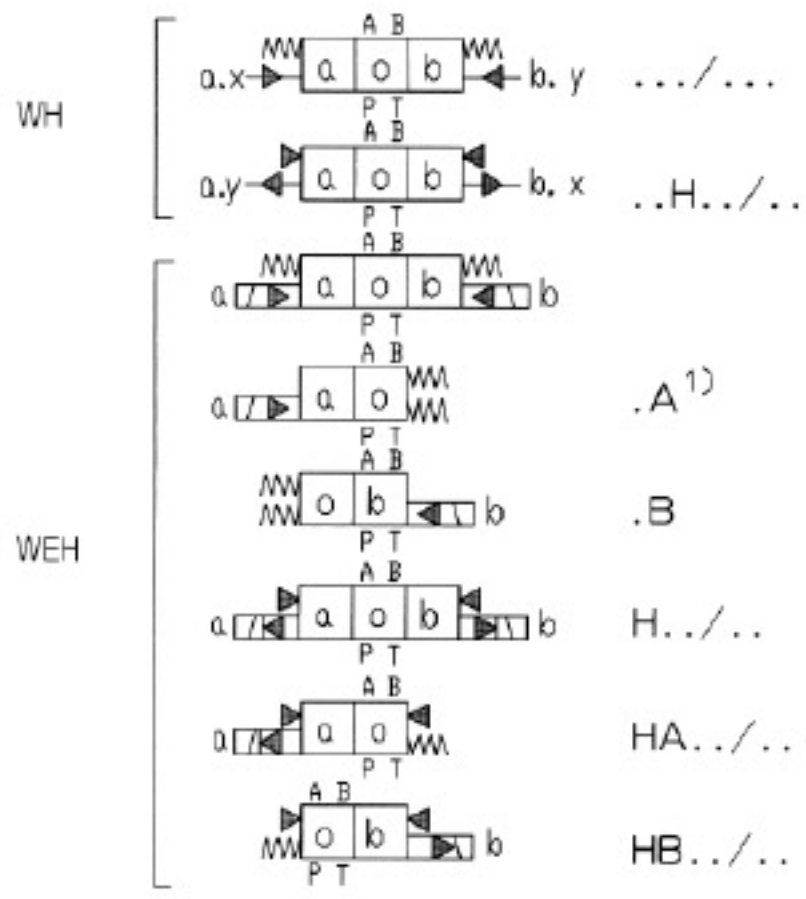
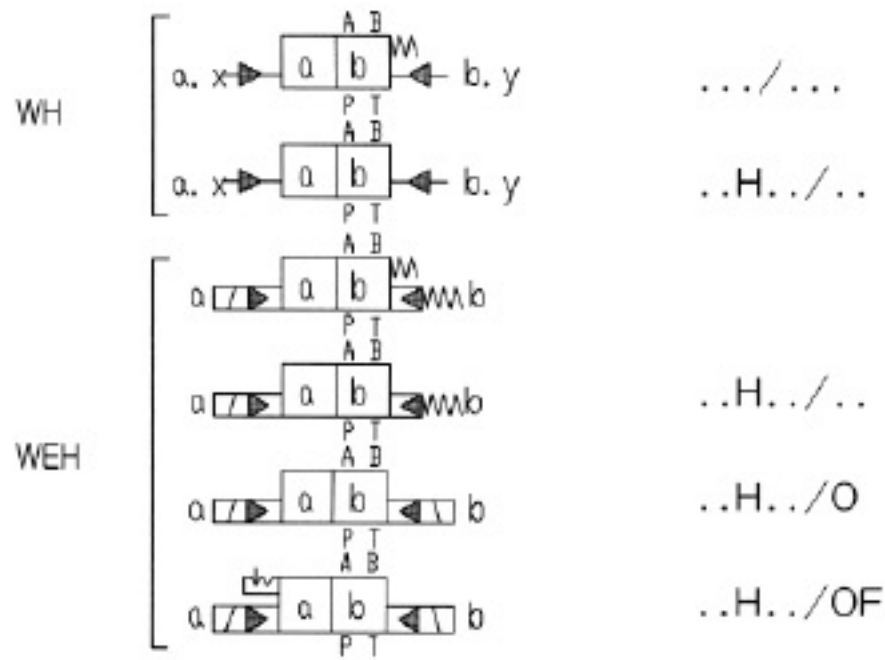
No code = Without manual override
N= With manual override

DC 24V = G24
AC 220V, frequency 50Hz = W220-50
Used DC solenoids which are noting with frequency,
AC: 110V = W110R
220V = W220R

(* :use plug Z5 only)

see the other volts in Electric date,please.

Symbols



- 1) Example: Spool E, solenoid on side "a" Order example: H-4WEH 16 HEA6X/6AG24N9ETSK4..B10..V..
- 2) Spool S only used for size 16

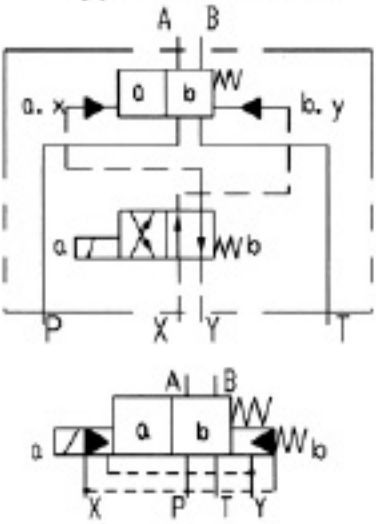
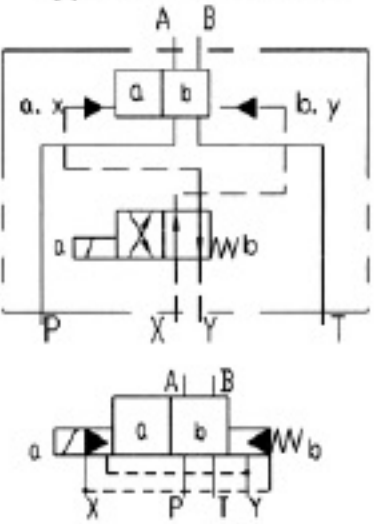
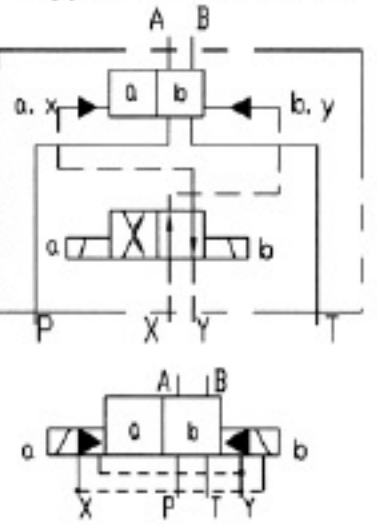
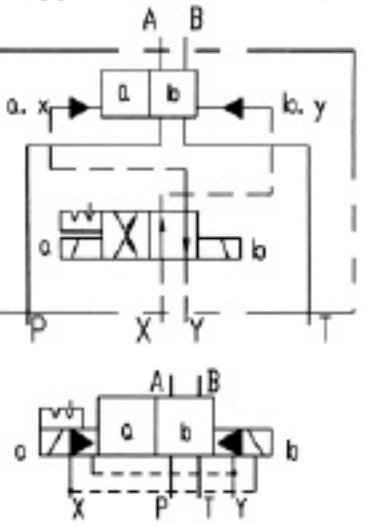
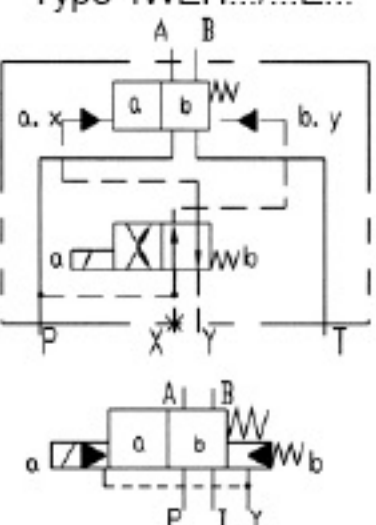
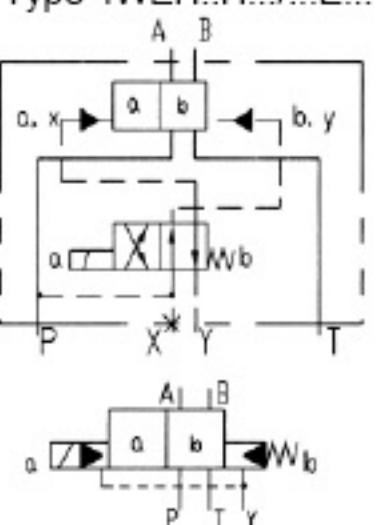
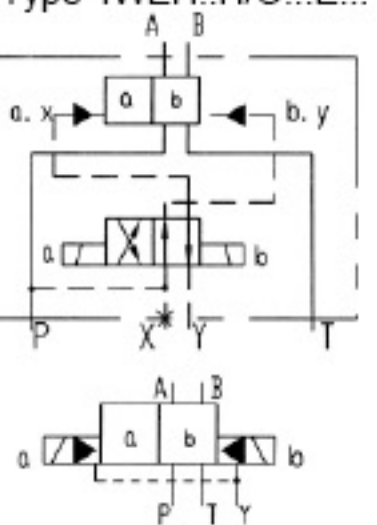
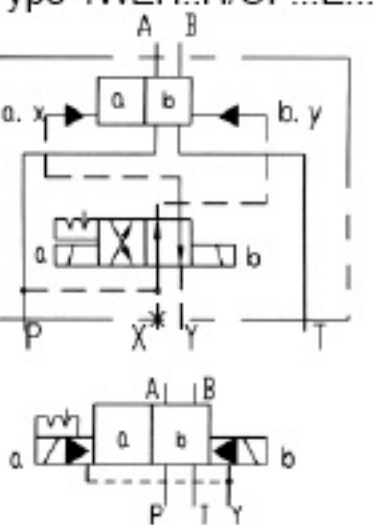
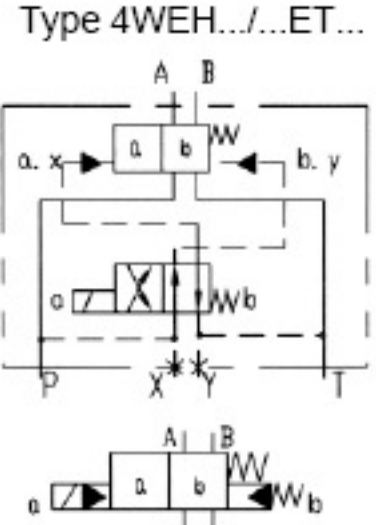
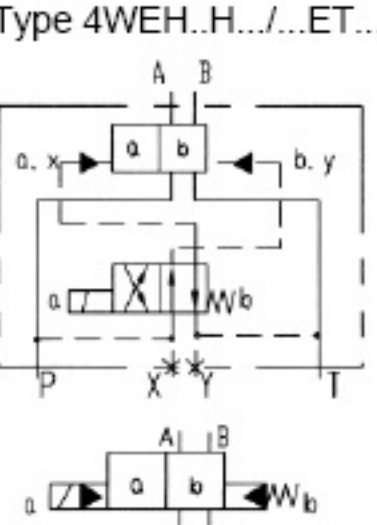
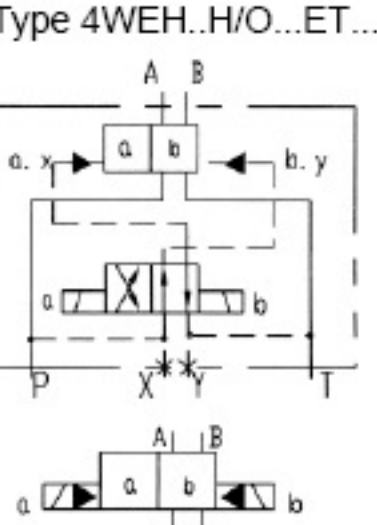
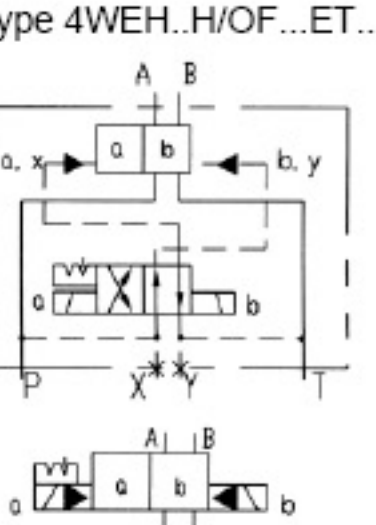
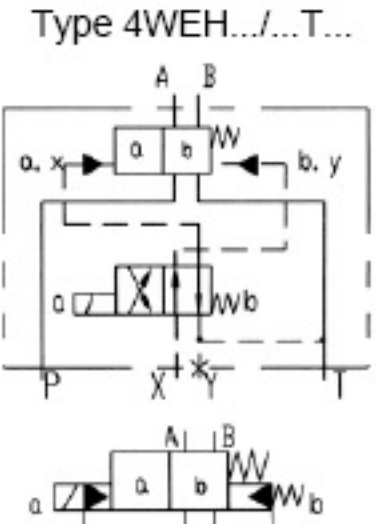
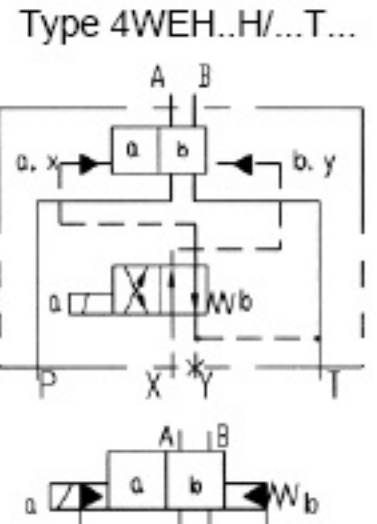
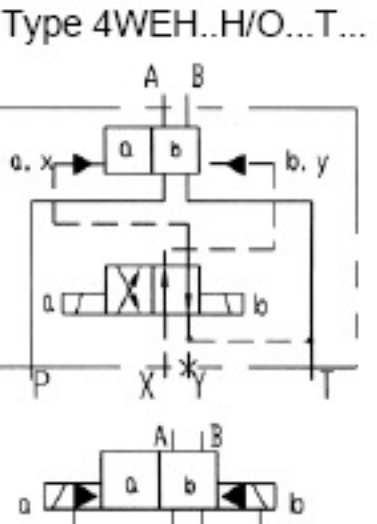
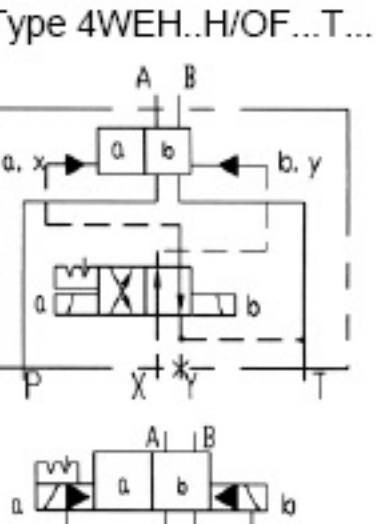
Valve opening in neutral position for spools Q, V and W

Spool	Size	Valve opening in neutral position (Size in mm ²)			
		10	16	25 (type 4W.H 25.50B/)	32
Q	P-A	-	-	-	-
	P-B	-	-	-	-
	A-T	13	32	83	78
	B-T	13	32	83	78
V	P-A	13	32	83	73
	P-B	13	32	83	73
	A-T	13	32	83	84
	B-T	13	32	83	84
W	P-A	-	-	-	-
	P-B	-	-	-	-
	A-T	2.4	6	14	20
	B-T	2.4	6	14	20

Detailed and simplified symbols for 3-position valves

	Valve with spring-centred neutral position	Valve with spring-centred neutral position {only sizes 16, 25 (type 4W.H 25 .50B/... and 32)}
X = external; Y = external	<p>Type 4WEH.../..</p>	<p>Type 4WEH..H.../..</p>
X = internal; Y = external	<p>Type 4WEH.../..E..</p>	<p>Type 4WEH..H.../..E..</p>
X = internal; Y = internal	<p>Type 4WEH.../..ET</p>	<p>3-position valves, pressure-centred, preferably with external pilot oil supply and/or drain (No code, E) For the preconditions for internal pilot oil supply and/or drain (ET, T) see page 6 or 10.</p>
X = external; Y = internal	<p>Type 4WEH.../..T..</p>	

Detailed and simplified symbols for 2-position valves

		Valves with spring offset		Valves with hydraulic offset	
X = external; Y = external	Type 4WEH.../... 	Type 4WEH...H.../... 	Type 4WEH...H/O... 	Type 4WEH...H/OF... 	
	X = internal; Y = external 	Type 4WEH...H.../...E... 	Type 4WEH...H/O...E... 	Type 4WEH...H/OF...E... 	
	X = internal; Y = internal 	Type 4WEH...H.../...ET... 	Type 4WEH...H/O...ET... 	Type 4WEH...H/OF...ET... 	
	X = external; Y = internal 	Type 4WEH...H.../...T... 	Type 4WEH...H/O...T... 	Type 4WEH...H/OF...T... 	

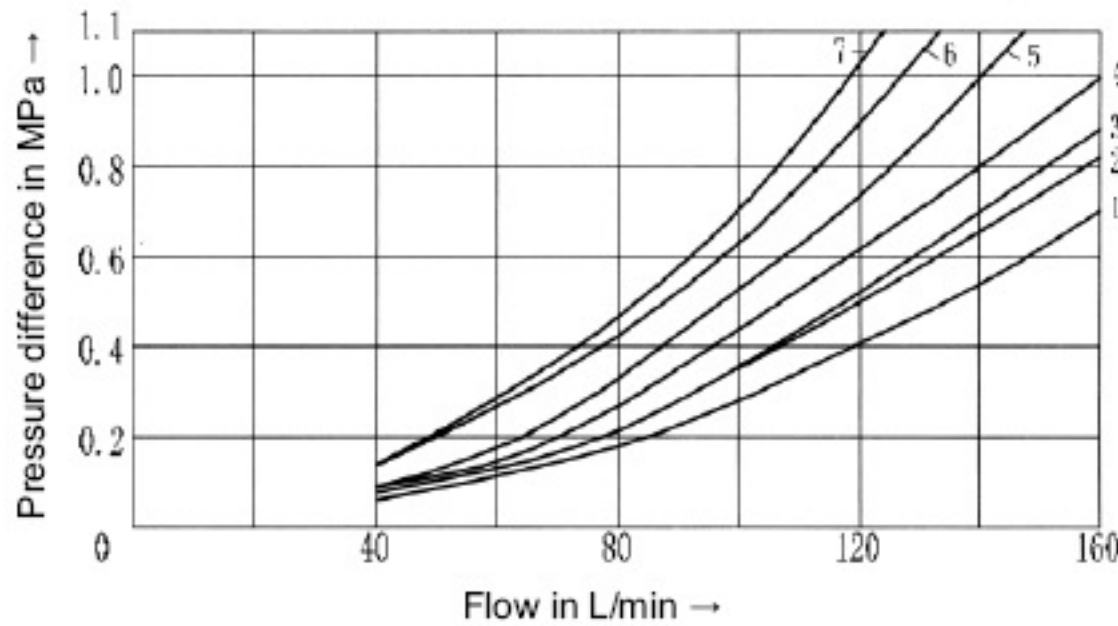
Characteristic curves (measured at $v = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)

Type WEH10:

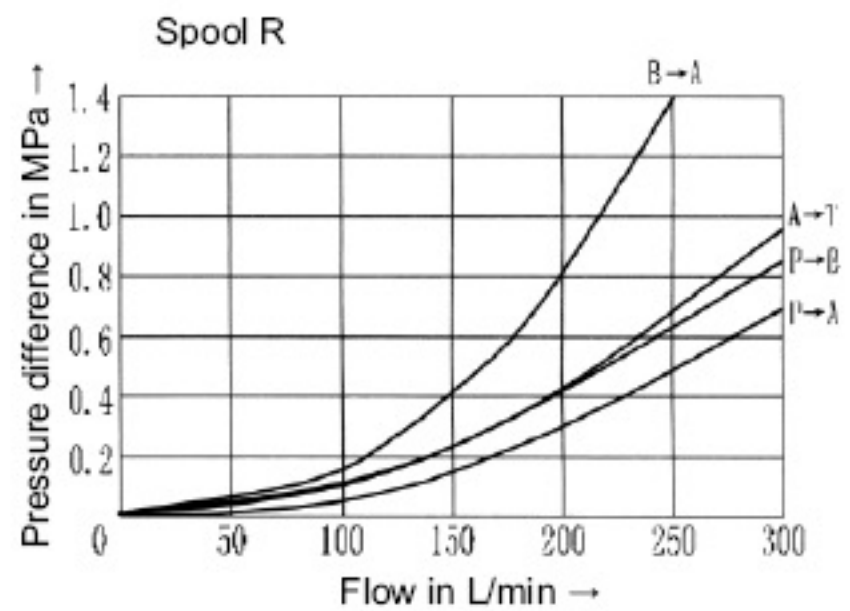
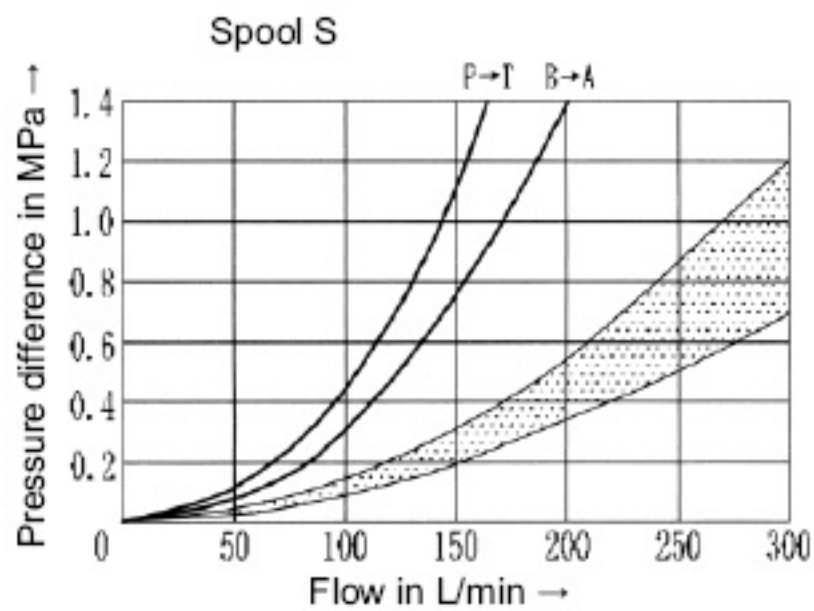
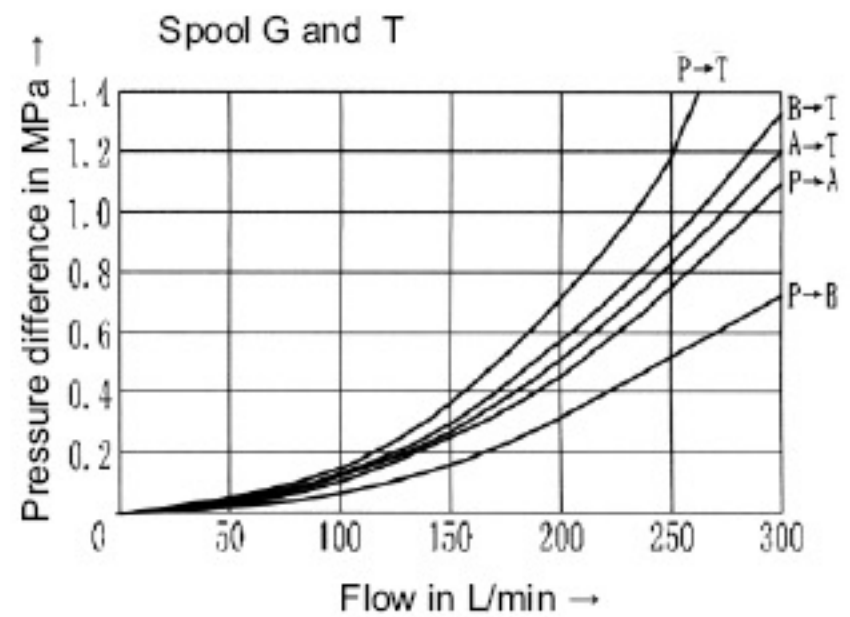
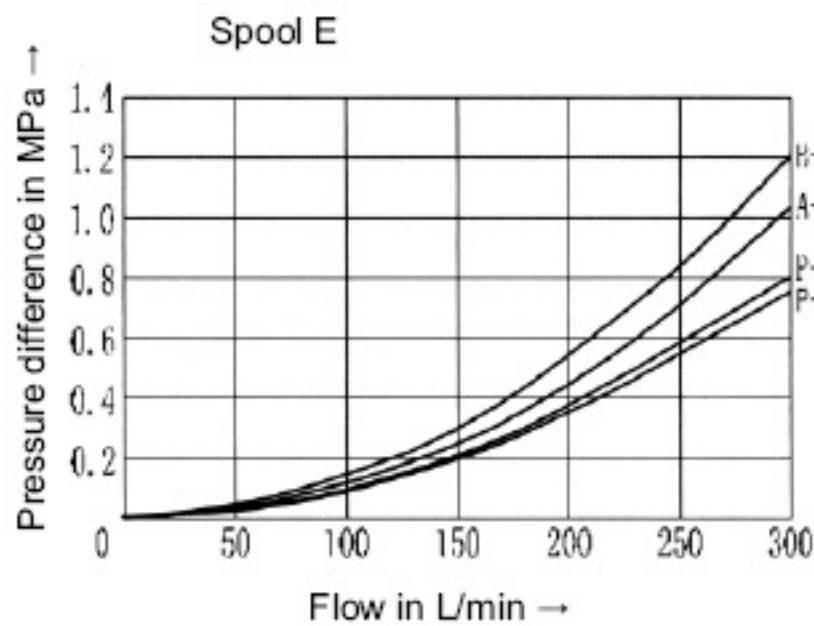
Spool	Neutral position		
	A → T	B → T	P → T
F	3	-	6
G	-	-	7
H	1	3	5
P	-	7	5

Spool	Neutral position		
	A → T	B → T	P → T
T	-	-	7
L	3	-	-
U	-	4	-

Spool	Shifted position			
	P → A	P → B	A → T	B → T
E	1	2	4	5
F	1	4	1	4
G	4	2	2	6
H	4	4	1	4
J	1	2	1	3
L	2	3	1	4
M	4	4	3	4
P	4	1	3	4
Q	2	2	3	5
R	2	3	3	5
U	3	3	3	4
V	2	2	3	5
W	2	2	3	5
T	4	2	2	6



Type WEH16:

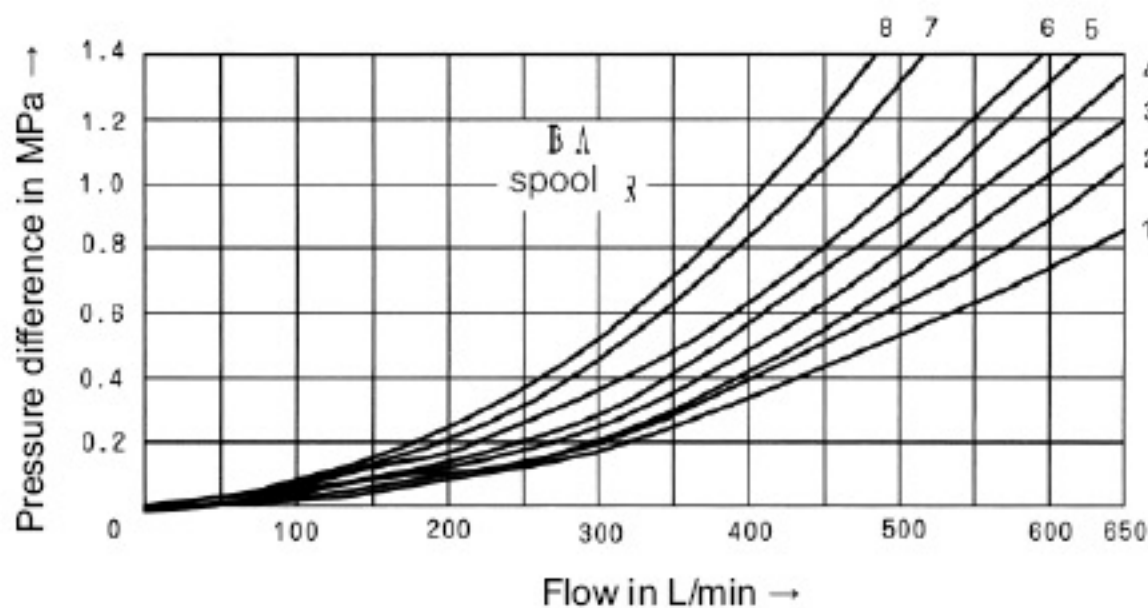


Type WEH25:

7 spool G central position P - T

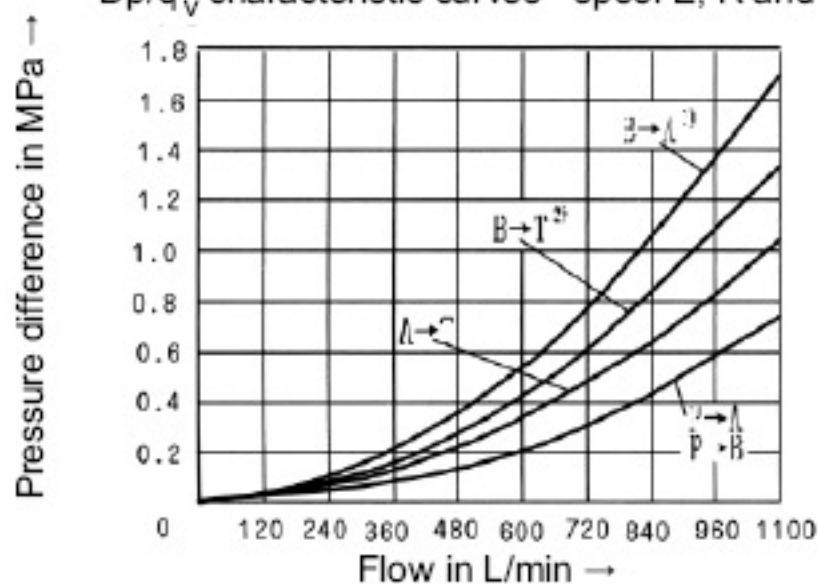
8 spool T central position P - T

Spool	Shifted position			
	P → A	P → B	A → T	B → T
E	1	1	1	3
F	1	4	3	3
G	3	1	2	4
H	4	4	3	4
J	2	2	3	5
L	2	2	3	3
M	4	4	1	4
P	4	1	1	5
Q	2	2	3	5
R	2	1	1	-
U	2	1	1	6
V	4	4	3	6
W	1	1	1	3
T	3	1	2	4

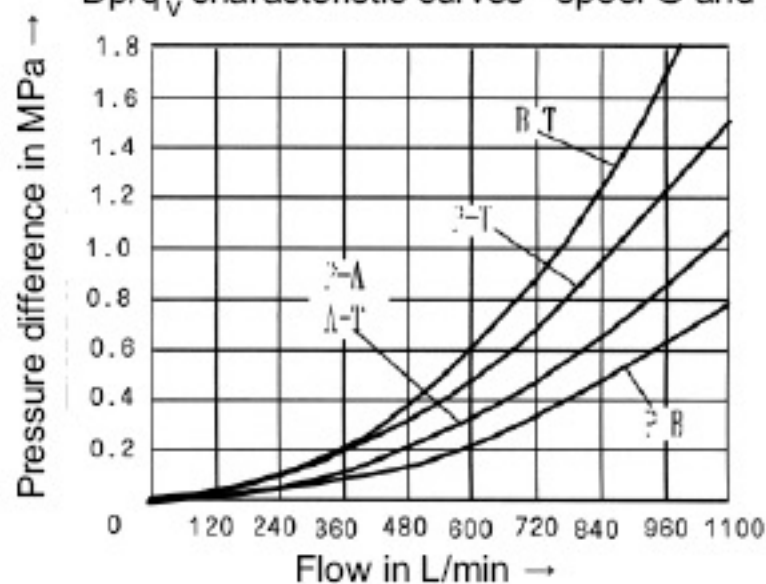


Type WEH32:

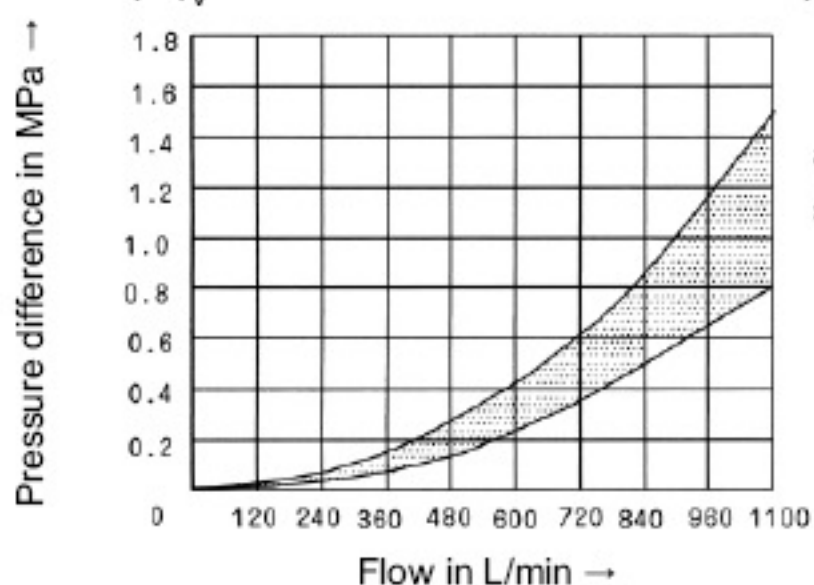
Dp/q_v characteristic curves - spool E, R and W



Dp/q_v characteristic curves - spool G and T



Dp/q_v characteristic curves - all the other spools



- 1) only with spool R
- 2) not with spool R

Technical data (For applications outside these parameters, please consult us!)										
Hydraulic data 1、 Type 4WEH10										
Operating pressure, max.		(MPa)	H- 4WEH10			4WEH10				
- Port P, A, B			to 35			to 28				
- Port T	Pilot oil drain internal	(MPa)	to 16 (DC)			to 10 (AC)				
- Port Y	Pilot oil drain external	(MPa)	to 16 (DC)			to 10 (AC)				
Pilot pressure, min.	Pilot oil drain external	(MPa)	1.0 2-position valve, 3-position valve,with spring offset							
	Pilot oil supply internal	(MPa)	0.7 2-position valve with hydraulic offset (not with spools: C, Z, F, G, H, P, T, V)							
	Pilot oil supply internal (with spools:C, Z, F, G, H, P, T, V)	(MPa)	0.65 (if the flow from P to T in the neutral position (in a 3-position valve) or when the valve is moving through the neutral position (in a 2-position valve) is large enough to ensure a minimum pressure difference of 0.65 MPa from P to T.							
Operating pressure, max.		(MPa)	to 25							
Hydraulic fluid			Mineral oils or phosphate ester							
Viscosity range		(mm ² /s)	2.8 ~ 500							
Fluid temperature range		(°C)	-30 ~ +80							
Pilot oil volume for shifting operation										
- 3-position valve, spring-centred		(cm ³)	2.04							
- 2-position valve		(cm ³)	4.08							
from "O" position to shifted position (AC and DC solenoid):										
at pilot pressure		(MPa)	~7=		~14=		~21=		~28=	
- 3-position valve, spring-centred		(ms)	30	65	25	60	20	55	15	50
- 2-position valve		(ms)	30	80	30	75	25	70	20	65
from shifted position to "O" position (AC and DC solenoid):										
- 3-position valve, spring-centred			30							
- 2-position valve		(ms)	35	40	30	35	25	30	20	25
Pilot oil flow for shortest shifting time		(L/min)	approx.35							
Installation position			optional; valve with hydraulic spool return "H"(spools C, D, K, Z, Y) horizontal							
Weight (Kg)	Valve with one solenoid		6.4							
	Valve with two solenoids		6.8							
	Shifting time adjustment		0.8							
	Pressure reducing valve		0.5							

2. Type 4WEH16									
Operating pressure, max. (MPa)		H - 4WEH16			4WEH16				
- Port P, A, B		to 35			to 28				
- Port T	Pilot oil drain external (MPa)	to 25			to 25				
	Pilot oil drain internal (MPa)	solenoid (DC) --			solenoid (AC) --				
		to 16			to 10				
		It's impossible for pressure centred 3-position valve to pilot oil drain internal							
- Port Y	Pilot oil drain external (MPa)	= 16			~ 10				
Pilot pressure, min.	Pilot oil drain external (MPa)	3-position valve, 1.2							
	Pilot oil supply internal (MPa)	2-position valve, with spring offset 1.2							
	Pilot oil supply internal (MPa)	2-position valve with hydraulic offset 1.2							
		For spools C, F, G, H, P, T, V, Z, S (by means of a pre-load valve or a sufficiently large flow) 0.45							
Operating pressure, max. (MPa)		to 25							
Hydraulic fluid		Mineral oils or phosphate ester							
Fluid temperature range (°C)		- 30 ~ + 80							
Viscosity range (mm ² /s)		10 ~ 800							
Pilot oil volume for shifting operation									
- 3-position valve, spring-centred (cm ³)		5.72							
- 2-position valve (cm ³)		11.45							
- 3-position valve, pressure-centred		WH			WEH				
from "O" position to shifted position "a" (cm ³)		2.83			2.83				
from shifted position "a" to "O" position (cm ³)		2.9			5.73				
from "O" position to shifted position "b" (cm ³)		5.72			5.73				
from shifted position "b" to "O" position (cm ³)		2.83			8.55				
from "O" position to shifted position (AC and DC solenoid):									
at pilot pressure (MPa)		~ 5 =		~ 15 =			~ 25 =		
- 3-position valve, spring-centred (ms)		35	65	30	60	30	58		
- 2-position valve (ms)		45	65	35	55	30	50		
- 3-position valve, pressure-centred (ms)		a	b	a	b	a	b	a	b
		30	65	25	55	63	20	25	55
from shifted position to "O" position:									
- 3-position valve, spring-centred		30...45 for ~; 30 for =							
- 2-position valve (ms)		45...60	45	35...50	35	30...45	30		
- 3-position valve, pressure-centred (ms)		a	b	a	b	a	b	a	b
		20...30	20	20...35	20	20...35	20		
Installation position		optional; valve with hydraulic spool return (spools C, D, K, Z, Y) horizontal							
Pilot oil flow for shortest shifting time (L/min)		approx.35							
Weight		approx.8.6 WH approx.7.3							
*Shifting time = Contacting at the pilot valve up to start of opening of the control land in the main valve									

3. Type 4WEH 25 :									
Operating pressure, max.- Port P, A, B (MPa)		to 35 (H-4WHE25) ; to 28 (4WEH25)							
- Port T	Pilot oil drain external (MPa)	to 25							
	Pilot oil drain internal (MPa)	solenoid (DC) --				solenoid (AC) --			
		to 16				to 10			
It's impossible for pressure centred 3-position valve to pilot oil drain internal									
- Port Y	Pilot oil drain external solenoid (DC) -- (MPa)		16						
	solenoid (AC) -- (MPa)		10						
	for Type 4WH (MPa)		25						
Pilot pressure, min.	Pilot oil supply external (MPa)		3-position valve, spring-centred 1.3						
	Pilot oil supply internal (MPa)		3-position valve, pressure-centred 1.8						
	Pilot oil supply internal (MPa)		2-position valve, with spring offset 1.3						
	Pilot oil supply internal (MPa)		2-position valve, with hydraulic offset 0.8						
Operating pressure, max. (MPa)		to 25							
Hydraulic fluid		Mineral oils or phosphate ester							
Viscosity range (°C)		- 30 -- + 80							
Fluid temperature range (mm ² /s)		10 ~ 800							
Pilot oil volume for shifting operation									
- 3-position valve, spring-centred (cm ³)		14.2							
- 2-position valve, with spring offset (cm ³)		28.4							
- 3-position valve, pressure-centred		WH				WEH			
from "O" position to shifted position "a" (cm ³)		7.15				7.15			
from shifted position "a" to "O" position (cm ³)		14.18				7.0			
from "O" position to shifted position "b" (cm ³)		14.18				14.15			
from shifted position "b" to "O" position (cm ³)		19.88				5.73			
from "O" position to shifted position (AC and DC solenoid):									
at pilot pressure (MPa)		-- 7 =		-- 14 =		-- 21 =		-- 25 =	
- 3-position valve, spring-centred (ms)		50	85	40	75	35	70	30	65
- 2-position valve, with spring offset (ms)		120	160	100	130	85	120	70	105
- 3-position valve, pressure-centred (ms)		a	b	a	b	a	b	a	b
		30	35	55	65	30	35	55	65
		25	30	50	60	25	30	50	60
from shifted position to "O" position:									
- 3-position valve, spring-centred		40... 55 for -- ; 40 for =							
- 2-position valve, with spring offset (ms)		120	125	95	100	85	90	75	80
- 3-position valve, pressure-centred (ms)		a	b	a	b	a	b	a	b
		30...35	30	35	30...35	30	35	30...35	30
		30	35	30...35	30	35	30...35	30	35
Installation position		optional; valve with hydraulic spool return (spools C, D, K, Z, Y) horizontal							
Pilot oil flow for shortest shifting time (L/min)		approx. 35							
Weight (Kg)		the whole valve approx. 18 WH approx. 17.6							
* Shifting time = Contacting at the pilot valve up to start of opening of the control land in the main valve									

4. Type 4WEH32:														
Operating pressure, max.		(MPa)	H-4WHE25				4WEH25							
- Port P, A, B			to 35				to 28							
- Port T	Pilot oil drain external	(MPa)	to 25											
	Pilot oil drain internal	(MPa)	solenoid (DC) –				solenoid (AC) –							
			to 16				to 10							
- Port Y		Pilot oil drain external (MPa)	It's impossible for pressure centred 3-position valve to pilot oil drain internal											
- Port Y		Pilot oil drain external (MPa)	solenoid (DC) – : 16; solenoid (AC) = : 10											
Pilot pressure, min.	Pilot oil supply external (MPa)		3-position valve, 0.8											
	Pilot oil supply internal (MPa)		2-position valve, with spring offset 1											
	pilot oil supply internal (MPa)		2-position valve with hydraulic offset 0.5											
Operating pressure, max.		(MPa)	For spools F, G, H, P, T, V, C and Z (by means of a pre-load valve or a sufficiently large flow) 0.45											
Operating pressure, max.		(MPa)	to 25											
Hydraulic fluid			mineral oils or phosphate ester											
Fluid temperature range		(°C)	- 30 ~ + 80											
Viscosity range		(mm ² /s)	2.8 ~ 500											
Pilot oil volume for shifting operation														
- 3-position valve, spring-centred		(cm ³)	29.4											
- 2-position valve, spring-centred		(cm ³)	58.8											
- 3-position valve, pressure-centred														
from "O" position to shifted position "a"		(cm ³)	14.4											
from shifted position "a" to "O" position		(cm ³)	15.1											
from "O" position to shifted position "b"		(cm ³)	29.4											
from shifted position "b" to "O" position		(cm ³)	14.4											
from "O" position to shifted position (AC and DC solenoid):														
at pilot pressure		(MPa)	~ 5 =				~ 15 =				~ 25 =			
- 3-position valve, spring-centred		(ms)	75	105	55	90	45	80						
- 2-position valve, spring-centred		(ms)	120	155	100	135	90	125						
- 3-position valve, pressure-centred		(ms)	a	b	a	b	a	b	a	b	a	b	a	b
			50	60	100	105	40	45	85	95	35	40	85	95
*from shifted position to "O" position:														
- 3-position valve, spring-centred			60...75 for ~ ; 50 for =											
- 2-position valve, spring-centred		(ms)	115...130	90	85...100	70	65...80	65						
- 3-position valve, pressure-centred		(ms)	a	b	a	b	a	b	a	b	a	b	a	b
			35...65	30	40	60...90	30	105...185	50					
Installation position			optional; valve with hydraulic spool return (spools C, D, K, Z, Y) horizontal											
Pilot oil flow for shortest shifting time		(L/min)	approx. 50											
Weight (kg)	Valve with one solenoid		approx. 40.5											
	Valve with two solenoids		approx. 41 WH approx. 39.5											
* Shifting time = Contacting at the pilot valve up to start of opening of the control land in the main valve														

Electrical data

kinds of volt		DC	AC
Volt	(V)	12, 24, 42, 60, 96, 110, 180, 195, 220	42, 110, 127, 220/50Hz 110, 120, 220/60Hz
Consume power	(W)	26	-
Absorb power	(VA)	-	46
Starup power	(VA)	-	130
Duty		Continuous	
Circumstance temperature	(°C)	+50	
Coil temperature	(°C)	+50	
Protective setting		IP65	

Performance limits: (measured at $v = 41 \text{ mm}^2/\text{s}$ and $t = 50^\circ\text{C}$)

The shifting performance limits down are valid for applications with two directions of flow (e.g. from P to A and simultaneous return flow from B to T). As a result of the flow forces occurring within the valve with only one direction of flow (e.g. from P to A with port B blocked) the permissible performance limits may be considerably lower! (In the case of applications of this kind, please consult us.)

The performance limits were determined with the solenoid at operating temperature, 10% undervoltage and with no tank pre-loading.

Type WEH 10

Way	Kinds of spring keeping	spool	Operating pressure in MPa		
			20	25	32
4/2-way	main valve	HC-HD-HK-HZ-HY	160		
		HC../O-HD../O HK../O../-HZ.O	160		
	without spring	HC../OF-HD../OF.. HK../OF../-HZ.O.F	160		
		spring offset	C.D.K.Z.Y	160	
4/3-way	spring-centred	E.J.L.M.Q.U.W.R.V	160		
		H	160	150	120
		G.T	160		140
		F.P	160	160	160

Type WEH 16

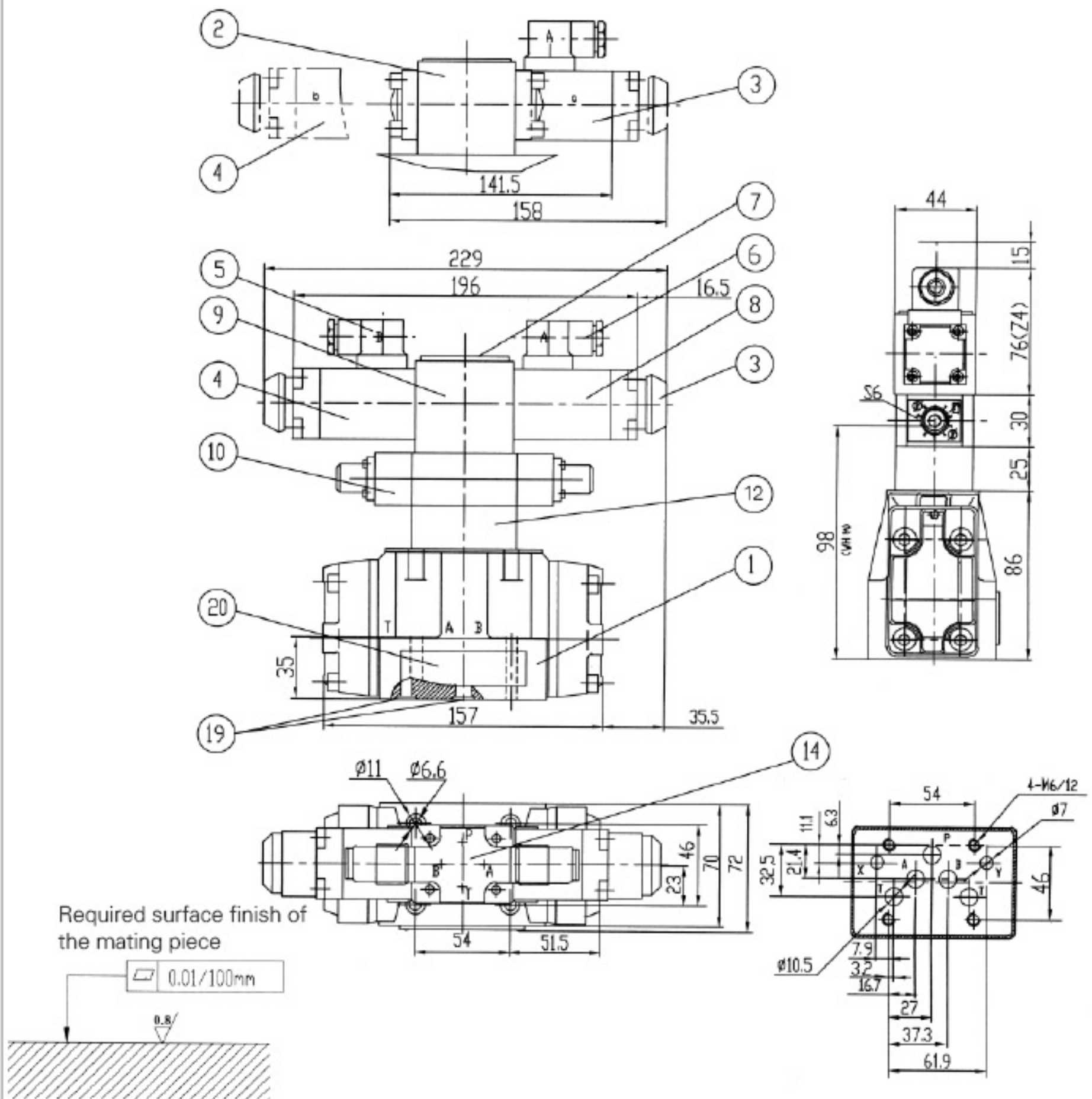
Way	Kinds of spring keeping	spool	Operating pressure in Mpa					description
			7	14	21	28	35	
4/2-way	spring offset	C	300	300	300	300	300	Spool H .F .P .G .S, Pre-load valve, required for X = internal
		D.Y	300	270	260	250	230	
		K	300	250	240	230	210	
		Z	300	260	190	180	160	
	spring offset	for all spools	300	300	300	300	300	at pilot pressure of 1.2 MPa
4/3-way	spring-centred	D.H.J.L.M. Q.U.W.R	300	300	300	300	300	at pilot pressure of 1.6 MPa
		F.P	300	250	180	170	150	
		G.T	300	300	240	210	190	
		S	300	300	300	250	220	
		V	300	250	210	200	180	
	pressure-centred	for all spools	300	300	300	300	300	

Type WEH 25

Way	Kinds of spring keeping	spool	Operating pressure in Mpa					description
			7	14	21	28	35	
4/2-way	spring offset	C	650	650	650	650	650	Spools C, Z in general, Pre-load valve, required for X=inter, flow up to approx.180 L/min
		D.Y	650	650	400	350	300	
		K	650	650	420	370	320	
		Z	650	650	650	480	400	
	spring offset	for all spools	650	650	650	650	650	min.at pilot pressure of 1.3 MPa
	without spring	C.D.K.Y	650	650	650	650	650	Spools C, Z in general, Pre-load valve, required for X=inter, flow up to approx.180 L/min
detent	C.D.K.Y	650	650	650	650	650		
4/3-way	spring-centred	E.L.M.Q.U.W	650	650	650	650	650	Spools C, T, F, P, H in general, Pre-load valve, required for X=inter flow up to approx.180 L/min
		H.	650	650	550	400	360	
		F.	650	550	430	330	300	
		G.T	400	400	400	400	400	
		P	650	550	430	330	300	
		J	650	650	650	600	520	
		R	650	650	650	650	580	
		V	650	500	400	350	310	
	pressure-centred	E.F.H.J.L.M P.Q.R.U.V.W	650	650	650	650	650	at pilot pressure of 1.8 MPa
		G.T	400	400	400	400	400	
G.T		650	650	650	650	650	at pilot pressure of 3 MPa	

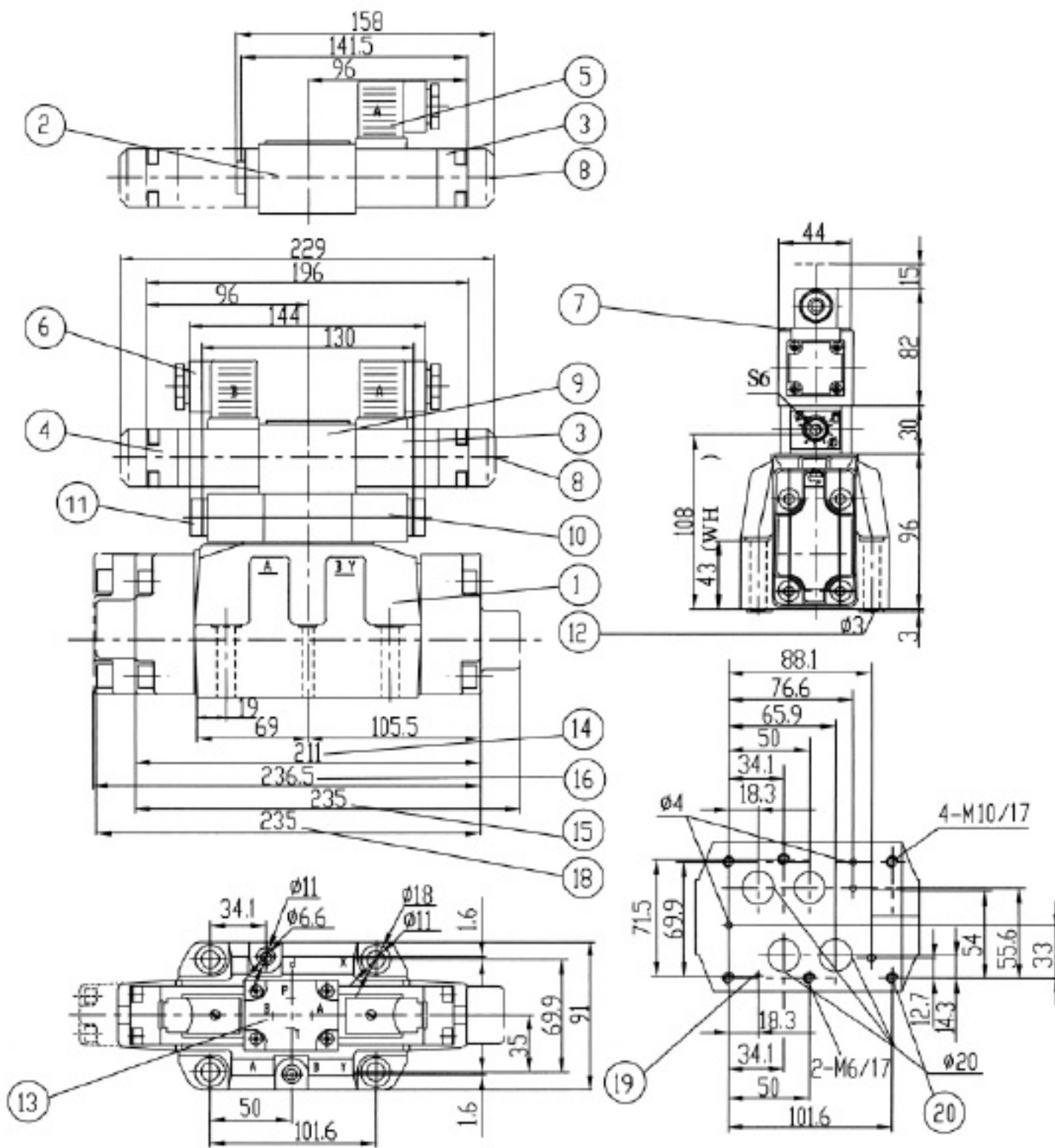
Type WEH 32

Way	Kinds of spring keeping	spool	Operating pressure in MPa					description
			7	14	21	28	35	
4/2-way	spring offset	D.Y	1100	1040	540	480	420	
		C	1100	1040	860	800	700	
		Z	1100	1040	860	700	650	
		K	1100	1040	860	500	450	
	hydraulic offset	for all spools	1100	1040	860	750	680	at pilot pressure of 1 MPa
4/3-way	spring-centred	E.J.L.M.Q.R.U.W	1100	1040	860	750	680	Spools C, T, F, P, H in general, Pre-load valve, required for X=inter flow up to approx.180 L/min
		H.G.F.T.P.	900	900	800	650	450	
		V	1000	1000	680	500	450	
	pressure-centred	for all spools (at pilot pressure of 0.85 MPa)	1100	1040	860	750	680	

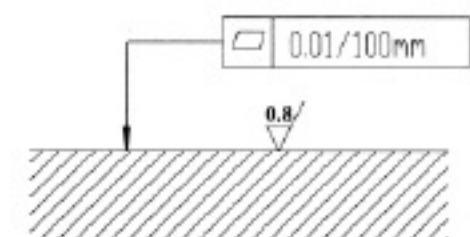


Subplates G535/01 (G3/4") ; G536/01 (G1"); G534/01 (G3/4");
 G535/02 (M27x2) ; G536/02 (M33x2); G534/02 (M27x2) see Page 206, 207

- | | |
|---|---|
| 1 Main valve | 10 Double throttle/check valve |
| 2 2-position valve with one solenoid and plug-in Z4 | 11 Reducing valve |
| 3 Solenoid "a" | 14 The position for port A, B, P and T of pilot valve |
| 4 Solenoid "b" | 19 O-Ring 12 x 2 for port A, B, P and T; O-Ring 10.82 x 1.78 for port X and Y |
| 5 Plug-in connector colour grey | 20 Nameplate |
| 6 Plug-in connector colour black | valves fixing screws |
| 7 Nameplate | 4 - M6 x 45 - 10.9 |
| 8 Manual override "N", optional | (GB/T70.1-2000) |
| 9 2 positions (2 solenoids) and plug-in Z4 | |
| 3 positions (2 solenoids) and plug-in Z4 | |

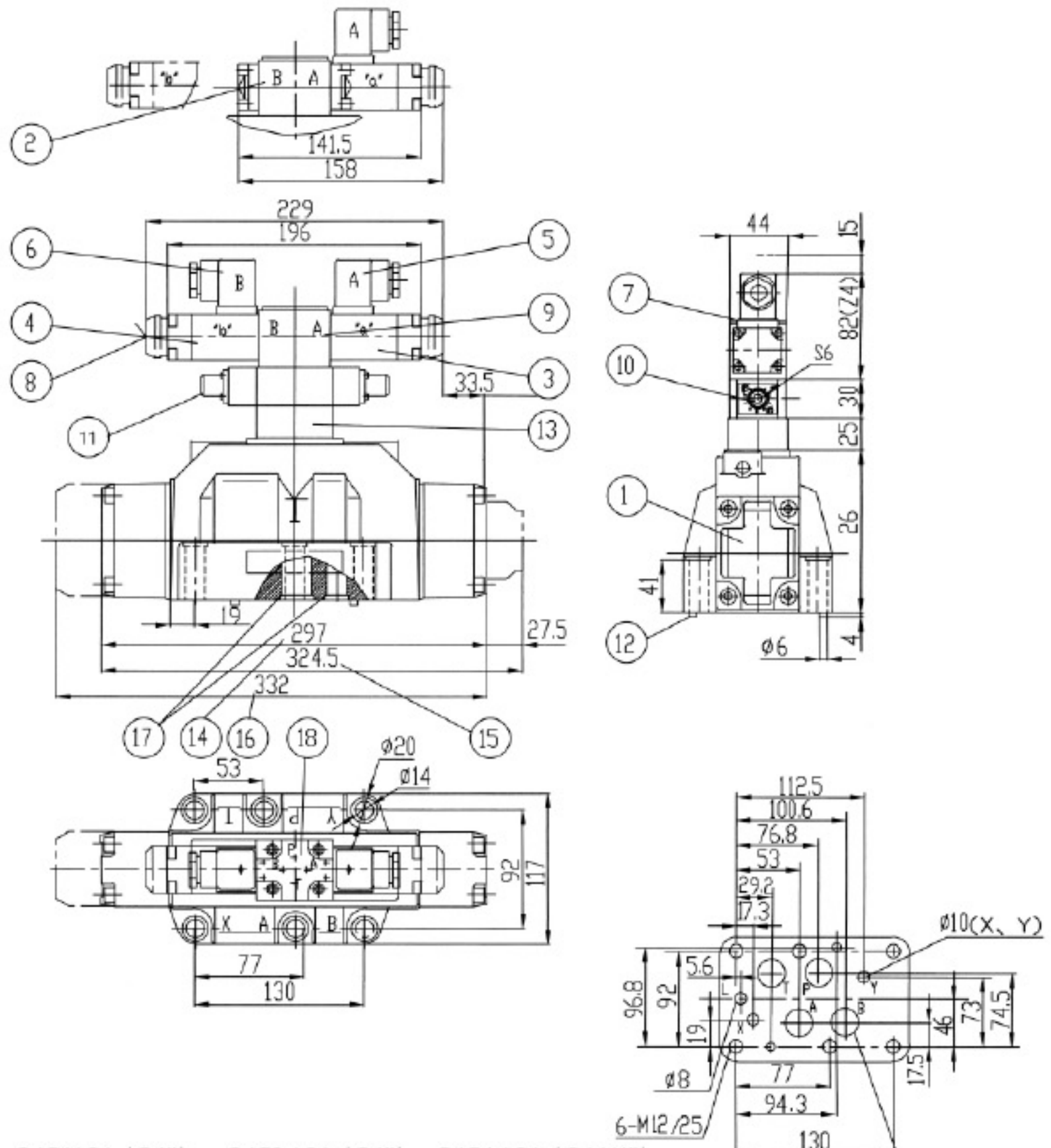


Required surface finish of the mating piece



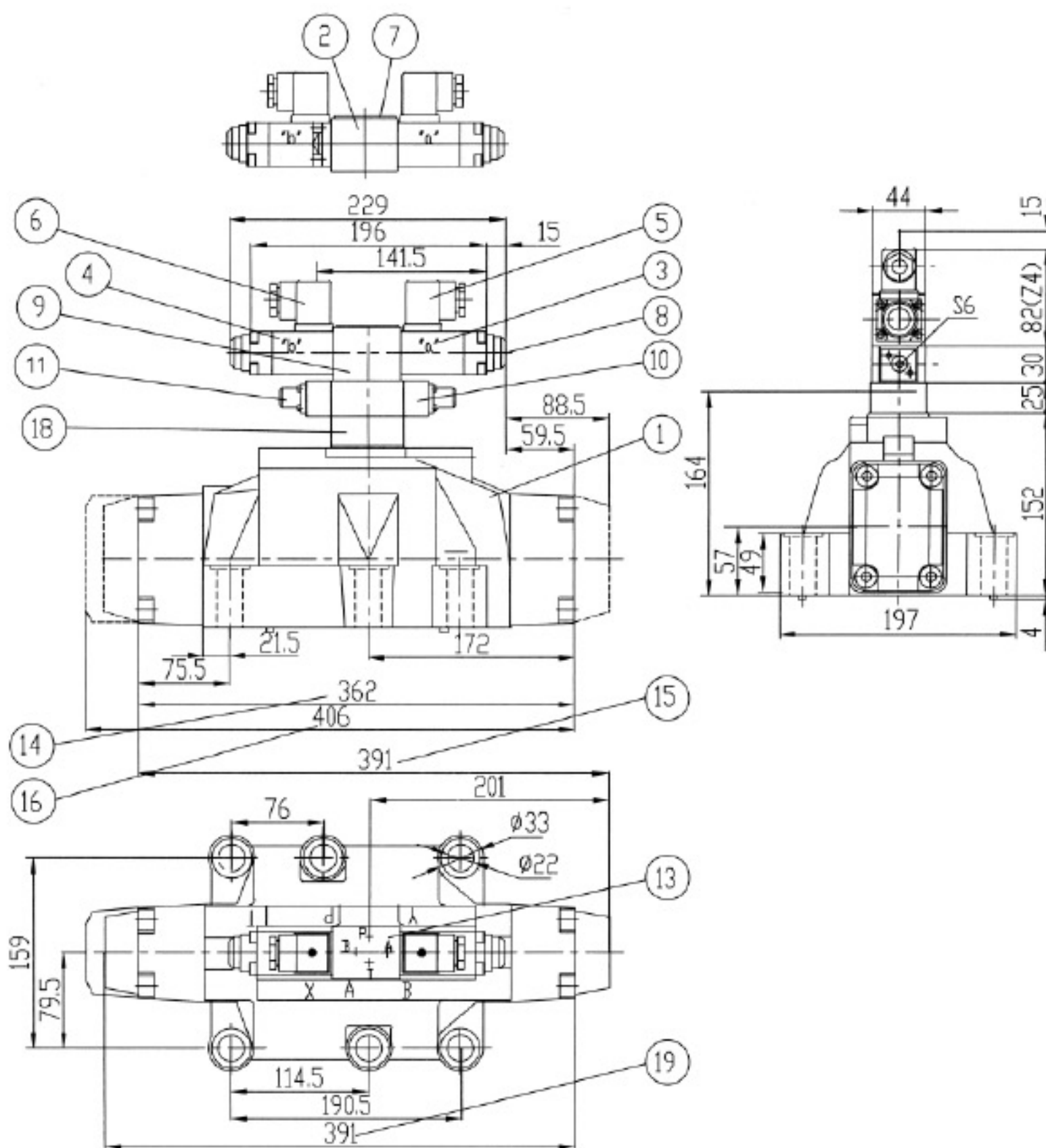
Subplates G172 / 01 (G3/4"); G172 / 02 (M27x2); G174 / 01 (G1");
G174 / 02 (M33x2); G174 / 08 see Page 206, 207

- | | |
|--|---|
| 1 Main valve | 12 Two fixing pins |
| 2 2-position valve with one solenoid | 13 The position for port A, B, P and T of pilot valve |
| 3 Solenoid "a" | 14 3-position valve, spring-centred
2-position valve, pressure-centred |
| 4 Solenoid "b" | 15 2-position valve, with spring offset (C .D .K .Z) |
| 5 Plug-in connector colour grey | 16 3-position valve, pressure-centred |
| 6 Plug-in connector colour black | 18 2-position valve, with spring offset(Y) |
| 7 Nameplate for the pilot valve | 19 Fixing pin hole (Φ 4H12 depth 8) |
| 8 Manual override "N", optional | 20 Tightening screws for valves
4 - M10 x 60 -10.9 (GB/T70.1-2000)
2 - M 6 x 60 -10.9 (GB/T70.1-2000) |
| 9 2-position valve with two solenoids and plug Z4
3-position valve with two solenoids and plug Z4 | |
| 10 Double throttle/check valve | |



Subplates G151/01 (G1") ; G153/01 (G1"); G154/01 (G11/4");
 G151/02 (M33x2); G153/02 (M33x2); G154/02 (M42x2); $\phi 24.5(A, B, T)$
 G156/01 (G11/2"); G156/02 (M48x2); see Page 209

- | | |
|--|---|
| 1 Main valve | 13 Reducing valve |
| 2 2-position valve with one solenoid and plug Z4 | 14 3-position valve, spring-centred
2-position valve, hydraulic offset |
| 3 Solenoid "a" | 15 2-position valve, spring-centred
spring offset (C, D, K, Z) |
| 4 Solenoid "b" | 16 3-position valve, pressure-centred |
| 5 Plug-in connector colour grey | 17 O-Ring 27 x 3 for port A, B, P and T; O-Ring
19 x 3 for port X and Y |
| 6 Plug-in connector colour black | 18 The position for port A, B, P of pilot valve
fixing screws
6 - M 12 x 60 -10.9 (GB/T70.1-2000) |
| 7 Nameplate for the pilot valve | |
| 8 Manual override "N", optional | |
| 9 2 positions (2 solenoids)
3 positions (2 solenoids) | |
| 10 Double throttle/check valve | |
| 12 Two fixing pins | |



Subplates G157/01 (G1/2") ; G157/02 (M48x2); G158/10); see Page 210, 211

- | | |
|--|--|
| 1 Main valve | 13 The position for port A, B, P and T of pilot valve |
| 2 2-position valve with one solenoid and plug Z4 | 14 3-position valve, spring-centred
2-position valve, hydraulic offset |
| 3 Solenoid "a" | 15 2-position valve, spring offset (C, D, K, Z) |
| 4 Solenoid "b" | 16 3-position valve, pressure-centred |
| 5 Plug-in connector colour grey | 18 Reducing valve |
| 6 Plug-in connector colour black | 19 2-position valve, with spring offset
O-Ring 42 x 3 for port A, B, P and T; O-Ring
19 x 3 for port X and Y
fixing screws
6 - M 20 x 80 -10.9 (GB/T70.1-2000) |
| 7 Nameplate for the pilot valve | |
| 8 Manual override "N", optional | |
| 9 2 positions (2 solenoids)
3 positions (2 solenoids) | |
| 10 Double throttle/check valve | |
| 12 Two fixing pins | |

Pilot valve:

WEH used 4WE6 as pilot valve, the control spool is held in the neutral or initial position by means of return spring, is held in the working position by solenoids or detent.

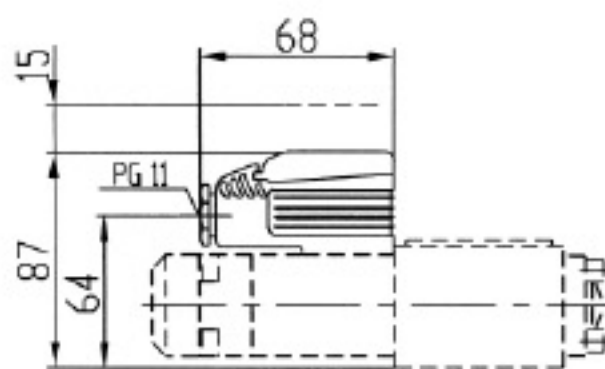
All spool of pilot valve see below table.

Main valve	Pilot valve	
3-position valve, spring-centred	spool J ,3-position valve	
3-position valve, pressure-centred	spool M ,3-position valve	
2-position valve Y . . . / . . . and HY . . . / . . .	spool Y ,2-position valve (with spring offset)	
2-position valve C, D, K, Z and HC, HD, HK, HZ	spool D ,2-position valve	
	Type of pilot valve:	
	with spring offset	
	without spring offset	
	without spring offset, but with detent	

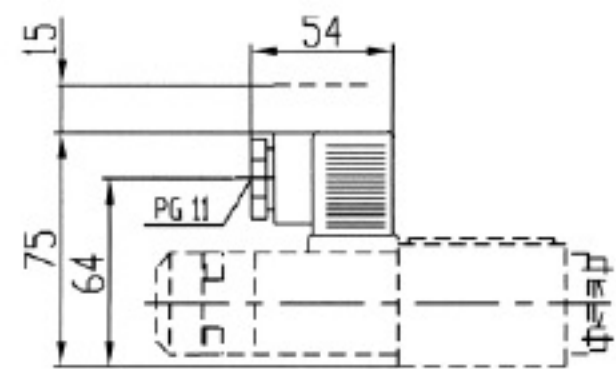
Dimensions of electrical connection

(Dimensions in mm)

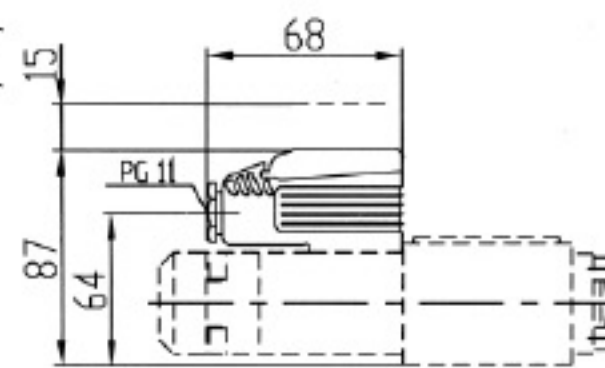
Z5
large plug-in
connector



Z4
plug-in
connector

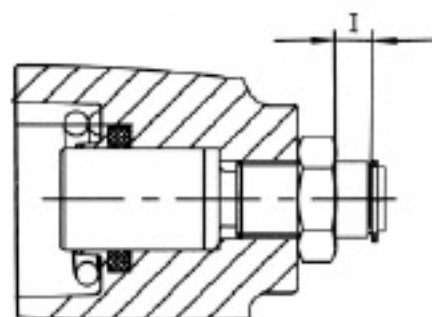


Z5 L
plug-in connector
with indicator
lamp



Additional equipment : The stroke limiter

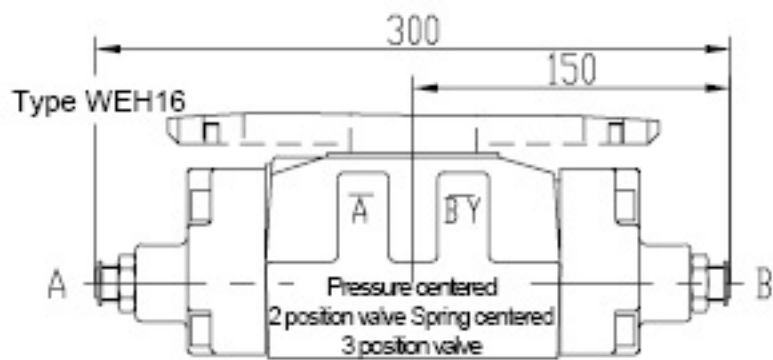
The stroke limiter limits the stroke of the control spool installed in the cover of main valve, change the moment time of form or spool by adjusting yard of valve orifice, must be without pressure.



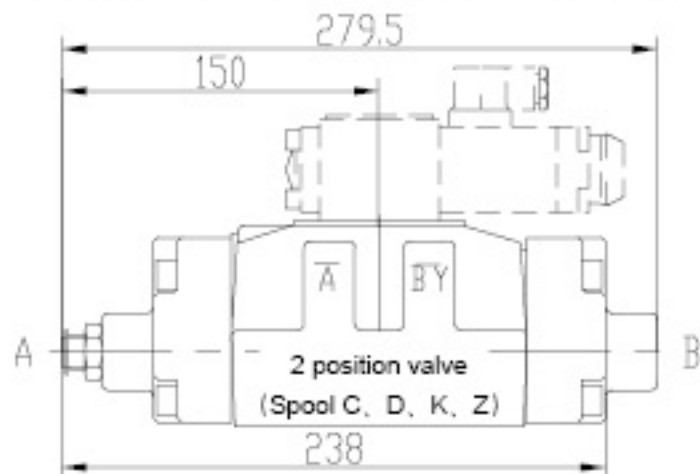
Adjustment range

(Dimensions in mm)

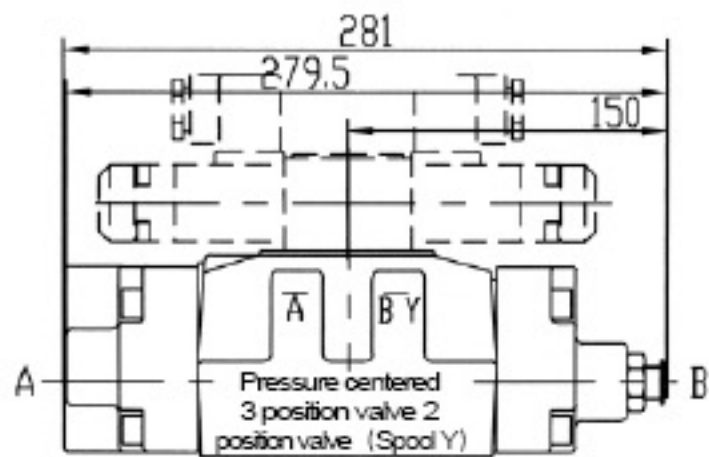
Size	Adjustment range	
WEH16	10	1 turn = 1.5 mm adjustment travel
WEH25	12	
WEH32	13	



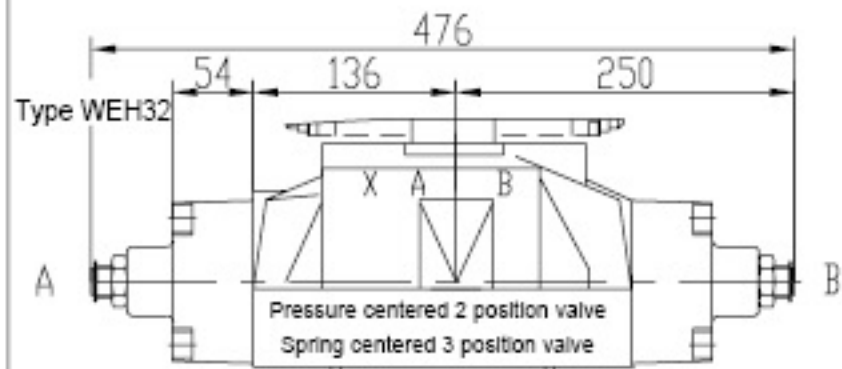
Stroke limiter on sides A and B end of main valve Stroke limiter on valve side A and B



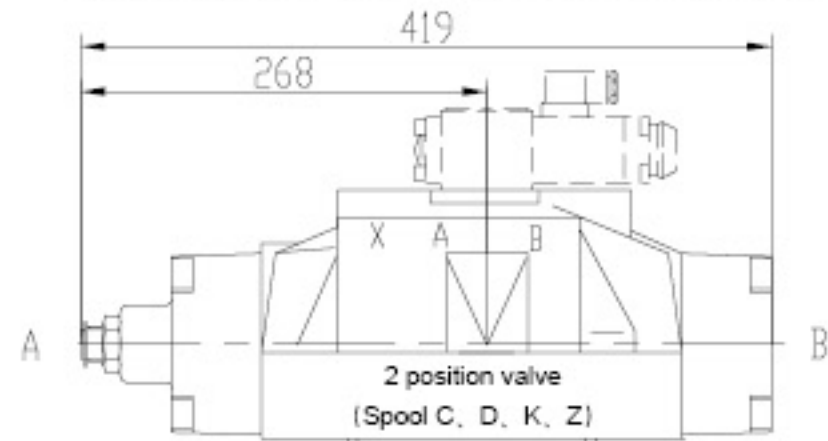
Stroke limiter on side A of valve



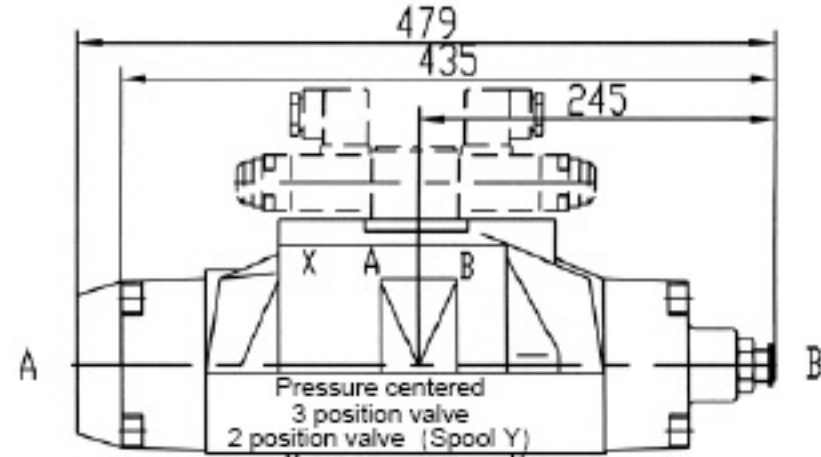
Stroke limiter on side B of valve



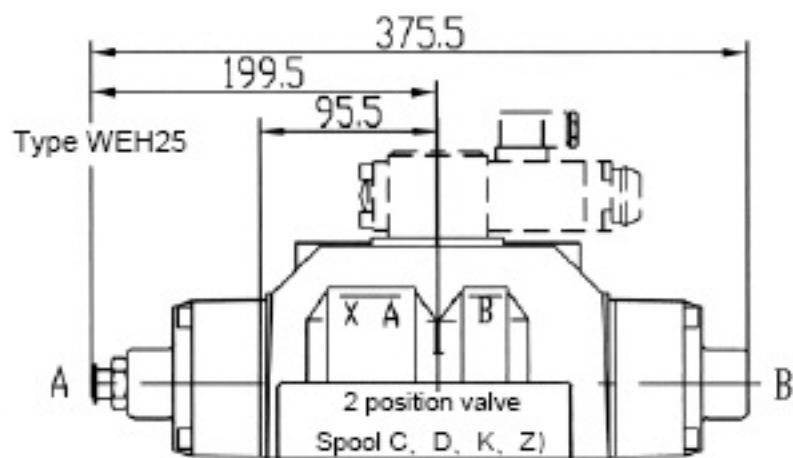
Stroke limiter on sides A and B end of main valve Stroke limiter on valve side A and B



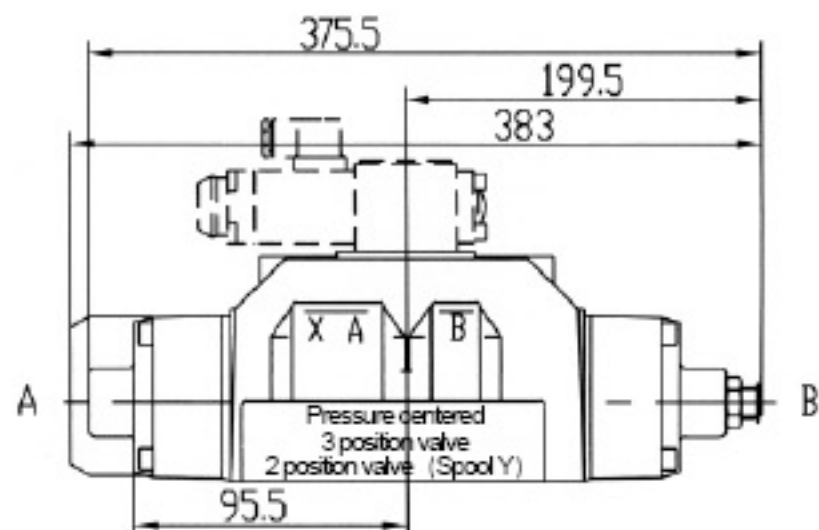
Stroke limiter on side A of valve



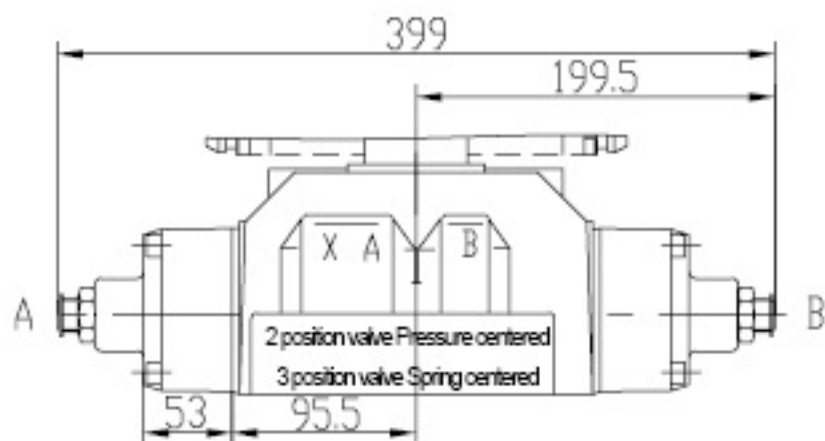
Stroke limiter on side B of valve



Stroke limiter on valve side A



Stroke limiter on valve side B



Stroke limiter on sides A and B end of main valve Stroke limiter on valve side A and B