Huade

Hydraulic valves

Directional Valves

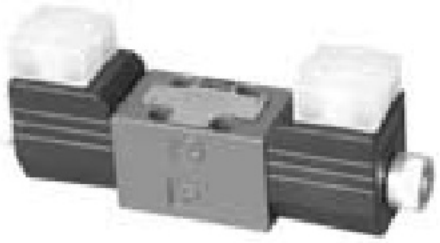
Catalogue

BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.

BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Directional control valves, electrically operated Type WE 4			RE23140/12.2004
	size 4	up to 21 MPa	up to 25 L/min	Replaces: RE23140/05.2001

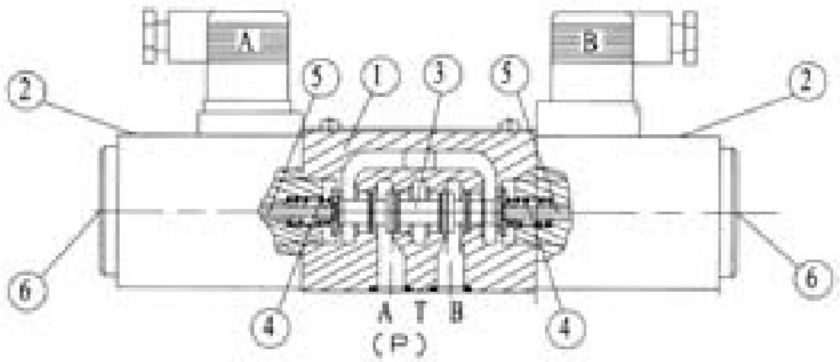
Features:

- Directional valves of type WE4 are solenoid operated directional spool valves
- Wet pin solenoids of direct or alternating current
- Porting pattern to ISO 4401 and CETOP-RP 121H



Function,section

Type 4WE4E 10B/



Directional valves of type WE4 are solenoid operated directional spool valves. They control the start, stop and direction of a fluid flow.

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

The control spool (3) is held by the return spring (4) in the central or in the initial position (except for detented spools).The control spool (3) is actuated via wet pin solenoids (2). In the energized condition.The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and shifts the same from its rest position to the desired end position.Thus, the required flow pattern from P to A and B to T or P to B and A to T is selected. When the solenoid (2) is de-energized, the control spool (3) is returned to its neutral position by the return spring (4).A covered manual override is provided so that the control spool (3)can be operated without energizing the solenoid.

A

Type 4WE4 C 10B/O...

D

This version is a directional valve with 2 switching positions and 2 solenoids without detent and springs. There is no defined switching position in the de-energized condition.

A

Type 4WE4 C 10B/OF...

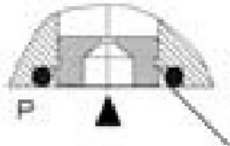
D

This version is a directional valve with 2 switching position,2 solenoids and a detent.Thus, the relevant switching positions are fixed and continuous energization of the solenoid is not necessary

Throttle inserts

The use of throttle inserts is only required, if, due to the operating conditions,flows are to be expected,which are higher than the stated maximum performance limits of the valve.

It is inserted in the P channel of the directional valve.



Type 4WE 4-10B/...B..

O-ring 7 x 1.5

Ordering details

	WE	4		10	B	/	A						*

3 service ports = 3
4 service ports = 4

Nominal size 4 = 4

Symbols see below

Series 10 to 19 = 10
(10 to 19 unchanged installation and connection dimentions)

The technology of Beijing Huade Hydraulic = B

Spring return = No code
Without spring return = O
Without spring return with detent = OF

Standard solenoid = A

12 V DC =12
220 V AC 50 Hz = W220-50
24 V DC =G24
DC solenoid commuting automatically =W110/220R

N9= With covered hand override
No = Without covered hand override

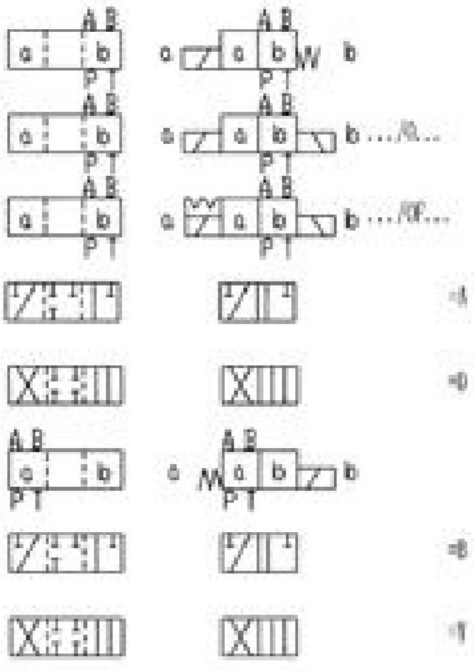
Z4 = normal plug
Z5 = Large angled plug
Z5L= Large angled plug with indicator light

No code = without cartridge throttle
B08 = throttle Φ 0.8 mm
B10 = throttle Φ 1.0 mm
B12 = throttle Φ 1.2 mm

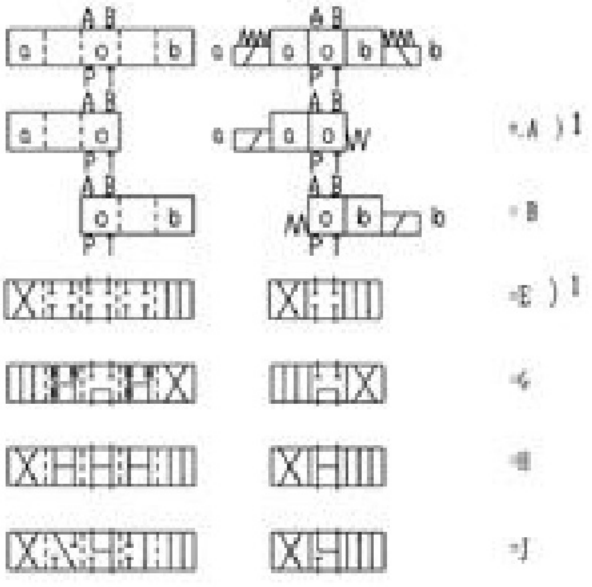
No code = mineral oils
V = phosphate ester

Further details in clear text

Symbols



1) Example: Spool E with switching position "a" ordering details..EA

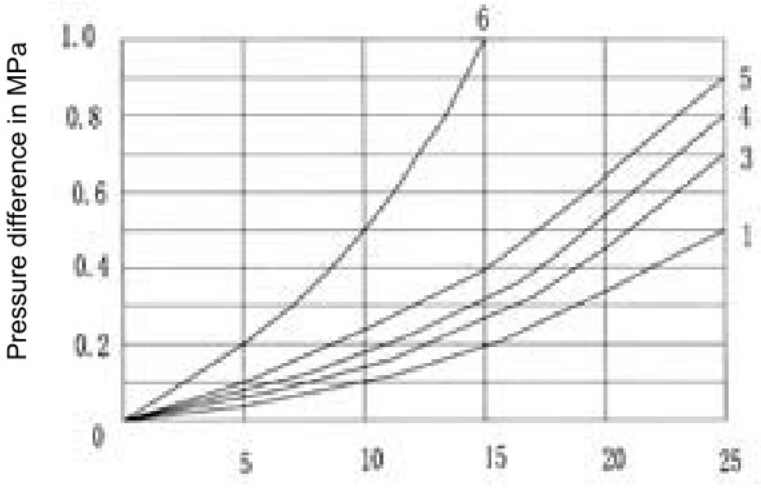


Technical data

Hydraulic technical data			
Max. operating pressure - Ports A, B, P		(MPa)	up to21.0
- Port T		(MPa)	10.0 ,With symbols A or B port T must be used as leakage port when the operating pressure is above the permissible tank pressure
Max. flow		(L/min)	up to 25
Pressure fluid			Mineral oil phospate ester
Viscosity range		(mm^2/s)	2.8 to 500
Pressure fluid temperature range		(°C)	- 30 to + 80
Degree of contamination		(um)	Maximum permissible degree of contamination of the hydraulic fluid to NAS 1638 class 9. We therefore recommend a filter with a minimum retention rate of β10≥ 75.
Weight		(Kg)	- Valve with 1 solenoid 0.9 - Valve with 2 solenoids 1.3
Electrical technical data			
Available voltages		(V)	12、24、220、110R、220R
Power consumption		(W)	22
Duty			continuous
Switching time	ON	(ms)	20 to 30
	OFF	(ms)	10 to 20
Max. ambient temperature		(°C)	+50
Max. coil temperature		(°C)	+150
Protection to DIN 40 050			IP65
Switching frequency		(cycles/h)	15000

With electric connection the protective conductor (PE) must be connected according to the relevant regualtions.

Characteristic curves (measured at ν = 41 mm^2/s and t = 50 °C)



Flow in L/min

Symbol	Flow direction				
	P → A	P → B	A → T	B → T	P → T
A	5	5	-	-	-
B	5	5	-	-	-
D,Y	5	5	4	4	-
E	4	4	3	3	-
G	3	3	4	4	6
H	1	1	1	1	-
J	5	5	3	3	-

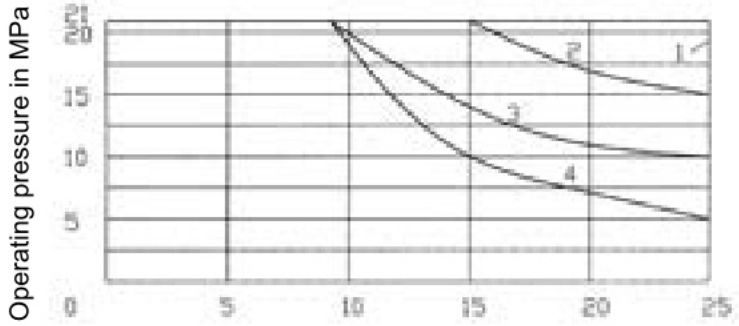
Characteristic curves (measured at ν = 41 mm^2/s and t = 50°C)

Attention!

The given operating limits are valid for the use with two flow directions (e.g. from P to A and simultaneous return flow from B to T).

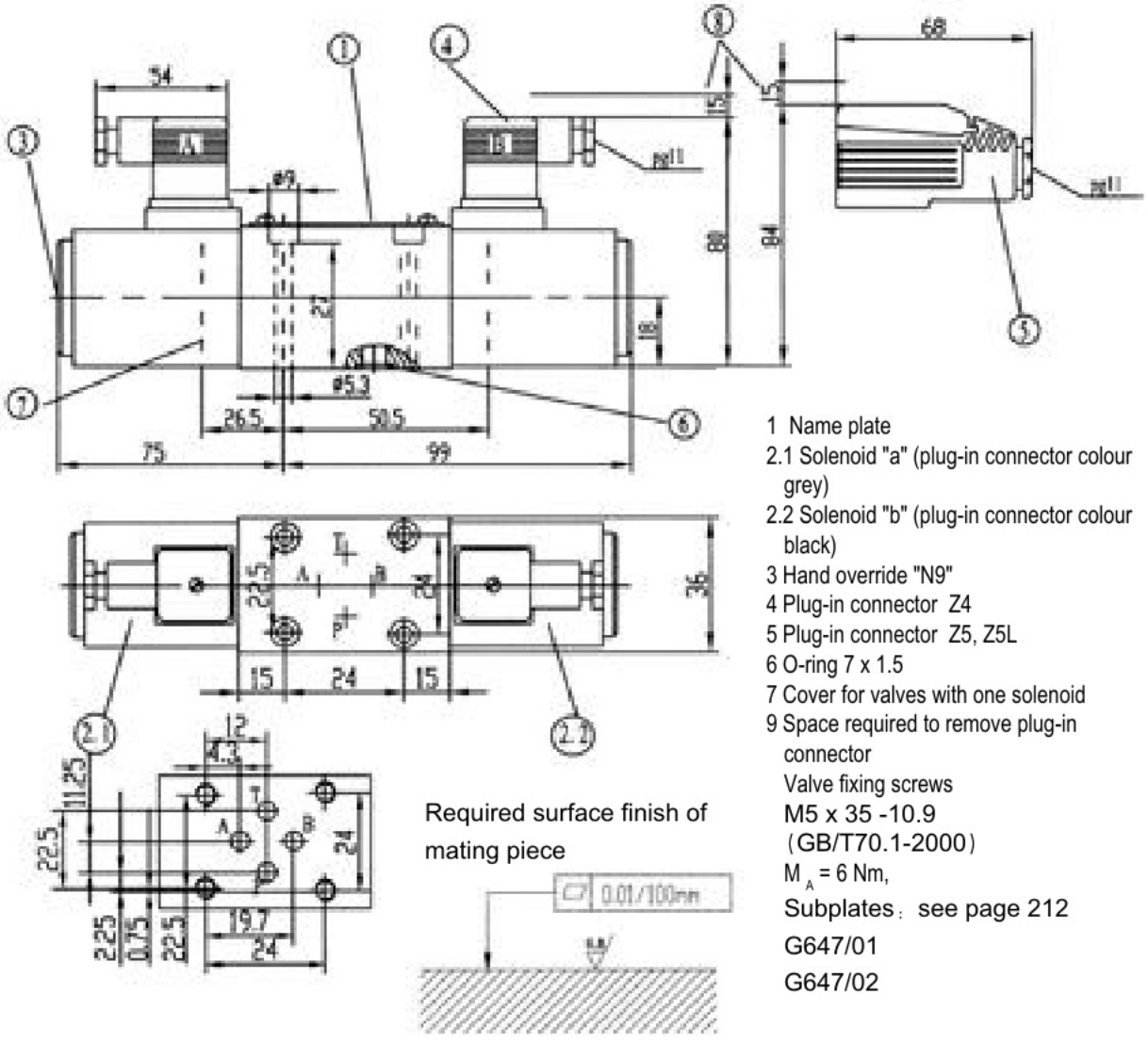
Due to the flow forces active inside the valves the permissible operating limit may be significantly lower if only one flow direction from P to A and closed port B) is used!

The operating limits were measured with solenoids at operating temperature,10% under voltage and without tank back pressure.



Char. curve	Symbol
1	D,D/O,D/OF,H,Y
2	E,J
3	G
4	A,B

Unit dimensions (Dimensions in mm)



1 Name plate
2.1 Solenoid "a" (plug-in connector colour grey)
2.2 Solenoid "b" (plug-in connector colour black)
3 Hand override "N9"
4 Plug-in connector Z4
5 Plug-in connector Z5, Z5L
6 O-ring 7 x 1.5
7 Cover for valves with one solenoid
9 Space required to remove plug-in connector

Valve fixing screws
M5 x 35 -10.9
(GB/T70.1-2000)
M_A = 6 Nm,

Required surface finish of mating piece

Subplates: see page 212
G647/01
G647/02

Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

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6. **Surface finish of mating piece is required to 0.01/100mm.**

BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Directional control valves, electrically operated Type WE 5			RE 23166/12.2004
	Size5	up to 25 MPa	up to14L/min	Replaces：RE23166/05.2001

Features:

- Direct solenoid actuated directional spool valve
- Wet pin DC or AC solenoids

Function, section

Directional valves of type WE5 are solenoid operated directional spool valves. They control the start, stop and direction of a fluid flow.

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

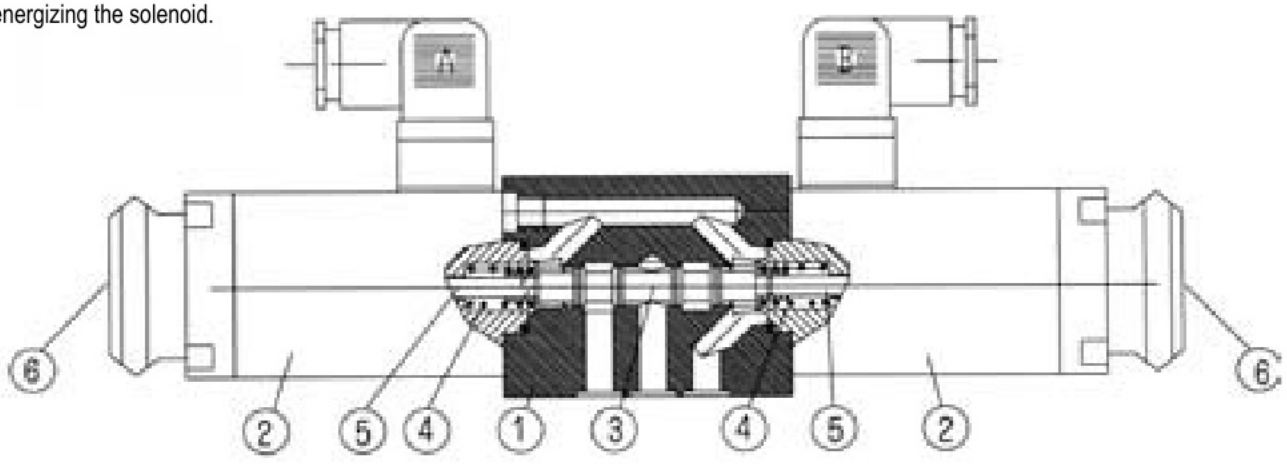
The control spool (3) is held by the return spring (4) in the central or in the initial position (except for detented spools).The control spool (3) is actuated via wet pin solenoids (2). In the energized condition.The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and shifts the same from its rest position to the desired end position.Thus, the required flow pattern from P to A and B to T or P to B and A to T is selected. When the solenoid (2) is de-energized, the control spool (3) is returned to its neutral position by the return spring (4).A covered manual override is provided so that the control spool (3)can be operated without energizing the solenoid.

Type 4WE5 N 6.0B/O...

This version is a directional valve with 2 switching positions and 2 solenoids without detent and springs. There is no defined switching position in the de-energized condition.

Type 4WE5 N 6.0B/OF...

This version is a directional valve with 2 switching position,2 solenoids and a detent.Thus, the relevant switching positions are fixed and continuous energization of the solenoid is not necessary



Type WE5

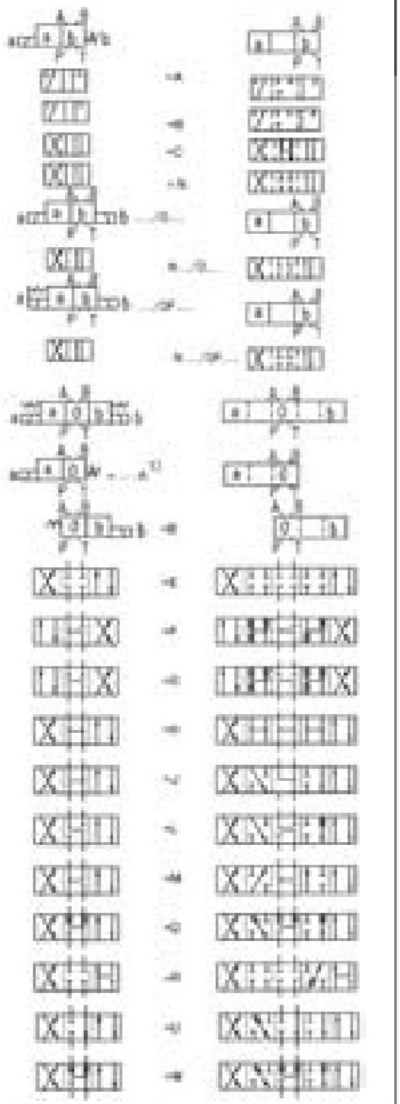
Ordering details

	WE	5		6.0	B	/		A					*

3 Service ports = 3

4 Service ports = 4

Nominal size 5 = 5



1) Example: Spool E with switching position "a"

ordering details..EA

Spool E with switching position "b"

ordering details..EB

Series 6.0 to 6.9 = 6.0

(6.0 to 6.9: unchanged installation and connection dimentions)

B = Technology of Beijing Huade Hydraulic

No= Standard,with spring return

OF= Without spring return, with detent

O = Without spring return

A= wet pin solenoid

W220-50= 220 V AC 50 Hz

G24= 24 V DC

W220R = DC solenoid commuting automatically

N= With manual override

No = Without manual override

Z4 = normal plug

Z5 = large right-Angle plug

Z5L= large right-angle plug with indicator

No code = mineral oils

V = phosphate ester

Further details in cleartext

* With spool types A and B port T must be used as a drain port when operating pressure exceeds 6 MPa

Technical data

Hydraulic				
Hydraulic fluid		mineral oils or phosphate ester		
Fluid temperature range	(℃)	-30～+80		
Viscosity range	(mm^2/s)	2.8～500		
Operating pressure, max.	(MPa)	Port A, B, P	Port T	
		up to 25	up to 6	
Flow area (switching position 0):		With symbol W	With symbol Q	
		approx. 3% of nominal cross section	approx. 6% of nominal cross section	
Weight	(kg)	valve	subplate G115/01	subplate G96/01
		approx.1.4	approx.0.7	approx.0.5
Electrical				
AC Voltage	(V)	110、220、in 50Hz		
DC Voltage	(V)	12、24、110		
Voltage type		AC	DC	
Power requirement	(W)	26		
Holding power	(VA)	-	46	
Switch-on power	(VA)	-	130	
Duty cycle		continue		
Switching time	ON (ms)	40	25	
	OFF (ms)	30	20	
Environment temperature	(℃)	+50		
Coil temperature	(℃)	+150		
Switching frequency cycles	(cycles /h)	15000	7200	
Type of protection to DIN 40 050		IP65		

Performance limits

Attention!

The given operating limits are valid for the use with two flow directions (e.g. from P to A and simultaneous return flow from B to T).Due to the flow forces active inside the valves the permissible operating limit may be significantly lower if only one flow direction from P to A and closed port B) is used! The operating limits were measured with solenoids at operating temperature,10% under voltage and without tank back pressure.

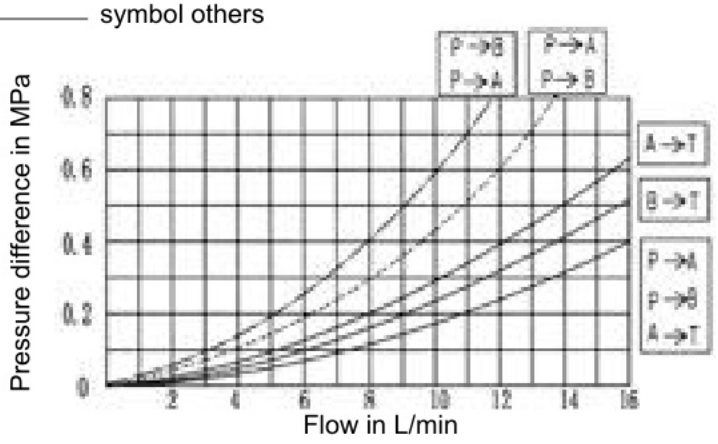
flow in L/min / operating pressure in MPa / symbol	5	10	25
A、B、C、N、E、F、H、J、L、M、Q、R、V、W	14	14	12
G	10	10	9

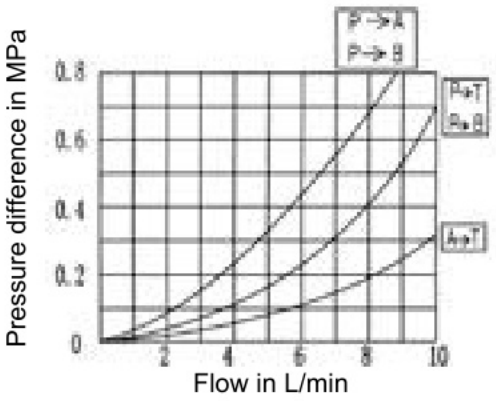
Characteristic curves (measured at ν = 41 mm^2/s and t = 50 ℃)

symbol B

symbol R

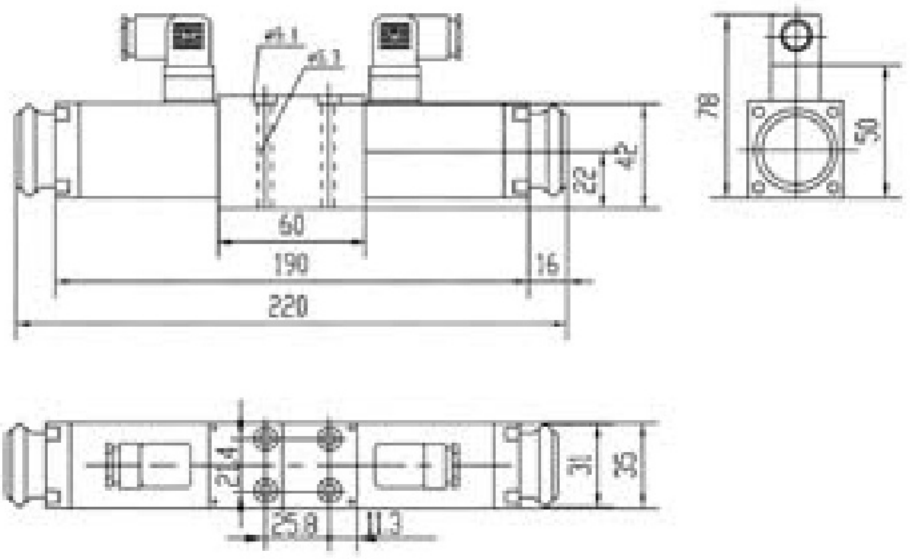
symbol others



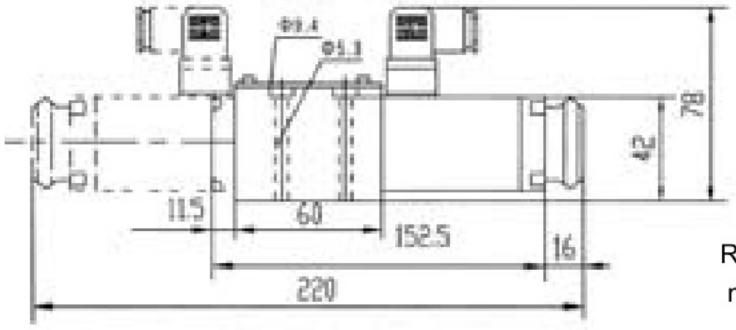


Unit dimensions **(Dimensions in mm)**

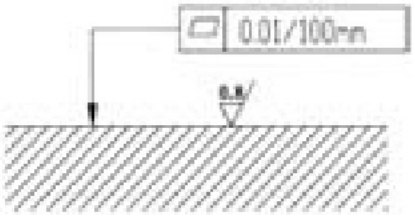
3-position valve.



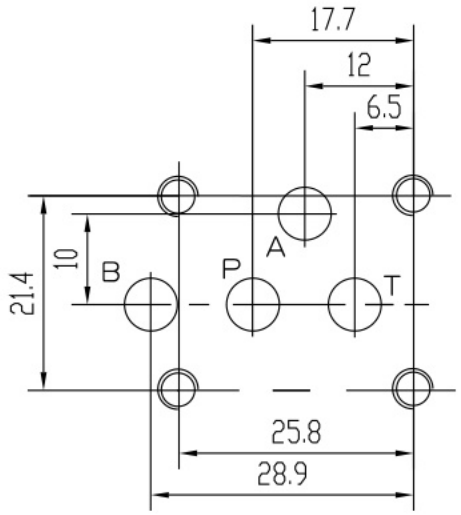
2-position valve.



Required surface finish of mating piece



The connection dimensions of service ports



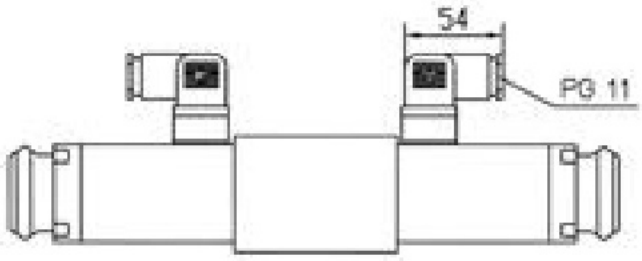
O-ring	7X1.5
Valve fixing screws	4-M5X50-10.9（GB/T70.1-2000）M_A=9N.m

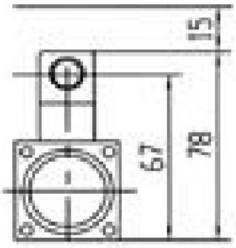
Subplates：
G115/01； G96/01
G115/02； G96/02

see page 212

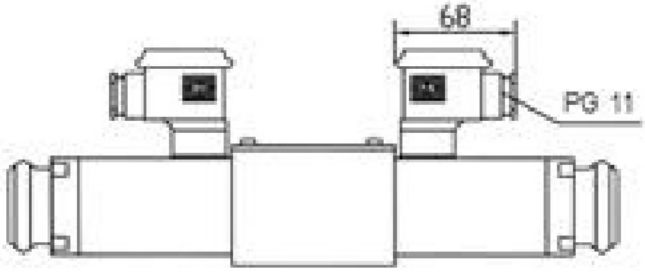
Dimensions of the electrical connection **(Dimension in mm)**

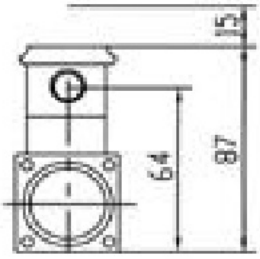
Z4 normal plug to DIN43850



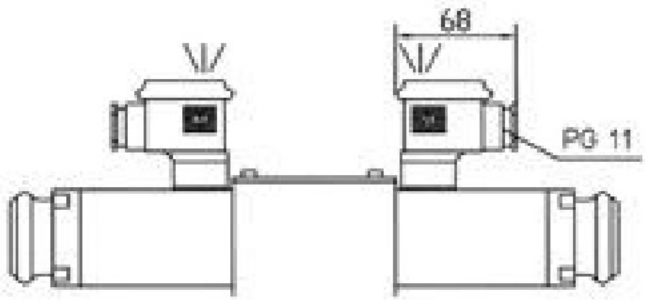


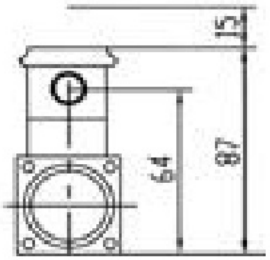
Z5 large right-angle plug





Z5L large right-angle plug with indicator light





Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** $\sqrt{0.8}$.
6. **Surface finish of mating piece is required to 0.01/100mm.**

Notice

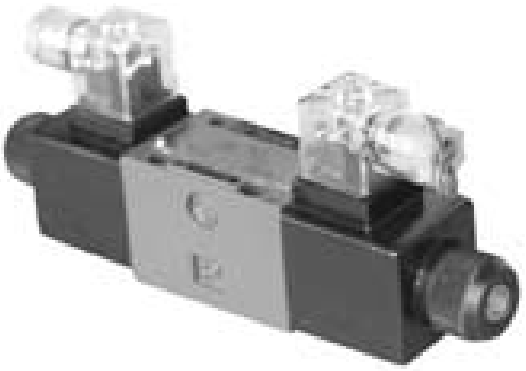
1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

.
6. **Surface finish of mating piece is required to 0.01/100mm.**

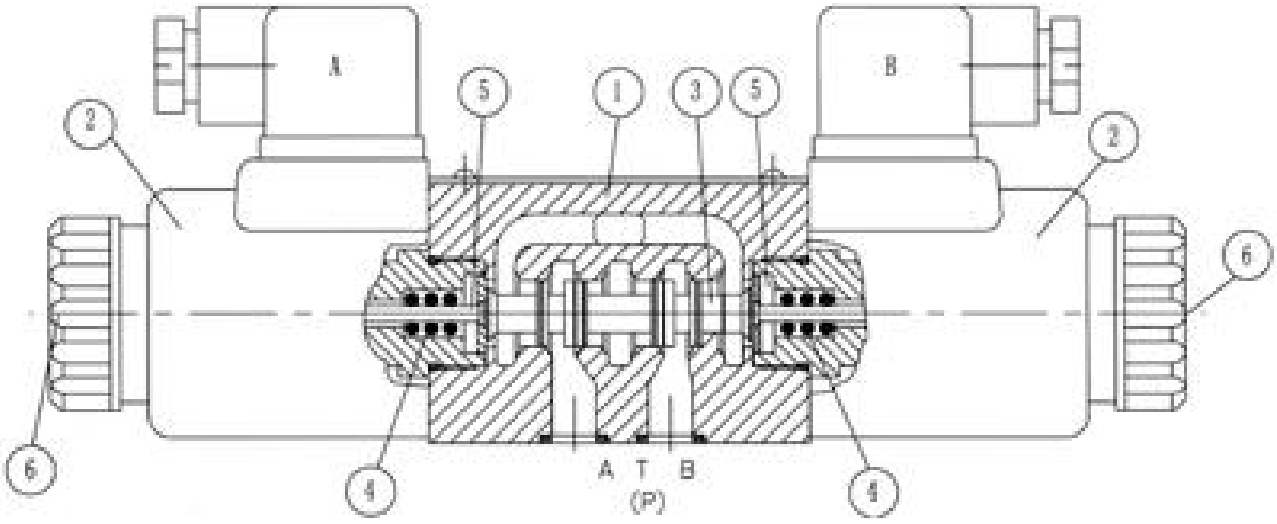
BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Directional control valves Type WE 6...61B/... (new series)			RE 23188/12.2004
	Size 6	up to 31.5 MPa	up to 80L/min	Replaces：23188/05.2001 RE: 23316/05.2001

Features:

- Direct solenoid actuated directional spool valve high performance version
- Wet pin DC or AC solenoids with removable coil
- Solenoid coil can be rotated through 90 °
- It is not necessary to open the pressure tight chamber when changing the coil
- Electrical connections either as individual or central connections
- Hand override,optional
- Porting pattern to Din 24 340 form A, ISO 4401 and CETOP-RP 121H



Function, section



Type WE6...61B/

Essentially 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-energized 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)

The force of the solenoids (2)acts via the plunger (5)on the control spool (3)and pushes this from its neutral position to the required end position.This gives free-flow from P toA and B to T or P to B andA to T.

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

An optional hand override (6),allows movement of the control spool (3)without energising the solenoid.

Ordering details.

	WE	6		61	B	/		C						*

3 service ports = 3
4 service ports = 4

Nominal size 6 =6

Symbols see below

Series 60 to 69 = 61
(60 to 69:unchanged installation and connection dimensions)

Technology of Beijing Huade Hydraulic = B

Spring return = No code
Without spring return = O
Without spring return with detent = OF

High power solenoid = C
Wet pin (oil immersed)with removable coil

12 V DC =G12
220 V AC 50 Hz = W220-50
24 V DC =G24
DC solinoid commuting automatically = W220R

Further details in clear text

No code = mineral oils
V = phosphate ester

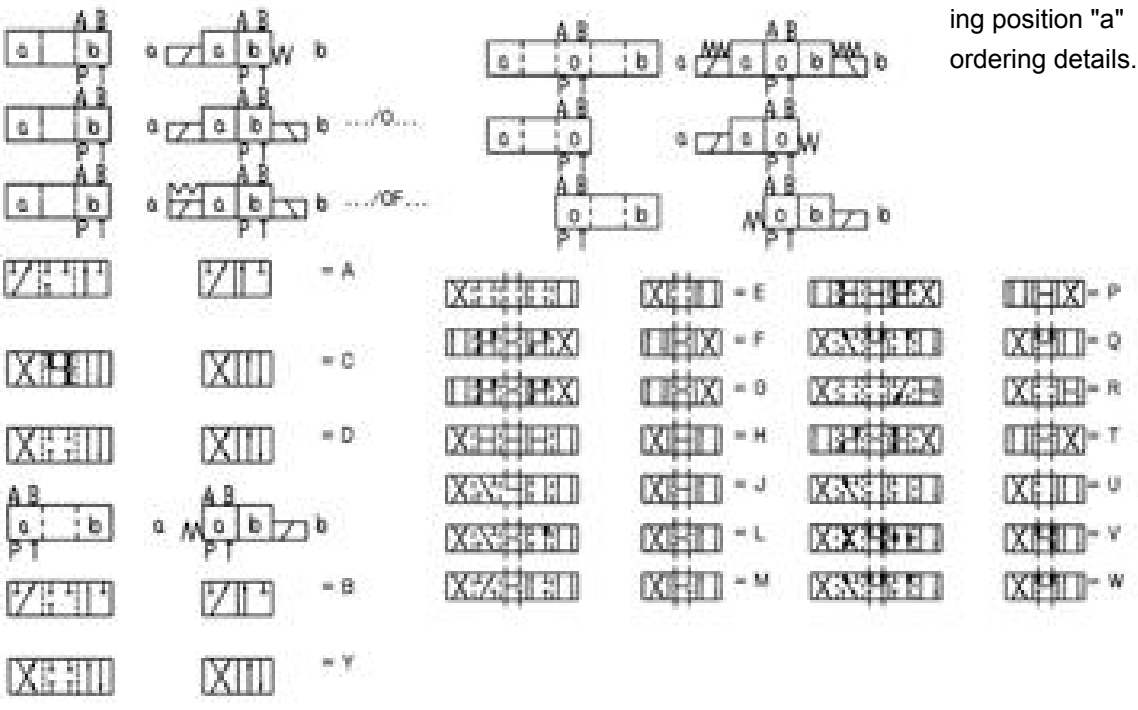
No code = Without cartridge throttle
B08 = Throttle Φ 0.8 mm
B10 = Throttle Φ 1.0 mm
B12 = Throttle Φ 1.2 mm

Individual connections:
K4= With sealing cover, without plug
Z4 = normal plug
Z5L = Large right-angle plug with indicator
Central connections:
DL = Central connection with indicator light

N9= With protected hand override (standard)
N= With hand override
No code= Without hand override

Symbols

1) Example: Spool E with switching position "a"
ordering details..EA "b"



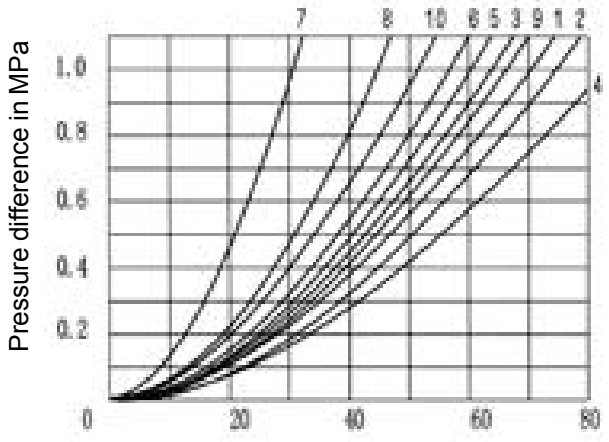
Technical data

Hydraulic				
Max.operating pressure Ports A,B,P		(MPa)	up to 35.0	
Port T		(MPa)	21 (-);16 (~) with symbols A and B,port T must be used as adrain port if the operating pressure is above the permitted tank pressure.	
Max.flow		(L/min)	80 (-);60 (~)	
Pressure fluid			mineral oils or phosphate ester	
Viscosity range		(mm^2 /s)	2.8 ~ 500	
Pressure fluid temperature range		(℃)	-30 ~ +80	
Degree of contamination			Maximum permissible degree of contamination of the hydraulic fluid to NAS 1638 class 9. We therefore recommend a filter with a minimum retention rate of β10≥ 75.	
Electrical				
Voltage type			DC	AC 50/60 Hz
Available voltages		(V)	12、24、42、60、96、	42、110、120、230
			110、180、205、220	50/60Hz
Power consumption		(W)	30	
Holding power		(VA)	-	50
Switch-on power		(VA)	-	220
Duty			continuous	continuous
Switching time to ISO	ON	(ms)	25 to 45	10 to 20
6403	OFF	(ms)	10 to 25	15 to 40
Protection to DIN			IP 65	
Switching frequency		(cycles/h)	up to 15000	up to 7200

With electrical connections the protective conductor (PE)
must be connected according to the relevant regulations.

Characteristic curves (measured at v = 41 mm^2 /s and t = 50℃)

7 Symbol "R " in switched position A → B
8 Symbols "G " and "T " in mid position P → T



Symbols	Flow direction			
	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	1	3	1	1
T、G	10	10	9	9
H	2	4	2	2
J、Q	1	1	2	1
L、U	3	3	4	9
M	2	3	3	3
P	3	1	1	1
R	5	5	4	-
V	1	2	1	1
W	1	1	2	2

Performance limits (measured at v = 41 mm² /s and t = 50 °C)

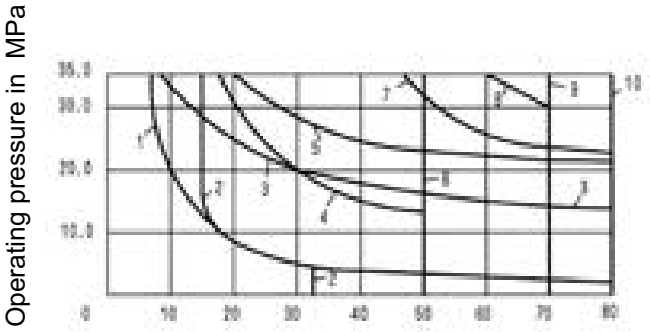
The given switching power limits are for applications with two flow directions (e.g.from P to A and simultaneous return flow from B to T).

Due to the flow forces active within the valves the permissible switching power limit may be significantly less if there is only one direction of flow (e.g.from P to A and port B blocked)!

(Please consult us for applications of this kind.)

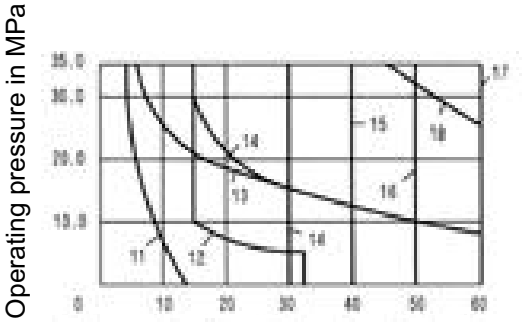
The switching power limits were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.

DC solenoid G24;24V		AC solenoid - W220:220V,50Hz		AC solenoid - 60Hz W220:220V,60Hz	
Char. curve	Symbol	Char. curve	Symbol	Char. curve	Symbol
1	A, B [1)]	11	A, B [1)]	19	A, B [1)]
2	V	12	V	20	V
3	A, B	13	A, B	21	A, B
4	F, P	14	F, P	22	F, P
5	J	15	G, T	23	G, T
6	G, H, T	16	H	24	J,L,U
7	A/O, A/OF, L, U	17	A/O, A/OF, C/O, C/OF	25	A/O, A/OF, Q,W
8	C, D, Y		D/O, D/OF, E, E1[-2)], J, L	26	C, D, Y
9	M		M, Q, R[3)], U, W	27	H
10	E, E1[-2)], R[3)], C/O	18	C, D, Y	28	C/O, C/OF, D/O, D/OF,
	C/OF, D/O, D/OF, Q, W				E, E1[-2)], M, R[-2)]

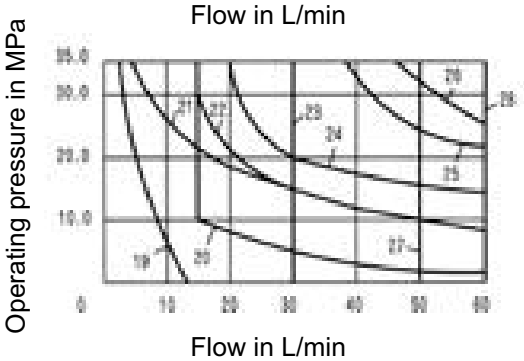


1) With hand override
2) P → A/B pre-opening
3) Return flow from actuator to tank

DC solenoid
Char. curve
1 to 10



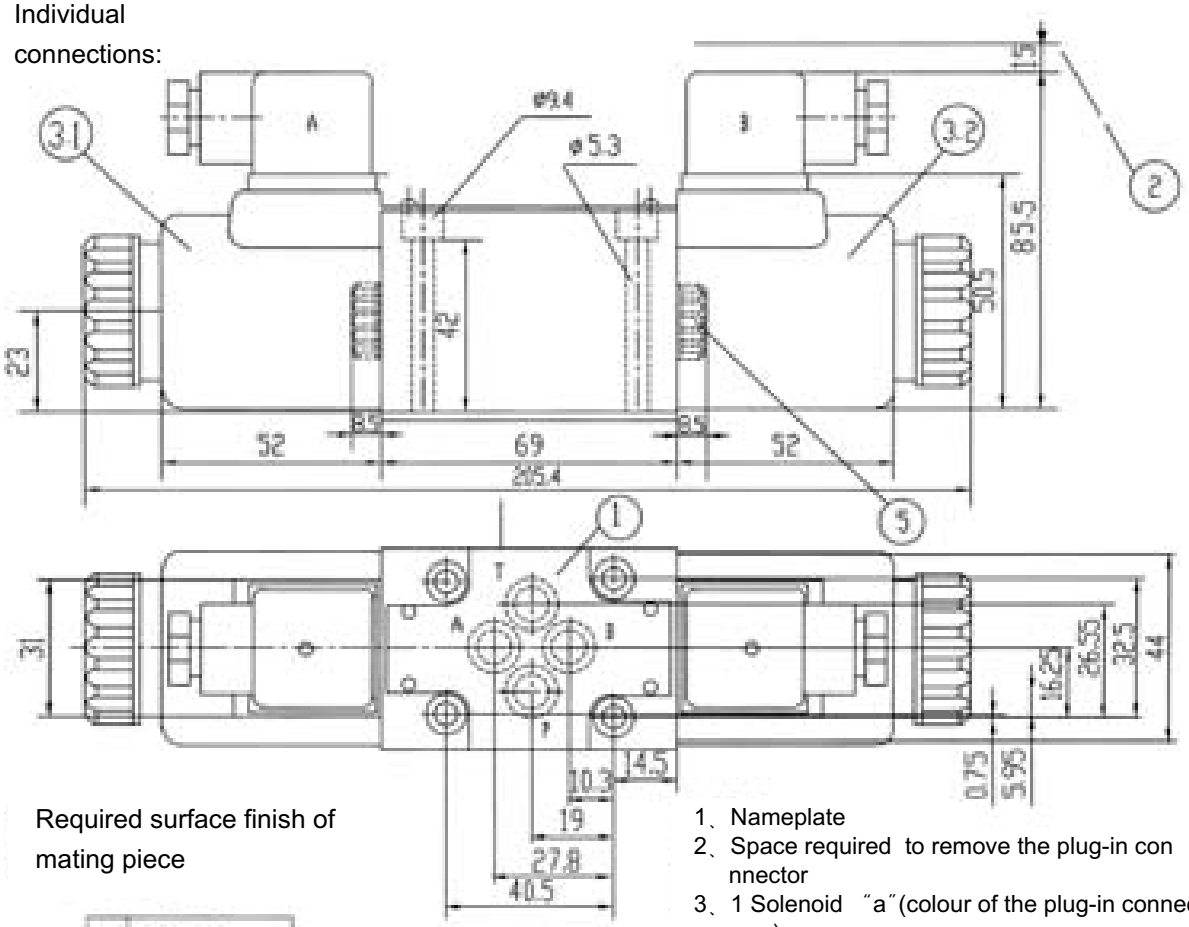
AC solenoid		
Char. curve	Solenoid voltage	
11 to 18	W42	42V, 50Hz
	W110	110V, 50Hz
		120V, 60Hz
	W220	220V, 50Hz



AC solenoid		
Char. curve	Solenoid voltage	
19 to 20	W42	42V, 60Hz
	W110	110V, 60Hz
	W220	220V, 60Hz

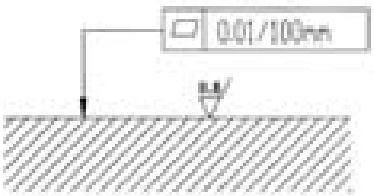
Unit dimensions: valve with DC solenoid

Individual connections:

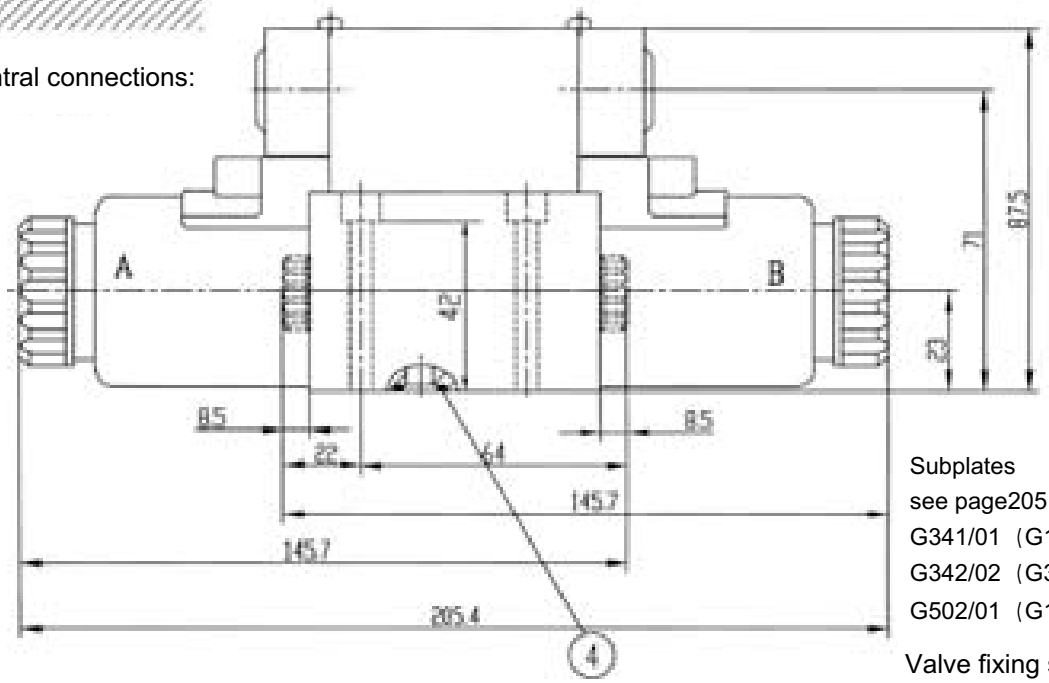


1、Nameplate
2、Space required to remove the plug-in connector
3、1 Solenoid "a"(colour of the plug-in connector. grey)
3、2 Solenoid "b"(colour of the plug-in connector. black)
4、O-ring：9.25X1.78
5、Cover for valve with one solenoid

Required surface finish of mating piece



Central connections:

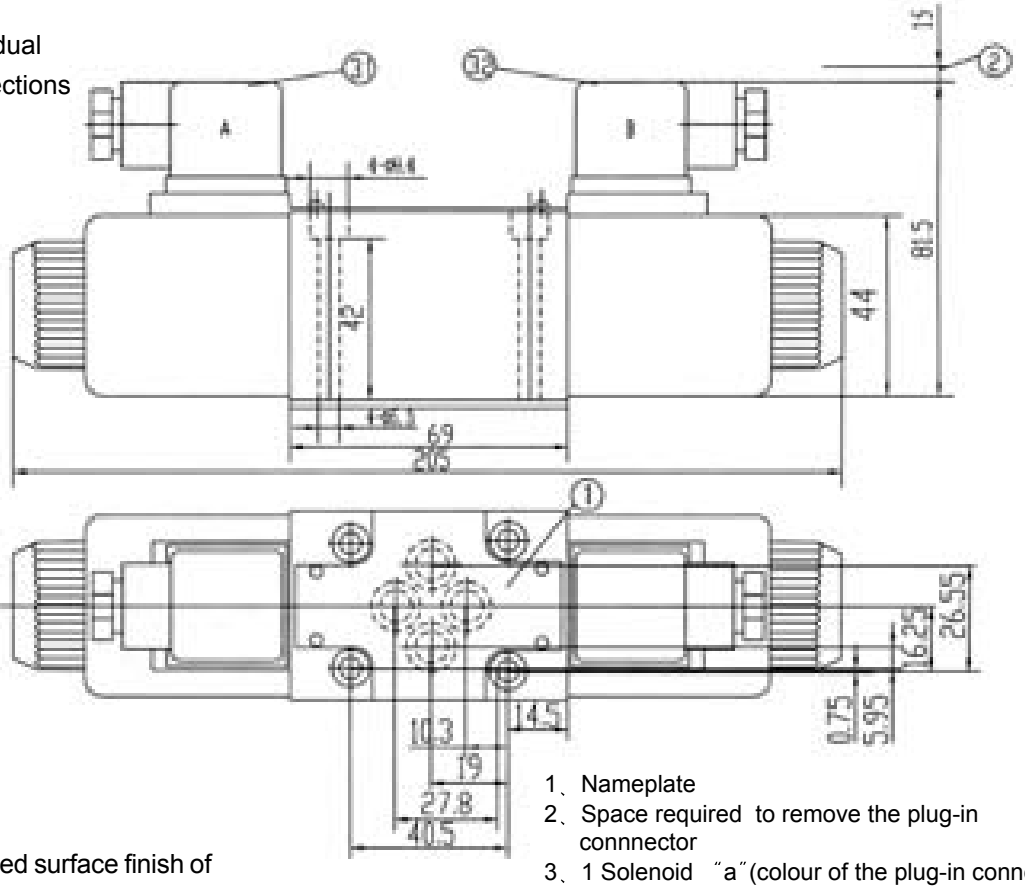


Subplates
see page205
G341/01（G1/4"）;
G342/02（G3/8"）;
G502/01（G1/2"）;

Valve fixing screws
M5X50 -10.9
（GB/T70.1-2000）
M_A=8.9Nm

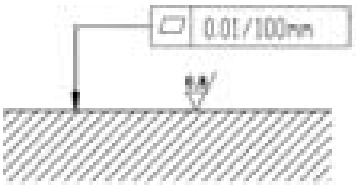
Unit dimensions: valve with AC solenoid

Individual connections

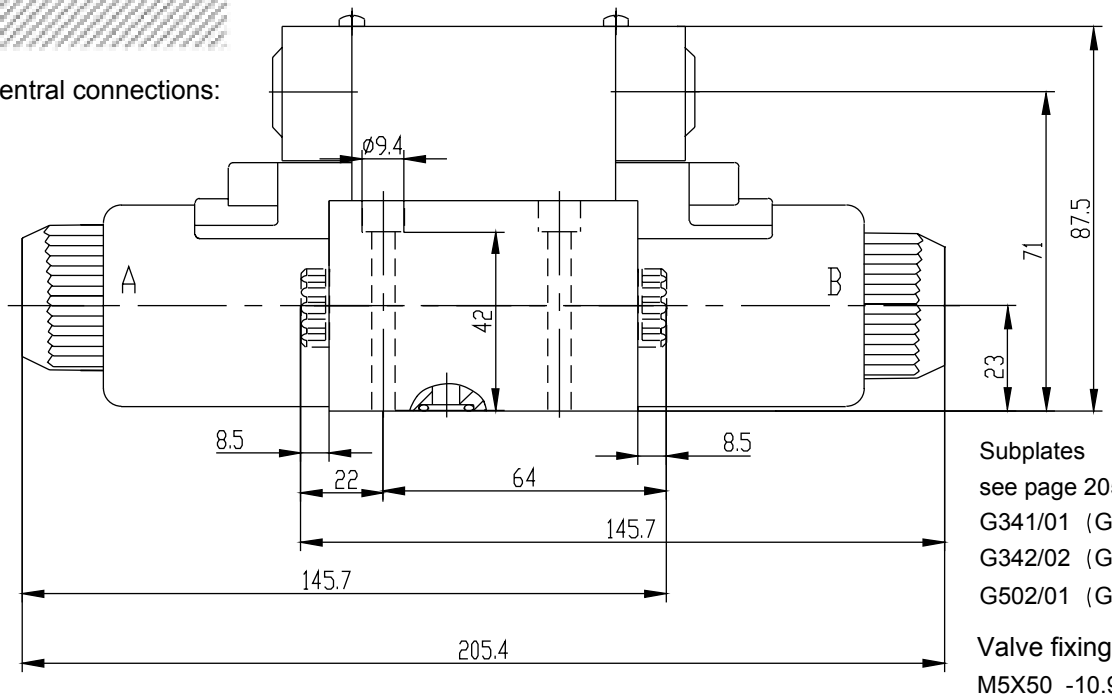


1、Nameplate
2、Space required to remove the plug-in connnector
3、1 Solenoid "a"(colour of the plug-in connector. grey)
3、2 Solenoid "b"(colour of the plug-in connector. black)
4、O-ring：9.25X1.78

Required surface finish of mating piece



Central connections:



Subplates
see page 205
G341/01（G1/4"）;
G342/02（G3/8"）;
G502/01（G1/2"）;

Valve fixing screws
M5X50 -10.9
（GB/T70.1-2000）
M_A=8.9Nm

Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

.
6. **Surface finish of mating piece is required to 0.01/100mm.**

BEIJING HUADE HYDRAULICS INDUSTRIAL GROUP CO.,LTD.	Directional control valves Type WE 10...20B/			RE 23314/12.2004
	Size 10	up to 31.5 MPa	up to 100L/min	Replaces: RE 23314/05.2001

Features:

- Direct solenoid operated directional spool valve as standard version
- 53 kinds spool function
- Porting pattern to Din 24 340 form A, ISO 4401 and CETOP-RP 121H

Functional,section

Directional valves of type WE are solenoid operated directional spool valves. They control the start, stop and direction of a fluid flow.

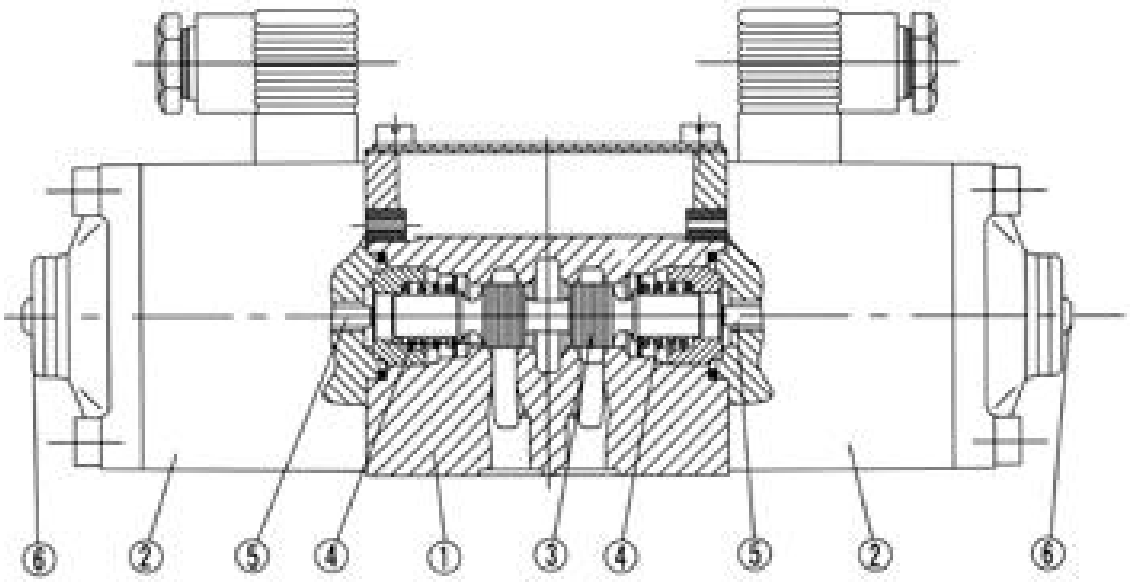
These directional valves basically consist of the housing (1), one or two solenoids (2), the control spool (3), and one or two return springs (4).

In the de-energized condition, the control spool (3) is held by the return springs (4) in the central or in the initial position (except for detented spools). The control spool (3) is actuated via wet pin solenoids(2).

The force of the solenoid (2) acts via the plunger (5) on the control spool (3) and shifts the same from its rest position to the desired end position. Thus, the required flow pattern from P to A and B to T or P to B and A to T is selected.

When the solenoid (2) is de-energized, the control spool (3) is returned to its neutral position by the return spring (4).

A manual override (6), optional, is provided for emergency operation of the control spool (3) without energization of the solenoid.



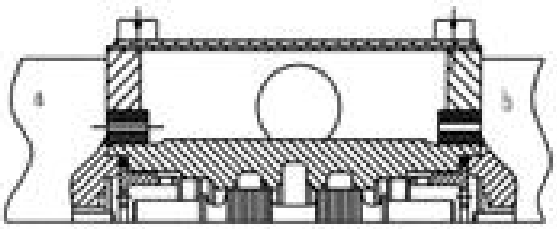
Type WE10···20B/A···

A

Type WE 10 C 20B/OA：

D

This version is a directional valve with 2 switching positions and 2 solenoids without detent. and spring return There is no defined switching position in the de-energized condition.



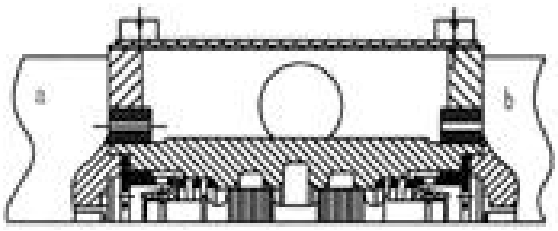
Type WE10...20B/OA

A

Type WE 10 C 20B/O FA：

D

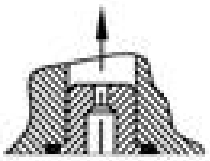
This version is a directional valve with 2 switching position, 2 solenoids and a detent without spring return. Thus, the relevant switching positions are fixed and continuous energization of the solenoid is not necessary.



Type WE10...20B/OFA

Throttle inserts

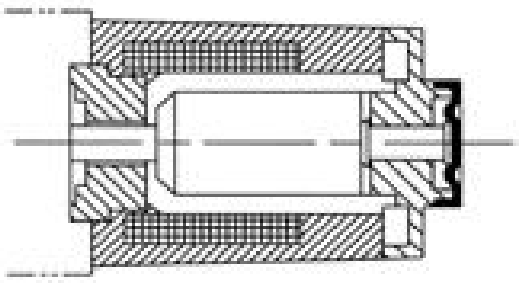
The use of throttle inserts is only required, if, due to the operating conditions, flows are to be expeced, which are higher than the stated maximum performance limits of the valve.
It is inserted in the P channel of the directional valve.



cartridge throttle

Solenoid

Wet pin solenoid life is much longer because gag bit moves in the oil ,just lessening hydraulic impact and abrasion ,i mproving the speed of emanating heat.



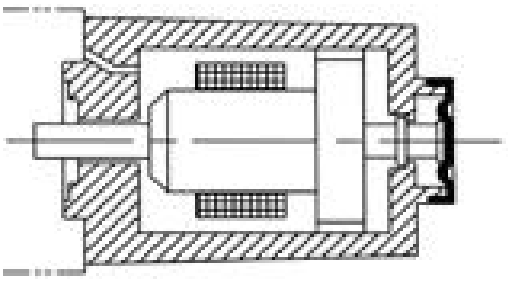
The characteristics of DC solenoids：

—— Switching gently ,high frequency。

—— Coils are all safety wherever gag bit stays at any position of the solenoid .

—— Its response is not rapid for lower voltage ,go beyond voltage instantly,over loading or jamming of mechanism .

AC power supply can be used through commuting.



The characteristic of AC solenoids：

—— The circuitry of electrical control is easy.

—— Action time is short.

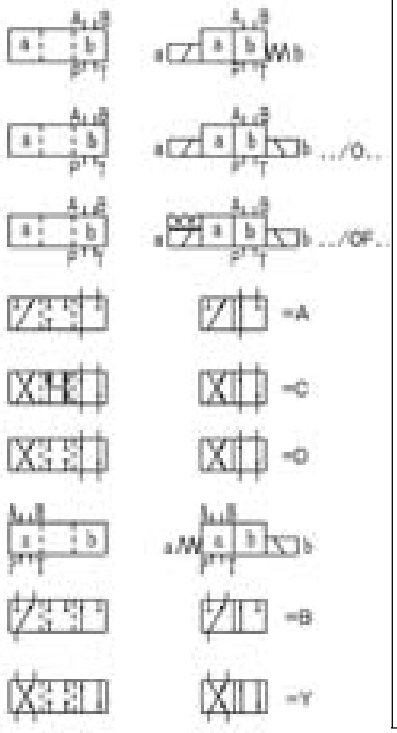
—— It is not necessary of special protect device for on-off.

Ordering code

	WE	10		20	B	/			A					*

3 Service ports = 3
4 Service ports = 4

Nominal size 10 =10



Further details in clear text

No code = mineral oils
V = phosphate ester

No code = Without cartridge throttle
B08 = Throttle, Φ 0.8 mm
B10 = Throttle, Φ 1.0 mm
B12= Throttle, Φ 1.2 mm

Electrical connection see page 105

N= With manual override
No code= Without manual override

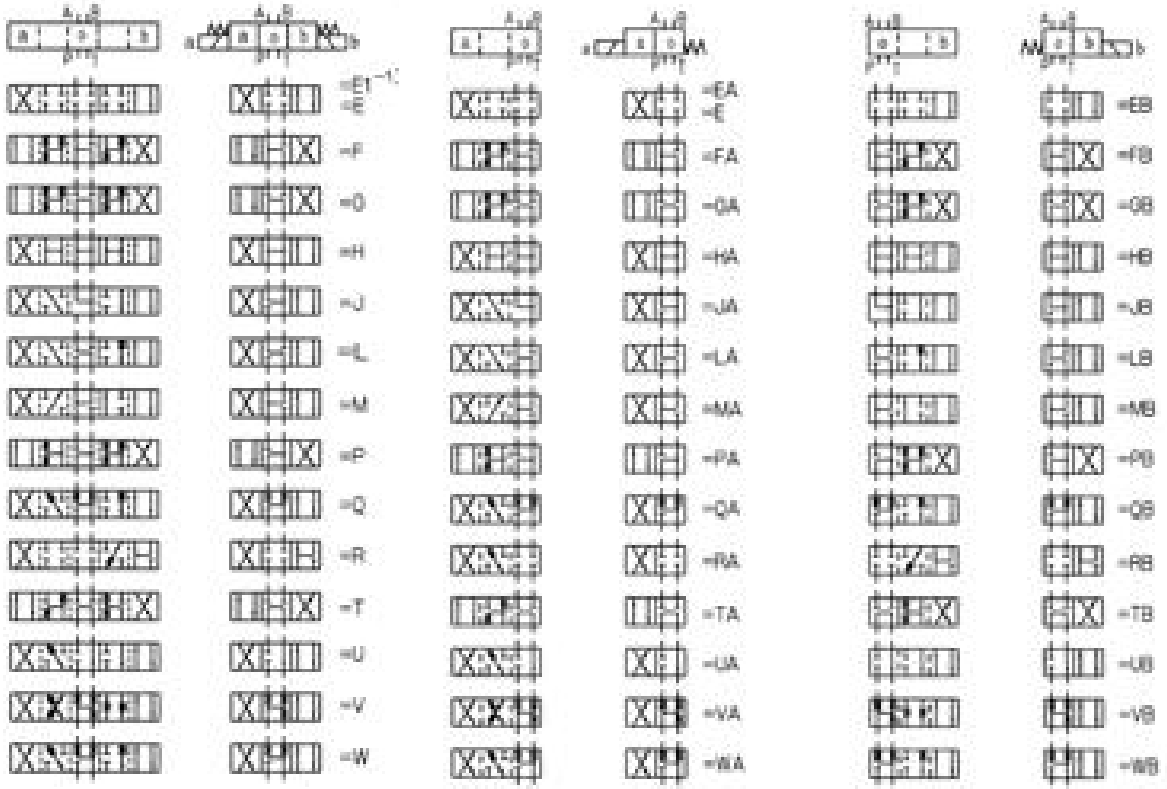
W220-50= 220 V AC 50 Hz
G24= 24 V DC
W220R = AC 110V 220V
W110R = AC solenoid with plug Z5

No code= With spring return
OF= Without spring return, with detent
O= Without spring return

B = Technology of Beijing Huade Hydraulic

20 = Series 20 to 29
(20 to 29: unchanged installation and connection dimensions)

1）symbolE1-: P A/B，previous port



Hydraulic operation part

Operating press., max.	Port A, B, P (MPa)	up to 31.5
	Port T (MPa)	up to 16
Flow, max. q_V (L/min)		up to 100
Flow area (switching position 0)		With symbol Q approx. 6 % of the nominal area With symbol W approx. 3 %
Hydraulic fluid		mineral oils or phosphate ester
Fluid temperature range (℃)		-30～+80
Viscosity range (mm²/s)		2.8～500
Weight (Kg)	Valve with 1 solenoid	4.7（DC）; 4.2（AC）
	Valve with 2 solenoids	6.6（DC）; 5.6（AC）

Note: With symbol A and B, port T must be used as drain port, if the operating pressure is higher than the permissible tank pressure.

Electrical operation part

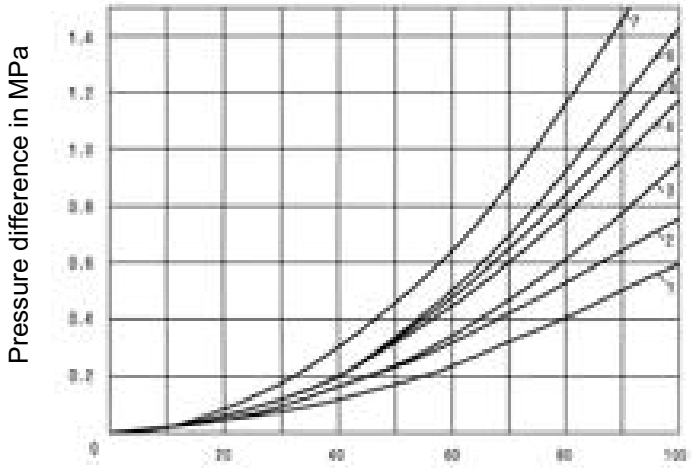
Voltage type	AC	DC
Voltages available (V)	110、220/50Hz	12、24、110
Power consumption (W)	-	35
Holding power P (VA)	65	-
Making current P (VA)	480	-
Duty cycle	Continuous	
Switching time ON (ms)	15～25	50～60
Switching time OFF (ms)	40～60	50～70
Environment temperature (℃)	+50	
Coil temperature (℃)	+150	
Switching frequency (cycles/h)	7200	15000
Insulation to DIN 40 050	IP65	

Note: When connecting the electrics, the protective conductor (PE) must be connected according to relevant regulations.

Characteristic curves (measured at ν = 41 mm² /s and t = 50 ℃)

7 Symbol "R " in switched position A → B

8 Symbols "G " and "T " in mid position P → T

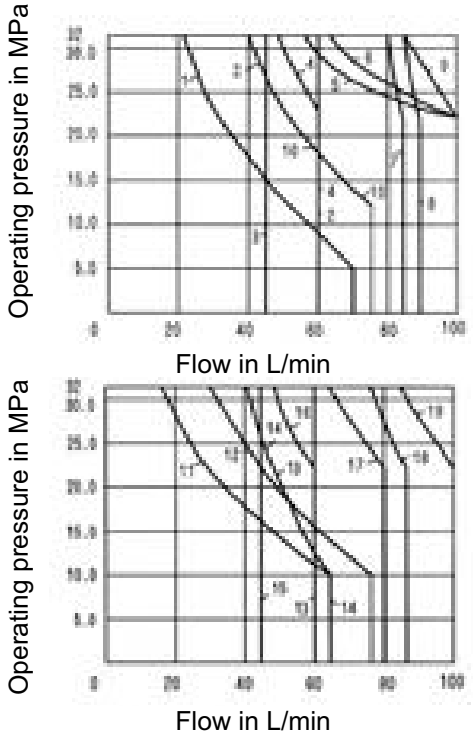


Symbol	Flow direction			
	P - A	P - B	A - T	B - T
A,B	2	2	-	-
C,D,Y,J	2	2	3	3
E,Q,V	2	2	4	4
F	2	3	3	5
G	3	3	4	6
H	1	1	4	5
L,U	2	2	3	5
M	1	1	5	5
P	3	2	5	3
R	2	4	3	-
T	3	5	5	6
W	2	2	5	5

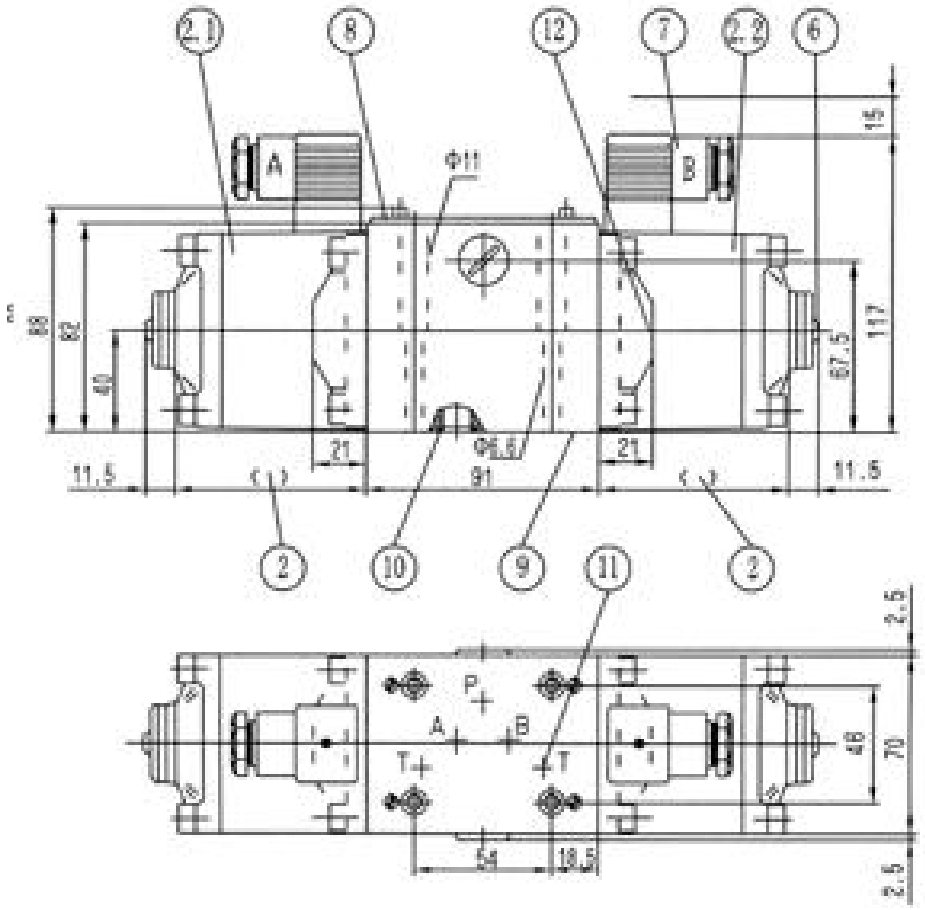
Switching power limits (measured at ν = 41 mm² /s and t = 50 ℃)

Because gluing effect influence valves switching,for attaining the biggest recomendatory value ,suggest adopting the whole flux filter of 20μm in system the hydraulic impetus also affects the flux ability of valve,so different spool valve contain different work curve.for the valve of size 4,the value is given in the condition that two passages work nomally(e.g from P to A at the same time B to T) due to the flow forces active within the valves the permissible switching power limit may be significantly less if there is only one direction of flow.

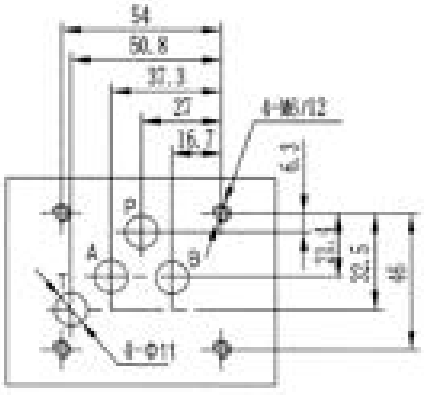
The switching power limits were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.



DC solenoid		AC solenoid	
Char. curve	Symbol	Char. curve	Symbol
1	A,B	11	A,B
2	F,P,T	12	H
3	V	13	F,P,T
4	G	14	A/O
5	E,L,Q,U,W	15	V
6	J	16	G
7	D,Y	17	J,L,U
8	G,R	18	C,D,Y,Q,R,W
9	M,C/O,D/O	19	C/O,D/O,E,M
10	H,A/O		

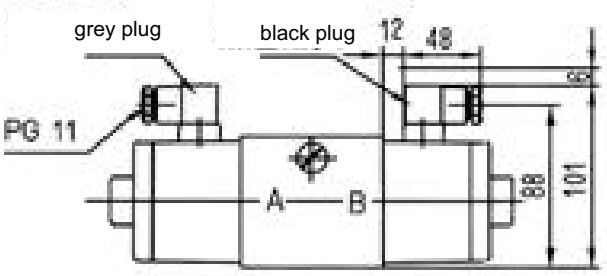


the connection dimensions of service ports

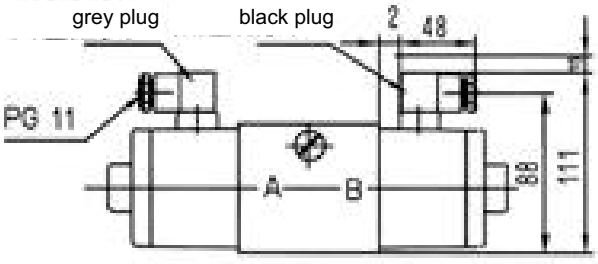


2 DC solinoid(without manual override) 94mm
AC solinoid(without manual override) 75mm
2 .1 Solenoid "a" (colour of the plug-in connector: grey)
2 .2 Solenoid "b" (colour of the plug-in Connector: black)
6 Manual override "N"
7 Plug Z4
8 Nameplate
9 Service port
10 O-ring12x2
11 Accessional T must be used(except for ZDR10D...)if making a hole at subplate
12 Cover for valve with one solenoid
Subplates：see page206
G66/01(G3/8″) G66/02(M18 × 1.5)
G67/01(G1/2″) G67/02(M22 × 1.5)
G534/01(G3/4″) G534/02(M27 × 2)
※ Valve fixing screws
4-M6 × 50-10.9（GB/T70.1-2000）
M_A=15 N.m

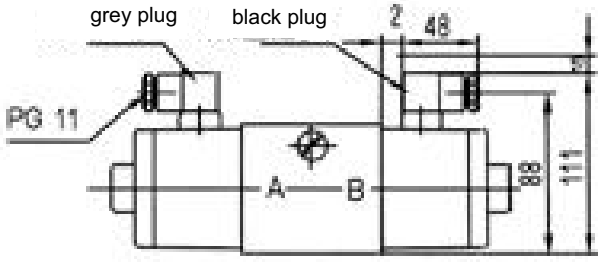
Z4 angled plug



Z5 large angled plug



Z5L Large angled plug with light



Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

.
6. **Surface finish of mating piece is required to 0.01/100mm.**

BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.,LTD.	Directional control valves Type WE 10...30B/			RE 23316/12.2004
	Size 10	up to 31.5 MPa	up to 120L/min	Replaces：RE 23316/05.2001

Features:

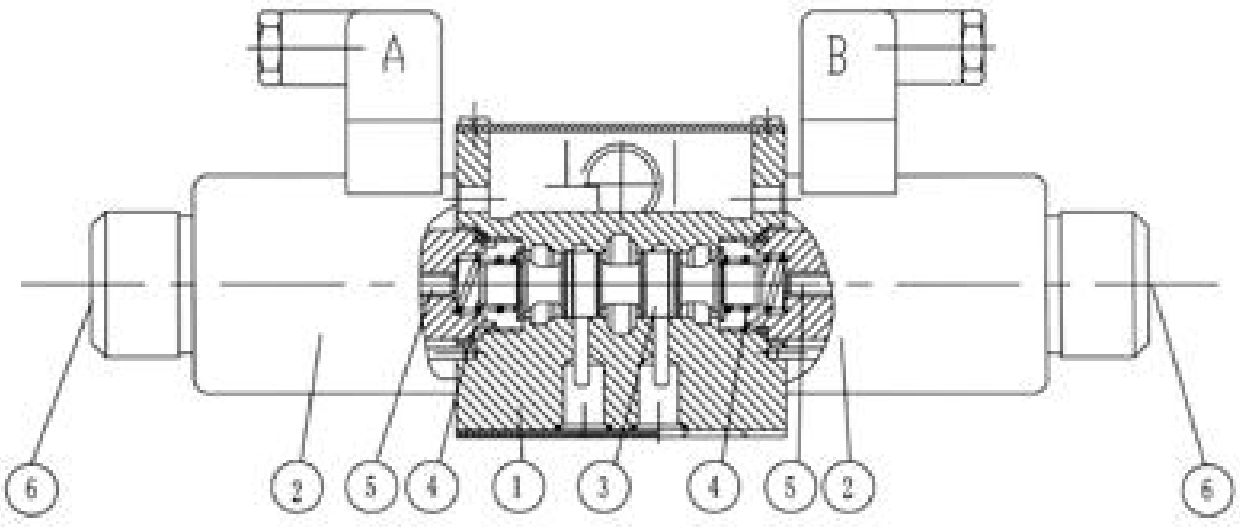
-Direct solenoid operated directional spool valve as standard version
-Wet pin DC or AC solenoids with removable coils
-perfect outline
-Coils may be replaced without opening the pressure-tight chamber
-Choice of either central or individual electrical connections
-Optional hand over-ride
-long life
-Porting pattern to Din 24 340 form A, ISO 4401 and CETOP-RP 121H

Functional, section

Directional valves basically comprise the housing (1), one or two solenoids (2), control spool (3), and one or two return springs (4).At rest, control spool (3) is held in its central or initial position by means of return springs (4) (except in the case of impulse spools). Control spool (3) is operated by wet pin solenoids (2).The force of solenoid (2) acts on control spool (3) and moves it from its rest position to the desired end position. This permits free flow from P to A and B to T or P to B and A to T.

On de-energizing solenoid (2) control spool (3) is returned to its initial position by return spring (4).

Optional hand over-ride (5) permits control spool (3) to be moved without the solenoids being energized.



Type 4WE 10 ...30B/...C

Ordering code

	WE	10		31	B	/	C						*

3 service ports = 3
4 service ports = 4

Size 10 = 10

Symbols see below

Series 30 to 39 = 31
(30 to 39: unchanged installation and connection dimensions)

Technology of Beijing Huade Hydraulic =B

With spring return = No code
Without spring return, but with detent = OF
Without spring return = O

Wet pin solenoid with removable coil = C

W220= 220 V AC 50 or 240V AC 60 Hz
G24= 24 V DC
W220R = DC solinoid commuting automatically

With protected hand override (standard) = N9
Without hand override = No code
With hand override = N

Individual connections:
With component plug without plug-in connector =K4
Normal plug =Z4
Large angled plug =Z5
Large angled plug with indicator light =Z5L
Central connection:
Cable entry at side = No code
Cable entry in cover, with lamp = DL
Central connection in cover, with lamp (without angled plug-in connector) = DKL

Further details in clear text

No code = mineral oils
V = phosphate ester

No code = Without cartridge throttle
B08= Throttle, Φ 0.8 mm
B10 = Throttle, Φ 1.0 mm
B12= Throttle, Φ 1.2 mm

Symbols

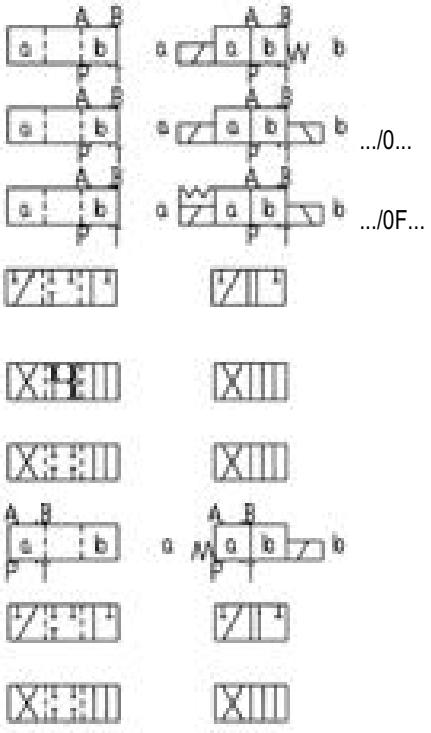
4) Example:

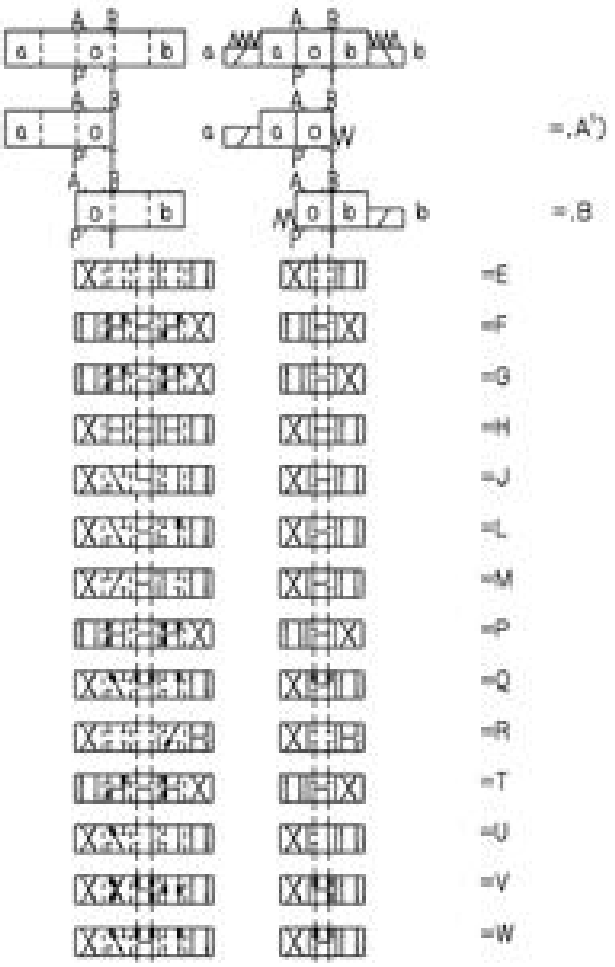
Spool E with switching position "a"

Ordering code ..EA..

Spool E with switching position ˝b˝

Orc

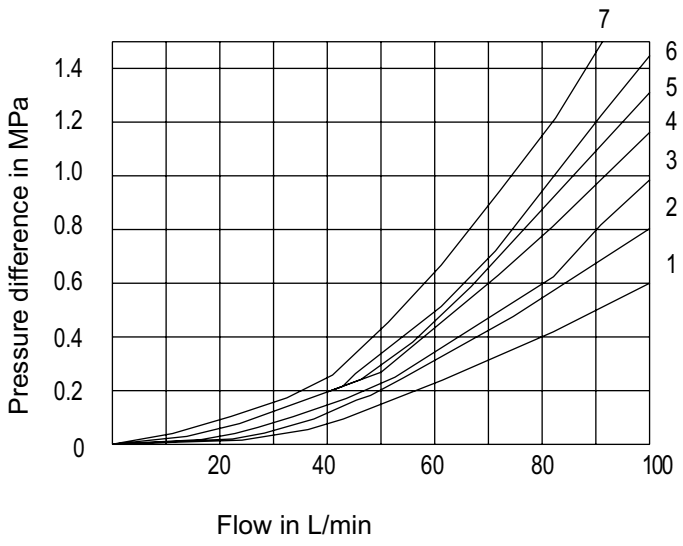




Characteristic curves (measured at v= 41 mm²/s and t = 50˚C)

7 Symbol "R " in switched position A → B

8 Symbols "G " and "T " in mid position P →T



Symbols	Direction of flow			
	P-A	P-B	A-T	B-T
A、B	2	2	-	-
C、D、Y、J	2	2	3	3
E、Q、V	2	2	4	4
F	2	3	3	5
G	3	3	4	6
H	1	1	4	5
L,U	2	2	3	5
M	1	1	5	1
P	3	2	5	3
R	2	4	3	-
T	3	5	5	6
W	2	2	5	5

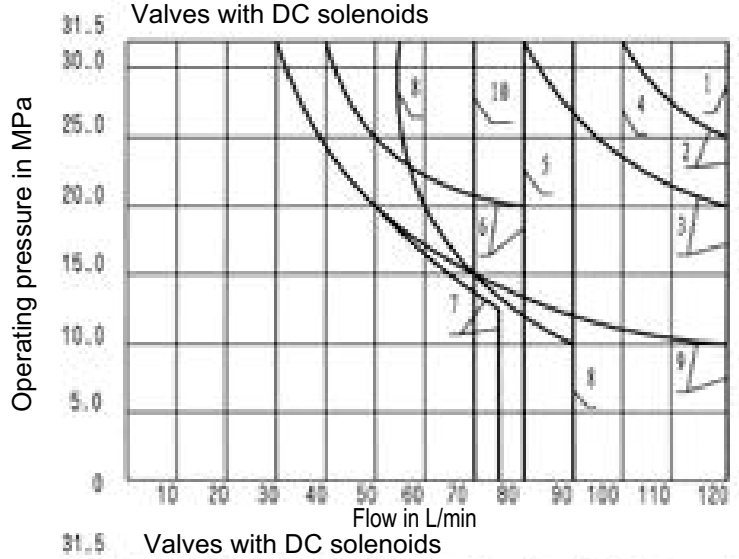
Switching power limits (measured at v = 41 mm²/s and t = 50°C)

The given switching power limits are for applications with two flow directions (e.g.from P to A and simultaneous return flow from B to T).

Due to the flow forces active within the valves the permissible switching power limit may be significantly less if there is only one direction of flow (e.g.from P to A and port B blocked)!
(Please consult us for applications of this kind.)

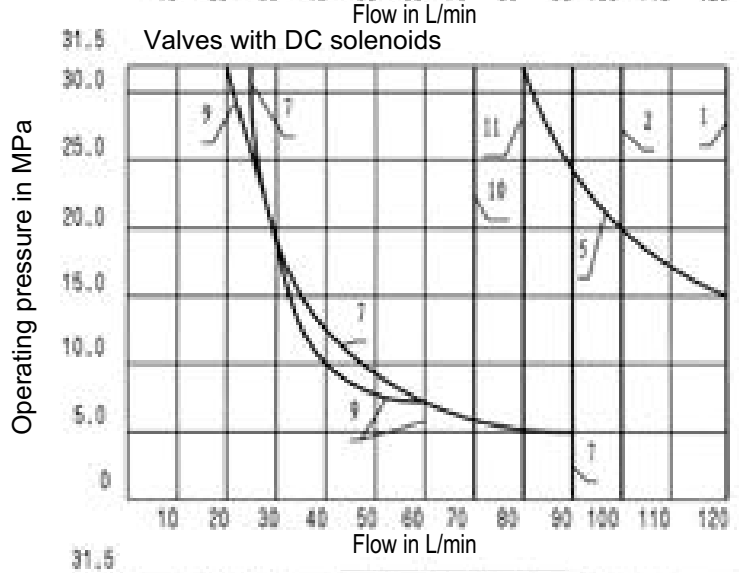
The switching power limits were measured with the solenoids at operating temperature, 10% under voltage and without tank back pressure.

Valves with DC solenoids



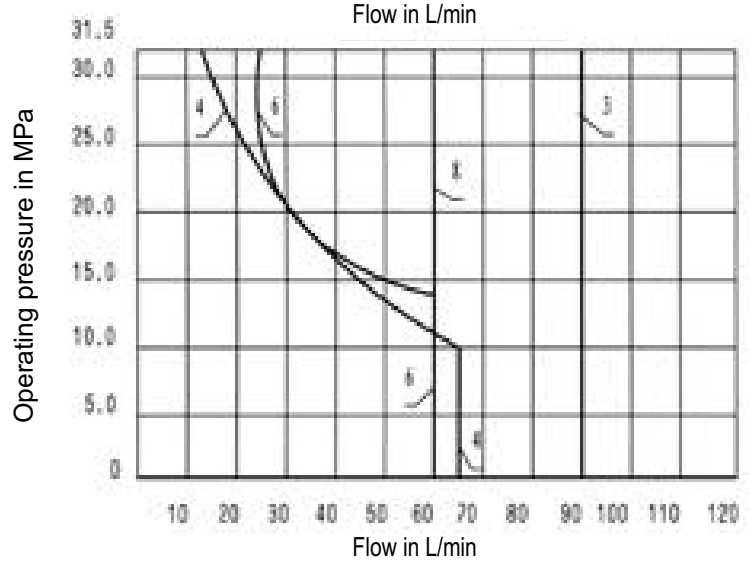
Curve	Symbols
1	C,D/0,C/0F
	D,D/0,D/0F
	Y,M
2	E
3	A/0,A/0F
	L,U,J,Q,W
4	H
5[1)]	R
6	G
7	T
8	F,P
9	A,B
10	V

Valves with DC solenoids

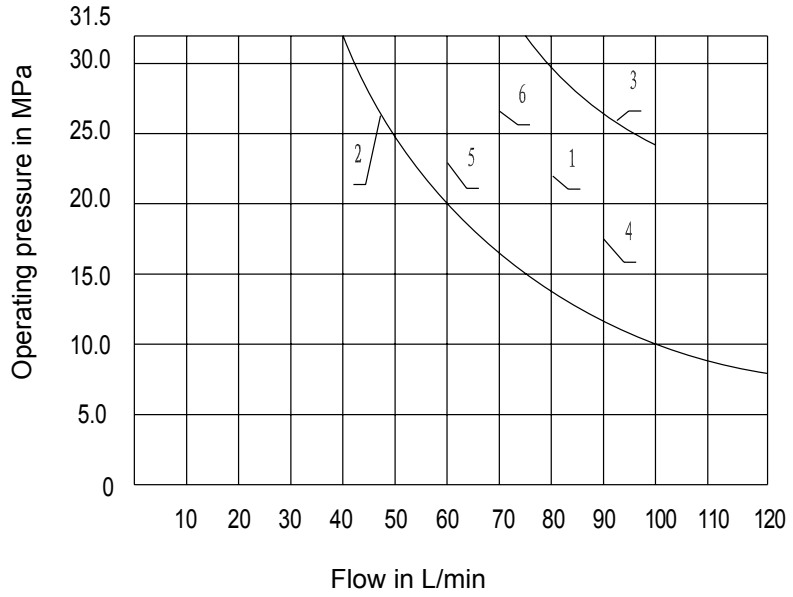


42V,50Hz;110V,50Hz;120V,60Hz;
127V,50Hz;220V,50Hz;240V,60Hz

Curve	Symbols
1	C,C/O,C/0F
	D,D/O,D/0F
	Y
2	E,L
	U,Q,W
3	M
4	A,B
5	A/O,A/OF,J
6	G
7	F,P
8	V
9	T
10	H
11	R



Switching power limits (measured at v = 41 mm²/s and t = 50°C)



42V,60Hz,110V,60Hz 127V,60Hz,220V,60Hz	
Curve	Symbols
1	C,C/O,C/OF D,D/O,D/OF Y
2	A/O,A/OF
3	E
4	M
5	V
6	H
	Switching power limits for other spools on enquiry!

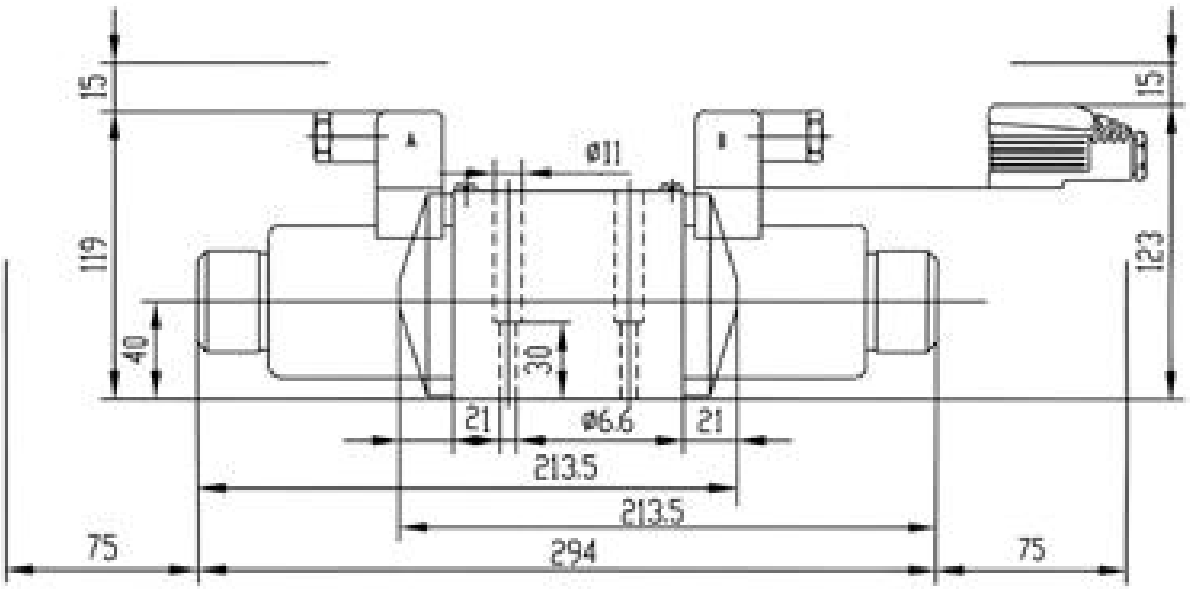
Technical data

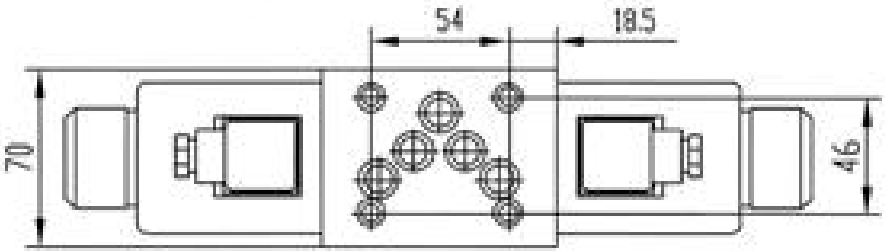
Operating pressure max.	Ports A, B, P (MPa)	31.5
	Ports T (MPa)	16
Flow max. (L/min)		120
Cross section (switching position 0):		With symbol Q approx. 6 % of the nominal area With symbol W approx. 3 %
Pressure fluid		Mineral oils(for NBR seal) or phosphate ester(for FPM seal)
Pressure fluid temperature range (°C)		-30～＋80
Viscosity range (mm²/s)		2.8～500
Weight (kg)	Valve with 1 solenoid	5.1(DC), 4.3(AC)
	Valve with 2 solenoids	6.7(DC), 5.1(AC)

For symbols A and B, port T must be used as a drain line, if the operating pressure is higher than the permissible tank pressure.

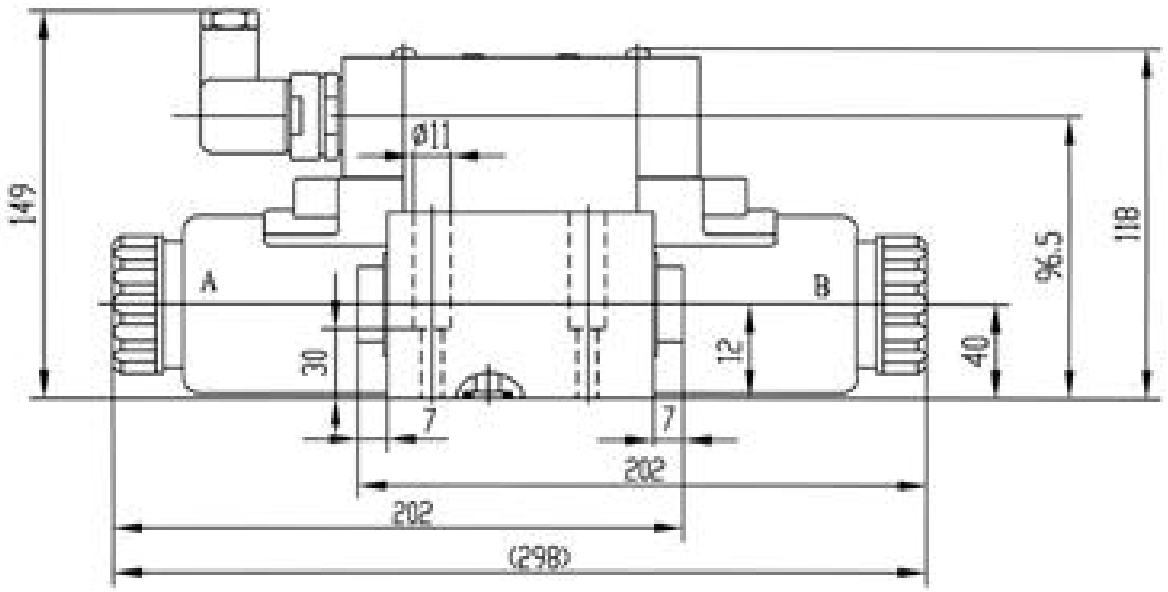
Unit dimensions with DC solenoids

Individual connection





Central connection



Valve fixing screws: 4-M6x40-10.9（GB/T70.1-2000）

M_A=15N.m

Subplate：G66/01(G3/8 ″) G66/02(M18x1.5)

G67/01(G1/2 ″) G67/02(M22x1.5)

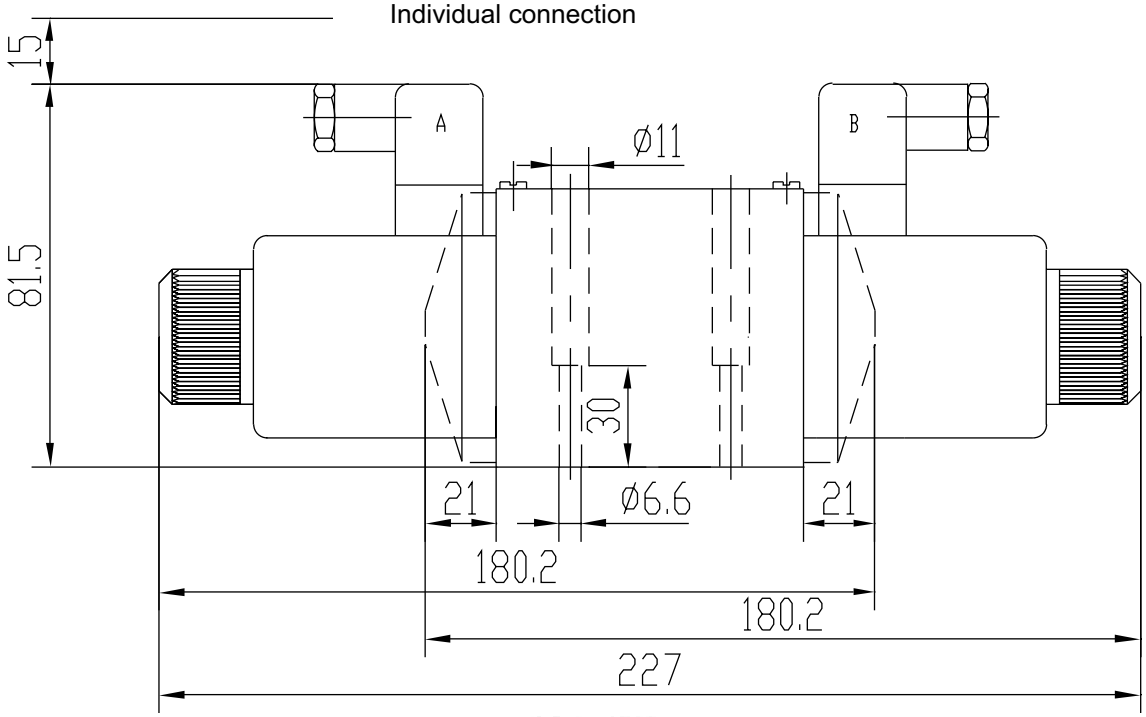
G534/01(G3/4 ″) G534/02(M22x1.5)

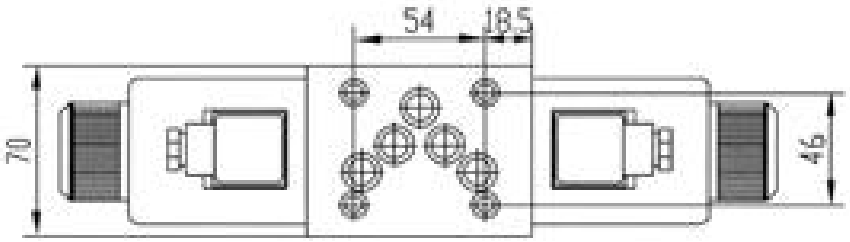
(see page 206)

Required surface finish of mating piece

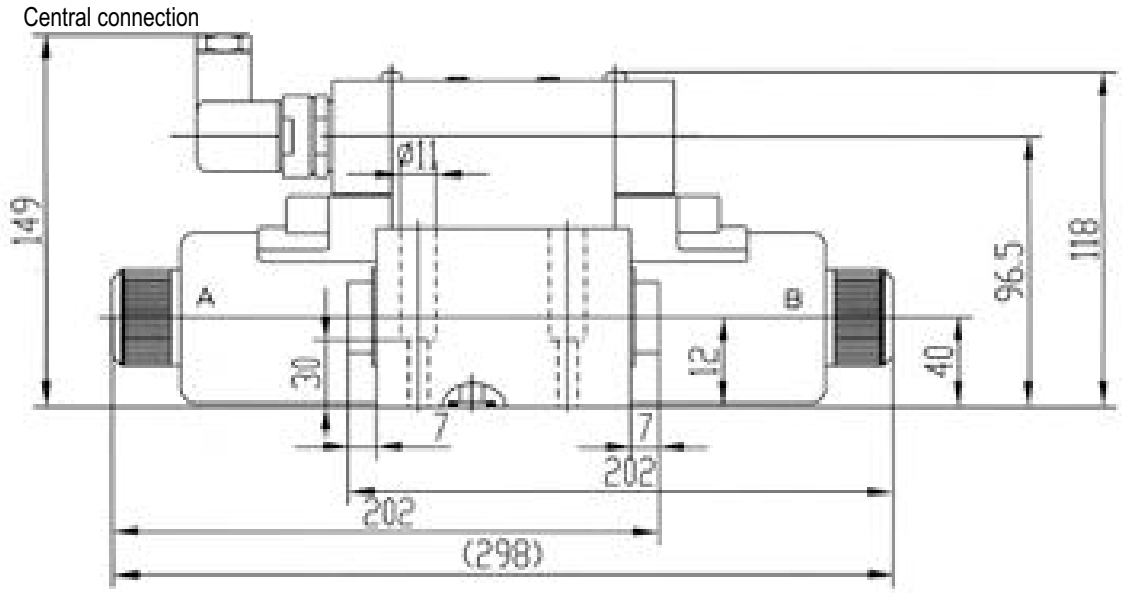
Unit dimensions with AC solenoids

Individual connection





Central connection



Valve fixing screws：4-M6x40-10.9（GB/T70.1-2000）

M_A=15N.m

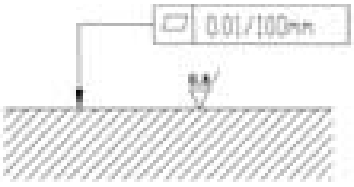
Subplate：G66/01(G3/8 〃) G66/02(M18x1.5)

G67/01(G1/2 〃) G67/02(M22x1.5)

G534/01(G3/4 〃) G534/02(M22x1.5)

(see page 206)

Required surface finish of mating piece



Notice

1. **The fluid must be filtered. Minimum filter fineness is 20 μm.**
2. **The tank must be sealing up and an air filter must be installed on air entrance.**
3. **Products without subplate when leaving factory, if need them, please ordering specially.**
4. **Valve fixing screws must be high intensity level (class 10.9). Please select and use them according to the parameter listed in the sample book.**
5. **Roughness of surface linked with the valve is required to** 

.
6. **Surface finish of mating piece is required to 0.01/100mm.**