Explosion-proof Solenoid Directional Valve

Model: GD-WE6...6X

- Size 6
- Maximum working pressure 350 bar
- Maximum working flow rate 80 L/min-DC
  60 L/min-AC

Contents

Features

- With the direct type solenoid operated directional spool valve as the standard type
- Wet-pin explosion-proof solenoid with detachable coil

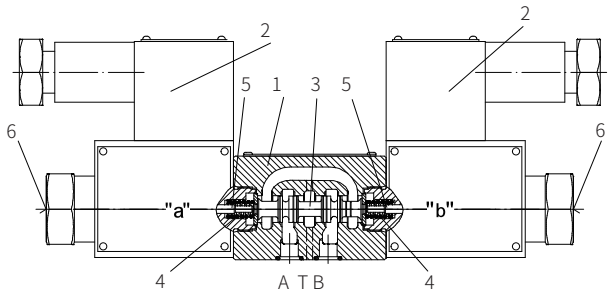
Function description, sectional drawing

The GD-WE6 directional control valve is a directional spool valve operated by a explosion-proof solenoid, it is used to control the opening, closing and flow direction of the liquid flow.

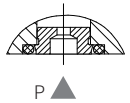
This directional control valve mainly includes valve body (1), one or two explosion-proof solenoids (2), control spool (3) and one or two reset springs (4).

In the non-energized condition, the control spool (3) is held in the middle or initial position by the reset spring (4). The control spool (3) is operated by the wet-pin explosion-proof solenoid (2). To ensure the proper functioning, the pressure chamber of the solenoid must be filled with oil.

The force of the explosion-proof solenoid (2) acts on the control spool (3) through the push rod (5) to push from the stationary position to the required position. In this way, the oil flows freely from P to A and B to T, or P To B and A to T. When the explosion-proof solenoid (2) is powered off, the control spool (3) is pushed back to the initial position by the reset spring (4).



Model GD-4WE6E...6XJ/



Plug-in throttle

Models and specifications

GD | WE | 6 | 6X | / | | / | *

explosion proof class I =G1
explosion proof class II =G2

explosion proof valve

working oil port
3 working oil ports =3
4 working oil ports =4

function symbol

60 to 69 series =6X
(60 to 69 series installation and connection size unchanged)

with reset spring =No code
no reset spring =O
no reset spring, with detent =OF

voltage
G24 =24V DC
B36 =36V AC with rectifier
B127 =127V AC with rectifier
B220 =220V AC with rectifier

more information in text

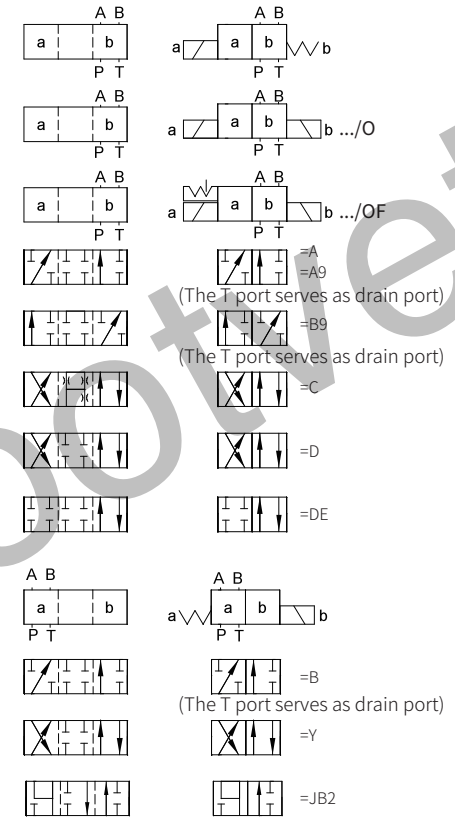
sealing material
No code= NBR seals
V= FKM seals
(consult for other seals)

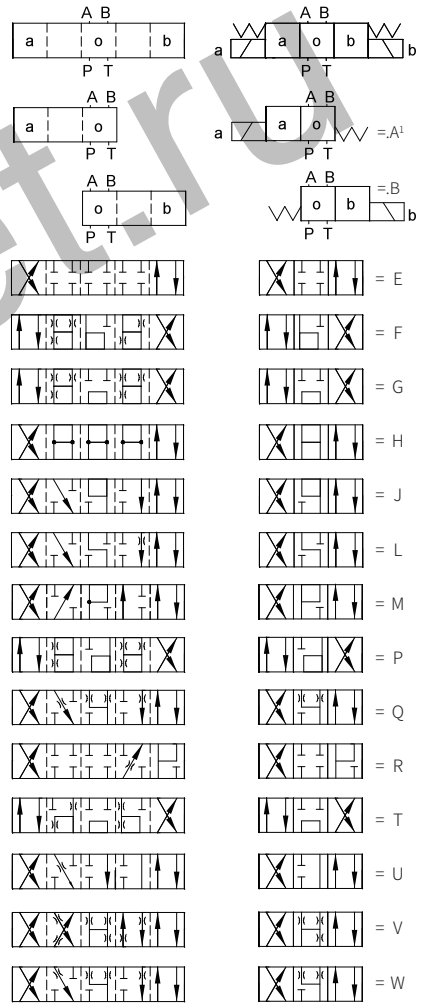
No code= no plug-in throttle port
plug-in throttle port (see table)

Oil port	throttle port ∅(mm)		
	0.8	1.0	1.2
P	=B08	=B10	=B12
A	=H08	=H10	=H12
B	=R08	=R10	=R12
A and B	=N08	=N10	=N12
T	=X08	=X10	=X12

Note:
G1 explosion-proof grade EXD I
G2 explosion-proof grade EXD II CT4

Functional symbols





1) For example: .
The function symbol EA means
the coil on side A
Note: Functions A9 and B9 are only used
as pilot valves

Technical parameters

Hydraulic			
Maximum working pressure	Oil ports A, B, P	bar	350
	Oil port T	bar	210 When the working pressure exceeds the allowable pressure, the valves with symbols A and B must use T port as the drain port.
Maximum flow		L/min	80
Effective over-flow section (spool position)	symbol Q	mm^2	About 6% cross-sections
	symbol W	mm^2	About 3% cross-sections
Oil fluid			Mineral oil (HL, HLP)[1] in accordance with DIN 51524; Fast living organisms degraded oil according to VDMA 24568; HETG (Rapeseed oil)[1]; HEPG(Polyethyleneglycol)[2] ; HEES (Synthetic Fats)[2]
Oil temperature range		°C	-30 to +80 (NBR seal) -15 to +80 (FKM seal)
Viscosity range		mm^2/s	2.8 to 500
Cleanliness of oil			The maximum allowable pollution level of oil is IS04406 level 20/18/15

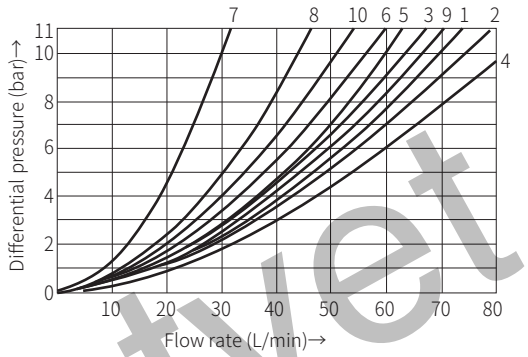
1) For NBR seal and FKM seal.
2) Only for FKM seal.
3) The oil must meet the cleanliness degree requested by the components in the hydraulic system. Effective oil filtration can prevent failure and increase the service life of the components.

Electric				
Voltage type			DC	AC Rectifier
Voltage available[4]		v	24	36 127 220
Allowable voltage tolerance (voltage unit)		%	±10	±10
Power consumption		W	30	—
Holding power		VA	—	50
Impact power		VA	—	220
Power rate			100 %	100 %
Switching time to ISO6403	On	ms	25 to 45	10 to 20
	Off	ms	10 to 25	15 to 40
Maximum switching frequency		1/h	15000	7200

4) Other voltages are determined as required

Characteristic curve

(Measured when using HLP46, ϑ_{oil}=40°C ± 5°C)



Functional symbol	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	10	10	9	9
H	2	4	2	2
J; Q	1	1	2	1
L	3	3	4	9
M	2	4	3	3
P	3	1	1	1
R	5	5	4	–
V	1	2	1	1
W	1	1	2	2
U	3	3	9	4
G	6	6	9	9

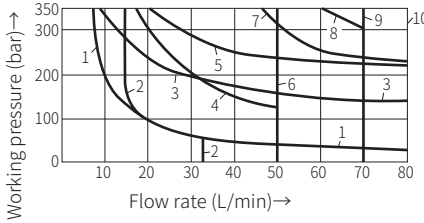
7 Symbol R in control position B-→A
8 Symbols G and T in center position
9 Symbols H and T in center position P→T

Characteristic limit

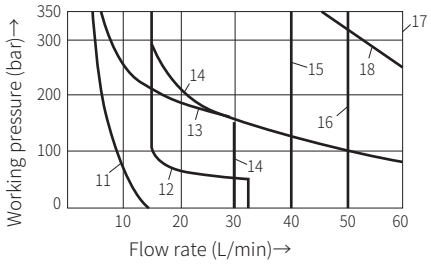
(Measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

Attention!
The given working limit is suitable for the use of flow in both directions (e. g. from P to A and return from B to T at the same time).
Due to the power of the fluid in the valve, the power limit allowed for only one flow direction might be significantly reduced (e.g. from P to A, while B is closed)!

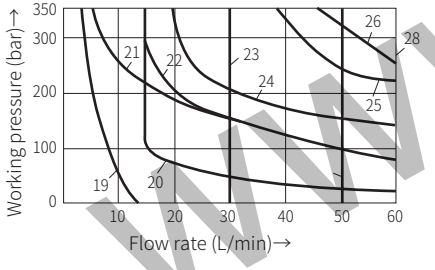
The power limit is measured when the solenoid is at the operating temperature, at 10% below the standard voltage and without tank preloading.



DC Solenoid			
Characteristic curve	Function symbol	Characteristic curve	Function symbol
1	A; B	6	G; H; T
2	V	7	A/O; A/OF; L; U
3	A; B	8	C; D; Y
4	F; P	9	M
5	J	10	E; E1; R; C/O; C/OF; D/O; D/OF; Q; W



AC Solenoid-50 Hz	
Characteristic curve	Function symbol
11	A; B
12	V
13	A; B
14	F; P
15	G; T
16	H
17	A/O; A/OF; C/O; C/OF; D/O; D/OF; E; E1; J; L; M; Q; R; U; W
18	C; D; Y



AC Solenoid-60 Hz	
Characteristic curve	Function symbol
19	A; B
20	V
21	A; B
22	F; P
23	G; T
24	J; L; U
25	A/O; A/OF; Q; W
26	C; D; Y
27	H
28	C/O; C/OF; D/O; D/OF; E; E1; M; R

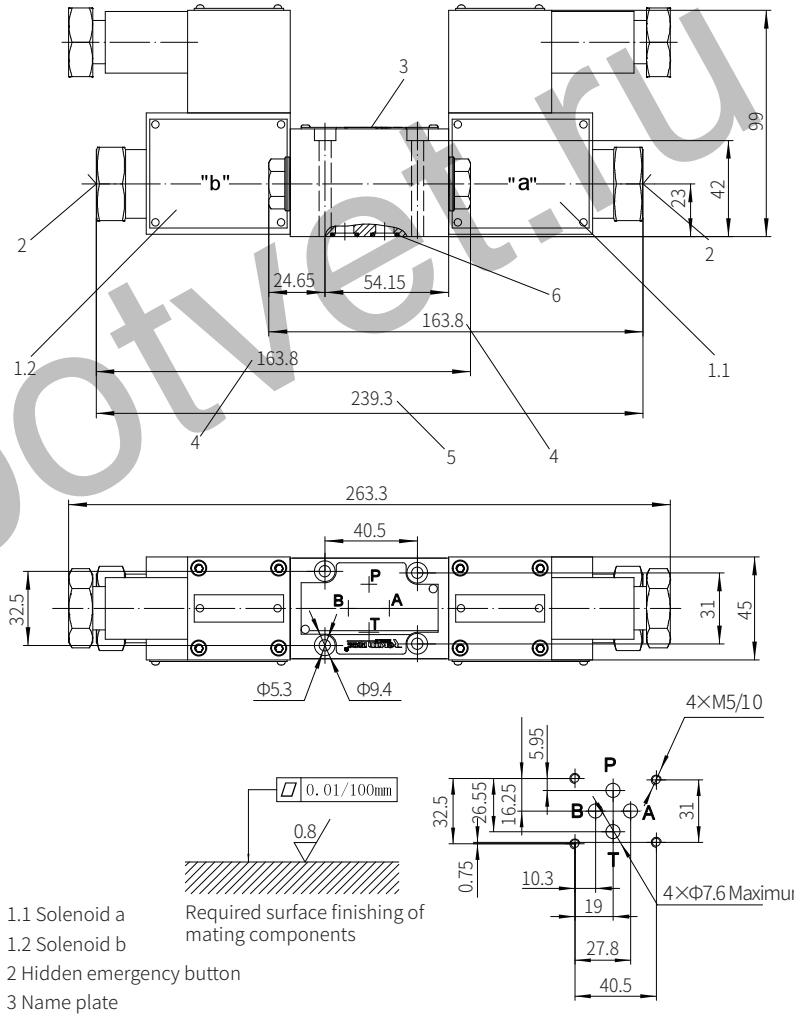
1) P-A/B Pre-opening

2) Back from the actuator to the oil tank

Component size

Size unit: mm

Model GD-4WE6...-6XJ/...



1.1 Solenoid a
1.2 Solenoid b
2 Hidden emergency button
3 Name plate
4 Size of 2-position valve
5 Size of 3-position valve
6 O-ring 9.25x178 (for oil port P, A, B, T)

Valve fixing screw
M5x50-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm

Required surface finishing of mating components

It must be ordered separately if connection subplate is needed.
Subplate model:
G341/01 (G1/4") ; G341/02 (M14x1.5)
G342/01 (G3/8") ; G342/02 (M18x1.5)
G502/01 (G1/2") ; G502/02 (M22x1.5)