Explosion-proof Solenoid Directional Valve

Model: GD-WE10...3X

- ◆ Size 10
- ◆ Maximum working pressure 315 bar
- ◆ Maximum working flow rate 120 L/min

Contents

Features

- ● Solenoid operated directional spool valve
- ● Wet-pin explosion-proof solenoid

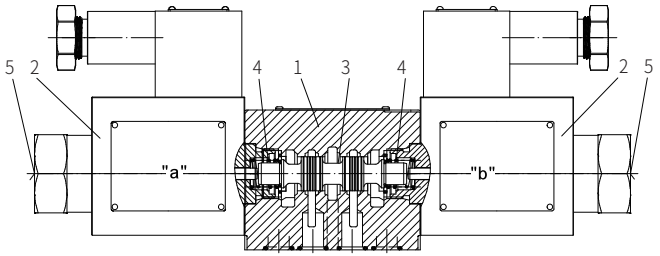
Function description, sectional drawing

The GD-WE10 directional control valve is a directional spool valve operated by explosion-proof solenoid, it is used to control the opening, closing and flow direction of the liquid flow.

The 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 proper function, 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 it from the stationary position to the required position. In this way, the oil flow freely from P to A and B to T, or from P to B and A to T.

When the explosion-proof solenoid (2) is powered off, the control spool (3) is pushed to the initial position by the return spring (4).



Model GD-WE10...3XJ/

Models and specifications

GD | WE | 10 | | 3X | | | | | *

- 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
- 30 to 39 series =3X
  (30 to 39 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

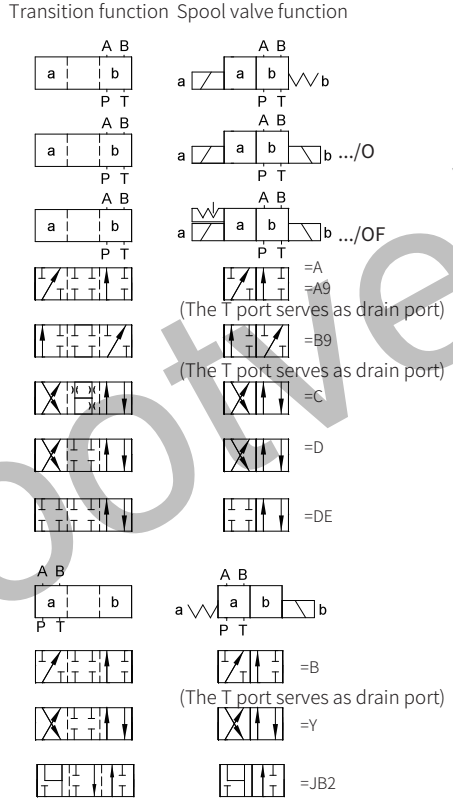
- N9= with hidden emergency button operation

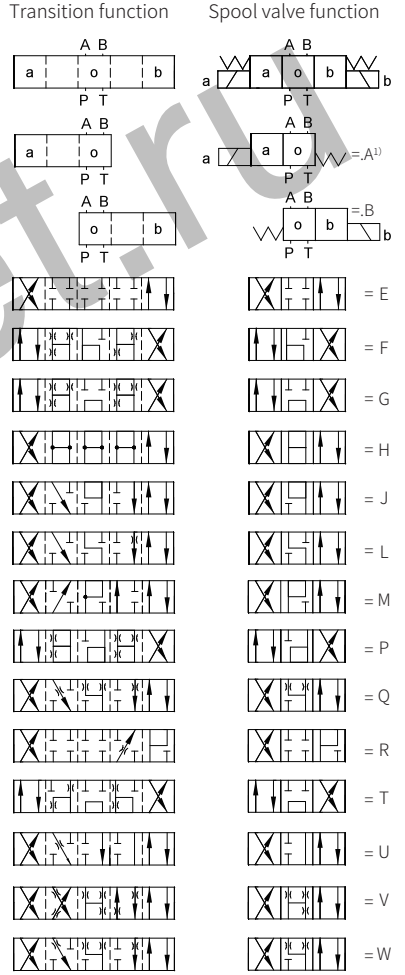
Note:

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, port T must be used as the drain port for symbols A and B.
Maximum flow		L/min	120
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.

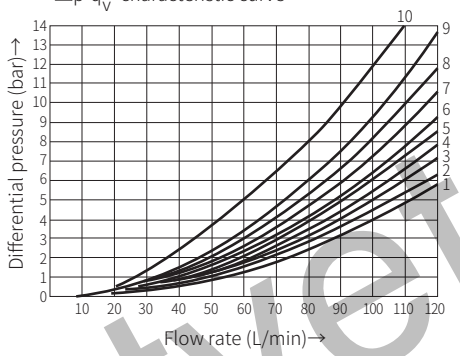
Electric				
Voltage type			DC	AC Rectifier
Available voltage[4]		v	24	36 127 220
Allowable voltage tolerance (voltage unit)		%	±10	±10
Power consumption		W	30	—
Holding power		VA	—	50
Impact power		VA	-	220
Power rate			100 %	100 %
Switching time to ISO6403	On	ms	25 to 45	10 to 20
	Off	ms	10 to 25	15 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)

△p-q_V -characteristic curve



Flow direction				
Function symbol	P - A	P - B	A - T	B - T
A,B	3	3	-	-
C	3	3	4	5
D,Y	5	5	6	6
E	1	1	4	4
F	2	3	7	4
G	3	3	6	7
H	1	1	6	7
J	1	1	3	3
L	2	2	3	5
M	1	1	4	5
P	4	2	5	7
Q	1	2	1	3
R	3	6	4	-
T	3	3	6	7
U,V	2	2	3	3
W	2	2	4	5
Switch position	P - A	B - A	A - T	P - T
R	-	9	-	-

	P - A	P - B	B - T	A - T	P - T
F	4	-	-	9	9
P	-	5	8	-	10
G,T			-	-	9
H			-	-	3

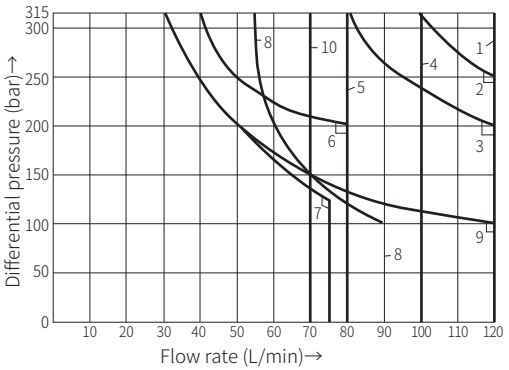
Characteristic limit

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

The indicated switching power limit applies to two flow directions (e.g. from P to A and simultaneous return oil flow from B to T).

Due to the effect of hydraulic power inside the valve, the allowable power will be significantly reduced when there is only one flow direction (e.g. from P to A, and the B oil port is closed).

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



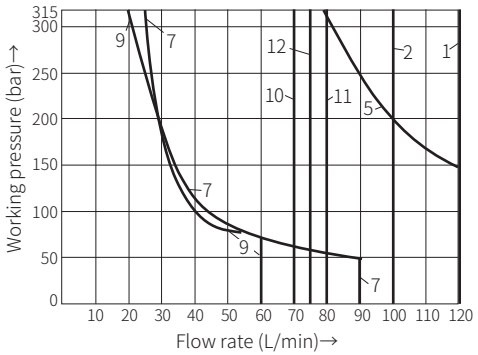
Characteristic curve	Functional symbols
1	C,C/O,C/OF D,D/O,D/OF Y,M
2	E
3	A/O,A/OF L,U,Q,W
4	H
5[1]	R,L[2] ,U[2]
6	G
7	T
8	F,P
9	A,B
10	V

1) Return oil flow (Independent from area ratio)

2) Applicable only in the middle position

Characteristic limit

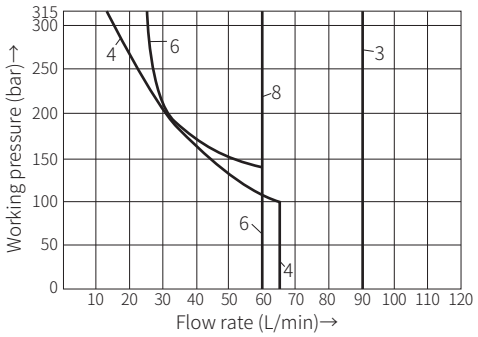
AC voltage (Measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

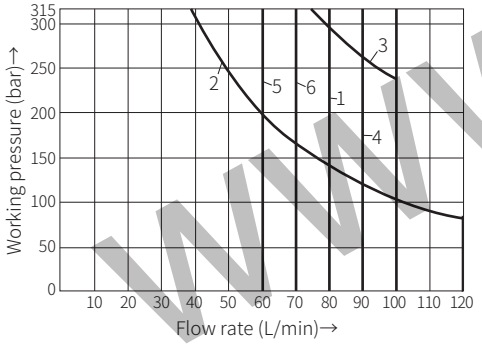


Characteristic curve	Function symbol
1	C, C/O, C/OF D, D/O, D/OF Y
2	E, L, U Q, W
3	M
4	A, B
5	A/O, A/OF, J
6	G
7	F, P
8	V
9	T
10	H
11	R
12[1)]	L, U

1) Applicable only in the middle position

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





Characteristic curve	Function symbol
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

42V, 60Hz; 110V, 60Hz;
127V, 60Hz; 220v, 60Hz
Please consult us the power
limit of the special valve spools!

Component size

Size unit: mm

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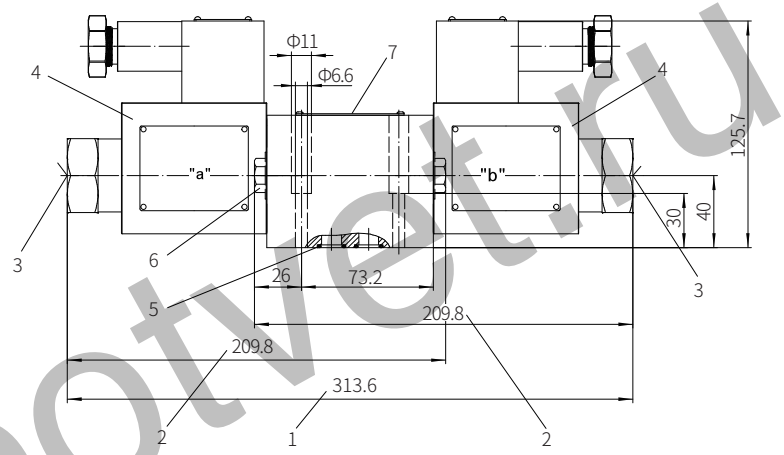
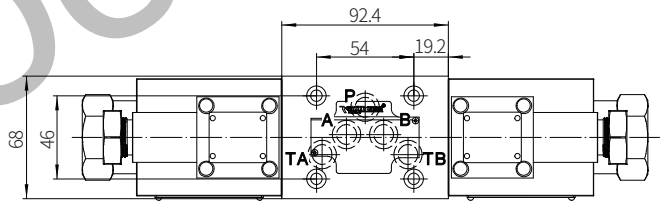
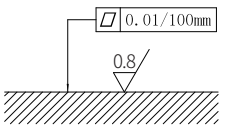
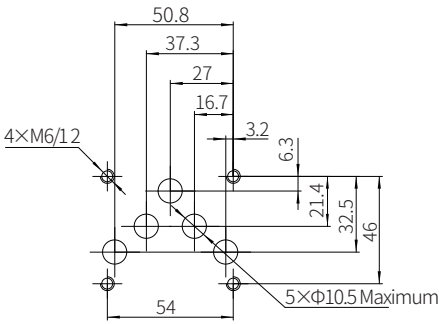






Required surface finishing of
mating components



1 Size of 3-position valve
2 Size of 2-position valve
3 Hidden emergency button
4 Solenoids
5 O-ring 12x2 (for oil ports P, A, B, T)
6 Plug for valve with one solenoid
7 Name plate

Valve fixing screw
M6x60-10.9 grade GB/T70.1-2000
Tightening torque M_A=13.7Nm

It must be ordered separately
if connection subplate is needed.
Subplate model:
G66/01 (G3/8") ; G66/02 (M18x1.5)
G67/01 (G1/2") ; G67/02 (M22x1.5)
G534/01 (G3/4") ; G534/02 (M27x2)