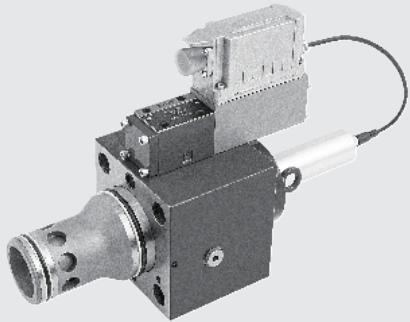


2-Way High Frequency Response Flow Valve

Model: 2WRCE...2X



- ◆ Size 25~80
- ◆ Maximum working pressure 420bar
- ◆ Maximum working flow 4350L/min

Contents

Function description, sectional drawing	02-03
Functional symbols	03
Models and specifications	04
Technical parameters	04-05
Integrated amplifier	06-07
Characteristic curve	08-09
Component size	10-12

Features

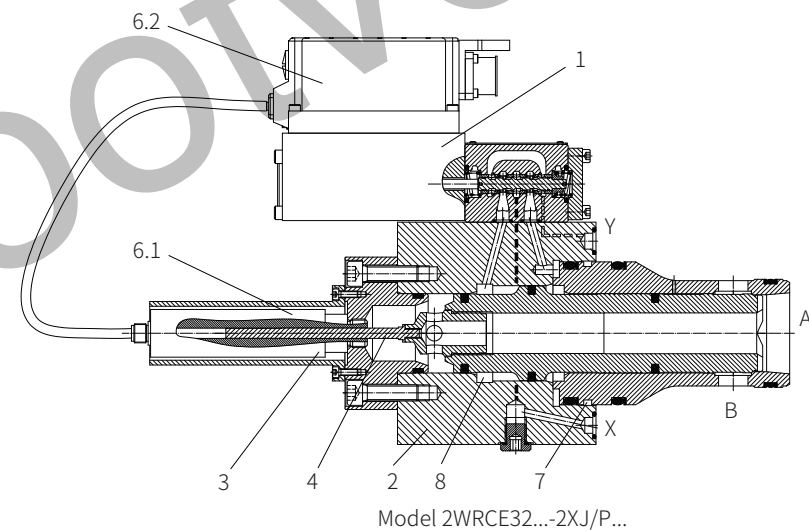
- Pilot type two-stage cartridge type high-frequency throttle valve
- Closed-loop control for position, pressure, force and speed
- Pilot control valve: size 6/10 direct operated high-frequency proportional valve with feedback
- Main Stage: Closed-loop position control
- Integrated open-loop and closed-loop control electronics (OBE)
- Typical applications:
 - Injection molding machines
 - Die-casting machines
 - Ceramic presses

The 2WRCE...-2XJ... throttle valve is a two-stage high-frequency response valve. It can control both the size and direction of flow, primarily used in closed-loop control circuits.

Structure:

Model 2WRCE32...-2XJ/P... includes the following components:

- Single-stage servo proportional pilot control valve (1) (pilot stage) with a solenoid for electro-mechanical conversion, connected via electrical feedback to the integrated pilot valve controller (6.2).
- Main stage (2) for flow control.
- Inductive position sensor (3), along with the sensor rod (4) mounted on the secondary main spool (5).
- Inductive position sensor demodulator (6.1).



Function:

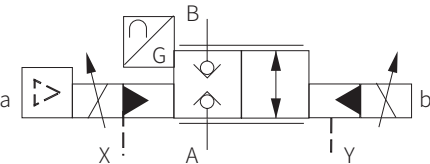
The integrated closed-loop amplifier (OBE) controls the proportional power of the pilot control valve by comparing the command value with the actual value and providing a current proportional to the system deviation a magnet.

The pilot control valve performs proportional position control and operates the main spool (5) through closed loop control, controlling the flow into cavity A (7) or out of cavity B up to the system the deviation is 0.

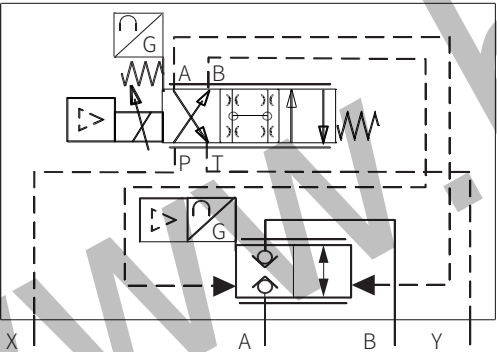
Therefore, the stroke of the main spool is controlled in proportion to the command signal. It must be noted here that the flow rate is related to the pressure difference of the valve.

Functional symbols

2WRCE...-2XJ/P...



Detailed:



2	WRCE	S	2X	P	G24	K31	*
2/2 directional valve							more information in text
electronic control							A1= instruction value 0...+10V, actual value+0.5...+10V
cartridge high frequency response valve with integrated electronics							F1= instruction value 4...20mA
OBE							K31= plug without cable with socket according to DINEN175201-804
size 25	=25						Z31= plug with cable with socket according to DINEN175201-804
size 32	=32						G24= power supply to amplifier 24 VDC
size 40	=40						P= pilot control valve servo proportional valve
size 50	=50						2X= 20 to 29 series (20 to 29 series installation and connection size unchanged)
size 63	=63						L= characteristic curve: linear
size 80	=80						
seated valve	=S						
nominal flow rate at 5 bar valve pressure drop(L/min)							
size 25							
360L/min linear only...S360L...	=360						
size 32							
800L/min linear only...S800L...	=800						
size 40							
1200L/min linear only...S1200L...	=1200						
size 50							
2000L/min linear only...S2000L...	=2000						
size 63							
3600L/min linear only...S3600L...	=3600						
size 80							
4350L/min linear only...S4350L...	=4350						

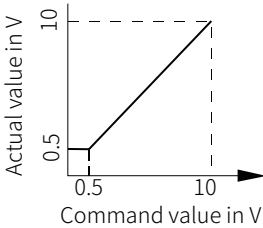
Technical parameters

Overview							
Size		25	32	40	50	63	80
Weight	kg	8.5	11.2	17.3	24.6	47	74
With shut-off valve... /...WK or .../...WL...	kg	9.8	12.5	18.6	25.9	60	87
Pilot control valve size specification NG	6						
Installation position	Optional, preferably horizontal						
Storage temperature range	°C	-20 to+80					
Environment temperature range	°C	-20 to+50					

Technical parameters

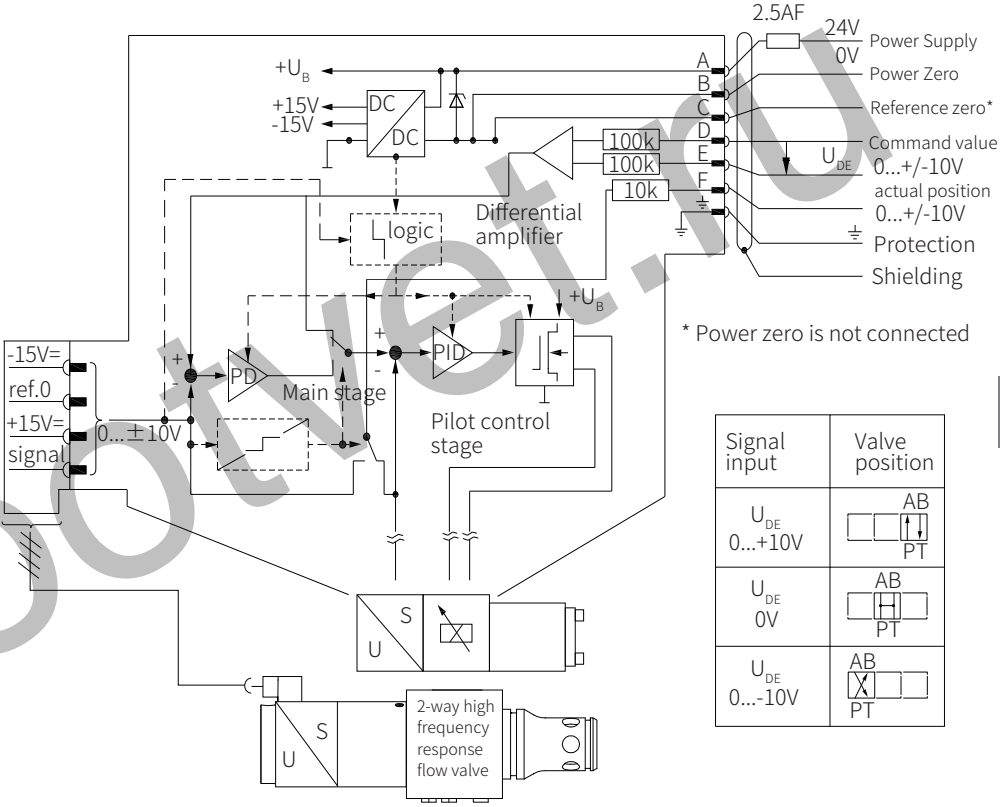
Hydraulic (Measured when using HLP46, $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$)								
Maximum operating pressures	Main stage ports A, B bar		size25~40:350, size 50:420				size 63:420	size 80:420
	Pilot control valve X bar		315				315	315
	Pilot control valve Y bar		210				210	210
Nominal flow $\triangle P=5\text{bar}$	model...S...L (linear)	L/min	360	800	1200	2000	3600	4350
	model...S...R (linear fine control range)	L/min	-	600	850	1400	3200	3900
Nominal flow of pilot valve $\triangle P=70\text{bar}$		L/min	12	12	40	40	100	100
Pilot valve internal leakage P=100bar		L/min	0.3	0.3	0.7	0.7	1	1
Hydraulic fluid			Mineral oil (HL, HLP) to DIN 51524					
Oil temperature range			$^{\circ}\text{C}$ -20 to +80; preferably +40 to +50					
Viscositv range			mm^2/s 20 to 380; preferably30 to 45					
Cleanliness of oil ³⁾			The maximum allowable pollution level of oil is ISO4406 Class 20/18/15					
Hysteresis			$\%$ ≤ 0.2					
Range of inversionI			$\%$ ≤ 0.1					
Response sensitivity			$\%$ ≤ 0.1					
Response time 0~100% step signal			ms ≤ 35					
Electric								
Voltage type			Direct voltage					
Type of signal			Analog					
Opening point calibration			$\%$ ≤ 1					
If the following items are changed Drift of zero:	Hydraulic fluid temperature	$\%/10\text{K}$	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3
	Pilot pressure in X	$\%/100\text{bar}$	≤ 0.7	≤ 0.7	≤ 0.7	≤ 0.7	≤ 0.7	≤ 0.7
	Return flow pressure in Y	$\%/bar$	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3
Valve protection to EN60529			IP65, plug installed and locked					

Nominal command value range for 2WRCE:
0 to +10V ± 0 to 100%
In the command value range of 0 to 0.5 V, the actual value remains constant at 0.5 V. In case of a slow command value modification from 0.5 V to +10 V, the actual value follows the command value within ± 0.15 V.

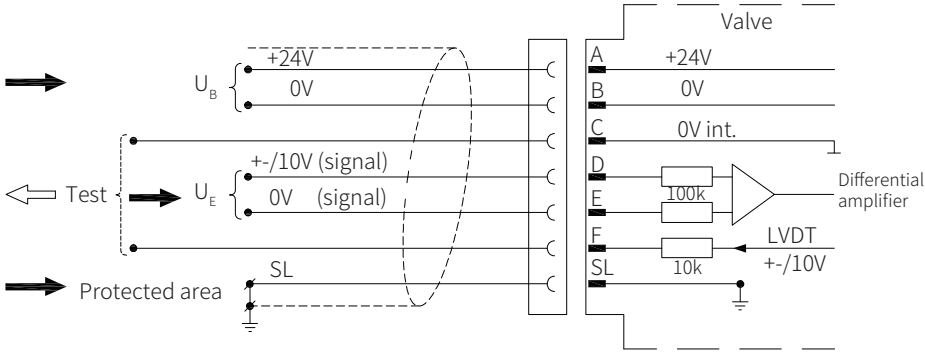


Integrated amplifier

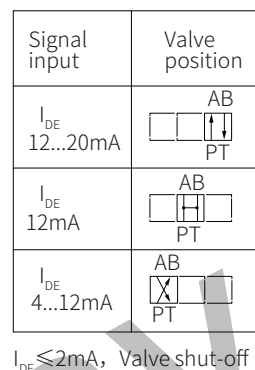
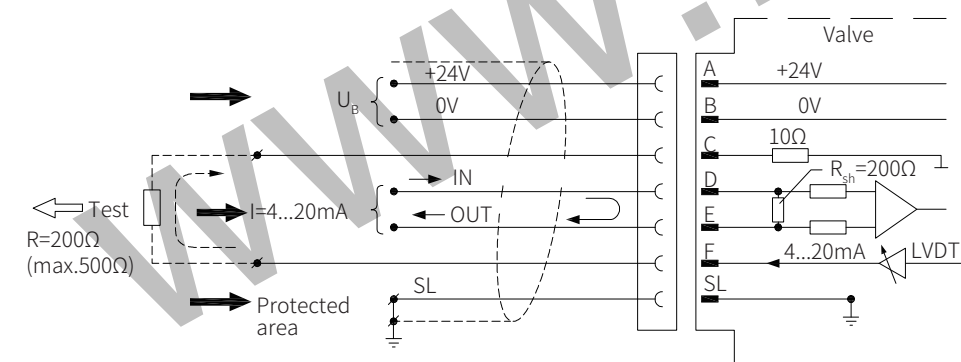
Circuit Block Diagram/Wiring Diagram
Model A1: $U_{D-E} 0 \dots \pm 10\text{V}$



Terminal Identification 6P+PE
Model A1: $U_{D-E} 0 \dots \pm 10\text{V}$

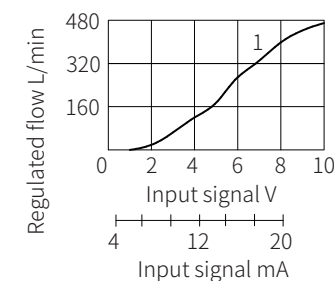


Model F1: I_{D+E} 4...20mA

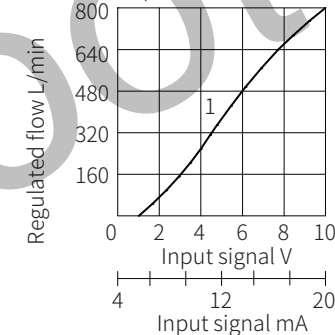
Model AF1: I_{D-F} 4...20mA

(Measured when using HLP46, $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$)

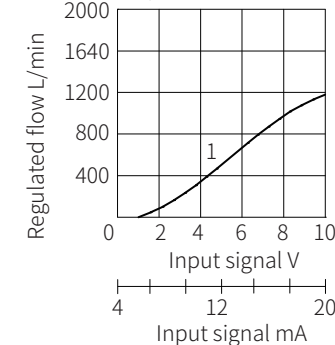
($\Delta p = 5$ bar)



($\Delta p = 5$ bar)



($\Delta p = 5$ bar)



1=Rated Measurement Curve
 2=Command value: 10%→90%
 3=Command value: 50%±5%

1=Rated Measurement Curve

2=Command value: 10%→90%

Amplitude→dB

Phase→

Frequency Hz→

10 50 100 200

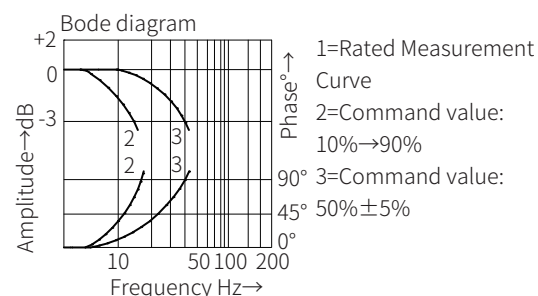
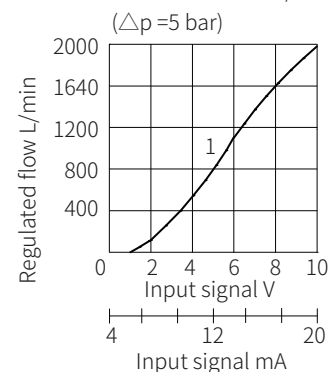
0° 45° 90°

2 2 3 3

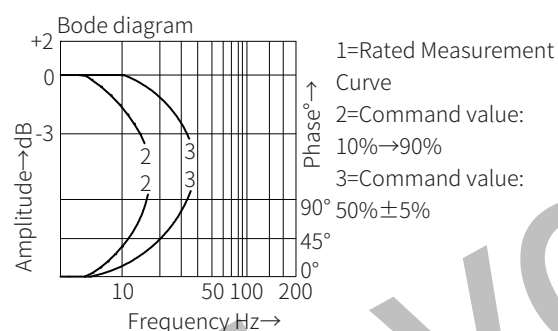
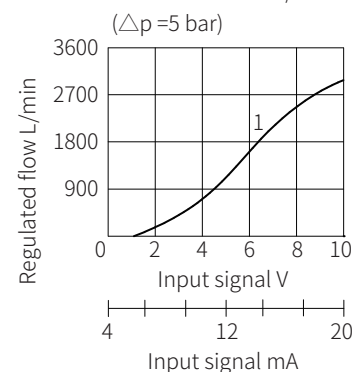
Characteristic curve

(Measured when using HLP46, $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$)

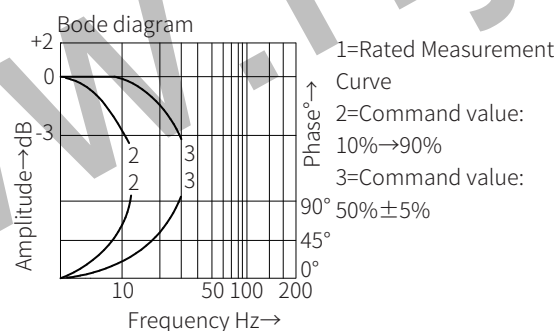
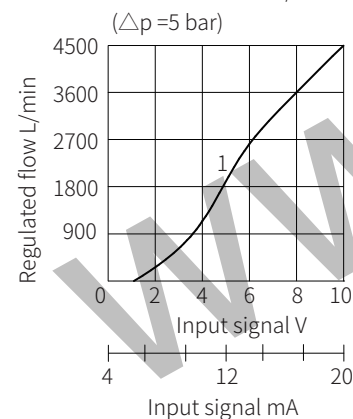
Model: 2WRCE50S2000L-2XJ/P..



Model: 2WRCE63S3600L-2XJ/P..

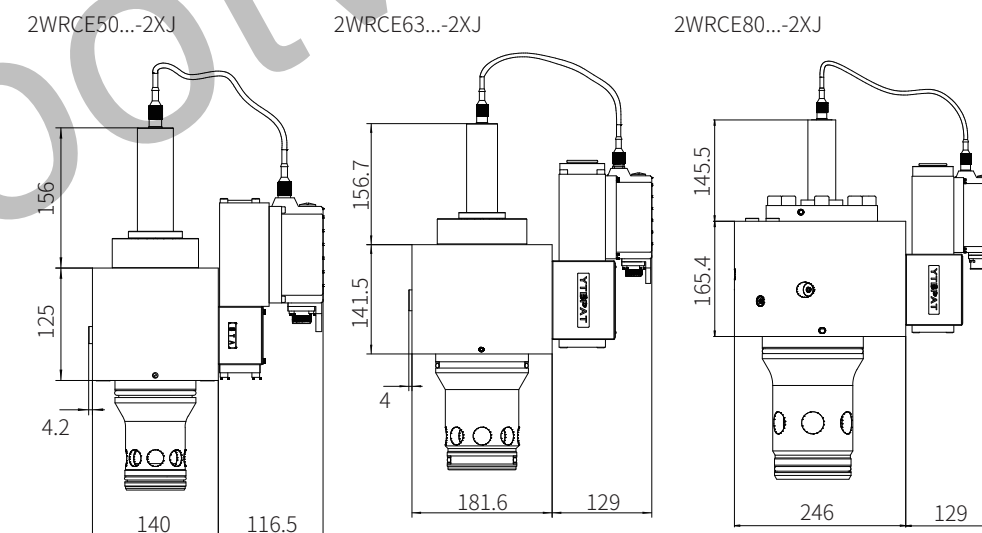
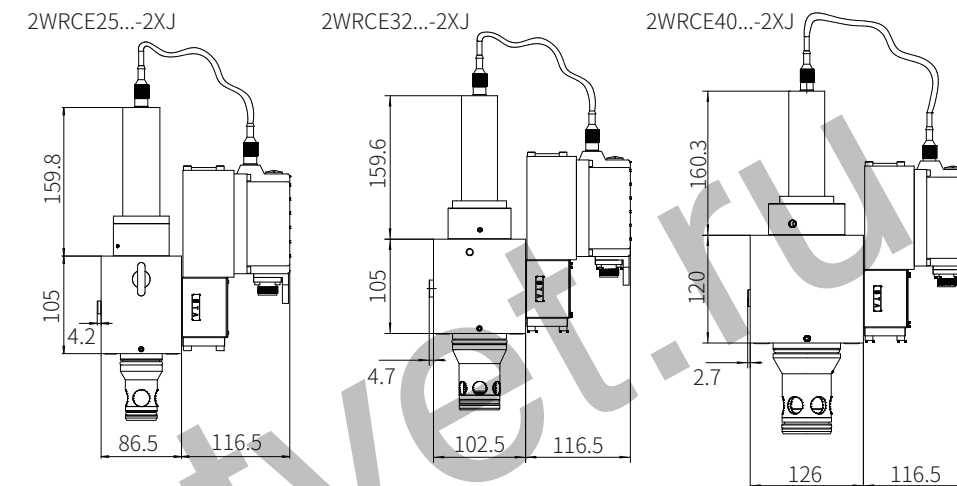


Model: 2WRCE80S4350L-2XJ/P..



Component size

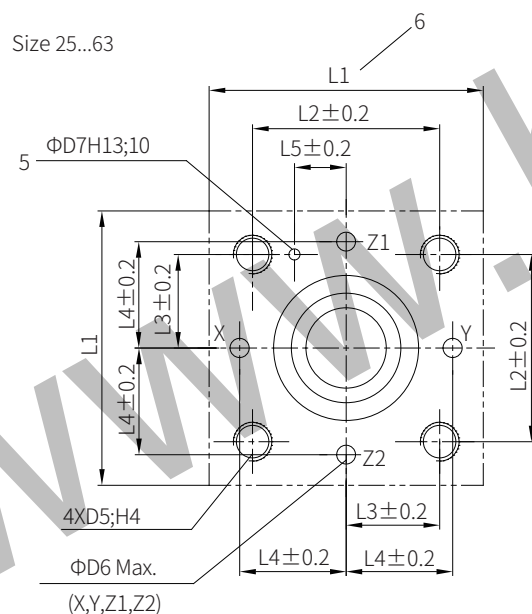
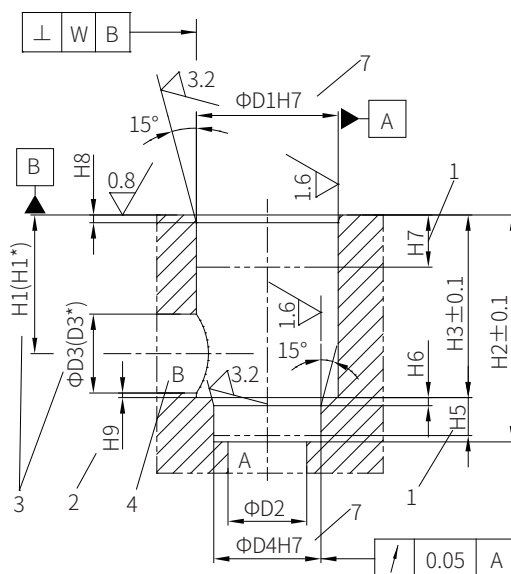
Size unit: mm



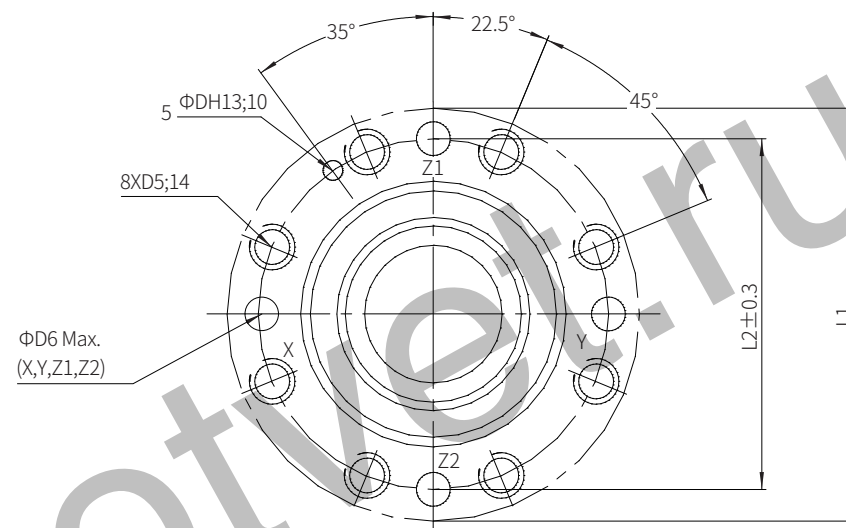
Size 25/32/40/50/63/80

Size	Fastening screw 10.9 level	Mounting torque
25	4-M12 $\times$ 80	125Nm
32	4-M16 $\times$ 60	300Nm
40	4-M20 $\times$ 70	600Nm
50	4-M20 $\times$ 80	600Nm
63	4-M30 $\times$ 100	1800Nm
80	4-M24 $\times$ 160	890Nm

Panel Mounting Dimensions (with ISO7368):



Size 80



- 1 Mounting depth
- 2 Reference size
- 3 If the diameter of port B is not $\Phi D3$ or $(\Phi D3^*)$, the distance from the cover support surface to the center of the hole must be calculated.
- 4 Port B can be mounted around the center axis of port A, but it must be ensured that the mounting holes and pilot holes cannot be damaged.
- 5 Drill holes for locating pins
- 6 Note on the mounting surface of the port with a through diameter of 16: The length L1 (x-axis of the hole) of the control cover (with attached directional valve) is 80 mm.
- 7 If $\Phi D \leq 45$ mm, it is permissible to install H8!

Size	25	32	40	50	63	80
ΦD1	45	60	75	90	120	145
ΦD2	25	32	40	50	63	80
ΦD3	25	32	40	50	63	80
ΦD4	34	45	55	68	90	110
ΦD5	M12	M16	M20	M20	M30	M24
ΦD6	6	8	10	10	12	16
ΦD7	6	6	6	8	8	10
H1	44	52	64	72	95	130
(H1*)	40.5	48	59	65.5	96.5	120
H2	72	85	105	122	155	205
H3	58	70	87	100	130	175
H4	25	35	45	45	65	50
H5	12	13	15	17	20	25
H6	2.5	2.5	3	4	4	5
H7	30	30	30	35	40	40
H8	2.5	2.5	3	3	4	5
H9	1	1.5	2.5	2.5	3	4.5
L1	85	103	126	140	180	250
L2	58	70	85	100	125	200
L3	29	35	42.5	50	62.5	-
L4	33	41	50	58	75	-
L5	16	17	23	30	38	-
W	0.05	0.1	0.1	0.1	0.2	0.2