

Rexport

4/2- and 4/3-way proportional directional valves, direct actuated, without electrical feedback, Type 4WRA

RE 29053/08.00

Size 6, 10

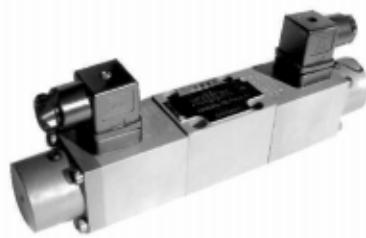
up to 31.5 MPa

up to 95 L/min

Replaces:

Features:

- Direct actuated proportional valve for controlling the direction and volume flow of a hydraulic fluid
- For subplate mounting
- For the open loop control of both direction and flow of a hydraulic fluid
- Spring centred control spool
- Low pressure drop across the control lands
- Both valve and electronic control from one supplier
- Mounting pattern to DIN 24 340 form A,Iso4401



Type 4WRA . . . 10B/24Z4/ . . .

Function, section

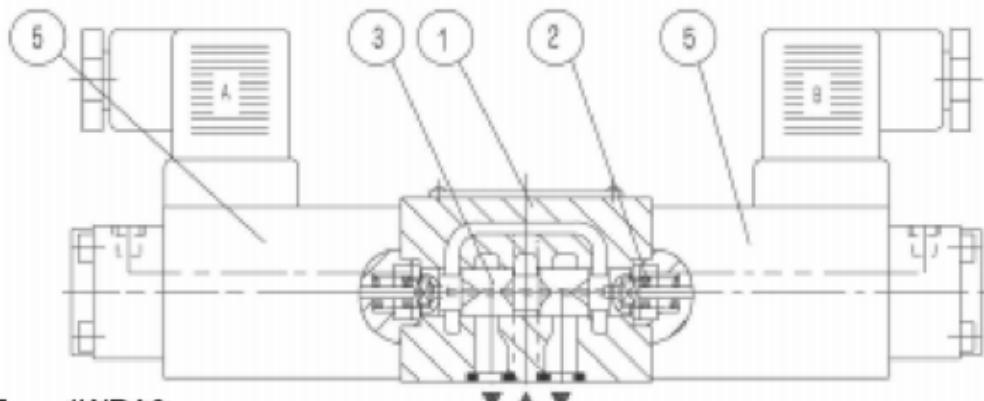
Type 4WRA directional control valves are direct-operated via proportional solenoids and are used to control the direction and quantity of a flow.

They consist basically of the housing (1), the control spool (3), one or two return springs (2), and in addition one or two proportional solenoids (5).

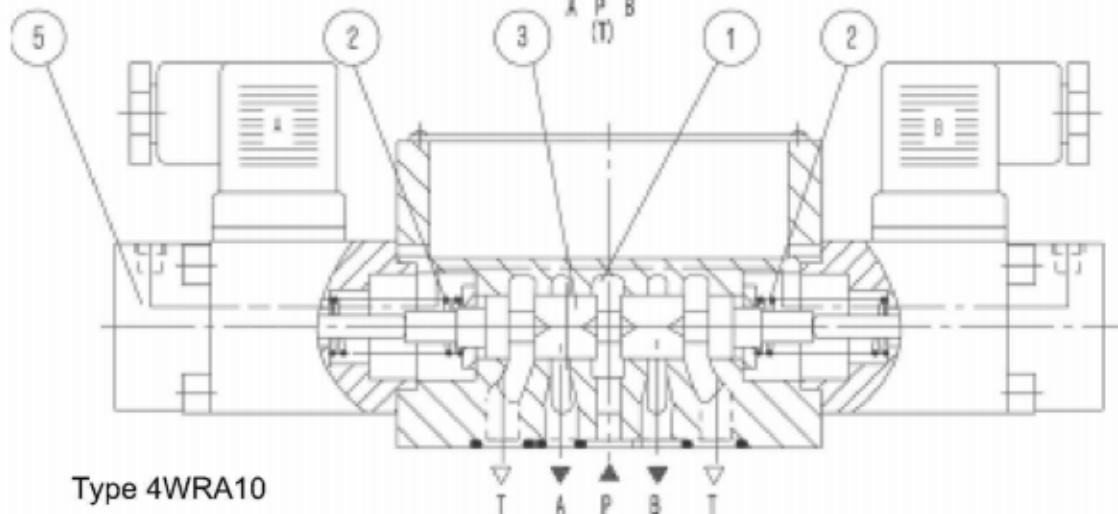
Type 4WRA₆10B/.....(3-position valve)

If the solenoids are not activated the control spool (3) is maintained in the neutral position by means of the return springs (2). Actuation of the control spool (3) is directly via the proportional solenoid (5). If, for instance, solenoid "A" is energised, it will push the control spool (3) to the right in proportion to the electrical signal. Connections are then made from P to B and A to T.

In this way, the control spool (3) causes the V-shaped grooves to open progressively to flow. When the proportional solenoid (5) is de-energised, the control spool (3) is returned to the center position by the return spring (2).



Type 4WRA6



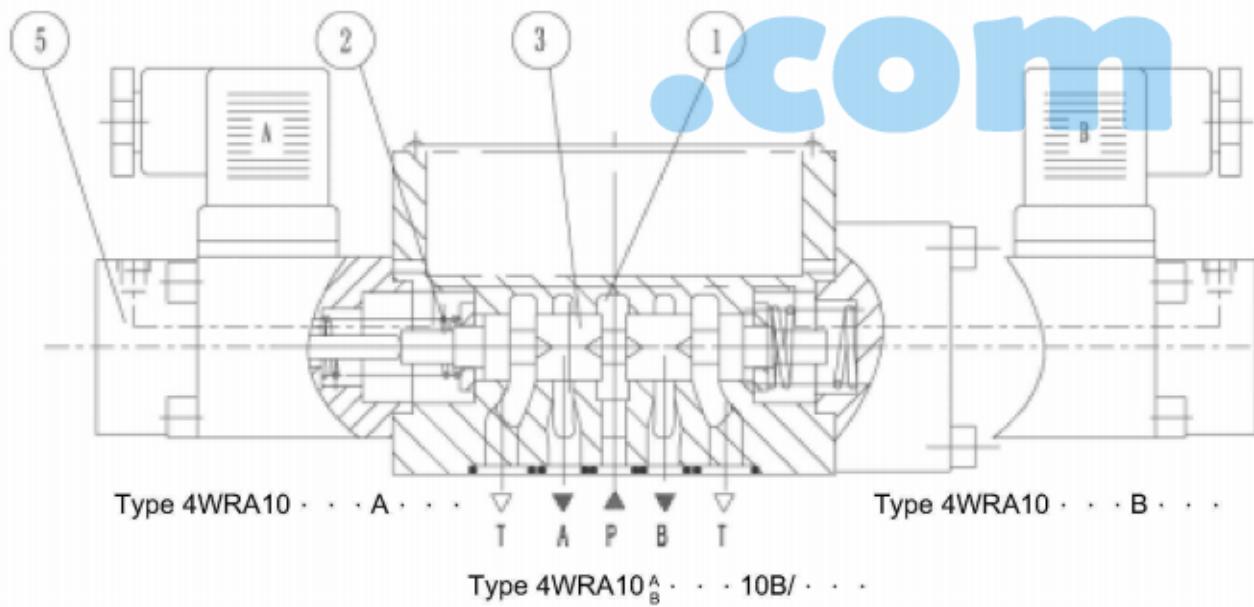
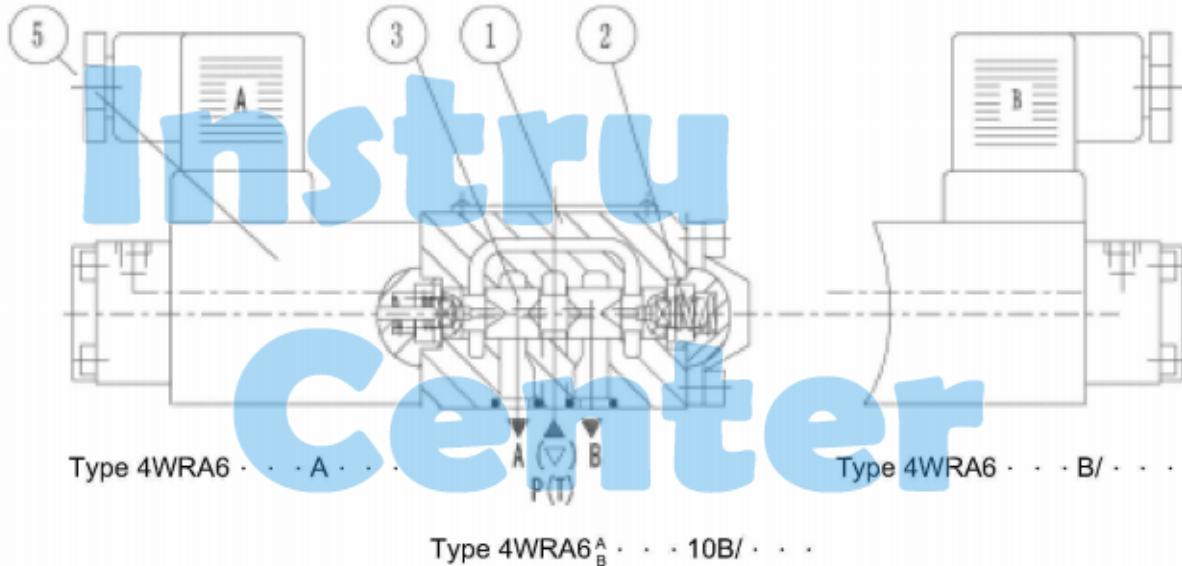
Type 4WRA10

4WRA₁₀^A ... A ... 10 (2-position valve)

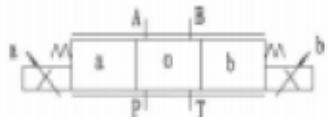
The function of this valve is the same as that for valve type 4WRA. But it's 2-position directional valve with only one proportional solenoid.

Type 4WRA adopts subplate mounting ,spring center and low pressure drop acrossing the control lands.

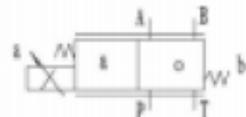
They often used in machine ,light industry ,metallurgy , mine ,space flight and other fields.

**Symbols**

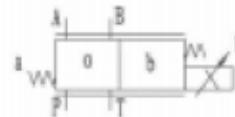
Type 4WRA - - - 10B / - - -
Proportional valve (3-positions)



Type 4WRA - - - A - - - 10B / - - -
Proportional valve (2-positions)



Type 4WRA - - - B - - - 10B / - - -
Proportional valve (2-positions)

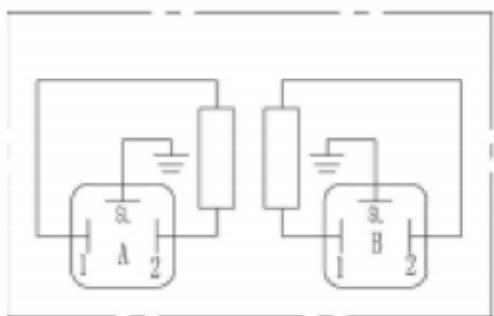


Ordering Code

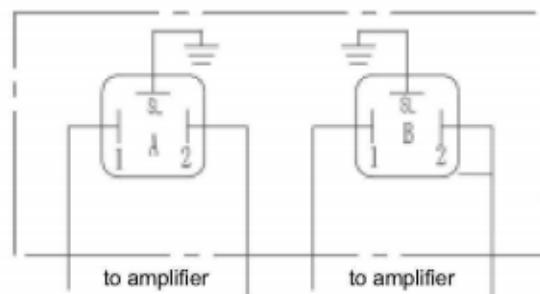
4WRA				10						Z ₄		*
Size 6	= 6											Further details in clear text
Size 10	= 10											M = mineral oils V = phosphate ester
Symbols												Z ₄ = Plug-in to DIN 43 650
		A + B			E						W	No code = Without special insulation J = Seawater resistant
		A + B			E						W	no code = Without emergency operator N = with emergency operator
		A + B			E						W	G24 = 24 VDC
												10 = Series 10 to 19 (10 to 19: unchanged installation and connection dimensions)
Nominal flow at 1Mpa valve pressure difference												
Size 6												
5=												8L/min
10=												13L/min
20=												17L/min
Size 10												
10=												18L/min
20=												27L/min
40=												50L/min

Electrical connection with type 4WRA

Coil connection



plug-in connection



Technical data (For application outside these parameters,Please consult us!)**Hydraulic data**

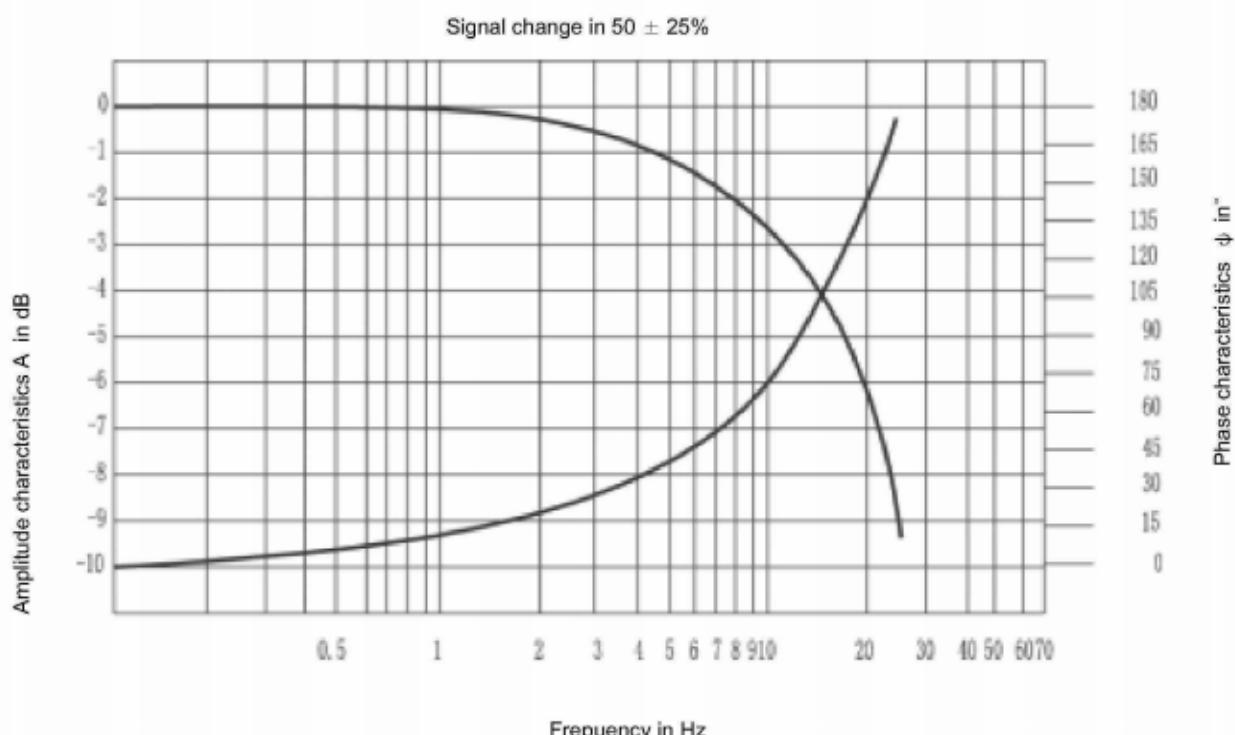
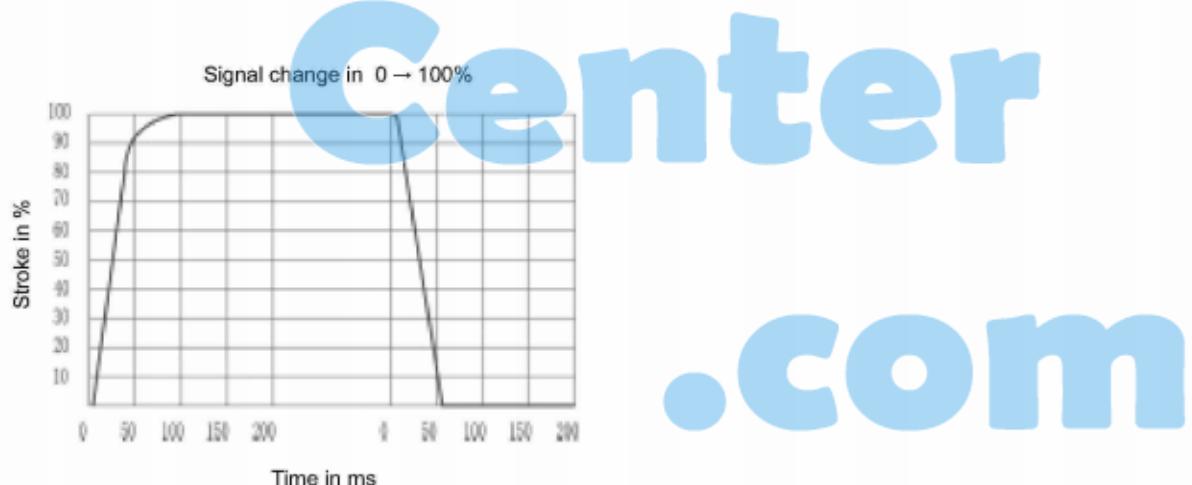
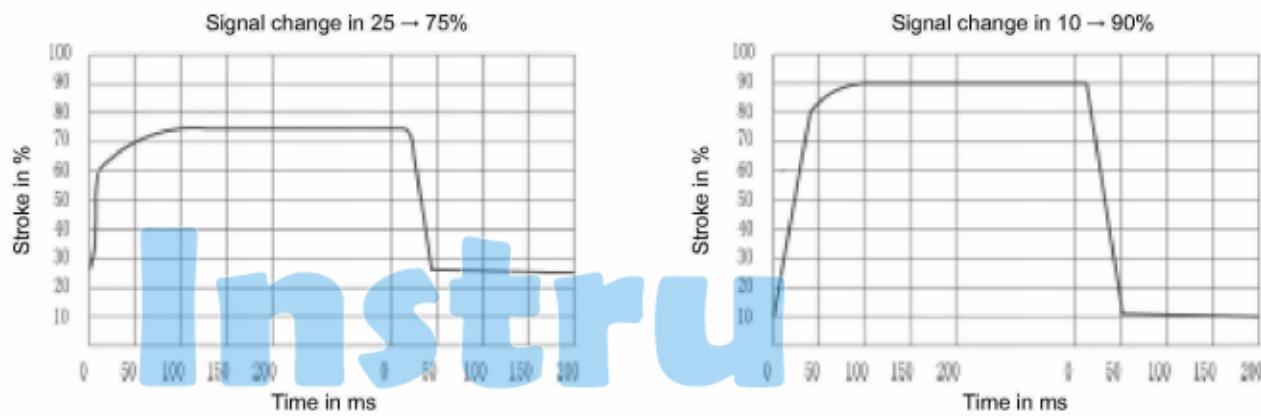
size		6	10
Operating pressure (MPa)	port A,B,P	31.5	31.5
	port T	16	16
Flow	(L/min)	43	95
Degree of contamination		<= 20(recommend <= 10)	
Hysteresis (%)		< 6	< 5
Repeatability (%)		< 3	< 2
Frequency response(-3dB,signal ± 100%)	(Hz)	6	4
Pressure fluid		Mineral oil(for NBR seal),Phosphate ester (for FPM seal)	
Viscosity range	(mm ² /s)	3.8 to 380	
Pressure fluid temperature range	(°C)	-30 to +80	
Weight (Kg)	Valve with one solenoid	1.75	5.9
	Valve with two solenoids	2.5	7.5

Electrical data

size		6	10
Voltage type		Direct voltage	Direct voltage
Nominal voltage	(V)	24	
Max. current per solenoid	(A)	1.5	
Solenoid coil resistance (Ω)	Cold value at 20°C	5.4	10
	Max. warm value	8.1	15
Environment temperature	(°C)	up to +50	
Coil temperature	(°C)	up to +150	
Insulation of valve to DIN 40 050		IP65	
Associated amplifier (24 V rectifier of bridge type)		VT-3013 S30	VT-3014S30
		VT-3017 S30	VT-3018S30

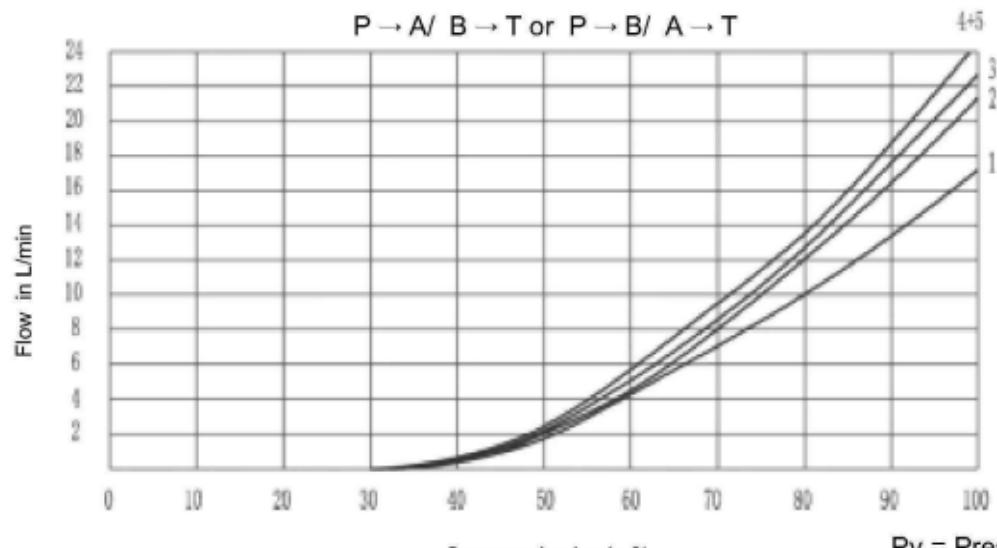
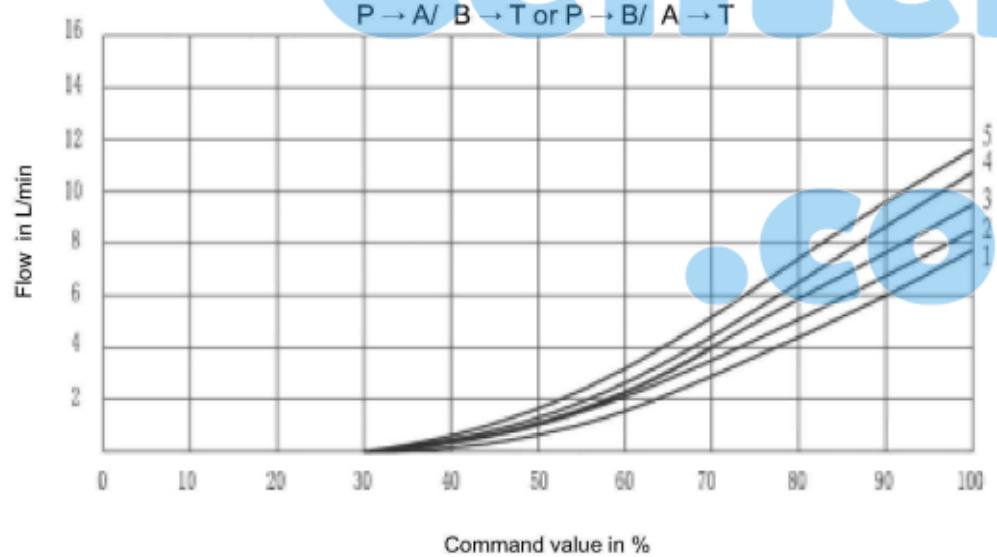
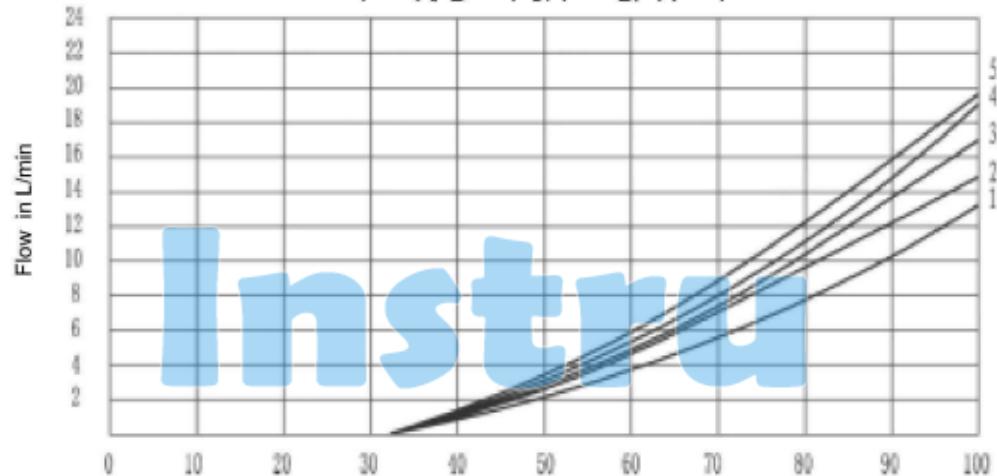
Characteristic curves:(measured at $v = 36 \times 10^{-6} \text{m}^2/\text{S}$ $t=50^\circ\text{C}$)

Type 4WRA6



Characteristic curves: (measured at $v = 36 \times 10^{-6} \text{m}^2/\text{S}$ and $t=50^\circ\text{C}$)

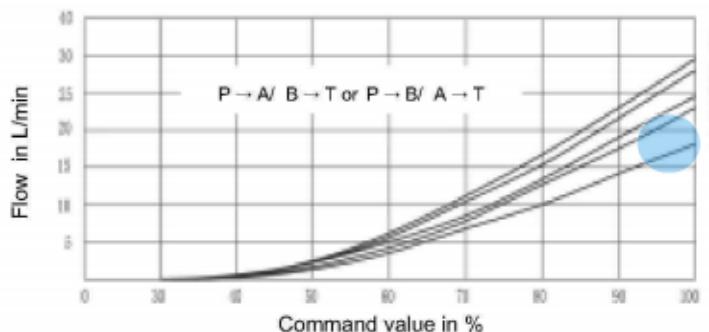
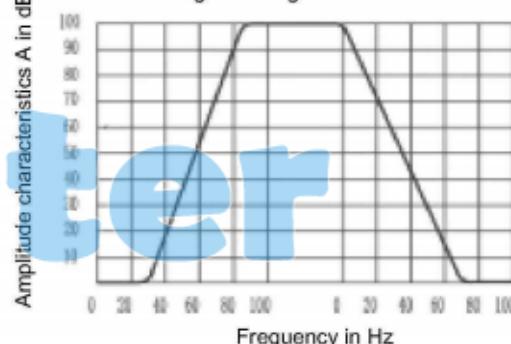
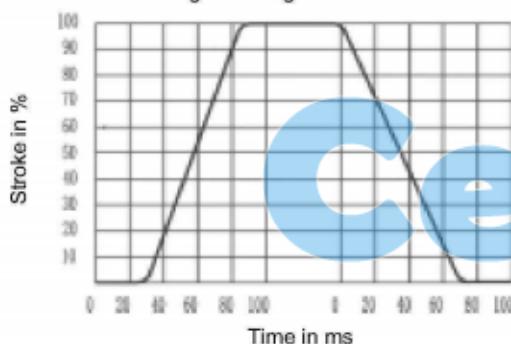
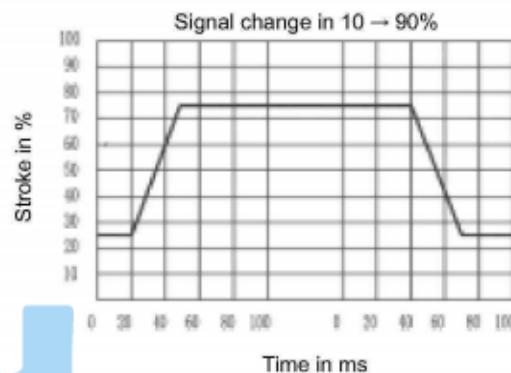
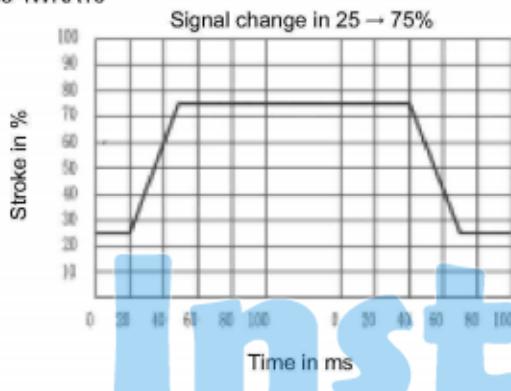
$P \rightarrow A/ B \rightarrow T$ or $P \rightarrow B/ A \rightarrow T$



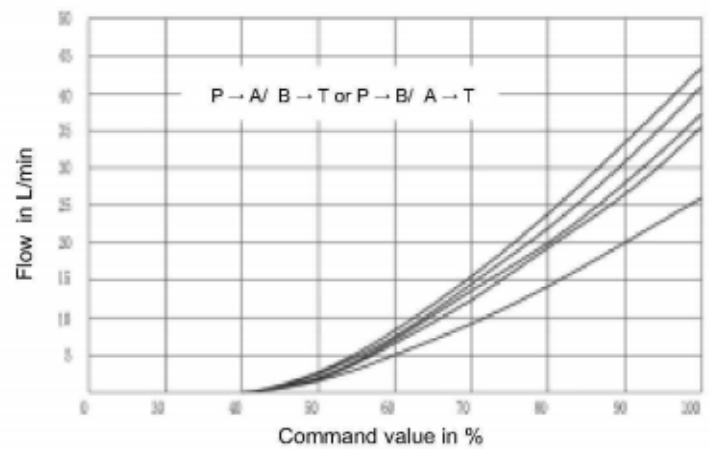
$P_v = \text{Pressure drop across valve}$
(Input pressure minus load pressure
and return pressure)

Characteristic curves: (measured at $v = 36 \times 10^{-6} \text{m}^2/\text{S}$ and $t=50^\circ\text{C}$)

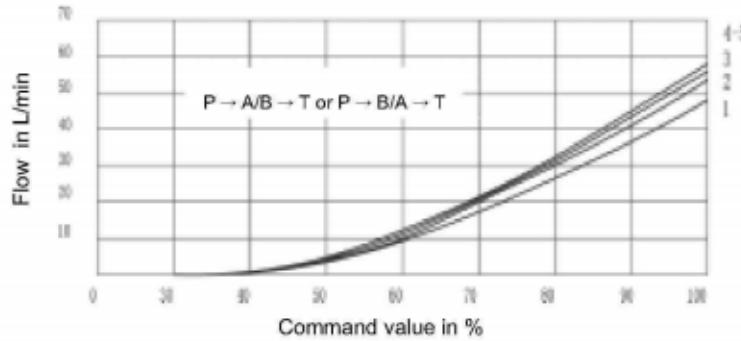
Type 4WRA10



18L/min Nominal flow at
1MPa valve pressure difference
1 Pv = 1MPa constant
2 Pv = 2MPa constant
3 Pv = 3MPa constant
4 Pv = 5MPa constant
5 Pv = 10MPa constant



27L/min Nominal flow at
1MPa valve pressure difference
1 Pv = 1MPa constant
2 Pv = 2MPa constant
3 Pv = 3MPa constant
4 Pv = 5MPa constant
5 Pv = 10MPa constant



50 L/min Nominal flow at
1MPa valve pressure difference
1 Pv = 1MPa constant
2 Pv = 2MPa constant
3 Pv = 3MPa constant
4 Pv = 5MPa constant
5 Pv = 10MPa constant

Pv = Pressure drop across valve
(Input pressure minus load pressure and return pressure)

Power Limits:**Type 4WRA6 power limits of**

Flow (L/min)	Pressure (MPa)				
	6	12	16	24	31.5
E.M.W5	13	14	14	14	14
EA.MA.WA5	(27)	(27)	(27)	(26)	(*)
EB.MB.WB5					
E.M.W10	20	20	19	17	16
EA.MA.WA10	(40)	(37)	(34)	(31)	(*)
EB.MB.WB10					
E.M.W20	22	22	20	19	18
EA.MA.WA20	(43)	(37)	(34)	(32)	(*)
EB.MB.WB20					

Type 4WRA10 Power limits of

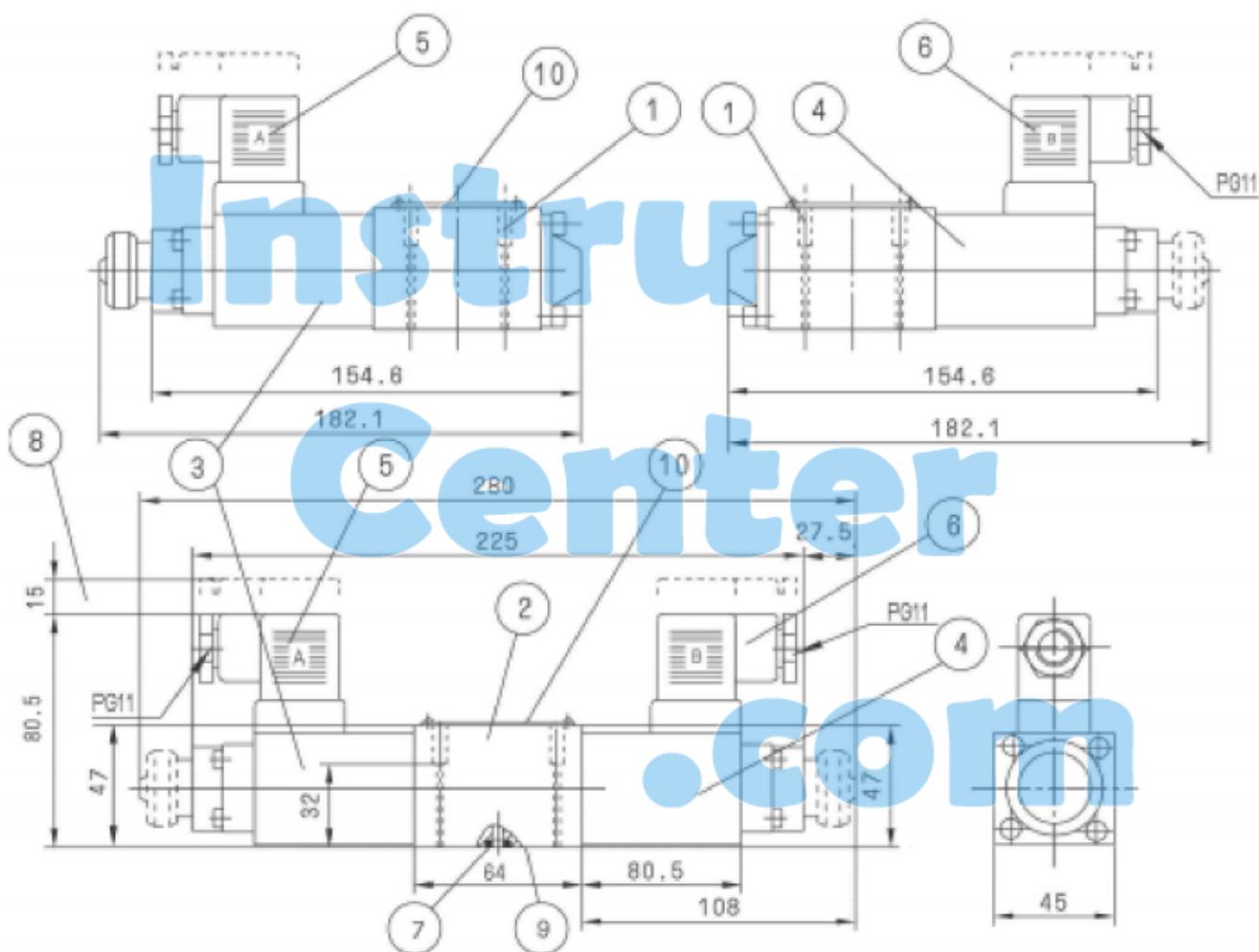
Flow (L/min)	Pressure (MPa)				
	6	12	16	24	31.5
E.M.W10	22	24	24	24	24
EA.MA.WA10	(52)	(48)	(47)	(45)	(*)
EB.MB.WB10					
E.M.W20	36	36	34	33	31
EA.MA.WA20	(67)	(61)	(58)	(53)	(*)
EB.MB.WB20					
E.M.W40	50	46	42	38	34
EA.MA.WA40	(95)	(83)	(77)	(73)	(*)
EB.MB.WB40					

Note:()Valves in brackets are applicable for double flow through the valve

(*)Because of the max.tank pressure of 24MPa double flow through the valve is not possible.

Unit dimensions:type 4WRA 6

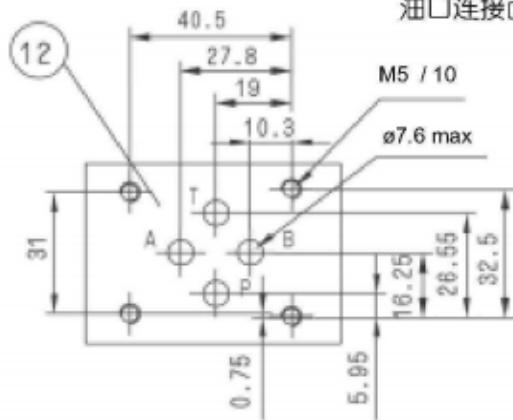
(Dimensions in mm)



- (1) two control positions valve
- (2) three control positions valve
- (3) Proportional solenoid "a"
- (4) Proportional solenoid "b"
- (5) Plug(grey)
- (6) Plug(black)
- (7) O-ring 9.25X1.78
- (8) Space required to remove the plug
- (9) Valve mounting face with ports positions
- (10) Nameplate
- (11) Ports positions
- (12) Dimensions of valve mounting face

Subplates :G341/01;G342/01;
G502/01

see Page 80



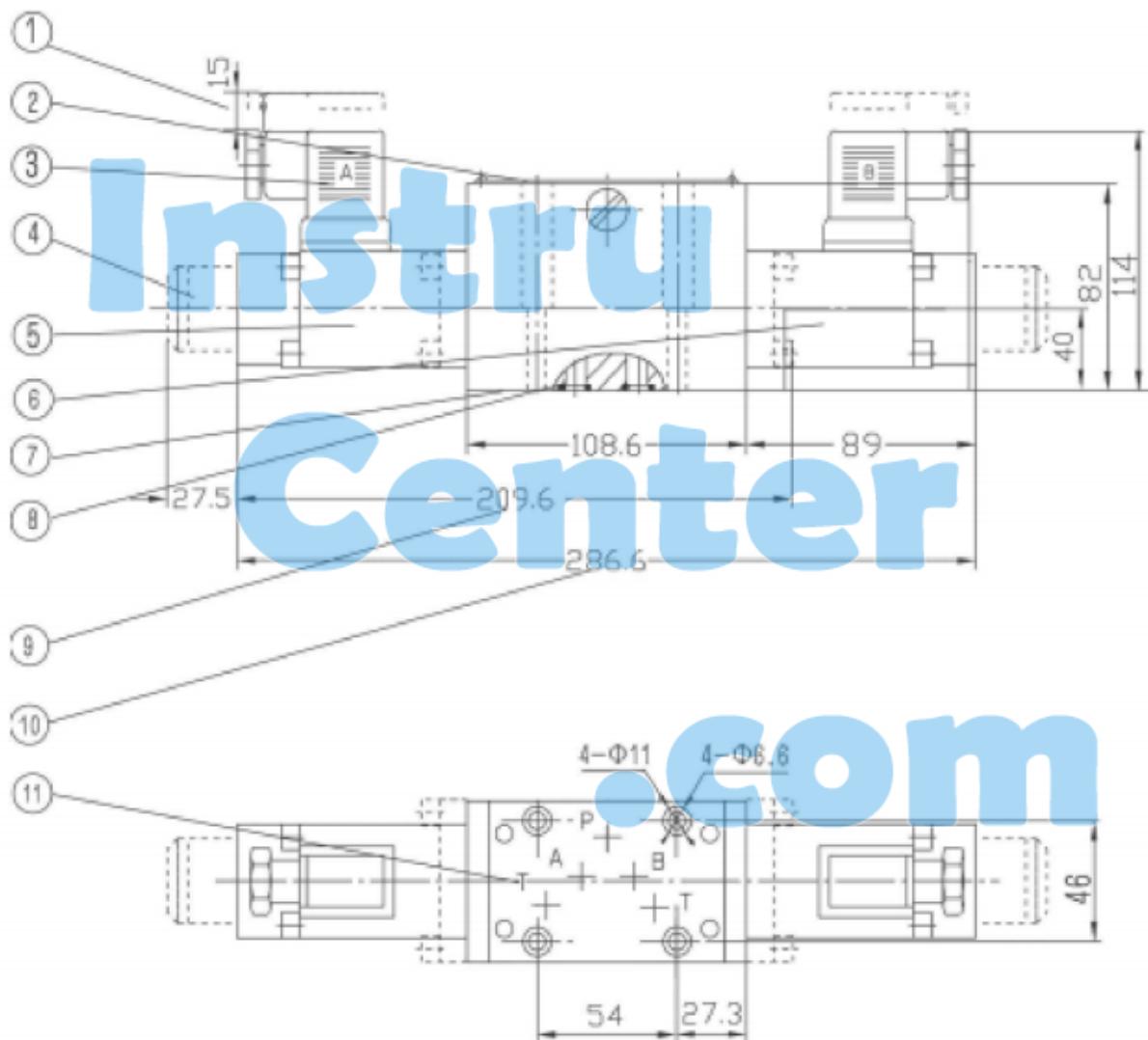
油口连接面尺寸

Required surface finish of mating piece



Unit dimensions type 4WRA10 Dimensions

(Dimensions in mm)



(1) Space required to remove the plug

(2) Nameplate

(3) plug:(A)grey,(B)black

(4) Emergency hand operators

(5)Proportional solenoid "a"

(6)Proportional solenoid "b"

(7) Valve mounting face with ports positions

(8) O-ring 12X2

(9)Dimension of 2-position valve

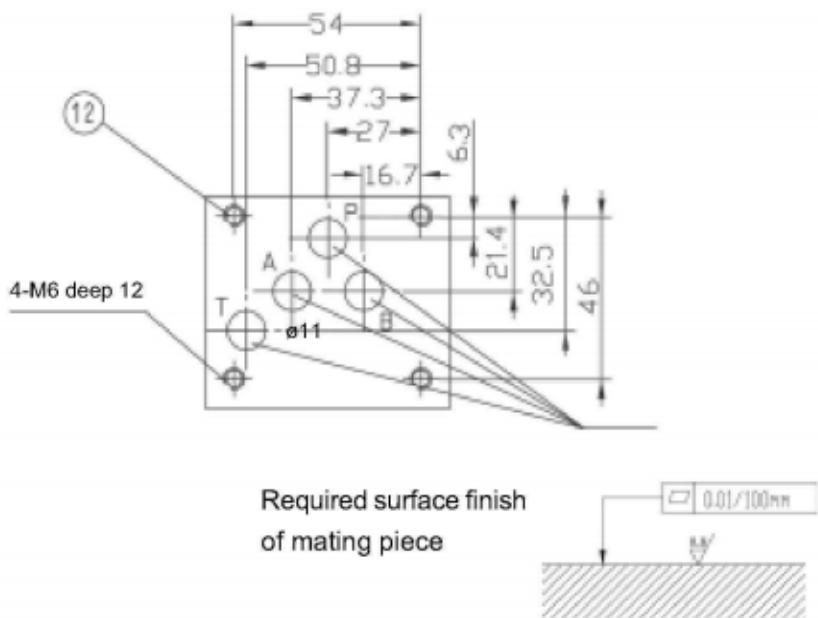
(10) Dimension of 3-position valve

(11) Ports positions

(12) Dimensions of valve mounting face

Subplates:G66/01;G67/01;G534/01

See Page 81



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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 $0.8 \text{ } \mu\text{m}$.
6. Surface finish of mating piece is required to 0.01/100mm.