

Proportional Directional Valves 4WRA

TAON
Hydraulik Komponenter

CONTENT

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

Nominal sizes: 6, 10

Series: 2X

Max. operating pressure: 315 bar

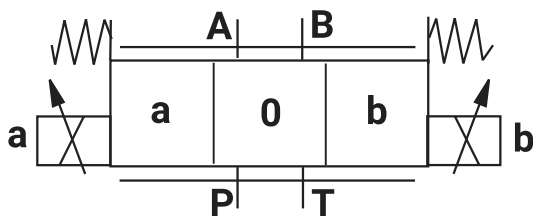
Maximum flow 42 L/min(NS 6)、 75 L/min(NS10)



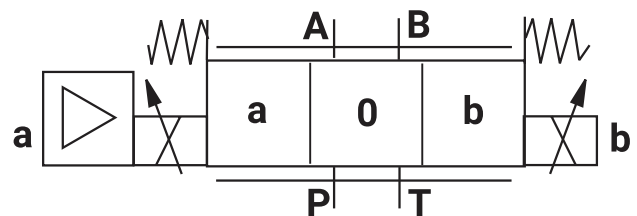
FEATURES

- Direct actuated proportional valve for controlling the direction and volume of a flow
- Actuation by means of proportional solenoids with central thread and removable coil
- Spring centred control
- For subplate mounting: Porting pattern to ISO 4401-03-02-0-05/ ISO 4401-05-04-0-05
- Integrated control electronics, interface A1 or F1 for type 4WRAE
- Control electronics for type WRA: Electrical amplifier RT- PSDM2 or RT-MSPD2-30 in modular format (separate order)

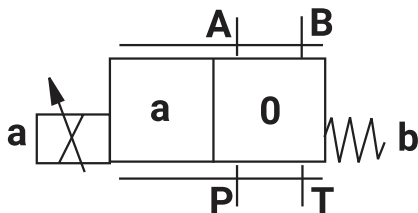
SYMBOLE



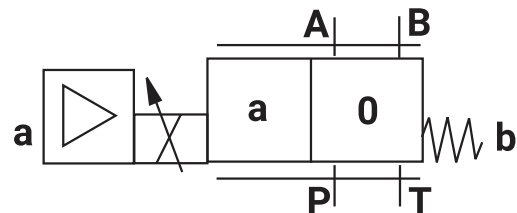
4WRA...



4WRAE...

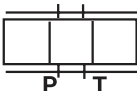
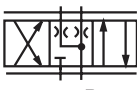


4WRA...EA...; 4WRA...WA...



4WRAE...EA...; 4WRAE...WA...



For external control electronics	=No code
With integrated control electronics	=E
Nominal size	
Nominal size	=6, 10
Symbols	
	= E, E1-
	= W, W1-
	= EA
	= WA
For piston symbols E1 and W1:- P → A: qV max B → T: qV/2 P → B: qV/2 A → T: qV max	
Note: With spools W and WA in the neutral position	
*= Further details in the plain text.	
Sealing Material	
M= NBR seals	
V= FKM seals	
Command Value Of Amplifier	
No code= 4WRA	
A1= Command value ±10 V	
F1= Command value 4...20 mA	
Electrical Connections	
K4= Sockets conforming to DIN EN 175301-803 (plugs need to be ordered separately)	
K31= 7 pin sockets conforming to DIN EN 175201-804 (plugs need to be ordered separately)	
Special Protection	
No code= Without special protection	
Manual Emergency	
N9= Without hand override	
N9= With protected hand override	
Supply Voltage	
G24= Supply voltage 24V DC	
Series 20 to 29	
2X= 20 to 29: unchanged installation and connection dimensions	

 TECHNICAL DATA

General

Normal size			6	10
Installation position			Any, preferably horizontal	
Storage temperature range			°C -20 to +80	
Ambient temperature range	4WRA	°C	-20 to +70	
	4WRAE	°C	-20 to +50	
Weight	4WRA	kg	2.0	6.6
	4WRAE	kg	2.2	6.8

Hydraulic (Measured with HLP 46, $\vartheta_{oil} = 40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$)

Max. operating pressure	Port A, B, P	bar	315	
	Port T	bar	210	
Nominal flow qV nom at $\Delta p = 10\text{ bar}$		l/min	7, 15, 26	30, 60
Max. permissible flow		l/min	42	75
Maximum flow		l/min	15 ($\Delta p = 50\text{ bar}$)	
Pressure fluid temperature range		°C	-20 to +80 (preferably +40 to +50)	
Viscosity range		mm ² /s	20 to 380, preferably 30 to 46	
Degree of contamination			ISO4406: 1999 20/18/15	
Hysteresis		%	≤ 5	
Repeatability		%	≤ 1	
Response sensitivity		%	≤ 0.5	

Electrical

Nominal size			NS	6	10
Voltage type				Direct voltage	
Command value signal with type WRAE	Voltage input "A1"	V		±10	
	Current input "F1"	mA		4 to 20	
Max. current per solenoid			A	2.5	
Solenoid coil resistance	Cold value at 20 °C	Ω		2	
	Max. warm value	Ω		3	
Duty			%	100	
Max. coil temperature			°C	150	
Valve protection to EN 60529				IP65 with mounted and fixed plug-in connector	

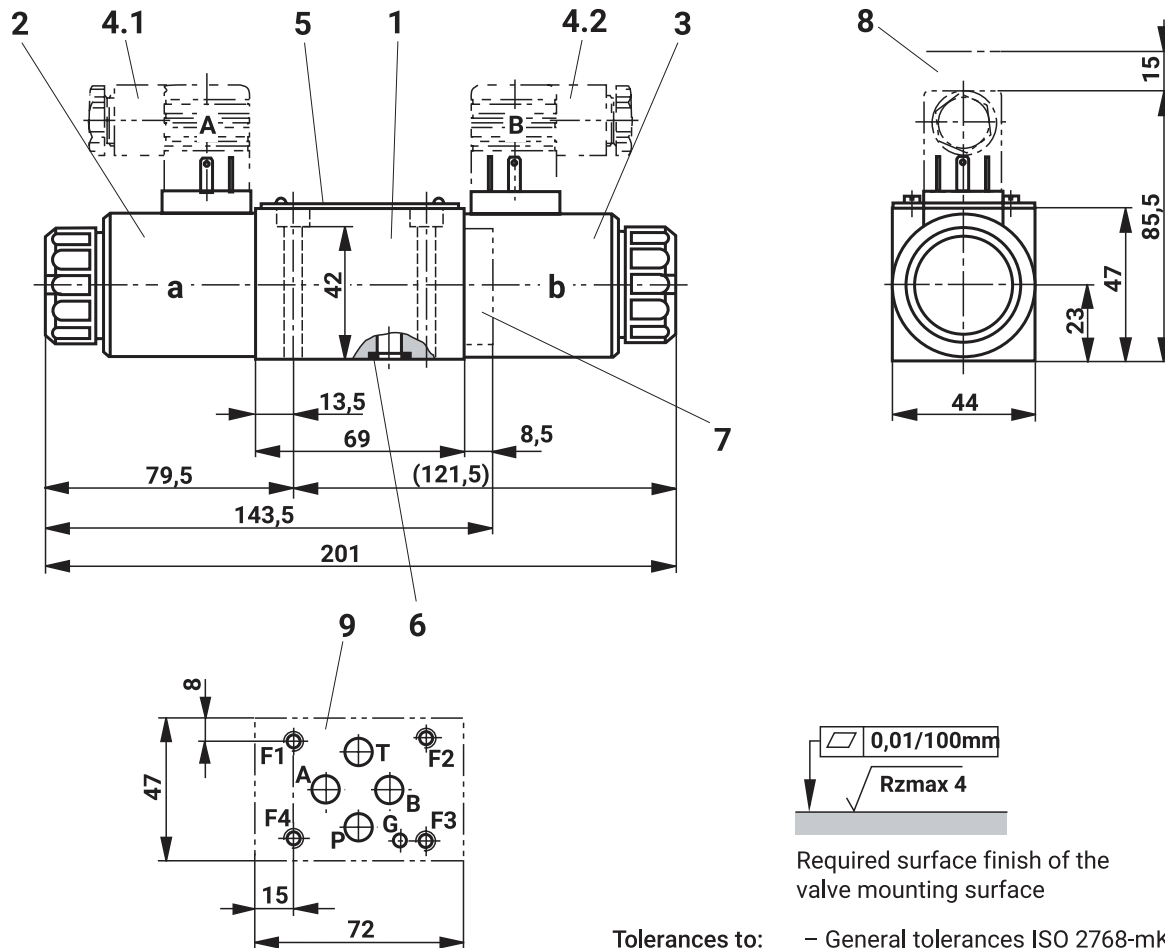
Control electronics

4WRA6	digital		RT-PSDM2 or RT-MSPD2(Need to order separately)	
4WRA10	digital		RT-PSDM2 or RT-MSPD2(Need to order separately)	
4WRAE6	digital		RT-4WRAE6-2X-40//A1(F1)	
4WRAE10	digital		RT-4WRAE10-2X-40//A1(F1)	
Supply voltage	Nominal voltage	VDC	24	
	Lower limiting value	V	19.4	
	Upper limiting value	V	35	
Amplifier power consumption	Maximum current	A	1.8	
	Max. impulse current	A	3	



UNIT DIMENSIONS

Type 4WRA6 (dimensions in mm)



Tolerances to: – General tolerances ISO 2768-mK

- 1 Valve housing
- 2 Proportional solenoid "a"
- 3 Proportional solenoid "b"
- 4.1 Plug-in connector "A", colour grey
- 4.2 Plug-in connector "B", colour black
- 5 Name plate
- 6 Identical seal rings for ports A, B, P and T
- 7 Plug for valves with one solenoid (2 switched positions, versions EA or WA)
- 8 Space required to remove the plug-in connector
- 9 Machined valve mounting surface, Connection location to ISO 4401 (with locating pin hole) Code: 4401-03-02-0-94 (explanation to ISO 5783) Deviation from the standard:
 - without locating pin hole „G“
 - ports P, A, B and T mit Ø8 mm

Subplates to catalogue sheet RE 45052 and valve fixing screws must be ordered separately.

Subplates: G341/01 (G1/4)
G342/01 (G3/8)
G502/01 (G1/2)

Valve fixing screws (separate order)

The following valve fixing screws are recommended:

- 4 S.H.C.S. ISO 4762 - M5 x 50 - 10.9-fIZn-240h-L (friction value $\mu_{total} = 0.09$ to 0.14)
Tightening torque $M_A = 7 \text{ Nm} \pm 10\%$
Material No.R913000064 (separate order)

or

- 4 S.H.C.S. ISO 4762 - M5 x 50 - 10.9 (friction value $\mu_{total} = 0.12$ to 0.17)
Tightening torque $M_A = 8.9 \text{ Nm} \pm 10\%$