Proportional Directional Valves 4WRA

TAON
Hydraulik Komponenter

CONTENT

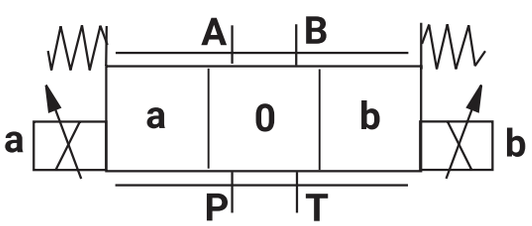
4/2-way and 4/3-way proportional directional valves, direct actuated, without electrical position feedback.

Nominal sizes: 6, 10
Series: 2X
Max. operating pressure: 315 bar
Maximum flow 42 L/min(NS 6)、75 L/min(NS10)

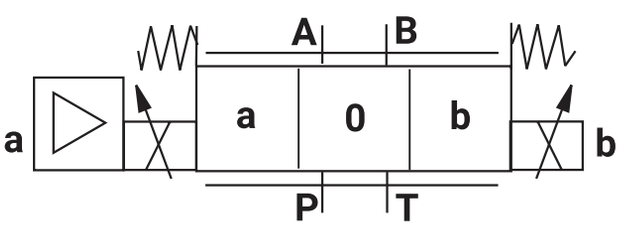
FEATURES

- 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)

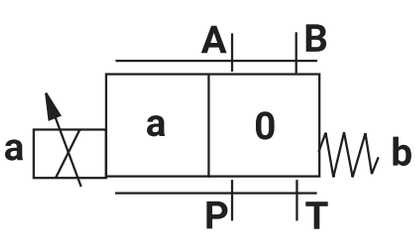
SYMBOLE



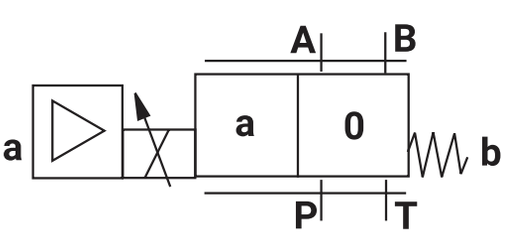
4WRA...



4WRAE...



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



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

ORDERING DETAILS

4WRA				–2X/ G24			/		*

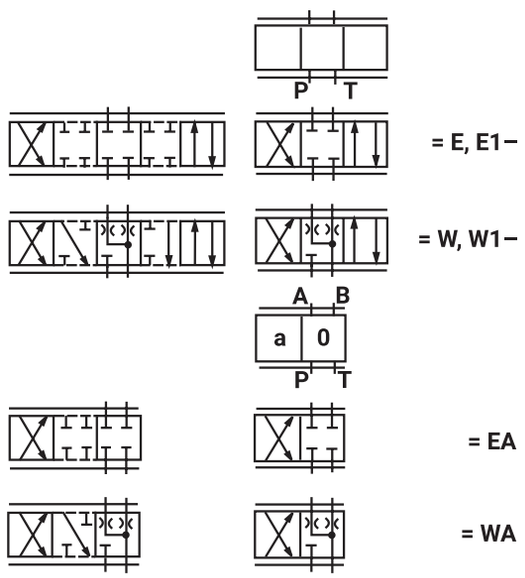
For external control electronics **=No code**

With integrated control electronics **=E**

Nominal size

Nominal size **=6, 10**

Symbols



For piston symbols E1 and W1-:

P → A: $q_{V\,max}$ B → T: $q_V/2$

P → B: $q_V/2$ A → T: $q_{V\,max}$

Note:

With spools W and WA in the neutral position there is a connection from A to T and B to T with approx. 3% of the relevant nominal cross-section.

Rated Flow （△P=10 bar）

NS 6

07 l/min **=07**

15 l/min **=15**

26 l/min **=30**

NS 10

30 l/min **=30**

60 l/min **=60**

*= Further details in the plain text.

Sealing Material

M= NBR seals

V= FKM seals

Command Value Of Amplifier

No code= 4WRA

FOR 4WRAE

A1= Command value ±10 V

F1= Command value 4...20 mA

Electrical Connections

FOR 4WRA

K4= Sockets conforming to DIN EN 175301-803 (plugs need to be ordered separately)

FOR 4WRAE

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

No code= 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 temperaturerange	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, ϑoil = 40 °C ± 5 °C)

Max. operating pressure	Port A, B, P	bar	315	
	Port T	bar	210	
Nominal flow qV nom at Δp = 10 bar		l/min	7, 15, 26	30, 60
Max. permissible flow		l/min	42	75
Maximum flow		l/min	15 (Δp = 50 bar)	
Pressure fluid temperature range		°C	–20 to +80 (preferably +40 to +50)	
Viscosity range		mm²/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

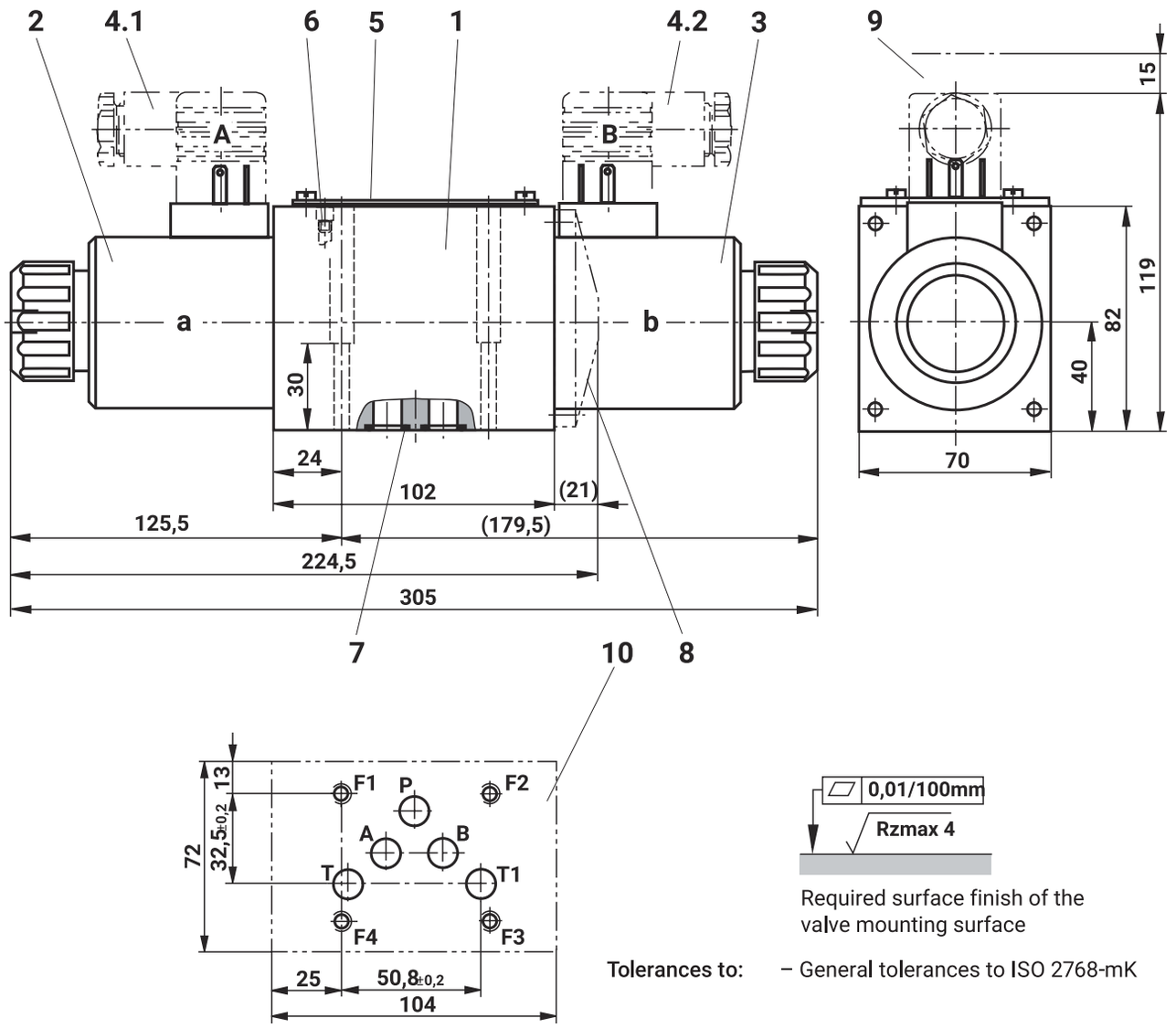
Nominal size		NS	6	10
Voltage type			Direct voltage	
Command value signal with type WRAE	Voltage input “A1”	V	±10	
	Current input “F1”	mA	4 to 20	
Max. current per solenoid		A	2.5	
Solenoid coil resistance	Cold value at 20 °C	Ω	2	
	Max. warm value	Ω	3	
Duty		%	100	
Max. coil temperature		°C	150	
Valve 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-4O//A1(F1)
4WRAE10	digital		RT-4WRAE1O-2X-4O//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 4WRA10 (dimensions in mm)



Required surface finish of the valve mounting surface

Tolerances to: – General tolerances to 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 Valve bleed screw
Note: The valves are bled before delivery.
7 Identical seal rings for ports A, B, P and T (T1)
8 Cover for valves with one solenoid
(2 switched positions, versions **EA** or **WA**)
9 Space required to remove the plug-in connector
10 Machined valve mounting surface,
Connection location to ISO 4401 (**with** locating pin hole)
Code: 4401-05-04-0-94 (explanation to ISO 5783)
Deviation from the standard: Port T1 Ø11.2 mm

Subplates to catalogue sheet RE 45054 and valve fixing screws must be ordered separately.

Subplates: G66/01 (G3/8)
G67/01 (G1/2)
G534/01 (G3/4)

Valve fixing screws (separate order)
The following valve fixing screws are recommended:

– **4 S.C.H.S. ISO 4762 - M6 x 40 - 10.9-flZn-240h-L**
(friction value μ_{total} = 0.09 to 0.14)
Tightening torque M_A = 12.5 Nm ± 10%,
Material No.**R913000058** (separate order)

or

– **4 S.C.H.S. ISO 4762 - M6 x 40 - 10.9**
(friction value μ_{total} = 0.12 to 0.17)
Tightening torque M_A = 15,5 Nm ± 10%