

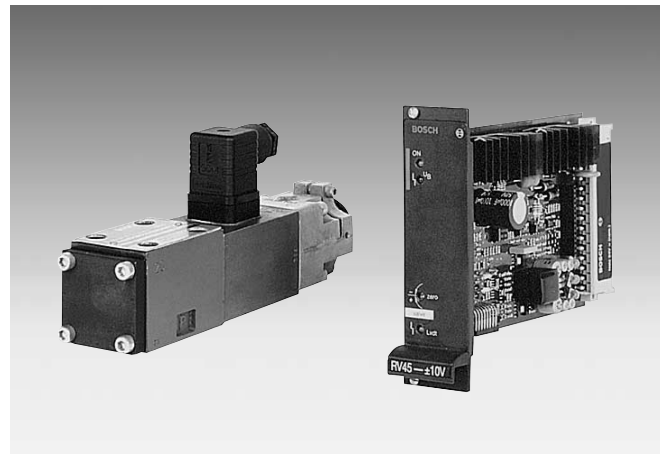
RE 29 030/11.02

**Servo solenoid valves with electrical
position feedback (LvdT AC/AC)
Type 4WRPH 6**

Size 6

Series 1X

Maximum working pressure 250 bar

Maximum flow rate 40 l/min (Δp 70 bar)

Type 4WRPH 6 ..B..-1X/G24...

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Features

- Directly operated servo solenoid valve NG 6, with control piston and sleeve in servo quality
- Actuated on one side, 4/4 fail-safe position when switched off
- Control solenoid with passive position feedback (LvdT (AC/AC))
- Suitable for steering axles, systems in the iron and steel industry and in tougher ambient conditions
- For subplate attachment, mounting hole configuration to DIN 24 340 Form A, ISO 4401 and CETOP-RP 121 H
- Subplates as per catalogue section RE 45 053 (order separately)
- Line sockets to DIN 43 650-AM2
Solenoid 2P + PE/Pg 11, position transducer 3P/Pg 7 in scope of delivery, see catalogue section RE 08 008
- External trigger electronics (order separately)
 - Electric amplifier for standard curve "L"
0 811 405 148 and 0 811 405 123,
see catalogue section RE 30 042



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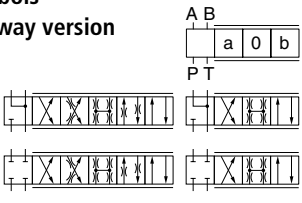
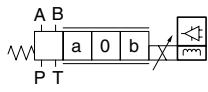
by Bosch Rexroth AG, Industrial Hydraulics, D-97813 Lohr am Main

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We must reserve the right to make changes on the grounds of continual product development. No liability can be accepted for incomplete or inaccurate information.

Ordering data

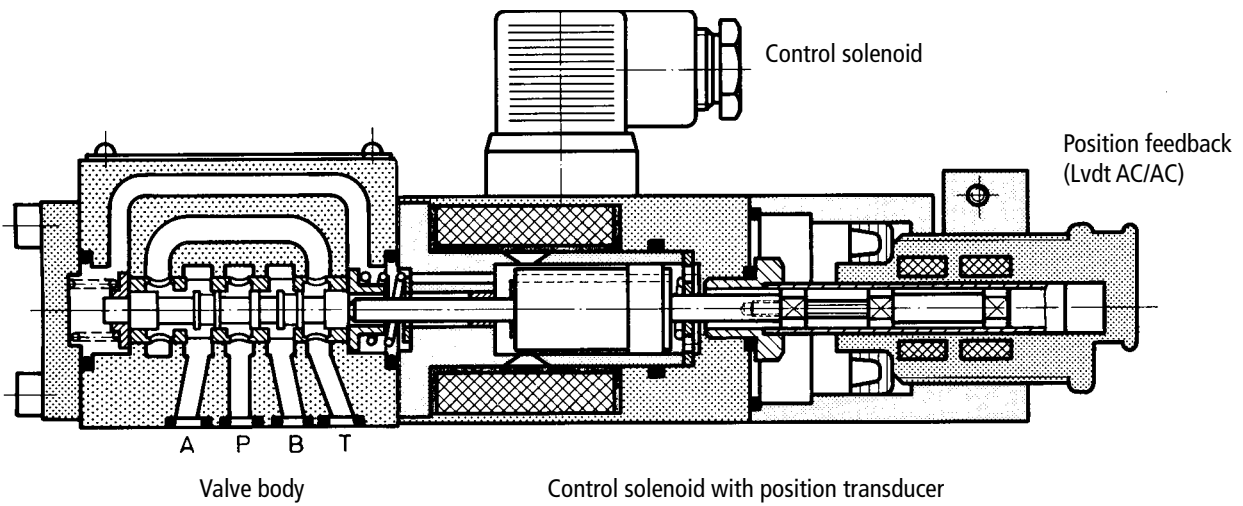
4WRP		H	6	B	-1X/G24	Z4/	M	*
For external trigger electronics	= no desig.							Further information in plain text
Control piston/sleeve	= H							M = NBR seals, suitable for mineral oils (HL, HLP) to DIN 51 524
Size 6	= 6							Electrical connection Z4 = with line socket, with plug to DIN 43 650-AM2 Line socket included in scope of delivery
Symbols 4/4-way version								Voltage supply of trigger electronics G24 = +24 V DC
								1X = Series 10 to 19 (installation and connection dimensions unchanged)
Side of inductive position transducer								L = Flow characteristic Linear
								Nominal flow rate at 70 bar valve pressure difference (35 bar / metering notch)
								Size 6
								04 = 4 l/min 12 = 12 l/min 24 = 24 l/min 40 = 40 l/min

Preferred types (available at short notice)

Material no.	Type 4WRPH 6	Material no.	Type 4WRPH 6
	C3		C4
0 811 404 122	4WRPH 6 C3B04L -1X/G24Z4 / M	0 811 404 112	4WRPH 6 C4B12L -1X/G24Z4 / M
0 811 404 111	4WRPH 6 C3B12L -1X/G24Z4 / M	0 811 404 118	4WRPH 6 C4B24L -1X/G24Z4 / M
0 811 404 106	4WRPH 6 C3B24L -1X/G24Z4 / M		
0 811 404 113	4WRPH 6 C3B40L -1X/G24Z4 / M		

Function, sectional diagram

Servo solenoid valve 4WRPH 6



Symbols

	Linear
<p>C3</p> <p>C4</p>	
	C3, C4

Accessories, not included in scope of delivery

(4 x) M 5 x 30 DIN 912–10.9	Fastening screws	2 910 151 166
7 TE	VT-VRR1-527-10 / V0 / RV, see RE 30 042 VT-VRR1-527-10 / V0, see RE 30 042	0 811 405 148 0 811 405 123
2P + PE 3P	Line sockets 2P + PE (Pg 11) and 3P (Pg 7) included in scope of delivery, also see RE 08 008	

Testing and service equipment


- Test box type VT-PE-TB1, see RE 30 063.
- Test adapter type VT-PA-3, see RE 30 070.

Technical data for 4WRPH 6 (For device applications beyond the stated values, please consult us!)

General

Construction	Spool type valve, operated directly, with steel sleeve			
Actuation	Proportional solenoid with position control, external amplifier			
Type of mounting	Subplate, mounting hole configuration NG 6 (ISO 4401 and CETOP-RP 121 H)			
Installation position	Optional			
Ambient temperature range	-20 ... +50 °C			
Weight	2.2 kg			
Vibration resistance, test condition	Max. 25 g, shaken in 3 dimensions (24 h)			

Hydraulic (measured with HLP 46, $\vartheta_{oil} = 40 \text{ °C} \pm 5 \text{ °C}$)

Pressure fluid	Hydraulic oil to DIN 51 524 ... 535, other fluids after prior consultation			
Viscosity range, recommended max. permitted	20 ... 100 mm ² /s 10 ... 800 mm ² /s			
Pressure fluid temperature range	-20 ... +80 °C			
Purity class to ISO code	Maximum permitted degree of contamination of pressure fluid to ISO 4406 (C) Class 18/16/13 ¹⁾			
Flow direction	See symbol			
Nominal flow [l/min] at $\Delta p = 35 \text{ bar}$ per notch*	4	12	24	40
Max. working pressure	Port P, A, B: 250 bar			
Max. pressure	Port T: 250 bar			
Operating limits at Δp [bar] Pressure drop at valve	250	200	120	70
Leakage [cm ³ /min] at 100 bar	 < 180	< 350	< 700	< 1,000

Electrical

Cyclic duration factor	100 %
Power supply	24 V _{nom.} (external amplifier)
Degree of protection	IP 65 to DIN 40 050
Solenoid connector	Connector DIN 43 650/ISO 4400 Pg 11 (2P + PE)
Position transducer connector	Special connector Pg 7 (3P)
Solenoid current	2.7 A max.
Coil resistance R_{20}	2.5 Ω
Max. power consumption at 100 % load and operational temperature	35 VA max.
Position transducer AC/AC technology	U _{osc.} ~ 10 V _{eff} /7 kHz

Static/Dynamic

Hysteresis	$\leq 0.5 \text{ %}$
Manufacturing tolerance for $q_{max.}$	< 10 %
Response time for signal change 0 ... 100 %	< 12 ms
Thermal drift	Zero point displacement < 1 % at $\Delta T = 40 \text{ °C}$

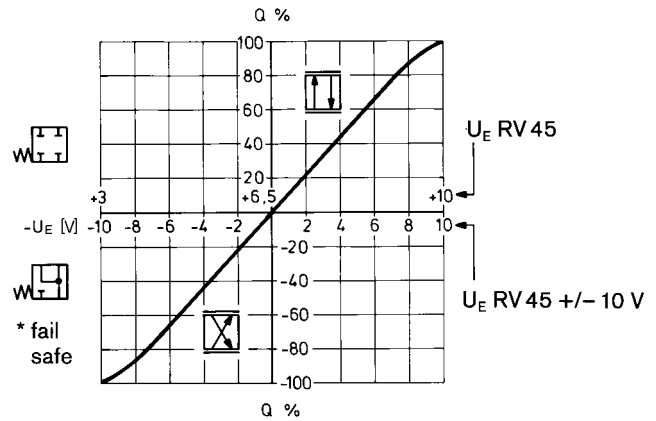
¹⁾ The purity classes stated for the components must be complied with in hydraulic systems. Effective filtration prevents problems and also extends the service life of components. For a selection of filters, see catalogue sections RE 50 070, RE 50 076 and RE 50 081.

* Flow rate at a different Δp $q_x = q_{nom.} \cdot \sqrt{\frac{\Delta p_x}{35}}$

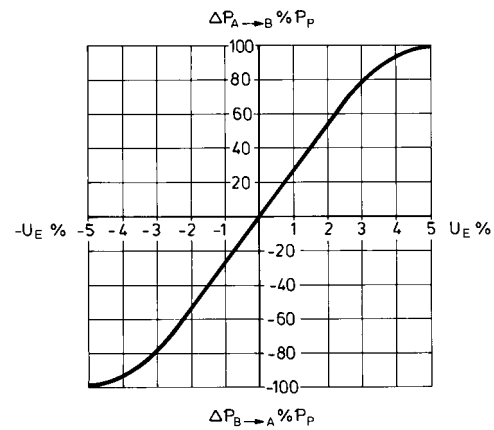
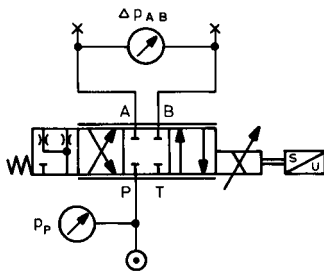
Flow rate/Signal function

$Q = f(U_E)$

* Fail-safe: when enabling is not released

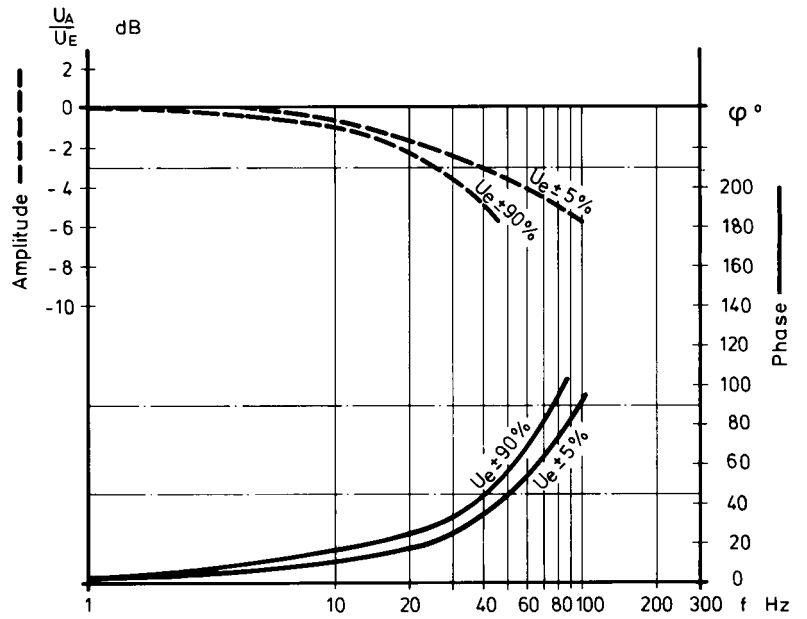
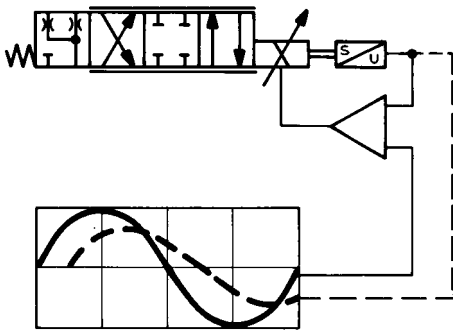


Pressure gain



Fail-safe position					
	Leakage at	100 bar	P-A	50 cm ³ /min	
			P-B	70 cm ³ /min	
	Flow at	$\Delta p = 35\text{ bar}$	A-T	10 ... 20 l/min	
			B-T	7 ... 20 l/min	
	Leakage at	100 bar	P-A	50 cm ³ /min	
			P-B	70 cm ³ /min	
			A-T	70 cm ³ /min	
			B-T	50 cm ³ /min	
	Fail-safe	$p = 0\text{ bar} \rightarrow$	7 ms	Enable off	
		$p = 100\text{ bar} \rightarrow$	10 ms		

Bode diagram



Important

Servo solenoid valves type 4WRPH6 are equivalent to NG 6 proportional valves with AC/AC position transducer in terms of their solenoid and position transducer technology, and represent a sturdy alternative.

For more demanding requirements where dynamics are concerned (Bode diagram), we recommend NG 6 servo solenoid valves type 4WRP(E)H 6 with integral position transducer.

