

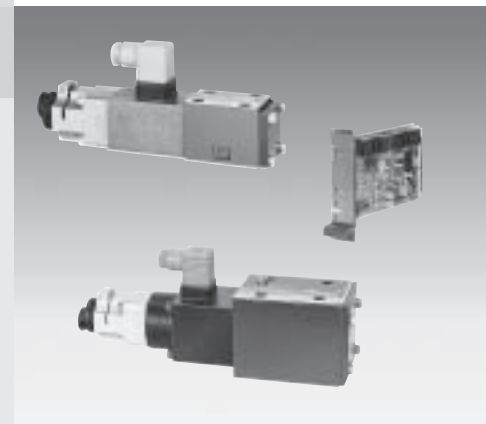
4/2 servo solenoid valves with positive overlap and position feedback (LvdT AC/AC)

RE 29020/08.05
Replaces: 01.05

1/14

Type 4WRP..EA..

Size 6, 10
Unit series 1X
Maximum working pressure of P, A, B 315 bar, T 250 bar
Nominal flow rate 8...28 l/min (NG6), 16...63 l/min (NG10)



List of contents

Contents	Page
Features	1
Ordering data	2
Preferred types	2
Function, sectional diagram, symbols	3 and 4
Technical data	5 and 6
External trigger electronics	7 and 8
Characteristic curves	9 to 11
Unit dimensions	12 and 13

Features

- Directly operated NG6 and NG10 valves with positive overlap and external valve electronics
- Actuated on one side, symbol E
- Control solenoid with position feedback (LvdT AC/AC)
- Suitable for use in electrohydraulic controls in production plants
- For subplate attachment, mounting hole configuration NG6 to ISO 4401-03-02-0-94 and NG10 with additional "L" port to ISO 4401-05-06-0-94
- External trigger electronics (order separately), see catalog section RE 30052 and RE 30054
- Subplates as per catalog section, NG6 RE 45053, NG10 RE 45055 (order separately)
- Solenoid and position transducer plug-in connectors included in scope of delivery

Variants on request

- For standard applications
- Special symbols and characteristic curves

Ordering data

4WRP

E

A

S

1X

G24

Z4

M

*

For **external** trigger electronics

= no code

Size 6

= 6

Size 10

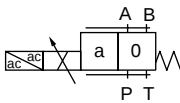
= 10

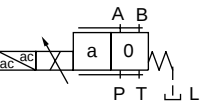
Symbols

4/2-way version

NG6

NG10¹⁾

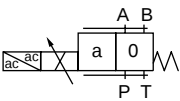






= E

Side of inductive position transducer



(Standard) = A

¹⁾ Type 4WRP10

Mounting hole configuration with additional "L" port

Further information in plain text

M = NBR seals, suitable for mineral oils (HL, HLP) to DIN 51524

Electrical connection

Z4 = with plug to DIN 43560-AM2 with line socket, line socket included in scope of delivery

Voltage supply of trigger electronics

G24 = +24 V DC

1X = Unit series (installation and connection dimensions unchanged)

Flow characteristic

S = Progressive

Nominal flow rate at 10 bar valve pressure difference (5 bar per metering notch)

Size 6

08 = 8 l/min

16 = 16 l/min

28 = 28 l/min

Size 10

16 = 16 l/min

32 = 32 l/min

63 = 63 l/min

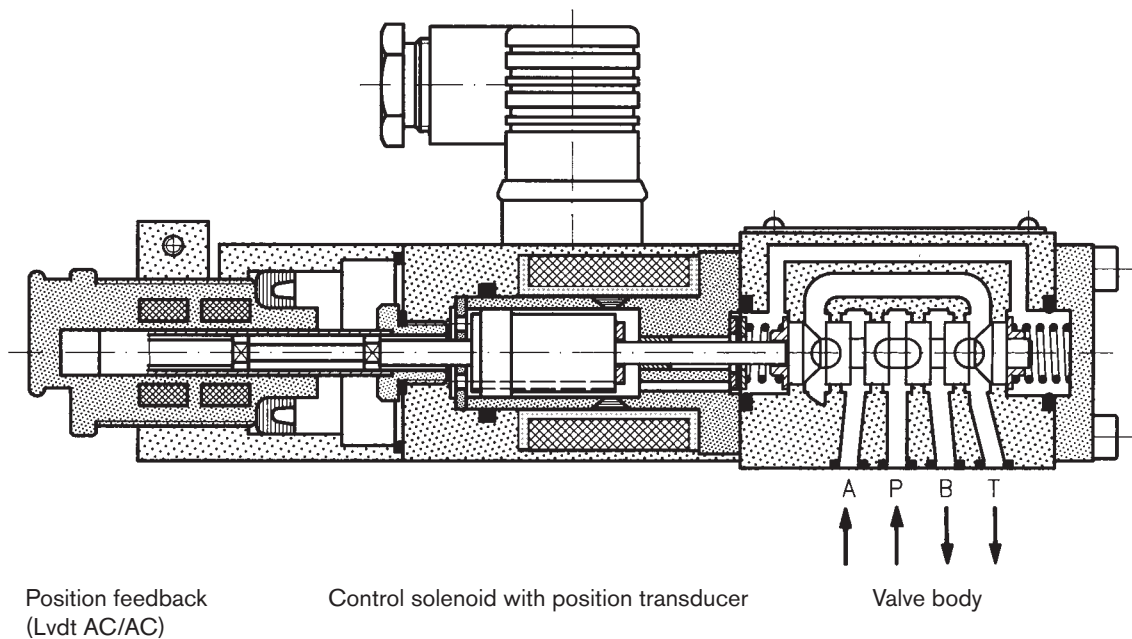
Preferred types

Type 4WRP6	Material No.	Typ 4WRP10	Material No.
4WRP6EA08S-1X/G24Z/M755 *)	0 811 403 100	4WRP10EA16S-1X/G24Z/M	0 811 403 003
4WRP6EA16S-1X/G24Z/M755 *)	0 811 403 101	4WRP10EA32S-1X/G24Z/M	0 811 403 002
4WRP6EA28S-1X/G24Z/M	0 811 403 126	4WRP10EA63S-1X/G24Z/M	0 811 403 001

*) Progressive characteristic curve, with triangular notch
(standard = semicircular notch)

Function, sectional diagram

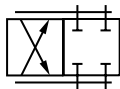
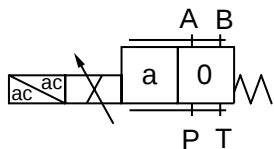
Type 4WRP6E..



Symbols

Position transducer: A-side

..E..



Accessories

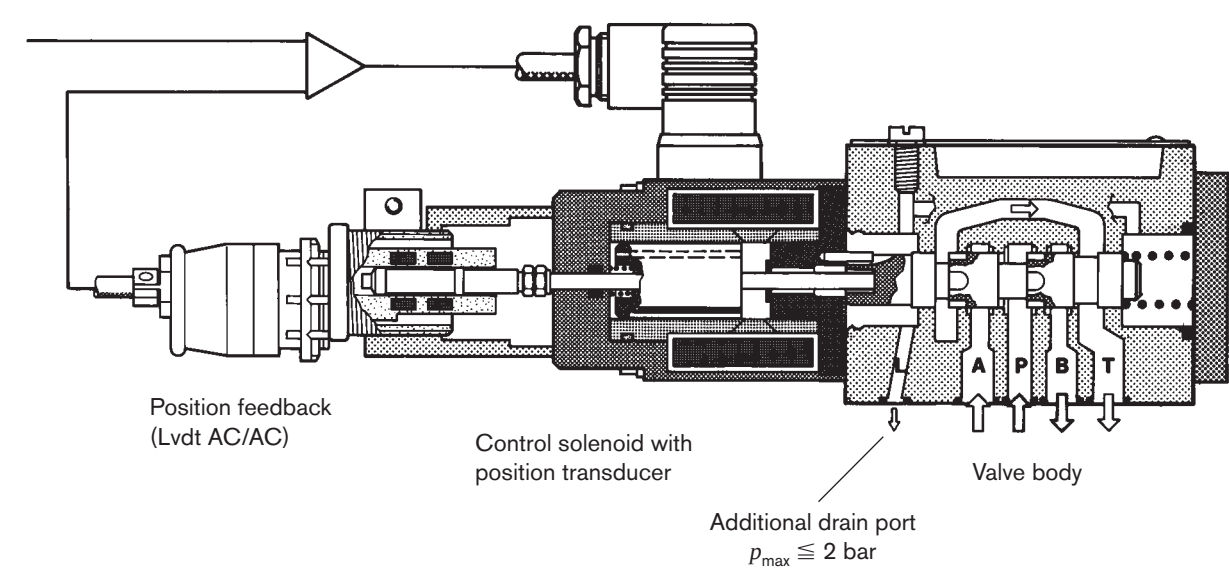
(4x) ISO 4762-M5x30-10.9	Fastening bolts	2 910 151 166
	VT-VRPA1-527-10/V0/QV, see RE 30052	0 811 405 098
	VT-VRPA1-527-10/V0/QV-RTP, see RE 30054	0 811 405 103
	VT-VRPA1-527-10/V0/QV-RTS, see RE 30056	0 811 405 177
2P+PE 3P	Plug-in connector 2P+PE (M16x1.5) and 3P (Pg7) included in scope of delivery, see also RE 08008	

Testing and service equipment

- Test box type VT-PE-TB1, see RE 30063
- Test adapter type VT-PA-3, see RE 30070

Function, sectional diagram

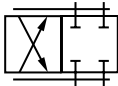
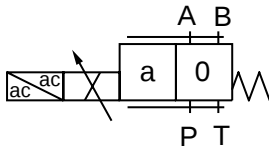
Type 4WRP10E..



Symbols

Position transducer: A-side

..E..



Accessories

	(4x) ISO 4762-M6x35-10.9	Fastening bolts	2 910 151 207
		VT-VRPA1-537-10/V0/QV, see RE 30052	0 811 405 099
		VT-VRPA1-537-10/V0/QV-RTP, see RE 30054	0 811 405 104
		VT-VRPA1-537-10/V0/QV-RTS, see RE 30056	0 811 405 178
		Plug-in connector 2P+PE (M16x1.5) and 3P (Pg7) included in scope of delivery, see also RE 08008	

Testing and service equipment

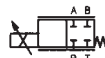
- Test box type VT-PE-TB1, see RE 30063
- Test adapter type VT-PA-3, see RE 30070

Technical data (type 4WRP6EA..)

General

Construction	Spool type valve		
Actuation	Proportional solenoid with position control, external amplifier		
Connection type	Subplate, mounting hole configuration NG6 (ISO 4401-03-02-0-94)		
Mounting position	Optional		
Ambient temperature range	°C	−20...+50	
Weight	kg	2.2	
Vibration resistance, test condition	Max. 25 g, shaken in 3 dimensions (24 h)		

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

Pressure fluid			Hydraulic oil to DIN 51524...535, other fluids after prior consultation		
Viscosity range	recommended	mm ² /s	20...100		
	max. permitted	mm ² /s	10...800		
Pressure fluid temperature range		°C	-20...+80		
Maximum permissible degree of contamination of pressure fluid Purity class to ISO 4406 (c)			Class 18/16/13 ¹⁾		
Direction of flow			See symbol		
Nominal flow at $\Delta p = 5 \text{ bar per notch } ^{2)}$		l/min	8	16	28
Max. working pressure		bar	Port P, A, B: 315		
Max. pressure		bar	Port T: 250		
Leakage per metering edge ($\Delta p = 100 \text{ bar}$)		$I_m = 0$	 $\leq 80 \text{ cm}^3/\text{min}$		

Electrical

Cyclic duration factor	%	100
Power supply	24 V _{nom} (external amplifier)	
Degree of protection	IP 65 to DIN 40050 and IEC 14434/5	
Solenoid connection	Unit plug DIN 43650/ISO 4400, M16x1.5 (2P+PE)	
Position transducer connection	Unit plug Pg7 (4P)	
Max. solenoid current	A	2.7
Coil resistance R_{20}	Ω	3
Max. power consumption at 100 % load and operating temperature	VA	40

Static/Dynamic³⁾

Hysteresis	%	≤ 0.3
Range of inversion	%	≤ 0.2
Manufacturing tolerance for Q_{max}	%	≈ 10
Response time	100 % signal change	ms ≈ 12
	10 % signal change	ms ≈ 7

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 catalog sections RE 50070, RE 50076 and RE 50081.

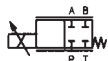
²⁾ Flow rate at a different Δp $q_x = q_{\text{nom}} \cdot \sqrt{\frac{\Delta p_x}{5}}$

³⁾ All specifications achieved in conjunction with proportional amplifier: 0 811 405 098

Technical data (type 4WRP10EA..)

General	
Construction	Spool type valve
Actuation	Proportional solenoid with position control, external amplifier
Connection type	Subplate, mounting hole configuration NG10 (ISO 4401-05-06-0-94)
Mounting position	Optional
Ambient temperature range	°C -20...+50
Weight	kg 7.0
Vibration resistance, test condition	Max. 25 g, shaken in 3 dimensions (24 h)

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

Pressure fluid	Hydraulic oil to DIN 51524...535, other fluids after prior consultation			
Viscosity range	recommended	mm ² /s	20...100	
	max. permitted	mm ² /s	10...800	
Pressure fluid temperature range	°C	-20...+80		
Maximum permissible degree of contamination of pressure fluid Purity class to ISO 4406 (c)	Class 18/16/13 ¹⁾			
Direction of flow	See symbol			
Nominal flow at $\Delta p = 5$ bar per notch ²⁾	l/min	16	32	63
Max. working pressure	bar	Port P, A, B: 315		
Max. pressure	bar	Port T: 250		
	bar	Port L: 2		
Leakage per metering edge ($\Delta p = 100$ bar)	$I_m = 0$	 ≤ 80 cm ³ /min		

Electrical

Cyclic duration factor	%	100
Power supply	24 V _{nom} (external amplifier)	
Degree of protection	IP 65 to DIN 40050 and IEC 14434/5	
Solenoid connection	Unit plug DIN 43650/ISO 4400, M16x1.5 (2P+PE)	
Position transducer connection	Unit plug Pg7 (4P)	
Max. solenoid current	A	3.7
Coil resistance R_{20}	Ω	2.5
Max. power consumption at 100 % load and operating temperature	VA	60

Static/Dynamic³⁾

Hysteresis	%	≤ 0.3
Range of inversion	%	≤ 0.2
Manufacturing tolerance for Q_{max}	%	≈ 10
Response time	100 % signal change	ms ≈ 25
	10 % signal change	ms ≈ 15

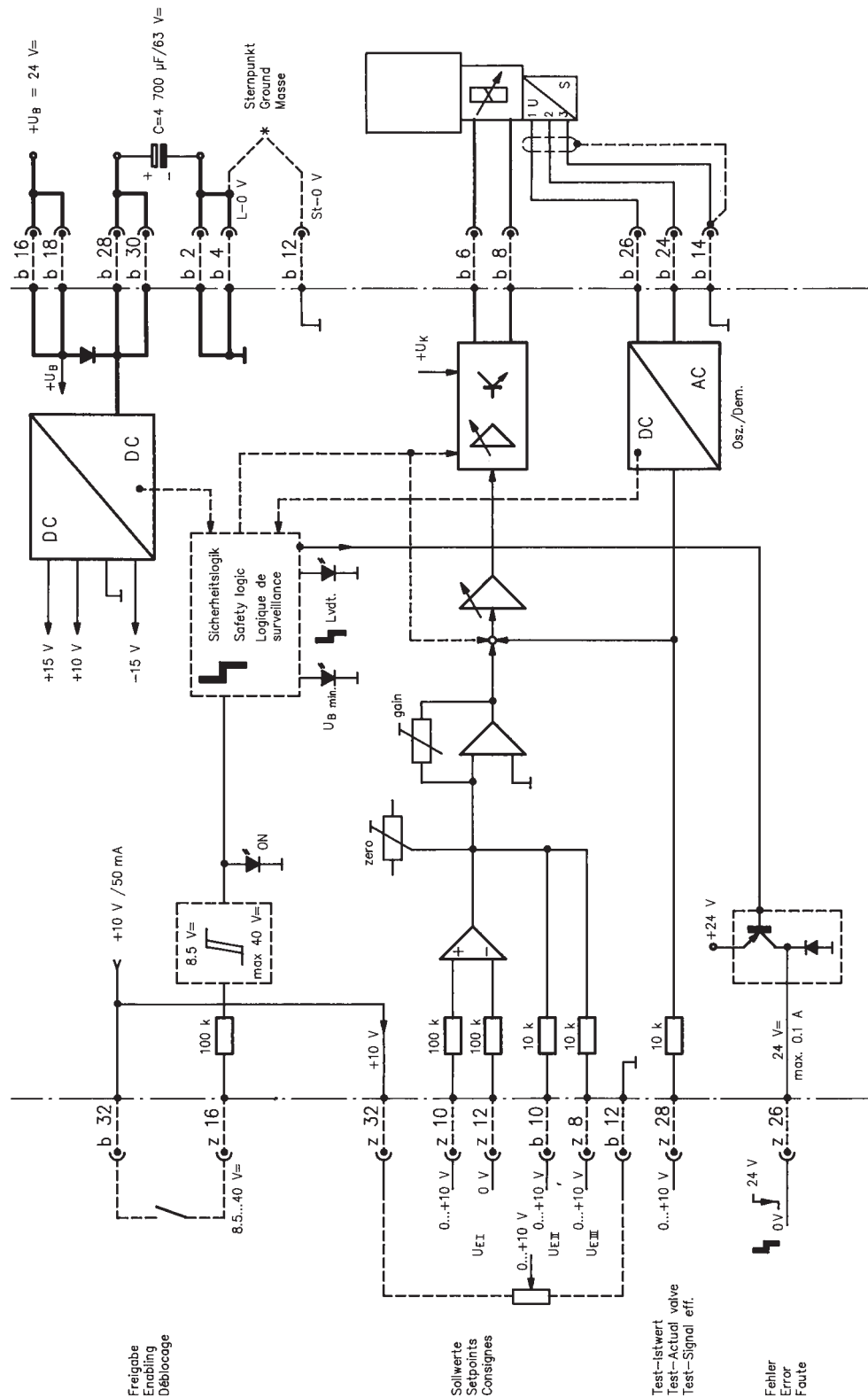
¹⁾ The purity classes stated for the components must be complied with in hydraulic systems.
Effective filtration prevents problems and also extends the service life of components.
For a selection of filters, see catalog sections RE 50070, RE 50076 and RE 50081.

²⁾ Flow rate at a different Δp $q_x = q_{\text{nom}} \cdot \sqrt{\frac{\Delta p_x}{5}}$

³⁾ All specifications achieved in conjunction with proportional amplifier: 0 811 405 099

Valve with external trigger electronics (standard without ramps, RE 30052)

Circuit diagram/pin assignment

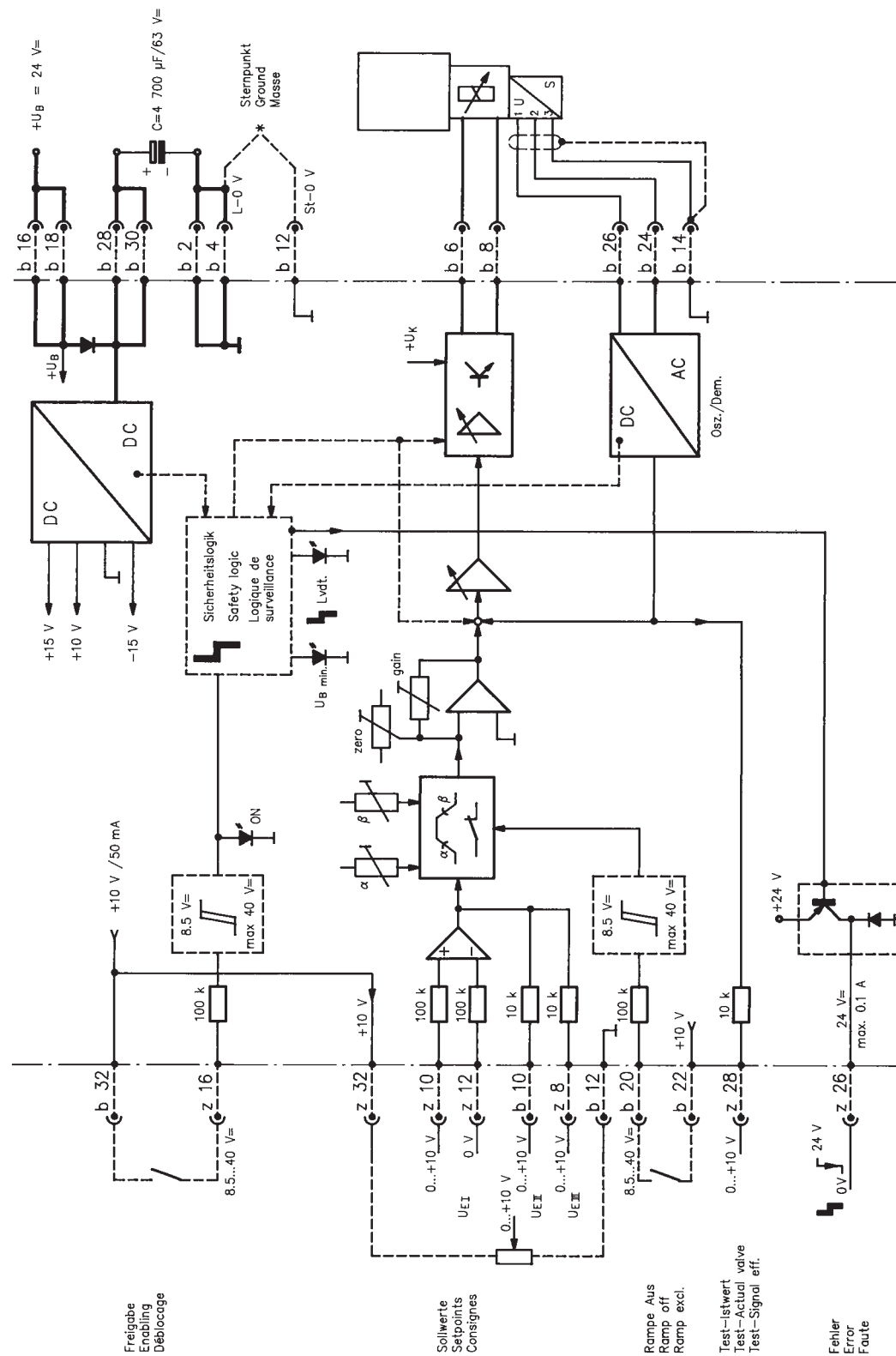


Versions of trigger electronics:

- With ramps, see page 8 and RE 30054

Valve with external trigger electronics (with ramps, RE 30054)

Circuit diagram/pin assignment



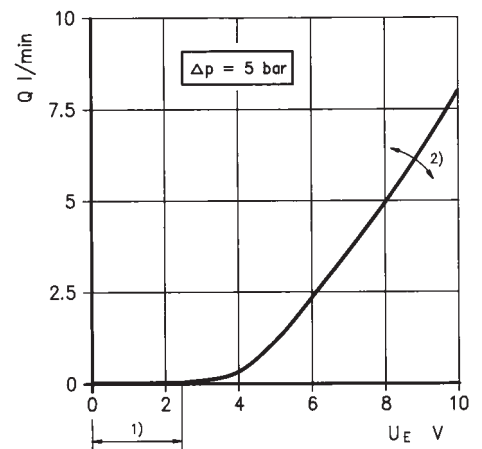
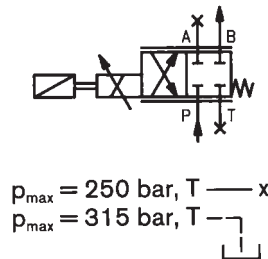
Versions of trigger electronics:

- With ramps, see page 7
- and RE 30052

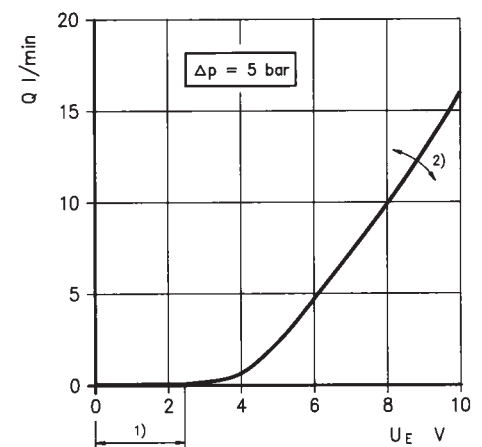
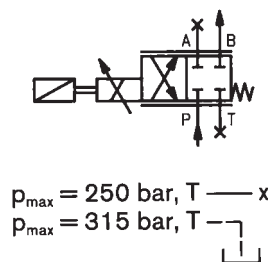
Characteristic curves type 4WRP6E.. (measured with HLP 46, $\vartheta_{\text{oil}} = 40^\circ\text{C} \pm 5^\circ\text{C}$)

Flow rate/Signal function (at $\Delta p = 5$ bar per notch)

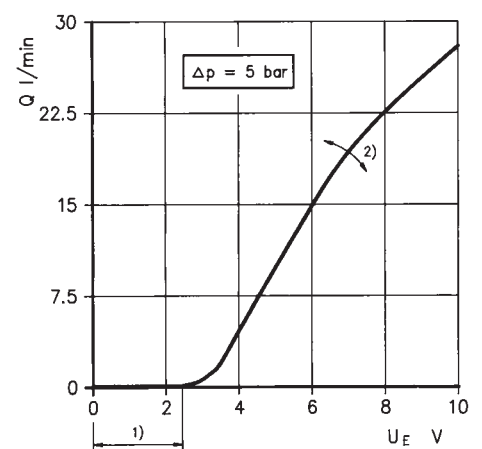
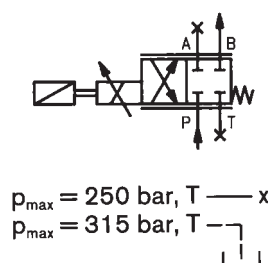
$Q_{\text{nom}} = 8$ l/min



$Q_{\text{nom}} = 16$ l/min



$Q_{\text{nom}} = 28$ l/min



Valve amplifier

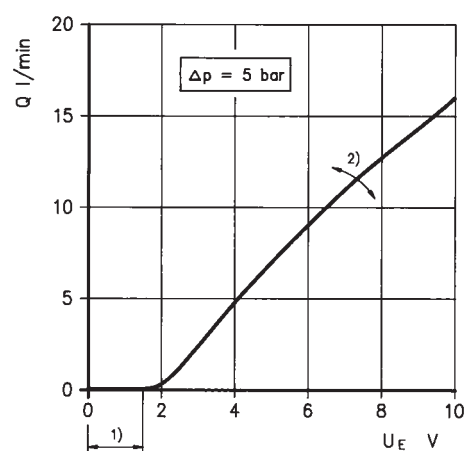
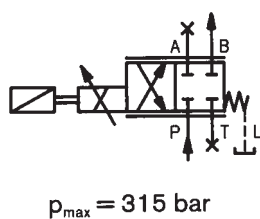
1) Zero adjustment

2) Sensitivity adjustment

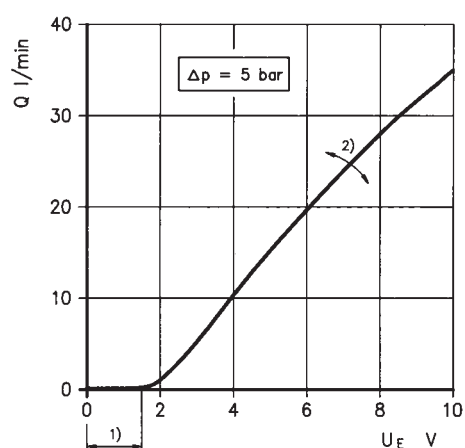
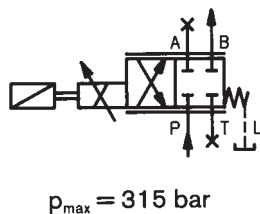
Characteristic curves type 4WRP10E.. (measured with HLP 46, $\vartheta_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$)

Flow rate/Signal function (at $\Delta p = 5$ bar per notch)

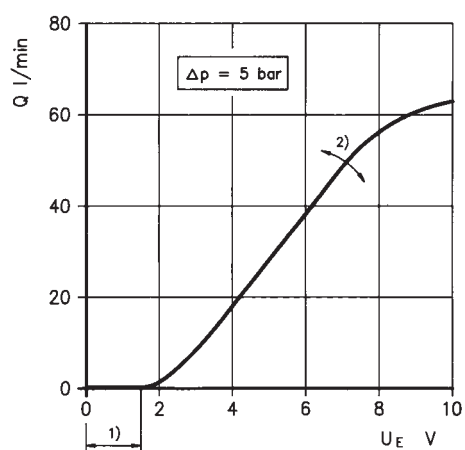
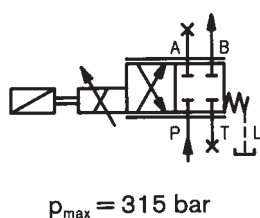
$Q_{nom} = 16$ l/min



$Q_{nom} = 32$ l/min



$Q_{nom} = 63$ l/min



Valve amplifier

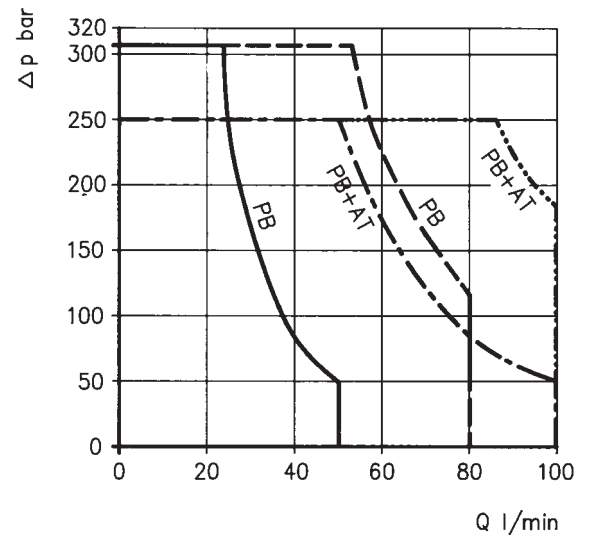
¹⁾ Zero adjustment

²⁾ Sensitivity adjustment

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

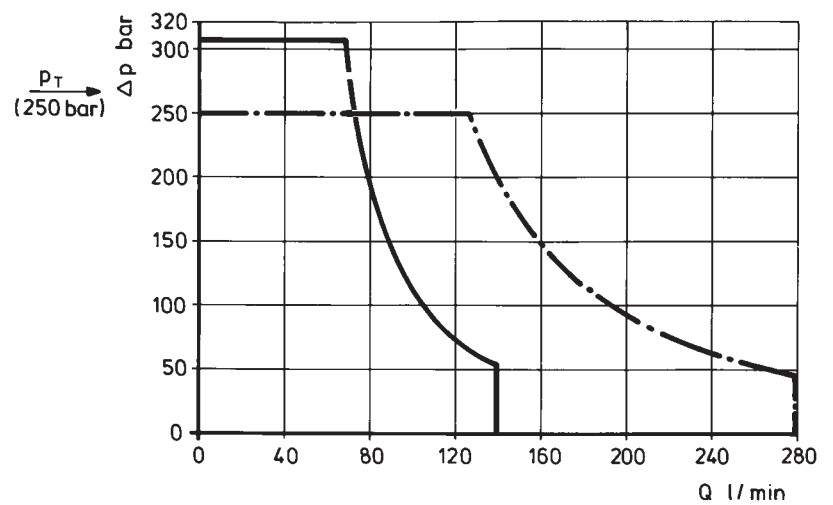
Type 4WRP6EA..

$Q_N 16$ ————— single flow
 - - - - - double flow
 $Q_N 28$ — — — — — single flow
 .. — .. — .. double flow

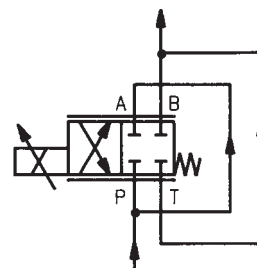


Type 4WRP10EA..

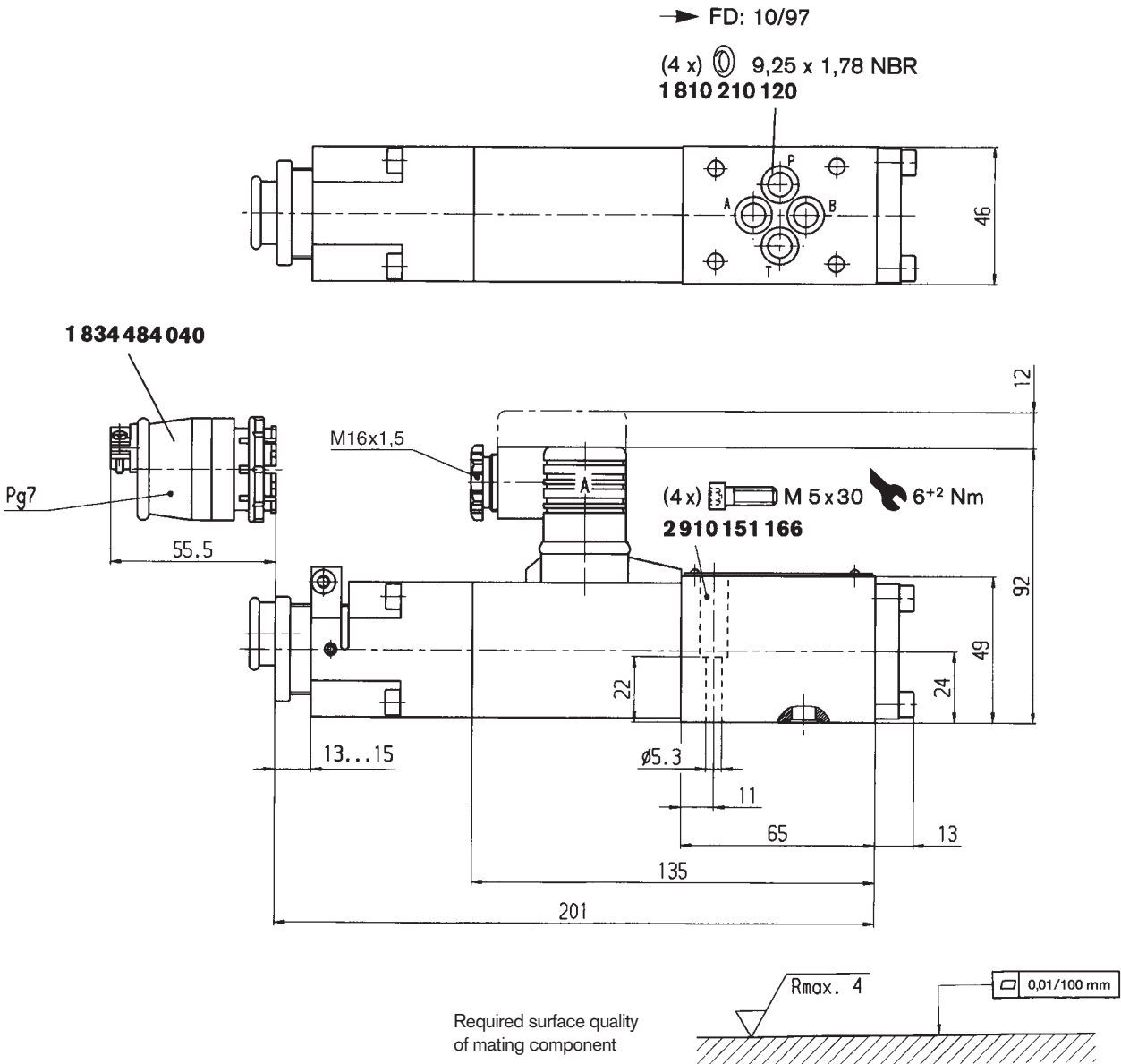
————— single flow
 - - - - - double flow



Doubled flow rate
 $p_{max} = 250$ bar

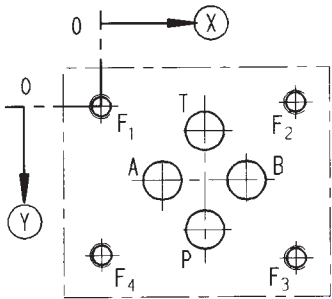


Unit dimensions type 4WRP6E.. (nominal dimensions in mm)



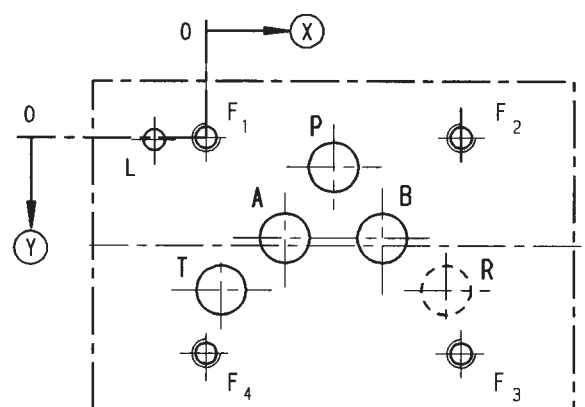
Mounting hole configuration: NG6 (ISO 4401-03-02-0-94)
For subplates, see catalog section RE 45053

- 1) Deviates from standard
2) Thread depth:
Ferrous metal 1.5 x Ø
Non-ferrous 2 x Ø



	P	A	T	B	F ₁	F ₂	F ₃	F ₄
⊗	21.5	12.5	21.5	30.2	0	40.5	40.5	0
⊙	25.9	15.5	5.1	15.5	0	-0.75	31.75	31
∅	8 ¹⁾	8 ¹⁾	8 ¹⁾	8 ¹⁾	M5 ²⁾	M5 ²⁾	M5 ²⁾	M5 ²⁾

Courtesy of CMA/Flodyne/Hydradyne • Motion Control • Hydraulic • Pneumatic • Electrical • Mechanical • (800) 426-5480 • www.cmafh.com



	P	A	T	B	F ₁	F ₂	F ₃	F ₄	R	L
(X)	27	16.7	3.2	37.3	0	54	54	0	50.8	-11
(Y)	6.3	21.4	32.5	21.4	0	0	46	46	32.5	0.5
Ø	10.5 ¹⁾	10.5 ¹⁾	10.5 ¹⁾	10.5 ¹⁾	M6 ²⁾	M6 ²⁾	M6 ²⁾	M6 ²⁾	10.5 ¹⁾	4.5

Notes

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Notes

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