

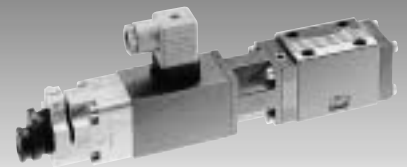
# Proportional pressure reducing valve, pilot operated, with inductive position transducer

RE 29182/07.05

1/10

## Type DREB6X

Nominal size 6  
Unit series 1X  
Maximum working pressure P 315 bar, T 250 bar  
Maximum flow rate 40 l/min



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## Features

- Pilot operated valves for reducing system pressure at the consumer (pilot oil internal only)
- 3-way version (P–A/A–T),  $p_{\min} = p_T$
- Adjustable through the position of the armature against the compression spring
- Position-controlled, minimal hysteresis < 1 %, rapid response times, see Technical data
- Pressure limitation to a safe level even with faulty electronics (solenoid current  $I > I_{\max}$ )
- For subplate attachment, mounting hole configuration to ISO 4401-03-02-0-94  
Subplates as per catalog sheet RE 45053 (order separately)
- Plug-in connector to DIN 43650-AM2 for the solenoid and plug-in connector for the position transducer, included in scope of delivery
- Data for the external trigger electronics
  - $U_B = 24 V_{\text{nom}}$  DC
  - Adjustment of valve curve  $N_p$  and gain with and without ramp generator
  - Europe card format, setpoint 0...+10 V (order separately)

## Ordering data

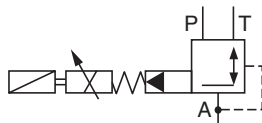
DREB6	X - 1X/	M	G24-25	Z4	M	*
Proportional 3-way pressure reducing valve with inductive position transducer, NG6, pilot operated						Further information in plain text
Mounting hole configuration to ISO 4401-03-02-0-94	= X				M =	NBR seals, suitable for mineral oils (HL, HLP) to DIN 51524
Unit series 10 to 19 (10 to 19: installation and connection dimensions unchanged)	= 1X				Z4 =	<b>Electrical connection</b> Unit plug to DIN 43650-AM2 Plug-in connector included in scope of delivery
<b>Max. pressure stage</b>					25 =	<b>Solenoid type (current)</b> Solenoid current 2.5 A max.
up to 75 bar	= 75					
up to 175 bar	= 175					
up to 310 bar	= 310					
Without non-return valve		= M				
Voltage supply of trigger electronics 24 V DC			= G24			

## Preferred types

Solenoid 2.5 A	
Type	Material Number
DREB6X-1X/75MG24-25Z4M	0 811 402 050
DREB6X-1X/175MG24-25Z4M	0 811 402 051
DREB6X-1X/310MG24-25Z4M	0 811 402 052

## Symbol

For external trigger electronics



## Function, sectional diagram

### General

Type DREB6X proportional pressure reducing valves are pilot operated, with a 3-way main stage.

The pilot valve (pressure relief valve pilot stage) is supplied internally with a controlled flow of pilot oil via P.

The valves are actuated by a proportional solenoid, which is position-controlled against a spring. This ensures rapid response times and minimal hysteresis.

With these valves, the pressure in A (consumer) can be infinitely adjusted and reduced in relation to the solenoid current.

### Basic principle

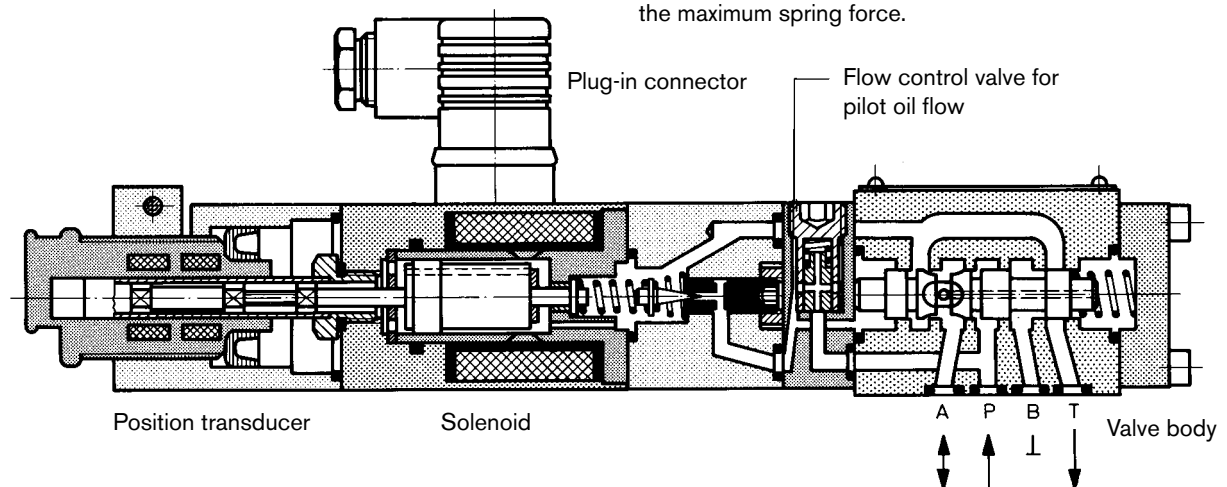
To adjust the system pressure in A, a setpoint is set in the trigger electronics. Based on this setpoint, the electronics control the solenoid coil with regulated PWM (pulse-width-modulated) current.

The proportional solenoid is positioned precisely on the spring characteristic curve. The pilot stage is supplied with oil from P at a flow rate of <math>< 0.6 \text{ l/min}</math> via a flow control valve. The pilot pressure is compared with the consumer pressure (plus spring) in A and regulated (P-A/A-T).





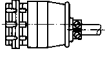
The spring results in  $p_{Amin} = p$  in T.

### Pressure limitation for maximum safety

If a fault occurs in the electronics, so that the solenoid current ( $I_{max}$ ) would exceed its specified level in an uncontrolled manner, the pressure cannot rise above the level determined by the maximum spring force.



### Accessories

Type		Material Number
(4 x)  ISO 4762-M5 x30-10.9	Cheese-head bolts	2 910 151 166
Europe card 	VT-VRPA1-527-10/V0/PV	RE 30052 0 811 405 096
Europe card 	VT-VRPA1-527-10/V0/PV-RTP	RE 30054 0 811 405 101
Europe card 	VT-VRPA1-527-10/V0/PV-RTS	RE 30056 0 811 405 176
Plug-in connectors 	Plug-in connector 2P+PE (M16x1.5) for the solenoid and plug-in connector for the position transducer, included in scope of delivery, see also RE 08008	

### Testing and service equipment

Test box type VT-PE-TB1, see RE 30063

Test adapter for Europe cards type VT-PA-3, see RE 30070

## Technical data

General		
Construction	Pilot stage	Poppet valve
	Main stage	Spool 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	2.4
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 51524...535, other fluids after prior consultation		
Viscosity range	recommended	mm <sup>2</sup> /s	20...100
	max. permitted	mm <sup>2</sup> /s	10...800
Pressure fluid temperature range	°C	-20...+80	
Maximum permitted degree of contamination of pressure fluid Purity class to ISO 4406 (c)	Class 18/16/13 <sup>1)</sup>		
Direction of flow	See symbol		
Max. set pressure in A (at $Q_{min} = 1\text{ l/min}$ )	bar	75	175 310
Minimum pressure in A	bar	0 (relative) or pressure in T	
Min. inlet pressure in P	bar	$p_P = p_A + \geq 5$	
Max. working pressure	bar	Port P: 315	
Max. pressure	bar	Port T: 250 (B sealed)	
Internal pilot oil flow	l/min	approx. 0.6 (with closed-loop control)	
Max. flow	l/min	40	

### Electrical

Cyclic duration factor	%	100
Degree of protection	IP 65 to DIN 40050 and IEC 14434/5	
Solenoid connection	Unit plug DIN 43650/ISO 4400, M16 x 1.5 (2P+PE)	
Position transducer connection	Special plug	
Max. solenoid current	$I_{max}$	2.5 A
Coil resistance $R_{20}$	$\Omega$	3
Max. power consumption at 100% load and operating temperature	VA	30

### Static/Dynamic<sup>2)</sup>

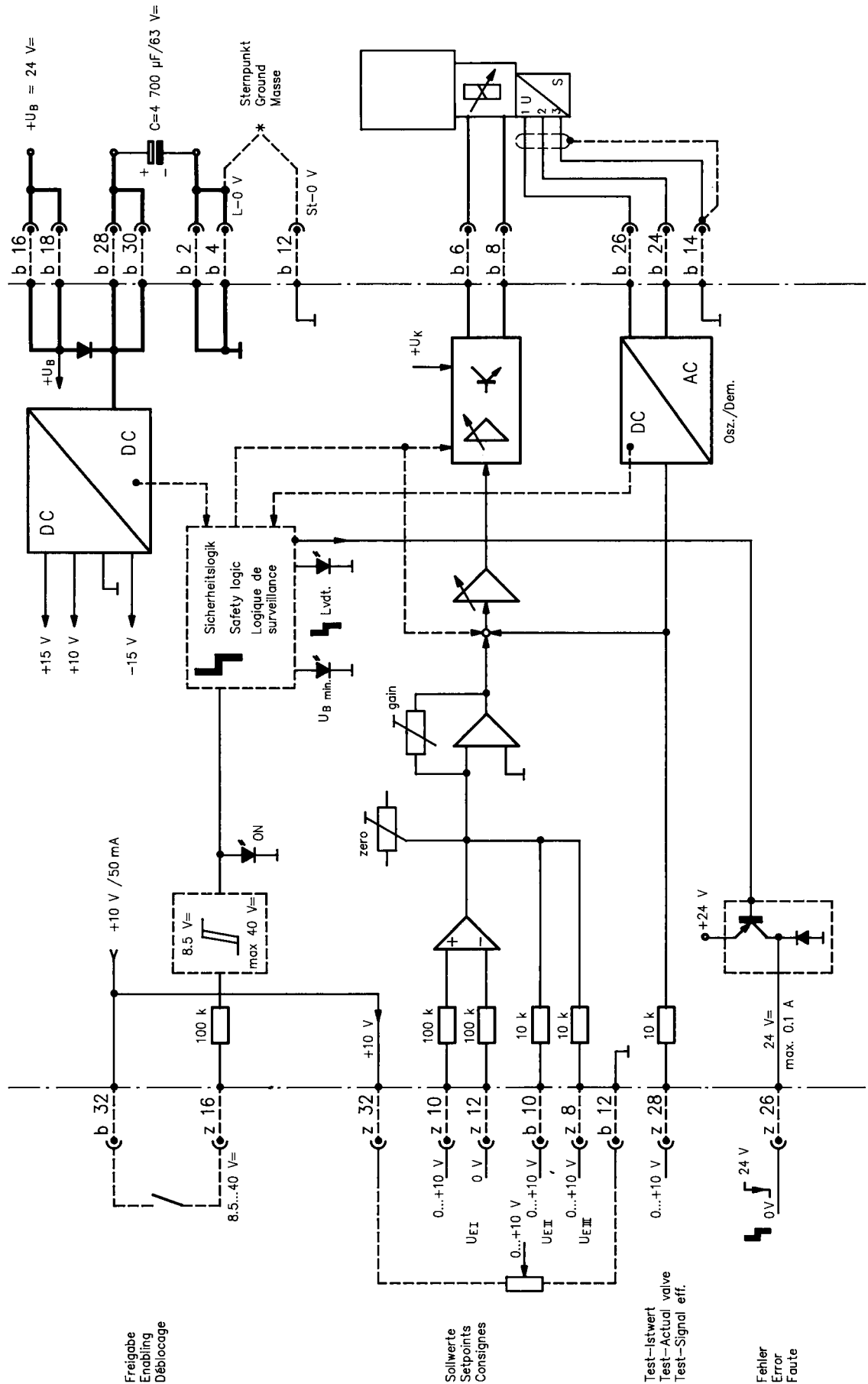
Hysteresis	%	$\leq 1$
Manufacturing tolerance for $p_{max}$	%	$\leq 10$
Response time 100% signal change	ms	On < 50
		Off < 20
		Response time at: $Q = 10\text{ l/min}$ (values depend on the dead volume)

<sup>1)</sup> 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 sheets RE 50070, RE 50076 and RE 50081.

<sup>2)</sup> All characteristic values ascertained using amplifier 0 811 405 096 (without ramp).

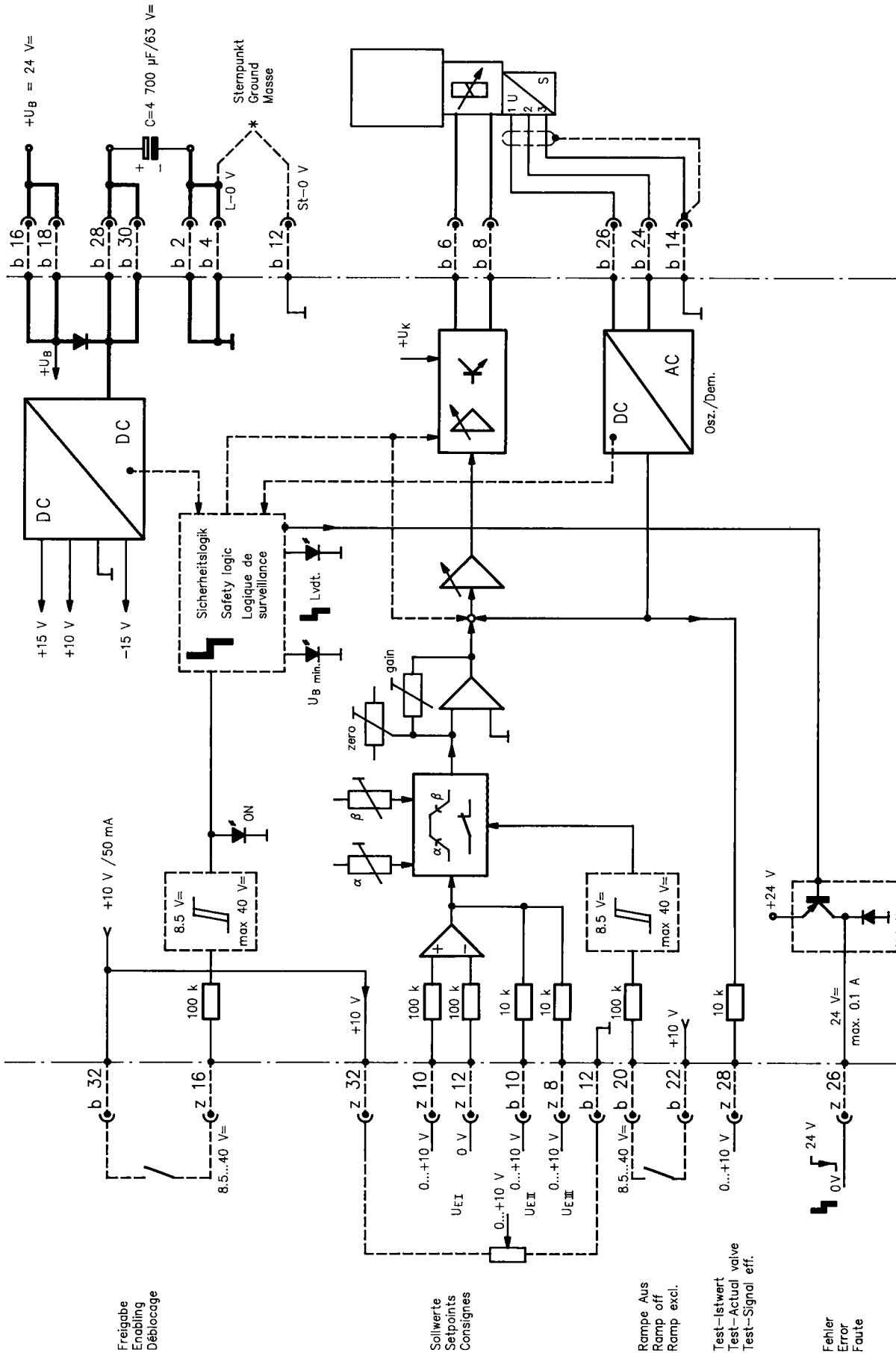
Valve with external trigger electronics (europe card without ramp, RE 30052)

Circuit diagram/pin assignment



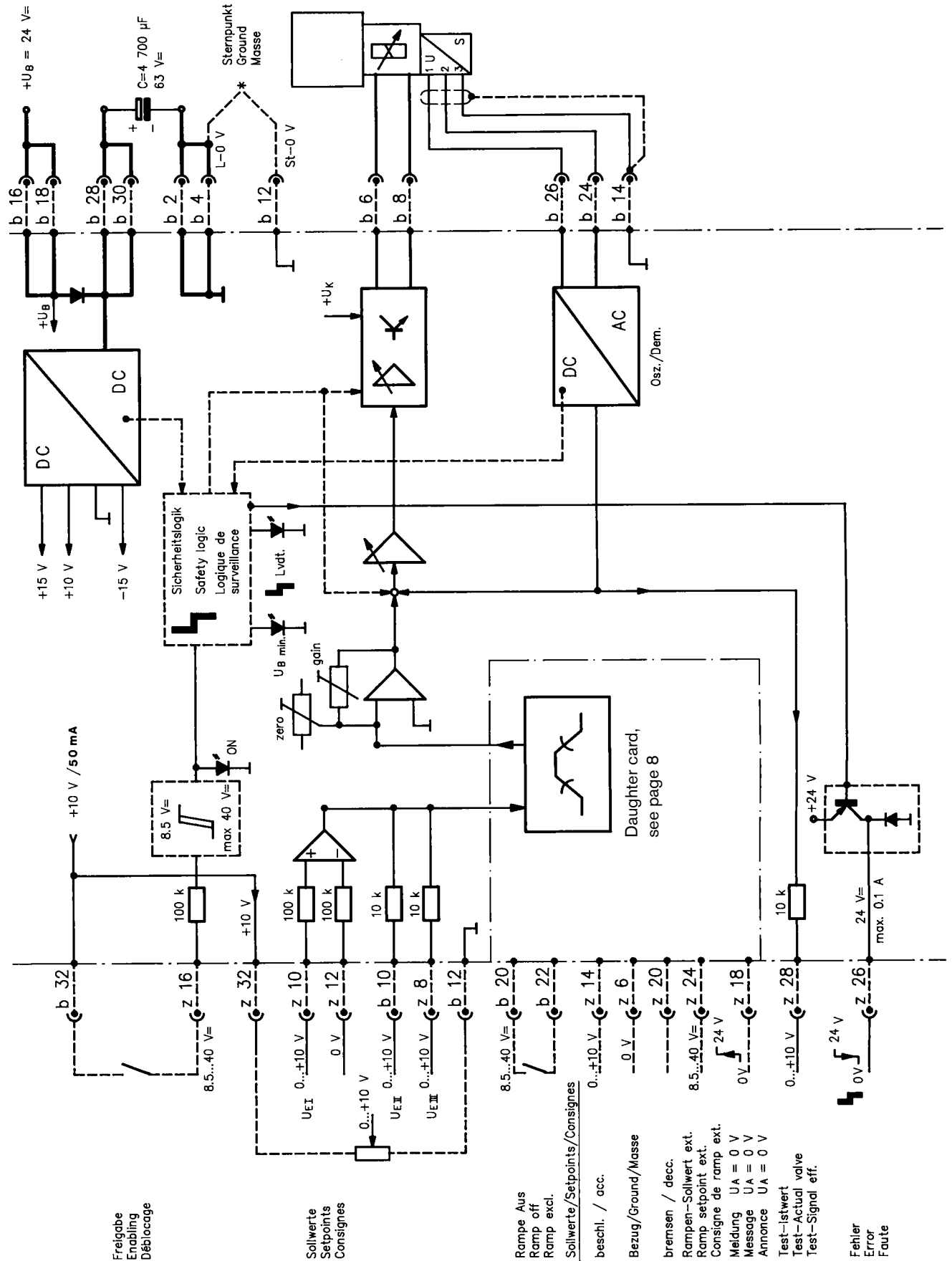
# Valve with external trigger electronics (europe card without ramp, RE 30054)

## Circuit diagram/pin assignment



Valve with external trigger electronics (europe card without ramp, RE 30056)

Circuit diagram/pin assignment

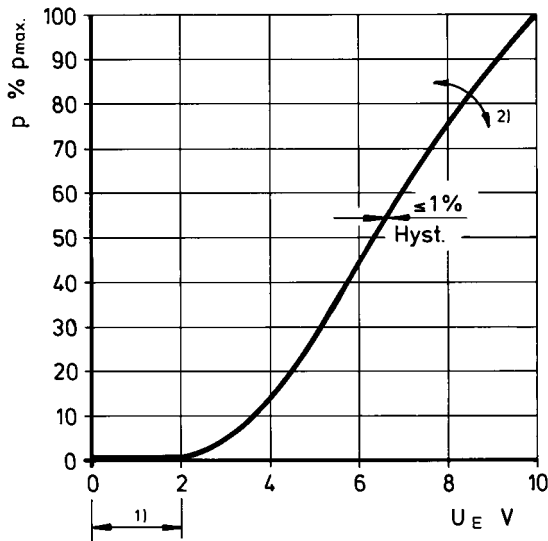






**Characteristic curves** (measured with HLP 46,  $\vartheta_{oil} = 40^\circ\text{C} \pm 5^\circ\text{C}$ )

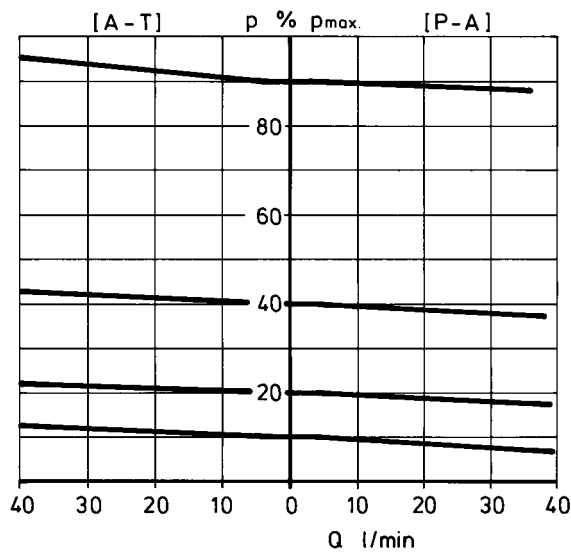
Pressure in port A as a function of the setpoint



**Valve amplifier**

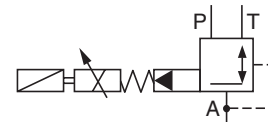
- 1) Zero adjustment
- 2) Sensitivity adjustment

Pressure in port A proportionate to the maximum flow rate of the main stage



Set pressure

$$p \% p_{max} = f(Q_{P-A} / Q_{A-T})$$





## Notes

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## Notes

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