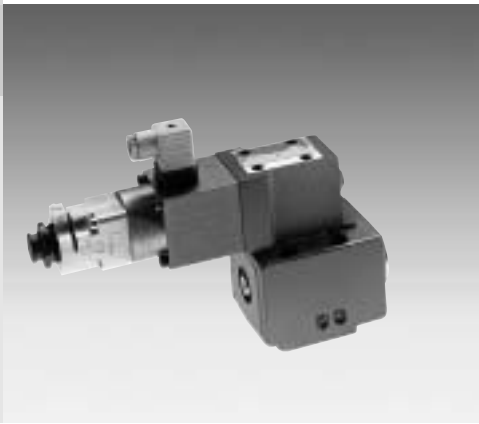
Rexroth
Bosch Group

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

RE 29198/07.05 1/12

Type DREB10Z



Nominal size 10
Unit series 1X
Maximum working pressure A, B, X 315 bar, Y 2 bar
Maximum flow rate Q_{nom} 120 l/min

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Features

- Pilot operated valves with position feedback for reducing system pressure (pilot oil internal only, with relief port X)
- Adjustable by means of the position of the armature against the compression spring
- With position control, minimum hysteresis < 1 %, 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 5781-AG-06-2-A
  Subplates as per catalog sheet RE 45055
  (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
  - $U_B = 24\ V_{nom}$ DC
  - Adjustment of valve curve Np and gain with and without ramp generator
  - Europe card format, setpoint 0...+10 V (order separately)

Ordering data

DREB10	Z	-1X/	XY	M	G24	-37	Z4	M	*

Proportional pressure reducing valve NG10, pilot operated with inductive position transducer

Mounting hole configuration to ISO 5781-AG-06-2-A **= Z**

Unit series 10 to 19 (10 to 19: installation and connection dimensions unchanged) **= 1X**

Max. pressure stage

up to 180 bar **= 180**

up to 315 bar **= 315**

Relief port X
External pilot oil drain Y **= XY**

Without non-return valve **= M**

Further information in plain text

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

Z4 = **Electrical connection**
Unit plug to DIN 43650-AM2
Plug-in connector included in scope of delivery

37 = **Solenoid type (current)**
Solenoid current 3.7 A max.

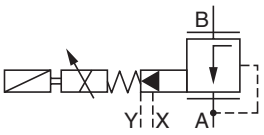
G24 = Voltage supply of trigger electronics 24 V DC

Preferred types

Solenoid 3.7 A	
Type	**Material Number**
DREB10Z–1X/180XYMG24–37Z4M	0 811 402 150
DREB10Z–1X/315XYMG24–37Z4M	0 811 402 151

Symbol

For external trigger electronics



Function, sectional diagram

General

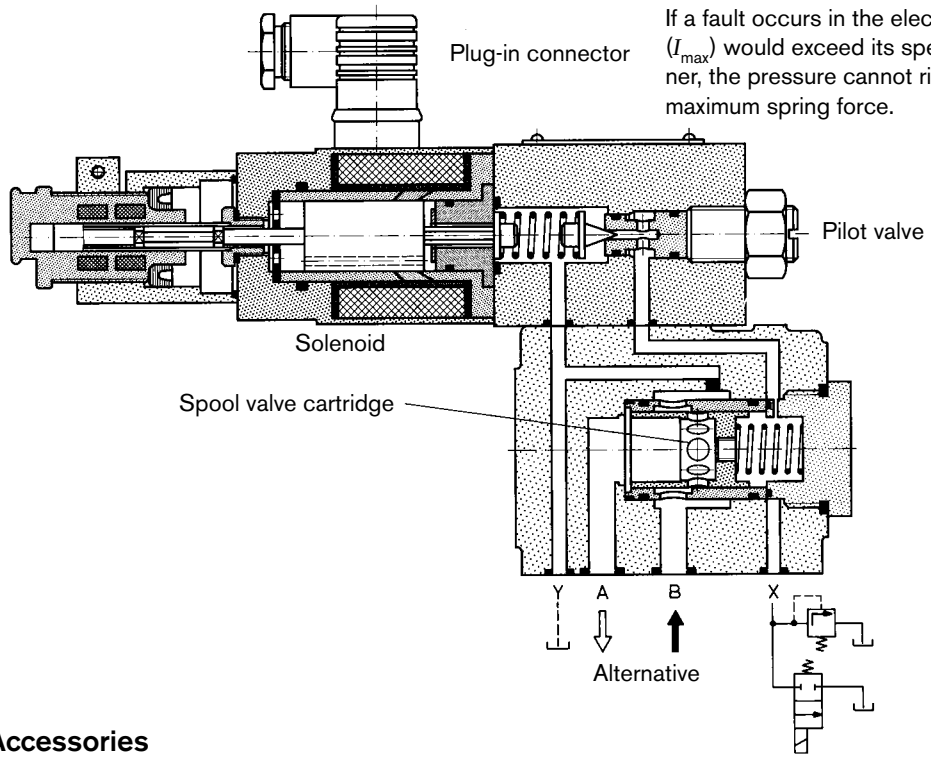
Type DREB10Z proportional pressure reducing valves are pilot operated and are used to reduce system pressure.
They are actuated by a proportional solenoid with position control acting against spring force at the cone.
The valve body contains a logic element (spool valve) of the "normally open" type. This is pilot operated and is in conical seat design.

Basic principle

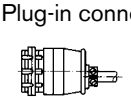
To adjust the system pressure, a setpoint is set in the trigger electronics. Based on this setpoint, the electronics control the position of the solenoid armature on the compression spring by means of the signal from the position transducer.
The position control ensures very low hysteresis. The pilot valve is supplied with pilot oil at a flow rate of < 0.8 l/min via a bore in the main spool. The spring force acting on the cone and the pressure in the valve seat balance one another. The "p_{max}" pressure stage is determined by the cone and seating bore configuration in the pilot valve.

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-M10x80-10.9	Cheese-head bolts		2 910 151 309
Europe card  	VT-VRPA1-537-10/V0/PV	RE 30052	0 811 405 097
Europe card  	VT-VRPA1-537-10/V0/PV-RTP	RE 30054	0 811 405 102
Europe card  	VT-VRPA1-537-10/V0/PV-RTS	RE 30056	0 811 405 179
Plug-in connectors  2P+PE	Plug-in connector 2P+PE (M16 x 1.5) 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		Pressure reducing valve
	Valve cartridge		Spool valve, normally open
Actuation			Proportional solenoid with position control, external amplifier
Connection type			Subplate, mounting hole configuration NG10 (ISO 5781-AG-06-2-A)
Mounting position			Optional
Ambient temperature range	°C		–20...+50
Weight	kg		9.5
Vibration resistance, test condition			Max. 25 g, shaken in 3 dimensions (24 h)

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

Pressure fluid			Hydraulic oil to DIN 51524...535, other fluids after prior consultation
Viscosity range,	recommended mm²/s		20...100
	max. permitted mm²/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 [1]
Direction of flow			See symbol
Max. set pressure (at $Q_{min} = 1$ l/min)	bar	180	315
Minimum pressure (at $Q_{min} = 1$ l/min)	bar	6	8
Max. mechanical pressure limitation level, e.g. when solenoid current $I > I_{max}$	bar	<190	<325
Max. working pressure	bar	Port A, B: 315	
		Port Y: ≤ 2 external pilot oil drain	
		Port X: 315 relief port	
Internal pilot oil flow	l/min	≤ 0.8	
Max. flow	l/min	120 for Q_{max}, see characteristic curves	

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, M16x1.5 (2P+PE)
Max. solenoid current	I_{max}	3.7 A
Coil resistance R_{20}	Ω	2.5
Max. power consumption at 100 % load and operating temperature	VA	60

Static/Dynamic [2]

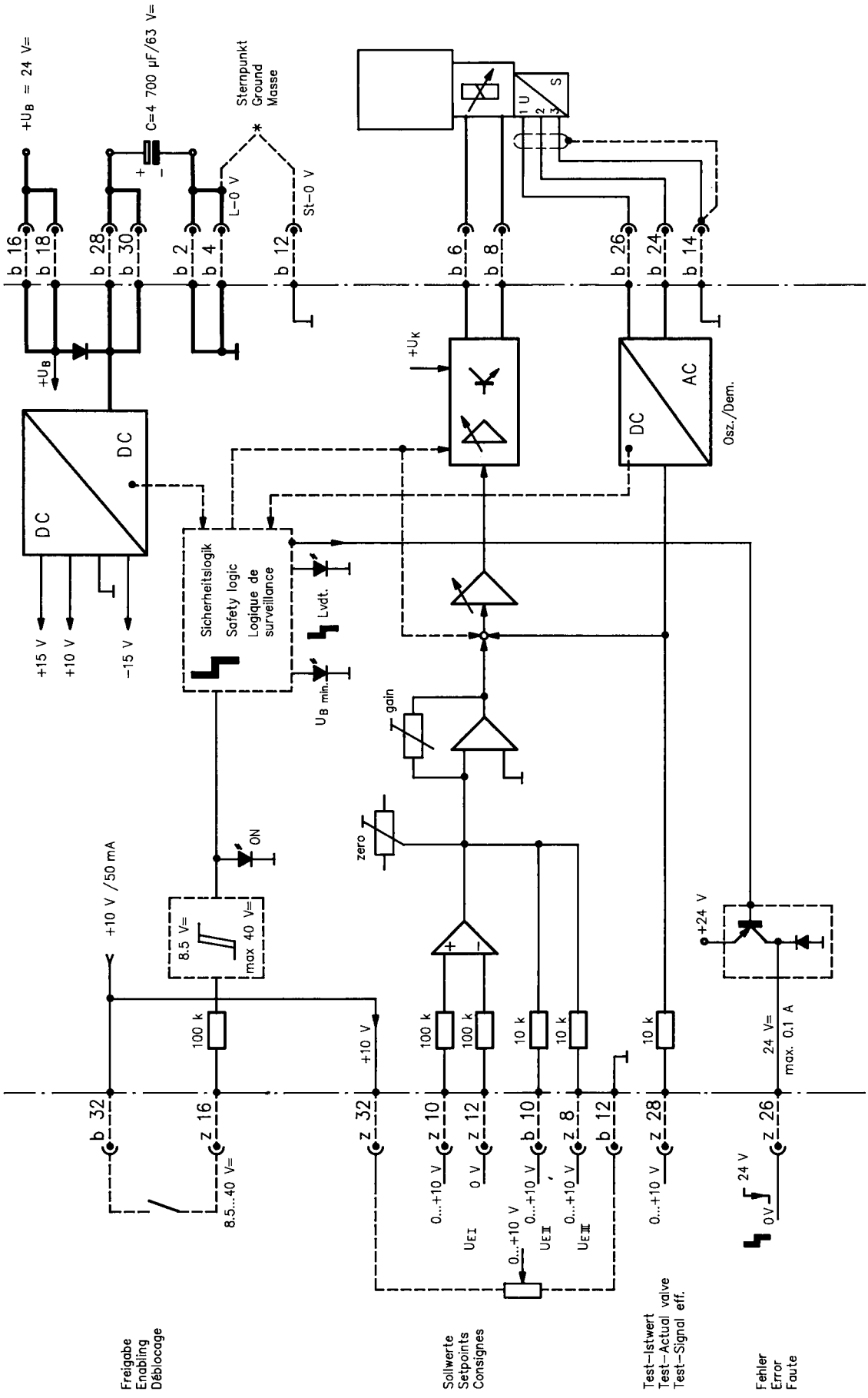
Hysteresis	%	≤ 1
Manufacturing tolerance for $p_{max.}$	%	approx. 6
Response time 100 % signal change	ms	≈ 80, dependent on dead volume or system volume

[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 sheets RE 50070, RE 50076 and RE 50081.

[2] All characteristic values ascertained using amplifier 0 811 405 097 for the 3.7 A solenoid.

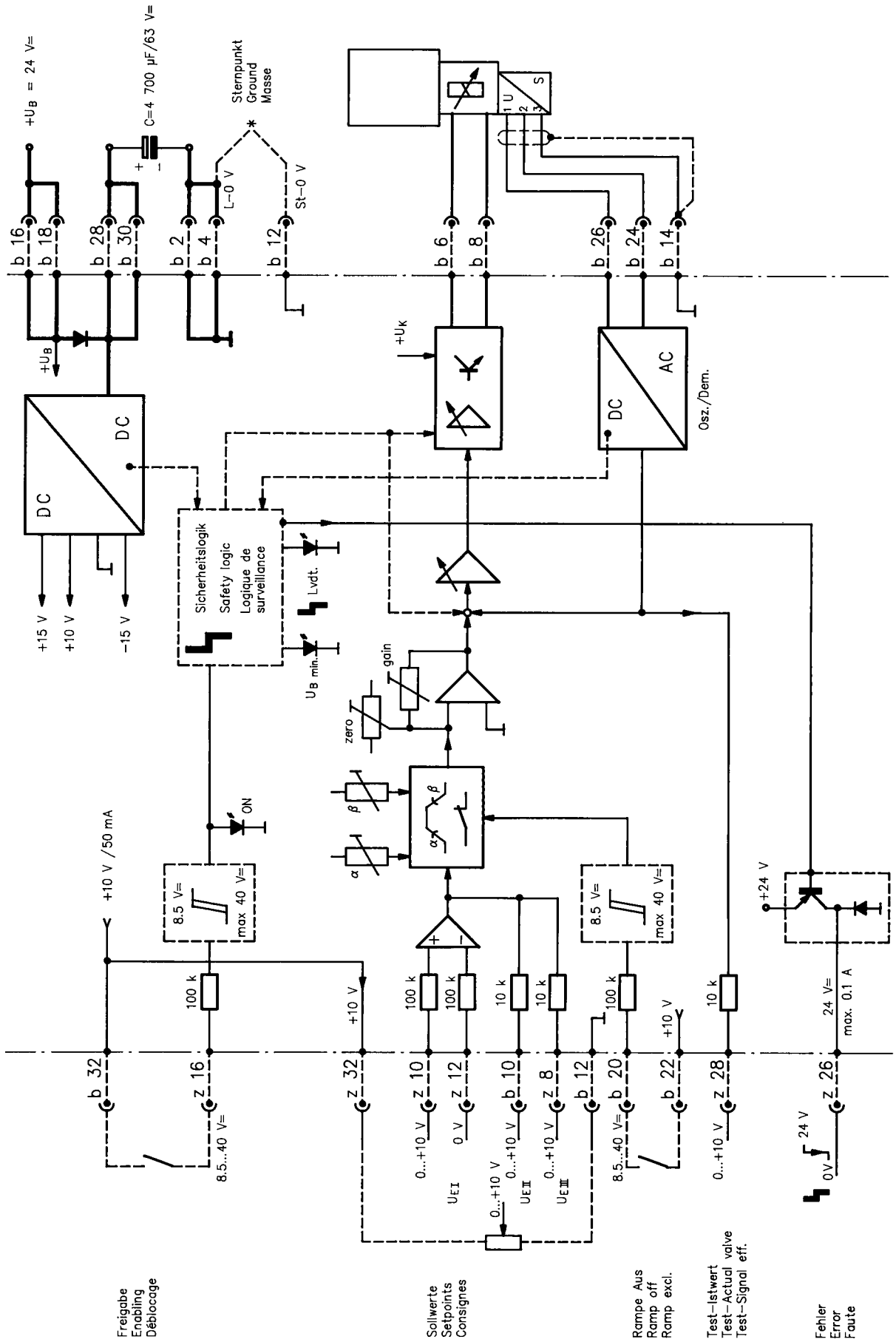
Valve with external trigger electronics (europe card without ramp, RE 30052)

Circuit diagram/pin assignment



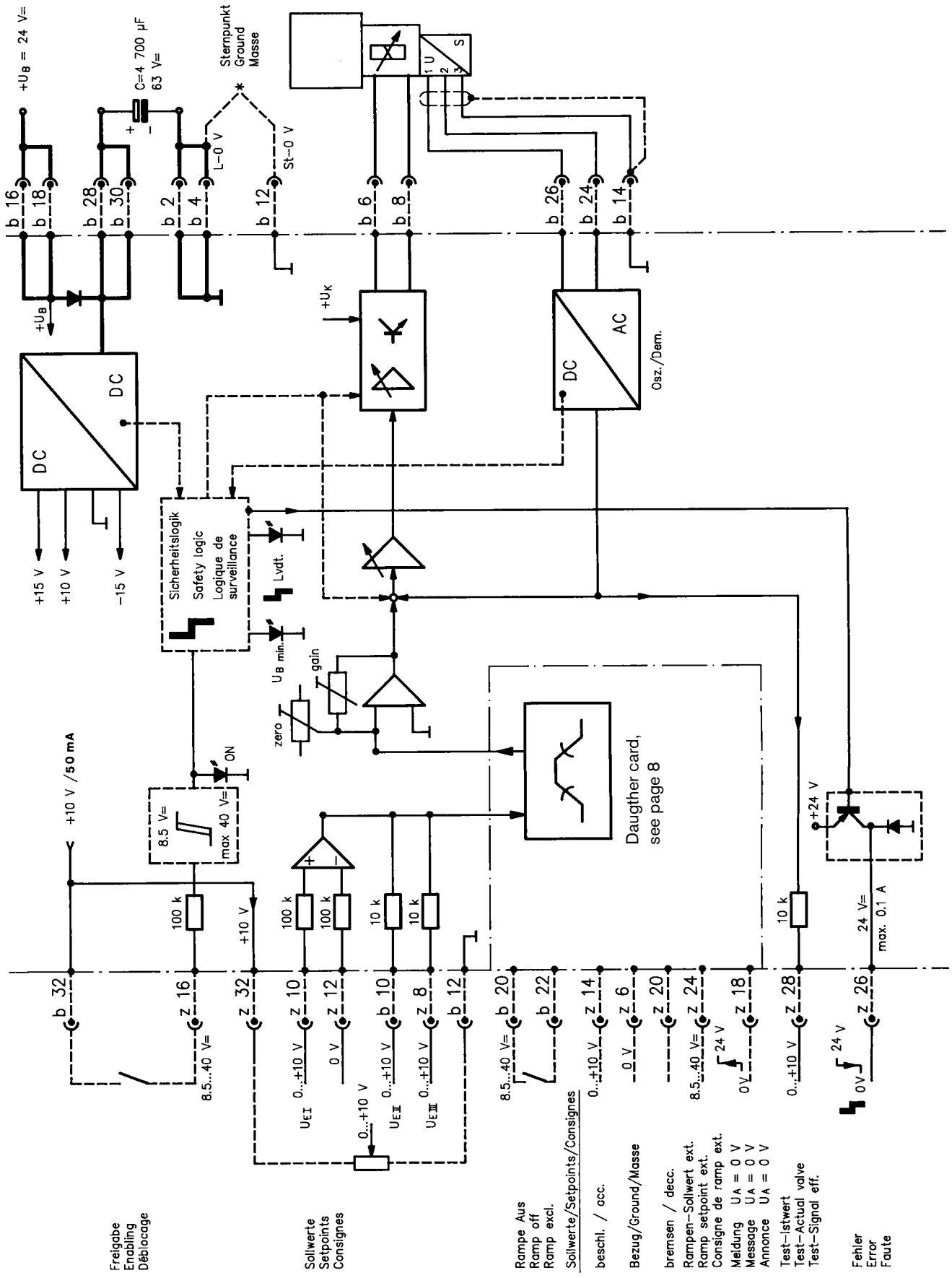
Valve with external trigger electronics (europe card with ramp, RE 30054)

Circuit diagram/pin assignment



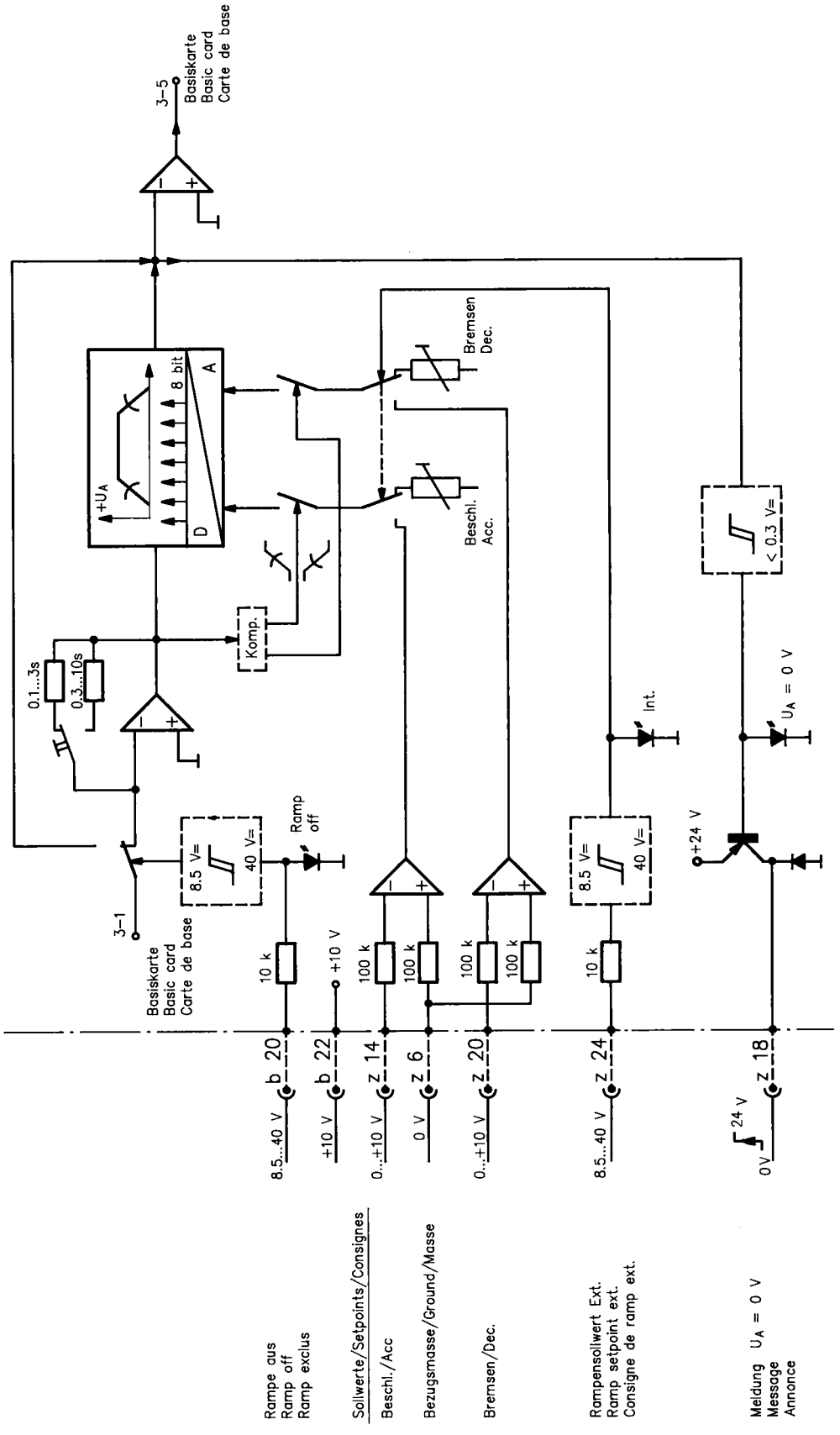
Valve with external trigger electronics (europe card with ramp, RE 30056)

Circuit diagram/pin assignment



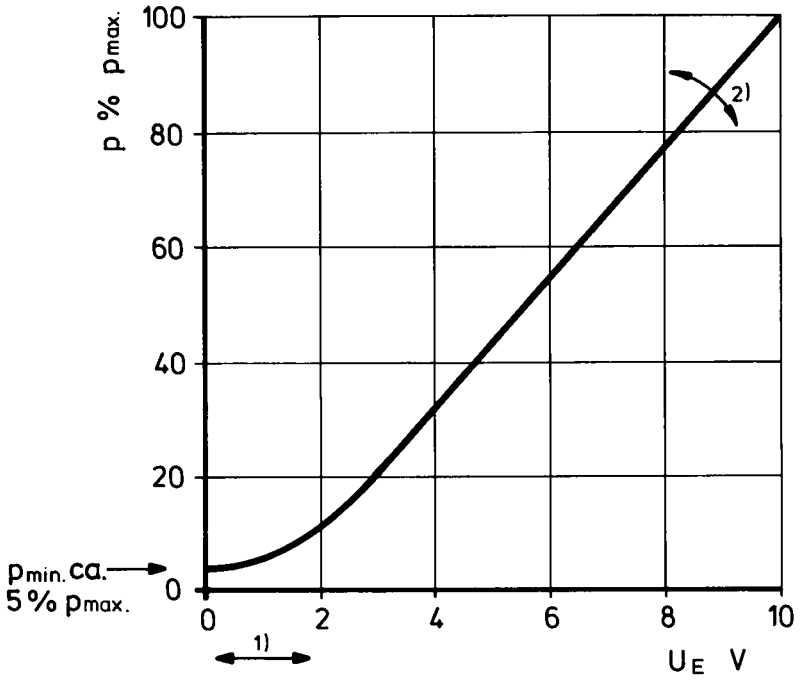
Valve with external trigger electronics (europe card with ramp, RE 30056)

Circuit diagram/pin assignment **Daughter card**



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

Pressure in port A as a function of the setpoint



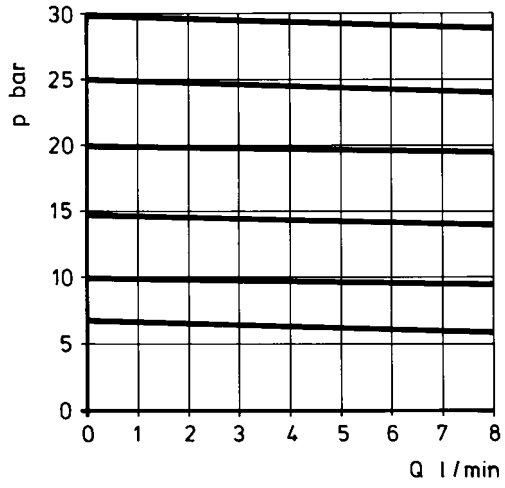
Valve amplifier

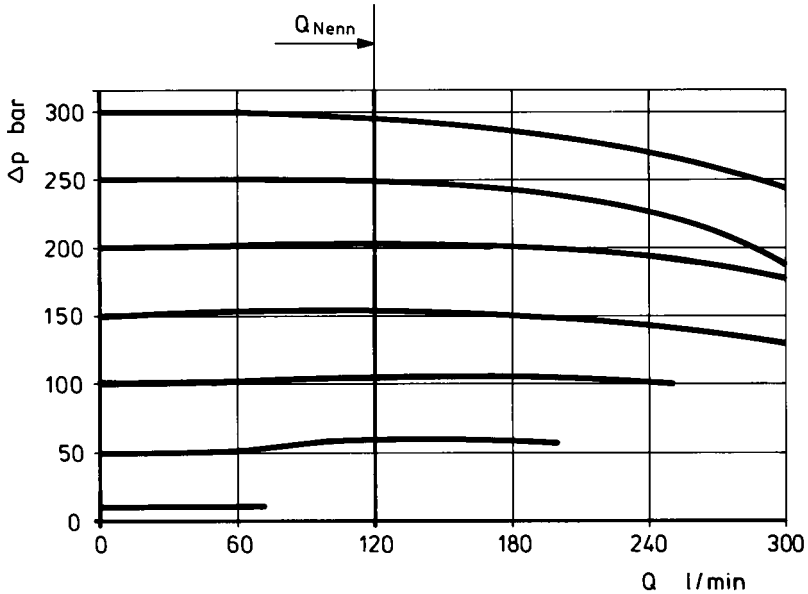
[1] Zero adjustment

[2] Sensitivity adjustment

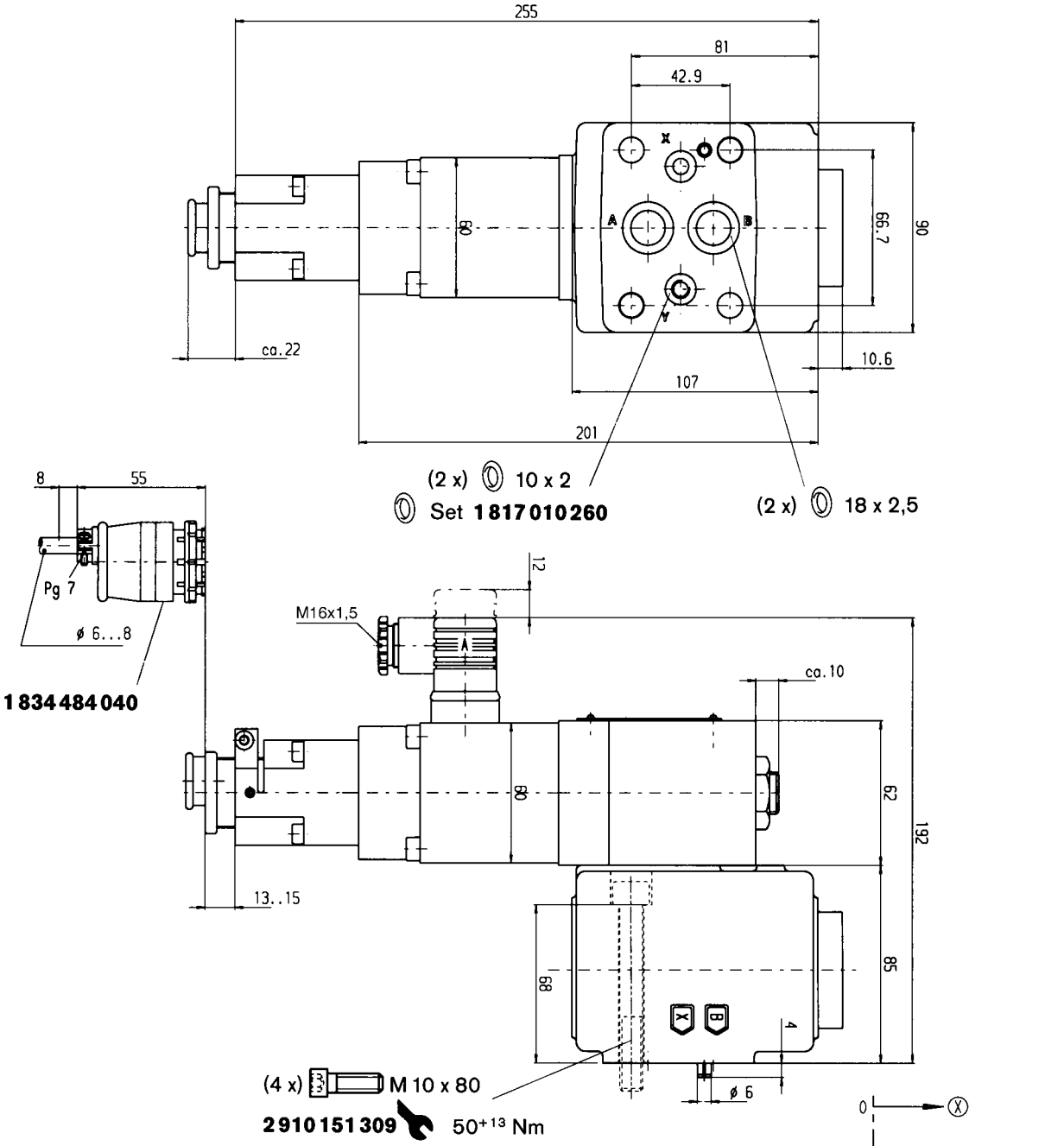
Pressure in port A as a function of the main stage nominal flow rate

$p = f(Q)$



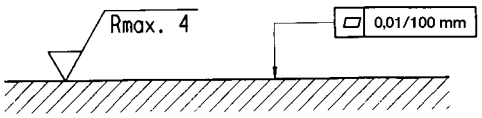


Unit dimensions (nominal dimensions in mm)



Mounting hole configuration: NG10 (ISO 5781-AG-06-2-A)
For subplates see catalog sheet RE 45055

Required surface quality of mating component



1) Deviates from standard
2) Thread depth:
Ferrous metal 1.5 x Ø*
Non-ferrous 2 x Ø
* NG10 min. 10.5 mm

	A	B	X	Y	G	F_1	F_2	F_3	F_4
Ⓧ	7.2	35.8	21.4	21.4	31.8	0	42.9	42.9	0
Ⓨ	33.35	33.35	58.7	7.9	66.7	0	0	66.7	66.7
∅	14.7	14.7	4.8	4.8	7.5	M10 2)	M10 2)	M10 2)	M10 2)

Notes

Notes

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