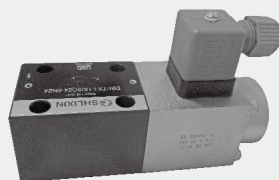


6.2

Proportional pressure relief valve

Type DBETX...L1X

NG 6
 Max pressure 315bar
 Nominal flow 1L/min



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Features

- Direct operated valves for limiting system pressure
- Adjustable by means of the solenoid current, see performance curve, Technical data and selected valve electronics
- Pressure limitation to a safe level even with electric failure (solenoid current $I > I_{max}$)
- For subplate attachment, mounting hole configuration to ISO 4401-03-02
- External trigger electronics with ramps and valve calibration (order separately)

Function and configuration

Type DBETX proportional pressure relief valves are remote controlled (pilot) valves in conical seat design. They are used to limit system pressure. The valves are actuated by means of a proportional solenoid. The interior of the solenoid is connected to port T and is filled with pressure fluid. With these valves, the system pressure that needs to be limited can be infinitely adjusted by the valve amplifier electronics in relation to the solenoid current, at an oil flow < 1L that is as close as possible to constant.

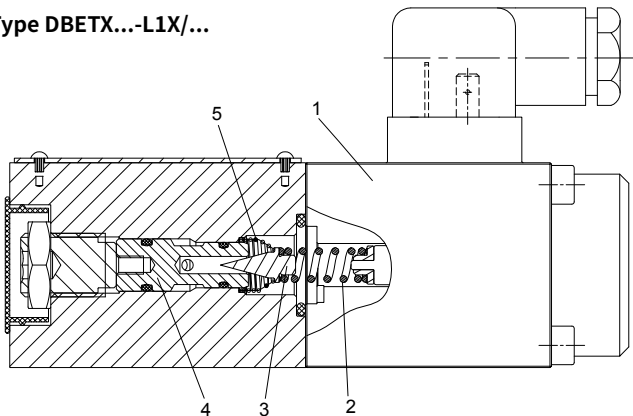
Basic principle

To adjust the system pressure, a setpoint is set in the trigger electronics. Based on this setpoint, the electronics control the solenoid coil(1) with regulated PWM (pulse-width-modulated) current. The proportional solenoid converts the current to a mechanical force, which acts on a main spring(2) by means of the armature plunger. An "additional" spring(5) between the cone(3) and the seat(4) contributes to stability and a minimal residual pressure. The spring force acting on the cone and the pressure in the valve seat balance one another at a constant oil flow (0.7...1L/min). The "pmax" pressure stage is determined by the cone and seating bore configuration.

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.

Type DBETX...-L1X/...



Technical data

General	
Construction	Poppet valve, direct drive
Actuation	Proportional solenoid without position control, external amplifier
Connection type	Subplate, mounting hole configuration NG6 (ISO 4401-03-02-0-05)
Mounting position	Optional
Ambient temperature range	°C -20...+50
Weight	Kg about 2.1
Vibration resistance, test condition	Max. 25 g, shaken in 3 dimensions (24 h)

Hydraulic (measured with HLP 46, $\vartheta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$)	
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 permitted degree of contamination of pressure fluid Purity class to ISO 4406 (c)	Class 18/16/13
Direction of flow	See symbol
Max. set pressure (at Q = 1 l/min)	bar 50 80 180 250 315
Minimum pressure (at Q = 1 l/min)	bar 2 3 4 5 8
Max. working press. (at Q = 1 l/min)	bar Port P: 315
Max. pressure	bar Port T: 250
Max. mechanical pressure limitation level, e.g. when solenoid current $I > I_{max}$	bar < 55 < 85 < 186 < 258 < 325

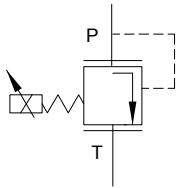
Static/Dynamic	
Hysteresis	% ≤ 4
Response time 100% signal change	ms On < 60 / Off < 70
Range of inversion	% ≤ 3
Electrical	
Cyclic duration factor	% 100 ED
Degree of protection	IP 65 to DIN 40050 and IEC 14434/5
Solenoid connection	Plug-in connector to DIN EN 175301-803/ISO 4400
Power	24VDCnom

Ordering code

DBETX		L1X /		G24		8	N	Z4	V	*	Further details in the plain text
Proportional pressure relief valve											
Series L10~L19		= L1X							V =	FKM	
Max. pressure stage									No code =	NBR	
up to 50 bar		=50							Electrical connection		
up to 80 bar		=80							With plug-in connector		
up to 180 bar		=180							Without plug-in connector		
up to 250 bar		=250							Manual auxiliary override		
up to 315 bar		=315							Solenoid type(current)		
Voltage supply of trigger electronics									8 =	Solenoid current 0.8A max.	
24V DC		=G24							25 =	Solenoid current 2.5A max.	

Symbols

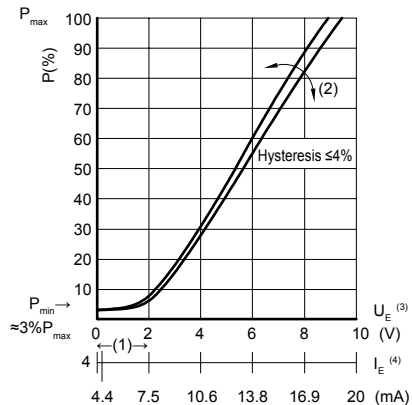
For external trigger electronics



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Performance curves (measured with HLP46, $\theta_{oil}=40^{\circ}\text{C} \pm 5^{\circ}\text{C}$)

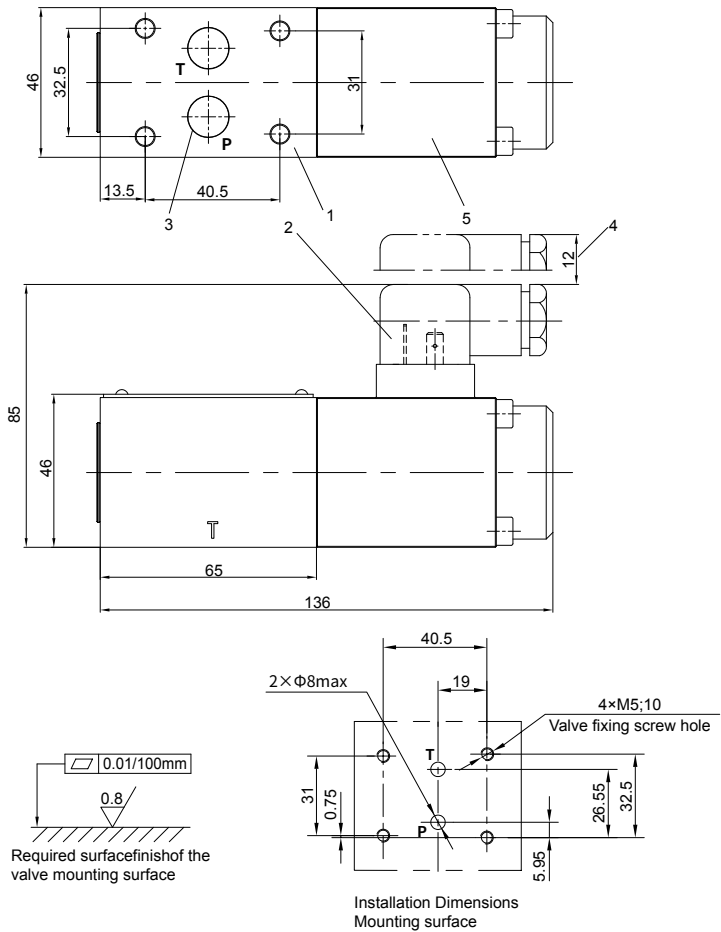
Pressure in port P as a function of the setpoint
Nominal flow $Q_{nom}=1\text{L}/\text{min}$



- (1) Zero adjustment
- (2) Sensitivity adjustment
- (3) Version: $U_E=0...10\text{V}$
- (4) Version: $I_E=4...20\text{mA}$

Unit dimensions

(nominal dimensions in mm)



- 1 Valve housing
- 2 Plug-in connector
- 3 Identical seal rings for ports P and T (O-ring 9.25×1.78)
- 4 Space required to remove the plug-in connector
- 5 Proportional solenoid

Valve fixing screws

The following valve fixing screws are recommended:

- 4 GB / T 70.1 - M5×30 - 10.9
- Tightening torque $M_A=6 \text{ Nm}$