

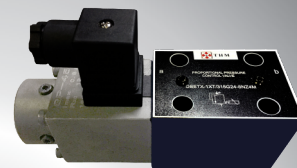
DBETX.....1XT

Proportional pressure relief valve

NG6

Max. Pressure 315 bar

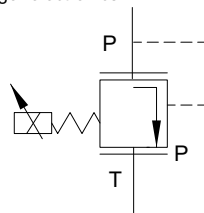
Nominal flow 1 lpm



Features	Contents	Page No.
<ul style="list-style-type: none"> • Direct operated valves for the limiting system pressure. 	Features	1
<ul style="list-style-type: none"> • Adjustable by means of the solenoid current, see performance curve, Technical data and selected valves electronics. 	Symbol	1
<ul style="list-style-type: none"> • Pressure limitation to a safe level even with electric failure (solenoid current $I > I_{max.}$) 	Function and configuration	2
<ul style="list-style-type: none"> • For subplate attachment, mounting hole configuration to ISO4401 	Ordering details	2
<ul style="list-style-type: none"> • External trigger electronics with ramps and valve calibration (order separately). 	Technical data	3
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Symbol

For external trigger electronics



Function and configuration

Type DBETX proportional pressure relief valve 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 by the valve amplifier electronics in relation to the solenoid current, at an oil flow < 1L that is as close as possible to constant.

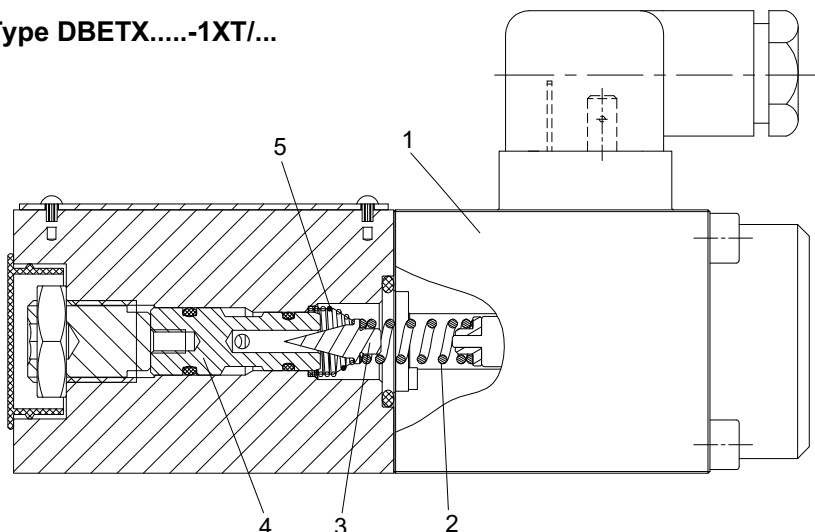
Basic Principle

To adjust the system pressure, a set point is set in the trigger electronics. Based on this set point, 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 same cone and the pressure in the valve seat balance one another at a constant oil flow (0.7.....1L/min). The "p_{max.}" 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.....-1XT/...



Ordering details

DBETX	-	1XT	/	G24	-	8	N	Z4	V	*
Proportional pressure relief valve										Further details in the plain text
Series T10~T19 = 1XT										V = FKM No code = NBR
Max. pressure stage										Electrical connection
Up to 50bar		= 50								K4 = With plug-in connector
Up to 80bar		= 80								Z4 = Without plug-in connector
Up to 180bar		= 180								N = manual auxiliary override
Up to 250bar		= 250								Solenoid type (current)
Up to 315bar		= 315								8 = Solenoid current 0.8 A _{max.}
Voltage supply of trigger electronics										25 = Solenoid current 2.5 A _{max.}
24VDC = G24										

Technical Data

General		
Construction		Spool valve
Actuation		Proportional solenoid without position control, external amplifier
Connection type		Subplate, mounting hole configuration NG6 (ISO4401-03-02-0-94)
Mounting position		Optional
Ambient temperature range	°C	-20...+50
Weight	Kg	about 2.1
Vibration resistance, test condition		Max. 25g, shaken in 3 dimensions(24h)

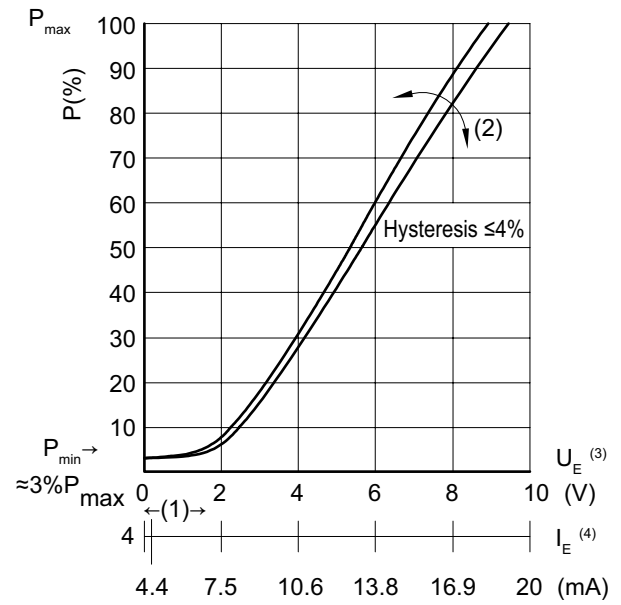
Hydraulic (measured with HLP 46, voil = 40 °C ±5 °C)						
Pressure fluid	Hydraulic oil to DIN 51524...535, other fluids after prior consultation					
Viscosity range	recommended	mm ² /s	20...100			
	max. permitted	mm ² /s	10...800			
Pressure fluid temperature range	°C	-20 to +80				
Maximum permitted degree of contamination of pressure fluid purity class to ISO 4406 (c)	Class18/16/13					
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
Maximum working pressure (at Q = 1l/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		IP65 to DIN 40050 and IEC 14434/5
Solenoid connection		Unit plug DIN 43650 / ISO 4400, M16×1.5(2P+PE)
Power		24VDC _{nom.}

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

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

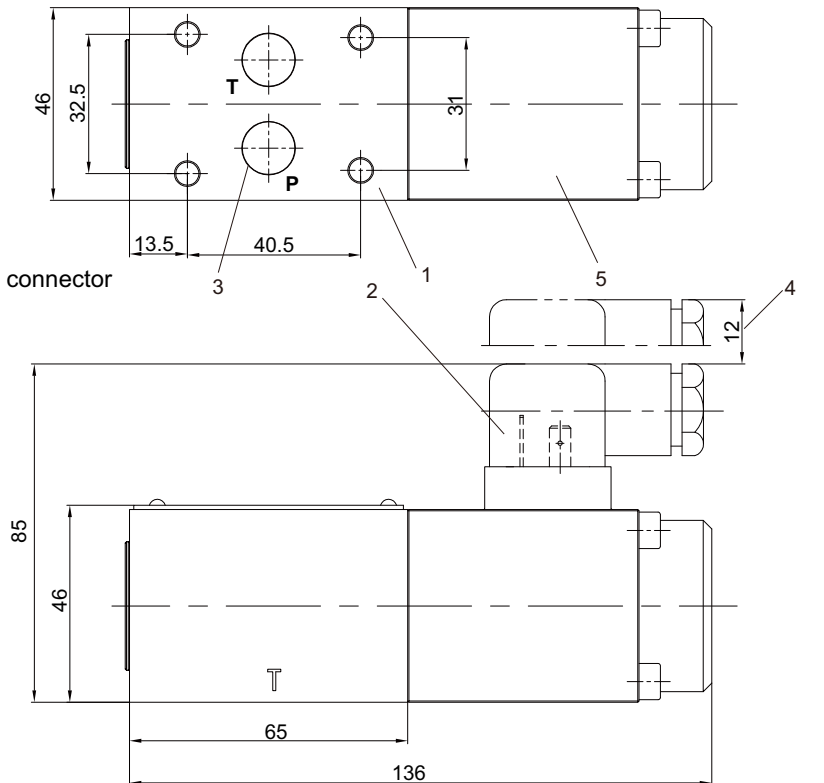
- 1). Zero adjustment
- 2). Sensitivity adjustment
- 3). Version : $U_E = 0 \dots 10\text{V}$
- 4). Version : $I_E = 4 \dots 20\text{mA}$



Unit dimensions

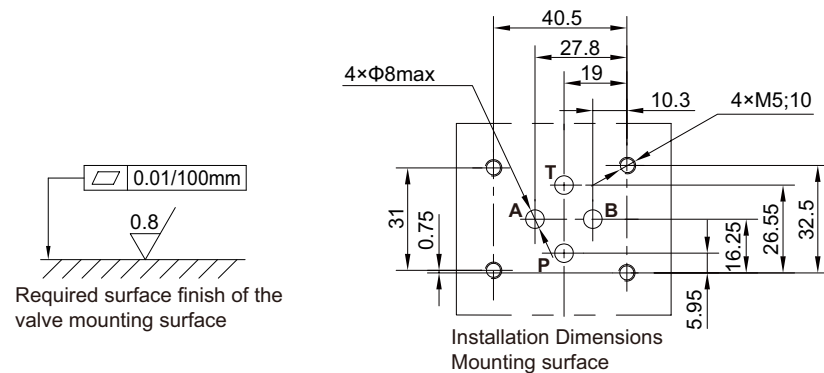
(Dimensions in mm)

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



Valve fixing screws

The following valve fixing screws are recommended:
-4GB/T70.1-M5×30-10.9
-Tightening torque $M_A = 6\text{Nm}$



Required surface finish of the valve mounting surface

