



Proportional Pressure Relief Valve
Type DBETR

RE 24750/06.2004

Size 6

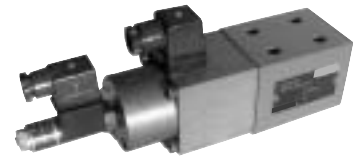
up to 31.5 MPa

up to 10 L/min

Replaces:

Features:

- Low hysteresis
- Good repeatability
- Electrical closed loop position control of spring pre-tension,
- Proportional solenoid actuation with inductive position transducer (pressure balanced)
- Valve and electronic control from one source



Function, section, symbol

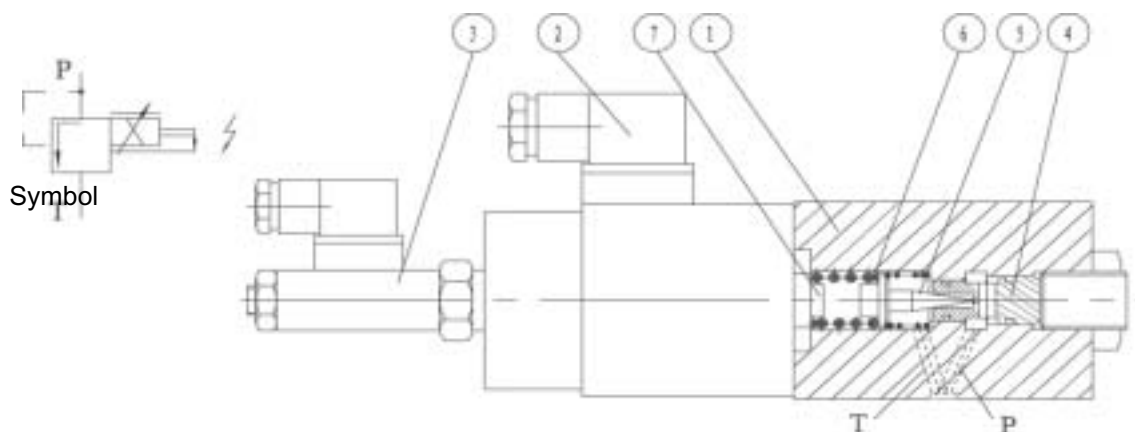
This valve regulates pressure in proportion to the electrical command value.

The valve consists basically of a housing (1), proportional solenoid (2) with inductive positional transducer (3), valve seat (4) and valve poppet (5).

Pressure is set by adjusting the command value potentiometer (0 to 9 V). Adjusting the command value causes tensioning of the compression spring via the electronic controls and the proportional solenoid (2). Tensioning of the compression spring (6), i.e. the position of the spring plate (7), is determined by the inductive positional transducer (3). Any deviations from the command value are corrected by the closed loop positional control.

The use of this principle eliminates the effect of solenoid friction.

- Advantages:
- Low hysteresis
 - Good repeatability



Ordering details

DBETR		+	10	/	B	/	/	/	*
Series 10 to 19 (10 to 19: unchanged installation and connection dimensions)		= 10		Further details in clear text					
Technology		=B		M= mineral oils		V = phosphate ester			
Pressure stage:		=25		No code= let oil inside		Y= let oil outside			
up to 2.5MPa									
up to 8MPa		=80							
up to 18MPa		=180							
up to 31.5MPa		=315							

Technical data

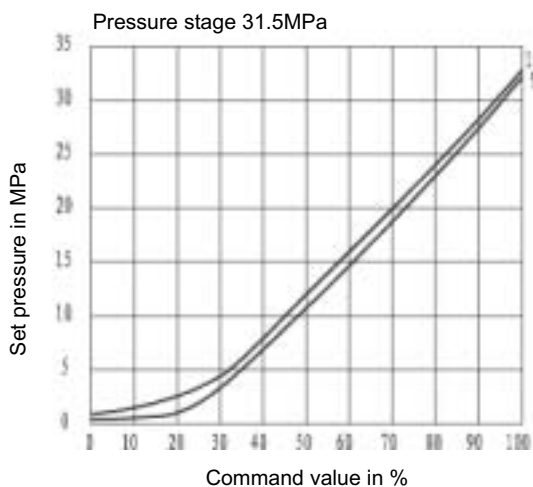
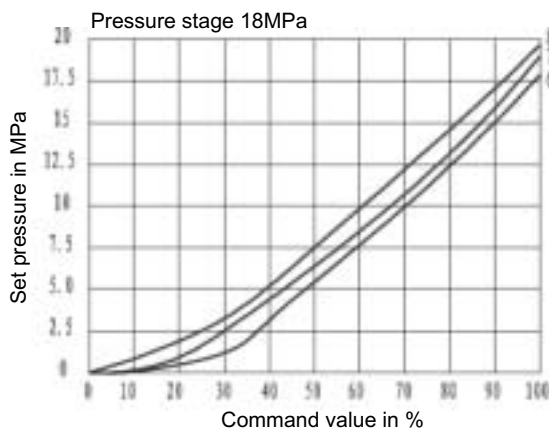
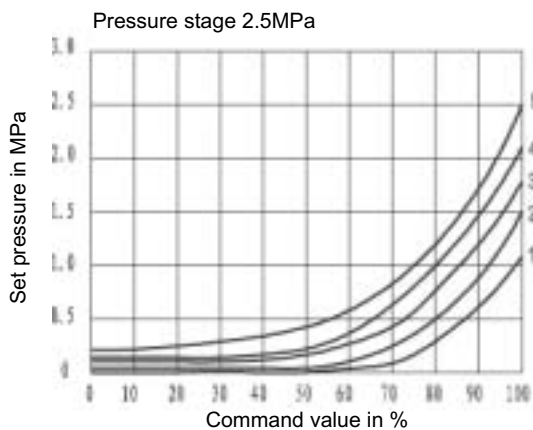
Hydraulic data

Max. settable pressure (MPa)	Pressure stage 2.5 MPa	2.5	
	Pressure stage 8.0 MPa	8	
	Pressure stage 18.0 MPa	18	
	Pressure stage 31.5 MPa	31.5	
Min. settable pressure	(MPa)	(see $p_{min} - q_v$ characteristic curves)	
Max. Operating pressure (MPa)	port T (with pressure adjusting)	0.2	
	por T (without pressure adjusting)	10	
	port P	31.5	
Max. flow (L/min)	Pressure stage 25	10	
	Pressure stage 80	3	
	Pressure stage 180	3	
	Pressure stage 315	2	
Degree of contamination	(μm)	≤ 20 (recommendation 10)	
Hysteresis	(%)	< 1 of max. settable pressure	
Repeatability	(%)	< 0.5 of max. settable pressure	
Linearity (%)	180; Pressure stage from 3 to 18 MPa	≤ 1.5 of max. settable pressure	
	315; Pressure stage from 6 to 31.5MPa		
Typical variation (%)	Valve	± 3 of max. settable pressure	
	Electrical control	< 0.5	
Stepped response 0 to 100%	(ms)	Response time (Pmin-Pmax)	Response time (Pmax-Pmin)
	Pressure stage 2.5 and 18MPa 0 to100	100	50
	Pressure stage 31.5MPa 0 to100	150	100
Pressure fluid		Mineral oil(for NBR seal),Phosphate ester (for FPM seal)	
Viscosity range	(mm^2/s)	2.8 to 380	
Pressure fluid temperature range	($^{\circ}C$)	-20 to +70	
Installation position		optional	
Weight	(kg)	4	

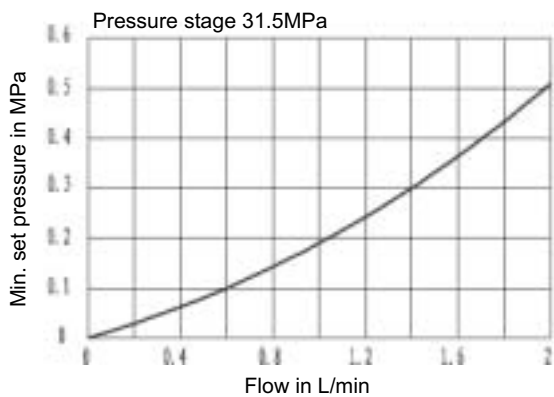
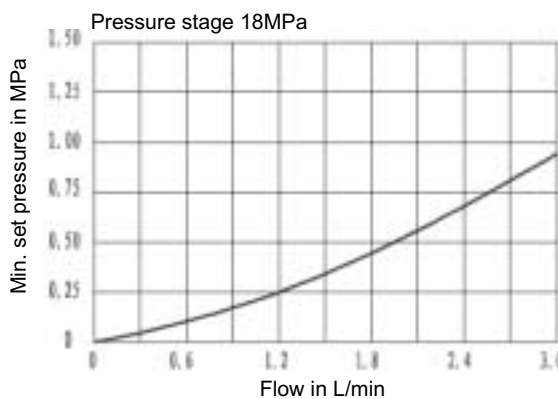
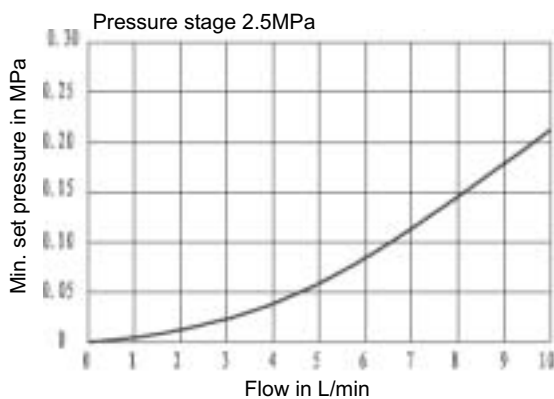
Electrical

Amplifier associated	VT-5003S30			
Supply voltage	DC			
Coil resistance (Ω)	Cold value at 20 $^{\circ}C$	10		
	Max. warm value	13.9		
(Working state) Duty	Continuous			
Pressure fluid temperature	($^{\circ}C$)	+50		
Amplifier voltage	commutate completely	24 \pm 10%		
	commute three electrical source	24 to 35		
Max. power consumption	(VA)	50		
Coil resistance at 20 $^{\circ}C$	(Ω)	1	11	111
		56	56	112
Inductivity (transducer)	(mH)	6 to 8		
Oscillator frequency (transducer)	(KHz)	2.5		
Protection to DIN 40 050		IP65		

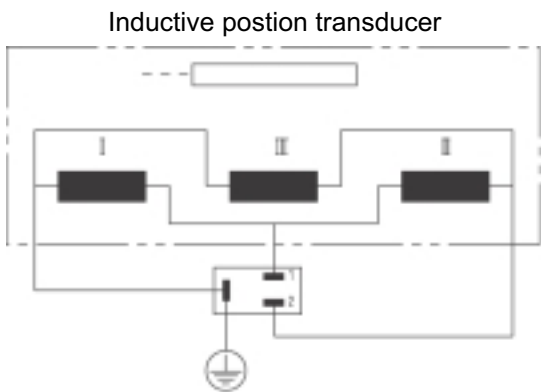
Characteristic curves:(measured at $v=36 \times 10^{-6}m^2/S$ $t=50^{\circ}C$)



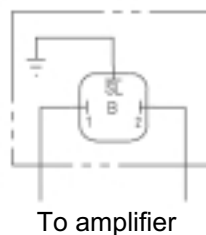
- Curve 1 - flow = 2 L/min
- Curve 2 - flow = 4 L/min
- Curve 3 - flow = 6 L/min
- Curve 4 - flow = 8 L/min
- Curve 5 - flow = 10 L/min
- Curve 6 - flow = 0.5 L/min
- Curve 7 - flow = 1.5 L/min
- Curve 8 - flow = 3L/min
- Curve 9 - flow = 1 L/min
- Curve 10 - flow = 2 L/min



Electrical connections (Inductive position transducer)

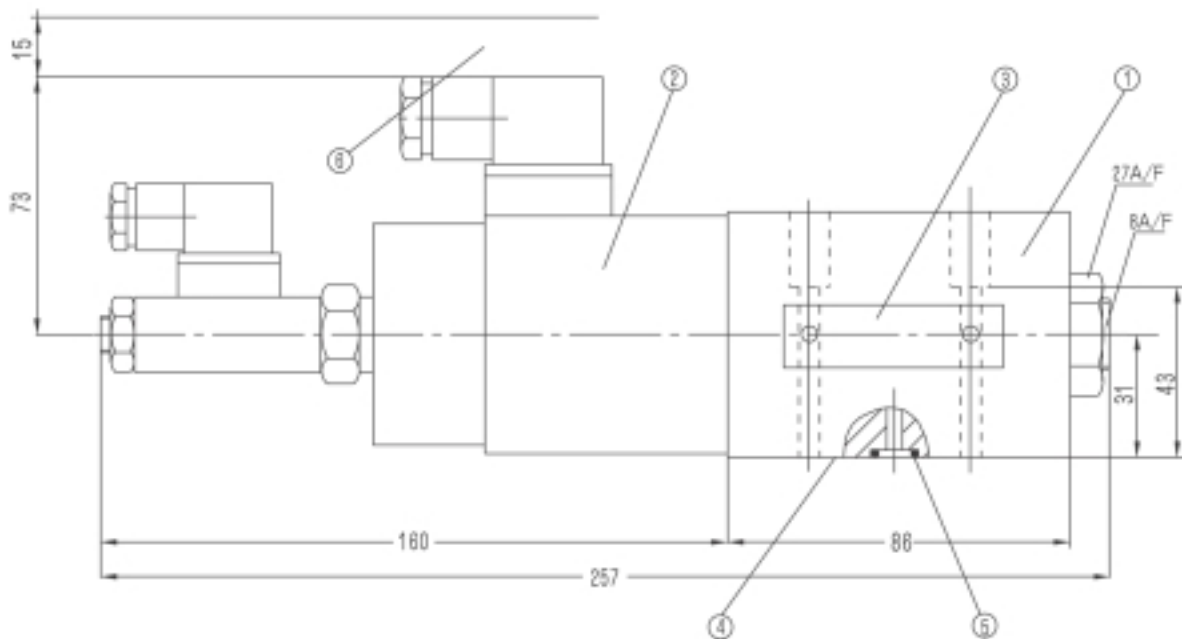


Type Connection of plug-in connector

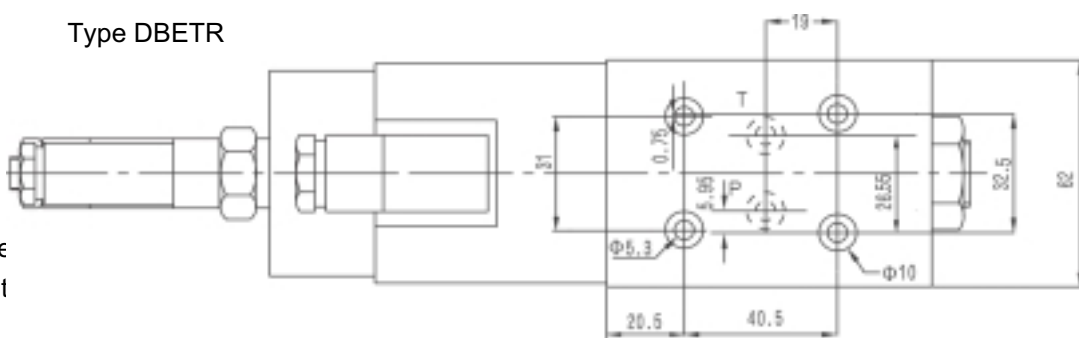


Unit dimensions

(Dimensions in mm)

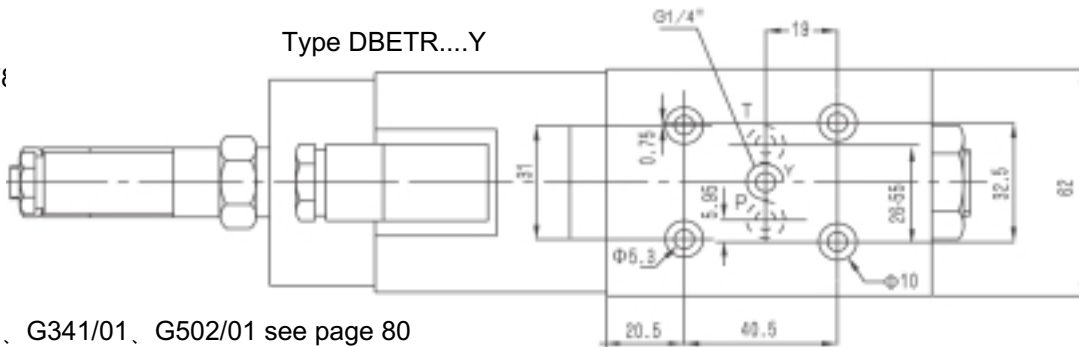


Type DBETR



- 1 Valve housing
- 2 Proportional solenoid inductive position transducer
- 3 Nameplate
- 4 Machined valve surface
- 5 O-ring 9.25 x 1.75
- 6 Space required to remove the plug-in connector

Type DBETR....Y



Subplates: G340/01, G341/01, G502/01 see page 80