ГИДРООТВЕТ
доступная гидравлика

Proportional Relief Valve

Model: DBET and DBETE

- Size 6
- Maximum working pressure 350 bar
- Maximum working flow 2 L/min

Contents

Features

- Direct actuated valve
- Operation by proportional solenoids with central thread and detachable coil
- For subplate mounting
- Model DBETE: internal integrated amplifier
- Model DBET: external control amplifier

Function description, sectional drawing

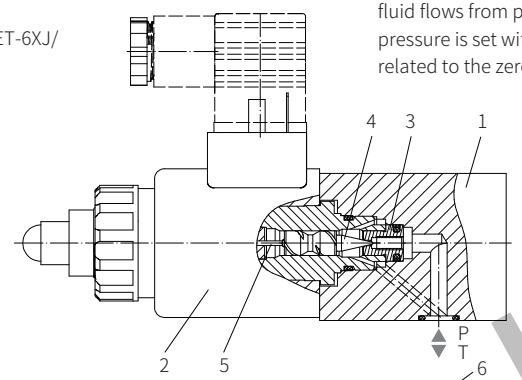
Overview

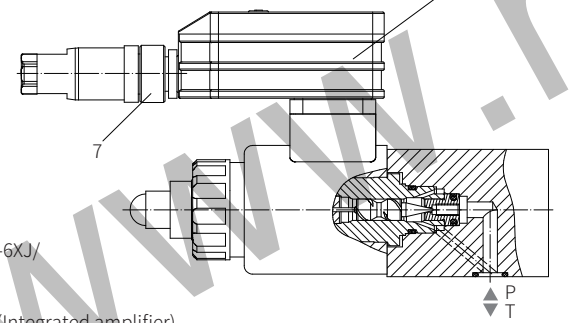
Model DBETE (Integrated Electronic Control)
The function and design of this valve are the same as the DBET type. There is an additional plug type proportional amplifier (6) on the proportional solenoid, which is included in the electronic control.
The plug (7) receives power and command value. The command value pressure characteristic curve is pre-set by the manufacturer based on the principle of minimum manufacturing tolerance. For more detailed instructions on integrated electronic controllers, please refer to the instructions.

Operating Principle:

The system pressure is regulated by the command value of the electronic controller which supplies a current to the solenoid based on the command value. The proportional solenoid converts the current into mechanical force and acts on the poppet valve (4) through the armature pin (5), The poppet valve (4) presses on the valve seat (3) directly, thereby closing the connection from port P to T.
If the hydraulic force on the poppet valve (4) is equal to the solenoid force, then the valve controls the set pressure by lifting the poppet valve (4) off the valve seat (3), and thus allowing the pressure fluid flows from port P to T. The minimum setting pressure is set with minimum control current related to the zero command value.

Model DBET-6XJ/





Model DBETE-6XJ/

Model DBETE (Integrated amplifier)
The function and design of this valve is same as model DBET.
There is an additional plug type proportional amplifier (6) with electric controller on the proportional solenoid. The connector (7) receives power and command value. The command value pressure characteristic curve is pre-set based on the minimum manufacturing tolerance principle by the manufacturer. For more detailed information on the integrated amplifier, please refer to the instructions.

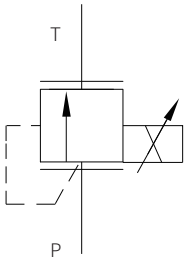
Models and specifications

DBET — 6X / G24 *

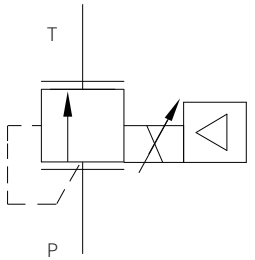
- proportional relief valve
- external amplifier =No code
  integrated amplifier =E
- 60 to 69 series =6X
  (60 to 69 series installation and connection size unchanged)
- Rekith =J
- maximum pressure stage
  up to 50bar =50
  up to 100bar =100
  up to 200bar =200
  up to 315bar =315
  up to 350bar =350
- supply voltage
  24VDC =G24
- more information in text
- sealing material
  No code= NBR seals
  V= FKM seals
  (consult for other seals)
- for model DBETE
  A1= command value 0 to 10 V
  F1= command value 4 to 20 mA
- DBET electrical connection:
  K4= Square socket without plug
  Z4= Square socket with plug
- DBETE electrical connection:
  K31S= With 1.5 meter cable and tin on the end
  K31C= With M12 × 1 aviation plug, 5-pin
- No code= 1600mA coil
  -8 800mA coil

Functional symbols

external amplifier (model DBET)



integrated amplifier (model DBETE)



Technical parameters

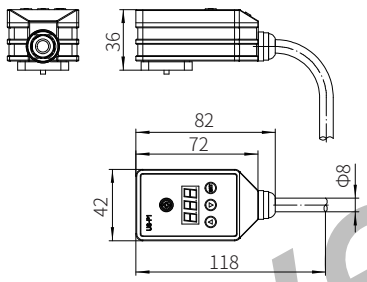
Overview		DBET	DBETE
Installation position		Optional	
Storage temperature range	°C	-20 to +80	
Environment temperature range	°C	-20 to +70	-20 to +50
Weight	kg	2.0	2.15

Hydraulic (measured when using HLP46, ϑ_{oil}=40°C ± 5°C)			DBET	DBETE
Maximum working pressure	Port P	bar	350	
Maximum adjustable pressure	Pressure stage 50	bar	50	
	Pressure stage 100	bar	100	
	Pressure stage 200	bar	200	
	Pressure stage 315	bar	315	
	Pressure stage 350	bar	350	
Minimum setting pressure (at command value 0V or 40 mA)		bar	See characteristic curves	
Return flow pressure	Port T	bar	Separate and at zero pressure to tank	
Maximum flow		L/min	2	
Linearity		%	±3.5 of maximum setting pressure	
Hysteresis		%	±2 of maximum setting pressure	
Repeatability		%	<±2 of maximum setting pressure	
Switching time		ms	30 to 150 (depending on system)	

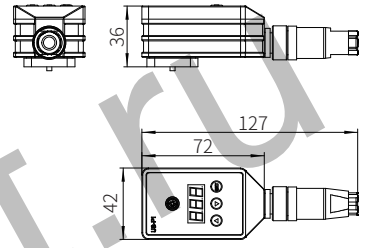
Electrical parameters		
Voltage type		24VDC
Minimum control current	mA	100
Maximum control current	mA	800 or 1600
Coil resistance	Ω	Cold value at 20°C 5.5 Ω, Maximum warm value: 8.05 Ω
Duty		Continuous
Electrical connections		Plug-in connector to DIN EN175301-803
Class of protection		IP65
Amplifier		RT-PQDA-1 (2) (external) US-P1 (plug type proportional amplifier)

Electrical connections

Model DBETE-6XJ/...K31S



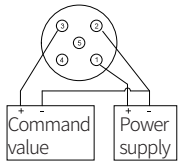
Model DBETE-6XJ/...K31C



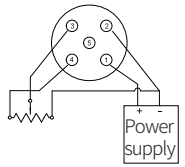
Terminal Definition

M12 plug terminal number (K31C type)	Cable color (K31S type)	Terminal Definition
1	Red	Power supply+
2	Black	Power supply -/ command value-
3	Yellow	Command value+
4	Blue	Reference voltage 5V
5	Green	-

Connection example: PLC input command



Connection example: Potentiometer input command

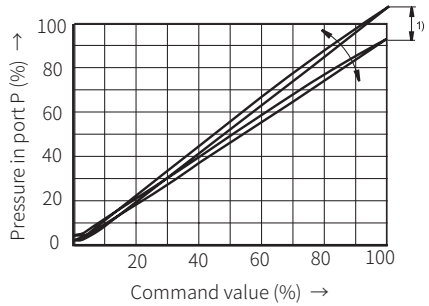


Characteristic curve

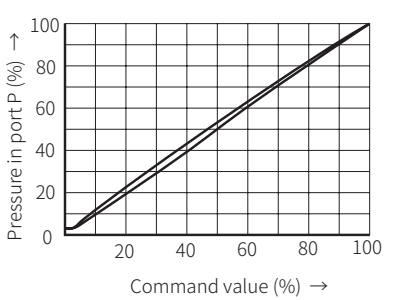
(measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

Pressure in port P in relation to the command value (q_v=0.8L/min)

DBET



DBETE

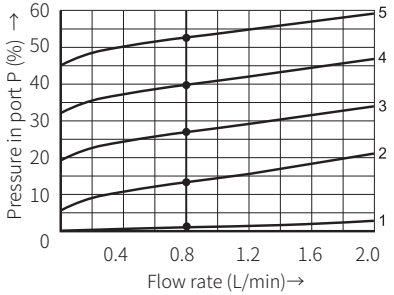


Characteristic curve

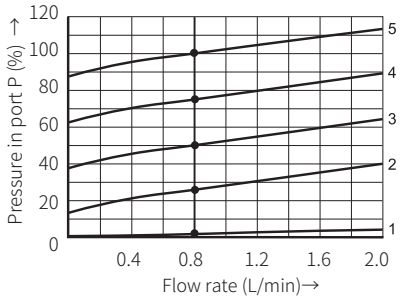
(measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

Pressure in port P in relation to the flow rate

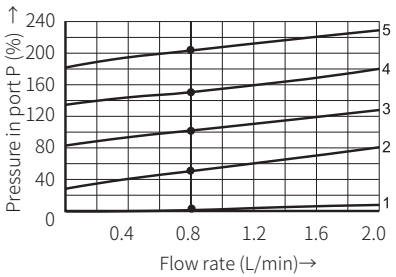
Pressure stage 50bar



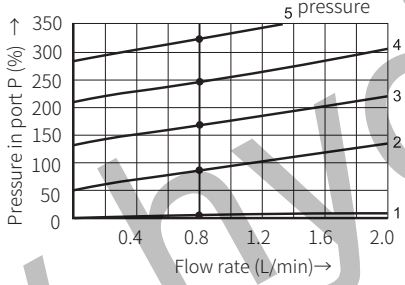
Pressure stage 100bar



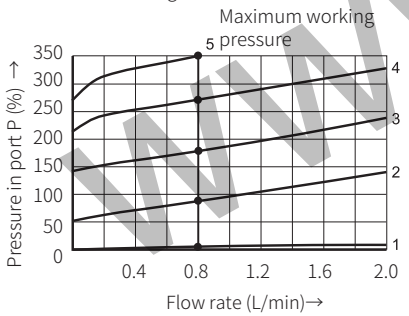
Pressure stage 200bar



Pressure stage 315[1] bar



Pressure stage 350bar



[1] For characteristic curve 5, the command value should not exceed the flow rate of 1.4L/min.

Valid for all pressure stage:
Curve 1=0% command value
Curve 2=25% command value
Curve 3=50% command value
Curve 4=75% command value
Curve 5=100% command value[2]

The characteristic curve is measured without any back pressure in port T (P_T=0 bar).

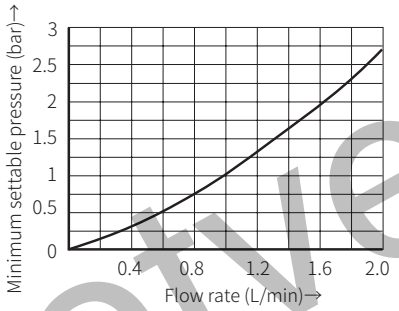
[2] For pressure stage 350 bar and characteristic curve 5, the command value should not exceed the flow rate of 0.8L/min

Characteristic curve

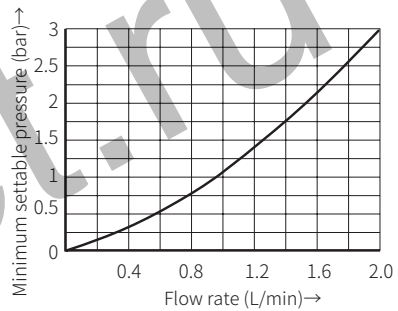
(measured when using HLP46, ϑ_{oil}=40°C ± 5°C)

Minimum settable pressure in port P with command value 0

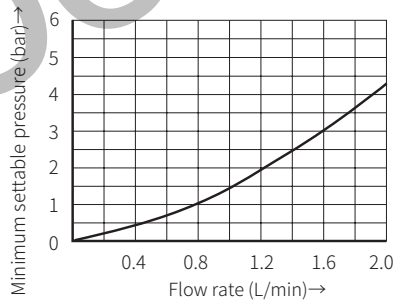
Pressure stage 50bar



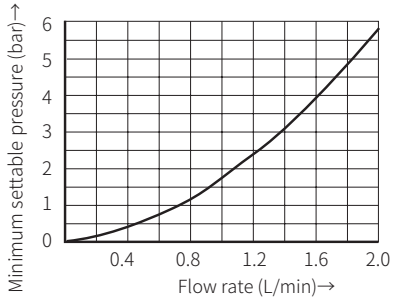
Pressure stage 100bar



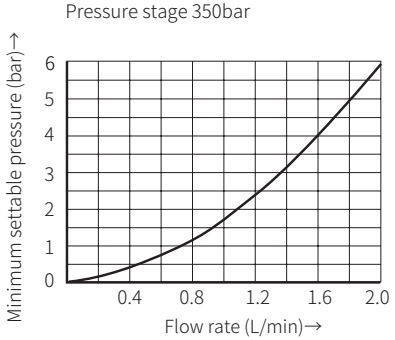
Pressure stage 200bar



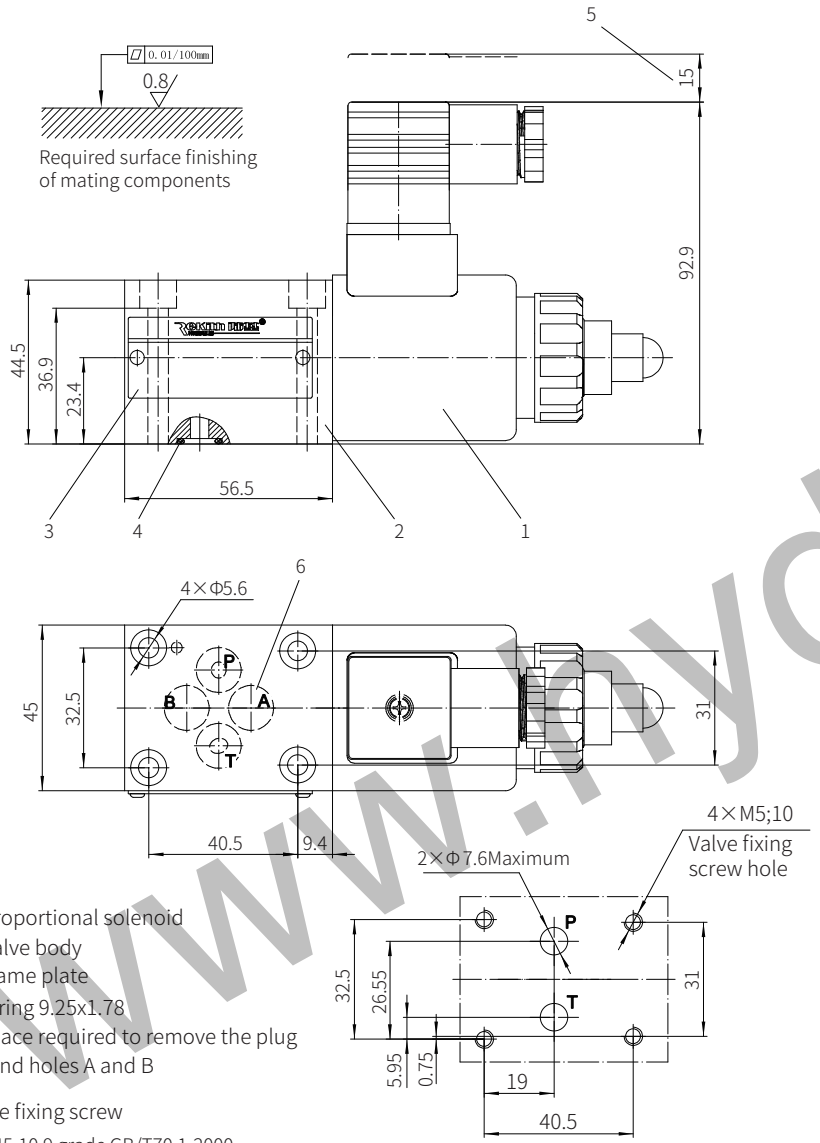
Pressure stage 315bar



Pressure stage 350bar



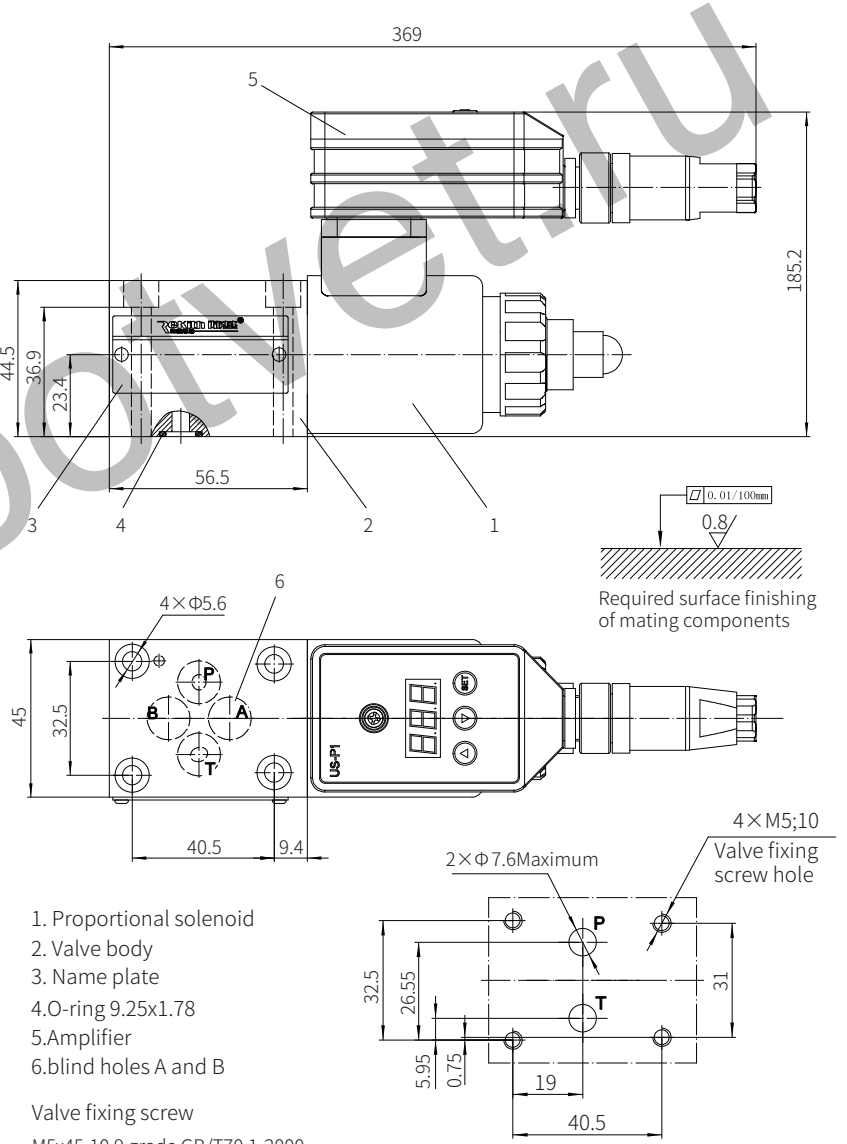
Model DBET-6XJ/...



1. Proportional solenoid
2. Valve body
3. Name plate
4.O-ring 9.25x1.78
5.Space required to remove the plug
6.blind holes A and B

Valve fixing screw
M5x45-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm

Model DBETE-6XJ/...



1. Proportional solenoid
2. Valve body
3. Name plate
4.O-ring 9.25x1.78
5.Amplifier
6.blind holes A and B

Valve fixing screw
M5x45-10.9 grade GB/T70.1-2000
Tightening torque M_A=7.8Nm