

DBEM/DBEME

Pilot Operated Proportional Relief ValveSize 10/25/32 Maximum working pressure 350 bar Maximum working flow 700 L/min



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Features

- For subplate mounting
- For installation in manifolds
- Maximum pressure limitation
- Both valves and proportional amplifiers from the same supplier



Function description, sectional drawing

The DBEM and DBEME valves are pilot operated proportional relief valves and used to limit the hydraulic system pressure. The pressure in hydraulic system can be adjusted according to the electric command value by these valves.

They basically consist of the main valve body (1) with main valve spool (3), pilot control valve (2) and the solenoid pilot valve (11).

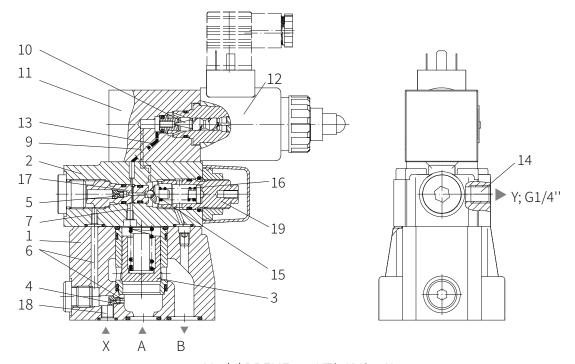
Model DBEM

The pressure at the P port acts on the bottom of the main valve spool (3), and also acts on the spring loaded side of the main valve spool (3) by orifices (6,7) and plug-in damping (4,5). The pressure is applied to the needle valve (10) of the solenoid pilot valve (11) through the control hole (9) to counteract the output force of the proportional solenoid (12) according to the set value. If the hydraulic pressure exceeds the output force of the proportional solenoid, the needle valve (10) opens. The pilot oil flows into port Y through orifice (13) and returns to the oil tank. Subsequently, The pressure drop is formed from orifices (6,7) and against the force of the return spring to lift the main valve spool (3). The port P is connected to port T. The main valve spool (3) controls the pressure at the P port.

An additional spring loaded pilot control valve (2) is required to limit the maximum pressure (pressure protection function). The conical valve (15) and pilot valve seat (17) are closed due to the force of the spring (16).

If the pressure in the spring chamber of the main valve spool (3) exceeds the maximum allowable setting pressure of the valve, the conical valve (15) overcomes the force of the return spring to open and connect the oil circuit to the spring chamber. The pressure oil returns to the oil tank via port Y. The pressure drop is formed from orifices (6, 7) and overcome the force of the return spring to lift the main valve spool (3). The connection from port P to port T is opened. The main valve spool (3) controls the pressure at the port P.

The pre-set pressure can be reduced by the adjusting sleeve (19) if necessary. Port Y must return to the oil tank from the external pipeline, and there is no pressure in the return pipeline layer. The valve unloads and limits the maximum pressure through port X (18).



Model DBEME10-7XT/...XYG24K4

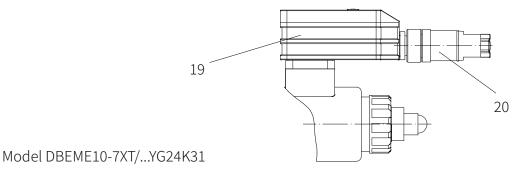


Function description, sectional drawing

Model DBEME

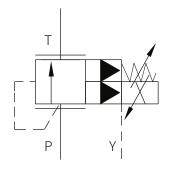
The function and design of this valve is basically the same as model DBE/DBEM except electronic controller.

The electronic control position and integrated plug amplifier (19) receive power and command values by the plug-in plug (20).

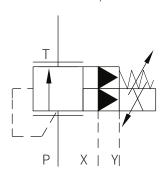


Function symbols

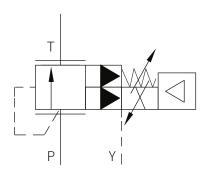
Model DBEM...7XT/...Y...



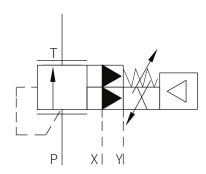
Model DBEM...7XT/...XY...



Model DBEME...7XT/...Y...

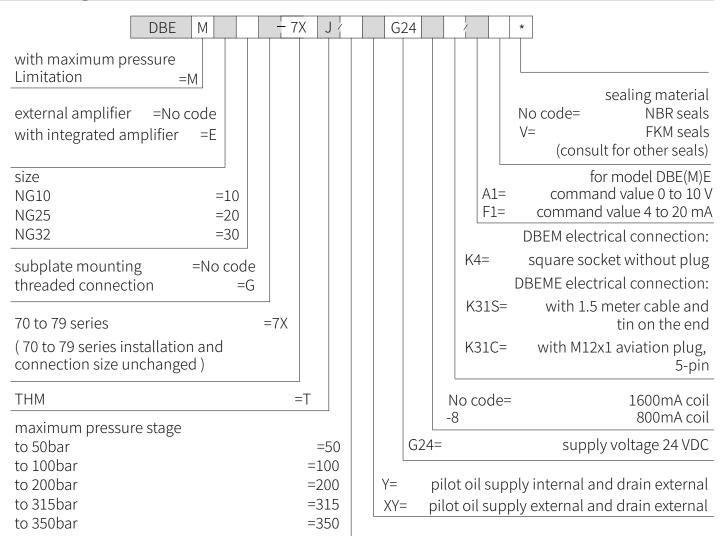


Model DBEME...7XT/...XY...



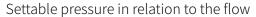


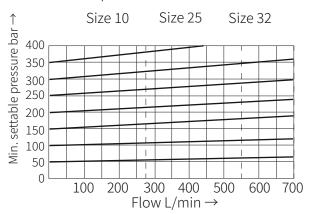
Ordering code



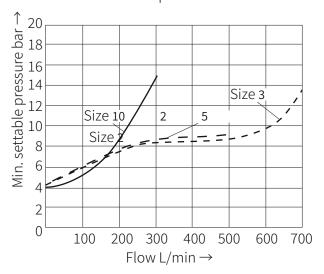


Characteristic curve

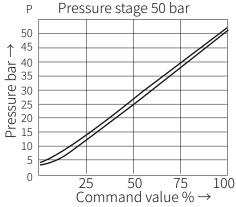


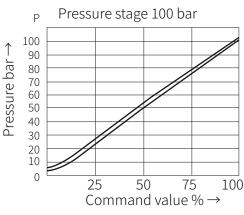


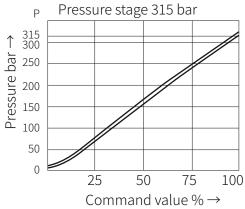
Minimum settable pressure at command value 0

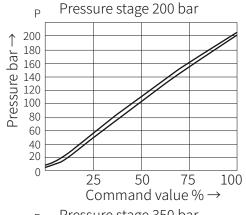


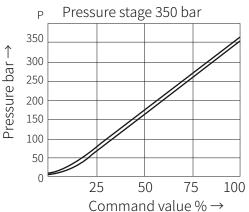
Command value pressure characteristic curve (measured at a flow rate of 24L/min)













Technical parameters

(Test conditions: measured at v =40mm²/s, t=50°C)

Size				Size 10	Size	25	Size 32
Maximum working pressure Oil ports P and X bar			350				
Oil port T bar			315				
		Oil port Y	bar	zero pressure return oil tank Separately			
Maximum setting	pressure Pr	essure stage 50	bar	50			
	Pre	ssure stage 100	bar	100			
	Pre	ssure stage 200	bar	200			
	Pre	ssure stage 315	bar	315			
	Pre	ssure stage 350	bar	350			
Minimum setting p	ressure at cor	mmand value zero	obar				
Maximum flow rat	te	L,	/min	275	55	50	700
Pilot flow rate		L,	/min	0.4 to 1	0.4 to	o 1.5	0.4 to 1.5
Fluid				Mineral hydraulic oil, phosphate ester hydraulic oil			
Oil temperature ra	ange		°C	-20 to +80			
Viscosity range		m	m²/s	15 to 380			
Hysteresis				\leq 5% of the m	naximum	setting	pressure
(see command val	ue pressure o	characteristic cur	ve)				
Linearity			%	\pm 3.5 of the m	aximum:	setting p	oressure
Manufacturing tolerance Model DBEM % of the command value pressure characteristic curve,			± 5 of the maximum pressure regulation value				
according to the hysteresis characteristic curve when pressure increasing			\pm 1.5 of the maximum setting pressure				
Step response Tu+Tg 10 % →90 % ms		~100 Measured with 0.2L of oil at port A					
	0	90 % →10 %	ms	~100	CG WICH O		на ротел
Step response Tu	ı+Tg	10 % →90 %	ms		red with 5	of oil i	at port A
	O	90 % →10 %	ms	~200			
Electrical				G24			G24-8
Minimum control	current		mΑ	≤100			≤100
Maximum control			mΑ	1600 ±	10 %		800 ±5 %
Coil resistance	Cold value 2	0 °C	Ω	5.5 20.6		20.6	
Maximum hot value Ω		8.05 33		33			
Duty			%	100			100
	: t (ODE)						
Electronic control		ltaga	VDC	2.4			
Voltage type	Nominal vo		VDC	24			
Current consumerat			VDC ^	1.5			
Current consumpt	uon		A		<u></u>		
Demand power A							
input Voltage V							
	output Measuring current mV			IP65			
Valve protection to EN60529 IP65							

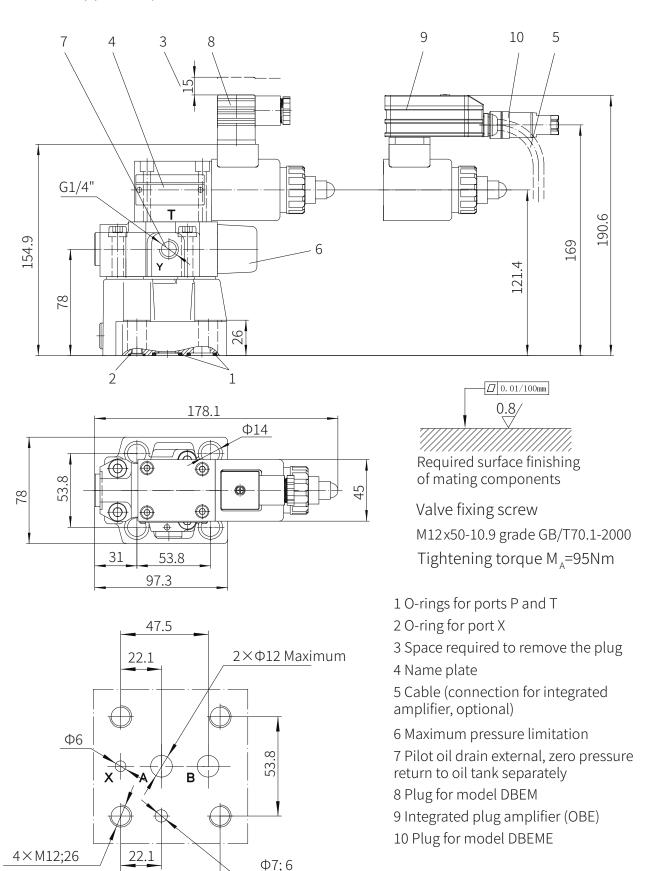
Valve fixing

screw hole

53.8

(Dimensions in mm)

Model DBEM(E)10...-7XJ/...

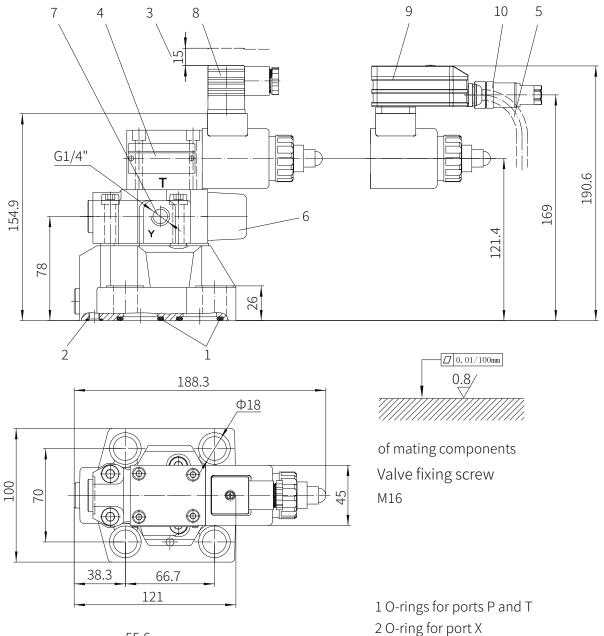


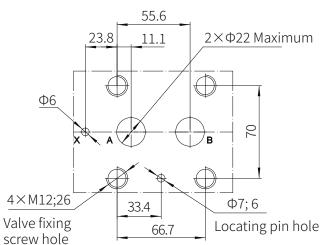
Location pin hole



(Dimensions in mm)

Model DBEM(E)20...-7XJ/...



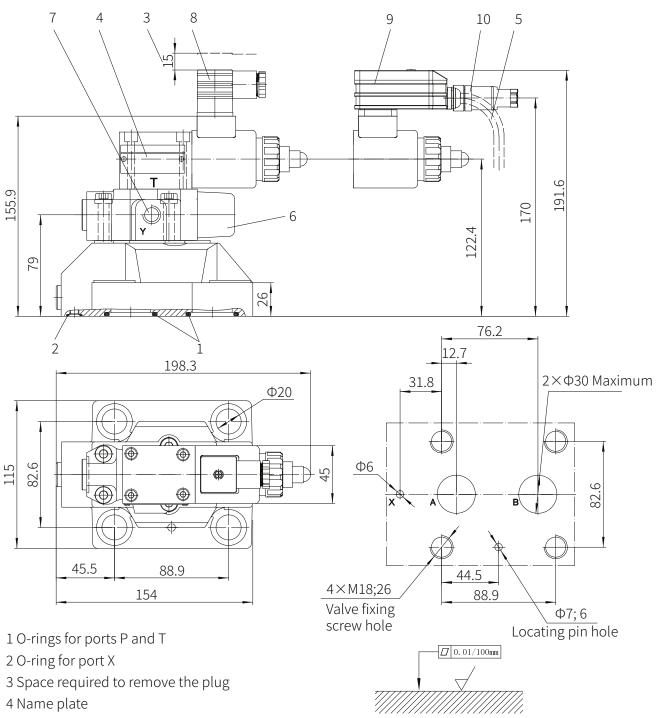


- 3 Space required to remove the plug
- 4 Name plate
- 5 Cable (connection for integrated amplifier, optional)
- 6 Maximum pressure limitation
- 7 Pilot oil drain external, zero pressure return to oil tank separately
- 8 Plug for model DBEM
- 9 Integrated plug amplifier (OBE)
- 10 Plug for model DBEME



(Dimensions in mm)

Model DBEM(E)30...-7XJ/...



- 5 Cable (connection for integrated amplifier, optional)
- 6 Maximum pressure limitation
- 7 Pilot oil drain external, zero pressure return to oil tank separately
- 8 Plug for model DBEM
- 9 Integrated plug amplifier (OBE)
- 10 Plug for model DBEME

of mating components

Valve fixing screw

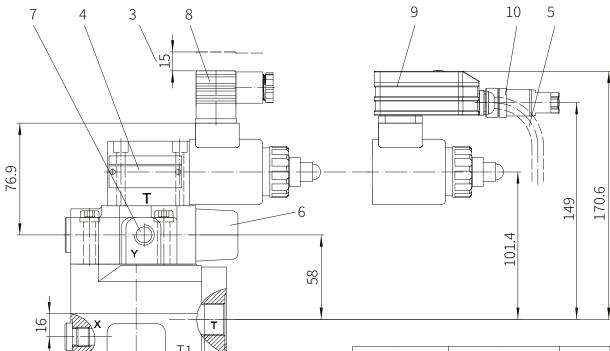
M18x50-10.9 grade GB/T70.1-2000

Tightening torque M_A=260Nm



(Dimensions in mm)

Model DBEM (E)G



	178.1
80	51

Ф11 1

D1

ΦD2

72

Size	D1	D2	T1
NG10	G1/2;M22×1.5	34	14
NG15	G3/4;M27×2	42	16
NG20	G1;M33×2	47	18
NG25	G11/4;M42×2	58	20
NG30	G11/2;M48×2	65	22

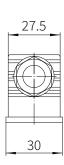
- 1 Valve fixing screw hole
- 2 Plug for model DBEME
- 3 Space required to remove the plug
- 4 Name plate
- 5 Cable (connection for integrated amplifier, optional)
- 6 Maximum pressure limitation
- 7 Pilot oil drain external, zero pressure return to oil tank separately
- 8 Plug for model DBEM
- 9 Integrated plug amplifier (OBE)

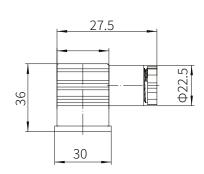


(Dimensions in mm)

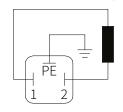
Model DBEM...7XJ/...K4

Plug -in connector to DIN 175301-803

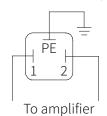




Connection at component plug

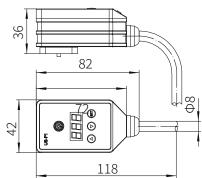


Connection at plug-in connector

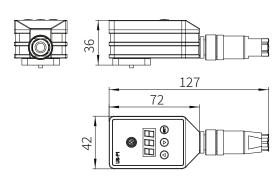


Model DBEM...7XJ/...K31S





Model DBEME...7XJ/...K31C



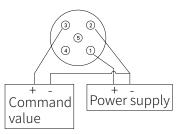
Terminal identification

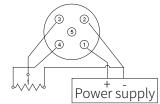
M12 plug terminal number (K31C type)	Cable color (K31S type)	Terminal identification
1	Red	Power supply +
2	Black	Power supply -/command value -
3	Yellow	Command value +
4	Blue	Reference voltage 5V
5	Green	-

Connection example:

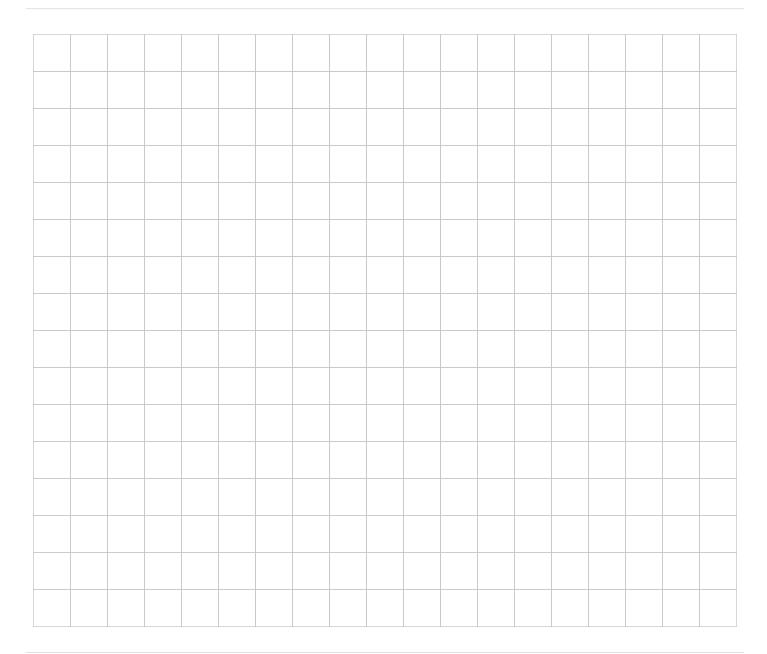
PLC example input command

Connection example: Potentiometer input command









The specified data is for product description purposes only and may not be deemed to be guaranteed unless expressly confirmed in the contract.



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