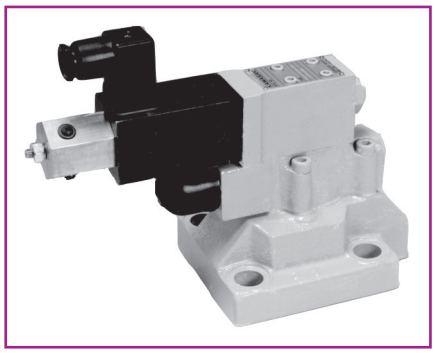
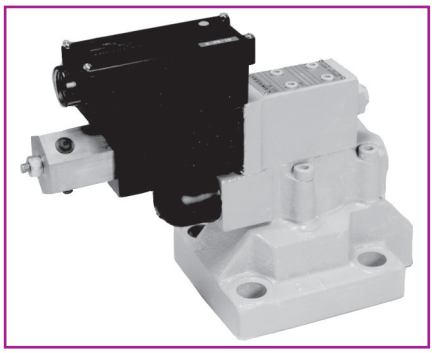
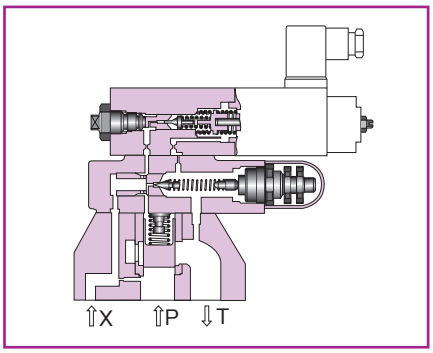
Kawasaki
VALVE

Solenoid proportional balanced piston type relief valve RBP







Overview

The solenoid proportional balanced piston type relief valve consists of the solenoid proportional pilot relief valve and balanced piston type relief valve, and allows hydraulic pressure to be remotely controlled at a given rate in proportion to the input current. In addition, amplifier mounted types are controlled by voltage input. Various serieses are lined up including high pressure, high flow rate, therefore, the best suited equipment can be selected for your usage.

Features

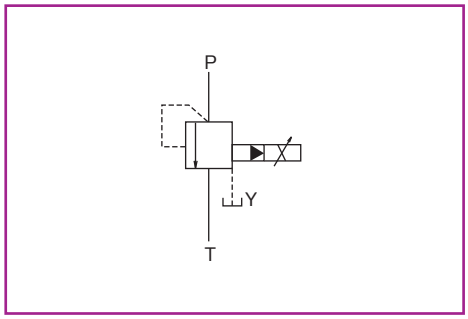
1. The maximum pressure limiting device provides safety measures against abnormal pressure.
2. Special damping mechanism in the solenoid proportional pilot relief valve realises superior stability even at high pressure 34.3 MPa (350 kgf/cm²).
3. During the initial adjustment or malfunction in the electrical system, manual operation can be done with the manual pressure adjustment thread on the pilot relief valve.
4. Easy handling amplifier mounted type is also lined up.

Type indication

RBP 10 P - 10 / 350 Y - E C - ☐

- **RBP** — Solenoid proportional balanced piston type relief valve
- **10** — Nominal dimension: 10, 20, 30, 35
- **P** — Connection method: P = Gasket connection type
- **10** — Series number: 10
- **350** — Highest adjustment pressure
  - 50 = 4.9MPa (50kgf/cm²)
  - 100 = 9.8MPa (100kgf/cm²)
  - 150 = 14.7MPa (150kgf/cm²)
  - 250 = 24.5MPa (250kgf/cm²)
  - 315 = 30.9MPa (315kgf/cm²)
  - 350 = 34.3MPa (350kgf/cm²)
- **Y** — Pilot drain type: Y = External drain
- **E** — Solenoid ratings: E = 14.2Ω×0.8A
- **C** — Electric connection symbol
  - B = DIN connector
  - C = DIN large connector
  - E = Amplifier mounted type
- ☐ — Type of hydraulic oil
  - No symbol = Mineral based hydraulic oil
  - V = Phosphate ester based hydraulic oil
  - W = Fatty ester based hydraulic oil
  - Water-glycol based hydraulic oil

Hydraulic symbols



Specifications

Nominal dimension			10	20	30	35
Maximum working pressure MPa (kgf/cm²)	Ports P, T, and X		34.3 (350)			
	Port Y		1.0 (10)			
Maximum flow rate L/min			150	300	500	700
Reproducibility %			2 or less			
Hysteresis %			5 or less			
Electrical specifications	Solenoid rated current mA		See the Current - Pressure Characterisitics (the following figure).			
	Coil resistance Ω		14.2 at 20℃			
	Dither (Recommendable value)		200HzPWM/200Hz, 200mAP-P			
	In case the amplifier is installed separately	Standard amplifier type	KC-B10/C-B10-A^{100}_{200}			
	In case of amplifier mounted type	Power source	DC24V			
		Command voltage	0 to 5V			
Mass kg	RBP*P-10/*-E$^{B}_{C}$		5.3	6.2	7.1	20.5
	RBP*P-10/*-EE		5.8	6.7	7.6	21

Sub-plate

Valve type	Sub-plate type	Connection diameter	Mass
RBP10	P-RB10R14-0	Rc 1/4	2.1kg
	P-RB10G14-0	G 1/4	
	P-RB10R38-0	Rc 3/8	
	P-RB10G38-0	G 3/8	
	P-RB10R12-0	Rc 1/2	
	P-RB10G12-0	G 1/2	
RBP20	P-RB20R34-0	Rc 3/4	4.4kg
	P-RB20G34-0	G 3/4	
	P-RB20R1-0	Rc1	
	P-RB20G1-0	G1	
RBP30	P-RB30R54-0	Rc1 1/4	6.9kg
	P-RB30G54-0	G1 1/4	
	P-RB30R32-0	Rc1 1/2	
	P-RB30G32-0	G1 1/2	

When you use a sub-plate, please place an order for the above sub-plate type.
For the dimension drawing, refer to page 5 and 6 of the appendix.

Accessories

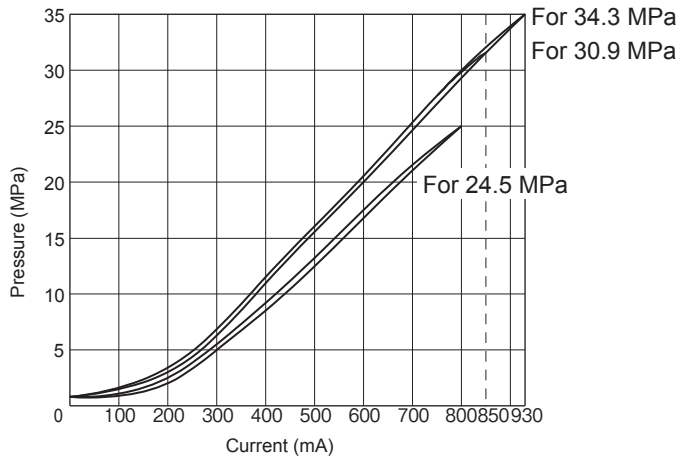
Mounting bolt

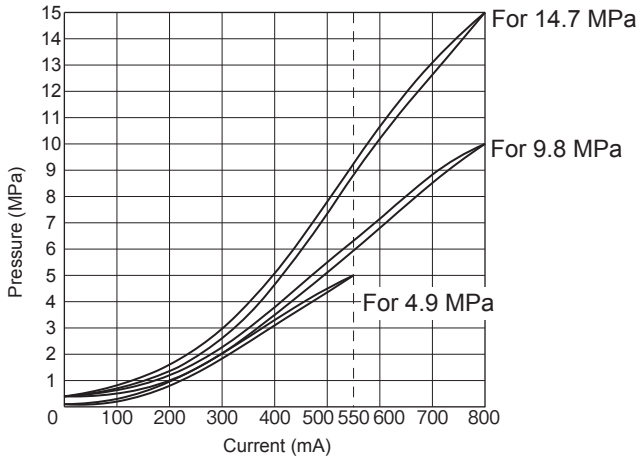
Type	Hexagon socket head cap thread	Quantity	Tightening torque N・m (kgf・cm)
RBP10	M12×45L	4 pcs.	98.0 ± 14.7 (1000 ± 150)
RBP20	M16×50L	4 pcs.	235.2 ± 35.2 (2400 ± 360)
RBP30	M18×50L	4 pcs.	333.2 ± 50.0 (3400 ± 510)
RBP35	M16×70L	6 pcs.	235.2 ± 35.2 (2400 ± 360)

Current - Pressure characteristics (viscosity 25 mm²/s (cSt))

●RBP*

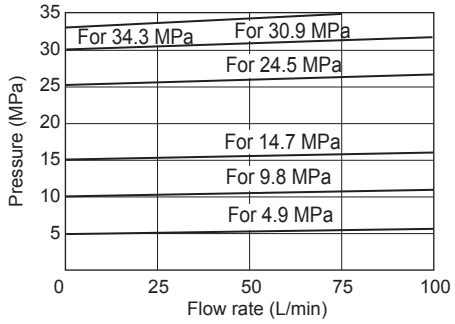
Flow rate: Maximum flow rate×1/2 Dither: 200 HzPWM



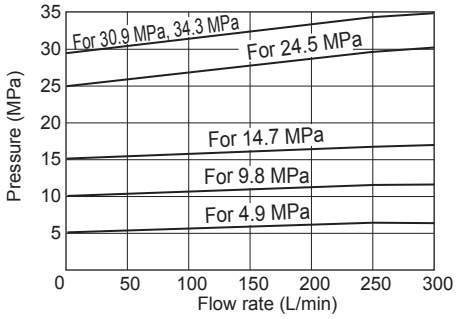


Pressure override characteristics (viscosity 25 mm²/s (cSt))

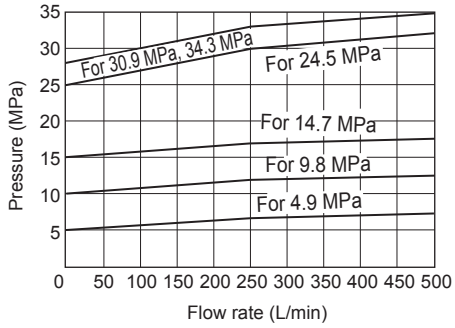
●RBP10



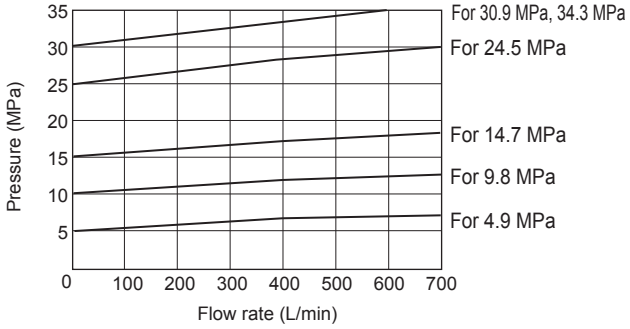
●RBP20



●RBP30

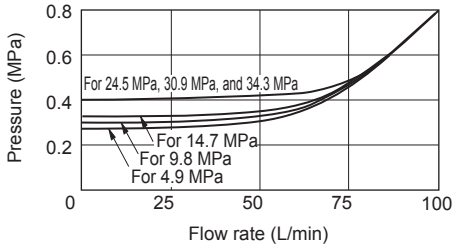


●RBP35

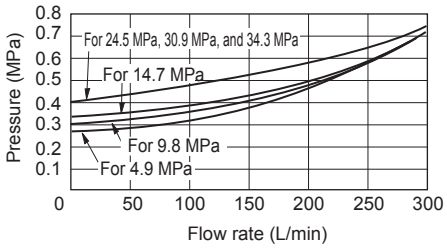


Minimum adjustment pressure characterisitcs (viscosity 25 mm²/s (cSt)) Input current: 0

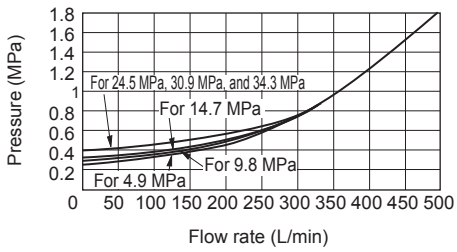
●RBP10



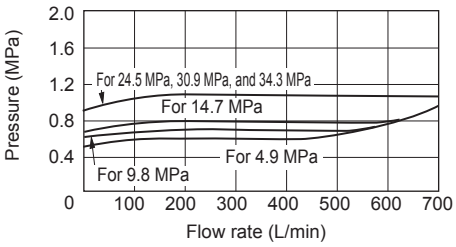
●RBP20



●RBP30

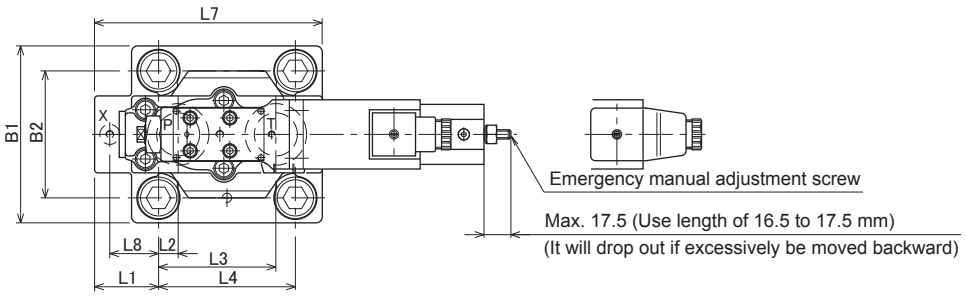


●RBP35

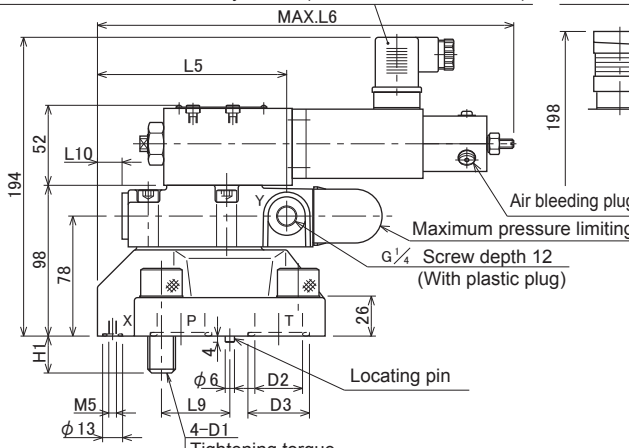


■Dimension drawing

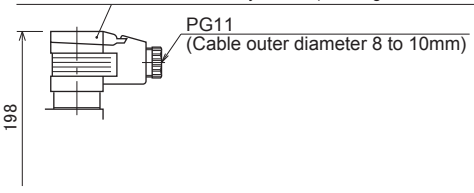
●RBP10, 20, 30P-10/*−E$^{B}_{C}$



In case of electric connection symbol B (DIN connector GDM3011)



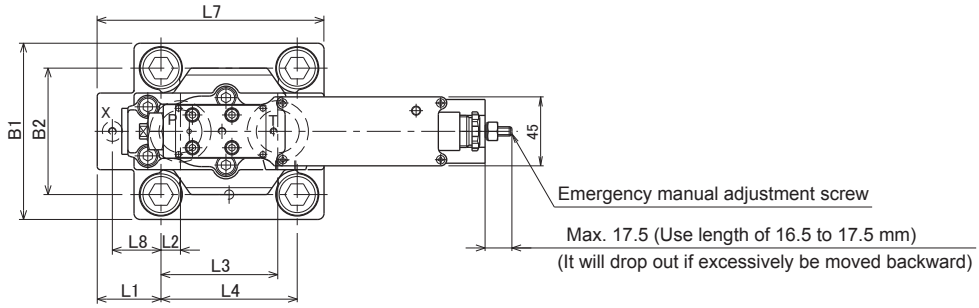
In case of electric connection symbol C (DIN large connector GDME3011)

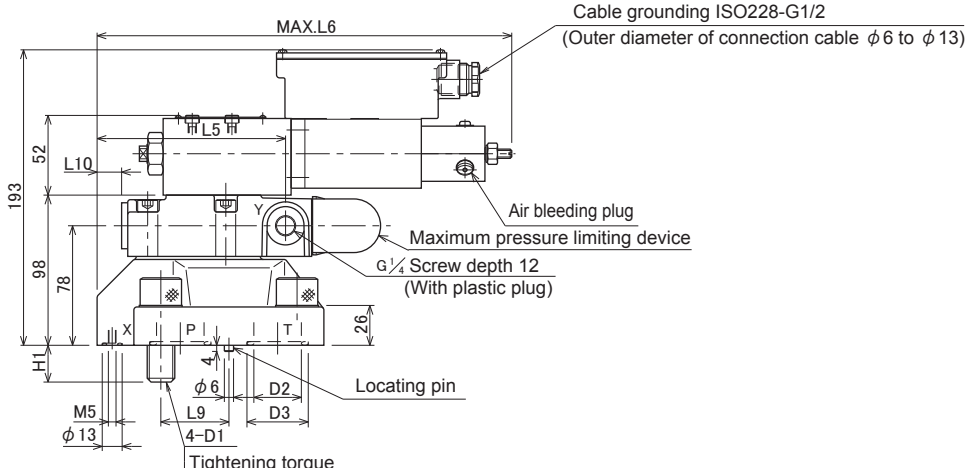


Tightening torque

#10 (M12)	98±15 N·m (1000±150 kgf·cm)
#20 (M16)	235±35 N·m (2400±360 kgf·cm)
#30 (M18)	333±50 N·m (3400±510 kgf·cm)

●RBP$^{10}_{20}_{30}$P-10/*−EE





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Nominal dimension	B1	B2	D1	D2	D3	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	H1	O-ring JIS B2401	
																	P and T ports	T port
10	78	54	M12	12	20	23.5	22.1	47.6	54	99.5	251	90	0	22.1	*−7.5	19	P16,Hs 90	P10,Hs 90
20	100	69.8	M16	25	35	34	11.1	55.6	66.7	112.7	265	117	23.8	33.3	5.7	24	G30,Hs 90	P10,Hs 90
30	115	82.5	M18	31	40	41.5	12.7	76.2	88.9	122.9	275	148	31.7	44.4	15.9	24	G35,Hs 90	P10,Hs 90

*The symbol (-) indicates that the dimension shown is measured in the outside position.