

## Overview

Pressure reducing valve of solenoid proportional balanced piston type consists of the solenoid proportional pilot relief valve and balanced piston type pressure reducing valve, and allows hydraulic system 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.

## Features

1. The pilot pressure for the valve is supplied from the primary side, which allows the valve to use pilot flow even when the primary and secondary pressure difference or flow rate increases and provides stable performance. (Nominal dimension 20, 30)
2. The special damping mechanism is used in the solenoid proportional pilot relief valve, even when the primary and secondary pressure drastically changes, superior stability is obtained.
3. The maximum pressure limiting device provides safety measures against abnormal pressure.
4. 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.
5. Easy handling amplifier mounted type is also lined up.

## Type indication

**PRBP 10 P - 10 / 350 C - EC -**

Pressure reducing valve of solenoid proportional balanced piston type

Nominal dimension

10, 20, 30

Connection method

P = Gasket connection type

Series number: 10

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

Electric connection symbol

B = DIN connector  
C = DIN large connector  
E = Amplifier mounted type

Solenoid ratings

E = 14.2Q×0.8A

Types with/without check valve

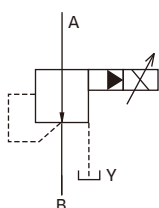
No symbol = Types without the valve  
C = Types with the valve

Highest adjustment pressure

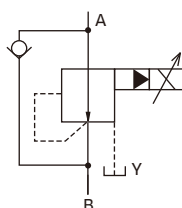
50 = 4.9MPa (50kgf/cm<sup>2</sup>)  
100 = 9.8MPa (100kgf/cm<sup>2</sup>)  
150 = 14.7MPa (150kgf/cm<sup>2</sup>)  
250 = 24.5MPa (250kgf/cm<sup>2</sup>)  
315 = 30.9MPa (315kgf/cm<sup>2</sup>)  
350 = 34.3MPa (350kgf/cm<sup>2</sup>)

## Hydraulic symbols

Types without a check valve



Types with a check valve



## Specifications

Nominal dimension		10	20	30
Maximum working pressure MPa (kgf/cm <sup>2</sup> )	Ports A, B	34.3 (350)		
	Port Y	1.0 (10) External drain, tank		
Maximum flow rate L/min		80	200	300
Reproducibility %		2 or less		
Hysteresis %		5 or less		
Electrical specifications	Solenoid rated current mA	See the Current - Pressure Characteristics (the following figure).		
	Coil resistance Ω	14.2 at 20°C		
	Dither (Recommendable value)	200HzPWM/200Hz, 200mAP-P		
	In case the amplifier is installed separately	Standard amplifier type	KC-B10/C-B10-A <sup>100</sup> / <sub>200</sub>	
	In case of amplifier mounted type	Power source	DC24V	
		Command voltage	0 to 5V	
Mass kg	PRBP*P-10/*-E <sup>1</sup> / <sub>2</sub>	6.4	8.3	11.1
	PRBP*P-10/*-EE	6.9	8.8	11.6

## Sub-plate

Valve type	Sub-plate type	Connection diameter	Mass
PRBP10	P-PRB10R14-0	Rc 1/4	2.1kg
	P-PRB10G14-0	G 1/4	
	P-PRB10R38-0	Rc 3/8	
	P-PRB10G38-0	G 3/8	
	P-PRB10R12-0	Rc 1/2	
	P-PRB10G12-0	G 1/2	
PRBP20	P-PRB20R34-0	Rc 3/4	4.4kg
	P-PRB20G34-0	G 3/4	
	P-PRB20R1-0	Rc 1	
	P-PRB20G1-0	G1	
PRBP30	P-PRB30R54-0	Rc1 1/4	6.9kg
	P-PRB30G54-0	G1 1/4	
	P-PRB30R32-0	Rc1 1/2	
	P-PRB30G32-0	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 6, and 7 of the appendix.

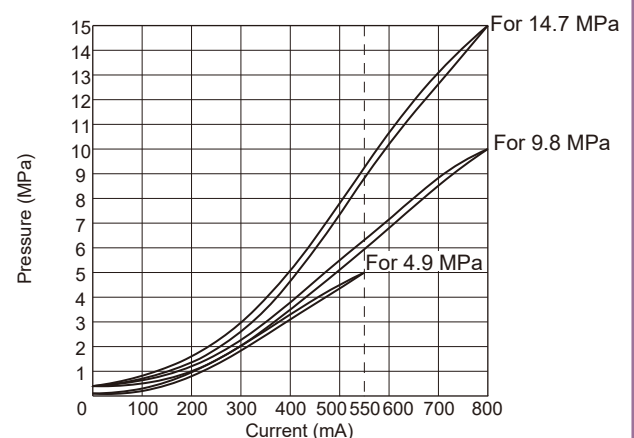
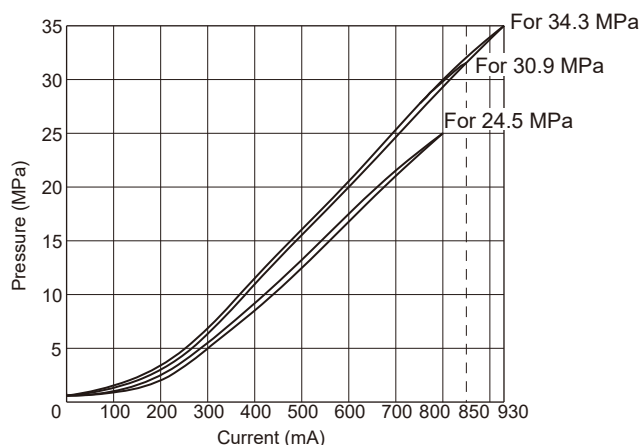
## Accessories

### Mounting bolt

Type	Hexagon socket head cap thread	Quantity	Tightening torque N · m (kgf · cm)
PRBP10	M10×40L	4 pcs.	56.8±8.5 (580±87)
PRBP20	M10×50L	4 pcs.	
PRBP30	M10×60L	6 pcs.	

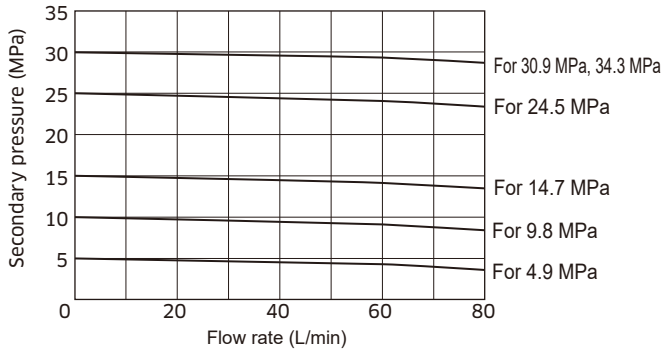
## Current - Pressure characteristics (viscosity 25 mm<sup>2</sup>/s (cSt))

### PRBP\*

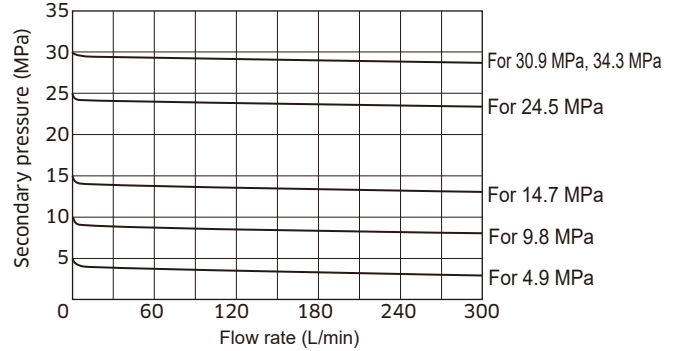


■ Pressure override characteristics (viscosity 25 mm<sup>2</sup>/s (cSt))

● PRBP10

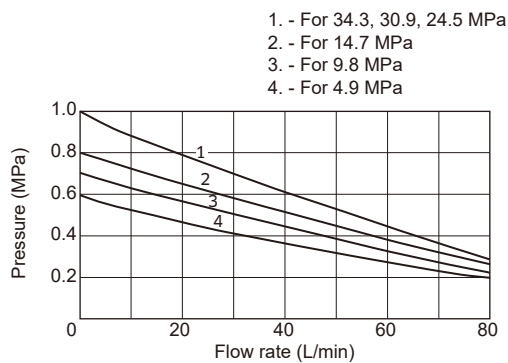


● PRBP20, 30

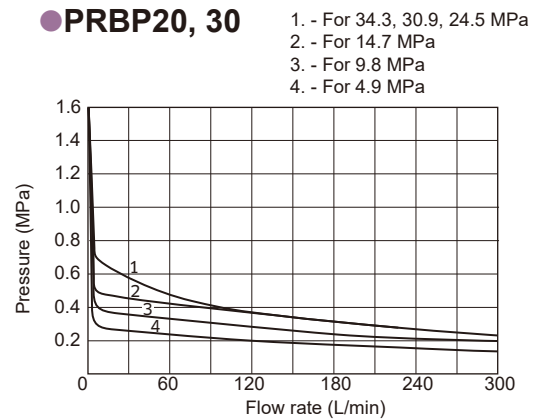


■ Secondary minimum adjustment pressure characteristics (viscosity 25 mm<sup>2</sup>/s (cSt)) Input current: 0

● PRBP10

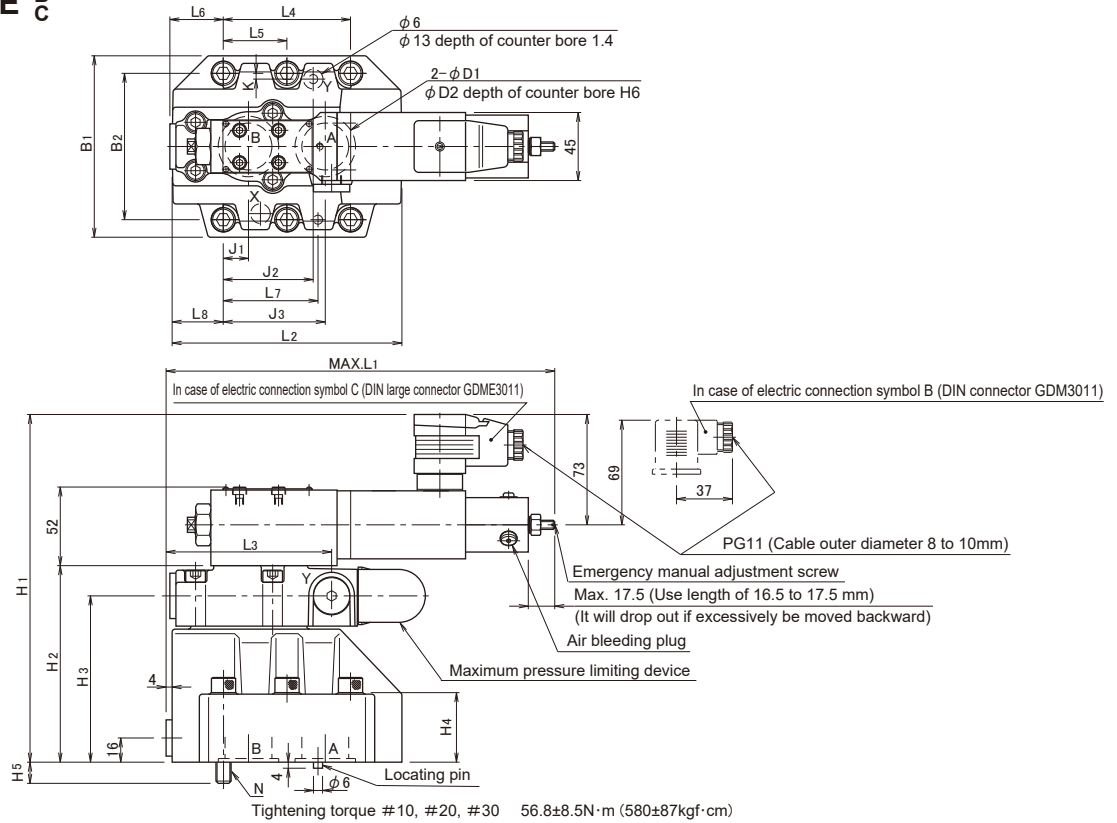


● PRBP20, 30

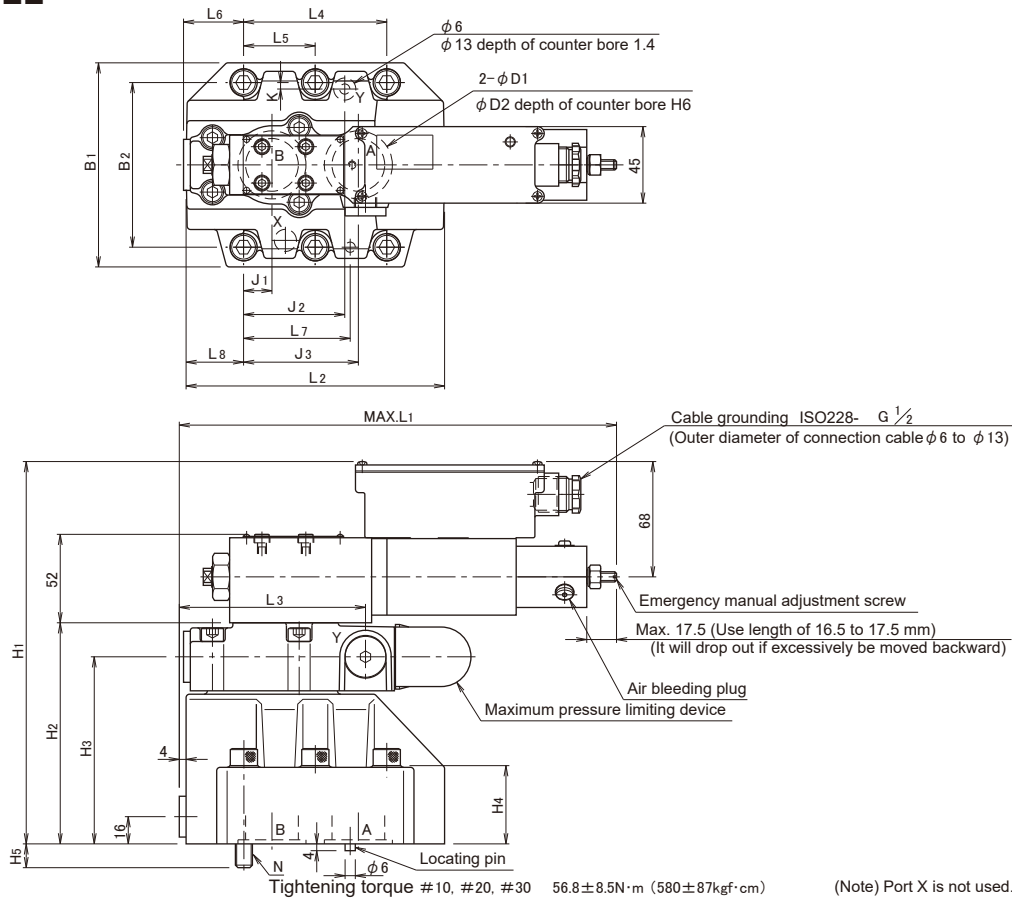


## Dimension drawing

### ● PRBP<sup>10</sup><sub>20</sub><sub>30</sub> P-10/\*-E<sup>B</sup><sub>C</sub>



### ● PRBP<sup>10</sup><sub>20</sub><sub>30</sub> P-10/\*-EE



(Note) Port X is not used.

Nominal dimension	B1	B2	N	D1	D2	H1A	H1B	H2	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6	L7	L8	O-ring JIS B2401	
																					A and B ports	X and Y ports
10	85	66.7	4-M10	15	22	212	207	112	92	28	12	1.8	256	104	108	42.9	—	38.5	31.8	35.5	P18, Hs90	P10, Hs90
20	102	79.4		25	35	222	217	122	102	38	12	2.4	255	121	107	60.3	—	40.5	44.5	33.5	G30, Hs90	
30	120	96.8	6-M10	31	40	230	225	130	110	46	14	2.4	257	153	109.8	84.2	42.1	35.5	62.7	34	G35, Hs90	
Nominal dimension	J1	J2	J3	K																		
10	7.2	21.5	35.8	7.9																		
20	11.1	39.7	49.2	6.4																		
30	16.7	59.5	67.5	3.8																		