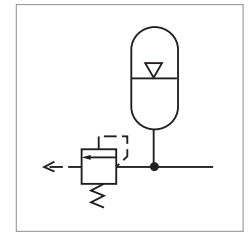
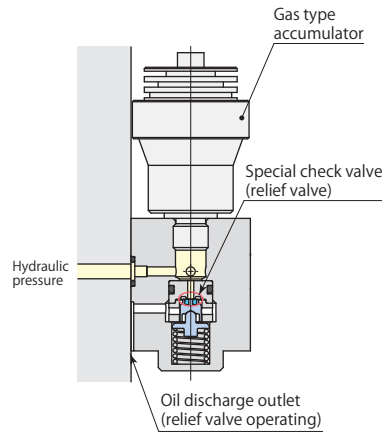




Accumulator model WPC



N₂ pressure type accumulator. Equipped with a relief valve for preventing break-down of device in case of problems with circuit pressure (high pressure).

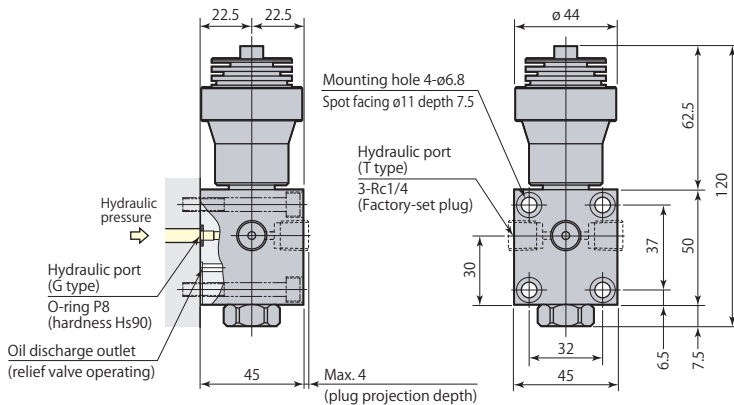
Specifications

Model	WPC13L-G <small>Gas pressure*</small>	WPC13L-T <small>Gas pressure*</small>	WPC40L-G <small>Gas pressure*</small>	WPC40L-T <small>Gas pressure*</small>
Mounting, piping methods	Manifold mounting	Piping mounting	Manifold mounting	Piping mounting
Pressure range	MPa	Refer to page →229 for characteristic line diagram.		
Gas capacity	cm ³	13		40
Oil capacity	cm ³	10		30
Mass	kg	1.1		1.6

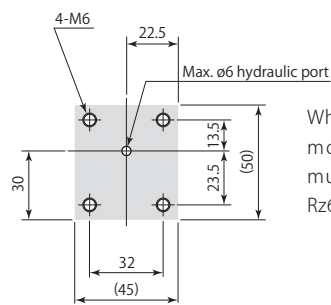
- Proof pressure: 10.5 MPa ● Operating temperature: 0–60°C ● Fluid used: General mineral based hydraulic oil (ISO-VG32 equivalent)
- There is also a type that adopts fluorocarbon for seal sections where cutting fluid is applied, as a measure for the use of chlorine-based cutting fluid (this is not thermal resistant specification. Model designation WPC□L-□□-V).
- *: Initially filled gas pressure can be set in range of 1 MPa to 6 MPa with 0.5 MPa increment. Specify gas pressure when ordering. Example: WPC13L-T3.0 (gas pressure 3 MPa)

Dimensions

WPC13L-□□ *No internal filter

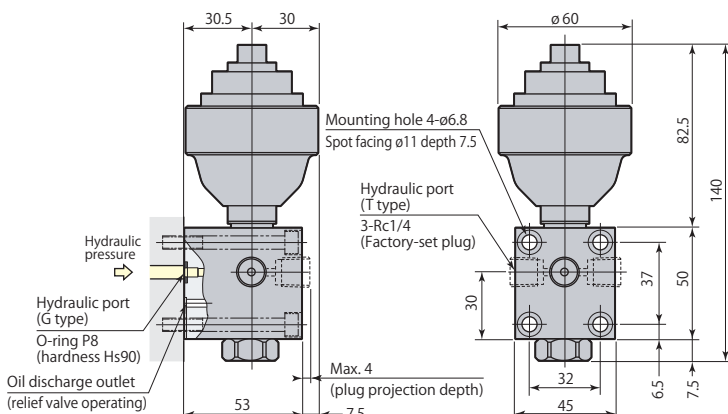


Mounting details

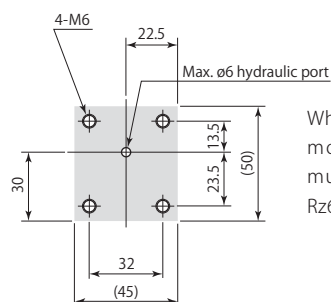


When manifold piping, the mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997).

WPC40L-□□ *No internal filter



Mounting details



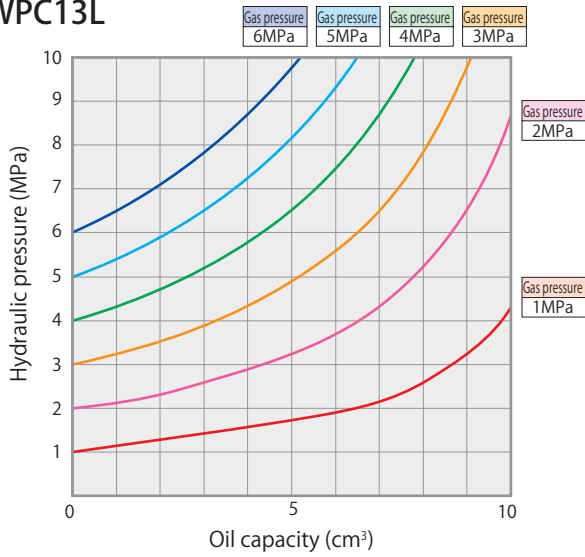
When manifold piping, the mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997).

● Mounting screws are not included.

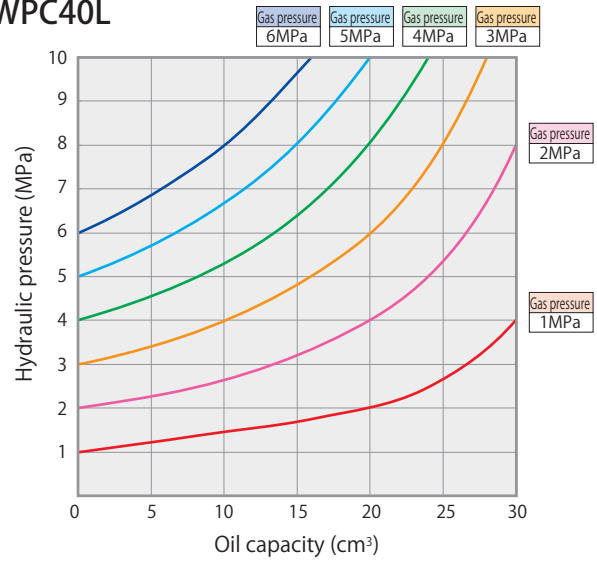
Accumulator WPC N₂ gas

Characteristic line diagram

WPC13L



WPC40L



This characteristic line diagram represents theoretical values.

Model selection example

Condition (estimated temperature drop : 20°C)

Working clamp	CTU06×8 pieces	Piping	Inner diameter ø6×0.8 m×8 pieces
Hydraulic pressure:P	6 MPa	Valve & hydraulic pressure equipment	VCB : 1 piece, VRG : 2 pieces

Selection procedure

1. Calculation of circuit capacity

$$\text{Clamping capacity} = \frac{8.9 \times 2.35 \times 8}{\text{Pressure bearing area} \times \text{Stroke} \times \text{Qty}} = 167 \text{ cm}^3$$

$$\text{Piping capacity} = 0.283 \times 80 \times 8 = 181 \text{ cm}^3$$

$$\text{Valve \& hydraulic equipment capacity} = 8 \times 3 = 24 \text{ cm}^3$$

(Perform calculation with capacity of 8 cm³ for each of valves and hydraulic equipment in hydraulic circuit, when using Pascal product.)

$$\text{Circuit capacity} = 167 + 181 + 24 = 372 \text{ cm}^3$$

2. Selection of oil capacity

Select the equipment having oil capacity capable of keeping volumetric change.

Volumetric change is obtained by using formula shown below.

$$\Delta V = V \times \Delta T \times \alpha \quad \Delta V: \text{Volumetric change (cm}^3\text{)} \quad V: \text{Circuit capacity (cm}^3\text{)}$$

$$\Delta T: \text{Temperature change (}^\circ\text{C)} \quad \alpha: \text{Thermal expansion coefficient (7.8} \times 10^{-4}\text{)}$$

$$\Delta V = 372 \times 20 \times 7.8 \times 10^{-4} = 5.8 \text{ cm}^3$$

Here, WPC40L is selected as an example (*1).

3. Selection of gas pressure

Select the pressure whose oil discharge amount (*2) under hydraulic pressure satisfies ΔV calculated in step 2. Read off characteristic line diagram.

If the hydraulic pressure of the clamping circuit is 6 MPa, select gas pressure 2 MPa, 3 MPa, or 4 MPa.

4. Verification of hydraulic pressure and residual discharge amount (*2) after temperature change

Select the one whose hydraulic pressure drop after temperature change is low and residual discharge amount (*2) satisfies the marginal oil amount (*3). Read off characteristic line diagram.

The hydraulic pressure after temperature change drops to 4.2 MPa with 2 MPa gas pressure (P2), to 4.7 MPa with 3 MPa gas pressure (P3), and to 4.9 MPa with 4 MPa gas pressure (P4), respectively.

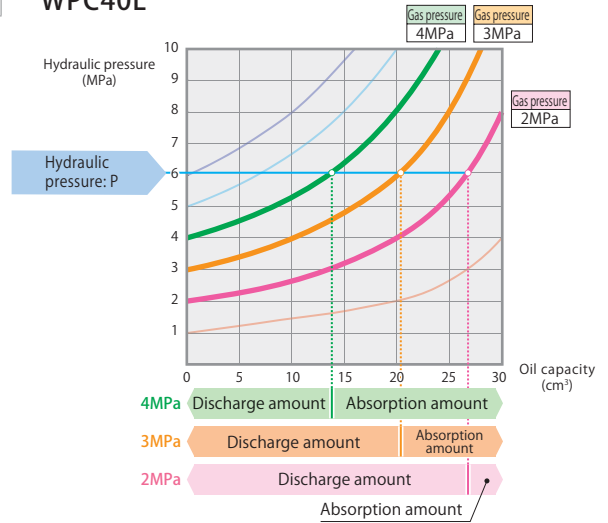
The residual discharge amount (*2) is 20.9 cm³ for 2 MPa gas pressure (V2), 14.2 cm³ for 3 MPa (V3), and 7.5 cm³ for 4 MPa (V4), respectively.

Here, select WPC40L-□4 whose pressure drop is low.

5. Select piping method.

- *1 : WPC13L is also available. Likewise, select appropriate one in consideration of steps 3 and 4.
- *2 : For when the temperature decreases. If the temperature increases, check the absorption amount.
- *3 : Allow adequate margin for residual discharge amount after temperature change, as there may be margin of error with gas filling pressure. Marginal oil amount : About 2.0 cm³

WPC40L



WPC40L

