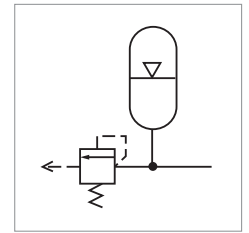
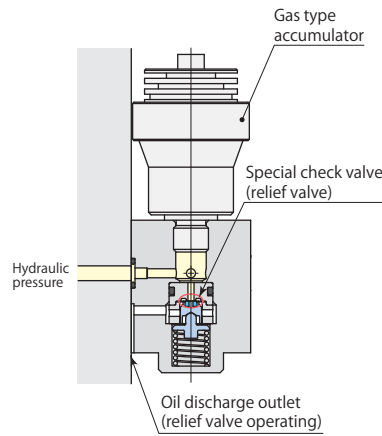




Accumulator model WPC



N<sub>2</sub> pressure type accumulator.  
Equipped with a relief valve for preventing break-down of device in case of problems with circuit pressure (high pressure).

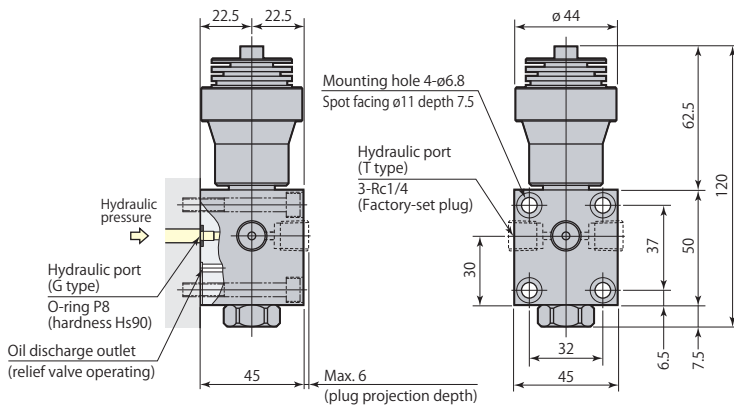
**Specifications**

Model	WPC13H-G	Gas pressure*	WPC13H-T	Gas pressure*	WPC40H-G	Gas pressure*	WPC40H-T	Gas pressure*
Mounting, piping methods	Manifold mounting		Piping mounting		Manifold mounting		Piping mounting	
Pressure range	MPa Refer to <b>page →159</b> for characteristic line diagram.							
Gas capacity	cm <sup>3</sup>		13		cm <sup>3</sup>		40	
Oil capacity	cm <sup>3</sup>		10		cm <sup>3</sup>		30	
Mass	kg		1.1		kg		1.6	

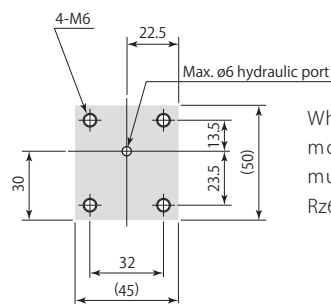
- Proof pressure: 37.5 MPa ● Operating temperature: 0–60°C ● Fluid used: General mineral based hydraulic oil (ISO-VG32 equivalent)
- There is also a type that adopts fluorocarbon for seal sections where cutting fluid is applied, as a measure for the use of chlorine-based cutting fluid (this is not thermal resistant specification. Model designation WPC□H-□□-V).
- \*: Initially filled gas pressure can be set in range of 7 MPa to 25 MPa with 1 MPa increment. Specify gas pressure when ordering.  
Example: WPC13H-T10 (gas pressure 10 MPa)

**Dimensions**

**WPC13H-□□** \*No internal filter

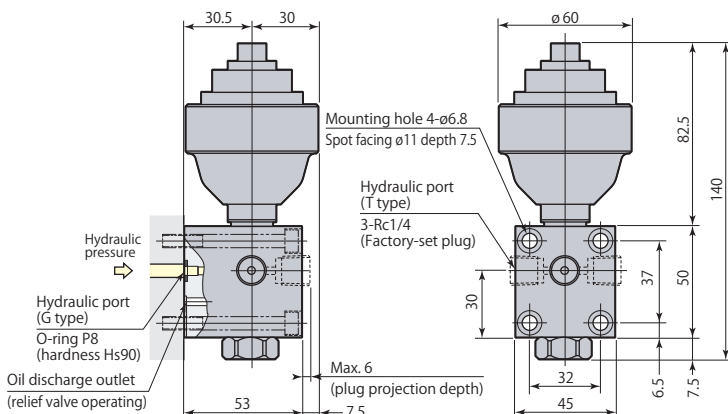


**Mounting details**

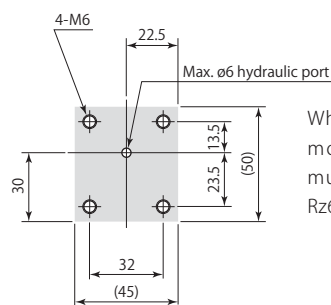


When manifold piping, the mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997).

**WPC40H-□□** \*No internal filter



**Mounting details**

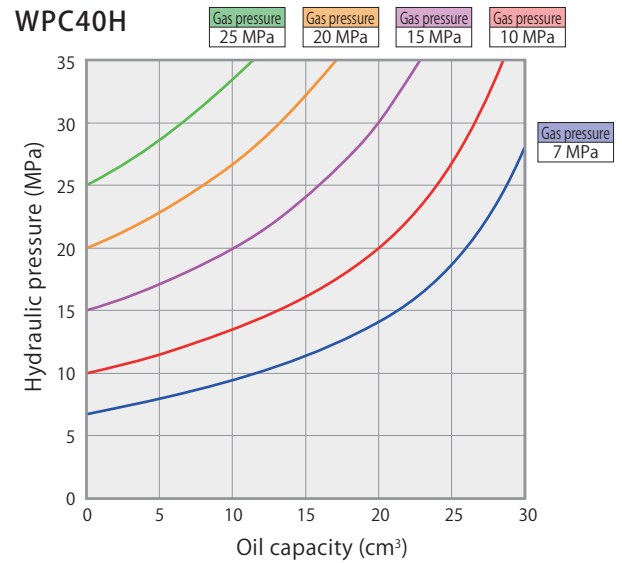
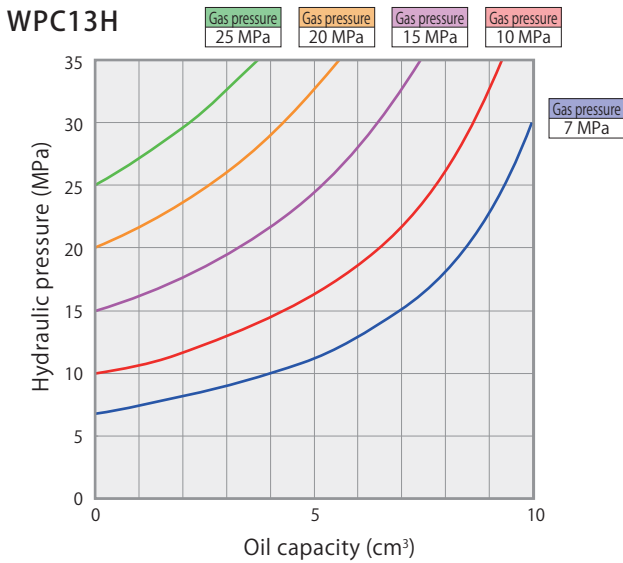


When manifold piping, the mounting surface finish must be no rougher than Rz6.3 (ISO4287:1997).

● Mounting screws are not included.

Accumulator  
WPC  
N<sub>2</sub> gas

Characteristic line diagram



This characteristic line diagram represents theoretical values.

Model selection example

Condition (estimated temperature drop : 20°C)

Working clamp	CLW16×8 pieces	Piping	Inner diameter ø6×0.5 m×8 pieces
Hydraulic pressure:P	25 MPa	Valve & hydraulic pressure equipment	VCB : 1 piece, VRG : 2 pieces

Selection procedure

1. Calculation of circuit capacity

$$\text{Clamping capacity} : \frac{6.16 \times 3.3 \times 8}{\text{Pressure bearing area} \times \text{Stroke} \times \text{Qty}} = 163 \text{ cm}^3$$

$$\text{Piping capacity} : 0.283 \times 50 \times 8 = 113 \text{ cm}^3$$

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

(Perform calculation with capacity of 8 cm<sup>3</sup> for each of valves and hydraulic equipment in hydraulic circuit, when using Pascal product.)

$$\text{Circuit capacity} : 163 + 113 + 24 = 300 \text{ cm}^3$$

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.

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

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

$$\Delta V = 300 \times 20 \times 7.8 \times 10^{-4} = 4.7 \text{ cm}^3$$

Here, WPC40H is selected as an example (\*1).

3. Selection of gas pressure

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

If the hydraulic pressure of the clamping circuit is 25 MPa, select gas pressure 10 MPa, 15 MPa, or 20 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 19.3 MPa with 10 MPa gas pressure (P10), to 21 MPa with 15 MPa gas pressure (P15), and to 22 MPa with 20 MPa gas pressure (P20), respectively.

The residual oil discharge amount (\*2) is 19.3 cm<sup>3</sup> for 10 MPa gas pressure (V10), 11.3 cm<sup>3</sup> for 15 MPa (V15), and 3.3 cm<sup>3</sup> for 20 MPa (V20), respectively.

Here, select WPC40H-□20 whose pressure drop is low.

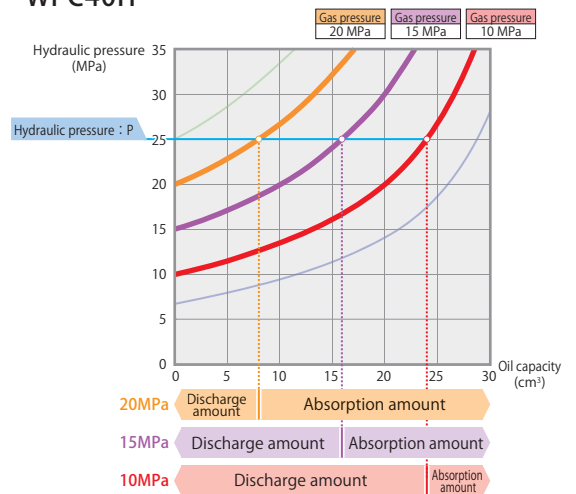
5. Select piping method.

\*1 : WPC13H is also available. Likewise, select appropriate one in consideration of steps 3 and 4.

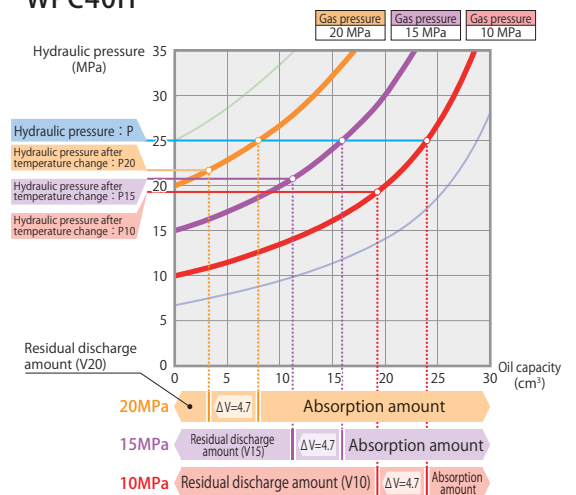
\*2 : For when the temperature decreases. If the temperature increases, check the absorption amount.

\*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 cm<sup>3</sup>

WPC40H



WPC40H



Accumulator

WPC N<sub>2</sub> gas