

Direct acting

Type RPD52-2 Back Pressure Regulating Valves

For liquid

- For small flow rate.
- A valve disc of synthetic rubber ensures tight shut off when closed.
- Internal sensing and external sensing are available on request.
- Vertical and horizontal installation are possible.



2 Pressure Regulating Valves (For liquid)

Specifications

Fluid	Inlet set pressure range (MPa)	Temp. (°C)	Material for main parts				Connection
			Body	Spacer	Spring case	Valve disc & diaphragm	
Water, oil & non-corrosive liquid	0.01–0.06 0.05–0.25 0.2–0.65 0.6–1.2 1.0–2.0	0 80	Bronze	Bronze	Cast iron	Synthetic rubber	Screwed JIS Rc
			Stainless cast steel	Stainless steel			Screwed JIS Rc
			Stainless cast steel				Flanged JIS 20KRF

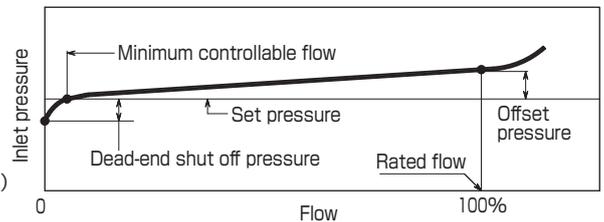
Remark : RPD52 for gas is available on request.

Performance

Offset pressure	15% of max. set range (min. 0.015MPa) or less
Min. controllable flow rate (water) (1)	0.5 ℓ /min
Seat leakage	0.01% of rated flow or less
Max. usable viscosity	400mm ² /s (at operating temp.)

Note (1) : Except for water, the flow rate should be divided by $\sqrt{\gamma}$ (γ : sp.gr., water (4°C) : 1)

Flow characteristic curve



Cv values

Size	10	15	20	25
Cv	0.7	0.7	0.7	0.7

Sizing

Cv value is calculated by following formula.

(To verify that the Cv value is 0.7 or less.)

$$Cv = \frac{0.022 \times Q \sqrt{\gamma}}{\sqrt{\Delta P}}$$

Where :

Q : Flow rate ℓ /min

ΔP : Differential pressure MPa

γ : Specific gravity (water : 1)

When viscosity is over 20mm²/s, the flow rate shall be corrected.

Correction by viscosity

Correct the flow rate Q' by the following formula.

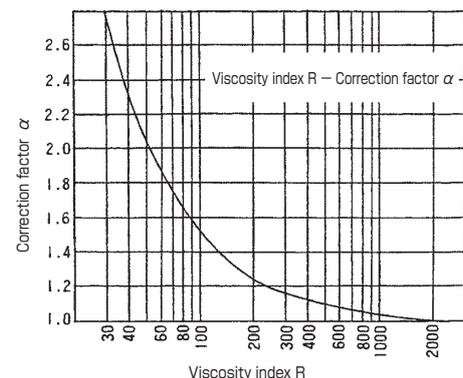
$$\textcircled{1} \quad Cv = 0.022Q \sqrt{\gamma} / \sqrt{\Delta P}$$

$$\textcircled{2} \quad R = \frac{2642 \times Q}{\sqrt{Cv} \times \text{Viscosity at operating temperature mm}^2/\text{s}}$$

$\textcircled{3}$ Then obtain correction factor α from the chart on below using viscosity index R.

$$\text{Corrected flow rate } Q' = Q \times \alpha$$

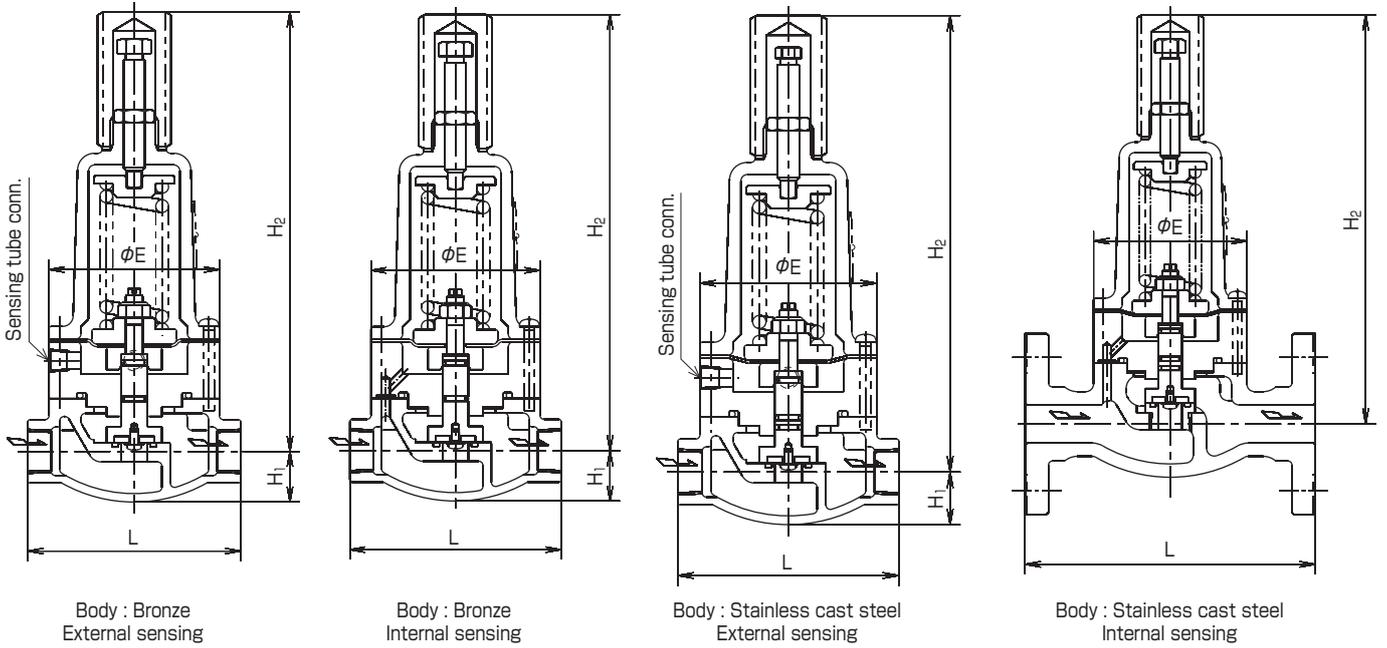
Remark : Refer to page 252 of "Calculation formula for Cv value and flow capacity" for further details.



Type RPD52-2 Back Pressure Regulating Valves

Construction & Dimensions

2 Pressure Regulating Valves (For liquid)



Dimensions (mm)

Body material (sensing)	Size	L	H ₁	H ₂	E	Connection
Bronze (external sensing)	10 · 15	100	24	208	80	Screwed JIS Rc
Bronze (internal sensing)	10 · 15	100	24	208	80	Screwed JIS Rc
Stainless cast steel (external sensing)	15	100	28	215	80	Screwed JIS Rc
Stainless cast steel (internal sensing)	15	100	28	215	80	Screwed JIS Rc
Stainless cast steel (internal sensing)	15	155	—	215	80	Flanged JIS20KRF
	20	155	—	215	80	
	25	155	—	215	80	

- Remarks
1. External sensing of stainless cast steel body with flange connection is available.
 2. Sensing tube is necessary for external sensing valve.