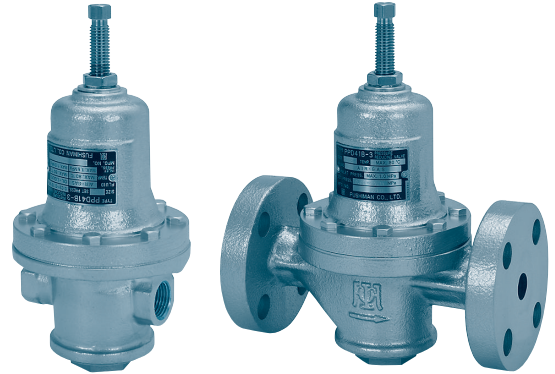**Direct acting**

Type PPD41B-3 Pressure Reducing Valves

For gas

● Negligible influence is exerted by inlet pressure change due to the use of a pressure balancing construction.

● A valve disc made of synthetic rubber ensures tight shut off when closed.

● A strainer (80 mesh) is provided internally for bronze body valve (1.6MPa) and stainless cast steel body valve.

● For the control of highly precise pressure such as in a fuel burner, use PPD41L-3 pressure reducing valve.

■ Specifications

| Fluid	Pressure (MPa)		Temp. (℃)	Material for main parts					Connection
	Inlet	Outlet set range		Body	Bottom cover	Spring case	Valve disc	Diaphragm	
Air & non-corrosive gases	0.05 ┃ 1.6	0.03－0.15 0.1 －0.7	0 ┃ 80	Bronze	Bronze	Cast iron	Stainless steel & synthetic rubber	Synthetic rubber	JIS Rc Screwed
	0.05 ┃ 3.0	0.03－0.15 0.1 －0.7 0.6 －1.6		Bronze	Bronze				JIS Rc Screwed
	0.05 ┃ 1.0	0.03－0.15 0.1 －0.7		Stainless cast steel	Stainless steel				JIS Rc Screwed
	0.05 ┃ 1.0	0.03－0.15 0.1 －0.7		Cast iron	Bronze				Flanged JIS10KFF
	0.05 ┃ 2.0	0.03－0.15 0.1 －0.7 0.6 －1.6		Cast steel	Stainless steel				Flanged JIS10KFF or JIS20KRF
	0.05 ┃ 2.0	0.03－0.15 0.1 －0.7 0.6 －1.6		Stainless cast steel	Stainless steel				

Remarks 1. ASME flange is available.
2. Non-copper alloy for fluid contact is available.
3. 2MPa or less inlet pressure and 0.6－1.6MPa outlet set range with a stainless cast steel body and a JIS Rc screwed is available on request.

■ Performance

Min. differential pressure	0.02MPa
Offset pressure	10% of max. set range or less
Lockup Pressure	0.02MPa or less
Min. controllable flow (air) [1]	1m³/h (normal)
Seat leakage	0.01% of rated flow or less

Note [1] : Except for air, the flow rate should be devided by $\sqrt{G}$ (G : sp.gr., air : 1).

Flow characteristic curve
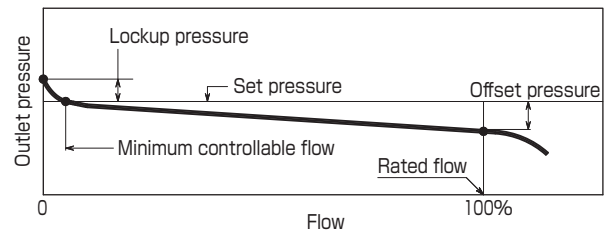
■ Cv values

Size	15	20	25
Cv	1.8	2.6	3.9

Note

Use as the flow rate either the Cv value calculation or the maximum flow rate, depending on which is the smaller rate. Use the smaller value as the rated flow.

Maximum flow rate conforms to the following formula which is based on the velocity 30m/s at valve outlet.

Max. flow rate $V_{LM} = K \cdot P_2 \cdot \dfrac{273}{G\,(273+t)}$ m³/h (normal)

P_2 : Set pressure MPa abs.   K : 218 for size 15
 t : Temperature ℃   392 for size 20
G : Specific gravity (air : 1)   641 for size 25

Type PPD41B-3 Pressure Reducing Valves

■ Sizing

Use the following chart to select the suitable valve size.

    Example   Inlet pressure : 1.0MPa   Outlet set pressure : 0.1MPa   Temperature : 20℃
                Specific gravity : 0.8   Flow : 70m³/h (normal)

From the intersection of the 0.1MPa outlet set pressure at 20℃ temperature line, draw a horizontal line to 1.0 specific gravity line. Continue, in parallel with the oblique line, to the specific gravity 0.8 line.

Draw a horizontal line to the value of 70m³/h (normal) line. This point is between valve size 15 and 20 line.

Select the larger size 20 and continue to check the pressure drop between inlet and outlet of the valve as follows.

This is, from the intersection of the valve size 20 line, draw a vertical line to the pressure drop 1.0-0.1=0.9MPa line. As this point is above the pressure drop boundary line, the valve size 20 is correct.

If inlet pressure is 0.15MPa, the intersection of vertical line and the pressure drop 0.15-0.1=0.05MPa line is below the pressure drop boundary line. In this case, draw a line in parallel with the oblique line, from the above point to the pressure drop boundary line. From the intersection, draw a line downward to the valve size 20 line. This intersection shows 71m³/h (normal) (which is the maximum flow of the valve size 20).

As 71m³/h (normal) is more than the given flow rate 70m³/h (normal), the valve size 20 is adequate.

If given flow rate is 80m³/h (normal), get the maximum flow of valve size 25, by the same procedure shown above, and make sure that the maximum flow is more than 80m³/h (normal). (In this case, the maximum flow of the valve size 25 is 102m³/h (normal). So, the valve size 25 is adequate).
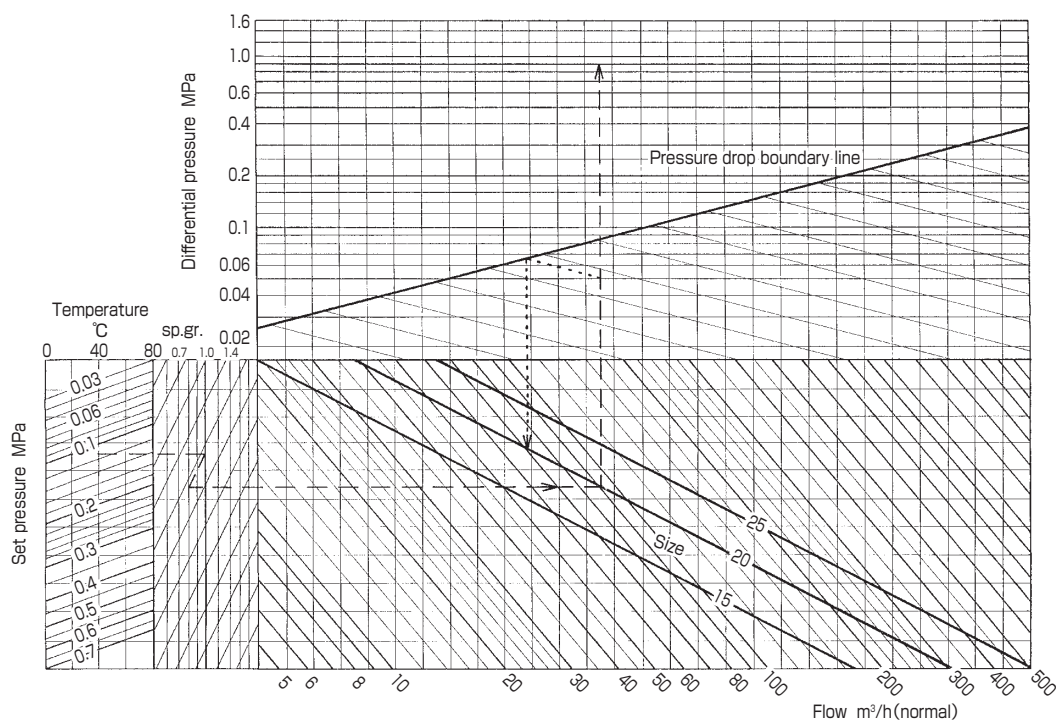
■ Installation example
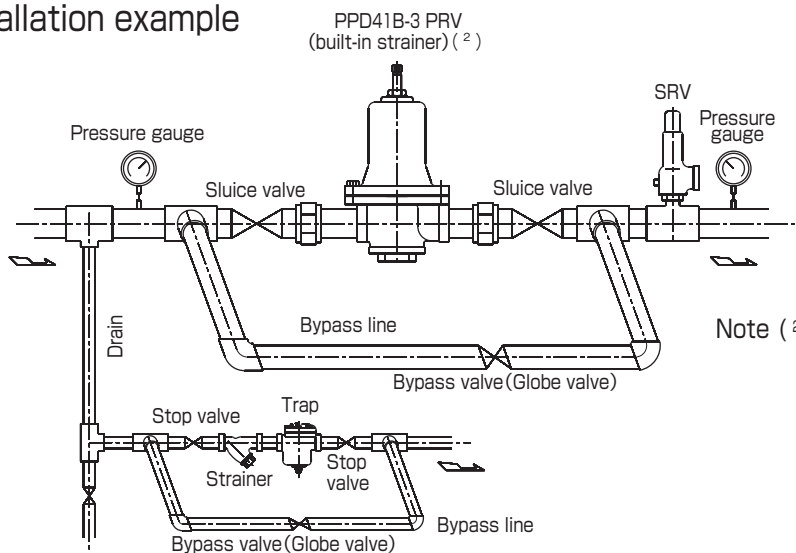
Remark : PPD41B-3 can be installed in both horizontal and vertical piping with upright or upside-down.

Note (²) : This is an example for a bronze body (for 1.6MPa) and a stainless cast steel body. In other cases, install a strainer (with about 80 mesh) at the inlet side.
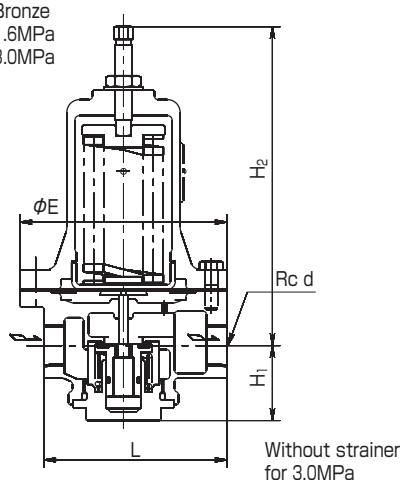
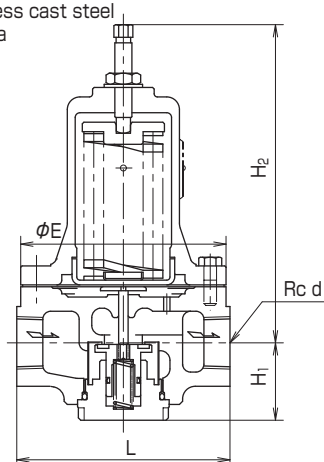# Type PPD41B-3 Pressure Reducing Valves

■ Construction

Bronze 1.6MPa 3.0MPa

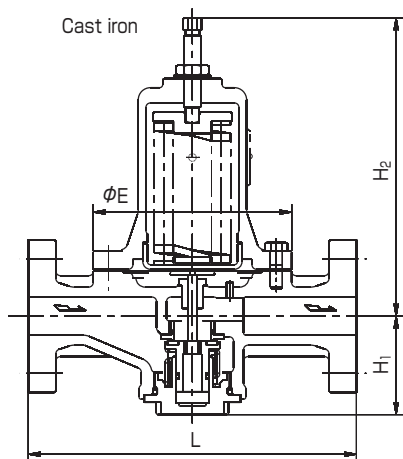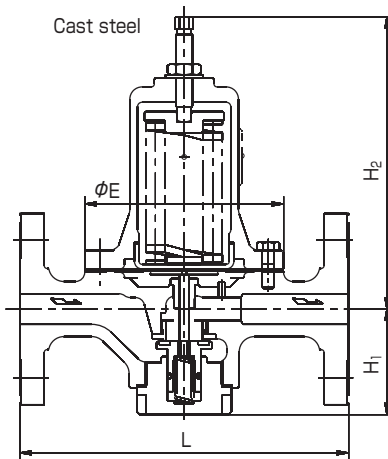Stainless cast steel 1.0MPa

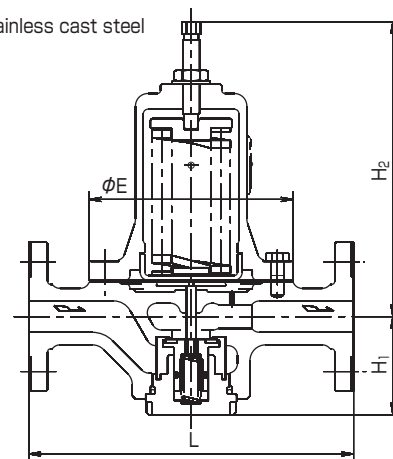Without strainer for 3.0MPa

Cast iron

Cast steel

Stainless cast steel

Dimensions and weights

(mm, kg)

Material (body)	Size	Dimensions					Weight	Connection
		d	L	H_1	H_2	E		
Bronze	15	½	85	43	168	100	2.8 ([2])	Screwed JIS Rc 1.6MPa 3.0MPa
	20	¾	115	47	222	130	5.5 ([2])	
	25	1	115	47	222	130	5.5 ([2])	
Stainless cast steel	15	½	135	49	224	130	6.8	Screwed JIS Rc 1.0MPa
	20	¾	135	49	224	130	6.8	
	25	1	135	49	224	130	6.7	
Cast iron	15	—	170	54	161	100	4.6	Flanged JIS10KFF
	20	—	215	65	218	130	7.9	
	25	—	215	65	218	130	8.9	
Cast steel ([1])	15	—	211	69	213	130	8.3	Flanged JIS20KRF
	20	—	215	69	213	130	8.7	
	25	—	215	69	213	130	9.3	
Stainless cast steel ([1])	15	—	207	63	210	130	8.1	Flanged JIS10KFF
	20	—	211	63	210	130	8.5	
	25	—	211	63	210	130	9.3	

Note ([1]) : Dimension of L for JIS 10KFF Cast steel and JIS 20KRF Stainless cast steel is different from this table.
　　　([2]) : Weight for 3MPa, bronze body and screwed: size 15 ; 3.3kg　size 20, 25 ; 6.5kg.