

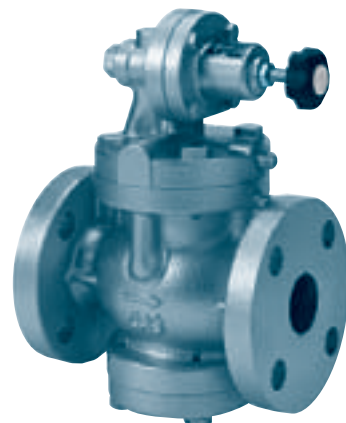
Pilot operated

Type P260 Pressure Reducing Valves

For steam

The product of the body made from stainless cast steel is a non-oil finish.

- Wide range of sizes : 15 – 250mm
- Light and compact
- Excellent performance
- If another pressure reducing valve or both the two way valve and the flow meter are near the inlet of the pressure reducing valve, we recommend the use of type P260-DHC.



1 Pressure Reducing Valves (For steam)

Specifications

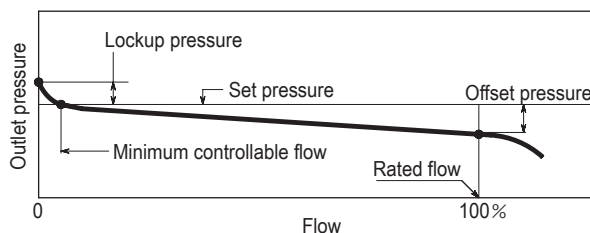
Fluid	Pressure (MPa)		Max. temp. (°C)	Sensing	Material for main parts					Connection
	Inlet	Outlet set range			Body & cover	Main valve disc & seat	Piston & cylinder	Pilot valve disc & seat	Diaphragm	
Steam	0.1 1.0	0.03–0.2 0.1 –0.8 0.5 –0.9	220	Internal	Cast iron	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS10KFF
	0.1 1.6	0.03–0.2 0.1 –0.8 0.5 –1.44	220		Cast iron	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS16KFF
	0.1 2.0	0.03–0.2 0.1 –0.8 0.5 –1.6	220		Spheroidal graphite cast iron	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS20KRF
	0.1 1.0	0.03–0.2 0.1 –0.8 0.5 –0.9	260 300		Cast steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS10KRF
	0.1 1.6	0.03–0.2 0.1 –0.8 0.5 –1.44	260 300		Cast steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS16KRF
	0.1 2.0	0.03–0.2 0.1 –0.8 0.5 –1.6	260 300		Cast steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS20KRF
	0.2 3.0	0.1 –0.8 0.5 –1.6 1.0 –2.5	240		Cast steel	Stainless steel stellited	Stainless steel	Stainless steel stellited	Stainless steel	Flanged JIS30KRF
	0.1 1.0	0.03–0.2 0.1 –0.8 0.5 –0.9	184		Stainless cast steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Flanged JIS10KFF

Remarks 1. Max. inlet pressure for size 200 is 1.6MPa and for size 250 is 1.0MPa.
 2. ASME class 150RF and class 300RF flange are available.

Performance

Maximum steam temperature		220°C (260°C)
Maximum range ability		20 : 1
Min. differential pressure		10% of inlet pressure (min. 0.07MPa)
Offset pressure	Set press. range	0.03–0.2, 0.1–0.8 0.5–0.9(1.44) (1.6)
		0.03MPa or less 0.05MPa or less
Lockup pressure	Set press. range	0.03–0.2, 0.1–0.8 0.5–0.9(1.44) (1.6)
		0.02MPa or less 0.04MPa or less
Minimum controllable flow		5% of rated flow
Seat leakage		0.05% of rated flow or less

Flow characteristic curve



Type P260 Pressure Reducing Valves

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Pressure Reducing Valves (For steam)

Cv calculation

$$Cv = A \times d^2 \quad \text{where : } d = \text{Nominal valve size (inch)}$$

where P_1 : Inlet pressure (MPa), P_2 : Set pressure (MPa)

$$A = \frac{16.2 \times P_2^{0.52}}{P_1 + 0.101} \approx \frac{16.2 \sqrt{P_2}}{P_1 + 0.101} \quad (\text{But maximum } 4.5)$$

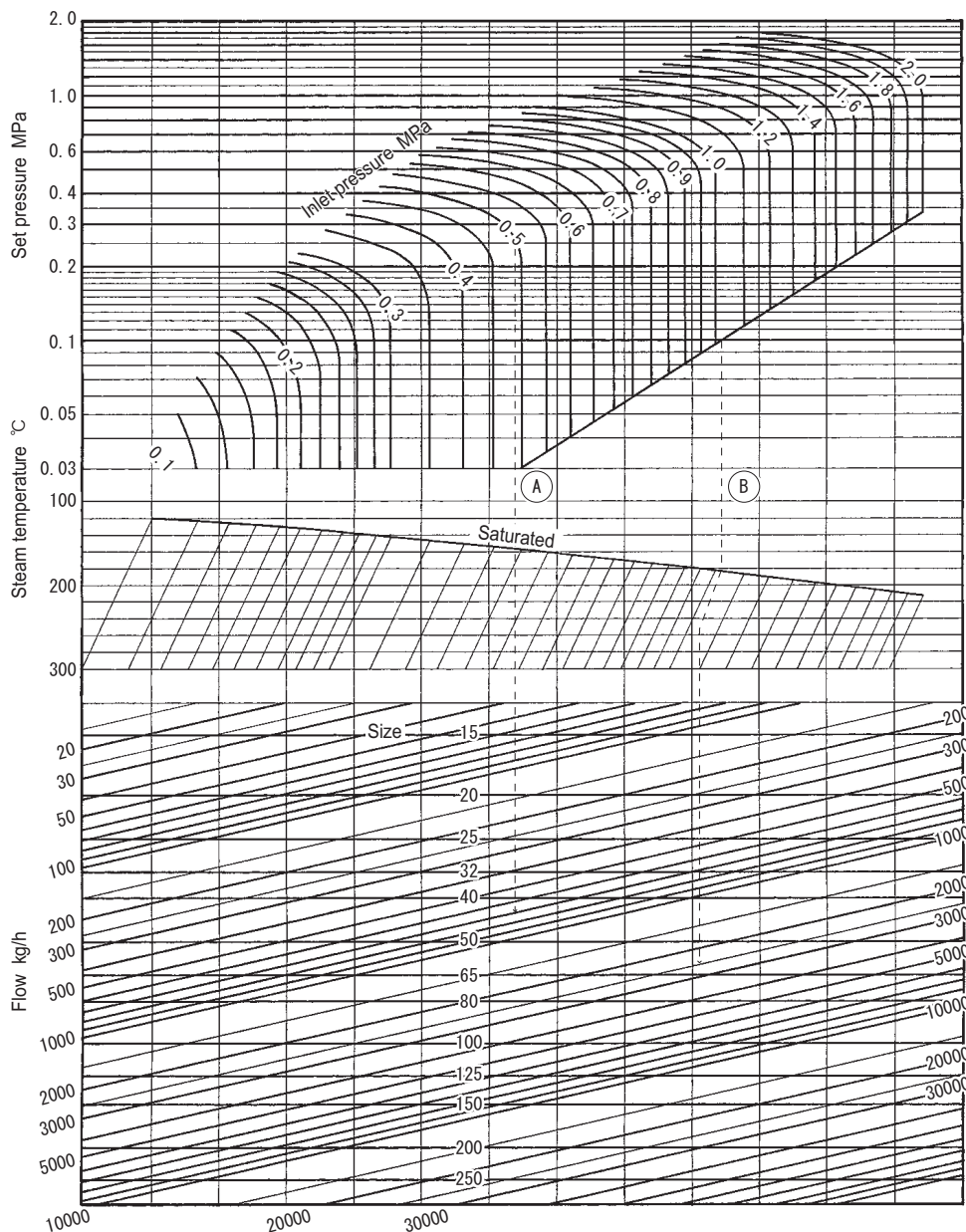
In case of $A=4.5$, Cv is as follows

Flange rating	10K	16 · 20K	30K
A	4.5-3.1	4.5-2.5	4.5-2.0

Size	15	20	25	32	40	50	65	80	100	125	150	200	250
Cv	1.1	2.5	4.5	7.0	10.1	18	28.1	40.5	72	112.5	162	288	450

Sizing curve

Use the following chart to select the suitable valve size.



Sizing curve

In the event that the inlet pressure or the outlet pressure is not constant but stays within range, select the minimum difference in pressure between the inlet pressure and outlet pressure to choose the correct size.

Example A

Inlet pressure : 0.5MPa
 Inlet temperature : Saturated
 Outlet set pressure : 0.25MPa
 Flow : 700kg/h
 Draw a vertical line downward from the intersecting point of 0.5MPa inlet pressure line and 0.25MPa set pressure line until it reaches 700kg/h flow line (oblique).
 As the final point is between the size 40 line and 50 line, the required valve size is 50.

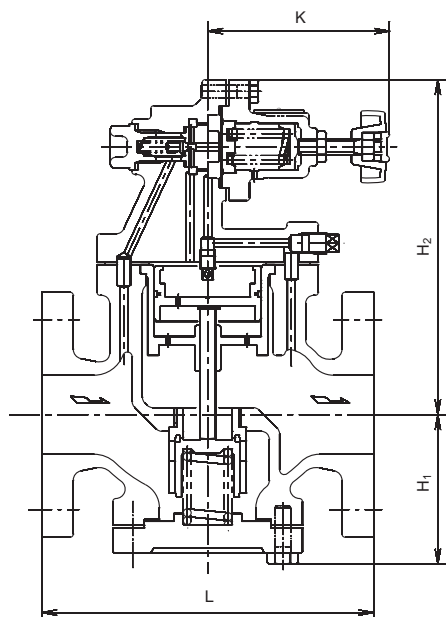
Example B

Inlet pressure : 2.0MPa
 Inlet temperature : 250°C
 Outlet set pressure : 0.1MPa
 Flow : 2500kg/h
 Draw a line downward along the oblique line from its intersecting point with 2.0MPa inlet pressure line until it intersects 0.1MPa set pressure line (horizontal).
 From this intersecting point, draw a vertical line downward until it reaches saturated steam temperature line and draw a line downward along the oblique line given in the chart until it intersects 250 °C temperature line (horizontal).
 As the final intersecting point is between the size 50 line and 65 line, the required valve size is 65.

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1 Pressure Reducing Valves (For steam)

Construction & Dimensions



- Remarks
1. The figure shows no flow condition, ie when fully closed.
 2. A handle is not attached to the product made from cast steel.
 3. In 200 more size and JIS30K, form differs from this figure in part.

Dimensions

(mm)

Body mtl.	Dim.	Size	15	20	25	32	40	50	65	80	100	125	150	200	250	
Cast iron	L	JIS10K	145	150	160	175	190	210	235	265	310	360	400	490	620	
		JIS16K	145	150	160	175	190	210	235	270	315	365	405	500	—	
	H ₁	81	76	74	79	85	95	112	123	150	174	202	258	310		
	H ₂	171	176	178	188	198	212	231	248	305	337	367	506	575		
	K	115	115	115	115	111	111	111	111	162	162	162	194	194		
Spheroidal graphite cast iron	L	JIS20K	149	154	164	179	194	206	231	266	—	—	—	—	—	
	H ₁	82	77	75	79	85	95	110	121	—	—	—	—	—		
	H ₂	171	176	178	188	198	212	231	248	—	—	—	—	—		
	K	115	115	115	115	111	111	111	111	—	—	—	—	—		
Cast steel	L	JIS10K	182	186	186	206	212	228	252	270	318	358	398	496	630	
		JIS16K	182	186	186	206	212	228	252	274	326	362	402	504	—	
		JIS20K	186	190	190	210	216	232	256	278	330	370	410	—	—	
		JIS30K	194	194	195	218	224	240	268	290	—	—	—	—	—	
	H ₁	77	77	75	77	85	95	110	124	151	175	207	255	310		
	H ₂	177	177	179	189	199	213	232	249	305	337	367	499	569		
	K	107	107	107	107	103	103	103	103	147	147	147	194	194		
Stainless cast steel	L	JIS10K	182	186	186	206	212	228	252	270	—	—	—	—	—	
	H ₁	75	75	75	85	85	95	110	124	—	—	—	—	—		
	H ₂	179	179	179	198	198	212	231	248	—	—	—	—	—		
	K	117	117	117	113	113	113	113	113	—	—	—	—	—		

- Remarks
1. K shows the dimension under no compression of the adjusting spring.
 2. H₁, H₂ and K for JIS30K are slightly different.

Weights

(kg)

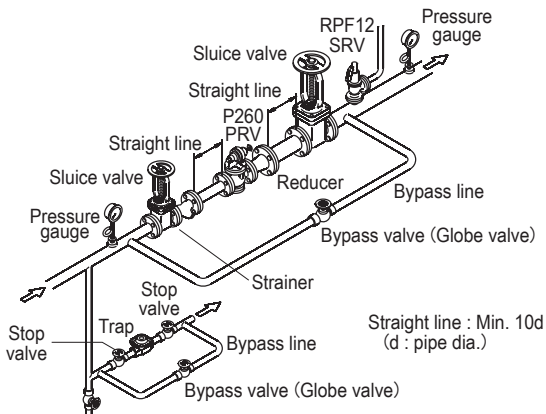
Size	15	20	25	32	40	50	65	80	100	125	150	200	250
Cast iron JIS10K	8	8.5	10	12	14	18	26	32	51	71	105	195	315
Spheroidal graphite cast iron JIS20K	9	9.5	11	13	15	19	27	35	—	—	—	—	—
Cast steel JIS20K	10	11	13	14	17	22	30	39	60	92	131	228 ⁽¹⁾	341 ⁽²⁾
Cast steel JIS30K	12	13	15	16	20	24	35	43	—	—	—	—	—
Stainless cast steel JIS10K	9	10	12	15	16	21	28	35	—	—	—	—	—

Note ⁽¹⁾ : For JIS16K
⁽²⁾ : For JIS10K

Type P260 Pressure Reducing Valves

Pressure Reducing Valves (For steam)

Installation example



Note : Install upright in horizontal piping.

Space required for disassembling and maintenance (mm)

Size	15	20	25	32	40	50	65	80	100	125	150	200	250
Beneath the center of pipe line	200	200	200	200	220	250	270	300	350	410	460	560	700

Safety relief valves recommended for use in downstream of P260 pressure reducing valves

The sizes of the safety relief valves for alarms for the type P260 outlet side are shown in the following table.

P260 pressure reducing valve		Safety relief valve	Size of P260 pressure reducing valve													
Inlet press. MPa	Outlet set press. MPa		15	20	25	32	40	50	65	80	100	125	150	200	250	
		Set press. MPa	Nominal size of RPF12 safety relief valve								Upper : Nominal size of RPN6B safety relief valve Lower : Nominal size of RPF12 safety relief valve					
0.3 or less	0.03	0.08	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	40G65 65	40G65 65	40H80 80	50J80 —	80K100 —	
0.3–0.6 or less	0.03	0.08	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	50	40G65 65	40H80 80	50J80 —	80K100 —	80L100 —	
0.6 or less	0.05	0.1	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	50	40G65 65	40H80 —	50J80 —	80K100 —	80L100 —	
0.6–1.0 or less	0.05	0.1	15 · 20	15 · 20	15 · 20	15 · 20	25	40	50	65	40G65 80	40H80 —	50J80 —	80K100 —	80L100 —	
0.7 or less	0.1	0.15	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	50	40G65 65	40H80 80	50J80 —	80K100 —	80L100 —	
0.7–1.0 or less	0.1	0.15	15 · 20	15 · 20	15 · 20	25	32	40	50	65	40G65 80	40H80 —	50J80 —	80L100 —	100M150 —	
0.7 or less	0.2	0.28	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	40G65 65	40G65 65	40H80 80	50J80 —	80K100 —	
0.7–1.0 or less	0.2	0.28	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	50	40G65 65	40G65 80	40H80 —	50J80 —	80L100 —	
0.9 or less	0.3	0.38	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	40G65 65	40G65 65	40H80 80	50J80 —	80K100 —	
0.9–1.0 or less	0.3	0.38	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	32	32	40	40G65 65	40G65 80	40G80 80	50J80 —	80K100 —	
1.0 or less	0.4	0.48	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	40G65 50	40G65 65	40G65 80	50J80 —	80K100 —	
1.0 or less	0.5	0.6	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	40	25E50 50	40G65 65	40G65 80	40H80 —	50J80 —	
1.0 or less	0.6	0.7	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	25E50 40	40G65 65	40G65 65	40H80 —	50J80 —	
1.0 or less	0.7	0.82	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	32	25E50 40	25E50 50	40G65 65	40G65 80	40H80 —	
1.0 or less	0.8	0.92	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	15 · 20	25	25E50 32	25E50 40	40G65 50	40G65 80	40H80 —	

- Remarks 1. Above nominal sizes are only for use in warning of pressure reducing valve failure, and have nothing to do with safety regulations or safety laws.
 2. Safety relief valve capacity is 5–10% of pressure reducing valve rated flow.
 3. Refer to the following table for safety relief valve set pressure.

Safety relief valve set pressure

(MPa)

Pressure reducing valve set pressure	Safety relief valve set pressure
0.1 or less	over P.R.V. set pressure + 0.05
0.1–0.4 or less	over P.R.V. set pressure + 0.08
0.4–0.6 or less	over P.R.V. set pressure + 0.1
0.6–0.8 or less	over P.R.V. set pressure + 0.12
over 0.8	over P.R.V. set pressure + 15%