GP-1001EN,1001V

Direct type | Pilot type | Piston | Diaphragm
Bellows | Internal sensing | External sensing | Stainless steel
With handle | Built-in strainer | Low pressure | Remote
Valve leakage 0 | Nylon

■Features

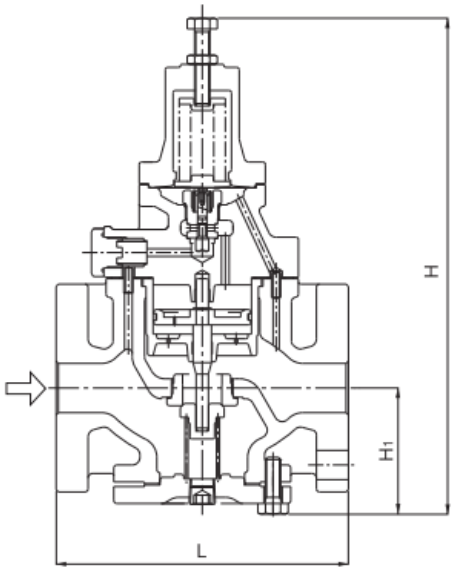
1. The GP-1001EN can be replaced easily from existing valve because it complies with face-to-face dimensions of the EN standard.
2. Respond very sharply to the fluctuation of inlet pressure and the change of the flow rate, so that the reduced pressure can be kept at a constant level.
3. Pressure adjustment is easy, and the set pressure range is wide.
4. Compliant with the standard of SHASE-S106 Pressure Reducing Valves (by the Society of Heating, Air-Conditioning and Sanitary Engineers of Japan).

■Specifications

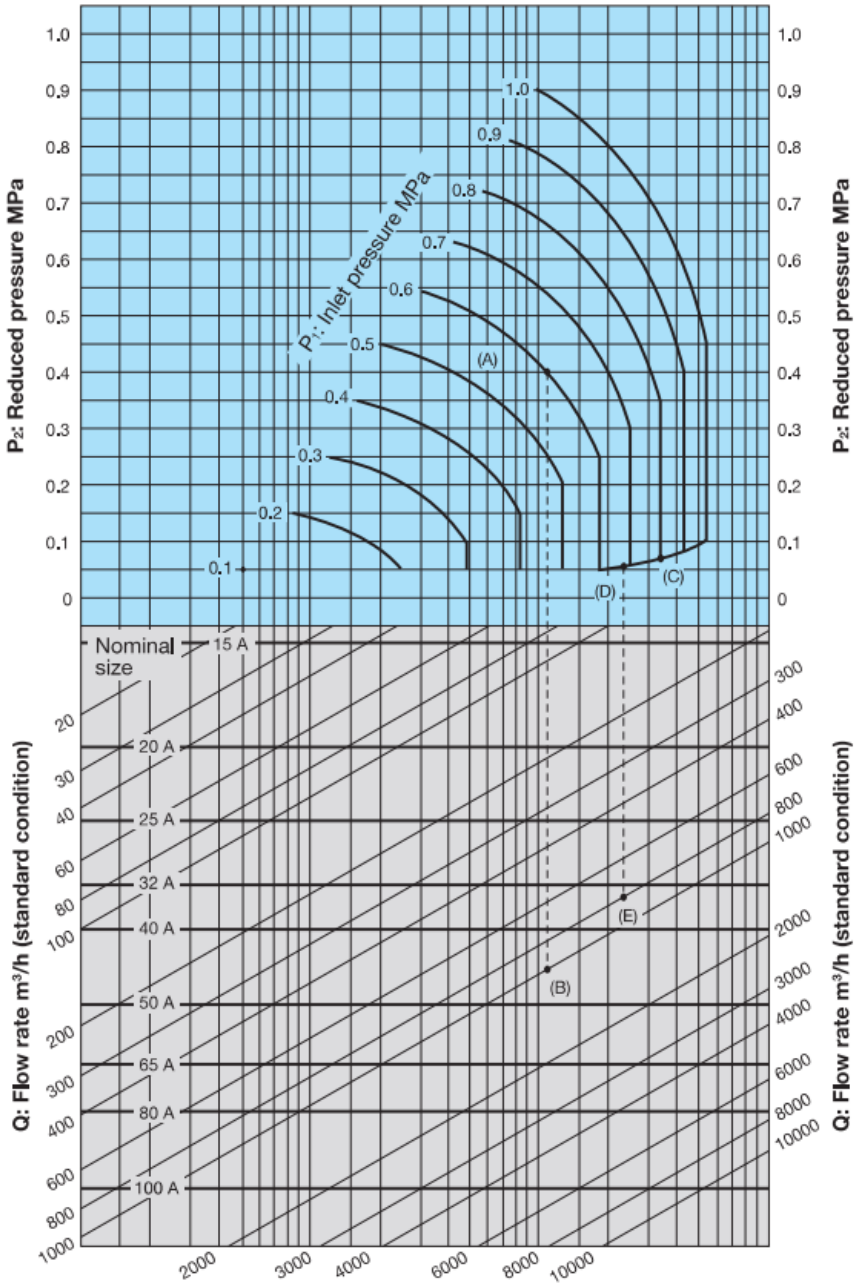
Model		GP-1001V	GP-1001EN
Application		Air, Steam	
Inlet pressure		0.1-1.0 MPa	
Reduced pressure		0.05-0.9 MPa	
		90% or less of inlet pressure (gauge pressure)	
Minimum differential pressure		0.05 MPa	
Maximum pressure reduction ratio		20:1	
Maximum temperature		220℃	
Valve seat leakage		0.01% or less of rated flow rate	
Material	Body	Ductile cast iron	
	Main valve, valve seat	Stainless steel	
	Pilot valve, pilot valve seat	Stainless steel	
	Piston, cylinder	Brass or bronze	
	Diaphragm	Stainless steel	
Connection		JIS 10K FF flanged	EN PN16 flanged

■Dimensions (mm) and Weights (kg)

Nominal size	L		H	H_1	Weight	
	GP-1001EN	GP-1001V			GP-1001EN	GP-1001V
15A	150	150	291	64	8.0	8.0
20A	150	155	291	64	8.5	8.5
25A	160	160	300	67	10.0	10.0
32A	180	190	333	82	14.0	14.0
40A	200	190	333	82	15.5	14.5
50A	230	220	353	93	21.0	20.0
65A	290	245	357	100	30.0	30.0
80A	310	290	404	122	37.0	35.0
100A	350	330	450	144	57.0	52.5



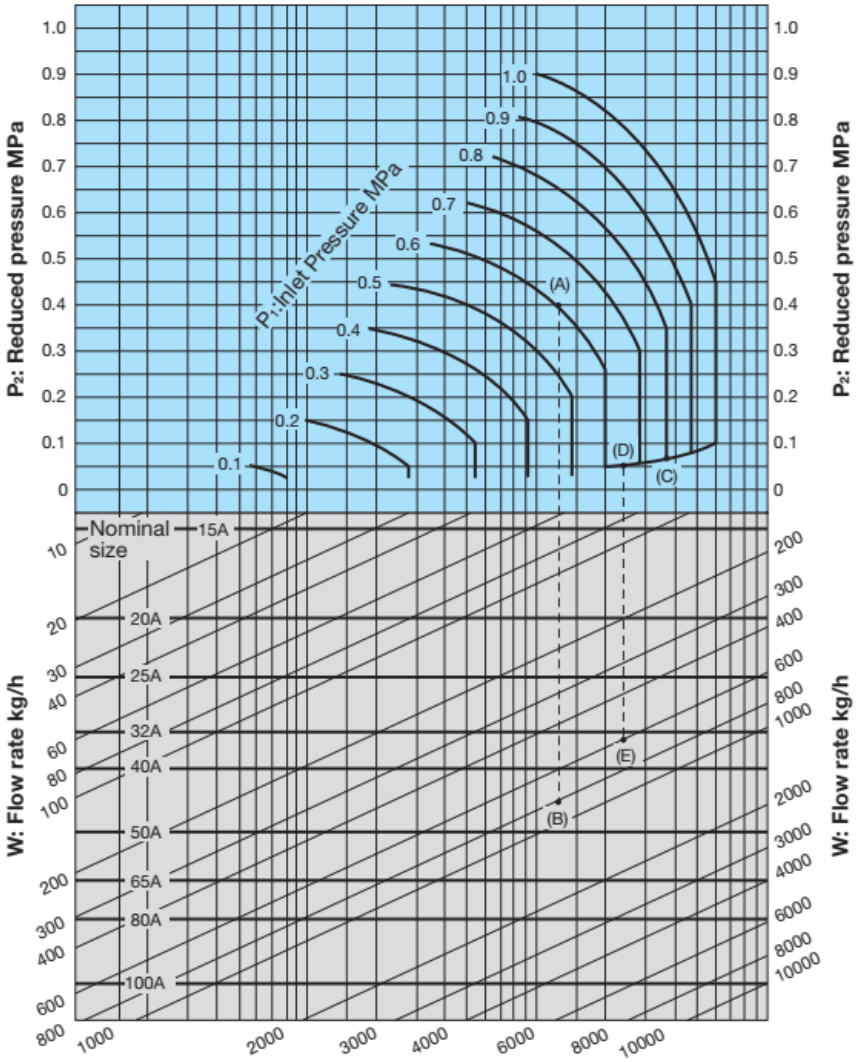
■Nominal Sizes Selection Chart (Fluid: 20°C Air)



[Example 1]
When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and air flow rate are 0.6 MPa, 0.4 MPa, and 1,000 m^3/h (standard condition), respectively, first find intersection point (A) of the inlet pressure of 0.6 MPa and the reduced pressure of 0.4 MPa. Trace down vertically from this intersection point to find intersection point (B) with the flow rate of 1,000 m^3/h (standard condition). Since intersection point (B) lies between nominal sizes 40A and 50A, select the larger one, 50A.

[Example 2]
When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and air flow rate are 0.8 MPa, 0.05 MPa, and 800 m^3/h (standard condition), respectively, first find intersection point (C) of the inlet pressure of 0.8 MPa and the diagonal line. Trace down to the left from the diagonal line to find intersection point (D) with the reduced pressure of 0.05 MPa. Trace down vertically from intersection point (D) to find intersection point (E) with the flow rate of 800 m^3/h (standard condition). Since intersection point (E) lies between nominal sizes 32A and 40A, select the larger one, 40A.
* Set the safety factor at 80 to 90%.

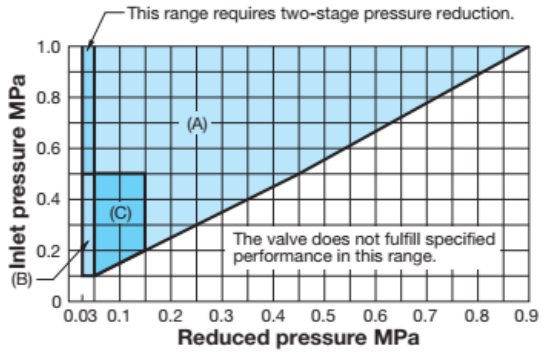
■Nominal Sizes Selection Chart (For Steam)



[Example 1]
When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and steam flow rate are 0.6 MPa, 0.4 MPa, and 800 kg/h, respectively, first find intersection point (A) of the inlet pressure of 0.6 MPa and the reduced pressure of 0.4 MPa. Trace down vertically from this intersection point to find intersection point (B) with the flow rate of 800 kg/h. Since intersection point (B) lies between nominal sizes 40A and 50A, select the larger one, 50A.

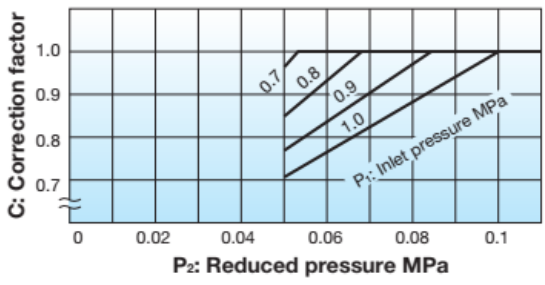
[Example 2]
When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and steam flow rate are 0.8 MPa, 0.05 MPa, and 600 kg/h, respectively, first find intersection point (C) of the inlet pressure of 0.8 MPa and the diagonal line. Trace down to the left from this intersection point to find intersection point (D) with the reduced pressure of 0.05 MPa. Trace down vertically from intersection point (D) to find intersection point (E) with the flow rate of 600 kg/h. Since intersection point (E) lies between nominal sizes 32A and 40A, select the larger one, 40A.
· Set the safety factor at 80 to 90%.

Specifications Selection Chart



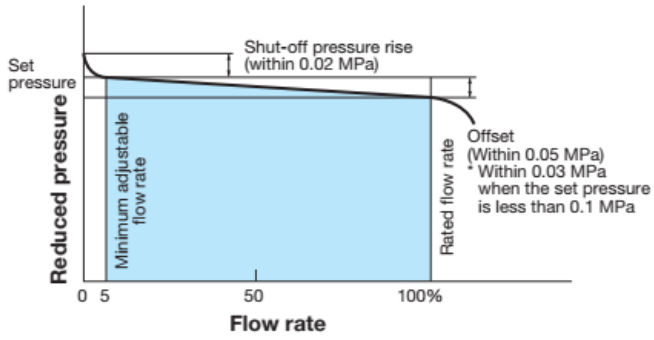
Find the intersection point of the inlet and reduced pressures. If the intersection point is within any of the ranges shown in the chart above, the pressures are controllable.
· Range (A) and (C): GP-1000 Series except GP-1002 and 1012
· Range (B) and (C): GP-1002 and 1012

Corrected Cv value

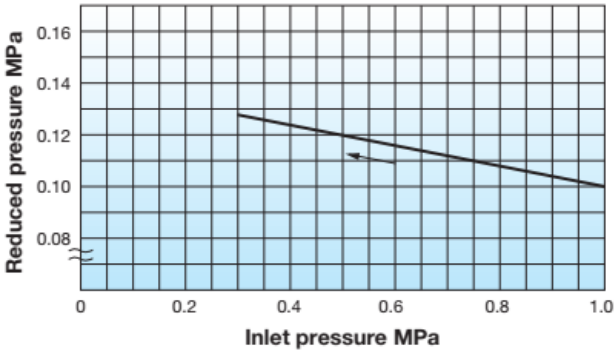


Example
Take a pressure reducing valve whose inlet pressure is 0.8 MPa, the reduced pressure is 0.05 MPa. Find the inlet and reduced pressure intersection point (A) at the above chart, then draw a horizontal line in the leftward direction to pint (B) which indicates a correction coefficient of 0.85. For a nominal size of 25A, the corrected Cv value would be calculated as follows:
4 (rated Cv value) 0.85 (correction coefficient) = 3.4

Flow Characteristic Chart

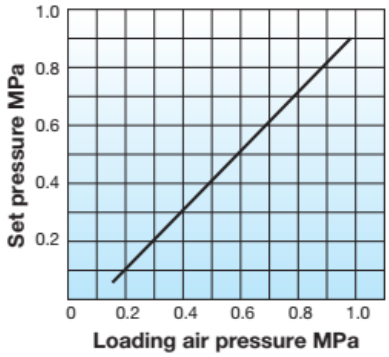


Pressure Characteristic Chart



This chart shows variation in reduced pressure when the inlet pressure of 1.0 MPa is changed between 0.3 MPa and 1.0 MPa while the reduced pressure is set at 0.1 MPa.

■Loading Air Pressure-set Pressure Chart



Basically, the set pressure to the loading air pressure is as shown on the left.
The set pressure is slightly different depending on the conditions. For the actual use, adjust the loading air pressure suitable for necessary set pressure.

· Set pressure of safety valve for alarm use at the outlet side of the pressure reducing valve for steam

Set pressure of pressure reducing valve (MPa)	Set pressure of safety valve (MPa)
0.1 or less	Set pressure of the pressure reducing valve + 0.05 or more
0.11-0.4	Set pressure of the pressure reducing valve + 0.08 or more
0.41-0.6	Set pressure of the pressure reducing valve + 0.1 or more
0.61-0.8	Set pressure of the pressure reducing valve + 0.12 or more
More than 0.8	Set pressure of the pressure reducing valve + 15%

· When a safety valve is installed for alarm use at the outlet side of a pressure reducing valve for steam and there are no laws or regulations specified to comply with, select a safety valve whose blowout capacity is around 10% of the maximum flow rate of the pressure reducing valve.

■GP-1000 Series Flow Rate Table

(kg/h)

P_1 (MPa)	P_2 (MPa)	15A	20A	25A	32A	40A	50A	65A	80A	100A
1	0.05 *	92	212	369	600	831	1,478	2,310	3,326	5,913
	0.1-0.4	132	303	528	858	1,188	2,112	3,300	4,752	8,448
	0.5	127	292	508	825	1,143	2,033	3,176	4,574	8,132
	0.6	116	268	467	760	1,052	1,871	2,923	4,210	7,484
	0.7	104	239	416	676	936	1,664	2,601	3,745	6,659
	0.8	87	200	348	566	784	1,394	2,179	3,137	5,578
	0.9	63	145	252	410	568	1,010	1,578	2,273	4042
0.9	0.1-0.4	120	276	480	780	1,080	1,920	3,000	4,320	7,680
	0.5	110	253	441	716	992	1,764	2,756	3,969	7,056
	0.6	98	226	393	639	885	1,574	2,460	3,543	6,299
	0.7	82	190	330	537	744	1,323	2,067	2,976	5,292
	0.8	60	138	240	390	540	961	1,501	2,162	3,844
0.8	0.1-0.3	108	248	432	702	972	1,728	2,700	3,888	6,912
	0.4	103	237	412	670	928	1,650	2,578	3,712	6,600
	0.5	92	212	369	600	832	1,479	2,311	3,328	5,916
	0.6	77	179	311	506	701	1,247	1,949	2,806	4,989
	0.7	56	130	227	369	511	909	1,420	2,045	3,636
0.7	0.1-0.3	96	220	384	624	864	1,536	2,400	3,456	6,144
	0.4	86	197	344	559	774	1,377	2,151	3,098	5,508
	0.5	72	167	291	474	656	1,166	1,823	2,625	4,667
	0.6	53	122	213	346	480	854	1,334	1,921	3,416
0.6	0.1-0.2	84	193	336	546	756	1,344	2,100	3,024	5,376
	0.3	79	182	316	514	712	1,266	1,979	2,850	5,067
	0.4	67	155	270	438	607	1,080	1,687	2,430	4,321
	0.5	49	114	198	322	447	795	1,242	1,788	3,180
0.5	0.1-0.2	72	165	288	468	648	1,152	1,800	2,592	4,608
	0.3	61	141	246	400	554	986	1,540	2,218	3,944
	0.4	45	105	182	297	411	731	1,142	1,645	2,925
0.4	0.1	60	138	240	390	540	960	1,500	2,160	3,840
	0.2	55	126	220	358	496	882	1,378	1,984	3,528
	0.3	41	95	165	268	372	661	1,033	1,488	2,646
0.3	0.1	48	110	192	312	432	768	1,200	1,728	3,072
	0.2	36	83	145	237	328	583	911	1,312	2,333
0.2	0.1	30	70	123	200	277	493	770	1,109	1,972
0.1	0.05	18	41	72	118	164	291	455	656	1,166

* When the inlet pressure is more than 0.7 MPa and the pressure reduction ratio is more than 10:1, calculate the corrected Cv value multiplying the rated Cv value by the correction factor C obtained from Fig.1.