

GP-2000/GP-2000EN

- 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



Screwed type



Flanged type

■ Features

1. Large-size diaphragm and external sensing method control reduced pressure more stably.
2. Since the Cv value is high, flow capability and control capability are significantly improved, one or two sizes smaller than the regular nominal size can be applied.
3. Spherical main valve offers great sealability and great reduction of valve seat leakage (compliant with ANSI Class IV).
4. Pressure management at low pressure (0.02 MPa or less) is possible.

■ Specifications

Model	GP-2000		GP-2000EN	
Application	Steam			
Reduced pressure sensing method	External sensing *1			
Inlet pressure	0.1-2.0 MPa	0.1-1.0 MPa	0.1-2.0 MPa	
Reduced pressure	0.02-0.15 MPa	0.02-0.15 MPa *2	0.02-0.15 MPa	
	0.1-1.4 MPa *2	0.1-0.85 MPa *2	0.1-1.4 MPa	
	1.3-1.7 MPa		1.3-1.7 MPa	
	85% or less of inlet pressure (gauge pressure)			
Minimum differential pressure	0.05 MPa			
Maximum pressure reduction ratio	20:1			
Maximum temperature	220°C			
Valve seat leakage	0.01% or less of rated flow			
Material	Body			
	Ductile cast iron			
	Main valve			
	Stainless steel			
	Valve seat			
Stainless steel				
Pilot valve				
Stainless steel				
Pilot valve seat				
Stainless steel				
Diaphragm				
Stainless steel				
Reduced pressure sensing pipe	Copper pipe φ 8-2 m			
Connection	JIS Rc screwed	JIS 20K RF Flanged	JIS 10K FF Flanged	EN PN25 Flanged

*1 External sensing is standard. When installing the pressure reducing valve, be sure to connect the provided sensing pipe and joint. Unless the sensing pipe is connected, the valve will not operate.

(Available with internal sensing type (nominal size: 15A to 100A) in different specifications. Note that Cv value of internal sensing type is lower than that of external sensing type.)

*2 Available with the GP-2000L, reduced pressure of 0.01 to 0.02 MPa, from 15A to 100A, inlet pressure of 0.1 to 0.5 MPa and maximum pressure reduction of 50:1.

- Available with external pilot type.
- Available with ASME flanged.

■ Dimensions (mm) and Weights (kg)

· Screwed type

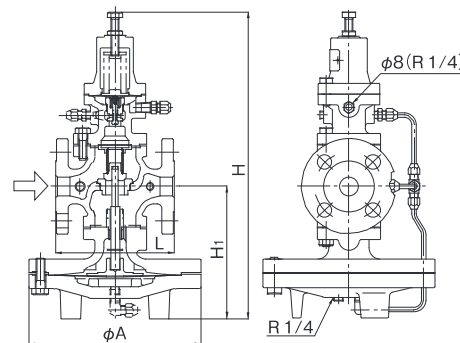
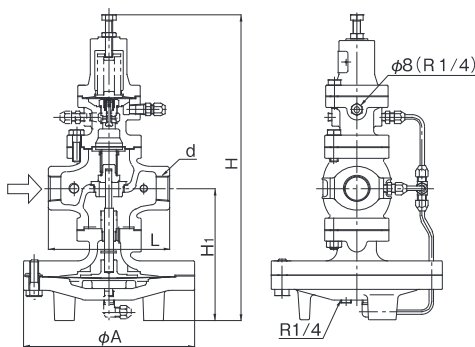
Nominal size	d	L	H ₁	H	A	Weight
15A	Rc 1/2	150	170	398	200	14.0
20A	Rc 3/4	150	170	398	200	14.0
25A	Rc 1	160	175	404	226	18.5
32A	Rc 1-1/4	180	192	434	226	21.5
40A	Rc 1-1/2	180	192	434	226	21.5
50A	Rc 2	230	216	498	276	33.0

* Available with NPT connection.

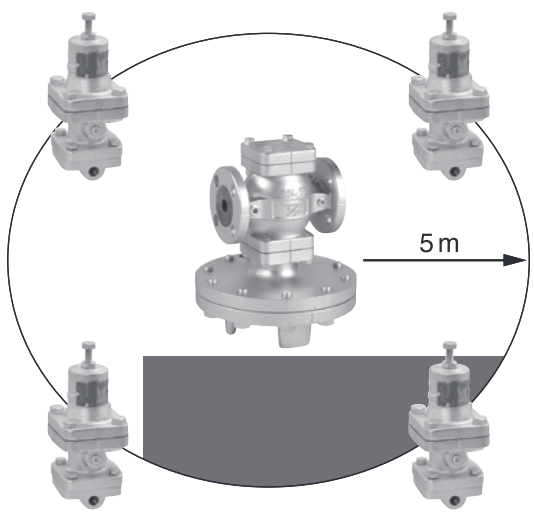
· Flanged type (JIS 20K RF)

Nominal size	L	H ₁	H	A	Weight
15A	146 (142)	170	398	200	15.5 (15.3)
20A	146 (142)	170	398	200	16.0 (15.8)
25A	156 (152)	175	404	226	21.0 (20.6)
32A	176 (172)	192	434	226	24.0 (23.6)
40A	196 (192)	192	434	226	24.5 (24.1)
50A	222 (218)	216	498	276	36.0 (35.8)
65A	282 (278)	251	552	352	64.5 (64.2)
80A	302 (294)	264	575	352	71.5 (68.8)
100A	342 (330)	321	658	401	111.0 (106.9)
125A	400 (388)	321	658	401	115.0 (112.0)
150A	465 (453)	414	814	502	234.3 (230.0)
200A	469 (469)	414	814	502	242.0 (238.0)

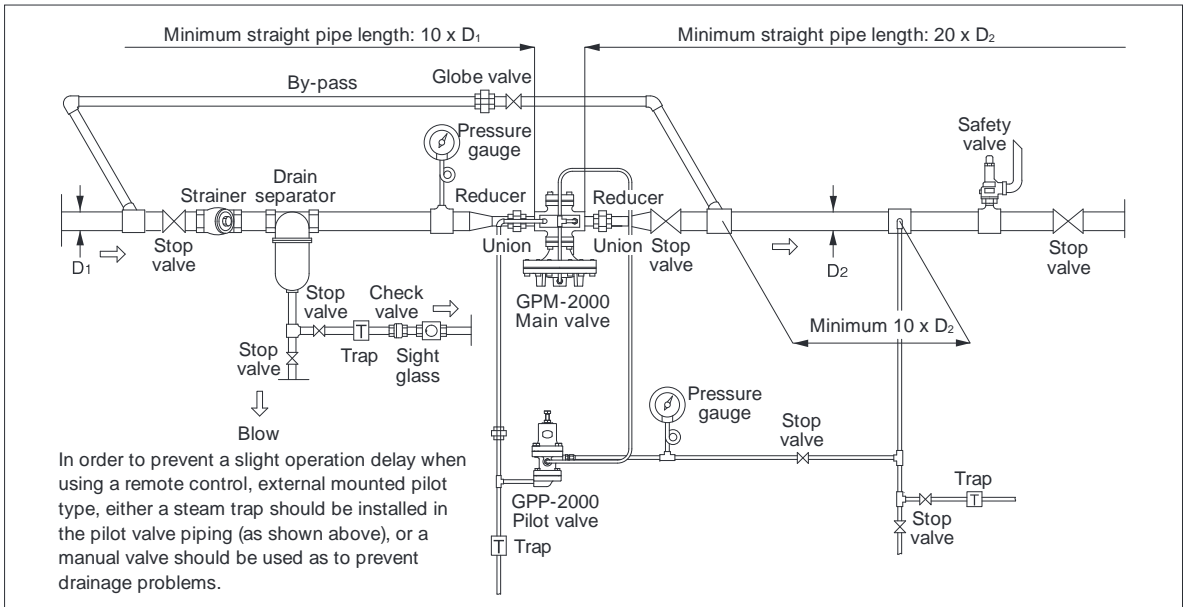
* The above values in parentheses are the dimensions of JIS 10K FF flanged.



- Manual Set Point Type Remote Control (Maximum distance of 5 meters)



- Piping Example



- Variation



GPP-2000 pilot valve



GPM-2000 main valve (screwed)

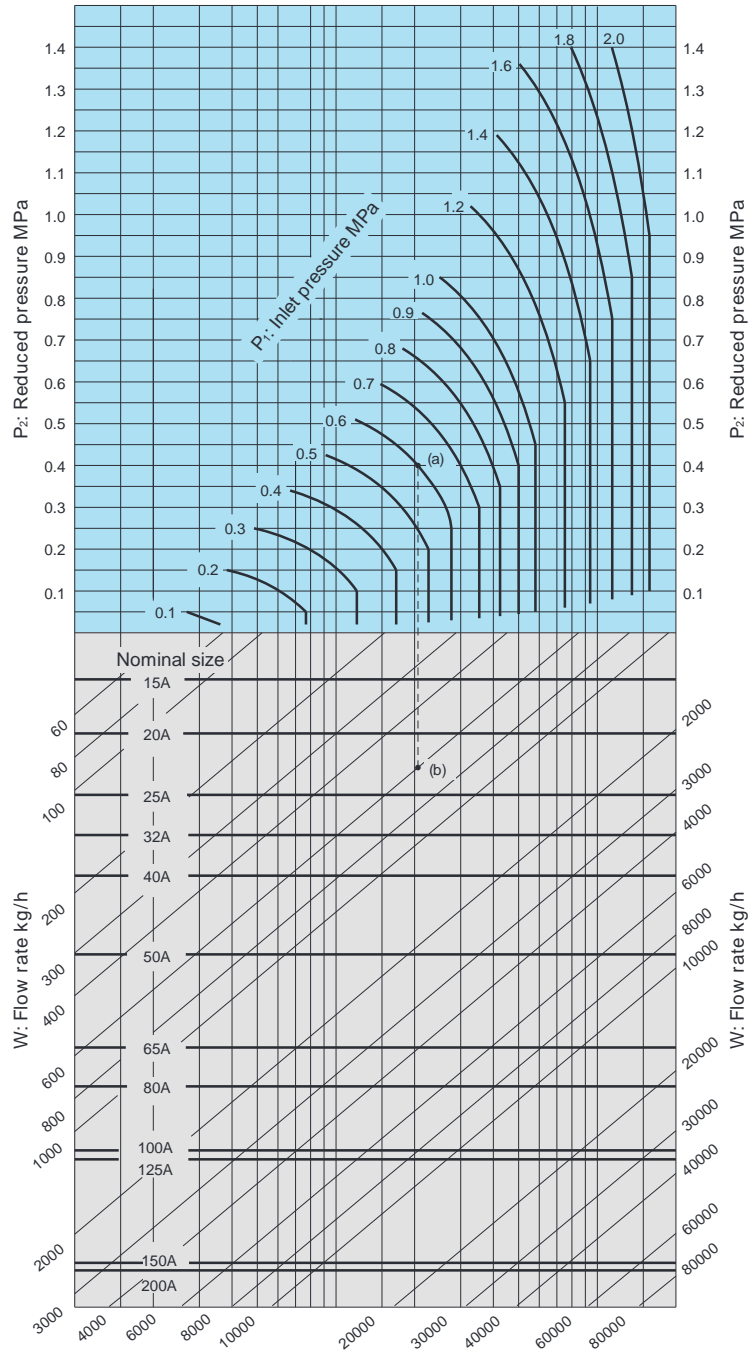


GPM-2000 main valve (flanged)

■ GP-2000 Flow Rate Table

													(kg/h)
P ₁ (MPa)	P ₂ (MPa)	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
2.0	0.1-0.9	1,260	1,814	2,746	3,603	4,737	8,064	15,120	19,656	30,240	31,500	63,000	65,520
	1	1,232	1,775	2,687	3,525	4,634	7,889	14,792	19,230	29,584	30,817	61,635	64,100
	1.2	1,136	1,636	2,477	3,250	4,273	7,273	13,637	17,729	27,275	28,412	56,824	59,097
	1.4	1,012	1,458	2,207	2,896	3,808	6,481	12,153	15,799	24,306	25,319	50,638	52,664
1.8	0.1-0.8	1,140	1,641	2,485	3,260	4,286	7,296	13,680	17,784	27,360	28,500	57,000	59,280
	0.9	1,113	1,603	2,426	3,183	4,185	7,125	13,359	17,367	26,718	27,832	55,664	57,890
	1	1,067	1,537	2,327	3,053	4,014	6,832	12,810	16,653	25,621	26,688	53,377	55,512
	1.2	954	1,374	2,081	2,730	3,590	6,111	11,458	14,895	22,916	23,871	47,742	49,652
	1.4	803	1,157	1,751	2,298	3,021	5,143	9,643	12,536	19,287	20,090	40,181	41,788
1.6	0.1-0.7	1,020	1,468	2,223	2,917	3,835	6,528	12,240	15,912	24,480	25,500	51,000	53,040
	1	893	1,286	1,947	2,554	3,358	5,716	10,718	13,933	21,436	22,329	44,659	46,445
	1.3	664	956	1,448	1,900	2,498	4,253	7,974	10,366	15,949	16,613	33,227	34,556
1.4	0.1-0.6	900	1,296	1,962	2,574	3,384	5,760	10,800	14,040	21,600	22,500	45,000	46,800
	1	702	1,011	1,531	2,009	2,642	4,497	8,433	10,962	16,866	17,568	35,137	36,543
	1.1	620	893	1,352	1,773	2,331	3,969	7,442	9,675	14,884	15,504	31,009	32,250
1.2	0.1-0.5	780	1,123	1,700	2,230	2,932	4,992	9,360	12,168	18,720	19,500	39,000	40,560
	1	477	687	1,040	1,365	1,795	3,055	5,729	7,447	11,458	11,935	23,871	24,826
1.0	0.1-0.4	660	950	1,438	1,887	2,481	4,224	7,920	10,296	15,840	16,500	33,000	34,320
	0.5	635	914	1,385	1,817	2,388	4,066	7,623	9,911	15,247	15,883	31,766	33,036
	0.8	435	627	950	1,246	1,638	2,789	5,229	6,798	10,459	10,895	21,791	22,663
0.9	0.1-0.4	600	864	1,308	1,716	2,256	3,840	7,200	9,360	14,400	15,000	30,000	31,200
	0.5	551	793	1,201	1,576	2,072	3,528	6,615	8,600	13,230	13,782	27,564	28,666
	0.7	413	595	901	1,182	1,554	2,646	4,961	6,450	9,923	10,336	20,673	21,500
0.8	0.1-0.3	540	777	1,177	1,544	2,030	3,456	6,480	8,424	12,960	13,500	27,000	28,080
	0.5	462	665	1,007	1,322	1,738	2,958	5,547	7,211	11,094	11,556	23,113	24,037
0.7	0.1-0.3	480	691	1,046	1,372	1,804	3,072	5,760	7,488	11,520	12,000	24,000	24,960
	0.5	364	525	794	1,042	1,371	2,333	4,375	5,688	8,751	9,115	18,231	18,961
0.6	0.1-0.2	420	604	915	1,201	1,579	2,688	5,040	6,552	10,080	10,500	21,000	21,840
	0.3	395	570	862	1,132	1,488	2,533	4,750	6,175	9,500	9,896	19,793	20,584
	0.5	248	357	541	710	934	1,590	2,981	3,875	5,963	6,211	12,423	12,919
0.5	0.1-0.2	360	518	784	1,029	1,353	2,304	4,320	5,616	8,640	9,000	18,000	18,720
	0.3	308	443	671	881	1,158	1,972	3,698	4,807	7,396	7,704	15,408	16,025
	0.4	228	329	498	653	859	1,462	2,742	3,565	5,485	5,713	11,427	11,884
0.4	0.05-0.15	300	432	654	858	1,128	1,920	3,600	4,680	7,200	7,500	15,000	15,600
	0.3	206	297	450	591	777	1,323	2,480	3,225	4,961	5,168	10,336	10,750
0.3	0.05-0.1	240	345	523	686	902	1,536	2,880	3,744	5,760	6,000	12,000	12,480
	0.2	182	262	397	521	685	1,166	2,187	2,844	4,375	4,557	9,115	9,480
0.2	0.05	180	259	392	515	677	1,152	2,160	2,808	4,320	4,500	9,000	9,360
	0.1	154	221	335	440	579	986	1,849	2,403	3,698	3,852	7,704	8,012
0.1	0.05	91	131	198	260	342	583	1,093	1,422	2,187	2,278	4,557	4,740

■ Nominal Sizes Selection Chart for GP-2000 Series (For Steam/External Sensing)

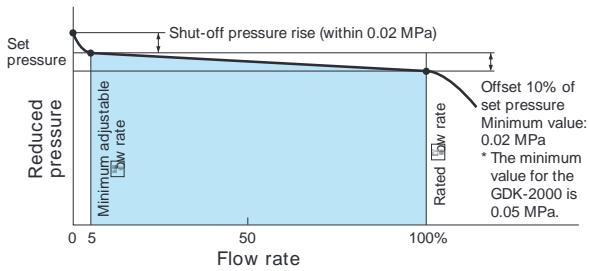


[Example]

When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and flow rate are 0.6 MPa, 0.4 MPa, and 600 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 600 kg/h. Since intersection point (b) lies between nominal sizes 20A and 25A, select the larger one, 25A.

* Set the safety factor at 80 to 90%.

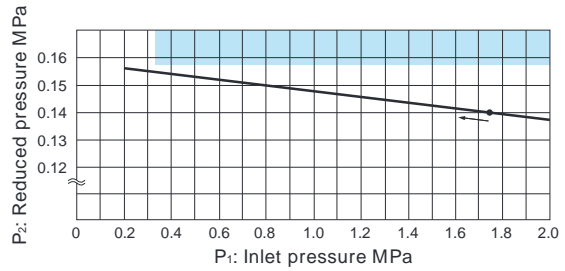
Flow Characteristic Chart



When selecting a nominal size, set the flow rate at 80 to 90% of the rated flow rate, allowing for the pressure loss and heat loss of the stop valve, strainer, etc. to be used before or after the pressure reducing valve. To enable the pressure reducing valve to show a maximum flow characteristic, do not select a small piping diameter, as a countermeasure against the effect of piping resistance. Select a nominal size based on the nominal sizes selection chart.

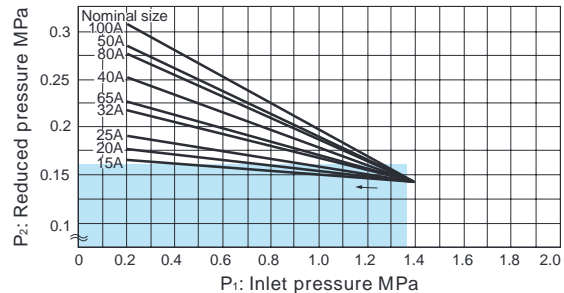
Pressure Characteristic Chart

· GP-2000, GPK-2001 · 2003



This chart shows variation in reduced pressure when the inlet pressure of 1.75 MPa is changed between 0.2 MPa and 2.0 MPa while the reduced pressure is set at 0.14 MPa.

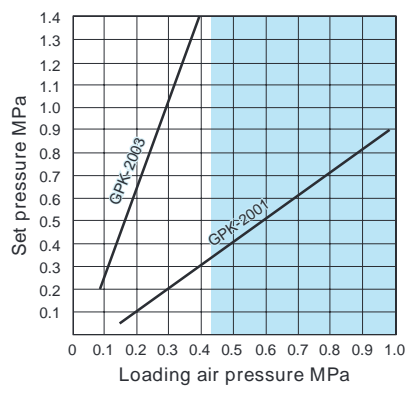
· GDK-2000



This chart shows variation in reduced pressure when the inlet pressure of 1.4 MPa is changed between 0.2 MPa and 1.4 MPa while the reduced pressure is set at 0.14 MPa.

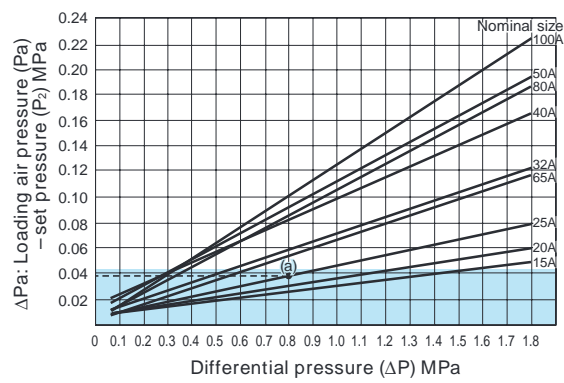
Loading Air Pressure-set Pressure Chart

· GPK-2001 · 2003



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

· GDK-2000



How to read the chart (GDK-2000)
 When the nominal size is 25A, the inlet pressure (P_1) is 1.0 MPa, and the reduced pressure (P_2) is 0.2 MPa, the loading air pressure is calculated as follows: Trace up vertically from the differential pressure (ΔP) before and after the pressure reducing valve ($1.0 \text{ MPa} - 0.2 \text{ MPa} = 0.8 \text{ MPa}$) to find intersection point (a) with the nominal size of 25A. Calculate ΔPa [loading air pressure (Pa) - set pressure (P_2)] = 0.037 MPa by horizontally tracing to the left from intersection point (a). Thus, the loading air pressure is: (Pa) = $\Delta Pa + P_2 = 0.037 + 0.2 = 0.237 \text{ MPa}$.