Born to save energy

PRESSURE REDUCING VALVE

GD-45P · GD-45

Features

1. These valves are compact and lightweight.
2. These valves are simple in structure and easy to maintain.
3. These valves are applicable to an inlet pressure of up to 2.0 MPa.
4. A screen (60 mesh) is incorporated to protect the valve and the valve seat from dirt.
5. These valves offer excellent workability with the aid of an external pressure type bellows used as the pressure sensing part.
6. Pressure adjustment is handle-operated and does not require any tool (GD-45P).

GD-45P

GD-45

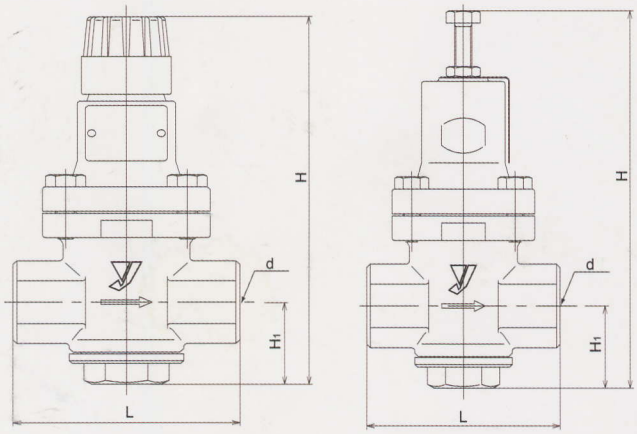
Specifications

Model		GD-45P · GD-45
Application		Steam
Inlet pressure		2.0 MPa or below
Reduced pressure		(A) 0.02-0.1 MPa
		(B) 0.05-0.4 MPa
		(C) 0.35-1.0 MPa
Minimum differential pressure		0.05 MPa
Maximum pressure reduction ratio		10:1
Maximum temperature		220
Valve seat leakage		0.1% or below of rated flow rate
Material	Body	Ductile cast iron
	Valve, valve seat	Stainless steel
	Bellows	Phosphor bronze
Connection		JIS Rc screwed

Dimensions (mm) and Weights (kg)

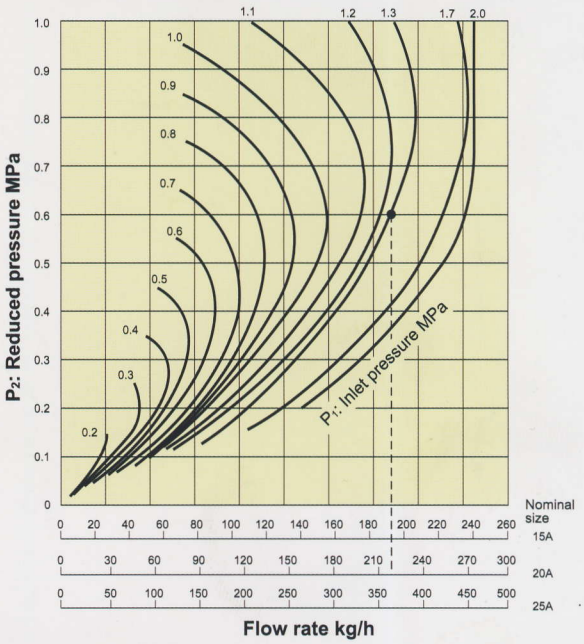
Nominal size	d	L	H1	H	Weight
15A	Rc 1/2	111	47	213 (216)	3.2
20A	Rc 3/4	111	47	213 (216)	3.2
25A	Rc 1	111	47	213 (216)	3.2

● The values in parentheses are the dimensions of the GD-45.



GD-45P　　GD-45

Chart for Selecting Nominal Sizes



[Example]
When selecting the nominal size of a pressure reducing valve whose inlet pressure (P_1), reduced pressure (P_2), and flow rate are 1.3 MPa, 0.6 MPa, and 200 kg/h, respectively, first find the intersection point of the inlet pressure of 1.3 MPa and the reduced pressure of 0.6 MPa. Trace down vertically from this intersection point to find the nominal size with a flow rate of 200 kg/h or over. In this case, the nominal size is 20A.

Yoshitake® INC.

Born to save energy

PRESSURE REDUCING VALVE

GP-1000EN · 1000H

Features

1. The GP-1000EN can be replaced easily from existing valve because it complies with face-to-face dimensions of the EN standard.
2. These valves 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. These valves comply with the standard of SHASE-S106 Pressure Reducing Valves (The Society of Heating, Air-Conditioning and Sanitary Engineers of Japan).

Specifications

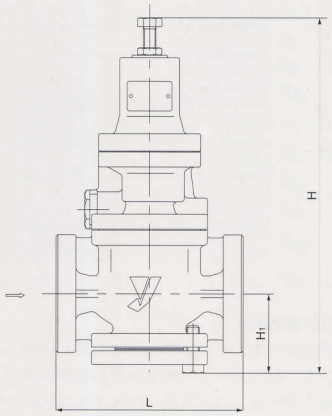
Model		GP-1000EN	GP-1000H
Application		Steam	
Inlet pressure		0.1–1.6 MPa	
Reduced pressure		(A) 0.05–0.9 MPa (B) 0.9–1.4 MPa	
		90% or below of inlet pressure (gauge pressure)	
Minimum differential pressure		0.05 MPa	
Maximum pressure reduction ratio		20:1	
Maximum temperature		220℃	
Valve seat leakage		0.01% or below of rated flow rate	
Material	Body	Ductile cast iron	
	Main valve, valve seat	Stainless steel	
	Pilot valve, pilot valve seat	Stainless steel	
	Piston, cylinder	Stainless steel	
	Diaphragm	Stainless steel	
Connection		EN1092 PN25	JIS 16K FF flanged ASME Class 300 flanged

GP-1000H

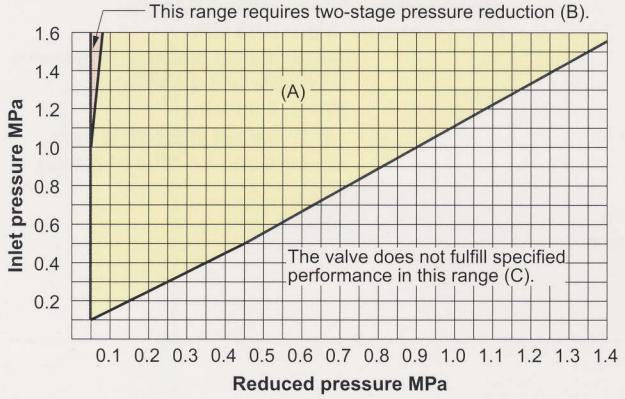
Dimensions (mm) and Weights (kg)

Nominal size	L		H	H1	Weight	
	GP-1000EN	GP-1000H			GP-1000EN	GP-1000H
15A	150	150 (-)	291	64	8.0	8.0 (-)
20A	150	155 (-)	291	64	8.5	8.5 (-)
25A	160	160 (160)	300	67	10.0	10.0 (10.0)
32A	180	190 (180)	333	82	14.0	14.0 (14.0)
40A	200	190 (200)	333	82	15.5	14.5 (15.5)
50A	230	220 (230)	353	93	21.0	20.0 (21.0)
65A	290	245 (278)	357	100	30.0	30.0 (30.0)
80A	310	290 (310)	404	122	37.0	35.0 (37.0)
100A	350	330 (350)	450	144	57.0	52.5 (57.0)

● The values in parentheses are the dimensions of valves with ASME class 300 flanged.



Specifications Selection Chart



Find the intersection point of the inlet and reduced pressures. If the intersection point is within range (A) in the chart, the pressures are controllable with a single pressure reducing valve. They can be controlled by two-stage pressure reduction if the intersection point is within range (B). The valve does not fulfill specified performance in range (C).

Yoshitake INC.

Table of Corrected Cv Values

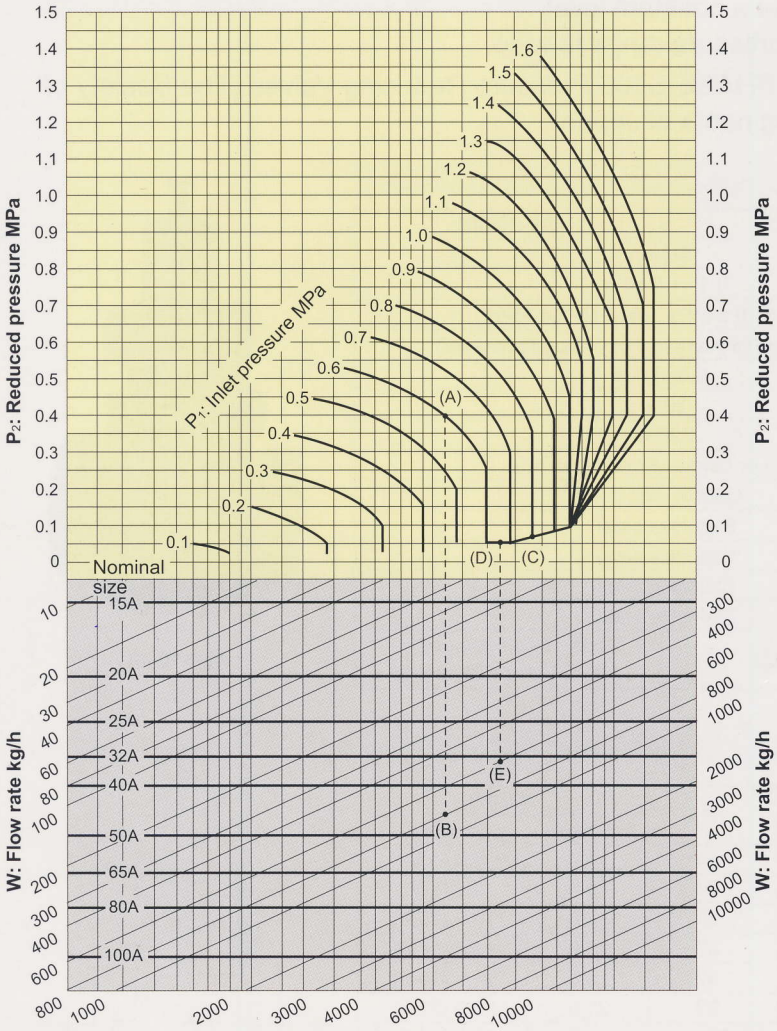
● Table of rated Cv values (Cv value when the correction factor C = 1)

Nominal size	15A	20A	25A	32A	40A	50A	65A	80A	100A
Cv values	1	2.3	4	6.5	9	16	25	36	64

Note) When the reduced pressure is within either of the ranges shown below, calculate the corrected Cv value by multiplying the rated Cv value by the correction factor C obtained from the Fig.1.

- When the inlet pressure is between 0.7 MPa and 1.0 MPa and the pressure reduction ratio is over 10:1
- When the inlet pressure is over 1.0 MPa and the reduced pressure is 0.4 MPa or below

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 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 600 kg/h. Since intersection point (E) lies between nominal sizes 32A and 40A, select the larger one, 40A.

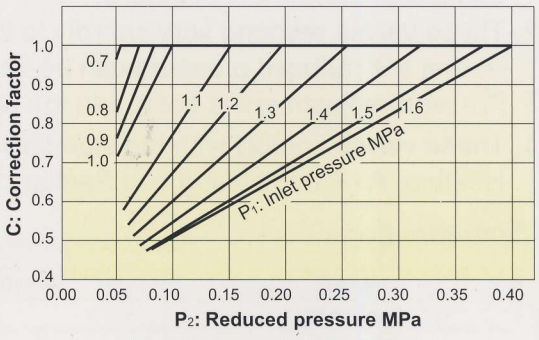
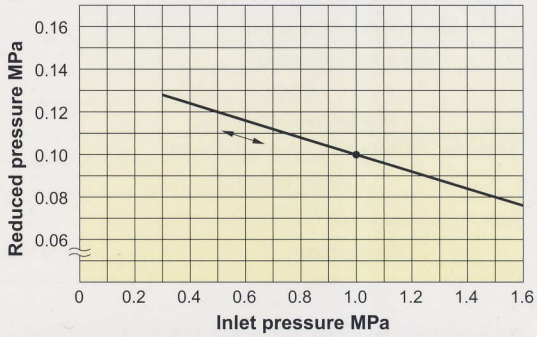


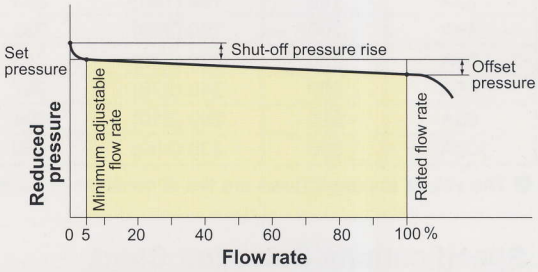
Fig. 1: Corrected Cv value

Pressure Characteristic Chart



This chart shows a variation in the reduced pressure when the inlet pressure of 1.0 MPa is changed between the range from 0.3 MPa to 1.6 MPa with the reduced pressure set at 0.1 MPa.

Flow Characteristic Chart



- Shut-off pressure rise: Within 0.02 MPa
- Offset pressure: Within 0.03 MPa
  (when the set pressure is between 0.05 MPa and 0.1 MPa)
  Within 0.05 MPa
  (when the set pressure is over 0.1 MPa and 1.4 MPa or below)

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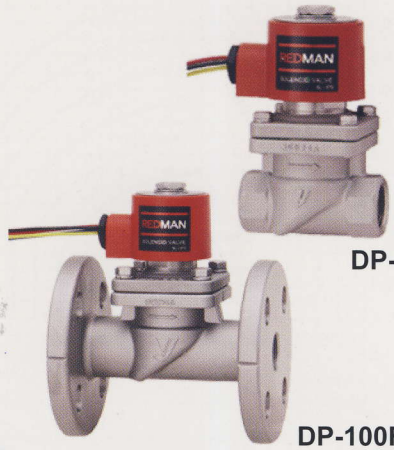
Born to save energy

SOLENOID VALVE

DP-100 · 100F

Features

1. Ultra-high performance technology gives high precision in performance.
2. Three-times more durability than our conventional models.
3. ASM (Anti-Sticking Mechanism) for three-times more scale resistance.
4. Body and main parts made of stainless steel give higher corrosion resistance, making usable for clean fluid.
5. A combined internal component enables easy cartridge replacement with this product installed.



DP-100

DP-100F

Specifications

Model		DP-100	DP-100F
Application		Steam, Air, Cold and hot water, N_2 gas, CO_2 gas (dry), Ar gas, Oil (20cSt or below)	
Working pressure		0 −1.0 MPa (Unusable under vacuum)	
Min. differential pressure		0 MPa (0.03 MPa or more is required when the coil is set sideways.)	
Allowable valve seat leakage		50 mL/min under standard conditions (At air pressure of 0.6 MPa)	
Temperature range		5-180 ℃ (Not applicabale to freeze)	
Operation		Normally closed	
Material	Body	Stainless steel	
	Piston	Stainless steel	
	Valve disc	PTFE	
Connection		JIS Rc screwed	JIS 10K FF flanged
Size		10A-50A	15A-65A

Size	10A-25A	32A-65A	10A-25A	32A-65A
Rated voltage	AC 100 / 200 V selective type		AC 110 / 220 V selective type	
Allowable fluctuation	Rated voltage -5% to + 10%			
Rated current	0.34 / 0.17 A	0.46 / 0.23 A	0.32 / 0.16 A	0.42 / 0.21 A
Starting current	1.64 / 0.82 A	1.90 / 0.95 A	1.48 / 0.74 A	1.80 / 0.90 A
Insulation class	Insulation class H			
Protective structure	Dust tight, Splash proof			
Insulation resistance	500 MΩ and more / 500 V megger			
Withstand voltage test	1500 V/min			

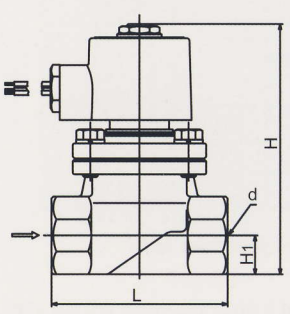
Dimensions (mm) and Weights

● DP-100

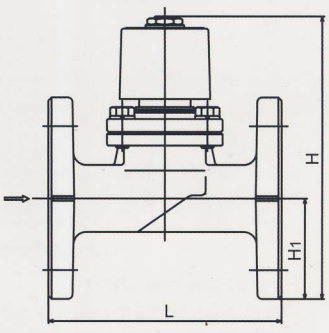
Nominal size	d	L	H	H1	Weight
10A	Rc 3/8	70	127	14.5	1.4
15A	Rc 1/2	70	127	14.5	1.4
20A	Rc 3/4	80	131	17.5	1.5
25A	Rc 1	95	135	21.0	1.9
32A	Rc 1-1/4	110	172	26.0	3.1
40A	Rc 1-1/2	120	178	29.5	4.0
50A	Rc 2	140	187	36.5	5.6

● DP-100F

Nominal size	L	H	H1	Weight
15A	120	161	47.5	2.7
20A	130	164	50.0	3.2
25A	145	177	62.5	4.5
32A	160	213	67.5	6.9
40A	170	219	70.0	8.0
50A	195	228	77.5	10.5
65A	198	238	87.5	12.3



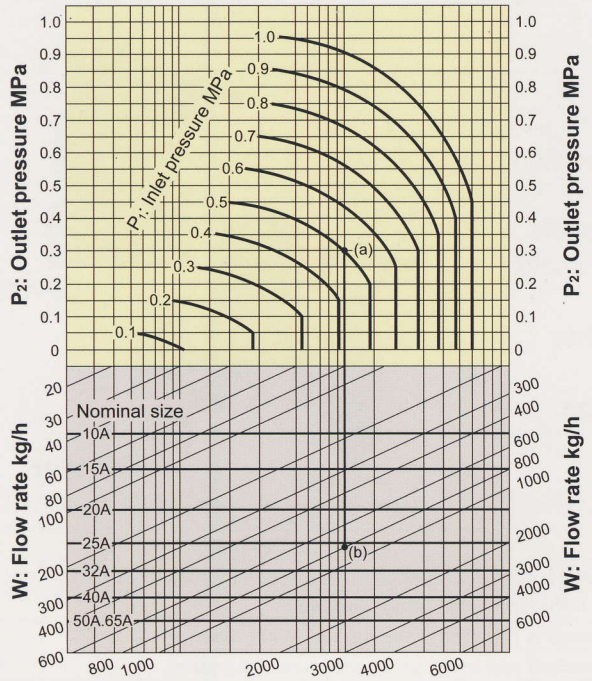
DP-100



DP-100F

Yoshitake INC.

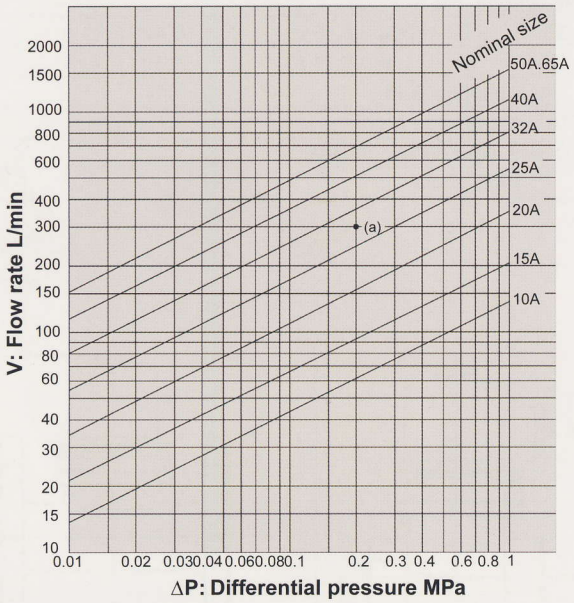
Nominal Size Selection Chart (For Steam)



How to use the chart

When selecting the nominal size of a solenoid valve whose inlet pressure (P_1), outlet pressure (P_2), and steam (saturated steam) flow rate (W) are 0.5 MPa, 0.3 MPa, and 800 kg/h, respectively, first find intersection point (a) of P_1 = 0.5 MPa and P_2 = 0.3 MPa. Trace down vertically from this intersection point (a) to find intersection point (b) with W = 800 kg/h. Since this intersection point (b) lies between nominal sizes 25A and 232A, select the larger one, 32A.

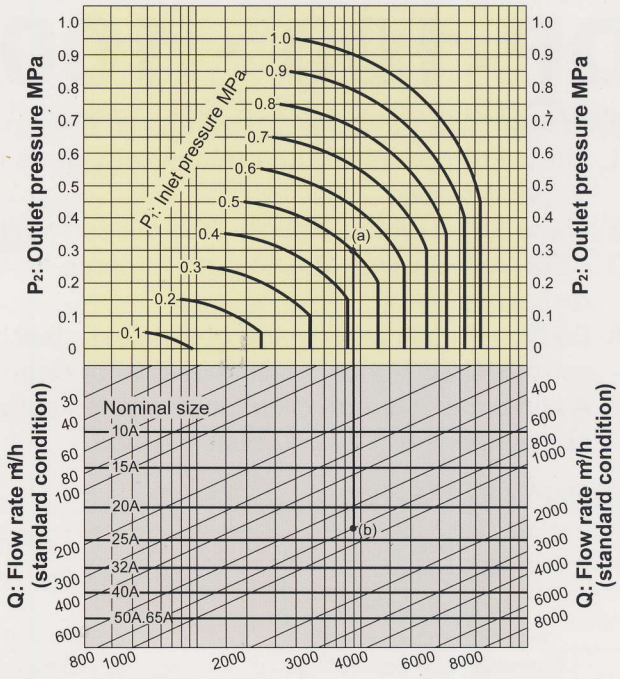
Nominal Size Selection Chart (For Water)



How to use the chart

When selecting the nominal size of a solenoid valve whose inlet pressure (P_1), outlet pressure (P_2), and flow rate (V) are 0.5 MPa, 0.3 MPa, and 300 L/min, respectively, first find intersection point (a) of the differential pressure before and after the valve [$\Delta P = 0.5 - 0.3 = 0.2$ MPa] and V = 300 L/min. Since this intersection point (a) lies between nominal sizes 25A and 32A, select the larger one, 32A.

Nominal Size Selection Chart (For Air)



How to use the chart

When selecting the nominal size of a solenoid valve whose inlet pressure (P_1), outlet pressure (P_2), and air (20°C) flow rate (Q) are 0.5 MPa, 0.3 MPa, and 800 m³/h (standard condition), respectively, first find intersection point (a) of P_1 = 0.5 MPa and P_2 = 0.3 MPa. Trace down vertically from this intersection point (a) to find intersection point (b) with Q = 800 m³/h (standard condition). Since this intersection point (b) lies between nominal sizes 20A and 25A, select the larger one, 25A.

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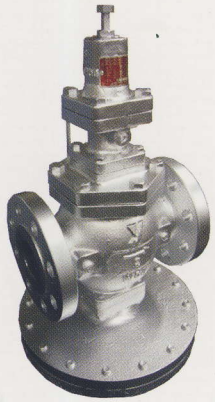
Born to save energy

PRESSURE REDUCING VALVE

GP-2000CS



Features

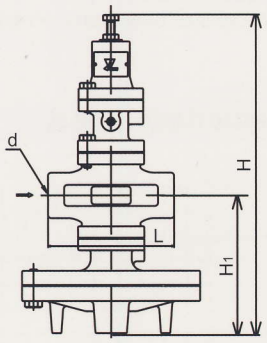
1. Unique patented diaphragms enable superiior durability.
2. 200 mesh integral strainer prevents most scale problem on the pilot valve.
3. GP-2000 series, Yoshitake's original pilot-operated valve, has proven its contribution various systems.
4. Spherical valve provides a tight seal meeting ANSI Class IV.

Specifications

Connection		JIS Rc	JIS 10K FF	JIS 20K RF	JIS 30K RF
Application		Steam			
Max. inlet pressure		3.0 MPa	1.0 MPa	2.0 MPa	3.0 MPa
Max. temperature		260°C			
Reduced pressure		0.02-0.15 MPa 0.1-1.4 MPa 1.3-2.0 MPa	0.02-0.15 MPa 0.1-0.85 MPa	0.02-0.15 MPa 0.1-1.4 MPa 1.3-1.7 MPa	0.02-0.15 MPa 0.1-1.4 MPa 1.3-2.0 MPa
		85% or below of inlet pressure (gauge pressure)			
Minimum differential pressure		0.05 MPa			
Maximum pressure reduction ratio		20:1			
Valve seat leakage		0.01% or below of rated flow rate			
Material	Body	Cast carbon steel			
	Main valve, valve seat	Stellite overlaid stainless steel			
	Pilot valve, pilot valve seat	Stainless steel			
	Diaphragm	Stainless steel			

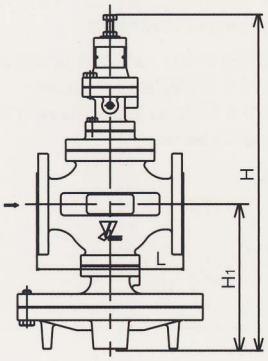
● Valves with a ASME Class 150, ASME Class 300 or EN PN40 flanged are also available.

Dimensions (mm) and Weight (kg)



<JIS Rc screwed>

Nominal size	d	L	H	H1	Weight	Cv value
15A	Rc 1/2	150	398	170	16	5
20A	Rc 3/4	150	398	170	16	7.2
25A	Rc 1	160	404	175	21.5	10.9
32A	Rc 1-1/4	180	434	192	24	14.3
40A	Rc 1-1/2	180	434	192	24	18.8
50A	Rc 2	230	498	216	37	32



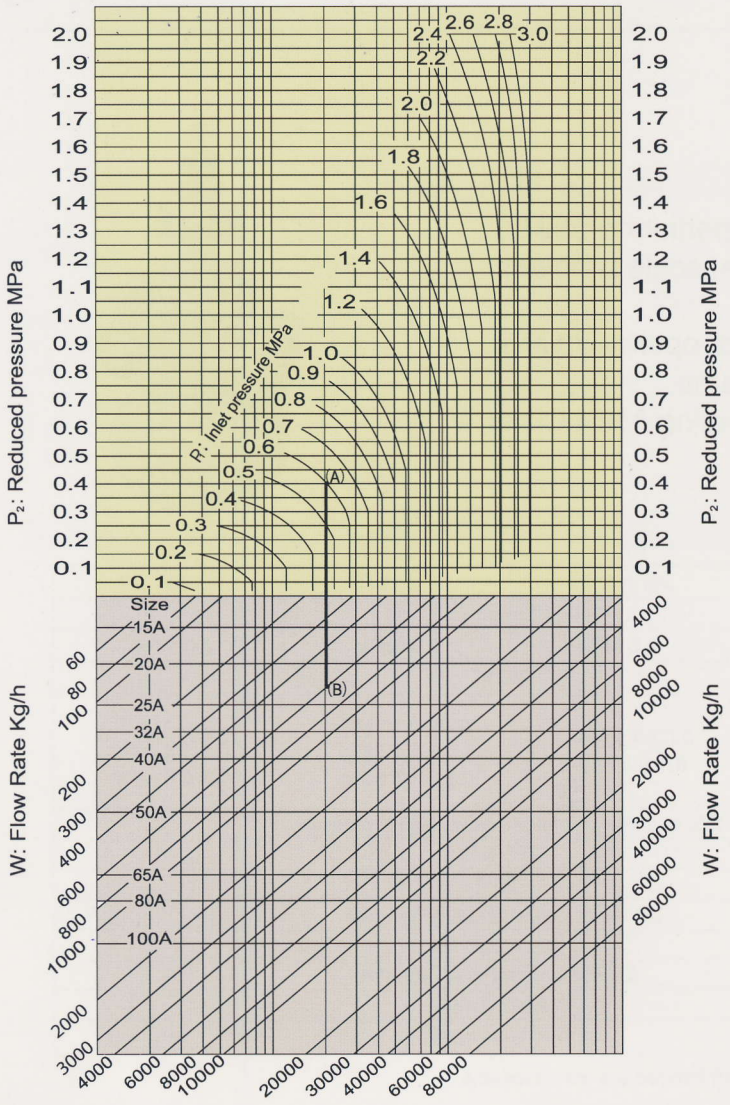
<JIS 30K RF flanged>

Nominal size	L	H	H1	Weight	Cv value
15A	240	398	170	18	5
20A	240	398	170	18	7.2
25A	250	404	175	24.5	10.9
32A	260	434	192	27	14.3
40A	260	434	192	27	18.8
50A	230	498	216	42	32
65A	294	552	251	75	60
80A	314	575	264	84	78
100A	358	658	321	133	120

● 15A to 40A valves are welded flanged.

Yoshitake® INC.

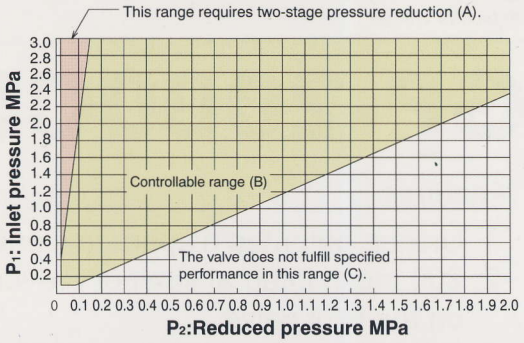
Nominal Sizes Selection Chart (For Steam)



[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.

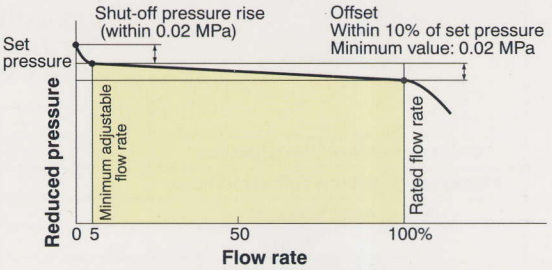
- Set the safety factor at 80 to 90%.

Specifications Selection Chart



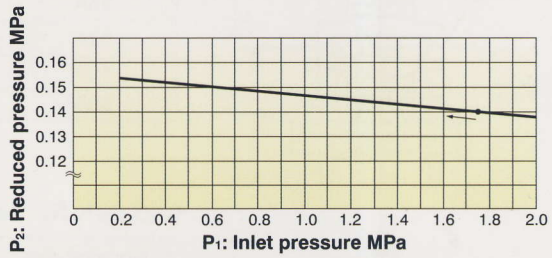
Based on the selection chart above, select a pressure reducing valve in the optimum manner. On the selection chart, first find the intersection point of the inlet pressure (P_1) and the reduced pressure (P_2). Two-stage pressure reduction is required if the intersection point lies in range (A), or the pressures are controllable with a single pressure reducing valve if the intersection point is within range (B). The valve does not fulfill specified performance in range (C). To adopt two-stage pressure reduction, separate two pressure reducing valves as far away from each other as possible.

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



This chart shows a variation in the reduced pressure when the inlet pressure of 1.75 MPa is changed between the range from 0.2 MPa to 2.0 MPa with the reduced pressure set at 0.14 MPa.

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