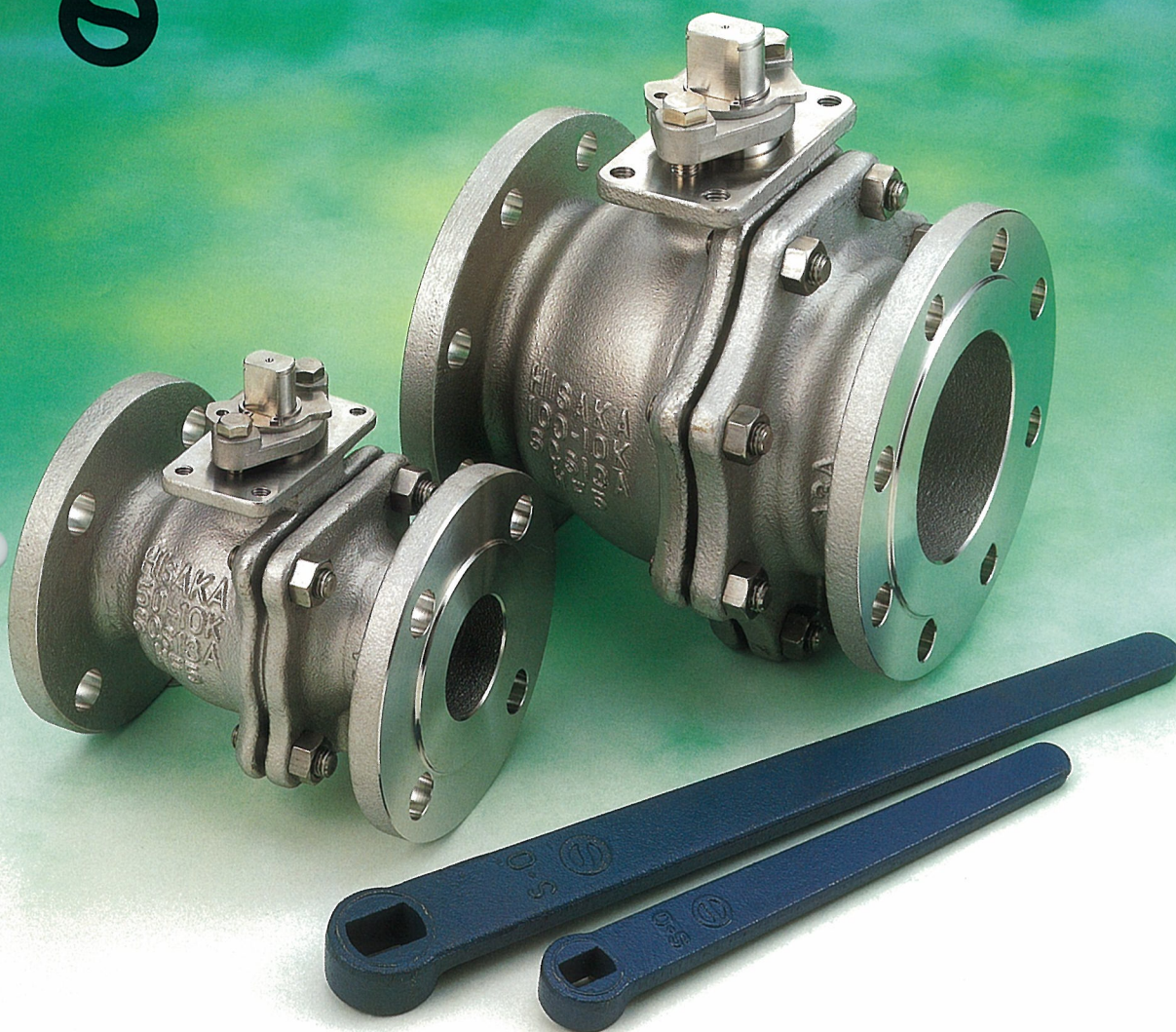


HF5 MANUAL-OPERATED BALL VALVE

HF5
HF5-W

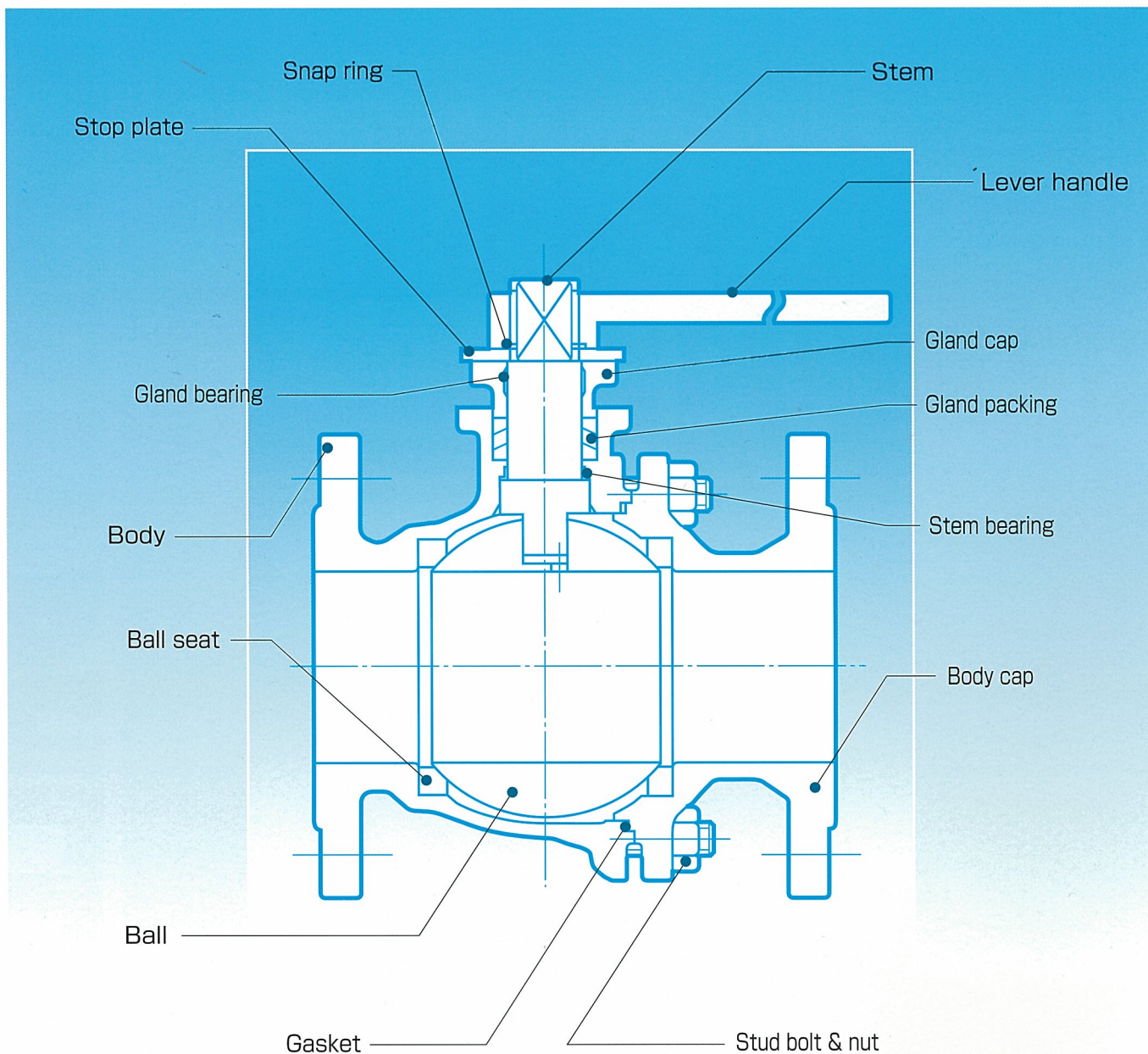
HISAKA BALL VALVES



Workshop under authorization
by American Petroleum Institute
of the indication.

Cat No HF5-9911E

FLANGE BALL VALVE



HF5



HF5 Series features:

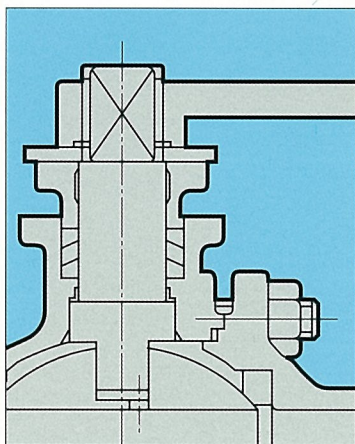
In addition to superior characteristics of HF3 Ball Valve, HF5 has such advantages that safety, maintainability and automatization are easily done through further improvement.

1. A rectangular stem top can prevent operational errors.
2. The structure equipped with a standard MAXTITE PTFE® seat (next generation PTFE seat) brings a longer product life.
3. Free from any leakage from a gland because manually operated parts are not at all affected by automatization of a process.

Structural Features

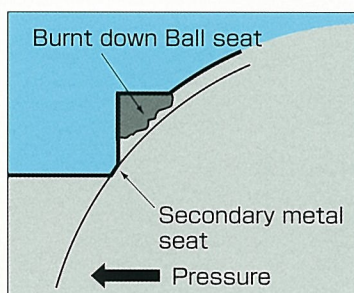
1 Anti-Blow-out Stem (fire safe)

HF5 has a flanged stem inserted from inside of the body so that the stem never blow out even it is subject to abnormally high pressure or a gland bolt becomes loose. The flange at the lower part of the stem acts as a stopper inside the body. Furthermore, the flanged stem that will closely contact with the body under internal pressure prevents excessive leakage if a gland packing is burnt down at the worst case of fire for instance.



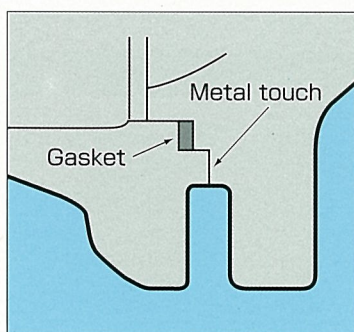
2 Secondary Metal Seat (fire safe)

HF5 Ball Valve has a structure that prevents excessive leakage and the spread of fire through close contact of the ball with the secondary metal seat installed in the main body if the ball seat is burnt down.



3 Metal Touch Body seal (fire safe)

The double-seal type joint of the body and a body cap with a PTFE gasket and metal touch maintains sealing effect and protects excessive leakage if the PTFE gasket is burnt down.



4 Anti-static Device (optional)

Friction between the ball and the ball seat may generate static electricity. For flammable fluid, an optional anti-static device may be installed on the stem in two different places to prevent electrification.

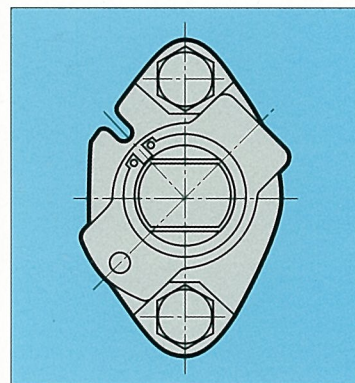
(Anti-static device is not the part equipped as the standard.)

5 Ball Seat

A MAXTITE PTFE® seat (next generation PTFE seat) is employed as the standard specification. Its resistance to high temperature is superior to a pure PTFE seat. Moreover, the life of MAXTITE PTFE® seat is long. Flexibility of a ball valve has been further improved through a wide choice of seat material from pure PTFE to metal to meet customer's requirements.

6 Stem

A rectangular top-stem employed by the HF5 Ball Valve can perfectly avoid operational errors of opening and closing. In addition, such stem provides easy identification of the open-close position at the site and increases safety.

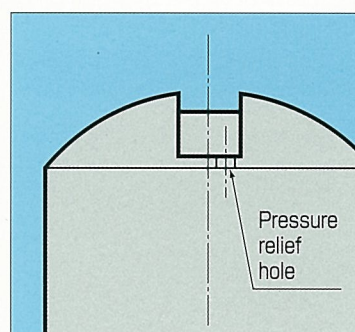


7 Gland Packing

A gland packing has a special structure combining a unique hat-shaped stem bearing. Self-sealing function under fluid pressure ensures and maintains sealing performance and, minimizes a hassle of additional tightening of the gland.

8 Pressure Relief Protection

The engagement of the ball and the stem has a hole to prevent internal pressure from rising. The hole enables to avoid rising of fluid pressure in the pocket when the valve is open. Therefore, the ball seat is free from direct damage.

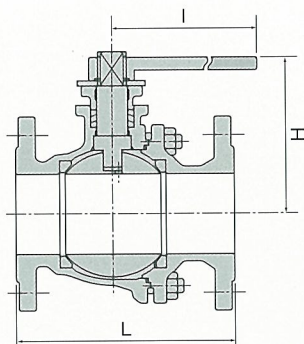
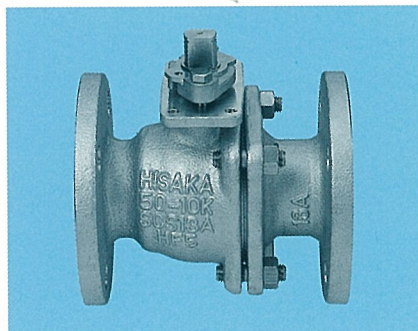


9 Key Lock (with an optional key)

Key lock is available at full open and full close positions. Operational errors by non-authorized personnel can therefore be prevented effectively.

FLANGE TYPE BALL VALVE

10K-class 150 Full bore-HF5, Stainless steel & cast steel



Pressure for inspection

Body	10K...2.06MPa (Pneumatic pressure)
	Class 150...2.94MPa (Pneumatic pressure)
Seat	0.59MPa (Pneumatic pressure)

For serviceable range of pressure and temperature, refer to page 6.

Parts name	Material			
Body	SCS13A	SCS14A	SCS16A	WCB
Body cap	SCS13A	SCS14A	SCS16A	WCB
Ball	SCS13A (SUS304)	SCS14A (SUS316)	SCS16A (SUS316L)	SCS13A (SUS304)
Stem	SUS304	SUS316	SUS316L	SUS403
Seat	MAXTITE PTFE® PTFE			
Gland packing	PTFE			

For nominal diameter 100A - 200A, we will provide a gear operator by your request.

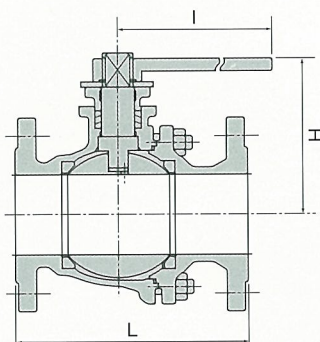
※For dimensions of the gear operator, refer to page 4.

※Weight is expressed by 10K of SCS material.

※SCS 16A of 32A and WCB are not available.

Nominal diameter	A	15	20	25	32	40	50	65	80	100	125	150	200	250	300
B	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
Bore diameter	13	19	25	32	38	51	64	76	102	127	152	203	254	305	
L	108	117	127	140	165	178	190	203	229	320	394	457	533	610	
H	75	78	102	107	110	112	136	154	177	290	310	375	※	※	
I	120	120	150	150	200	250	300	350	400	700	1000	1500			
Weight (kg)	2.2	2.5	3.7	5.9	7.8	9.4	14.5	18.8	28.9	44.4	60.4	92.3	210	335	

20K-class 300 Full bore-HF5, Stainless steel & cast steel



Pressure for inspection

Body	20K...5.0MPa (Hydraulic pressure)
	Class 300...7.55MPa (Hydraulic pressure)
Seat	0.59MPa (Pneumatic pressure)

For serviceable range of pressure and temperature, refer to page 6.

Parts name	Material			
Body	SCS13A	SCS14A	SCS16A	WCB
Body cap	SCS13A	SCS14A	SCS16A	WCB
Ball	SCS13A (SUS304)	SCS14A (SUS316)	SCS16A (SUS316L)	SCS13A (SUS304)
Stem	SUS304	SUS316	SUS316L	SUS403
Seat	MAXTITE PTFE® PTFE			
Gland packing	PTFE			

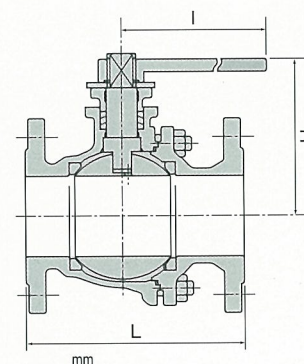
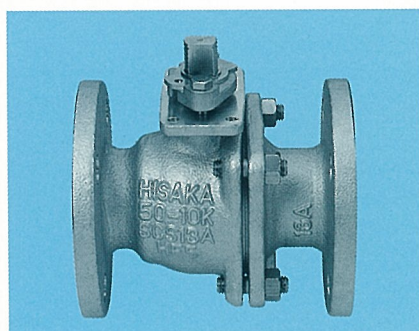
For nominal diameter 100A - 150A, we will provide a gear operator by your request.

※For dimensions of the gear operator, refer to page 4.

※Weight is expressed by 20K of SCS material.

Nominal diameter	A	15	20	25	40	50	65	80	100	125	150	200	250
B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10	
Bore diameter	13	19	25	38	51	64	76	102	127	152	203	254	
L	140	152	165	190	216	241	283	305	381	403	502	568	
H	75	78	102	110	112	136	154	182	290	310	※	※	
I	120	120	150	200	250	300	350	550	1000	1500			
Weight (kg)	3.0	3.4	4.3	9.3	12.0	18.4	21.5	35.9	68.4	89.4	200	330	

10K Full bore-HF5, Ductile Iron



Pressure for inspection

Body	10K...2.06MPa (Pneumatic pressure)
Seat	0.59MPa (Pneumatic pressure)

For serviceable range of pressure and temperature, refer to page 6.

Parts name	Material
Body	FCD450
Body cap	FCD450
Ball	SCS13A (SUS304)
Stem	SUS403
Seat	PTFE
Gland packing	PTFE

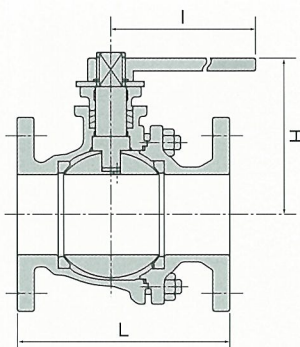
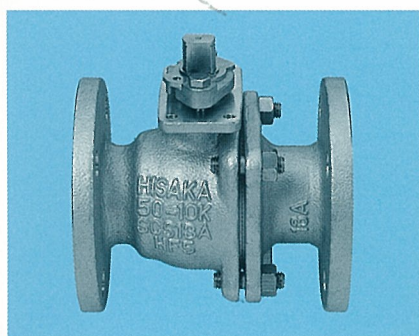
For nominal diameter 100A, we will provide a gear operator by your request.

※For dimensions of the gear operator, refer to page 4.

※32A is not available.

Nominal diameter	A	15	20	25	40	50	65	80	100
B	1/2	3/4	1	1 1/2	2	2 1/2	3	4	
Bore diameter	13	19	25	38	51	64	76	102	
L	108	117	127	165	178	190	203	229	
H	75	78	102	110	112	136	154	177	
I	120	120	150	200	250	300	350	400	
Weight (kg)	2.4	2.7	4.4	7.8	10	15.5	19.8	29.0	

10K Full bore-HF5, Cast iron



Nominal diameter	A	15	20	25	32	40	50	65	80	100	125	150	200	250	300
B	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
Bore diameter	13	19	25	32	38	51	64	76	102	127	152	203	254	305	
L	110	120	130	140	165	180	190	200	230	320	394	457	533	610	
H	96	89	103	107	110	112	136	154	177	290	310	375			
I	120	120	150	150	200	250	300	350	400	700	1000	1500	*	*	
Weight (kg)	2.7	3.0	5.0	7.4	8.5	11.0	16.5	20.8	34.9	52.4	70.5	150	265	405	

Pressure for inspection

Body	10K...1.47MPa (Pneumatic pressure)
Seat	0.59MPa (Pneumatic pressure)

For serviceable range of pressure and temperature, refer to page 6.

Parts name	Material
Body	FC200
Body cap	FC200
Ball	SCS13A (SUS304)
Stem	SUS403
Seat	PTFE
Gland packing	PTFE

For nominal diameter 100A - 200A, we will provide a gear operator by your request.

*For dimensions of the gear operator, refer to the following tables.

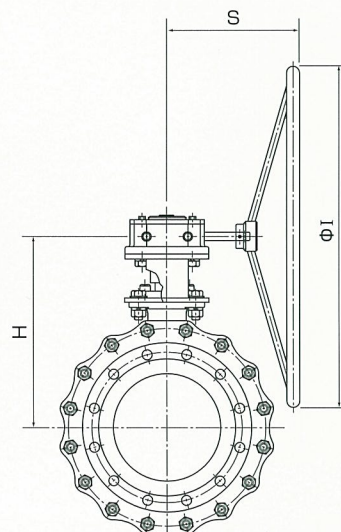
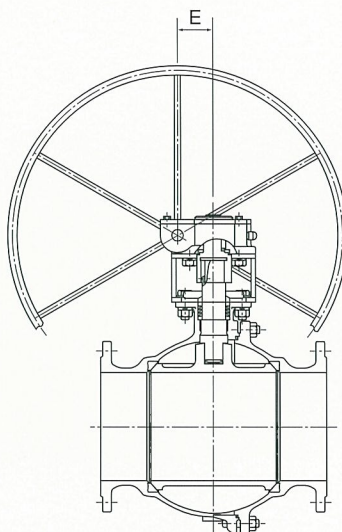
Dimensions of gear OPERATOR

10K class 150

Nominal diameter	A	B	H	I	E	S
100	4					
125	5		286	315	45	193
150	6		306	315	45	193
200	8		378	600	71	288
250	10		450	800	86	311
300	12		519	800	130	387

20K class 300

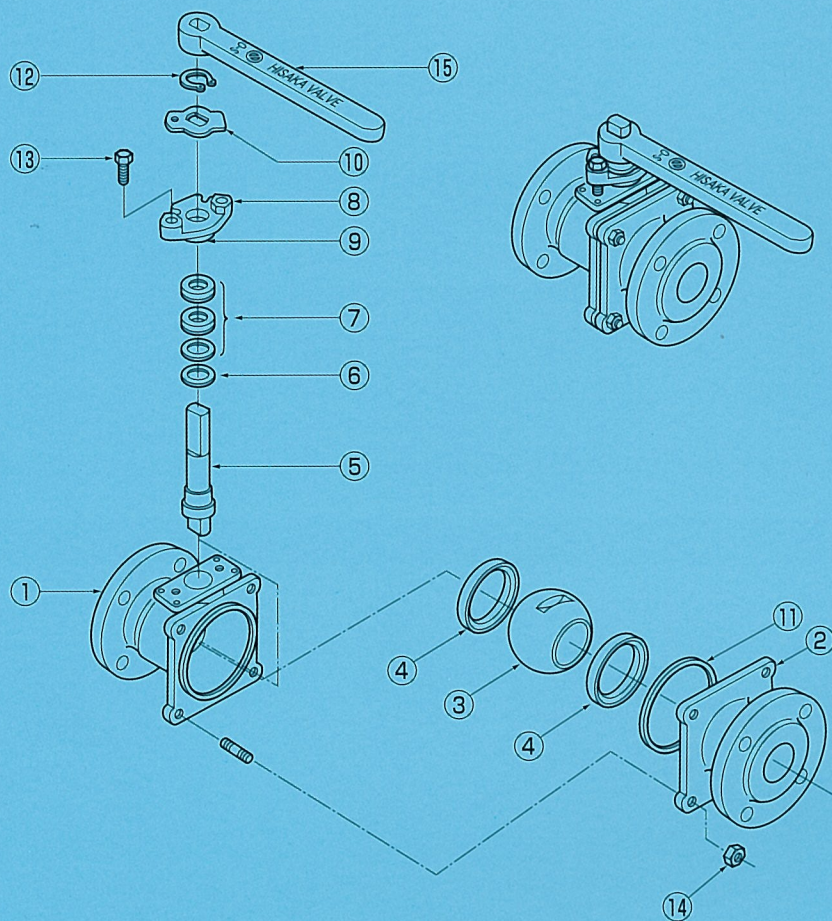
Nominal diameter	A	B	H	I	E	S
100	4					
125	5		286	315	45	193
150	6		320	600	71	288
200	8		380	800	86	311
250	10		465	800	130	387



CV values of each type

Size	Type	HF5	HS5	Bamboo	WF5	Gate valve	Globe valve
8A	1/4B		4.0	2		3.0	0.6
10A	3/8B		10.5	4	13	6.5	1.5
15A	1/2B	16.5	21.0	7	27	11.5	2.5
20A	3/4B	40.0	51.0	10	62	29.0	5.5
25A	1B	78.0	95.0	22	115	55.0	10.0
32A	1 1/4B	145	170	33	205	94.0	16.0
40A	1 1/2B	210	255	43	305	165	23
50A	2B	440	505	64	610	307	43
65A	2 1/2B	1150	730			490	70
80A	3B	2350	1220			710	100
100A	4B	3450	2355			1300	185
125A	5B	5350				2090	297
150A	6B	10350				3110	440
200A	8B	17650				5720	810
250A	10B	26050				8935	1260
300A	12B					13350	1890

<Structure and Material>



Parts list

Class		10K・20K			10K	
No.	Parts name	150・300				
1	Body	SCS13A	SCS14A	WCB	FC200	FCD450
2	Body cap	SCS13A	SCS14A	WCB	FC200	FCD450
3	Ball	SUS304(SCS13A)	SUS316(SCS14A)	SUS304(SCS13A)	SUS304(SCS13A)	SUS304(SCS13A)
4	Ball seat	MAXTITE PTFE®	MAXTITE PTFE®	MAXTITE PTFE®	PTFE	PTFE
5	Stem	SUS304	SUS316	SUS403	SUS403	SUS403
6	Stem bearing	PTFE	PTFE	PTFE	PTFE	PTFE
7	Gland packing	PTFE	PTFE	PTFE	PTFE	PTFE
8	Gland cap	SCS13A	SCS16A	SCS13A	FCD450 (Cr plating)	FCD450 (Cr plating)
9	Gland bearing	PTFE	PTFE	PTFE	PTFE	PTFE
10	Stop plate	SUS304	SUS304	SUS304	SUS304	SUS304
11	Gasket	PTFE	PTFE	PTFE	PTFE	PTFE
12	Snap ring	SUS304	SUS304	SK5	SK5	SK5
13	Bolt	SUS304	SUS304	S45C (Cr plating)	SS400 (Cr plating)	S45C (Cr plating)
14	Stud bolt & nut	SUS304	SUS304	S45C (Cr plating)	SS400 (Cr plating)	S45C (Cr plating)
15	Lever handle	FCD450 (Painting)	FCD450 (Painting)	FCD450 (Painting)	FCD450 (Painting)	FCD450 (Painting)

Pressure/temperature (NON SHOCK)

Pressure/temperature rating

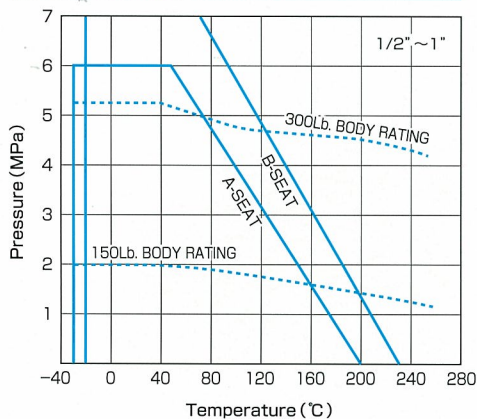
The allowable range of pressure and temperature of ball valves shall satisfy both body rating specified by nominal pressure (class) and seat rating of ball seat material.

The maximum allowable pressure indicated at the following graph is for NON-SHOCK (for hydrostatic water flow) and not actual working pressure.

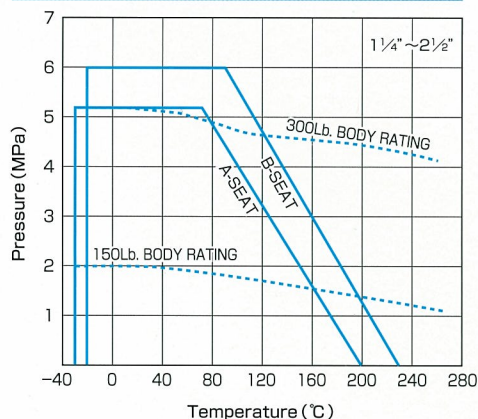
Note 1 Body rating is based on the values of ANSI B16.34 for WCB.

Note 2 A-SEAT: pure PTFE seat, B-SEAT: MAXTITE PTFE® seat

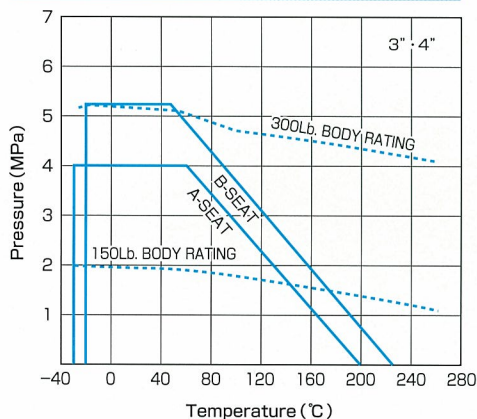
Valve size 1/2"~1"



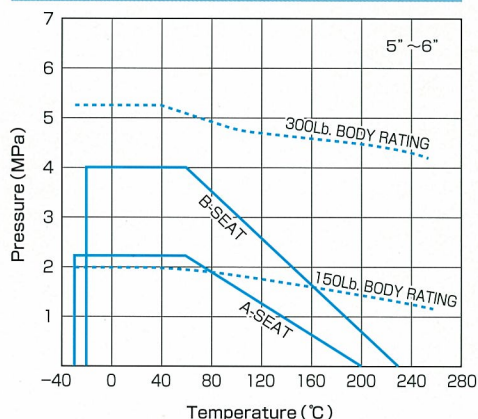
Valve size 1 1/4"~2 1/2"



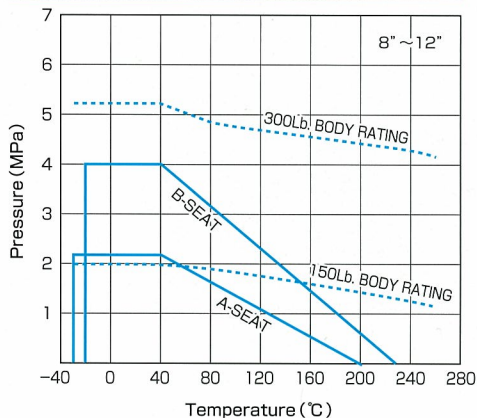
Valve size 3"~4"



Valve size 5"~6"



Valve size 8"~12"



We exercised great care to information of this catalogue, however, if you have some questions or find something wrong, please contact us.

In addition, please note that this information may be subject to change without notice for some unavoidable reasons.

FOR PROPER USE OF HISAKA BALL VALVE

Following points must be considered in order to use HISAKA ball valves in a proper way.

1. Do not allow the slurry (dirts in the pipe, welding slag, rust, etc.) to enter into the standard valve. If the slurry thrust into the ball seat or causes damage on it, the leakage or defective function may result.
Install the valve only after the through cleaning is made inside the pipe.
If the liquid containing the slurry is to be supplied, exchange the standard valve with the valve for slurry use.
2. Do not use the standard valve to the liquid which shows a large temperature fluctuation. If the high temperature liquid is supplied to the low temperature condition, the liquid inside the valve body shows the heat expansion, forming the high pressure. In such a case, the leakage or defective function may be caused.
Either reduce the temperature fluctuation or exchange with the valve having the relief port in the above case.
3. Do not apply undue force (as caused by one-side tightening of bolts, the tightening against a large gap, etc.) or vibration to the valve. Otherwise, the leakage or faulty function may happen. Observe the piping dimensions as instructed and arrange the support for a heavy valve.
4. Bolts and nuts are loosened in some cases due to the vibration during the transport. Therefore, check the tightening condition before use. If found Loose, retighten the bolts.
5. Special treatment is necessary, if the valve is used for oxygen or hydrogen service. Please clarify the detail of operation condition and fluid.
6. The flow direction of fluid is designated in certain valves. The reverse flow may cause the leakage. Install the valves as instruction, if the flow direction is designated.
7. At the time of disassembling the automatic valve, do not disassemble the pneumatic cylinder if the pressure still remains inside. Otherwise, the parts pop out. Disassemble it only after the air is purged.
8. Do not disassemble the pneumatic cylinder of spring back type.
If it is to be disassembled under unavoidable circumstances, exchange the end cap set bolt with the long bolt before disassembling. Otherwise, the spring may jump out what is dangerous.
9. Make the working test once a month or so, automatic valve is kept out of operation over a long period.
10. In case of using the teflon seat valve only for ON-OFF operation, the interim opening position deforms the seat and the leakage is caused.
11. If you have any question or requirement about our product, please contact us or our local sales agent.

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