

MODEL FM5 METAL TOUCH BALL VALVE

FLOATING METAL (1WAY)

■ FM5R	■ FM5M	■ FM5H
■ FM5R-AD	■ FM5M-AD	■ FM5H-AD
■ FM5R-AS	■ FM5M-AS	■ FM5H-AS
■ FM5R-TD	■ FM5M-TD	■ FM5H-TD
■ FM5R-TS	■ FM5M-TS	■ FM5H-TS

HISAKA WORKS, LTD.

METAL TOUCH BALL VALVE

(BODY THICKNESS: ANSI B16.34 FACE TO FACE DIMENSION: ANSI B16.10)

HISAKA Metal touch ball valve is suitable for powder, slurry high viscosity fluid, high temperature fluid. There are 5 kinds of hard facing treatment for ball and seat, their treatments suitable for many kinds environment and solve your trouble points.

Model FM5 metal touch ball valve is a suitable for high-temperature fluid, powder, slurry, high viscosity and others that is not suitable for soft seat. Soft seat has high possibility to happen problems that is eroded by conveyed powder/slurry pneumatically or is made a pressing mark on surface of ball by operation with half open position.

Model FM5 metal touch ball valve is made to improve problems of soft seat ball valve, and especially it is suitable for powder service.

FEATURE

1. This model has been designed as increasing open/close torque in case of powder service, this mean is using bigger size stem compare with model HF5 (M1).
2. This model is full bore, same bore size with general ball valve model HF5.
3. The seal part is metal touch, and ball & ball seat are treated hard facing. So there is not possibility to happen scratching ball and ball seat and realized high durability.

PERFORMANCE/SPECIFICATION

1. Suitable for wide range application, temperature is up to 600 degree C. at non-oxidized atmosphere, in case of oxidized atmosphere is 450degree C.. There are 3 kinds model for operation temperature range.
2. Suitable for special fluids(powder and liquid with slurry and so on).
3. Suitable for operation with half open position.
4. Fire Safe design.
5. Suitable for high frequency operation line.

Model & Temperature range

Model	Temperature range
FM5R	~200°C
FM5M	200°C~350°C
FM5H	350°C~600°C

※ At oxidized atmosphere, max. temp. is 450°C.

HARD FACING OF SEAL PART(BALL & SEAT)

Hard Facing Treatment	Name of Treat.	Treatment	Hardness(Hv)	Others
Ball	Isonite	Salt bath Nitriding	1200	FM5R, FM5M Standard
	HCr plating	Electroplating	800~1000	
	New Kanuc	Vacuum Evaporation Gas Nitriding	1200~1400	
Seat	Metco-16C	Self -Fluxing Alloy Spraying(Ni)	655~738	FM5H Standard
	Colmony	Self -Fluxing Alloy Spraying(Ni)	446~513	
	Stelite No.6	Welding(Co basis)	435	FM5R, FM5M, FM5H Standard
	Stelite No.1	Welding(Co basis)	580	

PERMISSIBLE SEAT LEAKAGE

Standard of seat leakage is based on ASME/FCI 70-2 CLASS V.

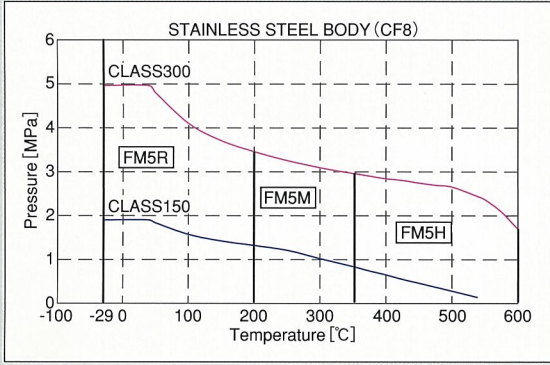
Test Fluid : Water

Permissible Seat leakage : 0.072cc/min/size(inch)/Differential Press.(MPa)

OPTION

- Ceramic lining on surface of port
- Electroless nickel plating on surface of port
- NCC coating on surface of port
- Isonite treatment on valve body

Temp. & Press. Rating



• JIS FLANGE

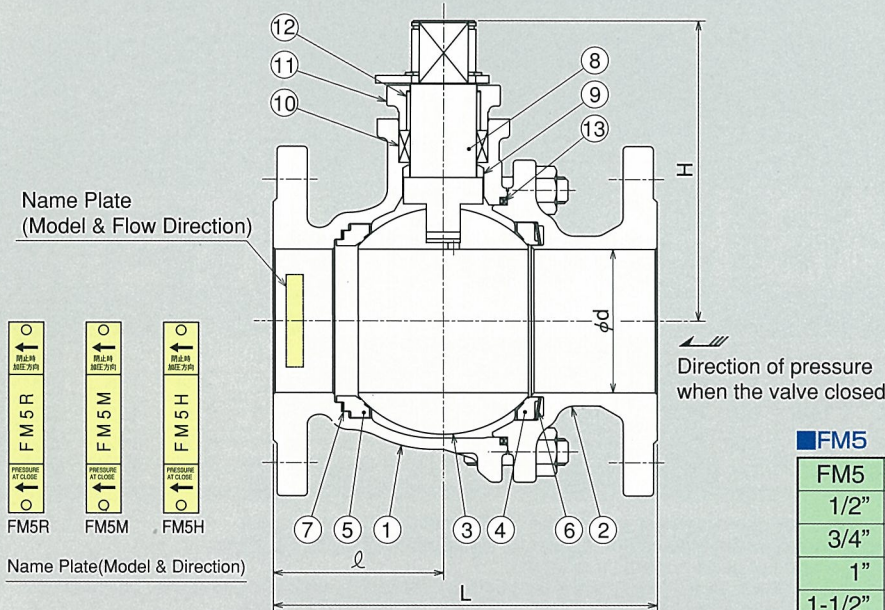
Material	Nominal Pressure	Maximum working pressure(MPa)								
		Fluid temperature(°C)								
		~120	220	300	350	400	425	450	475	490
SCS13A	JIS10K	1.4	1.2	1.0						
SCS14A	JIS20K	3.4	3.1	2.9	2.6	2.3	2.0			
SCS16A	JIS30K	5.1	4.6	4.3	3.9	3.8	3.6	3.4	3.2	3.0

• ASME FLANGE

Material	Nominal Pressure	Maximum working pressure(MPa)											
		Fluid temperature(°C)											
		-29~38	100	150	200	250	300	350	400	450	500	550	600
CF8	CLASS150	1.9	1.57	1.42	1.32	1.21	1.02	0.84	0.65	0.46	0.28		
	CLASS300	4.96	4.09	3.7	3.45	3.25	3.09	2.96	2.84	2.74	2.65	2.36	1.69

FM5(Manual Operated Valve) Main Dimension

No	Parts name	FM5R	FM5M、FM5H
①	BODY	CF8/SCS13A	CF8/SCS13A
②	BODY CAP	CF8/SCS13A	CF8/SCS13A
③	BALL	SS304/SURFACE HARDENING	SS304/SURFACE HARDENING
④	BALL SEAT(A)	SS304/STELLITE	SS304/STELLITE
⑤	BALL SEAT(B)	SS304/STELLITE	SS304/STELLITE
⑥	LORD SPRING	SS304	SS304
⑦	SEAT GASKET	PTFE	EXPANDED GRAPHITE
⑧	STEM	SS304	SS304
⑨	STEM BEARING	PTFE	CARBON
⑩	GLAND PACKING	PTFE	EXPANDED GRAPHITE BRAIDED PACKING
⑪	GLAND CAP	CF8/SCS13A	CF8/SCS13A
⑫	GLAND BEARING	PTFE	CARBON
⑬	GASKET	PTFE	EXPANDED GRAPHITE



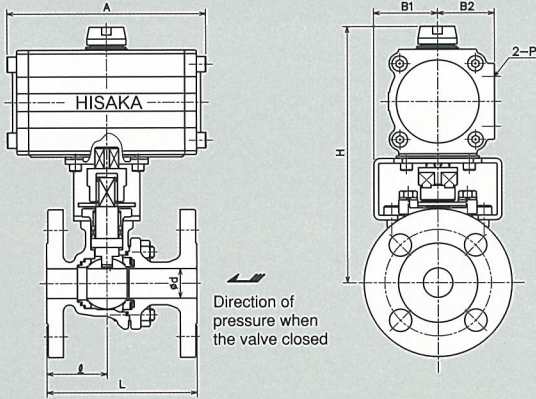
FM5

FM5	d	L	ℓ	H	☆
1/2"	13	108	45	69	150
3/4"	19	117	47	71	150
1"	25	127	51	90	200
1-1/2"	38	165	75	104	250
2"	51	178	85	122	300
2-1/2"	64	190	84	147	350
3"	76	203	90	159	400
4"	102	229	107	263	700
5"	127	320	160	309	1000
6"	152	394	197	329	1500
8"	203	457	228		WORM GEAR

Model FM5 metal touch ball valve is designed for 1-WAY flow direction. Therefore it is necessary to check the flow direction with this name plate before piping work. If there is a case of back pressure, should be selected Model "DK3(M2)" or Model "TM" - Trunnion Type Ball Valve.

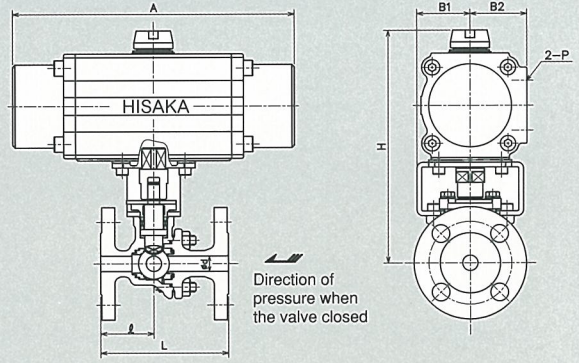
☆LENGTH OF LEVER

FM5(Pneumatic Operated Valve) Main Dimension



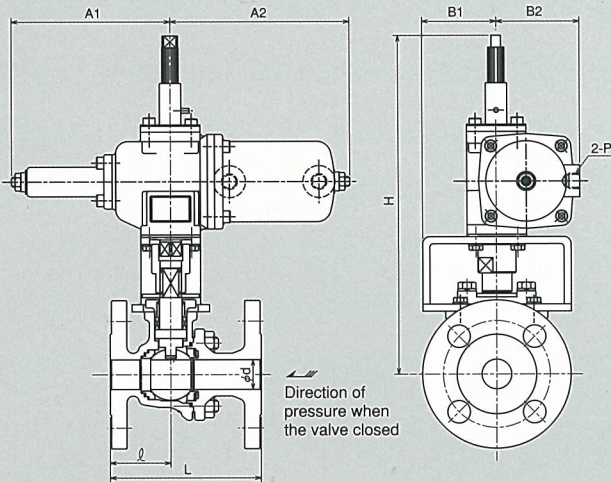
FM5-AD

size	d	L	φ	H	A	B1	B2
1/2"	13	108	45	197	162	45	48
3/4"	19	117	47	200	162	45	48
1"	25	127	51	217	162	54	48
1-1/2"	38	165	75	274	270	75	60
2"	51	178	85	294	270	78	60
2-1/2"	64	190	84	351	334	81	73
3"	76	203	90	363	334	83	73
4"	102	229	107	516	440	110	89



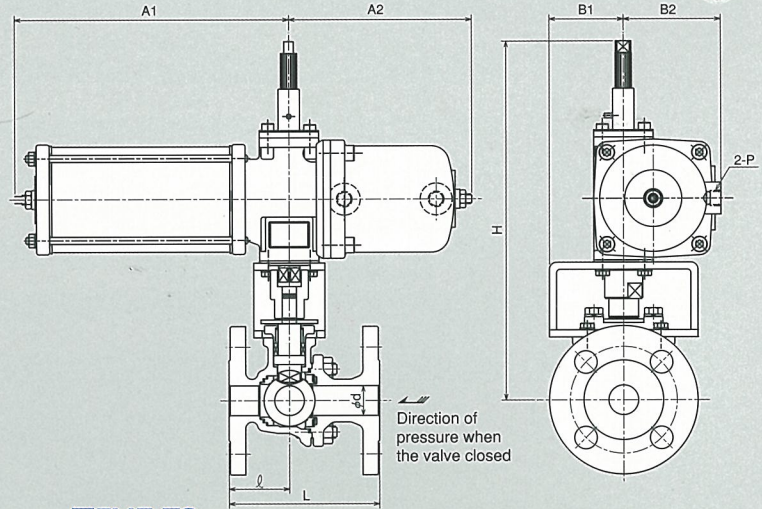
FM5-AS

size	d	L	φ	H	A	B1	B2
1/2"	13	108	45	195	238	45	48
3/4"	19	117	47	248	410	63	60
1"	25	127	51	261	410	70	60



FM5-TD

size	d	L	φ	H	A	B1	B2
1/2"	13	108	45	260	162	52	70
3/4"	19	117	47	263	162	52	70
1"	25	127	51	284	162	63	70
1-1/2"	38	165	75	322	258	70	87
2"	51	178	85	380	336	78	112
2-1/2"	64	190	84	404	336	81	112
3"	76	203	90	484	421	90	149
4"	102	229	107	534	421	110	149
5"	127	320	160	636	710	150	188
6"	152	394	197	656	710	150	188
8"	203	457	228	785	904	140	225



FM5-TS

size	d	L	φ	H	A	B1	B2
1/2"	13	108	45	277	162	52	82
3/4"	19	117	47	280	162	52	82
1"	25	127	51	301	162	63	82
1-1/2"	38	165	75	350	517	70	102
2"	51	178	85	425	701	78	135
2-1/2"	64	190	84	449	701	81	135
3"	76	203	90	540	896	90	184
4"	102	229	107	590	896	110	184
5"	127	320	160	726	1050	150	233
6"	152	394	197	746	1050	150	233
8"	203	457	228	779	1377	144	304

FEATURE OF ACTUATOR

- Adopted weather proof structure, there is no invasion of rainwater.
- Output torque characteristics are suitable for the torque characteristics of the ball valve.
- Non-lubrication type, and not need to install a lubricator.
- Operating pressure is 0.39MPa as standard, but available to 0.69MPa(7kg/cm2G) maximum for special order.
- Other instrument items can be mounted easily.

- ISO 14001 CERTIFIED FACTORY
- ISO 9001 CERTIFIED FACTORY
- HIGH PRESSURE GAS AUTHORISED FACTORY
- API CERTIFIED FACTORY

HISAKA WORKS, LTD.
VALVE DIVISION

2-1-48, HIGASHI-KONOIKECHO, HIGASHI-OSAKA CITY
OSAKA 578-0973 JAPAN
TEL: 81-72-966-9651 FAX:81-72-966-9652
<http://www.hisaka.co.jp/>
e-mail:valve_info@hisaka.co.jp

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