

PIPING SYSTEM PTE LTD

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General Catalogue of Ball Valves





Pioneer of Ball Valves ~ PIPING ~

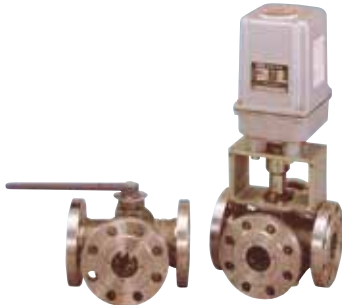
The ball valves developed by PIPING for the first time in CHINA have undergone various improvements and refinements since their birth. The valves not only have a wide range of applications including liquid, gas, steam, and powder and granular material, but also withstand severe conditions including high viscosity, high temperature, and high pressure. Our valves are used in various plants and facilities of the chemical, steel, paper and pulp, and thermal power generation industries.



Table of Contents

1 General ball valve	3
2 Ball valve for low temperature	3
3 Ball valve for steam	3
4 Long bonnet ball valve	4
5 3-way ball valve	4
6 High pressure 3- and 4-way ball valve	4
7 Screw end ball valve	5
8 Screw end ball valve	5
9 Flangeless ball valve	5
10 Tank bottom ball valve	6
11 2-way jacketed ball valve	6
12 3-way jacketed ball valve	6
13 Y-type 3-way ball valve	
Metal touch Y-type 3-way ball valve	7
14 Metal touch ball valve(1-way)	7
15 Metal touch ball valve(1-way for powder)	7
16 Metal touch ball valve(2-way)	8
17 Carbon seat ball valve	8
18 Trunnion-mounted ball valve for high pressure and/or Big size	8
19 Semi jacket and pigging system ball valve	9
20 Pneumatic Operation ball valve(A series)	9
21 Pneumatic Operation ball valve(T series)	9
22 2-stage Pneumatic Operation ball valve	10
23 Hydraulic Operation ball valve	10
24 Motorized ball valve	10
25 Diaphragm valve	11
26 Hi-T seat ball valve	11

		1	2	3
Contents		General ball valve	Ball valve for low temperature	Ball valve for steam
Appearance				
Model		HF5	HF5(LT), FM5(LT)	HF5(ST)
Feature		This floating type general ball valve is a representative model of the valves manufactured by PIPING. We support various options for this product, including oil and water free treatment, buffing and others. The valve can also be automated without disassembly while still on the piping. For the valve cleaning level, even standard cleaning is equal or superior to simplified oil free treatment compare with other makers.	Floating type ball valve for low temperature service. This model is suitable for refrigerant (including brine) and liquefied gas applications. As standard, this valve is a long-bonnet type (optional for HF5LT) which has undergone oil free and water free treatment. The product can also be installed in vertical piping by attaching a heat absorbing plate (optional).	Floating type ball valve developed specially for steam service. To prevent leakage from the gland part, an exfoliated graphite packing is used as the gland packing, which withstands temperature variations. The valve is also provided with measures to prevent an internal pressure increase (cavity expansion) by standard.
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1/2"(15A)-12"(300A)	1/2"(15A)-4"(100A)	1/2"(15A)-6"(150A)
	JIS20K ASME CLASS300	1/2"(15A)-10"(250A)	1/2"(15A)-2"(100A)	1/2"(15A)-6"(150A)
	ASME CLASS600	—	—	—
Temperature Range		As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	Low temperature zone down to -104°C As per the following Temperature and Pressure Rating. for Low Temperature and Pressure Rating.(P12)	Saturated vapor at 1 MPa(abs.): 179°C Saturated vapor at 2 MPa(abs.): 212°C
Connection		Flange	Flange	Flange
Face-to-Face		ASME B16.10	ASME B16.10	ASME B16.10
Allowable Seat Leakage Volume		No leakage	No leakage (Allowable leakage volume for gas at -50°C or below: 25 cc/min/inch)	No leakage
Material	Body	Stainless steel Carbon steel Cast iron Ductile cast iron Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel	Stainless steel Cast iron Ductile cast iron
	Trim	Stainless steel Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel	Stainless steel
	Seat	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE PEEK (Poly Ether Ether Ketone) BR (with back seat)	Maxtite PTFE	Maxtite PTFE Special carbon reinforced PTFE

		4	5	6
Contents		Long bonnet ball valve	3-way ball valve	High pressure 3- and 4-way ball valve
Appearance				
Model		HF5LB	H45	D33,D43
Feature		This ball valve is equipped with a long bonnet (having a higher gland seal part than the general ball valves by 160 mm) and designed for thermal and cold insulation and heat dissipation applications. The valve can be equipped with O-ring(s) and lantern ring(s) in its gland part. A double seal configuration is also allowed. The long bonnet can be installed on other models than HF5.	This 3-way ball valve is a multi-functional valve which can be used to divert, divide, mix, and close off fluid with one unit. Ball seat is mounted on each of the 4 faces allowing for free selection of flow directions. The main body of the valve has a 3-block structure, offering excellent maintainability.	These are respectively 3-way and 4-way trunnion-mounted ball valves which can also be used for high pressure service. Ball seat is mounted on each of the 4 faces and equipped with a spring on its back, achieving good sealing performance and stable operational torque. In addition, the valves are provided with measures to prevent an internal pressure increase (cavity expansion).
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1/2"(15A)-12"(300A)	1/2"(15A)-12"(300A)	1/2"(15A)-8"(200A)
	JIS20K ASME CLASS300	1/2"(15A)-10"(250A)	—	1/2"(15A)-8"(200A)
	ASME CLASS600	—	—	—
Temperature Range		As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	Be inquired	-30°C to 160°C
Connection		Flange	Flange	Flange
Face-to-Face		ASME B16.10	Manufacturer standard	Manufacturer standard
Allowable Seat Leakage Volume		No leakage	No leakage	No leakage
Material	Body	Stainless steel	Stainless steel Cast iron	Stainless steel
	Trim	Stainless steel	Stainless steel	Stainless steel
	Seat	PTFE Maxtite PTFE	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE Carbon can also be provided.	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE Metal seats can also be provided.

		7	8	9
Contents		Screw end ball valve	Screw end ball valve	Flangeless ball valve
Appearance				
Model		HBS	HS5	WF5
Feature		Compact screw end ball valve with one-piece body. This simple, low-cost valve is best suited to utility lines including water and air.	Floating type screw-end ball valve. This model is more lightweight and compact than the flange type. The valve HS5 uses parts compatible with those of the general product (type HF5), and can also be automated easily.	This floating type ball valve is an wafer type designed to be more lightweight, more compact, and slimmer. The valve WF5 uses parts compatible with those of the general product (type HF5), and can also be automated easily.
Specification/ Pressure Class/ Size inch (mm)	Port	Reduced	Full bore	Full bore
	JIS10K ASME CLASS150	1/4"(8A)-2"(50A)	1/4"(8A)-2"(50A)(*)	3/8"(10A)-2"(50A)
	JIS20K ASME CLASS300	—	—	—
	ASME CLASS600	—	—	—
Temperature Range		0°C to 160°C	As per the following Temperature and Pressure Rating for General Ball Valve.	
Connection		Rc	Rc	Wafer
Face-to-Face		Manufacturer standard	Manufacturer standard	Manufacturer standard
Allowable Seat Leakage Volume		No leakage	No leakage	No leakage
Material	Body	Stainless steel	Stainless steel Ductile cast iron	Stainless steel
	Trim	Stainless steel	Stainless steel	Stainless steel
	Seat	PTFE	PTFE Maxtite PTFE	PTFE Maxtite PTFE

(*) 8A and 10A size can be provided only stainless steel.

		10	11	12
Contents		Tank bottom ball valve	2-way jacketed ball valve	3-way jacketed ball valve
Appearance				
Model		TB5	HJ5	H45J
Feature		This ball valve is developed for tank bottoms and is much superior in discharging efficiency, agitation performance, and operability to the flush valve, and gate valve, which are conventionally used. Actuator position can be changed by link type equipment.	This jacketed ball valve is used for temperature control line. With full bore design, this valve has high liquidity performance. This jacketed ball valve uses a long bonnet at its gland part to protect thermal effect.	This 3-way, 4-seat jacketed ball valve has the performance of Jacketed ball valve, and be available in 2 options: T-Port and L-Port configurations. The valve uses a long bonnet at its gland part, easily allowing for the thermal and cold insulation of fluid.
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1"(25A)-12"(300A)	1/2"(15A)-12"(300A)	1/2"(15A)-4"(100A)
	JIS20K ASME CLASS300	—	Be inquired	—
	ASME CLASS600	—	—	—
Temperature Range		As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	Be inquired
Connection		Flange	Flange	Flange
Face-to-Face		Manufacturer standard	ASME B16.10	Manufacturer standard
Allowable Seat Leakage Volume		No leakage	No leakage	No leakage
Material	Body	Stainless steel Hastelloy alloy	Stainless steel	Stainless steel
	Trim	Stainless steel Hastelloy alloy	Stainless steel	Stainless steel
	Seat	Maxtite PTFE PTFE Carbon-fiber reinforced PTFE Metal seat	Maxtite PTFE PTFE Carbon-fiber reinforced PTFE Carbon seat Metal seat	Maxtite PTFE PTFE Carbon-fiber reinforced PTFE Carbon seat

		13	14	15
Contents		Y-type 3-way ball valve/Metal touch Y-type 3-way ball valve	Metal touch ball valve (1-way)	Metal touch ball valve (1-way for powder)
Appearance				
Model		HY1, HY1M, HY2, HY2M	HF5(M1R), HF5(M1M), HF5(M1H)	FM5R, FM5M, FM5H
Feature		Y-type 3-way ball valve for diverting in pneumatic conveyance lines for powder and/or pellets. This model has metal seat design, and it can be used under harsh conditions, including powder, slurry, and high viscosity fluid services, and frequent valve operation, which have been difficult to handle with general ball valves due to severe wear.	General metal touch ball valve. This model can be used under harsh conditions, including powder, slurry, and high viscosity fluid services, and frequent valve operation and high temperature, which have been difficult to handle with soft seats due to severe wear.	This high-quality metal touch ball valve has a gland part for powder stronger than the general metal touch ball valves do. The valve can be used under harsh conditions, including powder, slurry, and high viscosity fluid services, and frequent valve operation, which have been difficult to handle due to severe wear.
Specification/ Pressure Class/ Size Inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1"(25A)-14"(350A)	1/2"(15A)-8"(200A)	1/2"(15A)-8"(200A)
	JIS20K ASME CLASS300	—	1/2"(15A)-8"(200A)	1/2"(15A)-8"(200A)
	ASME CLASS600	—	—	—
Temperature Range		80°C (MAX160°C available)	HF5(M1R) MAX 200°C HF5(M1M) MAX 350°C HF5(M1H) MAX 600°C(*)	FM5R MAX 200°C FM5M MAX 350°C FM5H MAX 600°C(*)
Connection		Flange	Flange	Flange
Face-to-Face		Manufacturer standard	ASME B16.10	ASME B16.10
Allowable Seat Leakage Volume		No leakage / Conforming to MSS-SP-61	Conforming to ANSI FCI-70-2 CLASS-V	Conforming to ANSI FCI-70-2 CLASS-V
Material	Body	Cast iron Stainless steel	Stainless steel	Stainless steel
	Trim	Stainless steel + various hardening treatments	Stainless steel + various hardening treatments	Stainless steel + various hardening treatments
	Seat	Glass fiber reinforced PTFE Metal seat	Metal seat	Metal seat

(*) The maximum temperature is 450°C in an oxidizing atmosphere or 600°C in a non-oxidizing atmosphere.

		16	17	18
Contents		Metal touch ball valve (2-way)	Carbon seat ball valve	Trunnion-mounted ball valve for high pressure and/or large bores
Appearance				
Model		TM1R, TM1M, TM1H, FM5RB	HF5(CAM), HF5(CAH)	TF5/TF1/TF3
Feature		Metal touch ball valve of bi-directional type. It is suitable for inlet of reactor that bi-directional pressurized at reaction timing. This model can be used under harsh conditions, including powder, slurry, and high viscosity fluid services, and frequent valve operation and high temperature, which have been difficult to handle with soft seats due to severe wear.	This carbon seat ball valve can withstand operating temperatures up to 400°C. The product is best suited to high temperature service including heat transfer oil. There is no limit on the fluid pressure direction. (2-way specification)	This valve is provided with a stem above and below the ball to hold the ball perpendicular to fluid. This configuration achieves sealing by the interaction between springs and fluid pressure without relying on fluid pressure. · This model can be provided metal seat if requested,
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1/2"(15A)-8"(200A)	1/2"(15A)-8"(200A)	8"(200A)-24"(600A)
	JIS20K ASME CLASS300	1/2"(15A)-4"(100A)	1/2"(15A)-8"(200A)	8"(200A)-20"(500A)
	ASME CLASS600	—	—	1/2"(15A)-10"(250A)
Temperature Range		TM1R, FM5RB MAX 160°C TM1M MAX 350°C TM1H MAX 600°C(*)	HF5(CAM) -50°C to +350°C HF5(CAH) -50°C to +400°C	-30°C to 80°C (MAX160°C available)
Connection		Flange	Flange	Flange
Face-to-Face		Manufacturer standard	ASME B16.10	ASME B16.10
Allowable Seat Leakage Volume		Conforming to ANSI FCI-70-2 CLASS-V	Conforming to ANSI FCI-70-2 CLASS-V	No leakage / Conforming to ANSI FCI-70-2 CLASS V
Material	Body	Stainless steel	Stainless steel	Stainless steel Carbon steel
	Trim	Stainless steel + various hardening treatments	Stainless steel	Stainless steel Stainless steel + various hardening treatments
	Seat	Metal seat	Carbon seat	PTFE Metal seat (Stainless steel + various hardening treatments)

(*) The maximum temperature is 450°C in an oxidizing atmosphere or 600°C in a non-oxidizing atmosphere.

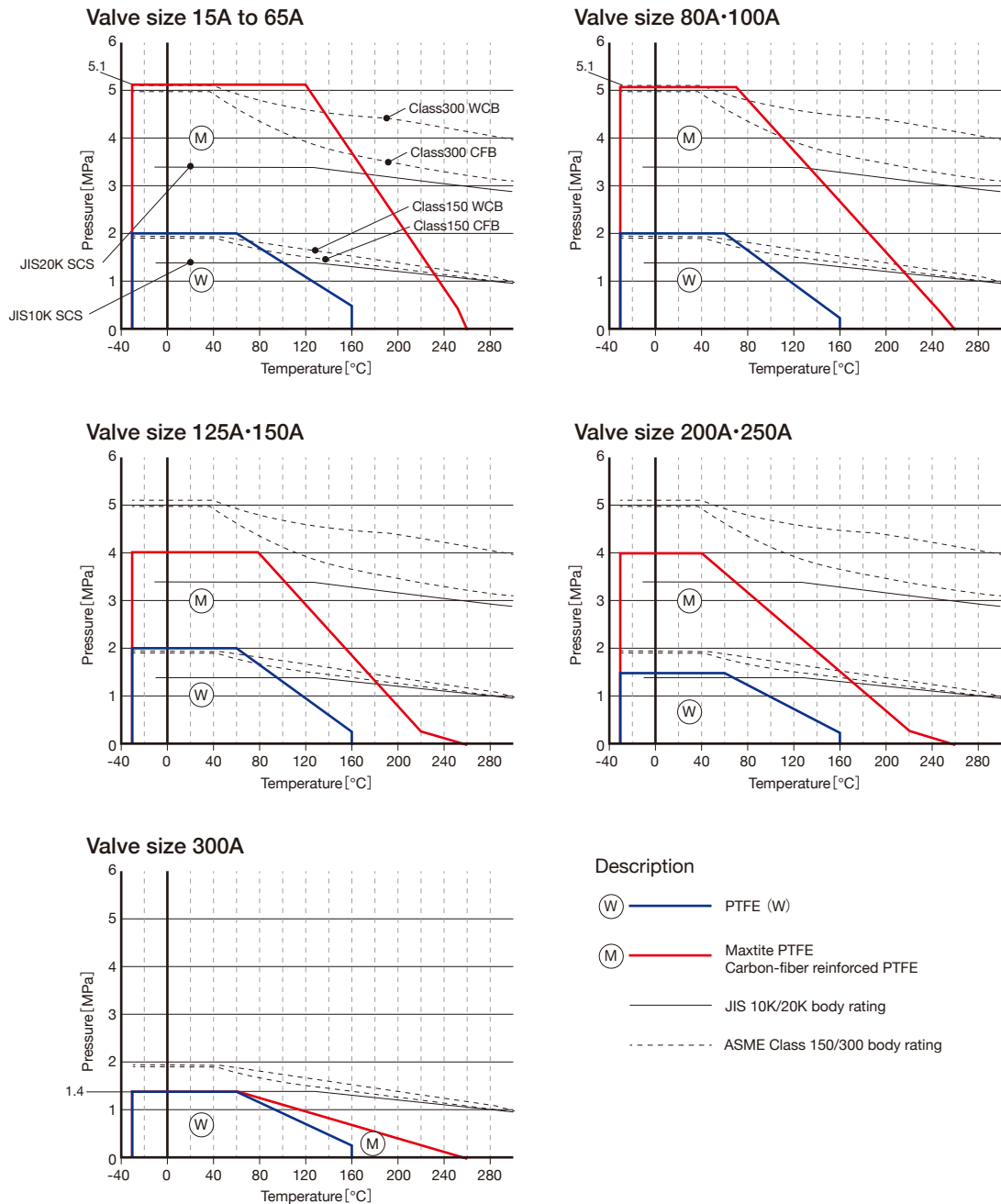
		19	20	21
Contents		Semi jacket & pigging system ball valve	Pneumatic Operation ball valve(A series)	Pneumatic Operation ball valve(T series)
Appearance				
Model		CH1/CH41/CH41S	HF5-AD/AS	HF5-TD/TS
Feature		This is a light-weight and compact ball valve developed for chocolate lines - With a semi jacketed structure, it is suitable for food fluid which tends to set easily. 2-way and 3-way valves are available. (Internal diameters of 2-way valves are designed Sch 10S to match for pigging line.)	Compact, pneumatically operated actuator designed originally by PIPING. Adoption of the double scotch yoke configuration and the drive section made of aluminum achieve light weight and a compact build. The solenoid valves and limit switches are specially designed to be directly connected to aim for a compact build. Available for any type of valves.	Pneumatically operated actuator designed originally by PIPING. Its outdoor drip-proof structure prevents water from entering the inside thus eliminating possible damage. This actuator can be mounted on the instrumentation equipment of all manufacturers according to the request from customers. As an option, a manual handle operation feature is also available. Available for any type of valves.
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	(*)1-1/2"(40A)-4"(100A)	1/2"(15A)-12"(300A)	1/2"(15A)-12"(300A)
	JIS20K ASME CLASS300	—	1/2"(15A)-10"(250A)	1/2"(15A)-10"(250A)
	ASME CLASS600	—	—	—
Temperature Range		-30°C to 160°C	As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	As per the following Temperature and Pressure Rating for General Ball Valve.(P12)
Connection		Flange	Flange	Flange
Face-to-Face		Manufacturer standard	ASME B16.10	ASME B16.10
Allowable Seat Leakage Volume		No leakage	No leakage	No leakage
Material	Body	Stainless steel	Stainless steel Carbon steel Cast iron Ductile cast iron Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel Carbon steel Cast iron Ductile cast iron Special materials can be used, including Hastelloy, Nickel, and Titanium.
	Trim	Stainless steel	Stainless steel Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel Special materials can be used, including Hastelloy, Nickel, and Titanium.
	Seat	PTFE	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE PEEK (Poly Ether Ether Ketone) BR (with back seat)	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE PEEK (Poly Ether Ether Ketone) BR (with back seat)

(*) In case 3 way valve, size for CH41 is 2"(50A) and 2-1/2"(65A), size for CH41S is 2"(50A) to 4"(100A) only.

		22	23	24
Contents		2-stage Pneumatic Operation ball valve	Hydraulic Operation ball valve	Motorized ball valve
Appearance				
Model		HF5-TDT/TST	HF5(SH)-HC、TF5(SH)-HC	HF5-AE
Feature		Epoch-making 2-stage operation actuator allowing for 3 valve positions: fully closed, fully opened, and half opened positions. The opening can be set freely up to 45 degrees. This actuator can also be used for metering valves. In addition, the product can be used to prevent water hammers.	Hydraulic operated actuator designed originally by PIPING. It has high torque and durability so that it is suitable for installing limited space. This actuator is available for any type of valves.	Ball valve with an electric motor installed in its drive section. This valve can be driven by using signal wiring and power wiring, in a place where it is difficult to supply operation air.
Specification/ Pressure Class/ Size inch (mm)	Port	Full bore	Full bore	Full bore
	JIS10K ASME CLASS150	1/2"(15A)-12"(300A)	6"(150A)-20"(500A)	1/2"(15A)-12"(300A)
	JIS20K ASME CLASS300	1/2"(15A)-10"(250A)	6"(150A)-20"(500A)	1/2"(15A)-10"(250A)
	ASME CLASS600	—	—	—
Temperature Range		As per the following Temperature and Pressure Rating for General Ball Valve.(P12)	-30°C to 80°C (MAX160°C available)	As per the following Temperature and Pressure Rating for General Ball Valve.(P12)
Connection		Flange	Flange	Flange
Face-to-Face		ASME B16.10	ASME B16.10	ASME B16.10
Allowable Seat Leakage Volume		No leakage	No leakage	No leakage
Material	Body	Stainless steel Carbon steel Cast iron Ductile cast iron Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel Carbon steel	Stainless steel Carbon steel Cast iron Ductile cast iron Special materials can be used, including Hastelloy, Nickel, and Titanium.
	Trim	Stainless steel Special materials can be used, including Hastelloy, Nickel, and Titanium.	Stainless steel	Stainless steel Special materials can be used, including Hastelloy, Nickel, and Titanium.
	Seat	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE PEEK (Poly Ether Ether Ketone) BR (with back seat)	PTFE Carbon-fiber reinforced PTFE	PTFE Maxtite PTFE Carbon-fiber reinforced PTFE PEEK (Poly Ether Ether Ketone) BR (with back seat)

		25	26	
Contents		Diaphragm valve	Hi-T seat ball valve	
Appearance				
Model		HD1(PPE)、HD1(PPE)-ZS/Z O/ZD	HF5(HT)	
Feature		PIPING Diaphragm valve is suitable for high corrosive application. The valve parts are designed by PIPING which are including cast steel body, bonnet handle, stainless compressor, actuator and so on.	This is a soft seat ball valve that can be used up to a maximum operating temperature of 300°C (1.0 MPa) by mixing high ratio carbon-based fillers in the PTFE. It has the same features as conventional PTFE seat, such as low torque, zero leakage, easy maintenance, and 2WAY specifications, and is superior in cost performance compared to metal seat ball valves.	
Specification/ Pressure Class/ Size inch (mm)	Port	—	Full bore	
	JIS10K ASME CLASS150	1/2"(15A)-4" (100A)	1/2"(15A)-4" (100A)	
	JIS20K ASME CLASS300	—	1/2"(15A)-4" (100A)	
	ASME CLASS600	—	—	
Temperature Range		-20°C~100°C	-30°C~300°C	
Connection		Flange	Flange	
Face-to-Face		ISO	ASME B16.10	
Allowable Seat Leakage Volume		No leakage	No leakage	
Material	Body	Carbon steel(SCPH2) + PFA Lined	Stainless steel Carbon steel	
	Trim	Compressor: Stainless steel	Stainless steel	
	Seat	Diaphragm: PTFE Cushion rubber: EPDM	Hi-T seat	

Temperature and Pressure Rating for General Ball Valve



Temperature and Pressure Rating for Low Temperature Ball Valve

