

# MTS VALVES

MACHINERY TECHNOLOGY SOLUTIONS  
SPECIAL BUTTERFLY VALVES



**ANTI-CORROSIVE &  
ANTI-ABRASIVE EXPERT**



ISO 9001:2008

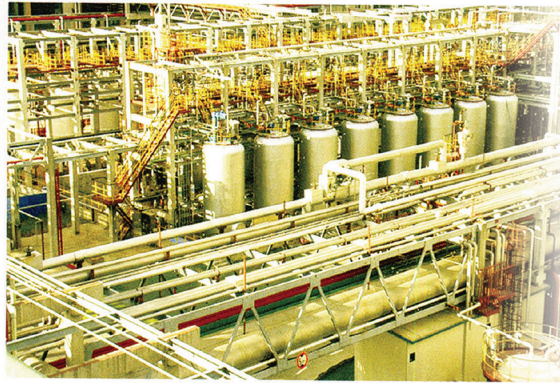


ISO 14001:2008



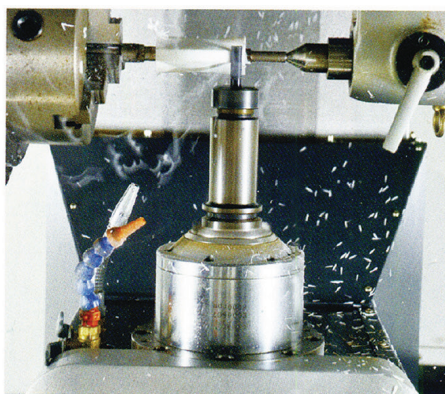
**MTS MTS CO., LTD**

SINCE 1997 MACHINERY TECHNOLOGY SOLUTIONS CO., LTD  
E-MAIL : [mts@mts98.co.kr](mailto:mts@mts98.co.kr) <http://www.mts98.co.kr>  
CONTROL VALVE, MANUAL VALVE, DAMPER, SPECIAL VALVE



**MTS** MTS CO., LTD

We are committed to providing the highest level of customer satisfaction through high quality products as well as prompt and reliable service.



## Lined Butterfly Valve

### ■ Product Description

- The lined butterfly valves bi-directional flow is possible at maximum operating pressure. Since the valve port corresponds to the piping diameter, a high flow capacity is guaranteed.
- It features ease of maintenance, repeatable on-off, long life durability.
- The concentric design is commonly used in the power generation, brewing, water and food industries and suitable for both gaseous and liquid service. Typically applied in chemical/petrochemical process, food and beverage, and pulp and paper
- Lining material: PTFE, PFA, FEP, PO etc.
- Connection type: wafer, flange, lug etc.
- Operation methods: manual, worm gear, electric, pneumatic and hydraulic actuator.
- MTS lined butterfly valves are available as per the needs of applications in additional sizes and other than standard materials.



Lined Lug Type Butterfly Valve



Fully PTFE Lined Butterfly Valve



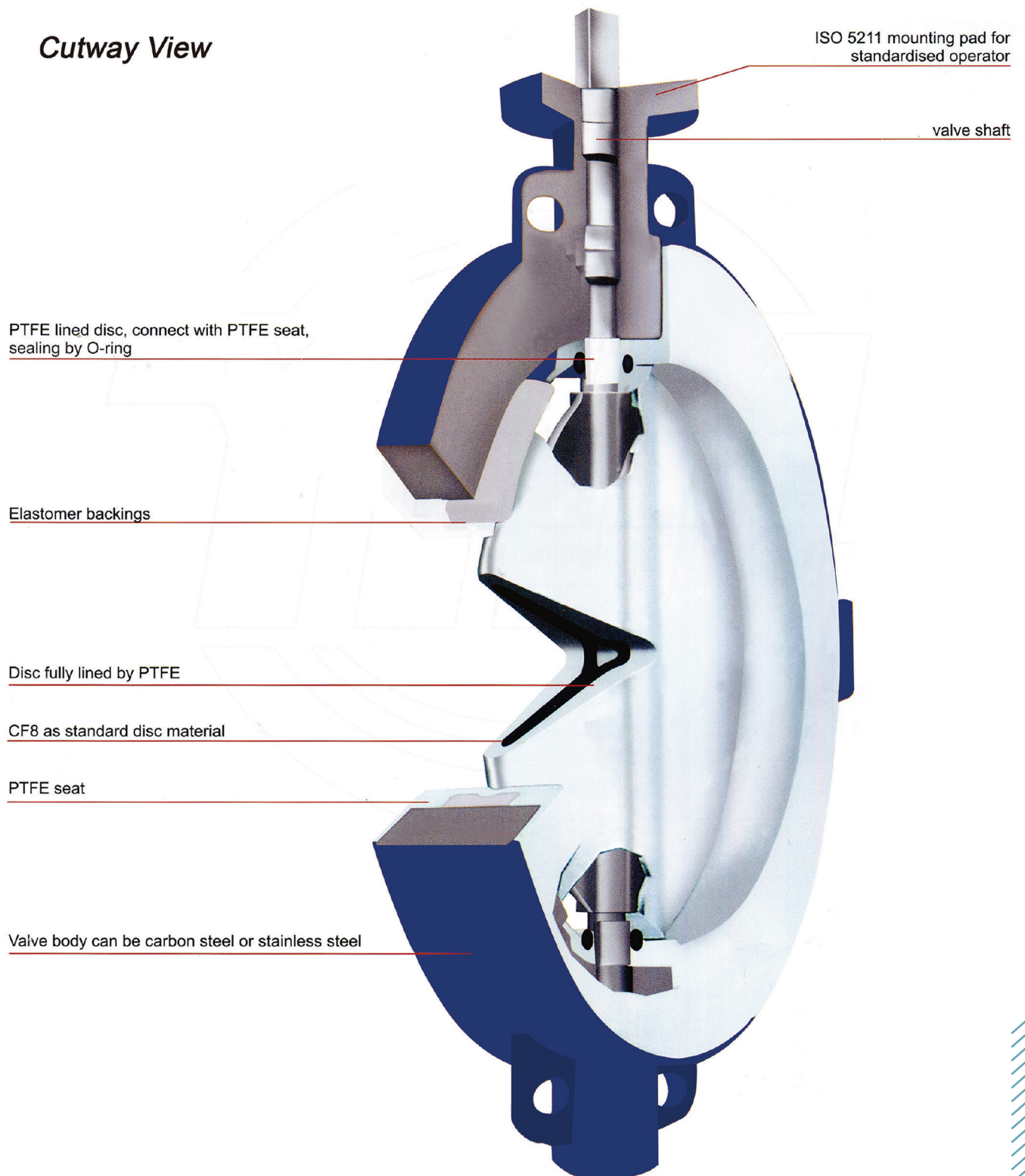
Half PTFE Lined Butterfly Valve



Lined Flanged Type Butterfly Valve

## **A** Lined Valve *Lined Butterfly Valve*

### *Cutway View*



## High Performance Lined Butterfly Valve

### ■ Product Description

- The lined butterfly valves bi-directional flow is possible at maximum operating pressure. Since the valve port corresponds to the piping diameter, a high flow capacity is guaranteed.
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PFA Lined Wafer Type Butter

# High Performance Lined Butterfly Valve

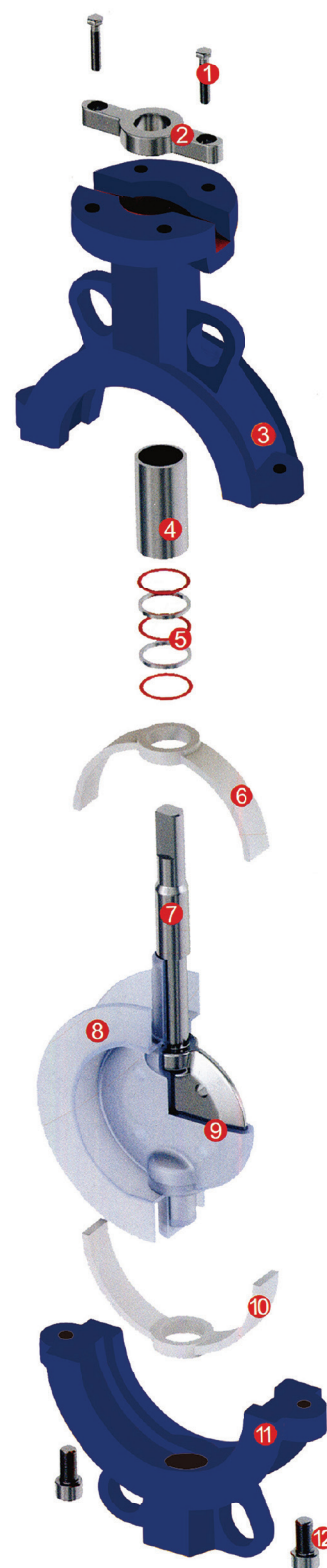
## Material Specification

No.	Name	Material		
1	Bolt	A193 B7	A320 B8	A193 B8M
2	Plate	A351 CF8		
3	Upper body	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
4	Steelsleeve	SS304		
5	O-ring	VITON, VITON+PFA		
6	Elastomer backing	Siliconerubber, ITOM		
7	Stem	SS410 SS420 17-4ph		
8	Seat	PFA FEP		
9	Disc	SS304/SS316+Lining material		
10	Elastomer backing	Silicone rubber, VITON		
11	Downsidebody	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
12	Body bolt	A193 B7	A320 B8	A193 B8M

## Technical Specification

Design& Manufacture Standard		API 609
Face-to-face Dimension		ASME B16.10
Flange Standard		ASME B16.5 JIS B2220
Inspection& Test Standard		API598
Nominal Diameter		2"-20"
Nominal Pressure		150Lb
Pressure Test (MPa)	Shell Test	1.5
	High pressure sealing	1.1
	Low pressure sealing	0.6
Temperature Range(°C)		PFA:-30~200      FEP:-30~150
Applicable Medium		Strongcorrosive medium,i.e. hydrochloric acid, Nitric acid, Hydrofluoric, Liquid chlorine, Sulfuric Acid and Aqua regia etc.

Note: Test standard refers general valve standard, high pressure should be customized for processing.



## A Lined Valve

# High Performance Lined Butterfly Valve

### ■ Note

The disc should be opened form angle 5-10°C if not working.

The valve should be stocked indoor, and the prior temperature range is 0-25°C(40-80F).

If stock in house, the valve should open and close every three month.

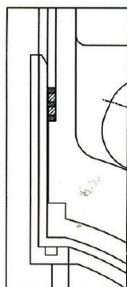
To make sure no heavy loading on valve when transported and being stocked.

It is better to install lined butterfly valve in vertical position and make the actuator directly installed in the upside of butterfly valve, generally no inversion installed.

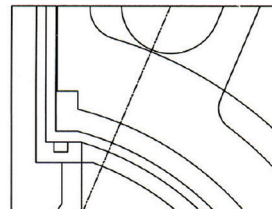
Lined butterfly valve when connected to check valve or pump, an expansion joint will be needed to make sure the adjacent equipment won't be affected.

when install the lined butterfly valve, the pipe should focus on center, and it will lead the disc external diameter impacting the inner diameter of pipe, causing the damage of disc edge, resulting in the torque increasing and causing leaking.

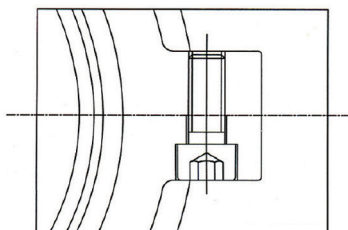
### ■ Structure Features



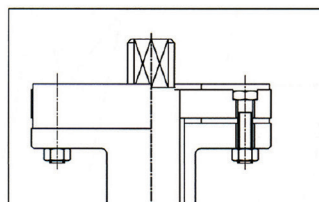
Both the disc and the shaft are lined by PFA/FEP. The shaft and the seal components are protected by PFA/FEP from the flow medium, and the bottom shaft also fully lined assures optimum corrosion resistance and eliminate a potential path.



The in-line resilient seat assembly assures optimum pressure distribution of the body liner to the disc assembly, providing tight sealing under all operating conditions. The wider seal-band provides a broader sealing area.

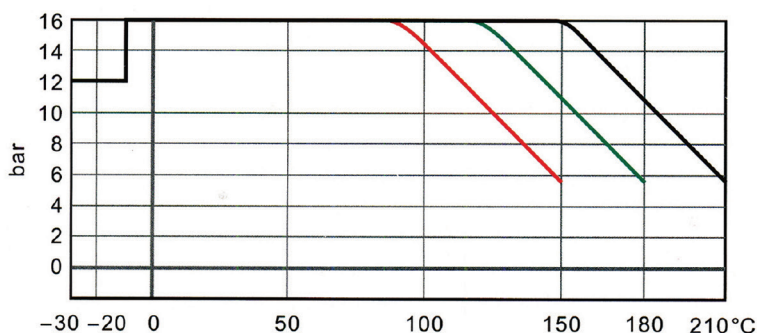


The body is splitted and connected by hexagonal screw. When the valve operated long time, the fluorine plastic worn or shrinks, regulate the inner hexagonal screw, tighten the sealing and to achieve the equal effect of new valve (1-3mm reserved for regulation):

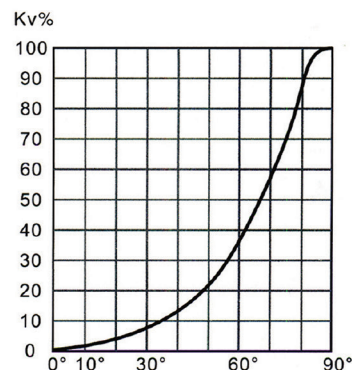


ISO 5211 actuation mounting pad ensures robust performance, while providing compact system design. Moreover, benefit of live loaded stem sealing system is atmospheric sealing integrity and no manual adjustment over the life of the valve.

### ■ Pressure-Temperature Curve



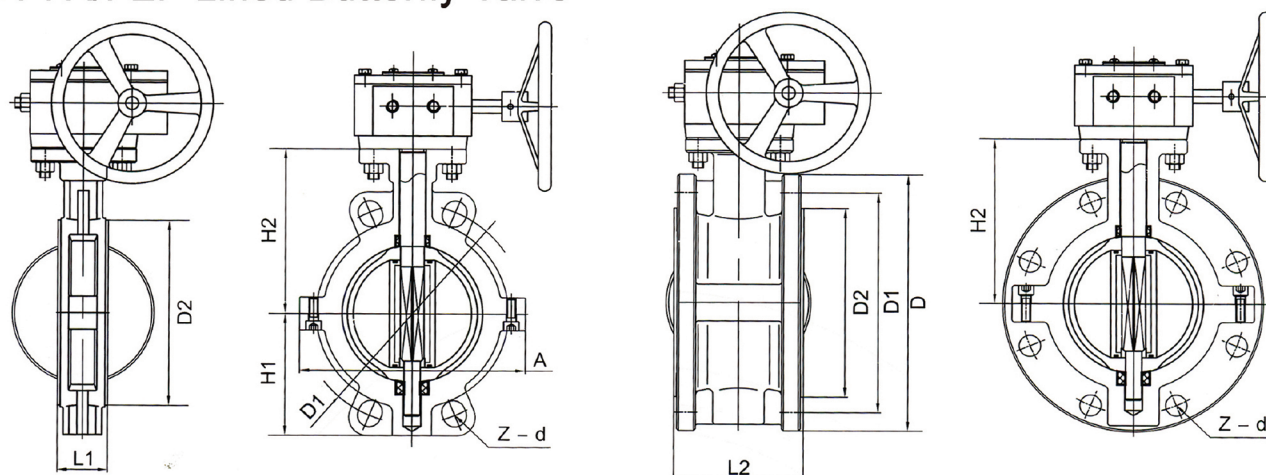
### ■ Flow Characteristic



# A Lined Valve

## High Performance Lined Butterfly Valve

### ▣ PFA/FEP Lined Butterfly Valve



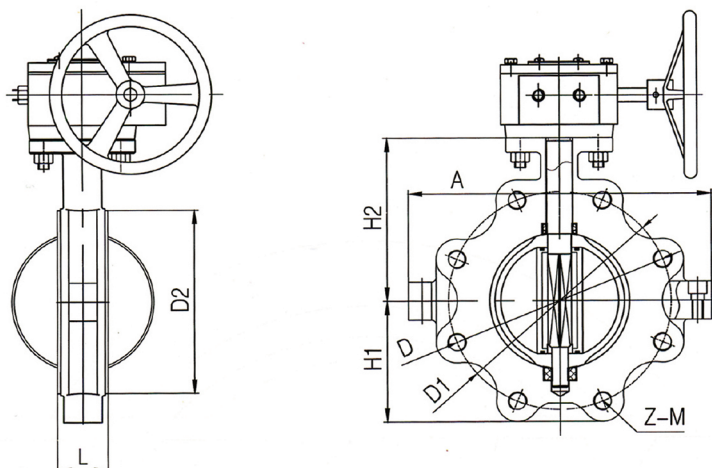
### ▣ ASME B16.5/JIS B2220

DN	NPS	L1 wafer	L2 Flange	ASME 150LB			JIS 10K			D2	H1	H2	A
				D	D1	Z-d	D	D1	Z-d				
40	1 1/2	40	106	125	98.5	4-16	140	105	4-19	70	60	90	78
50	2	43	108	150	120.5	4-19	155	120	4-19	90	70	112	96
65	2 1/2	46	112	180	139.5	4-19	175	140	4-19	110	80	125	112
80	3	46	114	190	152.5	4-19	185	150	8-19	130	89	135	130
100	4	52	127	230	190.5	8-19	210	175	8-19	148	105.5	142	150
125	5	56	140	255	216	8-22	250	210	8-23	181	121	165	178
150	6	56	140	280	241.5	8-22	280	240	8-23	202	145	180	206
200	8	60	152	345	298.5	8-22	330	290	12-23	263	177	228	260
250	10	68	165	405	362	12-25	400	355	12-25	313	205	278	317
300	12	78	178	485	432	12-25	445	400	16-25	368	235	295	367
350	14	78	190	535	476	12-29	490	445	16-25	415	260	341	466
400	16	102	216	595	540	16-29	560	510	16-27	484	299	390	495
450	18	114	222	635	578	16-32	620	565	20-27	519	320	42	630
500	20	127	229	700	635	20-32	675	620	20-27	569	352.5	470	694

# A Lined Valve

## High Performance Lined Butterfly Valve

### PFA/FEP Lined Butterfly Valve



### ASME B16.5/JIS B2220

DN	NPS	L	ASME 150LB			JIS 10K			D2	H1	H2	A
			D	D1	Z-d	D	D1	Z-d				
50	2	43	150	120.5	4-19	155	120	4-19	90	70	112	96
65	2 1/2	46	180	139.5	4-19	175	140	4-19	110	80	125	112
80	3	46	190	152.5	4-19	185	150	8-19	130	89	135	130
100	4	52	230	190.5	8-19	210	175	8-19	148	105.5	142	150
125	5	56	255	216	8-22	250	210	8-23	181	121	165	178
150	6	56	280	241.5	8-22	280	240	8-23	202	145	180	206
200	8	60	345	298.5	8-22	330	290	12-23	263	177	228	260
250	10	68	405	362	12-25	400	355	12-25	313	205	278	317
300	12	78	485	432	12-25	445	400	16-25	368	235	295	367
350	14	78	535	476	12-29	490	445	16-25	415	260	341	466
400	16	102	595	540	16-29	560	510	16-27	484	299	390	495
450	18	114	635	578	16-32	620	565	20-27	519	320	442	630
500	20	127	700	635	20-32	675	620	20-27	569	352.5	470	694

## ■ Product Description

Two pieces full port standard lined ball valves offer high stability, rigidity and eliminating potential leak path.

Full port design minimizes pressure losses and increases flow capacities thus reducing energy and pumping costs.

Full bore design almost no fluid resistance, and good shut-off performance.

It features zero leakage, maintenance-free, one-piece stem and ball design, high sealing performance and can be used under full vacuum service.

Lower pressure drop and high flow characterized the efficiency of MTS lined ball valves.

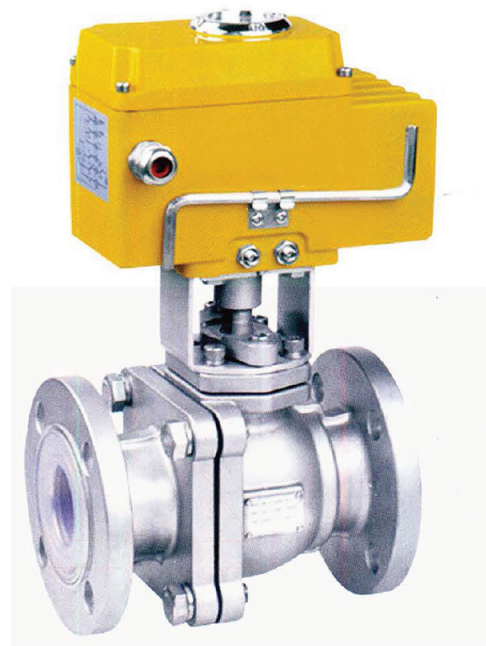
It can work as on-off or control valves.

It can sustain any corrosive medium in addition to the "molten alkali metals and fluorine elements". It is ideal products used in chlor-alkali, industrial in organic chemicals, metal and mining, nitrogen and phosphatic fertilizers, petroleum refining, pharmaceutical etc.

Lining material: PFA, FEP, PO etc.

Operation methods: manual, worm gear, electric, pneumatic and hydraulic actuator.

MTS lined ball valves are available as per the needs of applications in additional sizes and other than standard materials.



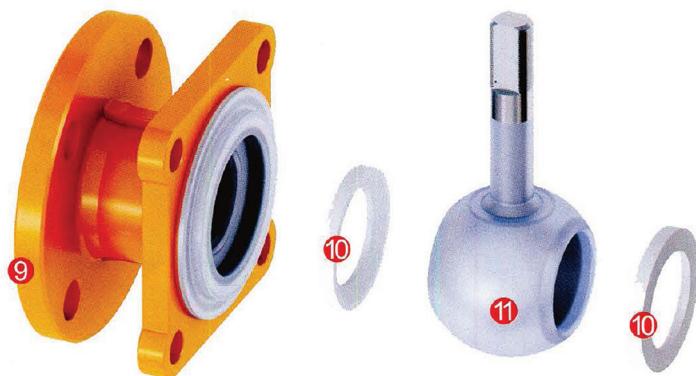
JIS PFA Lined Ball Valve



# A Lined Valve Lined Ball Valve

## Material Specification

NO	Name	Material details		
1	Nut	A194 2H	A194 8	A194 8M
2	Lever	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
3	Locating piece	SS304		
4	Body bolt	A193 B7	A320 B8	A193 B8M
5	Gland	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
6	Packing	PTFE		
7	Stuffing box	A216 WCB+ Lining material	A351 CF8 CF8M Lining material	A351 CF3 CF3M Lining material
8	Body Bolt	A193 B7	A320 B8	A193 B8M
9	Body	A216 WCB + Lining material	A351 CF8 CF8M Lining material	A351 CF3 CF3M Lining material
10	Seat	PTEE RPTFE PEEK		
11	Ball/Stem	A216 WCB+ Lining material	A351 CF8 CF8M Lining material	A351 CF3 CF3M Lining material
12	Bonnet	A216 WCB+ Lining material	A351 CF8 CF8M Lining material	A351 CF3 CF3M Lining material



# A Lined Valve

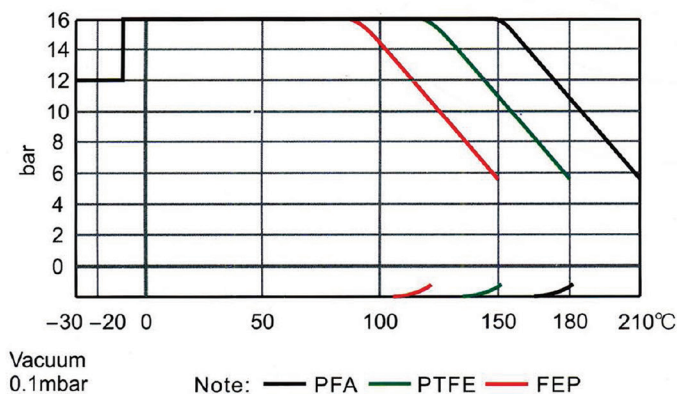
## Lined Ball Valve

### Technical Specification

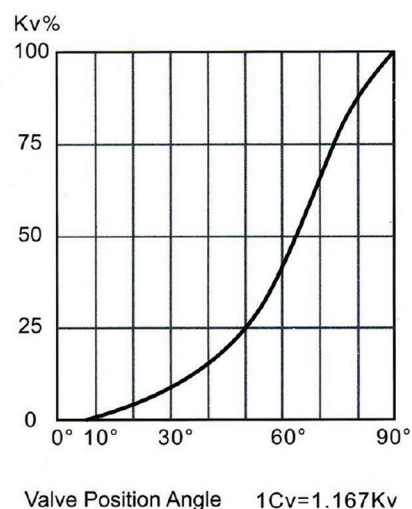
Design & Manufacture Standard		API 6D
Face-to-face Dimension Standard		ASME B16.10
Flange Standard		ASME B16.5, JIS B2220
Inspection & Test Standard		API 598
Nominal Diameter		1/2"~14"
Pressure Rating		CLASS150
Pressure Test (MPa)	Shell Test	1.5
	High Pressure Sealing	1.1
	Low Pressure Sealing	0.6
Temperature Range (°C)		PFA: -30~200      FEP: -30~150      PO: -10~80
Applicable Medium		Strong corrosive medium i.e. hydrochloric acid, Nitric acid, Hydrofluoric acid, Liquid chlorine, Sulfuric Acid and Aqua regia etc.

Note: Test standard refers general valve standard, high pressure should be customized for processing.

### ※ Pressure-Temperature Curve



### ※ Flow Characteristic



## Lined Midsplit Ball Valve

### ■ Product Description

McSYS lined midsplit ball valve adopts fluorine plastic as liner and equipped with new type structure of the ball integrated with stem, as well as the unique elastic lip type sealing seat structure to provide itself all the advantages of general ball valve.

It offers much lower torques and being one of the most accepted and popular valve types.

It offers economical solutions for the vast majority of chemical applications while maintaining the highest possible degree of performance in terms of in-line leakage.

They are commonly used in chlor-alkali, industrial in organic chemicals, metal and mining, nitrogen and phosphatic fertilizers, petroleum refining, pharmaceutical, and have superior performance in chlorine, benzene, bromine, sulfuric acid, nitric acid, hydrochloric acid, phosphoric acid, sea water etc.



PFA Lined Midsplit Ball Valve  
Lever Operated



PFA Lined Midsplit Ball Valve  
Pneumatic Operated

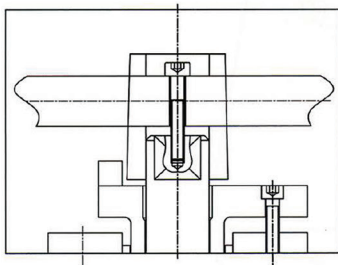
## **A Lined Valve** **Lined Ball Valve**

### ▣ Technical Specification

Design & Manufacture Standard		API 6D		
Face-to-face Dimension Standard		ASME B16.10		
Flange Standard		ASME B16.5, JIS B2220		
Inspection & Test Standard		API 598		
Nominal Diameter		1/2"~14"		
Pressure Rating		150Lb		
Pressure Test (MPa)	Shell Test	1.5		
	High Pressure Sealing	1.1		
	Low Pressure Sealing	0.6		
Temperature Range(°C)		PFA: -30~200	FEP: -30~150	PO: -10~80
Applicable Medium		Strong corrosive medium i.e. hydrochloric acid, Nitric acid, Hydrofluoric acid, Liquid chlorine, Sulfuric Acid and Aqua regia etc.		

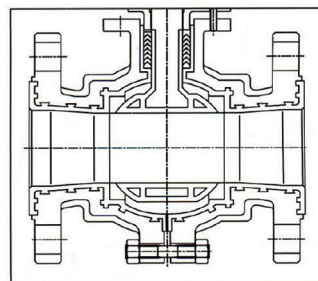
### ✂ Structure Features

#### ◆ New handle design



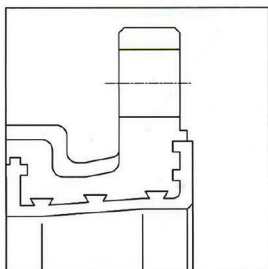
Handle designed to be movable from the operating rod, which can be adjusted to lengthen the rod. Or handle can be fixed on the operating rod to prevent from falling off. Handle seat and locating plate adopt the integral casting molding design, to get rid of traditional fission design, is more convenient for installation and positioning adjustment.

#### ◆ Lower torque



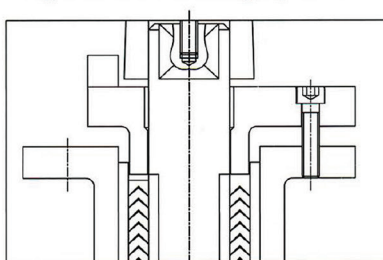
Because of midsplit body, the force on seat can be balanced on left and right side, to avoid uneven stress on body and displacement of ball. The ball is contact with a much smaller surface (seat rings). Consequently the operating torque is much lower, reducing costs, space and weight saving.

#### ◆ For vacuum service



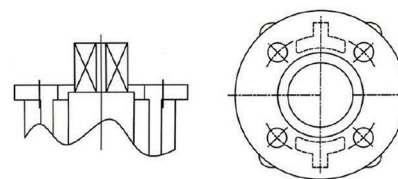
Processing dovetail groove in metal body in which lining locked to resist shrinkage, collapse and blow-out, to strengthen the adhesion between body and liner, ensuring the valve operated in the condition of slight negative pressure and full vacuum.

#### ◆ Design of less leakage point



Valve body takes design of stuffing box to replace the fission structure to reduce the leakage point.

#### ◆ ISO 5211 platform design

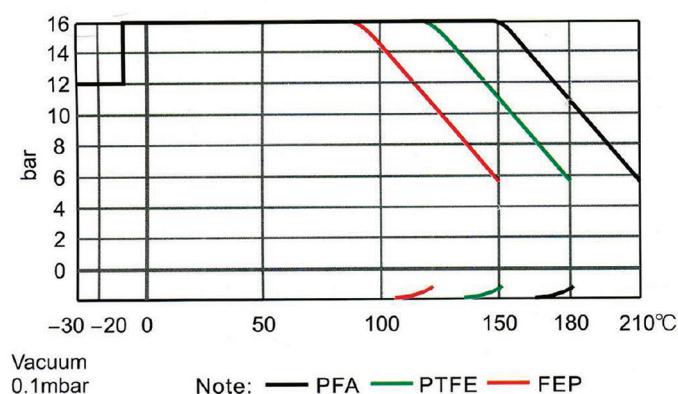


This new type ball valve with high platform fully compliance with ISO 5211 standard, allowing use of standard mounting kits. Nice appearance and tight configuration.

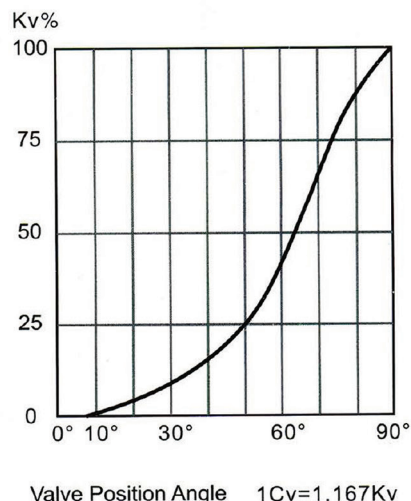
# **A Lined Valve**

## **Lined Midsplit Ball Valve**

### ■ Pressure-Temperature Curve



### ■ Flow Characteristic



When examine and repair lined ball valve , shut off cut-off valve in front of lined ball valve before open it, and then release the pressure on ball valve body completely, because when ball valve in the closed state, there remain part of medium and pressure in body. If it is electric or pneumatic lined ball valve, disconnect the power and air supply before examine and repair.

Be careful to prevent PTFE seat form damage which would result in leakage when disassemble the ball valve if need to clean it.

When assembler or disassemble the lined ball valve body bolts and nuts should be fixed and then tighten all nuts to fix at the same time. Otherwise uneven force form nuts will cause damage on flange surface, leading leakage.

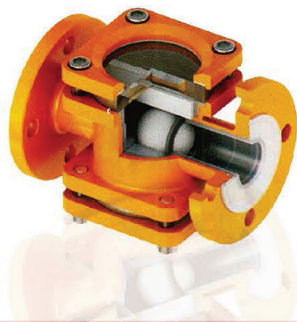
When clean the valve, do not choose the solvent that will corrode or react to the valve parts. When cleaning, thoroughly clean the traces of dirt , grease and other attached objects. If cannot clean with water , under the condition of no damage to the valve body and the solvent completely evaporated before assembly.

If there is a little leakage in packing position, tighten the stem nut until no leaking and no need to further tighten.

If valves stored in outdoor for a long time, it can lead to valve parts rust and increase the possibility of liner expansion or should be rainproof, waterproof, moisture proof and the flange should be protected by cover.

If the lined ball valve stored for more than 12 months, it should be retested to ensure stable performance before installing in line.

## Lined Check Valve



### ■ Sight-glass Ball Type

Nominal Diameter: DN25~DN200(1"~8")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598



### ■ Lined Swing Type Check Valve H44

Nominal Diameter: DN25~DN200(1"~20")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598



### ■ Lined Through-way Lift Check Valve H41

Nominal Diameter: DN25~DN200(1/2"~12")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598



### ■ Lined Wafer Type Check Valve H74

Nominal Diameter: DN25~DN200(1"~32")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598



### ■ Lined Vertical Lift Check Valve H42

Nominal Diameter: DN25~DN200(1"~8")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598



### ■ Lined Ball Check Valve H41

Nominal Diameter: DN25~DN200(1"~8")  
Pressure Range: PN6, PN10, PN16, PN25, 150LB  
Body Material: WCB, CF8, CF8M  
Lining Material: FEP, PTFE, PFA, GXPO  
Face to face: ASME B16.10  
Flange Standard: ASME B16.5  
Connection Type: Flange  
Inspection & Testing: API 598

## Lined Pipe & Fittings



### ■ PFA lined Instrument Tee

Nominal Diameter: DN25~DN200(1/2"~20")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.10  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ PTFE Lined Blind Flange

Nominal Diameter: DN25~DN200(1/2"~20")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.5  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ Lined Horizontal Sight Glass

Nominal Diameter: DN25~DN200(1"~10")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.5  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



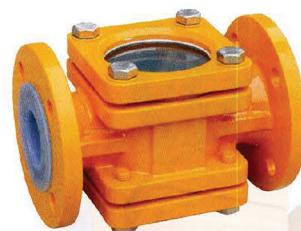
### ■ Lined Y-Type Strainer

Nominal Diameter: DN25~DN200(1"~10")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.10  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ Lined Basket Type Strainer

Nominal Diameter: DN25~DN200(1"~10")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.5  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ Lined Vertical Sight Glass

Nominal Diameter: DN25~DN200(1"~10")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.5  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598

## Lined Pipe & Fittings



### ■ Lined Elbow

Nominal Diameter: DN25~DN200(1/2"~20")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.10  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ Lined Tee, Lined Cross

Nominal Diameter: DN25~DN200(1/2"~20")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.10  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



### ■ Lined Reducer

Nominal Diameter: DN25~DN200(1/2"~20")  
 Pressure Range: PN6, PN10, PN16, PN25, 150LB  
 Body Material: WCB, CF8, CF8M  
 Lining Material: FEP, PTFE, PFA, GXPO  
 Face to face: ASME B16.10  
 Flange Standard: ASME B16.5  
 Connection Type: Flange  
 Inspection & Testing: API 598



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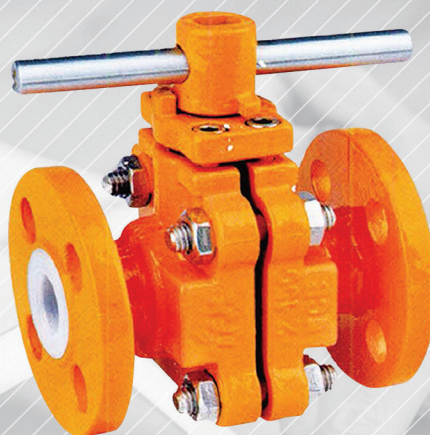
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Size and component specification in this  
catalogue are subject to change without prior  
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