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FLUONICS
PFA LINED PRODUCTS

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FLUONICS PFA LINED PRODUCTS

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DIAPHRAGM VALVE
SIZE : DN 15~150
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
DUCTILE IRON with PFA

FLUOROPOLYMER LINED COMPOSITE PLASTIC DIAPHRAGM VALVE
SIZE : DN 15~100
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) PPS+GF40%
PP+GF30%, U-PVC
(LINER) PFA, PVDF

BALL VALVE
SIZE : DN 15~150
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
DUCTILE IRON with PFA

PLUG VALVE
SIZE : DN 15~200
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
DUCTILE IRON with PFA

BUTTERFLY VALVE
SIZE : DN 80~350
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) DUCTILE IRON with PFA

BOTTOM FLUSH VALVE
SIZE : DN 50 x 25, 80 x 50
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
with PFA

SIGHT GLASS BALL CHECK VALVE
SIZE : DN 25~80
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
with PFA
(BALL) PTFE

BALL CHECK VALVE
SIZE : DN 15~200
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
with PFA
(BALL) PTFE

SWING CHECK VALVE
SIZE : DN 40~250
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
with PFA

SPRING CHECK VALVE
SIZE : DN 20-100
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL
with PFA

AUTO DIAPHRAGM VALVE
SIZE : DN 15~100
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL, DUCTILE IRON
with PFA

AUTO V-PORT BALL VALVE
SIZE : DN 15~150
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL, DUCTILE IRON
with PFA

LINED PIPE & FITTING
SIZE : DN 15~250
CLASS : ANSI 150lbs, JIS 10K
MATERIAL : (BODY) STAINLESS STEEL
CARBON STEEL with PFA or PTFE

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FLUOROPOLYMER LINED COMPOSITE PLASTIC DIAPHRAGM VALVE

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Standard Features

- PFA/ PVDF lined plastic diaphragm valves are used for corrosive, pure and ultrapure liquids, gases and vapours in chemical, pharmaceutical, food and industrial processes.
- Flanged end connections : ANSI 150lbs, JIS10k
- Rugged body and bonnet area of solid thermoplastic for maximum corrosion resistance.
- Weir design for excellent throttling.
- Bubble-tight sealing, even in applications such as slurries or suspended particles.
- Bonnet seals to protect internals from corrosive environments.
- Integrally molded bottom stand for simple yet firm panel mounting.
- Indicator at the top for indication of valve position

Contents

Lining Material

PFA

Perfluoroalkoxy or PFA is a type of fluoropolymer with properties similar to polytetrafluoroethylene (PTFE). It differs from the PTFE resins in that it is melt-processable using conventional injection molding and screw extrusion techniques. PFA was invented by DuPont and is sold under the brandname Teflon® PFA. Teflon® is better known as the trade name for PTFE. Other brandnames for granules are Neoflon® PFA from Daikin or Hyflon® PFA from Solvay Solexis.
PFA is very similar in composition to the fluoropolymers PTFE and FEP (fluorinated ethylene-propylene). PFA and FEP both share PTFE's useful properties of low coefficient of friction and non-reactivity, but are more easily formable. PFA is softer than PTFE and melts at 305℃.

PVDF

Polyvinylidene fluoride, or PVDF is a highly non-reactive and pure thermoplastic fluoropolymer.
PVDF is a specialty plastic material in the fluoropolymer family; it is used generally in applications requiring the highest purity, strength, and resistance to solvents, acids, bases and heat and low smoke generation during a fire event. Compared to other fluoropolymers, it has an easier melt process because of its relatively low melting point of around 177℃.
It has a low density (1.78) and low cost compared to the other fluoropolymers. It is available as piping products, sheet, tubing, films, plate and an insulator for premium wire. It can be injected, molded or welded and is commonly used in the chemical, semiconductor, medical and defense industries, as well as in lithium ion batteries. It is also available as a crosslinked closed cell foam, used increasingly in aviation and aerospace applications.

Body Material

PVC

Polyvinyl chloride, commonly abbreviated PVC, is a thermoplastic polymer. It is a vinyl polymer constructed of repeating vinyl groups (ethenyls) having one hydrogen replaced by chloride. Polyvinyl chloride is the third most widely produced plastic, after polyethylene and polypropylene. PVC is widely used in construction because it is cheap, durable, and easy to assemble. It can be made softer and more flexible by the addition of plasticizers, the most widely used being phthalates. In this form, it is used in clothing and upholstery, electrical cable insulation, inflatable products and many other applications in which it would originally have replaced rubber.

PP

Polypropylene (PP), also known as polypropene, is a thermoplastic polymer used in a wide variety of applications including packaging, textiles (e.g., ropes, thermal underwear and carpets), stationery, plastic parts and reusable containers of various types, laboratory equipment, loudspeakers, automotive components, and polymer banknotes. An addition polymer made from the monomer propylene, it is rugged and unusually resistant to many chemical solvents, bases and acids.

PPS

Polyphenylene sulfide (PPS) is an organic polymer consisting of aromatic rings linked with sulfides. Synthetic fiber and textiles derived from this polymer are known to resist chemical and thermal attack. PPS is used to make filter fabric for coal boilers, papermaking felts, electrical insulation, specialty membranes, gaskets, and packings. PPS is the precursor to a conducting polymer of the semi-flexible rod polymer family. The PPS, which is otherwise insulating, can be converted to the semiconducting form by oxidation or use of dopants. Polyphenylene sulfide is an engineering plastic, a high-performance thermoplastic.[2] PPS can be molded, extruded, or machined to high tolerances. In its pure solid form, it may be opaque white to light tan in color. Maximum service temperature is 218℃ (424℉). PPS has not been found to dissolve in any solvent at temperatures below about 200℃ (392℉).

PPA

Polyphthalamide (aka. PPA, High Performance Polyamide) is a thermoplastic synthetic resin of the polyamide (nylon) family that is used to replace metals in high temperature automotive applications, as the housing for high temperature electrical connectors and multiple other uses. It has found a degree of favor for use in cutlery. Cold Steel has advertised the glass fibre reinforced series as being stealthy (due to them not being detected by metal detectors and having no metallic reflections) and, being made of "Grivory" (a trade name), stronger than previous models made of "Zytel".
As a member of the nylon family, it is asemi-crystalline material composed from a diacid and a diamine. However, the diacid portion contains at least 55% terephthalic acid (TPA) or isophthalic acid (IPA). TPA or IPA are aromatic components which serve to raise the melting point, glass transition temperature and generally improve chemical resistance vs. standard aliphatic nylon polymers.

Property	Unit	LINING		BODY			
		PFA	PVDF	U-PVC	PP+GF30%	PPS+GF40%	PPA+GF40%
Specific Gravity	-	2.14~2.16	1.75~1.78	1.3~1.45	0.9	1.66	1.56
Melting Point	℃	304	177	170	165	285	312
Tensile strength	MPa	33.3	40~52	60	30~35	210	260
Continuous service Temp	℃	260	150	60	90	200	185
Defection Temp at 1.8 MPa	℃	48	90	-	-	270	287

What is the difference between the each of fluoropolymer materials?

Q

A

In addition to PTFE, FEP and PFA there are other fluoropolymers such as THV, ETFE, ECTFE, CTFE, and PVDF. Although these materials are members of the same family, they have slightly different thermal and mechanical properties. PTFE and PFA have a slightly higher upper use temperature than FEP. FEP and PFA are clear (PTFE is translucent), and have better mechanical properties than PTFE. The other key differences are in the areas of chemical inertness, corrosion resistance, permeability, and FDA approval.

What is a diaphragm valve?

Q

A

A diaphragm valve is a control device that utilizes a flexible membrane to close, or shut, an opening. Pressure increase or decrease on either side of the diaphragm causes the valve to move its position. Often, these valves are used in industries like food processing, pharmaceutical manufacturing, mining, and pollution control, among others. They can be made from a variety of plastics and metals, depending on which application they will be used for.

Fluoropolymer Lined Composite Plastic Diaphragm Valve Specifications

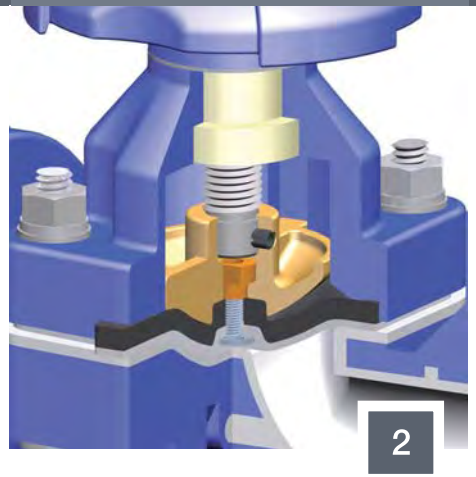
HAND WHEEL PART

Ergonomic Hand wheel design
High integrity hand wheel with ergonomic design assures comfortable, precise control

Position indicator
Provides visual indication of valve position

Indicator cap
Protect the bonnet internals from atmospheric conditions

BONNET PART

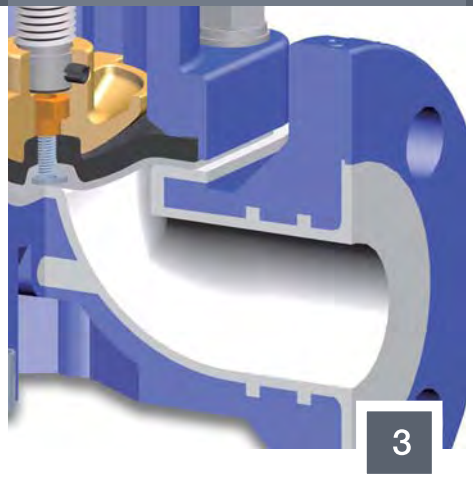


Bonnet isolation
Working parts are isolated from the process fluid

Advanced bonnet design
It gives extra support to the diaphragm to maintain effective sealing

Floating nut
It prevents point loading of M–PTFE diaphragm, increasing cycle life.

BODY PART



Plastic body with PFA(PVDF) lining

Wide choice of body materials
Available in PPS(GF40%), PPA(GF40%), PP(GF30%), U–PVC

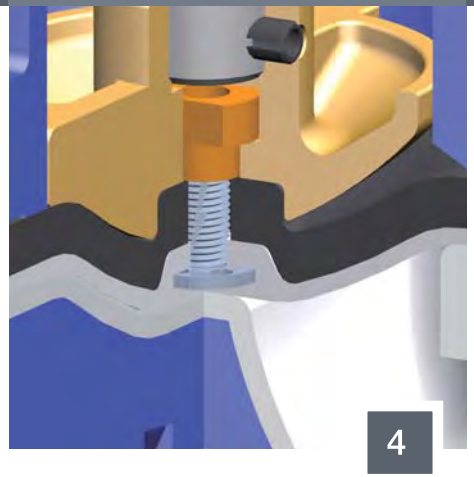
Two type of Body face to face dimensions
ANSI 150lbs, JIS 10K

Flanged end connections
ANSI 150lbs, JIS 10K

Available in Nominal sizes
1/2" ~ 4" (15A ~ 100A)

Bottom stand for easy support

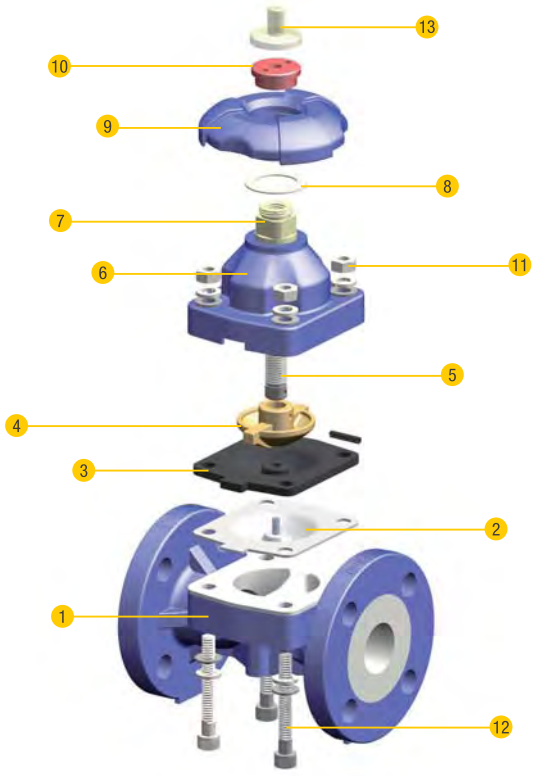
DIAPHRAGMS PART



Molded closed 2–Piece design Diaphragms
M–PTFE diaphragm, with PVDF gas barrier EPDM cushion rubber Diaphragms are molded closed to reduce required closing forces, give longer life and provide bubble tight closure without stretching or distortion

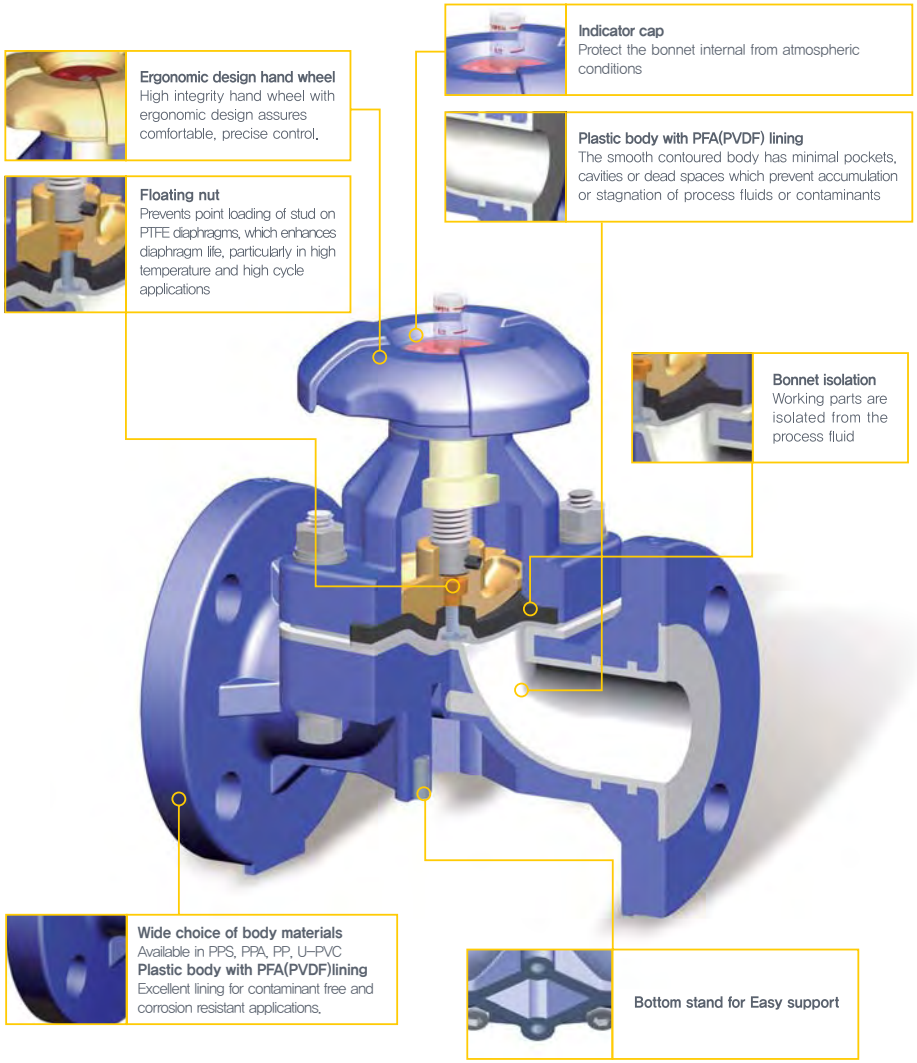
Material of Parts

ITEM No.	DESCRIPTION	MATERIAL			
1	BODY	PPS + GF40% with PFA (PVDF)	PPA + GF40% with PFA (PVDF)	PP + GF30% with PFA (PVDF)	U-PVC with PFA (PVDF)
2	DIAPHRAGM	M-PTFE, PTFE (with PVDF gas barrier)			
3	CUSHION RUBBER	EPDM , VITON			
4	COMPRESSOR	PPS + GF40%			
5	SPINDLE	SUS 304, Carbon steel			
6	BONNET	PPS + GF40%, PPA + GF40%, PP + GF30%, PVC			
7	SPINDLE BUSH	POM, BRASS			
8	HANDLE GASKET	PTFE			
9	HAND WHEEL	PPS + GF40%, PPA + GF40%, PP + GF30%, PVC			
10	HAND WHEEL CAP	POM			
11	NUT, SPRING WASHER	SUS 304			
12	WRENCH BOLT	SUS 304			
13	INDICATOR CAP	PC			



Features

PFA/PVDF lined plastic diaphragm valves are used for corrosive, pure and ultrapure liquids, gases and vapours in chemical, pharmaceutical, food and industrial processes.



Ergonomic design hand wheel
High integrity hand wheel with ergonomic design assures comfortable, precise control.

Floating nut
Prevents point loading of stud on PTFE diaphragms, which enhances diaphragm life, particularly in high temperature and high cycle applications

Indicator cap
Protect the bonnet internal from atmospheric conditions

Plastic body with PFA(PVDF) lining
The smooth contoured body has minimal pockets, cavities or dead spaces which prevent accumulation or stagnation of process fluids or contaminants

Bonnet isolation
Working parts are isolated from the process fluid

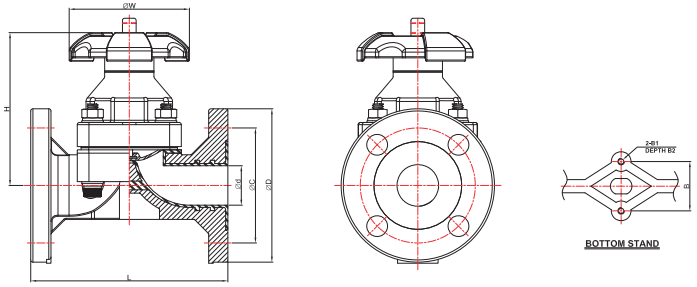
Wide choice of body materials
Available in PPS, PPA, PP, U-PVC
Plastic body with PFA(PVDF)lining
Excellent lining for contaminant free and corrosion resistant applications.

Bottom stand for Easy support

Dimensions
Diaphragm Valve

▶Avaliable size : 1/2" ~ 4" (15A ~ 100A) ▶Flange rating : ANSI 150lbs JIS 10K

Nominal size	Ød	L		ØD		ØC		Øw	H	B	B1	B2	Ref.
		ANSI 150	JIS 10K	ANSI 150	JIS 10K	ANSI 150	JIS 10K						
1/2 (15A)	15	108	110	89	95	60.5	70	85	85	25	M5	13	A
3/4 (20A)	20	149	120	98.5	100	69.9	75	85	85	25	M5	13	B
1 (25A)	25	149	130	108	125	79.4	90	85	95	25	M5	13	C
1 1/2 (40A)	38	178	180	127	140	98.6	105	111	140	45	M6	15	D
2 (50A)	50	202	210	152	155	120.7	120	125	156.5	45	M8	15	E
2 1/2 (65A)	65	–	250	178	175	140	140	220	190	85	M8	20	F
3 (80A)	80	263.5	280	190.5	185	152.4	150	220	200	100	M10	28	G
4 (100A)	100	328.5	340	229	210	192.5	175	260	240	120	M10	28	H



Ordering information

Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

Valve type	Ref.
Plastic diaphragm valve	PD
Plastic Ball valve	PB

Operating	Ref.
Manual	M
Actuator	A

Valve body materials	Ref.
PFA + PPS GF 40%	PS
PFA + PPA GF 40%	PA
PFA + PP GF 30%	PP
PFA + U-PVC	PV

Control function	Ref.
Fail closed	FC
Fail opened	FO

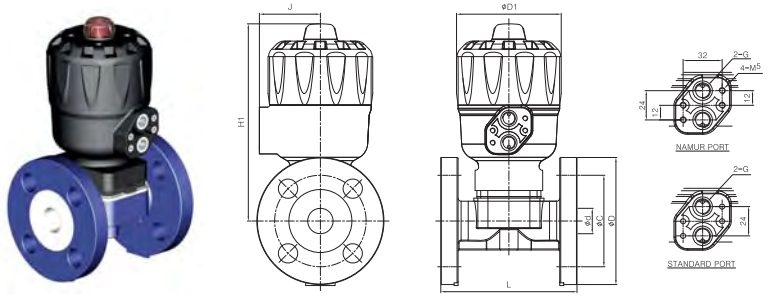
Diaphragm material	Ref.
M-PTFE / EPDM	PE
M-PTFE / VITON	PV

Order example	J	PD	M	D	PS	PE	–
Connections	J						
Valve type		PD					
Operating			M				
Nominal size				D			
Valve body material					PS		
Diaphragm material						PE	
Control function							–

Dimensions
Auto Diaphragm Valve

DIMENSIONS

Nominal size	Ød	L		ØD		ØC		ØD1	H1	J	G
		ANSI 150	JIS 10K	ANSI 150	JIS 10K	ANSI 150	JIS 10K				
1/2 (15A)	15	108	110	89	95	60.5	70	103	190	60	1/4
3/4 (20A)	20	149	120	98.5	100	69.9	75	103	190	60	1/4
1 (25A)	25	149	130	108	125	79.4	90	103	193	60	1/4
1 1/2 (40A)	38	178	180	127	140	98.6	105	155	280	86	1/4
2 (50A)	50	202	210	152	155	120.7	120	155	290	86	1/4
2 1/2 (65A)	65	–	250	178	175	140	140	155	295	86	1/4
3 (80A)	80	263.5	280	190.5	185	152.4	150	260	400	155	1/4
4 (100A)	100	328.5	340	229	210	192.5	175	260	410	155	1/4



FEATURES

· NC / NO / Bi-Directional · Can be easily converted from NC to NO / Single to Double acting
· Operator with threaded / NAMUR ports · Technical data

Orifice	DN 15-100
Body materials	PPA + GF40%
	PPS + GF40%
	PP + GF30%
	U-PVC
Diaphragm material	M-PTFE/EPDM, M-PTFE/VITON
Actuator material	PPS + GF40%
Pilot air ports	Stainless steel
Ambient temperature	
Actuator size 〈 100mm	+5℃ to + 140℃
Actuator size 100-125mm	+5℃ to + 90℃
Actuator size ≥ 175mm	-10℃ to + 50℃
Control medium	Neutral gases
Pilot pressure max.	max. 7 bar

LINED PIPE & FITTINGS

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Head Office & Factory

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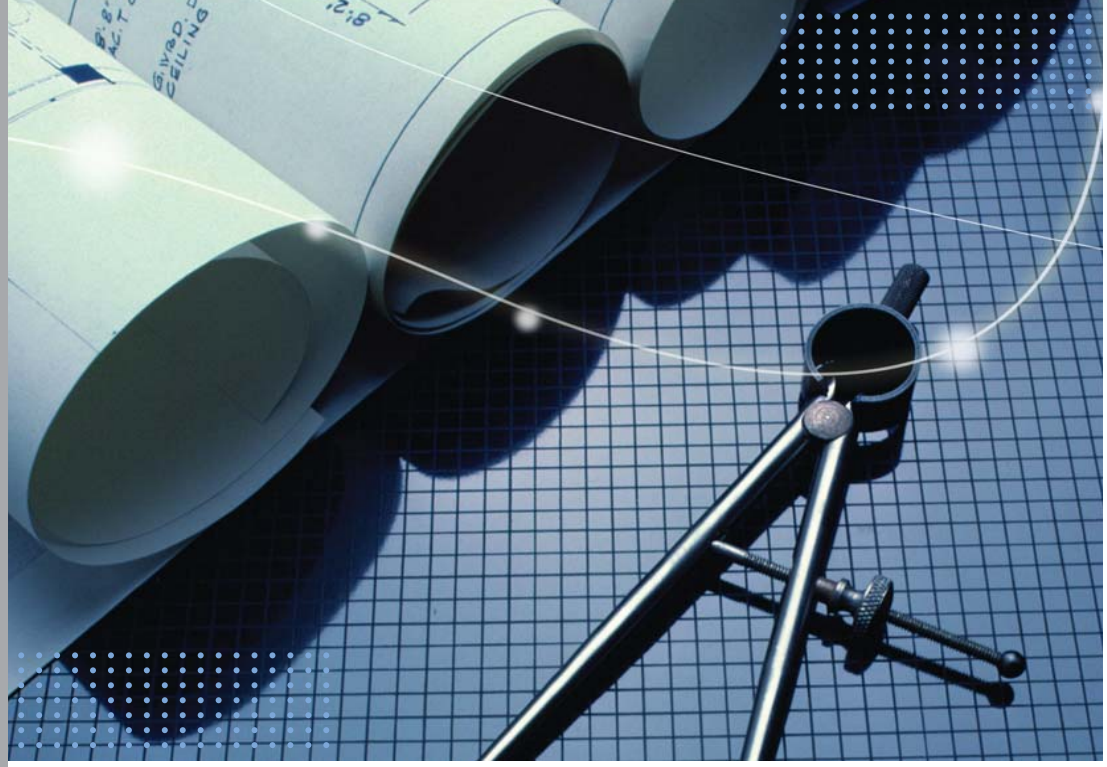


Contents

Lining Materials

PFA

PFA exhibits thermal characteristics like to PTFE, being able to withstand super low to high temperatures (260℃ Maximum temp. for continuous use). It is also transparent and mechanically strong under high temperature. It is easily workable besides applicable with extrusion molding to the same degree as general thermoset plastics. It is used where purity is important, such a semiconductor wafer baskets, piping couplings and non-corrosive linings. PFA has better mechanical strength at high temperatures than FEP, and excellent moldability for easy processing by extrusion, compression, blow, transfer and injection molding methods. Due to the high bonding strength of the carbon, fluorine and oxygen atoms, PFA demonstrates nearly the same outstanding capabilities as PTFE in temperatures ranging from - 200℃ to +260℃.

FEP

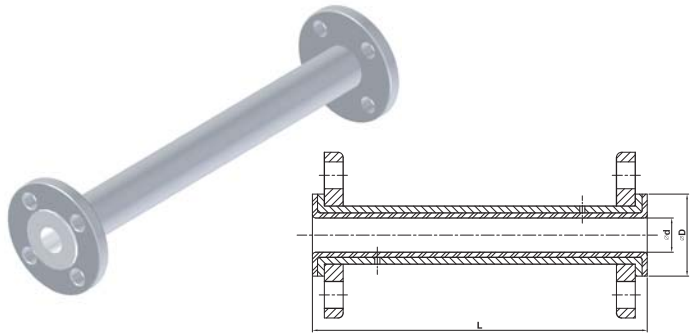
FEP is a copolymer of tetrafluoroethylene and hexafluoropropylene. FEP consists of carbon atoms and fluorine atoms, as does PTFE, and has a molecular structure in which one of the fluorine atoms bonded to the carbon atoms.FEP has a lower melt viscosity than PTFE and can be processed like other molten thermoplastic resins by extrusion, transfer, injection, and compression molding. Because the bonding energy between its carbon and fluorine atoms is so high, and because the carbon chain is completely surrounded by fluorine atoms, FEP fluorocarbon polymer retains excellent thermal, electrical, and chemical stability. Therefore, it shows high performance in electrical, chemical, and medical applications in temperatures ranging from extremely low to extremely high (-200℃ ~ +200℃ / -328°F ~ +392°F).

PTFE

The fluorine atoms completely cover the carbon chain backbone and protect the carbon-carbon bond from attack. The fluorine atoms are also responsible for the low surface energy and exceptional frictional characteristics of PTFE. Because of very high melt viscosity, PTFE does not flow above its melting point. It requires special polymer processing like paste extrusion, compression molding and sintering. Among all the fluoroplastics products, PTFE offers the highest heat resistances at 260℃ (maximum temp. for continuous use). It is not corroded by most chemicals and has good electrical insulation and dielectric characteristics. Moreover, it has a unique non-stick property and the lowest coefficient of friction amongst solids.It is the most widely used fluoroplastics, now found in O-rings, gaskets, bearings, tube, wiring, hot plates and irons because of its non-stick property, as well as chemical tank linings.

Property	PFA			FEP			PTFE		
	Testing Method	Value	Unit	Testing Method	Value	Unit	Testing Method	Value	Unit
Specific Gravity	ASTM D-3307	2.14~2.16	–	ASTM D-2116	2.12~2.17	–	ASTM D-3307	2.14~2.20	–
Melt Flow Rate	ASTM D-3307	7~8	g/10 min	ASTM D-2116	6	g/10 min	–	–	–
Melting Point	ASTM D-3307	304	℃	ASTM D-2116	260	℃	ASTM D-3307	327	℃
Tensile Strength	ASTM D-3307	33.3 (4835)	MPa (psi)	ASTM D-2116	31	MPa (psi)	ASTM D-3307	13.7~34.3 (1990~4980)	MPa (psi)
Elongation	ASTM D-3307	420	%	ASTM D-2116	370	%	ASTM D-3307	200~400	%
Chemical resistance	–	Excellent		ASTM D-2116	Excellent		–	Excellent	–

Pipe



(unit : mm)

Nominal size	L(Max)	ø d	ø D		Lining thickness	Ref.
			ANSI 150	JIS 10K		
1/2 (15A)	3000	10	35	51	3	A
3/4 (20A)	3000	15	43	56	3	B
1 (25A)	3000	21	51	67	3	C
1 1/2 (40A)	3000	35	73	81	3	D
2 (50A)	3000	46.5	96	96	3.2	E
2 1/2 (65A)	3000	58.5	104.5	116	3.2	F
3 (80A)	3000	71	129	126	3.5	G
4 (100A)	3000	94	160	151	4	H
5 (125A)	3000	120	186	182	4	I
6 (150A)	3000	146	218	212	4	J
8 (200A)	3000	186	270	262	4	K
10 (250A)	3000	244	324	324	5	L

※Note : 1/2"~3" 6000(L) Possible

Ordering information

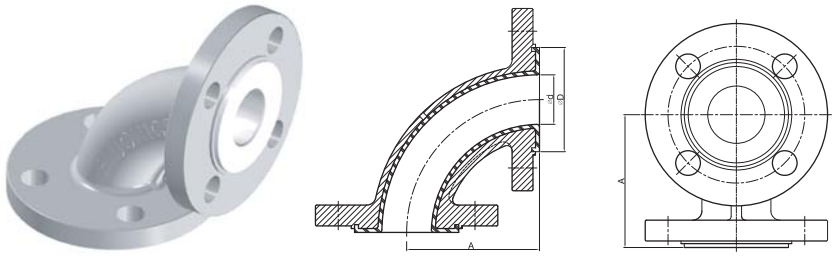
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

Pipe body materials	Ref.
PTFE lined Carbon steel	TW
PTFE lined Stainless Steel	TS
PFA lined Carbon steel	W
PFA lined Stainless steel	S

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	P	C	S	AC
Connection	J				
Type		P			
Nominal size			C		
Pipe body material				S	
Surface finish					AC

90° Elbow



- Lining thickness : According to ASTM F1545(Min 2.54mm)
- One side & Two side lap joint available

(unit : mm)

Nominal size		A	ø d		ø D	Ref.
			★	●		
PFA	1/2 (15A)	80	20	15	40	A
	3/4 (20A)	80	20	15	50	B
	1 (25A)	89	25	19	57	C
	1 1/2 (40A)	102	38	29	76	D
	2 (50A)	114	50	42	95	E
	2 1/2 (65A)	130	64	-	113	F
	3 (80A)	140	76	79	125	G
	4 (100A)	165	100	90	150	H
	6 (150A)	203	143	130	212	J
	8 (200A)	229	190	181	260	K
	10 (250A)	279	-	-	318	L

★ Casting type dimensions ● Welding type dimensions

Ordering information

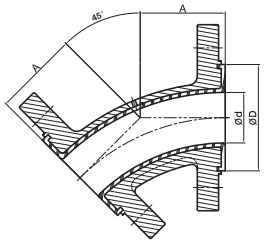
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

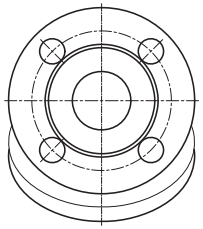
Fitting body materials	Ref.
PFA lined Carbon Stee	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	90L	C	S	AC
Connection	J				
Type		90L			
Nominal size			C		
Fitting body material				S	
Surface finish					AC

45°ELBOW





(unit : mm)

Nominal size		A	ø d		ø D	Ref.
			★	●		
PFA	1/2 (15A)	45	25	-	40	A
	3/4 (20A)	45	25	-	50	B
	1 (25A)	45	25	-	57	C
	1 1/2 (40A)	57	38	-	76	D
	2 (50A)	64	45	-	95	E
	3 (80A)	76	70	-	127	G
	4 (100A)	102	95	-	150	H
	6 (150A)	131	148.9	-	212	J

★ Casting type dimensions ● Welding type dimensions

Ordering information

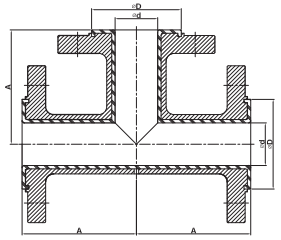
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

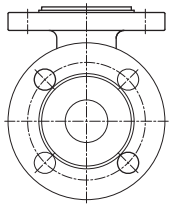
Fitting body materials	Ref.
PFA lined Carbon Steel	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	45L	C	S	AC
Connection	J				
Type		45L			
Nominal size			C		
Fitting body material				S	
Surface finish					AC

EQUAL TEE





(unit : mm)

Nominal size		A	ø d		ø D	Ref.
			★	●		
PFA	1/2 (15A)	80	17	17	40	A
	3/4 (20A)	80	17	17	50	B
	1 (25A)	89	25	20	57	C
	1 1/2 (40A)	102	38	33	76	D
	2 (50A)	114	50	41	95	E
	2 1/2 (65A)	130	65	58	113	F
	3 (80A)	140	76	70	125	G
	4 (100A)	165	100	88	150	H
	6 (150A)	203	143	138	212	J
	8 (200A)	229	-	190	260	K

★ Casting type dimensions ● Welding type dimensions

Ordering information

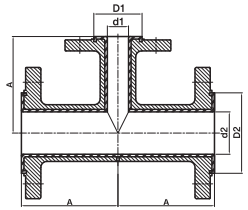
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

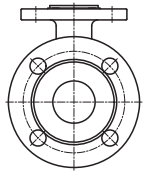
Fitting body materials	Ref.
PFA lined Carbon Stee	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	E	C	S	AC
Connection	J				
Type		ET			
Nominal size			C		
Fitting body material				S	
Surface finish					AC

Reducing Tee





(unit : mm)

Size Availability		ø D2	ø d2		ø D1	ø d1		A	Ref.
			★	●		★	●		
PFA	1 x 3/4	57	25	20	50	20	16	89	CB
	1 1/2 x 3/4	76	38	33	50	20	16	102	DB
	1 1/2 x 1	76	38	33	57	25	20	102	DC
	2 x 1	95	50	41	57	25	20	114	EC
	2 x 1 1/2	95	50	41	76	38	33	114	ED
	2 1/2 x 1 1/2	113	-	58	76	-	33	130	FD
	2 1/2 x 2	113	-	58	95	-	38	130	FE
	3 x 1 1/2	125	76	70	76	38	33	140	GD
	3 x 2	125	76	70	95	50	38	140	GE
	4 x 2	150	100	88	95	50	38	165	HE
	4 x 3	150	-	88	125	-	65	165	HG
	6 x 3	212	143	138	125	76	63	203	JG
	6 x 4	212	143	138	150	100	88	203	JH
	8 x 4	260	-	190	150	-	88	229	KH
	8 x 6	260	-	190	212	-	138	229	KJ
	10 x 4	318	-	231	150	-	88	279	LH

★ Casting type dimensions ● Welding type dimensions

Ordering information

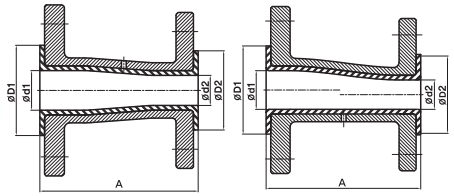
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

Fitting body materials	Ref.
PFA lined Carbon Steel	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	RT	CB	S	AC
Connection	J				
Type		RT			
Nominal size			CB		
Fitting body material				S	
Surface finish					AC

Concentric Reducer / Eccentric Reducer



(unit : mm)

Size Availability		ø D1	ø d1		ø D2	ø d2		A	Ref.
			ECC	CON		ECC	CON		
PFA	1 x 3/4	57	20	19	50	13	13	100	CB
	1 1/2 x 3/4	76	33	33	50	13	13	100	DB
	1 1/2 x 1	76	33	33	57	20	19	100	DC
	2 x 1	95	46	46	57	18	19	127	EC
	2 x 1 1/2	95	46	46	76	33	33	127	ED
	2 1/2 x 1 1/2	113	58	59	76	33	33	127	FD
	2 1/2 x 2	113	58	59	95	41	41	127	FE
	3 x 1 1/2	125	70	66	76	33	33	152	GD
	3 x 2	125	68	66	95	41	41	152	GE
	4 x 2	150	93	88	95	41	41	152	HE
	4 x 3	150	86	88	125	58	65	152	HG
	6 x 3	212	140	136	125	58	61	200	JG
	6 x 4	212	140	136	150	81	76	200	JH
	8 x 4	260	190	184	150	85	80	200	KH
	8 x 6	260	185	184	212	133	135	200	KJ
	10 x 4	318	-	234	150	-	88	200	LH
	2 x 3/4 (CON)	95	-	46	-	-	15	127	EB
	3 x 1 (CON)	125	-	70	-	-	20	152	GC
	4 x 1 1/2 (CON)	150	-	93	-	-	35	152	HD

Ordering information

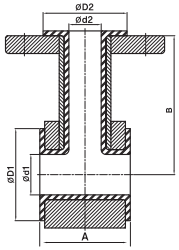
Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

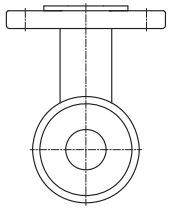
Fitting body materials	Ref.
PFA lined Carbon Stee	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	CON or ECC	CB	S	AC
Connection	J				
Type		CON or ECC			
Nominal size			CB		
Fitting body material				S	
Surface finish					AC

Instrument Tee





(unit : mm)

Size Availability		A	B	ø D1	ø d1	ø D2	ø d2	Ref.
PFA	1 1/2 x 3/4	50	102	69	35	50	17	DB
	1 1/2 x 1	50	102	39	35	57	17	DC
	2 x 3/4	50	114	88	45	50	17	EB
	2 x 1	50	114	88	45	57	17	EC
	2 1/2 x 3/4	50	123	113	59	50	17	FB
	2 1/2 x 1	50	123	113	59	57	17	FC
	3 x 3/4	50	140	123	69	50	17	GB
	3 x 1	50	140	123	69	57	17	GC
	4 x 3/4	50	165	151	94	50	17	HB
	4 x 1	50	165	151	94	57	17	HC
	6 x 3/4	50	203	209	140	50	17	JB
	6 x 1	50	203	209	140	57	17	JC
	8x 3/4	50	229	260	190	50	17	KB
	8 x 1	50	229	260	190	57	17	KC

Ordering information

Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

Fitting body materials	Ref.
PFA lined Carbon Steel	W
PFA lined Stainless Steel	S
PTFE lined Carbon Steel	TW
PTFE lined Stainless Steel	TS

Type of production	
Casting type	CT
Welding type	WT

Order example	J	IT	DB	S	AC
Connection	J				
Type		IT			
Nominal size			DB		
Fitting body material				S	
Surface finish					AC

Expansion Joint

Nominal size	I.D	Neutral lengh		Extension/Compression		Angular movements		Lateral movement		Ref.
		3convolutions	5convolutions	3convolutions	5convolutions	3convolutions	5convolutions	3convolutions	5convolutions	
1 (25A)	24	47	80	12	20	30°	36°	10	15	C
1 1/2 (40A)	37	67	100	12	20	28°	34°	15	20	D
2 (50A)	46	71	100	15	25	26°	28°	15	20	E
2 1/2 (65A)	60	83	117	22	35	20°	22°	17	30	F
3 (80A)	70	88	130	25	40	16°	20°	17	30	G
4 (100A)	98	93	143	25	40	16°	20°	17	30	H
6 (150A)	145	104	165	28	45	12°	14°	18	32	J
8 (200A)	196	100	220	28	45	12°	14°	20	32	K
10 (250A)	242	175	230	28	45	12°	14°	10	15	L

Ordering information

Connection	Ref.
JIS 10K	J
ANSI 150lbs	A

Fitting body materials	Ref.
PTFE+Carbon Steel Flange	W
PTFE+Stainless Steel Flange	S

Surface finish	Ref.
Painting	P
Acid cleaning	AC

Order example	J	EX	C	S	AC
Connection	J				
Type		EX			
Nominal size			C		
Fitting body material				S	
Surface finish					AC

PFA Tube

(unit : mm)

Products		Nominal O.D	O.D tolerance	Wall th'k	Wall tolerance	Length	Length tolerance
T-1/4	Tube	6,35	+/-.102	1,194	+/-.102	100M	+2%
T-3/8		9,53	+/-.102	1,574	+/-.127		-0
T-1/2		12,70	+/-.127	1,574	+/-.127		
T-3/4		19,05	+/-.127	1,574	+/-.127		
T-1		25,40	+/-.127	1,574	+/-.127		
T-1 1/2		40,00	+/-.203	2,184	+/-.127		
T-2		50,80	+/-.203	2,590	+/-.203		
P-1/2	Pipe	21,34	+/-.127	2,768	+/-.254	3M	+0,15%
P-3/4		26,67	+/-.254	2,870	+/-.254		-0
P-1		33,40	+/-.381	3,378	+/-.381		
P-2		60,33	+/-.508	3,911	+/-.381		

(unit : mm)

Products		Nominal O.D	O.D tolerance	Wall th'k	Wall tolerance	Length	Length tolerance
T-1/4	Tube	0,250	+/-.004	0,047	+/-.004	328 ft	+2%
T-3/8		0,375	+/-.004	0,062	+/-.005		-0
T-1/2		0,500	+/-.005	0,062	+/-.005		
T-3/4		0,750	+/-.005	0,062	+/-.005		
T-1		1,000	+/-.005	0,062	+/-.005		
T-1 1/2		1,575	+/-.008	0,086	+/-.005		
T-2		2,000	+/-.008	0,102	+/-.008		
P-1/2	Pipe	0,840	+/-.005	0,109	+/-.010	9,84 ft	+0,15%
P-3/4		1,050	+/-.010	0,113	+/-.010		-0
P-1		1,315	+/-.015	0,133	+/-.015		
P-2		2,375	+/-.020	0,154	+/-.015		

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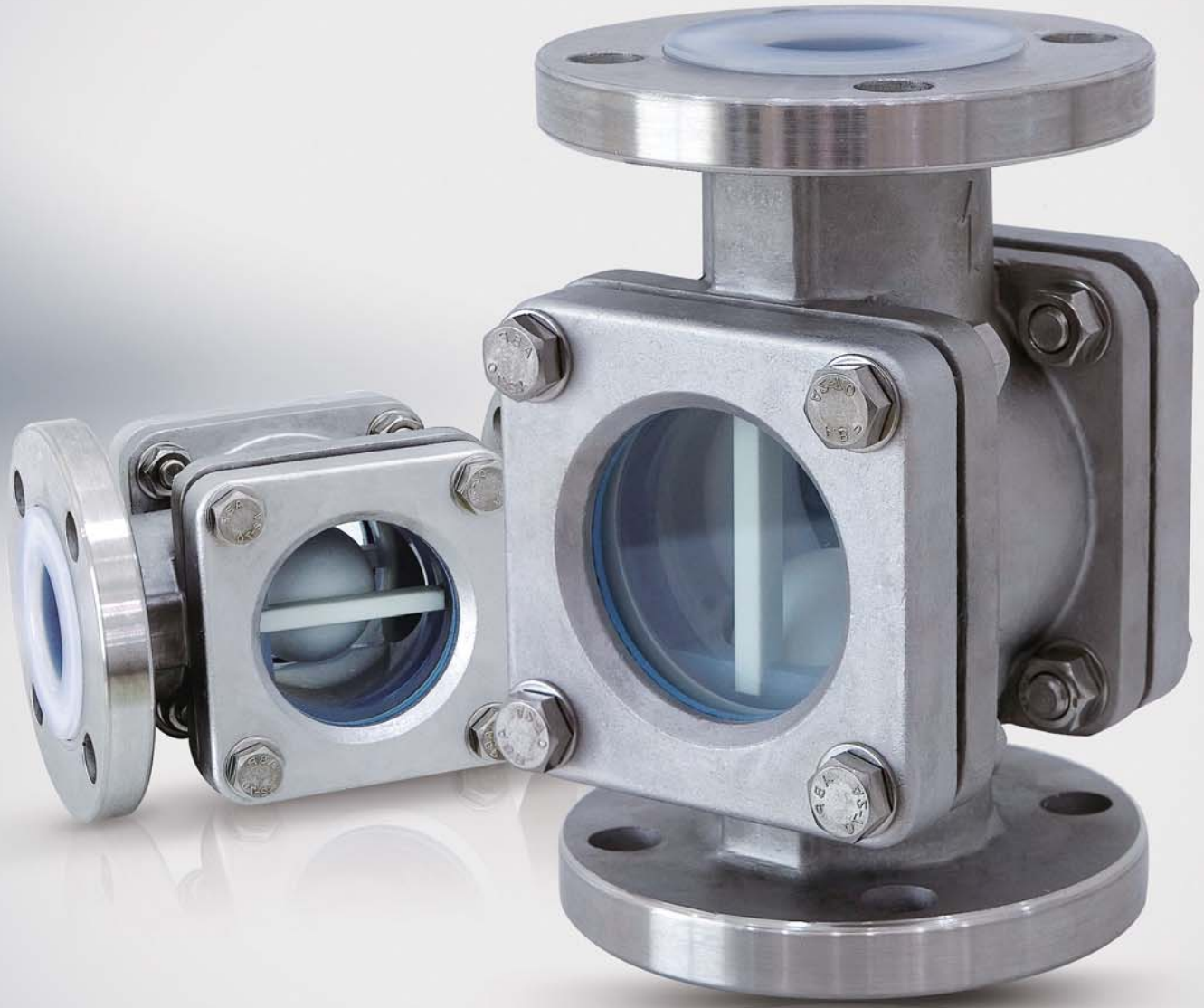

PFA LINED BALL CHECK VALVE SIGHT GLASS

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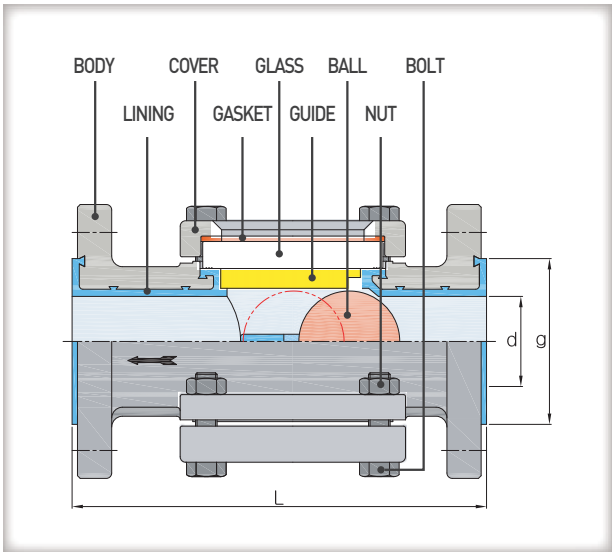
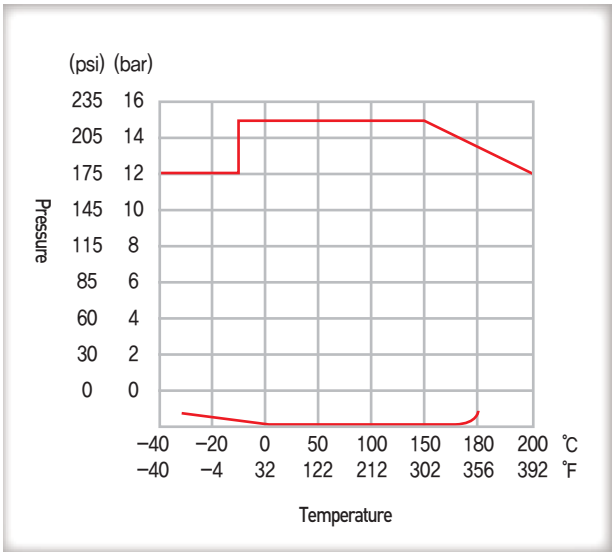


Ball check valve



Pressure-Temperature chart *

* Vaild for solid PTFE ball only

GENERAL TECHNICAL DATA

Size	(mm) :	25, 40, 50, 80
	(inch) :	1, 1 1/2, 2, 3
Pressure rating :		ANSI 150
Face to face dimension :		EN 558–1
Temperature :		−40℃ ~ 200℃
Flanges :		JIS 10K
		ANSI 150

Lining with high durability

The lining resin is locked by grooves allow the valves to be used on high vaccum, pressure and temperature application without lining collapse, shrinkage and blowout.

Lining virgin pure PFA

Suitable for corrisive, hazardous, pure hot and highly permeating media

Shut-off elements

Solid and hollow ball are mede of PTFE

Sight glass

Borosilicate glass for temperatures up to 200℃

PFA LINED BALL CHECK VALVE SIGHT GLASS

High Performance and Technology Creative Company

Dimensions

(mm)

Valve Size	mm	25	40	50	80
	Inch	1	11/2	2	3
d		25	36	50	76
L		160	200	230	310
g		50	73	92	125
Ref		C	D	E	G

Material

Parts	Material
Body	SCS13A / SCPH2
Lined	PFA
Cover	SCS13A / SCPH2
Gasket	Aramide
Glass	Borosilicate DIN 7080
Guide	PTFE+Glass 15%
Ball	PTFE

Ordering information

Order example	J	B	M	C	S	EP
Connection	A					
Valve type		SG				
Ball type			S			
Nominal size				C		
Valve body material					W	
Surface						P

Connections	Ref.
JIS 10K	J
ANSI 150	A

Valve type	Ref.
Ball check valve	BC
Sight glass	SG

Ball type	Ref.
Solid	S
Hollow	H

Valve body materials	Ref.
PFA lined Carbon steel (SCPH2)	W
PFA lined Stainless steel (SCS13A)	S
PFA lined Stainless steel (SCS14A)	M

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P

Head Office & Factory

#561–11, Gwang Gyeok, Ho–Jeo, Wonju–Si, Kangwon–Do, Korea / Tel:82–33–731–3550 / Fax:82–33–731–3559 / www.fluonics.com

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PFA LINED BALL CHECK VALVE

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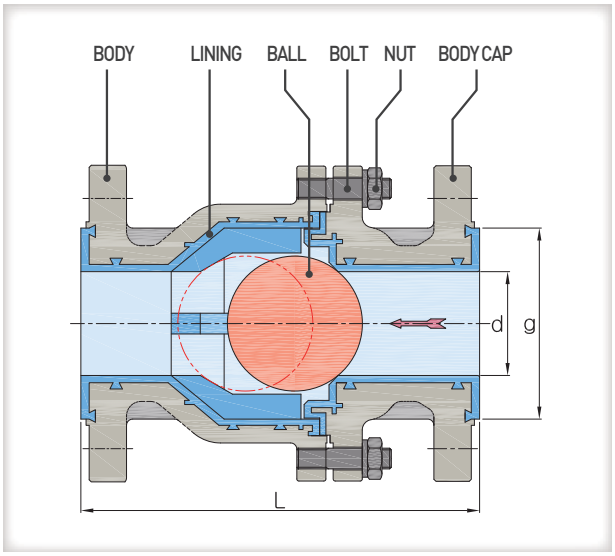
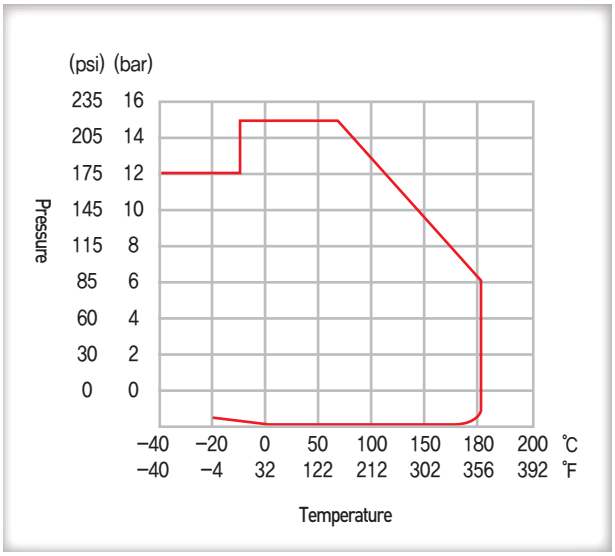


Ball check valve



Pressure-Temperature chart

GENERAL TECHNICAL DATA

Size (mm) :	20, 25, 40, 50, 65, 80, 100, 150
(inch) :	1/2, 3/4, 1, 1 1/2, 2, 2 1/2, 3, 4, 6
Pressure rating :	Max. 15 bar (SOLID BALL)
	Max. 3 bar (HOLLOW BALL)
Face to face dimension :	FLUONICS Standard
Temperature :	Max. 150℃ (SOLID BALL)
	Max. 100℃ (HOLLOW BALL)
Flanges :	JIS 10K
	ANSI 150

Lining with high durability

The lining resin is locked by grooves allow the valves to be used on high vaccum, pressure and temperature application without lining collapse, shrinkage and blowout.

Lining virgin pure PFA

Suitable for corrisive, hazardous, pure hot and highly permeating media

Shut-off elements

Solid and hollow ball are mede of PTFE

PFA LINED BALL CHECK VALVE

High Performance and Technology Creative Company

Dimensions

(mm)

Valve Size	ANSI	1/2	3/4	1	11/2	2	21/2	3	4	6	8
	JIS	N/A	20	25	40	50	65	80	100	150	200
d		19	19	25	38	50	64	77	96	145	198
L		152	152	152	198	192	254	254	317	381	482
g		51	51	51	81	92	110	125	150	212	264
Ref		A	B	C	D	E	F	G	H	J	K

Material

Parts	Material
Body	SCS13A / SCPH2
Lined	PFA
Ball	PTFE
Body cap	SCS13A / SCPH2
Bolt	SUS304
Nut	SUS304

Ordering information

Order example	J	B	M	C	S	EP
Connection	J					
Valve type		BC				
Ball type			S			
Nominal size				C		
Valve body material					S	
Surface						EP

Connections	Ref.
JIS 10K	J
ANSI 150	A

Valve type	Ref.
Ball check valve	BC
Ball valve	B

Ball type	Ref.
Solid	S
Hollow	H

Valve body materials	Ref.
PFA lined Carbon steel (SCPH2)	W
PFA lined Stainless steel (SCS13A)	S
PFA lined Stainless steel (SCS14A)	M

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P

Head Office & Factory

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PFA LINED BALL VALVE

High Performance and Technology Creative company

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Contents

Lining Materials

PFA

PFA exhibits thermal characteristics like to PTFE, being able to withstand super low to high temperatures (260℃ Maximum temp. for continuous use). It is also transparent and mechanically strong under high temperature. It is easily workable besides applicable with extrusion molding to the same degree as general thermoset plastics. It is used where purity is important, such a semiconductor wafer baskets, piping couplings and non-corrosive linings. PFA has better mechanical strength at high temperatures than FEP, and excellent moldability for easy processing by extrusion, compression, blow, transfer and injection molding methods. Due to the high bonding strength of the carbon, fluorine and oxygen atoms, PFA demonstrates nearly the same outstanding capabilities as PTFE in temperatures ranging from - 200℃ to +260℃.

FEP

FEP is a copolymer of tetrafluoroethylene and hexafluoropropylene. FEP consists of carbon atoms and fluorine atoms, as does PTFE, and has a molecular structure in which one of the fluorine atoms bonded to the carbon atoms.FEP has a lower melt viscosity than PTFE and can be processed like other molten thermoplastic resins by extrusion, transfer, injection, and compression molding. Because the bonding energy between its carbon and fluorine atoms is so high, and because the carbon chain is completely surrounded by fluorine atoms, FEP fluorocarbon polymer retains excellent thermal, electrical, and chemical stability. Therefore, it shows high performance in electrical, chemical, and medical applications in temperatures ranging from extremely low to extremely high (-200℃ ~ +200℃ / -328°F ~ +392°F).

PTFE

The fluorine atoms completely cover the carbon chain backbone and protect the carbon-carbon bond from attack. The fluorine atoms are also responsible for the low surface energy and exceptional frictional characteristics of PTFE. Because of very high melt viscosity, PTFE does not flow above its melting point. It requires special polymer processing like paste extrusion, compression molding and sintering. Among all the fluoroplastics products, PTFE offers the highest heat resistances at 260℃ (maximum temp. for continuous use). It is not corroded by most chemicals and has good electrical insulation and dielectric characteristics. Moreover, it has a unique non-stick property and the lowest coefficient of friction amongst solids.It is the most widely used fluoroplastics, now found in O-rings, gaskets, bearings, tube, wiring, hot plates and irons because of its non-stick property, as well as chemical tank linings.

Property	PFA			FEP			PTFE		
	Testing Method	Value	Unit	Testing Method	Value	Unit	Testing Method	Value	Unit
Specific Gravity	ASTM D-3307	2.14~2.16	—	ASTM D-2116	2.12~2.17	—	ASTM D-3307	2.14~2.20	—
Melt Flow Rate	ASTM D-3307	7~8	g/10 min	ASTM D-2116	6	g/10 min	—	—	—
Melting Point	ASTM D-3307	304	℃	ASTM D-2116	260	℃	ASTM D-3307	327	℃
Tensile Strength	ASTM D-3307	33.3 (4835)	MPa (psi)	ASTM D-2116	31	MPa (psi)	ASTM D-3307	13.7~34.3 (1990~4980)	MPa (psi)
Elongation	ASTM D-3307	420	%	ASTM D-2116	370	%	ASTM D-3307	200~400	%
Chemical resistance	—	Excellent		ASTM D-2116	Excellent		—	Excellent	—

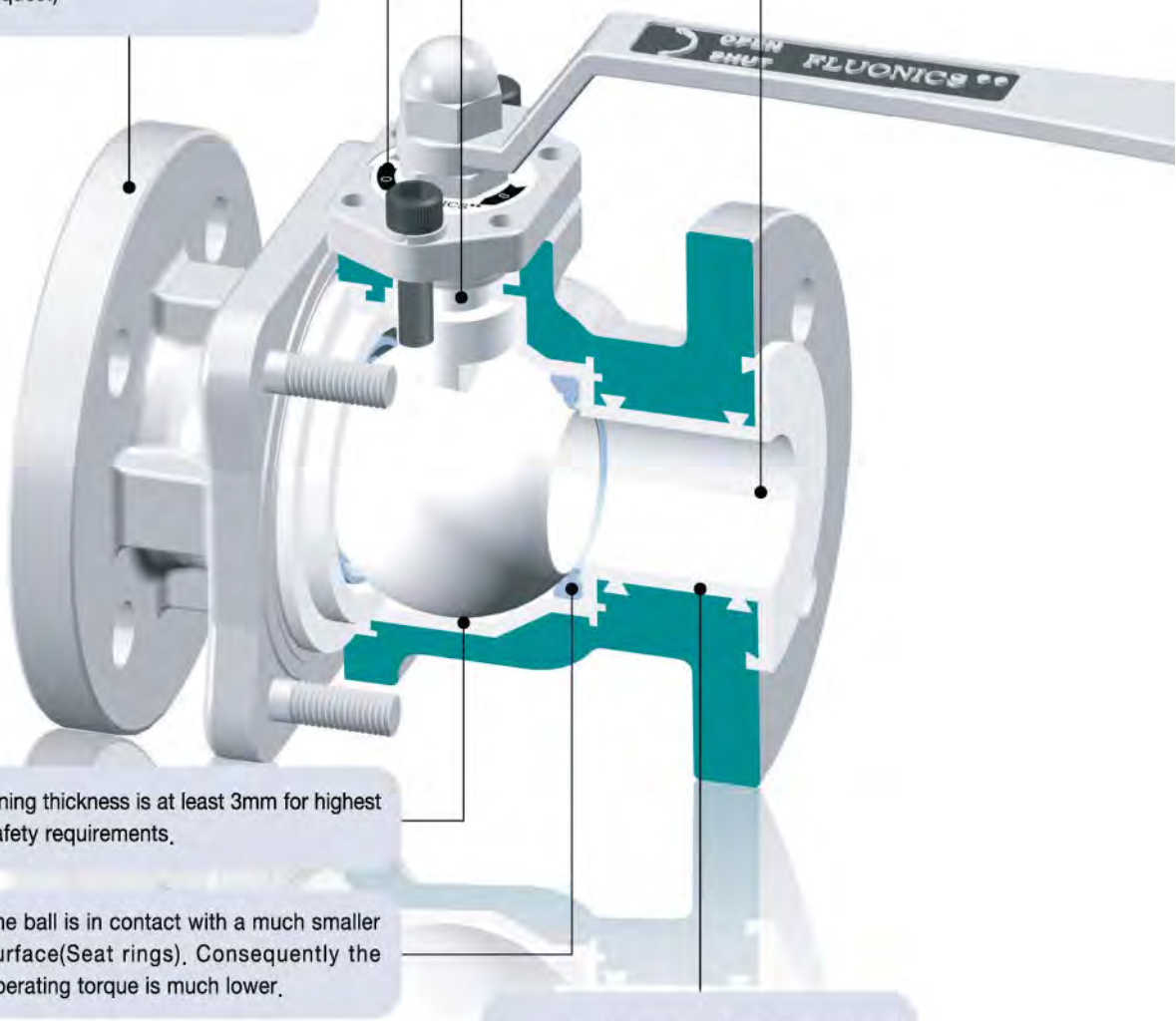
Features

The ball stem is sealed by the self adjusting PTFE v-ring packing

Apply the indicator and indicator holder for the convenient recognition of shut and open and to prevent unauthorized actuation of handle.

The smooth, straight through structure of Fluonics ball valve provides minimal cavities or dead spaces, which prevent accumulation or stagnation of process fluids or contaminants.
Low pressure drop and high flow characterise the effiency of Fluonics ball valve.

Remove the pollutants by electropolishing of the external surface treatment as standard. (Epoxy coating available if on request)

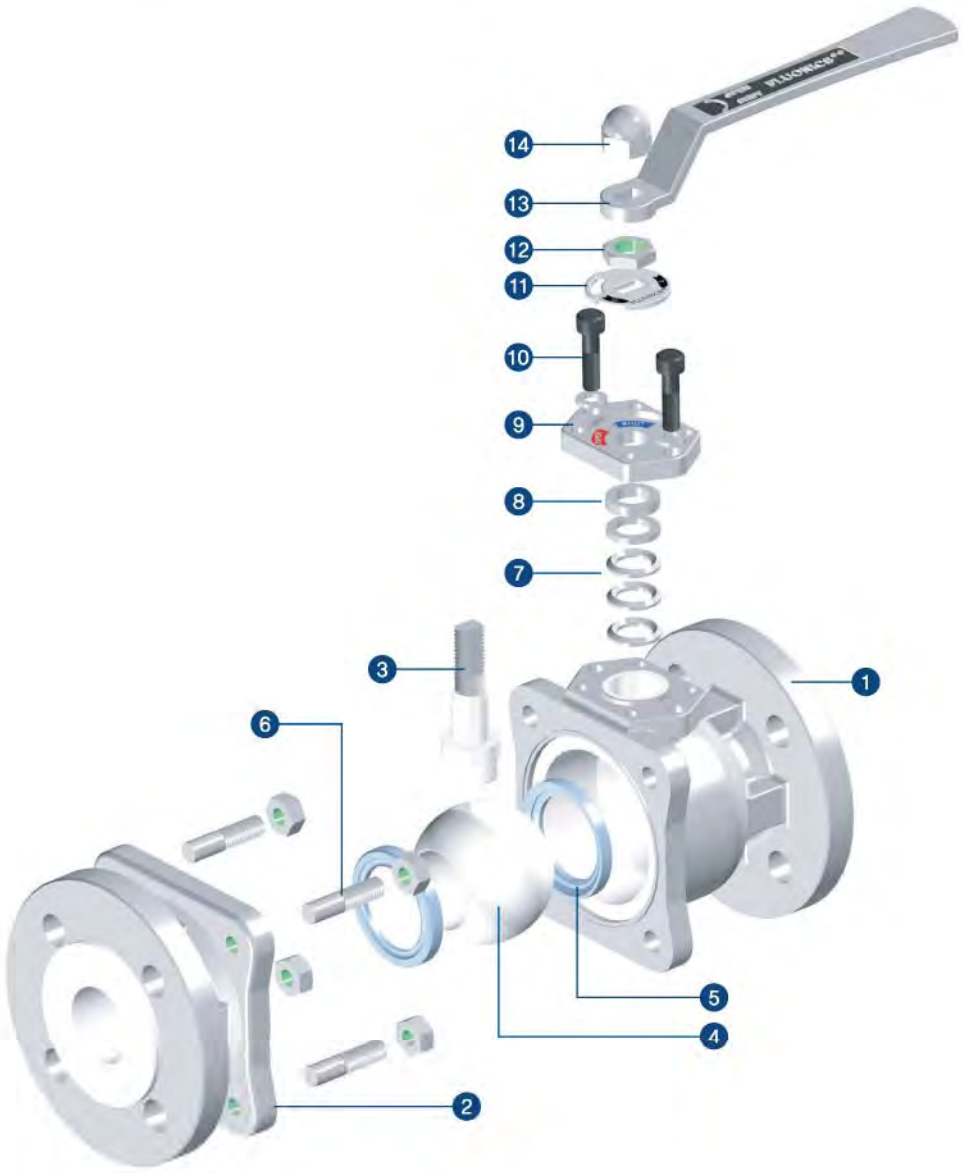


Lining thickness is at least 3mm for highest safety requirements.

The ball is in contact with a much smaller surface(Seat rings). Consequently the operating torque is much lower.

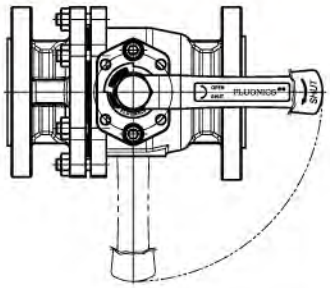
Improvement in the intensity of illuminationand the transparency of PFA lining

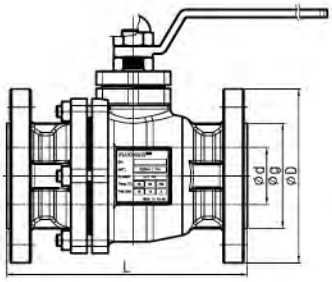
Materials

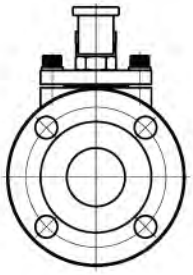


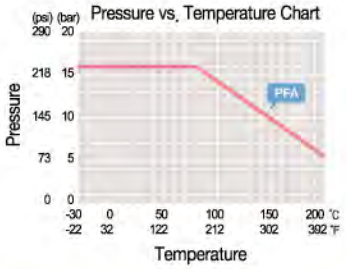
Item No.	DESCRIPTION	MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUCTILE IRON
1	BODY	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A216 WCB, PFA, FEP Lined	ASTM A395 D.I, PFA, FEP Lined
2	BODY TAIL	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A216 WCB, PFA, FEP Lined	ASTM A395 D.I, PFA, FEP Lined
3	STEM	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A351 CF8 / CF8M / PFA, FEP Lined	ASTM A351 CF8 / CF8M / PFA, FEP Lined
4	BALL	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A351 CF8 / CF8M / WCB, PFA, FEP Lined	ASTM A351 CF8 / CF8M / WCB, PFA, FEP Lined
5	SEAT RING	PTFE	PTFE	PTFE
6	STUD BOLT, NUT	SUS304	SUS304	SUS304
7	GRAND PACKING	PTFE	PTFE	PTFE
8	GRAND(SUS RING)	SUS304	SUS304	SUS304
9	BONNET	ASTM A351 CF8	ASTM A351 CF8	ASTM A351 CF8
10	BONNET BOLT	SUS304	SUS304	SUS304
11	INDICATOR	ASTM A351 CF8	ASTM A351 CF8	ASTM A351 CF8
12	STEM NUT	SUS304	SUS304	SUS304
13	HANDLE	ASTM A351 CF8	ASTM A351 CF8, A216 WCB	ASTM A351 CF8, A216 WCB
14	CAP NUT	SUS304	SUS304	SUS304

Ball valve









SIZE	Operating Torques(N.m)	Cv
1/2(15A)	8.8	15
3/4(20A)	8.8	35
1(25A)	9.8	69
1 1/2(40A)	15.7	215
2(50A)	22.5	335
65A	37	620
3(80A)	49	830
4(100A)	94	1455
6(150A)	215	3265

Flange rating : ANSI 150lbs JIS 10K

Nominal size	ø d	ø D		L			ø g		Ref.
		ANSI 150	JIS 10K	ANSI 150	JIS 10K		ANSI 150	JIS 10K	
					SCS13A	FCD			
1/2 (15A)	15	89	95	127	140	127	40	45	A
3/4 (20A)	20	98.5	100	127	152	127	49	49	B
1 (25A)	25	108	125	127	165	127	51	60	C
1 1/2 (40A)	36	127	140	165	191	165	70	73	D
2 (50A)	50	152	155	178	216	178	94	94	E
2 1/2 (65A)	65	178	175	203	240	203	123	103	F
3 (80A)	76	191	185	203	250	203	123	123	G
4 (100A)	96	229	210	229	280	229	147	147	H
6 (150A)	145	279	280	267	267	267	210	210	J

Ordering information

Connections	Ref.
JIS 10K	J
ANSI 150lbs	A

Valve type	Ref.
Diaphragm valve	D
Ball valve	B
Plug valve	P

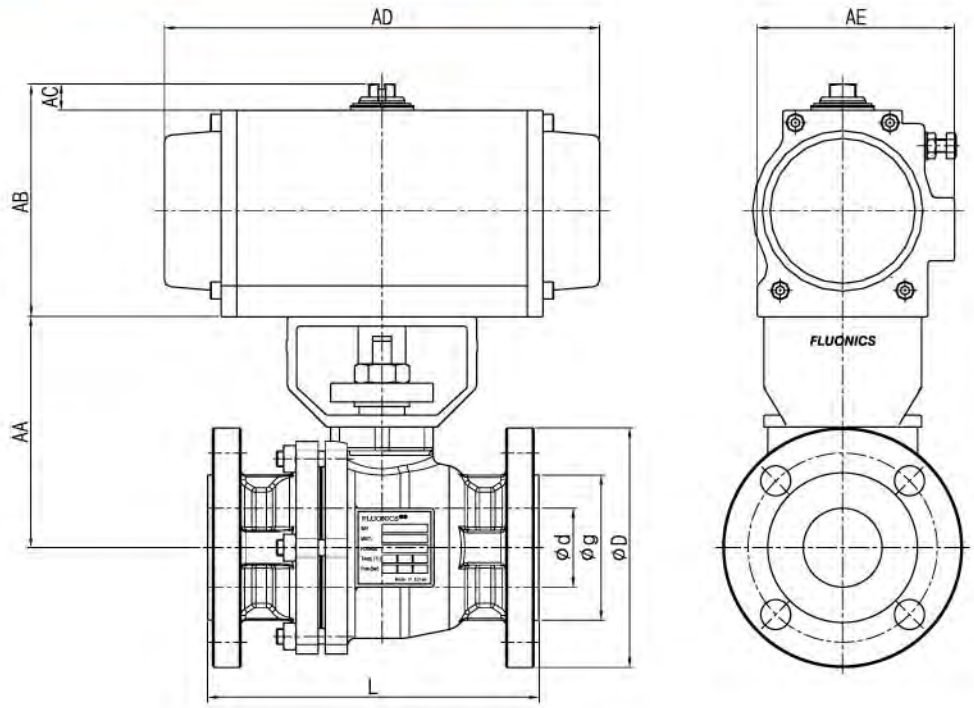
Operating		Ref.
Manual	Lever	L
	WORM GEAR	W
Actuator		A

Valve body materials	Ref.
PFA lined Carbon Steel(WCB/SCPH2)	W
PFA lined Stainless Steel(CF8/SCS13A)	S
PFA lined Stainless Steel(CF8M/SCS14A)	M
PFA lined Ductile Iron(A395 D.I/FCD)	F

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P
Electropolished + Buffed	EB

Order example	J	B	L	C	S	EP
Connection	J					
Valve type		B				
Operating			L			
Nominal size				C		
Valve body material					S	
Surface finish						EP

Automated Ball valve



Spring Return

Nominal size	AA	AB	AC	AD	AE	ø d	ø D		L		ø g	
							ANSI 150	JIS 10K	ANSI 150	JIS 10K	ANSI 150	JIS 10K
1/2	109	124	20	210	96	15	89	95	127	140	40	45
15A	88,5	107	20	163	85							
3/4	109	124	20	210	96	20	98,5	100	127	152	49	46
20A	94	107	20	163	85							
1 (25A)	109	124	20	210	96	25	108	125	127	165	51	60
1 1/2 (40A)	123	136	20	247	108	36	127	140	165	191	70	73
2 (50A)	146	136	20	247	108	50	152	155	178	216	94	94
2 1/2 (65A)	180	179	20	347	151	65	178	175	203	240	123	103
3 (80A)	205	179	20	347	151	76	191	185	203	250	123	123
4 (100A)	215	179	20	347	151	96	229	210	229	280	147	147
6 (150A)	281	277	30	555	227	145	279	280	267	267	210	210

Double acting

Nominal size	AA	AB	AC	AD	AE	ø d	ø D		L		ø g	
							ANSI 150	JIS 10K	ANSI 150	JIS 10K	ANSI 150	JIS 10K
1/2	109	87	20	163	85	15	89	95	127	140	40	45
15A	88,5	93	20	144	72							
3/4	109	87	20	163	85	20	98,5	100	127	152	49	46
20A	94	93	20	144	72							
1 (25A)	109	87	20	163	85	25	108	125	127	165	51	60
1 1/2 (40A)	123	124	20	210	96	36	127	140	165	191	70	73
2 (50A)	146	124	20	210	96	50	152	155	178	216	94	94
2 1/2 (65A)	180	148	20	268	123	65	178	175	203	240	123	103
3 (80A)	205	148	20	268	123	76	191	185	203	250	123	123
4 (100A)	215	148	20	268	123	96	229	210	229	280	147	147
6 (150A)	281	251	30	497	206	145	279	280	267	267	210	210

Head Office & Factory

#561-11, Gwang Gyeok, Ho-Jeo, Wonju-Si, Kangwon-Do, Korea

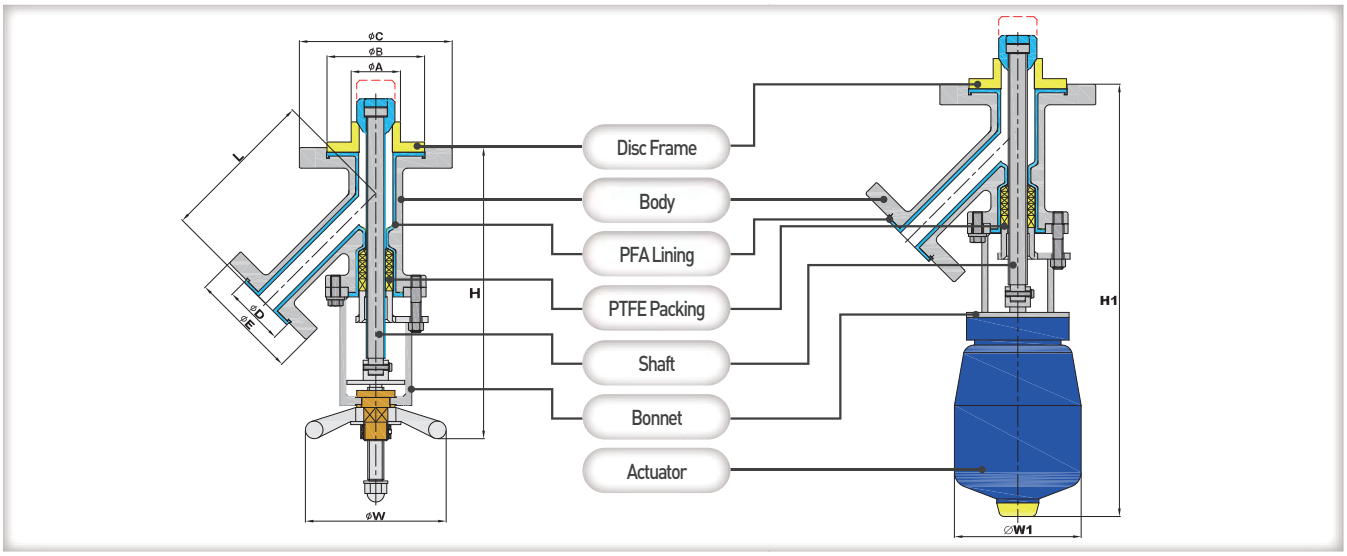
Tel : 82-33-731-3550 / Fax : 82-33-731-3559

www.fluonics.com

PFA LINED BOTTOM FLUSH VALVE

High Performance and Creative Technology Company

www.fluonics.com



BOTTOM FLUSH VALVE

GENERAL TECHNICAL DATA

Size (mm) :	50 X 25, 80 X 50
Pressure rating :	Max. 10 bar
Face to face dimension :	FLUONICS Standard
Temperature :	Max 150℃
Flanges :	JIS 10K , ANSI 150
SPARK TEST :	PFA Lining at 20KV (ASTM F 1545)
LEAK TEST :	N2 Pneumatic (API 598)

Superior resistance for chemicals

All surfaces of valve wet parts are lined with PFA to protect valve service life from chemical

Lining with high durability

Tranfer molded PFA lining is free from pinholes, cracks, swelling and locally uneven thickness and prevent service problems with exfoliation, stress cracking and fluid permeation.

Thermal resistance

PFA's thermal stability is so reliable that prolonged exposure evento 260℃ would never affect mechanical properties of linings and valves

PFA LINED BOTTOM FLUSH VALVE

High Performance and Technology Creative Company

Dimensions

(mm)

CLASS	SIZE	ΦA	ΦB	ΦC	ΦD	ΦE	L	ΦW	ΦW1	H	H1	Ref.
JIS 10K	50A X 25A (2" X 1")	49	97	155	60	125	155	140	126	289.5	430	A
	80A X 50A (3" X 2")	75	124	185	94	155	215.5	160	–	370	–	B

Material

Parts	Material
Body	SCS13A
Bonnet	SUS304
Shaft	SUS304+PFA
Packing	PTFE
Disc frame	PTFE

Ordering information

Order example	J	BF	L	A	S	EP
Connection	J					
Valve type		BF				
Operating			M			
Nominal size				A		
Valve body material					S	
Surface finish						EP

Connections	Ref.
JIS 10K	J
ANSI 150lbs	A

Valve type	Ref.
Bottom Flush Valve	BF
Bottom Ball Valve	BB

Operating	Ref.
Manual	M
Actuator	A

Valve body materials	Ref.
PFA lined Stainless steel(SCS13A)	S

Surface finish	Ref.
Electropolished	EP

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PFA LINED DIAPHRAGM VALVE

High Performance and Creative Technology company

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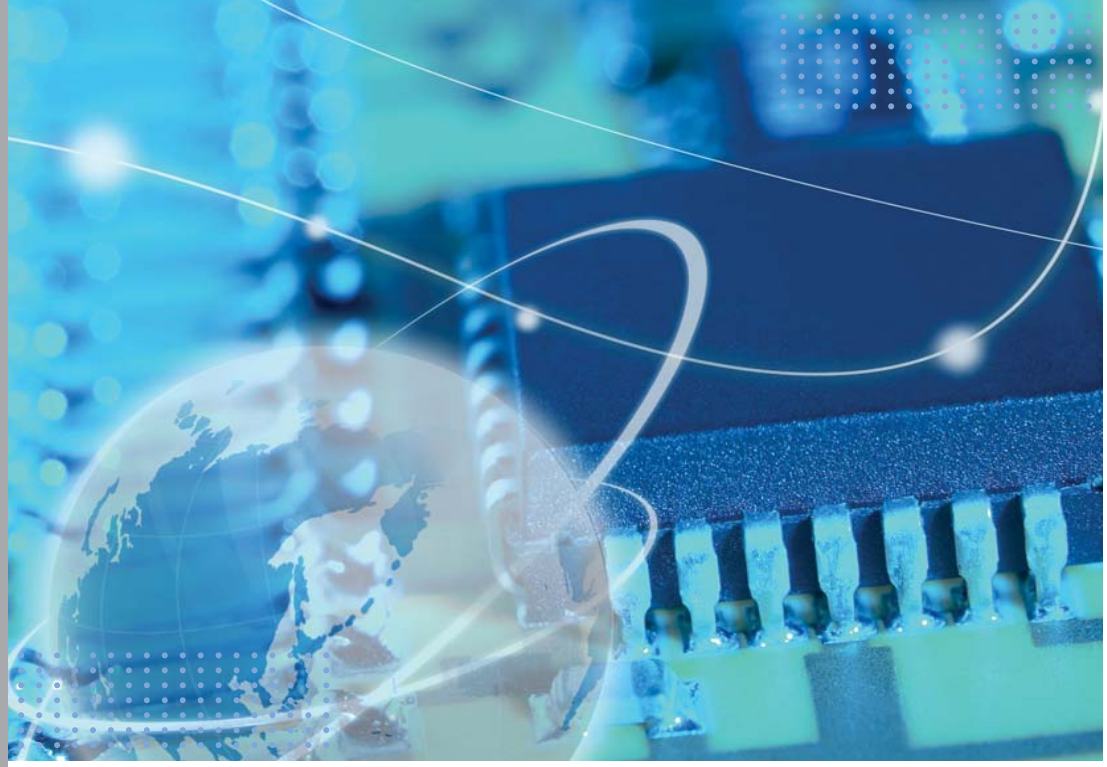


Contents

Lining Materials

PFA

PFA exhibits thermal characteristics like to PTFE, being able to withstand super low to high temperatures (260℃ Maximum temp. for continuous use). It is also transparent and mechanically strong under high temperature. It is easily workable besides applicable with extrusion molding to the same degree as general thermoset plastics. It is used where purity is important, such a semiconductor wafer baskets, piping couplings and non-corrosive linings. PFA has better mechanical strength at high temperatures than FEP, and excellent moldability for easy processing by extrusion, compression, blow, transfer and injection molding methods. Due to the high bonding strength of the carbon, fluorine and oxygen atoms, PFA demonstrates nearly the same outstanding capabilities as PTFE in temperatures ranging from - 200℃ to +260℃.

FEP

FEP is a copolymer of tetrafluoroethylene and hexafluoropropylene. FEP consists of carbon atoms and fluorine atoms, as does PTFE, and has a molecular structure in which one of the fluorine atoms bonded to the carbon atoms.FEP has a lower melt viscosity than PTFE and can be processed like other molten thermoplastic resins by extrusion, transfer, injection, and compression molding. Because the bonding energy between its carbon and fluorine atoms is so high, and because the carbon chain is completely surrounded by fluorine atoms, FEP fluorocarbon polymer retains excellent thermal, electrical, and chemical stability. Therefore, it shows high performance in electrical, chemical, and medical applications in temperatures ranging from extremely low to extremely high (-200℃ ~ +200℃ / -328°F ~ +392°F).

PTFE

The fluorine atoms completely cover the carbon chain backbone and protect the carbon-carbon bond from attack. The fluorine atoms are also responsible for the low surface energy and exceptional frictional characteristics of PTFE. Because of very high melt viscosity, PTFE does not flow above its melting point. It requires special polymer processing like paste extrusion, compression molding and sintering. Among all the fluoroplastics products, PTFE offers the highest heat resistances at 260℃ (maximum temp. for continuous use). It is not corroded by most chemicals and has good electrical insulation and dielectric characteristics. Moreover, it has a unique non-stick property and the lowest coefficient of friction amongst solids.It is the most widely used fluoroplastics, now found in O-rings, gaskets, bearings, tube, wiring, hot plates and irons because of its non-stick property, as well as chemical tank linings.

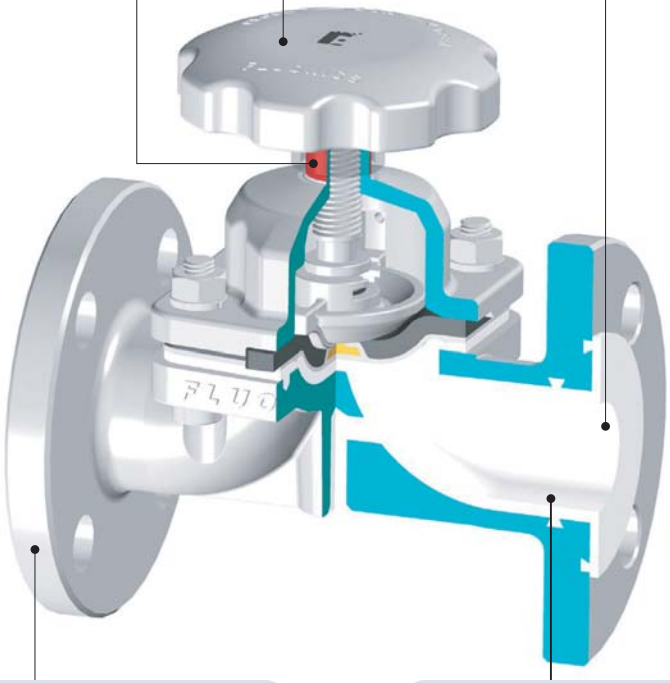
Property	PFA			FEP			PTFE		
	Testing Method	Value	Unit	Testing Method	Value	Unit	Testing Method	Value	Unit
Specific Gravity	ASTM D-3307	2.14~2.16	–	ASTM D-2116	2.12~2.17	–	ASTM D-3307	2.14~2.20	–
Melt Flow Rate	ASTM D-3307	1~3	g/10 min	ASTM D-2116	6	g/10 min	–	–	–
Melting Point	ASTM D-3307	304	℃	ASTM D-2116	260	℃	ASTM D-3307	327	℃
Tensile Strength	ASTM D-3307	33.3 (4835)	MPa (psi)	ASTM D-2116	31	MPa (psi)	ASTM D-3307	13.7~34.3 (1990~4980)	MPa (psi)
Elongation	ASTM D-3307	420	%	ASTM D-2116	370	%	ASTM D-3307	200~400	%
Chemical resistance	–	Excellent		ASTM D-2116	Excellent		–	Excellent	–

Features

High integrity handwheel with ergonomic design assures comfortable, precise control.

Highly visible from a distance with clear indication of valve position.

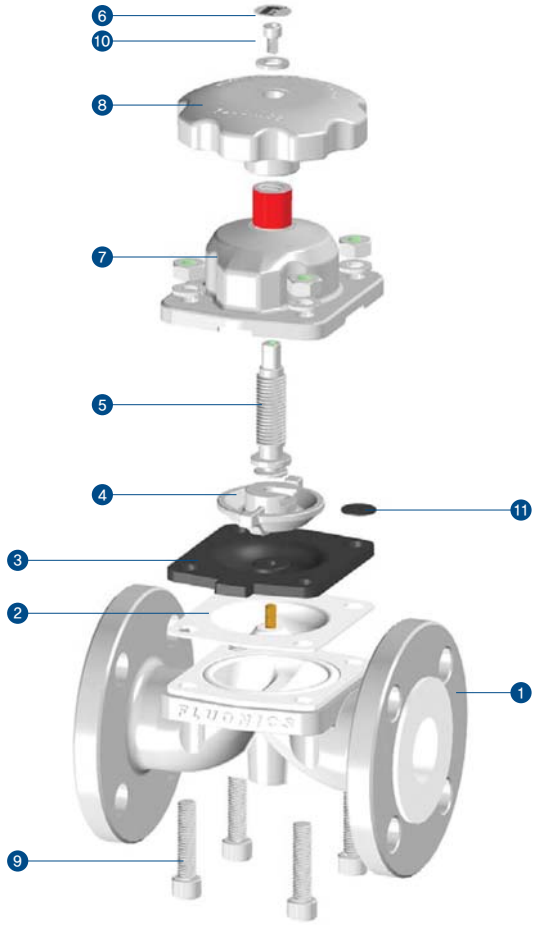
The smooth contoured body has minimal pockets, cavities or dead spaces which prevent accumulation or stagnation of process fluids or contaminants.



Remove the pollutants by electro polishing of the external surface treatment as standard. (Paint coating available if on request)

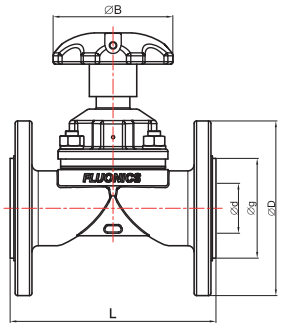
Improvement in the intensity of illumination and the transparency of PFA lining.

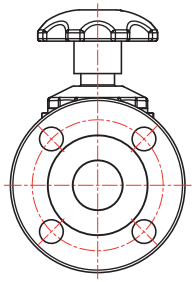
Materials

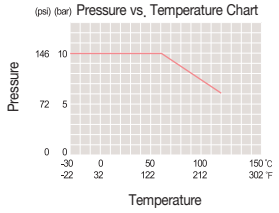


Item No.	DESCRIPTION	MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUCTILE IRON
1	BODY	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A216 WCB, PFA, FEP Lined	ASTM A395 PFA, FEP Lined
2	DIAPHRAGM	M-PTFE	M-PTFE	M-PTFE
3	CUSHION RUBBER	EPDM / VITON	EPDM / VITON	EPDM / VITON
4	COMPRESSOR	ASTM A351 CF8 / CF8M	ASTM A351 CF8 / CF8M	ASTM A351 CF8 / CF8M
5	SPINDLE	ASTM A479 - 304	ASTM A479 - 304	ASTM A479 - 304
6	NAME PLATE	ASTM A240 - 304	ASTM A240 - 304	ASTM A240 - 304
7	BONNET	ASTM A351 CF8 / CF8M	ASTM A216 WCB	ASTM A351 CF8 / CF8M
8	HAND WHEEL	ASTM A351 CF8 / CF8M	ASTM A216 WCB	ASTM A351 CF8 / CF8M
9	STUD BOLT	SUS304	SUS304	SUS304
10	WRENCH BOLT	SUS304	SUS304	SUS304
11	SPINDLE PLATE	ACETAL	ACETAL	ACETAL

DIAPHRAGM VALVE







› Available Size : 1/2"~6"(15A~150A)

› Flange rating : ANSI 150lbs JIS 10K

Nominal size	L		ø D		ø g			ø d		ø B		Max service Pressure (kgf/cm²)	Ref.
	A	B	ANSI 150	JIS 10K	ANSI 150	JIS 10K A	JIS 10K B	A	B	A	B		
1/2 (15A)	133	107	89	95	40	54	48	20	15	75	63	8	A
3/4 (20A)	133	123	98.5	100	50	54	50	20	20	75	63	8	B
1 (25A)	143	132	108	125	60	59	62	25	25	90	80	8	C
1 1/2 (40A)	180	165	127	140	81	71	78	38	40	105	100	7	D
2 (50A)	210	197	152	155	94	94	94	50	50	115	125	7	E
2 1/2 (65A)	310	222	178	175	125	125	116	76	65	210	125	7	F
3 (80A)	310	260	191	185	125	125	125	76	80	210	160	6	G
4 (100A)	350	313	229	210	157	151	145	100	100	210	230	6	H
6 (150A)	480	412	279	280	216	216	212	150	150	350	300	6	J

Ordering information

Connections	Ref.
JIS 10K	J
ANSI 150lbs	A

Valve type	Ref.
Diaphragm valve	D
Ball valve	B

Operating	Ref.
Manual	M
Actuator	A

Valve body materials	Ref.
PFA lined Carbon Steel(WCB/SCPH2)	W
PFA lined Stainless Steel(CF8/SCS13A)	S
PFA lined Stainless Steel(CF8M/SCS14A)	M
PFA lined Ductile Iron(A395 D.I/FCD)	F

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P
Electropolished + Buffed	EB

Control function	Ref.
Normally open	NO
Normally closed	NC

Diaphragm material	Ref.
M-PTFE / EPDM	PE
M-PTFE / VITON	PV

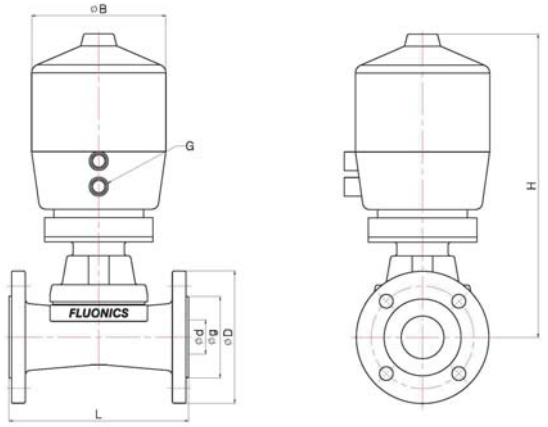
Order example	J	D	M	B	S	EP	-	PE
Connection	J							
Valve type		D						
Operating			M					
Nominal size				B				
Valve body material					S			
Surface finish						EP		
Control function							-	
Diaphragm material								PE

AUTOMATED DIAPHRAGM VALVE

Depending on diameter and materials of construction,
up to 10 bar working pressure and 150℃ working temperature.
Chemical resistance of actuator.

- Actuator : Membrane actuator, plastic
- Nominal sizes : DN 15 - DN 100 (Actuator size 25-100)
- Control function : Normally closed (NC), control function 1
  Normally open (NO), control function 2
  Double acting (DA), control function 3
- Ambient temperature : Max. 60℃
- Control medium : Inert gases, Max. 40℃
- Accessories : Stroke limiter / Electrical position indicator
  / Manual override

DIMENSIONS (CONTROL FUNCTION 1)



Nominal size	L		ø D		ø g			ø d		ø B		H	G
	A	B	ANSI 150	JIS 10K	ANSI 150	JIS 10K A	JIS 10K B	A	B	A	B		
1/2 (15A)	133	107	89	95	40	54	48	20	15	100		222	1/4"
3/4 (20A)	133	123	98.5	100	50	54	50	20	20	100		222	1/4"
1 (25A)	143	132	108	125	60	59	62	25	25	100		224	1/4"
1 1/2 (40A)	180	165	127	140	81	71	78	38	40	126		296	1/4"
2 (50A)	210	197	152	155	94	94	94	50	50	157		355	1/4"
2 1/2 (65A)	310	222	178	175	125	125	116	76	65	157		371	1/4"
3 (80A)	310	260	191	185	125	125	125	76	80	261		371	1/4"
4 (100A)	350	313	229	210	157	151	145	100	100	261		400	1/4"

CE 1354 KEF-CC KAB

PFA LINED PLUG VALVE

High Performance and Technology Creative company

www.fluonics.com

FLUONICS

Head Office & Factory

#561-11, Gwang Gyeok, Ho-Jeo, Wonju-Si, Kangwon-Do, Korea

Tel : 82-33-731-3550 / Fax : 82-33-731-3559

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Contents

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FEP

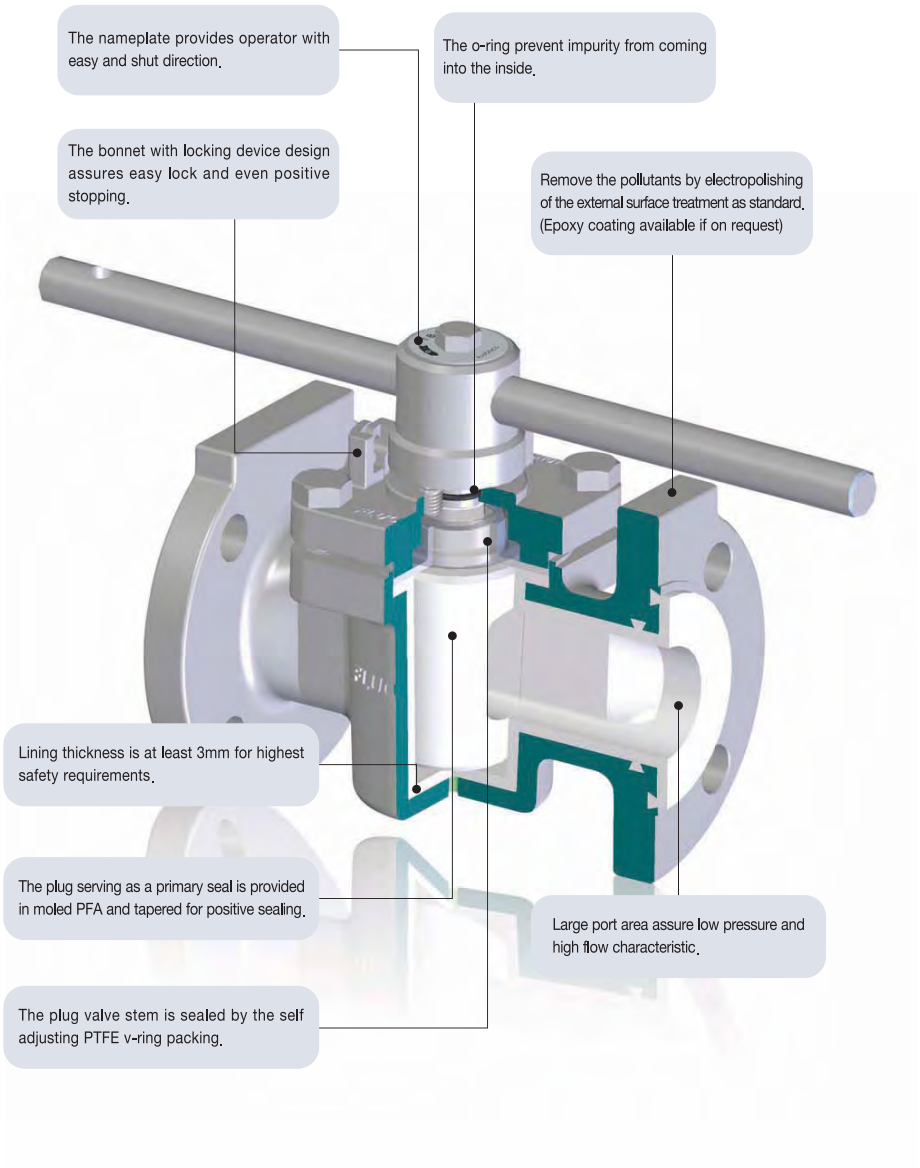
FEP is a copolymer of tetrafluoroethylene and hexafluoropropylene. FEP consists of carbon atoms and fluorine atoms, as does PTFE, and has a molecular structure in which one of the fluorine atoms bonded to the carbon atoms.FEP has a lower melt viscosity than PTFE and can be processed like other molten thermoplastic resins by extrusion, transfer, injection, and compression molding. Because the bonding energy between its carbon and fluorine atoms is so high, and because the carbon chain is completely surrounded by fluorine atoms, FEP fluorocarbon polymer retains excellent thermal, electrical, and chemical stability. Therefore, it shows high performance in electrical, chemical, and medical applications in temperatures ranging from extremely low to extremely high (-200℃ ~ +200℃ / -328°F ~ +392°F).

PTFE

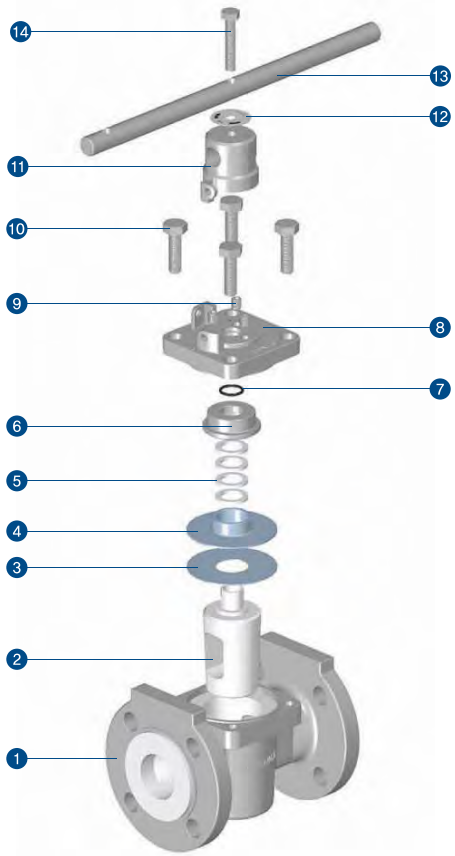
The fluorine atoms completely cover the carbon chain backbone and protect the carbon-carbon bond from attack. The fluorine atoms are also responsible for the low surface energy and exceptional frictional characteristics of PTFE. Because of very high melt viscosity, PTFE does not flow above its melting point. It requires special polymer processing like paste extrusion, compression molding and sintering. Among all the fluoroplastics products, PTFE offers the highest heat resistances at 260℃ (maximum temp. for continuous use). It is not corroded by most chemicals and has good electrical insulation and dielectric characteristics. Moreover, it has a unique non-stick property and the lowest coefficient of friction amongst solids.It is the most widely used fluoroplastics, now found in O-rings, gaskets, bearings, tube, wiring, hot plates and irons because of its non-stick property, as well as chemical tank linings.

Property	PFA			FEP			PTFE		
	Testing Method	Value	Unit	Testing Method	Value	Unit	Testing Method	Value	Unit
Specific Gravity	ASTM D-3307	2.14~2.16	—	ASTM D-2116	2.12~2.17	—	ASTM D-3307	2.14~2.20	—
Melt Flow Rate	ASTM D-3307	7~8	g/10 min	ASTM D-2116	6	g/10 min	—	—	—
Melting Point	ASTM D-3307	304	℃	ASTM D-2116	260	℃	ASTM D-3307	327	℃
Tensile Strength	ASTM D-3307	33.3 (4835)	MPa (psi)	ASTM D-2116	31	MPa (psi)	ASTM D-3307	13.7~34.3 (1990~4980)	MPa (psi)
Elongation	ASTM D-3307	420	%	ASTM D-2116	370	%	ASTM D-3307	200~400	%
Chemical resistance	—	Excellent		ASTM D-2116	Excellent		—	Excellent	—

Features

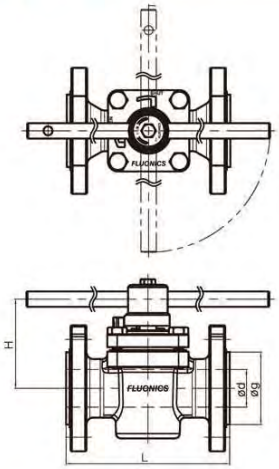


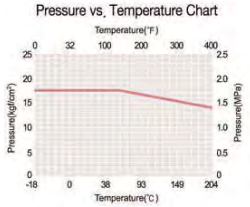
Materials



Item No.	DESCRIPTION	MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUCTILE IRON
1	BODY	ASTM A351 CF8/CF8M, PFA lined	ASTM A216 WCB, PFA lined	ASTM A395 Ductile iron, PFA lined
2	PLUG	ASTM A351 CF8/CF8M, PFA lined	ASTM A351 CF8/CF8M, ASTM A216 WCB, PFA lined	ASTM A351 CF8/CF8M, ASTM A216 WCB, PFA lined
3	DIAPHRAGM	PTFE / PFA	PTFE / PFA	PTFE / PFA
4	DIAPHRAGM SEAT	PTFE	PTFE	PTFE
5	STEM SEAL	PTFE	PTFE	PTFE
6	COMPRESSOR	ASTM A351 CF8/CF8M	ASTM A351 CF8/CF8M	ASTM A351 CF8/CF8M
7	O-RING	NBR	NBR	NBR
8	BONNET	ASTM A351 CF8/CF8M	ASTM A351 CF8/CF8M, ASTM A216 WCB	ASTM A351 CF8/CF8M, ASTM A216 WCB
9	ADJUSTING BOLT	ASTM A193 B8	ASTM A193 B8	ASTM A193 B8
10	BONNET BOLT	ASTM A193 B8	ASTM A193 B8	ASTM A193 B8
11	HUB	ASTM A351 CF8/CF8M	ASTM A351 CF8/CF8M	ASTM A351 CF8/CF8M
12	NAME PLATE	SUS304	SUS304	SUS304
13	HANDLE	ASTM A351 CF8, STEEL, ZINC PLATED	ASTM A351 CF8, STEEL, ZINC PLATED	ASTM A351 CF8, STEEL, ZINC PLATED
14	HUB BOLT	ASTM A193 B8	ASTM A193 B8	ASTM A193 B8

Plug valve





SIZE	Operating Torques(N.m)	Operating Torques(kgf.m)
1/2(15A)	18	180
3/4(20A)	18	180
1(25A)	20	200
1 1/2(40A)	29.5	300
2(50A)	64	650
3(80A)	118	1200
4(100A)	147	1500

› Available Size : 1/2"~8"(15A~200A) › Flange rating : ANSI 150lbs JIS 10K

Nominal size	ø d	ø D		L	ø g	H	Ref.
		ANSI150	JIS10K				
1/2 (15A)	13	89	95	108	35	65	A
3/4 (20A)	18	99	100	117	43	65	B
1 (25A)	25	108	125	127	51	75	C
1 1/2 (40A)	38	127	140	165	73	90	D
2 (50A)	50	152	155	178	92	100	E
3 (80A)	76	190	185	203	125	121	G
4 (100A)	100	229	210	229	150	152	H
6 (150A)	150	279	280	267	212	253	J
8 (200A)	200	343	330	292	261	340	K

Ordering information

Connections	Ref.
JIS 10K	J
ANSI 150lbs	A

Valve type	Ref.
Diaphragm valve	D
Ball valve	B
Plug valve	P

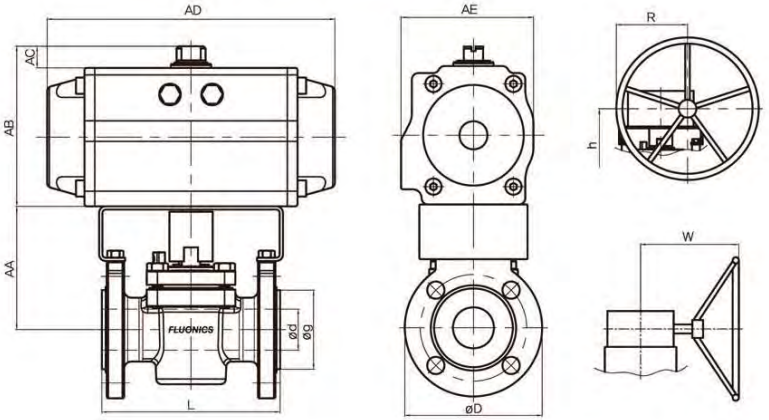
Operating		Ref.
Manual	Lever	L
	Wormgear	W
Actuator		A

Valve body materials	Ref.
PFA lined Carbon Steel(A216-WCB)	W
PFA lined Stainless Steel(A351-CF8)	S
PFA lined Stainless Steel(A351-CF8M)	M
PFA lined Ductile iron(A395 D.I)	F

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P
Electropolished + Buffed	EB

Order example	J	P	M	C	S	EP
Connection	J					
Valve type		P				
Operating			M			
Nominal size				C		
Valve body material					S	
Surface finish						EP

Automated Plug valve



› Spring Return

Nominal size	AA	AB	AC	AD	AE	ø D		L	ø g
						ANSI150	JIS10K		
1/2 (15A)	89.5	136	20	247	108	89	95	108	35
3/4 (20A)	89.5	136	20	247	108	99	100	117	43
1 (25A)	99	179	20	347	151	108	125	127	51
1 1/2 (40A)	114	179	20	347	151	127	140	165	73
2 (50A)	127.5	226	30	467	190	152	155	178	92
3 (80A)	145	251	30	497	206	190	185	203	125
4 (100A)	168	277	30	555	227	229	210	229	150

› Double Acting

Nominal size	AA	AB	AC	AD	AE	ø D		L	ø g
						ANSI150	JIS10K		
1/2 (15A)	89.5	124	20	210	96	89	95	108	35
3/4 (20A)	89.5	124	20	210	96	99	100	117	43
1 (25A)	99	136	20	247	108	108	125	127	51
1 1/2 (40A)	114	136	20	247	108	127	140	165	73
2 (50A)	127.5	179	20	347	151	152	155	178	92
3 (80A)	145	209	30	414	172	190	185	203	125
4 (100A)	168	251	30	497	206	229	210	229	150

› Worm Gear

Nominal size	R	W	h	ø D		L	ø g
				ANSI150	JIS10K		
4 (100A)	175	286	211	229	210	229	150
6 (150A)	175	286	290	279	280	267	212
8 (200A)	200	300	340	343	330	292	261

FLUONICS

PFA LINED SPRING CHECK VALVE

High Performance and Creative Technology Company

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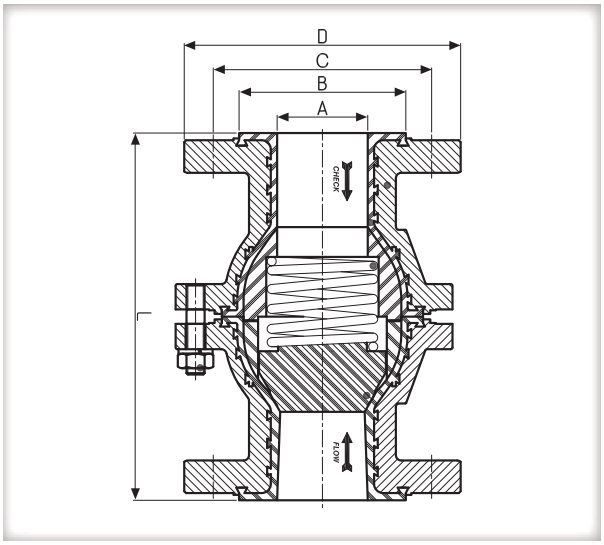
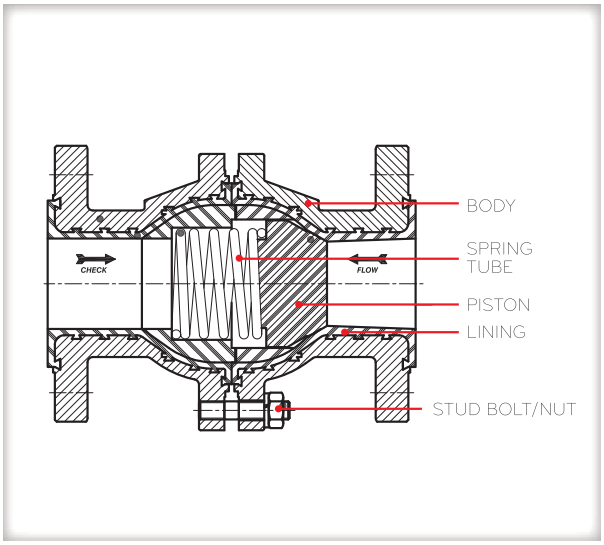


SPRING CHECK VALVE



GENERAL TECHNICAL DATA

Size	(mm) :	DN 20, 25, 40, 50, 80, 100
	(inch) :	3/4", 1" , 1-1/2", 2", 3", 4"
Pressure rating :		Max. 10 bar
Face to face dimension :		FLUONICS Standard
Temperature :		200°C(MAX.)
Flanges :		JIS 10K, ANSI 150lbs

Lining with high durability

The lining resin is locked by grooves allow the valves to be used on high vaccum, pressure and temperature application without lining collapse, shrinkage and blowout.

Lining virgin pure PFA

Suitable for corrosive, hazardous, pure hot and highly permeating media

Shut-off elements

Solid piston are made of PTFE

PFA LINED SPRING CHECK VALVE

High Performance and Creative Technology Company

DIMENSIONS

(mm)

NOMINAL SIZE	3/4" / 20A		1" / 25A		1-1/2" / 40A		2" / 50A		3" / 80A		4" / 100A	
	ANSI	JIS	ANSI	JIS	ANSI	JIS	ANSI	JIS	ANSI	JIS	ANSI	JIS
A	25	25	25	25	36	36	50	50	76	76	95	95
B	51	51	51	51	73	73	92	92	125	125	149	149
C	70	75	79	90	98.5	105	120.5	120	152.4	150	190.5	175
D	99	100	108	125	127	140	152.5	155	190.5	185	228.6	210
L	152.4		152.4		178		203		241		292	
Ref.	B		C		D		E		G		H	

MATERIAL

PARTS	MATERIAL
BODY	ASTM A351-CF8 / A216-WCB
BODY LINED	PFA
SPRING	SUS304
SPRING TUBE	PFA TUBE
PISTON	PTFE
STUD BOLT/NUT	SUS304

ORDERING INFORMATION

Order example	J	B	C	S	EP
Connection	J				
Valve type		SPC			
Nominal size			E		
Valve body material				W	
Surface					EP

Valve body materials	Ref.
CARBON STEEL(A216-WCB/SCPH2)	W
STAINLESS STEEL(A351-CF8/SCS13A)	S

Connections	Ref.
JIS 10K	J
ANSI 150 lbs	A

Valve type	Ref.
Swing Check Valve	SWC
Spring Check Valve	SPC

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P

Head Office & Factory
#561-11, Gwang Gyeok, Ho-jeo, Wonju-Si, Kangwon-Do, Korea
Tel : 82-33-731-3550 / Fax : 82-33-731-3559 / **www.fluonics.com**

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PFA LINED SWING CHECK VALVE

High Performance and Creative Technology Company

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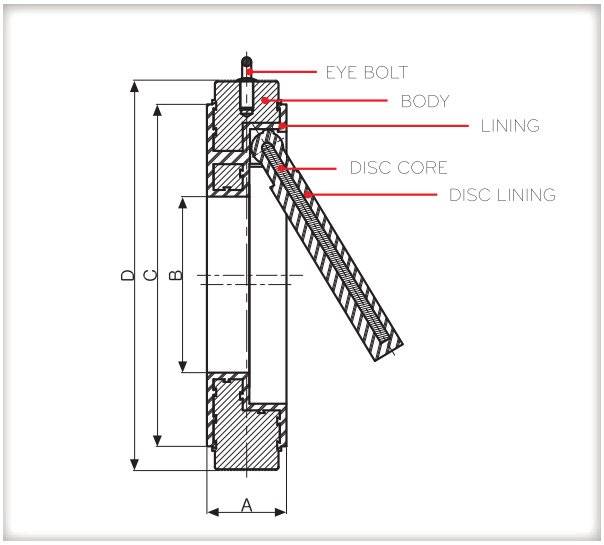
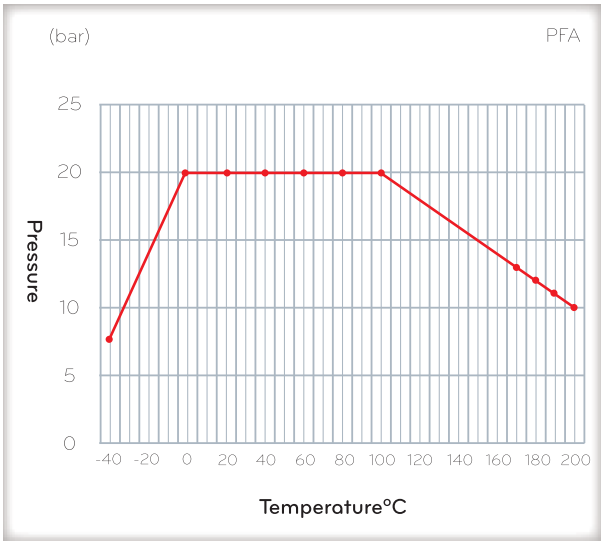


SWING CHECK VALVE



Pressure-Temperature chart

GENERAL TECHNICAL DATA

Size	(mm) :	40, 50, 80, 100, 150, 200, 250
	(inch) :	1- 1/2", 2", 3", 4", 6", 8", 10"
Pressure rating :		Max. 10 bar
Face to face dimension :		FLUONICS Standard
Temperature :		200°C(MAX.)
Flanges :		JIS 10K, ANSI 150 lbs

Lining with high durability

The lining resin is locked by grooves allow the valves to be used on high vaccum, pressure and temperature application without lining collapse, shrinkage and blowout.

Lining virgin pure PFA

Suitable for corrosive, hazardous, pure hot and highly permeating media

PFA LINED SWING CHECK VALVE

High Performance and Creative Technology Company

DIMENSIONS

(mm)

NOMINAL SIZE	JIS / ANSI	40A 1-1/2"	50A 2"	80A 3"	100A 4"	150A 6"	200A 8"	250A 10"
A		33	43	46	52	56	60	68
B		22	30	55	72	111	133	184
C		76	92	124	148	207	258	318
D		92	107	136	172	233	295	344
Ref.		D	E	G	H	I	J	K

MATERIAL

PARTS	MATERIAL
BODY	ASTM A351-CF8 / A216-WCB
BODY LINED	PFA
DISC	PFA
DISC CORE	SS400(1 1/2"~3" WITHOUT METAL CORE)
EYE BOLT	SUS304

ORDERING INFORMATION

Order example	J	B	C	S	EP
Connection	J				
Valve type		SWC			
Nominal size			E		
Valve body material				W	
Surface					EP

Valve body materials	Ref.
CARBON STEEL(A216-WCB/SCPH2)	W
STAINLESS STEEL(A351-CF8/SCS13A)	S

Connections	Ref.
JIS 10K	J
ANSI 150	A

Valve type	Ref.
Swing Check Valve	SWC
Spring Check Valve	SPC

Surface finish	Ref.
Electropolished	EP
Epoxy coated	P

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Tel : 82-33-731-3550 / Fax : 82-33-731-3559 / **www.fluonics.com**

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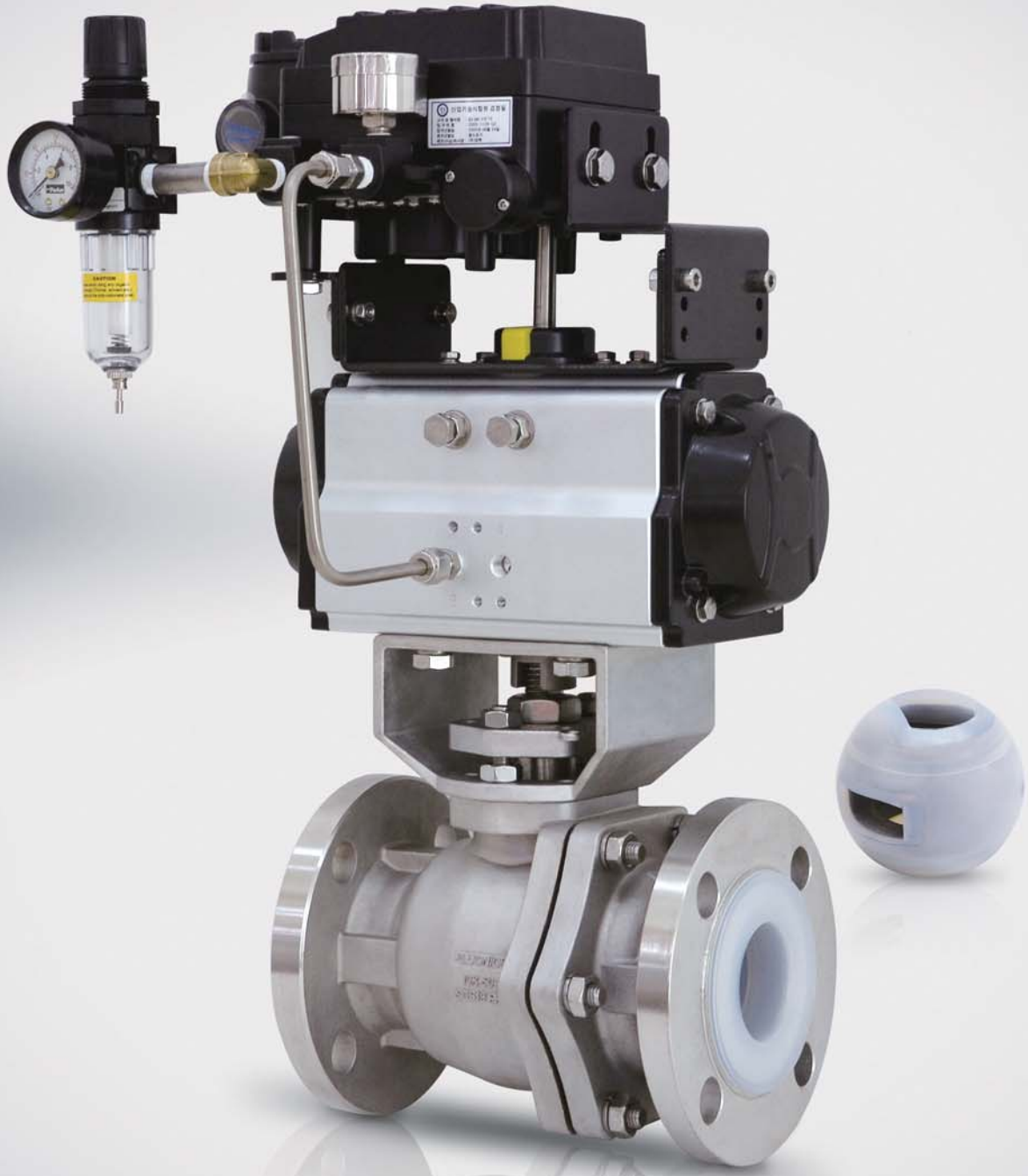

PFA LINED V-PORT BALL CONTROL VALVE

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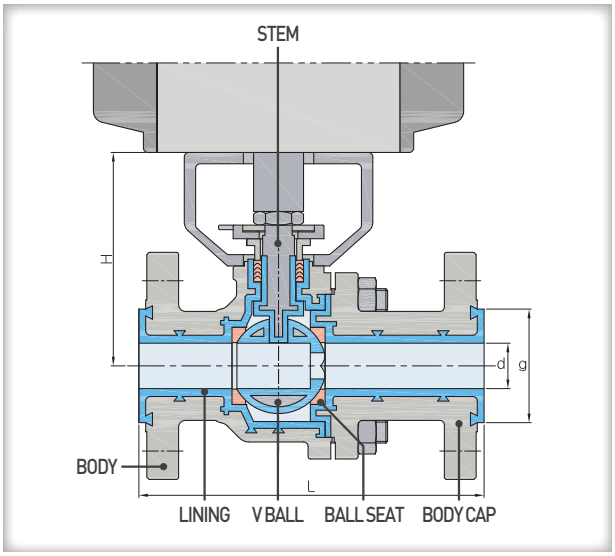

V Ball control valve

GENERAL TECHNICAL DATA

Size	(mm) :	15 20, 25, 40, 50, 65, 80, 100, 150
	(inch) :	1/2, 3/4, 1, 1 1/2, 2, 2 1/2, 3, 4, 6
Pressure rating :		Max. 15 bar
Face to face dimension :		ASME B 16.10 & FLUONICS Standard
Temperature :		−29℃ ~ 150℃
Flanges :		JIS 10K
		ANSI 150

Lining with high durability

The lining resin is locked by grooves allow the valves to be used on high vaccum, pressure and temperature application without lining collapse, shrinkage and blowout.

Lining virgin pure PFA

Suitable for corrisive, hazardous, pure hot and highly permeating media

Features of V PORT BALL VALVE

FLUONICS offers a characterized V ball available in 1" to 6" flanged ball valves as an option.
This option provides a cost effective alternative to traditional style globe valve.
The angle of v in the valve ball provides control option for throttling application.

PFA LINED V-PORT BALL CONTROL VALVE

High Performance and Technology Creative Company

Dimensions

(mm)

Valve Size	mm	15	20	25	40	50	65	80	100	150
	Inch	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6
d		15	20	25	36	50	65	76	96	145
L	JIS	140	152	165	191	216	240	250	280	267
	ANSI	127	127	127	165	178	203	203	229	267
g	JIS	45	49	60	73	94	103	123	147	210
	ANSI	40	49	51	70	94	123	123	147	210
H		89	94	109	123	146	180	205	215	281
Ref		A	B	C	D	E	F	G	H	J

Material

Parts	Material
Body	SCS13A / SCPH2 / FCD
Lined	PFA
V Ball	SCS13A
Body cap	SCS13A / SCPH2 / FCD
Stem	SCS14A
Ball Seat	PTFE

Ordering information

Order example	J	B	M	C	S	EP
Connection	J					
Valve type		B				
Operating			A			
Nominal size				C		
Valve body material					S	
Surface						EP

Connections	Ref.
JIS 10K	J
ANSI 150	A

Valve type	Ref.
Diaphragm valve	D
Ball valve	B

Operating	Ref.
Manual	M
Actuator	A

Valve body materials	Ref.
PFA lined Carbon steel (SCPH2)	W
PFA lined Stainless steel (SCS13A)	S
PFA lined Stainless steel (SCS14A)	M
PFA lined Stainless steel (SCS14A)	F

*Ball type	Ref.
Full bore	FB
V-port	V

* Ball type : Mark separately it if you order.

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#163-2, Gwanghak-ro, Hojeo-myeon, Wonju-si, Kangwon-Do, Korea T82.33.731.3550 F82.33.731.3559

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BUTTERFLY VALVE

High Performance and Creative Technology company

FLUONICS

Fluonics is...

Fluonics is manufactor of PFA lined valves
and PFA, PTFE lined fittings & pipes.
From start, Fluonics never stopped developing.
New solution for clients and supply best quality product under motto
of Fluonics "High Performance and Creative Technology company"

Feature

High tension coil spring

Ensures a stable seal at both the upper and lower gland even at extreme temperature or when thermal shock occurs.

Minimum 3mm PFA Thickness

Seamfree PFA Lining on the Liner and disc to minimum thickness of 3mm prevents permeation of dangerous fluids.

Flange seal

Stable flange sealing performance is ensured by concentric circular grooves on the flange faces thereby eliminating the need for a special gasket when operating under specified temperatures

Safety sealing

The upper and lower stem housing of the fluonics butterfly valve have same length high tension coil springs which provide stable sealing performance in cases of temperature change. The sealing design features a triple acting sealing mechanism controlled by the balanced spring forces.

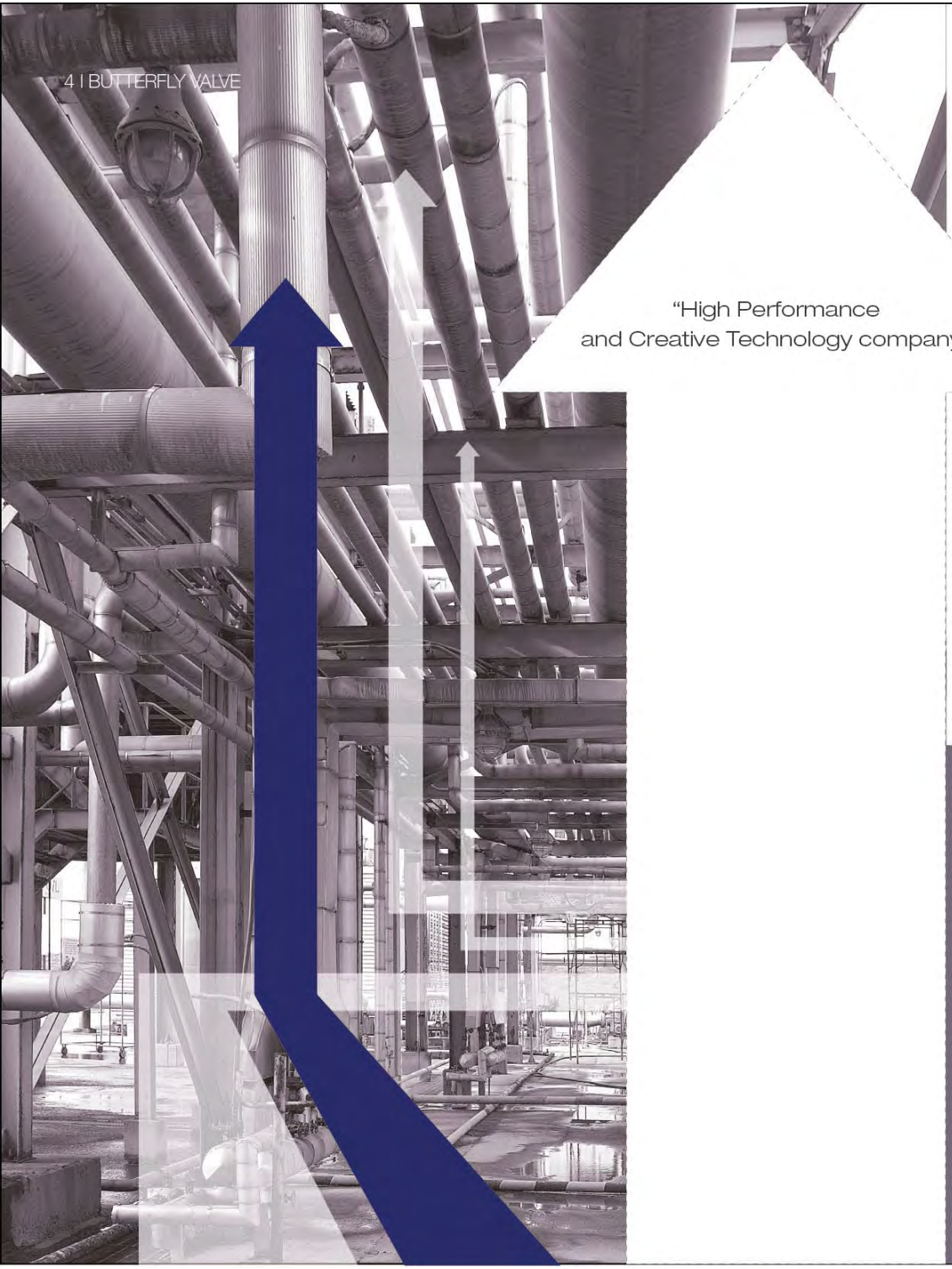
Materials

PFA

PFA exhibits thermal characteristics like to PTFE, being able to withstand super low to high temperatures (260℃ Maximum temp. for continuous use). It is also transparent and mechanically strong under high temperature. It is easily workable besides applicable with extrusion molding to the same degree as general thermoset plastics. It is used where purity is important, such a semiconductor wafer baskets, piping couplings and non-corrosive linings. PFA has better mechanical strength at high temperatures than FEP, and excellent moldability for easy processing by extrusion, compression, blow, transfer and injection molding methods. Due to the high bonding strength of the carbon, fluorine and oxygen atoms, PFA demonstrates nearly the same outstanding capabilities as PTFE in temperatures ranging from - 200℃ to +260℃.

PTFE

The fluorine atoms completely cover the carbon chain backbone and protect the carbon-carbon bond from attack. The fluorine atoms are also responsible for the low surface energy and exceptional frictional characteristics of PTFE. Because of very high melt viscosity, PTFE does not flow above its melting point.
It requires special polymer processing like paste extrusion, compression molding and sintering. Among all the fluoroplastics products, PTFE offers the highest heat resistances at 260℃ (maximum temp. for continuous use). It is not corroded by most chemicals and has good electrical insulation and dielectric characteristics. Moreover, it has a unique non-stick property and the lowest coefficient of friction amongst solids.It is the most widely used fluoroplastics, now found in O-rings, gaskets, bearings, tube, wiring, hot plates and irons because of its non-stick property, as well as chemical tank linings.



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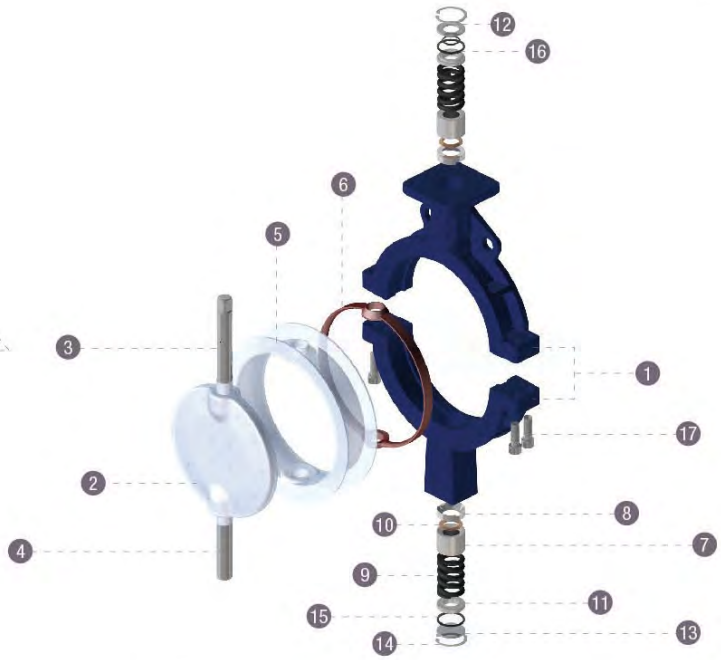
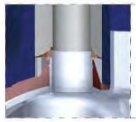


Material of Parts

No	DESCRIPTION	MATERIAL	
1	BODY	ASTM A395 D.I	ASTM A395 D.I
2	DISC	Stainless Steel with PFA lining	Polished Stainless Steel
3	UPPER STEM	Stainless Steel	Stainless Steel
4	LOWER STEM	Stainless Steel	Stainless Steel
5	BODY LINER	PFA / PTFE	PFA / PTFE
6	BACK-UP RING	VITON	VITON
7	BEARING	SUS 304	SUS 304
8	SECONDARY RING	SUS 304	SUS 304
9	SPRING	SPRING STEEL	SPRING STEEL
10	GLAND PACKING	VITON	VITON
11	DUST SEAL	SUS 304	SUS 304
12	TOP GLAND	SUS 304	SUS 304
13	BOTTOM PLATE	SUS 304	SUS 304
14	C-RING	SUS 304	SUS 304
15	OUTER O-RING	VITON	VITON
16	INNER O-RING	VITON	VITON
17	WRENCH BOLT	SUS 304	SUS 304

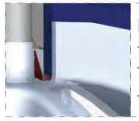
Butterfly Valve Features

Same length high tension coil springs provide stable sealing performance in cases of temperature change.



The seal to atmosphere is established where the Viton elastomer band encircles the base of the shaft.

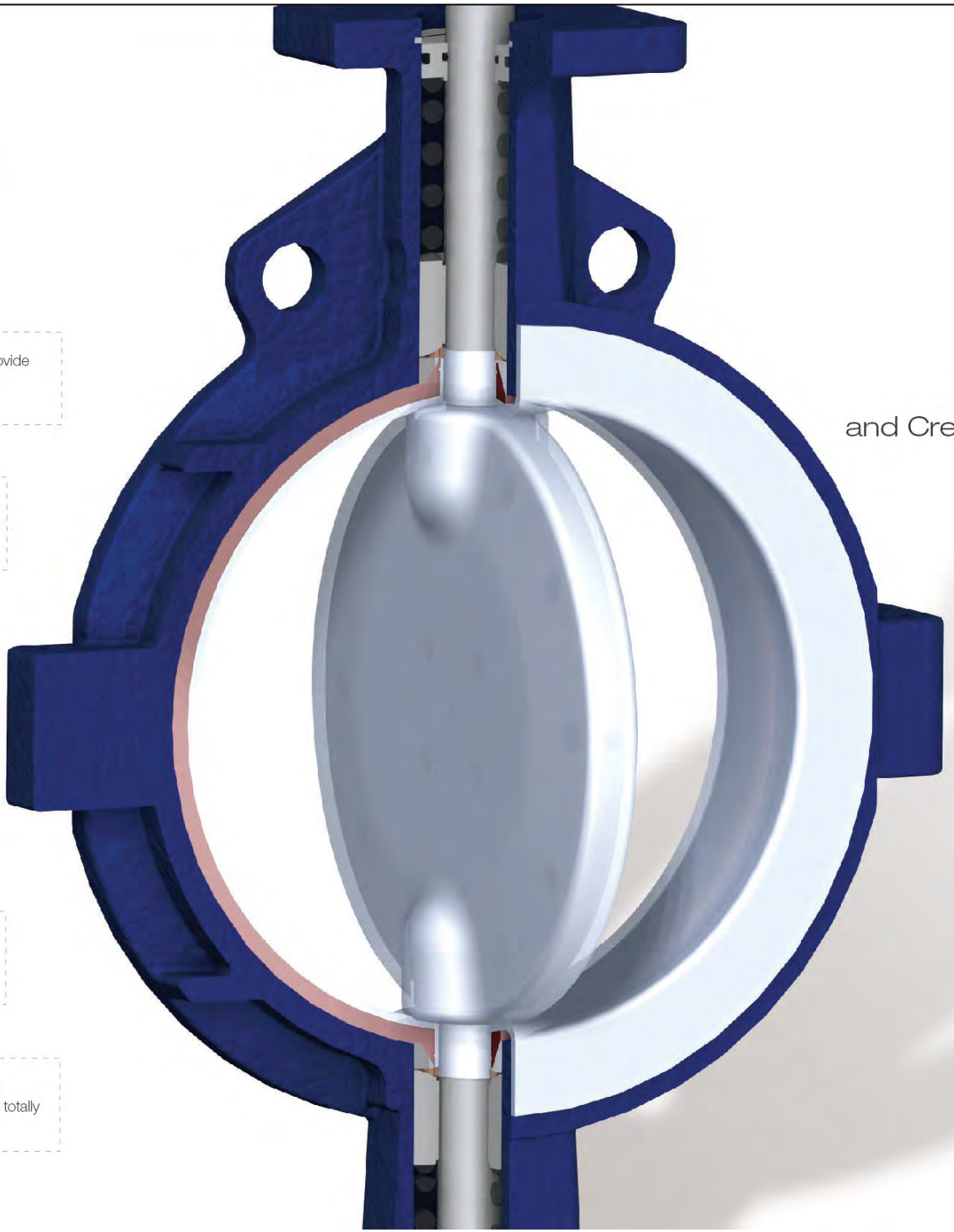
The electrostatic epoxy coating resists atmospheric corrosion.



PFA linings are more flexible than PTFE lining.
They facilitate more reliable, tighter sealing.

The wider sealing area ensures minimum creep at high temperature.

Lining materials are locked to the disc by molding through holes in the disc and by totally encapsulating it.



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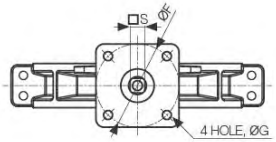
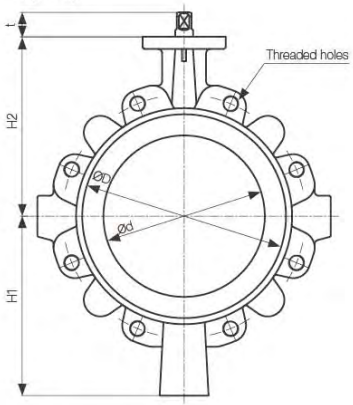
and Creative Technology company"

Butterfly Valve Dimensions

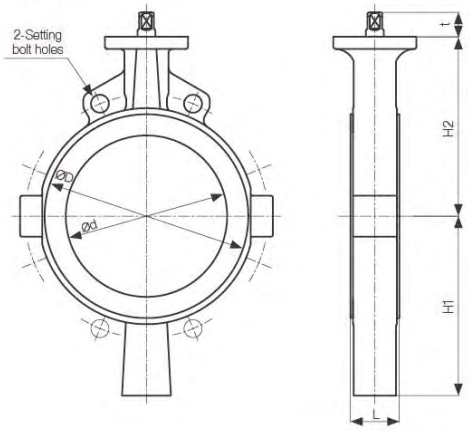
Nominal size		Dimension (mm)									
mm	inch	ød	øD	L	H1	H2	t	S	øF	øG	Ref
50A	2"	53	96	43	62	119	23	12	70	9	E
80A	3"	80	125	46	132.5	132.5	23	12	70	9	G
100A	4"	102	142	52	148	148	28	14	70	9	H
150A	6"	151	208	56	183	183	28	14	102	11	J
200A	8"	197	247	60	220	220	31	18	102	11	K
250A	10"	247	320	68	260	260	35	24	102	11	L
300A	12"	296	370	78	297	297	35	24	125	13	M
350A	14"	349	418	78	335	335	45	30	140	18	N
400A	16"										O
450A	18"										P
500A	20"										Q
600A	24"										R



Lug Body



Wafer Body



Ordering information

Connections	Ref.
JIS 10K	J
ANSI 150lbs	A

Body type	Ref.
Wafer	W
Lug	L

Body materials	Ref.
Ductile Iron(A395)	F

Valve type	Ref.
Butterfly valve	BF

Disc Material	Ref.
SUS 304, PFA Lined	01
SUS 304L, PFA Lined	02
SUS 316, PFA Lined	03
SUS 316L, PFA Lined	04
SUS 304 Polished	05
SUS 304L Polished	06
SUS 316 Polished	07
SUS 316L Polished	08

Liner Material	Ref.
PFA	P
PTFE	T

Body surface finish	Ref.
Epoxy coated	P

Operating		Ref.
Manual	Lever	L
	Worm gear	W
Actuator		A

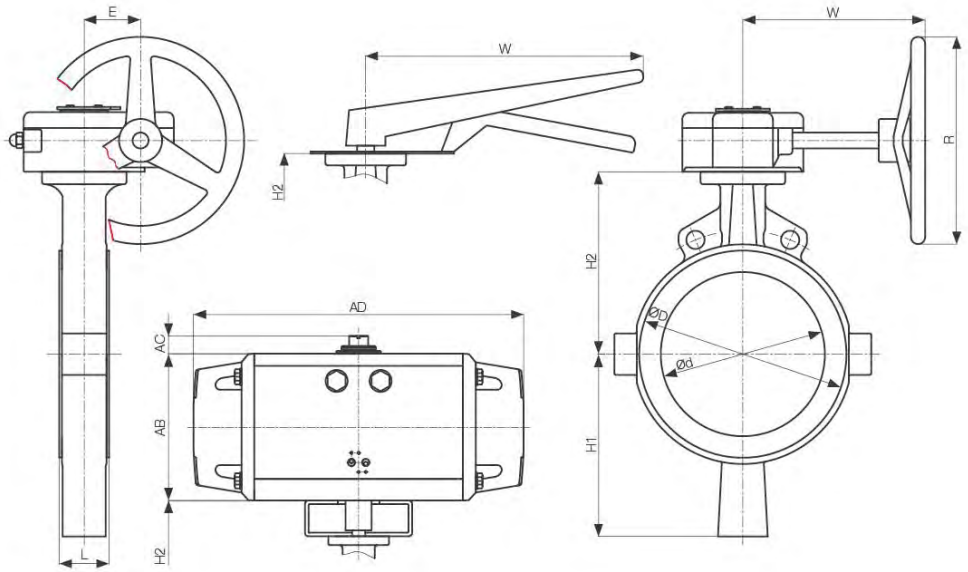
JIS 10K 200A Butterfly valve with PTFE liner, wafer type ductile cast iron body, PFA lined 316L disc, worm gear operator, body epoxy coated

Order example	K	J	BF	T	W	F	02	W	P
Nominal size	K								
Connections		J							
Valve type			BF						
Liner Material				T					
Body type					W				
Body material						F			
Disc material							02		
Operating								W	
Body surface finish									P

Operating type

Worm Gear

Nominal size		Dimension (mm)							
mm	inch	φd	φD	L	H1	H2	E	F	W
50A	2"	53	96	43	62	119	45	118	180
80A	3"	80	125	46	132.5	132.5	45	118	180
100A	4"	102	142	52	148	148	45	118	180
150A	6"	151	208	56	183	183	45	118	180
200A	8"	197	247	60	220	220	68	220	250
250A	10"	247	320	68	260	260	68	220	250
300A	12"	296	370	78	297	297	98	280	350
350A	14"	349	418	78	335	335	98	280	350
400A	16"								
450A	18"								
500A	20"								
600A	24"								



Spring Return

Nominal size		Dimension (mm)							
mm	inch	φd	φD	L	H1	H2	AB	AC	AD
50A	2"	53	96	43	62	169	221	30	497
80A	3"	80	125	46	132.5	182.5	221	30	497
100A	4"	102	142	52	148	198	247	30	555
150A	6"	151	208	56	183	243	247	30	555
200A	8"	197	247	60	220	280	247	30	555

Double Acting

Nominal size		Dimension (mm)							
mm	inch	φd	φD	L	H1	H2	AB	AC	AD
50A	2"	53	96	43	62	169	196	30	467
80A	3"	80	125	46	132.5	182.5	196	30	467
100A	4"	102	142	52	148	198	221	30	497
150A	6"	151	208	56	183	243	221	30	497
200A	8"	197	247	60	22	280	221	30	497

Lever

Nominal size		Dimension (mm)					
mm	inch	φd	φD	L	H1	H2	W
50A	2"	53	96	43	62	119	200
80A	3"	80	125	46	132.5	132.5	200
100A	4"	102	142	52	148	148	200
150A	6"	151	208	56	183	183	300