



PFA LINED BALL VALVE

High Performance and Technology Creative company

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Lining Materials

PFA

PFA exhibits thermal characteristics like to PTFE, being able to withstand super low to high temperatures (260°C 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°C to +260°C.

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°C ~ +200°C / -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°C (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	°C	ASTM D-2116	260	°C	ASTM D-3307	327	°C
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

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

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

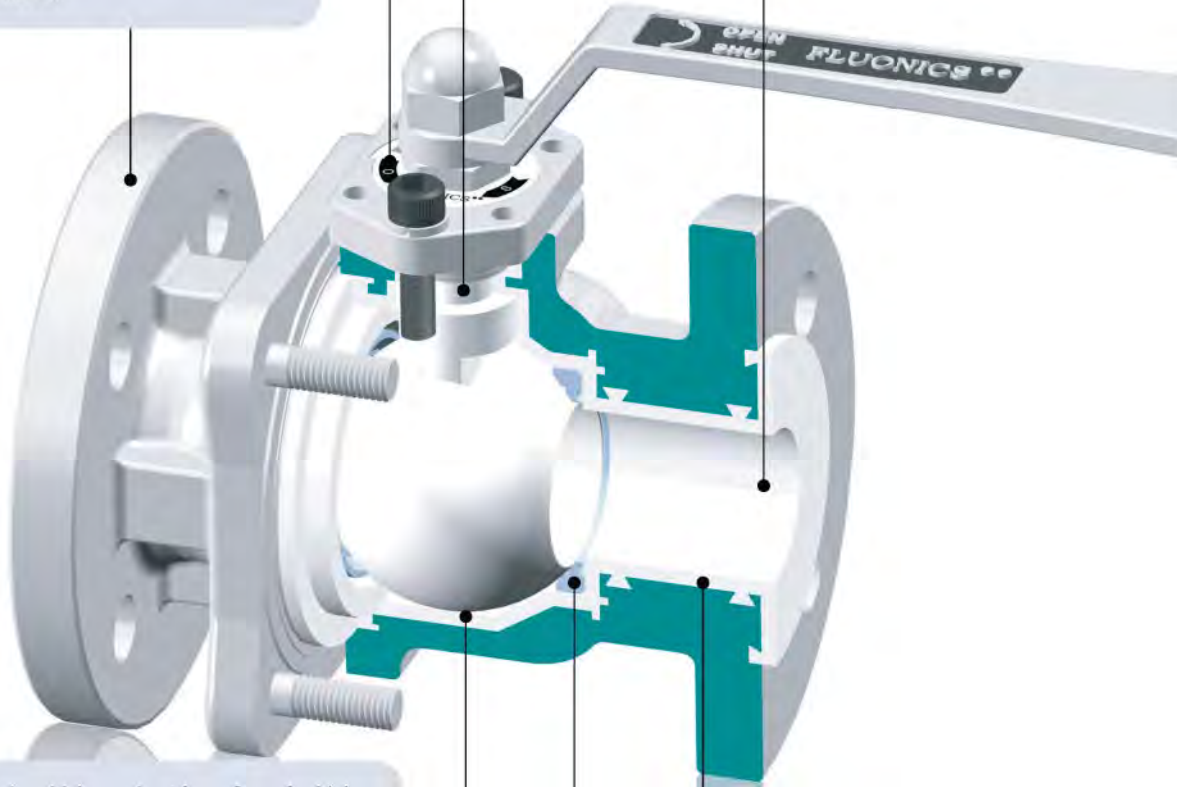
The ball stem is sealed by the self adjusting PTFE v-ring packing

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 efficiency of Fluonics ball valve.

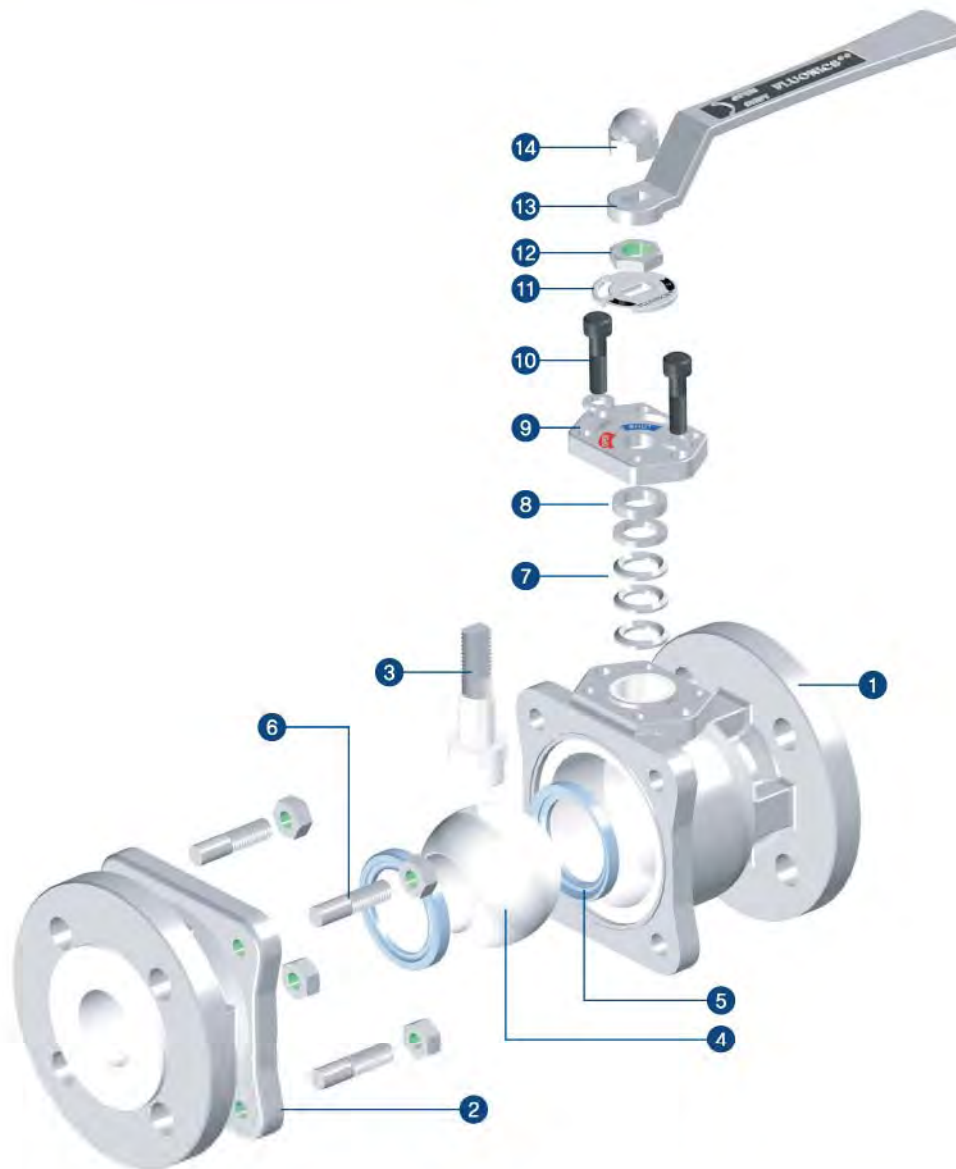
Lining thickness is at least 3mm for highest safety requirements.

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

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

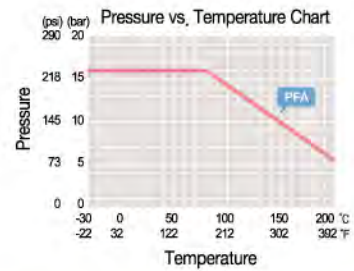
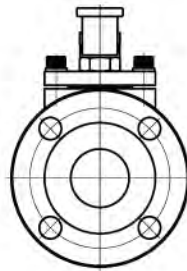
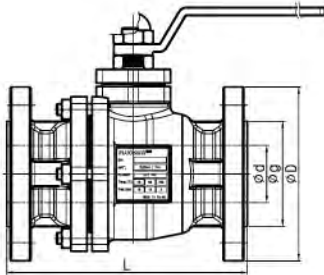
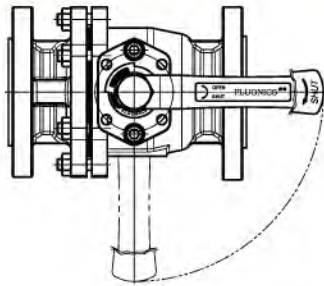


Materials



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 D1, PFA, FEP Lined
2	BODY TAIL	ASTM A351 CF8 / CF8M, PFA, FEP Lined	ASTM A216 WCB, PFA, FEP Lined	ASTM A395 D1, 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

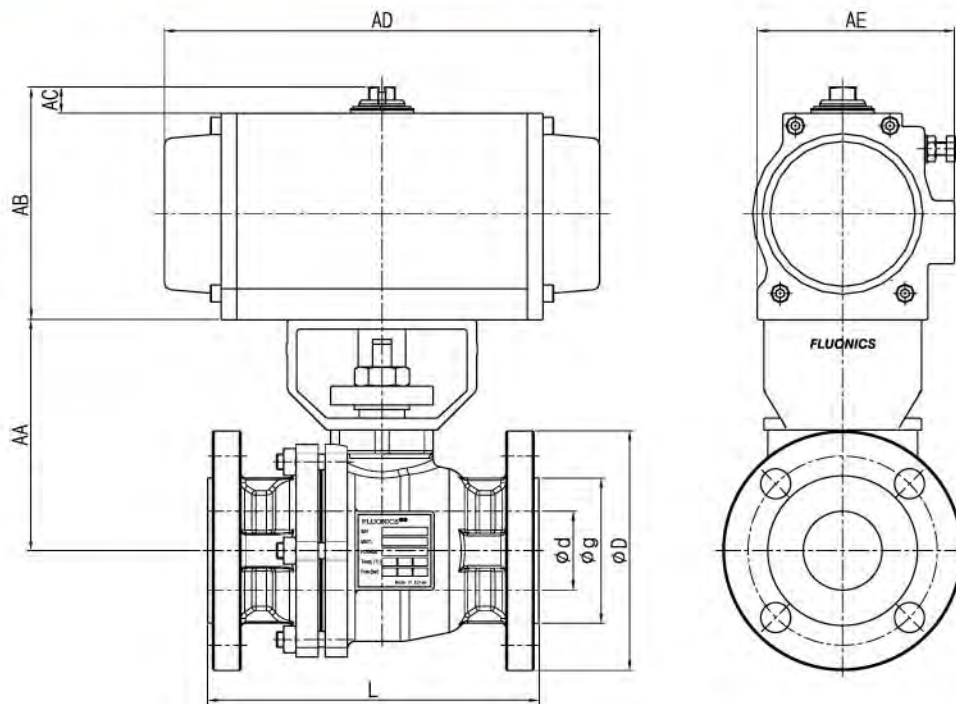
Ordering information

Connections	Ref.	Valve type	Ref.	Operating	Ref.	
JIS 10K	J	Diaphragm valve	D	Manual	Lever	L
ANSI 150lbs	A	Ball valve	B		WORM GEAR	W
		Plug valve	P	Actuator	A	

Valve body materials	Ref.	Surface finish	Ref.
PFA lined Carbon Steel(WCB/SCPH2)	W	Electropolished	EP
PFA lined Stainless Steel(CF8/SCS13A)	S	Epoxy coated	P
PFA lined Stainless Steel(CF8M/SCS14A)	M	Electropolished + Buffed	EB
PFA lined Ductile Iron(A395 D,I/FCD)	F		

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



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