MAX SEAL® Valves & Controls

Chem-Flo
PFA-Lined Ball Valves

All Stainless Steel
PFA Lined
Full Port Design

Fluoro-Tek Series

Lined Valves Designed for High Corrosion and High Purity

Model: F15-S4-TTA-L **Featuring ISO 5211 Direct Connect Actuator Mounting**

Size Range:
1/2" - 16"

Pressure Rating:
All Sizes: 145 PSI MAWP

Materials:
Stainless Steel Body - A351 CF8 PFA Inner Lining

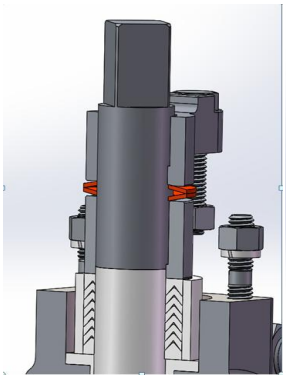
Design Features

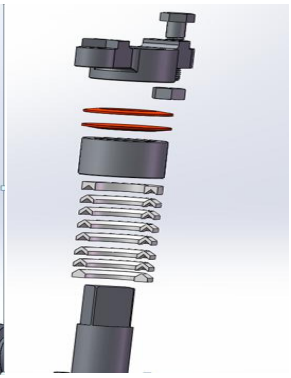
The Design:

A special molding process is used to make the sealing surface very dense, and the combination of v-ring PTFE packing makes the valve achieve zero leakage. The ball and the valve stem are cast as a whole, singular piece, eliminating the possibility of the valve stem pushing out due to pressure changes and allowing for greater safety. It is constructed of an all-PFA lining, which is resistant to strong corrosive media.

Features of the Fluorine-Lined Ball Valve:

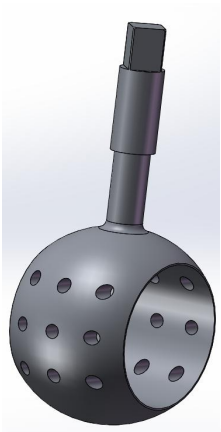
The valve is a full-bore floating ball type lined with fluoroplastic. The ball is integrated with the stem to eliminate the rotation angle difference (hysteresis). The stem has good anti-blow out performance, great sealing capability, essential safety, and reliability. The valve's action and working principle: the ball is rotated 90 degrees via a stem shaft that is driven by a handle, gear, or actuator, whereas the ball will either allow or prevent flow from passing through the center of the valve. The 90° angle is controlled by a dedicated positioning block. The ball and the valve seats are tightly sealed, with zero seat leakage, and can use its plastic deformation to automatically compensate for the wear caused by severe media in order to achieve good sealing performance and long service life. In order to ensure the sealing at the valve stem is satisfactory, v-ring packing and packing gland are used in combination with springs that serve to both keep the valve grounded and provide live-loading to the packing. On the top of the bonnet is an ISO 5211-compliant mounting pad, designed to easily mount and install any gear or actuator, electric or pneumatic.

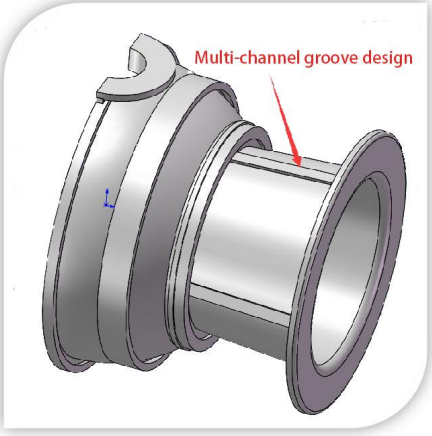




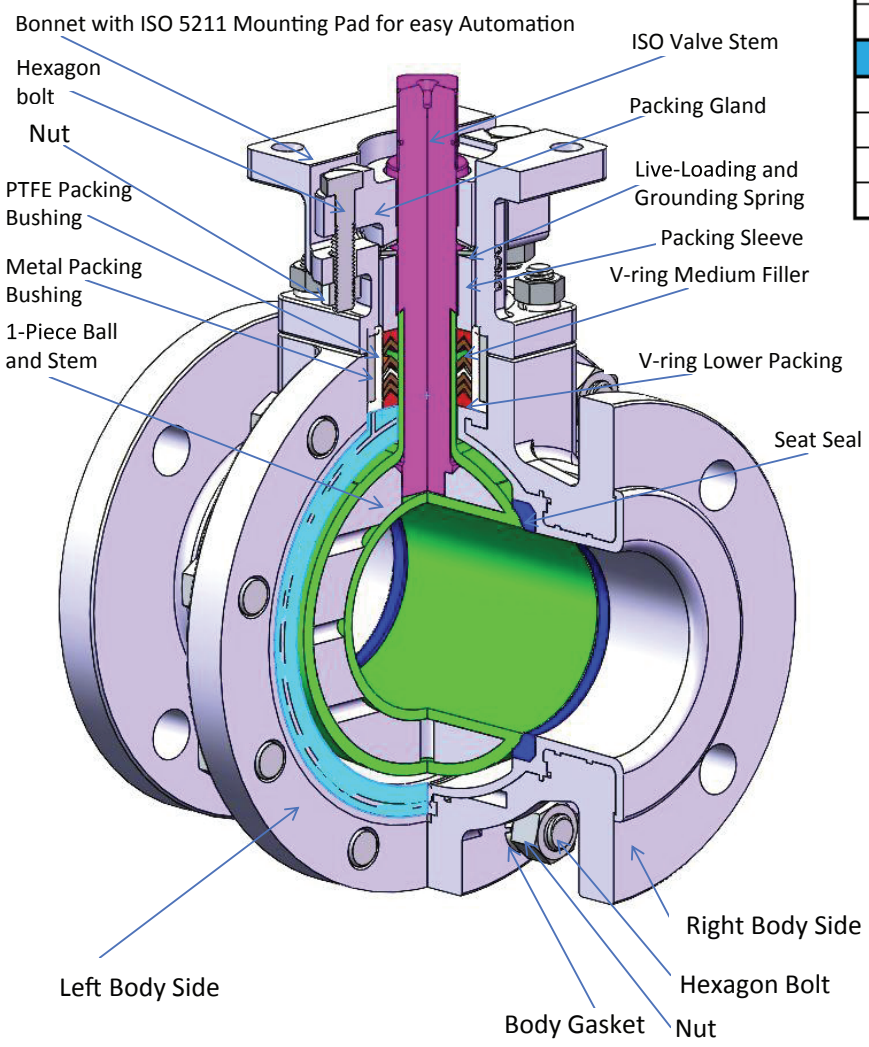
Structural Advantages:

1. **Spherical body cavity design**
   The design of the valve body innovatively adopts the structure of the centerline to divide the left and right bodies so that the valve stem is not limited by length when it is loaded into the valve, and the valve's structure is more compact, with high strength and small size.
2. **Live-Loaded Filler**
   The valve adopts butterfly spring live-loading preparation and low-leakage multi-layer v-ring packing design to solve the problem of packing dripping when the automatic control valve is opened frequently.
3. **The stem and spool are Integrally Formed**
   The stem and the ball core are integrally formed, the elongated valve stem has excellent transmission strength, and the ball core is machined with multiple process holes to make the fluoroplastic lining and steel tightly combined.
4. **Multi-Channel Groove Design**
   The inner lining is fixed with multiple hook grooves and threaded grooves so that the lining is combined with the metal shell. The valve cavity is designed with multiple grooves so that the fluorine lining layer is tightly engaged with the valve, preventing excessive wear of the lining.





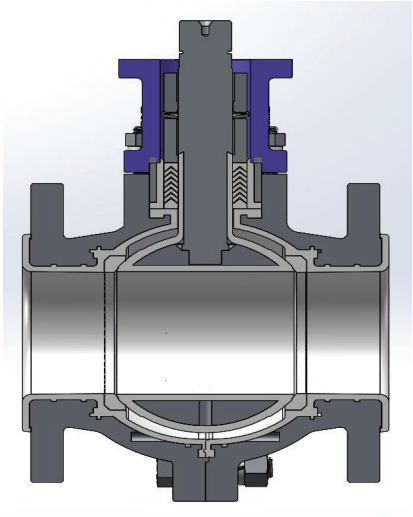
TECHNICAL SPECIFICATIONS



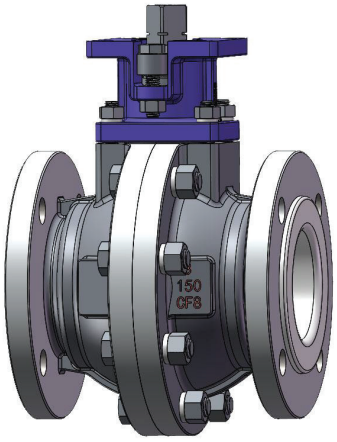
Performance Specification			
Pressure Rating	145psig @ -20~100°F		
Temperature Range	-4~356°F, -20~180°C		
Testing Specification			
Pressure Test	Pressure		Test Medium
Shell Test	218 psig	1.5 MPa	Water
Seal Test	160 psig	1.1 MPa	
Air Seal Test	80 psig	0.6 MPa	Air

Bill of Materials		
No.	Name	Material
1	Right Body	CF8 + PFA Lining
2	Left Body	CF8 + PFA Lining
3	Hexagon Bolt	A4-70
4	Nut	A4-70
5	Seat Seal	PTFE
6	Ball/Sten	304+ PFA Lining
7	PTFE Packing Bushing	PTFE
8	Metal Packing Bushing	304
9	V-ring Lower Packing	PTFE
10	V-ring M edium Filler	PTFE
11	V-ring Upper Packing	PTFE
12	Bonnet	CF8
13	Packing Sleeves	304
14	Packing Gland	CF8
15	Hexagon Bolt	A4-70
16	Nut	A4-70
17	Stud	A4-70
18	Nut	A4-70
19	Spring	50CRVA
20	Gasket	304
21	Handle	304

Standards and Specifications:
API 608 / JB/T 14312-2022 - PFA-Lined
ASME B16.10 - Face to Face
ASME B16.5 - Class 150 RF Flanges
ASTM B16.34 - Pressure/Temp Rating
API 598 - Testing Method



V -Port Ball Option
Vented Ball



Direct Mount
Standard Design
ISO 5211

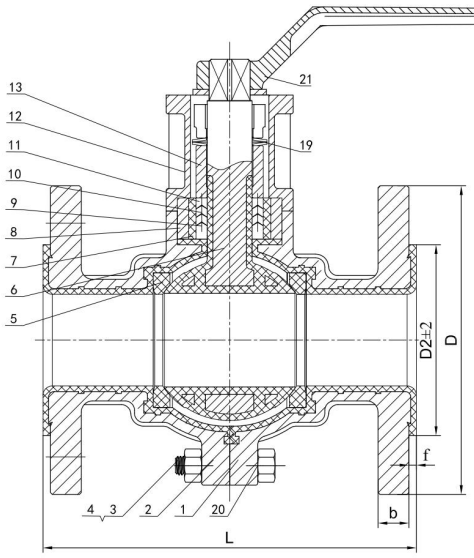
Industries which use PFA Lined Valves

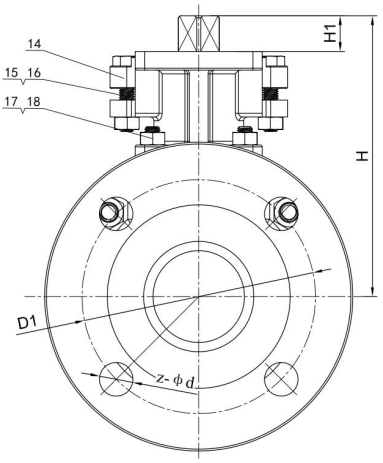
These valves are often used in:

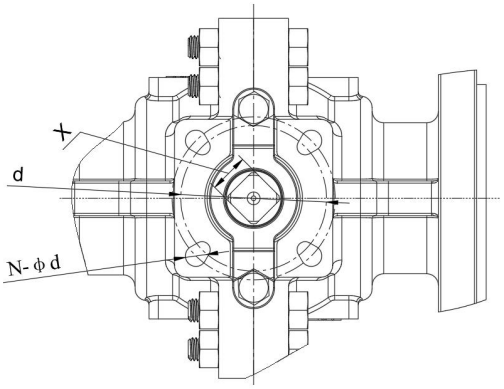
- Chemical Processing
- Petroleum Production & Storage
- Mining & Metallurgy
- Pharmaceutical & Biotech
- Semiconductor Manufacturing
- Food & Beverage
- Pulp & Paper
- Water Treatment
- Other Industrial Sectors, to manufacture products such as strong acids, strong alkalies, and other strong corrosive media.

Model # F15-S4-TTA-L

ENGINEERING DETAILS & DIMENSIONS







General Dimensions for PFA-Lined Class 150 RF Flanged Valve (≥10" sizes have a Fixed Trunnion Ball)

DN	NPS	L		D		D1		D2		z - Ød			b		f		H		Weight	
mm	in	mm	in	mm	in	mm	in	mm (±2)	in (±0.08)	z (#)	mm	in	mm	in	mm	in	mm	in	kg	lbs
15	1/2"	130	5.12	90	3.54	60.3	2.37	38	1.50	4	Ø16	Ø0.63	8	0.31	4	0.16	115	4.53	5.5	12
20	3/4"	140	5.51	100	3.94	69.9	2.75	46	1.81	4	Ø16	Ø0.63	8.9	0.35	4	0.16	115	4.53	7.4	16
25	1"	127	5.00	110	4.33	79.4	3.13	50.8	2.00	4	Ø16	Ø0.63	9.6	0.38	4	0.16	120	4.72	5.5	12
32	1-1/4"	140	5.51	115	4.53	88.9	3.50	63.5	2.50	4	Ø16	Ø0.63	11.2	0.44	4	0.16	128	5.04	7.4	16
40	1-1/2"	165	6.50	125	4.92	98.4	3.87	73	2.87	4	Ø16	Ø0.63	12.7	0.50	4	0.16	145	5.71	10.3	23
50	2"	178	7.01	150	5.91	120.7	4.75	92	3.62	4	Ø19	Ø0.75	14.3	0.56	4	0.16	150	5.91	11.5	25
65	2-1/2"	190	7.48	180	7.09	139.7	5.50	105	4.13	4	Ø19	Ø0.75	15.9	0.63	4	0.16	187	7.36	18.4	41
80	3"	203	7.99	190	7.48	152.4	6.00	126	4.96	4	Ø19	Ø0.75	17.5	0.69	4	0.16	200	7.87	23.3	51
100	4"	229	9.02	230	9.06	190.5	7.50	157	6.18	8	Ø19	Ø0.75	22.3	0.88	4	0.16	209	8.23	29.4	65
125	5"	356	14.02	255	10.04	215.9	8.50	186	7.32	8	Ø22.5	Ø0.89	22.3	0.88	5	0.20	245	9.65	38.8	86
150	6"	394	15.51	280	11.02	241.3	9.50	210	8.27	8	Ø22.5	Ø0.89	23.9	0.94	5	0.20	275	10.83	58.3	129
200	8"	457	17.99	340	13.39	295	11.61	265	10.43	8	Ø22.5	Ø0.89	27.0	1.06	6	0.24	345	13.58	113.5	250
250	10"	533	20.98	405	15.94	355	13.98	265	10.43	12	Ø25.5	Ø1.00	28.6	1.13	6	0.24	428	16.85	185	408
300	12"	610	24.02	460	18.11	410	16.14	265	10.43	12	Ø25.5	Ø1.00	30.2	1.19	6	0.24	458	18.03	363	800
350	14"	686	27.01	520	20.47	470	18.50	265	10.43	12	Ø25.5	Ø1.00	33.4	1.31	6	0.24	628	24.72	653	1440
400	16"	762	30.00	580	22.83	525	20.67	265	10.43	16	Ø28.5	Ø1.12	35.0	1.38	6	0.24	628	24.72	760	1676

Mounting Dimensions and Torques

DN	NPS	ISO	d		N - Ød			X (45° offset square)		H1		Torque	
mm	in	F-Pattern	mm	in	N (#)	mm	in	mm	in	mm	in	Nm	in-lbf
15	1/2"	F05 / F07	50 / 70	1.97 / 2.76	4	Ø8 / Ø10	Ø0.31 / Ø0.39	14 x 14	0.55 x 0.55	17	0.67	25	221
20	3/4"	F05 / F07	50 / 70	1.97 / 2.76	4	Ø8 / Ø10	Ø0.31 / Ø0.39	14 x 14	0.55 x 0.55	17	0.67	25	221
25	1"	F05 / F07	50 / 70	1.97 / 2.76	4	Ø8 / Ø10	Ø0.31 / Ø0.39	14 x 14	0.55 x 0.55	17	0.67	30	266
32	1-1/4"	F05 / F07	50 / 70	1.97 / 2.76	4	Ø8 / Ø10	Ø0.31 / Ø0.39	14 x 14	0.55 x 0.55	17	0.67	35	310
40	1-1/2"	F07	70	2.76	4	Ø10 / Ø12	Ø0.39 / Ø0.47	17 x 17	0.67 x 0.67	19	0.75	50	443
50	2"	F07 / F10	70 / 102	2.76 / 4.02	4	Ø10 / Ø12	Ø0.39 / Ø0.47	17 x 17	0.67 x 0.67	19	0.75	58	513
65	2-1/2"	F10 / F12	102 / 125	4.02 / 4.92	4	Ø12 / Ø14	Ø0.47 / Ø0.55	22 x 22	0.87 x 0.87	23	0.91	86	761
80	3"	F10 / F12	102 / 125	4.02 / 4.92	4	Ø12 / Ø14	Ø0.47 / Ø0.55	22 x 22	0.87 x 0.87	24	0.94	120	1062
100	4"	F10 / F12	102 / 125	4.02 / 4.92	4	Ø12 / Ø14	Ø0.47 / Ø0.55	22 x 22	0.87 x 0.87	24	0.94	190	1682
125	5"	F12 / F14	125 / 140	4.92 / 5.51	4	Ø14 / Ø18	Ø0.55 / Ø0.71	27 x 27	1.02 x 1.02	29	1.14	320	2832
150	6"	F12 / F14	125 / 140	4.92 / 5.51	4	Ø14 / Ø18	Ø0.55 / Ø0.71	27 x 27	1.02 x 1.02	31	1.22	580	5133
200	8"	F14 / F16	140 / 165	5.51 / 6.50	4	Ø18 / Ø22	Ø0.71 / Ø0.87	36 x 36	1.41 x 1.41	42	1.65	900	7965
250	10"	F16 / F25	165 / 254	6.50 / 10.00	C/F			46 x 46	1.81 x 1.81	48	1.89	C/F	
300	12"	F16 / F25	165 / 254	6.50 / 10.00	C/F			46 x 46	1.81 x 1.81	48	1.89	C/F	
350	14"	F25 / F30	254 / 298	10.00 / 11.73	C/F			Ø70 x (2-20)	Ø70 x (2-20)	77	3.03	C/F	
400	16"	F25 / F30	254 / 298	10.00 / 11.73	C/F			Ø70 x (2-20)	Ø70 x (2-20)	77	3.03	C/F	

MAX SEAL Valves & Controls

Max-Seal, Inc.
4815 West 5th St.
Lumberton, NC 28358

P.O. Box 1293
Lumberton, NC 28359
www.maxsealinc.com

910-738-2866
910-739-1733
sales@maxsealinc.com

Print Date: 08/15/25