

Flow Line 70/71

*Wafer & Lug Style
Sizes 2" - 12"*



Flow Line

Valve and
Controls

**Cartridge Seated
Butterfly Valves**

KEY FEATURES

Body

- One piece ribbed wafer and lugged body is Polyester coated as standard for a superior appearance and excellent resistance to external corrosion.
- Heavy duty ISO 5211 Top plate is slotted for ease of actuation and engineered to accept direct mounting of operators.
- Standard extended neck provides full clearance for 2" of insulation.

Disc

- Streamlined design offers higher Cv and lower pressure drop.

Shaft

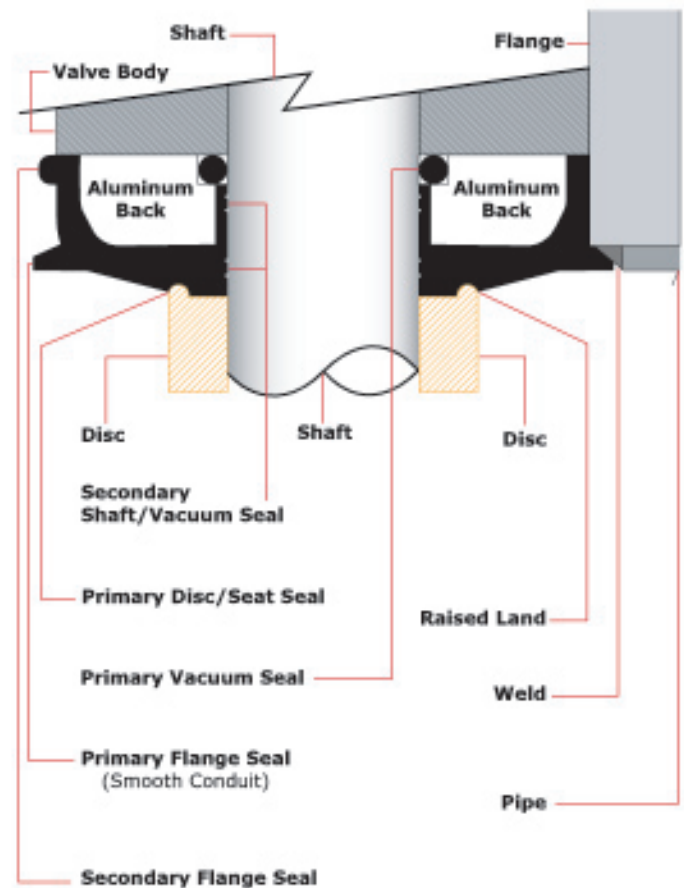
- Triple shaft seals support the primary seal on machined radius of the disc. Our triple shaft seals ensure a dry stem design.
- Two secondary shaft seals are located inside the seat shaft holes and an environmental shaft seal eliminates contaminants from entering the shaft bore.
- Two self lubricated bronze bearings offer consistent torque valves and eliminate side loading.

Seat and Flange Seals

- Field replaceable, phenolic bonded cartridge seat provides no movement of the elastomer which is a common failure point of many resilient flexible seat designs.
- Torque fluctuation is eliminated by our phenolic bonded elastomer seats.
- Our dual purpose primary flange seal is widened offering additional compression of the elastomer against various flanges resulting in a positive seal.
- This resulting primary flange seal provides a smooth flow conduit for media and prevents build up in crevices created by traditional seat designs.
- Molded secondary flange seals assure no leakage when used with weld neck, slip on and threaded flanges and eliminates the need for gaskets or O-rings.

Disc/Shaft Connection

- A high strength, Double D drive ensures a positive shaft to disc connection.
- Disc floats inside the seat for positive sealing and extended seat life.
- No pins or bolts are exposed to flow.
- Offset shaft retainers mechanically retain the shaft in the body ensuring a blow out proof design.

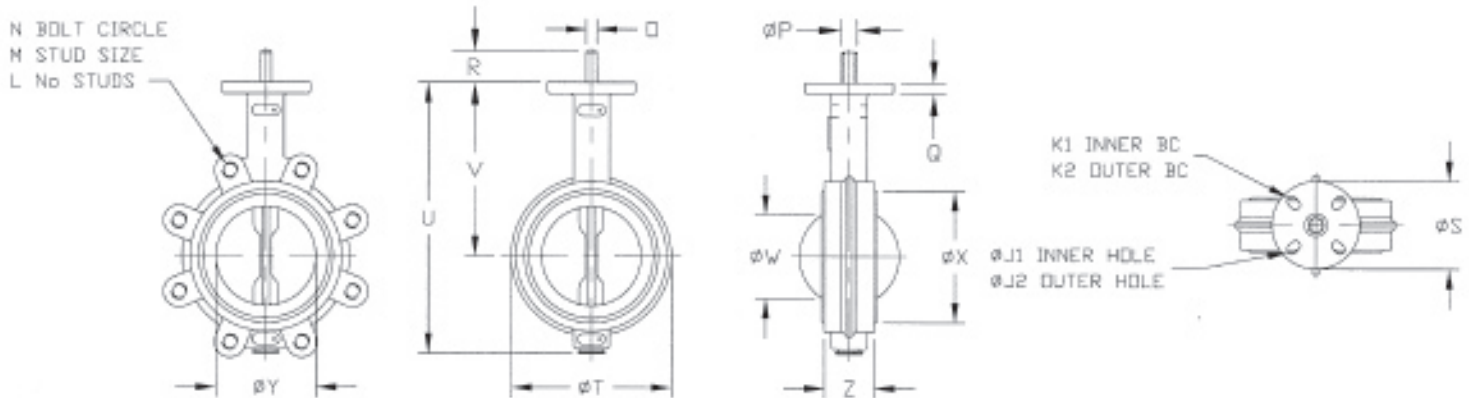


Shaft Sealing Method

- Disc shaft holes surrounded by a 360° machined radius are in constant contact with the flattened area of the seat.
- This design is far superior to resilient flexible seat designs that depend on the "squeeze" effect of the disc and seat interference which allows leakage behind the seat and up the shaft.
- The Flow Line shaft seal is achieved through a continuous pressure exerted from the flattened area of the seat to the machined radius of the disc.
- This sealing mechanism is further enhanced by forces exerted on the seat and shaft providing a secondary seal resulting in media free disc, shaft and seat connection.

ENGINEERING

DIMENSIONS



Valve Size	Z	Y	X	W	V	U	S	R	Q	P	O	Lug Drilling			Top Plate Drilling					Weight (lb)
												N	M	L	K1	K2	#holes	J1	J2	
2	1.74	2.25	2.65	1.46	5.62	8.44	4.00	1.00	.44	.625	.375	4.75	5/8-11	4	2.76	3.25	4	.39	.41	8
2-1/2	1.86	2.81	3.15	2.14	6.12	9.19	4.00	1.00	.44	.625	.375	5.50	5/8-11	4	2.76	3.25	4	.39	.41	10
3	1.86	3.31	3.78	2.74	6.38	9.69	4.00	1.00	.44	.625	.375	6.00	5/8-11	4	2.76	3.25	4	.39	.41	11
4	2.11	4.19	4.78	3.60	7.12	11.00	4.00	1.00	.44	.625	.375	7.50	5/8-11	8	2.76	3.25	4	.39	.41	17
5	2.24	5.06	5.84	4.58	7.75	12.12	4.00	1.25	.44	.838	.500	8.50	3/4-10	8	2.76	3.25	4	.39	.41	23
6	2.24	6.06	7.03	5.62	8.25	13.25	4.00	1.25	.44	.838	.500	9.50	3/4-10	8	2.76	3.25	4	.39	.41	29
8	2.54	7.94	8.96	7.43	9.44	15.56	6.00	1.38	.56	.838	.500	11.75	3/4-10	8	4.02	5.00	4	.53	.53	44
10	2.74	10.00	11.09	9.38	11.25	18.69	6.00	1.38	.56	.963	.625	14.25	7/8-9	12	4.02	5.00	4	.53	.53	66
12	3.24	11.94	13.09	11.35	12.19	21.69	6.00	1.38	.56	1.338	.750	17.00	7/8-9	12	4.02	5.00	4	.53	.53	99

CLASS II TORQUES (Inch-Pounds)

Shutoff Pressure	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
50 PSI SHUTOFF	66	96	150	225	350	450	750	1325	2250
75 PSI SHUTOFF	98	141	237	343	504	651	1050	1778	2990
100 PSI SHUTOFF	103	148	249	261	531	685	1105	1872	3147
125 PSI SHUTOFF	107	155	260	376	553	714	1151	1950	3279
150 PSI SHUTOFF	110	158	265	384	564	728	1175	1989	3345
175 PSI SHUTOFF	121	175	283	417	632	814	1337	2320	3923
200 PSI SHUTOFF	132	192	300	450	700	900	1500	2650	4500
250 PSI SHUTOFF	145	211	318	486	770	990	1695	2995	5085
285 PSI SHUTOFF	160	232	337	528	847	1089	1915	3384	5746

Class II

- Valve to be operated a minimum of once a month.
- Temperature well within resilient seat limits.
- Line media is a self lubricating. (Aqueous liquids)
- Minor chemical attacks on seat.
- Disc corrosion and media deposits to be mild.

Cv VALUES

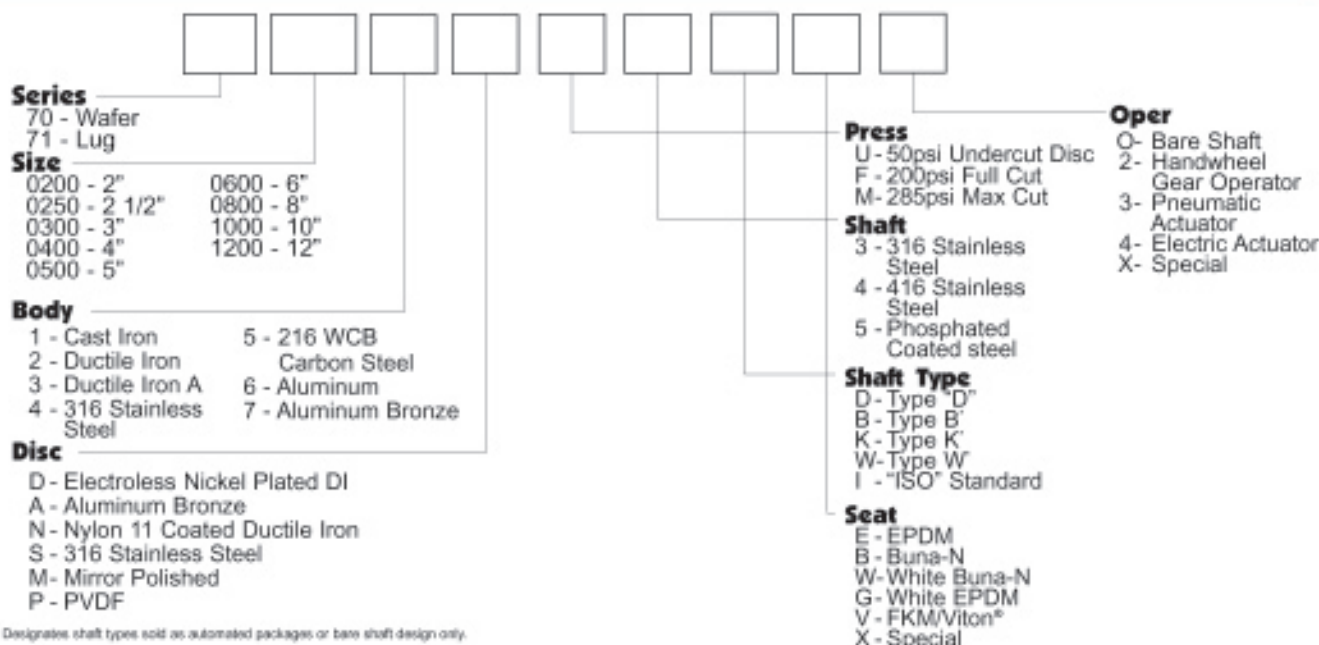
Valve Size	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	2	5	10	18	28	55	77	127	153
2-1/2	3	7	14	24	41	87	115	186	242
3	4	12	23	37	66	129	166	274	337
4	6	24	44	76	125	241	312	521	601
5	8	32	87	158	257	298	632	983	1122
6	9	52	148	244	413	786	1028	1633	1949
8	12	101	246	418	693	1279	1732	2702	3232
10	21	165	393	667	1144	2140	2744	4276	4979
12	28	233	555	992	1588	3096	4044	6048	7481

Notes:

- This chart to be used as a guide only.
- These torque ratings do not apply to every possible service criteria, which may affect seating and unseating torque.
- Torque values are applicable to Flow Line Series 70/71.
- Do not apply a safety factor to the above torque values when sizing actuators.
- Dynamic Torque should always be a consideration when sizing valves with high differential pressures.
- For 3 way tee assemblies multiply the above torques by 1.5.

SPECIFICATIONS

HOW TO ORDER



* Designates shaft types sold as automated packages or bare shaft design only.

Recommended Specifications

- Polyester coated ribbed wafer or lug bodies to provided extended necks for insulation and be able to install between ANSI 125/150 flanges. Lug design in sizes 2-12" to be fully rated for dead end service without any modification.
- Streamlined disc design with no pins or screws in the flow path and designed for high Cv and lower pressure drop.
- Upper and lower shaft design to utilize triple shaft seals as standard.
- Blow out proof design utilizing a Double D drive for a positive disc/shaft connection.
- Pressure responsive 360° sealing design will use constant pressure between machined radius on disc and flatted area of the seat.
- Valve to be Flow Line Series 70 wafer or Flow Line Series 71 lug design.

Components

Qty	Description	Qty	Description
1	Body	2	Shaft Retainers
1	Disc	1	Bearing Retainer
1	Upper Shaft	1	Environmental Shaft Seal
1	Lower Shaft	2	Secondary Shaft Seals
1	Seat	1	Thrust Bearing
		1	Inboard Bearing

Materials of Construction 2" - 12"

Body

- Cast Iron ASTM A126 Class B
- Ductile Iron ASTM A-536 (65-45-12)
- Ductile Iron ASTM A395 (60-40-18)

Disc

- Electroless Nickel Plated Ductile Iron ASTM A536 (65-45-12)
- Aluminum Bronze ASTM B148 (954)
- Nylon 11 Coated Ductile Iron ASTM A536 Grade (65-45-12)
- 316 Stainless Steel ASTM A351 (CF8M)

Stem

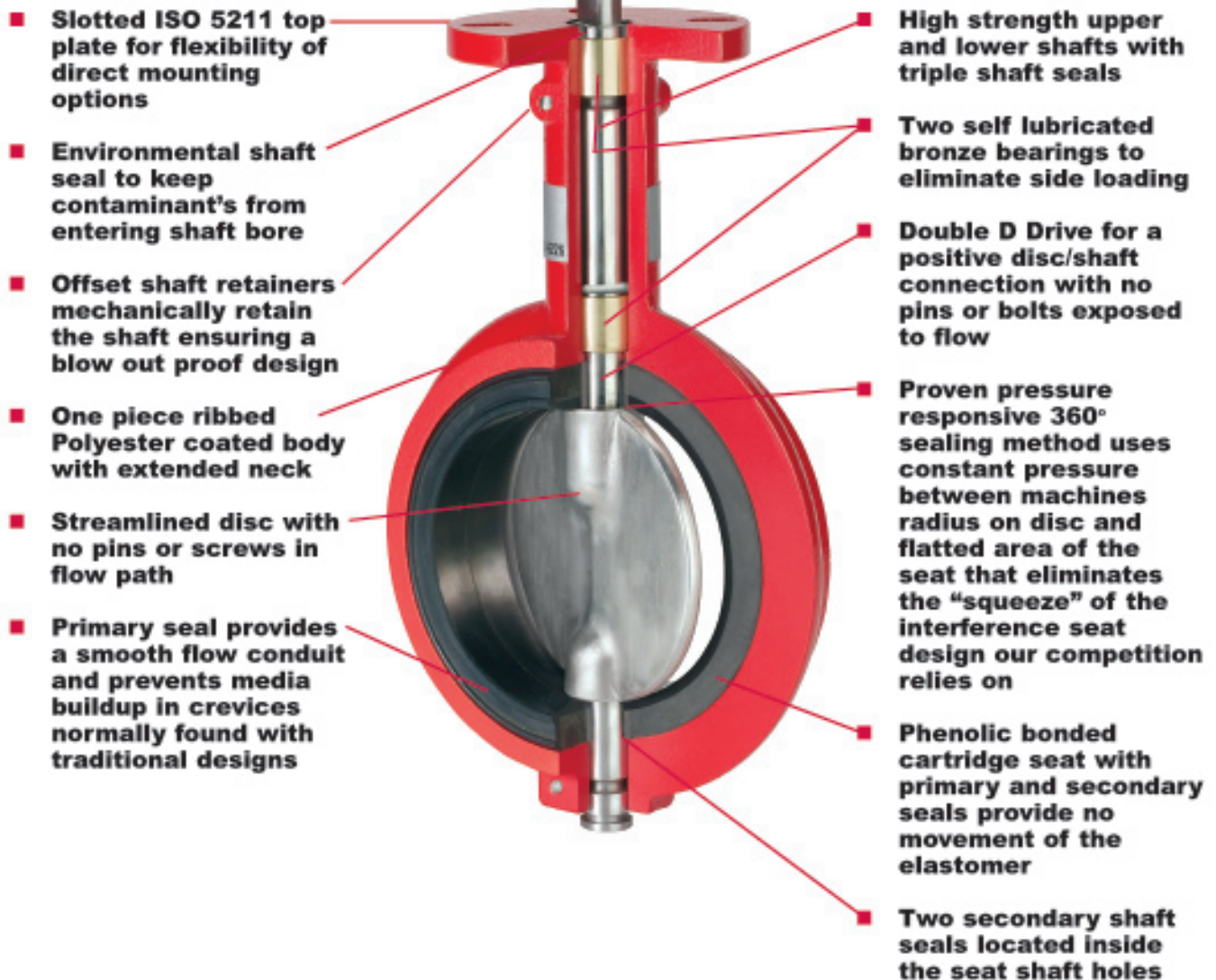
- 316 Stainless Steel ASTM A276 Type 316
- 416 Stainless Steel ASTM A582 Type 416

Seat

- EPDM - FDA Food Grade
- Buna-N - FDA Food Grade
- White Buna-N - FDA Food Grade
- Viton® - FDA Food Grade

Viton® is a registered trademark of the E.I. DuPont de Nemours Company. FKM is the ASTM D1418 designation for Fluorinated Hydrocarbon elastomers such as Viton® (DuPont) and Fluorel® (JM).

FEATURES



The **Series 70 wafer** style and **Series 71 lug** style are heavy duty cartridge seated butterfly valves compatible to ANSI 125/150 weld neck, slip on and threaded flange standards. 2" - 12" valves are fully rated to 200 psi bi-directional, dead end service. Valves with undercut discs to 50 psi are also available through the size range. Valves with Max cut Disc to 285 psi are also available through size range.

COATINGS

Flow Line Series 70 and 71 butterfly valves bodies are Polyester coated as standard. Polyester is a significant upgrade to paint or two part epoxy coatings. Our standard Polyester coating offers outstanding protection against abrasion and corrosion. The Flow Line Polyester coating is not affected by outdoor exposure and maintains excellent resistance to UV rays.

TEST	RESULT
Salty Fog Test	No change in excess of 2000 hours
Outdoor Weathering (UV Rays)	No noticeable change in excess of 12 months
50% Sulfuric Acid Test	No change for 48 hours