

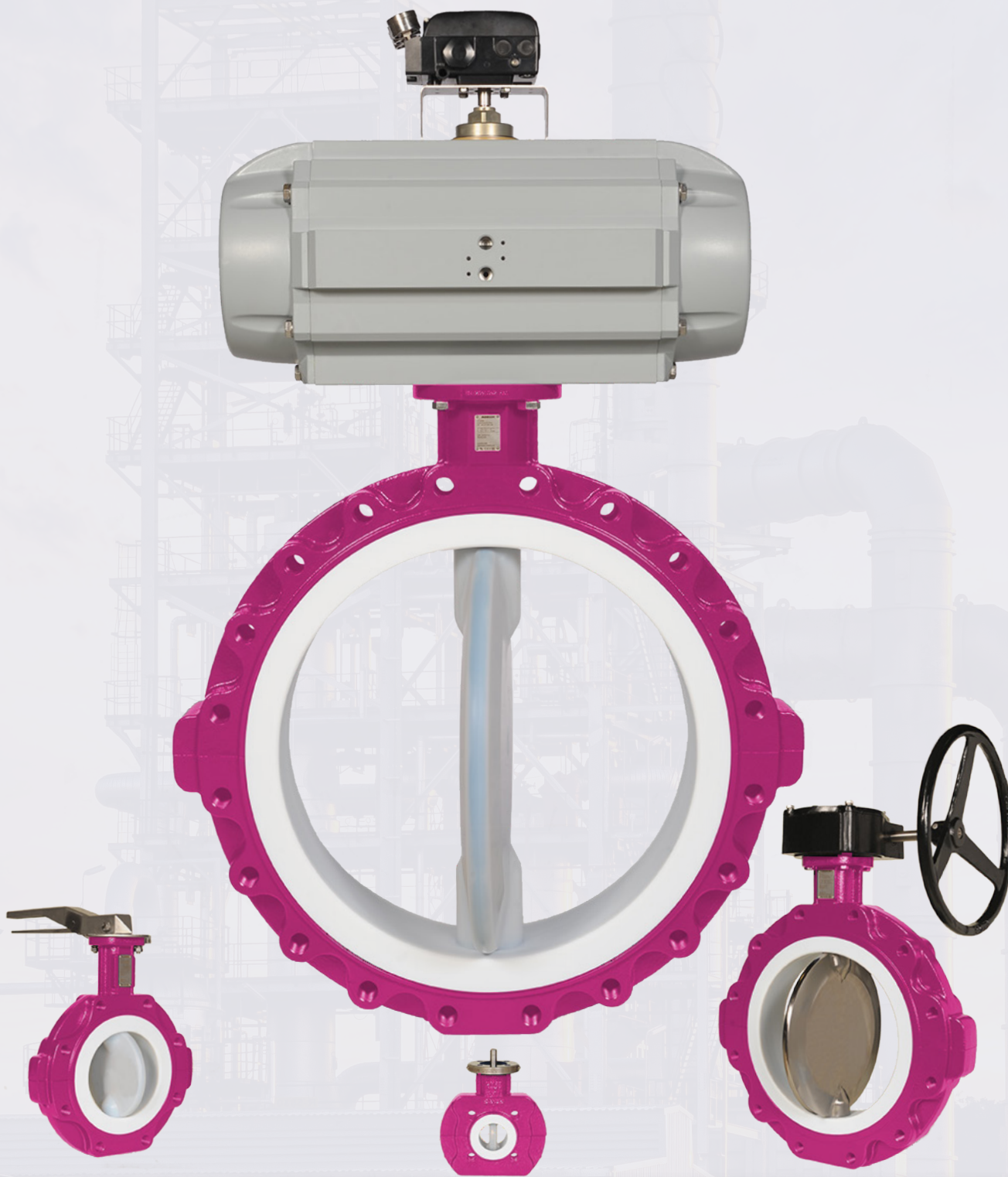


SERIES



ChemValve-Schmid
Americas

FULLY LINED, HIGH PERFORMANCE BUTTERFLY VALVES



Chlorine Gas / HCL

CS® Series high performance lined butterfly valves are **ideally** suited for the stringent performance requirements demanded with isolating and controlling wet and dry **chlorine gas** as well as **hydrochloric acid**. Valves for these hazardous chemicals are thoroughly cleaned, dried and packaged per our factory procedures and conform to **Chlorine Institute Pamphlet 6** requirements. Our environmentally safe, mechanical shaft sealing technology and **ProTef® (Molecular and Mechanically Enhanced)** body lining offers industries using these highly regulated chemicals unparalleled performance, permeation resistance and reliability.

High Integrity Stem Seal

CS® Series valves are designed to offer long-term maintenance-free security against the harmful affects of fugitive emissions. Our industry validated, innovative stem sealing system has revolutionized the performance benchmark for lined butterfly valves and has established a new standard for safety, reliability and environmental security.

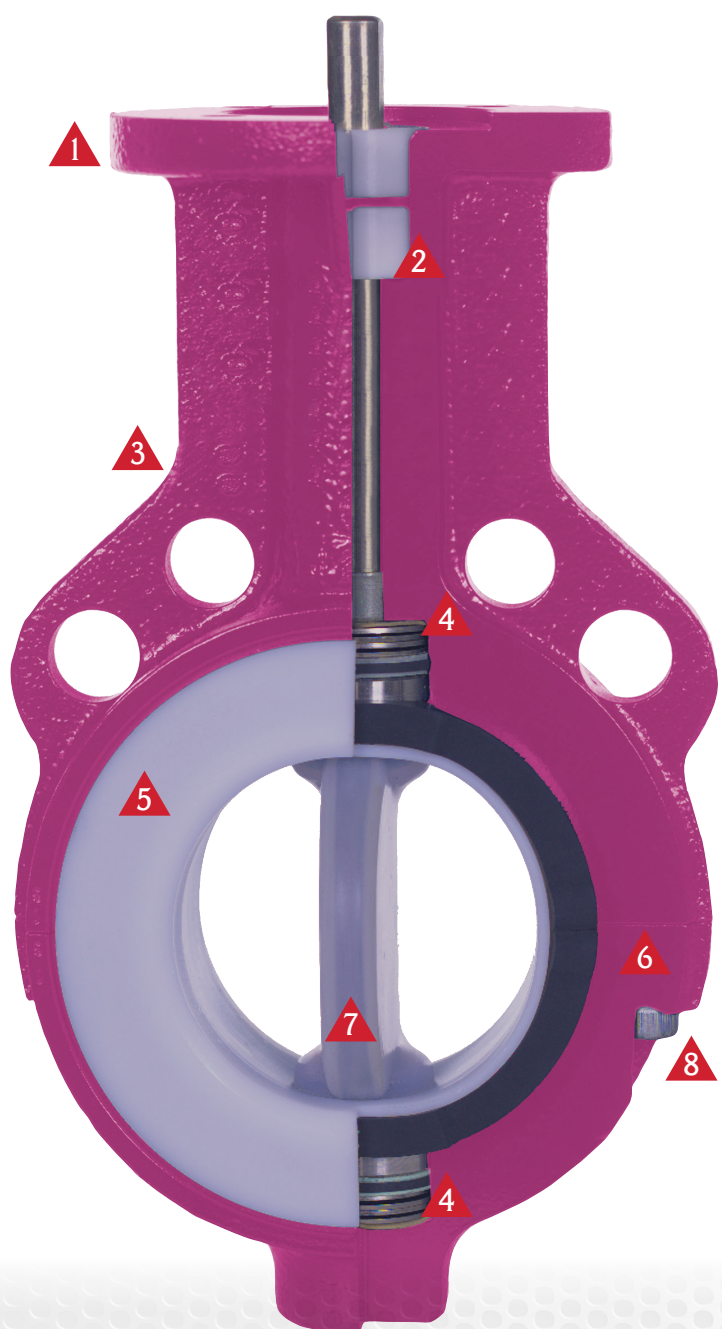
Hazardous Service Applications

- ▲ Wet/Dry Chlorine Gas
- ▲ Cell Effluent
- ▲ Chlorine Condensate
- ▲ Caustic
- ▲ Chlorinated Brine
- ▲ Hydrobromic Acid
- ▲ Sodium Hypochlorite
- ▲ Anolyte
- ▲ Catholyte
- ▲ Hydrochloric Acid
- ▲ Acidic EDC
- ▲ Spent Acid
- ▲ Sulfuric Acid
- ▲ Chlorinated Solvents
- ▲ Bromine
- ▲ Brine
- ▲ Hydrofluoric Acid
- ▲ Chlorinated Organics

CS® Series

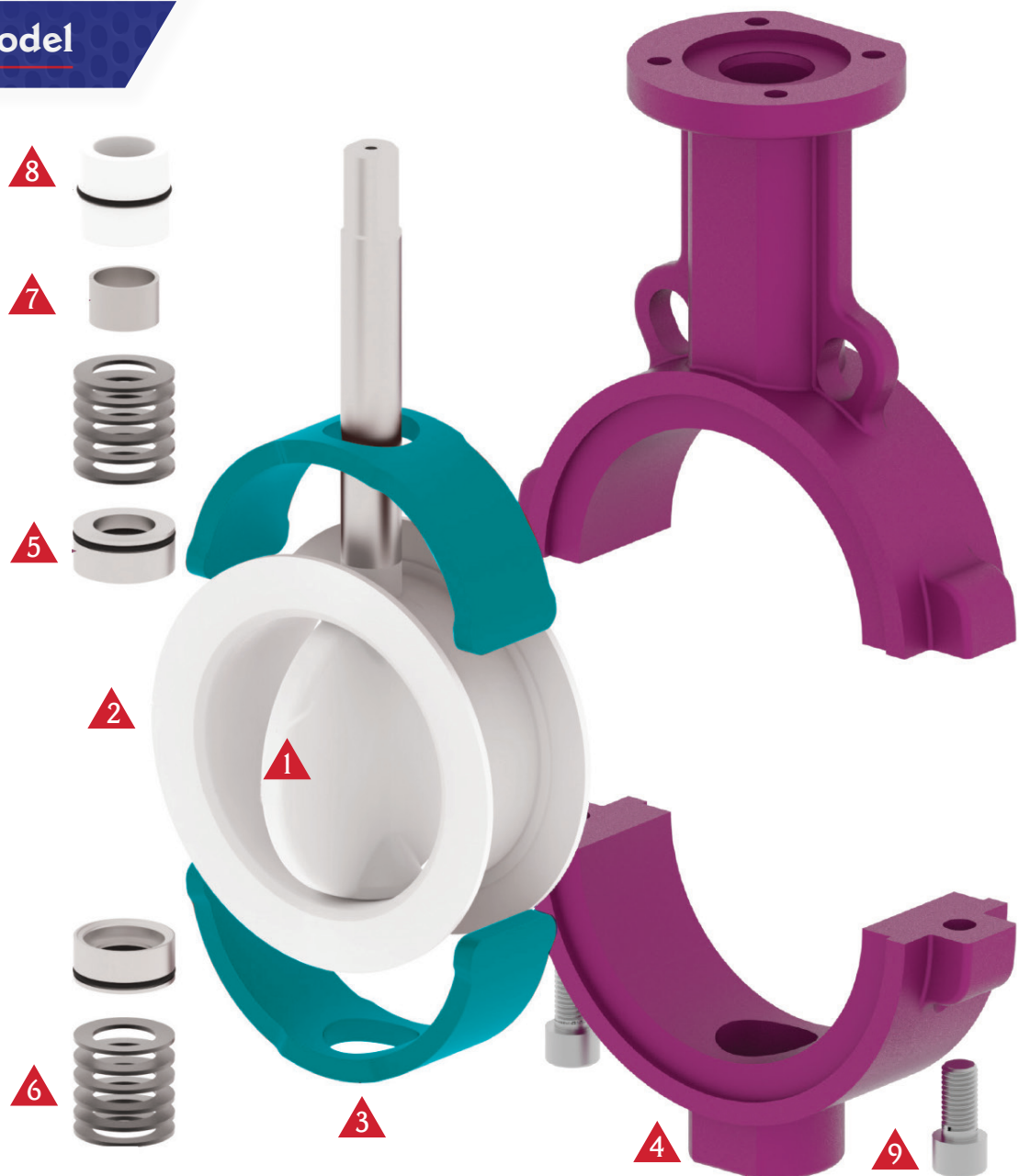
Temperature	-40°F to 450°F (PFA)	Optional 0°F to 275°F (PVDF)
Connection Type	ASME 150# Flanged	PN 6, PN 10, PN 16
Lining	ProTef®	UHMPE, PVDF
Body	A-395 Ductile Iron	316 Stainless Steel
Size	1" - 48"	
Max Pressure	250 PSI	
Application	Reliable Isolation & Control of Extremely Hazardous Liquids & Gases	
Conforming Standards	API 609, API 598, ASME B16.5, ASME B16.34/42, MSS SP-25 & MSS SP-68	
Stem Sealing	Dynamically Loaded Mechanical Shaft Sealing System	
Process Sealing	Gas Tested, Bubble Tight per API 598/EN 12266-1-P12 Leakage Rate A	
External Coating	3 Component Epoxy Paint	
Flow Direction	Bidirectional	
Control Characteristics	Equal Percentage	

- ▲ Industry Proven Reliability Where Isolation & Control of Corrosive Process Media is Critical
- ▲ Manufactured in Accordance with ISO 5752 & DIN EN 558-1 Range 20
- ▲ Bi-directional Zero Leakage (Gas Tested per API 598/ EN12266-1/P12-Leakage Rate A)
- ▲ High Precision, Injection Molded Elastomeric Energizers Yields Uniform Sealing Pressure Onto the Entire Circumference of the ProTef® Liner
- ▲ 100% Spark Tested to 10,000 Volts
- ▲ Industry Safe, One Piece Blow-out Proof Disc/Stem Design
- ▲ Minimum 3mm ProTef® Lining Thickness Assures Superior Permeation Resistance
- ▲ ISO 5211 Actuator Mounting Flange
- ▲ Equal Percent Control Characteristics
- ▲ Certified TA Luft VDI 2440 5.2.6.4 and ISO 15848-1 Environmentally Safe, Mechanical Shaft Sealing System
- ▲ PED 2014/68/EU Certified (European Pressure Equipment Directive)
- ▲ ATEX Compliant Version for Explosive Surroundings, Group II, Zones 0, 1, 2, 20, 21 & 22
- ▲ Conforms to Chlorine Institute Pamphlet 6 Requirements
- ▲ Spherically Molded & Machined Disc/Liner Sealing Interface
- ▲ Individual Serial #'s Assure Complete Product Traceability
- ▲ Engineered and Individually Tested for Consistent Operating Torques
- ▲ SQS ISO 9001 Quality Management Certified
- ▲ Ideally Suited for Wet/Dry Chlorine Gas & Aqueous HCL



- 1** Integrally Cast ISO 5211 Mounting Flange
Facilitates direct mounting of actuators and manual gear operators
- 2** Environmental Seals
Oversized pressed fit Delrin bushings with inner and outer static Viton® o-ring seals
- 3** External Corrosion Protection
Provided by a 3 part, highly corrosion resistant epoxy paint system
- 4** Dynamically Loaded Shaft Seal
Spherically machined three point mechanical shaft sealing system
- 5** ProTef® Body Lining
Minimum 3mm thick, spherically molded and machined, features superior permeation and cold flow resistance
- 6** Zero Leakage Performance
High precision, injection molded, 360° radially loaded elastomeric energizers transfer uniform sealing forces to the entire circumference of the ProTef® liner.
- 7** Robust PFA Lining
Minimum 3mm thick, spherically molded, machined and inter-locked to the metal disc core
- 8** High Quality Bolting
Zinc plated ASTM A324 8.8, Alloy 20 and C276 options

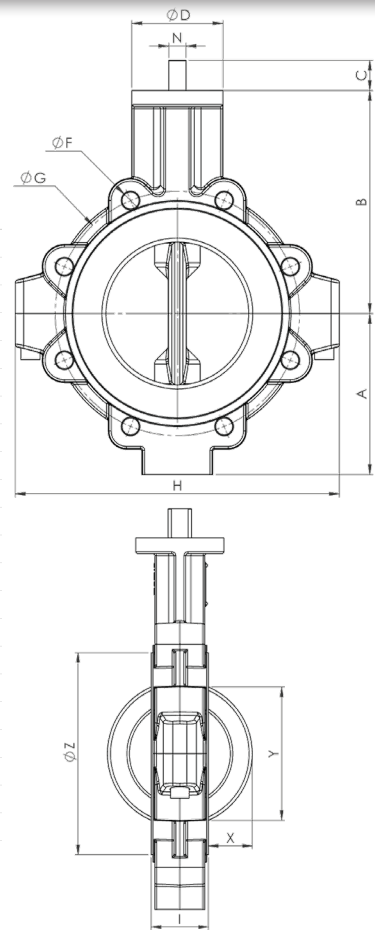
Assembly Model



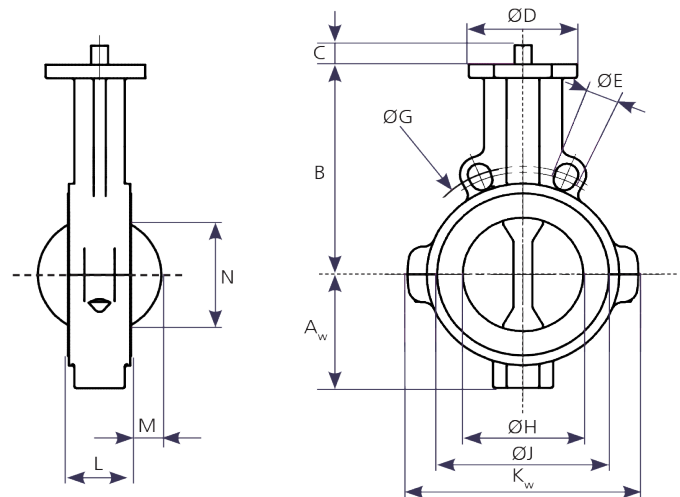
Disc	1	PFA
Liner	2	ProTef®
Energizer	3	Viton®
Body	4	A395 Ductile Iron
Pusher	5	316SS/Viton
Belleville Springs	6	Galv. Spring Steel
Shaft Bushing	7	316SS/PTFE
Top Bushing	8	Delrin/Viton®
Body Bolts	9	Zinc Plated A324 8.8

Lug Dimensions

Valve Size	A	B	C	ØD	H	ØG	NxØF	I	X	Y	ØZ	Weight/lbs
1"	2.08	3.70	0.75	2.56	5.43	3.13	4x1/2"-13 UNC	1.29	0.000	0.47	2.05	5.50
1-1/2"	2.08	3.74	0.75	2.56	5.43	3.87	4x1/2"-13 UNC	1.29	0.040	0.51	2.99	6.00
2"	2.36	5.12	0.75	3.54	6.14	4.75	4x5/8"-11 UNC	1.69	0.433	1.93	3.35	11.00
3"	3.46	6.49	0.75	3.54	8.58	6.00	4x5/8"-11 UNC	1.81	0.787	2.80	4.80	17.60
4"	4.05	7.28	0.98	3.54	9.42	7.50	8x5/8"-11 UNC	2.05	1.06	3.58	5.64	24.20
6"	5.04	8.54	1.18	3.54	12.20	9.50	8x3/4"-10 UNC	2.20	1.97	5.71	7.60	34.80
8"	6.30	9.65	1.02	4.92	14.57	11.75	8x3/4"-10 UNC	2.36	2.83	7.72	9.90	54.00
10"	7.95	10.63	1.18	4.92	17.95	14.25	12x7/8"-9 UNC	2.68	3.70	9.69	11.85	73.40
12"	9.25	12.12	1.18	4.92	20.49	17.00	12x7/8"-9 UNC	3.08	4.49	11.65	13.75	124.75
14"	10.03	12.99	1.10	5.91	23.09	18.75	12x1"-8 UNC	3.62	4.92	12.91	16.30	191.30
16"	11.41	14.37	1.10	5.91	25.20	21.25	16x1"-8 UNC	4.02	5.75	14.84	18.12	235.00
18"	12.36	15.75	1.46	6.89	27.55	22.75	16x1-1/8"-7 UNC	4.50	6.46	16.69	20.28	334.75
20"	13.46	17.13	1.46	6.89	29.53	25.00	20x1-1/8"-7 UNC	5.00	7.24	18.78	22.44	407.30
24"	15.78	20.08	1.85	8.27	34.25	29.50	20x1-1/4"-7 UNC	6.06	8.46	22.05	26.46	673.60
28"	22.72	22.88	1.85	8.27	39.37	34.00	28x1-1/4"-7 UNC	6.06	10.40	26.18	39.37	974.00
30"	23.94	23.94	2.20	11.81	40.94	36.00	28x1-1/4"-7 UNC	6.06	11.38	28.19	33.50	1,080.00
32"	24.80	24.80	2.20	11.81	43.70	38.50	28x1-1/2"-6 UNC	6.06	12.36	30.20	35.20	1,388.00
36"	26.93	26.93	2.20	11.81	49.00	42.75	32x1-1/2"-6 UNC	6.06	14.33	34.17	40.00	1,721.00
40"	30.35	30.35	2.20	11.81	55.51	47.25	36x1-1/2"-6 UNC	6.06	16.06	37.68	43.35	2,170.40
42"	30.24	30.24	2.20	11.81	55.51	49.50	36x1-1/2"-6 UNC	6.06	17.05	39.76	46.06	2,287.60
48"	35.63	35.63	2.20	11.81	63.78	55.99	49x1-1/2"-6 UNC	6.06	20.00	45.67	52.96	2,671.90



Wafer Dimensions



DN (mm)	50	65	80	100	125	150	200	250	300
DN (inch)	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
A _w	2.36	2.76	3.31	3.94	4.33	5.12	6.22	7.64	8.56
B	5.12	5.75	6.50	7.28	7.95	8.54	9.65	10.63	12.13
C _{P2}	0.75	0.75	0.75	0.98	0.98	1.18	-	-	-
C _{D4/P4}	0.67	0.67	0.67	0.67	0.67	0.87	1.02	1.18	1.18
ØD	3.54	3.54	3.54	3.54	3.54	3.54	4.92	4.92	4.92
ØE _{DIN}	0.71	0.71	0.71	0.71	0.71	0.87	0.87	0.87	0.87
ØE _{ANSI}	0.75	0.75	0.75	0.75	0.87	0.87	0.87	1.00	1.00
ØG _{DIN}	4.92	5.71	6.30	7.09	8.27	9.45	11.61	13.78	15.75
ØG _{ANSI}	4.75	5.50	6.00	7.50	8.50	9.50	11.75	14.25	17.00
ØH	2.36	2.36	3.15	3.94	4.92	5.91	4.70	9.80	11.81
ØJ	3.35	4.17	4.80	5.63	6.54	7.60	9.88	11.85	13.74
K _w	4.88	5.83	6.50	7.56	8.78	9.96	12.28	14.72	16.69
L	1.69	1.81	1.81	2.05	2.20	2.20	2.36	2.68	3.07
M	0.433	0.394	0.787	1.06	1.46	1.97	2.83	3.70	4.49
N	1.93	1.81	2.80	3.58	4.65	5.71	7.72	9.69	11.65
Weight/lbs	7.00	9.00	11.00	14.00	17.00	22.00	36.00	54.00	82.00

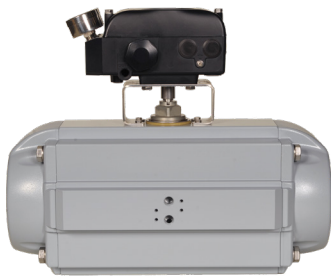
CV Values

CV VALUES BASED ON DEGREES OPEN AND VALVE SIZE								
VALVE SIZE	20°	30°	40°	50°	60°	70°	80°	90°
1"	4	6	10	19	30	41	55	62
1-1/2"	7	16	31	55	83	116	150	171
2"	9	22	46	77	116	164	215	241
3"	20	43	89	162	235	332	434	518
4"	27	64	130	219	353	530	657	807
6"	83	178	320	534	876	1,314	1,677	2,067
8"	130	311	629	1,075	1,625	2,498	3,320	4,180
10"	232	466	944	1,568	2,177	3,270	4,932	6,087
12"	352	703	1,344	2,297	3,600	5,356	8,054	9,740
14"	466	877	1,567	2,433	3,895	6,148	9,701	11,834
16"	675	1,310	2,001	3,252	5,614	8,852	12,500	15,460
18"	915	1,697	3,070	5,303	8,610	12,700	16,870	20,520
20"	1,227	2,231	4,104	7,368	11,224	16,251	21,430	24,800
24"	1,796	3,043	5,915	10,498	16,060	23,277	29,998	34,670
28"	2,100	4,694	8,648	14,208	23,474	35,212	48,492	61,774
30"	2,516	5,661	9,750	18,982	29,705	44,280	54,648	62,760
36"	3,747	8,431	15,342	31,340	45,208	68,970	83,504	93,606
40"	4,260	9,654	17,554	27,784	46,390	68,960	100,304	112,842
42"	4,896	10,862	19,840	38,710	55,460	83,115	110,935	125,347
48"	6,182	13,765	22,609	41,124	66,760	95,130	121,120	146,410

Break Torque

MAX ALLOWABLE SHAFT TORQUE						
SIZE	BREAK TORQUE		PFA (Duplex SS)		TITANIUM GR 2	
	N-m	In-Lb	N-m	In-Lb	N-m	In-Lb
1"	22	194	112	991	75	664
1-1/2"	26	230	112	991	75	664
2"	31	274	159	1,407	105	929
3"	54	478	159	1,407	105	929
4"	72	637	335	2,965	222	1,965
6"	132	1,168	608	5,381	400	3,540
8"	200	1,770	456	4,036	300	2,655
10"	334	2,956	664	5,877	470	4,160
12"	400	3,540	664	5,877	470	4,160
14"	540	4,779	1,227	10,859	875	7,744
16"	600	5,310	1,227	10,859	875	7,744
18"	720	6,373	2,900	25,667	2,050	18,144
20"	780	6,904	2,900	25,667	2,050	18,144
24"	1,068	9,453	6,070	53,724	4,300	38,058
28"	1,550	13,720	6,070	53,724	4,300	38,058
30"	2,400	21,242	10,375	91,826	7,320	64,787
36"	3,240	28,691	10,375	91,826	7,320	64,787
40"	4,100	36,288	10,375	91,826	7,320	64,787
42"	3,600	31,863	10,375	91,826	7,320	64,787
48"	5,760	50,981	10,375	91,826	7,320	64,787

Control Valve Accessories



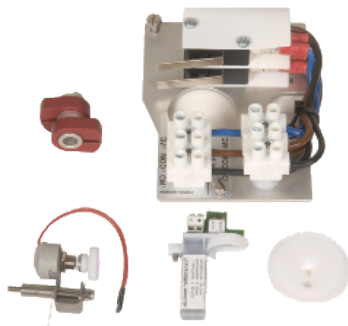
Actuator with
Pneumatic Positioner



Tufram Coated
Pneumatic Positioner



Pressure Regulator
with Gauge



Feedback
Module



Electro-Pneumatic
Positioner with Gauges



Instrument
Enclosure



Digital Positioner
with Gauges



Position Indicator with
Beacon Indicator

Ordering Information

Ordering Example: **1-A-L-D-T-M-V-SB-O-C1**

1-Size 1" - 48"	2-Class A - ANSI 150# B - DIN PN 6 C - DIN PN 10 D - DIN PN 16	3-Body Style L - Lug W - Wafer	4-Body Material D - A395 Ductile Iron S - Stainless Steel C - Carbon Steel	5-Disc/Stem T - PFA A - PFA/AS S - 316SS P - 316SS Polished N - Titanium Y - Hastelloy
6-Liner M - ProTef® A - ProTef®/AS T - PTFE U - UHMPE F - ETFE	7-Elastomer V - Viton L - Silicone E - EPDM	8-Operator SB - Bare Shaft HL - Hand Lever MG - Manual Gear DA - DA Actuator FC - FC Actuator FO - FO Actuator	9-Accessories (optional) PS - Proximity Switch MS - Micro Limit Switch PP - Pneumatic Positioner EP - Electro Pneumatic Positioner FR - Filter Regulator w/Gauge MO - Manual Override SV - Solenoid Valve O - NA	10-Cleaning (optional) C1 - Chlorine C2 - UPW C3 - Oxygen

*ProTef® = Molecular/Mechanically Enhanced TFM

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