

**FULLY LINED, HIGH PERFORMANCE
FULL PORT BALL VALVES**



Chlorine Gas / HCL

CSB® Series valves are ideally suited for the stringent performance requirements demanded with wet/dry chlorine gas and aqueous hydrochloric acid. Produced from premium virgin grade resins, our thick fluoropolymer linings and ProTef® seat technology features superior resistance to the effects of chemical attack, permeation, absorption, swelling and cold flow thus providing industry with convincing performance. The liner integrity of each valve is tested with 10,000 volts to ensure there are no defects. Valves for chlorine service are thoroughly cleaned and packaged according to our factory procedures and conform to the Chlorine Institute Pamphlet #6 specifications.

High Integrity Stem Seal

CSB® Series valves are designed to offer long-term maintenance-free security against the harmful effects of fugitive emissions. Our innovative stem sealing system has established a new standard for safety, reliability and long-term cost of ownership!

Hazardous Service Applications

- ▲ Acetic Acid
- ▲ Alcohols
- ▲ Anolyte
- ▲ Brine
- ▲ Bromine
- ▲ Caustic
- ▲ Catholyte
- ▲ Chlorine Gas
- ▲ Chlorine Condensate
- ▲ Chlorinated Brine
- ▲ Chlorinated Organics
- ▲ Chlorine Dioxide
- ▲ Chlorinated Solvents
- ▲ Chlorosulfonic Acid
- ▲ Deionized Water
- ▲ Ethylene Dichloride
- ▲ Ferric Chloride
- ▲ Hydrobromic Acid
- ▲ Hydrochloric Acid
- ▲ Hydrofluoric Acid
- ▲ Hydrogen Peroxide
- ▲ Nitric Acid
- ▲ Oleum
- ▲ Phosgene Gas
- ▲ Phosphoric Acid
- ▲ Sodium Hypochlorite
- ▲ Sulfuric Acid
- ▲ Spent Acid

CSB® Series

Body	A-395 Ductile Iron	Optional A-216 WCB & A-351 CF8M
Lining	PFA	PVDF
Temperature	-40°F to 400°F (PFA)	0°F to 275°F (PVDF)
Pressure Rating	250 PSIG (A-395 DI)	285 PSIG (A-216 WCB/A-351 CF8M)
Size	1/2" - 8"	
Application	Reliable Isolation & Control of Extremely Hazardous Liquids and Gases	
Conforming Standards	ASME B16.5, ASME B16.10, ASME B16.34, API 598, PED 2014/68/EU, ATEX 2014/34/EU	
Stem Sealing	Dual Set of Dynamically Loaded PTFE Packing Certified TA Luft VDI 2440 5.2.6.4 and ISO 15848-1	
Process Sealing	Bi-directional, Gas Tested, Bubble Tight per API 598/EN 12266-1-P12 Rate A	
External Coating	3 Component Epoxy Paint	
Control Characteristics	Equal Percentage	
Connection Type	ASME 150# Flanged	
Flow Direction	Bidirectional	

▲ Industry Proven Reliability Where Isolation & Control of Corrosive Process Media is Critical

▲ Gas Tested, Bidirectional Zero Leakage Performance

▲ Temperature Rating -40°F to 400°F

▲ Full Vacuum Rated

▲ Minimal Cavity Space

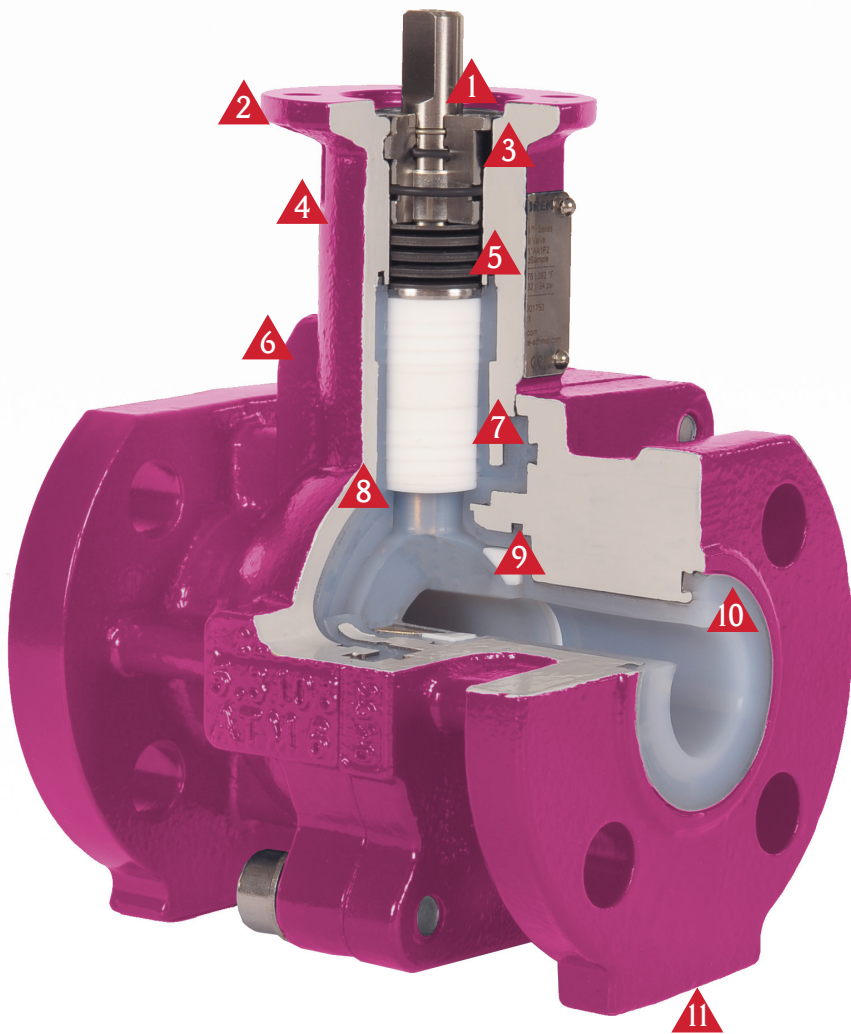
▲ Minimum 3mm PFA Lining Thickness Assures Superior Permeation Resistance

▲ Ideally Suited for Wet/Dry Chlorine Gas & Aqueous HCL

▲ 100% Spark Tested to 10,000 Volts

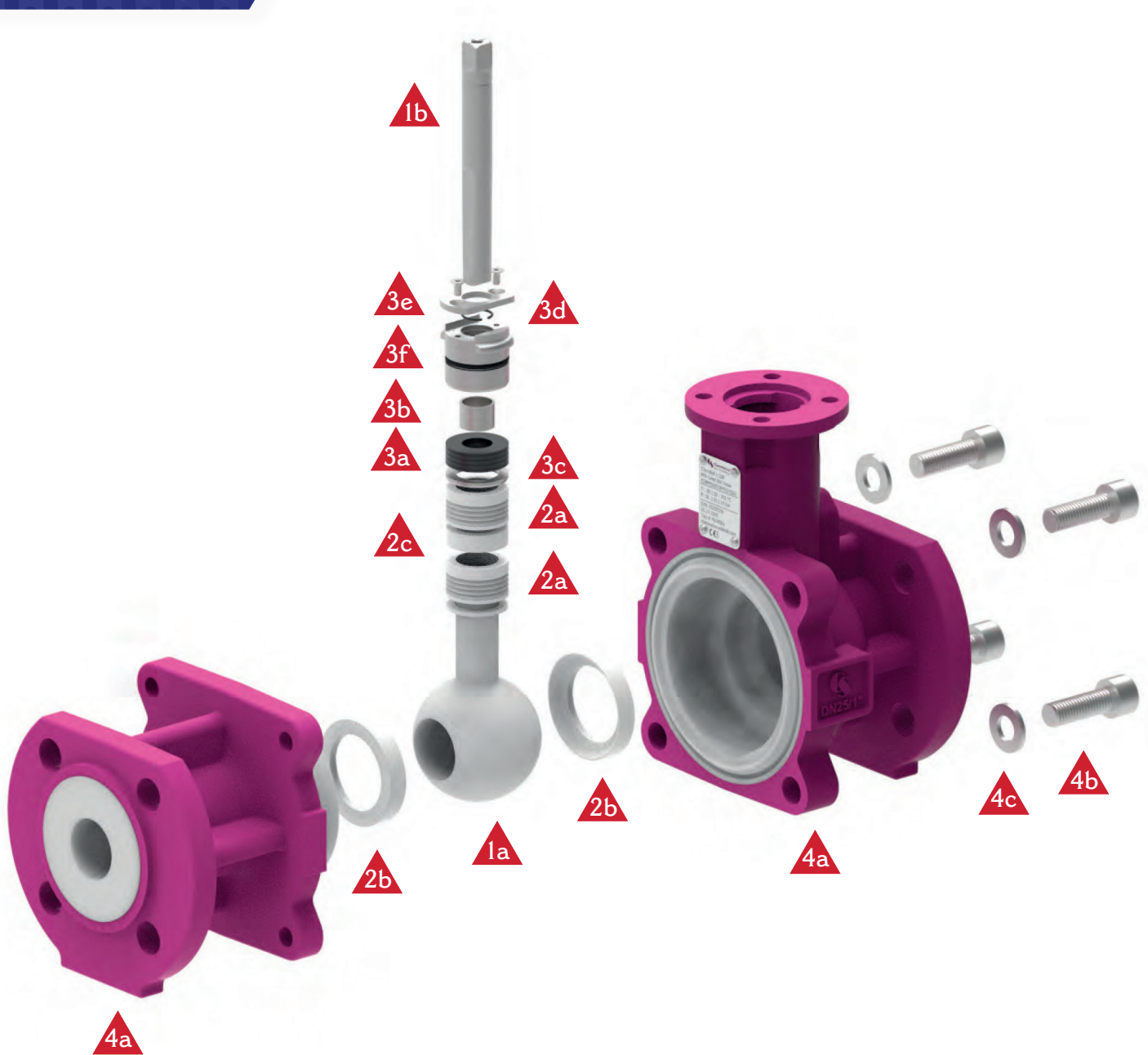
▲ Low Torque

▲ 1/2" - 8" ANSI 150 lb.



- ▲ 1 Secondary Stem Retention
- ▲ 2 ISO 5211 Mounting Flange
- ▲ 3 Atmospheric Top Seals
- ▲ 4 Integrally Cast Extended Bonnet
- ▲ 5 Mechanical Shaft Sealing System
- ▲ 6 Optional Leak Detection Port
- ▲ 7 Dual Set Live Loaded PTFE Packing with Lantern Ring
- ▲ 8 One Piece Blow-out Proof Stem
- ▲ 9 Energized ProTef® Seats
- ▲ 10 Securely Anchored Dovetailed Linings
- ▲ 11 Assembly Flange Flats

Assembly Model

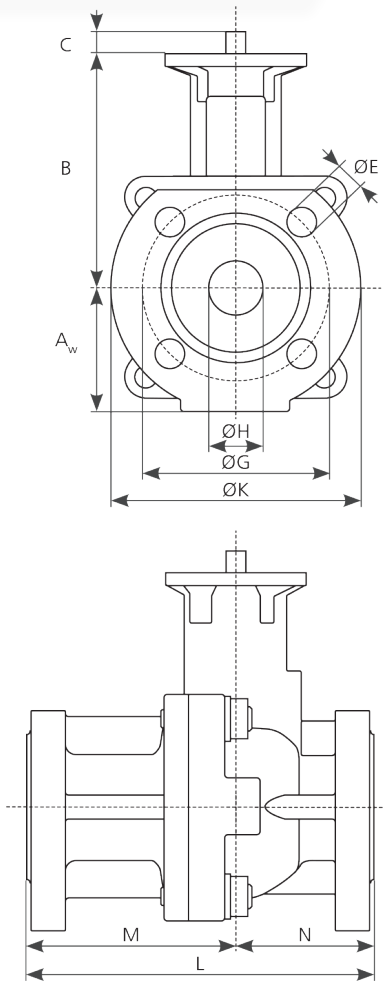


ITEM #	DESCRIPTION	MATERIALS
1a	Ball	PFA/316L
1b	Stem	316L
2a	Chevron Seals	PTFE
2b	Ball Seats	ProTef®
2c	Lantern Ring	PTFE
3a	Belleville Springs	Galvanized Spring Steel
3b	Shaft Bushing	PTFE/SS

ITEM #	DESCRIPTION	MATERIALS
3c	Pusher	304L
3d	Spring-lock Washer	304L
3e	Locking Plate & Screws	304L
3f	Bayonet Coupling	316L
4a	Valve Body	PFA/A395 DI
4b	Body Bolts	Zinc Plated A 193 B7
4c	Washers	Stainless Steel

* ProTef® = Molecular/Mechanically Enhanced TFM

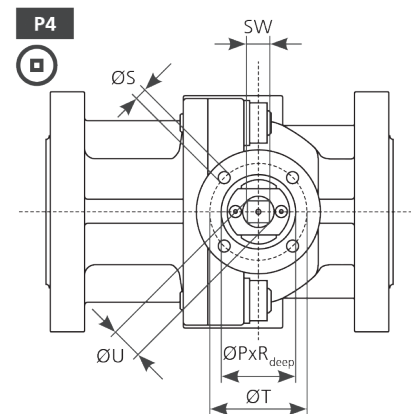
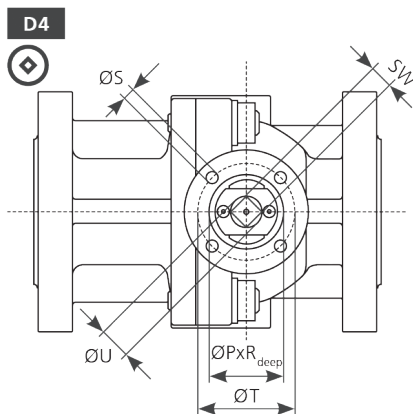
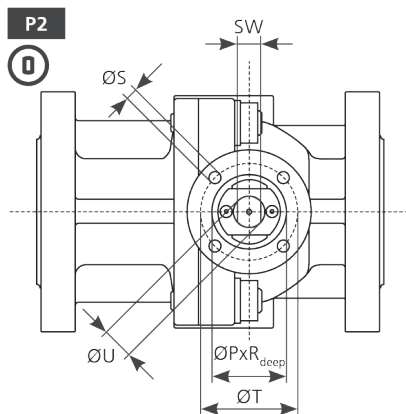
Dimensions



DN [inch]	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
ØH [mm]	15	20	25	32	40	50	65	80	100	125	150	200
L*	4.25	4.61	5.00	5.50	6.50	7.00	7.50	8.00	9.00	8.27	10.50	11.50
ØG	2.37	2.75	3.13	3.50	3.87	4.75	5.50	6.00	7.50	8.50	9.50	11.75
ØE	4 x Ø5/8"	4 x Ø5/8"	4 x Ø5/8"	4 x Ø5/8"	4 x Ø5/8"	4 x Ø3/4"	4 x Ø3/4"	4 x Ø3/4"	8 x Ø3/4"	8 x Ø7/8"	8 x Ø7/8"	8 x Ø7/8"
ØK	3.54	3.94	4.33	4.53	4.92	5.91	7.09	7.48	9.06	10.04	11.02	13.58
M	2.20	2.40	2.62	2.87	3.39	3.66	3.94	4.11	4.63	4.29	5.53	5.98
N	1.89	2.20	2.38	2.64	3.11	3.35	3.54	3.88	4.39	3.98	4.98	5.51
A	1.87	2.07	2.26	2.40	2.95	3.25	3.74	4.13	4.80	5.31	6.06	7.17
B	4.04	4.13	4.23	4.53	5.94	6.14	7.17	7.76	8.43	9.41	10.24	11.22
C _{P2}	.63	.63	.63	.63	1.18	1.18	1.54	1.54	1.54	1.54	1.89	1.89
C _{D4/P4}	.39	.39	.39	.39	.75	.75	.94	.94	.94	.94	1.14	1.14
Torque [in-lb]	177	177	195	195	575	575	708	885	1,240	1,504	1,770	2,655
MAST _{P2} [in-lb]**	287	287	287	287	1,840	1,840	3,956	3,956	3,956	3,956	7,770	7,770
MAST _{D4/P4} [in-lb]**	218	218	218	218	1,470	1,470	3,177	3,177	3,177	3,177	5,885	5,885

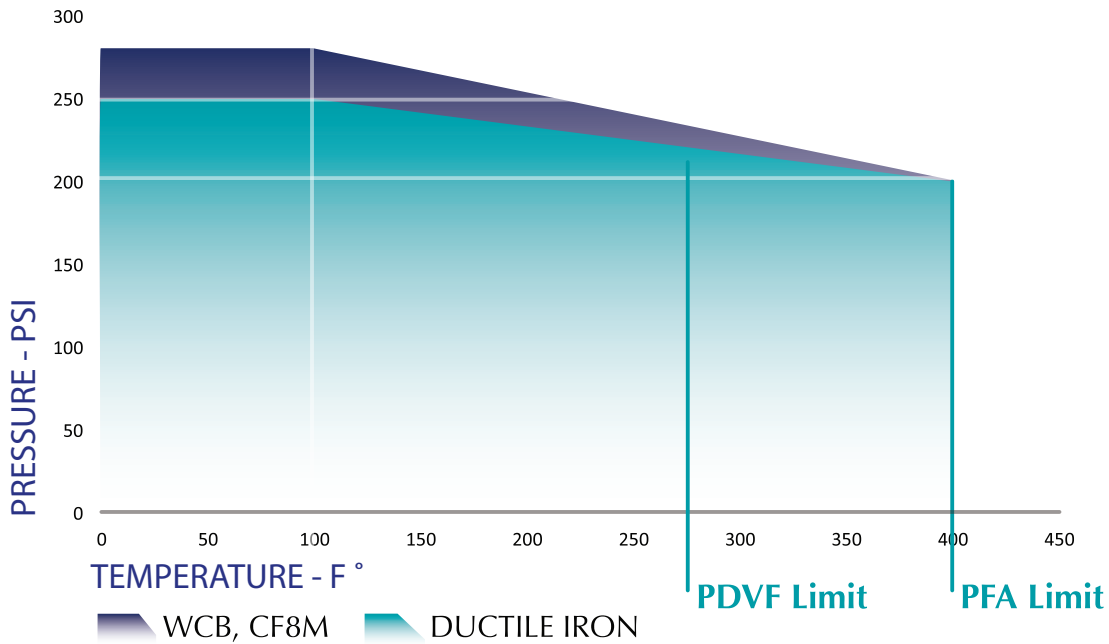
*Face-to-Face length acc. to ASME B16.10 Class 150 Row 19

**316L, inc. 1.2 Safety Factor

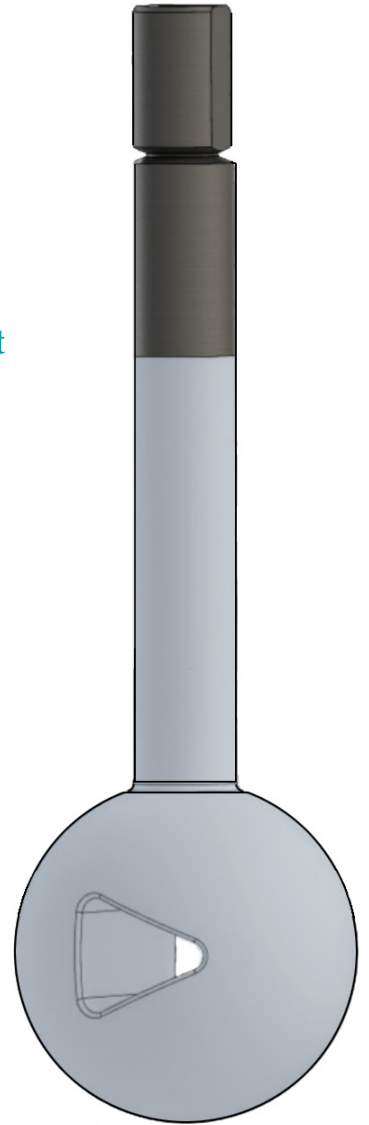
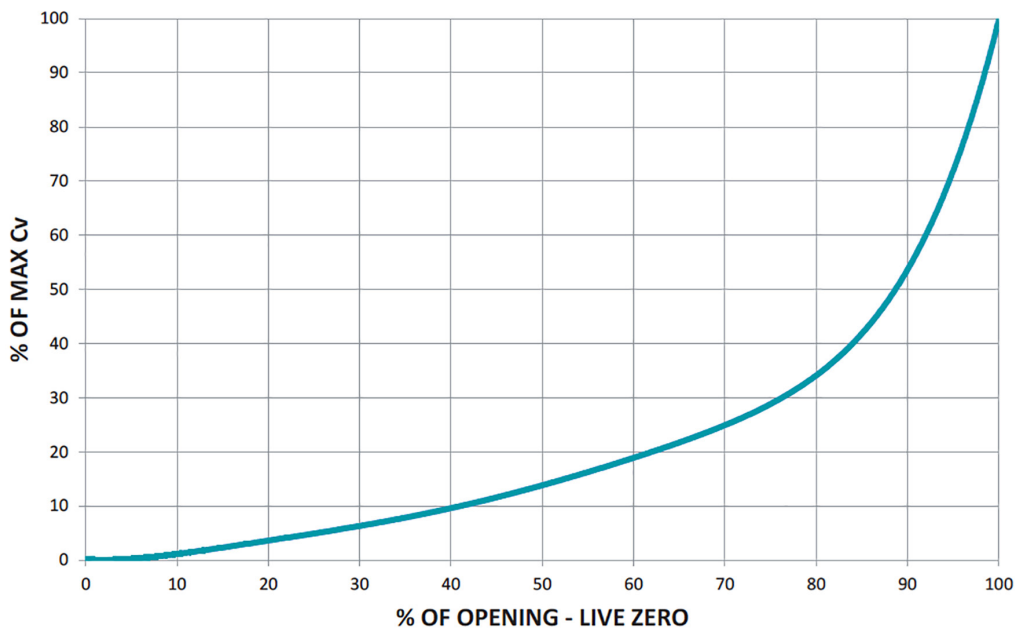


DN [inch]	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
SW	.354	.354	.354	.354	.669	.669	.866	.866	.866	1.062	1.062
ØU	.472	.472	.472	.472	.866	.866	1.102	1.102	1.102	1.417	1.417
ISO ₅₂₁₁	F05	F05	F05	F05	F07	F07	F10	F10	F10	F12	F12
ØT	1.96	1.96	1.96	1.96	2.75	2.75	4.01	4.01	4.01	4.92	4.92
ØS	4 x Ø.27	4 x Ø.27	4 x Ø.27	4 x Ø.27	4 x Ø.35	4 x Ø.35	4 x Ø.43	4 x Ø.43	4 x Ø.43	4 x Ø.52	4 x Ø.52
ØP x R _{DEEP}	1.42 x .14	1.42 x .14	1.42 x .14	1.42 x .14	2.21 x .14	2.21 x .14	2.80 x .14	2.80 x .14	2.80 x .14	3.38 x .14	3.38 x .14

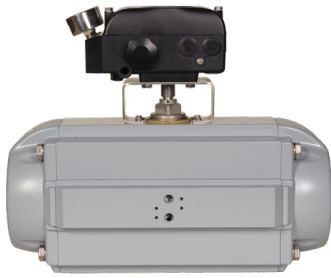
Pressure - Temperature



CSB-V Fully Lined V-Ball Flow Curve



Control Valve Accessories



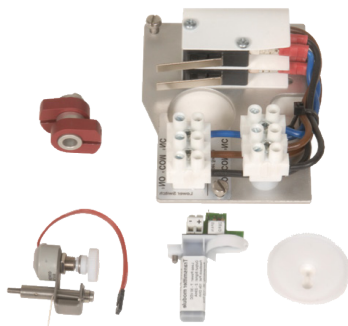
Actuator with
Pneumatic Positioner



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: **CSB-2-S1-A1-M1-L1-DA-PP-C1**

1-Size 1/2" - 8"	2-Type S1 - CSB® Standard S2 - CSBV-V Ball	3-Class A1 - 150# Flanged	4-Body Material M1 - ASTM A395 DI M2 - ASTM A351 CF8M	5-Liner L1 - PFA (standard) L2 - PVDF
6-Operators SB - Bare Shaft HL - Hand Lever MG - Manual Gear DA - DA Actuator FC - FC Actuator FO - FO Actuator OH - Oval Handwheel	7-Accessories (optional) PS - Proximity Switch DP - Digital Positioner PP - Pneumatic Positioner EP - Electro Pneumatic Positioner PR - Pressure Regulator SV - Solenoid Valve	8-Cleaning (optional) C1 - Chlorine C2 - UPW C3 - Oxygen		

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