

# V600

The V600 Cryogenic Bellows Stem Seal Valve is engineered for zero stem leakage, eliminating fugitive emissions in high-purity hydrogen and helium applications. It provides reliable containment, thermal barrier, and long-term sealing performance under extreme cryogenic conditions.

## Bellows Stem Seal Valve

Constructed from SS316 stainless steel, the V600 features a bellows stem seal design that prevents stem leakage and ensures leak-free operation throughout its service life. The valve body and bonnet extension is vacuum-jacketed to provide superior thermal insulation, minimizing heat ingress, external frost formation, and cryogen boil-off.

An optimized body and trim enhances flow performance with improved Cv and minimal pressure drop while maintaining class VI bubble-tight shutoff. The modular top-work assembly allows for efficient in-line maintenance and reduced downtime. Configurable with manual, pneumatic, or electric actuation, the V600 adapts easily to a wide range of cryogenic fluids and temperatures.

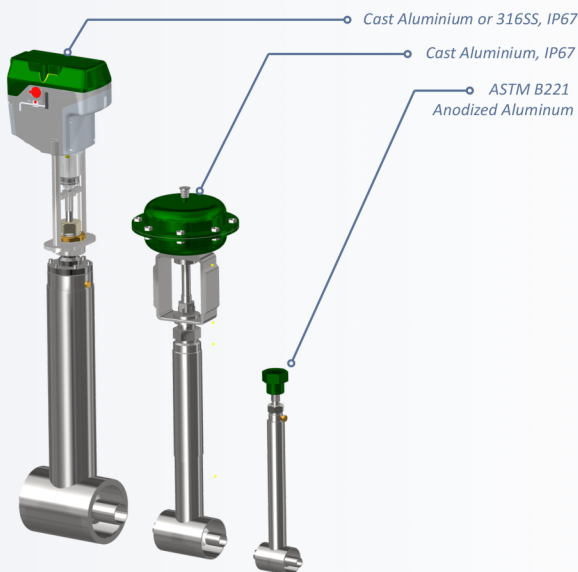
Each valve is designed for 10,000 cycles of leak free operation, ensuring consistent performance and reliability in demanding cryogenic environments.

## Features and Benefits

- Vacuum Jacketed Design minimizes heat transfer and external condensation
- Orbital Welded Construction ensures superior cleanliness and process integrity
- Enhanced Cv Performance through optimized flow path design
- Metal Bellows Stem Seal eliminates fugitive emissions and stem leakage
- Modular Top-work Stem Assembly allows fast in-line maintenance and reduced downtime
- Compliant with ASME B16.34 / MSS-SP-134 / ISO 15848
- Engineered to operate at -454°F to +302°F (-270°C to +150°C), suitable for liquid hydrogen and other cryogenic fluids at MAWP 300 psi (20 bar)
- Standard CFOS cleaning for O2 services to CGA G-4.1, EIGA IGC 33-18, and ASTM G93
- Standard Dimensional Check, He Leak Test at  $1.0 \times 10^{-9}$  cc/s, Seat Seal Bubble Tight Test at 300 psi (20 bar) N<sub>2</sub> gas, Packing Mass Test at  $1.0 \times 10^{-5}$  Torr
- Optional Pre-material certs., Test to API-598, Test to MSS-SP-134, X-ray, ASME B16.34 certification, RPTSTD-8070-0001



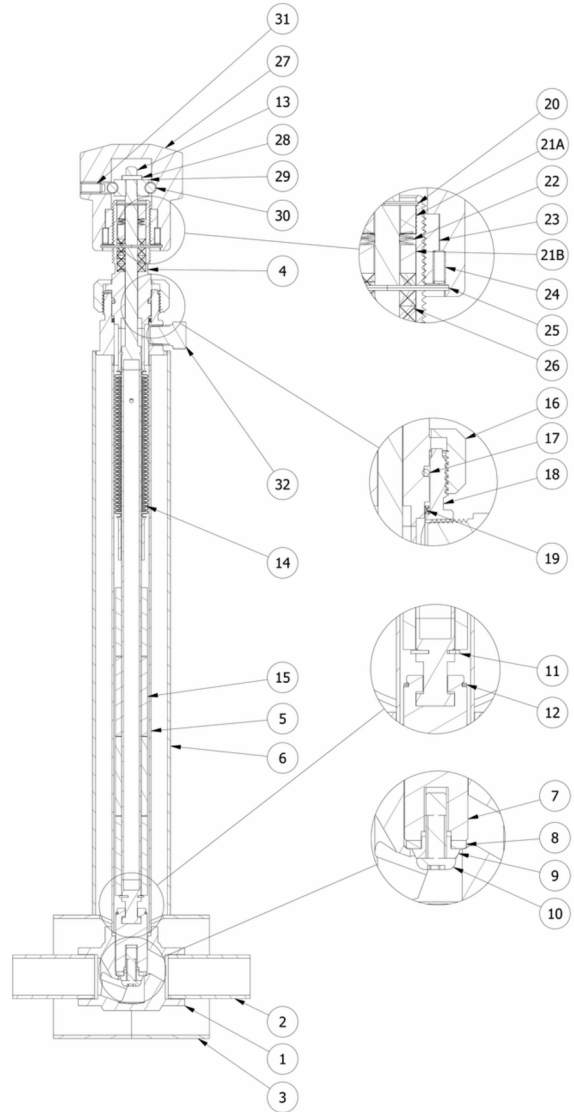
All Bellows Seal Valve comes with CSM renowned customer service, from conceptual design to implementation, and are backed by 1-year Defect Warranty.



Multi-Actuation Options:  
Manual, Pneumatic or Electric

# Bellow Stem Seal Valve Material Specifications

No.	Part	Material
1	Body	316SS, ASTM A479
2	Body Stub Pipe	316SS, ASTM A479
3	Body Jacket	316SS, ASTM A479
4	Bonnet	17-4PH (H1150), ASTM A747
5	Body Neck Tube	316SS, ASTM A479
6	Body Neck Jacket	316SS, ASTM A479
7	Plug	316SS, ASTM A479
8	Seal	C-PTFE, ASTM D1430
9	Seal Retainer	316SS, ASTM A479
10	Seal Screw	316SS, ASTM A479
11	Sleeve Retainer	316SS, ASTM A479
12	Retaining Ring	316SS, ASTM A479
13	Stem	316SS, ASTM A479
14	Bellow	F316Ti / 1.4571, ASTM A182
15	Stem Sleeve	PTFE, ASTM D1710
16	Union Nut	316SS, ASTM A479
17	Secondary Bonnet Seal	Silicon, ASTM D2000
18	Upper Body	316SS, ASTM A479
19	Primary Bonnet Seal	Graphite, API 6FA & API 607
20	Gland Retainer Ring	304SS, ASTM A479
21A	Packing Adjustment Gland	316SS, ASTM A479
21B	Packing Support Gland	316SS, ASTM A479
22	Live-loaded V-spring	316SS, ASTM A479
23	Knob Threaded Sleeve	316SS, ASTM A479
24	Lock Pin	304SS, ASTM A479
25	Retainer Ring	304SS, ASTM A479
26	Packing Gasket	Graphite, API 6FA & API 607
27	Knob	Anodized Aluminum, ASTM B221
28	Knob Retaining Ring	304SS, ASTM A479
29	Bearing Retainer	316SS, ASTM A479
30	Ball Bearing	304SS, ASTM A479
31	Grub Screw	304SS, ASTM A479
32	Vent Plug	316SS, ASTM A479



# Bellow Stem Seal Valve Dimensions

Valve Size	A	B	C	D	E	H1	H2
					Manual	Pneumatic	Electric
1/2"	0.84" (21.3 mm)	2.38" (60.3 mm)	3.00" (76.2 mm)	4.0" (101.6 mm)	17.4" (442 mm)	23.6" (600 mm)	20.9" (531 mm)
1"	1.32" (33.4 mm)	3.50" (88.9 mm)	5.00" (127.0 mm)	7.0" (177.8 mm)	20.4" (518 mm)	26.3" (667 mm)	23.9" (607 mm)
1 1/2"	1.90" (48.3 mm)	5.56" (141.2 mm)	7.00" (177.8 mm)	10.0" (254.0 mm)	25.5" (645 mm)	28.7" (730 mm)	37.4" (950 mm)
2"	2.38" (60.3 mm)	5.56" (141.2 mm)	7.00" (177.8 mm)	10.0" (254.0 mm)	25.5" (645 mm)	34.2" (867 mm)	37.4" (950 mm)
3"	3.50" (88.9 mm)	6.63" (168.4 mm)	9.00" (228.6 mm)	13.0" (330.2 mm)	28.3" (719 mm)	-	-
4"	4.50" (114.3 mm)	6.63" (168.4 mm)	9.00" (228.6 mm)	13.0" (330.2 mm)	28.3" (719 mm)	-	-

