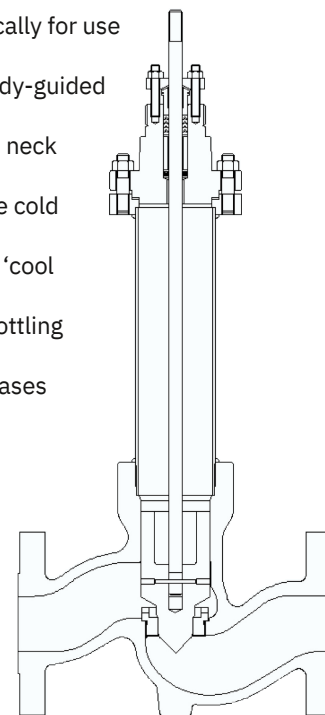


FEATURES

- The V817 offers low cool down weight because there are no flanged joints in the cold box area and the small body mass keeps heat absorption at a minimum. Low conduction through the neck extension and the valve stem makes the valve ideally suited for super-cooled environments.
- Extended body neck design of the V817 allows removal of the seat ring and plug without disturbing the cold box purge, vacuum or insulation. No gasketed joints are inside the cold box or line insulation, eliminating potential leak paths. Standard seat ring tools are available for removing trim.
- Standard plug design provides metal seat and Class IV shut-off. Proper actuator selection may allow for Class V shut-off capability.
- A soft seat plug design is available for Class VI leakage.
- Preferred mounting is 20 to 90 degrees from horizontal.
- The optional Ice-Breaker packing box is available to prevent ice formation on the valve stem and coupling.
- Mounting plate for cold box installation is offered as an accessory.

Series V817 Cryogenic Globe Valves 1"– 6" (DN25 - 150) ANSI Class 150 – 600

The Series V817 control valve is designed specifically for use in 'cold box' applications. It is a single-seated, body-guided globe style with threaded seat ring. The extended neck allows the body to bonnet flange to be outside the cold box, simplifying maintenance and providing a low 'cool down weight.' This design is generally used in throttling and/or isolation control of cryogenic liquids and gases to -450°F (-268°C).



Specifications

Body Style: Cryogenic globe.

Body Size: 1" through 6" (DN 25 through 150).

Body Rating: ANSI Class 150, 300, 600.

Body Materials: 304 Stainless steel.

End Connections: ANSI socket weld (1" – 2"), ANSI flanged (1" – 6"), ANSI butt weld (1" – 6"), others available upon request.

Body Neck Extension: Standard lengths are 15", 18", 21", 24", 27", 30" and 33". Other lengths available upon request.

Trim Style: Unbalanced, contoured or spline type plug with seat ring threaded into the body (refer to Figures 3, 4 and 5).

Flow Direction: Up through the seat ring with the contoured plug and down through the seat ring with the spline plug.

Trim Characteristic: Linear or equal percentage.

Flow Coefficient: Cv from 0.01 through 390 (refer to Tables 2 and 3).

Leakage Class: ANSI Class IV, V and VI.

Actuators: Standard bonnet mount will accept spring-diaphragm, piston and other actuators. For actuator selection, refer to KOSO Hammel Dahl actuator selection guide.

Material Selection

These charts should be used to select the pressure class and trim material combination. The thin horizontal lines are the pressure rating curves for each ANSI pressure class as listed in ANSI B16.34. In each case, the curve designates the maximum pressure and temperature for the class listed directly below the curve. The bold boundaries mark the recommended pressure and temperature limits for trim material combinations listed in the tables below. All recommendations are generalized and may be subject to adjustment based upon hydraulic considerations determined during the valve sizing process.

Figure 1. Trim Chart for Stainless-Steel Body (ASTM A351, CF8)

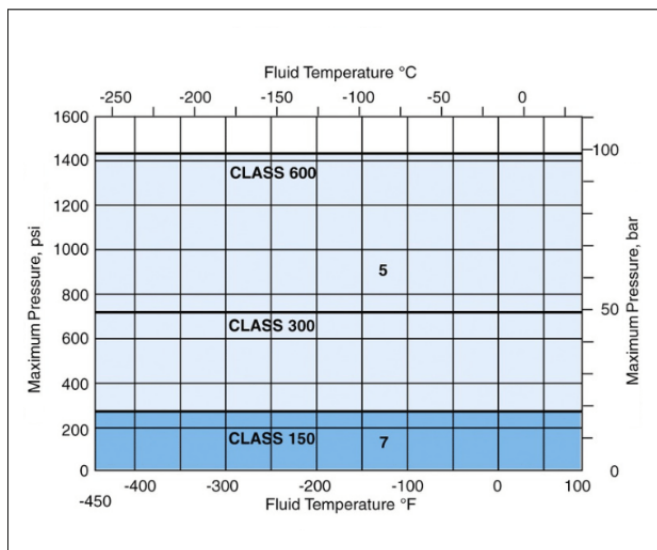


Figure 2. PCTFE Soft-Seat Rating Chart

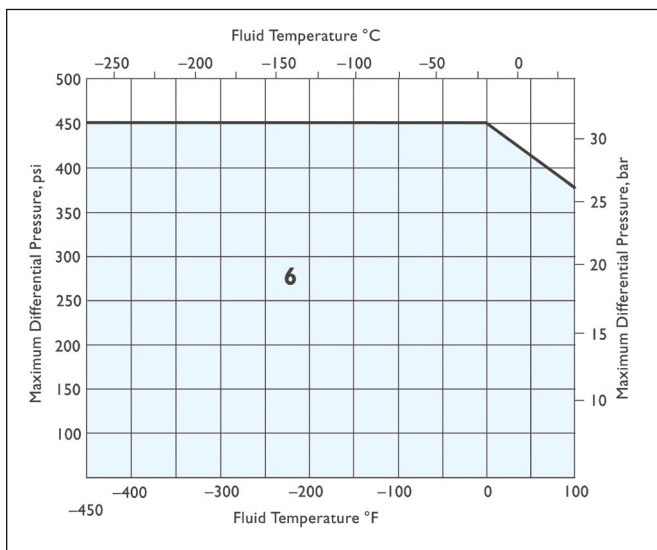


Table 1. Standard Trim Materials*

Trim Code	Plug	Seat Ring	Stem
5	304 SS/HFS	316 SS/HFS	17-4 PH
6	304 SS/PCTFE	316 SS	17-4 PH
7	304 SS	316 SS	17-4 PH
S	Alloy 6 Spline 316 SS Post	Alloy 12 Insert 316 SS Ring	316 SS

* KOSO Hammel Dahl reserves the right to substitute materials when appropriate, based upon service or availability. Unless otherwise specified, the hard facing is Alloy 6.

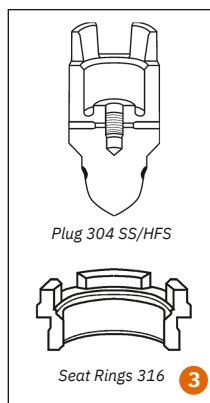


Figure 3. Standard Plug & Seat Ring

The standard plug is contoured and guides on the inside of the body neck. The seat ring is threaded into the body. The standard trim material is 304SS and flow is from under the plug.

Hard facing of seating surfaces (HFS, trim code 5) is available for difficult service applications. The hard facing is applied to the stainless steel base material on the seating surfaces of the plug and seat ring.

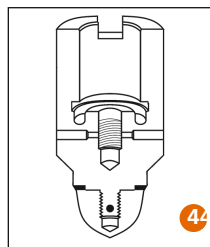


Figure 4. Soft Seat

PCTFE soft seat insert is captured in the plug head and provides ANSI Class VI shut-off. For valves with a Cv of 5.4 or smaller, the soft-seat insert is captured in the seat ring.

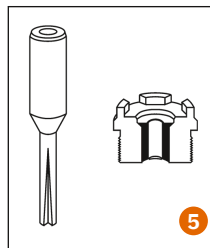


Figure 5. Spline Trim

The flow coefficient for this low flow trim design is determined by the V-shaped flute machined in the plug. As the plug is raised, the flow area formed by the seat ring and flute increases. The resultant characteristic is modified equal percentage. Flow direction is over the plug allowing the flow media to flush obstructions. This trim may be used throughout the available pressure classes.

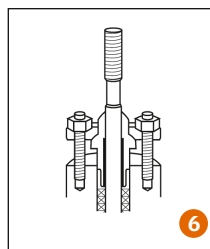


Figure 6. Icebreaker Packing Box

Ice formation on valve stems in cryogenic applications can abrade packing and cause valve freeze-up. The icebreaker is a close tolerance, knife-edge packing follower that literally scrapes the valve stem free of ice. Together with a Rulon® bearing inserted within the follower, the possibility of ice and water seepage into the packing box is virtually eliminated.

* Note: Rulon is a registered trademark of Saint-Gobain Performance Plastics.

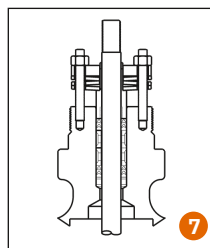


Figure 7. Live-Loaded Packing

Live-Loaded packing provides a simple, economic means for enhancing emissions control to meet evolving standards. It incorporates a double packed PTFE V-ring design that is live-loaded with stacked and guided spring washers. A single-packed laminated graphite version is also available. Both designs can be provided as options on new valves, or as kits to retrofit existing valves.

Flow Capacity

Table 2. Flow Coefficient (Cv) at Maximum Travel-Standard Trim

Flow Characteristic	Trim Size	Size Code	1 (25)	1.5 (40)	2 (50)	3 (80)	4 (100)	6 (150)
Equal Percentage Contoured	Full Size	A	13.4	31	50	105	190	390
	1 Reduction	B	9.0	13.9	32	49	105	192
	2 Reduction	C	5.4	7.0	13.2	35	55	120
	3 Reduction	D	3.6	5.4	9.0	NOT AVAILABLE		
	4 Reduction	E	1.8	3.6	5.4			
	5 Reduction	F	1.4	1.8	3.6			
	6 Reduction	G	1.0	1.4	1.8			
7 Reduction	H	0.67	1.0	1.4				
Linear Contoured	Full Size	A	13.0	32	51	105	217	390
	1 Reduction	B	6.9	13.9	32	48	115	198
	2 Reduction	C	4.5	5.8	13.5	35	53	120
	3 Reduction	D	2.5	4.5	6.9	NOT AVAILABLE		
	4 Reduction	E	1.7	2.5	4.5			
	5 Reduction	F	1.1	1.7	2.5			
	6 Reduction	G	0.63	1.1	1.7			
7 Reduction	H	0.48	0.63	1.1				

Table 3. Spline Trim

Code	Number	Rated Cv
M	1	0.66
N	2	0.53
P	3	0.31
Q	4	0.25
R	5	0.17
S	6	0.10
T	7	0.053
U	8	0.027
V	9	0.017
W	10	0.01

Note: Available in 1 in. (DN 25) valve body only.

Table 4. Valve Body Dimensional Data – inches (mm) ANSI Classes 150 - 600

Body Size Inches (mm)	Travel Inches (mm)	A							C Inches (mm)
		Socket Weld Inches (mm)		Butt Weld Inches (mm)		Raised Face Flange Inches (mm)			
		Class 150-300	Class 600	Class 150-300	Class 600	Class 150	Class 300	Class 600	
1 (25)	1.00 (25)	7.75 (197)	8.25 (210)	8.25 (210)	8.25 (210)	7.25 (184)	7.75 (197)	8.25 (210)	2.38 (60)
1.50 (40)	1.13 (29)	9.25 (235)	9.88 (251)	9.88 (251)	9.88 (251)	8.75 (222)	9.25 (235)	9.88 (251)	2.94 (75)
2 (50)	1.13 (29)	10.50 (267)	11.25 (286)	11.25 (286)	11.25 (286)	10.00 (254)	10.50 (267)	11.25 (286)	3.38 (86)
3 (80)	1.50 (38)	—	—	13.25 (337)	13.25 (337)	11.75 (298)	12.50 (318)	13.25 (337)	4.63 (118)
4 (100)	1.50 (38)	—	—	15.50 (394)	15.50 (394)	13.88 (353)	14.50 (368)	15.50 (394)	5.31 (135)
6 (150)	2.25 (57)	—	—	20.00 (508)	20.00 (508)	17.75 (451)	18.63 (473)	20.00 (508)	6.63 (168)

Notes: B represents the length of the body neck extension and is available in lengths of 15" (381 mm), 18" (457 mm), 21" (533 mm), 24" (610 mm), 27" (686 mm), 30" (762 mm) and 33" (838 mm).

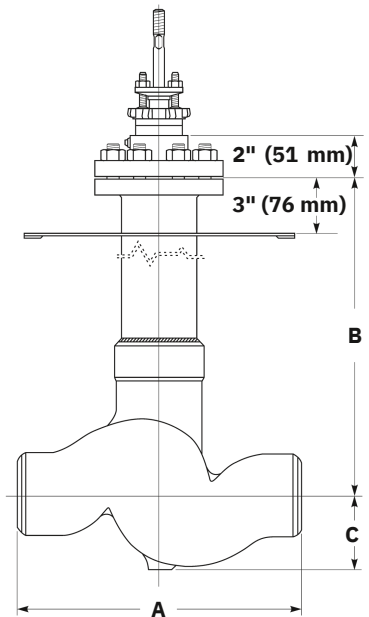
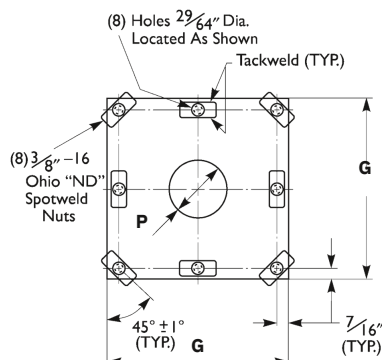


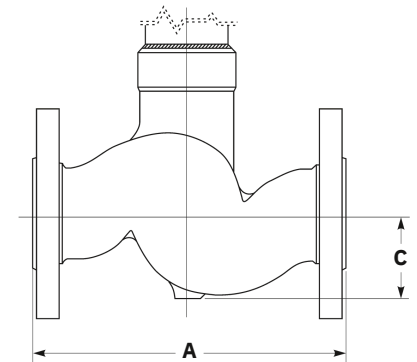
Table 5. Square Cold Box Mounting Plate Dimensional Data – inches (mm)

Body Size Inches (mm)	P Neck Diameter Inches (mm)	G Plate Dimension Inches (mm)
1 (25)	1.95 (49)	7.0 (178)
1.5 (40)	2.42 (61)	7.0 (178)
2 (50)	2.92 (74)	7.0 (178)
3 (80)	3.55 (90)	12.0 (305)
4 (100)	4.55 (115)	12.0 (305)
6 (150)	6.66 (169)	12.0 (305)

Figure 8. Square Cold Box Mounting Plate Detail



Note: For vertical installation only.



How To Order

To completely specify a control valve, make a selection from each category in the Valve Model Coding System below. The assembled codes create a complete valve model number. The Valve Model Coding System displays the standard product offering for this product line. An extensive number of options and variations exist, which are not listed. For options not shown or to enter an order, contact your local sales representative.

1	Model
V817	Cryogenic Globe Valve

2	Body Size in. (mm)
F	1 (25)
H	1-1/2 (40)
J	2 (50)
L	3 (80)
N	4 (100)
Q	6 (150)

3	Body Rating
G	150
H	300
F	600

4	Body Material
D	304 Stainless Steel (ASTM A351, CF8)

5	End Connections
3	Raised Face Flange
6	Socket Weld
7	Butt Weld Sch. 10
8	Butt Weld Sch. 40

6	Body Neck Length* in. (mm)	
A	15 (381)	Without Mounting Plate
B	18 (457)	
C	21 (533)	
D	24 (610)	
E	27 (686)	
F	30 (762)	
G	33 (838)	
R	15 (381)	With Square Mounting Plate (see Figure 8)
S	18 (457)	
T	21 (533)	
U	24 (610)	
V	27 (686)	
W	30 (762)	
X	33 (838)	

* Refer to Table 4.

7	Trim Characteristics
C	Linear, Contoured
E	Equal Percentage Contoured
N	Spline*

* Spline trim must be specified with code S trim material.

8	Trim Size
A	Full Size
B	1 Reduction
C	2 Reduction

*Refer to page 3 for additional reduction options and spline trim trim size codes

9	Trim Materials		
	Plug	Seat Ring	Stem
5	304 SS/HFS	316 SS/HFS	17-4 PH
6	304 SS/PCTFE	316 SS	17-4 PH
7	304 SS	316 SS	17-4 PH
S	Alloy 6 Spline 316 SS Post	Alloy 12 Insert 316 SS Ring	17-4 PH

10	Packing Options
B	Live-Loaded PTFE V-Ring
G	PTFE V-Ring with Packing Spacer
Y	Double PTFE V-Ring W/Packing Spacer
3	Live-Loaded PTFE/Graphite
9	Laminated Graphite Ring

11	Variations
—	None
L	Ice Breaker Packing Box
R	Cleaning per FCS-02 (Inert Service)
S	Cleaning per FCS-04 (Hazardous Service)

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