



Valves, Automation & Controls

SERIES 88



*HIGH PURITY TUBE FULL PORT
3-PIECE BALL VALVE*

SMITH-COOPER[®]
INTERNATIONAL

Design & Features

ASME / BPE-2009

Designed specifically for the demanding process requirements found in the pharmaceutical, biotech, cosmetic, food and other industries where aseptic conditions are required.

5% or Less Ferrite Content

Content of less than 5% to prevent rouging.

Low Sulphur

All welded end parts made from 316L stainless steel supplied with sulphur content of 0.005 - 0.017% assuring the integrity of the orbital welding. (BPE 2009)

All Wetted Parts Polish To 14-18 Ra, 240 Grit

Significantly reduces friction between valve and media. Crevice-free smooth surface helps eliminate areas where contaminants can proliferate. (BPE 2009)

FDA Compliant Material Hygienic Seating Design

PTFE and TFM® seats provide a bubble-tight bidirectional shut off. Encapsulated PTFE and TFM® body seals eliminate entrapment area between valve body and valve end. Optional PTFE cavity fillers eliminate the dead space between the ball and valve body. (BPE 2009)

Extended Butt Weld Ends

Meets table DT-4 minimal length for automatic welding. (BPE 2009)

Tube Full Port Design (TFP)

Tube full-port maintains unrestricted flow of media.

3-Piece Design

In-line serviceable swing out center section allows easy access to internal valve components without disturbing alignment of tubing.

Integral Mounting Pad

Actuation centering lip feature assures precise alignment of bracket, stem and coupler. Actuators may be retrofit on existing 88 Series valves without disruption of line integrity. Allows for secondary containment unit to be added when required.

Handle

All Sharpe Series ball valves come standard with lockable handles.

Variety of Aseptic End Connections

Standard ends are Tri Clamp® (CE) or butt weld end extensions (BTE) for orbital welders. Optional end connections include Flush Bottom tank pads, short butt weld tube, butt weld tube of Cherry Burrell I, S, Q line.

Stem Design

Live loaded, bottom entry, blowout proof anti-static stem features packing that extends valve cycle life over conventional ball valves and is the best choice for actuation.

Encapsulated Body Bolts

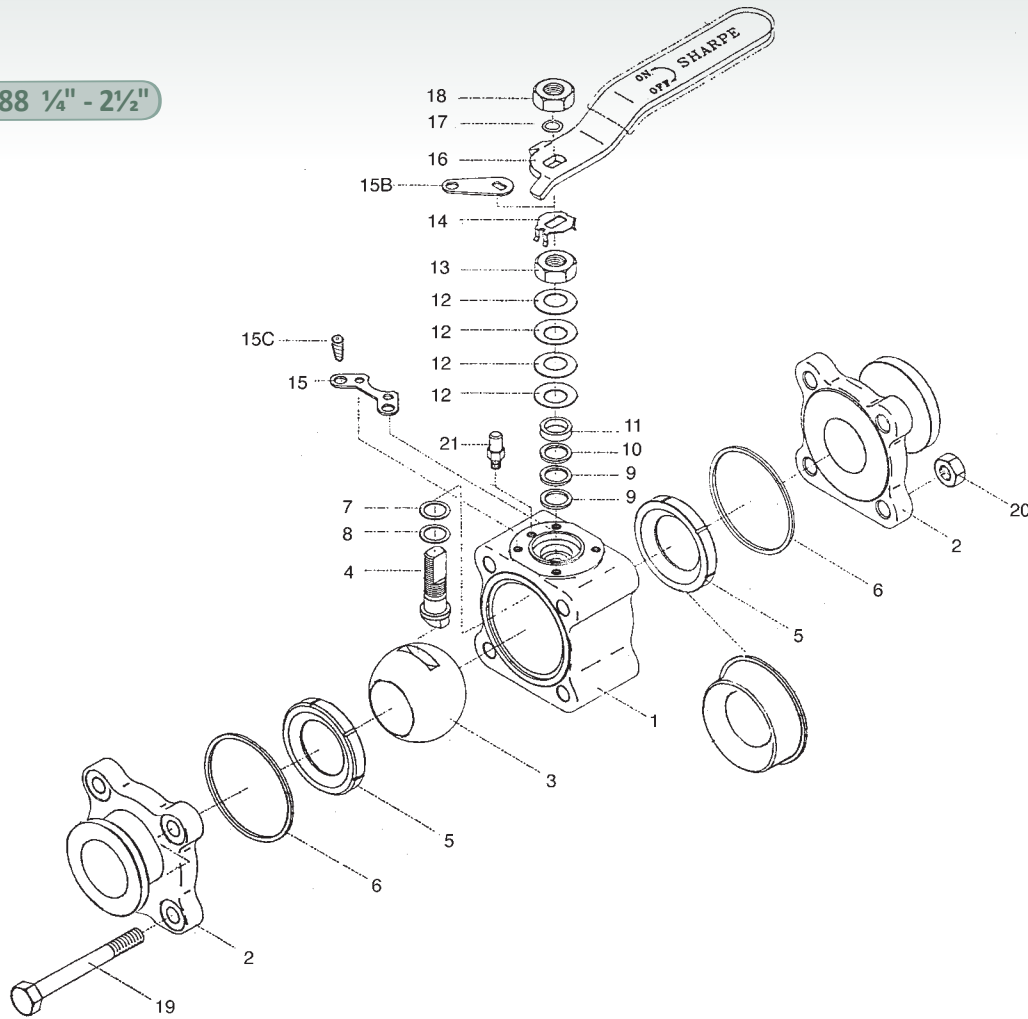
Heavy duty stainless steel bolting is protected from outside environment and is ideal for washdowns.

Traceability

Heat numbers are provided for all wetted parts, body, stem, ball, and ends. CMTR's (Certified Mill Test Reports).

Parts & Materials

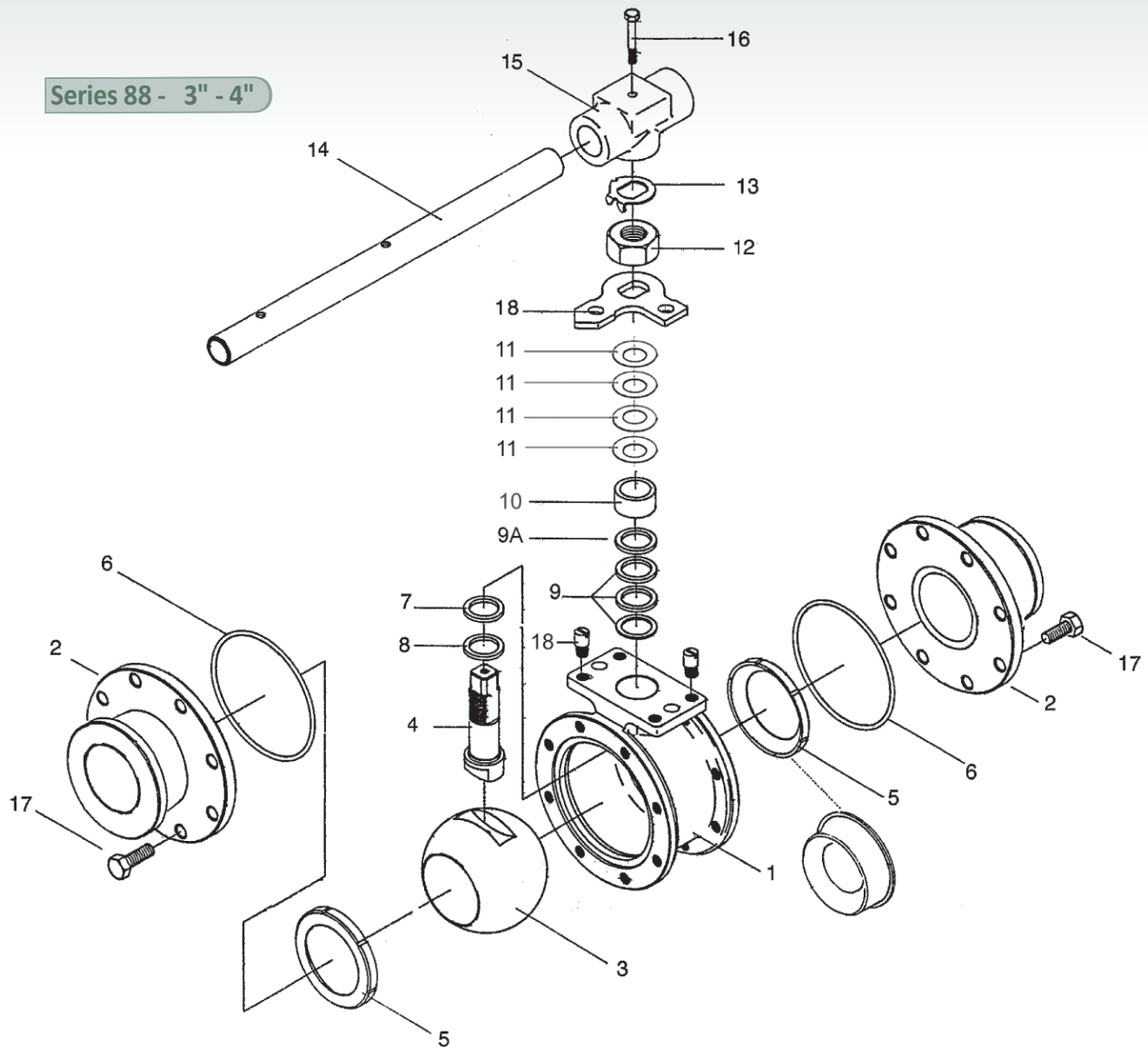
Series 88 1/4" - 2 1/2"



NO.	PART	QTY.	MATERIAL
1	Body	1	316L Stainless Steel ASTM A351 CF3M
2	Pipe Ends	2	316L Stainless Steel ASTM A351 CF3M
3	Ball	1	316L Stainless Steel
4	Stem	1	316L Stainless Steel
5	Valve Seat	2	TFM® / PTFE / TFE / RTFE / Cavity Filler PTFE
6	Valve Seal	2	TFM® / PTFE
7	Thrust Bearing	1	TFM®
8	Thrust Bearing	1	TFM®
9	Stem Packing	2	TFM®
10	Packing Protector	1	TFM®
11	Gland Packing	1	300 Series Stainless Steel

NO.	PART	QTY.	MATERIAL
12	Belleville Washer	4	300 Series Stainless Steel
13	Packing Nut	1	300 Series Stainless Steel
14	Lock Tab	1	300 Series Stainless Steel
15	Lower Lock Latch	1	300 Series Stainless Steel
15B	Upper Lock Latch Bolt	1	300 Series Stainless Steel
15C	Latch Bolt	1	300 Series Stainless Steel
16	Handle	1	300 Series Stainless Steel
17	Lock Washer	1	300 Series Stainless Steel
18	Handle Nut	1	300 Series Stainless Steel
19	Body Bolts	4	304 Stainless Steel
20	Nuts	4	316 Stainless Steel
21	Stop Pin	1	300 Series Stainless Steel

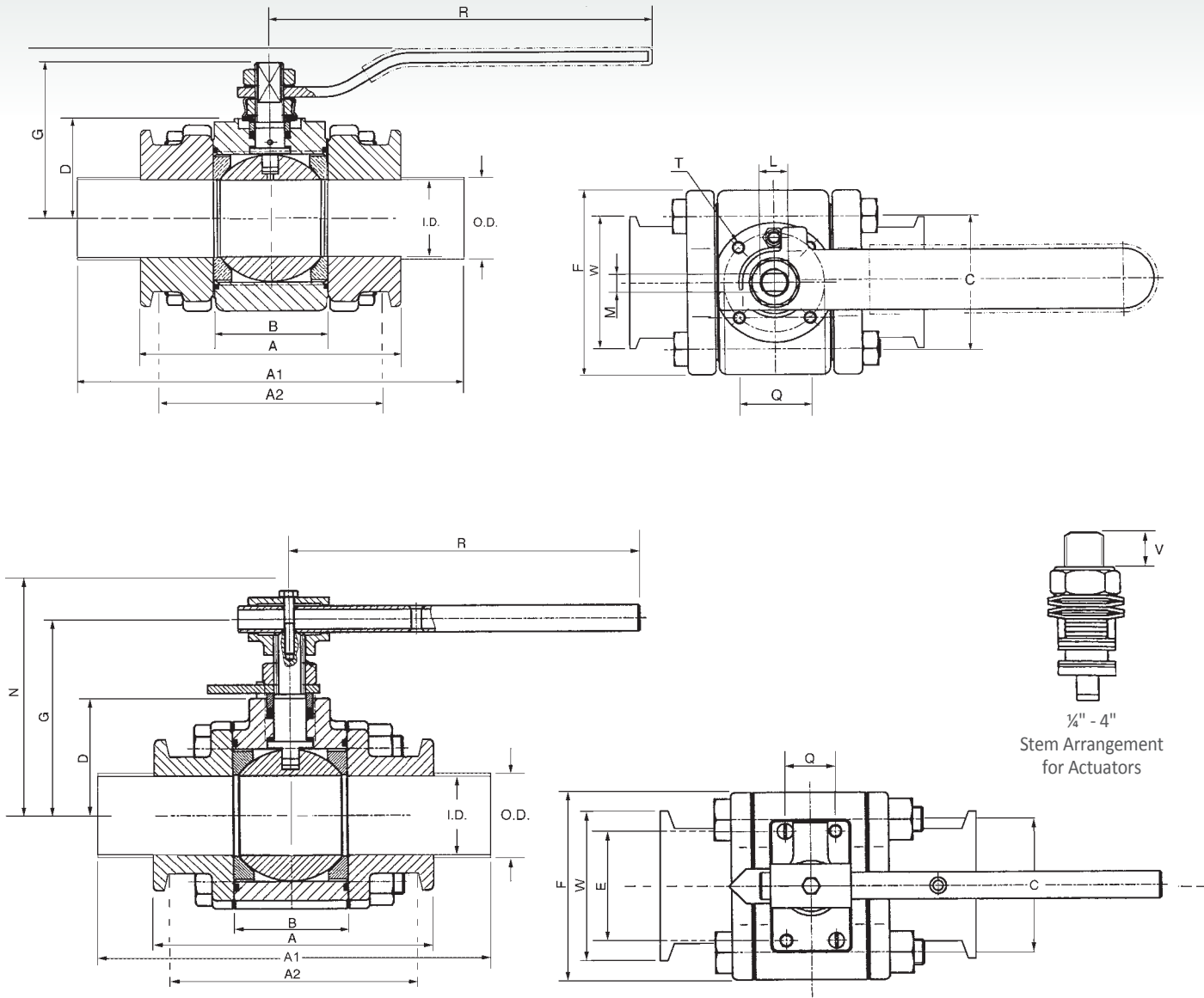
Parts & Materials



NO.	PART	QTY.	MATERIAL
1	Body	1	316L Stainless Steel ASTM A351 CF3M
2	Pipe Ends	2	316L Stainless Steel ASTM A351 CF3M
3	ball	1	316L Stainless Steel
4	Stem	1	316L Stainless Steel
5	Seat	2	TFM® / PTFE / TFE / RTFE / Cavity Filler PTFE
6	Body Seal	2	TFM® / PTFE
7	Thrust Bearing	1	TFM®
8	Thrust Bearing	1	TFM®

NO.	PART	QTY.	MATERIAL
9	Stem Packing	3	TFM®
9A	Packing Protector	1	TFM®
10	Gland Packing	1	300 Series Stainless Steel
11	Belleville Washer	4	300 Series Stainless Steel
12	Packing Nut	1	300 Series Stainless Steel
13	Lock Tab	1	300 Series Stainless Steel
14	Wrench	1	300 Series Stainless Steel
15	Wrench Block	1	300 Series Stainless Steel
16	Hex Head Bolt	1	300 Series Stainless Steel
17	Body Bolts	16	300 Series Stainless Steel
18	Stop Pin	2	300 Series Stainless Steel

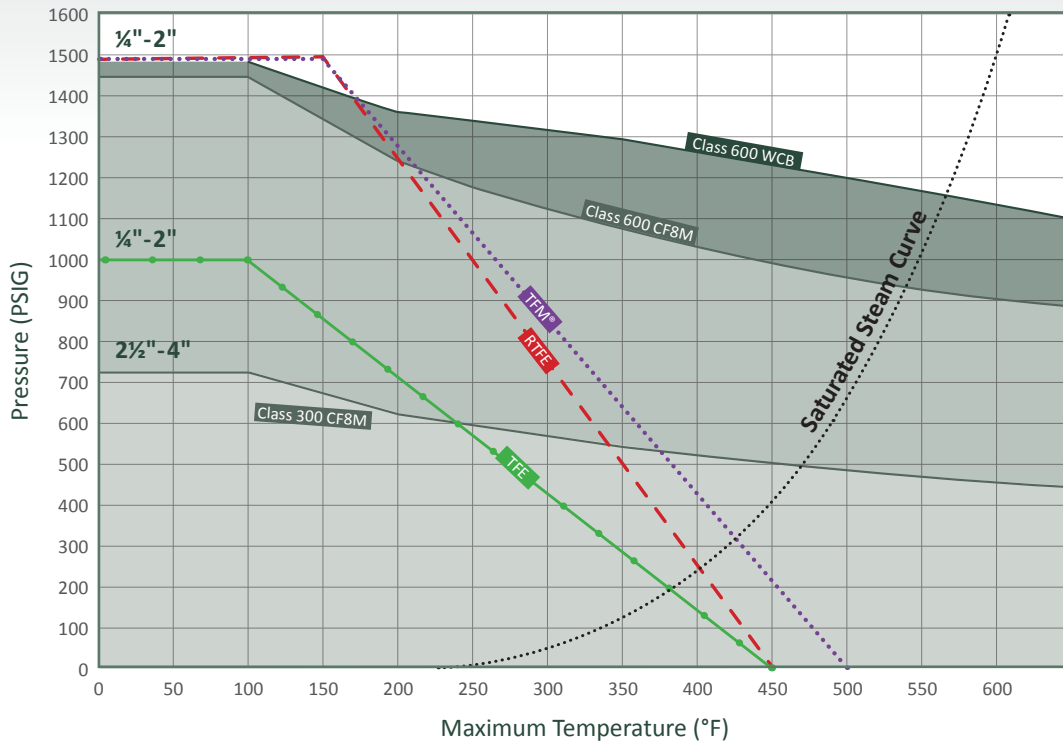
Dimensions



SIZE	A	A1	A2	B	C	D	E	F	G	L	M	N	Q	R	T	W	V	O.D.	I.D.
1/4"	3.50	5.53	2.50	0.97	1.25	1.14	1.00	1.79	1.64	3/8" - 24 UNF	0.22	2.23	1.00	4.50	M5	0.992	0.35	0.25	0.18
3/8"	3.50	5.53	2.50	0.97	1.25	1.14	1.00	1.79	1.64	3/8" - 24 UNF	0.22	2.23	1.00	4.50	M5	0.992	0.35	0.38	0.30
1/2"	3.50	5.53	2.50	0.97	1.25	1.14	1.00	1.79	1.64	3/8" - 24 UNF	0.22	2.23	1.00	4.50	M5	0.992	0.35	0.50	0.37
3/4"	4.00	6.01	3.03	1.05	1.50	1.20	1.00	1.86	1.69	3/8" - 24 UNF	0.22	2.28	1.00	4.50	M5	0.992	0.35	0.75	0.62
1"	4.50	6.50	3.54	1.54	1.75	1.67	1.17	2.36	2.36	1/2" - 20 UNF	0.30	2.84	1.17	5.79	M5	1.984	0.39	1.00	0.87
1 1/4"	4.50	6.50	4.12	1.74	2.00	1.71	1.17	2.63	2.52	1/2" - 20 UNF	0.30	3.12	1.17	5.79	M5	1.984	0.39	1.25	1.12
1 1/2"	5.50	7.50	4.52	2.13	2.25	1.96	1.39	3.24	3.07	1/2" - 18 UNF	0.35	3.33	1.39	6.78	M6	1.984	0.56	1.50	1.37
2"	6.25	8.06	5.30	2.65	2.62	2.30	1.39	3.93	3.43	1/2" - 18 UNF	0.35	3.68	1.39	6.78	M6	2.527	0.57	2.00	1.87
2 1/2"	6.75	10.00	5.78	3.20	3.35	3.25	1.95	4.87	5.26	M20-P25	0.55	5.98	1.95	8.73	M8	3.340	0.42	2.50	2.37
3"	6.75	10.00	5.81	3.96	5.50	4.28	2.84	6.69	6.54	1.14 UNS	0.75	7.60	2.84	13.80	M10	5.500	0.85	3.00	2.87
4"	8.24	11.00	7.06	4.73	6.97	4.81	2.84	7.99	7.13	1.14 UNS	0.75	8.30	2.84	13.80	M10	6.970	0.85	4.00	3.83

Technical Information

Pressure - Temperature Chart



Available Options

Mechanical Polishing

Available to 320 Grit (10 Ra). Improves machined surface by removing entrapment areas and adding a high luster appearance.

Purge Ports

Available on bodies or ends. These ports are suitable for CIP (clean in place) and SIP (sterilize in place) applications.

Electro-Polishing

Improves surface finish of mechanical polishing up to 50%. Passivates surface for increased corrosion resistance. Removes any entrapped contaminants.

Flush Bottom Tank Pads

Highly polished and made from 316L bar stock. Tube full port assures quick unobstructed drainage.

Conversion Table of surface finishes

Surface Designation ASME	Mechanically Polished			
	Ra Average		Ra Max	
	μ-in.	μ-m	μ-in.	μ-m
BPE				
SFV1	15	0.375	20	0.500
SFV2	20	0.500	25	0.625
SFV3	25	0.625	30	0.750

Conversion Table Chart

Standard Grit	Ra		RMS	
	μ-in.	μ-m	μ-in.	μ-m
150 Grit	27-32	.68 - .80	30-35	.76 - .89
180 Grit	18-23	.46 - .58	20-25	.51 - .64
240 Grit	14-18	.34 - .36	15-20	.38 - .51
320 Grit	8-10	.21 - .25	9-11	.23 - .28

Surface Designation ASME	Mechanically Polished and Eletropolished			
	Ra Average		Ra Max	
	μ-in.	μ-m	μ-in.	μ-m
BPE				
SFV4	10	0.250	15	0.375
SFV5	15	0.375	20	0.500
SFV6	20	0.500	25	0.625



Technical Information

Weight

SIZE	TRI CLAMP END	EXTENDED BUTT WELD END	SHORT BUTT WELD
¼"		1.50	1.40
⅜"		1.50	1.40
½"		1.50	1.40
¾"		2.00	1.85
1"		3.90	3.60
1¼"		6.00	5.70
1½"		7.50	7.30
2"		12.10	11.70
2½"		20.80	20.00
3"		32.70	30.80
4"		47.50	45.00

Cv Factor

SIZE	Cv
¼"	1.5
⅜"	3.2
½"	8.1
¾"	28.6
1"	67
1¼"	110
1½"	192
2"	434
2½"	779
3"	1123
4"	2054

How To Order

Fig: 1 - 1/2 - 88 - 6 - 6 - T - T - CE

Description: 1-1/2" - 88 - 316L Stainless Steel - 316L Stainless Steel - TFE Seat - PTFE Body Seal - Tri Clamp Ends

Size	Series	Body & Ends	Ball & Stem	Seat	Body Seal	Ends	Options
1/4*	88	6 316L Stainless Steel	6 316L Stainless Steel	T TFE (virgin) PTFE	M TFM®	CE Tri Clamp	EP Electro Polish
3/8*				M TFM®	T PTFE	BTE Butt-weld Tube Extended	3 320 Grit / 8-10 RA*(320 Grit)
1/2				C Cavity Fill		BE Butt-weld (Short)*	PP1 Purge Port on One End*
3/4						TP Flush Bottom*	PP2 Purge Port on Two Ends*
1							PP3 Purge Port on Ends & Body*
1-1/4*						CHERRY BURRELL	PPB Purge Port on Body*
1-1/2						I I Line*	VF Purge with VCR Female*
2						S S Line*	C Purge Port Compression*
2-1/2						Q Q Line*	VM Purge Port VCR Male*
3							OT Purge Port O.D. Tubing*
4							C Purge Port with Clamp*
							X Oxygen Service*
							OH Oval Handle
							L Lockable Extended Stem

* Silicone Free

Due to continuous development of our product range, we reserve the right to change the dimensions and information for this product as required.



SMITH-COOPER®

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