



Valves, Automation & Controls

# ***SERIES 88***



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

**SMITH-COOPER<sup>®</sup>**  
INTERNATIONAL

# Design & Features

## Body Material

316L Stainless Steel

## 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 are 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 Seat and Seal 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 ends.

Optional PTFE cavity fillers eliminate the dead space between the ball and valve body.

## Extended Butt Weld Ends

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

## 3-Piece Design

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

## Floating Ball Design

Precision engineered and machined solid stainless steel ball with relief hole in the stem slot prevents build-up of cavity pressure while the valve is open.

## Stem Design

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

Stem seals are live-loaded using Belleville springs to provide consistent sealing forces, reducing or eliminating the need for frequent seal adjustment.

## ISO 5211 Integral Mounting Pad

Ideal for actuation.

Centering lip feature assures precise alignment of bracket, stem and coupler.

Actuators may be retrofitted on existing Sharpe® Series 88 without disruption of line integrity.

Allows for secondary containment unit to be added when necessary.

## Tongue and Groove Design

Fully encapsulated body seals, allowing ends to be welded in-line, without time consuming and labor intensive disassembly.

Design compensates for bolt expansion and reduces the chance of external leakage.

Helps prevent seal ruptures in high pressure, cryogenic or steam applications.

## Variety of End Combinations

End connections available include; Clamp End (CE), Butt Weld Extensions (BTE) for orbital welders.

Optional ends include but are not limited to; Short Butt Weld Tube, Butt Weld Tube of Cherry Burrell I, S & Q line and Flush Bottom Tank Pads.

## Encapsulated Body Bolts

Heavy duty stainless steel bolting is protected from outside environment assuring valve integrity.

Ideal for wash-downs.

## Lockable Handle

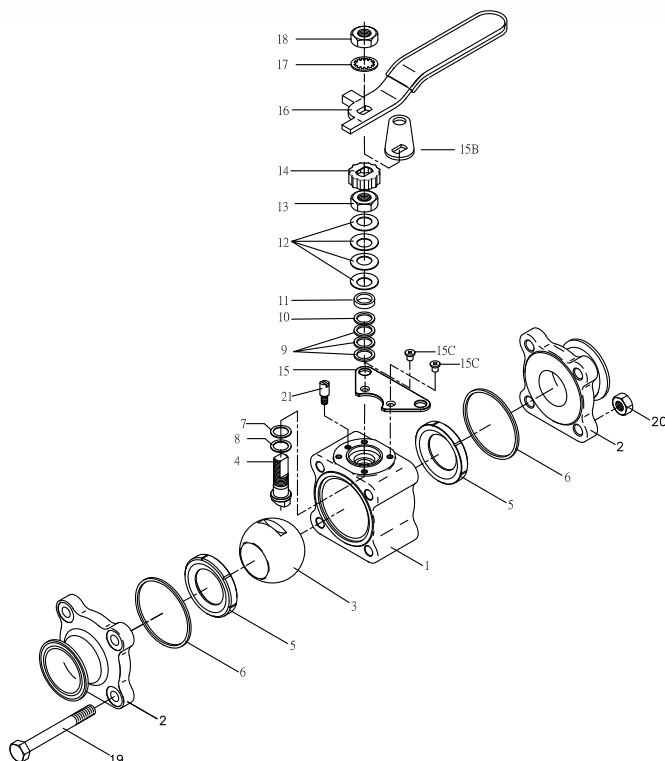
All Sharpe® Series 88 valves are supplied with lever or pipe handles and are designed to permit locking the valve in either the open or closed position.

## Traceability

Body, end piece, ball and stems are marked with heat codes providing traceability to the chemical analysis and material test reports performed at the foundry. CMTR's are supplied with every Sharpe® Series 88 Ball Valves.

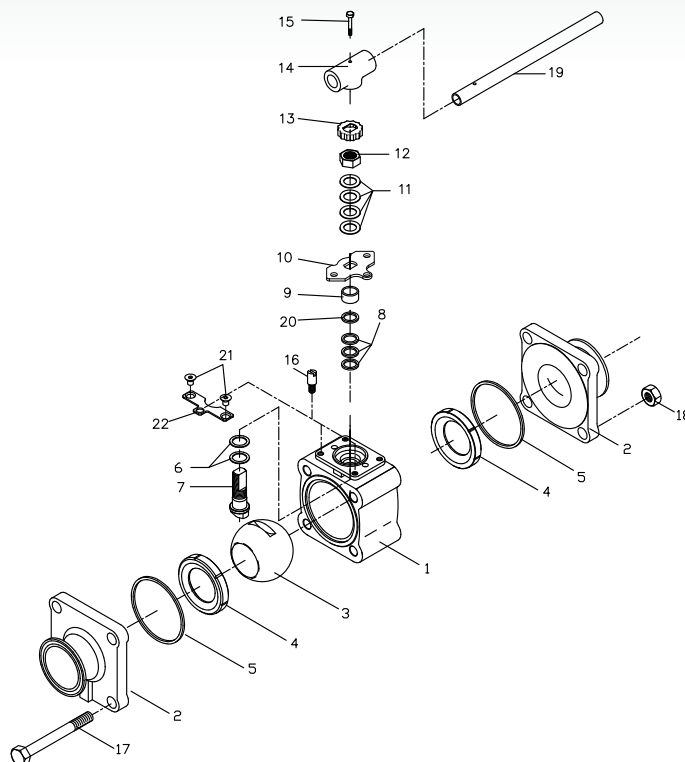
## Parts & Materials

Series 88 1/4" - 2"



No.	Part Name	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/RTFE/Cavity Filler PTFE
6	Body Seal	2/3	PTFE, TFM®
7	Thrust Bearing	1	TFM®
8	Thrust Bearing	1	TFM®
9	Stem Packing	3	TFM®
10	Seal Protector	1	TFM®
11	Gland	1	300 Series Stainless Steel
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	1	300 Series Stainless Steel
15C	Latch Bolt	2	300 Series Stainless Steel
16	Handle	1	300 Series Stainless Steel
17	Lock Washer	1	300 Series Stainless Steel
18	Handle Nut (1/4" - 2")	1	300 Series Stainless Steel
19	Body Bolts	4	304 Stainless Steel
20	Nuts	4	300 Series Stainless Steel
21	Stop Pin (1/2")*	2	300 Series Stainless Steel

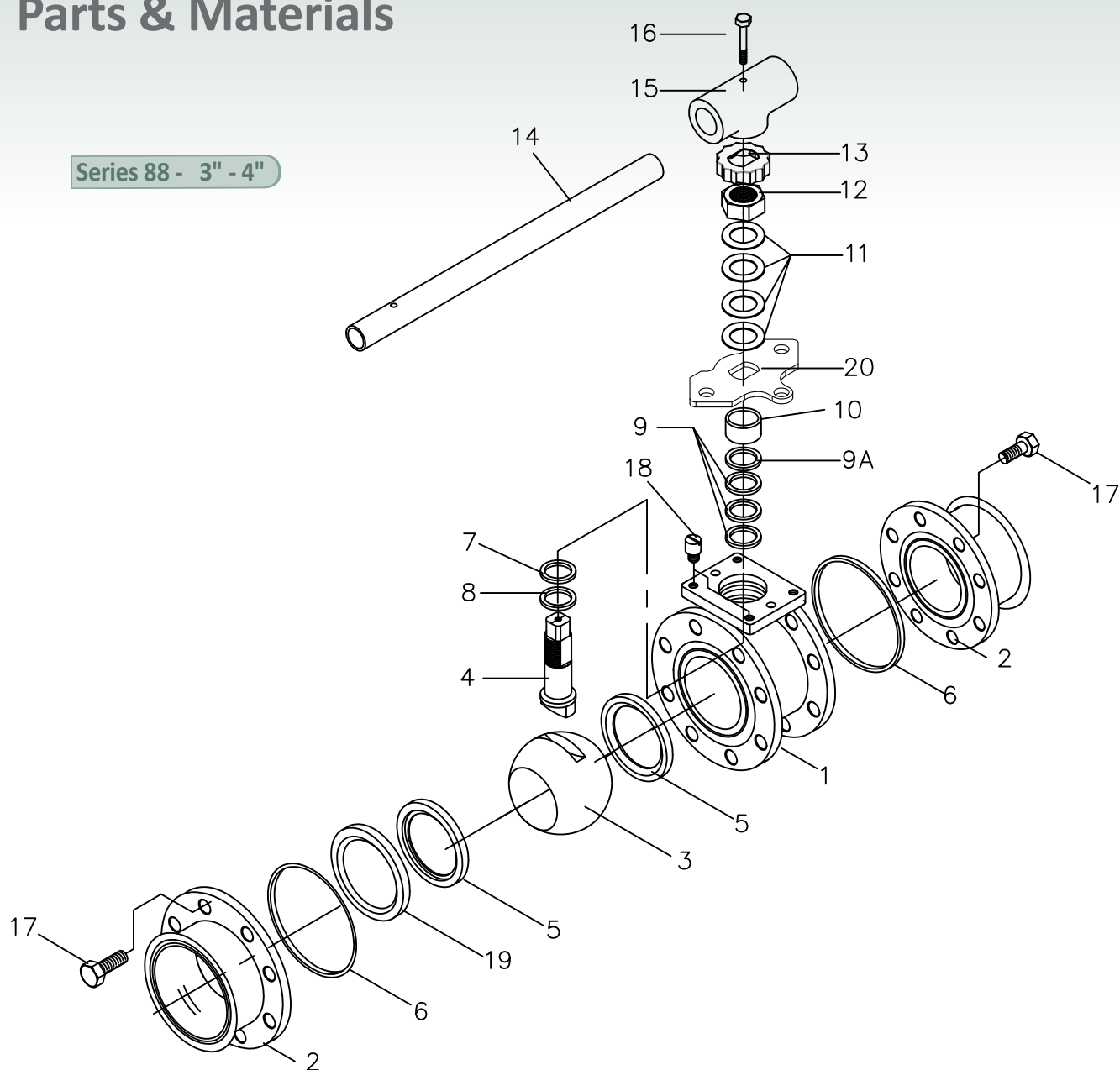
Series 88 2 1/2"



No.	Part Name	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	Seat	2	TFM®, PTFE/RTFE/Cavity Filler PTFE
5	Body Seal	2	PTFE, TFM®
6	Thrust Bearing	2	TFM®
7	Stem	1	316L Stainless Steel
8	Stem Seal	3	TFM®
9	Gland	1	300 Series Stainless Steel
10	Stopper	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 Block	1	300 Series Stainless Steel
15	Handle Bolt	1	300 Series Stainless Steel
16	Stop Pin	1	300 Series Stainless Steel
17	Body Bolts	4	304 Stainless Steel
18	Body Nuts	4	300 Series Stainless Steel
19	Handle	1	300 Series Stainless Steel
20	Gland Washer	1	300 Series Stainless Steel
21	Screw	2	304 Stainless Steel
22	Lower Stopper	1	316 Stainless Steel

## Parts & Materials

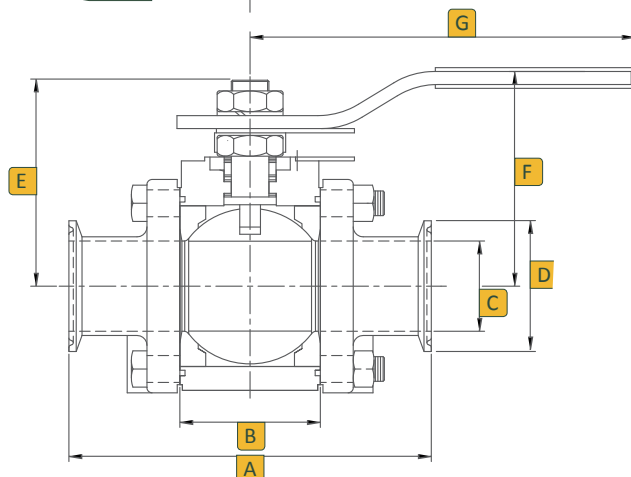
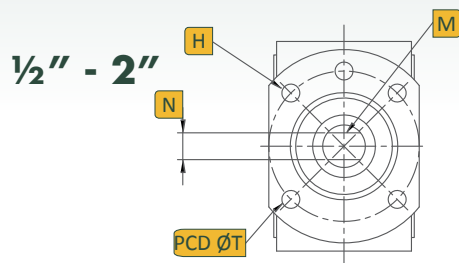
Series 88 - 3" - 4"



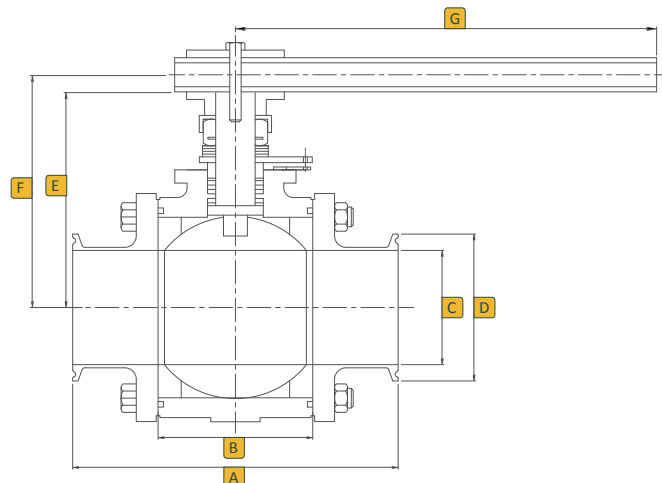
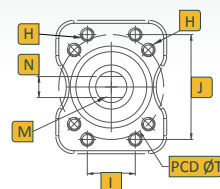
No.	Part Name	Qty	Material
1	Body	1	316L Stainless Steel ASTM A351 CF3M
2	Pipe Ends	2	316L Stainless Steel ASTM A351 CF3M
3	Ball	1	316L Stainless Steel
4	Stem	1	316L Stainless Steel
5	Seat	2	TFM®, PTFE/RTFE/Cavity Filler PTFE
6	Body Seal	2	PTFE, TFM®
7	Thrust Bearing	1	TFM®
7A	Stem Location Ring	1	300 Series Stainless Steel
8	Thrust Bearing	1	TFM®
9	Stem Packing	3	TFM®
9A	Packing Protector	1	300 Series Stainless Steel

No.	Part Name	Qty	Material
10	Gland	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	Handle	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	304 Stainless Steel
18	Stop Pin	1	300 Series Stainless Steel
19	Seat Retainer	1	300 Series Stainless Steel
20	Stopper	1	300 Series Stainless Steel

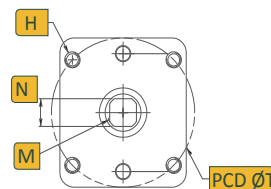
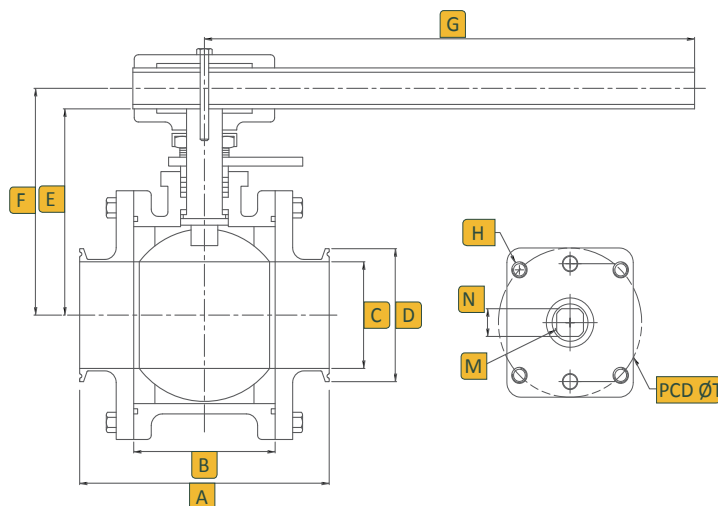
## Dimensions



**2 1/2"**



**3" & 4"**

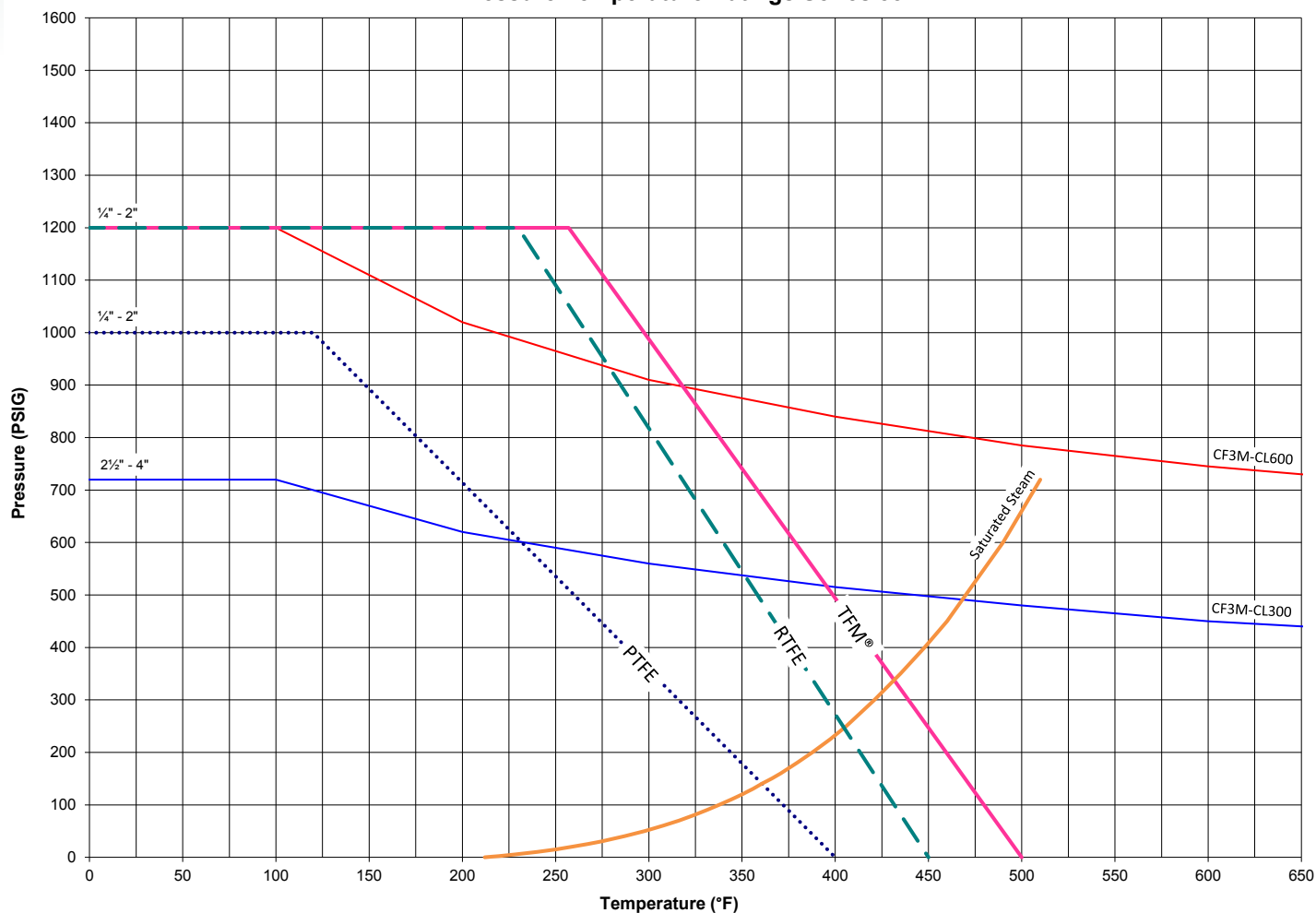


Size	A	B	C	D	E	F	G	H	T	N	M	I	J
1/2	3.50	0.97	0.37	0.98	1.64	2.23	4.50	M5	1.42	0.22	3/8 - 24	-	-
3/4	4.00	1.05	0.62	0.98	1.69	2.28	4.50	M5	1.42	0.22	3/8 - 24	-	-
1	4.50	1.54	0.87	1.98	2.36	2.84	5.79	M5	1.65	0.30	7/16 - 20	-	-
1-1/2	5.50	2.13	1.37	1.98	3.06	3.33	6.78	M6	1.97	0.35	9/16 - 18	-	-
2	6.25	2.66	1.87	2.52	3.43	3.68	6.78	M6	1.97	0.35	9/16 - 18	-	-
2-1/2	6.75	3.20	2.37	3.34	4.87	5.98	8.74	M8	2.76	0.55	M20 x P2.0	1.95	2.76
3	6.75	3.96	2.87	5.50	6.54	6.52	13.80	M10	4.02	0.75	1 - 14	-	-
4	8.25	4.73	3.83	6.97	7.13	7.05	13.80	M10	4.02	0.75	1 - 14	-	-

The dimensions above are for informational purpose only. Please refer to Sharpe® Valves if you need dimensions for construction.

## Technical Information

Pressure-Temperature Ratings Series 88



\* Ratings are for the valve body, specific ends may cause the ratings to change.

### Available Options

#### Mechanical Polishing

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

#### Electro-Polishing

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

#### Purge Ports

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

#### Flush Bottom Tank Pads

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

## Technical Information

### Conversion Table of surface finishes

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

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

### 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

### Approx. Weight (Lbs.)

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

Size	Series	Body & Ends		Ball & Stem		Seat		Body Seal		Ends		Options	
1/4*	88	6	316L Stainless Steel	6	316L Stainless Steel	T	PTFE	M	TFM®	CE	Clamp Ends	EP	Electro Polish*
3/8*						M	TFM®	T	PTFE	BTE	Butt-weld Tube Extended	3	320 Grit / 8-10 RA*
1/2						R	RTFE			BE	Butt-weld (Short)*	PP1	Purge Port on One End*
3/4						C	Cavity Filler - PTFE			TP	Flush Bottom Tank Pad*	PP2	Purge Port on Two Ends *
1										CHERRY BURRELL		PP3	Purge Port on Ends & Body*
1-1/4*										I	I Line*	PPB	Purge Port on Body*
1-1/2										S	S Line*	VF	Purge with VCR Female*
2										Q	Q Line*	C	Purge Port Compression*
2-1/2												VM	Purge Port VCR Male*
3												OT	Purge Port O.D. Tubing*
4												C	Purge Port with Clamp*
												X	Oxygen Service* (As Per MFG's Standards)
												OH	Oval Handle
												L	Lockable Stem Ext.

\*POA

TFM® is a registered trademark of Dyneon, LLC

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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