

Take  
a Good Look  
It May Be Your Future



# MARS

**MARS ULTRA-PURE  
SANITARY BALL VALVES**

**ECONOMICAL & HIGH PERFORMANCE**

**Bi-Directional &  
Multi-Port 3-Way/4-Way/5-Way  
MANUAL & AUTOMATION**

[www.marsvalve.com.tw](http://www.marsvalve.com.tw)

**ONE SOURCE FOR ALL YOUR SANITARY BALL VALVE REQUIREMENTS !**  
**MARS ULTRA-PURE SANITARY BALL VALVES**  
**HIGH PERFORMANCE & ECONOMICAL / AUTOMATED & MANUAL /**  
**2-WAY & 3-/4-/5-WAYS**

**Direct Mounting Design**



|                    |                                  |
|--------------------|----------------------------------|
| <b>SERIES 88SN</b> | <b>HIGH PERFORMANCE</b>          |
| Size range:        | 1/2" - 4"                        |
| Body material:     | ASTM A351-CF3M                   |
| Ball and Stem:     | Ball:316L SS/CF3M; Stem:316L SS  |
| Seat material:     | PTFE                             |
| Pressure:          | 1000 PSI max.                    |
| End Connections:   | Tri-Clamp<br>Tube O.D. Butt Weld |



|                    |                                  |
|--------------------|----------------------------------|
| <b>SERIES 77SN</b> | <b>HIGH PERFORMANCE</b>          |
| Size range:        | 1/2"-4"                          |
| Body material:     | ASTM A351-CF3M                   |
| Ball and Stem:     | Ball:316L SS/CF3M; Stem:316L SS  |
| Seat material:     | PTFE                             |
| Pressure:          | 1000 PSI max.                    |
| End Connections:   | Tri-Clamp<br>Tube O.D. Butt Weld |

**Non Direct Mounting Design**



|                    |                                  |
|--------------------|----------------------------------|
| <b>SERIES 83SN</b> | <b>HIGH PERFORMANCE</b>          |
| Size range:        | 1/2"-2"                          |
| Body material:     | ASTM A351-CF3M                   |
| Ball and Stem:     | Ball:316L SS/CF3M; Stem:316L SS  |
| Seat material:     | PTFE                             |
| Pressure:          | 1000 PSI max.                    |
| End Connections:   | Tri-Clamp<br>Tube O.D. Butt Weld |



|                    |                                  |
|--------------------|----------------------------------|
| <b>SERIES 55SN</b> | <b>ECONOMICAL</b>                |
| Size range:        | 1/2"-4"                          |
| Body material:     | ASTM A351-CF8M                   |
| Ball and Stem:     | Ball:316 SS/CF8M; Stem:316 SS    |
| Seat material:     | PTFE                             |
| Pressure:          | 1000 PSI max.                    |
| End Connections:   | Tri-Clamp<br>Tube O.D. Butt Weld |



|                    |                                  |
|--------------------|----------------------------------|
| <b>SERIES 50SN</b> | <b>ECONOMICAL</b>                |
| Size range:        | 1/2"-4"                          |
| Body material:     | ASTM A351-CF8M                   |
| Ball and Stem:     | Ball:316 SS/CF8M; Stem:316 SS    |
| Seat material:     | PTFE                             |
| Pressure:          | 1000 PSI max.                    |
| End Connections:   | Tri-Clamp<br>Tube O.D. Butt Weld |

**Direct Mounting Design, 3-/4-/5- way**



|                     |                                     |
|---------------------|-------------------------------------|
| <b>SERIES 33SN</b>  | <b>3-/4-/5-WAY HIGH PERFORMANCE</b> |
| Size range:         | 1/2"-4"                             |
| Ball Configuration: | L-, T-, X-, I-, TT-, LL-Port        |
| Body material:      | ASTM A351-CF3M                      |
| Ball and Stem:      | Ball:316L SS/CF3M; Stem:SS 316L     |
| Seat material:      | PTFE                                |
| Pressure:           | 1000 PSI max.                       |
| End Connections:    | Tri-Clamp<br>Tube O.D. Butt Weld    |

**Direct Mounting Design, 3-way Economical**



|                     |                         |
|---------------------|-------------------------|
| <b>SERIES 39SN</b>  | <b>3-WAY ECONOMICAL</b> |
| Size range:         | 1/2"-2"                 |
| Ball Configuration: | L-Port or T-Port        |
| Body material:      | ASTM A351-CF8M          |
| Ball and Stem:      | 316 SS/CF8M             |
| Seat material:      | PTFE                    |
| Pressure:           | 800 PSI max.            |
| End Connections:    | Tri-Clamp               |



# MARS ULTRA-PURE SANITARY BALL VALVES YOUR BEST CHOICE FOR HIGH PURE PROCESSING LINES

**Applications:** Food, Beverage, Pharmaceutical, Semi-Conductor, Bio-Tech, Cosmetics, Clean Dry Air, Paint Systems, Steam and Vacuum service



## MARS ULTRA-PURE SANITARY BALL VALVES OFFER MORE VALUE THAN OTHERS EASY AUTOMATION - HIGH-PURITY - HIGH VACUUM RATING - EXTRA HIGH CYCLING LIFE

### ■ ALL MATERIAL OF CONSTRUCTION COMPLY WITH FDA REQUIREMENTS

#### ■ EASY AUTOMATION

\*77SN \*88SN \*33SN \*39SN  
True Direct-Mount Design, No brackets and couplers are required for actuator mounting



#### ■ A TRUE STRAIGHT FULL PORT DESIGN

The ball has the same I.D as the end connections, there are no lips or dead space in the through path, eliminates trap areas and reduces pressure drop.

#### ■ ULTRAVIOLET TEST, WIPE TEST, AND HELIUM TEST OPTIONAL

\*Ultraviolet test: All wetted parts are ultraviolet inspected to confirm all surface are free of grease, hydrocarbon, fluorescence

\*Wipe Test: To wipe each wetted parts, No evidence of oily residue or particulates is permitted.

\*Helium leak detection calibrated to  $1 \times 10^{-3}$  torr

**Mars Unique SealMax® Stem Design - Triple Sealing System - Maintenance Free - Live Loading Stem Packing - Extremely High Cycle Life - provides optimum stem seals**

#### ■ ASSEMBLY AND PACKING

- Mars Ultra-Pure sanitary ball valves are assembled dry and tested in a clean environment, Class 1000 or Class 100 Clean Room assembling options are available

- Each valve is capped, bagged and heat-sealed, Double bag options available

#### ■ MECHANICAL POLISH

All wetted parts mechanical polished to 15-20 Ra

#### ■ ELECTRO-POLISH

Options available

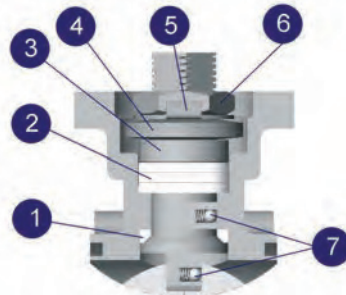
#### ■ CAST BOSSES FOR EASY PURGING ON ENDS

CIP / SIP options available

#### ■ INSPECTION AND TEST

- Valve components are cleaned and inspected to verify the removal of all contamination, including grease, dust, or other hydrocarbon residues.

- Visual Inspection: No evidence of moisture or oily deposits. Components are free of corrosion, slag, burrs, chips & foreign materials



Stem Design for Series \*77SN \*88SN \*33SN

#### 1. PYRAMIDAL STEM WITH STEM SEAL

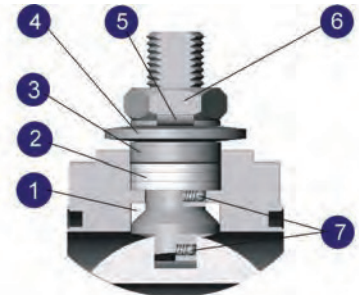
First stage of defense against leakage, the 45 degree slope of the stem accompany by the stem seal effectively blocks all leak path during rotation

#### 2. V-RING STEM PACKING

Second stage of defense against leakage, multiple layers of V-Ring Chevron packing expands side way as it is being compressed, blocking all air pockets to prevent leak path

#### 3. GLAND

Made of stainless steel, equally distributes the compressive force on the packing and seal.



Stem Design for Series 83SN

#### 4. BELLEVILLE WASHERS

Automatically compress the seals to adjust for wear, pressure, and temperature fluctuations.

#### 5. LOCK SADDLE

Stabilizes the stem nut to keep it from loosening during operation.

#### 6. STEM NUT

Compress the entire stem system to enable blocking of leakage

#### 7. ANTI-STATIC DEVICE

Standard applied between stem-to-ball, and stem-to-body.

## MARS OPTIONAL VALVE ACCESSORIES INCREASE PRODUCTIVITY AND GIVE YOU MORE CONTROL OVER YOUR PURE PROCESSING LINES

### MARS "TSM" UNIT PROVIDES EXTRA SAFETY AND HIGH CYCLE LIFE FOR ULTRA-PURE SANITARY BALL VALVES



### DESIGN ADVANTAGES

- \* A Fugitive Emission Bonnet, compliance with EPA and TA-LUFT requirements.
- \* TSM unit is 316 SS investment cast and equipped with Mars unique high cycling stem packing arrangement.
- \* Excellent, cost effective way to provide double sealing, offers dramatically improved cycle life, ideal for high cycle applications.
- \* ISO 5211 mounting pad and stem orientation allows direct mounting of actuator to valves, no brackets and couplers are required, ease of automation.
- \* Purge ports are available for the purpose of detecting primary seal leakage, it can be immediately observed and corrective action taken.
- \* Easy to insulate
- \* Easily mounted to Ultra-Pure sanitary ball valves Series 77SN, 83SN, 88SN, 33SN, and other Mars industrial ball valves.

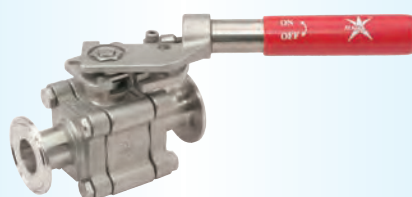


**Note:** To use TSM as second seal, the windows on valve neck of 77SN, 88SN, and 33SN have to be closed for sanitary valves.

### MARS SPRING RETURN SAFETY(SRS) HANDLE

The SRS handle is a spring energized handle, the ball valve will return to pre-determined closed (or open) position when an operator disengages from handle, the SRS handle provides safe and positive fail closed or open operation, creating a reliable sampling, filling, dispensing, and pressure relief valve. The full stainless steel construction provides excellent corrosion resistance for extended service life.

(The SRS handle is for use with Ultra-Pure Sanitary Ball Valves Series 77SN, 88SN, 33SN, and other Mars industrial ball valves.)



### CAVITY FILLED SEATS

Cavity filled seats are designed to eliminate the cavity around the ball, minimize trapped fluid in the valve body that can contaminate the process. Mars Cavity Filled Seats offer Excellent performance in Control of food products, pharmaceuticals, and high velocity applications.

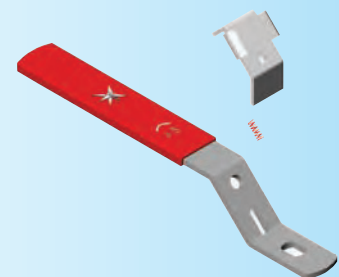


### \*Cavity Filled Seats for Ultra-Pure 3-Piece Sanitary Ball Valves

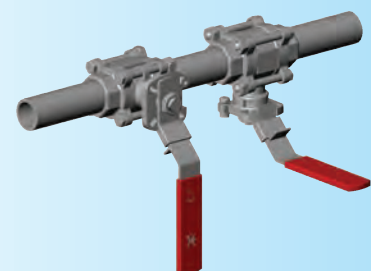


### \*Patented 5-Seat design Cavity Filled Seats for Series 33SN Multi-Port 3-/4-/5-Way Sanitary Ball Valves.

### SPRING RETURN SLIDING LOCK (SRSL) HANDLES



No matter the orientation of the ball valves, the SRSL handle always secures handle in position, making valve operation safe.



## DIRECT MOUNT

### SERIES 88SN HIGH PERFORMANCE ULTRA-PURE SANITARY BALL VALVES



**FIG. 88SN-10**  
Tri-Clamp



**FIG. 88SN-20**  
Tube O.D. Butt Weld

#### SPECIFICATIONS

##### Sizes Range:

1/2" - 4"

##### End connections:

Tri-Clamp  
Tube OD Butt Weld

##### Pressure Rating:

1000 PSI: 1/2" - 2"  
800 PSI: 2 1/2" - 4"

##### Valve Material:

ASTM A351-CF3M

##### Ball and Stem Material:

Ball: 316L SS to ASTM A351-CF3M  
Stem: 316L SS

##### Seat Materials:

PTFE  
R-PTFE  
TFM 1600  
UHMWPE  
Cavity-filled PTFE  
Cavity-filled R-PTFE  
50% SS+PTFE  
Cavity filled TFM1600

##### Internal Parts Finish:

Standard finish on wetted parts  
15 - 20 Ra or 240 Grit

#### DESIGN ADVANTAGES

##### Direct Mount Design - Excellent For Automation Service

ISO 5211 mounting pad and stem orientation allows direct mounting of actuator to valves, no brackets and couplers are required, making automation a lot easier with improved performance.

##### Complete CF3M stainless steel construction

##### True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

##### Extra High Cycle Stem Packing Arrangement

Mars unique SealMax® stem arrangement offers optimum stem seals with extremely high cycle life.

##### Easy Wash-downs and Cleaning

Enclosed body bolts is protected from outside environment, and ideal for wash-downs and cleaning

##### In-Line Welding

Fully enclosed body seals and Extended Tube O.D. butt weld ends allows in-line welding without disassembly.

##### Blow-Out Proof Stem

Prevents stem from blowing-out, for maximum operating safety

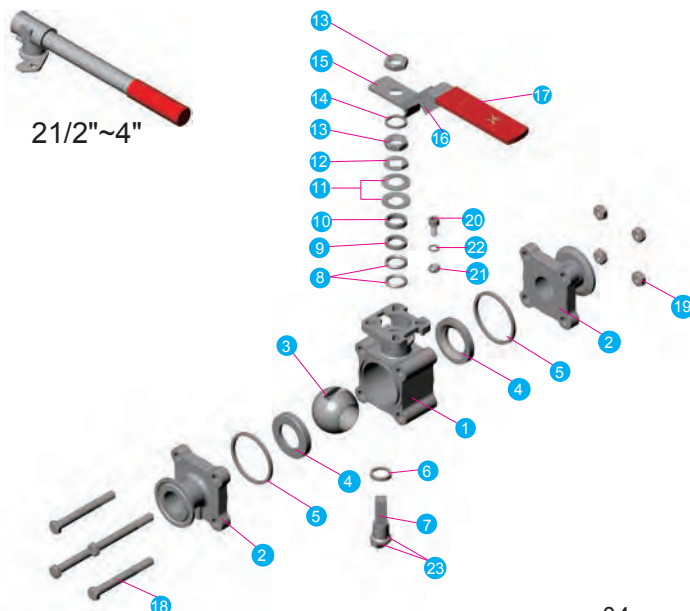
##### Flush and Drain (CIP/SIP) Capability

Bosses are provided in the end caps for both flush and drain capability in applications where material can become trapped in the body cavity.

##### Easy In-Line Maintenance

3-piece body swing-out design allows easy In-Line maintenance

## MATERIALS OF CONSTRUCTION



## MATERIALS LIST

| NO. | PART NAME           | MATERIAL                      | QTY |
|-----|---------------------|-------------------------------|-----|
| 1   | Body                | CF3M                          | 1   |
| 2   | End Cap             | CF3M                          | 2   |
| 3   | Ball                | SUS316L/CF3M                  | 1   |
| 4   | Seat                | PTFE                          | 2   |
| 5   | Joint Gasket        | PTFE                          | 2   |
| 6   | Stem Seal           | PTFE                          | 1   |
| 7   | Stem                | SUS316L                       | 1   |
| 8   | Stem Packing        | PTFE                          | #   |
| 9   | Stem Packing        | 25% Glass Fiber Filled + PTFE | 1   |
| 10  | Gland               | SUS 304                       | 1   |
| 11  | Belleville Washer   | SUS 301                       | 2   |
| 12  | Lock Saddle         | SUS 304                       | 1   |
| 13  | Stem Nut            | SUS 304                       | 2   |
| 14  | Stem Washer         | SUS 304                       | 1   |
| 15  | Handle              | SUS 304                       | 1   |
| 16  | Locking Device      | SUS 304                       | 1   |
| 17  | Handle Sleeve       | VINYL                         | 1   |
| 18  | Bolt                | SUS 304                       | *   |
| 19  | Bolt Nut            | SUS 304                       | &   |
| 20  | Stop Pin            | SUS 304                       | 1   |
| 21  | Pin Nut             | SUS 304                       | 1   |
| 22  | Washer              | SUS 304                       | 1   |
| 23  | Antistatic - Device | SUS 316                       | 2   |

# 1/2"~2"-2pcs, 2 1/2"~4"-3pcs.

\* For 1/2"~2"-4pcs .

\* For 2-1/2" to 3"-4pcs of bolts(double ended external thread)

\* For 4"-6pcs of bolts(double ended external thread)

& For 1/2"~2"-4pcs . 2-1/2" to 3"-8pcs, 4"-12pcs.



## DIMENSIONS

### SERIES 88SN-10

Tri-Clamp

1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

### SERIES 88SN-20

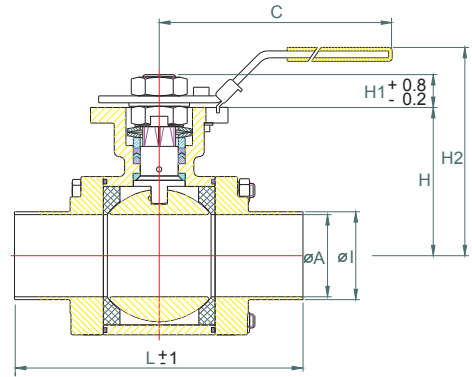
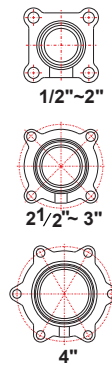
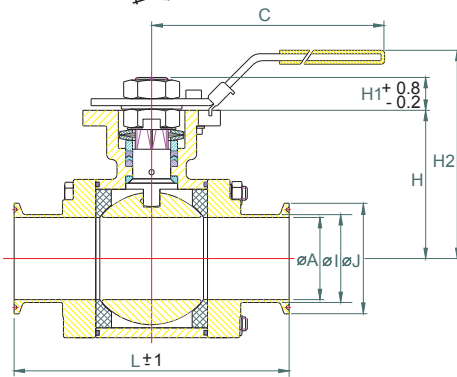
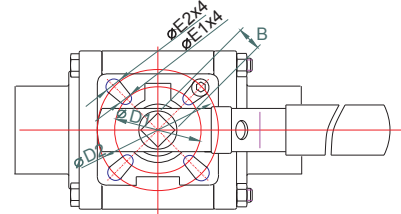
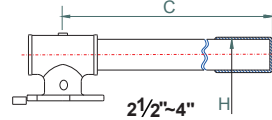
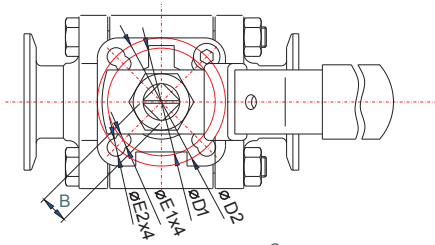
Tube O.D Butt Weld

1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

#### DIMENSIONS (mm)

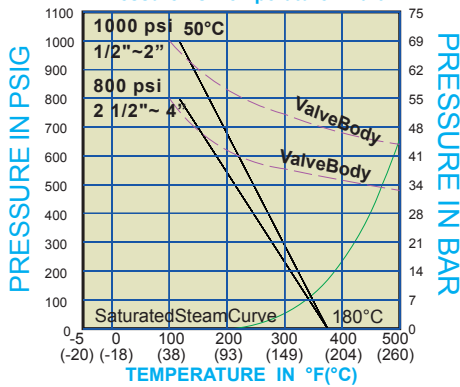
Dimension B:17/19 Standard 17,Option 19

| SIZE   | ØA    | ØI    | ØJ    | B  | C   | ØD1 | ØD2 | ØE1 | ØE2 | H      | H1    | H2  | L Clamp | L Tube | Wt.(kg) Clamp | Wt.(kg) Tube | ISO5211 |
|--------|-------|-------|-------|----|-----|-----|-----|-----|-----|--------|-------|-----|---------|--------|---------------|--------------|---------|
| 1/2"   | 9.4   | 12.7  | 25.2  | 9  | 139 | 36  | 42  | 6   | 6   | 42.6   | 7.6   | 77  | 89.1    | 134.5  | 0.83          | 0.78         | F03/F04 |
| 3/4"   | 15.75 | 19    | 25.2  | 9  | 139 | 36  | 42  | 6   | 6   | 42.6   | 7.6   | 77  | 101.6   | 140.9  | 0.83          | 0.78         | F03/F04 |
| 1"     | 22.2  | 25.4  | 50.4  | 9  | 139 | 36  | 42  | 6   | 6   | 46.85  | 8.6   | 82  | 114.5   | 161.5  | 1.38          | 1.20         | F03/F04 |
| 1 1/2" | 34.9  | 38.1  | 50.5  | 11 | 165 | 42  | 50  | 6   | 7   | 62.6   | 10.4  | 102 | 140.1   | 182.2  | 2.66          | 2.52         | F04/F05 |
| 2"     | 47.5  | 50.8  | 63.9  | 14 | 215 | 50  | 70  | 7   | 9   | 84.7   | 14.55 | 134 | 159     | 191.7  | 6.26          | 5.88         | F05/F07 |
| 2 1/2" | 60.3  | 63.5  | 77.4  | 17 | 19  | 300 | 70  | 10  | 12  | 108.7  | 17.1  | 167 | 174     | 247.6  | 9.46          | 9.9          | F07/F10 |
| 3"     | 73    | 76.2  | 90.9  | 17 | 19  | 370 | 70  | 10  | 12  | 117.7  | 18.1  | 176 | 193.2   | 266.8  | 12.81         | 13.19        | F07/F10 |
| 4"     | 97.4  | 101.6 | 118.9 | 17 | 19  | 370 | 70  | 10  | 12  | 132.55 | 17.1  | 192 | 226     | 317.6  | 20.33         | 21.13        | F07/F10 |



#### ■ PRESSURE V.S. TEMPERATURE CHART

SEAT: PTFE or RPTFE  
Pressure Vs. Temperature Chart



#### ■ BREAK AWAY TORQUE (Degreased) & Cv VALUE

| SIZE   | PTEE | PTEE    | PTEE CF | PTEE CF | Cv   |
|--------|------|---------|---------|---------|------|
|        | Nm   | Inch-Lb | Nm      | Inch-Lb |      |
| 1/2"   | 9    | 80      | 10      | 89      | 10   |
| 3/4"   | 12   | 106     | 13      | 115     | 30   |
| 1"     | 13   | 115     | 14      | 124     | 65   |
| 1.1/2" | 33   | 292     | 35      | 310     | 200  |
| 2"     | 42   | 372     | 46      | 408     | 410  |
| 2.1/2" | 91   | 806     | 98      | 868     | 600  |
| 3"     | 104  | 921     | 111     | 983     | 1050 |
| 4"     | 117  | 1037    | 124     | 1099    | 1900 |

\*Break Away Torque  
30% safety factor included  
Standard Mars valves are assembled with silicon-free based in lubricant,  
Torque for dry assembled valves please consult factory.

## PRODUCTS OPTIONAL

#### ■ SPRING RETURN SAFETY

HANDLE - Provides safe and positive fail closed or open operation



#### ■ MARS TSM UNIT

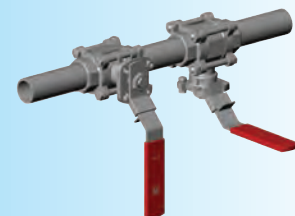
- A Fugitive Emission Bonnet
- Compliance with EPA and TA - LUFT requirements
- Add extra safety and high cycle life on standard valves



#### ■ SPRING RETURN SLIDING LOCK HANDLE



No matter the orientation of the ball valves, the SRSL handle always secures handle always in position, making operation safe



## SERIES 83SN HIGH PERFORMANCE ULTRA-PURE SANITARY BALL VALVES



**FIG. 83SN-10**  
Tri-Clamp



**FIG. 83SN-20**  
Tube OD Butt Weld



**External Polish Optional**

### SPECIFICATIONS

#### Sizes Range:

1/2" - 2"

#### End connections:

Tri-Clamp  
Tube OD

#### Pressure Rating:

1000 PSI: 1/2" - 2"

#### Valve Material:

ASTM A351-CF3M

#### Ball:

316L SS to ASTM A351-CF3M

#### Stem:

316L SS

#### Seat Materials:

PTFE  
R-PTFE  
TFM 1600  
UHMWPE  
Cavity-filled PTFE  
Cavity-filled R-PTFE  
50% SS+PTFE  
Cavity-filled TFM1600

#### Internal Parts Finish:

Standard finish on wetted parts  
15 - 20 Ra or 240 Grit

### DESIGN ADVANTAGES

#### EASY AUTOMATION

Fully machined integral ISO 5211 Mounting Pad for easy automation.

#### Complete CF3M stainless steel construction

#### True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

#### Extra High Cycle Stem Packing Arrangement

Mars unique SealMax® stem arrangement offers optimum stem seals with extremely high cycle life.

#### Easy Wash-downs and Cleaning

Enclosed body bolts is protected from outside environment, and ideal for wash-downs and cleaning

#### In-Line Welding

Fully enclosed body seals and Tube O.D. butt weld ends allows in-line welding without disassembly.

#### Blow-Out Proof Stem

Prevents stem from blowing-out, for maximum operating safety

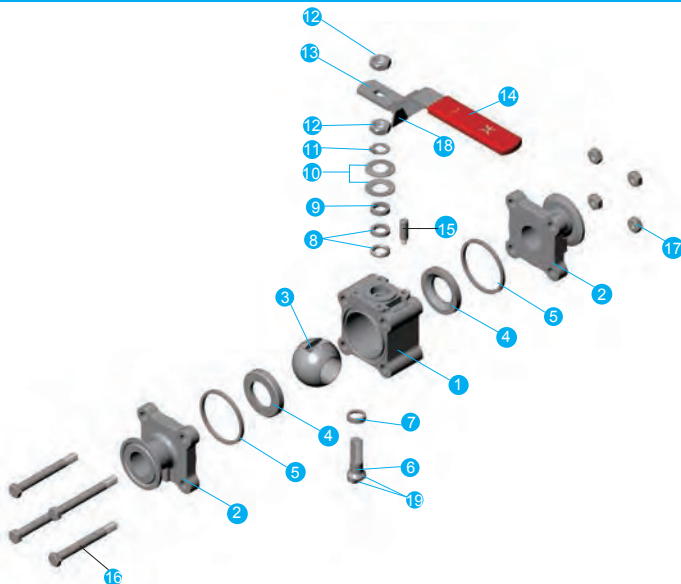
#### Flush and Drain (CIP/SIP) Capability

Bosses are provided in the end caps for both flush and drain capability in applications where material can become trapped in the body cavity.

#### Easy in-Line Maintenance

3-piece body swing-out design allows easy In-Line maintenance

## MATERIALS OF CONSTRUCTION



| NO. | PART NAME           | MATERIAL     | Q'TY |
|-----|---------------------|--------------|------|
| 1   | Body                | CF3M         | 1    |
| 2   | End Cap             | CF3M         | 2    |
| 3   | Ball                | SUS316L/CF3M | 1    |
| 4   | Seat                | PTFE         | 2    |
| 5   | Joint Gasket        | PTFE         | 2    |
| 6   | Stem                | SS316L       | 1    |
| 7   | Stem Seal           | PTFE         | 1    |
| 8   | Stem Packing        | PTFE         | 1Set |
| 9   | Gland               | SUS 304      | 1    |
| 10  | Belleville Washer   | SUS 301      | 2    |
| 11  | Lock Saddle         | SUS 304      | 1    |
| 12  | Stem Nut            | SUS 304      | 2    |
| 13  | Handle              | SUS 304      | 1    |
| 14  | Handle Sleeve       | VINYL        | 1    |
| 15  | Stop Pin            | SUS 304      | 1    |
| 16  | Bolt                | SUS 304      | 4    |
| 17  | Bolt Nut            | SUS 304      | 4    |
| 18  | Locking Device      | SUS 304      | 1    |
| 19  | Antistatic - Device | SUS 316      | 2    |

## DIMENSIONS

### SERIES 83SN-10

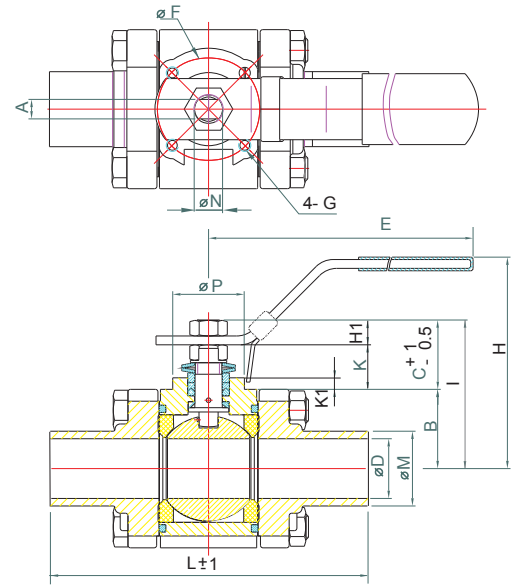
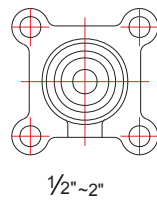
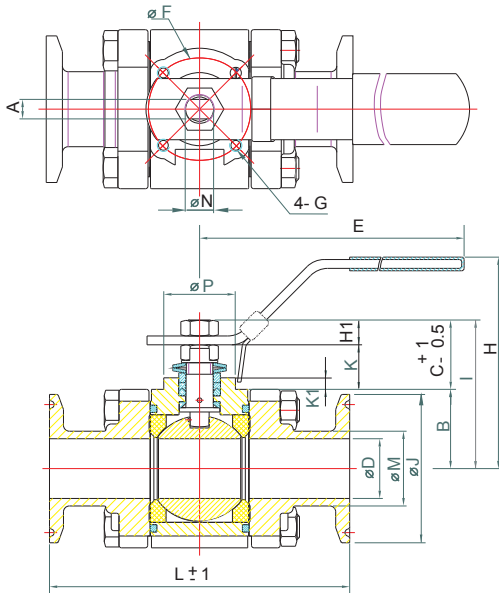
Tri-Clamp  
1/2"~2"- 1000 PSI WOG

### SERIES 83SN-20

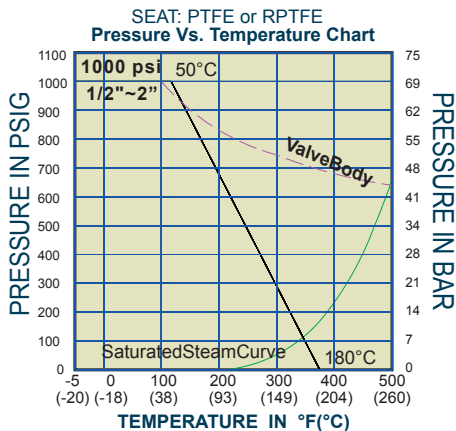
Tube O.D Butt Weld  
1/2"~2"- 1000 PSI WOG

#### DIMENSIONS (mm)

| SIZE   | ØD    | ØM   | ØJ   | A   | B    | C    | E   | ØF | G  | H   | I    | H1   | K    | K1 | ØP | ØN   | L Clamp | L Tube | Wt.(kg) Clamp | Wt.(kg) Tube | ISO5211 |
|--------|-------|------|------|-----|------|------|-----|----|----|-----|------|------|------|----|----|------|---------|--------|---------------|--------------|---------|
| 1/2"   | 9.4   | 12.7 | 25.2 | 6.5 | 29   | 16.1 | 134 | 36 | M5 | 72  | 45.1 | 7.3  | 8.8  | 2  | 25 | 9.5  | 89.1    | 134.5  | 0.84          | 0.79         | F03     |
| 3/4"   | 15.75 | 19   | 25.2 | 6.5 | 29   | 16.1 | 134 | 36 | M5 | 72  | 45.1 | 7.3  | 8.8  | 2  | 25 | 9.5  | 101.6   | 140.9  | 0.84          | 0.79         | F03     |
| 1"     | 22.2  | 25.4 | 50.4 | 6.5 | 33   | 18.1 | 134 | 36 | M5 | 77  | 51.1 | 8.8  | 9.3  | 2  | 25 | 9.5  | 114.5   | 161.5  | 1.40          | 1.22         | F03     |
| 1 1/2" | 34.9  | 38.1 | 50.5 | 8   | 40   | 24.3 | 170 | 42 | M5 | 88  | 64.3 | 9.7  | 14.6 | 2  | 30 | 11.1 | 140.1   | 182.2  | 2.54          | 2.40         | F04     |
| 2"     | 47.5  | 50.8 | 63.9 | 9.7 | 55.5 | 28.9 | 207 | 50 | M6 | 110 | 84.4 | 13.7 | 15.2 | 2  | 35 | 14.3 | 159     | 191.7  | 5.80          | 5.42         | F05     |



## ■ PRESSURE V.S. TEMPERATURE CHART



## ■ BREAK AWAY TORQUE (Degreased) & Cv VALUE

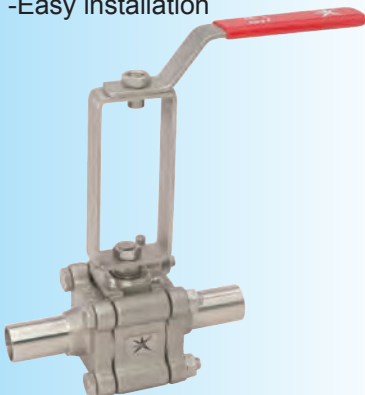
| SIZE   | PTEE | PTEE    | PTEE CF | PTEE CF | Cv  |
|--------|------|---------|---------|---------|-----|
|        | Nm   | Inch-Lb | Nm      | Inch-Lb |     |
| 1/2"   | 9    | 80      | 10      | 89      | 10  |
| 3/4"   | 12   | 106     | 13      | 115     | 30  |
| 1"     | 13   | 115     | 14      | 124     | 65  |
| 1.1/2" | 33   | 292     | 35      | 310     | 200 |
| 2"     | 42   | 372     | 46      | 407     | 410 |

\*Break Away Torque  
30% safety factor included  
Standard Mars valves are assembled with silicon-free based in lubricant,  
Torque for dry assembled valves please consult factory.

## PRODUCTS OPTIONAL

### ■ ECONOMICAL STEM EXTENSION

- 304 SS construction
- Economical, cost effective design
- Easy installation



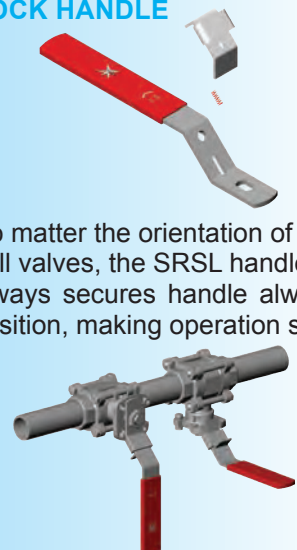
### ■ MARS TSM UNIT

- A Fugitive Emission Bonnet
- Compliance with EPA and TA - LUFT requirements
- Add extra safety and high cycle life on standard valves



### ■ SPRING RETURN SLIDING LOCK HANDLE

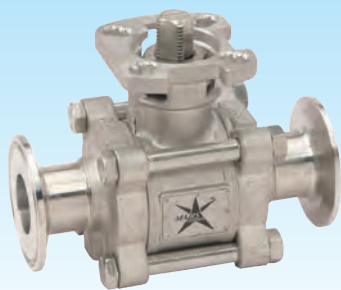
No matter the orientation of the ball valves, the SRSL handle always secures handle always in position, making operation safe





## DIRECT MOUNT

### SERIES 77SN HIGH PERFORMANCE ULTRA-PURE SANITARY BALL VALVES



**FIG. 77SN-10**  
Tri-Clamp



**FIG. 77SN-20**  
Tube O.D. Butt Weld

#### SPECIFICATIONS

##### Sizes Range:

1/2" - 4"

##### End connections:

Tri-Clamp

Tube OD Butt Weld

##### Pressure Rating:

1000 PSI: 1/2" - 2"

800 PSI: 2 1/2" - 4"

##### Valve Material:

ASTM A351-CF3M

##### Ball:

316L SS to ASTM A351-CF3M

##### Stem:

316L SS

##### Seat Materials:

PTFE

R-PTFE

TFM 1600

UHMWPE

Cavity-filled PTFE

Cavity-filled R-PTFE

50% SS+PTFE

Cavity-filled TFM1600

##### Internal Parts Finish:

Standard finish on wetted parts

15 - 20 Ra or 240 Grit

#### DESIGN ADVANTAGES

##### ● Direct Mount Design - Excellent For Automation Service

ISO 5211 mounting pad and stem orientation allows direct mounting of actuator to valves, no brackets and couplers are required, making automation a lot easier with improved performance.

##### ● Complete CF3M stainless steel construction

##### ● True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

##### ● Extra High Cycle Stem Packing Arrangement

Mars unique SealMax® stem arrangement offers optimum stem seals with extremely high cycle life.

##### ● In-Line Welding

Tube O.D. butt weld ends allows in-line welding without disassembly.

##### ● Blow-Out Proof Stem

Prevents stem from blowing-out, for maximum operating safety

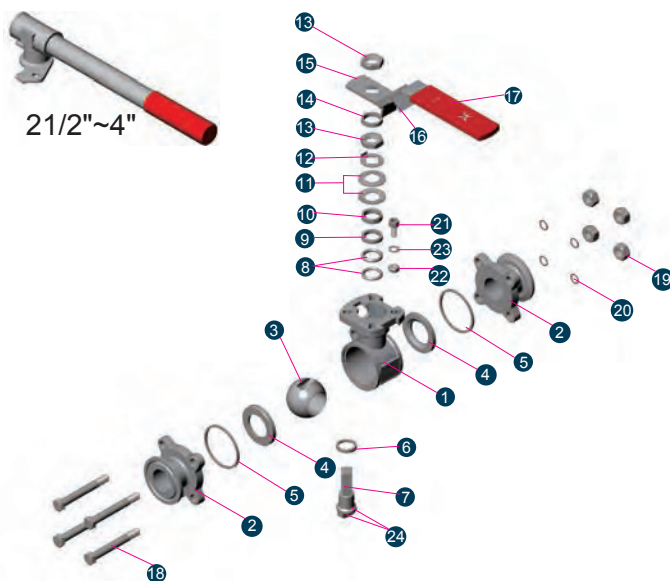
##### ● Flush and Drain (CIP/SIP) Capability

Bosses are provided in the end caps for both flush and drain capability in applications where material can become trapped in the body cavity.

##### ● Easy in-Line Maintenance

3-piece body swing-out design allows easy In-Line maintenance

## MATERIALS OF CONSTRUCTION



#### MATERIALS LIST

| NO. | PART NAME           | MATERIAL                      | Q'TY |
|-----|---------------------|-------------------------------|------|
| 1   | Body                | CF3M                          | 1    |
| 2   | End Cap             | CF3M                          | 2    |
| 3   | Ball                | SUS316L/CF3M                  | 1    |
| 4   | Seat                | PTFE                          | 2    |
| 5   | Joint Gasket        | PTFE                          | 2    |
| 6   | Stem Seal           | PTFE                          | 1    |
| 7   | Stem                | SUS316L                       | 1    |
| 8   | Stem Packing        | PTFE                          | #    |
| 9   | Stem Packing        | 25% Glass Fiber Filled + PTFE | 1    |
| 10  | Gland               | SUS 304                       | 1    |
| 11  | Belleville Washer   | SUS 301                       | 2    |
| 12  | Lock Saddle         | SUS 304                       | 1    |
| 13  | Stem Nut            | SUS 304                       | 2    |
| 14  | Stem Washer         | SUS 304                       | 1    |
| 15  | Handle              | SUS 304                       | 1    |
| 16  | Locking Device      | SUS 304                       | 1    |
| 17  | Handle Sleeve       | VINYL                         | 1    |
| 18  | Bolt                | SUS 304                       | -    |
| 19  | Bolt Nut            | SUS 304                       | &    |
| 20  | Bolt Washer         | SUS 304                       | &    |
| 21  | Stop Pin            | SUS 304                       | 1    |
| 22  | Pin Nut             | SUS 304                       | 1    |
| 23  | Washer              | SUS 304                       | 1    |
| 24  | Antistatic - Device | SUS 316                       | 2    |

# 1/2"~2"-2pcs, 2 1/2"~4"-3pcs.

\* For 1/2"~2"-4pcs .

\* For 2-1/2" to 3"-4pcs of bolts(double ended external thread)

\* For 4"-6pcs of bolts(double ended external thread)

& For 1/2"~2"-4pcs . 2-1/2" to 3"-8pcs, 4"-12pcs.

## DIMENSIONS

### SERIES 77SN-10

Tri-Clamp

1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

### SERIES 77SN-20

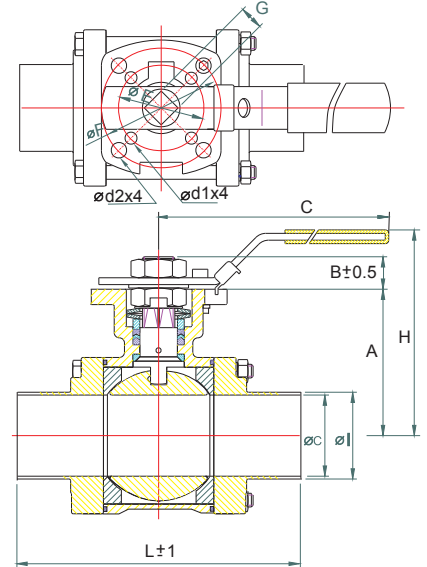
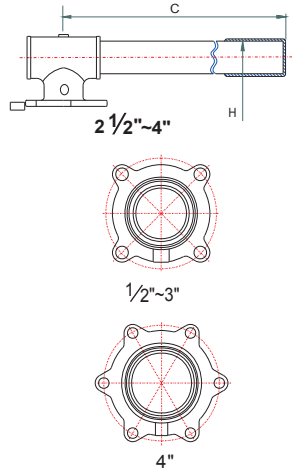
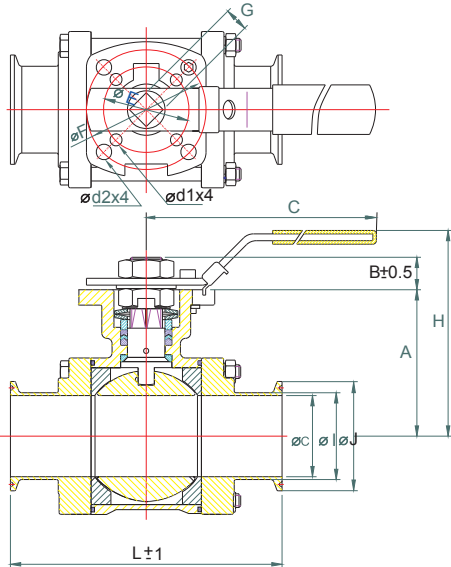
Tube O.D Butt Weld

1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

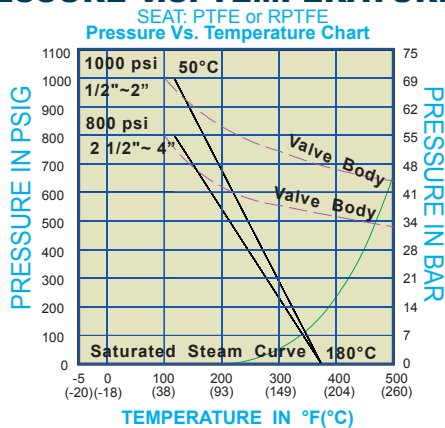
#### DIMENSIONS (mm)

Dimension G:17/19 Standard 17,Option 19

| SIZE   | ØC    | ØI    | ØJ    | A      | B    | C   | ØE1 | ØF  | G  | H   | Ød1 | Ød2 | L Clamp | L Tube | Wt.(kg) Clamp | Wt.(kg) Tube | ISO5211 |
|--------|-------|-------|-------|--------|------|-----|-----|-----|----|-----|-----|-----|---------|--------|---------------|--------------|---------|
| 1/2"   | 9.4   | 12.7  | 25.2  | 42.1   | 6.1  | 139 | 36  | 42  | 9  | 77  | 6   | 6   | 89.1    | 139.8  | 0.76          | 0.71         | F03/F04 |
| 3/4"   | 15.75 | 19    | 25.2  | 48     | 6.6  | 139 | 36  | 42  | 9  | 83  | 6   | 6   | 101.6   | 146    | 0.87          | 0.91         | F03/F04 |
| 1"     | 22.2  | 25.4  | 50.4  | 56.6   | 10.9 | 165 | 42  | 50  | 11 | 96  | 6   | 7   | 114.5   | 158.7  | 1.44          | 1.26         | F04/F05 |
| 1 1/2" | 34.9  | 38.1  | 50.5  | 77.5   | 13.9 | 215 | 50  | 70  | 14 | 127 | 7.5 | 9   | 140.1   | 190.6  | 3.29          | 3.24         | F05/F07 |
| 2"     | 47.5  | 50.8  | 63.9  | 85.2   | 13.9 | 215 | 50  | 70  | 14 | 134 | 7.5 | 9   | 159     | 216    | 4.57          | 3.59         | F05/F07 |
| 2 1/2" | 60.3  | 63.5  | 77.4  | 108.7  | 16.8 | 300 | 70  | 102 | 17 | 167 | 10  | 12  | 174     | 247.6  | 9.46          | 9.90         | F07/F10 |
| 3"     | 73    | 76.2  | 90.9  | 117.7  | 17.8 | 370 | 70  | 102 | 17 | 176 | 10  | 12  | 193.2   | 266.8  | 12.81         | 13.19        | F07/F10 |
| 4"     | 97.4  | 101.6 | 118.9 | 132.55 | 16.8 | 370 | 70  | 102 | 17 | 192 | 10  | 12  | 226     | 317.6  | 20.33         | 21.13        | F07/F10 |



## ■ PRESSURE V.S. TEMPERATURE CHART



## ■ BREAKAWAY TORQUE(DEGREASED) & Cv VALUE

| SIZE   | PTEE | PTEE    | PTEE CF | PTEE CF | Cv   |
|--------|------|---------|---------|---------|------|
|        | Nm   | Inch-Lb | Nm      | Inch-Lb |      |
| 1/2"   | 9    | 80      | 10      | 89      | 10   |
| 3/4"   | 10   | 89      | 12      | 106     | 30   |
| 1"     | 16   | 142     | 17      | 151     | 65   |
| 1.1/2" | 36   | 319     | 40      | 354     | 200  |
| 2"     | 44   | 392     | 48      | 425     | 410  |
| 2.1/2" | 91   | 806     | 98      | 868     | 600  |
| 3"     | 104  | 921     | 111     | 983     | 1050 |
| 4"     | 117  | 1037    | 117     | 1037    | 1900 |

\*Break Away Torque

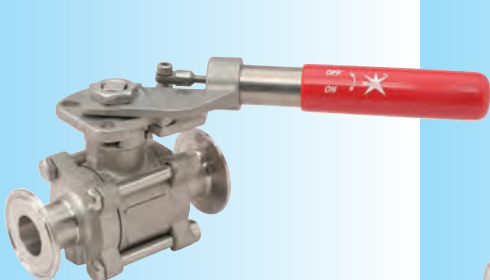
30% safety factor included

Standard Mars valves are assembled with silicon-free based in lubricant, Torque for dry assembled valves please consult factory.

## PRODUCTS OPTIONAL

### ■ SPRING RETURN SAFETY

**HANDLE** - Provides safe and positive fail closed or open operation



### ■ MARS TSM UNIT

- A Fugitive Emission Bonnet
- Compliance with EPA and TA - LUFT requirements
- Add extra safety and high cycle life on standard valves



### ■ CAVITY FILLED SEATS

Cavity filled seats are designed to eliminate the cavity around the ball, minimize trapped fluid in the valve body that can contaminate the process. Mars Cavity Filled Seats offer Excellent performance in Control of food products, pharmaceuticals, and high velocity applications.



# SERIES 55SN ECONOMICAL ULTRA - PURE SANITARY BALL VALVES



**FIG. 55SN-10**  
Tri-Clamp Ends



**FIG. 55SN-20**  
Tube OD Ends

## DESIGN ADVANTAGES

### EASY AUTOMATION

Fully machined integral ISO 5211 Mounting Pad for easy automation.

### True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

### Live Loaded Stem Packing

Self adjustable stem seal automatically adjusts seal to compensate for wear, temperature and pressure fluctuations.

### In-Line Welding

Tube O.D. butt weld ends allows in-line welding without disassembly.

### Blow-Out Proof Stem

Prevents stem from blowing-out, for maximum operating safety

### Flush and Drain (CIP/SIP) Capability

Bosses are provided in the end caps for both flush and drain capability in applications where material can become trapped in the body cavity.

### Easy in-Line Maintenance

3-piece body swing-out design allows easy In-Line maintenance

## SPECIFICATIONS

### Sizes Range:

1/2" - 4"

### End connections:

Tri-Clamp  
Tube OD

### Pressure Rating:

1000 PSI: 1/2"~2"

800 PSI: 2 1/2"~4"

### Valve Material:

ASTM A351-CF8M

### Ball:

SS316 to ASTM A351-CF8M

### Stem:

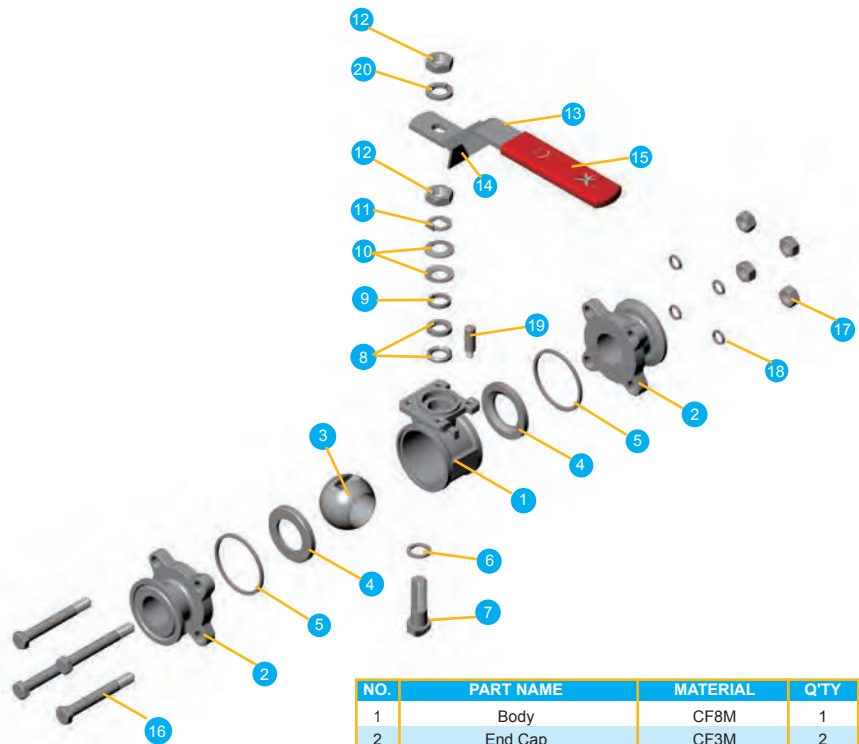
SS316

### Seat Materials:

PTFE  
R-PTFE  
TFM 1600  
UHMWPE  
Cavity-filled PTFE  
Cavity-filled R-PTFE  
50% SS+PTFE  
Cavity filled TFM1600

### Internal Parts Finish:

Standard finish on wetted parts  
15 - 20 Ra or 240 Grit



| NO. | PART NAME         | MATERIAL    | QTY  |
|-----|-------------------|-------------|------|
| 1   | Body              | CF8M        | 1    |
| 2   | End Cap           | CF3M        | 2    |
| 3   | Ball              | SUS316/CF8M | 1    |
| 4   | Seat              | PTFE        | 2    |
| 5   | Joint Gasket      | PTFE        | 2    |
| 6   | Stem Seal         | PTFE        | 1    |
| 7   | Stem              | SS316       | 1    |
| 8   | Stem Packing      | PTFE        | 1Set |
| 9   | Gland             | SUS 304     | 1    |
| 10  | Belleville Washer | SUS 301     | 2    |
| 11  | Lock Saddle       | SUS 304     | 1    |
| 12  | Stem Nut          | SUS 304     | 2    |
| 13  | Handle            | SUS 304     | 1    |
| 14  | Locking Device    | SUS 304     | 1    |
| 15  | Handle Sleeve     | VINYL       | 1    |
| 16  | Bolt              | SUS 304     | *    |
| 17  | Bolt Nut          | SUS 304     | #    |
| 18  | Bolt Washer       | SUS 304     | #    |
| 19  | Stop Pin          | SUS 304     | 1    |
| 20  | Stem Washer       | SUS 304     | 1    |

\* For 1/2"~3"-4pcs, For 4"-6pcs.  
1/2"~2"-4pcs of bolts( single end, external thread)  
2 1/2"~3"-4pcs of bolts(double ends, external thread)  
4"-6pcs of bolts(double ends, external thread)  
# For 1/2"~2"-4pcs, 2 1/2"~3"-8pcs, 4"-12pcs



## DIMENSIONS

### SERIES 55SN-10

Tri-Clamp

1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

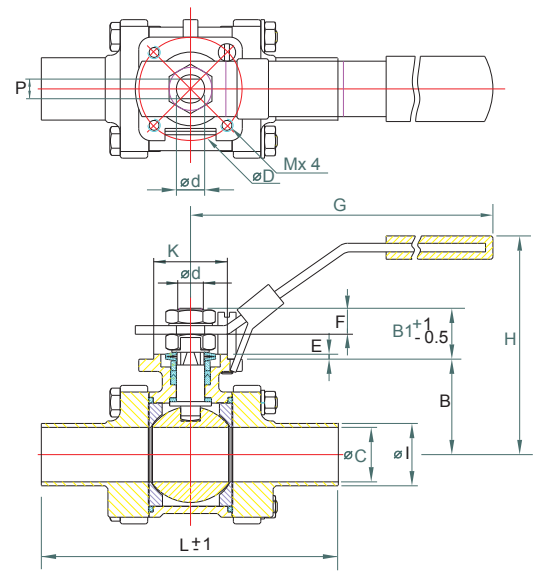
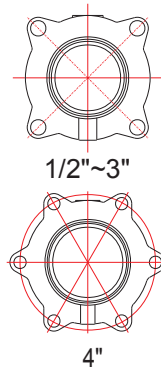
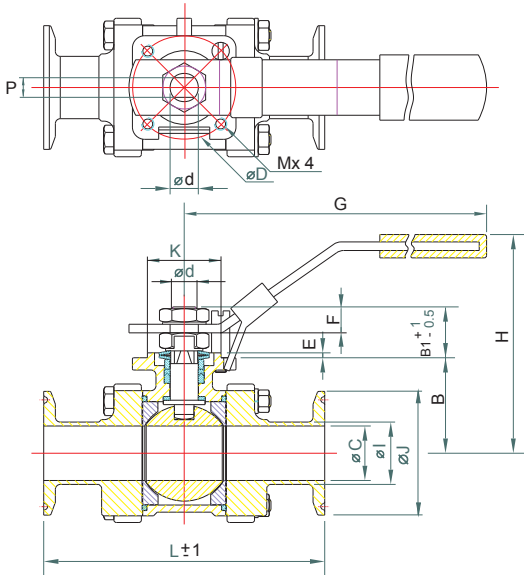
### SERIES 55SN-20

Tube O.D Butt Weld

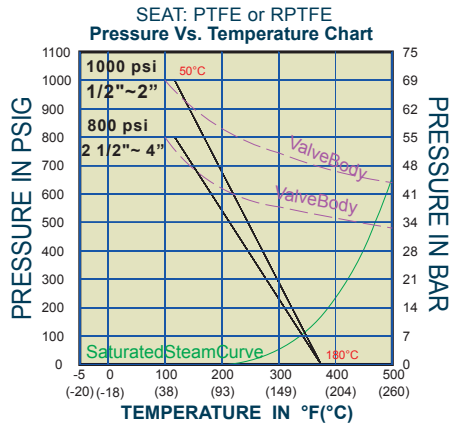
1/2"~2"- 1000 PSI WOG  
2 1/2"~4"- 800 PSI WOG

#### DIMENSIONS (mm)

| SIZE   | ØC    | ØI    | ØJ    | B     | B1   | ØD  | E   | Ød  | F    | G   | H   | P   | K  | M   | L Clamp | L Tube | Wt.(kg) Clamp | Wt.(kg) Tube | ISO5211 |
|--------|-------|-------|-------|-------|------|-----|-----|-----|------|-----|-----|-----|----|-----|---------|--------|---------------|--------------|---------|
| 1/2"   | 9.4   | 12.7  | 25.2  | 29.1  | 19.8 | 36  | 2   | 9.5 | 7.4  | 130 | 75  | 6.5 | 25 | M5  | 89.1    | 139.8  | 0.72          | 0.68         | F03     |
| 3/4"   | 15.75 | 19    | 25.2  | 32.6  | 17.5 | 36  | 2   | 9.5 | 6.4  | 130 | 77  | 6.5 | 25 | M5  | 101.6   | 146    | 0.82          | 0.84         | F03     |
| 1"     | 22.2  | 25.4  | 50.4  | 38.9  | 20.7 | 42  | 2   | 11  | 12.3 | 160 | 85  | 8   | 30 | M5  | 114.5   | 158.7  | 1.29          | 1.25         | F04     |
| 1 1/2" | 34.9  | 38.1  | 50.5  | 46.2  | 31   | 50  | 2   | 14  | 13.7 | 185 | 102 | 9.7 | 35 | M6  | 140.1   | 190.6  | 2.72          | 2.66         | F05     |
| 2"     | 47.5  | 50.8  | 63.9  | 54.7  | 31   | 50  | 2   | 14  | 13.7 | 185 | 110 | 9.7 | 35 | M6  | 159     | 216    | 4.04          | 3.98         | F05     |
| 2 1/2" | 60.3  | 63.5  | 77.4  | 71.5  | 42.6 | 70  | 2.5 | 19  | 23.2 | 260 | 150 | 12  | 55 | M8  | 174     | 247.6  | 8.10          | 8.22         | F07     |
| 3"     | 73    | 76.2  | 90.9  | 84.5  | 39.3 | 102 | 2.5 | 19  | 18.7 | 260 | 162 | 12  | 70 | M10 | 193.2   | 266.8  | 11.63         | 11.61        | F10     |
| 4"     | 97.4  | 101.6 | 118.9 | 106.5 | 52.3 | 102 | 3   | 24  | 34.2 | 290 | 190 | 15  | 70 | M10 | 226     | 317.6  | 19.84         | 19.82        | F10     |



## ■ PRESSURE V.S. TEMPERATURE CHART



## ■ BREAKAWAY TORQUE (DEGREASED)

| SIZE   | SERIES 55SN Standard Seat |          | SERIES 55SN Cavity Filler Seat |          |
|--------|---------------------------|----------|--------------------------------|----------|
|        | Nm                        | Inch-Lbs | Nm                             | Inch-Lbs |
| 1/2"   | 9                         | 81       | 10                             | 92       |
| 3/4"   | 10                        | 92       | 12                             | 104      |
| 1"     | 16                        | 138      | 17                             | 150      |
| 1.1/2" | 36                        | 323      | 40                             | 357      |
| 2"     | 44                        | 392      | 48                             | 426      |
| 2.1/2" | 91                        | 806      | 98                             | 864      |
| 3"     | 104                       | 921      | 111                            | 979      |
| 4"     | 117                       | 1037     | 124                            | 1094     |

\*Break Away Torque  
30% safety factor included  
Standard Mars valves are assembled with silicon-free based in lubricant, Torque for dry assembled valves please consult factory.

## PRODUCTS OPTIONAL

### ■ ECONOMICAL STEM EXTENSION

- 304 SS construction
- Economical, cost effective design
- Easy installation



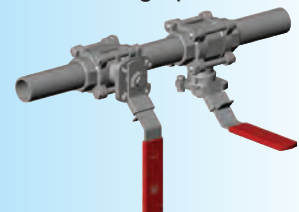
### ■ MOUNTING KITS FOR AUTOMATION



### ■ SPRING RETURN SLIDING LOCK HANDLE



No matter the orientation of the ball valves, the SRSL handle always secures handle always in position, making operation safe



# SERIES 50SN ECONOMICAL ULTRA - PURE SANITARY BALL VALVES



**FIG. 50SN-10**  
Tri-Clamp Ends



**FIG. 50SN-20**  
Tube OD Ends

## DESIGN ADVANTAGES

### True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

### In-Line Welding

Tube O.D. butt weld ends allows in-line welding without disassembly.

### Blow-Out Proof Stem

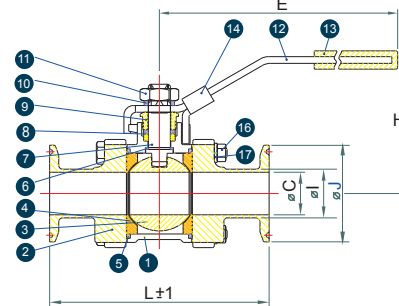
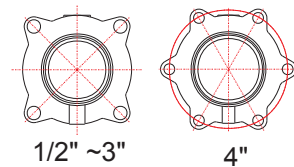
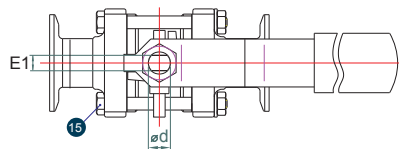
Prevents stem from blowing-out, for maximum operating safety

### Flush and Drain (CIP/SIP) Capability

Bosses are provided in the end caps for both flush and drain capability in applications where material can become trapped in the body cavity.

### Easy in-Line Maintenance

3-piece body swing-out design allows easy In-Line maintenance



PS: 4" Handle washer

| NO. | PART NAME      | MATERIAL    | Q'TY |
|-----|----------------|-------------|------|
| 1   | Body           | CF8M        | 1    |
| 2   | End Cap        | CF3M        | 2    |
| 3   | Ball           | SUS316/CF8M | 1    |
| 4   | Seat           | PTFE        | 2    |
| 5   | Joint Gasket   | PTFE        | 2    |
| 6   | Stem Seal      | PTFE        | 1    |
| 7   | Stem           | SS316       | 1    |
| 8   | Stem Packing   | PTFE        | 1Set |
| 9   | Gland Nut      | SUS 304     | 1    |
| 10  | Stem Washer    | SUS 304     | 1    |
| 11  | Stem Nut       | SUS 304     | 1    |
| 12  | Handle         | SUS 304     | 1    |
| 13  | Handle Sleeve  | VINYL       | 1    |
| 14  | Locking Device | SUS 304     | 1    |
| 15  | Bolt           | SUS 304     | *    |
| 16  | Bolt Nut       | SUS 304     | #    |
| 17  | Bolt Washer    | SUS 304     | #    |
| 18  | Handle Washer  | SUS 304     | @    |

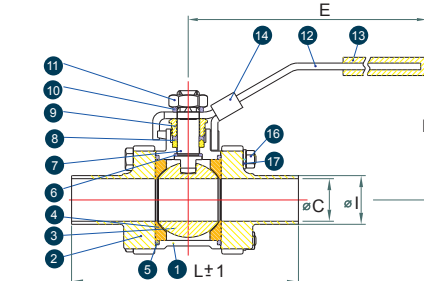
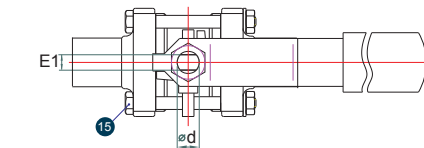
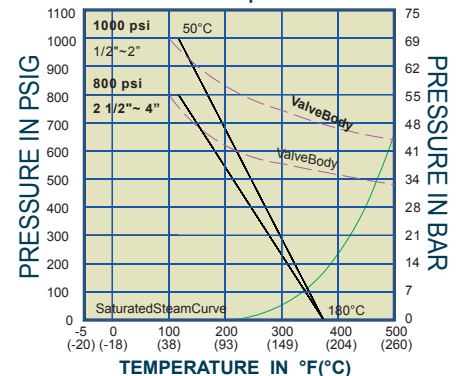
\* 4pcs:1/2"~3"

6pcs: 4"

#1/2"~2"-4pcs, 2 1/2"~3"-8pcs, 4"-12pcs

@ for 4"-1pc.

SEAT: PTFE or RPTFE  
Pressure Vs. Temperature Chart



## BREAKAWAY TORQUE(DEGREASED)

| SIZE   | SERIES 50SN Standard Seat |         | SERIES 50SN Cavity Filler Seat |         |
|--------|---------------------------|---------|--------------------------------|---------|
|        | Nm                        | Inch-Lb | Nm                             | Inch-Lb |
| 1/2"   | 9                         | 81      | 10                             | 92      |
| 3/4"   | 10                        | 92      | 12                             | 104     |
| 1"     | 16                        | 138     | 17                             | 150     |
| 1.1/2" | 38                        | 334     | 43                             | 380     |
| 2"     | 46                        | 403     | 52                             | 461     |
| 2.1/2" | 98                        | 864     | 104                            | 921     |
| 3"     | 111                       | 979     | 117                            | 1037    |
| 4"     | 117                       | 1037    | 124                            | 1094    |

## DIMENSIONS (mm)

| SIZE   | ØC    | ØI    | ØJ    | Ød  | H   | E   | E1  | L Clamp | L Tube | Wt.(kg) Clamp | Wt.(kg) Tube |
|--------|-------|-------|-------|-----|-----|-----|-----|---------|--------|---------------|--------------|
| 1/2"   | 9.4   | 12.7  | 25.2  | 9.5 | 64  | 132 | 6.5 | 89.1    | 139.8  | 0.60          | 0.56         |
| 3/4"   | 15.75 | 19    | 25.2  | 9.5 | 67  | 132 | 6.5 | 101.6   | 146    | 0.80          | 0.80         |
| 1"     | 22.2  | 25.4  | 50.4  | 11  | 75  | 167 | 8   | 114.5   | 158.7  | 1.19          | 1.05         |
| 1.1/2" | 34.9  | 38.1  | 50.5  | 14  | 90  | 192 | 9.7 | 140.1   | 190.6  | 2.60          | 2.50         |
| 2"     | 47.5  | 50.8  | 63.9  | 14  | 98  | 192 | 9.7 | 159     | 216    | 3.89          | 3.78         |
| 2.1/2" | 60.3  | 63.5  | 77.4  | 19  | 137 | 252 | 12  | 174     | 247.6  | 8.12          | 8.24         |
| 3"     | 73    | 76.2  | 90.9  | 19  | 147 | 252 | 12  | 193.2   | 266.8  | 11.20         | 11.18        |
| 4"     | 97.4  | 101.6 | 118.9 | 24  | 175 | 282 | 15  | 226     | 317.6  | 19.39         | 19.37        |

## SPECIFICATIONS

### Sizes Range:

1/2" - 4"

### End connections:

Tri-Clamp  
Tube OD

### Pressure Rating:

1000 PSI: 1/2"~2"  
800 PSI: 2 1/2"~4"

### Valve Material:

ASTM A351-CF8M

### Ball:

SS316 to ASTM A351-CF8M

### Stem:

SS316

### Seat Materials:

PTFE  
R-PTFE  
TFM 1600  
UHMWPE  
Cavity-filled PTFE  
Cavity-filled R-PTFE  
50% SS+PTFE  
Cavity filled TFM1600

### Internal Parts Finish:

Standard finish on wetted parts  
15 - 20 Ra or 240 Grit

# DIRECT MOUNT

## 39SN 3 - WAY ULTRA - PURE SANITARY BALL VALVES

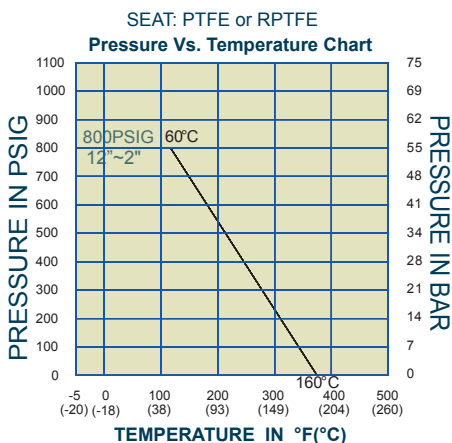
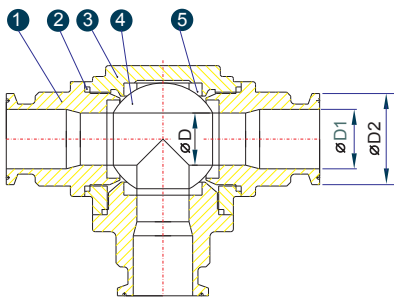


### SPECIFICATIONS

- Sizes Range:** 1/2" - 2"
- End connections:** Tri-Clamp
- Ball Configuration:** L-Port and T-Port
- Pressure Rating:** 800 PSI: 1/2" - 2"
- Valve Material:** ASTM A351-CF8M
- Ball and Stem Material:** 316 SS to ASTM A351-CF8M
- Seat Materials:** PTFE, TFM 1600
- Internal Parts Finish:** Standard finish on wetted parts 30 - 35 Ra or 150 Grit

### SERIES 39SN-10

- Tri-Clamp
- L-Port or T-Port
- 1/2"~2"-800 PSI WOG

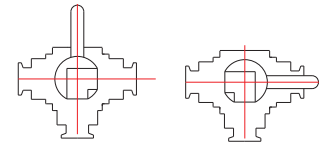


### DESIGN ADVANTAGES

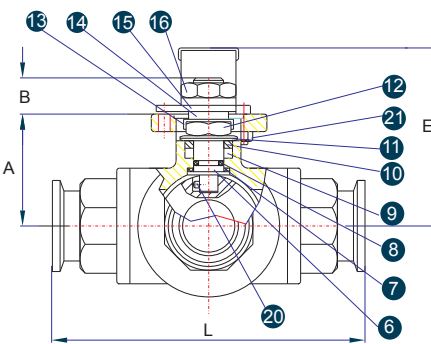
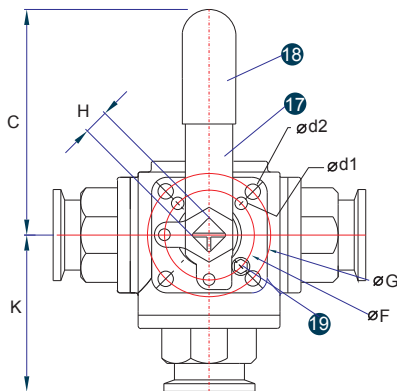
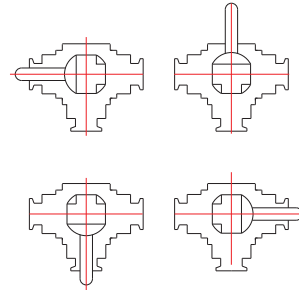
- Direct Mount Design -** Excellent for Automation ISO 5211 mounting pad and stem orientation allows direct mounting of actuator to valves, no brackets and couplers are required, making automation a lot easier with improved performance.
- Balanced 4-Seat Design** Ensures positive shutoff in the closed position, and maintains proper ball alignment.
- Live Loaded Stem Packing** Self adjustable stem seal automatically adjusts seal to compensate for wear, temperature and pressure fluctuations.
- Blow-Out Proof Stem** Prevents stem from blowing-out, for maximum operating safety

### FLOW PATTERN OPTIONS

#### L-PORT 90° TURN



#### T-PORT 90° TURN



### BREAKAWAY TORQUE(DEGREASED)

| SIZE   | SERIES 39SN |          |
|--------|-------------|----------|
|        | Nm          | Inch-Lbs |
| 1/2"   | 16          | 139      |
| 3/4"   | 16          | 139      |
| 1"     | 24          | 208      |
| 1.1/2" | 78          | 691      |
| 2"     | 98          | 864      |

30% safety factor included  
Valves degrease and silicon free

### MATERIALS LIST

| NO. | PART NAME         | MATERIAL      | Q'TY |
|-----|-------------------|---------------|------|
| 1   | CLAMP END         | A351 Gr. CF8M | 3    |
| 2   | GASKET            | PTFE          | 3    |
| 3   | BODY              | A351 Gr. CF8M | 1    |
| 4   | BALL              | SS316/CF8M    | 1    |
| 5   | SEATS             | PTFE          | 4    |
| 6   | STEM              | SS 316        | 1    |
| 7   | THRUST WASHER     | RPTFE         | 1    |
| 8   | O-RING            | VITON         | 1    |
| 9   | STEM PACKING      | PTFE          | 1    |
| 10  | GLAND             | SS 304        | 1    |
| 11  | BELLEVILLE WASHER | SS 301        | 2    |
| 12  | STEM NUT          | SS 304        | 1    |
| 13  | NUT STOP          | SS 304        | 1    |
| 14  | SPACE WASHER      | SS 304        | 1    |
| 15  | LOCK SADDLE       | SS 304        | 1    |
| 16  | HANDLE NUT        | SS 304        | 1    |
| 17  | HANDLE            | SS 304        | 1    |
| 18  | SLEEVE            | VINYL         | 1    |
| 19  | STOP PIN          | SS 304        | 1    |
| 20  | PIN               | SS 316        | 1    |
| 21  | STOP PIN NUT      | SS 304        | 1    |

### DIMENSIONS (mm)

| SIZE   | A    | B   | C   | ØD | ØD1  | ØD2  | Ød1 | Ød2 | E   | ØF | ØG | H  | K    | L   | Wt.(kg) | ISO5211 |
|--------|------|-----|-----|----|------|------|-----|-----|-----|----|----|----|------|-----|---------|---------|
| 1/2"   | 37   | 9.5 | 130 | 12 | 9.6  | 25   | 6.0 | 6.0 | 62  | 36 | 42 | 9  | 66.5 | 133 | 0.91    | F03/F04 |
| 3/4"   | 37   | 9.5 | 130 | 12 | 15.8 | 25   | 6.0 | 6.0 | 62  | 36 | 42 | 9  | 71   | 142 | 1.02    | F03/F04 |
| 1"     | 48.5 | 14  | 165 | 20 | 22.1 | 50.4 | 6.0 | 7.1 | 82  | 42 | 50 | 11 | 80   | 160 | 1.94    | F04/F05 |
| 1 1/2" | 63   | 17  | 205 | 32 | 34.8 | 50.4 | 7.1 | 9.2 | 98  | 50 | 70 | 14 | 91   | 182 | 3.82    | F05/F07 |
| 2"     | 73.5 | 16  | 205 | 38 | 47.5 | 63.9 | 7.1 | 9.2 | 108 | 50 | 70 | 14 | 108  | 216 | 6.38    | F05/F07 |



## DIRECT MOUNT - HIGH PERFORMANCE

### SERIES 33SN MULTI-PORT 3-/4-/5-WAY ULTRA-PURE SANITARY BALL VALVES



#### ■ SPECIFICATIONS

##### Sizes Range:

1/2" - 4"

##### End connections:

Tri-Clamp / Tube OD

##### Pressure Rating:

1000 PSI (1/2" - 1")

800 PSI (1 1/2" - 2")

600 PSI (2 1/2" - 3")

300 PSI: 4"

##### Valve Material:

ASTM A351-CF3M

##### Ball Configuration:

T-, L-, I-Port

TT-Double T-port

LL-Double L-port

##### Ball:

316L SS to ASTM A351-CF3M

##### Stem:

316L SS

##### Seat Materials:

PTFE/R-PTFE/TFM 1600

Cavity-filled PTFE

50% SS+PTFE

Cavity filled TFM1600

##### Internal Parts Finish:

Standard finish on all wetted parts 20 Ra

#### ■ DESIGN ADVANTAGES

##### ● Direct Mounting Actuator to Valves

ISO 5211 mounting pad and stem orientation allows direct mounting of actuator to valves, no brackets and couplers are required, making automation a lot easier with improved performance.

##### ● True Tube Full Port Design:

There are no dead space in the through path, eliminates trap areas and reduces pressure drop.

##### ● 5-Seat Design

For equal seat loading and positive sealing at any port, also maintain proper ball alignment.

Five-Entry Construction

Allows easy bottom entry gives greater flexibility to design pipe works, and allows easy maintenance.

##### ● Stem

- Mars unique SealMax® stem packing system provides optimum stem seal and extremely high cycle life

- Super smooth stem surface reduces seal friction and operating torque

- Blow-out proof stem prevents stem from blowing out, for maximum operating safety

##### ● Extra High Cycle Stem Packing Arrangement

Mars unique SealMax® stem arrangement offers optimum stem seals with extremely high cycle life.

##### ● Easy Wash-downs and Cleaning

Compact design, ideal for wash-downs and cleaning

##### ● Anti-Static Device

Standard applied stem-to-ball, and stem-to-body

#### \* PATENTED !

#### ■ BALL AND STEM CONNECTIONS



Semi-Trunnion Ball Design produced a locked ball-to-stem connections offering a positive connection that effectively eliminates mechanical backlash and hysteresis. The splined connection ensures accurate, precise positioning of the ball and lower operating torque for better actuation.

#### \* PATENTED !

#### ■ END CAP AND BODY CONNECTIONS



The conventional end cap and seat retainer was one piece design that made the end caps extended into valve body, and it creates a problem when repair and maintenance required, it is very difficult to remove end caps from valve body when valves mounted on pipeline, especially when ball valve was welded on pipeline.

#### \* PATENTED !

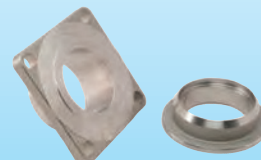
#### ■ 5-PIECE DESIGN CAVITY FILLER SEATS



The cavity filler seats are designed to fill the dead space between the ball and valve body, minimize problems with trapped fluid in the valve body that can contaminate the process. Mars Cavity Filler Seats fill 95% of the dead space between valve body and ball, while others' cavity filler seats of 3/4/5-way ball valves can only fill maximum 80% of the dead space

#### ■ Mars Patented End Cap Design is separated from Seat Retainer in Two-Piece Easy-to-Maintain Construction

It is designed to overcome the problem of the conventional end cap design, easily remove end caps from valve body when valves mounted on pipeline, allows fast and easy replacement of gasket and seats that enhances functional performance with lower installation / maintenance costs.



## DIMENSIONS

### SERIES 33SN-10

Tri-Clamp  
L-Port or T-Port

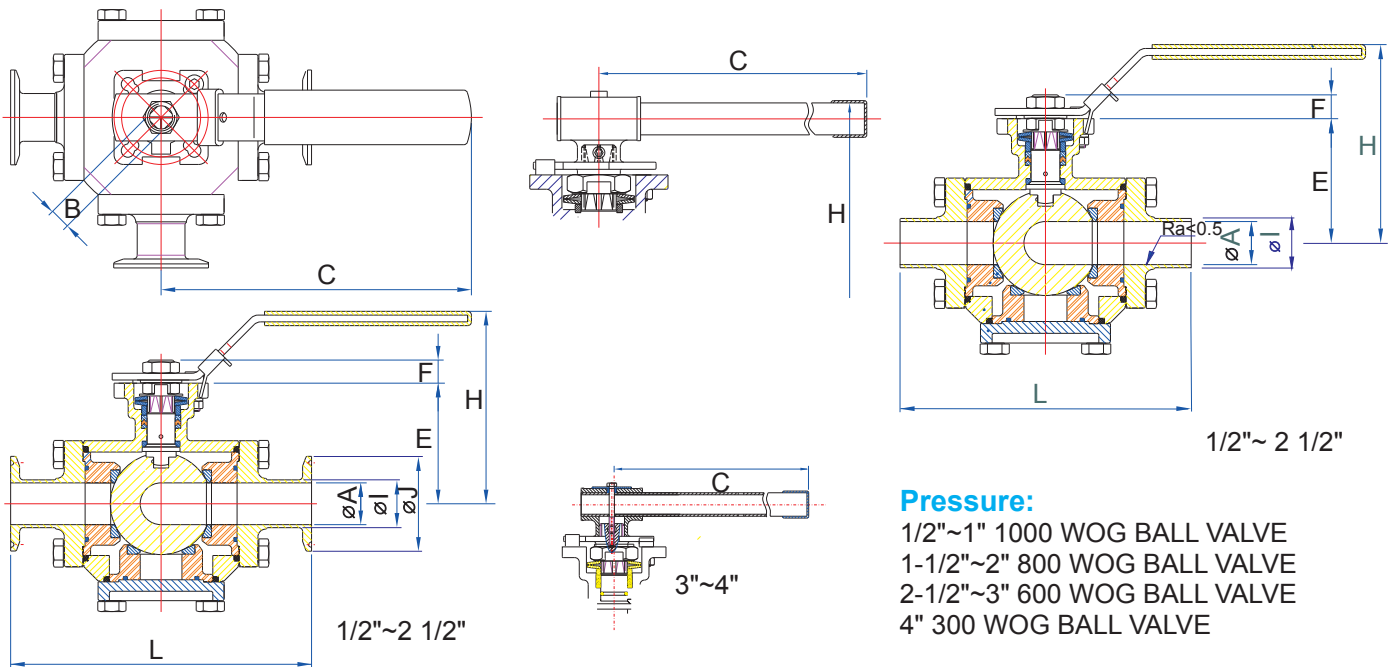
### SERIES 33SN-20

Tube O.D Butt Weld  
L-Port or T-Port

#### DIMENSIONS (mm)

Dimension B:17/19 Standard 17,Option 19

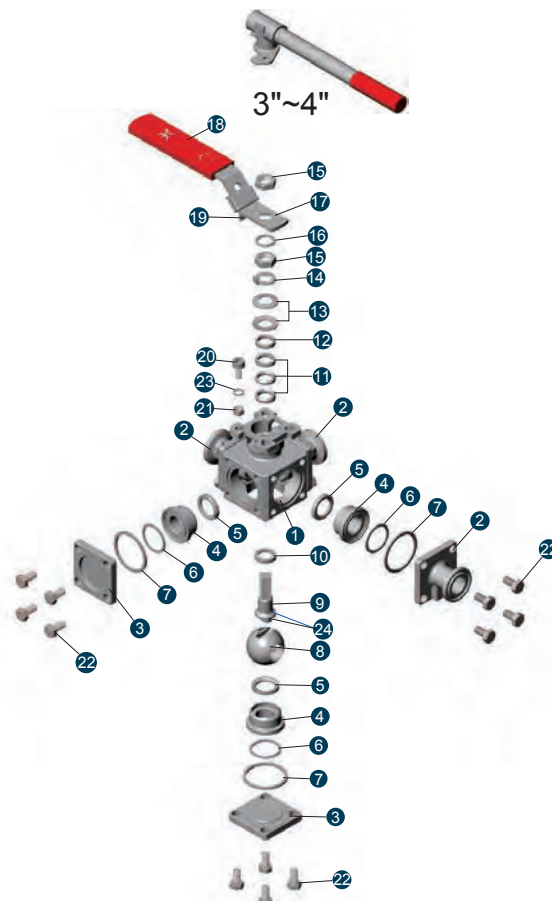
| SIZE   | ØA    | B     | C   | E     | F    | H   | ØI    | ØJ    | L<br>Clamp | L<br>Tube | Clamp<br>Wt.(kg) | ISO5211     |
|--------|-------|-------|-----|-------|------|-----|-------|-------|------------|-----------|------------------|-------------|
| 1/2"   | 9.4   | 9     | 150 | 43.9  | 9    | 85  | 12.7  | 25.2  | 110        | 160       | 1.424            | F03/F04/F05 |
| 3/4"   | 15.75 | 11    | 165 | 54.2  | 10.5 | 93  | 19.0  | 25.5  | 140        | 186       | 2.866            | F04/F05     |
| 1"     | 22.2  | 11    | 180 | 64.1  | 10.5 | 108 | 25.4  | 50.4  | 160        | 208       | 4.90             | F04/F05/F07 |
| 1 1/2" | 34.9  | 17/19 | 263 | 94.9  | 18   | 152 | 38.1  | 50.5  | 200        | 250       | 11.00            | F07/F10     |
| 2"     | 47.5  | 17/19 | 313 | 101.6 | 18   | 159 | 50.8  | 63.9  | 220        | 270       | 13.9             | F07/F10     |
| 2 1/2" | 60.3  | 17/19 | 344 | 120   | 18   | 177 | 63.5  | 77.4  | 240        | 306       | 22.86            | F07/F10     |
| 3"     | 73    | 22    | 370 | 132.9 | 23   | 195 | 76.2  | 90.9  | 265        | 326       | 27.92            | F10/F12     |
| 4"     | 97.4  | 22    | 510 | 164   | 23   | 226 | 101.6 | 118.9 | 317        | 400       | 56.21            | F10/F12     |



## MATERIALS OF CONSTRUCTIONS

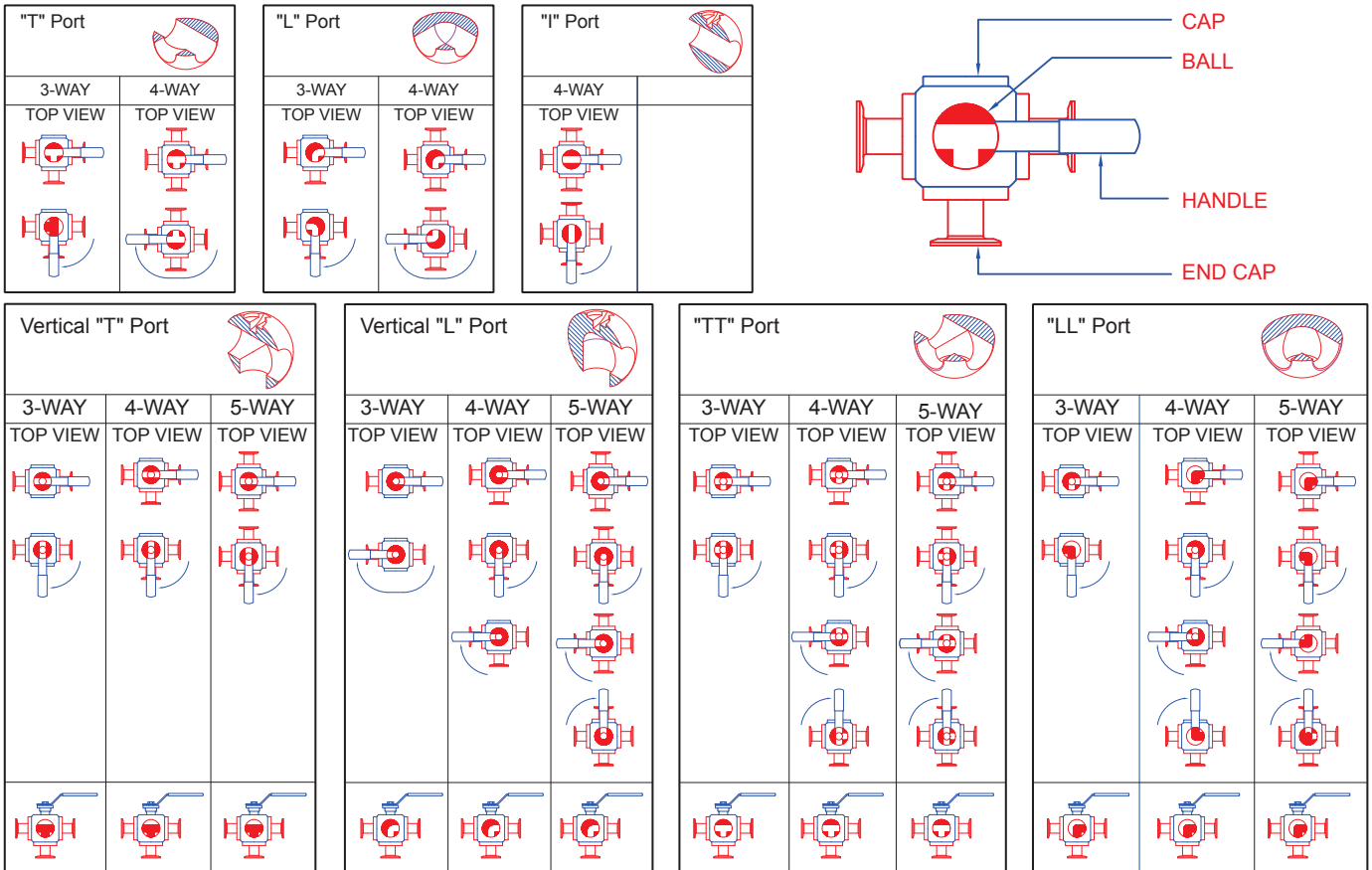
#### MATERIALS LIST

| NO. | PART NAME           | MATERIAL                            | Q'TY |
|-----|---------------------|-------------------------------------|------|
| 1   | Body                | CF3M                                | 1    |
| 2   | End Cap-A           | CF3M                                | 3    |
| 3   | End Cap-B           | CF3M                                | 2    |
| 4   | Seat Retainer       | CF3M                                | 5    |
| 5   | Seat                | PTFE                                | 5    |
| 6   | Retainer Seal       | PTFE                                | 5    |
| 7   | Joint Gasket        | PTFE                                | 5    |
| 8   | Ball                | SUS316L/CF3M                        | 1    |
| 9   | Stem                | SS316L                              | 1    |
| 10  | Stem Seal           | PTFE                                | 1    |
| 11  | Stem Packing        | 25%GLASS FIBER FILLED+PTFE and PTFE | 1Set |
| 12  | Gland               | SUS 304                             | 1    |
| 13  | Belleville Washer   | SUS 301                             | 2    |
| 14  | Lock Saddle         | SUS 304                             | 1    |
| 15  | Stem Nut            | SUS 304                             | 2    |
| 16  | Stem Washer         | SUS 304                             | 1    |
| 17  | Handle              | SUS 304                             | 1    |
| 18  | Handle Sleeve       | VINYL                               | 1    |
| 19  | Locking Device      | SUS 304                             | 1    |
| 20  | Stop Pin            | SUS 304                             | 1    |
| 21  | Pin Nut             | SUS 304                             | 1    |
| 22  | Bolt Nut            | SUS 304                             | 20   |
| 23  | Washer              | SUS 304                             | 1    |
| 24  | Antistatic - Device | SUS 316                             | 2    |

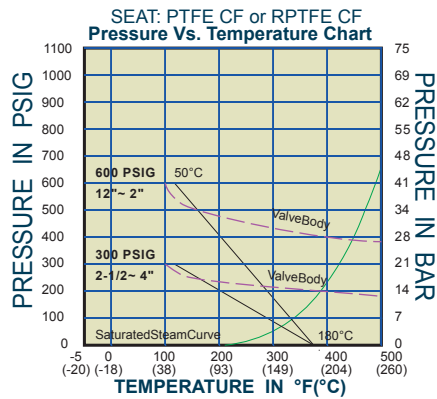
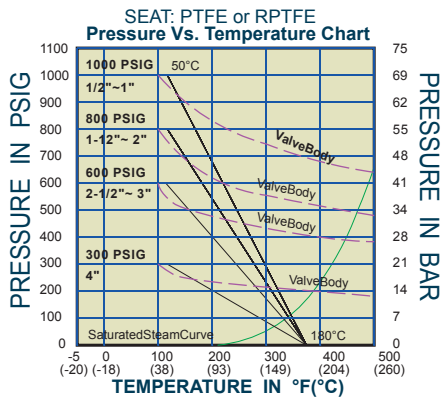


# SERIES 33SN 3-/4-/5-WAY ULTRA-PURE SANITARY BALL VALVES

## FLOW PATTERN OPTIONS



### ■ PRESSURE V.S. TEMPERATURE CHART



### ■ BREAK AWAY TORQUE (DECREASED)

| SIZE   | PTFE | PTFE    | PTFE CF | PTFE CF |
|--------|------|---------|---------|---------|
|        | Nm   | Inch-Lb | Nm      | Inch-Lb |
| 1/2"   | 12   | 106     | 20      | 173     |
| 3/4"   | 20   | 177     | 34      | 299     |
| 1"     | 47   | 416     | 53      | 472     |
| 1.1/2" | 91   | 806     | 94      | 829     |
| 2"     | 120  | 1063    | 118     | 1048    |
| 2.1/2" | 143  | 1267    | 169     | 1497    |
| 3"     | 211  | 1,866   | 254     | 2,246   |
| 4"     | 264  | 2,338   | 338     | 2,995   |

\*Break Away Torque  
30% safety factor included  
Standard Mars valves are assembled with silicon-free based in lubricant,  
Torque for dry assembled valves please consult factory.

### PRODUCTS OPTION

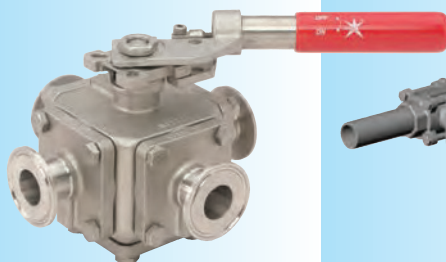
#### ■ MARS TSM UNIT

- A Fugitive Emission Bonnet compliance with EPA and TA - LUFT requirements
- Add extra safety and high cycle life
- Easy to insulate



#### ■ SPRING RETURN SAFETY HANDLE

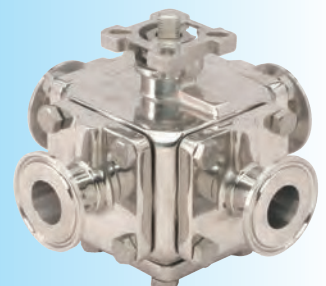
Provides safe and positive fail closed or open operation



#### ■ SPRING RETURN SLIDING LOCK HANDLE



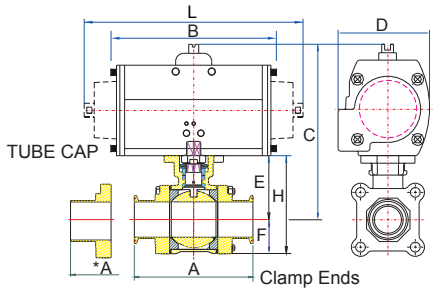
#### ■ EXTERNAL POLISH OPTIONAL





**MARS VALVE OFFERS SINGLE RELIABLE-SOURCE FOR A COMPLETE LINE OF BALL VALVES, ACTUATORS AND ACCESSORIES TO MEET YOUR AUTOMATION REQUIREMENTS.**

**SERIES 88SN**



**Double-Acting (80 PSI)**

| SIZE   | Clamp A | Tube *A | B     | C      | D     | E      | F    | H     | Actuator | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-------|--------|-------|--------|------|-------|----------|----------|-------|---------|-------|-----------|
|        |         |         |       |        |       |        |      |       |          | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 134.5   | 120   | 126.6  | 62.2  | 42.6   | 25.6 | 68.2  | A-125    | 3.81     | 1.73  | 3.70    | 1.68  |           |
| 3/4"   | 101.6   | 140.9   | 120   | 126.6  | 62.2  | 42.6   | 25.6 | 68.2  | A-125    | 3.81     | 1.73  | 3.70    | 1.68  |           |
| 1"     | 114.5   | 161.5   | 144.3 | 145.85 | 81.4  | 46.85  | 30.7 | 77.55 | A-250    | 6.35     | 2.88  | 5.96    | 2.7   | + ISO F04 |
| 1 1/2" | 140.1   | 182.2   | 149.2 | 180.6  | 95    | 62.6   | 38.6 | 101.2 | A-450    | 10.30    | 4.67  | 9.99    | 4.53  | + ISO F04 |
| 2"     | 159     | 191.7   | 149.2 | 202.7  | 95    | 84.7   | 51.4 | 136.1 | A-450    | 17.92    | 8.13  | 17.08   | 7.75  |           |
| 2 1/2" | 174     | 247.6   | 183   | 249.7  | 119   | 108.7  | 58.5 | 167.2 | A-1000   | 27.40    | 12.43 | 28.37   | 12.87 |           |
| 3"     | 193.2   | 266.8   | 183   | 258.7  | 119   | 117.7  | 69   | 186.7 | A-1000   | 34.31    | 15.57 | 35.15   | 15.95 |           |
| 4"     | 226     | 317.6   | 259.6 | 293.6  | 140.5 | 132.55 | 95.4 | 228   | A-2250   | 59.28    | 26.89 | 61.05   | 27.69 | + ISO F04 |

\* Dimensions for FIG 88SN-20

**Spring-Return (80 PSI)**

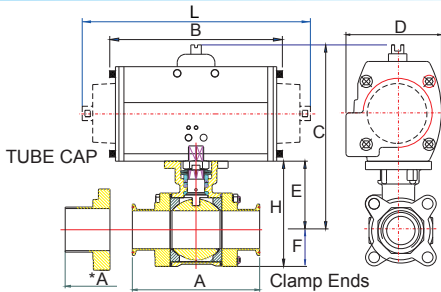
| SIZE   | Clamp A | Tube *A | L     | C     | D     | E      | F    | H     | Actuator  | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-------|-------|-------|--------|------|-------|-----------|----------|-------|---------|-------|-----------|
|        |         |         |       |       |       |        |      |       |           | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 134.5   | 205.6 | 160.6 | 95    | 42.6   | 25.6 | 68.2  | A-450SR4  | 6.80     | 3.08  | 6.69    | 3.04  | &         |
| 3/4"   | 101.6   | 140.9   | 205.6 | 160.6 | 95    | 42.6   | 25.6 | 68.2  | A-450SR4  | 8.00     | 3.63  | 7.89    | 3.58  | &         |
| 1"     | 114.5   | 161.5   | 205.6 | 164.9 | 95    | 46.85  | 30.7 | 77.55 | A-450SR4  | 9.22     | 4.18  | 8.83    | 4.00  | &         |
| 1 1/2" | 140.1   | 182.2   | 250.0 | 203.6 | 119   | 62.6   | 38.6 | 101.2 | A-1000SR4 | 16.91    | 7.67  | 16.60   | 7.53  | + ISO F04 |
| 2"     | 159     | 191.7   | 355.0 | 245.7 | 140.5 | 84.7   | 51.4 | 136.1 | A-2250SR4 | 35.15    | 15.93 | 34.31   | 15.55 | + ISO F04 |
| 2 1/2" | 174     | 247.6   | 422.0 | 304.7 | 185.2 | 108.7  | 58.5 | 167.2 | A-3650SR4 | 58.91    | 26.73 | 59.88   | 27.17 | + ISO F04 |
| 3"     | 193.2   | 266.8   | 422.0 | 313.7 | 185.2 | 117.7  | 69   | 186.7 | A-3650SR4 | 65.90    | 29.87 | 66.74   | 30.25 | + ISO F04 |
| 4"     | 226     | 317.6   | 422.0 | 328.6 | 185.2 | 132.55 | 95.4 | 228   | A-3650SR4 | 82.43    | 37.39 | 84.19   | 38.19 | + ISO F04 |

\* Dimensions for FIG 88SN-20

& Mounting kit required.



**SERIES 77SN**



**Double-Acting (80 PSI)**

| SIZE   | Clamp A | Tube *A | B     | C     | D     | E      | F    | H     | Actuator | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-------|-------|-------|--------|------|-------|----------|----------|-------|---------|-------|-----------|
|        |         |         |       |       |       |        |      |       |          | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 139.8   | 120   | 126.1 | 62.2  | 42.1   | 23.3 | 65.4  | A-125    | 3.66     | 1.66  | 3.55    | 1.61  |           |
| 3/4"   | 101.6   | 146     | 120   | 132   | 62.2  | 48     | 25.4 | 73.4  | A-125    | 3.90     | 1.77  | 3.99    | 1.81  |           |
| 1"     | 114.5   | 158.7   | 144.3 | 155.6 | 81.4  | 56.6   | 28.3 | 84.9  | A-250    | 6.28     | 2.85  | 5.89    | 2.67  |           |
| 1 1/2" | 140.1   | 190.6   | 149.2 | 195.5 | 95    | 77.5   | 39.3 | 116.8 | A-450    | 11.38    | 5.16  | 11.27   | 5.11  |           |
| 2"     | 159     | 216     | 149.2 | 203.2 | 95    | 85.2   | 47.3 | 132.5 | A-450    | 14.13    | 6.41  | 11.97   | 5.43  |           |
| 2 1/2" | 174     | 247.6   | 183   | 249.7 | 119   | 108.7  | 58.5 | 167.2 | A-1000   | 27.40    | 12.43 | 28.37   | 12.87 |           |
| 3"     | 193.2   | 266.8   | 183   | 258.7 | 119   | 117.7  | 69   | 186.7 | A-1000   | 34.33    | 15.57 | 35.16   | 15.95 |           |
| 4"     | 226     | 317.6   | 259.6 | 293.6 | 140.5 | 132.55 | 95.4 | 228   | A-2250   | 59.28    | 26.89 | 61.05   | 27.69 | + ISO F04 |

\* Dimensions for FIG 77SN-20

**Spring-Return (80 psi)**

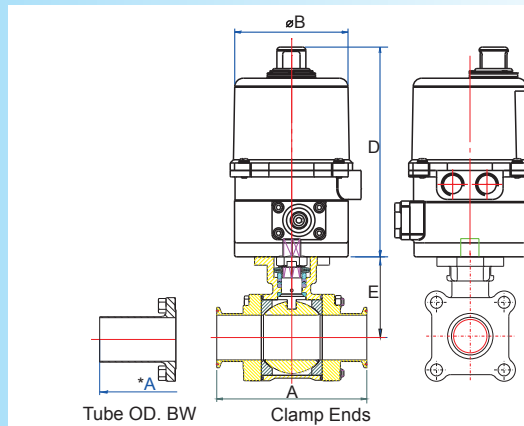
| SIZE   | Clamp A | Tube *A | L     | C     | D     | E      | F    | H     | Actuator  | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-------|-------|-------|--------|------|-------|-----------|----------|-------|---------|-------|-----------|
|        |         |         |       |       |       |        |      |       |           | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 139.8   | 194.6 | 141.1 | 81.4  | 42.1   | 23.3 | 65.4  | A-250SR4  | 5.64     | 2.56  | 5.53    | 2.51  | + ISO F04 |
| 3/4"   | 101.6   | 146     | 194.6 | 147.0 | 81.4  | 48     | 25.4 | 73.4  | A-250SR5  | 5.89     | 2.67  | 6.0     | 2.71  | + ISO F04 |
| 1"     | 114.5   | 158.7   | 205.6 | 174.6 | 95    | 56.6   | 28.3 | 84.9  | A-450SR4  | 9.15     | 4.15  | 8.75    | 3.97  | + ISO F04 |
| 1 1/2" | 140.1   | 190.6   | 250.0 | 218.5 | 119   | 77.5   | 39.3 | 116.8 | A-1000SR4 | 17.99    | 8.16  | 17.88   | 8.11  | + ISO F04 |
| 2"     | 159     | 216     | 355.0 | 246.2 | 140.5 | 85.2   | 47.3 | 132.5 | A-2250SR4 | 31.32    | 14.21 | 29.16   | 13.23 | + ISO F04 |
| 2 1/2" | 174     | 247.6   | 422.0 | 304.7 | 185.2 | 108.7  | 58.5 | 167.2 | A-3650SR4 | 58.91    | 26.73 | 59.88   | 27.17 | + ISO F04 |
| 3"     | 193.2   | 266.8   | 422.0 | 313.7 | 185.2 | 117.7  | 69   | 186.7 | A-3650SR4 | 65.83    | 29.87 | 66.67   | 30.25 | + ISO F04 |
| 4"     | 226     | 317.6   | 422.0 | 328.6 | 185.2 | 132.55 | 95.4 | 228   | A-3650SR4 | 82.43    | 37.39 | 84.19   | 38.19 | + ISO F04 |

\* Dimensions for FIG 77SN-20

& Air supply 100 psi



**SERIES 88SN Electric Actuator**



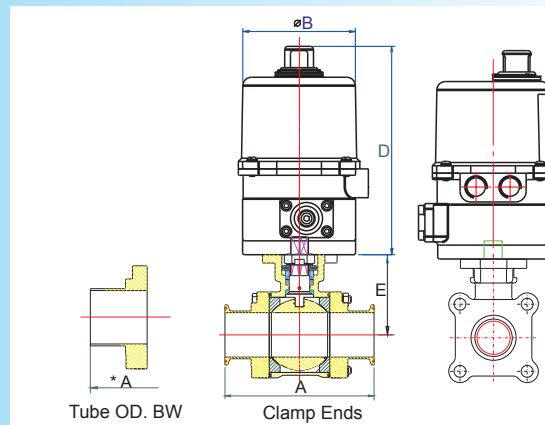
**Electric Actuator**

| SIZE   | Clamp A | Tube *A | øB  | Stem | ISO5211 | D   | E      | Actuator | Flange Type | Electric Actuator | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-----|------|---------|-----|--------|----------|-------------|-------------------|----------|-------|---------|-------|-----------|
|        |         |         |     |      |         |     |        |          |             |                   | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 134.5   | 106 | 9    | F03/F04 | 150 | 42.6   | 14       | F03/F05     | OM-1              | 6.02     | 2.73  | 5.91    | 2.68  | + ISO F04 |
| 3/4"   | 101.6   | 140.9   | 106 | 9    | F03/F04 | 150 | 42.6   | 14       | F03/F05     | OM-1              | 6.02     | 2.73  | 5.91    | 2.68  | + ISO F04 |
| 1"     | 114.5   | 161.5   | 106 | 9    | F03/F04 | 150 | 46.85  | 14       | F03/F05     | OM-1              | 7.24     | 3.28  | 6.84    | 3.10  | + ISO F04 |
| 1 1/2" | 140.1   | 182.2   | 106 | 11   | F04/F05 | 196 | 62.6   | 17       | F05/F07     | OM-A              | 12.05    | 5.47  | 11.75   | 5.33  | + ISO F04 |
| 2"     | 159     | 191.7   | 181 | 14   | F05/F07 | 255 | 84.7   | 22       | F07         | OM-2              | 37.35    | 16.93 | 36.51   | 16.55 | + ISO F04 |
| 2 1/2" | 174     | 247.6   | 181 | 17   | F07/F10 | 255 | 108.7  | 22       | F07         | OM-3              | 43.53    | 19.73 | 44.50   | 20.17 | + ISO F04 |
| 3"     | 193.2   | 266.8   | 181 | 17   | F07/F10 | 255 | 117.7  | 22       | F07         | OM-3              | 50.46    | 22.87 | 51.30   | 23.25 | + ISO F04 |
| 4"     | 226     | 317.6   | 181 | 17   | F07/F10 | 255 | 132.55 | 22       | F07         | OM-3              | 67.05    | 30.39 | 68.81   | 31.19 | + ISO F04 |

\* Dimensions for FIG 88SN-20 Tube OD, BW



**SERIES 77SN Electric Actuator**



**Electric Actuator**

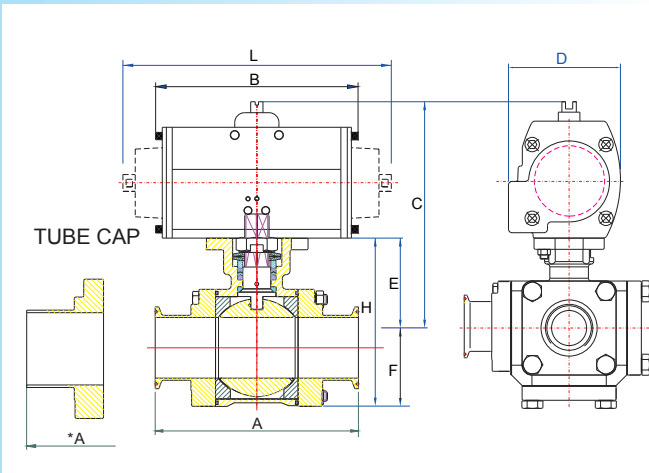
| SIZE   | Clamp A | Tube *A | øB  | Stem | ISO5211 | D   | E      | Actuator | Flange Type | Electric Actuator | Clamp-Wt |       | Tube-Wt |       | Remark    |
|--------|---------|---------|-----|------|---------|-----|--------|----------|-------------|-------------------|----------|-------|---------|-------|-----------|
|        |         |         |     |      |         |     |        |          |             |                   | Lbs.     | Kg.   | Lbs.    | Kg.   |           |
| 1/2"   | 89.1    | 139.8   | 106 | 9    | F03/F04 | 150 | 42.1   | 14       | F03/F05     | OM-1              | 5.87     | 2.66  | 5.76    | 2.61  | + ISO F04 |
| 3/4"   | 101.6   | 146     | 106 | 9    | F03/F04 | 150 | 48     | 14       | F03/F05     | OM-1              | 6.11     | 2.77  | 6.20    | 2.81  | + ISO F04 |
| 1"     | 114.5   | 158.7   | 106 | 11   | F04/F05 | 150 | 56.6   | 14       | F03/F05     | OM-1              | 7.17     | 3.25  | 6.77    | 3.07  | + ISO F04 |
| 1 1/2" | 140.1   | 190.6   | 106 | 14   | F05/F07 | 196 | 77.5   | 17       | F05/F07     | OM-A              | 13.15    | 5.96  | 13.04   | 5.91  | + ISO F04 |
| 2"     | 159     | 216     | 181 | 14   | F05/F07 | 255 | 85.2   | 22       | F07         | OM-2              | 33.56    | 15.21 | 31.40   | 14.23 | + ISO F04 |
| 2 1/2" | 174     | 247.6   | 181 | 17   | F07/F10 | 255 | 108.7  | 22       | F07         | OM-3              | 43.53    | 19.73 | 44.50   | 20.17 | + ISO F04 |
| 3"     | 193.2   | 266.8   | 181 | 17   | F07/F10 | 255 | 117.7  | 22       | F07         | OM-3              | 50.46    | 22.87 | 51.30   | 23.25 | + ISO F04 |
| 4"     | 226     | 317.6   | 181 | 17   | F07/F10 | 255 | 132.55 | 22       | F07         | OM-3              | 67.05    | 30.39 | 68.81   | 31.19 | + ISO F04 |

\* Dimensions for FIG 77SN-20 Tube OD, BW



# SERIES 33SN 3-/4-/5-WAY ULTRA-PURE SANITARY BALL VALVES FLOW PATTERN OPTIONS

## SERIES 33SN WITH AirMars® PNEUMATIC ACTUATORS



### Double-Acting (80 PSI)

| SIZE   | A   | *A  | B     | C     | D     | E     | F     | H     | Actuator | Wt    |       | Remark |
|--------|-----|-----|-------|-------|-------|-------|-------|-------|----------|-------|-------|--------|
|        |     |     |       |       |       |       |       |       |          | Lbs.  | Kg.   |        |
| 1/2"   | 110 | 160 | 120   | 127.9 | 62.2  | 43.9  | 35.1  | 79    | A-125    | 5.12  | 2.32  |        |
| 3/4"   | 140 | 186 | 144.3 | 153.2 | 81.4  | 54.2  | 45.3  | 99.5  | A-250    | 9.23  | 4.18  |        |
| 1"     | 160 | 208 | 149.2 | 182.1 | 95    | 64.1  | 56.8  | 120.9 | A-450    | 14.90 | 6.76  | + □    |
| 1 1/2" | 200 | 250 | 183   | 235.9 | 119   | 94.9  | 72.3  | 167.2 | A-1000   | 31.22 | 14.16 |        |
| 2"     | 220 | 270 | 259.6 | 262.6 | 140.5 | 101.6 | 80.5  | 182.1 | A-2250   | 45.81 | 20.78 | + □    |
| 2 1/2" | 240 | 306 | 259.6 | 281   | 140.5 | 120   | 96.8  | 216.8 | A-2250   | 65.59 | 29.75 | + □    |
| 3"     | 265 | 326 | 304.3 | 328.9 | 185.2 | 132.9 | 105   | 237.9 | A-3650   | 92.26 | 41.85 | + □    |
| 4"     | 317 | 400 | 304.3 | 360   | 185.2 | 164   | 131.5 | 295.5 | A-3650   | 154.1 | 69.89 | + □    |

\* Dimensions for FIG 33SN-20

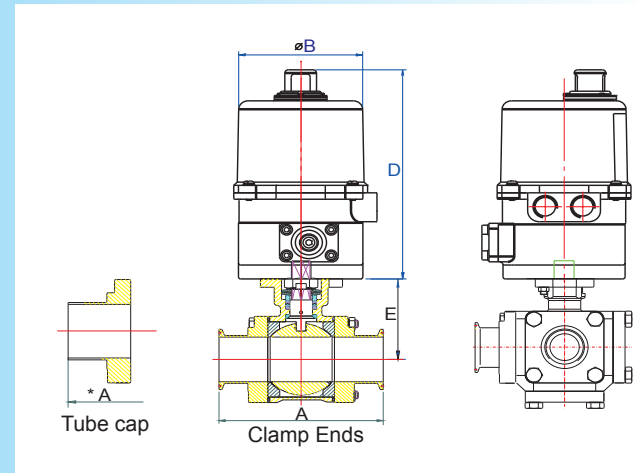
### Spring-Return (80 PSI)

| SIZE   | A   | *A  | L     | C     | D     | E     | F     | H     | Actuator   | Wt    |       | Remark |
|--------|-----|-----|-------|-------|-------|-------|-------|-------|------------|-------|-------|--------|
|        |     |     |       |       |       |       |       |       |            | Lbs.  | Kg.   |        |
| 1/2"   | 110 | 160 | 205.6 | 161.9 | 95    | 43.9  | 35.1  | 79    | A-450SR4   | 9.3   | 4.22  | + □    |
| 3/4"   | 140 | 186 | 250.0 | 195.2 | 119   | 54.2  | 45.3  | 99.5  | A-1000SR4  | 17.17 | 7.79  | + □    |
| 1"     | 160 | 208 | 355.0 | 225.1 | 140.5 | 64.1  | 56.8  | 120.9 | A-2250SR4  | 32.09 | 14.56 | + □    |
| 1 1/2" | 200 | 250 | 422.0 | 290.9 | 185.2 | 94.9  | 72.3  | 167.2 | A-3650SR4  | 62.73 | 28.46 | + □    |
| 2"     | 220 | 270 | 422.0 | 297.6 | 185.2 | 101.6 | 80.5  | 182.1 | A-3650SR4  | 68.96 | 31.28 | + □    |
| 2 1/2" | 240 | 306 | 487.0 | 336   | 204.8 | 120   | 96.8  | 216.8 | A-5000SR4  | 105.2 | 47.75 | + □    |
| 3"     | 265 | 326 | 642.0 | 396.6 | 238.2 | 132.9 | 105   | 237.9 | A-11000SR4 | 169.4 | 76.85 | &      |
| 4"     | 317 | 400 | 642.0 | 427.7 | 238.2 | 164   | 131.5 | 295.5 | A-11000SR4 | 231.2 | 104.9 | &      |

\* Dimensions for FIG 33SN-20

& Mounting kit required.

## SERIES 33SN WITH PowerMars® ELECTRIC ACTUATORS



### Electric Actuator

| SIZE   | Clamp A | Tube *A | ØB  | Stem | ISO5211     | D   | E     | Actuator | Flange Type | Electric Actuator | Clamp-Wt |       | Remark |
|--------|---------|---------|-----|------|-------------|-----|-------|----------|-------------|-------------------|----------|-------|--------|
|        |         |         |     |      |             |     |       |          |             |                   | Lbs.     | Kg.   |        |
| 1/2"   | 110     | 160     | 106 | 9    | F03/F04/F05 | 150 | 43.9  | 14       | F03/F05     | OM-1              | 7.45     | 3.38  | + □    |
| 3/4"   | 140     | 186     | 106 | 11   | F04/F05     | 150 | 54.2  | 14       | F03/F05     | OM-1              | 10.34    | 4.69  | + □    |
| 1"     | 160     | 208     | 181 | 11   | F04/F05/F07 | 255 | 64.1  | 22       | F07         | OM-2              | 35.04    | 15.9  | + □    |
| 1 1/2" | 200     | 250     | 181 | 17   | F07/F10     | 255 | 94.9  | 22       | F07         | OM-3              | 47.34    | 21.48 | + □    |
| 2"     | 220     | 270     | 181 | 17   | F07/F10     | 255 | 101.6 | 22       | F07         | OM-3              | 53.66    | 24.35 | + □    |
| 2 1/2" | 240     | 306     | 217 | 17   | F07/F10     | 317 | 120   | 35       | F10         | OM-4              | 92.90    | 42.15 | + □    |
| 3"     | 265     | 326     | 217 | 22   | F10/F12     | 317 | 132.9 | 35       | F10         | OM-4              | 106.6    | 48.38 | + □    |
| 4"     | 317     | 400     | 217 | 22   | F10/F12     | 317 | 164   | 35       | F10         | OM-4              | 172.6    | 78.34 | + □    |

\* Dimensions for FIG 33SN-20 Tube OD. BW.

### Electric Actuator(PTFE CAVITY FILLER SEAT)

| SIZE   | Clamp A | Tube *A | ØB  | Stem | ISO5211     | D   | E     | Actuator | Flange Type | Electric Actuator | Clamp-Wt |       | Remark |
|--------|---------|---------|-----|------|-------------|-----|-------|----------|-------------|-------------------|----------|-------|--------|
|        |         |         |     |      |             |     |       |          |             |                   | Lbs.     | Kg.   |        |
| 1/2"   | 110     | 160     | 106 | 9    | F03/F04/F05 | 150 | 43.9  | 14       | F03/F05     | OM-1              | 7.45     | 3.38  | + □    |
| 3/4"   | 140     | 186     | 106 | 11   | F04/F05     | 196 | 54.2  | 17       | F05/F07     | OM-A              | 12.54    | 5.69  | + □    |
| 1"     | 160     | 208     | 181 | 11   | F04/F05/F07 | 255 | 64.1  | 22       | F07         | OM-2              | 35.04    | 15.9  | + □    |
| 1 1/2" | 200     | 250     | 181 | 17   | F07/F10     | 255 | 94.9  | 22       | F07         | OM-3              | 47.34    | 21.48 | + □    |
| 2"     | 220     | 270     | 181 | 17   | F07/F10     | 255 | 101.6 | 22       | F07         | OM-3              | 53.66    | 24.35 | + □    |
| 2 1/2" | 240     | 306     | 217 | 17   | F07/F10     | 317 | 120   | 35       | F10         | OM-4              | 92.90    | 42.15 | + □    |
| 3"     | 265     | 326     | 217 | 22   | F10/F12     | 317 | 132.9 | 35       | F10         | OM-4              | 106.6    | 48.38 | + □    |
| 4"     | 317     | 400     | 217 | 22   | F10/F12     | 317 | 164   | 35       | F10         | OM-4              | 172.6    | 78.34 | + □    |

\* Dimensions for FIG 33SN-20 Tube OD. BW.

## PRODUCTS OPTION


### AirMars® Pneumatic Actuators



- Double-acting or Spring-return 250 to 11,000 in-lbs
- ISO / NAMUR Connections Aluminum alloy body
- Epoxy coated end caps
- Easy external bi-directional travel stop adjustments
- Extended cycle life guaranteed

### PowerMars® Electric Actuators



- IP67, NEMA 4X: Water-proof and dust-proof enclosure.
- Dry powder coating aluminum alloy.
- F(Standard) or H (Optional) insulation class for all models.
- Built-in thermal protection prevents motor burning out.
- Non-clutch design, the manual operation can be operated without any lever, clutch or brake upon power outage.
- When electric motor is operating, hand-wheel won't rotate for personal safety purpose.
- High alloy steel gear trains provide self-locking function to avoid valve back drive.
- CE 

### Solenoid Valves



- NAMUR interface
  - High Switch Reliability
  - Balanced spool construction allows 5/2 NAMUR valve to be converted to 3/2, one valve for all applications.
  - No matter the orientation, valve may be mounted in any position
- Valve body:** Aluminum anodized  
**Operating temperature:** 0-50°C  
**Operating pressure:** 22-118 PSI  
**Pressure resistance:** 150 PSI  
**Coil Voltage:** DC-12, 24  
 AC-110/50, 220/60  
 +/-10% of Normal
- ALL coils are CE approved**

### Limit Switches



### Air Filter, Regulator, Lubricator





**MARS VALVE CO., LTD.**  
**TRANSWORLD STEEL ENT.CO.,LTD.**  
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