

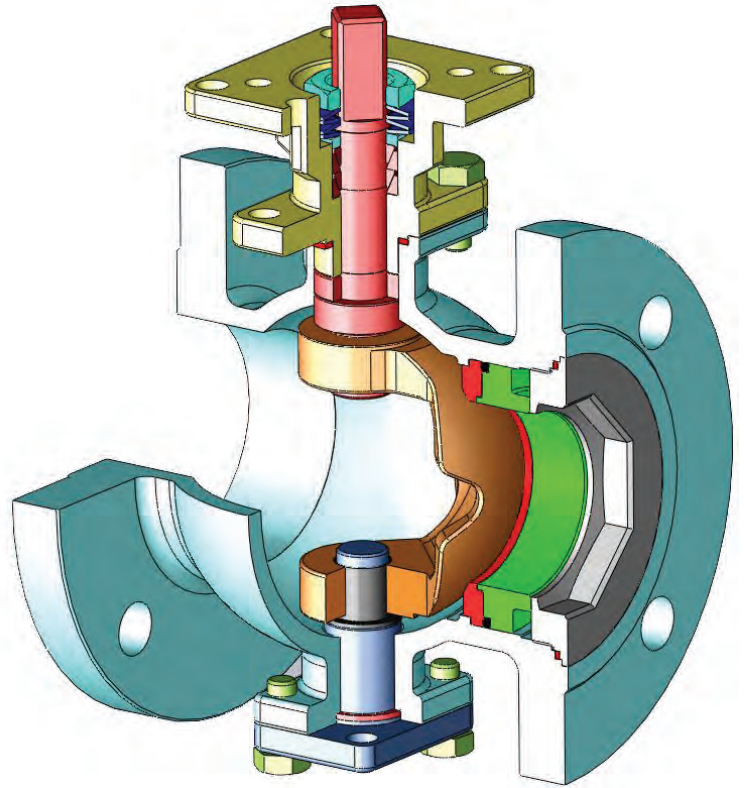
DM9900 Series

Segmented V-Ball Control Valve

Direct mount, Live Loaded Packing • Interchangeable Metal and Soft seats

DESIGN FEATURES

- Size Range 1-1/2" - 30"
- ISO 5211 Direct Mount Design
- ANSI Class 150, 300, 600, 900
- Flanged and flangeless versions available
- Live Loaded Packing
- Protected Bearings, Top & Bottom
- Easy Installation and Versatility
- Standard ISA 75.04 face-to-face; Option: ANSI B16.10 short pattern
- Extremely low actuator torque
- Reduced trim option
- WCB, 316SS, 317SS, and other alloy materials
- Soft seated and metal seated
- Patents Pending



ORDERING SCHEMATIC

| Series | Body | Trim | Port | Packing | Seat | End Connections | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|---|------|------|---------|-------|-----------------|----------|---|-------|---|-------------|---|--------|---|---|-------|---|----------|---|-------|---|-------------|---|--------|---|---|-----------|---|-----------|--|---|----------|----|----------|----|----------|---|---|-------|----|----------|----|----------|---|----|---------------------------------|----|---------------------------------|----|---------------------------------|----|---------------------------|
| DM 99 | <table border="1"> <tr><td>2</td><td>WCB</td></tr> <tr><td>3</td><td>316SS</td></tr> <tr><td>4</td><td>Alloy 20</td></tr> <tr><td>6</td><td>317SS</td></tr> <tr><td>7</td><td>Hastelloy C</td></tr> <tr><td>9</td><td>Duplex</td></tr> </table> | 2 | WCB | 3 | 316SS | 4 | Alloy 20 | 6 | 317SS | 7 | Hastelloy C | 9 | Duplex | <table border="1"> <tr><td>3</td><td>316SS</td></tr> <tr><td>4</td><td>Alloy 20</td></tr> <tr><td>6</td><td>317SS</td></tr> <tr><td>7</td><td>Hastelloy C</td></tr> <tr><td>9</td><td>Duplex</td></tr> </table> | 3 | 316SS | 4 | Alloy 20 | 6 | 317SS | 7 | Hastelloy C | 9 | Duplex | <table border="1"> <tr><td>F</td><td>Full Port</td></tr> <tr><td>R</td><td>Red. Port</td></tr> </table> | F | Full Port | R | Red. Port | <table border="1"> <tr><td>G</td><td>Graphoil</td></tr> <tr><td>TM</td><td>TFM 1600</td></tr> <tr><td>TC</td><td>TFM 4215</td></tr> </table> | G | Graphoil | TM | TFM 1600 | TC | TFM 4215 | <table border="1"> <tr><td>M</td><td>Metal</td></tr> <tr><td>TM</td><td>TFM 1600</td></tr> <tr><td>TC</td><td>TFM 4215</td></tr> </table> | M | Metal | TM | TFM 1600 | TC | TFM 4215 | <table border="1"> <tr><td>F1</td><td>ANSI 150 (ISA 75.04 f to f)*</td></tr> <tr><td>F3</td><td>ANSI 300 (ISA 75.04 f to f)*</td></tr> <tr><td>F6</td><td>ANSI 600 (ISA 75.04 f to f)*</td></tr> <tr><td>F9</td><td>ANSI 900 (ANSI B16.10)</td></tr> </table> | F1 | ANSI 150 (ISA 75.04 f to f)* | F3 | ANSI 300 (ISA 75.04 f to f)* | F6 | ANSI 600 (ISA 75.04 f to f)* | F9 | ANSI 900 (ANSI B16.10) |
| 2 | WCB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 316SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Alloy 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 317SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Hastelloy C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Duplex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 316SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Alloy 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 317SS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Hastelloy C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Duplex | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | Full Port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | Red. Port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G | Graphoil | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TM | TFM 1600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TC | TFM 4215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | Metal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TM | TFM 1600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TC | TFM 4215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F1 | ANSI 150 (ISA 75.04 f to f)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F3 | ANSI 300 (ISA 75.04 f to f)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F6 | ANSI 600 (ISA 75.04 f to f)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F9 | ANSI 900 (ANSI B16.10) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* Option ANSI B16.10 short pattern f to f



The Right Valve • The Right Application • Right now!

S&K Automation, LLC
 3530 Olive Ln N. • Plymouth, MN 55447
 Phone: 763-476-1013 • www.sk-automation.com
 Email: sales@sk-automation.com

DESCRIPTION

The segmented V-port ball control valve provides excellent modulating control with obstruction free design.

The uni-body construction provides increased structural integrity and minimized leaks through body joints.

The specially designed compound V opening provides precise equal percentage flow control with small incremental opening in the lower end of the valve rotation and high flow capacity in the upper end. The nearly wide open at full open, along with recessed bearings, virtually eliminates plugging/clogging of the valve.



OPERATION

The valve can be direct mounted (no mounting bracket or coupling) to:

- J-Flow's JFD spring & diaphragm actuators,
- J-Flow's JFC rack & pinion actuators, or
- J-Flow's JFE electric actuators

They can be controlled with a variety of J-Flow positioners:

- Pneumatic
- Electro-pneumatic
- Digital smart

There are two actuator mounting options.

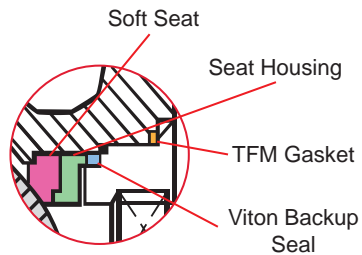
- The standard connection is direct mount compatible with any ISO 5211 standard actuator. Optional splined connection for the installation of diaphragm actuators with DSY-DSZ conversions.

DESIGN AND CONSTRUCTION

The valve's design allows control of the most fluids used in many industries. The valve is suitable for fibers, particles in suspension, dirty, clean, viscous, and corrosive fluids, gas, steam, and especially pulp and paper applications.

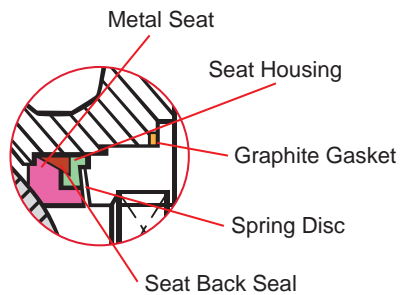
The valve can be supplied with a variety of actuators, positioners, limit switches/transmitters, or other topworks accessories.





STANDARD SEATS

TFM, Suitable to temperatures of 500 °F for general services where ANSI Class VI shut off is required to comply with ANSI/FCI 70-2 (see graph below).



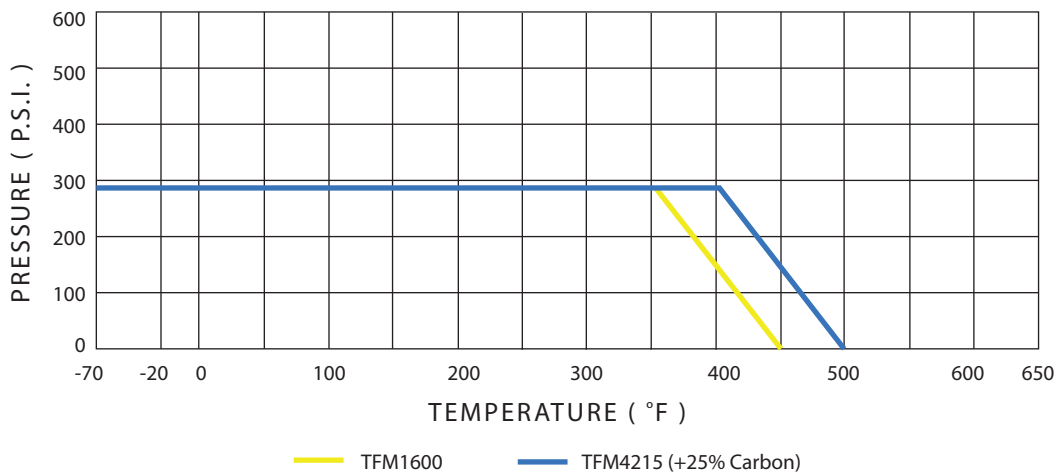
METAL-TO-METAL CONTACT SEATS

Suitable for erosive services, fibers, chemical fluids with suspended solids, and high temperature applications.

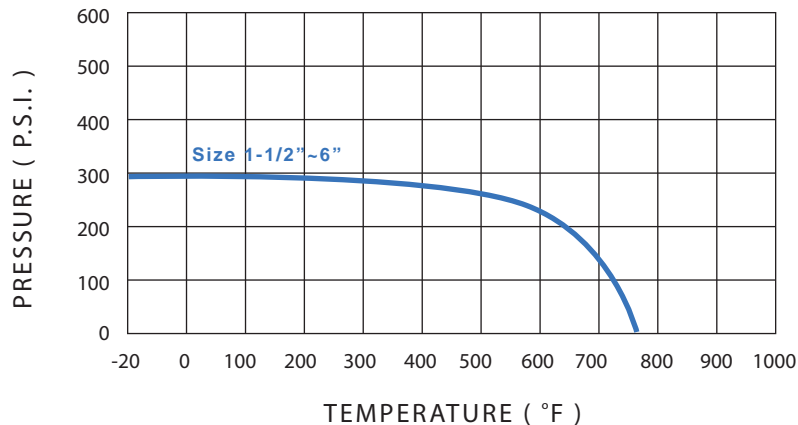
Metal seat with hardened stellite contact surface and 316 stainless steel segmented ball with tungsten carbide coating ANSI class IV shut off.

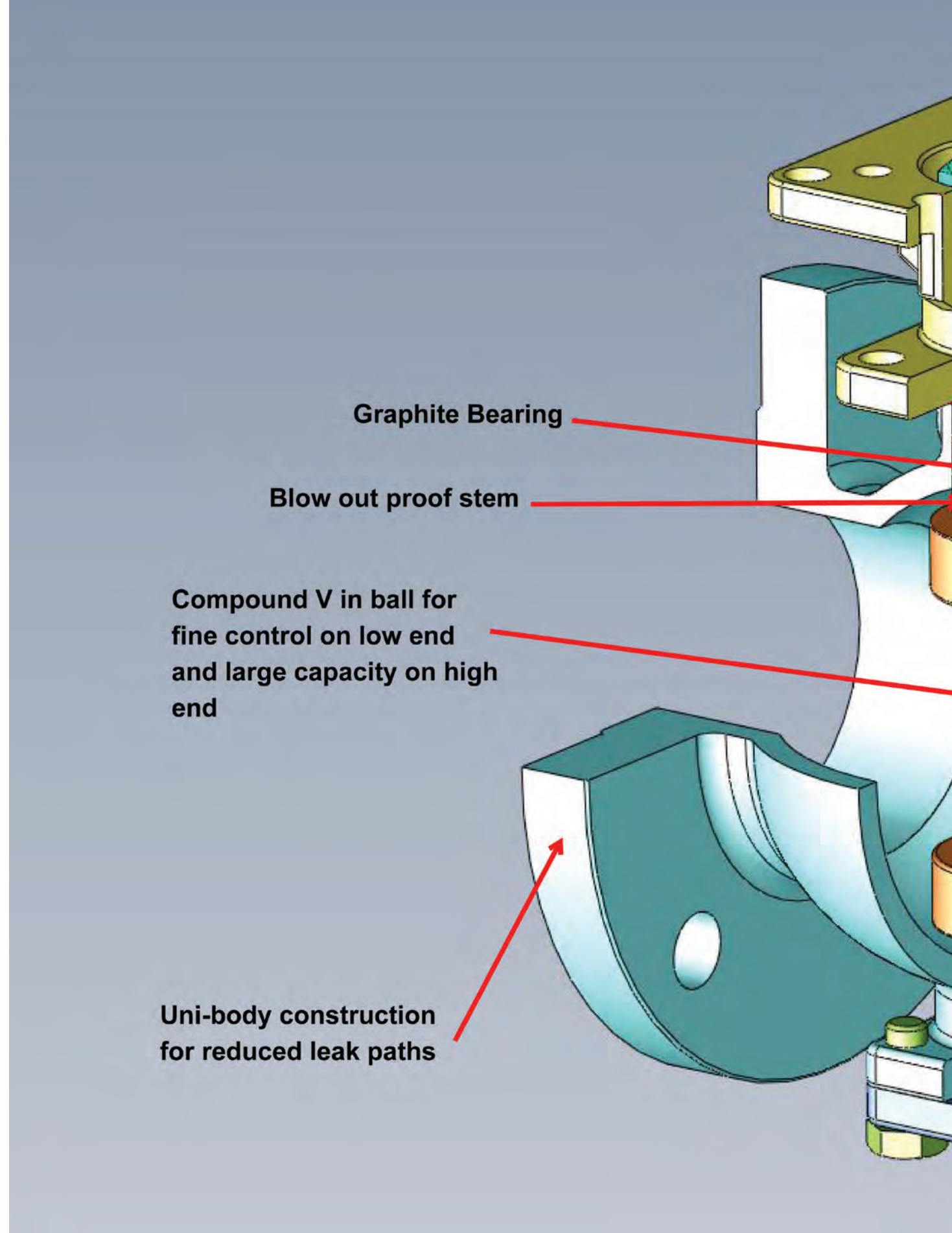
PRESSURE TEMPERATURE CHARTS

ANSI 150 Soft Seat



ANSI 150 Metal Seat



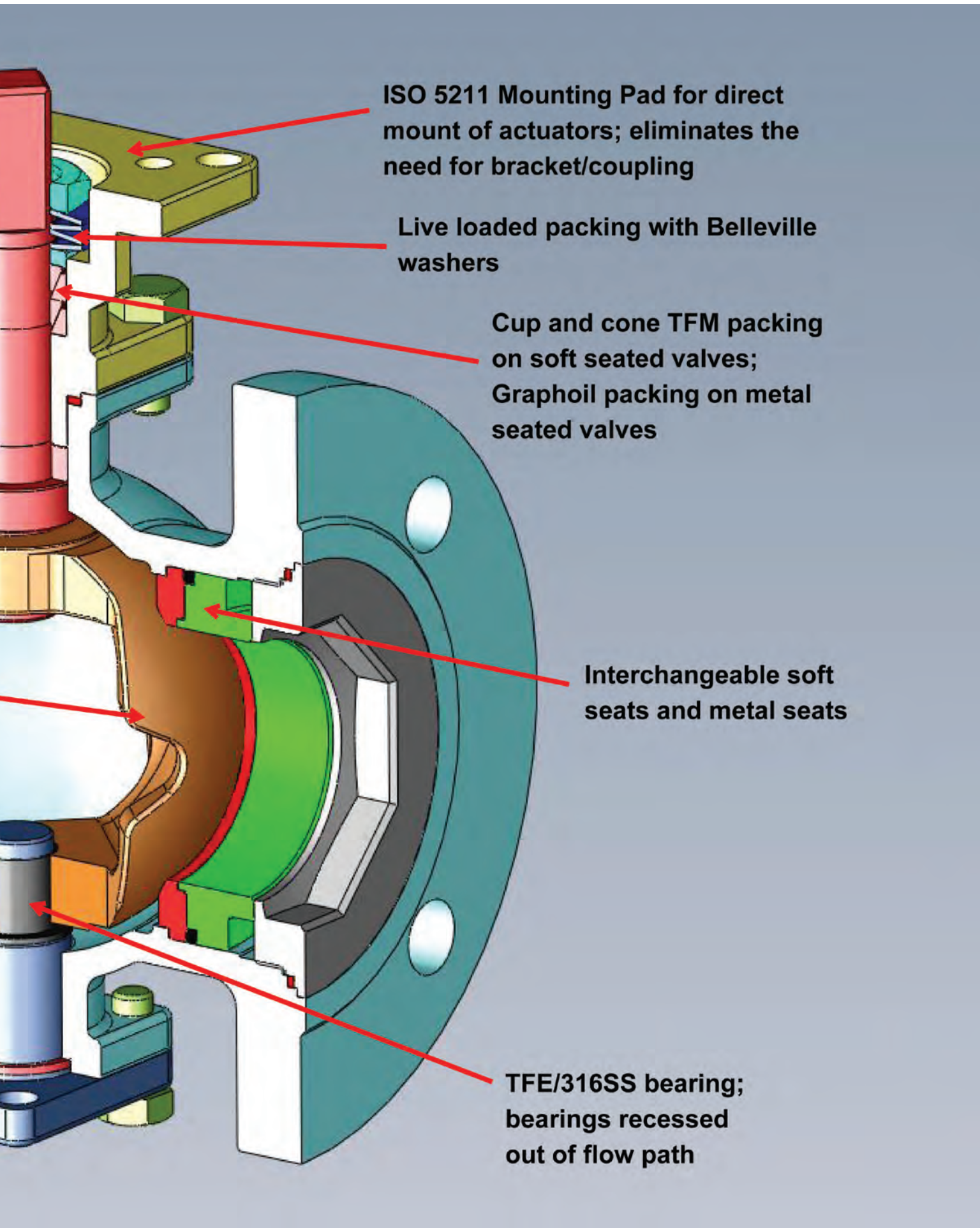


Graphite Bearing

Blow out proof stem

Compound V in ball for fine control on low end and large capacity on high end

Uni-body construction for reduced leak paths



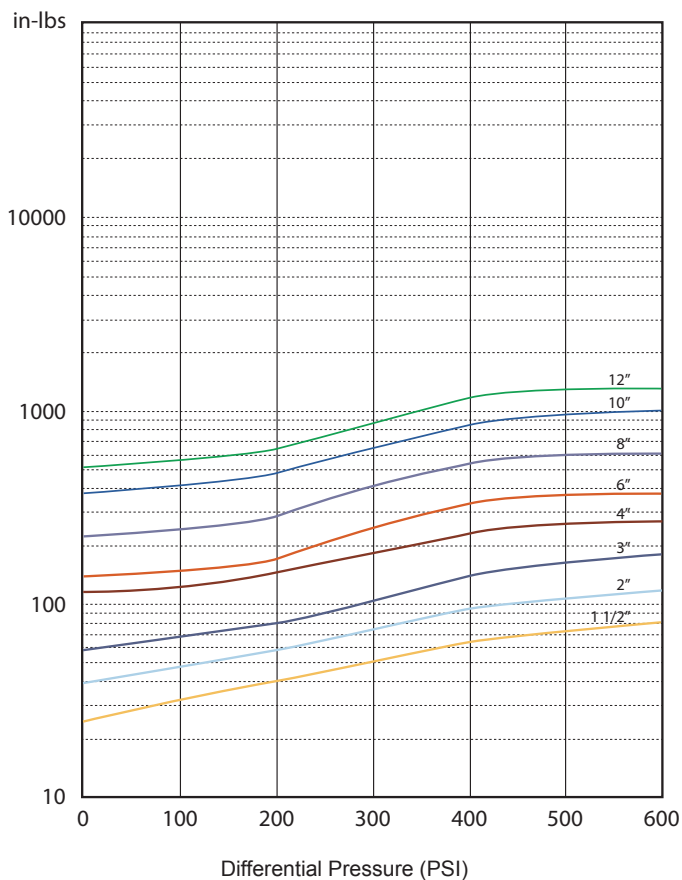
DM9900F Series - Size and Class (1 1/2" - 12")

| Nominal Diameter | | DM9900 Series Flanged | 9900 Series Wafer | | Cv |
|------------------|-----|-----------------------|-------------------|-----------|------|
| inches | mm | Class 150 | Class150 | Class 300 | Max |
| 1 1/2" | 40 | | | | 80 |
| 2" | 50 | | | | 102 |
| 3" | 80 | | | | 340 |
| 4" | 100 | | | | 650 |
| 6" | 150 | | | | 845 |
| 8" | 200 | | | | 1690 |
| 10" | 250 | | | | 2690 |
| 12" | 300 | | | | 4440 |

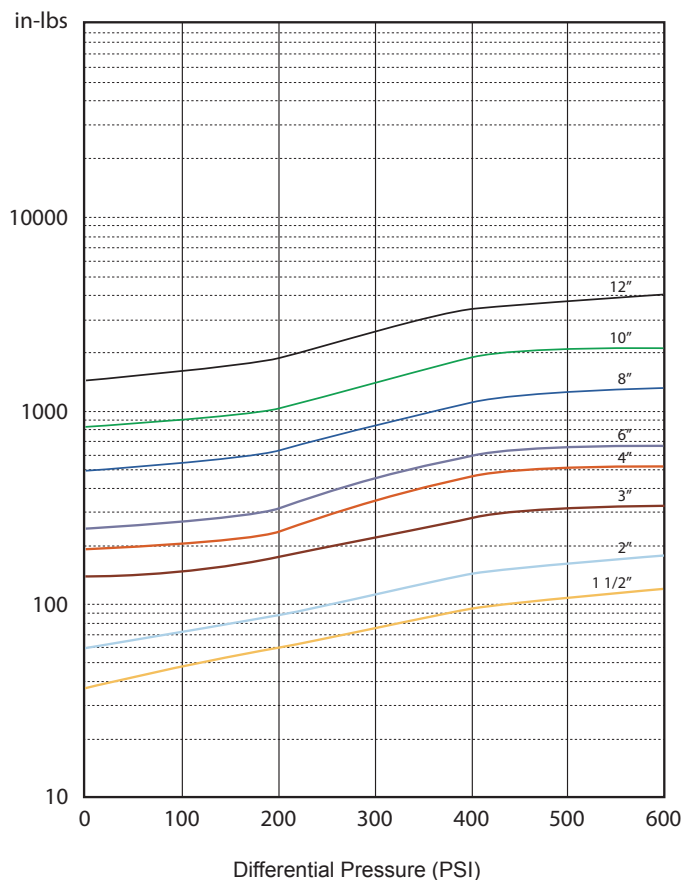
The segmented V-port ball valve can be used in modulating control services or "on-off" services

ACTUATOR SIZING TORQUE

DM9900 Soft Seats

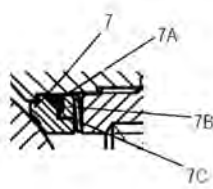
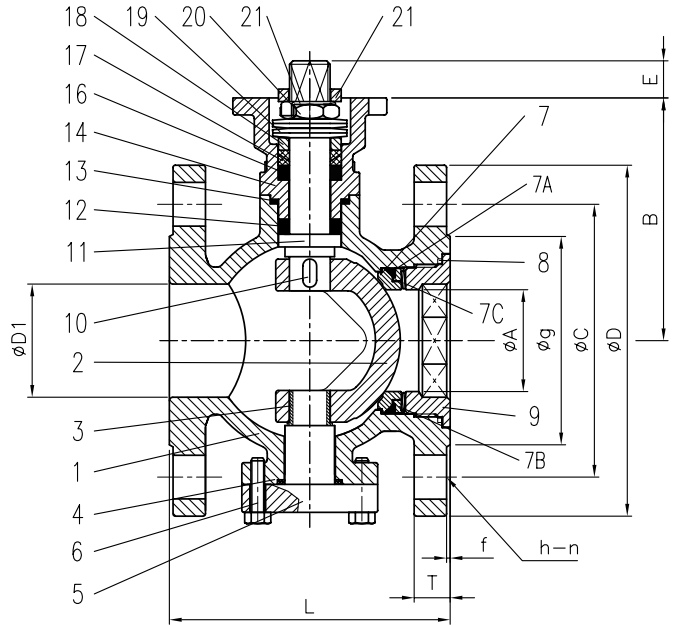
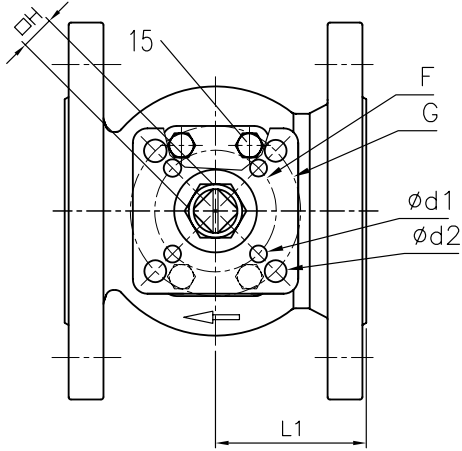


DM9900 Metal Seats



Torque is based on clean, clear liquid

DM9900F SERIES - 1 1/2" - 6" ANSI 150 FLANGED



Metal Seat Detail

Soft Seat

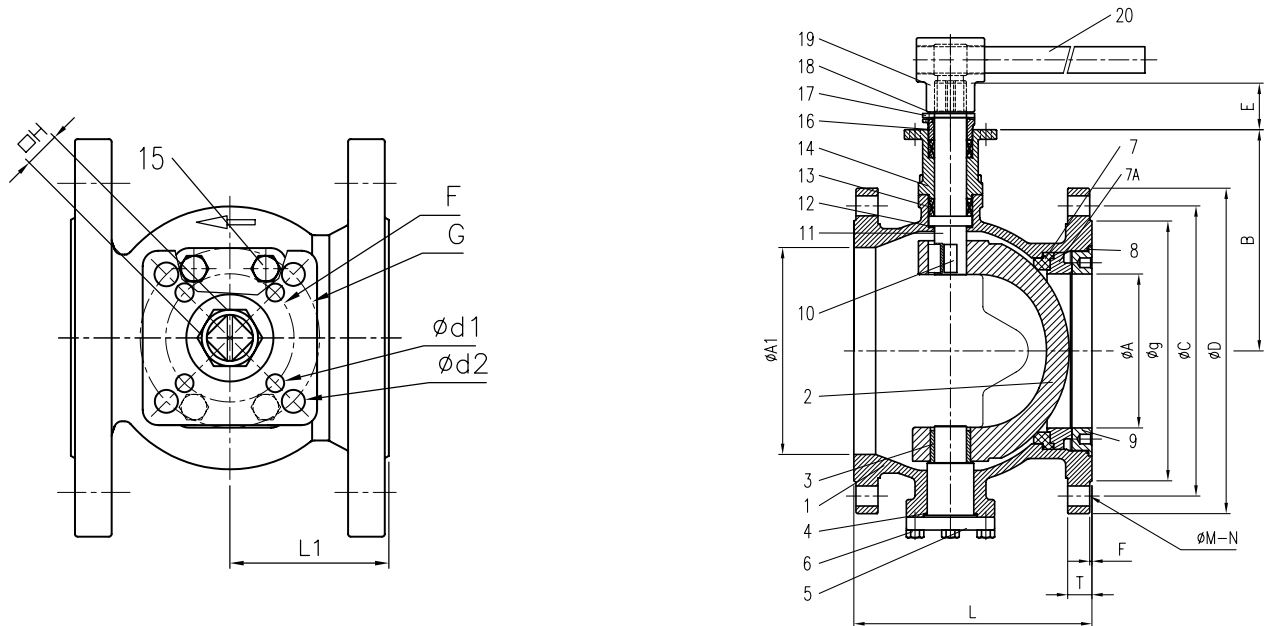
| NO. | NAME OF PARTS | MATERIALS |
|-----|--------------------|------------------|
| 1 | BODY | A351 Gr. CF8M |
| 2 | BALL SEGMENT | CF8M(HARDENED-N) |
| 3 | BEARING | 17-4PH |
| 4 | GASKET | GRAPHITE |
| 5 | TRUNNION CAP | A351 Gr. CF8M |
| 6 | TRUNNION CAP BOLTS | SS 304 |
| 7 | SEAT | SS316+STELLITED |
| 7A | SEAT BACK SEAL | GRAPHITE |
| 7B | SEAT HOUSING | SS 316 |
| 7C | SPRING DISK | SS 301 |
| 8 | INSERT GASKET | GRAPHITE |
| 9 | INSERT CAP | A351 Gr. CF8M |
| 10 | KEY | SS 316 |
| 11 | STEM | SS 316 |
| 12 | BEARING | GRAPHITE |
| 13 | BONNET GASKET | GRAPHITE |
| 14 | BONNET | A351 Gr. CF8M |
| 15 | BONNET BOLTS | SS 304 |
| 16 | BEARING | GRAPHITE |
| 17 | STEM PACKING | GRAPHITE |
| 18 | GLAND | SS 304 |
| 19 | BELLEVILLE WASHER | SS 301 |
| 20 | STEM NUT | SS 304 |
| 21 | NUT STOP | SS 304 |
| 22 | SPACE WASHER | SS 304 |

| NO. | NAME OF PARTS | MATERIALS |
|-----|--------------------|---------------|
| 1 | BODY | A351 Gr. CF8M |
| 2 | BALL SEGMENT | A351 Gr. CF8M |
| 3 | BEARING | PTFE+50%SS |
| 4 | GASKET | TFM1600 |
| 5 | TRUNNION CAP | A351 Gr. CF8M |
| 6 | TRUNNION CAP BOLTS | SS 304 |
| 7 | SEAT | TFM1600 |
| 7A | SEAT HOUSING | SS 316 |
| 7B | BACK-UP SEAL | VITON(O-RING) |
| 8 | INSERT GASKET | TFM1600 |
| 9 | INSERT CAP | A351 Gr. CF8M |
| 10 | KEY | SS 316 |
| 11 | STEM | SS 316 |
| 12 | BEARING | TFM4215 |
| 13 | BONNET GASKET | TFM1600 |
| 14 | BONNET | A351 Gr. CF8M |
| 15 | BONNET BOLTS | SS 304 |
| 16 | BEARING | TFM4215 |
| 17 | STEM PACKING | TFM1600 |
| 18 | GLAND | SS 304 |
| 19 | BELLEVILLE WASHER | SS 301 |
| 20 | STEM NUT | SS 304 |
| 21 | NUT STOP | SS 304 |
| 22 | SPACE WASHER | SS 304 |

UNIT: MM/INCH

| SIZE | | A | B | E | L | | L1 | H | D1 | F | G | d1 | d2 | FLANGE DIMENSIONS (CLASS 150) | | | | | | |
|--------|------|-------|-------|------|-------|-----------|-------|-------|-------|-------|-------|-------|-------|-------------------------------|-------|-------|---|------|-------|------|
| | | | | | ISA | CLASS 150 | | | | | | | | BOLT HOLE | | | t | g | f | |
| | | | | | | | | | | | | | | C | h | n | | | | |
| 1 1/2" | MM | 35 | 107 | 14 | 114 | 165.1 | 57 | 14 | 38 | 50 | 70 | 7 | 9.2 | 127 | 98.5 | 15.9 | 4 | 14.2 | 73.2 | 1.5 |
| | INCH | 1.378 | 4.213 | 0.55 | 4.50 | 6.50 | 2.244 | 0.551 | 1.496 | 1.969 | 2.756 | 0.276 | 0.362 | 5.0 | 3.88 | 0.625 | 4 | 0.56 | 2.88 | 0.06 |
| 2" | MM | 45 | 107 | 14 | 124 | 178 | 62 | 14 | 50 | 50 | 70 | 7 | 9.2 | 152 | 120.5 | 19.1 | 4 | 15.7 | 91.9 | 1.5 |
| | INCH | 1.772 | 4.213 | 0.55 | 4.88 | 7.00 | 2.441 | 0.551 | 1.969 | 1.969 | 2.756 | 0.276 | 0.362 | 6.0 | 4.75 | 0.750 | 4 | 0.62 | 3.62 | 0.06 |
| 3" | MM | 66 | 140.2 | 24 | 165.1 | 203 | 87 | 17 | 82.5 | 70 | 102 | 9.2 | 11.4 | 190 | 152.5 | 19.1 | 4 | 19.1 | 127 | 1.5 |
| | INCH | 2.598 | 5.520 | 0.94 | 6.50 | 8.00 | 0.425 | 0.669 | 3.248 | 2.756 | 4.016 | 0.362 | 0.449 | 7.5 | 6.0 | 0.750 | 4 | 0.75 | 5.00 | 0.06 |
| 4" | MM | 80.2 | 154.6 | 24 | 193.5 | 228.6 | 102.8 | 17 | 97.5 | 70 | 102 | 9.2 | 11.4 | 229 | 190.5 | 19.1 | 4 | 23.9 | 157.2 | 1.5 |
| | INCH | 3.157 | 6.087 | 0.94 | 7.62 | 9.00 | 4.047 | 0.669 | 3.839 | 2.756 | 4.016 | 0.362 | 0.449 | 9.0 | 7.5 | 0.750 | 8 | 0.94 | 6.19 | 0.06 |
| 6" | MM | 114 | 192 | 26 | 228.6 | 266.7 | 124 | 22 | 153 | 102 | 125 | 11.4 | 13.5 | 279 | 241.5 | 22.2 | 8 | 25.4 | 215.9 | 1.5 |
| | INCH | 4.488 | 7.559 | 1.02 | 9.00 | 10.50 | 4.881 | 0.866 | 6.024 | 4.016 | 4.921 | 0.449 | 0.531 | 11.0 | 9.5 | 0.875 | 8 | 1.00 | 8.50 | 0.06 |

DM9900F SERIES - 8" - 12" ANSI 150 FLANGED (SOFT SEAT)



| NO. | NAME OF PARTS | MATERIALS OPTION | |
|-----|--------------------|------------------|--------------|
| | | A351 Gr. CF8M | A216 Gr. WCB |
| 1 | BODY | A351 Gr. CF8M | A216 Gr. WCB |
| 2 | BALL SEGMENT | A351 Gr. CF8M | _____ |
| 3 | BEARING | PTFE+50%SS | _____ |
| 4 | GASKET | TFM1600 | _____ |
| 5 | TRUNNION CAP | A351 Gr. CF8M | A216 Gr. WCB |
| 6 | TRUNNION CAP BOLTS | SS 304 | _____ |
| 7 | SEAT | TFM1600 | _____ |
| 7A | SEAT HOUSING | SS 316 | A216 Gr. WCB |
| 8 | INSERT GASKET | TFM1600 | _____ |
| 9 | INSERT CAP | A351 Gr. CF8M | A216 Gr. WCB |
| 10 | KEY | SS 316 | _____ |
| 11 | STEM | SS 316 | _____ |
| 12 | THRUST WASHER | TFM1600 | _____ |
| 13 | BEARING | TFM4215 | _____ |
| 14 | BONNET | A351 Gr. CF8M | A216 Gr. WCB |
| 15 | BONNET BOLTS | SS 304 | _____ |
| 16 | GLAND | A351 Gr. CF8 | _____ |
| 17 | STOP | SS 304 | _____ |
| 18 | STOP RING | SS 304 | _____ |
| 19 | HANDLE HEAD | FCD45 | _____ |
| 20 | HANDLE TUBE | CARBON STEEL | _____ |

UNIT: MM/INCH

| SIZE | | A | A1 | B | E | L | L1 | H | F | d1 | FLANGE DIMENSIONS (CLASS 150) | | | | | | |
|------|------|------|-------|-------|------|-------|------|-------|------|-----|-------------------------------|-----------|-------|----|------|-------|------|
| | | | | | | | | | | | D | BOLT HOLE | | | t | g | f |
| | | | | | | | | | | | | c | h | n | | | |
| 8" | MM | 152 | 205 | 240 | 58 | 243 | 140 | 28 | 125 | M12 | 343 | 298.5 | 22.3 | 8 | 29 | 270 | 1.5 |
| | INCH | 5.98 | 8.07 | 9.45 | 2.28 | 9.56 | 5.51 | 1.102 | 4.92 | | 13.5 | 11.75 | 0.875 | 8 | 1.14 | 10.63 | 0.06 |
| 10" | MM | 192 | 259 | 276 | 58 | 297 | 176 | 28 | 125 | M12 | 406 | 362 | 25.4 | 12 | 30.5 | 324 | 1.5 |
| | INCH | 7.56 | 10.20 | 10.87 | 2.28 | 11.69 | 6.93 | 1.102 | 4.92 | | 16.0 | 14.25 | 1.000 | 12 | 1.20 | 12.75 | 0.06 |
| 12" | MM | 225 | 300 | 302 | 64 | 338 | 207 | 36 | 140 | M16 | 483 | 432 | 25.4 | 12 | 32 | 381 | 1.5 |
| | INCH | 8.86 | 11.81 | 11.89 | 2.52 | 13.31 | 8.15 | 1.417 | 5.51 | | 19.0 | 17.00 | 1.000 | 12 | 1.26 | 15.00 | 0.06 |

DM9900FLANGED 0812



The Right Valve • The Right Application • Right now!

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 Email: sales@sk-automation.com