JDV CONTROL VALVES

QUALITY SWISS

# JBF-M Type

## Floating Type Metal Seat Ball Valve

TAIWAN EXCELLENCE 2017

*We link all you need and more than you expect.*

JDV
CONTROL
VALVES

# JBF-M
## Floating Type Metal Seat Ball Valve

### Full Bore Two-Piece Flanged Ends
### JIS 10/20K ASME CLASS 150/300/600 DIN PN16/40/100

**JBF-M Metal-Seat Ball Valve is designed especially for severe services with high temperature, abrasion or corrosion in the industrial processes. With JDV's self-owned coating technology, a wide range of hard faces are available to satisfy all your using conditions.**

## Industrial Fields:

Oil & Gas
Refinery / Petrochemical
Chemical
Pulp & Paper
Power Plant
Steel Mill
Food
Mining

## Product Features

1 .Highly precise machining enabling the seat leakage rate to reach FCI-70-2 Class V in standard and Class VI in option.
2 .Spring-loading design keeping the seat in tight contact with the ball even at low pressure. It also offers stable valve torques under higher pressure drop.
3 .Various seat designs meeting the different requirements.
4 .Wide choice of hard faces satisfying the needs of all applications.
5 .Oversized stem design reducing the deformation under high pressure or high temperature services.
6 .Larger ball design providing the best sealing.
7 .Anti-jam design of seating area precluding particles from getting stuck between the spring and the valve cap.
8 .ISO 10497 Fire Safe Test certificated.
9 .Anti-static design.
10.Anti-blowout stem design.

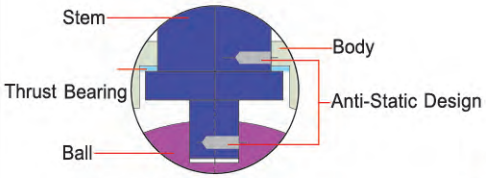
# Design & Structures

## Applications

1. High temperature
2. High abrasion
3. Corrosion

**Seat:**
Stainless Steel+Hard Face

**Seat Spring:**
Spring-loaded seat design



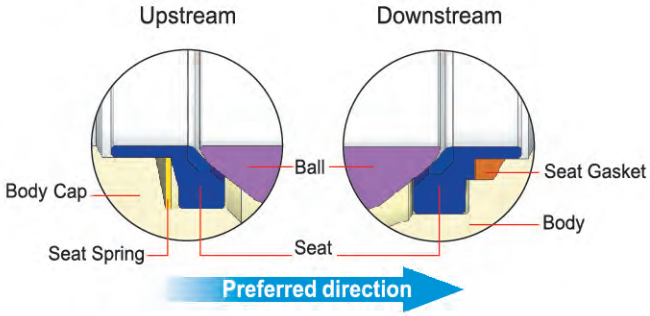

**Stem:**
Anti-blowout design
Anti-static design

**Ball:**
Stainless Steel+
Hard Face

## Options:

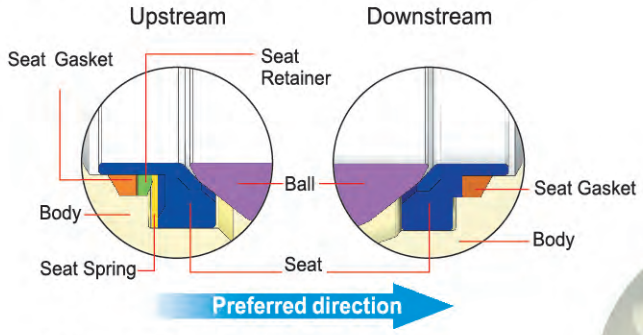
### U Type : Uni-directional

**Standard**



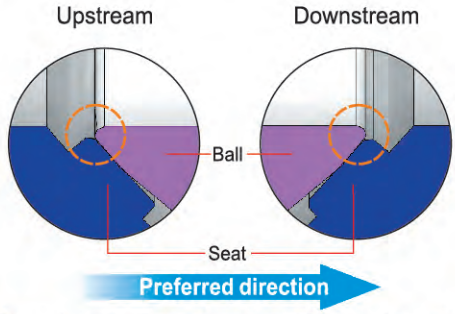

### B Type : Bi-directional

**For backflow service**

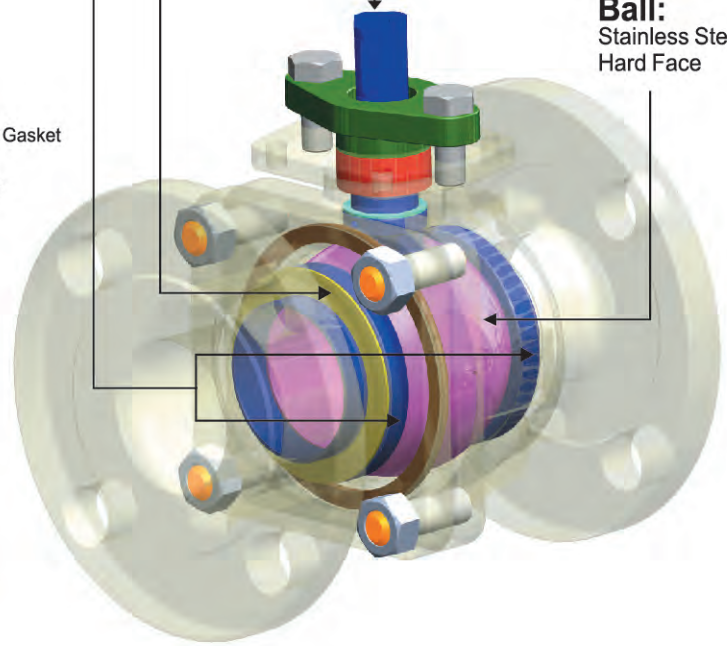



### S Type : Scraper

**For heavy slurry such as the black liquor in pulp & paper industry.**

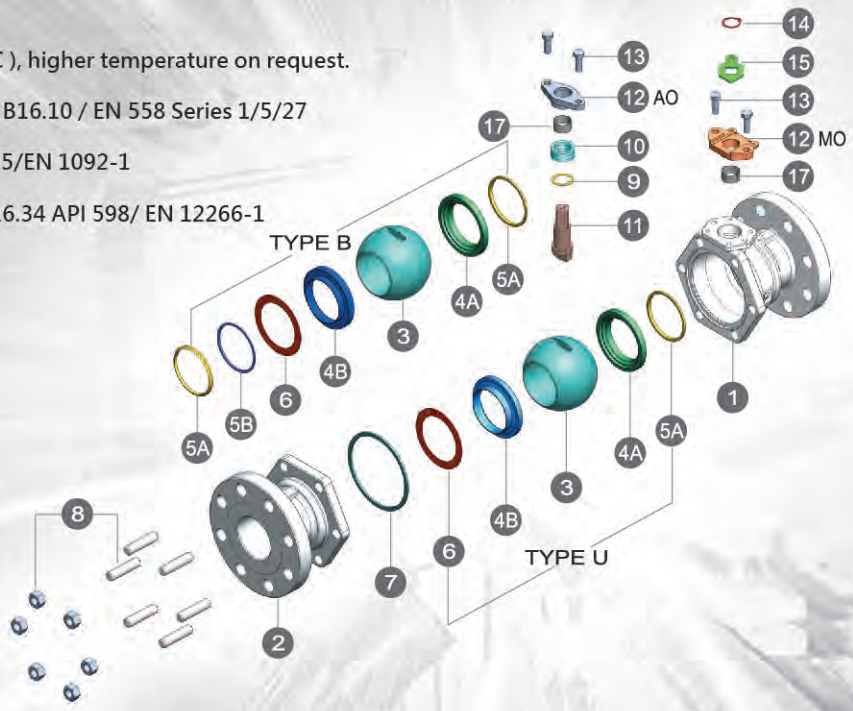



※ Downstream scraper on request for very heavy services.



# Applicable Standards

- Body materal : Standard in WCB, CF8, CF8M Other materials are available according to requirements.
- Nominal size : 1/2" to 8" (DN15 to DN200)
- Pressure rating : JIS 10(20K ASME CLASS 150/300/600 DIN PN16/40/100
- End connections : RF
- Temperature Range : -20~932°F (-29~500°C ), higher temperature on request.
- Face-to-Face Dimensions: JIS B2002 I ASME B16.10 / EN 558 Series 1/5/27
- Flanged Dimensions: JIS B2220 / ASME B16.5/EN 1092-1
- Body Pressure Testing: JIS B2D03 / ASME B16.34 API 598/ EN 12266-1
- Seat Leakage Testing : ANSI /FCI70-2
- Casting : MSS-SP-25 / MSS-SP-55
- Fire Safe Design : ISO 10497



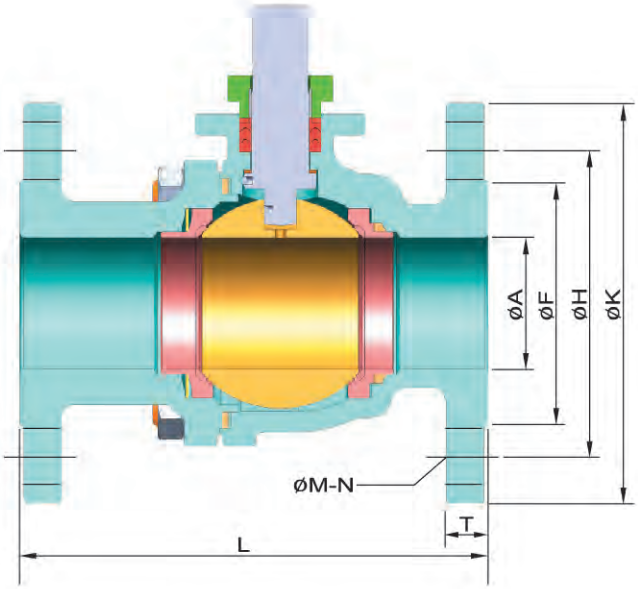

# Technical Specifications

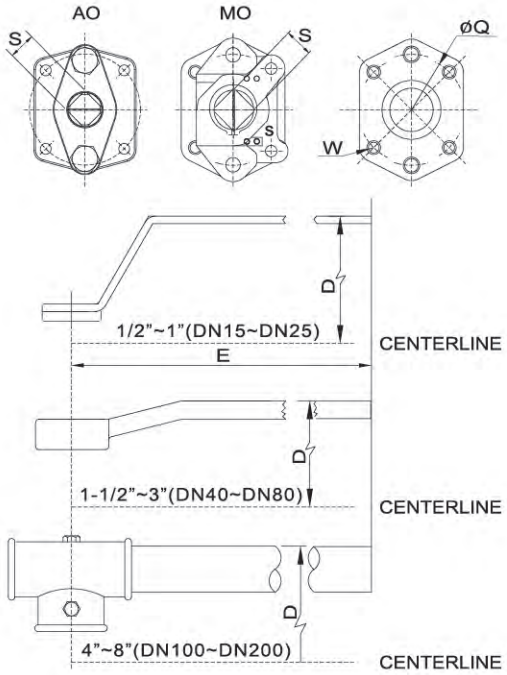
## STANDARD MATERIALS

| SERIES | | SM | | | SH | | |
|---|---|---|---|---|---|---|---|
| NO | PART NAME | -20~661°F (-29~350°C) | | | -20~797°F (-29~425°C) | -20~932°F (-29~500°C ) | |
| 1 | BODY | A216-WCB | A351-CF8 | A351-CF8M | A216-WCB | A351-CF8 | A351-CF8M |
| 2 | CAP | A216-WCB | A351-CF8 | A351-CF8M | A216-WCB | A194-A351-CF8 | A351-CF8M |
| 3 | BALL | A351-CF8+HCR (2) | | A351-CF8M+HCR | A351-CF8+TC (2)/CRC (2) | | A351-CF8M+TC/CRC |
| 4A | BODY SEAT | A351-CF8+STELLITE® | | A351-CF8M+STELLITE® | A351-CF8+TC/CRC | | A351-CF8M+TC/CRC |
| 4B | CAP SEAT | A351-CF8+STELLITE® | | A351-CF8M+STELLITE® | A351-CF8+TC/CRC | | A351-CF8M+TC/CRC |
| 5A | SEAT GASKET | GRAPHITE | | | GRAPHITE | | |
| 5B | SEAT RETAINER | A351-CF8 | | A351-CF8M | A351-CF8 | | A351-CF8M |
| 6 | SEAT SPRING | INCONEL® X-750 | | | INCONEL® X-750 | | |
| 7 | BODY GASKET | 316SS+GRAPHITE | | | 316SS+GRAPHITE | | |
| 8 | BOLT&NUT | A193-B7 & A194-7 | A193-B8 & A194-8 | | A193-B7 & A194-7 | A193-B8 & A194-8 | |
| 9 | THRUST WASHER | METAL+HARD FACE | | | METAL+HARD FACE | | |
| 10 | GLAND PACKING | GRAPHITE | | | GRAPHITE | | |
| 11 | STEM | A564-630(HH1150) | | A638-S66286 | A638-S66286 | | |
| 12 | GLAND (1) | A351-CF8 | | | A351-CF8 | | |
| 13 | GLAND BOLT | STAINLESS STEEL | | | STAINLESS STEEL | | |
| 14 | SNAP CATCH (MO) | AISI 420 | | | AISI 420 | | |
| 15 | TRAVEL STOP(MO) | A240-304 | | | A240-304 | | |
| 16 | HANDLE (MO) | A240-304(1/2"~1") FCD45 (1-1/2"~3") FCD45+SGP(4" AND ABOVE ) | | | | | |
| 17 | GLAND BEARING | A240-316+PTFE | | | A240-316+PTFE | | |

The above materials may be changed with different using conditions.

NOTES:
(1) Options: AO: Automation / MO: Manual
(2) HCR = Hard Chrome TC = Tungsten Carbide CRC = Chrome Carbide




## DIMENSIONS (JIS-10K) (mm)

| Size | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 51 | 70 | 95 | 15 | 4 | 108 | 12 | 10 | 42 | M5 | 97 | 130 | 1.8 |
| 20 | 3/4" | 20 | 56 | 75 | 100 | 15 | 4 | 117 | 14 | 10 | 42 | M5 | 100 | 130 | 2.2 |
| 25 | 1" | 25 | 67 | 90 | 125 | 19 | 4 | 127 | 14 | 12 | 50 | M6 | 110 | 160 | 3.2 |
| 40 | 1-1/2" | 38 | 81 | 105 | 140 | 19 | 4 | 165 | 16 | 17 | 70 | M8 | 115 | 224 | 6.3 |
| 50 | 2" | 50 | 96 | 120 | 155 | 19 | 4 | 178 | 16 | 17 | 70 | M8 | 120 | 224 | 9.0 |
| 65 | 2-1/2" | 65 | 116 | 140 | 175 | 19 | 4 | 190 | 18 | 20 | 70 | M8 | 140 | 324 | 13.2 |
| 80 | 3" | 76 | 126 | 150 | 185 | 19 | 8 | 203 | 18 | 20 | 70 | M8 | 150 | 324 | 17.4 |
| 100 | 4" | 100 | 151 | 175 | 210 | 19 | 8 | 229 | 18 | 27 | 102 | M10 | 220 | 400 | 28.2 |
| 125 | 5" | 125 | 182 | 210 | 250 | 23 | 8 | 356 | 20 | 27 | 102 | M10 | 240 | 550 | 44.0 |
| 150 | 6" | 150 | 212 | 240 | 280 | 23 | 8 | 394 | 22 | 32 | 125 | M12 | 280 | 550 | 62.5 |
| 200 | 8" | 200 | 262 | 290 | 330 | 23 | 12 | 457 | 22 | 35 | 140 | M16 | 340 | 1000 | 128.5 |

## DIMENSIONS (JIS-20K) (mm)

| Size | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 51 | 70 | 95 | 15 | 4 | 140 | 14 | 10 | 42 | M5 | 97 | 130 | 2.5 |
| 20 | 3/4" | 20 | 56 | 75 | 100 | 15 | 4 | 152 | 16 | 10 | 42 | M5 | 100 | 130 | 3.5 |
| 25 | 1" | 25 | 67 | 90 | 125 | 19 | 4 | 165 | 16 | 12 | 50 | M6 | 110 | 160 | 4.9 |
| 40 | 1-1/2" | 38 | 81 | 105 | 140 | 19 | 4 | 190 | 18 | 17 | 70 | M8 | 115 | 224 | 9.8 |
| 50 | 2" | 50 | 96 | 120 | 155 | 19 | 8 | 216 | 18 | 17 | 70 | M8 | 120 | 224 | 12.2 |
| 65 | 2-1/2" | 65 | 116 | 140 | 175 | 19 | 8 | 241 | 20 | 20 | 70 | M8 | 140 | 324 | 22.4 |
| 80 | 3" | 76 | 132 | 160 | 200 | 23 | 8 | 282 | 22 | 20 | 70 | M8 | 150 | 324 | 31.2 |
| 100 | 4" | 100 | 160 | 185 | 225 | 23 | 8 | 305 | 24 | 27 | 102 | M10 | 220 | 400 | 48.0 |
| 150 | 6" | 150 | 230 | 260 | 305 | 25 | 12 | 403 | 28 | 32 | 125 | M12 | 280 | 550 | 98.3 |
| 200 | 8" | 200 | 275 | 305 | 350 | 25 | 12 | 502 | 30 | 35 | 140 | M16 | 340 | 1000 | 171.1 |

## DIMENSIONS (ASME CLASS-150) (mm)

| Size | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 35 | 60.5 | 89 | 16 | 4 | 108 | 11.2 | 10 | 42 | M5 | 97 | 130 | 1.8 |
| 20 | 3/4" | 20 | 43 | 70 | 98 | 16 | 4 | 117 | 11.2 | 10 | 42 | M5 | 100 | 130 | 2.2 |
| 25 | 1" | 25 | 51 | 79.5 | 108 | 16 | 4 | 127 | 11.2 | 12 | 50 | M6 | 110 | 160 | 3.2 |
| 40 | 1-1/2" | 38 | 73 | 98.5 | 127 | 16 | 4 | 165 | 14.3 | 17 | 70 | M8 | 115 | 224 | 6.3 |
| 50 | 2" | 50 | 92 | 120.5 | 152 | 19 | 4 | 178 | 15.9 | 17 | 70 | M8 | 120 | 224 | 9.0 |
| 65 | 2-1/2" | 65 | 105 | 139.5 | 178 | 19 | 4 | 190 | 17.5 | 20 | 70 | M8 | 140 | 324 | 13.2 |
| 80 | 3" | 76 | 127 | 152.5 | 190 | 19 | 4 | 203 | 19.1 | 20 | 70 | M8 | 150 | 324 | 17.4 |
| 100 | 4" | 100 | 157 | 190.5 | 229 | 19 | 8 | 229 | 23.9 | 27 | 102 | M10 | 220 | 400 | 28.2 |
| 125 | 5" | 125 | 186 | 216 | 254 | 22 | 8 | 356 | 23.9 | 27 | 102 | M10 | 240 | 550 | 44.0 |
| 150 | 6" | 150 | 216 | 241.5 | 279 | 22 | 8 | 394 | 25.4 | 32 | 125 | M12 | 280 | 550 | 62.5 |
| 200 | 8" | 201 | 270 | 298.5 | 343 | 22 | 8 | 457 | 28.6 | 35 | 140 | M16 | 340 | 1000 | 128.5 |

The weight refers to bare shaft valves.
表中重量為裸閥重量

## DIMENSIONS (ASME CLASS-300) (mm)

| SIZE | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 35 | 66.5 | 95 | 16 | 4 | 140 | 14.3 | 10 | 42 | M5 | 97 | 130 | 2.5 |
| 20 | 3/4" | 20 | 43 | 82.5 | 117 | 19 | 4 | 152 | 15.9 | 10 | 42 | M5 | 100 | 130 | 3.5 |
| 25 | 1" | 25 | 51 | 89 | 124 | 19 | 4 | 165 | 17.5 | 12 | 50 | M6 | 110 | 160 | 4.9 |
| 40 | 1-1/2" | 38 | 73 | 114.5 | 156 | 22 | 4 | 190 | 20.7 | 17 | 70 | M8 | 115 | 224 | 9.8 |
| 50 | 2" | 50 | 92 | 127 | 165 | 19 | 8 | 216 | 22.3 | 17 | 70 | M8 | 120 | 224 | 12.2 |
| 65 | 2-1/2" | 65 | 105 | 149 | 190 | 22 | 8 | 241 | 25.4 | 20 | 70 | M8 | 140 | 324 | 22.4 |
| 80 | 3" | 76 | 127 | 168 | 210 | 22 | 8 | 282 | 28.6 | 20 | 70 | M8 | 150 | 324 | 31.2 |
| 100 | 4" | 100 | 157 | 200 | 254 | 22 | 8 | 305 | 31.8 | 27 | 102 | M10 | 220 | 400 | 48.0 |
| 125 | 5" | 125 | 186 | 235 | 280 | 22 | 8 | 381 | 35.2 | 32 | 125 | M12 | 260 | 550 | 67.1 |
| 150 | 6" | 150 | 216 | 270 | 318 | 22 | 12 | 403 | 36.6 | 32 | 125 | M12 | 280 | 550 | 98.3 |
| 200 | 8" | 201 | 270 | 330 | 381 | 25 | 12 | 502 | 41.2 | 35 | 140 | M16 | 340 | 1000 | 171.1 |

## DIMENSIONS (ASME CLASS-600) (mm)

| SIZE | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 1/2" | 15 | 35 | 66.5 | 95 | 16 | 4 | 165 | 20.9 | 10 | 42 | M5 | 97 | 130 | 2.6 |
| 20 | 3/4" | 20 | 43 | 82.5 | 117 | 19 | 4 | 190 | 22.3 | 10 | 42 | M5 | 100 | 130 | 4.0 |
| 25 | 1" | 25 | 51 | 89 | 124 | 19 | 4 | 216 | 23.9 | 12 | 50 | M6 | 110 | 160 | 5.9 |
| 40 | 1-1/2" | 38 | 73 | 114.5 | 156 | 22 | 4 | 241 | 28.7 | 17 | 70 | M8 | 115 | 224 | 11.8 |
| 50 | 2" | 50 | 92 | 127 | 165 | 19 | 8 | 292 | 31.8 | 17 | 70 | M8 | 130 | 224 | 16.9 |
| 65 | 2-1/2" | 65 | 105 | 149.5 | 191 | 22 | 8 | 330 | 35 | 22 | 102 | M10 | 190 | 324 | 29.9 |
| 80 | 3" | 76 | 127 | 168 | 210 | 22 | 8 | 356 | 38.2 | 22 | 102 | M10 | 200 | 324 | 36.0 |
| 100 | 4" | 100 | 157 | 216 | 273 | 25 | 8 | 432 | 44.5 | 27 | 125 | M12 | 240 | 550 | 67.0 |

## DIMENSIONS (DIN PN16) (mm)

| SIZE | | A | F | H | K | M | N | L | | T | S | Q | W | D | E | Wt (Kg) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | S1 | S27 | | | | | | | S1 | S27 |
| DN 15~DN 50 USE PN40 | | | | | | | | | | | | | | | | | |
| 65 | 2-1/2" | 65 | 122 | 145 | 185 | 18 | 8 | 290 | 170 | 18 | 20 | 70 | M8 | 140 | 324 | 14.9 | 13.2 |
| 80 | 3" | 76 | 138 | 160 | 200 | 18 | 8 | 310 | 180 | 20 | 20 | 70 | M8 | 150 | 324 | 19.4 | 17.4 |
| 100 | 4" | 100 | 158 | 180 | 220 | 18 | 8 | 350 | 190 | 20 | 27 | 102 | M10 | 220 | 400 | 32.1 | 28.2 |
| 150 | 6" | 150 | 212 | 240 | 285 | 22 | 8 | 480 | 350 | 22 | 32 | 125 | M12 | 280 | 550 | 67.9 | 62.5 |
| 200 | 8" | 201 | 268 | 295 | 340 | 22 | 12 | 600 | 400 | 24 | 35 | 140 | M16 | 340 | 1000 | 141 | 128.5 |

## DIMENSIONS (DIN PN40) (mm)

| SIZE | | A | F | H | K | M | N | L | | T | S | Q | W | D | E | Wt (Kg) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | S1 | S27 | | | | | | | S1 | S27 |
| 15 | 1/2" | 15 | 45 | 65 | 95 | 14 | 4 | 130 | 115 | 16 | 10 | 42 | M5 | 97 | 130 | 2.6 | 2.5 |
| 20 | 3/4" | 20 | 58 | 75 | 105 | 14 | 4 | 150 | 120 | 18 | 10 | 42 | M5 | 100 | 130 | 3.6 | 3.5 |
| 25 | 1" | 25 | 68 | 85 | 115 | 14 | 4 | 160 | 125 | 18 | 12 | 50 | M6 | 110 | 160 | 5.2 | 4.9 |
| 40 | 1-1/2" | 38 | 88 | 110 | 150 | 18 | 4 | 200 | 140 | 18 | 17 | 70 | M8 | 115 | 224 | 10.4 | 9.8 |
| 50 | 2" | 50 | 102 | 125 | 165 | 18 | 4 | 230 | 150 | 20 | 17 | 70 | M8 | 120 | 224 | 13.0 | 12.2 |
| 65 | 2-1/2" | 65 | 122 | 145 | 185 | 18 | 8 | 290 | 170 | 22 | 20 | 70 | M8 | 140 | 324 | 24.4 | 22.4 |
| 80 | 3" | 76 | 138 | 160 | 200 | 18 | 8 | 310 | 180 | 24 | 20 | 70 | M8 | 150 | 324 | 37.7 | 31.2 |
| 100 | 4" | 100 | 162 | 190 | 235 | 22 | 8 | 350 | 190 | 24 | 27 | 102 | M10 | 220 | 400 | 52.3 | 48.0 |
| 150 | 6" | 150 | 218 | 250 | 300 | 26 | 8 | 480 | 350 | 28 | 32 | 125 | M12 | 280 | 550 | 104.8 | 98.3 |
| 200 | 8" | 201 | 285 | 320 | 375 | 30 | 12 | 600 | 400 | 34 | 35 | 140 | M16 | 340 | 1000 | 187.4 | 171.1 |

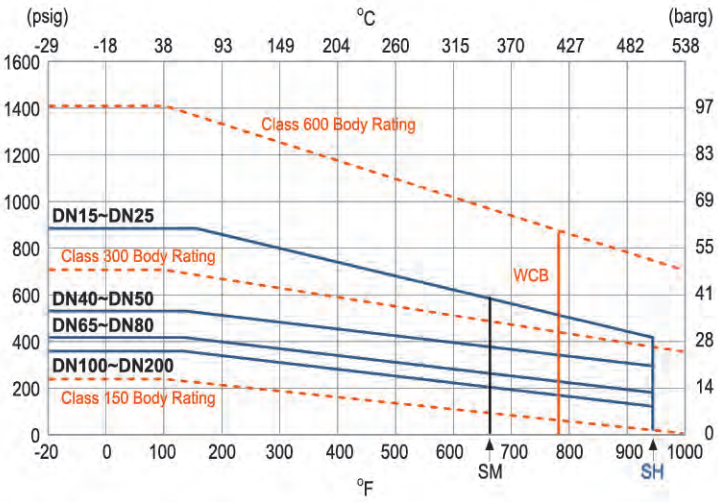
## DIMENSIONS (DIN PN100) (mm)

| SIZE | | A | F | H | K | M | N | L | T | S | Q | W | D | E | Wt (Kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | S5 | | | | | | | |
| 15 | 1/2" | 15 | 45 | 75 | 105 | 14 | 4 | 165 | 20 | 10 | 42 | M5 | 63 | 130 | 2.6 |
| 25 | 1" | 25 | 68 | 100 | 140 | 18 | 4 | 216 | 24 | 12 | 50 | M6 | 76 | 160 | 4.0 |
| 40 | 1-1/2" | 38 | 88 | 125 | 170 | 22 | 4 | 241 | 26 | 17 | 70 | M8 | 88 | 224 | 5.9 |
| 50 | 2" | 50 | 102 | 145 | 195 | 26 | 4 | 292 | 28 | 17 | 70 | M8 | 94 | 224 | 11.8 |
| 65 | 2-1/2" | 65 | 122 | 170 | 220 | 26 | 8 | 330 | 30 | 20 | 102 | M10 | 115 | 324 | 16.9 |
| 80 | 3" | 76 | 138 | 180 | 230 | 26 | 8 | 356 | 32 | 20 | 102 | M10 | 120 | 324 | 36.0 |
| 100 | 4" | 100 | 162 | 210 | 265 | 30 | 8 | 432 | 36 | 27 | 125 | M12 | 195 | 400 | 67.0 |

## Cv VALUES

| SIZE | DN15 | DN20 | DN25 | DN40 | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 | DN200 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1/2" | 3/4" | 1" | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 5" | 6" | 8" |
| Cv | 27 | 61 | 114 | 268 | 501 | 804 | 1158 | 2118 | 3412 | 5074 | 9337 |

## TEMPERATURE & PRESSURE DIAGRAM




SM = MAX TEMPERATURE 661°F (350°C)
SH = MAX TEMPERATURE 932°F (500°C)
WCB = MAX TEMPERATURE 797°F (425°C)

# HOW TO ORDER

**JBF-M → A → B → C → D → E → F → G**

Ex: **JBF-M → C1 → 04 → C → 26 → 050 → IAU → SH1**

### A. SPECIFICATION

| | |
|---|---|
| A1 | JIS 10K |
| A2 | JIS 20K |
| C1 | ASME CLASS 150 |
| C2 | ASME CLASS 300 |
| C3 | ASME CLASS 600 |
| D2 | DIN PN16 |
| D4 | DIN PN40 |
| D5 | DIN PN100 |

### B. BODY MAT'L

| | |
|---|---|
| 02 | WCB (1.0619) |
| 03 | CF8 (1.4308) |
| 04 | CF8M (1.4408) |
| 05 | CF3 (1.4306) |
| 06 | CF3M (1.4404) |
| 07 | CG8M (1.4412) |
| 11 | LCB (1.1138) |
| 12 | LCC (1.7219) |
| 15 | CD3MN (1.4470) |

### C. BALL & SEAT MAT'L

| | |
|---|---|
| A | CF8 |
| C | CF8M |
| D | CF3 |
| E | CF3M |
| F | CG8M |
| I | CD3MN |

### D. STEM MAT'L

| | |
|---|---|
| 10 | S31803 |
| 22 | 630 |
| 26 | S66286 |

### E. SIZE

| | |
|---|---|
| 015 | 1/2" |
| 020 | 3/4" |
| 025 | 1" |
| 040 | 1-1/2" |
| 050 | 2" |
| 065 | 2-1/2" |
| 080 | 3" |
| 100 | 4" |
| 125 | 5" |
| 150 | 6" |
| 200 | 8" |

### F. OPTION

| | |
|---|---|
| F | FIRE SAFE |
| L | EXTENDED STEM |
| I | LIVE LOADING |
| H | LEVER |
| G | GEAR |
| A | BARE SHAFT |
| U | UNI-DIRECTION |
| B | BI-DIRECTION |
| S1 | SINGLE SCRAPER (UPSTREAM SIDE) |
| S2 | DOUBLE SCRAPER (UPSTREAM+DOWNSTREAM) |

### G. TEMPERATURE

| | |
|---|---|
| SM | -20~661°F(-29~350°C) BALL W/HCR SEAT W/STELLITE® |
| SH1 | -20~842°F(-29~450°C) BALL W/TC SEAT W/TC |
| SH2 | -20~932°F(-29~500°C) BALL W/CRC SEAT W/CRC |

HOW TO ORDER

※ Alternative materials are available on request.