

# JDV

| JBF Series Severe Service Metal-Seated Ball Valves

**NXGEN**  
Valves for Power

**Valves for  
Power Generation**  
ASME Classes  
600 – 4500



## A New Generation of Valves

[www.jdvusa.com](http://www.jdvusa.com) | 832.939.9944 | 12411 Citypark Dr #100 Missouri City, TX 77489

# The JDV Story

JDV was founded in Taiwan in 1975, and from its inception has focused on developing technically superior flow control products. It has steadily expanded its product portfolio since its founding, and now has a wide product offering with a focus on research and development, and new technology adoption. JDV's product portfolio now encompasses everything from commodity valves to its flagship engineered products: Metal-seated ball valves, Metal-seated triple offset butterfly valves, and control valves.

JDV has made a name for itself with excellence in metal-seated technologies; with in-house HVOF and other hardfacing capabilities that allow it to design valves to handle the most severe high-temperature, corrosive and erosive applications.

The NxGEN JBF Severe Service Ball Valves are the newest products in the JDV portfolio, and JDV has completed this new cutting-edge product with Computer-Aided Drafting & Design, Finite Element Analysis, verified and validated by prototyping and extensive design testing in its Research & Development Center. The result is a robust, thoughtful, feature-rich design that we are confident will exceed the expectations of even the most demanding valve users.



## Table of Contents

|                                          |       |
|------------------------------------------|-------|
| <b>JBFL</b>                              |       |
| Product Scope .....                      | 3     |
| Features & Benefits .....                | 3     |
| Parts & Materials .....                  | 4     |
| Dimensions & Pressure/Temp Rating .....  | 5     |
| <b>JBFH</b>                              |       |
| Product Scope .....                      | 6     |
| Features & Benefits .....                | 6 - 7 |
| Pressure / Temp Rating .....             | 7     |
| Parts & Materials .....                  | 8     |
| Dimension Info .....                     | 9     |
| <b>JBFX</b>                              |       |
| Product Scope .....                      | 10    |
| Features & Benefits .....                | 10    |
| Parts & Materials .....                  | 11    |
| Dimensions & Pressure/Temp Rating .....  | 12    |
| <b>INFORMATION</b>                       |       |
| Combined Cycle Power Plant Diagram ..... | 13    |
| How To Order .....                       | 14    |
| CV Tables .....                          | 14    |

## JDV 5-Year Warranty

**JDV Model JBFL and JBFH metal-seated ball valves for the power industry are warrantied for 60 months after shipment from the factory or 48 months after installation in service, whichever occurs first.** This warranty covers defects in material and workmanship only and not for consequences of improper installation or application and is limited to the value of JDV's repair or replacement. It does not imply, nor authorize, any backcharges for unauthorized repair or replacement. This warranty is based upon the valves being utilized in services, and within pressure and temperature parameters, for which they are designed. Additionally, this warranty applies only to new, and not previously used, valves nor valves which have been modified in any way without the expressed written consent of JDV USA. This warranty also does not cover valves which have been stored improperly and subjected to elements that could be detrimental to the performance of the valves. Finally, this warranty is restricted to the value of the valves and does not include any consequential expenses. In the event of a warranty claim, it is JDV's sole authority to determine, after analysis, whether to repair or replace in kind.

# JBFL – Low Pressure Severe Service Metal-Seated Ball Valve

We are proud to introduce the JDV JBF Series of Severe Service Metal-Seated Ball Valves, which combines cutting-edge metal-seated ball valve technology, a robust set of features, and superior manufacturing & workmanship to present a unique value in the industry. The JBF series is ideal for the high temperatures and pressures, and thermal cycling found in today’s power generation industry.

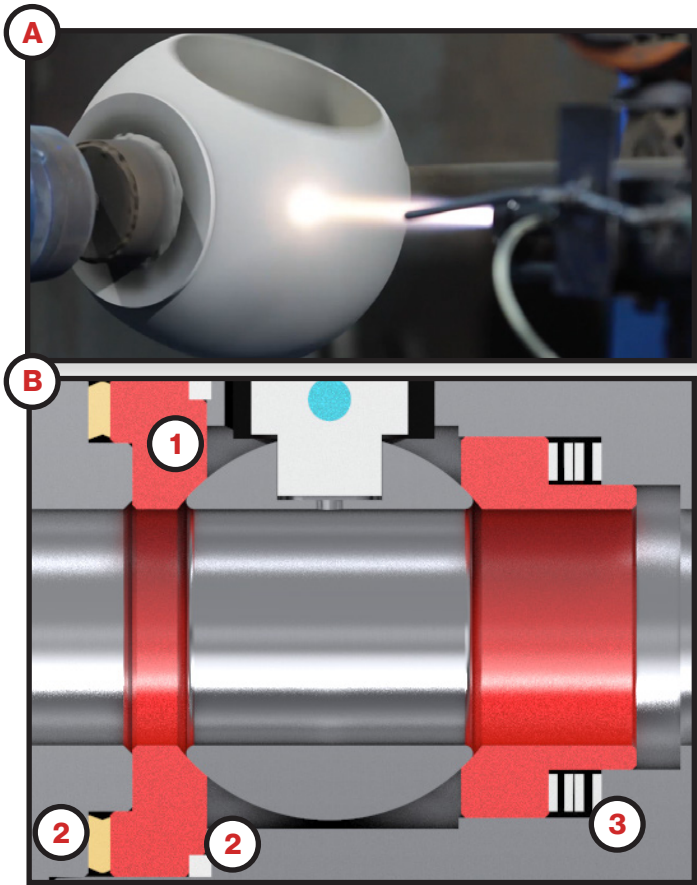


## Product Scope

|                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Size Range</b><br><b>Flanged:</b> 1/2" through 4"<br><b>Socketweld &amp; Butt weld:</b> 1/2" through 2-1/2"                                                    |
| <b>Maximum Temp:</b> 1,022 °F / 550 °C                                                                                                                            |
| <b>Standard Design:</b> ASME B16.34, API 608, API 598 (Valve Hydrotest), ISO 5211 (Standard Actuator Mounting)                                                    |
| <b>Available Body Materials:</b> Carbon Steel (A105), Low Alloy (F22, F5, F9, F91), Stainless Steel (316SS, 317SS, 347SS)<br>Other materials available on request |
| <b>Pressure Class Range:</b> ASME 150, 300, 600                                                                                                                   |
| <b>Sealing Directionality:</b> Unidirectional                                                                                                                     |
| <b>Available End Connections:</b> SW (B16.11), BW (B16.25), FNPT (B1.20.1), RF (B16.5 & B16.10)                                                                   |
| <b>Available Trim Materials:</b> 410SS, 316SS, Gr. 660 (Stem), Inconel 718. Other materials available on request.                                                 |

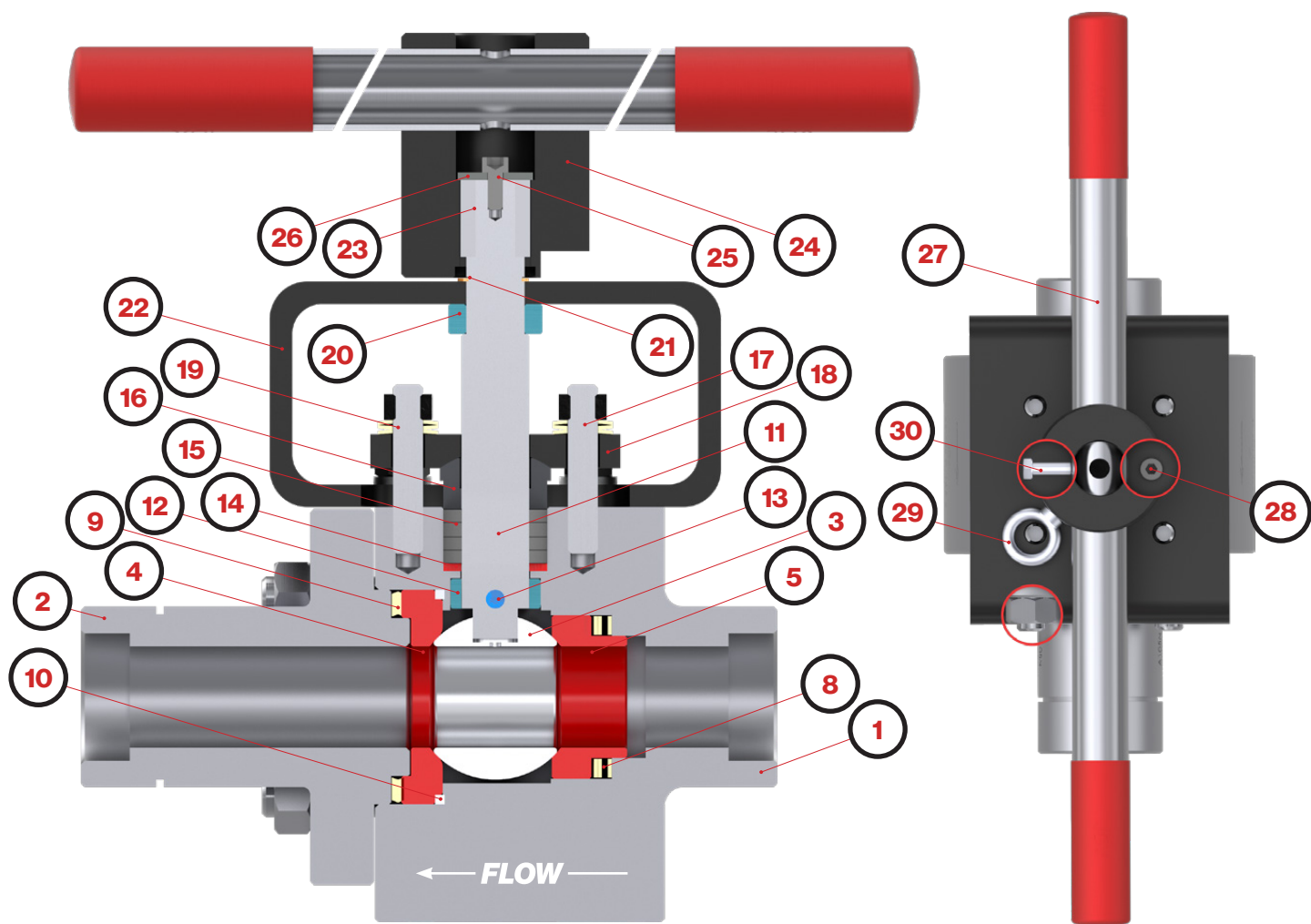
## Features and Benefits

- > **Advanced Coating Technologies** (Figure A)
  - HVOF coating with Chromium Carbide (Tungsten Carbide also available) is applied with state-of-the-art technologies to ensure long-lasting performance in the most severe conditions.
  - QPQ Nitrided Trim is also available as an economical option for lower cycle, less challenging applications.
- > **Flanged Seat Design** (Figure B/1)
  - With our HVOF coating technology, valves are resistant to the attack of abrasive magnetite and ferrous oxides that may be seen in the steam flow.
- > **Spiral Wound Gasket** (Figure B/2)
  - A graphite double gasket design for an optimal seal.
- > **Wave Spring** (Figure B/3)
  - More predictable at lower pressures.
  - Last 3-5 times longer than Belleville springs.





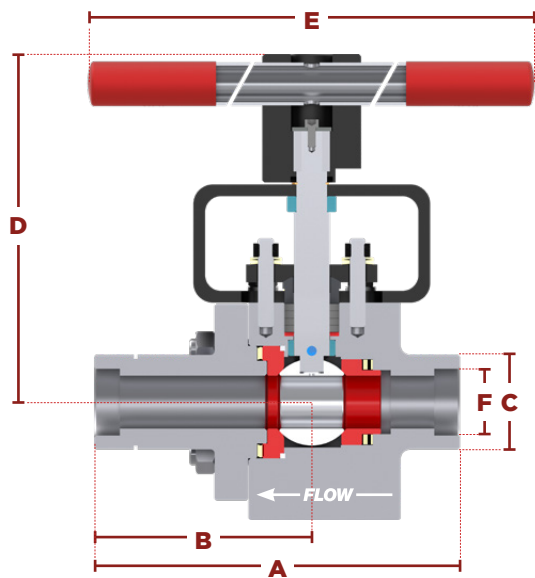
## JBFL – Parts & Materials



| NO | PART NAME            | CARBON, LOW ALLOY & STAINLESS STEEL |                   |                    | NO | PART NAME           | CARBON, LOW ALLOY & STAINLESS STEEL |
|----|----------------------|-------------------------------------|-------------------|--------------------|----|---------------------|-------------------------------------|
| 1  | BODY                 | A105N                               | A182-F9           | A182 F317          | 11 | STEM                | 410SS+QPQ                           |
|    |                      | A182-F22 CL3                        | A182-F91 TYPE 2   | A182-F347          |    |                     | A286+QPQ                            |
|    |                      | A182-F5a                            | A182-F316         | -                  | 12 | STEM RETAINER RING  | 410SS+QPQ                           |
| 2  | CAP / END CONNECTION | A105N                               | A182-F9           | A182 F317          | 13 | STEM RETAINER PIN   | INCONEL 718                         |
|    |                      | A182-F22 CL3                        | A182-F91 TYPE 2   | A182-F347          | 14 | PACKING RING        | 410SS+QPQ                           |
|    |                      | A182-F5a                            | A182-F316         | -                  | 15 | PACKING SET         | GRAPHITE API 622                    |
| 3  | BALL                 |                                     |                   | 410SS+QPQ          | 16 | GLAND FOLLOWER      | 410SS+QPQ                           |
|    |                      |                                     |                   | 410SS+CRC          | 17 | GLAND BOLTING       | A193-B8M / A194-8M                  |
|    |                      |                                     |                   | 316SS+QPQ          | 18 | GLAND FLANGE        | 410SS+QPQ                           |
|    |                      |                                     |                   | 316SS+CRC          | 19 | BELLEVILLE WASHER   | INCONEL X750                        |
| 4  | DOWNSTREAM SEAT      |                                     |                   | 410SS+QPQ          | 20 | UPPER RETAINER RING | 410SS+QPQ                           |
|    |                      |                                     |                   | 410SS+CRC          | 21 | STEM SNAP RING      | STAINLESS STEEL                     |
|    |                      |                                     |                   | 316SS+QPQ          | 22 | BRACKET             | CS+EDP                              |
|    |                      |                                     |                   | 316SS+CRC          | 23 | KEY                 | CS                                  |
| 5  | UPSTREAM SEAT        |                                     |                   | 410SS+QPQ          | 24 | ADAPTOR             | CS+PAINTING                         |
|    |                      |                                     |                   | 410SS+CRC          | 25 | ADAPTOR SCREW       | A4-70                               |
| 6  | BOLTING              | A193-B7 / A194-7                    | A193-B16 / A194-7 | A193-B8M / A194-8M | 26 | ADAPTOR WASHER      | STAINLESS STEEL                     |
| 7  | BOLTING (NACE)       | A193-B7M / A194-2HM                 | A193-B16 / A194-7 | A193-B8M / A194-8M | 27 | HANDLE              | CS+PAINTING                         |
| 8  | SEAT WAVE SPRING     | INCONEL X750                        |                   |                    | 28 | PRECISION STOP      | A4-70                               |
| 9  | BODY GASKET          | SPIRALWOUND                         |                   |                    | 29 | LOCKING DEVICE      | STAINLESS STEEL                     |
| 10 | SEAT GASKET          | GRAPHITE                            |                   |                    | 30 | HANDLE SCREW        | A4-70                               |

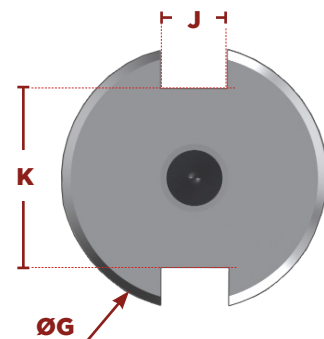
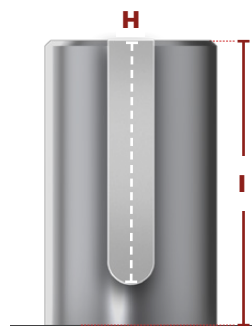
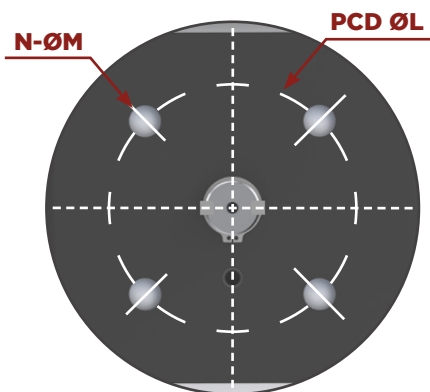
CRC - Chrome Carbide Coating | QPQ - Quench-Polish-Quench Nitrocarburizing

## JBFL – Dimensional Info



| Dimensions - ASME 150 / 300 / 600 Limited Class |     |      |      |     |      |     |      |    |      |     |      |     |      |      |      |      |      |
|-------------------------------------------------|-----|------|------|-----|------|-----|------|----|------|-----|------|-----|------|------|------|------|------|
| SIZE                                            |     | BORE |      | A   |      | B   |      | C  |      | D   |      | E   |      | F    |      | G    |      |
| DN                                              | NPS | mm   | in   | mm  | in   | mm  | in   | mm | in   | mm  | in   | mm  | in   | mm   | in   | mm   | in   |
| 15                                              | ½"  | 14   | 0.55 | 165 | 6.5  | 95  | 3.74 | 41 | 1.61 | 93  | 3.66 | 380 | 15   | 21.8 | .86  | 12   | 0.47 |
| 20                                              | ¾"  | 18.3 | 0.72 | 165 | 6.5  | 95  | 3.74 | 41 | 1.61 | 93  | 3.66 | 380 | 15   | 27.2 | 1.07 | 12   | 0.47 |
| 25                                              | 1"  | 26.9 | 1.06 | 185 | 7.28 | 110 | 4.33 | 48 | 1.89 | 110 | 4.33 | 450 | 17.7 | 33.9 | 1.33 | 15.5 | 0.61 |
| 40                                              | 1½" | 36.6 | 1.44 | 241 | 9.49 | 126 | 4.96 | 64 | 2.52 | 143 | 5.63 | 450 | 17.7 | 48.8 | 1.92 | 22   | 0.87 |
| 50                                              | 2"  | 49.3 | 1.94 | 292 | 11.5 | 167 | 6.57 | 80 | 3.15 | 155 | 6.10 | 450 | 17.7 | 61.2 | 2.41 | 22   | 0.87 |

| Dimensions - ASME 150 / 300 / 600 Limited Class |     |      |      |    |      |    |      |    |     |      |     |          |          |          |     |      |
|-------------------------------------------------|-----|------|------|----|------|----|------|----|-----|------|-----|----------|----------|----------|-----|------|
| SIZE                                            |     | BORE |      | H  |      | I  |      | J  |     | K    |     | ISO 5211 | ISO DIMS |          | WT  |      |
| DN                                              | NPS | mm   | in   | mm | in   | mm | in   | mm | in  | mm   | in  |          | metric   | imperial | kg  | lb   |
| 15                                              | ½"  | 14   | 0.55 | 20 | .79  | 27 | 1.06 | 3  | .12 | 8.4  | .33 | F07      | 9'4      | 0.35'4   | 6.6 | 14.5 |
| 20                                              | ¾"  | 18.3 | 0.72 | 20 | .79  | 27 | 1.06 | 3  | .12 | 8.4  | .33 | F07      | 9'4      | 0.35'4   | 6.6 | 14.5 |
| 25                                              | 1"  | 26.9 | 1.06 | 22 | .87  | 27 | 1.06 | 4  | .16 | 10.5 | .41 | F07      | 9'4      | 0.35'4   | 10  | 22   |
| 40                                              | 1½" | 36.6 | 1.44 | 27 | 1.06 | 32 | 1.26 | 5  | .2  | 16   | .63 | F10      | 12'4     | 0.47'4   | 24  | 52.8 |
| 50                                              | 2"  | 49.3 | 1.94 | 27 | 1.06 | 32 | 1.26 | 5  | .2  | 16   | .63 | F10      | 12'4     | 0.47'4   | 32  | 70.4 |



## JBFL – Maximum Operating Pressure Rating (PSI) vs. Temperature

| Temp (°F) |                    | -20° to 100° | 200° | 300° | 400° | 500° | 600° | 650°  |
|-----------|--------------------|--------------|------|------|------|------|------|-------|
| Temp (°C) |                    | -29° to 38°  | 93°  | 149° | 204° | 260° | 316° | 343°  |
| ASME 600  | A105               | 1500         | 1500 | 1480 | 1465 | 1465 | 1465 | 1430  |
|           | A182 Gr. F22 Cl. 3 | 1500         | 1500 | 1480 | 1455 | 1450 | 1440 | 1430  |
|           | A182 Gr. F91       | 1500         | 1500 | 1500 | 1500 | 1500 | 1500 | 1500  |
| Temp (°F) |                    | 700°         | 750° | 800° | 850° | 900° | 950° | 1000° |
| Temp (°C) |                    | 371°         | 399° | 427° | 454° | 482° | 510° | 538°  |
| ASME 600  | A105               | 1380         | 1270 | 1030 | -    | -    | -    | -     |
|           | A182 Gr. F22 Cl. 3 | 1415         | 1415 | 1415 | 1355 | 1200 | 953  | 687   |
|           | A182 Gr. F91       | 1465         | 1460 | 1440 | 1355 | 1200 | 953  | 862   |

(1) A105 body material not recommended for prolonged use above 800 ° F / 427 ° C  
 (2) F22 body material not recommended for prolonged use above 1100 ° F / 593 ° C

# JBFH – High Pressure Severe Service Metal-Seated Ball Valve



## Product Scope

|                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Size Range:</b> ½” through 2½”                                                                                              |
| <b>Maximum Temp:</b> 1,200 °F / 650 °C                                                                                         |
| <b>Standard Design:</b> ASME B16.34, API 598 (Valve Hydrotest), ISO 5211 (Standard Actuator Mounting)                          |
| <b>Available Body Materials:</b> Carbon Steel (A105), Low Alloy (F11, F22, F5, F9, F91) - Other materials available on request |
| <b>Pressure Class Range:</b> ASME 900 through 4500 LTD                                                                         |
| <b>Sealing Directionality:</b> Unidirectional                                                                                  |
| <b>Available End Connections:</b> SW (B16.11) - Standard, BW (B16.25)                                                          |
| <b>Available Trim Materials:</b> 410SS, Gr. 660 (Stem), Inconel 718 - Other materials available on request                     |

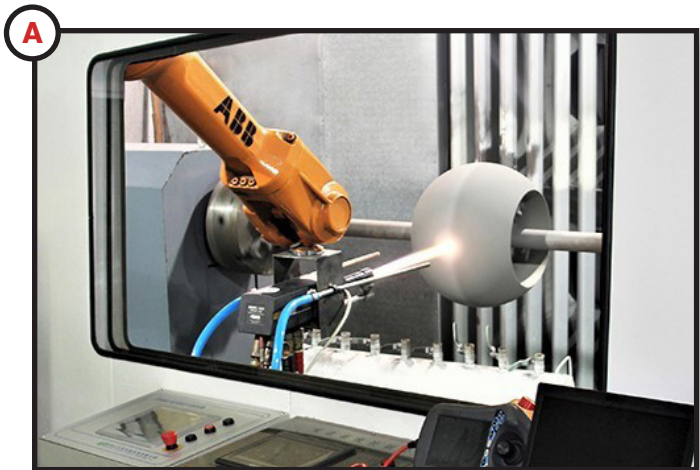
## Features & Benefits

### > Advanced Coating Technologies (Figure A/B)

- HVOF coating with Chromium Carbide (Tungsten Carbide also available) is applied with state-of-the-art technologies to ensure long-lasting performance in severe conditions.
- Spray & Fuse technology provides superior wear resistance and a better bond to the substrate material due to its metallurgical bond.

### > Full Spherical Lapping (See Below)

- Full spherical lapping laps the entire ball to the seat which prevents the coating thickness from being compromised as during traditional one-sided lapping techniques.



## JBFH – Features & Benefits

### ➤ Oversized One-Piece Stem (Figure C)

- One piece quarter turn non-rising stem does not deteriorate packing and minimizes hysteresis when adapting to actuation. Fully-retained pins are contained and hardened to meet ASME B16.34 blow-out proof stem requirements.

### ➤ Articulating Gland Flange (Figure E)

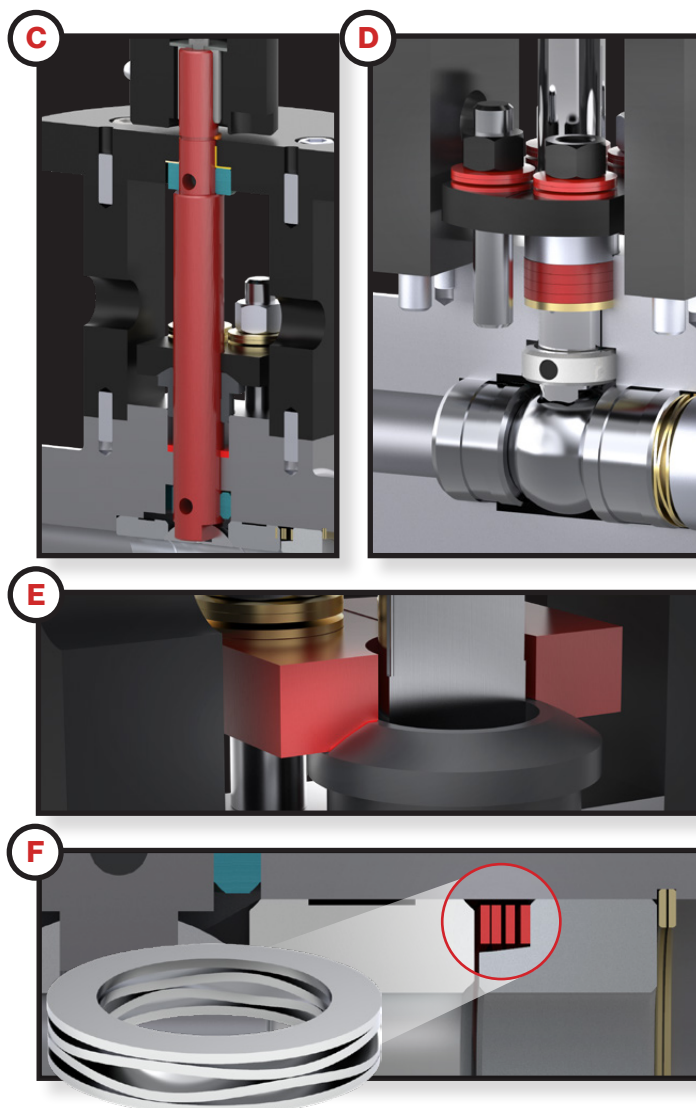
- The spherical gland flange and packing follower allows for equal distribution of packing and is live loaded eliminating the need for routine packing adjustments.

### ➤ Live Loaded Packing Box (Figure D)

- Live loaded packing ensures continuous load pressure through thermal cycles. API 622-compliant packing set including braided wiper rings combined with die-formed graphite rings provide reliable sealing and longevity under constant load.

### ➤ Wave Spring (Figure F)

- Wave spring reduces the risk of error in assembly and delivers a predictable performance, minimizing load variances both outperforming and lasting longer than a standard Belleville spring.



## JBFH – Maximum Operating Pressure Rating (PSI) vs. Temperature

| Temp (°F)            |                                          | -20° to 100° | 200°        | 300°        | 400°        | 500°        | 600°         | 650°         | 700°         |
|----------------------|------------------------------------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|
| Temp (°C)            |                                          | -29° to 38°  | 93°         | 149°        | 204°        | 260°        | 316°         | 343°         | 371°         |
| <b>ASME 1500 LTD</b> | A105   A182 Gr. F22 Cl. 3   A182 Gr. F91 | 2500         | 2500        | 2500        | 2500        | 2500        | 2500         | 2500         | 2500         |
|                      | A105   A182 Gr. F22 Cl. 3   A182 Gr. F91 | 4500         | 4500        | 4500        | 4500        | 4500        | 4500         | 4500         | 4500         |
|                      | A105   A182 Gr. F22 Cl. 3   A182 Gr. F91 | 6000         | 6000        | 6000        | 6000        | 6000        | 6000         | 6000         | 6000         |
| <b>ASME 1500 LTD</b> |                                          | <b>750°</b>  | <b>800°</b> | <b>850°</b> | <b>900°</b> | <b>950°</b> | <b>1000°</b> | <b>1050°</b> | <b>1100°</b> |
| <b>Temp (°C)</b>     |                                          | <b>399°</b>  | <b>427°</b> | <b>454°</b> | <b>482°</b> | <b>510°</b> | <b>538°</b>  | <b>566°</b>  | <b>593°</b>  |
| <b>ASME 1500 LTD</b> | A105                                     | 2500         | 2500        | -           | -           | -           | -            | -            | -            |
|                      | A182 Gr. F22 Cl. 3                       | 2500         | 2500        | 2500        | 2500        | 2412        | 1785         | 1170         | 732          |
|                      | A182 Gr. F91                             | 2500         | 2500        | 2500        | 2500        | 2412        | 2250         | 2250         | 2015         |
| <b>ASME 3200 LTD</b> | A105                                     | 4500         | 4500        | -           | -           | -           | -            | -            | -            |
|                      | A182 Gr. F22 Cl. 3                       | 4500         | 4500        | 4500        | 4500        | 4500        | 4135         | 2707         | 1687         |
|                      | A182 Gr. F91                             | 4500         | 4500        | 4500        | 4500        | 4500        | 4500         | 4500         | 4500         |
| <b>ASME 4500 LTD</b> | A105                                     | 6000         | 6000        | -           | -           | -           | -            | -            | -            |
|                      | A182 Gr. F22 Cl. 3                       | 6000         | 6000        | 6000        | 6000        | 6000        | 6000         | 4064         | 2546         |
|                      | A182 Gr. F91                             | 6000         | 6000        | 6000        | 6000        | 6000        | 6000         | 6000         | 6000         |

(1) A105 body material not recommended for prolonged use above 800 °F / 427 °C

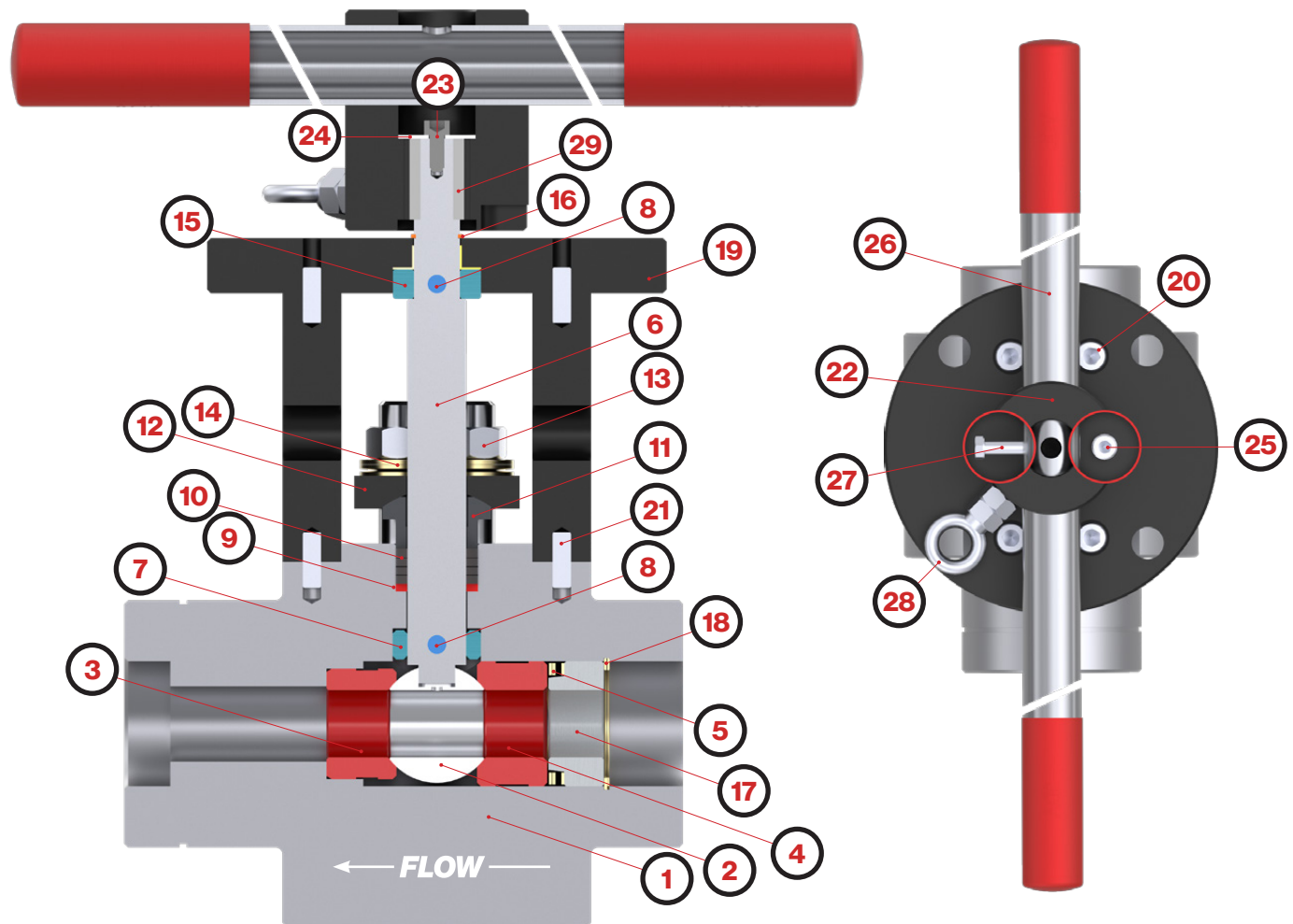
(2) F22 body material not recommended for prolonged use above 1100 °F / 593 °C

(3) Pressure ratings shown above are limited by design considerations.

(4) Valve bodies are designed in accordance with ASME B16.34 Limited Class pressure rating requirements for the given pressure class.

(5) Maximum differential pressure across valve = 6,000 psig

## JBFH – Parts and Materials



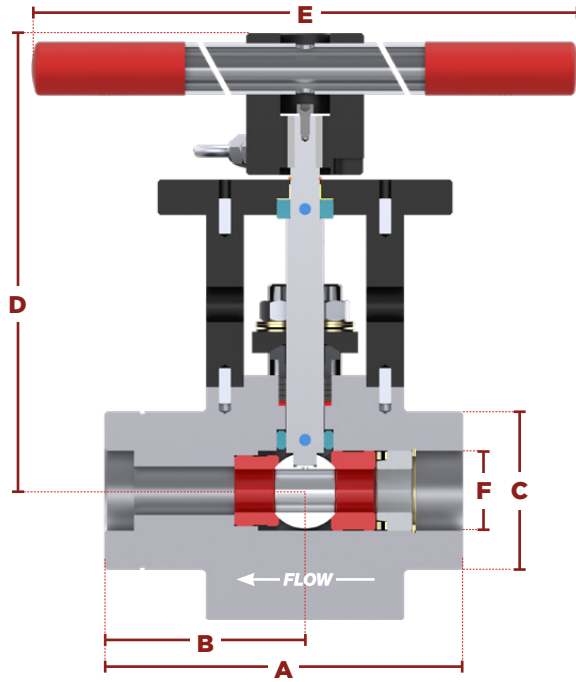
| NO | PART NAME                  | CARBON, LOW ALLOY & STAINLESS STEEL |                                 |                |
|----|----------------------------|-------------------------------------|---------------------------------|----------------|
| 1  | BODY                       | A105N                               | A182-F22 CL3<br>A182-F91 TYPE 2 | A182-F316      |
| 2  | BALL CL600-3200            | 410SS+CRC<br>INCONEL 718+SF(OPTION) |                                 |                |
|    | BALL CL4500                | INCONEL 718+SF                      |                                 |                |
| 3  | DOWNSTREAM SEAT CL600-3200 | 410SS+CRC<br>INCONEL 718+SF(OPTION) |                                 |                |
|    | DOWNSTREAM SEAT CL4500     | INCONEL 718+SF                      |                                 |                |
| 4  | UPSTREAM SEAT CL600-3200   | 410SS+CRC<br>INCONEL 718+SF(OPTION) |                                 |                |
|    | UPSTREAM SEAT CL4500       | INCONEL 718+SF                      |                                 |                |
| 5  | SEAT WAVE SPRING           | INCONEL X750                        |                                 |                |
| 6  | STEM                       | 410SS+QPQ                           | A286+QPQ                        | INCONEL718+QPQ |
| 7  | STEM RETAINER RING         | 410SS+QPQ                           |                                 |                |
| 8  | STEM RETAINER PIN          | INCONEL 718                         |                                 |                |
| 9  | PACKING RING               | 410SS+QPQ                           |                                 |                |
| 10 | PACKING SET                | GRAPHITE API 622                    |                                 |                |
| 11 | GLAND FOLLOWER             | 410SS+QPQ                           |                                 |                |

| NO | PART NAME           | CARBON, LOW ALLOY & STAINLESS STEEL |
|----|---------------------|-------------------------------------|
| 12 | GLAND FLANGE        | 410SS+QPQ                           |
| 13 | GLAND BOLTING       | A193-B8M / A194-8M                  |
| 14 | BELLEVILLE WASHER   | INCONEL X750                        |
| 15 | UPPER RETAINER RING | 410SS+ QPQ W/ NORGLIDE® T BEARINGS  |
| 16 | STEM SNAP RING      | STAINLESS STEEL                     |
| 17 | TRANSITION PIECE    | 410SS                               |
| 18 | LOAD RING           | INCONEL X750                        |
| 19 | MOUNTING SET        | CS+PAINTING                         |
| 20 | MOUNTING SET SCREW  | A4-70                               |
| 21 | MOUNTING FLANGE PIN | CS+PAINTING                         |
| 22 | ADAPTOR             | CS+PAINTING                         |
| 23 | ADAPTOR SCREW       | A4-70                               |
| 24 | ADAPTOR WASHER      | STAINLESS STEEL                     |
| 25 | PRECISION STOP      | A4-70                               |
| 26 | HANDLE              | CS+PAINTING                         |
| 27 | HANDLE SCREW        | A4-70                               |
| 28 | LOCKING DEVICE      | STAINLESS STEEL                     |
| 29 | KEY                 | INCONEL 718                         |

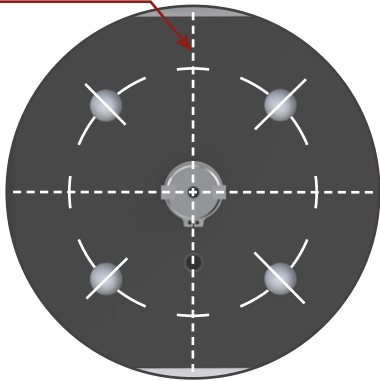
CRC - Chrome Carbide Coating | SF - Spray & Fuse Coating | QPQ - Quench-Polish-Quench Nitrocarburizing



## JBFH – Dimensional Info

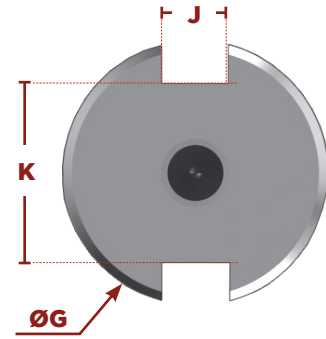
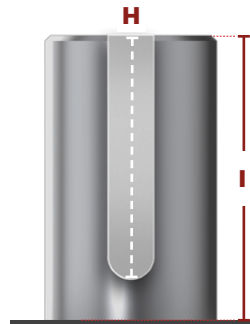


ISO PAD 5211



| Dimensions - ASME 900 / 1500 / 3200 |     |      |     |      |     |      |     |      |     |      |      |       |      |
|-------------------------------------|-----|------|-----|------|-----|------|-----|------|-----|------|------|-------|------|
| SIZE                                |     |      | A   |      | B   |      | C   |      | D   |      | E    |       | F    |
| DN                                  | NPS | BORE | mm  | in   | mm  | in   | mm  | in   | mm  | in   | mm   | in    | mm   |
| 15                                  | ½"  | 0.55 | 192 | 7.56 | 85  | 3.35 | 55  | 2.16 | 162 | 5.83 | 6.83 | 15    | 21.8 |
| 20                                  | ¾"  | 0.55 | 152 | 5.98 | 85  | 3.35 | 55  | 2.16 | 162 | 5.83 | 6.83 | 15    | 27.2 |
| 25                                  | 1"  | 0.55 | 152 | 5.98 | 85  | 3.35 | 65  | 2.56 | 162 | 5.83 | 6.83 | 15    | 33.9 |
|                                     |     | 0.72 | 152 | 5.98 | 85  | 3.35 | 67  | 2.64 | 173 | 6.26 | 6.81 | 15    | 33.9 |
| 40                                  | 1½" | 0.72 | 152 | 5.98 | 85  | 3.35 | 85  | 3.35 | 173 | 6.26 | 6.81 | 15    | 48.8 |
|                                     |     | 1.06 | 184 | 7.24 | 105 | 4.13 | 95  | 3.74 | 214 | 7.71 | 8.43 | 17.72 | 48.8 |
| 50                                  | 2"  | 1.06 | 184 | 7.24 | 105 | 4.13 | 108 | 4.25 | 214 | 7.71 | 8.43 | 17.72 | 61.2 |
|                                     |     | 1.34 | 210 | 8.27 | 105 | 4.13 | 110 | 4.33 | 224 | 8.38 | 8.82 | 17.72 | 61.2 |
| -                                   | 2½" | 1.34 | 210 | 8.27 | 105 | 4.13 | 125 | 4.92 | 224 | 8.38 | 8.82 | 17.72 | 73.9 |

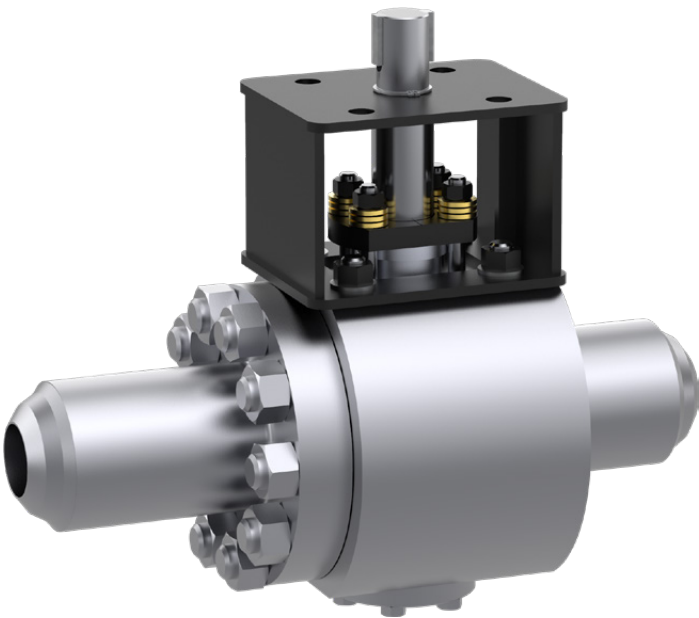
| Dimensions - ASME 4500 |     |      |     |      |     |      |     |      |     |       |     |       |      |
|------------------------|-----|------|-----|------|-----|------|-----|------|-----|-------|-----|-------|------|
| SIZE                   |     |      | A   |      | B   |      | C   |      | D   |       | E   |       | F    |
| DN                     | NPS | BORE | mm  | in   | mm  | in   | mm  | in   | mm  | in    | mm  | in    | mm   |
| 20                     | ¾"  | 0.66 | 224 | 8.82 | 110 | 4.33 | 67  | 2.64 | 226 | 8.89  | 450 | 17.72 | 27.2 |
| 25                     | 1"  | 0.66 | 184 | 7.24 | 110 | 4.33 | 67  | 2.64 | 226 | 8.89  | 450 | 17.72 | 33.9 |
| 40                     | 1½" | 0.66 | 184 | 7.24 | 110 | 4.33 | 92  | 3.62 | 226 | 8.89  | 450 | 17.72 | 48.8 |
|                        |     | 1.00 | 210 | 8.27 | 120 | 4.73 | 95  | 3.74 | 267 | 10.51 | 450 | 17.72 | 48.8 |
| 50                     | 2"  | 1.00 | 210 | 8.27 | 120 | 4.73 | 115 | 4.53 | 267 | 10.51 | 450 | 17.72 | 61.2 |
|                        |     | 1.00 | 210 | 8.27 | 120 | 4.73 | 136 | 5.36 | 267 | 10.51 | 450 | 17.72 | 73.9 |



| Dimensions - ASME 900 / 1500 / 3200 |     |      |      |      |     |    |      |    |      |    |     |     |     |           |          |          |       |
|-------------------------------------|-----|------|------|------|-----|----|------|----|------|----|-----|-----|-----|-----------|----------|----------|-------|
| SIZE                                |     | BORE |      | G    |     | H  |      | I  |      | J  |     | K   |     | ISO 5211  | ISO DIMS |          | WT    |
| DN                                  | NPS | mm   | in   | mm   | in  | mm | in   | mm | in   | mm | in  | mm  | in  |           | metric   | imperial | kg    |
| 15                                  | ½"  | 14   | 0.55 | 12.5 | .5  | 22 | .87  | 27 | 1.06 | 3  | .12 | 8.9 | .35 | F10       | 12 * 4   | 0.44 * 4 | 8.1   |
| 20                                  | ¾"  | 14   | 0.55 | 12.5 | .5  | 22 | .87  | 27 | 1.06 | 3  | .12 | 8.9 | .35 | F10       | 12 * 4   | 0.44 * 4 | 7.7   |
| 25                                  | 1"  | 14   | 0.55 | 12.5 | .5  | 22 | .87  | 27 | 1.06 | 3  | .12 | 8.9 | .35 | F10       | 12 * 4   | 0.44 * 4 | 7.7   |
|                                     |     | 18.3 | 0.72 | 12.5 | .5  | 22 | .87  | 27 | 1.06 | 3  | .12 | 8.9 | .35 | F10       | 12 * 4   | 0.44 * 4 | 10.04 |
| 40                                  | 1½" | 18.3 | 0.72 | 12.5 | .5  | 22 | .87  | 27 | 1.06 | 3  | .12 | 8.9 | .35 | F10       | 12 * 4   | 0.44 * 4 | 11.04 |
|                                     |     | 26.9 | 1.06 | 18   | .71 | 31 | 1.22 | 36 | 1.42 | 4  | .16 | 13  | .51 | F10 / F12 | 12 * 4   | 14 * 4   | 18.3  |
| 50                                  | 2"  | 26.9 | 1.06 | 18   | .71 | 31 | 1.22 | 36 | 1.42 | 4  | .16 | 13  | .51 | F10 / F12 | 12 * 4   | 14 * 4   | 19.6  |
|                                     |     | 34   | 1.34 | 25   | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19  | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 24.2  |
| 60                                  | 2½" | 34   | 1.34 | 25   | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19  | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 26.2  |

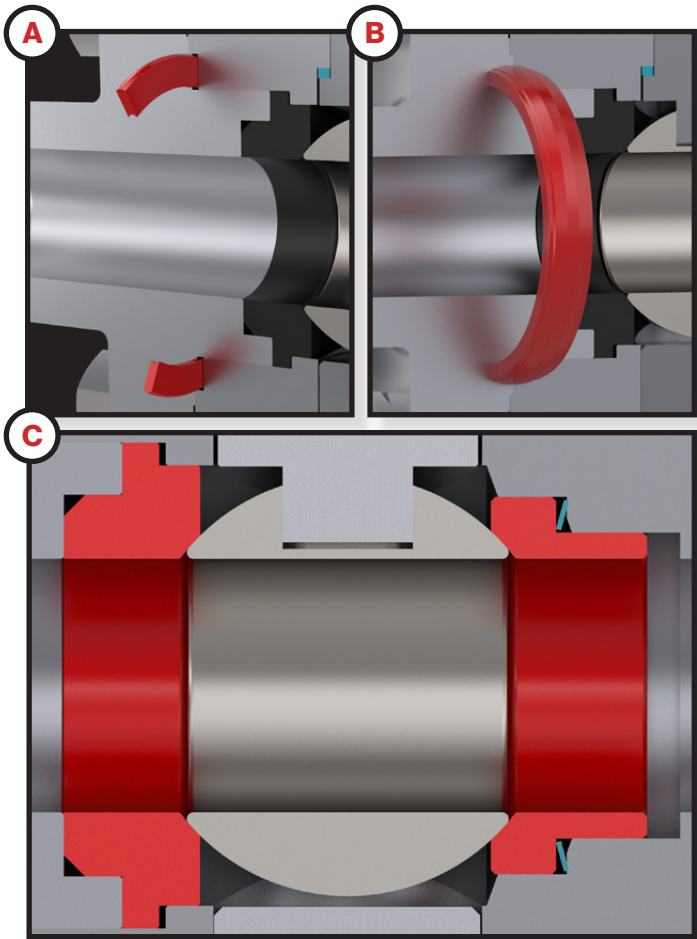
| Dimensions - ASME 4500 |     |      |      |    |     |    |      |    |      |    |     |    |     |           |          |          |      |
|------------------------|-----|------|------|----|-----|----|------|----|------|----|-----|----|-----|-----------|----------|----------|------|
| SIZE                   |     | BORE |      | G  |     | H  |      | I  |      | J  |     | K  |     | ISO 5211  | ISO DIMS |          | WT   |
| DN                     | NPS | mm   | in   | mm | in  | mm | in   | mm | in   | mm | in  | mm | in  |           | metric   | imperial | kg   |
| 20                     | ¾"  | 17   | 0.66 | 18 | .71 | 31 | 1.22 | 36 | 1.42 | 4  | .16 | 13 | .51 | F10 / F12 | 12 * 4   | 14 * 4   | 14.7 |
| 25                     | 1"  | 17   | 0.66 | 18 | .71 | 31 | 1.22 | 36 | 1.42 | 4  | .16 | 13 | .51 | F10 / F12 | 12 * 4   | 14 * 4   | 14.2 |
|                        |     | 17   | 0.66 | 18 | .71 | 31 | 1.22 | 36 | 1.42 | 4  | .16 | 13 | .51 | F10 / F12 | 12 * 4   | 14 * 4   | 16   |
| 40                     | 1½" | 25.4 | 1    | 25 | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19 | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 24.5 |
|                        |     | 25.4 | 1    | 25 | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19 | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 27   |
| 50                     | 2"  | 25.4 | 1    | 25 | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19 | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 33   |
| 60                     | 2½" | 25.4 | 1    | 25 | .98 | 37 | 1.46 | 42 | 1.65 | 5  | .2  | 19 | .75 | F10 / F12 | 12 * 4   | 14 * 4   | 66   |

# JBFX – Large Diameter Severe Service Metal-Seated Ball Valve



## Product Scope

|                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Size Range:</b> 3" through 12"                                                                                              |
| <b>Maximum Temp:</b> 1,200 °F / 650 °C                                                                                         |
| <b>Standard Design:</b> ASME B16.34, API 598 (Valve Hydrotest), ISO 5211 (Standard Actuator Mounting)                          |
| <b>Available Body Materials:</b> Carbon Steel (A105), Low Alloy (F11, F22, F5, F9, F91) - Other materials available on request |
| <b>Pressure Class Range:</b> ASME 900 through 4500                                                                             |
| <b>Sealing Directionality:</b> Unidirectional                                                                                  |
| <b>Available End Connections:</b> BW (B16.25) - Standard, Other end connections such as flanged, hub ends available on request |
| <b>Available Trim Materials:</b> 410SS, Gr. 660 (Stem), Inconel 718, other materials available on request                      |



## Features & Benefits

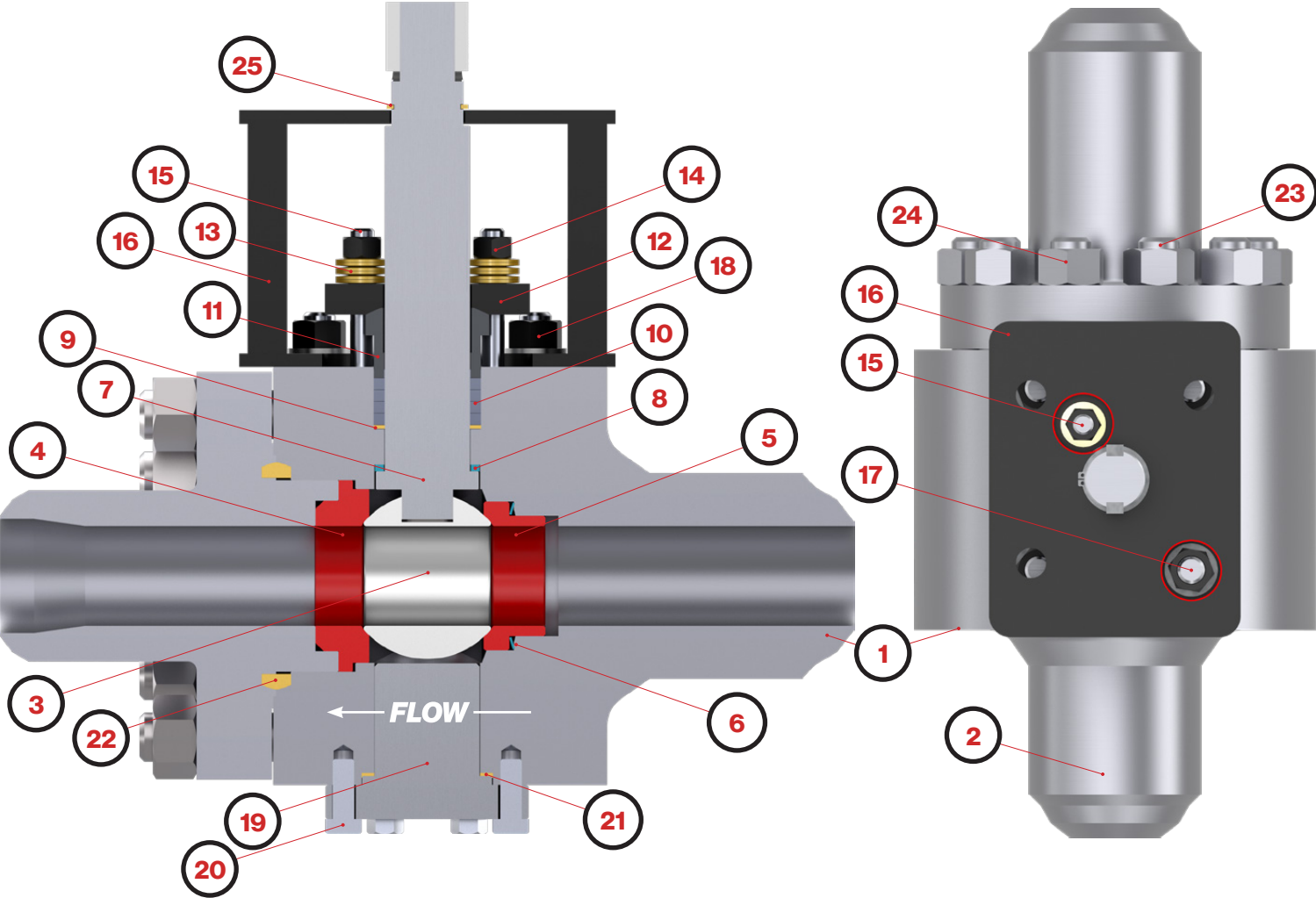
### > Body Sealing (Figure A/B)

- **Spiral Wound Gasket** - Class 900-1500 are equipped with spiral-wound gaskets for ease of maintenance (Figure A)
- **Delta Ring** - Class 2500 and higher are equipped with an advanced delta ring for reliable high pressure containment (Figure B)

### > Flanged Seat Design (Figure C)

- With our HVOF coating technology, valves are resistant to the attack of abrasive magnetite and ferrous oxides that may be seen in the steam flow.

JBFX – Parts & Materials

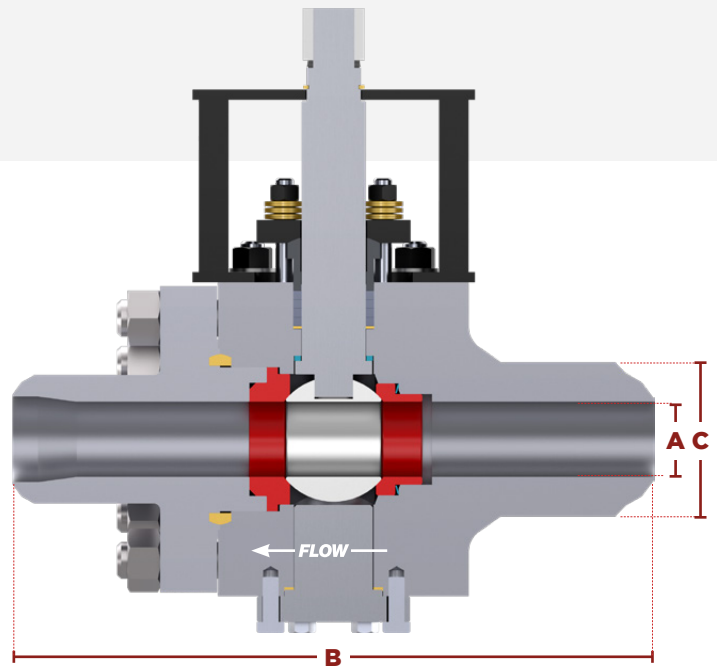


| NO | PART NAME            | CARBON, LOW ALLOY & STAINLESS STEEL |                         |
|----|----------------------|-------------------------------------|-------------------------|
| 1  | BODY                 | A105N                               | A182-F22 CL3 / A182-F91 |
|    |                      | A105N                               | A182-F22 CL3 / A182-F91 |
| 2  | END CONNECT          | A105N   A182-F22 CL3 / A182-F91     |                         |
| 3  | BALL                 | 410SS+CRC                           |                         |
|    |                      | INCONEL 718+SF(OPTION)              |                         |
| 4  | DOWNSTREAM SEAT      | 410SS+CRC                           |                         |
|    |                      | INCONEL 718+SF(OPTION)              |                         |
| 5  | UPSTREAM SEAT        | 410SS+CRC                           |                         |
|    |                      | INCONEL 718+SF(OPTION)              |                         |
| 6  | BELLEVILLE SPRING    | INCONEL X750                        |                         |
| 7  | STEM                 | A286 + QPQ                          |                         |
| 8  | STEM RETAINER WASHER | 316SS+QPQ                           |                         |
| 9  | PACKING RING         | 316SS+QPQ                           |                         |
| 10 | PACKING              | API 622 PACKING                     |                         |
| 11 | PACKING FOLLOWER     | A479-410 COND.2 +QPQ                |                         |
| 12 | GLAND FLANGE         | A479-410 COND.2 +QPQ                |                         |

| NO | PART NAME         | CARBON, LOW ALLOY & STAINLESS STEEL |
|----|-------------------|-------------------------------------|
| 13 | BELLEVILLE WASHER | INCONEL X750                        |
| 14 | GLAND BOLT        | A2-70                               |
| 15 | GLAND NUT         | A2-70                               |
| 16 | MOUNTING BRACKET  | CS +PAINTING                        |
| 17 | MOUNTING NUT      | A2-70                               |
| 18 | MOUNTING BOLT     | A2-70                               |
| 19 | RETAINER          | A105N                               |
| 20 | RETAINER SCREW    | A2-70                               |
| 21 | RETAINER GASKET   | SPIRAL WOUND                        |
| 22 | BODY SEAL         | INCONEL X718                        |
| 23 | BOLT              | A193-B7                             |
| 24 | NUT               | A194-7                              |
| 25 | SNAP RING         | STAINLESS STEEL                     |

CRC - Chrome Carbide Coating | QPQ - Quench-Polish-Quench Nitrocarburizing

## JBFX – Dimensional Info



| Dimensions - CL900 |     |     |       |     |    |     |       | Dimensions - CL1500 |     |       |       |      |       |      |       | Dimensions - CL2500 |     |       |       |      |       |     |       |
|--------------------|-----|-----|-------|-----|----|-----|-------|---------------------|-----|-------|-------|------|-------|------|-------|---------------------|-----|-------|-------|------|-------|-----|-------|
| SIZE               |     | A   |       | B   |    | C   |       | SIZE                |     | A     |       | B    |       | C    |       | SIZE                |     | A     |       | B    |       | C   |       |
| DN                 | NPS | mm  | in    | mm  | in | mm  | in    | DN                  | NPS | mm    | in    | mm   | in    | mm   | in    | DN                  | NPS | mm    | in    | mm   | in    | mm  | in    |
| 80                 | 3"  | 76  | 3     | 381 | 15 | 100 | 3.9   | 80                  | 3"  | 66.5  | 2.62  | 470  | 18.5  | 99.6 | 3.92  | 80                  | 3"  | 58.5  | 2.30  | 578  | 22.75 | 110 | 4.33  |
| 100                | 4"  | 92  | 3.62  | 457 | 18 | 118 | 4.64  | 100                 | 4"  | 87.4  | 3.44  | 546  | 21.5  | 127  | 5     | 100                 | 4"  | 80.0  | 3.15  | 673  | 26.5  | 150 | 5.91  |
| 150                | 6"  | 140 | 5.5   | 610 | 24 | 178 | 7     | 150                 | 6"  | 131.8 | 5.19  | 705  | 27.75 | 189  | 7.43  | 150                 | 6"  | 124.5 | 4.90  | 914  | 36    | 218 | 8.58  |
| 200                | 8"  | 183 | 7.19  | 737 | 29 | 228 | 8.97  | 200                 | 8"  | 173   | 6.81  | 832  | 32.75 | 246  | 9.69  | 200                 | 8"  | 173.0 | 6.81  | 1022 | 40.25 | 302 | 11.89 |
| 250                | 10" | 230 | 9.06  | 838 | 33 | 286 | 11.25 | 250                 | 10" | 216   | 8.5   | 991  | 39    | 303  | 11.94 | 250                 | 10" | 216.0 | 8.50  | 1270 | 50    | 371 | 14.61 |
| 300                | 12" | 273 | 10.75 | 965 | 38 | 338 | 13.29 | 300                 | 12" | 257.5 | 10.13 | 1130 | 44.5  | 360  | 14.19 | 300                 | 12" | 257.5 | 10.13 | 1422 | 56    | 443 | 17.44 |

## JBFX – Maximum Operating Pressure Rating (PSI) vs. Temperature

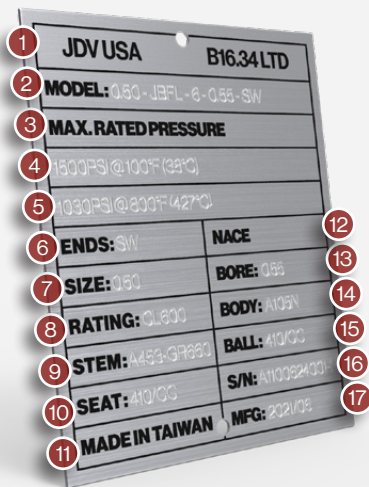
| Temp (°F)       |                  | -20° to 100° | 200°   | 300°   | 400°   | 500°  | 600°  | 650°  | 700°  | 750°  |
|-----------------|------------------|--------------|--------|--------|--------|-------|-------|-------|-------|-------|
| Temp (°C)       |                  | -29° to 38°  | 93°    | 149°   | 204°   | 260°  | 316°  | 343°  | 371°  | 399°  |
| ASME Class 900  | A105             | 2,220        | 2,035  | 1,965  | 1,900  | 1,810 | 1,705 | 1,650 | 1,590 | 1,520 |
|                 | A182 Gr.F22 Cl.3 | 2,250        | 2,250  | 2,185  | 2,115  | 1,995 | 1,815 | 1,765 | 1,705 | 1,595 |
|                 | A182 Gr.F91      | 2,250        | 2,250  | 2,185  | 2,115  | 1,995 | 1,815 | 1,765 | 1,705 | 1,595 |
| ASME Class 1500 | A105             | 3,705        | 3,395  | 3,270  | 3,170  | 3,015 | 2,840 | 2,745 | 2,655 | 2,535 |
|                 | A182 Gr.F22 Cl.3 | 3,750        | 3,750  | 3,640  | 3,530  | 3,325 | 3,025 | 2,940 | 2,840 | 2,660 |
|                 | A182 Gr.F91      | 3,750        | 3,750  | 3,640  | 3,530  | 3,325 | 3,025 | 2,940 | 2,840 | 2,660 |
| ASME Class 2500 | A105             | 6,170        | 5,655  | 5,450  | 5,280  | 5,025 | 4,730 | 4,575 | 4,425 | 4,230 |
|                 | A182 Gr.F22 Cl.3 | 6,250        | 6,250  | 6,070  | 5,880  | 5,540 | 5,040 | 4,905 | 4,730 | 4,430 |
|                 | A182 Gr.F91      | 6,250        | 6,250  | 6,070  | 5,880  | 5,540 | 5,040 | 4,905 | 4,730 | 4,430 |
| ASME Class 4500 | A105             | 11,110       | 10,185 | 9,815  | 9,505  | 9,040 | 9,515 | 8,240 | 7,960 | 7,610 |
|                 | A182 Gr.F22 Cl.3 | 11,250       | 11,250 | 10,925 | 10,585 | 9,965 | 9,070 | 8,825 | 8,515 | 7,970 |
|                 | A182 Gr.F91      | 11,250       | 11,250 | 10,925 | 10,585 | 9,965 | 9,070 | 8,825 | 8,515 | 7,970 |

| Temp (°F)       |                  | 800°  | 850°  | 900°  | 950°  | 1000° | 1050° | 1100° | 1150° | 1200° |
|-----------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Temp (°C)       |                  | 427°  | 454°  | 482°  | 510°  | 538°  | 566°  | 593°  | 621°  | 649°  |
| ASME Class 900  | A105             | 1,235 | -     | -     | -     | -     | -     | -     | -     | -     |
|                 | A182 Gr.F22 Cl.3 | 1,525 | 1,460 | 1,350 | 1,160 | 800   | 525   | 330   | -     | -     |
|                 | A182 Gr.F91      | 1,525 | 1,460 | 1,350 | 1,160 | 1,090 | 1,080 | 895   | 585   | 360   |
| ASME Class 1500 | A105             | 2,055 | -     | -     | -     | -     | -     | -     | -     | -     |
|                 | A182 Gr.F22 Cl.3 | 2,540 | 2,435 | 2,245 | 1,930 | 1,335 | 875   | 550   | -     | -     |
|                 | A182 Gr.F91      | 2,540 | 2,435 | 2,245 | 1,930 | 1,820 | 1,800 | 1,490 | 975   | 600   |
| ASME Class 2500 | A105             | 3,430 | -     | -     | -     | -     | -     | -     | -     | -     |
|                 | A182 Gr.F22 Cl.3 | 4,230 | 4,060 | 3,745 | 3,220 | 2,230 | 1,455 | 915   | -     | -     |
|                 | A182 Gr.F91      | 4,230 | 4,060 | 3,745 | 3,220 | 3,030 | 3,000 | 2,485 | 1,630 | 1,000 |
| ASME Class 4500 | A105             | 6,170 | -     | -     | -     | -     | -     | -     | -     | -     |
|                 | A182 Gr.F22 Cl.3 | 7,610 | 7,305 | 6,740 | 5,795 | 4,010 | 2,625 | 1,645 | -     | -     |
|                 | A182 Gr.F91      | 7,610 | 7,305 | 6,740 | 5,795 | 5,450 | 5,400 | 4,475 | 2,930 | 1,800 |

(1) A105 body material not recommended for prolonged use above 800 ° F / 427 ° C

(2) F22 body material not recommended for prolonged use above 1100 ° F / 593 ° C



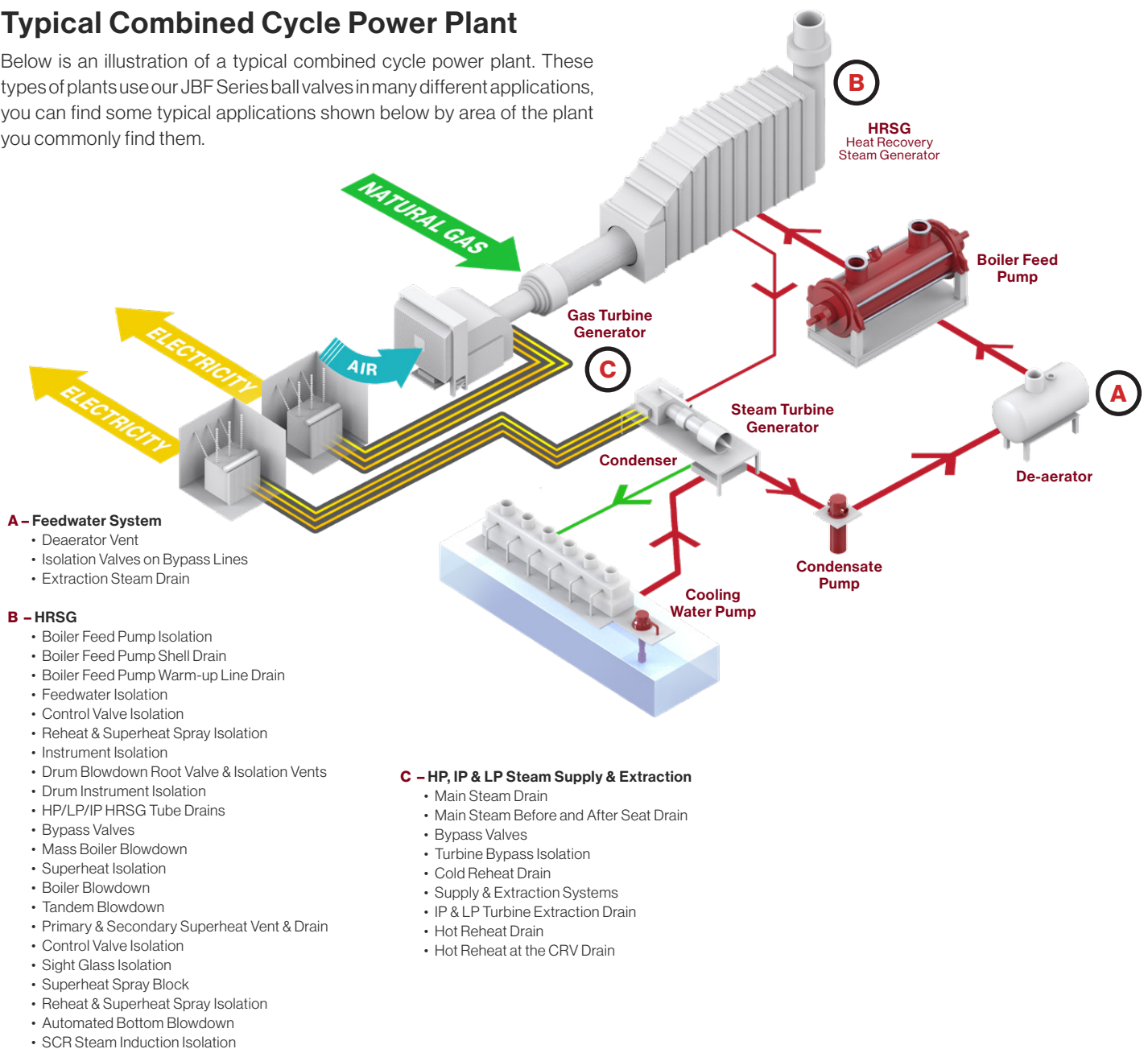


## Valve Nameplate Information

- |                                              |                            |
|----------------------------------------------|----------------------------|
| 1. Our Brand and Specifications              | 10. Seat Material          |
| 2. Model: <i>Refer to How-To-Order Guide</i> | 11. Manufacturing Location |
| 3. Max. Rated Pressure                       | 12. NACE                   |
| 4. Max. Pressure Low Temperature             | 13. Bore Size              |
| 5. Max. Pressure High Temperature            | 14. Body Material          |
| 6. End Connections                           | 15. Ball Material          |
| 7. Valve Size                                | 16. Serial Number          |
| 8. Rating                                    | 17. Manufacturing Number   |
| 9. Stem Material                             |                            |

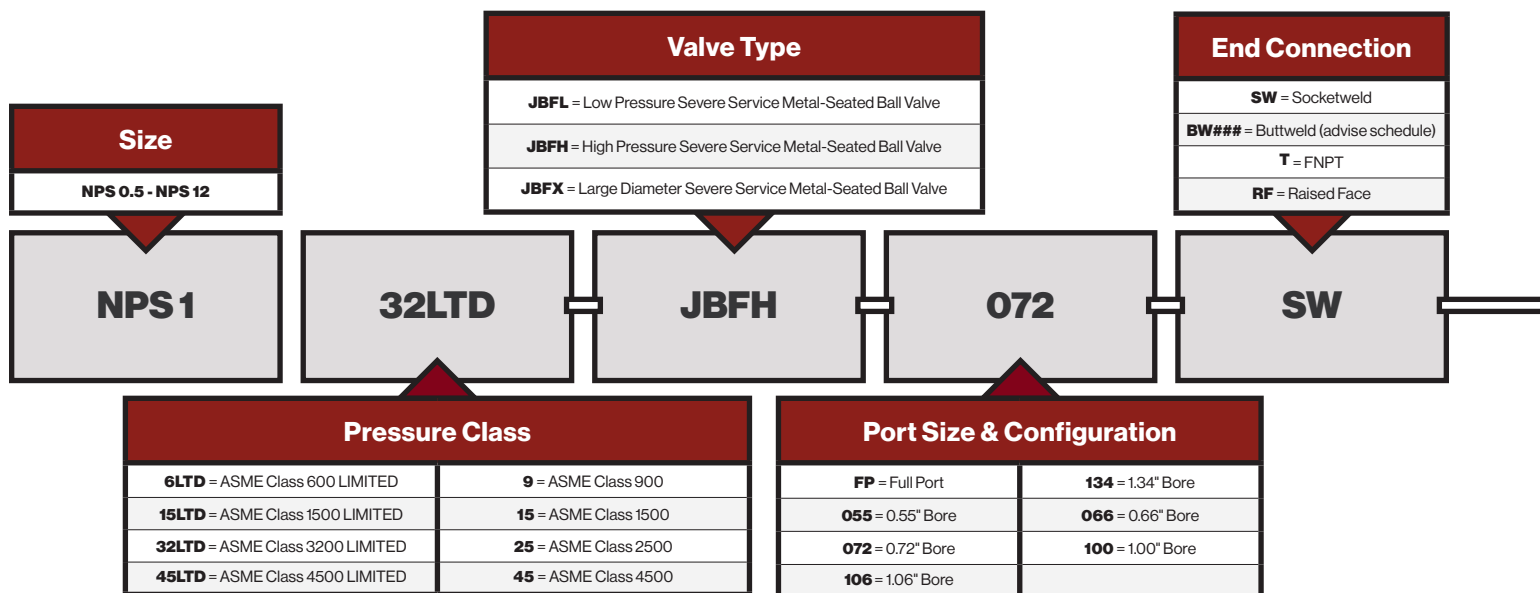
## Typical Combined Cycle Power Plant

Below is an illustration of a typical combined cycle power plant. These types of plants use our JBF Series ball valves in many different applications, you can find some typical applications shown below by area of the plant you commonly find them.



## How To Order Guide

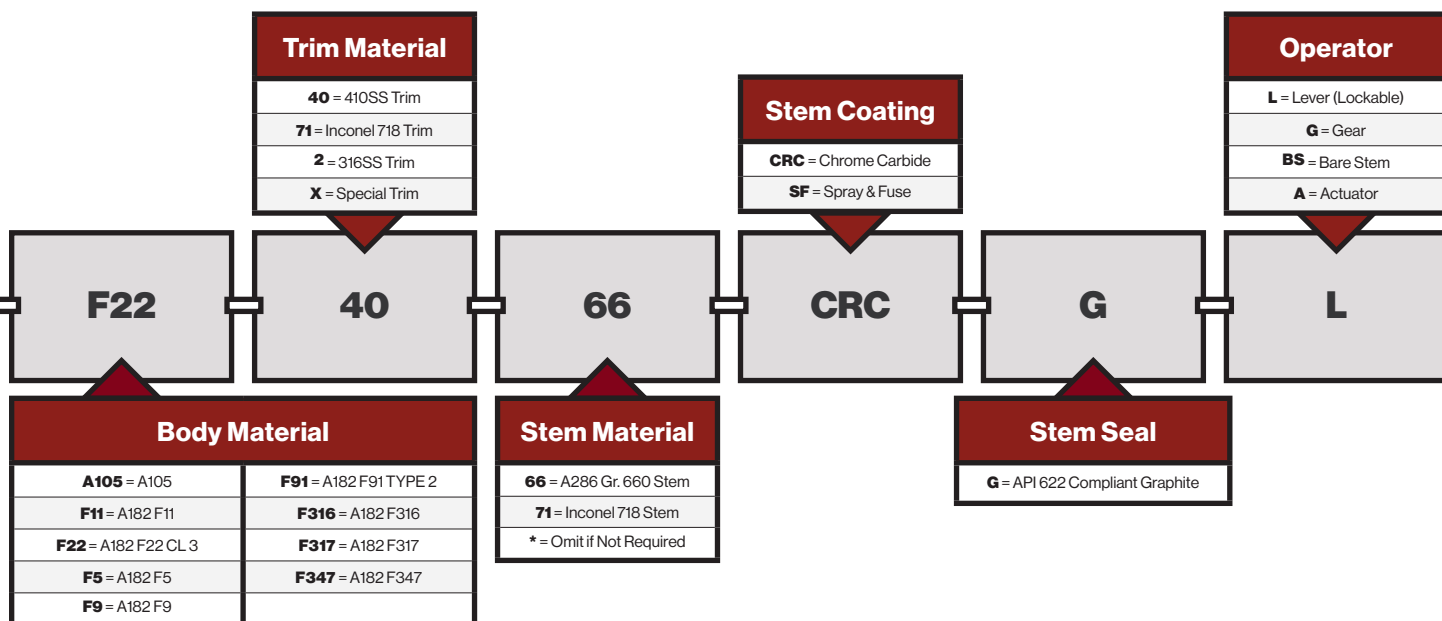
We've created an easy guide to help our customers order our severe service ball valves.



| JBF CV TABLE                |           |        |      |       |        |      |       |        |       |
|-----------------------------|-----------|--------|------|-------|--------|------|-------|--------|-------|
| JBFH CV - ASME 600-3200 LTD |           |        |      |       |        |      |       |        |       |
| BORE                        | PIPE SIZE |        |      |       |        |      |       |        |       |
|                             | 0.5       |        |      | 0.75  |        |      | 1.00  |        |       |
|                             | SCH80     | SCH160 | XXS  | SCH80 | SCH160 | XXS  | SCH80 | SCH160 | XXS   |
| 0.55                        | 13.1      | 9.1    | 1.9  | 14.3  | 15.0   | 9.1  | 13.1  | 13.8   | 15.0  |
| 0.72                        | -         | -      | -    | -     | -      | -    | 29.3  | 31.2   | 18.4  |
| 1.06                        | -         | -      | -    | -     | -      | -    | -     | -      | -     |
| 1.34                        | -         | -      | -    | -     | -      | -    | -     | -      | -     |
| JBFH CV - ASME4500 LTD      |           |        |      |       |        |      |       |        |       |
| 0.66                        | -         | -      | -    | 15.8  | 15.3   | 7.1  | 17.2  | 17.2   | 15.3  |
| 1.00                        | -         | -      | -    | -     | -      | -    | -     | -      | -     |
| JBFL CV                     |           |        |      |       |        |      |       |        |       |
| 0.55                        | 26.3      | 26.3   | 26.3 | -     | -      | -    | -     | -      | -     |
| 0.72                        | -         | -      | -    | 61.4  | 61.4   | 61.4 | -     | -      | -     |
| 1.06                        | -         | -      | -    | -     | -      | -    | 113.8 | 113.8  | 113.8 |
| 1.44                        | -         | -      | -    | -     | -      | -    | -     | -      | -     |
| 1.94                        | -         | -      | -    | -     | -      | -    | -     | -      | -     |

## NPS 1 32LTD-JBFH-072-SW-F22-40-66-CRC-G-L

**Example:** NPS 1, Class 3200 Limited, JBFH Series, 0.72" Bore, Socketweld Ends, F22 Body, 410SS Trim + Chrome Carbide Coated, A286 Gr. 660 Stem, Graphite Packing, Lever Operated



### JBF CV TABLE

#### JBFH CV - ASME 600-3200 LTD

| BORE | PIPE SIZE |        |      |       |        |       |       |        |       |
|------|-----------|--------|------|-------|--------|-------|-------|--------|-------|
|      | 1.50      |        |      | 2.00  |        |       | 2.50  |        |       |
|      | SCH80     | SCH160 | XXS  | SCH80 | SCH160 | XXS   | SCH80 | SCH160 | XXS   |
| 0.55 | -         | -      | -    | -     | -      | -     | -     | -      | -     |
| 0.72 | 30.5      | 32.0   | 34.7 | -     | -      | -     | -     | -      | -     |
| 1.06 | 52.5      | 58.5   | 73.9 | 70.6  | 73.8   | 80.1  | -     | -      | -     |
| 1.34 | -         | -      | -    | 119.9 | 138.3  | 148.6 | 122.6 | 129.9  | 150.3 |

#### JBFH CV - ASME4500 LTD

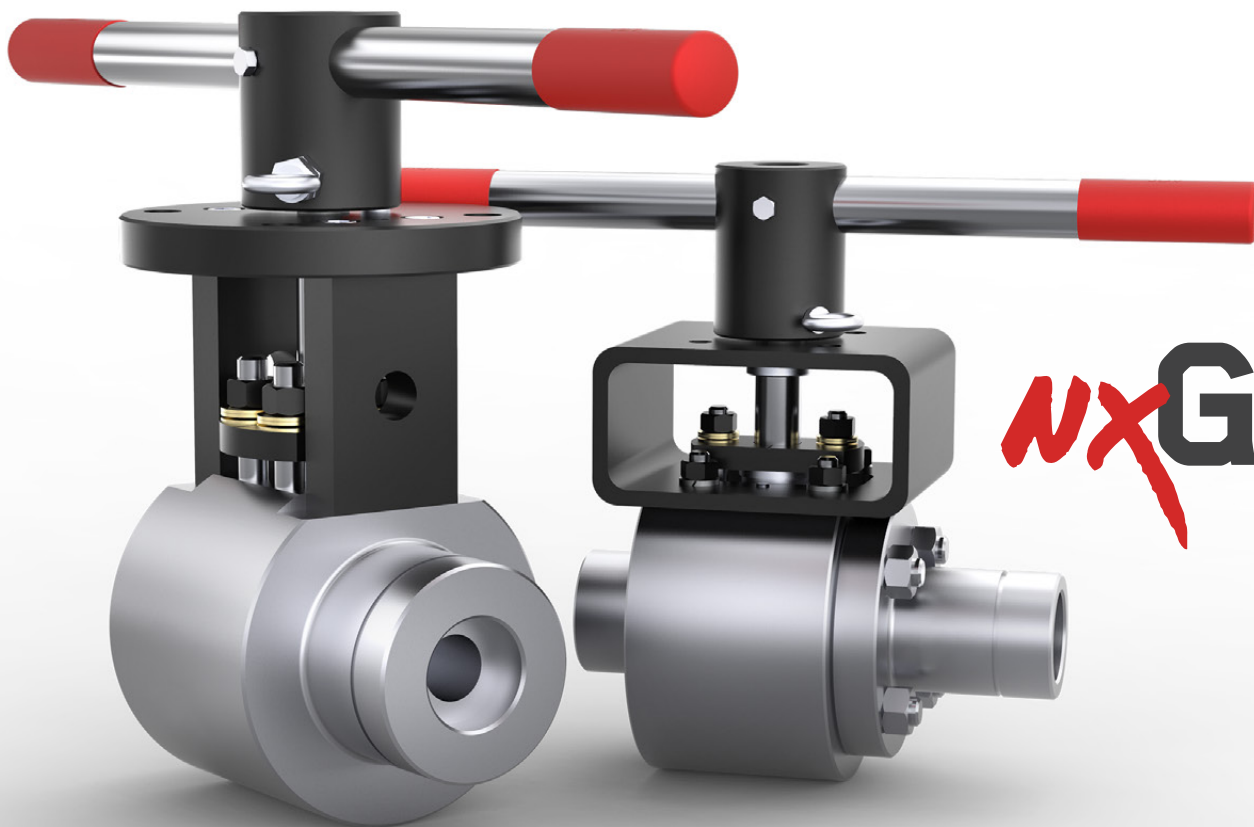
|      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|
| 0.66 | 16.3 | 17.3 | 18.4 | -    | -    | -    | -    | -    | -    |
| 1.00 | 56.3 | 61.9 | 73.3 | 59.4 | 64.7 | 68.7 | 51.7 | 57.3 | 63.6 |

#### JBFL CV

|      |     |     |     |     |     |     |   |   |   |
|------|-----|-----|-----|-----|-----|-----|---|---|---|
| 0.55 | -   | -   | -   | -   | -   | -   | - | - | - |
| 0.72 | -   | -   | -   | -   | -   | -   | - | - | - |
| 1.06 | -   | -   | -   | -   | -   | -   | - | - | - |
| 1.44 | 268 | 268 | 268 | -   | -   | -   | - | - | - |
| 1.94 | -   | -   | -   | 501 | 501 | 501 | - | - | - |



## A NEW GENERATION OF VALVES



**NX GEN**  
Valves for Power

**JDV**

JDV-MSBV-1223