

# 1/4" – 2" (DN 8 – 50) ELIMINATOR™ 2000 CWP AND ANSI CLASS 600 THREADED END BALL VALVE

The **Eliminator** ball valve, brings you the performance and design features you've been looking for – all in a single, low-cost valve.

This ball valve's unique design offers fire-test specifications, rugged actuator mounting and flexible-lip seats for application versatility that surpasses other low-cost ball valves.

The **Eliminator** ball valve is available in 1/4" – 2" (DN 8 – 50) sizes in two versions. The first is rated by the traditional approach for threaded end valves. This approach determines Cold Working Pressure (CWP) based on paragraph UG101 of the ASME Boiler and Pressure Vessel Code. Accordingly, the CWP of this series is as follows:

| Valve Size |        | CWP Rating |     |
|------------|--------|------------|-----|
| inches     | DN     | psi        | bar |
| 1/4" – 2"  | 8 – 50 | 2000       | 138 |

The second version is rated according to ANSI Standard B16.34. This rugged ANSI design meets all of the requirements of ANSI B16.34 and may be used in ANSI piping systems without compromising ANSI piping codes.

The ratings are as follows:

| Valve Size |        | ANSI Class | CWP Rating |       |
|------------|--------|------------|------------|-------|
| inches     | DN     |            | psi        | bar   |
| 1/4" – 2"  | 8 – 50 | 600        | 1480       | 102.1 |

Both designs are available in carbon and stainless steel and are rated for steam applications with Xtreme® (X), and PTFE (T) seats.

## FEATURES

### Reliable Bi-Directional Shutoff

- New **Xtreme** seat provides longer life, expanded performance boundaries and greater value.



- Polymeric flexible lip-seat design offers tight shut-off in either direction and extended cycle life with minimum maintenance.
- Available to meet ANSI Class 600 standards per B16.34, B31.1, B31.3, B31.4 and API 608.

## Fire-Tested

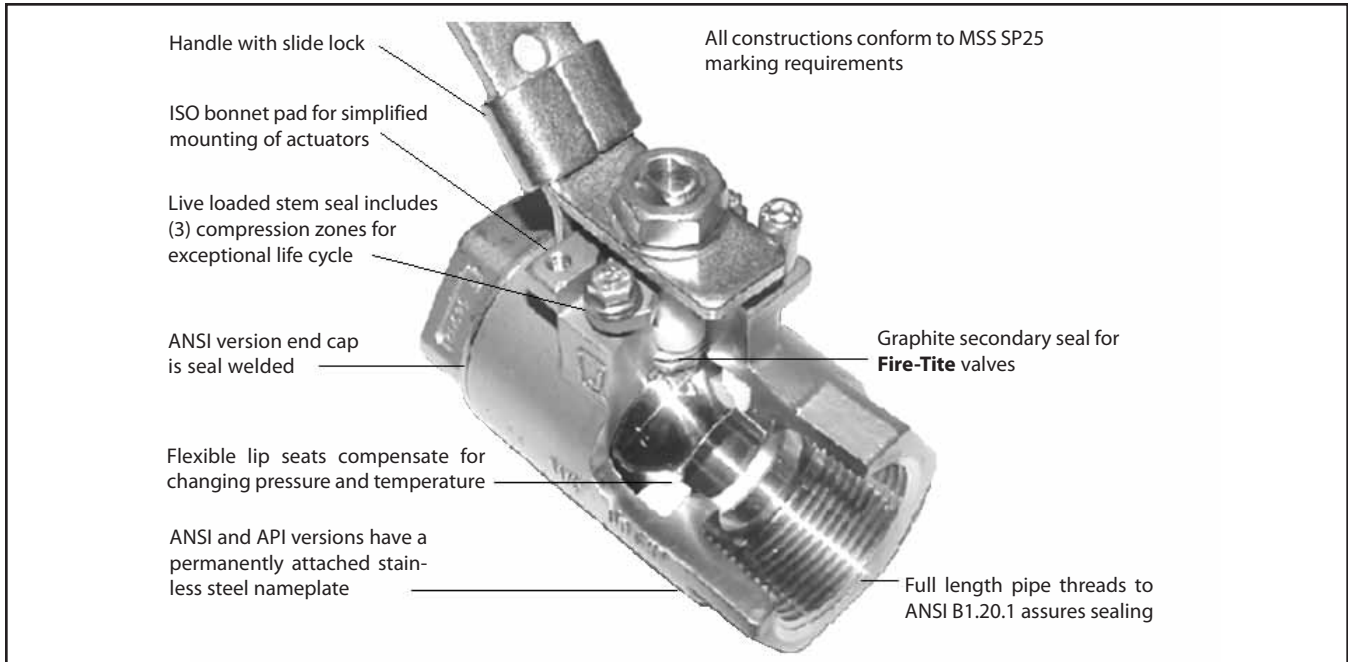
- Fire-Tite® valves meet API 607, Edition 5 requirements.
- ANSI Class valves meet API 598 requirements.

## NEW FEATURES AND BENEFITS

- New stem seal system is live loaded and engineered to assure long sealing life - patent pending.
- ISO 5211 Bonnet for global conformity.
- CE Marking option.
- New stainless steel linkage for VPVL, V-Series and ADC-Series actuators has a guided coupling to align topworks during assembly and eliminate side load stress on stem seals for long life, clean environment and reduced maintenance.

## Rugged Valve/Actuator Interface Simplifies Automation

- Jamesbury® actuators and linkage support up to a 200 lb. load in any direction without causing actuator misalignment and consequent stem seal leakage.



### XTREME PERFORMANCE & VALUE

**Xtreme** seats provide longer life, expanded performance boundaries and the greatest possible value. **Xtreme** is a unique material that resulted from a technological breakthrough in our polymer research lab. The material is a fluoropolymer based blend, proprietary to **Jamesbury** that provides superior quarter turn valve performance.

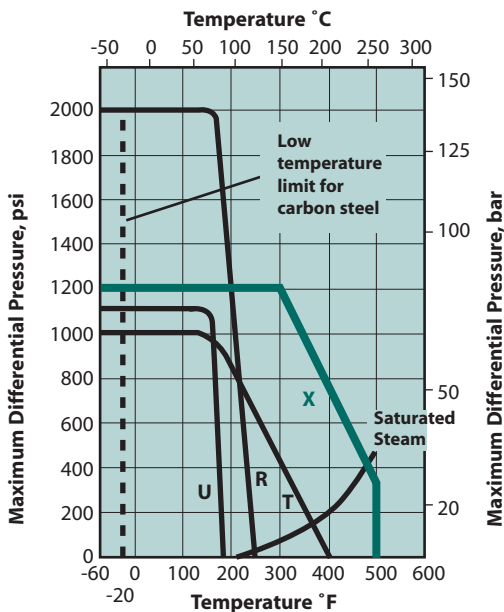
#### Valve Seat Ratings

These ratings are based on differential pressure with valve in the fully closed position and refer to seats only. Refer to valve body ratings to be sure that all components are satisfactory for the application.

#### Valve Body Ratings

These are maximum working pressure ratings of the valve body only. Valves in carbon steel are suitable for service to -20°F (-29°C), valves in 316 stainless steel to -60°F (51°C) (to -40°F with Delrin® seats). The preceding seat ratings determine the practical pressure limit. Ratings are at -20°F to +100°F (-29°C to +38°C).

#### 1 1/4" – 2" (DN 8 – 50) Standard Port

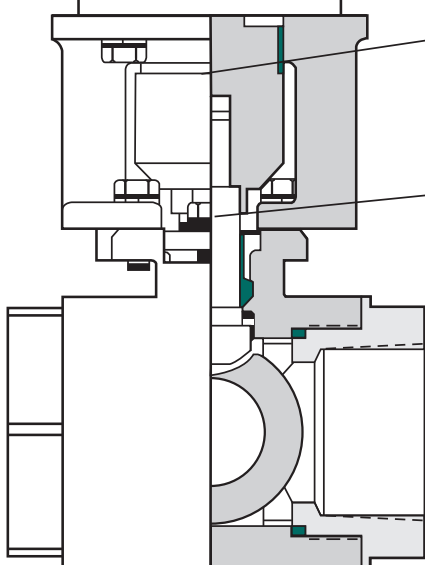
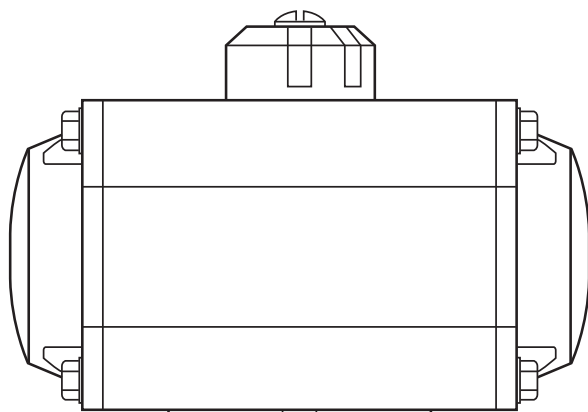


X-Xtreme T-PTFE R-Delrin  
U-UHMW Polyethylene

| Valve Size<br>inches | Working Pressure Rating - psi |           |                 |           |
|----------------------|-------------------------------|-----------|-----------------|-----------|
|                      | Carbon Steel                  |           | Stainless Steel |           |
|                      | ANSI Rated                    | CWP Rated | ANSI Rated      | CWP Rated |
| 1/4" – 2"            | 1480                          | 2000      | 1440            | 2000      |

| Valve Size<br>DN | Working Pressure Rating - bar |           |                 |           |
|------------------|-------------------------------|-----------|-----------------|-----------|
|                  | Carbon Steel                  |           | Stainless Steel |           |
|                  | ANSI Rated                    | CWP Rated | ANSI Rated      | CWP Rated |
| 8 – 50           | 102                           | 138       | 99.3            | 138       |

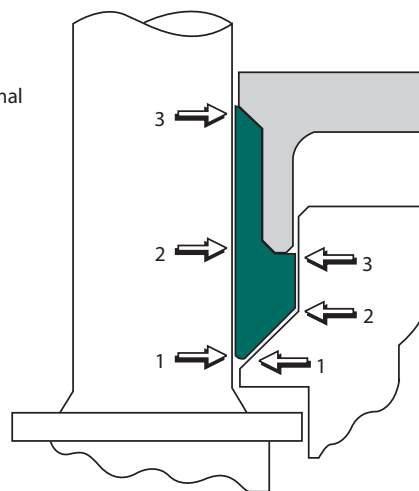
**Jamesbury 'The Ultimate Process Automation Package'  
for VPVL Pneumatic Actuators, V-Series and ADC-Series Electric Actuators**



Fully guided stem, coupling and precision bracket assures optimum form, fit and performance

Compression plate and disc springs to accommodate thermal and pressure cycles.

Patented stem seal (70017915) has 3 engineered sealing zones to provide multiple barriers for long term sealing.

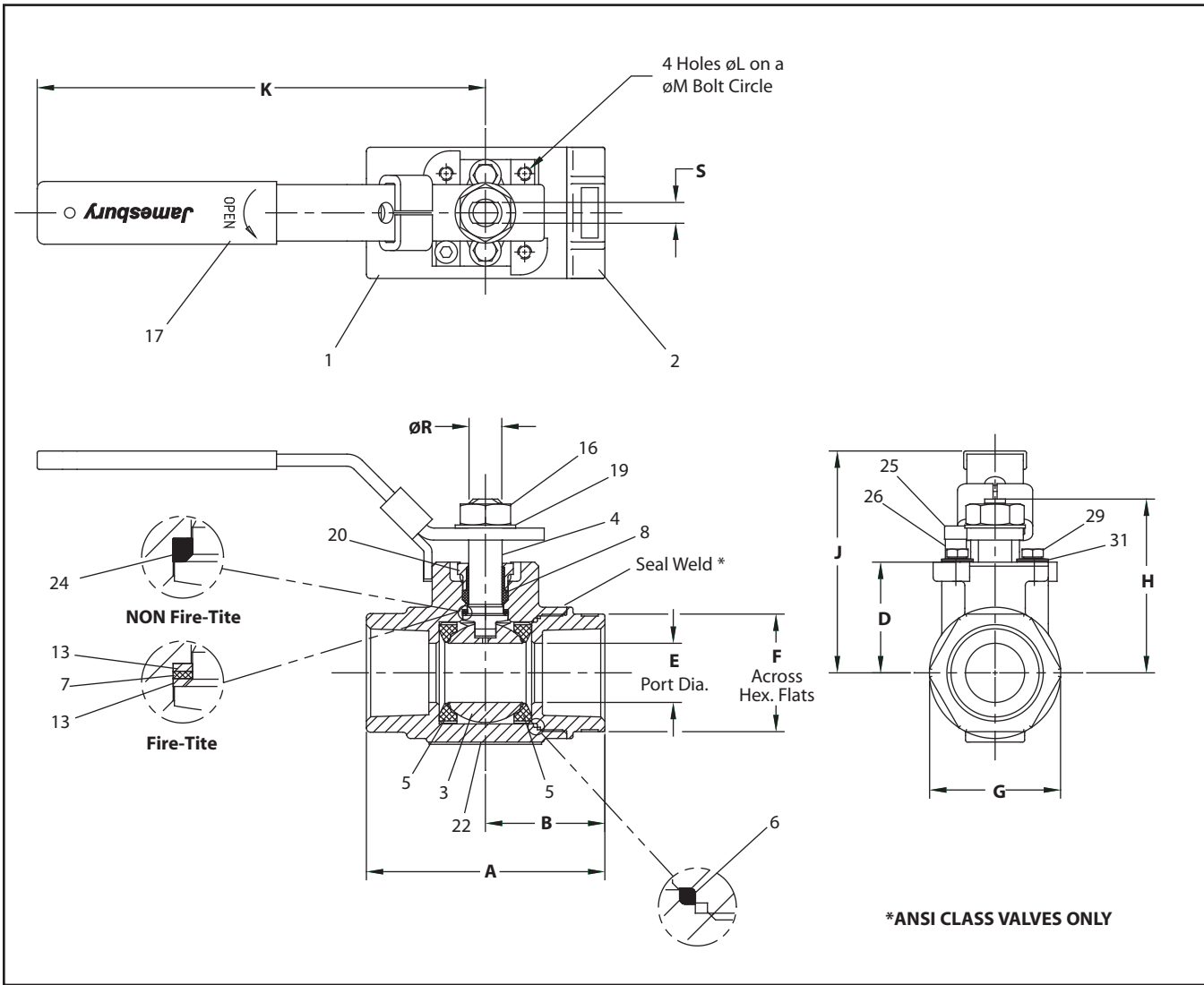


**Automation Performance and Value**

**Eliminator** valves combined with **Jamesbury** actuators, offer a total value and performance package. Available with pneumatic Valv-Powr® VPVL actuators, V-Series and ADC-Series electric actuators and with Stonel® Quartz®,

Eclipse®, and Hawkeye® digital monitors or VCTs, the packages have a wide range of applications. Visit our website at [www.metso.com/automation](http://www.metso.com/automation).

**DIMENSIONS**



| Valve Size Inches | APPROXIMATE DIMENSIONS - inches |      |      |      |      |     |      |      |      |    |      |      |      |            | Approx. Weight lbs. |
|-------------------|---------------------------------|------|------|------|------|-----|------|------|------|----|------|------|------|------------|---------------------|
|                   | A                               | B    | D    | E    | F    | G   | H    | J    | K    | L  | M    | R    | S    | ISO BONNET |                     |
| 1/4               | 2.16                            | 1.13 | 1.06 | 0.43 | 1.13 | 1.2 | 1.63 | 2.36 | 5.00 | M5 | 1.42 | 0.31 | 0.18 | F03        | 1.0                 |
| 3/8               | 2.16                            | 1.13 | 1.06 | 0.43 | 1.13 | 1.2 | 1.63 | 2.36 | 5.00 | M5 | 1.42 | 0.31 | 0.18 | F03        | 1.0                 |
| 1/2               | 2.62                            | 1.34 | 1.06 | 0.50 | 1.13 | 1.2 | 1.63 | 2.36 | 5.00 | M5 | 1.42 | 0.31 | 0.18 | F03        | 1.0                 |
| 3/4               | 3.00                            | 1.50 | 1.22 | 0.69 | 1.38 | 1.6 | 1.79 | 2.52 | 5.00 | M5 | 1.42 | 0.31 | 0.18 | F03        | 2.0                 |
| 1                 | 3.55                            | 1.78 | 1.65 | 0.88 | 1.75 | 2.0 | 2.58 | 3.29 | 6.50 | M5 | 1.65 | 0.50 | 0.31 | F04        | 3.0                 |
| 1-1/4             | 4.00                            | 2.00 | 1.78 | 1.00 | 2.00 | 2.3 | 2.71 | 3.42 | 6.50 | M5 | 1.65 | 0.50 | 0.31 | F04        | 4.0                 |
| 1-1/2             | 4.38                            | 2.19 | 2.08 | 1.25 | 2.31 | 2.7 | 3.30 | 4.27 | 8.00 | M6 | 1.97 | 0.63 | 0.37 | F05        | 5.5                 |
| 2                 | 5.50                            | 2.75 | 2.26 | 1.50 | 2.81 | 3.1 | 3.49 | 4.46 | 8.00 | M6 | 1.97 | 0.63 | 0.37 | F05        | 7.5                 |

| Valve Size DN | APPROXIMATE DIMENSIONS - mm |    |    |    |    |    |    |     |     |    |    |    |    |            | Approx. Weight kg |
|---------------|-----------------------------|----|----|----|----|----|----|-----|-----|----|----|----|----|------------|-------------------|
|               | A                           | B  | D  | E  | F  | G  | H  | J   | K   | L  | M  | R  | S  | ISO BONNET |                   |
| 08            | 55                          | 29 | 27 | 11 | 29 | 31 | 41 | 60  | 127 | M5 | 36 | 08 | 05 | F03        | .4                |
| 10            | 55                          | 29 | 27 | 11 | 29 | 31 | 41 | 60  | 127 | M5 | 36 | 08 | 05 | F03        | .4                |
| 15            | 67                          | 34 | 27 | 13 | 29 | 31 | 41 | 60  | 127 | M5 | 36 | 08 | 05 | F03        | .4                |
| 20            | 76                          | 38 | 31 | 18 | 35 | 41 | 45 | 64  | 127 | M5 | 36 | 08 | 05 | F03        | .9                |
| 25            | 90                          | 45 | 42 | 22 | 44 | 51 | 65 | 84  | 165 | M5 | 42 | 13 | 08 | F04        | 1.3               |
| 32            | 102                         | 51 | 45 | 25 | 51 | 59 | 69 | 87  | 165 | M5 | 42 | 13 | 08 | F04        | 1.8               |
| 40            | 111                         | 56 | 53 | 32 | 59 | 69 | 84 | 108 | 203 | M6 | 50 | 16 | 09 | F05        | 2.5               |
| 50            | 140                         | 70 | 57 | 38 | 71 | 79 | 89 | 113 | 203 | M6 | 50 | 16 | 09 | F05        | 3.4               |

| BILL OF MATERIALS AND PARTS LIST |                     |  |   |
|----------------------------------|---------------------|--|---|
| Part No.                         | Part Name           | Body Material  |   |
|                                  |                     | Carbon Steel (22)  | 316 Stainless Steel (36)                |
| 1                                | Body                | Carbon steel ASTM A216 Type WCB  | 316 Stainless steel ASTM A351 Type CF8M |
| 2                                | Body Cap            | Carbon steel ASTM A216 Type WCB  | 316 Stainless steel ASTM A351 Type CF8M |
| 3                                | Ball                | 316 Stainless steel  |   |
| 4                                | Stem                | 316 Stainless steel or 17-4 PH Stainless steel   |   |
| 5                                | Seat                | PTFE, <b>Xtreme</b> , Delrin®#, UHMW polyethylene, as specified                              |   |
| 6                                | Body Seal           | TFM, UHMWPE (w/UHMWPE seats) <sup>1</sup>  |   |
| 7                                | Secondary Stem Seal | Graphite*  |   |
| 8                                | Stem Seal           | PTFE, TFM® ( <b>Xtreme</b> seated valves), UHMWPE (w/UHMWPE seats)                           |   |
| 13                               | Stem Bearing        | PTFE (w/PTFE or Delrin seats), Filled PTFE (w/ <b>Xtreme</b> seats), UHMWPE (w/UHMWPE seats) |   |
| 16                               | Hex Nut             | 316 Stainless steel  |   |
| 17                               | Handle              | Carbon steel (Zinc plated)   | 300 Series Stainless steel              |
| 19                               | Lock Washer         | 300 Series Stainless steel   |   |
| 20                               | Compression Plate   | 316 Stainless steel (Monel® if chlorine)   |   |
| 22                               | Identification Tag† | 316 Stainless steel  |   |
| 25                               | Socket Cap Screw    | 316 Stainless steel  |   |
| 26                               | Handle Stop Spacer  | 316 Stainless steel  |   |
| 29                               | Hex Cap Screw       | 316 Stainless steel (Monel if chlorine or NACE)  |   |
| 31                               | Disc Springs        | Inconel  |   |

\* Item 7 not applicable in non **Fire-Tite** valves.

# Requires 17-4 PH stem

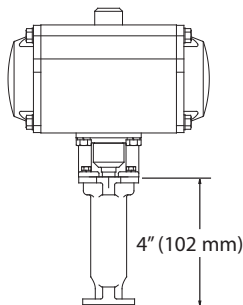
† ANSI Valves

1. ANSI rated valves use graphite body seals.

### ACCESSORIES

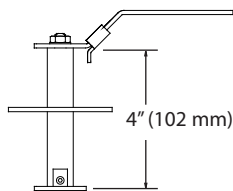
#### Bonnet Extension SE-096, 097 & 098

4" (102 mm) bonnet extensions are available for applications that require insulated pipe, particularly useful for automated products, bonnet extension can also be used to prevent interference between actuators and companion pipelines and equipment. They are ideal as extension that require locking lever or locking oval handle capability. Stainless steel construction offers the option of using the bonnet extension to enhance the carbon steel stem extension (SE-093, 094 & 095) offerings.



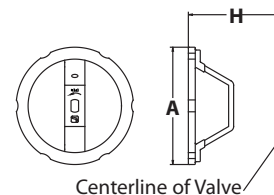
#### Stem Extensions SE-093, 094 & 095

A standard 4" (102 mm) stem extension is offered for improved accessibility, particularly when used in insulated pipelines. Stem extension kits can be ordered factory-mounted or shipped separately for field mounting.



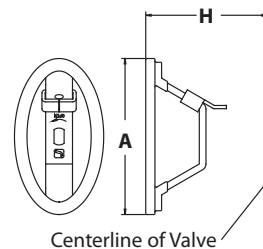
#### Round Handles

Optional round handles available. To order handles separately, specify the part number shown in the accessories table below.



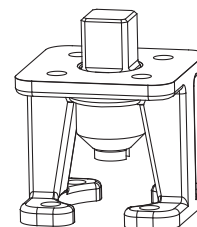
#### Oval handles with slide-lock

Optional oval handle saves space and may be pad-locked to retain the valve in the open or closed position.



#### Stainless steel linkages for Jamesbury ISO Actuators

- Self aligning
- Engineered for optimum stem seal performance



| Accessories Table - inches (DN/mm) |              |           |              |             |                   |              |                              |         |
|------------------------------------|--------------|-----------|--------------|-------------|-------------------|--------------|------------------------------|---------|
| Valve Size<br>Standard Bore        | Bonnet Ext.* | Stem Ext. | Locking Oval | Round       | Round/Oval Handle |              | Allowable Max. Torque FT•LBS |         |
|                                    |              |           |              |             | Dimension A       | Dimension H  | Round                        | Oval    |
| 1/4 - 1/2 (8 - 15)                 | SE-096       | SE-093    | 112-0108-30  | 112-0105-30 | 4.00 (101.6)      | 2.96 (75.2)  | 9 (14)                       | 9 (14)  |
| 3/4 (20)                           | SE-096       | SE-093    | 112-0108-30  | 112-0105-30 | 4.00 (101.6)      | 3.11 (79.0)  | 9 (14)                       | 9 (14)  |
| 1 (25)                             | SE-097       | SE-094    | 112-0109-30  | 112-0106-30 | 4.50 (114.3)      | 3.70 (94.0)  | 18 (25)                      | 18 (25) |
| 1-1/4 (32)                         | SE-097       | SE-094    | 112-0109-30  | 112-0106-30 | 4.50 (114.3)      | 3.83 (97.3)  | 18 (25)                      | 18 (25) |
| 1-1/2 (40)                         | SE-098       | SE-095    | 112-0110-30  | 112-0107-30 | 5.75 (146.0)      | 4.75 (120.7) | 25 (34)                      | 25 (34) |
| 2 (50)                             | SE-098       | SE-095    | 112-0110-30  | 112-0107-30 | 5.75 (146.0)      | 4.94 (125.5) | 25 (34)                      | 25 (34) |

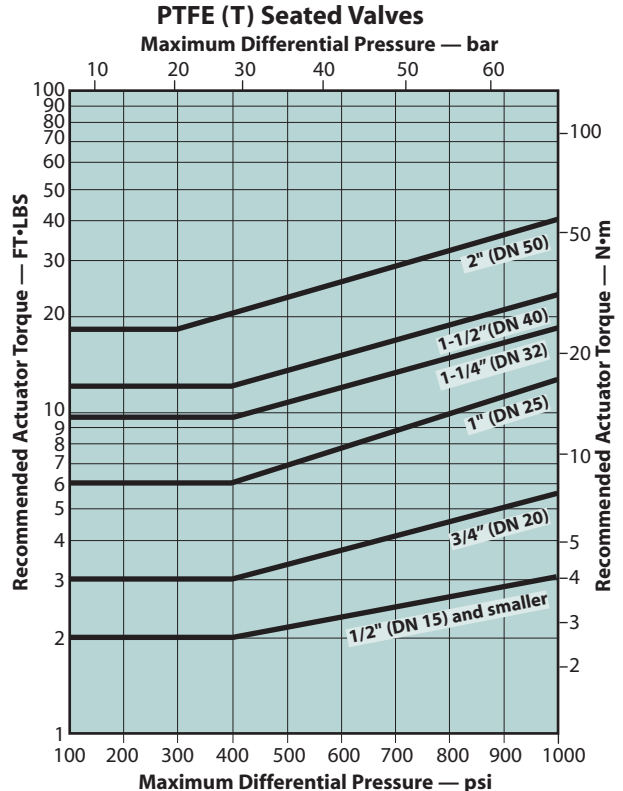
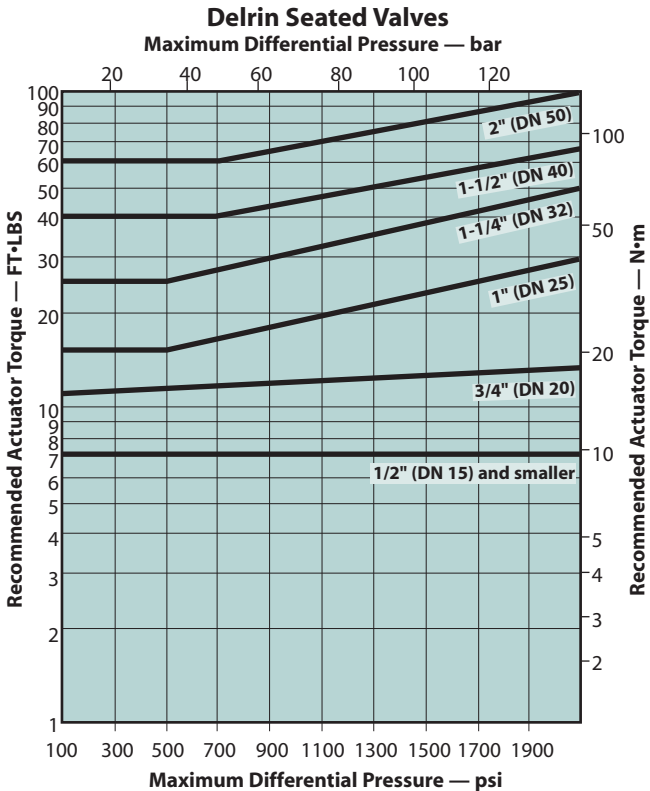
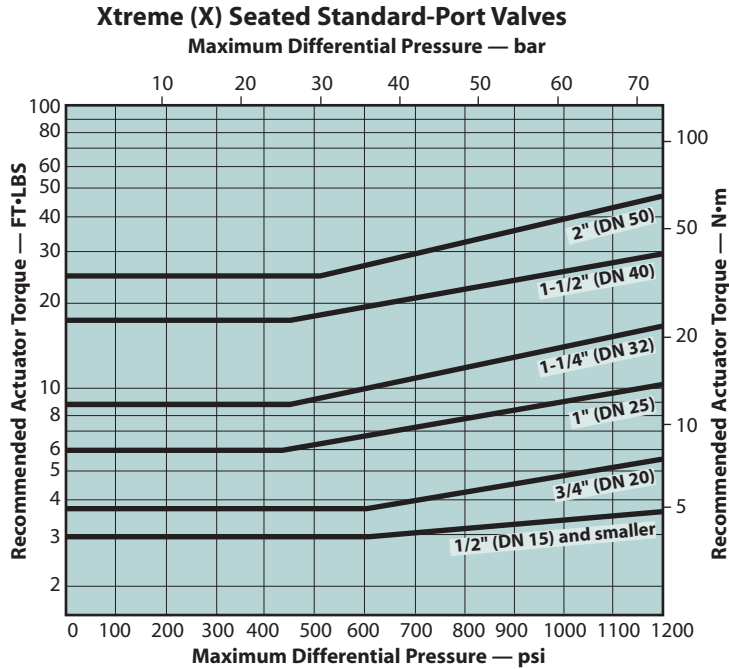
\* For valves with Delrin® seats, use bonnet extension SE-096, SE-097, SE-098

### VALVE TORQUE DATA

These torque charts for **Eliminator** valves are to be used as a guide for actuator selection. Additional requirements may be imposed by media characteristics, trim, and frequency of valve operation. For clean lubricating fluid service, required torque of **Xtreme** (X), and PTFE (T) seated valves only may be reduced 20% when the valve is equipped with

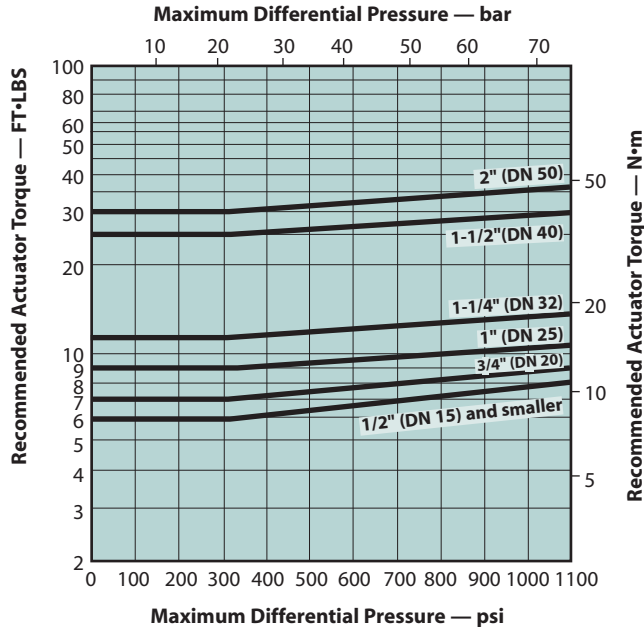
corrosion resistant trim. For difficult services such as slurries and semi-solids, and for oxygen, increase values by 50%. *If in doubt, select the larger actuator.*

Torque output values and actuator selection tables for the different types of **Jamesbury** actuators are contained in the bulletins listed on Page 7.



### VALVE TORQUE DATA (CONTINUED)

#### UHMW (U) Polyethylene Seated Standard Port Valves



#### Actuators

Metso offers a full line of integrally designed actuators for automated systems or for easier control of inaccessible or remote valves. Pneumatic actuators that include double-acting and spring-return piston, vane and rack and pinion units, spring-diaphragm types, and electric actuators are available for all valves. Electric actuators are available in both watertight and hazardous location models. For further

information on actuators for **Eliminator** valves, see the following:

#### Type

- Spring Diaphragm Rotary Actuators
- Double Opposed Piston Actuators
- V-Series Electric Actuators
- ADC-Series Electric Actuators

#### Bulletin

- A110-4
- A111-5
- A200-1
- A201-1

### STANDARDS AND SPECIFICATIONS

**Eliminator** valves are available in types that meet the following industry specifications.

| Specification     | Description   |
|-------------------|---|
| ANSI B1.20.1      | Pipe Threads  |
| ANSI B16.11       | Steel Fitting Socket Welding and Thread             |
| ANSI B16.34       | Valves-Flanged and Buttwelding Ends                 |
| ANSI B31.2        | Gas Piping  |
| ANSI B31.4        | Liquid Petroleum Piping                             |
| API 598           | Valve Inspection and Testing                        |
| API 607 Edition 5 | Fire Test for Soft-seated Valves (Div. of Refining) |

| Specification     | Description   |
|-------------------|---|
| API 608           | Metal Ball Valves, Flanged, Threaded and Welded End   |
| MSS SP-25         | Standard Marking System for Valves  |
| MSS SP-55         | Quality Standard for Steel Fittings for Valves  |
| NACE MR-0103-2003 | Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments |

#### Flow Data

The table below provides flow coefficients of reduced port **Eliminator** valves. The Cv values represent the flow of water at +60°F through the valve in gallons per minute at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1kg/cm<sup>2</sup>. To convert Cv to Kv multiply by 0.8569.

| Valve Size |    | Cv  | Equivalent length of pipe - ft. |
|------------|----|-----|---------------------------------|
| inches     | DN |     |                                 |
| 1/4        | 8  | 6   | .33                             |
| 3/8        | 10 | 10  | .61                             |
| 1/2        | 15 | 13  | 1.5                             |
| 3/4        | 20 | 33  | 1.1                             |
| 1          | 25 | 44  | 2.1                             |
| 1-1/4      | 32 | 46  | 8.4                             |
| 1-1/2      | 40 | 95  | 4.5                             |
| 2          | 50 | 111 | 12.0                            |

## HOW TO ORDER ELIMINATOR BALL VALVES

To specify a valve select the body style, the combination of body and trim material and the proper seat material for the application.

| 1     | 2  | 3 | 4 | 5  | 6  | 7  | 8 |
|-------|----|---|---|----|----|----|---|
| 1-1/2 | 9F | A | - | 22 | 36 | XT | B |

**Example:** This example is for a 1-1/2" **Fire-Tite** ANSI Class 600 NPT ball valve constructed of carbon steel body, stainless steel ball and stem, **Xtreme** seats, TFM seals, Model Code B.

| 1     | Valve Size |    |
|-------|------------|----|
|       | inches     | DN |
| 1/4   | 1/4        | 8  |
| 3/8   | 3/8        | 10 |
| 1/2   | 1/2        | 15 |
| 3/4   | 3/4        | 20 |
| 1     | 1          | 25 |
| 1-1/4 | 1-1/4      | 32 |
| 1-1/2 | 1-1/2      | 40 |
| 2     | 2          | 50 |

| 2   | Valve Size & Configuration |
|-----|----------------------------|
| 9F* | Fire-Tite Standard         |
| 9N  | Non Fire-Tite              |

| 3   | Pressure Class Conformance       |
|-----|----------------------------------|
| A*  | ANSI Class                       |
| B   | Non-ANSI-Class                   |
| M** | ANSI Class with Metric Nameplate |

| 4    | Special Application/Construction or Service           |
|------|---|
| -    | Standard  |
| O    | Oxygen ( <b>Xtreme</b> seats required)                |
| N    | NACE MR0103 (9FA with <b>Xtreme</b> seats only)       |
| C    | Chlorine ( <b>Xtreme</b> seats required)              |
| V    | High Vacuum ( <b>Xtreme</b> seats required)           |
| VC   | High Vacuum Certified ( <b>Xtreme</b> seats required) |
| TG   | Top Ground  |
| STGR | Top & Bottom Ground                                   |

| 5  | Body Material              |
|----|----------------------------|
| 22 | Carbon Steel (WCB)         |
| 36 | 316 Stainless Steel (CF8M) |

| 6  | Ball & Stem Material                               |
|----|--|
| 00 | Same material as body (Carbon steel not available) |
| 36 | 316 Stainless Steel                                |
| 71 | Monel  |
| 73 | Hastelloy C  |
| HB | 316 SS Ball/17-4PH Stem                            |

| 7                                 | Seat & Seal Material                                 |                         |
|-----------------------------------|--|-------------------------|
|                                   | Seats  | Seal (Stem & Body)      |
| <b>Standard Fire-Tite Options</b> |  |                         |
| TT                                | PTFE   | PTFE & TFM <sup>2</sup> |
| XT                                | <b>Xtreme</b>  | TFM <sup>2</sup>        |
| <b>Non Fire-Tite Options</b>      |  |                         |
| UU                                | UHMW Polyethylene                                    | UHMW PE                 |
| RT <sup>1</sup>                   | Delrin (Not for ANSI or NACE, 17-4 PH stem required) | PTFE & TFM              |

| 8 | Valve Model               |
|---|---------------------------|
| B | <b>Eliminator</b> Model B |

\* For seal welded valves specify ANSI Class (A) in box 3.

\*\* Valves larger than 1" (DN 25) are CE marked.

- 1 Not a self-relieving seat design.
- 2 Seal Welded ANSI rated valves use graphite material body seal.

Delrin® is a registered trademark of DuPont Co.

Monel® is a registered trademark of Inco

Hastelloy® is a registered trademark of Haynes International

TFM® is a registered trademark of Dyneon Co.

Subject to change without prior notice.

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