

**KTM Jacketed ball valve is fully jacketed from flange to flange designed to meet larger size flange dimensions.**

#### Features

- Full jacketed design effectively maintains the temperature of the media.
- High-pressure resistant jacket for supply of steam or cooling media up to 1.0MPa
- Reinforced PTFE bearing and packing rings reduce wear.
- Split construction of cap and seat holder simplifies maintenance.
- Superior flow characteristics
- Compact and light-weight design
- Positive position indicator
- Blow-out proof stem (100mm and larger)
- Stem seals positioned at the lowest to avoid fluid from sticking, excess torque and stem torsion.
- Various seat types are available. In addition to standard T-seat and E-seat, various seats are available in following variety. Each seat option will meet a wide range of performance, suitable for many applications.
  - PTFE: T-seat  
(standard for ASME Class150 / JIS10K)
  - PTFE / PFA Copolymer: E-seat  
(standard for ASME Class300 / JIS20K)
  - Carbon fiber filled PTFE: G-seat (option)
  - PEEK-seat (option)
  - Gratiite®-seat (option)
  - Metaltite®-seat (option)



#### General application

- Temperature-dependent viscosity fluid; heavy oil, asphalt, coal tar

#### Option

- Jacket nozzle flanges

#### Technical data

Models / Sizes : Full bore E7100  
20mm to 200mm (3/4" to 8")  
: Reduced bore E7200  
80mm to 200mm (3" to 8")  
Pressure rating : ASME Class 150, 300  
JIS 10K, 20K (JIP available)  
End connections : ASME B16.5 RF, JIS B2220  
Face to face : KTM standard  
Temperature : Soft seat -29°C to 270°C  
(Depending on options up to 500°C is available)  
Jacketed part, Max.350°C

# KTM Jacketed Ball Valves

Full bore and Reduced bore

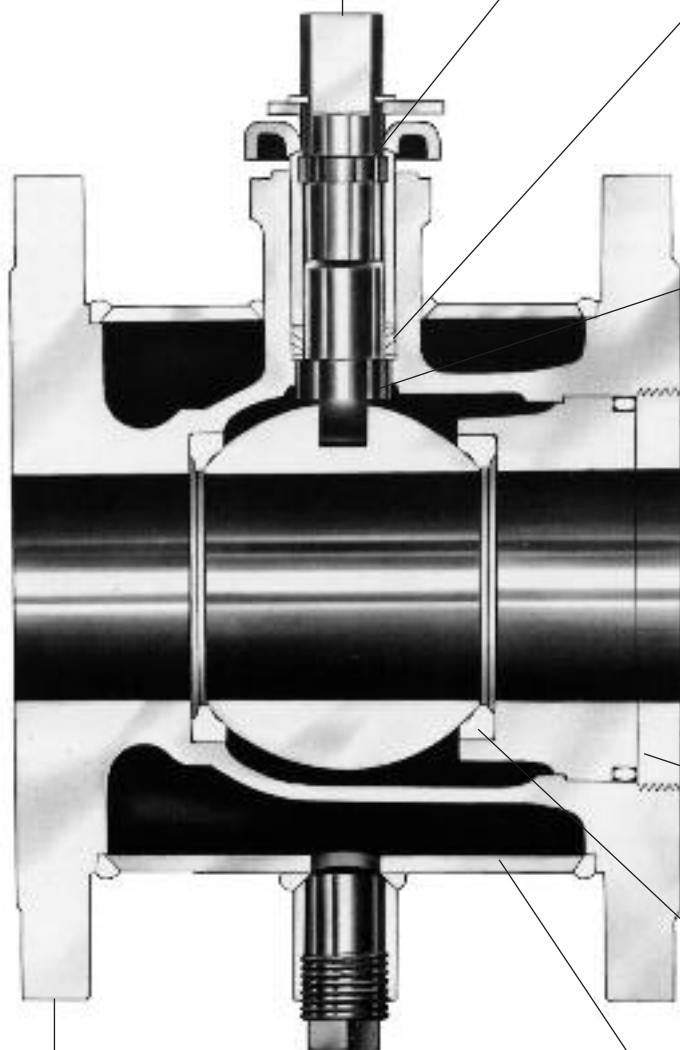
## Open-Close position

Open or closed position of the valve is shown by the lever position and stem top.

Open : parallel to the piping line

Close : right-angled in the piping line

\*A locking device at the open and shut positions can be provided to prevent unauthorized or incorrect operation.



## Reinforced PTFE Bearing

Reinforced PTFE bearing and packing rings reduce wear.

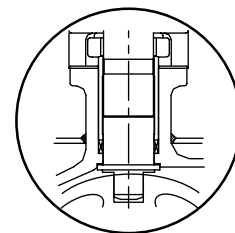
## Gland Packing

A stem packing set at lower position of the gland ensures superior sealing of the gland area and prevents media invasion and eventual malfunction of the valve.

## Blow-out Proof Stem

A flange at the lower part of the stem prevents blow out in case of abnormal pressure rise.

Applicable size : Full bore 100mm and larger  
Reduced bore 150mm and larger



## Split Body Cap

To facilitate disassembly and maintenance of the body, the body cap and seat holder are separate items.

## Seat Material

Various seat materials are available depending on the application.

- PTFE (T-Seat)
- PTFE / PFA Copolymer (E-Seat)
- PEEK Seat
- Gratite® Seat
- Metaltite® Seat

## Oversized Flange

KTM jacketed valve is designed with oversized flanges, i.e. the flange size exceeds the bore size. The end flange gaskets for piping must be selected accordingly.

## Jacket piping

Depending on the valve size two jacket connection are available: Rc<sup>3</sup>/<sub>4</sub> and Rc1 (Details as per size table page5). Flange type jacket nozzle available on request.

## Jacket

A fully welded jacket in carbon steel pipe (SGP / SS400) or optional stainless steel.  
Max. jacket pressure: 1.0MPa  
Max. jacket temperature: 350°C

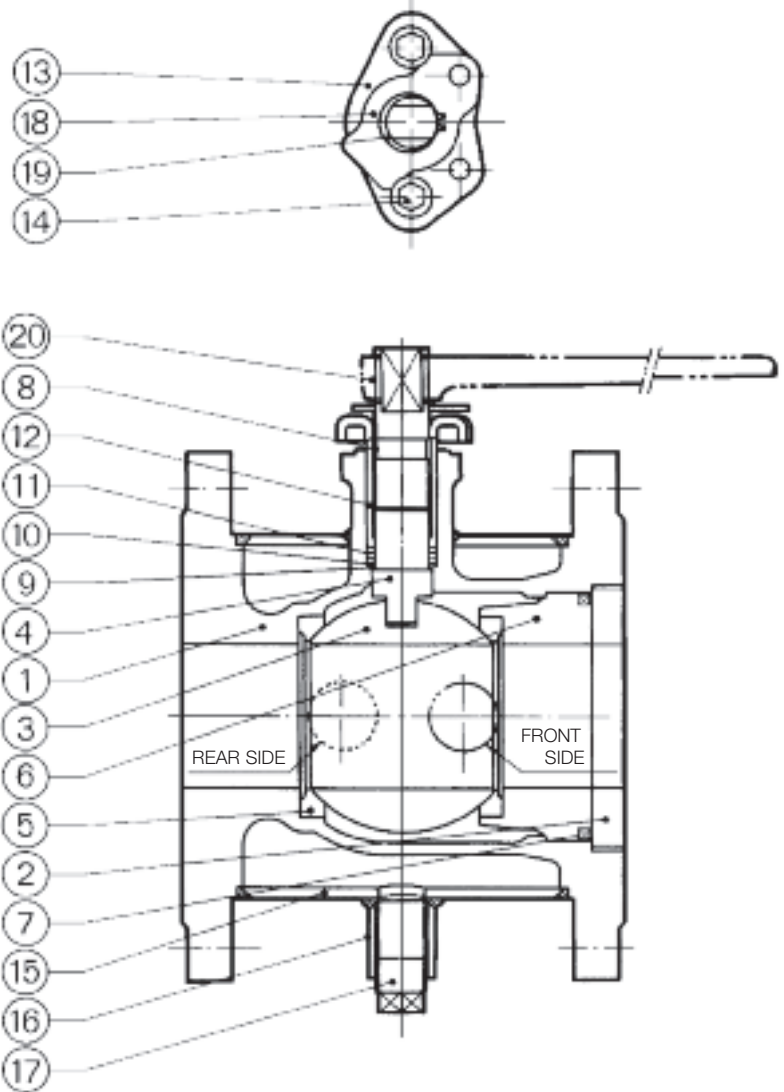
## Parts List

| No. | Parts name     |
|-----|----------------|
| 1   | Body           |
| 2   | Body Cap       |
| 3   | Ball           |
| 4   | Stem           |
| 5   | Seat           |
| 6   | Seat Holder    |
| 7   | Body Seal      |
| 8   | Stem Bearing   |
| 9   | Thrust Bearing |
| 10  | Thrust Washer* |
| 11  | Gland Packing  |
| 12  | Gland          |
| 13  | Gland Flange   |
| 14  | Gland Bolt     |
| 15  | Jacket         |
| 16  | Socket         |
| 17  | Plug           |
| 18  | Stopper        |
| 19  | Snap Ring      |
| 20  | Handle         |

\*Use for size 15mm to 80mm

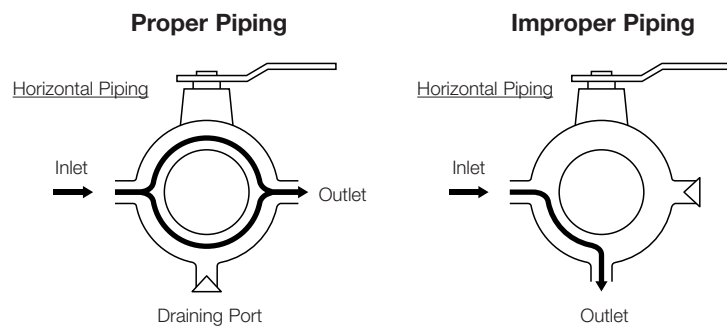
## Parts Materials

|                 |  |
|-----------------|--|
| Body            | : WCB (SCPH2)<br>CF8 (SCS13A), CF8M (SCS14A)     |
| Ball            | : CF8 (SCS13A), CF8M (SCS14A)                    |
| Stem            | : SUS304, SUS316                                 |
| Seat            | : PTFE (T-Seat)<br>PTFE / PFA Copolymer (E-Seat) |
| Packing         | : PTFE, Graphite                                 |
| Jacket Material | : SS400 (80mm, 100mm: SGP)                       |



## Piping

When piping the Jacketed ball valves, check that no foreign objects will block the inlet, outlet or draining port. Proper piping enables the steam flowed effectively to warm or chill the jacketed part.



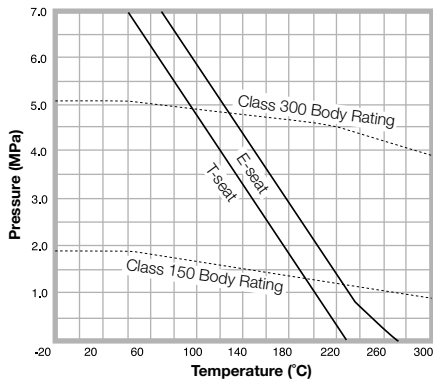
# KTM Jacketed Ball Valves

Full bore and Reduced bore

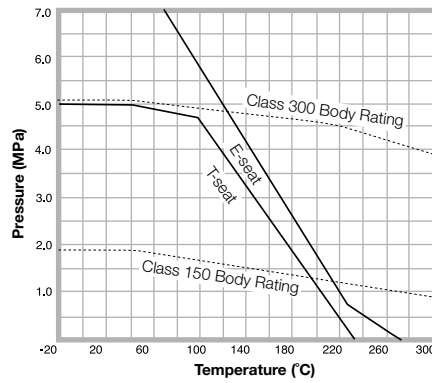
## Pressure-Temperature Rating

KTM Seat Ratings: The pressure and temperature limits of various KTM seat materials are shown below for valve sizes from 20mm to 200mm. Seat ratings for high-temperature valves with Gratite® seats are identical to ASME body ratings.

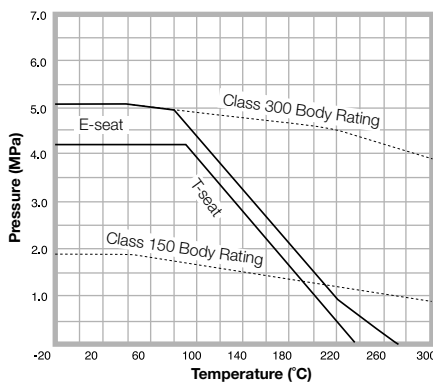
**Full Bore 20mm**



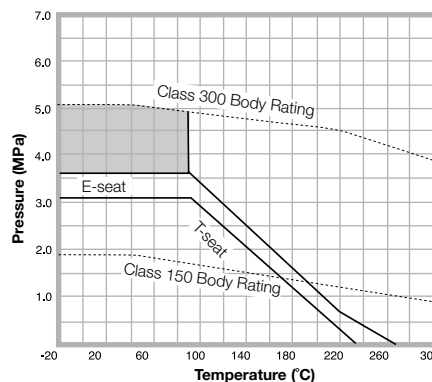
**Full Bore 25mm to 50mm  
Reduced Bore 80mm**



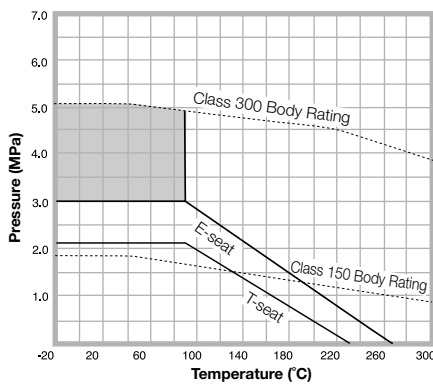
**Full Bore 80mm to 100mm  
Reduced Bore 100mm**



**Full Bore 150mm  
Reduced Bore 150mm to 200mm**



**Full Bore 200mm**



**E Seat : PTFE / PFA Copolymer  
T Seat : PTFE**

**Jacket part**

Max. Pressure : 1.0MPa  
Max. Temperature\*1 : 350°C (SS400)  
200°C (SGP\*2)

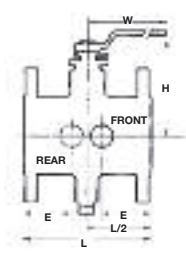
\*1. Jacket must be used under the temperature range of the using seat temperature rating.

\*2. SGP is applied to 80mm and 100mm

- If continuous service condition is in shaded area for 150mm and 200mm, please consult KTM for seat selection.
- Body rating shown in the charts conform to carbon steel (ASME B16.5 group 1.1 materials)

# KTM Jacketed Ball Valves

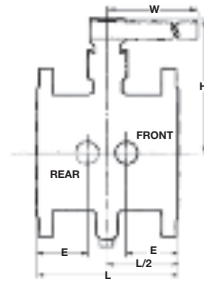
## Full bore and Reduced bore



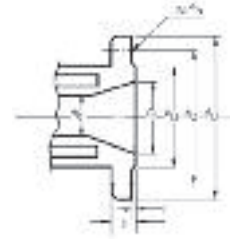
Size 20mm to 50mm



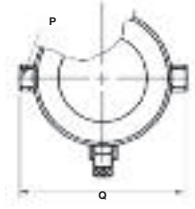
Size 80mm



Size 100mm to 200mm



Flange Ends



Jacket

### ASME Class 150 / JIS 10K Dimensions (mm)

| E7101 Full bore |                  |     |     |     |       |       |     |     |             | E7201 Reduced bore |                  |     |                |     |     |       |      |     |     |             |   |
|-----------------|------------------|-----|-----|-----|-------|-------|-----|-----|-------------|--------------------|------------------|-----|----------------|-----|-----|-------|------|-----|-----|-------------|---|
| Valve Size (mm) | Flange Size (mm) | d   | L   | H   | W     | E     | Q   | P   | Weight (kg) | Valve Size (mm)    | Flange Size (mm) | d   | d <sub>1</sub> | L   | H   | W     | E    | Q   | P   | Weight (kg) |   |
| 20              | 40               | 19  | 117 | 101 | 160   | 58.5  | 147 | 3/4 | 6           | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 25              | 50               | 25  | 127 | 106 | 160   | 63.5  | 156 | 3/4 | 8           | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 40              | 65               | 38  | 165 | 125 | 230   | 62.5  | 181 | 3/4 | 13          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 50              | 80               | 51  | 178 | 135 | 230   | 68.0  | 218 | 3/4 | 16          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 80              | 150              | 76  | 229 | 193 | 400   | 82.0  | 275 | 3/4 | 30          | 80                 | 100              | 76  | 64             | 203 | 184 | 400   | 71.5 | 275 | 3/4 | 23          |   |
| 100             | 200              | 102 | 254 | 265 | 650   | 83.0  | 300 | 3/4 | 53          | 100                | 150              | 102 | 76             | 229 | 193 | 400   | 82.0 | 300 | 3/4 | 41          |   |
| 150             | 250              | 152 | 292 | 355 | 1,053 | 95.0  | 403 | 1   | 120         | 150                | 200              | 152 | 127            | 267 | 335 | 1,053 | 83.0 | 403 | 1   | 71          |   |
| 200             | 350              | 203 | 330 | 410 | 1,414 | 100.0 | 492 | 1   | 190         | 200                | 250              | 203 | 152            | 292 | 355 | 1,053 | 95.0 | 492 | 1   | 108         |   |

### ASME Class 300 / JIS 20K Dimensions (mm)

| E7102 Full bore |                  |     |     |     |       |       |     |     |             | E7202 Reduced bore |                  |     |                |     |     |       |      |     |     |             |   |
|-----------------|------------------|-----|-----|-----|-------|-------|-----|-----|-------------|--------------------|------------------|-----|----------------|-----|-----|-------|------|-----|-----|-------------|---|
| Valve Size (mm) | Flange Size (mm) | d   | L   | H   | W     | E     | Q   | P   | Weight (kg) | Valve Size (mm)    | Flange Size (mm) | d   | d <sub>1</sub> | L   | H   | W     | E    | Q   | P   | Weight (kg) |   |
| 20              | 40               | 19  | 117 | 101 | 160   | 58.5  | 147 | 3/4 | 10          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 25              | 50               | 25  | 127 | 106 | 160   | 63.5  | 156 | 3/4 | 11          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 40              | 65               | 38  | 165 | 125 | 230   | 62.5  | 181 | 3/4 | 16          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 50              | 80               | 51  | 178 | 135 | 230   | 68.0  | 218 | 3/4 | 22          | -                  | -                | -   | -              | -   | -   | -     | -    | -   | -   | -           | - |
| 80              | 150              | 76  | 229 | 193 | 400   | 82.0  | 275 | 3/4 | 45          | 80                 | 100              | 76  | 64             | 203 | 184 | 400   | 71.5 | 275 | 3/4 | 35          |   |
| 100             | 200              | 102 | 254 | 265 | 650   | 83.0  | 300 | 3/4 | 72          | 100                | 150              | 102 | 76             | 229 | 193 | 400   | 82.0 | 300 | 3/4 | 61          |   |
| 150             | 250              | 152 | 292 | 355 | 1,053 | 95.0  | 403 | 1   | 160         | 150                | 200              | 152 | 127            | 267 | 335 | 1,053 | 83.0 | 403 | 1   | 107         |   |
| 200             | 350              | 203 | 457 | 410 | 1,414 | 100.0 | 492 | 1   | 260         | 200                | 250              | 203 | 152            | 292 | 355 | 1,053 | 95.0 | 492 | 1   | 150         |   |

### Flange Dimensions

| Valve Size (mm) | JIS 10K |     |     |    |   |    |    | JIS 20K |     |     |    |   |    |    | ASME Class 150 |       |     |      |     |    |    | ASME Class 300 |       |     |      |     |    |    |
|-----------------|---------|-----|-----|----|---|----|----|---------|-----|-----|----|---|----|----|----------------|-------|-----|------|-----|----|----|----------------|-------|-----|------|-----|----|----|
|                 | D       | C   | G   | T  | f | N  | h  | D       | C   | G   | T  | f | N  | h  | D              | C     | G   | T    | f   | N  | h  | D              | C     | G   | T    | f   | N  | h  |
| 40              | 140     | 105 | 81  | 16 | 2 | 4  | 19 | 140     | 105 | 81  | 18 | 2 | 4  | 19 | 127            | 98.5  | 73  | 14.3 | 1.6 | 4  | 16 | 156            | 114.5 | 73  | 20.7 | 1.6 | 4  | 22 |
| 50              | 155     | 120 | 96  | 16 | 2 | 4  | 19 | 155     | 120 | 96  | 18 | 2 | 8  | 19 | 152            | 121.0 | 92  | 15.9 | 1.6 | 4  | 19 | 165            | 127.0 | 92  | 22.3 | 1.6 | 8  | 19 |
| 65              | 175     | 140 | 116 | 18 | 2 | 4  | 19 | 175     | 140 | 116 | 20 | 2 | 8  | 19 | 178            | 140.0 | 105 | 17.5 | 1.6 | 4  | 19 | 190            | 149.0 | 105 | 25.4 | 1.6 | 8  | 22 |
| 80              | 185     | 150 | 126 | 18 | 2 | 8  | 19 | 200     | 160 | 132 | 22 | 2 | 8  | 23 | 190            | 153.0 | 127 | 19.1 | 1.6 | 4  | 19 | 210            | 168.0 | 127 | 28.6 | 1.6 | 8  | 22 |
| 100             | 210     | 175 | 151 | 18 | 2 | 8  | 19 | 225     | 185 | 160 | 24 | 2 | 8  | 23 | 229            | 190.5 | 157 | 23.9 | 1.6 | 8  | 19 | 254            | 200.0 | 157 | 31.8 | 1.6 | 8  | 22 |
| 150             | 280     | 240 | 212 | 22 | 2 | 8  | 23 | 305     | 260 | 230 | 28 | 2 | 12 | 25 | 279            | 242.0 | 216 | 25.4 | 1.6 | 8  | 22 | 318            | 270.0 | 216 | 36.6 | 1.6 | 12 | 22 |
| 200             | 330     | 390 | 262 | 22 | 2 | 12 | 23 | 350     | 305 | 275 | 30 | 2 | 12 | 25 | 343            | 299.0 | 270 | 28.6 | 1.6 | 8  | 22 | 381            | 330.0 | 270 | 41.3 | 1.6 | 12 | 25 |
| 250             | 400     | 355 | 324 | 24 | 2 | 12 | 25 | 430     | 380 | 345 | 34 | 2 | 12 | 27 | 406            | 362.0 | 324 | 30.2 | 1.6 | 12 | 24 | 444            | 387.5 | 324 | 47.7 | 1.6 | 16 | 29 |
| 350             | 490     | 445 | 413 | 26 | 3 | 16 | 25 | 540     | 480 | 440 | 40 | 3 | 16 | 33 | 533            | 476.0 | 413 | 35.0 | 1.6 | 12 | 29 | 584            | 514.5 | 413 | 54.0 | 1.6 | 20 | 32 |

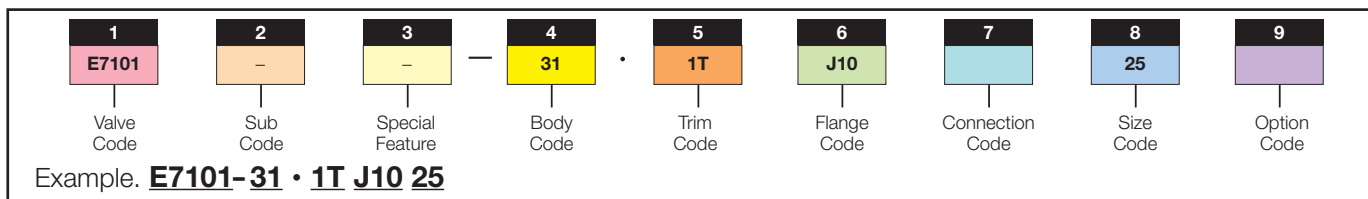
### Cv Values

| Valve Size (mm) | Full bore | Reduced bore |
|-----------------|-----------|--------------|
| 20              | 50        | -            |
| 25              | 94        | -            |
| 40              | 260       | -            |
| 50              | 480       | -            |
| 80              | 1,300     | 420          |
| 100             | 2,300     | 770          |
| 150             | 5,400     | 1,800        |
| 200             | 10,000    | 2,500        |

# KTM Jacketed Ball Valves

Full bore and Reduced bore

## KTM Model Coding System



| 1          |             |                             |
|------------|-------------|-----------------------------|
| Valve Code | Class       | Description                 |
|            | <b>ASME</b> | <b>JIS</b>                  |
| E7101      | 150         | 10K                         |
| E7102      | 300         | 20K                         |
| E7201      | 150         | 10K                         |
| E7202      | 300         | 20K                         |
|            |             | Full bore, 20mm to 200mm    |
|            |             | Full bore, 20mm to 200mm    |
|            |             | Reduced bore, 80mm to 200mm |
|            |             | Reduced bore, 80mm to 200mm |

| 2        |                 |
|----------|-----------------|
| Sub Code | Description     |
| Blank    | Soft Seat       |
| M        | Metallite® seat |
| G        | Gratite® seat   |

| 3                |                    |
|------------------|--------------------|
| Special Features | Description        |
| Blank            | No Special Feature |

| 4         |              |             |
|-----------|--------------|-------------|
| Body Code | Description  |             |
|           | <b>JIS</b>   | <b>ASTM</b> |
| 31        | SCS13A (304) | CF8 (304)   |
| 32        | SCS14A (316) | CF8M (316)  |
| 62        | SCPH2        | WCB         |

| 5               |  |   |              |                      |                              |                                      |
|-----------------|--|---|--------------|----------------------|------------------------------|--------------------------------------|
| Trim Code       | Ball   | ASTM  |              | Seat                 | Packing                      | Stem                                 |
|                 |  |   |              |                      |                              | Soft Seat                            |
| 1T              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | PTFE                 |                              | 304 <sup>1</sup> or 316 <sup>2</sup> |
| 1E              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | PTFE / PFA Copolymer | PTFE / Viton Oring           | 304 <sup>1</sup> or 316 <sup>2</sup> |
| 1G              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | R-PTFE               | or                           | 304 <sup>1</sup> or 316 <sup>2</sup> |
| 5T <sup>1</sup> | SCS14A   | CF8M  |              | PTFE                 | R-PTFE / R-PTFE              | 304 <sup>1</sup> or 316 <sup>2</sup> |
| 5E <sup>1</sup> | SCS14A   | CF8M  |              | PTFE / PFA Polymer   | (Series Temp: 160°C or less) | 304 <sup>1</sup> or 316 <sup>2</sup> |
| 5G              | SCS14A   | CF8M  |              | R-PTFE               |                              | 304 <sup>1</sup> or 316 <sup>2</sup> |
|                 |  |   |              |                      |                              | PEEK Seat                            |
| KR              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | PEEK                 | R-PTFE                       | 329J1 SS                             |
| KC              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | PEEK                 | Graphite                     | 329J1 SS                             |
|                 |  |   |              |                      |                              | Metallite® Seat                      |
| AY              | SCS13A / HCr <sup>1</sup> or SCS14A / HCr <sup>2</sup>   | CF8 / HCr <sup>1</sup> or CF8M / HCr <sup>2</sup>   | 316 Stellite | R-PTFE               |                              | 329J1 SS                             |
| BY              | SCS13A / SFNi <sup>1</sup> or SCS14A / SFNi <sup>2</sup> | CF8 / SFNi <sup>1</sup> or CF8M / SFNi <sup>2</sup> | 316 Stellite | R-PTFE               |                              | 329J1 SS                             |
| AG              | SCS13A / HCr <sup>1</sup> or SCS14A / HCr <sup>2</sup>   | CF8 / HCr <sup>1</sup> or CF8M / HCr <sup>2</sup>   | 316 Stellite | Graphite             |                              | 329J1 SS                             |
| BG              | SCS13A / SFNi <sup>1</sup> or SCS14A / SFNi <sup>2</sup> | CF8 / SFNi <sup>1</sup> or CF8M / SFNi <sup>2</sup> | 316 Stellite | Graphite             |                              | 329J1 SS                             |
| BX              | SCS13A / SFNi <sup>1</sup> or SCS14A / SFNi <sup>2</sup> | CF8 / SFNi <sup>1</sup> or CF8M / SFNi <sup>2</sup> | 316 Stellite | Graphite             |                              | Hastelloy-C                          |
|                 |  |   |              |                      |                              | Gratite® Seat                        |
| CC              | SCS13A <sup>1</sup> or SCS14A <sup>2</sup>               | CF8 <sup>1</sup> or CF8M <sup>2</sup>               |              | Hard Graphite        | Graphite                     | 329J1 SS                             |

<sup>1</sup> For Body Code 31 and 62  
<sup>2</sup> For Body Code 32 only  
 HCr : Hard chromium plating  
 SFNi : Nickel alloy overlay

| 6           |                      |
|-------------|----------------------|
| Flange Code | Description          |
|             | <b>ASME</b>          |
| A15         | ASME Class 150       |
| A30         | ASME Class 300       |
|             | <b>JIS</b>           |
| J10         | JIS 10K              |
| J20         | JIS 20K              |
|             | (JPI also available) |

| 7               |                               |
|-----------------|-------------------------------|
| Connection Code | Description                   |
| Blank           | Raised Face                   |
| SF              | Smooth Finish 125 to 250 AARH |

| 8         |     |       |
|-----------|-----|-------|
| Size Code | mm  | Inch  |
| 20        | 20  | 3/4   |
| 25        | 25  | 1     |
| 40        | 40  | 1 1/2 |
| 50        | 50  | 2     |
| 80        | 80  | 3     |
| 100       | 100 | 4     |
| 150       | 150 | 6     |
| 200       | 200 | 8     |

| 9           |                           |
|-------------|---------------------------|
| Option Code | Description               |
| Blank       | No Special Feature        |
| GG          | Packing / Gasket-Graphite |
| J1          | Flange type Jacket Nozzle |