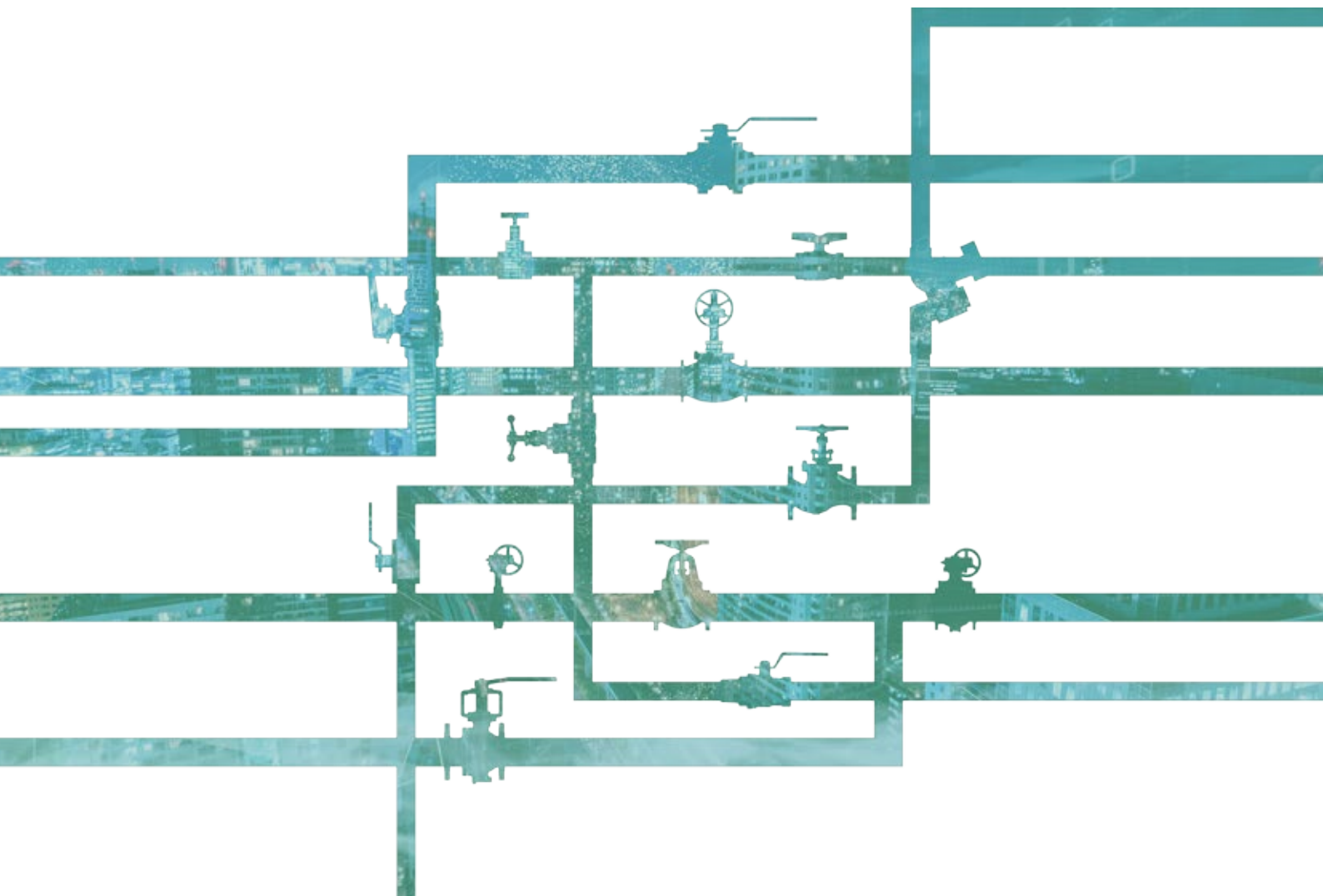


**KITZ**

GENERAL CATALOG

# Stainless Steel



INDEX

| Series     | Body Material | Type                              | Class                                        | End Connection                                          | Features/Design                              |                                              | Size Range                                               | Fig                                                      |                                               | Page                            |                      |             |                       |          |          |             |
|------------|---------------|-----------------------------------|----------------------------------------------|---------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|---------------------------------|----------------------|-------------|-----------------------|----------|----------|-------------|
| A          |               | Gate/Globe                        | 150                                          | RF                                                      | -                                            | ASME B16.34                                  | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 12^B$            | 150UMAM/150UMAMT                                         | 150UPAM/150UPAMT/<br>G-150UPAM                | SS3<br>212                      |                      |             |                       |          |          |             |
|            |               | Check                             |                                              |                                                         | Lift/Swing                                   |                                              | $\frac{1}{2}^B - 1\frac{1}{2}^B / 1\frac{1}{2}^B - 24^B$ | 150UNAM                                                  | 150UOAM                                       |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 300                                          |                                                         | -                                            |                                              | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 10^B$            | 300UMAM                                                  | 300UPAM/G-300UPAM                             |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              |                                                         | Lift/Swing                                   |                                              | $\frac{1}{2}^B - 1\frac{1}{2}^B / 1\frac{1}{2}^B - 18^B$ | 300UNAM                                                  | 300UOAM                                       |                                 |                      |             |                       |          |          |             |
| Gate/Globe | 600           | -                                 | $\frac{1}{2}^B - 12^B / \frac{1}{2}^B - 8^B$ |                                                         | 600UMAM                                      |                                              | 600UPAM/G-600UPAM                                        | SS4<br>213                                               |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               | Swing                             | $\frac{1}{2}^B - 12^B$                       |                                                         | 600UOAM                                      |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| HA         |               | Gate                              | 150/300                                      |                                                         | -                                            |                                              | API 603                                                  |                                                          | $\frac{1}{2}^B - 24^B$                        | 150UMHAM                        | 300UMHAM             |             |                       |          |          |             |
| A          |               | Gate/Globe                        | 10K                                          |                                                         | -                                            |                                              | ASME B16.34                                              |                                                          | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 12^B$ | 10UMA/10UMAT                    | 10UPA/10UPAT/G-10UPA | SS5<br>214  |                       |          |          |             |
|            |               | Check                             |                                              |                                                         |                                              | Lift/Swing                                   |                                                          | $\frac{1}{2}^B - 1\frac{1}{2}^B / 1\frac{1}{2}^B - 24^B$ | 10UNA                                         | 10UOA                           |                      |             |                       |          |          |             |
|            |               | Strainer                          |                                              |                                                         |                                              | -                                            |                                                          | $2\frac{1}{2}^B - 24^B$                                  | 10UYA                                         |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        |                                              |                                                         | 20K                                          | -                                            |                                                          | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 10^B$            | 20UMA/20UMAT                                  | 20UPA/20UPAT/G-20UPA            |                      |             |                       |          |          |             |
|            |               | Check                             |                                              |                                                         |                                              | Lift/Swing                                   |                                                          | $\frac{1}{2}^B - 1\frac{1}{2}^B / 1\frac{1}{2}^B - 18^B$ | 20UNA                                         | 20UOA                           |                      |             |                       |          |          |             |
|            |               | Strainer                          |                                              |                                                         |                                              | -                                            |                                                          | $\frac{1}{2}^B - 12^B$                                   | 20UYA                                         |                                 |                      |             |                       |          |          |             |
|            |               | Globe                             | 150                                          |                                                         |                                              | Bellows Seal                                 |                                                          | $\frac{1}{2}^B - 6^B$                                    | 150UPAWM                                      | 150UPDAWM<br>(Soft Seated/PTFE) | SS7<br>216           |             |                       |          |          |             |
|            |               |                                   | 300                                          |                                                         | 300UPAWM                                     |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               |                                   | 10K                                          |                                                         | 10UPAW                                       |                                              | 10UPDA/G-10UPDA<br>(Soft Seated/PTFE)                    |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               |                                   | 10K/20K                                      | 10UPDAW (Soft Seated/PTFE)                              | 20UPAW                                       |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| AJ         |               | Gate/Globe                        | 150                                          | -                                                       |                                              | $\frac{1}{2}^B - 6^B / \frac{1}{2}^B - 4^B$  | 150UMAJM                                                 | 150UPAJM                                                 | SS8<br>217                                    |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Lift / Swing                                            | $\frac{1}{2}^B - 1\frac{1}{2}^B / 2^B - 6^B$ | 150UNAJM                                     | 150UOAJM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 300                                          | -                                                       | $\frac{1}{2}^B - 6^B / \frac{1}{2}^B - 4^B$  | 300UMAJM                                     | 300UPAJM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Lift / Swing                                            | $\frac{1}{2}^B - 1\frac{1}{2}^B / 2^B - 6^B$ | 300UNAJM                                     | 300UOAJM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 10K                                          | -                                                       | $\frac{1}{2}^B - 6^B / \frac{1}{2}^B - 4^B$  | 10UMAJ                                       | 10UPAJ                                                   | SS9<br>218                                               |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Lift / Swing                                            | $\frac{1}{2}^B - 1\frac{1}{2}^B / 2^B - 6^B$ | 10UNAJ                                       | 10UOAJ                                                   |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 20K                                          | -                                                       | $\frac{1}{2}^B - 6^B / \frac{1}{2}^B - 4^B$  | 20UMAJ                                       | 20UPAJ                                                   |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Lift / Swing                                            | $\frac{1}{2}^B - 1\frac{1}{2}^B / 2^B - 6^B$ | 20UNAJ                                       | 20UOAJ                                                   |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| C          | SS            | Gate/Globe                        | 150                                          | -                                                       | API 600/ISO 10434/<br>BS 1873                | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 8^B$ | 150UMCM                                                  | 150UPCM                                                  | SS10<br>219                                   |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Swing                                                   | BS1868                                       | $\frac{1}{2}^B - 24^B$                       | 150UOCM                                                  |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 300                                          | -                                                       | API 600/ISO 10434/<br>BS 1873                | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 8^B$ | 300UMCM                                                  | 300UPCM                                                  |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Swing                                                   | BS1868                                       | $\frac{1}{2}^B - 24^B$                       | 300UOCM                                                  |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 600                                          | -                                                       | API 600/ISO 10434/<br>BS 1873                | $\frac{1}{2}^B - 12^B / \frac{1}{2}^B - 8^B$ | 600UMCM                                                  | 600UPCM/G-600UPCM                                        | SS11<br>220                                   |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Swing                                                   | BS1868                                       | $\frac{1}{2}^B - 12^B$                       | 600UOCM                                                  |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 900                                          | -                                                       | API 600/ISO 10434/<br>BS 1873                | $2^B - 12^B / 3^B - 8^B$                     | 900UMCM                                                  | 900UPCM/G-900UPCM                                        |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | Swing                                                   | BS1868                                       | $3^B - 8^B$                                  | 900UOCM                                                  |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate/Globe                        | 1500                                         | -                                                       | API 600/ISO 10434/<br>BS 1873                | $2^B - 8^B / 1^B - 8^B$                      | 1500UMCM                                                 | 1500UPCM/G-1500UPCM                                      | SS12<br>221                                   |                                 |                      |             |                       |          |          |             |
|            |               | Check                             |                                              | -                                                       | BS1868                                       | $2^B - 6^B$                                  | 1500UOCM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Check                             | 150/300                                      | Swing, Internal Hinge Pin                               | API 594/BS 1868                              | $2^B - 12^B$                                 | 150UOCHM                                                 | 300UOCHM                                                 |                                               |                                 |                      |             |                       |          |          |             |
|            |               |                                   | 600                                          |                                                         |                                              |                                              | 600UOCHM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | A                                 |                                              | Gate/Globe                                              | 150                                          | Category II,<br>(-104°C /-155°F )            | ASME B16.34                                              | $\frac{1}{2}^B - 16^B / \frac{1}{2}^B - 8^B$             | 150UMAXY/G-150UMAXY                           | 150UPAXY/G-150UPAXY             | SS13<br>222          |             |                       |          |          |             |
|            |               |                                   |                                              | Check                                                   |                                              |                                              |                                                          | $1\frac{1}{2}^B - 16^B$                                  | 150UOAXY                                      |                                 |                      |             |                       |          |          |             |
| Gate/Globe | 300           |                                   |                                              | $\frac{1}{2}^B - 14^B / \frac{1}{2}^B - 8^B$            | 300UMAXY/G-300UMAXY                          |                                              |                                                          | 300UPAXY/G-300UPAXY                                      |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              | $1\frac{1}{2}^B - 12^B$                                 | 300UOAXY                                     |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Gate       | 150/300       | Category III,<br>(-196°C /-51°F ) | ASME B16.34                                  | $2^B - 24^B$                                            | 150UMALMY/G-150UMALMY                        |                                              |                                                          | 300UMALMY/G-300UMALMY                                    | SS14<br>223                                   |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              | $2^B - 12^B$                                            | 600UMALMY/G-600UMALMY                        |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Gate/Globe | 150           |                                   |                                              | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 8^B$            | 150UMCLMY/G-150UMCLMY                        |                                              |                                                          | 150UPCLMY/G-150UPCLMY                                    |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              | $\frac{1}{2}^B - 24^B$                                  | 150UOCLMY                                    |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Gate/Globe | 300           |                                   |                                              | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 8^B$            | 300UMCLMY/G-300UMCLMY                        |                                              | 300UPCLMY/G-300UPCLMY                                    | SS15<br>224                                              |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              | $\frac{1}{2}^B - 24^B$                                  | 300UOCLMY                                    |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Gate/Globe | 600           |                                   |                                              | $\frac{1}{2}^B - 24^B / \frac{1}{2}^B - 8^B$            | 600UMCLMY/G-600UMCLMY                        |                                              | 600UPCLMY/G-600UPCLMY                                    |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              | $1^B - 12^B$                                            | 600UOCLMY                                    |                                              |                                                          |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| C          |               | Globe                             | 150/300                                      | API 623<br>(ASME B16.34,<br>MSS SP-134,<br>ISO 28921-1) |                                              |                                              | $2^B - 8^B$                                              | 150UPCRLMD/G-150UPCRLMD                                  | 300UPCRLMD/G-300UPCRLMD                       | SS16<br>225                     |                      |             |                       |          |          |             |
|            |               |                                   | 600                                          |                                                         |                                              |                                              |                                                          | 600UPCRLMD/G-600UPCRLMD                                  |                                               |                                 |                      |             |                       |          |          |             |
|            |               | D                                 |                                              |                                                         |                                              |                                              |                                                          | Gate/Globe                                               | 150                                           | TE                              | -                    | ASME B16.34 | $\frac{1}{2}^B - 2^B$ | AK150UMM | AK150UPM | SS17<br>226 |
|            |               |                                   |                                              |                                                         |                                              |                                              |                                                          | Check                                                    |                                               |                                 |                      |             |                       | -        | AK150UOM |             |
| Gate/Globe | 300           |                                   |                                              | SW                                                      | -                                            | AW150UMM                                     | AW150UPM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              |                                                         |                                              | -                                            | AW150UOM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Gate/Globe |               |                                   |                                              | 600                                                     | TE                                           | -                                            | AK300UMM                                                 | AK300UPM                                                 | SS18<br>227                                   |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              |                                                         |                                              |                                              | -                                                        | AK300UOM                                                 |                                               |                                 |                      |             |                       |          |          |             |
| Gate/Globe | SW            |                                   |                                              |                                                         | -                                            | AW300UMM                                     | AW300UPM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
| Check      |               |                                   |                                              |                                                         |                                              | -                                            | AW300UOM                                                 |                                                          |                                               |                                 |                      |             |                       |          |          |             |
|            |               | Gate                              |                                              | TE/SW                                                   | -                                            |                                              | AK600UMM                                                 | AW600UMM                                                 | SS19<br>228                                   |                                 |                      |             |                       |          |          |             |

\*(Abbreviation) TE: Threaded Ends, FE: Flanged Ends, RF: Raised Face Ends, SW: Socket Welding Ends

# PRODUCT CODING

## Stainless & High Alloy Steel Valves

(Note: Some products do not follow this coding system)

**G** - **W** **150** **U** **M** **C** **L** **M** **Y**

1 2 3 4 5 6 7 8 9

### 1 Operation

None ..... Manual Handwheel  
G ..... Gear

### 2 End Connection

None ..... RF Flanged Ends  
W ..... Butt Welding Ends  
AK ..... Threaded Ends (NPT)  
AW ..... Socket Welding Ends

### 3 Pressure Class

10 ..... 10K  
20 ..... 20K  
150 ..... Class 150  
300 ..... Class 300  
600 ..... Class 600  
900 ..... Class 900  
1500 ..... Class 1500

### 4 Shell Material Code

U ..... Stainless/High Alloy

### 5 Valve Type

M ..... Gate  
P ..... Globe  
PD ..... Soft Seated Globe  
O ..... Swing Check  
N ..... Lift Check  
Y ..... Strainer

### 6 Valve Design Code Series

None ..... Series D  
A ..... Series A  
HA ..... Series HA  
C ..... Series C

### 7 Special Design

None ..... Standard  
W ..... Bellows Seal Globe  
H ..... Internal Hinge Pin Swing Check  
X ..... -104°C Service  
L ..... -196°C Service  
J ..... Jacketed

### 8 Shell Material

None ..... CF8 (304)  
M ..... CF8M (316)  
O ..... CF3M (316L)  
V ..... CF3 (304L)  
CB ..... CF8C (321)  
CG ..... CG8M (317)  
CK ..... CK20 (310)  
SD ..... Super Duplex  
CN ..... CN7M (Alloy20)  
HB ..... N-12MV (Hastelloy B)  
HC ..... CW-12MW (Hastelloy C)

### 9 Body/Disc Seat Surface Material

None ..... Same as Shell Material  
D ..... Disc Seat Surface HF  
B ..... Body Seat Surface HF  
Y ..... Both Seat Surface HF

Note: Product codes suffixed "T" stands for valves provided with ceramic filled PTFE gaskets & PTFE packings. (Ex. 10UAMT, 10UPAMT etc)

## Design Specification

### Stainless & High Alloy Steel Valves

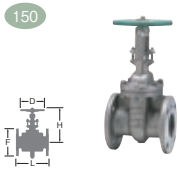
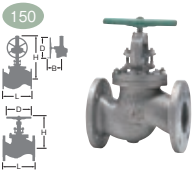
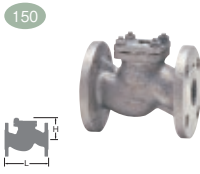
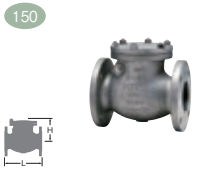
| Series                                   | A                                                                   | HA                  | C                                                                                     | D             |
|------------------------------------------|---------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------|---------------|
| Shell Wall Thickness & Valve Design      | ASME B16.34                                                         | API 603             | API 600/ISO 10434 (Gate)<br>BS1873/API623*1 (Globe)<br>BS 1868/API594*2 (Swing check) | ASME B16.34   |
| P-T Rating                               | ASME B16.34 (JIS B2220 for 10K & 20K)                               |                     |                                                                                       | ASME B16.34   |
| Face to Face Dimension                   | ASME B16.10 (JIS B2002 for 10K & 20K, KITZ Std for Jacketed valves) |                     |                                                                                       | KITZ Standard |
| Flanged Ends Dimension                   | ASME B16.5*3 (JIS B2220 for 10K & 20K)                              |                     |                                                                                       | -             |
| Butt or Socket Welding Ends Dimension    | -                                                                   |                     | ASME B16.25, ISO10434(Gate),<br>BS1873(Globe)/1868(Check)                             | ASME B16.11   |
| Threaded Ends Dimension                  | -                                                                   |                     |                                                                                       | ASME B1.20.1  |
| Pressure Test                            | API 598/ISO 5208                                                    |                     |                                                                                       |               |
| Fugitive Emission Test (Up to Class 600) | ISO 15848-1                                                         | API 624/ISO 15848-1 |                                                                                       | -             |
| Cryogenic/Low Temperature Test*4         | ISO 28921-1                                                         | -                   | ISO 28921-1                                                                           | -             |

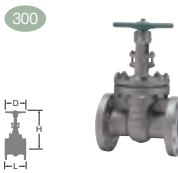
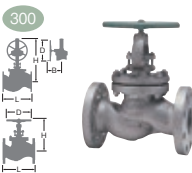
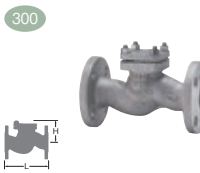
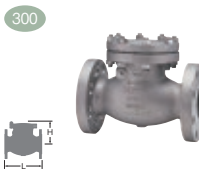
\*1 API623 is for 150/300/600UPCRLM only

\*2 API594 is for Internal Hinge Pin Swing Check only

\*3 Pipe Connection Dimensions shall be indicated in millimeters converted from dimensions in inches according to ASME B16.5

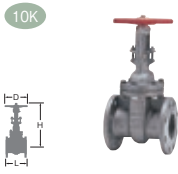
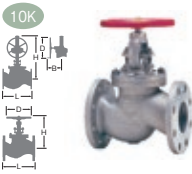
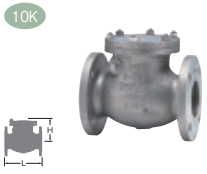
\*4 For X, L (Cryogenic Service Valves)

| Type                                                       | A Series (Gate)                                                                   |     |      |     |  | A Series (Globe)                                                                  |      |     |     |  | A Series (Lift Check)                                                              |    |   | A Series (Swing Check)                                                              |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|--|-----------------------------------------------------------------------------------|------|-----|-----|--|------------------------------------------------------------------------------------|----|---|-------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |  |      |     |     |  |  |    |   |  |     |   |
| Fig                                                        | 150UMAM/150UMAMT                                                                  |     |      |     |  | 150UPAM/150UPAMT/G-150UPAM                                                        |      |     |     |  | 150UNAM                                                                            |    |   | 150UOAM                                                                             |     |   |
| End Connection                                             | ASME B16.5 Class 150 RF                                                           |     |      |     |  | ASME B16.5 Class 150 RF                                                           |      |     |     |  | ASME B16.5 Class 150 RF                                                            |    |   | ASME B16.5 Class 150 RF                                                             |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   |  | L                                                                                 | H    | D   | B   |  | L                                                                                  | H  | D | L                                                                                   | H   | D |
| 1/2                                                        | 15                                                                                | 108 | 201  | 90  |  | 108                                                                               | 166  | 90  |     |  | 108                                                                                | 74 |   |                                                                                     |     |   |
| 3/4                                                        | 20                                                                                | 117 | 210  | 90  |  | 117                                                                               | 168  | 90  |     |  | 117                                                                                | 76 |   |                                                                                     |     |   |
| 1                                                          | 25                                                                                | 127 | 224  | 100 |  | 127                                                                               | 173  | 100 |     |  | 127                                                                                | 76 |   |                                                                                     |     |   |
| 1 1/2                                                      | 40                                                                                | 165 | 284  | 140 |  | 165                                                                               | 204  | 140 |     |  | 165                                                                                | 86 |   | 165                                                                                 | 109 |   |
| 2                                                          | 50                                                                                | 178 | 336  | 160 |  | 203                                                                               | 235  | 160 |     |  |                                                                                    |    |   | 203                                                                                 | 119 |   |
| 2 1/2                                                      | 65                                                                                | 190 | 374  | 180 |  | 216                                                                               | 248  | 180 |     |  |                                                                                    |    |   | 216                                                                                 | 134 |   |
| 3                                                          | 80                                                                                | 203 | 444  | 200 |  | 241                                                                               | 292  | 200 |     |  |                                                                                    |    |   | 241                                                                                 | 148 |   |
| 4                                                          | 100                                                                               | 229 | 523  | 225 |  | 292                                                                               | 324  | 225 |     |  |                                                                                    |    |   | 292                                                                                 | 164 |   |
| 5                                                          | 125                                                                               | 254 | 606  | 250 |  | 356                                                                               | 382  | 250 |     |  |                                                                                    |    |   | 330                                                                                 | 192 |   |
| 6                                                          | 150                                                                               | 267 | 711  | 250 |  | 406                                                                               | 453  | 350 |     |  |                                                                                    |    |   | 356                                                                                 | 214 |   |
| 8                                                          | 200                                                                               | 292 | 924  | 300 |  | 495                                                                               | 556  | 400 |     |  |                                                                                    |    |   | 495                                                                                 | 264 |   |
| 10                                                         | 250                                                                               | 330 | 1126 | 350 |  | 622                                                                               | 923  | 500 | 280 |  |                                                                                    |    |   | 622                                                                                 | 286 |   |
| 12                                                         | 300                                                                               | 356 | 1336 | 400 |  | 698                                                                               | 1013 | 500 | 280 |  |                                                                                    |    |   | 698                                                                                 | 315 |   |
| 14                                                         | 350                                                                               | 381 | 1491 | 450 |  |                                                                                   |      |     |     |  |                                                                                    |    |   | 787                                                                                 | 363 |   |
| 16                                                         | 400                                                                               | 406 | 1692 | 600 |  |                                                                                   |      |     |     |  |                                                                                    |    |   | 864                                                                                 | 407 |   |
| 18                                                         | 450                                                                               | 432 | 1891 | 600 |  |                                                                                   |      |     |     |  |                                                                                    |    |   | 978                                                                                 | 475 |   |
| 20                                                         | 500                                                                               | 457 | 2102 | 680 |  |                                                                                   |      |     |     |  |                                                                                    |    |   | 978                                                                                 | 505 |   |
| 24                                                         | 600                                                                               | 508 | 2463 | 760 |  |                                                                                   |      |     |     |  |                                                                                    |    |   | 1295                                                                                | 595 |   |
| Body/Bonnet                                                | CF8M                                                                              |     |      |     |  | CF8M                                                                              |      |     |     |  | CF8M                                                                               |    |   | CF8M                                                                                |     |   |
| Stem                                                       | 316SS                                                                             |     |      |     |  | 316SS                                                                             |      |     |     |  |                                                                                    |    |   |                                                                                     |     |   |
| Disc                                                       | CF8M                                                                              |     |      |     |  | CF8M                                                                              |      |     |     |  | CF8M                                                                               |    |   | CF8M                                                                                |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     |  | Refer to Page SS22                                                                |      |     |     |  | Refer to Page SS22                                                                 |    |   | Refer to Page SS22                                                                  |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     |  | Refer to Page SS22                                                                |      |     |     |  | Refer to Page SS22                                                                 |    |   | Refer to Page SS22                                                                  |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     |  | B8/8                                                                              |      |     |     |  | B8/8                                                                               |    |   | B8/8                                                                                |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     |  | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |    |   | JIS B2220                                                                           |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     |  | ASME B16.10                                                                       |      |     |     |  | ASME B16.10                                                                        |    |   | ASME B16.10                                                                         |     |   |
| Wall Thickness                                             | ASME B16.34                                                                       |     |      |     |  | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |    |   | ASME B16.34                                                                         |     |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |      |     |  | ISO15848-1, PED/CE TR-CU/EAC                                                      |      |     |     |  | PED/CE TR-CU/EAC                                                                   |    |   | PED/CE TR-CU/EAC                                                                    |     |   |
| Remarks                                                    | Flexible Wedge                                                                    |     |      |     |  |                                                                                   |      |     |     |  |                                                                                    |    |   |                                                                                     |     |   |

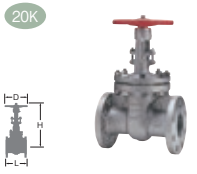
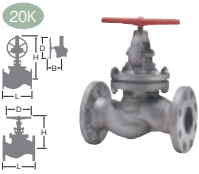
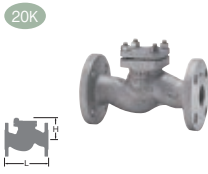
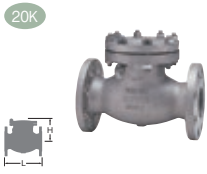
| Type                                                       | A Series (Gate)                                                                     |     |      |     |  | A Series (Globe)                                                                    |      |     |     |  | A Series (Lift Check)                                                                |     |   | A Series (Swing Check)                                                                |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|-----|--|-------------------------------------------------------------------------------------|------|-----|-----|--|--------------------------------------------------------------------------------------|-----|---|---------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |  |      |     |     |  |  |     |   |  |     |   |
| Fig                                                        | 300UMAM                                                                             |     |      |     |  | 300UPAM/G-300UPAM                                                                   |      |     |     |  | 300UNAM                                                                              |     |   | 300UOAM                                                                               |     |   |
| End Connection                                             | ASME B16.5 Class 300 RF                                                             |     |      |     |  | ASME B16.5 Class 300 RF                                                             |      |     |     |  | ASME B16.5 Class 300 RF                                                              |     |   | ASME B16.5 Class 300 RF                                                               |     |   |
| inch                                                       | mm                                                                                  | L   | H    | D   |  | L                                                                                   | H    | D   | B   |  | L                                                                                    | H   | D | L                                                                                     | H   | D |
| 1/2                                                        | 15                                                                                  | 140 | 209  | 100 |  | 152                                                                                 | 184  | 100 |     |  | 152                                                                                  | 80  |   |                                                                                       |     |   |
| 3/4                                                        | 20                                                                                  | 152 | 220  | 100 |  | 178                                                                                 | 182  | 100 |     |  | 178                                                                                  | 78  |   |                                                                                       |     |   |
| 1                                                          | 25                                                                                  | 165 | 239  | 100 |  | 203                                                                                 | 185  | 100 |     |  | 203                                                                                  | 80  |   |                                                                                       |     |   |
| 1 1/2                                                      | 40                                                                                  | 190 | 293  | 140 |  | 229                                                                                 | 234  | 160 |     |  | 229                                                                                  | 100 |   |                                                                                       |     |   |
| 2                                                          | 50                                                                                  | 216 | 355  | 180 |  | 267                                                                                 | 286  | 180 |     |  |                                                                                      |     |   | 241                                                                                   | 123 |   |
| 2 1/2                                                      | 65                                                                                  | 241 | 404  | 180 |  | 292                                                                                 | 296  | 200 |     |  |                                                                                      |     |   | 267                                                                                   | 142 |   |
| 3                                                          | 80                                                                                  | 283 | 472  | 225 |  | 318                                                                                 | 341  | 250 |     |  |                                                                                      |     |   | 292                                                                                   | 165 |   |
| 4                                                          | 100                                                                                 | 305 | 560  | 250 |  | 356                                                                                 | 396  | 300 |     |  |                                                                                      |     |   | 318                                                                                   | 180 |   |
| 5                                                          | 125                                                                                 | 381 | 625  | 300 |  | 400                                                                                 | 493  | 350 |     |  |                                                                                      |     |   | 356                                                                                   | 203 |   |
| 6                                                          | 150                                                                                 | 403 | 753  | 350 |  | 444                                                                                 | 563  | 400 |     |  |                                                                                      |     |   | 400                                                                                   | 234 |   |
| 8                                                          | 200                                                                                 | 419 | 968  | 400 |  | 559                                                                                 | 874  | 500 | 280 |  |                                                                                      |     |   | 444                                                                                   | 259 |   |
| 10                                                         | 250                                                                                 | 457 | 1177 | 450 |  | 622                                                                                 | 1048 | 600 | 350 |  |                                                                                      |     |   | 533                                                                                   | 298 |   |
| 12                                                         | 300                                                                                 | 502 | 1378 | 500 |  |                                                                                     |      |     |     |  |                                                                                      |     |   | 622                                                                                   | 356 |   |
| 14                                                         | 350                                                                                 | 562 | 1590 | 600 |  |                                                                                     |      |     |     |  |                                                                                      |     |   | 711                                                                                   | 373 |   |
| 16                                                         | 400                                                                                 | 622 | 1810 | 600 |  |                                                                                     |      |     |     |  |                                                                                      |     |   | 838                                                                                   | 442 |   |
| 18                                                         | 450                                                                                 | 682 | 2030 | 600 |  |                                                                                     |      |     |     |  |                                                                                      |     |   | 864                                                                                   | 480 |   |
| 20                                                         | 500                                                                                 | 742 | 2250 | 680 |  |                                                                                     |      |     |     |  |                                                                                      |     |   | 978                                                                                   | 585 |   |
| 24                                                         | 600                                                                                 | 862 | 2690 | 760 |  |                                                                                     |      |     |     |  |                                                                                      |     |   |                                                                                       |     |   |
| Body/Bonnet                                                | CF8M                                                                                |     |      |     |  | CF8M                                                                                |      |     |     |  | CF8M                                                                                 |     |   | CF8M                                                                                  |     |   |
| Stem                                                       | 316SS                                                                               |     |      |     |  | 316SS                                                                               |      |     |     |  | 316SS                                                                                |     |   |                                                                                       |     |   |
| Disc                                                       | CF8M                                                                                |     |      |     |  | CF8M                                                                                |      |     |     |  | CF8M                                                                                 |     |   | CF8M                                                                                  |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                  |     |      |     |  | Refer to Page SS22                                                                  |      |     |     |  | Refer to Page SS22                                                                   |     |   | Refer to Page SS22                                                                    |     |   |
| Gasket                                                     | Refer to Page SS22                                                                  |     |      |     |  | Refer to Page SS22                                                                  |      |     |     |  | Refer to Page SS22                                                                   |     |   | Refer to Page SS22                                                                    |     |   |
| Bonnet B/N                                                 | B8/8                                                                                |     |      |     |  | B8/8                                                                                |      |     |     |  | B8/8                                                                                 |     |   | B8/8                                                                                  |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |     |      |     |  | ASME B16.34                                                                         |      |     |     |  | ASME B16.34                                                                          |     |   | ASME B16.34                                                                           |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |      |     |  | ASME B16.10                                                                         |      |     |     |  | ASME B16.10                                                                          |     |   | ASME B16.10                                                                           |     |   |
| Wall Thickness                                             | ASME B16.34                                                                         |     |      |     |  | ASME B16.34                                                                         |      |     |     |  | ASME B16.34                                                                          |     |   | ASME B16.34                                                                           |     |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                        |     |      |     |  | ISO15848-1, PED/CE TR-CU/EAC                                                        |      |     |     |  | PED/CE TR-CU/EAC                                                                     |     |   | PED/CE TR-CU/EAC                                                                      |     |   |
| Remarks                                                    | Flexible Wedge                                                                      |     |      |     |  |                                                                                     |      |     |     |  |                                                                                      |     |   |                                                                                       |     |   |

| Type                                                       | A Series (Gate)                                                                   |     |      |     | A Series (Globe)                                                                  |     |     |     | A Series (Swing Check)                                                             |      |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----------------------------------------------------------------------------------|-----|-----|-----|------------------------------------------------------------------------------------|------|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |     |     |     |  |      |   |
|                                                            | Fig 600UMAM                                                                       |     |      |     | Fig 600UPAM/G-600UPAM                                                             |     |     |     | Fig 600UOAM                                                                        |      |   |
| End Connection                                             | ASME B16.5 Class 600 RF                                                           |     |      |     | ASME B16.5 Class 300 RF                                                           |     |     |     | ASME B16.5 Class 600 RF                                                            |      |   |
| inch                                                       | mm                                                                                | L   | H    | D   | L                                                                                 | H   | D   | B   | L                                                                                  | H    | D |
| 1/2                                                        | 15                                                                                | 165 | 211  | 100 | 165                                                                               | 213 | 120 |     | 165                                                                                | 93.5 |   |
| 3/4                                                        | 20                                                                                | 190 | 224  | 100 | 190                                                                               | 210 | 120 |     | 190                                                                                | 97.4 |   |
| 1                                                          | 25                                                                                | 216 | 251  | 140 | 216                                                                               | 246 | 160 |     | 216                                                                                | 112  |   |
| 1 1/2                                                      | 40                                                                                | 241 | 334  | 180 | 241                                                                               | 283 | 200 |     | 241                                                                                | 127  |   |
| 2                                                          | 50                                                                                | 292 | 452  | 200 | 292                                                                               | 374 | 225 |     | 292                                                                                | 203  |   |
| 2 1/2                                                      | 65                                                                                | 330 | 483  | 225 | 330                                                                               | 413 | 250 |     | 330                                                                                | 213  |   |
| 3                                                          | 80                                                                                | 356 | 546  | 250 | 356                                                                               | 492 | 350 |     | 356                                                                                | 239  |   |
| 4                                                          | 100                                                                               | 432 | 677  | 350 | 432                                                                               | 586 | 400 |     | 432                                                                                | 279  |   |
| 6                                                          | 150                                                                               | 559 | 905  | 450 | 559                                                                               | 750 | 600 | 280 | 559                                                                                | 339  |   |
| 8                                                          | 200                                                                               | 660 | 1129 | 500 | 660                                                                               | 864 | 600 | 350 | 660                                                                                | 414  |   |
| 10                                                         | 250                                                                               | 787 | 1330 | 600 |                                                                                   |     |     |     | 787                                                                                | 430  |   |
| 12                                                         | 300                                                                               | 838 | 1522 | 680 |                                                                                   |     |     |     | 838                                                                                | 470  |   |
| Body/Bonnet                                                | CF8M                                                                              |     |      |     | CF8M                                                                              |     |     |     | CF8M                                                                               |      |   |
| Stem                                                       | 316SS                                                                             |     |      |     | 316SS                                                                             |     |     |     |                                                                                    |      |   |
| Disc                                                       | CF8M                                                                              |     |      |     | CF8M                                                                              |     |     |     | CF8M                                                                               |      |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |     |     |     |                                                                                    |      |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |     |     |     | Refer to Page SS22                                                                 |      |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     | B8/8                                                                              |     |     |     | B8/8                                                                               |      |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |     |     |     | ASME B16.34                                                                        |      |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     | ASME B16.10                                                                       |     |     |     | ASME B16.10                                                                        |      |   |
| Wall Thickness                                             | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |     |     |     | ASME B16.34                                                                        |      |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |      |     | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |     |     | PED/CE TR-CU/EAC                                                                   |      |   |
| Remarks                                                    | Flexible Wedge                                                                    |     |      |     |                                                                                   |     |     |     |                                                                                    |      |   |

| Type                                                       | HA Series (Gate)                                                                    |     |      |     | HA Series (Gate)                                                                    |      |     |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|-----|-------------------------------------------------------------------------------------|------|-----|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |      |     |  |
|                                                            | Fig 150UMHAM                                                                        |     |      |     | Fig 300UMHAM                                                                        |      |     |  |
| End Connection                                             | ASME B16.5 Class 150 RF                                                             |     |      |     | ASME B16.5 Class 300 RF                                                             |      |     |  |
| inch                                                       | mm                                                                                  | L   | H    | D   | L                                                                                   | H    | D   |  |
| 1/2                                                        | 15                                                                                  | 108 | 216  | 100 | 140                                                                                 | 207  | 100 |  |
| 3/4                                                        | 20                                                                                  | 117 | 220  | 100 | 152                                                                                 | 217  | 100 |  |
| 1                                                          | 25                                                                                  | 127 | 231  | 100 | 165                                                                                 | 270  | 160 |  |
| 1 1/2                                                      | 40                                                                                  | 165 | 277  | 140 | 190                                                                                 | 325  | 180 |  |
| 2                                                          | 50                                                                                  | 178 | 335  | 160 | 216                                                                                 | 356  | 180 |  |
| 2 1/2                                                      | 65                                                                                  | 190 | 373  | 180 | 241                                                                                 | 405  | 180 |  |
| 3                                                          | 80                                                                                  | 203 | 443  | 200 | 283                                                                                 | 472  | 225 |  |
| 4                                                          | 100                                                                                 | 229 | 522  | 225 | 305                                                                                 | 560  | 250 |  |
| 6                                                          | 150                                                                                 | 267 | 710  | 250 | 403                                                                                 | 753  | 350 |  |
| 8                                                          | 200                                                                                 | 292 | 924  | 300 | 419                                                                                 | 968  | 400 |  |
| 10                                                         | 250                                                                                 | 330 | 1125 | 350 | 457                                                                                 | 1177 | 450 |  |
| 12                                                         | 300                                                                                 | 356 | 1328 | 400 | 502                                                                                 | 1378 | 500 |  |
| 14                                                         | 350                                                                                 | 381 | 1491 | 450 | 762                                                                                 | 1590 | 600 |  |
| 16                                                         | 400                                                                                 | 406 | 1692 | 600 | 838                                                                                 | 1750 | 600 |  |
| 18                                                         | 450                                                                                 | 432 | 1889 | 600 | 914                                                                                 | 1930 | 680 |  |
| 20                                                         | 500                                                                                 | 457 | 2102 | 680 | 991                                                                                 | 2140 | 760 |  |
| 24                                                         | 600                                                                                 | 508 | 2484 | 760 | 1143                                                                                | 2530 | 910 |  |
| Body/Bonnet                                                | CF8M                                                                                |     |      |     | CF8M                                                                                |      |     |  |
| Stem                                                       | 316SS                                                                               |     |      |     | 316SS                                                                               |      |     |  |
| Disc                                                       | CF8M                                                                                |     |      |     | CF8M                                                                                |      |     |  |
| Gland Packing                                              | Refer to Page SS22                                                                  |     |      |     | Refer to Page SS22                                                                  |      |     |  |
| Gasket                                                     | Refer to Page SS22                                                                  |     |      |     | Refer to Page SS22                                                                  |      |     |  |
| Bonnet B/N                                                 | B8/8                                                                                |     |      |     | B8/8                                                                                |      |     |  |
| P-T Rating                                                 | ASME B16.34                                                                         |     |      |     | ASME B16.34                                                                         |      |     |  |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |      |     | ASME B16.10                                                                         |      |     |  |
| Wall Thickness                                             | API 603                                                                             |     |      |     | API 603                                                                             |      |     |  |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                        |     |      |     | ISO15848-1, PED/CE TR-CU/EAC                                                        |      |     |  |
| Remarks                                                    | Flexible Wedge                                                                      |     |      |     | Flexible Wedge                                                                      |      |     |  |

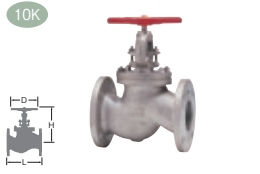
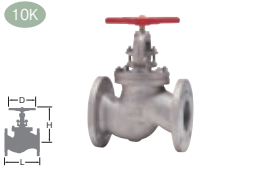
| Type                                                       | A Series (Gate)                                                                   |     |      |     | A Series (Globe)                                                                  |      |     |     | A Series (Lift Check)                                                              |    |   | A Series (Swing Check)                                                              |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----------------------------------------------------------------------------------|------|-----|-----|------------------------------------------------------------------------------------|----|---|-------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |      |     |     |  |    |   |  |     |   |
| Fig                                                        | 10UMA/10UMAT                                                                      |     |      |     | 10UPA/10UPAT/G-10UPA                                                              |      |     |     | 10UNA                                                                              |    |   | 10UOA                                                                               |     |   |
| End Connection                                             | JIS B2220 10K RF                                                                  |     |      |     | JIS B2220 10K RF                                                                  |      |     |     | JIS B2220 10K RF                                                                   |    |   | JIS B2220 10K RF                                                                    |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   | L                                                                                 | H    | D   | B   | L                                                                                  | H  | D | L                                                                                   | H   | D |
| 1/2                                                        | 15                                                                                | 108 | 201  | 90  | 108                                                                               | 166  | 90  |     | 108                                                                                | 74 |   |                                                                                     |     |   |
| 3/4                                                        | 20                                                                                | 117 | 210  | 90  | 117                                                                               | 168  | 90  |     | 117                                                                                | 76 |   |                                                                                     |     |   |
| 1                                                          | 25                                                                                | 127 | 224  | 100 | 127                                                                               | 173  | 100 |     | 127                                                                                | 76 |   |                                                                                     |     |   |
| 1 1/4                                                      | 32                                                                                | 140 | 240  | 100 |                                                                                   |      |     |     |                                                                                    |    |   |                                                                                     |     |   |
| 1 1/2                                                      | 40                                                                                | 165 | 284  | 140 | 165                                                                               | 204  | 140 |     | 165                                                                                | 86 |   | 165                                                                                 | 109 |   |
| 2                                                          | 50                                                                                | 178 | 336  | 160 | 203                                                                               | 235  | 160 |     |                                                                                    |    |   | 203                                                                                 | 119 |   |
| 2 1/2                                                      | 65                                                                                | 190 | 374  | 180 | 216                                                                               | 248  | 180 |     |                                                                                    |    |   | 216                                                                                 | 134 |   |
| 3                                                          | 80                                                                                | 203 | 444  | 200 | 241                                                                               | 292  | 200 |     |                                                                                    |    |   | 241                                                                                 | 148 |   |
| 4                                                          | 100                                                                               | 229 | 523  | 225 | 292                                                                               | 324  | 225 |     |                                                                                    |    |   | 292                                                                                 | 164 |   |
| 5                                                          | 125                                                                               | 254 | 606  | 250 | 356                                                                               | 382  | 250 |     |                                                                                    |    |   | 330                                                                                 | 192 |   |
| 6                                                          | 150                                                                               | 267 | 711  | 250 | 406                                                                               | 453  | 350 |     |                                                                                    |    |   | 356                                                                                 | 214 |   |
| 8                                                          | 200                                                                               | 292 | 924  | 300 | 495                                                                               | 556  | 400 |     |                                                                                    |    |   | 495                                                                                 | 264 |   |
| 10                                                         | 250                                                                               | 330 | 1126 | 350 | 622                                                                               | 923  | 500 | 280 |                                                                                    |    |   | 622                                                                                 | 286 |   |
| 12                                                         | 300                                                                               | 356 | 1336 | 400 | 698                                                                               | 1013 | 500 | 280 |                                                                                    |    |   | 698                                                                                 | 315 |   |
| 14                                                         | 350                                                                               | 381 | 1491 | 450 |                                                                                   |      |     |     |                                                                                    |    |   | 787                                                                                 | 363 |   |
| 16                                                         | 400                                                                               | 406 | 1692 | 600 |                                                                                   |      |     |     |                                                                                    |    |   | 864                                                                                 | 407 |   |
| 18                                                         | 450                                                                               | 432 | 1891 | 600 |                                                                                   |      |     |     |                                                                                    |    |   | 978                                                                                 | 475 |   |
| 20                                                         | 500                                                                               | 457 | 2102 | 680 |                                                                                   |      |     |     |                                                                                    |    |   | 978                                                                                 | 505 |   |
| 24                                                         | 600                                                                               | 508 | 2463 | 760 |                                                                                   |      |     |     |                                                                                    |    |   | 1295                                                                                | 595 |   |
| Body/Bonnet                                                | CF8                                                                               |     |      |     | CF8                                                                               |      |     |     | CF8                                                                                |    |   | CF8                                                                                 |     |   |
| Stem                                                       | 304SS                                                                             |     |      |     | 304SS                                                                             |      |     |     |                                                                                    |    |   |                                                                                     |     |   |
| Disc                                                       | CF8                                                                               |     |      |     | CF8                                                                               |      |     |     | CF8                                                                                |    |   | CF8                                                                                 |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |      |     |     |                                                                                    |    |   |                                                                                     |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |      |     |     | Refer to Page SS22                                                                 |    |   | Refer to Page SS22                                                                  |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     | B8/8                                                                              |      |     |     | B8/8                                                                               |    |   | B8/8                                                                                |     |   |
| P-T Rating                                                 | JIS B2220                                                                         |     |      |     | JIS B2220                                                                         |      |     |     | JIS B2220                                                                          |    |   | JIS B2220                                                                           |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     | ASME B16.10                                                                       |      |     |     | ASME B16.10                                                                        |    |   | ASME B16.10                                                                         |     |   |
| Wall Thickness                                             | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |      |     |     | ASME B16.34                                                                        |    |   | ASME B16.34                                                                         |     |   |
| Remarks                                                    | Flexible Wedge                                                                    |     |      |     |                                                                                   |      |     |     |                                                                                    |    |   |                                                                                     |     |   |

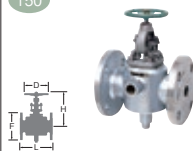
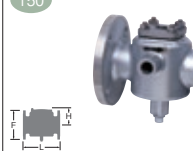
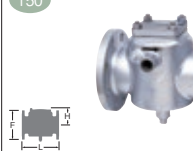
| Type                                                       | A Series (Y-Strainer)                                                               |     |     |     |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|-----|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |     |     |  |
| Fig                                                        | 10UYA                                                                               |     |     |     |  |
| End Connection                                             | JIS B2220 10K RF                                                                    |     |     |     |  |
| inch                                                       | mm                                                                                  | L   | H   | H1* |  |
| 2 1/2                                                      | 65                                                                                  | 270 | 154 | 214 |  |
| 3                                                          | 80                                                                                  | 290 | 189 | 263 |  |
| 4                                                          | 100                                                                                 | 350 | 227 | 320 |  |
| 5                                                          | 125                                                                                 | 390 | 268 | 383 |  |
| 6                                                          | 150                                                                                 | 440 | 316 | 451 |  |
| 8                                                          | 200                                                                                 | 540 | 384 | 554 |  |
| 10                                                         | 250                                                                                 | 760 | 536 | 753 |  |
| 12                                                         | 300                                                                                 | 870 | 636 | 891 |  |
| Body/Bonnet                                                | CF8                                                                                 |     |     |     |  |
| Disc/Screen                                                | 304SS                                                                               |     |     |     |  |
| Gasket                                                     | Refer to Page SS22                                                                  |     |     |     |  |
| Bonnet B/N                                                 | B8/8                                                                                |     |     |     |  |
| P-T Rating                                                 | JIS B2220                                                                           |     |     |     |  |
| F-to-F Dimension                                           | KITZ Standard                                                                       |     |     |     |  |
| Wall Thickness                                             | KITZ Standard                                                                       |     |     |     |  |
| Remarks                                                    | 40-mesh stainless wire net reinforced with punched stainless steel plate            |     |     |     |  |
|                                                            | *Height for removing the screen                                                     |     |     |     |  |

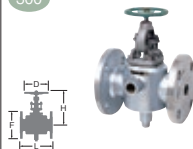
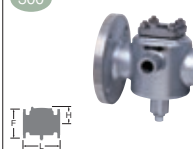
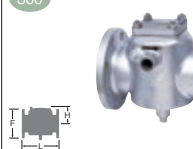
| Type                                                       | A Series (Gate)                                                                   |      |      |     | A Series (Globe)                                                                  |      |     |     | A Series (Lift Check)                                                              |     |   | A Series (Swing Check)                                                              |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----|-----------------------------------------------------------------------------------|------|-----|-----|------------------------------------------------------------------------------------|-----|---|-------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |      |      |     |  |      |     |     |  |     |   |  |     |   |
|                                                            | 20UMA/20UMAT                                                                      |      |      |     | 20UPA/20UPAT/G-20UPA                                                              |      |     |     | 20UNA                                                                              |     |   | 20UOA                                                                               |     |   |
| Fig                                                        | JIS B2220 20K RF                                                                  |      |      |     | JIS B2220 20K RF                                                                  |      |     |     | JIS B2220 20K RF                                                                   |     |   | JIS B2220 20K RF                                                                    |     |   |
| End Connection                                             | JIS B2220 20K RF                                                                  |      |      |     | JIS B2220 20K RF                                                                  |      |     |     | JIS B2220 20K RF                                                                   |     |   | JIS B2220 20K RF                                                                    |     |   |
| inch                                                       | mm                                                                                | L    | H    | D   | L                                                                                 | H    | D   | B   | L                                                                                  | H   | D | L                                                                                   | H   | D |
| 1/2                                                        | 15                                                                                | 140  | 209  | 100 | 152                                                                               | 184  | 100 |     | 152                                                                                | 80  |   |                                                                                     |     |   |
| 3/4                                                        | 20                                                                                | 152  | 220  | 100 | 178                                                                               | 182  | 100 |     | 178                                                                                | 78  |   |                                                                                     |     |   |
| 1                                                          | 25                                                                                | 165  | 239  | 100 | 203                                                                               | 185  | 100 |     | 203                                                                                | 80  |   |                                                                                     |     |   |
| 1 1/2                                                      | 40                                                                                | 190  | 293  | 140 | 229                                                                               | 234  | 160 |     | 229                                                                                | 100 |   | 241                                                                                 | 123 |   |
| 2                                                          | 50                                                                                | 216  | 355  | 180 | 267                                                                               | 286  | 180 |     |                                                                                    |     |   | 267                                                                                 | 142 |   |
| 2 1/2                                                      | 65                                                                                | 241  | 404  | 180 | 292                                                                               | 296  | 200 |     |                                                                                    |     |   | 292                                                                                 | 165 |   |
| 3                                                          | 80                                                                                | 283  | 472  | 225 | 318                                                                               | 341  | 250 |     |                                                                                    |     |   | 318                                                                                 | 180 |   |
| 4                                                          | 100                                                                               | 305  | 560  | 250 | 356                                                                               | 396  | 300 |     |                                                                                    |     |   | 356                                                                                 | 203 |   |
| 5                                                          | 125                                                                               | 381  | 625  | 300 | 400                                                                               | 493  | 350 |     |                                                                                    |     |   | 400                                                                                 | 234 |   |
| 6                                                          | 150                                                                               | 403  | 753  | 350 | 444                                                                               | 563  | 400 |     |                                                                                    |     |   | 444                                                                                 | 259 |   |
| 8                                                          | 200                                                                               | 419  | 968  | 400 | 559                                                                               | 874  | 500 | 280 |                                                                                    |     |   | 533                                                                                 | 298 |   |
| 10                                                         | 250                                                                               | 457  | 1177 | 450 | 622                                                                               | 1048 | 600 | 350 |                                                                                    |     |   | 622                                                                                 | 356 |   |
| 12                                                         | 300                                                                               | 502  | 1378 | 500 |                                                                                   |      |     |     |                                                                                    |     |   | 711                                                                                 | 373 |   |
| 14                                                         | 350                                                                               | 762  | 1590 | 600 |                                                                                   |      |     |     |                                                                                    |     |   | 838                                                                                 | 442 |   |
| 16                                                         | 400                                                                               | 838  | 1810 | 600 |                                                                                   |      |     |     |                                                                                    |     |   | 864                                                                                 | 480 |   |
| 18                                                         | 450                                                                               | 914  | 1980 | 680 |                                                                                   |      |     |     |                                                                                    |     |   | 978                                                                                 | 585 |   |
| 20                                                         | 500                                                                               | 991  | 2190 | 760 |                                                                                   |      |     |     |                                                                                    |     |   |                                                                                     |     |   |
| 24                                                         | 600                                                                               | 1143 | 2580 | 910 |                                                                                   |      |     |     |                                                                                    |     |   |                                                                                     |     |   |
| Body/Bonnet                                                | CF8                                                                               |      |      |     | CF8                                                                               |      |     |     | CF8                                                                                |     |   | CF8                                                                                 |     |   |
| Stem                                                       | 304SS                                                                             |      |      |     | 304SS                                                                             |      |     |     |                                                                                    |     |   |                                                                                     |     |   |
| Disc                                                       | CF8                                                                               |      |      |     | CF8                                                                               |      |     |     | CF8                                                                                |     |   | CF8                                                                                 |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |      |      |     | Refer to Page SS22                                                                |      |     |     |                                                                                    |     |   |                                                                                     |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |      |      |     | Refer to Page SS22                                                                |      |     |     | Refer to Page SS22                                                                 |     |   | Refer to Page SS22                                                                  |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |      |      |     | B8/8                                                                              |      |     |     | B8/8                                                                               |     |   | B8/8                                                                                |     |   |
| P-T Rating                                                 | JIS B2220                                                                         |      |      |     | JIS B2220                                                                         |      |     |     | JIS B2220                                                                          |     |   | JIS B2220                                                                           |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |      |      |     | ASME B16.10                                                                       |      |     |     | ASME B16.10                                                                        |     |   | ASME B16.10                                                                         |     |   |
| Wall Thickness                                             | ASME B16.34                                                                       |      |      |     | ASME B16.34                                                                       |      |     |     | ASME B16.34                                                                        |     |   | ASME B16.34                                                                         |     |   |
| Remarks                                                    | Flexible Wedge                                                                    |      |      |     |                                                                                   |      |     |     |                                                                                    |     |   |                                                                                     |     |   |

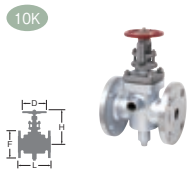
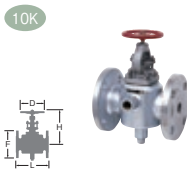
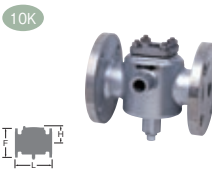
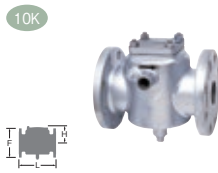
| Type                                                       | A Series (Y-Strainer)                                                               |     |     |     |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|-----|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |     |     |  |
|                                                            | 20UYA                                                                               |     |     |     |  |
| Fig                                                        | JIS B2220 20K RF                                                                    |     |     |     |  |
| End Connection                                             | JIS B2220 20K RF                                                                    |     |     |     |  |
| inch                                                       | mm                                                                                  | L   | H   | H1* |  |
| 1/2                                                        | 15                                                                                  | 160 | 68  | 79  |  |
| 3/4                                                        | 20                                                                                  | 160 | 77  | 90  |  |
| 1                                                          | 25                                                                                  | 190 | 89  | 109 |  |
| 1 1/2                                                      | 40                                                                                  | 240 | 123 | 145 |  |
| 2                                                          | 50                                                                                  | 250 | 147 | 172 |  |
| 2 1/2                                                      | 65                                                                                  | 300 | 182 | 223 |  |
| 3                                                          | 80                                                                                  | 320 | 209 | 271 |  |
| 4                                                          | 100                                                                                 | 380 | 245 | 325 |  |
| 6                                                          | 150                                                                                 | 550 | 341 | 460 |  |
| 8                                                          | 200                                                                                 | 600 | 430 | 607 |  |
| 10                                                         | 250                                                                                 | 760 | 536 | 753 |  |
| 12                                                         | 300                                                                                 | 870 | 636 | 894 |  |
| Body/Bonnet                                                | CF8                                                                                 |     |     |     |  |
| Disc/Screen                                                | 304SS                                                                               |     |     |     |  |
| Gasket                                                     | Refer to Page SS22                                                                  |     |     |     |  |
| Bonnet B/N                                                 | B8/8                                                                                |     |     |     |  |
| P-T Rating                                                 | JIS B2220                                                                           |     |     |     |  |
| F-to-F Dimension                                           | KITZ Standard                                                                       |     |     |     |  |
| Wall Thickness                                             | KITZ Standard                                                                       |     |     |     |  |
| Remarks                                                    | 40-mesh stainless wire net reinforced with punched stainless steel plate            |     |     |     |  |
|                                                            | *Height for removing the screen                                                     |     |     |     |  |

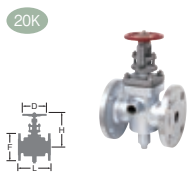
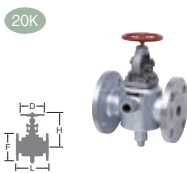
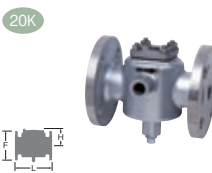
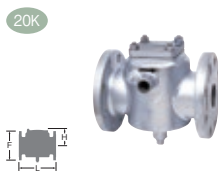
| Type                                                       | A Series (Bellows Seal Globe)                                                                    |     |     |     | A Series (Bellows Seal Globe)                                                                    |     |     |     | A Series (Bellows Seal Globe)                                                                     |     |  |  |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----|-----|-----|--------------------------------------------------------------------------------------------------|-----|-----|-----|---------------------------------------------------------------------------------------------------|-----|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>150</div>  |     |     |     | <div>150</div>  |     |     |     | <div>300</div>  |     |  |  |
|                                                            |                 |     |     |     |                 |     |     |     |                  |     |  |  |
| Fig                                                        | 150UPAWM                                                                                         |     |     |     | 150UPDAWM                                                                                        |     |     |     | 300UPAWM                                                                                          |     |  |  |
| End Connection                                             | ASME B16.5 Class 150 RF                                                                          |     |     |     | ASME B16.5 Class 150 RF                                                                          |     |     |     | ASME B16.5 Class 300 RF                                                                           |     |  |  |
| inch                                                       | mm                                                                                               | L   | H   | D   | L                                                                                                | H   | D   | L   | H                                                                                                 | D   |  |  |
| 1/2                                                        | 15                                                                                               | 108 | 164 | 90  | 108                                                                                              | 164 | 90  | 152 | 185                                                                                               | 100 |  |  |
| 3/4                                                        | 20                                                                                               | 117 | 166 | 90  | 117                                                                                              | 166 | 90  | 178 | 183                                                                                               | 100 |  |  |
| 1                                                          | 25                                                                                               | 127 | 170 | 100 | 127                                                                                              | 170 | 100 | 203 | 185                                                                                               | 100 |  |  |
| 1 1/2                                                      | 40                                                                                               | 165 | 202 | 140 | 165                                                                                              | 202 | 140 | 229 | 234                                                                                               | 160 |  |  |
| 2                                                          | 50                                                                                               | 203 | 230 | 160 | 203                                                                                              | 230 | 160 | 267 | 287                                                                                               | 180 |  |  |
| 2 1/2                                                      | 65                                                                                               | 216 | 245 | 180 | 216                                                                                              | 245 | 180 | 292 | 293                                                                                               | 200 |  |  |
| 3                                                          | 80                                                                                               | 241 | 284 | 200 | 241                                                                                              | 284 | 200 | 318 | 402                                                                                               | 250 |  |  |
| 4                                                          | 100                                                                                              | 292 | 360 | 225 | 292                                                                                              | 360 | 225 | 356 | 454                                                                                               | 300 |  |  |
| 5                                                          | 125                                                                                              | 356 | 425 | 250 | 356                                                                                              | 425 | 250 | 400 | 539                                                                                               | 350 |  |  |
| 6                                                          | 150                                                                                              | 406 | 493 | 350 | 406                                                                                              | 483 | 350 | 444 | 607                                                                                               | 400 |  |  |
| Body/Bonnet                                                | CF8M                                                                                             |     |     |     | CF8M                                                                                             |     |     |     | CF8M                                                                                              |     |  |  |
| Stem                                                       | 304SS                                                                                            |     |     |     | 304SS                                                                                            |     |     |     | 304SS                                                                                             |     |  |  |
| Disc                                                       | 316 or CF8M                                                                                      |     |     |     | PTFE                                                                                             |     |     |     | 316 or CF8M                                                                                       |     |  |  |
| Gland Packing                                              | Carbon Fiber Coil Packing                                                                        |     |     |     | Carbon Fiber Coil Packing                                                                        |     |     |     | Carbon Fiber Coil Packing                                                                         |     |  |  |
| Gasket                                                     | Flexible Graphite                                                                                |     |     |     | Flexible Graphite                                                                                |     |     |     | Flexible Graphite                                                                                 |     |  |  |
| Bellows                                                    | 316L                                                                                             |     |     |     | 316L                                                                                             |     |     |     | 316L                                                                                              |     |  |  |
| Bonnet B/N                                                 | B8/8                                                                                             |     |     |     | B8/8                                                                                             |     |     |     | B8/8                                                                                              |     |  |  |
| P-T Rating                                                 | ASME B16.34                                                                                      |     |     |     | ASME B16.34                                                                                      |     |     |     | ASME B16.34                                                                                       |     |  |  |
| F-to-F Dimension                                           | ASME B16.10                                                                                      |     |     |     | ASME B16.10                                                                                      |     |     |     | ASME B16.10                                                                                       |     |  |  |
| Wall Thickness                                             | ASME B16.34                                                                                      |     |     |     | ASME B16.34                                                                                      |     |     |     | ASME B16.34                                                                                       |     |  |  |

| Type                                                       | A Series (Bellows Seal Globe)                                                       |     |     |     | A Series (Soft Seated Globe)                                                        |     |     |     | A Series (Bellows Seal Globe)                                                        |     |     |     | A Series (Bellows Seal Globe)                                                         |     |  |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|-----|-------------------------------------------------------------------------------------|-----|-----|-----|--------------------------------------------------------------------------------------|-----|-----|-----|---------------------------------------------------------------------------------------|-----|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |     |     |  |     |     |     |  |     |     |     |  |     |  |  |
|                                                            | 10K                                                                                 |     |     |     | 10K                                                                                 |     |     |     | 10K                                                                                  |     |     |     | 20K                                                                                   |     |  |  |
| Fig                                                        | 10UPAW                                                                              |     |     |     | 10UPDA/G-10UPDA                                                                     |     |     |     | 10UPDAW                                                                              |     |     |     | 20UPAW                                                                                |     |  |  |
| End Connection                                             | JIS B2220 10K RF                                                                    |     |     |     | JIS B2220 10K RF                                                                    |     |     |     | JIS B2220 10K RF                                                                     |     |     |     | JIS B2220 20K RF                                                                      |     |  |  |
| inch                                                       | mm                                                                                  | L   | H   | D   | L                                                                                   | H   | D   | B   | L                                                                                    | H   | D   | L   | H                                                                                     | D   |  |  |
| 1/2                                                        | 15                                                                                  | 108 | 164 | 90  | 108                                                                                 | 166 | 90  |     | 108                                                                                  | 164 | 90  | 152 | 185                                                                                   | 100 |  |  |
| 3/4                                                        | 20                                                                                  | 117 | 166 | 90  | 117                                                                                 | 168 | 90  |     | 117                                                                                  | 166 | 90  | 178 | 183                                                                                   | 100 |  |  |
| 1                                                          | 25                                                                                  | 127 | 170 | 100 | 127                                                                                 | 173 | 100 |     | 127                                                                                  | 170 | 100 | 203 | 185                                                                                   | 100 |  |  |
| 1 1/4                                                      | 32                                                                                  |     |     |     | 140                                                                                 | 192 | 120 |     |                                                                                      |     |     |     |                                                                                       |     |  |  |
| 1 1/2                                                      | 40                                                                                  | 165 | 202 | 140 | 165                                                                                 | 204 | 140 |     | 165                                                                                  | 202 | 140 | 229 | 234                                                                                   | 160 |  |  |
| 2                                                          | 50                                                                                  | 203 | 230 | 160 | 203                                                                                 | 235 | 160 |     | 203                                                                                  | 230 | 160 | 267 | 287                                                                                   | 180 |  |  |
| 2 1/2                                                      | 65                                                                                  | 216 | 245 | 180 | 216                                                                                 | 248 | 180 |     | 216                                                                                  | 245 | 180 | 292 | 293                                                                                   | 200 |  |  |
| 3                                                          | 80                                                                                  | 241 | 284 | 200 | 241                                                                                 | 292 | 200 |     | 241                                                                                  | 284 | 200 | 318 | 402                                                                                   | 250 |  |  |
| 4                                                          | 100                                                                                 | 292 | 360 | 225 | 292                                                                                 | 324 | 225 |     | 292                                                                                  | 360 | 225 | 356 | 454                                                                                   | 300 |  |  |
| 5                                                          | 125                                                                                 | 356 | 425 | 250 | 356                                                                                 | 382 | 250 |     | 356                                                                                  | 425 | 250 | 400 | 539                                                                                   | 350 |  |  |
| 6                                                          | 150                                                                                 | 406 | 493 | 350 | 406                                                                                 | 453 | 350 |     | 406                                                                                  | 483 | 350 | 444 | 607                                                                                   | 400 |  |  |
| 8                                                          | 200                                                                                 |     |     |     | 495                                                                                 | 556 | 400 |     |                                                                                      |     |     |     |                                                                                       |     |  |  |
| 10                                                         | 250                                                                                 |     |     |     | 622                                                                                 | 923 | 500 | 280 |                                                                                      |     |     |     |                                                                                       |     |  |  |
| Body/Bonnet                                                | CF8                                                                                 |     |     |     | CF8                                                                                 |     |     |     | CF8                                                                                  |     |     |     | CF8                                                                                   |     |  |  |
| Stem                                                       | 304SS                                                                               |     |     |     | 304SS                                                                               |     |     |     | 304SS                                                                                |     |     |     | 304SS                                                                                 |     |  |  |
| Disc                                                       | 316 or CF8M                                                                         |     |     |     | PTFE                                                                                |     |     |     | PTFE                                                                                 |     |     |     | 316 or CF8M                                                                           |     |  |  |
| Gland Packing                                              | Carbon Fiber Coil Packing                                                           |     |     |     | Refer to Page SS22                                                                  |     |     |     | Carbon Fiber Coil Packing                                                            |     |     |     | Carbon Fiber Coil Packing                                                             |     |  |  |
| Gasket                                                     | Flexible Graphite                                                                   |     |     |     | Refer to Page SS22                                                                  |     |     |     | Flexible Graphite                                                                    |     |     |     | Flexible Graphite                                                                     |     |  |  |
| Bellows                                                    | 316L                                                                                |     |     |     |                                                                                     |     |     |     | 316L                                                                                 |     |     |     | 316L                                                                                  |     |  |  |
| Bonnet B/N                                                 | B8/8                                                                                |     |     |     | B8/8                                                                                |     |     |     | B8/8                                                                                 |     |     |     | B8/8                                                                                  |     |  |  |
| P-T Rating                                                 | JIS B2220                                                                           |     |     |     | JIS B2220                                                                           |     |     |     | JIS B2220                                                                            |     |     |     | JIS B2220                                                                             |     |  |  |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |     |     | ASME B16.10                                                                         |     |     |     | ASME B16.10                                                                          |     |     |     | ASME B16.10                                                                           |     |  |  |
| Wall Thickness                                             | ASME B16.34                                                                         |     |     |     | ASME B16.34                                                                         |     |     |     | ASME B16.34                                                                          |     |     |     | ASME B16.34                                                                           |     |  |  |

| Type                                                       | AJ Series (Jacketed Gate)                                                                        |                                                                   |     |     |       | AJ Series (Jacketed Globe)                                                                       |                                                    |     |       |     | AJ Series (Jacketed Lift Check)                                                                   |                                                    |       |     |     | AJ Series (Jacketed Swing Check)                                                                   |                                                    |  |  |  |  |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----|-----|-------|--------------------------------------------------------------------------------------------------|----------------------------------------------------|-----|-------|-----|---------------------------------------------------------------------------------------------------|----------------------------------------------------|-------|-----|-----|----------------------------------------------------------------------------------------------------|----------------------------------------------------|--|--|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>150</div>  |                                                                   |     |     |       | <div>150</div>  |                                                    |     |       |     | <div>150</div>  |                                                    |       |     |     | <div>150</div>  |                                                    |  |  |  |  |
|                                                            |                 |                                                                   |     |     |       |                 |                                                    |     |       |     |                  |                                                    |       |     |     |                 |                                                    |  |  |  |  |
| Fig                                                        | 150UMAJM                                                                                         |                                                                   |     |     |       | 150UPAJM                                                                                         |                                                    |     |       |     | 150UNAJM                                                                                          |                                                    |       |     |     | 150UOAJM                                                                                           |                                                    |  |  |  |  |
| End Connection                                             |                                                                                                  | ASME B16.5 Class 150 RF                                           |     |     |       |                                                                                                  | ASME B16.5 Class 150 RF                            |     |       |     |                                                                                                   | ASME B16.5 Class 150 RF                            |       |     |     |                                                                                                    | ASME B16.5 Class 150 RF                            |  |  |  |  |
| inch                                                       | mm                                                                                               | L                                                                 | H   | D   | F*    | L                                                                                                | H                                                  | D   | F*    | L   | H                                                                                                 | D                                                  | F*    | L   | H   | D                                                                                                  | F*                                                 |  |  |  |  |
| 1/2                                                        | 15                                                                                               | 165                                                               | 210 | 100 | 11/2  | 152                                                                                              | 184                                                | 100 | 11/2  | 152 | 78                                                                                                |                                                    | 11/2  |     |     |                                                                                                    |                                                    |  |  |  |  |
| 3/4                                                        | 20                                                                                               | 165                                                               | 221 | 100 | 11/2  | 152                                                                                              | 182                                                | 100 | 11/2  | 152 | 76                                                                                                |                                                    | 11/2  |     |     |                                                                                                    |                                                    |  |  |  |  |
| 1                                                          | 25                                                                                               | 177                                                               | 240 | 100 | 2     | 190                                                                                              | 185                                                | 100 | 2     | 190 | 77                                                                                                |                                                    | 2     |     |     |                                                                                                    |                                                    |  |  |  |  |
| 1 1/2                                                      | 40                                                                                               | 187                                                               | 293 | 140 | 2 1/2 | 213                                                                                              | 234                                                | 160 | 2 1/2 | 213 | 102                                                                                               |                                                    | 2 1/2 |     |     |                                                                                                    |                                                    |  |  |  |  |
| 2                                                          | 50                                                                                               | 203                                                               | 344 | 160 | 3     | 241                                                                                              | 237                                                | 160 | 3     |     |                                                                                                   |                                                    |       | 241 | 125 |                                                                                                    | 3                                                  |  |  |  |  |
| 3                                                          | 80                                                                                               | 229                                                               | 444 | 200 | 4     | 292                                                                                              | 294                                                | 200 | 4     |     |                                                                                                   |                                                    |       | 292 | 152 |                                                                                                    | 4                                                  |  |  |  |  |
| 4                                                          | 100                                                                                              | 267                                                               | 523 | 225 | 6     | 356                                                                                              | 325                                                | 225 | 6     |     |                                                                                                   |                                                    |       | 356 | 169 |                                                                                                    | 6                                                  |  |  |  |  |
| 6                                                          | 150                                                                                              | 292                                                               | 711 | 250 | 8     |                                                                                                  |                                                    |     |       |     |                                                                                                   |                                                    |       | 406 | 219 |                                                                                                    | 8                                                  |  |  |  |  |
| Body/Bonnet                                                |                                                                                                  | CF8M                                                              |     |     |       |                                                                                                  | CF8M                                               |     |       |     |                                                                                                   | CF8M                                               |       |     |     |                                                                                                    | CF8M                                               |  |  |  |  |
| Stem                                                       |                                                                                                  | 3164SS                                                            |     |     |       |                                                                                                  | 3164SS                                             |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    |                                                    |  |  |  |  |
| Disc                                                       |                                                                                                  | CF8M                                                              |     |     |       |                                                                                                  | CF8M                                               |     |       |     |                                                                                                   | 316SS                                              |       |     |     |                                                                                                    | 316SS                                              |  |  |  |  |
| Gland Packing                                              |                                                                                                  | Flexible Graphite                                                 |     |     |       |                                                                                                  | Flexible Graphite                                  |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    |                                                    |  |  |  |  |
| Hinge Pin/Plug                                             |                                                                                                  |                                                                   |     |     |       |                                                                                                  |                                                    |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    | 316SS                                              |  |  |  |  |
| Gasket                                                     |                                                                                                  | Flexible Graphite                                                 |     |     |       |                                                                                                  | Flexible Graphite                                  |     |       |     |                                                                                                   | Flexible Graphite                                  |       |     |     |                                                                                                    | Flexible Graphite                                  |  |  |  |  |
| Jacket                                                     |                                                                                                  | Carbon Steel                                                      |     |     |       |                                                                                                  | Carbon Steel                                       |     |       |     |                                                                                                   | Carbon Steel                                       |       |     |     |                                                                                                    | Carbon Steel                                       |  |  |  |  |
| Bonnet B/N                                                 |                                                                                                  | B8/8                                                              |     |     |       |                                                                                                  | B8/8                                               |     |       |     |                                                                                                   | B8/8                                               |       |     |     |                                                                                                    | B8/8                                               |  |  |  |  |
| P-T Rating                                                 |                                                                                                  | ASME B16.34                                                       |     |     |       |                                                                                                  | ASME B16.34                                        |     |       |     |                                                                                                   | ASME B16.34                                        |       |     |     |                                                                                                    | ASME B16.34                                        |  |  |  |  |
| F-to-F Dimension                                           |                                                                                                  | KITZ Standard                                                     |     |     |       |                                                                                                  | KITZ Standard                                      |     |       |     |                                                                                                   | KITZ Standard                                      |       |     |     |                                                                                                    | KITZ Standard                                      |  |  |  |  |
| Wall Thickness                                             |                                                                                                  | ASME B16.34                                                       |     |     |       |                                                                                                  | ASME B16.34                                        |     |       |     |                                                                                                   | ASME B16.34                                        |       |     |     |                                                                                                    | ASME B16.34                                        |  |  |  |  |
| Remarks                                                    |                                                                                                  | Rating for Jacket: 260°C/1.0MPa<br>Flexible Wedge F*: Flange Size |     |     |       |                                                                                                  | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |     |       |     |                                                                                                   | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |       |     |     |                                                                                                    | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |  |  |  |  |

| Type                                                       | AJ Series (Jacketed Gate)                                                                          |     |     |     |       | AJ Series (Jacketed Globe)                                                                         |     |     |       |     | AJ Series (Jacketed Lift Check)                                                                     |   |       |     |     | AJ Series (Jacketed Swing Check)                                                                     |    |  |  |  |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----|-----|-----|-------|----------------------------------------------------------------------------------------------------|-----|-----|-------|-----|-----------------------------------------------------------------------------------------------------|---|-------|-----|-----|------------------------------------------------------------------------------------------------------|----|--|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>300</div>  |     |     |     |       | <div>300</div>  |     |     |       |     | <div>300</div>  |   |       |     |     | <div>300</div>  |    |  |  |  |
|                                                            |                 |     |     |     |       |                 |     |     |       |     |                  |   |       |     |     |                 |    |  |  |  |
| Fig                                                        | 300UMAJM                                                                                           |     |     |     |       | 300UPAJM                                                                                           |     |     |       |     | 300UNAJM                                                                                            |   |       |     |     | 300UOAJM                                                                                             |    |  |  |  |
| End Connection                                             | ASME B16.5 Class 300 RF                                                                            |     |     |     |       | ASME B16.5 Class 300 RF                                                                            |     |     |       |     | ASME B16.5 Class 300 RF                                                                             |   |       |     |     | ASME B16.5 Class 300 RF                                                                              |    |  |  |  |
| inch                                                       | mm                                                                                                 | L   | H   | D   | F*    | L                                                                                                  | H   | D   | F*    | L   | H                                                                                                   | D | F*    | L   | H   | D                                                                                                    | F* |  |  |  |
| 1/2                                                        | 15                                                                                                 | 178 | 211 | 211 | 11/2  | 165                                                                                                | 184 | 184 | 11/2  | 165 | 78                                                                                                  |   | 11/2  |     |     |                                                                                                      |    |  |  |  |
| 3/4                                                        | 20                                                                                                 | 178 | 221 | 221 | 11/2  | 165                                                                                                | 182 | 182 | 11/2  | 165 | 76                                                                                                  |   | 11/2  |     |     |                                                                                                      |    |  |  |  |
| 1                                                          | 25                                                                                                 | 190 | 240 | 240 | 2     | 203                                                                                                | 185 | 185 | 2     | 203 | 77                                                                                                  |   | 2     |     |     |                                                                                                      |    |  |  |  |
| 1 1/2                                                      | 40                                                                                                 | 203 | 294 | 294 | 2 1/2 | 229                                                                                                | 234 | 234 | 2 1/2 | 229 | 102                                                                                                 |   | 2 1/2 |     |     |                                                                                                      |    |  |  |  |
| 2                                                          | 50                                                                                                 | 283 | 355 | 355 | 3     | 267                                                                                                | 286 | 286 | 3     |     |                                                                                                     |   |       | 267 | 150 |                                                                                                      | 3  |  |  |  |
| 3                                                          | 80                                                                                                 | 305 | 472 | 472 | 4     | 318                                                                                                | 341 | 341 | 4     |     |                                                                                                     |   |       | 330 | 179 |                                                                                                      | 4  |  |  |  |
| 4                                                          | 100                                                                                                | 403 | 560 | 560 | 6     | 356                                                                                                | 396 | 396 | 6     |     |                                                                                                     |   |       | 400 | 203 |                                                                                                      | 6  |  |  |  |
| 6                                                          | 150                                                                                                | 457 | 753 | 753 | 8     |                                                                                                    |     |     |       |     |                                                                                                     |   |       | 444 | 260 |                                                                                                      | 8  |  |  |  |
| Body/Bonnet                                                | CF8M                                                                                               |     |     |     |       | CF8M                                                                                               |     |     |       |     | CF8M                                                                                                |   |       |     |     | CF8M                                                                                                 |    |  |  |  |
| Stem                                                       | 3164SS                                                                                             |     |     |     |       | 3164SS                                                                                             |     |     |       |     |                                                                                                     |   |       |     |     |                                                                                                      |    |  |  |  |
| Disc                                                       | CF8M                                                                                               |     |     |     |       | CF8M                                                                                               |     |     |       |     | 316SS                                                                                               |   |       |     |     | 316SS                                                                                                |    |  |  |  |
| Gland Packing                                              | Flexible Graphite                                                                                  |     |     |     |       | Flexible Graphite                                                                                  |     |     |       |     |                                                                                                     |   |       |     |     |                                                                                                      |    |  |  |  |
| Hinge Pin/Plug                                             |                                                                                                    |     |     |     |       |                                                                                                    |     |     |       |     |                                                                                                     |   |       |     |     | 316SS                                                                                                |    |  |  |  |
| Gasket                                                     | Flexible Graphite                                                                                  |     |     |     |       | Flexible Graphite                                                                                  |     |     |       |     | Flexible Graphite                                                                                   |   |       |     |     | Flexible Graphite                                                                                    |    |  |  |  |
| Jacket                                                     | Carbon Steel                                                                                       |     |     |     |       | Carbon Steel                                                                                       |     |     |       |     | Carbon Steel                                                                                        |   |       |     |     | Carbon Steel                                                                                         |    |  |  |  |
| Bonnet B/N                                                 | B8/8                                                                                               |     |     |     |       | B8/8                                                                                               |     |     |       |     | B8/8                                                                                                |   |       |     |     | B8/8                                                                                                 |    |  |  |  |
| P-T Rating                                                 | ASME B16.34                                                                                        |     |     |     |       | ASME B16.34                                                                                        |     |     |       |     | ASME B16.34                                                                                         |   |       |     |     | ASME B16.34                                                                                          |    |  |  |  |
| F-to-F Dimension                                           | KITZ Standard                                                                                      |     |     |     |       | KITZ Standard                                                                                      |     |     |       |     | KITZ Standard                                                                                       |   |       |     |     | KITZ Standard                                                                                        |    |  |  |  |
| Wall Thickness                                             | ASME B16.34                                                                                        |     |     |     |       | ASME B16.34                                                                                        |     |     |       |     | ASME B16.34                                                                                         |   |       |     |     | ASME B16.34                                                                                          |    |  |  |  |
| Remarks                                                    | Rating for Jacket: 260°C/1.0MPa<br>Flexible Wedge F*: Flange Size                                  |     |     |     |       | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                 |     |     |       |     | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                  |   |       |     |     | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                   |    |  |  |  |

| Type                                                       | AJ Series (Jacketed Gate)                                                                        |                                                                   |     |     |       | AJ Series (Jacketed Globe)                                                                       |                                                    |     |       |     | AJ Series (Jacketed Lift Check)                                                                   |                                                    |       |     |     | AJ Series (Jacketed Swing Check)                                                                   |                                                    |  |  |  |  |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----|-----|-------|--------------------------------------------------------------------------------------------------|----------------------------------------------------|-----|-------|-----|---------------------------------------------------------------------------------------------------|----------------------------------------------------|-------|-----|-----|----------------------------------------------------------------------------------------------------|----------------------------------------------------|--|--|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>10K</div>  |                                                                   |     |     |       | <div>10K</div>  |                                                    |     |       |     | <div>10K</div>  |                                                    |       |     |     | <div>10K</div>  |                                                    |  |  |  |  |
|                                                            | 10UMAJ                                                                                           |                                                                   |     |     |       | 10UPAJ                                                                                           |                                                    |     |       |     | 10UNAJ                                                                                            |                                                    |       |     |     | 10UOAJ                                                                                             |                                                    |  |  |  |  |
| End Connection                                             |                                                                                                  | JIS B2220 10K RF                                                  |     |     |       |                                                                                                  | JIS B2220 10K RF                                   |     |       |     |                                                                                                   | JIS B2220 10K RF                                   |       |     |     |                                                                                                    | JIS B2220 10K RF                                   |  |  |  |  |
| inch                                                       | mm                                                                                               | L                                                                 | H   | D   | F*    | L                                                                                                | H                                                  | D   | F*    | L   | H                                                                                                 | D                                                  | F*    | L   | H   | D                                                                                                  | F*                                                 |  |  |  |  |
| 1/2                                                        | 15                                                                                               | 169                                                               | 210 | 100 | 11/2  | 156                                                                                              | 184                                                | 100 | 11/2  | 156 | 83                                                                                                |                                                    | 11/2  |     |     |                                                                                                    |                                                    |  |  |  |  |
| 3/4                                                        | 20                                                                                               | 169                                                               | 221 | 100 | 11/2  | 156                                                                                              | 182                                                | 100 | 11/2  | 156 | 76                                                                                                |                                                    | 11/2  |     |     |                                                                                                    |                                                    |  |  |  |  |
| 1                                                          | 25                                                                                               | 177                                                               | 240 | 100 | 2     | 190                                                                                              | 185                                                | 100 | 2     | 190 | 76                                                                                                |                                                    | 2     |     |     |                                                                                                    |                                                    |  |  |  |  |
| 1 1/2                                                      | 40                                                                                               | 188                                                               | 293 | 140 | 2 1/2 | 214                                                                                              | 234                                                | 160 | 2 1/2 | 214 | 101                                                                                               |                                                    | 2 1/2 |     |     |                                                                                                    |                                                    |  |  |  |  |
| 2                                                          | 50                                                                                               | 201                                                               | 343 | 160 | 3     | 239                                                                                              | 237                                                | 160 | 3     |     |                                                                                                   |                                                    |       | 239 | 125 |                                                                                                    | 3                                                  |  |  |  |  |
| 3                                                          | 80                                                                                               | 217                                                               | 444 | 200 | 4     | 280                                                                                              | 294                                                | 200 | 4     |     |                                                                                                   |                                                    |       | 280 | 152 |                                                                                                    | 4                                                  |  |  |  |  |
| 4                                                          | 100                                                                                              | 260                                                               | 523 | 225 | 6     | 349                                                                                              | 325                                                | 225 | 6     |     |                                                                                                   |                                                    |       | 349 | 169 |                                                                                                    | 6                                                  |  |  |  |  |
| 6                                                          | 150                                                                                              | 279                                                               | 711 | 250 | 8     |                                                                                                  |                                                    |     |       |     |                                                                                                   |                                                    |       | 393 | 219 |                                                                                                    | 8                                                  |  |  |  |  |
| Body/Bonnet                                                |                                                                                                  | CF8                                                               |     |     |       |                                                                                                  | CF8                                                |     |       |     |                                                                                                   | CF8                                                |       |     |     |                                                                                                    | CF8                                                |  |  |  |  |
| Stem                                                       |                                                                                                  | 304SS                                                             |     |     |       |                                                                                                  | 304SS                                              |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    |                                                    |  |  |  |  |
| Disc                                                       |                                                                                                  | CF8                                                               |     |     |       |                                                                                                  | CF8                                                |     |       |     |                                                                                                   | 304SS                                              |       |     |     |                                                                                                    | 304SS                                              |  |  |  |  |
| Gland Packing                                              |                                                                                                  | Flexible Graphite                                                 |     |     |       |                                                                                                  | Flexible Graphite                                  |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    |                                                    |  |  |  |  |
| Hinge Pin/Plug                                             |                                                                                                  |                                                                   |     |     |       |                                                                                                  |                                                    |     |       |     |                                                                                                   |                                                    |       |     |     |                                                                                                    | 304SS                                              |  |  |  |  |
| Gasket                                                     |                                                                                                  | Flexible Graphite                                                 |     |     |       |                                                                                                  | Flexible Graphite                                  |     |       |     |                                                                                                   | Flexible Graphite                                  |       |     |     |                                                                                                    | Flexible Graphite                                  |  |  |  |  |
| Jacket                                                     |                                                                                                  | Carbon Steel                                                      |     |     |       |                                                                                                  | Carbon Steel                                       |     |       |     |                                                                                                   | Carbon Steel                                       |       |     |     |                                                                                                    | Carbon Steel                                       |  |  |  |  |
| Bonnet B/N                                                 |                                                                                                  | B8/8                                                              |     |     |       |                                                                                                  | B8/8                                               |     |       |     |                                                                                                   | B8/8                                               |       |     |     |                                                                                                    | B8/8                                               |  |  |  |  |
| P-T Rating                                                 |                                                                                                  | JIS B2220                                                         |     |     |       |                                                                                                  | JIS B2220                                          |     |       |     |                                                                                                   | JIS B2220                                          |       |     |     |                                                                                                    | JIS B2220                                          |  |  |  |  |
| F-to-F Dimension                                           |                                                                                                  | KITZ Standard                                                     |     |     |       |                                                                                                  | KITZ Standard                                      |     |       |     |                                                                                                   | KITZ Standard                                      |       |     |     |                                                                                                    | KITZ Standard                                      |  |  |  |  |
| Wall Thickness                                             |                                                                                                  | ASME B16.34                                                       |     |     |       |                                                                                                  | ASME B16.34                                        |     |       |     |                                                                                                   | ASME B16.34                                        |       |     |     |                                                                                                    | ASME B16.34                                        |  |  |  |  |
| Remarks                                                    |                                                                                                  | Rating for Jacket: 260°C/1.0MPa<br>Flexible Wedge F*: Flange Size |     |     |       |                                                                                                  | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |     |       |     |                                                                                                   | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |       |     |     |                                                                                                    | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size |  |  |  |  |

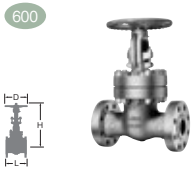
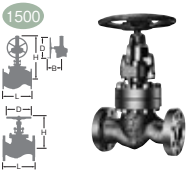
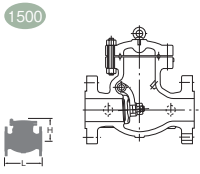
| Type                                                       | AJ Series (Jacketed Gate)                                                                          |     |     |     |       | AJ Series (Jacketed Globe)                                                                         |     |     |       |     | AJ Series (Jacketed Lift Check)                                                                     |   |       |     |     | AJ Series (Jacketed Swing Check)                                                                     |    |  |  |  |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----|-----|-----|-------|----------------------------------------------------------------------------------------------------|-----|-----|-------|-----|-----------------------------------------------------------------------------------------------------|---|-------|-----|-----|------------------------------------------------------------------------------------------------------|----|--|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>20K</div>  |     |     |     |       | <div>20K</div>  |     |     |       |     | <div>20K</div>  |   |       |     |     | <div>20K</div>  |    |  |  |  |
|                                                            |                                                                                                    |     |     |     |       |                                                                                                    |     |     |       |     |                                                                                                     |   |       |     |     |                                                                                                      |    |  |  |  |
| Fig                                                        | 20UMAJ                                                                                             |     |     |     |       | 20UPAJ                                                                                             |     |     |       |     | 20UNAJ                                                                                              |   |       |     |     | 20UOAJ                                                                                               |    |  |  |  |
| End Connection                                             | JIS B2220 20K RF                                                                                   |     |     |     |       | JIS B2220 20K RF                                                                                   |     |     |       |     | JIS B2220 10K RF                                                                                    |   |       |     |     | JIS B2220 20K RF                                                                                     |    |  |  |  |
| inch                                                       | mm                                                                                                 | L   | H   | D   | F*    | L                                                                                                  | H   | D   | F*    | L   | H                                                                                                   | D | F*    | L   | H   | D                                                                                                    | F* |  |  |  |
| 1/2                                                        | 15                                                                                                 | 173 | 210 | 100 | 11/2  | 160                                                                                                | 184 | 100 | 11/2  | 160 | 78                                                                                                  |   | 11/2  |     |     |                                                                                                      |    |  |  |  |
| 3/4                                                        | 20                                                                                                 | 173 | 221 | 100 | 11/2  | 160                                                                                                | 182 | 100 | 11/2  | 160 | 76                                                                                                  |   | 11/2  |     |     |                                                                                                      |    |  |  |  |
| 1                                                          | 25                                                                                                 | 181 | 240 | 100 | 2     | 194                                                                                                | 185 | 100 | 2     | 194 | 77                                                                                                  |   | 2     |     |     |                                                                                                      |    |  |  |  |
| 1 1/2                                                      | 40                                                                                                 | 192 | 294 | 140 | 2 1/2 | 218                                                                                                | 234 | 160 | 2 1/2 | 218 | 102                                                                                                 |   | 2 1/2 |     |     |                                                                                                      |    |  |  |  |
| 2                                                          | 50                                                                                                 | 270 | 355 | 180 | 3     | 254                                                                                                | 286 | 180 | 3     |     |                                                                                                     |   |       | 254 | 150 |                                                                                                      | 3  |  |  |  |
| 3                                                          | 80                                                                                                 | 289 | 472 | 225 | 4     | 302                                                                                                | 341 | 250 | 4     |     |                                                                                                     |   |       | 314 | 179 |                                                                                                      | 4  |  |  |  |
| 4                                                          | 100                                                                                                | 386 | 560 | 250 | 6     | 339                                                                                                | 396 | 300 | 6     |     |                                                                                                     |   |       | 383 | 203 |                                                                                                      | 6  |  |  |  |
| 6                                                          | 150                                                                                                | 434 | 753 | 350 | 8     |                                                                                                    |     |     |       |     |                                                                                                     |   |       | 421 | 262 |                                                                                                      | 8  |  |  |  |
| Body/Bonnet                                                | CF8                                                                                                |     |     |     |       | CF8                                                                                                |     |     |       |     | CF8                                                                                                 |   |       |     |     | CF8                                                                                                  |    |  |  |  |
| Stem                                                       | 304SS                                                                                              |     |     |     |       | 304SS                                                                                              |     |     |       |     |                                                                                                     |   |       |     |     |                                                                                                      |    |  |  |  |
| Disc                                                       | CF8                                                                                                |     |     |     |       | CF8                                                                                                |     |     |       |     | 304SS                                                                                               |   |       |     |     | 304SS                                                                                                |    |  |  |  |
| Gland Packing                                              | Flexible Graphite                                                                                  |     |     |     |       | Flexible Graphite                                                                                  |     |     |       |     |                                                                                                     |   |       |     |     |                                                                                                      |    |  |  |  |
| Hinge Pin/Plug                                             |                                                                                                    |     |     |     |       |                                                                                                    |     |     |       |     |                                                                                                     |   |       |     |     | 304SS                                                                                                |    |  |  |  |
| Gasket                                                     | Flexible Graphite                                                                                  |     |     |     |       | Flexible Graphite                                                                                  |     |     |       |     | Flexible Graphite                                                                                   |   |       |     |     | Flexible Graphite                                                                                    |    |  |  |  |
| Jacket                                                     | Carbon Steel                                                                                       |     |     |     |       | Carbon Steel                                                                                       |     |     |       |     | Carbon Steel                                                                                        |   |       |     |     | Carbon Steel                                                                                         |    |  |  |  |
| Bonnet B/N                                                 | B8/8                                                                                               |     |     |     |       | B8/8                                                                                               |     |     |       |     | B8/8                                                                                                |   |       |     |     | B8/8                                                                                                 |    |  |  |  |
| P-T Rating                                                 | JIS B2220                                                                                          |     |     |     |       | JIS B2220                                                                                          |     |     |       |     | JIS B2220                                                                                           |   |       |     |     | JIS B2220                                                                                            |    |  |  |  |
| F-to-F Dimension                                           | KITZ Standard                                                                                      |     |     |     |       | KITZ Standard                                                                                      |     |     |       |     | KITZ Standard                                                                                       |   |       |     |     | KITZ Standard                                                                                        |    |  |  |  |
| Wall Thickness                                             | ASME B16.34                                                                                        |     |     |     |       | ASME B16.34                                                                                        |     |     |       |     | ASME B16.34                                                                                         |   |       |     |     | ASME B16.34                                                                                          |    |  |  |  |
| Remarks                                                    | Rating for Jacket: 260°C/1.0MPa<br>Flexible Wedge F*: Flange Size                                  |     |     |     |       | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                 |     |     |       |     | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                  |   |       |     |     | Rating for Jacket: 260°C/1.0MPa<br>F*: Flange Size                                                   |    |  |  |  |

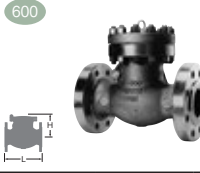
| Type                                                       | C Series (Gate)                                                                   |     |      |     |  | C Series (Globe)                                                                  |     |     | C Series (Swing Check)                                                             |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|--|-----------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |  |     |     |  |     |   |
|                                                            |  |     |      |     |  |  |     |     |   |     |   |
| Fig                                                        | 150UMCM                                                                           |     |      |     |  | 150UPCM                                                                           |     |     | 150UOCM                                                                            |     |   |
| End Connection                                             | ASME B16.5 Class 150 RF                                                           |     |      |     |  | ASME B16.5 Class 150 RF                                                           |     |     | ASME B16.5 Class 150 RF                                                            |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   |  | L                                                                                 | H   | D   | L                                                                                  | H   | D |
| 1/2                                                        | 15                                                                                | 108 | 218  | 90  |  | 108                                                                               | 196 | 90  | 108                                                                                | 78  |   |
| 3/4                                                        | 20                                                                                | 117 | 231  | 100 |  | 117                                                                               | 202 | 100 | 117                                                                                | 83  |   |
| 1                                                          | 25                                                                                | 127 | 278  | 120 |  | 127                                                                               | 233 | 120 | 127                                                                                | 98  |   |
| 1 1/2                                                      | 40                                                                                | 165 | 341  | 160 |  | 165                                                                               | 273 | 160 | 165                                                                                | 113 |   |
| 2                                                          | 50                                                                                | 178 | 382  | 200 |  | 203                                                                               | 328 | 200 | 203                                                                                | 159 |   |
| 2 1/2                                                      | 65                                                                                | 190 | 429  | 200 |  | 216                                                                               | 356 | 225 | 216                                                                                | 165 |   |
| 3                                                          | 80                                                                                | 203 | 507  | 250 |  | 241                                                                               | 390 | 250 | 241                                                                                | 189 |   |
| 4                                                          | 100                                                                               | 229 | 589  | 250 |  | 292                                                                               | 456 | 250 | 292                                                                                | 205 |   |
| 6                                                          | 150                                                                               | 267 | 764  | 300 |  | 406                                                                               | 506 | 350 | 356                                                                                | 253 |   |
| 8                                                          | 200                                                                               | 292 | 961  | 350 |  | 495                                                                               | 613 | 400 | 495                                                                                | 281 |   |
| 10                                                         | 250                                                                               | 330 | 1172 | 400 |  |                                                                                   |     |     | 622                                                                                | 345 |   |
| 12                                                         | 300                                                                               | 356 | 1371 | 450 |  |                                                                                   |     |     | 698                                                                                | 385 |   |
| 14                                                         | 350                                                                               | 381 | 1524 | 500 |  |                                                                                   |     |     | 787                                                                                | 396 |   |
| 16                                                         | 400                                                                               | 406 | 1692 | 600 |  |                                                                                   |     |     | 864                                                                                | 438 |   |
| 18                                                         | 450                                                                               | 432 | 1888 | 600 |  |                                                                                   |     |     | 978                                                                                | 465 |   |
| 20                                                         | 500                                                                               | 457 | 2123 | 680 |  |                                                                                   |     |     | 978                                                                                | 590 |   |
| 24                                                         | 600                                                                               | 508 | 2490 | 760 |  |                                                                                   |     |     | 1295                                                                               | 670 |   |
| Body/Bonnet                                                | CF8M                                                                              |     |      |     |  | CF8M                                                                              |     |     | CF8M                                                                               |     |   |
| Stem                                                       | 316SS                                                                             |     |      |     |  | 316SS                                                                             |     |     |                                                                                    |     |   |
| Disc                                                       | CF8M                                                                              |     |      |     |  | CF8M                                                                              |     |     | CF8M                                                                               |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     |  | Refer to Page SS22                                                                |     |     |                                                                                    |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     |  | Refer to Page SS22                                                                |     |     | Refer to Page SS22                                                                 |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     |  | B8/8                                                                              |     |     | B8/8                                                                               |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     |  | ASME B16.34                                                                       |     |     | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     |  | ASME B16.10                                                                       |     |     | ASME B16.10                                                                        |     |   |
| Wall Thickness                                             | API 600                                                                           |     |      |     |  | API 600                                                                           |     |     | API 600                                                                            |     |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |      |     |  | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |     | PED/CE TR-CU/EAC                                                                   |     |   |
| Remarks                                                    | Solid Wedge $\leq 4^\circ$ , Flexible Wedge $\geq 6^\circ$                        |     |      |     |  |                                                                                   |     |     |                                                                                    |     |   |

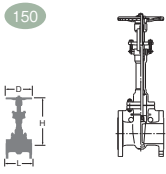
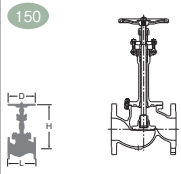
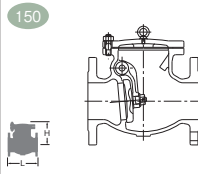
| Type                                                       | C Series (Gate)                                                                     |      |      |     |  | C Series (Globe)                                                                    |     |     | C Series (Swing Check)                                                               |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|-----|--|-------------------------------------------------------------------------------------|-----|-----|--------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |      |      |     |  |  |     |     |  |     |   |
|                                                            |  |      |      |     |  |  |     |     |   |     |   |
| Fig                                                        | 300UMCM                                                                             |      |      |     |  | 300UPCM                                                                             |     |     | 300UOCM                                                                              |     |   |
| End Connection                                             | ASME B16.5 Class 300 RF                                                             |      |      |     |  | ASME B16.5 Class 300 RF                                                             |     |     | ASME B16.5 Class 300 RF                                                              |     |   |
| inch                                                       | mm                                                                                  | L    | H    | D   |  | L                                                                                   | H   | D   | L                                                                                    | H   | D |
| 1/2                                                        | 15                                                                                  | 140  | 227  | 100 |  | 152                                                                                 | 220 | 100 | 140                                                                                  | 81  |   |
| 3/4                                                        | 20                                                                                  | 152  | 250  | 100 |  | 178                                                                                 | 222 | 100 | 152                                                                                  | 84  |   |
| 1                                                          | 25                                                                                  | 165  | 310  | 120 |  | 203                                                                                 | 259 | 140 | 216                                                                                  | 101 |   |
| 1 1/2                                                      | 40                                                                                  | 190  | 378  | 200 |  | 229                                                                                 | 302 | 180 | 241                                                                                  | 118 |   |
| 2                                                          | 50                                                                                  | 216  | 416  | 200 |  | 267                                                                                 | 352 | 200 | 267                                                                                  | 165 |   |
| 2 1/2                                                      | 65                                                                                  | 241  | 455  | 200 |  | 292                                                                                 | 400 | 250 | 292                                                                                  | 190 |   |
| 3                                                          | 80                                                                                  | 283  | 528  | 250 |  | 318                                                                                 | 440 | 250 | 318                                                                                  | 205 |   |
| 4                                                          | 100                                                                                 | 305  | 615  | 250 |  | 356                                                                                 | 509 | 350 | 356                                                                                  | 225 |   |
| 6                                                          | 150                                                                                 | 403  | 798  | 350 |  | 444                                                                                 | 677 | 450 |                                                                                      |     |   |
| 8                                                          | 200                                                                                 | 419  | 1020 | 400 |  |                                                                                     |     |     | 444                                                                                  | 272 |   |
| 10                                                         | 250                                                                                 | 457  | 1222 | 450 |  |                                                                                     |     |     | 533                                                                                  | 330 |   |
| 12                                                         | 300                                                                                 | 502  | 1442 | 500 |  |                                                                                     |     |     | 622                                                                                  | 360 |   |
| 14                                                         | 350                                                                                 | 562  | 1575 | 600 |  |                                                                                     |     |     | 711                                                                                  | 406 |   |
| 16                                                         | 400                                                                                 | 638  | 1745 | 600 |  |                                                                                     |     |     | 838                                                                                  | 480 |   |
| 18                                                         | 450                                                                                 | 714  | 1945 | 680 |  |                                                                                     |     |     | 864                                                                                  | 527 |   |
| 20                                                         | 500                                                                                 | 791  | 2155 | 760 |  |                                                                                     |     |     | 978                                                                                  | 555 |   |
| 24                                                         | 600                                                                                 | 1143 | 2555 | 910 |  |                                                                                     |     |     | 1346                                                                                 | 732 |   |
| Body/Bonnet                                                | CF8M                                                                                |      |      |     |  | CF8M                                                                                |     |     | CF8                                                                                  |     |   |
| Stem                                                       | 316SS                                                                               |      |      |     |  | 316SS                                                                               |     |     |                                                                                      |     |   |
| Disc                                                       | CF8M                                                                                |      |      |     |  | CF8M                                                                                |     |     | CF8                                                                                  |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                  |      |      |     |  | Refer to Page SS22                                                                  |     |     |                                                                                      |     |   |
| Gasket                                                     | Refer to Page SS22                                                                  |      |      |     |  | Refer to Page SS22                                                                  |     |     | Refer to Page SS22                                                                   |     |   |
| Bonnet B/N                                                 | B8/8                                                                                |      |      |     |  | B8/8                                                                                |     |     | B8/8                                                                                 |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |      |      |     |  | ASME B16.34                                                                         |     |     | ASME B16.34                                                                          |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |      |      |     |  | ASME B16.10                                                                         |     |     | ASME B16.10                                                                          |     |   |
| Wall Thickness                                             | API 600                                                                             |      |      |     |  | API 600                                                                             |     |     | API 600                                                                              |     |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                        |      |      |     |  | ISO15848-1, PED/CE TR-CU/EAC                                                        |     |     | PED/CE TR-CU/EAC                                                                     |     |   |
| Remarks                                                    | Solid Wedge $\leq 4^\circ$ , Flexible Wedge $\geq 6^\circ$                          |      |      |     |  |                                                                                     |     |     |                                                                                      |     |   |

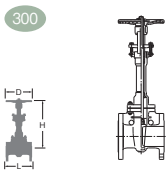
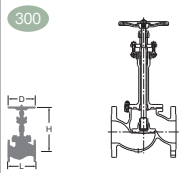
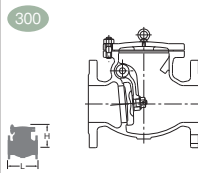
| Type                                                       | C Series (Gate)                                                                   |     |      |     | C Series (Globe)                                                                  |      |     |     | C Series (Swing Check)                                                             |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----------------------------------------------------------------------------------|------|-----|-----|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |      |     |     |  |     |   |
| Fig                                                        | 600UMCM                                                                           |     |      |     | 600UPCM/G-600UPCM                                                                 |      |     |     | 600UOCM                                                                            |     |   |
| End Connection                                             | ASME B16.5 Class 600 RF                                                           |     |      |     | ASME B16.5 Class 600 RF                                                           |      |     |     | ASME B16.5 Class 600 RF                                                            |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   | L                                                                                 | H    | D   | B   | L                                                                                  | H   | D |
| 1/2                                                        | 15                                                                                | 165 | 267  | 100 | 165                                                                               | 280  | 140 |     | 165                                                                                | 130 |   |
| 3/4                                                        | 20                                                                                | 190 | 276  | 140 | 190                                                                               | 275  | 140 |     | 190                                                                                | 135 |   |
| 1                                                          | 25                                                                                | 216 | 331  | 160 | 216                                                                               | 290  | 160 |     | 216                                                                                | 142 |   |
| 1 1/2                                                      | 40                                                                                | 241 | 395  | 200 | 241                                                                               | 340  | 200 |     | 241                                                                                | 172 |   |
| 2                                                          | 50                                                                                | 292 | 463  | 200 | 292                                                                               | 413  | 250 |     | 292                                                                                | 193 |   |
| 3                                                          | 80                                                                                | 356 | 569  | 250 | 356                                                                               | 529  | 350 |     | 356                                                                                | 220 |   |
| 4                                                          | 100                                                                               | 432 | 696  | 300 | 432                                                                               | 947  | 500 | 254 | 432                                                                                | 256 |   |
| 6                                                          | 150                                                                               | 559 | 905  | 450 | 559                                                                               | 1031 | 500 | 280 | 559                                                                                | 316 |   |
| 8                                                          | 200                                                                               | 660 | 1086 | 500 | 660                                                                               | 1232 | 600 | 350 | 660                                                                                | 358 |   |
| 10                                                         | 250                                                                               | 787 | 1275 | 600 |                                                                                   |      |     |     | 787                                                                                | 415 |   |
| 12                                                         | 300                                                                               | 838 | 1498 | 680 |                                                                                   |      |     |     | 838                                                                                | 462 |   |
| Body/Bonnet                                                | CF8M                                                                              |     |      |     | CF8M                                                                              |      |     |     | CF8M                                                                               |     |   |
| Stem                                                       | 316SS                                                                             |     |      |     | 316SS                                                                             |      |     |     |                                                                                    |     |   |
| Disc                                                       | CF8M                                                                              |     |      |     |                                                                                   |      |     |     | CF8M                                                                               |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |      |     |     |                                                                                    |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |      |     |     | Refer to Page SS22                                                                 |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     | B8/8                                                                              |      |     |     | B8/8                                                                               |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |      |     |     | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     | ASME B16.10                                                                       |      |     |     | ASME B16.10                                                                        |     |   |
| Wall Thickness                                             | API 600                                                                           |     |      |     | API 600                                                                           |      |     |     | API 600                                                                            |     |   |
| Approval                                                   | ISO15848-1, PED/CE TR-CU/EAC                                                      |     |      |     | ISO15848-1, PED/CE TR-CU/EAC                                                      |      |     |     | PED/CE TR-CU/EAC                                                                   |     |   |
| Remarks                                                    | Solid Wedge $\leq 11/2^{\circ}$ , Flexible Wedge $\geq 2^{\circ}$                 |     |      |     |                                                                                   |      |     |     |                                                                                    |     |   |

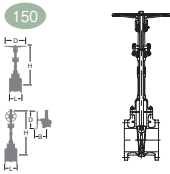
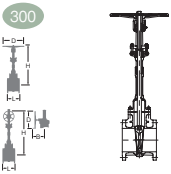
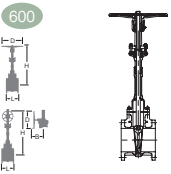
| Type                                                       | C Series (Gate)                                                                     |     |      |     | C Series (Globe)                                                                    |     |     |     | C Series (Swing Check)                                                               |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|-----|-------------------------------------------------------------------------------------|-----|-----|-----|--------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |     |     |     |  |     |   |
| Fig                                                        | 900UMCM                                                                             |     |      |     | 900UPCM/G-900UPCM                                                                   |     |     |     | 900UOCM                                                                              |     |   |
| End Connection                                             | ASME B16.5 Class 900 RF                                                             |     |      |     | ASME B16.5 Class 900 RF                                                             |     |     |     | ASME B16.5 Class 900 RF                                                              |     |   |
| inch                                                       | mm                                                                                  | L   | H    | D   | L                                                                                   | H   | D   | B   | L                                                                                    | H   | D |
| 2                                                          | 50                                                                                  | 368 | 521  | 250 |                                                                                     |     |     |     |                                                                                      |     |   |
| 3                                                          | 80                                                                                  | 381 | 620  | 350 | TBA                                                                                 | TBA | TBA | TBA | 381                                                                                  | 294 |   |
| 4                                                          | 100                                                                                 | 457 | 705  | 350 | TBA                                                                                 | TBA | TBA | TBA | 457                                                                                  | 348 |   |
| 6                                                          | 150                                                                                 | 610 | 901  | 500 | TBA                                                                                 | TBA | TBA | TBA | 610                                                                                  | 441 |   |
| 8                                                          | 200                                                                                 | 737 | 1087 | 600 | TBA                                                                                 | TBA | TBA | TBA | 737                                                                                  | 527 |   |
| 10                                                         | 250                                                                                 | 838 | 1285 | 680 |                                                                                     |     |     |     |                                                                                      |     |   |
| 12                                                         | 300                                                                                 | 965 | 1499 | 760 |                                                                                     |     |     |     |                                                                                      |     |   |
| Body/Bonnet                                                | CF8M                                                                                |     |      |     | CF8M                                                                                |     |     |     | CF8M                                                                                 |     |   |
| Stem                                                       | 316SS                                                                               |     |      |     | 316SS                                                                               |     |     |     |                                                                                      |     |   |
| Disc                                                       | CF8M                                                                                |     |      |     | CF8M                                                                                |     |     |     | CF8M                                                                                 |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                  |     |      |     | Refer to Page SS22                                                                  |     |     |     |                                                                                      |     |   |
| Gasket                                                     | Refer to Page SS22                                                                  |     |      |     | Refer to Page SS22                                                                  |     |     |     | Refer to Page SS22                                                                   |     |   |
| Bonnet B/N                                                 | B8/8                                                                                |     |      |     | B8/8                                                                                |     |     |     | B8/8                                                                                 |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |     |      |     | ASME B16.34                                                                         |     |     |     | ASME B16.34                                                                          |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |      |     | ASME B16.10                                                                         |     |     |     | ASME B16.10                                                                          |     |   |
| Wall Thickness                                             | API 600                                                                             |     |      |     | API 600                                                                             |     |     |     | API 600                                                                              |     |   |
| Approval                                                   | PED/CE TR-CU/EAC                                                                    |     |      |     | PED/CE TR-CU/EAC                                                                    |     |     |     | PED/CE TR-CU/EAC                                                                     |     |   |
| Remarks                                                    | Flexible Wedge                                                                      |     |      |     |                                                                                     |     |     |     |                                                                                      |     |   |

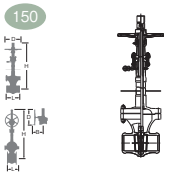
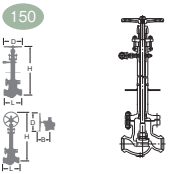
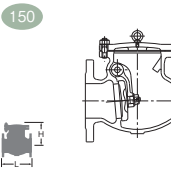
| Type                                                       | C Series (Gate)                                                                   |     |      |     | C Series (Globe)                                                                  |     |     |     | C Series (Swing Check)                                                             |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----------------------------------------------------------------------------------|-----|-----|-----|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |     |     |     |  |     |   |
|                                                            |  |     |      |     |  |     |     |     |   |     |   |
| Fig                                                        | 1500UMCM                                                                          |     |      |     | 1500UPCM/G-1500UPCM                                                               |     |     |     | 1500UOCM                                                                           |     |   |
| End Connection                                             | ASME B16.5 Class 1500 RF                                                          |     |      |     | ASME B16.5 Class 1500 RF                                                          |     |     |     | ASME B16.5 Class 1500 RF                                                           |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   | L                                                                                 | H   | D   | B   | L                                                                                  | H   | D |
| 2                                                          | 50                                                                                | 368 | 562  | 250 | 368                                                                               | 546 | 350 |     | 368                                                                                | 290 |   |
| 2 1/2                                                      | 65                                                                                | 419 | 639  | 300 |                                                                                   |     |     |     | 419                                                                                | 316 |   |
| 3                                                          | 80                                                                                | 470 | 684  | 350 | TBA                                                                               | TBA | TBA | TBA | 470                                                                                | 347 |   |
| 4                                                          | 100                                                                               | 546 | 770  | 400 | TBA                                                                               | TBA | TBA | TBA | 546                                                                                | 391 |   |
| 6                                                          | 150                                                                               | 705 | 1040 | 600 | TBA                                                                               | TBA | TBA | TBA | 705                                                                                | 515 |   |
| 8                                                          | 200                                                                               | 832 | 1250 | 680 |                                                                                   |     |     |     | 832                                                                                | 650 |   |
| Body/Bonnet                                                | CF8M                                                                              |     |      |     | CF8M                                                                              |     |     |     | CF8M                                                                               |     |   |
| Stem                                                       | 316SS                                                                             |     |      |     | 316SS                                                                             |     |     |     |                                                                                    |     |   |
| Disc                                                       | CF8M                                                                              |     |      |     | CF8M                                                                              |     |     |     | CF8M                                                                               |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |     |     |     |                                                                                    |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |     |      |     | Refer to Page SS22                                                                |     |     |     | Refer to Page SS22                                                                 |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |     |      |     | B8/8                                                                              |     |     |     | B8/8                                                                               |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |     |     |     | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     | ASME B16.10                                                                       |     |     |     | ASME B16.10                                                                        |     |   |
| Wall Thickness                                             | API 600                                                                           |     |      |     | API 600                                                                           |     |     |     | API 600                                                                            |     |   |
| Approval                                                   | PED/CE TR-CU/EAC                                                                  |     |      |     | PED/CE TR-CU/EAC                                                                  |     |     |     | PED/CE TR-CU/EAC                                                                   |     |   |
| Remarks                                                    | Flexible Wedge                                                                    |     |      |     |                                                                                   |     |     |     |                                                                                    |     |   |

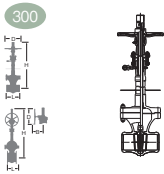
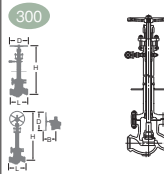
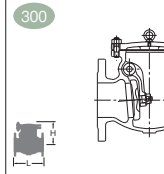
| Type                                                       | C Series (Swing Check)                                                              |     |     |   | C Series (Swing Check)                                                              |     |   |  | C Series (Swing Check)                                                               |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|-----|---|-------------------------------------------------------------------------------------|-----|---|--|--------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |     |   |  |     |   |  |  |     |   |
|                                                            |  |     |     |   |  |     |   |  |   |     |   |
| Fig                                                        | 150UOCHM                                                                            |     |     |   | 300UOCHM                                                                            |     |   |  | 600UOCHM                                                                             |     |   |
| End Connection                                             | ASME B16.5 Class 150 RF                                                             |     |     |   | ASME B16.5 Class 300 RF                                                             |     |   |  | ASME B16.5 Class 600 RF                                                              |     |   |
| inch                                                       | mm                                                                                  | L   | H   | D | L                                                                                   | H   | D |  | L                                                                                    | H   | D |
| 2                                                          | 50                                                                                  | 203 | 158 |   | 267                                                                                 | 162 |   |  | 292                                                                                  | 190 |   |
| 2 1/2                                                      | 65                                                                                  | 216 | 165 |   |                                                                                     |     |   |  |                                                                                      |     |   |
| 3                                                          | 80                                                                                  | 241 | 188 |   | 318                                                                                 | 203 |   |  | 356                                                                                  | 222 |   |
| 4                                                          | 100                                                                                 | 292 | 204 |   | 356                                                                                 | 233 |   |  | 432                                                                                  | 257 |   |
| 6                                                          | 150                                                                                 | 356 | 252 |   | 444                                                                                 | 280 |   |  | 559                                                                                  | 318 |   |
| 8                                                          | 200                                                                                 | 495 | 281 |   | 533                                                                                 | 330 |   |  | 660                                                                                  | 359 |   |
| 10                                                         | 250                                                                                 | 622 | 344 |   | 622                                                                                 | 367 |   |  | 787                                                                                  | 415 |   |
| 12                                                         | 300                                                                                 | 698 | 385 |   | 711                                                                                 | 423 |   |  | 838                                                                                  | 462 |   |
| Body/Bonnet                                                | CF8M                                                                                |     |     |   | CF8M                                                                                |     |   |  | CF8M                                                                                 |     |   |
| Disc                                                       | CF8M                                                                                |     |     |   | CF8M                                                                                |     |   |  | CF8M                                                                                 |     |   |
| Gasket                                                     | Refer to Page SS22                                                                  |     |     |   | Refer to Page SS22                                                                  |     |   |  | Refer to Page SS22                                                                   |     |   |
| Bonnet B/N                                                 | B8/8                                                                                |     |     |   | B8/8                                                                                |     |   |  | B8/8                                                                                 |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |     |     |   | ASME B16.34                                                                         |     |   |  | ASME B16.34                                                                          |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |     |   | ASME B16.10                                                                         |     |   |  | ASME B16.10                                                                          |     |   |
| Wall Thickness                                             | API 594                                                                             |     |     |   | API 594                                                                             |     |   |  | API 594                                                                              |     |   |
| Approval                                                   | PED/CE TR-CU/EAC                                                                    |     |     |   | PED/CE TR-CU/EAC                                                                    |     |   |  | PED/CE TR-CU/EAC                                                                     |     |   |
| Remarks                                                    | Internal Hinge Pin as per API594 Type B                                             |     |     |   | Internal Hinge Pin as per API594 Type B                                             |     |   |  | Internal Hinge Pin as per API594 Type B                                              |     |   |

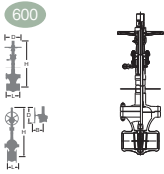
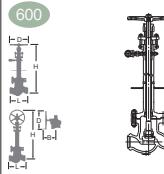
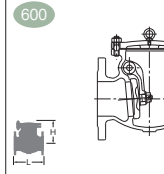
| Type                                                       | A Series (Gate-104°C)                                                             |     |      |     | A Series (Globe-104°C)                                                            |     |     |   | A Series (Swing Check-104°C)                                                       |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----------------------------------------------------------------------------------|-----|-----|---|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |     |     |   |  |     |   |
| Fig                                                        | 150UMAXY/G-150UMAXY                                                               |     |      |     | 150UPAXY/G-150UPAXY                                                               |     |     |   | 150UOAXY                                                                           |     |   |
| End Connection                                             | ASME B16.5 Class 150 RF                                                           |     |      |     | ASME B16.5 Class 150 RF                                                           |     |     |   | ASME B16.5 Class 150 RF                                                            |     |   |
| inch                                                       | mm                                                                                | L   | H    | D   | L                                                                                 | H   | D   | B | L                                                                                  | H   | D |
| 1/2                                                        | 15                                                                                | 108 | 343  | 90  | 108                                                                               | 302 | 90  |   |                                                                                    |     |   |
| 3/4                                                        | 20                                                                                | 117 | 352  | 90  | 117                                                                               | 315 | 90  |   |                                                                                    |     |   |
| 1                                                          | 25                                                                                | 127 | 375  | 100 | 127                                                                               | 331 | 100 |   |                                                                                    |     |   |
| 1 1/2                                                      | 40                                                                                | 165 | 436  | 140 | 165                                                                               | 366 | 140 |   | 165                                                                                | 111 |   |
| 2                                                          | 50                                                                                | 178 | 497  | 160 | 203                                                                               | 416 | 160 |   | 203                                                                                | 121 |   |
| 2 1/2                                                      | 65                                                                                | 190 | 536  | 180 | 216                                                                               | 422 | 180 |   | 216                                                                                | 134 |   |
| 3                                                          | 80                                                                                | 203 | 630  | 200 | 241                                                                               | 481 | 200 |   | 241                                                                                | 148 |   |
| 4                                                          | 100                                                                               | 229 | 722  | 225 | 292                                                                               | 535 | 225 |   | 292                                                                                | 162 |   |
| 5                                                          | 125                                                                               | 254 | 828  | 250 | 356                                                                               | 610 | 250 |   | 330                                                                                | 192 |   |
| 6                                                          | 150                                                                               | 267 | 935  | 250 | 406                                                                               | 675 | 350 |   | 356                                                                                | 217 |   |
| 8                                                          | 200                                                                               | 292 | 1136 | 300 | 495                                                                               | 776 | 400 |   | 495                                                                                | 264 |   |
| 10                                                         | 250                                                                               | 330 | 1367 | 350 |                                                                                   |     |     |   | 622                                                                                | 287 |   |
| 12                                                         | 300                                                                               | 356 | 1571 | 400 |                                                                                   |     |     |   | 698                                                                                | 315 |   |
| 14                                                         | 350                                                                               | 381 | 1747 | 450 |                                                                                   |     |     |   | 787                                                                                | 363 |   |
| 16                                                         | 400                                                                               | 406 | 1921 | 600 |                                                                                   |     |     |   | 864                                                                                | 407 |   |
| Body                                                       | CF8+HF (Co-Cr-W Alloy)                                                            |     |      |     | CF8+HF (Co-Cr-W Alloy)                                                            |     |     |   | CF8+HF (Co-Cr-W Alloy)                                                             |     |   |
| Bonnet                                                     | CF8                                                                               |     |      |     | CF8                                                                               |     |     |   | CF8                                                                                |     |   |
| Cover                                                      |                                                                                   |     |      |     |                                                                                   |     |     |   | CF8                                                                                |     |   |
| Stem                                                       | 304SS                                                                             |     |      |     | 304SS                                                                             |     |     |   |                                                                                    |     |   |
| Disc                                                       | CF8+HF (Co-Cr-W Alloy)                                                            |     |      |     | CF8+HF (Co-Cr-W Alloy)                                                            |     |     |   | CF8+HF (Co-Cr-W Alloy)                                                             |     |   |
| Gland Packing                                              | Flexible Graphite+PTFE Braided                                                    |     |      |     | Flexible Graphite+PTFE Braided                                                    |     |     |   |                                                                                    |     |   |
| Gasket                                                     | PTFE Spiral Wound                                                                 |     |      |     | PTFE Spiral Wound                                                                 |     |     |   | PTFE Spiral Wound                                                                  |     |   |
| Bonnet B/N                                                 | B8 CL2/8                                                                          |     |      |     | B8 CL2/8                                                                          |     |     |   | B8 CL2/8                                                                           |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |     |     |   | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     | ASME B16.10                                                                       |     |     |   | ASME B16.10                                                                        |     |   |
| Wall Thickness                                             | ASME B16.34                                                                       |     |      |     | ASME B16.34                                                                       |     |     |   | ASME B16.34                                                                        |     |   |
| Remarks                                                    | Gear for 8" & above                                                               |     |      |     | Gear for 6" & above                                                               |     |     |   |                                                                                    |     |   |

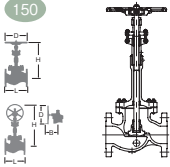
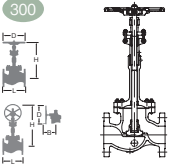
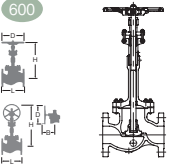
| Type                                                       | A Series (Gate-104°C)                                                               |     |      |     | A Series (Globe-104°C)                                                              |     |     |   | A Series (Swing Check-104°C)                                                         |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|-----|-------------------------------------------------------------------------------------|-----|-----|---|--------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |  |     |     |   |  |     |   |
| Fig                                                        | 300UMAXY/G-300UMAXY                                                                 |     |      |     | 300UPAXY/G-300UPAXY                                                                 |     |     |   | 300UOAXY                                                                             |     |   |
| End Connection                                             | ASME B16.5 Class 300 RF                                                             |     |      |     | ASME B16.5 Class 300 RF                                                             |     |     |   | ASME B16.5 Class 300 RF                                                              |     |   |
| inch                                                       | mm                                                                                  | L   | H    | D   | L                                                                                   | H   | D   | B | L                                                                                    | H   | D |
| 1/2                                                        | 15                                                                                  | 140 | 338  | 100 | 152                                                                                 | 316 | 100 |   |                                                                                      |     |   |
| 3/4                                                        | 20                                                                                  | 152 | 348  | 100 | 178                                                                                 | 325 | 100 |   |                                                                                      |     |   |
| 1                                                          | 25                                                                                  | 165 | 377  | 100 | 203                                                                                 | 338 | 100 |   |                                                                                      |     |   |
| 1 1/2                                                      | 40                                                                                  | 190 | 440  | 140 | 229                                                                                 | 387 | 160 |   | 241                                                                                  | 121 |   |
| 2                                                          | 50                                                                                  | 216 | 515  | 180 | 267                                                                                 | 450 | 180 |   | 267                                                                                  | 143 |   |
| 2 1/2                                                      | 65                                                                                  |     |      |     | 292                                                                                 | 464 | 200 |   | 292                                                                                  | 163 |   |
| 3                                                          | 80                                                                                  | 283 | 655  | 225 | 318                                                                                 | 533 | 250 |   | 318                                                                                  | 178 |   |
| 4                                                          | 100                                                                                 | 305 | 751  | 250 | 356                                                                                 | 603 | 300 |   | 356                                                                                  | 201 |   |
| 5                                                          | 125                                                                                 | 381 | 840  | 300 | 400                                                                                 | 714 | 350 |   | 400                                                                                  | 231 |   |
| 6                                                          | 150                                                                                 | 403 | 961  | 350 | 444                                                                                 | 785 | 400 |   | 444                                                                                  | 259 |   |
| 8                                                          | 200                                                                                 | 419 | 1180 | 400 | 559                                                                                 | 907 | 560 |   | 533                                                                                  | 292 |   |
| 10                                                         | 250                                                                                 | 457 | 1414 | 450 |                                                                                     |     |     |   | 622                                                                                  | 356 |   |
| 12                                                         | 300                                                                                 | 502 | 1617 | 500 |                                                                                     |     |     |   | 711                                                                                  | 373 |   |
| 14                                                         | 350                                                                                 | 762 | TBA  | TBA |                                                                                     |     |     |   |                                                                                      |     |   |
| Body                                                       | CF8+HF (Co-Cr-W Alloy)                                                              |     |      |     | CF8+HF (Co-Cr-W Alloy)                                                              |     |     |   | CF8+HF (Co-Cr-W Alloy)                                                               |     |   |
| Bonnet                                                     | CF8                                                                                 |     |      |     | CF8                                                                                 |     |     |   | CF8                                                                                  |     |   |
| Cover                                                      |                                                                                     |     |      |     |                                                                                     |     |     |   | CF8                                                                                  |     |   |
| Stem                                                       | 304SS                                                                               |     |      |     | 304SS                                                                               |     |     |   |                                                                                      |     |   |
| Disc                                                       | CF8+HF (Co-Cr-W Alloy)                                                              |     |      |     | CF8+HF (Co-Cr-W Alloy)                                                              |     |     |   | CF8+HF (Co-Cr-W Alloy)                                                               |     |   |
| Gland Packing                                              | Flexible Graphite+PTFE Braided                                                      |     |      |     | Flexible Graphite+PTFE Braided                                                      |     |     |   |                                                                                      |     |   |
| Gasket                                                     | Ceramics PTFE                                                                       |     |      |     | Ceramics PTFE                                                                       |     |     |   | PTFE Spiral Wound                                                                    |     |   |
| Bonnet B/N                                                 | B8 CL2/8                                                                            |     |      |     | B8 CL2/8                                                                            |     |     |   | B8 CL2/8                                                                             |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |     |      |     | ASME B16.34                                                                         |     |     |   | ASME B16.34                                                                          |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |      |     | ASME B16.10                                                                         |     |     |   | ASME B16.10                                                                          |     |   |
| Wall Thickness                                             | ASME B16.34                                                                         |     |      |     | ASME B16.34                                                                         |     |     |   | ASME B16.34                                                                          |     |   |
| Remarks                                                    | Gear for 8" & above                                                                 |     |      |     | Gear for 8" & above                                                                 |     |     |   |                                                                                      |     |   |

| Type                                                       | A Series (Gate(-196°C))                                                           |     |      |     |     | A Series (Gate(-196°C))                                                           |      |     |     |  | A Series (Gate(-196°C))                                                            |      |     |     |  |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----|-----------------------------------------------------------------------------------|------|-----|-----|--|------------------------------------------------------------------------------------|------|-----|-----|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |     |  |      |     |     |  |  |      |     |     |  |
| Fig                                                        | 150UMALMY/G-150UMALMY                                                             |     |      |     |     | 300UMALMY/G-300UMALMY                                                             |      |     |     |  | 600UMALMY/G-600UMALMY                                                              |      |     |     |  |
| End Connection                                             | ASME B16.5 Class 150 RF                                                           |     |      |     |     | ASME B16.5 Class 300 RF                                                           |      |     |     |  | ASME B16.5 Class 600 RF                                                            |      |     |     |  |
| inch                                                       | mm                                                                                | L   | H    | D   | B   | L                                                                                 | H    | D   | B   |  | L                                                                                  | H    | D   | B   |  |
| 2                                                          | 50                                                                                | 178 | 634  | 200 |     | 216                                                                               | 634  | 200 |     |  | 292                                                                                | 764  | 300 |     |  |
| 3                                                          | 80                                                                                | 203 | 761  | 200 |     | 283                                                                               | 836  | 300 |     |  | 356                                                                                | 926  | 300 |     |  |
| 4                                                          | 100                                                                               | 229 | 876  | 200 |     | 305                                                                               | 955  | 300 |     |  | 432                                                                                | 1121 | 600 |     |  |
| 6                                                          | 150                                                                               | 267 | 1138 | 350 |     | 403                                                                               | 1210 | 600 |     |  | 559                                                                                | 1348 | 500 | 253 |  |
| 8                                                          | 200                                                                               | 292 | 1317 | 500 |     | 419                                                                               | 1500 | 500 | 253 |  | 660                                                                                | 1547 | 500 | 253 |  |
| 10                                                         | 250                                                                               | 330 | 1678 | 500 | 253 | 457                                                                               | 1669 | 500 | 253 |  | 787                                                                                | 2016 | 500 | 282 |  |
| 12                                                         | 300                                                                               | 356 | 1802 | 500 | 253 | 502                                                                               | 1921 | 500 | 253 |  | 838                                                                                | 2112 | 600 | 350 |  |
| 14                                                         | 350                                                                               | 381 | 2049 | 500 | 253 | 762                                                                               | 2109 | 500 | 281 |  |                                                                                    |      |     |     |  |
| 16                                                         | 400                                                                               | 406 | 2271 | 500 | 253 | 838                                                                               | 2296 | 500 | 281 |  |                                                                                    |      |     |     |  |
| 18                                                         | 450                                                                               | 432 | 2474 | 500 | 281 | 914                                                                               | 2532 | 500 | 281 |  |                                                                                    |      |     |     |  |
| 20                                                         | 500                                                                               | 457 | 2696 | 500 | 281 | 991                                                                               | 2857 | 600 | 350 |  |                                                                                    |      |     |     |  |
| 24                                                         | 600                                                                               | 508 | 3314 | 600 | 350 | 1143                                                                              | 3374 | 600 | 456 |  |                                                                                    |      |     |     |  |
| Body                                                       | CF8M+HF (Co-Cr-W Alloy)                                                           |     |      |     |     | CF8M+HF (Co-Cr-W Alloy)                                                           |      |     |     |  | CF8M+HF (Co-Cr-W Alloy)                                                            |      |     |     |  |
| Bonnet/Cover                                               | CF8M+HF (Co-Cr-W Alloy)                                                           |     |      |     |     | CF8M+HF (Co-Cr-W Alloy)                                                           |      |     |     |  | CF8M+HF (Co-Cr-W Alloy)                                                            |      |     |     |  |
| Stem                                                       | 316SS                                                                             |     |      |     |     | 316SS                                                                             |      |     |     |  | 316SS                                                                              |      |     |     |  |
| Disc                                                       | CF8M+HF (Co-Cr-W Alloy)                                                           |     |      |     |     | CF8M+HF (Co-Cr-W Alloy)                                                           |      |     |     |  | CF8M+HF (Co-Cr-W Alloy)                                                            |      |     |     |  |
| Gland Packing                                              | RTFE+Graphite                                                                     |     |      |     |     | RTFE+Graphite                                                                     |      |     |     |  | RTFE+Graphite                                                                      |      |     |     |  |
| Gasket                                                     | Flexible Graphite Spiral Wound                                                    |     |      |     |     | Flexible Graphite Spiral Wound                                                    |      |     |     |  | Flexible Graphite Spiral Wound                                                     |      |     |     |  |
| Bonnet B/N                                                 | B8 CL2/8                                                                          |     |      |     |     | B8 CL2/8                                                                          |      |     |     |  | B8 CL2/8                                                                           |      |     |     |  |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     |     | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |      |     |     |  |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     |     | ASME B16.10                                                                       |      |     |     |  | ASME B16.10                                                                        |      |     |     |  |
| Wall Thickness                                             | ASME B16.34                                                                       |     |      |     |     | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |      |     |     |  |
| Remarks                                                    | Gear for 10" & above                                                              |     |      |     |     | Gear for 8" & above                                                               |      |     |     |  | Gear for 6" & above                                                                |      |     |     |  |

| Type                                                       | C Series (Gate(-196°C))                                                             |     |      |     |     | C Series (Globe(-196°C))                                                            |      |     |     |  | C Series (Swing Check(-196°C))                                                       |     |   |  |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|-----|-----|-------------------------------------------------------------------------------------|------|-----|-----|--|--------------------------------------------------------------------------------------|-----|---|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |     |      |     |     |  |      |     |     |  |  |     |   |  |  |
| Fig                                                        | 150UMCLMY/G-150UMCLMY                                                               |     |      |     |     | 150UPCLMY/G-150UPCLMY                                                               |      |     |     |  | 150UOCLMY                                                                            |     |   |  |  |
| End Connection                                             | ASME B16.5 Class 150 RF                                                             |     |      |     |     | ASME B16.5 Class 150 RF                                                             |      |     |     |  | ASME B16.5 Class 150 RF                                                              |     |   |  |  |
| inch                                                       | mm                                                                                  | L   | H    | D   | B   | L                                                                                   | H    | D   | B   |  | L                                                                                    | H   | D |  |  |
| 1/2                                                        | 15                                                                                  | 108 | 446  | 100 |     | 108                                                                                 | 425  | 100 |     |  |                                                                                      |     |   |  |  |
| 3/4                                                        | 20                                                                                  | 117 | 460  | 100 |     | 117                                                                                 | 434  | 120 |     |  |                                                                                      |     |   |  |  |
| 1                                                          | 25                                                                                  | 127 | 503  | 120 |     | 127                                                                                 | 461  | 160 |     |  |                                                                                      |     |   |  |  |
| 1 1/2                                                      | 40                                                                                  | 165 | 612  | 200 |     | 165                                                                                 | TBA  | TBA |     |  |                                                                                      |     |   |  |  |
| 2                                                          | 50                                                                                  | 178 | 675  | 250 |     | 203                                                                                 | 595  | 200 |     |  | 203                                                                                  | 156 |   |  |  |
| 2 1/2                                                      | 65                                                                                  | 190 | 718  | 250 |     | 216                                                                                 | 703  | 250 |     |  | 216                                                                                  | 164 |   |  |  |
| 3                                                          | 80                                                                                  | 203 | 825  | 250 |     | 241                                                                                 | 713  | 250 |     |  | 241                                                                                  | TBA |   |  |  |
| 4                                                          | 100                                                                                 | 229 | 924  | 300 |     | 292                                                                                 | 807  | 350 |     |  | 292                                                                                  | TBA |   |  |  |
| 5                                                          | 125                                                                                 | 254 | TBA  | TBA |     |                                                                                     |      |     |     |  |                                                                                      |     |   |  |  |
| 6                                                          | 150                                                                                 | 267 | 1259 | 400 |     | 406                                                                                 | TBA  | TBA |     |  | 356                                                                                  | TBA |   |  |  |
| 8                                                          | 200                                                                                 | 292 | 1444 | 500 |     | 495                                                                                 | 1283 | 500 | 254 |  | 495                                                                                  | TBA |   |  |  |
| 10                                                         | 250                                                                                 | 330 | 1785 | 500 | 254 |                                                                                     |      |     |     |  | 622                                                                                  | TBA |   |  |  |
| 12                                                         | 300                                                                                 | 356 | 2041 | 500 | 254 |                                                                                     |      |     |     |  | 698                                                                                  | TBA |   |  |  |
| 14                                                         | 350                                                                                 | 381 | 2112 | 500 | 254 |                                                                                     |      |     |     |  | 787                                                                                  | TBA |   |  |  |
| 16                                                         | 400                                                                                 | 406 | 2311 | 500 | 280 |                                                                                     |      |     |     |  |                                                                                      |     |   |  |  |
| 18                                                         | 450                                                                                 | 432 | 2495 | 500 | 280 |                                                                                     |      |     |     |  |                                                                                      |     |   |  |  |
| 20                                                         | 500                                                                                 | 457 | 2782 | 600 | 350 |                                                                                     |      |     |     |  |                                                                                      |     |   |  |  |
| 24                                                         | 600                                                                                 | 508 | 3170 | 600 | 350 |                                                                                     |      |     |     |  |                                                                                      |     |   |  |  |
| Body                                                       | CF8M+HF up to 11/2", CF8M                                                           |     |      |     |     | CF8M+HF up to 11/2", CF8M                                                           |      |     |     |  | CF8M+HF                                                                              |     |   |  |  |
| Bonnet/Cover                                               | CF8M+HF up to 1", CF8M                                                              |     |      |     |     | CF8M+HF up to 1", CF8M                                                              |      |     |     |  | CF8M                                                                                 |     |   |  |  |
| Stem                                                       | 316SS+HF                                                                            |     |      |     |     | 316SS+HF                                                                            |      |     |     |  | 316SS+HF                                                                             |     |   |  |  |
| Disc                                                       | CF8M+HF                                                                             |     |      |     |     | CF8M+HF                                                                             |      |     |     |  | CF8M+HF                                                                              |     |   |  |  |
| Gland Packing                                              | Flexible Graphite                                                                   |     |      |     |     | Flexible Graphite                                                                   |      |     |     |  | Flexible Graphite                                                                    |     |   |  |  |
| Gasket                                                     | PTFE Spiral Wound                                                                   |     |      |     |     | Flexible Graphite Spiral Wound                                                      |      |     |     |  | Flexible Graphite Spiral Wound                                                       |     |   |  |  |
| Body Seat Ring                                             | 316SS+HF                                                                            |     |      |     |     | 316SS+HF                                                                            |      |     |     |  | 316SS+HF                                                                             |     |   |  |  |
| Bonnet B/N                                                 | B8 CL2/8                                                                            |     |      |     |     | B8 CL2/8                                                                            |      |     |     |  | B8 CL2/8                                                                             |     |   |  |  |
| P-T Rating                                                 | ASME B16.34                                                                         |     |      |     |     | ASME B16.34                                                                         |      |     |     |  | ASME B16.34                                                                          |     |   |  |  |
| F-to-F Dimension                                           | ASME B16.10                                                                         |     |      |     |     | ASME B16.10                                                                         |      |     |     |  | ASME B16.10                                                                          |     |   |  |  |
| Wall Thickness                                             | API 600                                                                             |     |      |     |     | API 600                                                                             |      |     |     |  | API 600                                                                              |     |   |  |  |
| Remarks                                                    | Gear for 10" & above                                                                |     |      |     |     | Gear for 8" & above                                                                 |      |     |     |  |                                                                                      |     |   |  |  |

| Type                                                       | C Series (Gate(-196°C))                                                           |      |      |     |     | C Series (Globe(-196°C))                                                          |      |     |     |  | C Series (Swing Check(-196°C))                                                     |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----|-----|-----------------------------------------------------------------------------------|------|-----|-----|--|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |      |      |     |     |  |      |     |     |  |  |     |   |
| Fig                                                        | 300UMCLMY/G-300UMCLMY                                                             |      |      |     |     | 300UPCLMY/G-300UPCLMY                                                             |      |     |     |  | 300UOCLMY                                                                          |     |   |
| End Connection                                             | ASME B16.5 Class 300 RF                                                           |      |      |     |     | ASME B16.5 Class 300 RF                                                           |      |     |     |  | ASME B16.5 Class 300 RF                                                            |     |   |
| inch                                                       | mm                                                                                | L    | H    | D   | B   | L                                                                                 | H    | D   | B   |  | L                                                                                  | H   | D |
| 1/2                                                        | 15                                                                                | 455  | 455  | 100 |     | 152                                                                               | 426  | 100 |     |  | 140                                                                                | TBA |   |
| 3/4                                                        | 20                                                                                | 456  | 456  | 100 |     | 178                                                                               | 434  | 120 |     |  | 152                                                                                | TBA |   |
| 1                                                          | 25                                                                                | 531  | 531  | 120 |     | 203                                                                               | 461  | 160 |     |  | 216                                                                                | TBA |   |
| 1 1/2                                                      | 40                                                                                | 639  | 639  | 250 |     | 229                                                                               | TBA  | TBA |     |  | 241                                                                                | TBA |   |
| 2                                                          | 50                                                                                | 675  | 675  | 300 |     | 267                                                                               | 592  | 225 |     |  | 267                                                                                | 161 |   |
| 2 1/2                                                      | 65                                                                                | TBA  | TBA  | TBA |     | 292                                                                               | TBA  | TBA |     |  | 292                                                                                | TBA |   |
| 3                                                          | 80                                                                                | 825  | 825  | 300 |     | 318                                                                               | 736  | 350 |     |  | 318                                                                                | 204 |   |
| 4                                                          | 100                                                                               | 957  | 957  | 350 |     | 356                                                                               | 833  | 500 |     |  | 356                                                                                | 292 |   |
| 5                                                          | 125                                                                               | 1259 | 1259 | 400 |     |                                                                                   |      |     |     |  |                                                                                    |     |   |
| 6                                                          | 150                                                                               | 1259 | 1259 | 400 |     | 444                                                                               | 1329 | 500 | 280 |  | 444                                                                                | TBA |   |
| 8                                                          | 200                                                                               | 1637 | 1637 | 500 | 254 | 559                                                                               | TBA  | TBA | TBA |  | 533                                                                                | TBA |   |
| 10                                                         | 250                                                                               | 1785 | 1785 | 500 | 254 |                                                                                   |      |     |     |  | 622                                                                                | TBA |   |
| 12                                                         | 300                                                                               | 2041 | 2041 | 500 | 280 |                                                                                   |      |     |     |  | 711                                                                                | 423 |   |
| 14                                                         | 350                                                                               | 2435 | 2435 | 600 | 456 |                                                                                   |      |     |     |  | 838                                                                                | TBA |   |
| 16                                                         | 400                                                                               | 2595 | 2595 | 600 | 456 |                                                                                   |      |     |     |  | 864                                                                                | TBA |   |
| 18                                                         | 450                                                                               | 2755 | 2755 | 600 | 456 |                                                                                   |      |     |     |  | 978                                                                                | TBA |   |
| 20                                                         | 500                                                                               | 2862 | 2862 | 600 | 456 |                                                                                   |      |     |     |  | 1016                                                                               | TBA |   |
| 24                                                         | 600                                                                               | 3320 | 3320 | 610 | 456 |                                                                                   |      |     |     |  | 1346                                                                               | TBA |   |
| Body                                                       | CF8M+HF up to 11/2", CF8M                                                         |      |      |     |     | CF8M+HF up to 11/2", CF8M                                                         |      |     |     |  | CF8M+HF                                                                            |     |   |
| Bonnet/Cover                                               | CF8M+HF up to 1", CF8M                                                            |      |      |     |     | CF8M+HF up to 1", CF8M                                                            |      |     |     |  | CF8M                                                                               |     |   |
| Stem                                                       | 316SS+HF                                                                          |      |      |     |     | 316SS+HF                                                                          |      |     |     |  |                                                                                    |     |   |
| Disc                                                       | CF8M+HF                                                                           |      |      |     |     | CF8M+HF                                                                           |      |     |     |  | CF8M+HF                                                                            |     |   |
| Gland Packing                                              | Flexible Graphite                                                                 |      |      |     |     | Flexible Graphite                                                                 |      |     |     |  |                                                                                    |     |   |
| Gasket                                                     | PTFE Spiral Wound                                                                 |      |      |     |     | Flexible Graphite Spiral Wound                                                    |      |     |     |  | Flexible Graphite Spiral Wound                                                     |     |   |
| Body seat ring                                             | 316SS+HF                                                                          |      |      |     |     | 316SS+HF                                                                          |      |     |     |  |                                                                                    |     |   |
| Bonnet B/N                                                 | B8 CL2/8                                                                          |      |      |     |     | B8 CL2/8                                                                          |      |     |     |  | B8 CL2/8                                                                           |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |      |      |     |     | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                       |      |      |     |     | ASME B16.10                                                                       |      |     |     |  | ASME B16.10                                                                        |     |   |
| Wall Thickness                                             | API 600                                                                           |      |      |     |     | API 600                                                                           |      |     |     |  | API 600                                                                            |     |   |
| Remarks                                                    | Gear for 8" & above                                                               |      |      |     |     | Gear for 6" & above                                                               |      |     |     |  |                                                                                    |     |   |

| Type                                                       | C Series (Gate(-196°C))                                                             |      |      |     |     | C Series (Globe(-196°C))                                                            |      |     |     |  | C Series (Swing Check(-196°C))                                                       |     |   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|-----|-----|-------------------------------------------------------------------------------------|------|-----|-----|--|--------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |      |      |     |     |  |      |     |     |  |  |     |   |
| Fig                                                        | 600UMCLMY/G-600UMCLMY                                                               |      |      |     |     | 600UPCLMY/G-600UPCLMY                                                               |      |     |     |  | 600UOCLMY                                                                            |     |   |
| End Connection                                             | ASME B16.5 Class 600 RF                                                             |      |      |     |     | ASME B16.5 Class 600 RF                                                             |      |     |     |  | ASME B16.5 Class 600 RF                                                              |     |   |
| inch                                                       | mm                                                                                  | L    | H    | D   | B   | L                                                                                   | H    | D   | B   |  | L                                                                                    | H   | D |
| 1/2                                                        | 15                                                                                  | 165  | TBA  | TBA |     | 165                                                                                 | 472  | 140 |     |  |                                                                                      |     |   |
| 3/4                                                        | 20                                                                                  | 190  | TBA  | TBA |     | 190                                                                                 | TBA  | TBA |     |  |                                                                                      |     |   |
| 1                                                          | 25                                                                                  | 216  | TBA  | TBA |     | 216                                                                                 | TBA  | TBA |     |  | 216                                                                                  | TBA |   |
| 1 1/2                                                      | 40                                                                                  | 241  | TBA  | TBA |     | 241                                                                                 | TBA  | TBA |     |  | 241                                                                                  | TBA |   |
| 2                                                          | 50                                                                                  | 292  | 750  | 300 |     | 292                                                                                 | 676  | 350 |     |  | 292                                                                                  | TBA |   |
| 2 1/2                                                      | 65                                                                                  | 330  | TBA  | TBA |     | 330                                                                                 | TBA  | TBA |     |  |                                                                                      |     |   |
| 3                                                          | 80                                                                                  | 356  | 886  | 350 |     | 356                                                                                 | 1091 | 500 | 254 |  | 356                                                                                  | 210 |   |
| 4                                                          | 100                                                                                 | 432  | 1111 | 500 |     | 432                                                                                 | 1181 | 500 | 254 |  | 432                                                                                  | 248 |   |
| 6                                                          | 150                                                                                 | 559  | 1600 | 500 | 254 | 559                                                                                 | TBA  | TBA | TBA |  | 559                                                                                  | TBA |   |
| 8                                                          | 200                                                                                 | 660  | 1546 | 500 | 254 | 660                                                                                 | 1470 | 600 | 350 |  | 660                                                                                  | TBA |   |
| 10                                                         | 250                                                                                 | 787  | 2030 | 600 | 456 |                                                                                     |      |     |     |  | 787                                                                                  | TBA |   |
| 12                                                         | 300                                                                                 | 838  | 2245 | 600 | 282 |                                                                                     |      |     |     |  | 838                                                                                  | 484 |   |
| 14                                                         | 350                                                                                 | 889  | 2375 | 600 | 337 |                                                                                     |      |     |     |  |                                                                                      |     |   |
| 16                                                         | 400                                                                                 | 991  | 2560 | 600 | 417 |                                                                                     |      |     |     |  |                                                                                      |     |   |
| 18                                                         | 450                                                                                 | 1092 | 2623 | 600 | 456 |                                                                                     |      |     |     |  |                                                                                      |     |   |
| 20                                                         | 500                                                                                 | 1194 | 2960 | 610 | 456 |                                                                                     |      |     |     |  |                                                                                      |     |   |
| 24                                                         | 600                                                                                 | 1397 | 3158 | 610 | 456 |                                                                                     |      |     |     |  |                                                                                      |     |   |
| Body                                                       | CF8M+HF up to 11/2", CF8M                                                           |      |      |     |     | CF8M+HF up to 11/2", CF8M                                                           |      |     |     |  | CF8M+HF                                                                              |     |   |
| Bonnet/Cover                                               | CF8M+HF up to 1", CF8M                                                              |      |      |     |     | CF8M+HF up to 1", CF8M                                                              |      |     |     |  | CF8M                                                                                 |     |   |
| Stem                                                       | 316SS+HF                                                                            |      |      |     |     | 316SS+HF                                                                            |      |     |     |  |                                                                                      |     |   |
| Disc                                                       | CF8M+HF                                                                             |      |      |     |     | CF8M+HF                                                                             |      |     |     |  | CF8M+HF                                                                              |     |   |
| Gland Packing                                              | Flexible Graphite                                                                   |      |      |     |     | Flexible Graphite                                                                   |      |     |     |  |                                                                                      |     |   |
| Gasket                                                     | PTFE Spiral Wound                                                                   |      |      |     |     | Flexible Graphite Spiral Wound                                                      |      |     |     |  | Flexible Graphite Spiral Wound                                                       |     |   |
| Body Seat Ring                                             | 316SS+HF                                                                            |      |      |     |     | 316SS+HF                                                                            |      |     |     |  |                                                                                      |     |   |
| Bonnet B/N                                                 | B8 CL2/8                                                                            |      |      |     |     | B8 CL2/8                                                                            |      |     |     |  | B8 CL2/8                                                                             |     |   |
| P-T Rating                                                 | ASME B16.34                                                                         |      |      |     |     | ASME B16.34                                                                         |      |     |     |  | ASME B16.34                                                                          |     |   |
| F-to-F Dimension                                           | ASME B16.10                                                                         |      |      |     |     | ASME B16.10                                                                         |      |     |     |  | ASME B16.10                                                                          |     |   |
| Wall Thickness                                             | API 600                                                                             |      |      |     |     | API 600                                                                             |      |     |     |  | API 600                                                                              |     |   |
| Remarks                                                    | Gear for 6" & above                                                                 |      |      |     |     | Gear for 3" & above                                                                 |      |     |     |  |                                                                                      |     |   |

| Type                                                       | CR Series (Globe(-196°C))                                                         |     |      |     |     | CR Series (Globe(-196°C))                                                         |      |     |     |  | CR Series (Globe(-196°C))                                                          |      |     |     |  |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|-----|-----|-----------------------------------------------------------------------------------|------|-----|-----|--|------------------------------------------------------------------------------------|------|-----|-----|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | 150                                                                               |     |      |     |     | 300                                                                               |      |     |     |  | 600                                                                                |      |     |     |  |
|                                                            |  |     |      |     |     |  |      |     |     |  |  |      |     |     |  |
|                                                            | Fig 150UPCRLMD/G-150UPCRLMD                                                       |     |      |     |     | 300UPCRLMD/G-300UPCRLMD                                                           |      |     |     |  | 600UPCRLMD/G-600UPCRLMD                                                            |      |     |     |  |
|                                                            | End Connection ASME B16.5 Class 150 RF                                            |     |      |     |     | ASME B16.5 Class 300 RF                                                           |      |     |     |  | ASME B16.5 Class 600 RF                                                            |      |     |     |  |
| inch                                                       | mm                                                                                | L   | H    | D   | B   | L                                                                                 | H    | D   | B   |  | L                                                                                  | H    | D   | B   |  |
| 2                                                          | 50                                                                                | 203 | 580  | 152 |     | 267                                                                               | 576  | 165 |     |  | 292                                                                                | 624  | 165 |     |  |
| 2 1/2                                                      | 65                                                                                | 216 | TBA  | TBA |     | 292                                                                               | TBA  | TBA |     |  | 330                                                                                | TBA  | TBA |     |  |
| 3                                                          | 80                                                                                | 241 | 698  | 190 |     | 318                                                                               | 727  | 210 |     |  | 356                                                                                | 791  | 210 |     |  |
| 4                                                          | 100                                                                               | 292 | 743  | 229 |     | 356                                                                               | 791  | 254 |     |  | 432                                                                                | 1152 | 273 | 253 |  |
| 6                                                          | 150                                                                               | 406 | 900  | 279 |     | 444                                                                               | 1252 | 318 | 281 |  | 559                                                                                | 1243 | 356 | 281 |  |
| 8                                                          | 200                                                                               | 495 | 1272 | 343 | 253 | 559                                                                               | 1302 | 381 | 281 |  | 660                                                                                | 1430 | 419 | 350 |  |
| Body                                                       | CF8M                                                                              |     |      |     |     | CF8M                                                                              |      |     |     |  | CF8M                                                                               |      |     |     |  |
| Bonnet/Cover                                               | CF8M                                                                              |     |      |     |     | CF8M                                                                              |      |     |     |  | CF8M                                                                               |      |     |     |  |
| Stem                                                       | 316SS                                                                             |     |      |     |     | 316SS                                                                             |      |     |     |  | 316SS                                                                              |      |     |     |  |
| Disc                                                       | CF8+HF (Co-Cr-W Alloy)                                                            |     |      |     |     | CF8+HF (Co-Cr-W Alloy)                                                            |      |     |     |  | CF8+HF (Co-Cr-W Alloy)                                                             |      |     |     |  |
| Gland Packing                                              | RTFE+Graphite                                                                     |     |      |     |     | RTFE+Graphite                                                                     |      |     |     |  | RTFE+Graphite                                                                      |      |     |     |  |
| Gasket                                                     | Flexible Graphite Spiral Wound                                                    |     |      |     |     | Flexible Graphite Spiral Wound                                                    |      |     |     |  | Flexible Graphite Spiral Wound                                                     |      |     |     |  |
| Bonnet B/N                                                 | B8 CL2/8                                                                          |     |      |     |     | B8 CL2/8                                                                          |      |     |     |  | B8 CL2/8                                                                           |      |     |     |  |
| P-T Rating                                                 | ASME B16.34                                                                       |     |      |     |     | ASME B16.34                                                                       |      |     |     |  | ASME B16.34                                                                        |      |     |     |  |
| F-to-F Dimension                                           | ASME B16.10                                                                       |     |      |     |     | ASME B16.10                                                                       |      |     |     |  | ASME B16.10                                                                        |      |     |     |  |
| Wall Thickness                                             | API 623                                                                           |     |      |     |     | API 623                                                                           |      |     |     |  | API 623                                                                            |      |     |     |  |
| Remarks                                                    | Gear for 8" & above                                                               |     |      |     |     | Gear for 6" & above                                                               |      |     |     |  | Gear for 4" & above                                                                |      |     |     |  |

| Type                                                       | D Series (Gate)                                                                                                                                                                                                         |                             |     |     |     | D Series (Globe)                                                                                                                                                                                                        |                             |     | D Series (Swing Check)                                                                                                                                                                                                   |                    |  |  |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>150</div> <div></div> <div></div> <div>EAC</div> |                             |     |     |     | <div>150</div> <div></div> <div></div> <div>EAC</div> |                             |     | <div>150</div> <div></div> <div></div> <div>EAC</div> |                    |  |  |
|                                                            | AK150UMM                                                                                                                                                                                                                |                             |     |     |     | AK150UPM                                                                                                                                                                                                                |                             |     | AK150UOM                                                                                                                                                                                                                 |                    |  |  |
| End Connection                                             |                                                                                                                                                                                                                         | ASME B1.20.1 (NPT)          |     |     |     |                                                                                                                                                                                                                         | ASME B1.20.1 (NPT)          |     |                                                                                                                                                                                                                          | ASME B1.20.1 (NPT) |  |  |
| inch                                                       | mm                                                                                                                                                                                                                      | L                           | H   | D   | L   | H                                                                                                                                                                                                                       | D                           | L   | H                                                                                                                                                                                                                        | D                  |  |  |
| 1/2                                                        | 15                                                                                                                                                                                                                      | 70                          | 197 | 90  | 86  | 164                                                                                                                                                                                                                     | 90                          | 95  | 75                                                                                                                                                                                                                       |                    |  |  |
| 3/4                                                        | 20                                                                                                                                                                                                                      | 76                          | 204 | 90  | 95  | 166                                                                                                                                                                                                                     | 90                          | 95  | 80                                                                                                                                                                                                                       |                    |  |  |
| 1                                                          | 25                                                                                                                                                                                                                      | 89                          | 220 | 100 | 108 | 169                                                                                                                                                                                                                     | 100                         | 127 | 85                                                                                                                                                                                                                       |                    |  |  |
| 1 1/2                                                      | 40                                                                                                                                                                                                                      | 114                         | 276 | 140 | 140 | 198                                                                                                                                                                                                                     | 140                         | 152 | 107                                                                                                                                                                                                                      |                    |  |  |
| 2                                                          | 50                                                                                                                                                                                                                      | 121                         | 336 | 160 | 165 | 228                                                                                                                                                                                                                     | 160                         | 165 | 115                                                                                                                                                                                                                      |                    |  |  |
| Body                                                       |                                                                                                                                                                                                                         | CF3M                        |     |     |     |                                                                                                                                                                                                                         | CF3M                        |     |                                                                                                                                                                                                                          | CF3M               |  |  |
| Bonnet/Cover                                               |                                                                                                                                                                                                                         | CF8M                        |     |     |     |                                                                                                                                                                                                                         | CF8M                        |     |                                                                                                                                                                                                                          | CF8M               |  |  |
| Stem/Hinge Pin                                             |                                                                                                                                                                                                                         | 316SS                       |     |     |     |                                                                                                                                                                                                                         | 316SS                       |     |                                                                                                                                                                                                                          |                    |  |  |
| Disc                                                       |                                                                                                                                                                                                                         | CF8M                        |     |     |     |                                                                                                                                                                                                                         | CF8M                        |     |                                                                                                                                                                                                                          | CF8M               |  |  |
| Gland Packing                                              |                                                                                                                                                                                                                         | Refer to Page SS22          |     |     |     |                                                                                                                                                                                                                         | Refer to Page SS22          |     |                                                                                                                                                                                                                          |                    |  |  |
| Gasket                                                     |                                                                                                                                                                                                                         | Refer to Page SS22          |     |     |     |                                                                                                                                                                                                                         | Refer to Page SS22          |     |                                                                                                                                                                                                                          | Refer to Page SS22 |  |  |
| Bonnet B/N                                                 |                                                                                                                                                                                                                         | B8/8                        |     |     |     |                                                                                                                                                                                                                         | B8/8                        |     |                                                                                                                                                                                                                          | B8/8               |  |  |
| P-T Rating                                                 |                                                                                                                                                                                                                         | ASME B16.34                 |     |     |     |                                                                                                                                                                                                                         | ASME B16.34                 |     |                                                                                                                                                                                                                          | ASME B16.34        |  |  |
| F-to-F Dimension                                           |                                                                                                                                                                                                                         | KITZ Standard               |     |     |     |                                                                                                                                                                                                                         | KITZ Standard               |     |                                                                                                                                                                                                                          | KITZ Standard      |  |  |
| Wall Thickness                                             |                                                                                                                                                                                                                         | ASME B16.34                 |     |     |     |                                                                                                                                                                                                                         | ASME B16.34                 |     |                                                                                                                                                                                                                          | ASME B16.34        |  |  |
| Remarks                                                    |                                                                                                                                                                                                                         | TR-CU/EAC<br>Flexible Wedge |     |     |     |                                                                                                                                                                                                                         | TR-CU/EAC<br>Flexible Wedge |     |                                                                                                                                                                                                                          | TR-CU/EAC          |  |  |

| Type                                                       | D Series (Gate)                                                                                                                                                                                                             |     |     |     |     | D Series (Globe)                                                                                                                                                                                                            |     |     |     | D Series (Swing Check)                                                                                                                                                                                                       |  |  |  |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div>150</div> <div></div> <div></div> <div>EAC</div> |     |     |     |     | <div>150</div> <div></div> <div></div> <div>EAC</div> |     |     |     | <div>150</div> <div></div> <div></div> <div>EAC</div> |  |  |  |
|                                                            | AW150UMM                                                                                                                                                                                                                    |     |     |     |     | AW150UPM                                                                                                                                                                                                                    |     |     |     | AW150UOM                                                                                                                                                                                                                     |  |  |  |
| End Connection                                             | ASME B16.11                                                                                                                                                                                                                 |     |     |     |     | ASME B16.11                                                                                                                                                                                                                 |     |     |     | ASME B16.11                                                                                                                                                                                                                  |  |  |  |
| inch                                                       | mm                                                                                                                                                                                                                          | L   | H   | D   | L   | H                                                                                                                                                                                                                           | D   | L   | H   | D                                                                                                                                                                                                                            |  |  |  |
| 1/2                                                        | 15                                                                                                                                                                                                                          | 67  | 197 | 90  | 83  | 164                                                                                                                                                                                                                         | 90  | 92  | 75  |                                                                                                                                                                                                                              |  |  |  |
| 3/4                                                        | 20                                                                                                                                                                                                                          | 73  | 204 | 90  | 92  | 166                                                                                                                                                                                                                         | 90  | 92  | 80  |                                                                                                                                                                                                                              |  |  |  |
| 1                                                          | 25                                                                                                                                                                                                                          | 86  | 220 | 100 | 105 | 169                                                                                                                                                                                                                         | 100 | 124 | 85  |                                                                                                                                                                                                                              |  |  |  |
| 1 1/2                                                      | 40                                                                                                                                                                                                                          | 111 | 276 | 140 | 137 | 198                                                                                                                                                                                                                         | 140 | 149 | 107 |                                                                                                                                                                                                                              |  |  |  |
| 2                                                          | 50                                                                                                                                                                                                                          | 118 | 336 | 160 | 162 | 228                                                                                                                                                                                                                         | 160 | 162 | 115 |                                                                                                                                                                                                                              |  |  |  |
| Body                                                       | CF3M                                                                                                                                                                                                                        |     |     |     |     | CF3M                                                                                                                                                                                                                        |     |     |     | CF3M                                                                                                                                                                                                                         |  |  |  |
| Bonnet/Cover                                               | CF8M                                                                                                                                                                                                                        |     |     |     |     | CF8M                                                                                                                                                                                                                        |     |     |     | CF8M                                                                                                                                                                                                                         |  |  |  |
| Stem                                                       | 316SS                                                                                                                                                                                                                       |     |     |     |     | 316SS                                                                                                                                                                                                                       |     |     |     |                                                                                                                                                                                                                              |  |  |  |
| Disc                                                       | CF8M                                                                                                                                                                                                                        |     |     |     |     | CF8M                                                                                                                                                                                                                        |     |     |     | CF8M                                                                                                                                                                                                                         |  |  |  |
| Gland Packing                                              | Refer to Page SS22                                                                                                                                                                                                          |     |     |     |     | Refer to Page SS22                                                                                                                                                                                                          |     |     |     |                                                                                                                                                                                                                              |  |  |  |
| Gasket                                                     | Refer to Page SS22                                                                                                                                                                                                          |     |     |     |     | Refer to Page SS22                                                                                                                                                                                                          |     |     |     | Refer to Page SS22                                                                                                                                                                                                           |  |  |  |
| Bonnet B/N                                                 | B8/8                                                                                                                                                                                                                        |     |     |     |     | B8/8                                                                                                                                                                                                                        |     |     |     | B8/8                                                                                                                                                                                                                         |  |  |  |
| P-T Rating                                                 | ASME B16.34                                                                                                                                                                                                                 |     |     |     |     | ASME B16.34                                                                                                                                                                                                                 |     |     |     | ASME B16.34                                                                                                                                                                                                                  |  |  |  |
| F-to-F Dimension                                           | KITZ Standard                                                                                                                                                                                                               |     |     |     |     | KITZ Standard                                                                                                                                                                                                               |     |     |     | KITZ Standard                                                                                                                                                                                                                |  |  |  |
| Wall Thickness                                             | ASME B16.34                                                                                                                                                                                                                 |     |     |     |     | ASME B16.34                                                                                                                                                                                                                 |     |     |     | ASME B16.34                                                                                                                                                                                                                  |  |  |  |
| Remarks                                                    | TR-CU/EAC<br>Flexible Wedge                                                                                                                                                                                                 |     |     |     |     | TR-CU/EAC                                                                                                                                                                                                                   |     |     |     | TR-CU/EAC                                                                                                                                                                                                                    |  |  |  |

| Type                                                       | D Series (Gate)                                                                   |    |     |     |     | D Series (Globe)                                                                  |     |     | D Series (Swing Check)                                                             |     |   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|----|-----|-----|-----|-----------------------------------------------------------------------------------|-----|-----|------------------------------------------------------------------------------------|-----|---|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |  |    |     |     |     |  |     |     |  |     |   |
|                                                            | AK300UMM                                                                          |    |     |     |     | AK300UPM                                                                          |     |     | AK300UOM                                                                           |     |   |
|                                                            | ASME B1.20.1 (NPT)                                                                |    |     |     |     | ASME B1.20.1 (NPT)                                                                |     |     | ASME B1.20.1 (NPT)                                                                 |     |   |
|                                                            | inch                                                                              | mm | L   | H   | D   | L                                                                                 | H   | D   | L                                                                                  | H   | D |
|                                                            | 1/2                                                                               | 15 | 76  | 202 | 100 | 95                                                                                | 184 | 100 | 114                                                                                | 81  |   |
|                                                            | 3/4                                                                               | 20 | 83  | 212 | 100 | 108                                                                               | 182 | 100 | 127                                                                                | 87  |   |
|                                                            | 1                                                                                 | 25 | 95  | 230 | 100 | 127                                                                               | 185 | 100 | 140                                                                                | 91  |   |
|                                                            | 1 1/2                                                                             | 40 | 127 | 285 | 140 | 165                                                                               | 233 | 160 | 152                                                                                | 117 |   |
|                                                            | 2                                                                                 | 50 | 146 | 355 | 180 | 190                                                                               | 289 | 180 | 165                                                                                | 139 |   |
| Body                                                       | CF3M                                                                              |    |     |     |     | CF3M                                                                              |     |     | CF3M                                                                               |     |   |
| Bonnet/Cover                                               | CF8M                                                                              |    |     |     |     | CF8M                                                                              |     |     | CF8M                                                                               |     |   |
| Stem/Hinge Pin                                             | 316SS                                                                             |    |     |     |     | 316SS                                                                             |     |     | 316SS                                                                              |     |   |
| Disc                                                       | CF8M                                                                              |    |     |     |     | CF8M                                                                              |     |     | CF8M                                                                               |     |   |
| Gland Packing                                              | Refer to Page SS22                                                                |    |     |     |     | Refer to Page SS22                                                                |     |     |                                                                                    |     |   |
| Gasket                                                     | Refer to Page SS22                                                                |    |     |     |     | Refer to Page SS22                                                                |     |     | Refer to Page SS22                                                                 |     |   |
| Bonnet B/N                                                 | B8/8                                                                              |    |     |     |     | B8/8                                                                              |     |     | B8/8                                                                               |     |   |
| P-T Rating                                                 | ASME B16.34                                                                       |    |     |     |     | ASME B16.34                                                                       |     |     | ASME B16.34                                                                        |     |   |
| F-to-F Dimension                                           | KITZ Standard                                                                     |    |     |     |     | KITZ Standard                                                                     |     |     | KITZ Standard                                                                      |     |   |
| Wall Thickness                                             | ASME B16.34                                                                       |    |     |     |     | ASME B16.34                                                                       |     |     | ASME B16.34                                                                        |     |   |
| Remarks                                                    | TR-CU/EAC<br>Flexible Wedge                                                       |    |     |     |     | TR-CU/EAC                                                                         |     |     | TR-CU/EAC                                                                          |     |   |

| Type                                                       | D Series (Gate)                                                                                              |                             |    |  |     | D Series (Globe)                                                                                             |                    |     | D Series (Swing Check)                                                                                        |                    |     |     |     |     |    |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------|----|--|-----|--------------------------------------------------------------------------------------------------------------|--------------------|-----|---------------------------------------------------------------------------------------------------------------|--------------------|-----|-----|-----|-----|----|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) | <div><div>300</div></div> |                             |    |  |     | <div><div>300</div></div> |                    |     | <div><div>300</div></div> |                    |     |     |     |     |    |
|                                                            | AW300UMM                                                                                                     |                             |    |  |     | AW300UPM                                                                                                     |                    |     | AW300UOM                                                                                                      |                    |     |     |     |     |    |
|                                                            | ASME B16.11                                                                                                  |                             |    |  |     | ASME B16.11                                                                                                  |                    |     | ASME B16.11                                                                                                   |                    |     |     |     |     |    |
|                                                            | inch                                                                                                         |                             | mm |  |     | L                                                                                                            |                    | H   | D                                                                                                             | L                  |     | H   | D   |     |    |
|                                                            | 1/2                                                                                                          |                             | 15 |  |     | 73                                                                                                           |                    | 202 | 100                                                                                                           | 92                 |     | 184 | 100 | 111 | 81 |
| 3/4                                                        |                                                                                                              | 20                          |    |  | 80  |                                                                                                              | 212                | 100 | 105                                                                                                           |                    | 182 | 100 | 124 | 87  |    |
| 1                                                          |                                                                                                              | 25                          |    |  | 92  |                                                                                                              | 230                | 100 | 124                                                                                                           |                    | 185 | 100 | 137 | 91  |    |
| 1 1/2                                                      |                                                                                                              | 40                          |    |  | 124 |                                                                                                              | 285                | 140 | 162                                                                                                           |                    | 230 | 160 | 149 | 117 |    |
| 2                                                          |                                                                                                              | 50                          |    |  | 143 |                                                                                                              | 355                | 180 | 187                                                                                                           |                    | 284 | 180 | 162 | 139 |    |
| Body                                                       |                                                                                                              | CF3M                        |    |  |     |                                                                                                              | CF3M               |     |                                                                                                               | CF3M               |     |     |     |     |    |
| Bonnet/Cover                                               |                                                                                                              | CF8M                        |    |  |     |                                                                                                              | CF8M               |     |                                                                                                               | CF8M               |     |     |     |     |    |
| Stem/Hinge Pin                                             |                                                                                                              | 316SS                       |    |  |     |                                                                                                              | 316SS              |     |                                                                                                               | 316SS              |     |     |     |     |    |
| Disc                                                       |                                                                                                              | CF8M                        |    |  |     |                                                                                                              | CF8M               |     |                                                                                                               | CF8M               |     |     |     |     |    |
| Gland Packing                                              |                                                                                                              | Refer to Page SS22          |    |  |     |                                                                                                              | Refer to Page SS22 |     |                                                                                                               |                    |     |     |     |     |    |
| Gasket                                                     |                                                                                                              | Refer to Page SS22          |    |  |     |                                                                                                              | Refer to Page SS22 |     |                                                                                                               | Refer to Page SS22 |     |     |     |     |    |
| Bonnet B/N                                                 |                                                                                                              | B8/8                        |    |  |     |                                                                                                              | B8/8               |     |                                                                                                               | B8/8               |     |     |     |     |    |
| P-T Rating                                                 |                                                                                                              | ASME B16.34                 |    |  |     |                                                                                                              | ASME B16.34        |     |                                                                                                               | ASME B16.34        |     |     |     |     |    |
| F-to-F Dimension                                           |                                                                                                              | KITZ Standard               |    |  |     |                                                                                                              | KITZ Standard      |     |                                                                                                               | KITZ Standard      |     |     |     |     |    |
| Wall Thickness                                             |                                                                                                              | ASME B16.34                 |    |  |     |                                                                                                              | ASME B16.34        |     |                                                                                                               | ASME B16.34        |     |     |     |     |    |
| Remarks                                                    |                                                                                                              | TR-CU/EAC<br>Flexible Wedge |    |  |     |                                                                                                              | TR-CU/EAC          |     |                                                                                                               | TR-CU/EAC          |     |     |     |     |    |

| Type                                                       |    | D Series (Gate)                                                                   |     |     | D Series (Gate)                                                                   |     |     |
|------------------------------------------------------------|----|-----------------------------------------------------------------------------------|-----|-----|-----------------------------------------------------------------------------------|-----|-----|
| Stainless Steel & High Alloy Steel Valves (GGC & Strainer) |    |  |     |     |  |     |     |
|                                                            |    | EAC                                                                               |     |     | EAC                                                                               |     |     |
| Fig                                                        |    | AK600UMM                                                                          |     |     | AW600UMM                                                                          |     |     |
| End Connection                                             |    | ASME B1.20.1 (NPT)                                                                |     |     | ASME B16.11                                                                       |     |     |
| inch                                                       | mm | L                                                                                 | H   | D   | L                                                                                 | H   | D   |
| 1/2                                                        | 15 | 76                                                                                | 201 | 100 | 73                                                                                | 201 | 100 |
| 3/4                                                        | 20 | 83                                                                                | 215 | 100 | 80                                                                                | 215 | 100 |
| 1                                                          | 25 | 95                                                                                | 240 | 140 | 92                                                                                | 240 | 140 |
| 1 1/2                                                      | 40 | 127                                                                               | 325 | 180 | 124                                                                               | 325 | 180 |
| 2                                                          | 50 | 146                                                                               | 385 | 200 | 143                                                                               | 385 | 200 |
| Body                                                       |    | CF3M                                                                              |     |     | CF3M                                                                              |     |     |
| Bonnet                                                     |    | CF8M                                                                              |     |     | CF8M                                                                              |     |     |
| Stem                                                       |    | 316SS                                                                             |     |     | 316SS                                                                             |     |     |
| Disc                                                       |    | CF8M                                                                              |     |     | CF8M                                                                              |     |     |
| Gland Packing                                              |    | Refer to Page SS22                                                                |     |     | Refer to Page SS22                                                                |     |     |
| Gasket                                                     |    | Refer to Page SS22                                                                |     |     | Refer to Page SS22                                                                |     |     |
| Bonnet B/N                                                 |    | B8/8                                                                              |     |     | B8/8                                                                              |     |     |
| P-T Rating                                                 |    | ASME B16.34                                                                       |     |     | ASME B16.34                                                                       |     |     |
| F-to-F Dimension                                           |    | KITZ Standard                                                                     |     |     | KITZ Standard                                                                     |     |     |
| Wall Thickness                                             |    | ASME B16.34                                                                       |     |     | ASME B16.34                                                                       |     |     |
| Remarks                                                    |    | TR-CU/EAC<br>Flexible Wedge                                                       |     |     | TR-CU/EAC<br>Flexible Wedge                                                       |     |     |

## Corrosion Resistance of KITZ Stainless and High Alloy Steel Valves

KITZ stainless and high alloy steel valves are widely utilized in chemical, petrochemical, food and beverage, pulp and paper, pharmaceutical and other industrial processing plants throughout the world, constitute one of the major product lines of KITZ Corporation, Japan's largest manufacturer of industrial valves.

KITZ stainless and high alloy steel valves are designed, manufactured, and inspected to strictly conform with the requirements of ASTM, ASME, API, BS, JIS and other internationally recognized standards, with all quality elements meeting the critical service conditions needed for corrosive industrial applications.

KITZ stainless and high alloy steel valves are characterized by unsurpassed corrosion resistance and reliability, providing users with the lowest cost of ownership and the longest total life cycle performance in the industry. As an ISO 9001 certified valve manufacturer, KITZ Corporation has achieved a high degree of product standardization by the ideal combination of its updated technical know-how and uniquely integrated system of production adopted at its Nagasaka Plant, Yamanashi, Japan, the home of KITZ stainless and high alloy steel valves.

Electronically controlled steel foundries, multi-station transfer machining systems and state-of-the-art test and inspection facilities, are all put together at KITZ Nagasaka Plant, to ensure the quality and reliability of all products that it releases to the global market.



KITZ Nagasaka Plant, Japan



KITZ Corporation of Taiwan



KITZ Corporation of Kunshan

## Features of Austenitic Stainless Steel as Valve Material

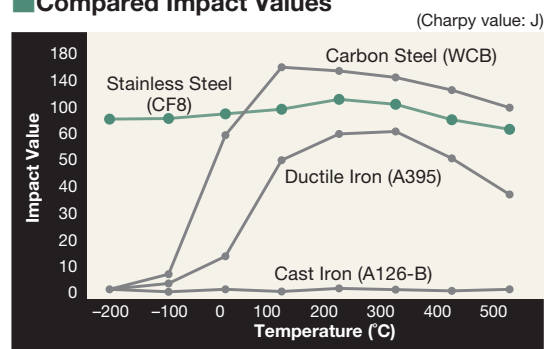
Stainless steel is divided into three main categories depending on its chemical composition. They are martensitic stainless steel containing 13% chromium, ferritic stainless steel containing 18% chromium, and austenitic stainless steel containing 18% chromium and 8% nickel. Among them, austenitic stainless steel is widely used for both valve shells and trims, which require high pressure resistant characteristic. Martensitic stainless steel is used mainly for trims of carbon steel valves. The features and characteristics of these stainless steels are compared below:

### Features of Stainless Steel by Types

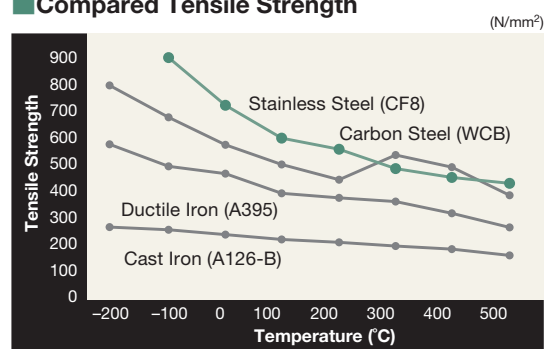
| Types                            | Martensitic        | Ferritic | Austenitic     |
|----------------------------------|--------------------|----------|----------------|
| Typical Material                 | AISI 410           | AISI 430 | ASTM CF8M/F316 |
| Magnetization                    | Yes                |          | No             |
| Hardening by Heat Treatment      | Yes                | No       |                |
| Hardening by Machining           | Same as soft steel |          | Less           |
| Corrosion and Acid Resistance    | Good               |          | Excellent      |
| Impact Resistance and Elongation | Good               |          | Excellent      |
| Weldability                      | Poor               | Fair     | Good           |
| Lowest Service Temperature       | -29°C              | -10°C    | -269°C         |

As shown below, austenitic stainless steel has an excellent impact value in subzero temperature range and been almost exclusively used for cryogenic service applications. It also features higher heat resistance than carbon steel. Its tensile strength is also superior to other valve materials and its high resistance against destructive tensile load in a wide range of service temperatures is unrivaled by other valve materials. Corrosive fluid cannot generally affect these excellent mechanical properties of austenitic stainless steel.

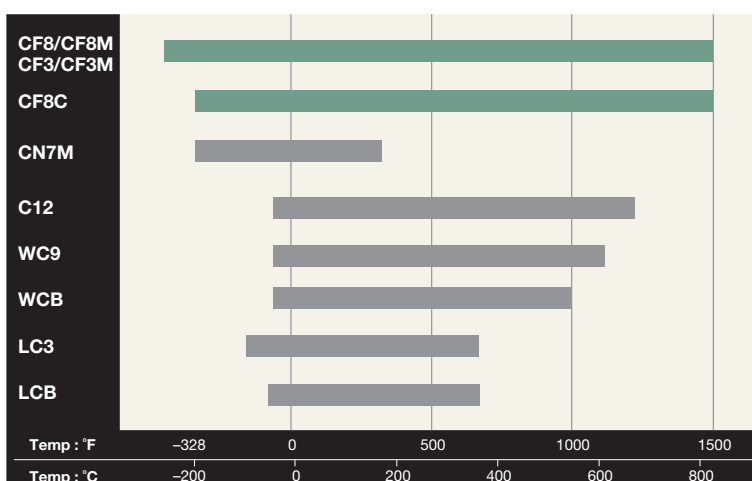
### Compared Impact Values



### Compared Tensile Strength



### Steel Castings: Maximum Working Temperature Range



This data reflects ASTM specifications for general steel castings, and does not necessarily apply to valves made of these materials, which are subject to highly demanding service conditions as pressure containing vessels.

On the other hand, austenitic stainless steel is known as a very mild metal having no effect on the quality of the materials it comes into contact with. Line fluid is not contaminated while traveling through austenitic stainless steel pipelines. This advantages makes austenitic stainless steel valves the important fluid handling media for food, beverage and pharmaceutical processing plants. In addition, austenitic stainless steel CF8M or F316 has higher resistance to sea water erosion and is widely used for the valves installed in seawater desalination plants, offshore exploration facilities and ocean structures.

## General Design Specifications

| Series | Normal Pressure            | Pressure-Temperature Ratings* | Face to Face Dimensions | End Connection Dimensions                          | Wall Thickness         |             |
|--------|----------------------------|-------------------------------|-------------------------|----------------------------------------------------|------------------------|-------------|
| A      | 10K                        | JIS B2220                     | JIS B2002               | JIS B2220 10K Flanged                              | ASME B16.34 Class 150  |             |
|        | 20K                        |                               |                         | JIS B2220 20K Flanged                              | ASME B16.34 Class 300  |             |
|        | Class 150/300/600          |                               | ASME B16.34             | ASME B16.10                                        | ASME B16.5 Flanged     | ASME B16.34 |
| HA     | Class 150/300              | ASME B16.34                   | ASME B16.10             | ASME B16.5 Flanged                                 | API 603                |             |
| C      | Class 150/300/600/900/1500 | ASME B16.34                   | ASME B16.10             | ASME B16.5 Flanged                                 | API 600/API594         |             |
| B      | 5K                         | 0.5 MPa 150°C                 | JIS B2011<br>KITZ Std.  | JIS B0203 Threaded<br>JIS B2220 5K 10K Flanged     | JIS B2011<br>KITZ Std. |             |
|        | 10K                        | 1.0 MPa 180°C                 |                         |                                                    |                        |             |
|        | 20K                        | 2.0 MPa 180°C                 |                         | ASME B1.20.1 Threaded                              |                        |             |
|        | Type 200                   | KITZ Std.                     |                         |                                                    |                        |             |
| D      | Class 150/300/600          | ASME B16.34                   | KITZ Std.               | ASME B1.20.1 Threaded<br>ASME B16.11 Socket Welded | ASME B16.34            |             |
| AJ     | 10K                        | JIS B2220                     |                         | JIS B2220 10K Flanged                              | ASME B16.34 Class 150  |             |
|        | 20K                        |                               | JIS B2220 20K Flanged   | ASME B16.34 Class 300                              |                        |             |
|        | Class 150/300              |                               | ASME B16.34             | KITZ Std.                                          | ASME B16.5 Flanged     | ASME B16.34 |

\*Actual pressure-temperature rating in service depends on the materials of gland packing and gasket chosen for valves.

## Bonnet Gasket Materials

Depending on class ratings and service conditions, following gasket materials are available\* for body/bonnet flange gaskets of KITZ stainless and high alloy steel valves. Specify your gasket material in your purchase order.

| Series | Class              | Material                                  | Maximum Service Temperature |
|--------|--------------------|-------------------------------------------|-----------------------------|
| A, D   | 10K, 20K, 150, 300 | Ceramics PTFE                             | 200°C                       |
|        |                    | Stainless Foil Inserted Flexible Graphite | 400°C                       |
|        | 600                | PTFE Spiral Wound                         | 300°C                       |
|        |                    | Flexible Graphite Spiral Wound            | 450°C                       |
| HA     | 150                | Ceramics PTFE                             | 200°C                       |
|        |                    | Stainless Foil Inserted Flexible Graphite | 400°C                       |
|        | 300                | PTFE Spiral Wound                         | 260°C                       |
|        |                    | Flexible Graphite Spiral Wound            | 450°C                       |
| C      | 150                | Ceramics PTFE                             | 200°C                       |
|        |                    | Stainless Foil Inserted Flexible Graphite | 400°C                       |
|        | 300, 600           | PTFE Spiral Wound                         | 300°C                       |
|        |                    | Non-Asbestos Spiral Wound                 | 450°C                       |
|        |                    | Flexible Graphite Spiral Wound            | 450°C                       |
|        | 600, 900, 1500     | Stainless Steel (Ring Joint)              | 500°C                       |
| B      | 5K, 10K            | Reinforced PTFE                           | 180°C                       |
| AJ     | 10K, 150 20K, 300  | Flexible Graphite                         | 400°C                       |

Note: Refer to Page SS23 for bonnet gaskets used for KITZ low emission service valves.

## Gland Packing Materials

Following packing materials can be chosen for KITZ stainless and high alloy steel valves, depending on service conditions, or market requirements. Specify your packing material in your purchase order.

| Series | Class                     | Material                                 | Maximum Service Temperature |
|--------|---------------------------|------------------------------------------|-----------------------------|
| A, D   | 10K, 20K<br>150, 300, 600 | Flexible Graphite + PTFE Braided Packing | 300°C                       |
|        |                           | PTFE Cup & Cone                          | 150°C                       |
|        |                           | Flexible Graphite                        | 500°C                       |
|        |                           | Carbon Core + PTFE Braided Packing       | 260°C                       |
| HA     | 150, 300                  | Flexible Graphite                        | 500°C                       |
|        |                           | Carbon Core + PTFE Braided Packing       | 260°C                       |
| C      | 150, 300                  | Flexible Graphite + PTFE Braided Packing | 300°C                       |
|        |                           | Flexible Graphite                        | 500°C                       |
|        | 600, 900, 1500            | Flexible Graphite                        | 500°C                       |
| B      | 5K, 10K, Type200          | Plastic Graphite Packing                 | 180°C                       |
| AJ     | 10K, 150 20K, 300         | Flexible Graphite + PTFE Braided Packing | 300°C                       |

Note: Refer to Page SS23 for gland packing sets used for KITZ low emission service valves. \*455°C (850°F) for oxidizing atmosphere.

Contact KITZ Corporation or your KITZ distributors for optional requirement of gasket or gland packing materials other than listed above.

## Disc Construction

| Series | Nominal Pressure           | Solid Wedge  | Flexible Wedge   |
|--------|----------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | 10K/20K, Class 150/300/600 | —                                                                                             | All sizes                                                                                                                                                                              |
| HA     | Class 150/300              | —                                                                                             | All sizes                                                                                                                                                                              |
| C      | Class 150/300              | 4 and smaller                                                                                 | 6 and larger                                                                                                                                                                           |
|        | Class 600                  | 1½ and smaller                                                                                | 2 and larger                                                                                                                                                                           |
|        | Class 900/1500             | —                                                                                             | All sizes                                                                                                                                                                              |
| B      | 5K/10K/20K, Type 200       | All sizes                                                                                     | —                                                                                                                                                                                      |
| D      | Class 150/300/600          | —                                                                                             | All sizes                                                                                                                                                                              |
| AJ     | 10K/20K, Class 150/300     | —                                                                                             | All sizes                                                                                                                                                                              |

## Pressure-Temperature Ratings for Series B (KITZ Standard)

| Temperature | MPa              |                               |                               |
|-------------|------------------|-------------------------------|-------------------------------|
|             | W<br>120°C below | G <sub>1</sub><br>150°C below | G <sub>2</sub><br>180°C below |
| 5K          | 0.7              | 0.5                           | —                             |
| 10K         | 1.4              | 1.1                           | 1.0                           |
| 20K         | 2.0              | 1.2                           | 1.0                           |

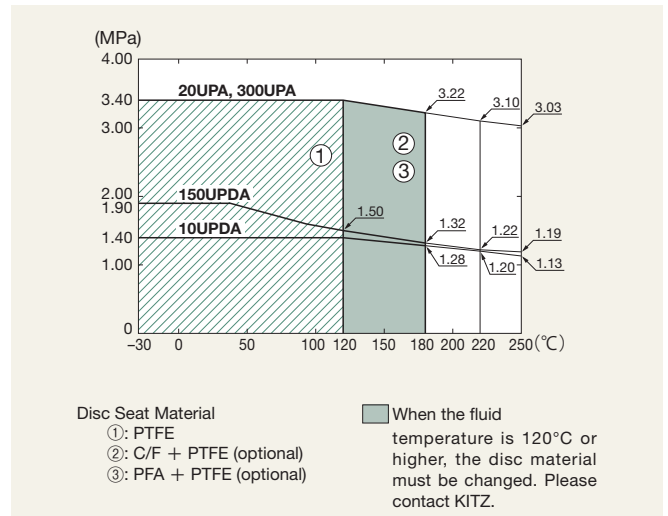
W: Static water without pressure variation

G<sub>1</sub>, G<sub>2</sub>: Steam, air, non-inflammable gas and oil (lubricant and machining oil)

Note: Actual pressure-temperature rating in service depends on the materials of gland packing and gasket chosen for valves.

When using B-Series Globe Valves with PTFE Disc at a temperature exceeding 120°C, please contact KITZ for further assistance.

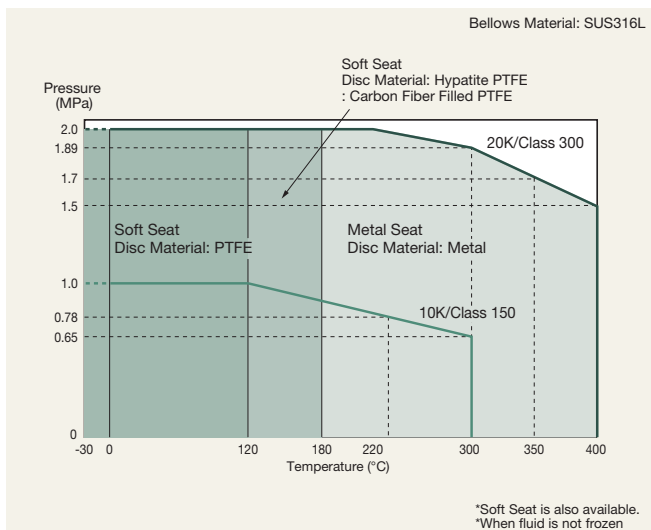
## Pressure-Temperature Ratings for Globe Valves with A Series Disc



## Usage Range of Bellows Seal Globe Valves

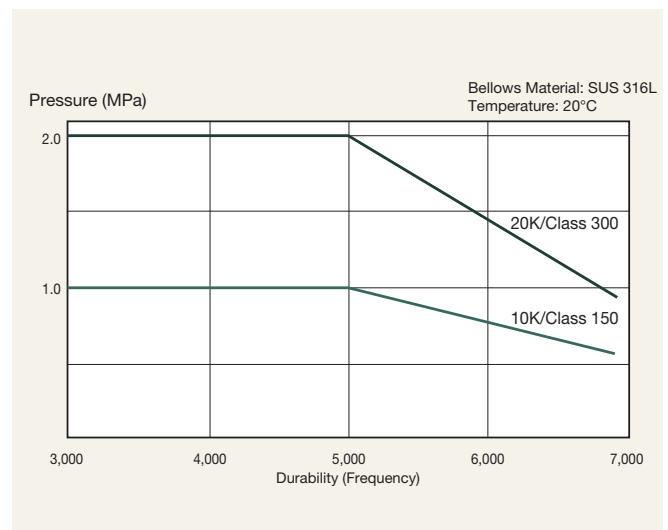
### • Pressure-Temperature Ratings

Although valve bodies are designed to comply with the pressure and temperature standard of JIS B 2220/ASME B16.34, pressure and durability of bellows should be considered. If you are using products beyond this usage range, please contact KITZ. The standard may not be applicable depending on the fluid state.



### • Relation between Pressure and Service Duration

The value shown below which was obtained by the bellows valve durability test indicates the repeated opening and closing durability. If you need a longer product usage, please consult us. (Conforming to MSS SP 117)



# Pressure-temperature Ratings ASME B16.34-2009 Series A, Series HA, Series C, Series E, Series S

| Class               |                | 150               |                   |                   |                   |                   |                   |                             |                   |                   |                   |                   |                   |                   |                   |                   |                 |                   |                   |                                            |                   |                   |
|---------------------|----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|--------------------------------------------|-------------------|-------------------|
| Service Temperature |                | CF8<br>[SCS13A]   |                   |                   | CF8M<br>[SCS14A]  |                   |                   | CF3M-CF3<br>[SCS16A-SCS19A] |                   |                   | CF8C<br>[SCS21]   |                   |                   | CK20<br>[SCS18]   |                   |                   | CN7M<br>[SCS23] |                   |                   | SDPV <sup>®</sup> 3<br>SASV <sup>®</sup> 4 |                   |                   |
| °C                  | °F             | bar               | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar               | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                         | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar               | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar               | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                        | psi <sup>*1</sup> | MPa <sup>*1</sup> |
| -29 to 38           | -20.2 to 100.4 | 19.0              | 275.6             | 1.90              | 19.0              | 275.6             | 1.90              | 15.9                        | 230.6             | 1.59              | 19.0              | 275.6             | 1.90              | 17.8              | 258.2             | 1.78              | 15.9            | 230.6             | 1.59              | 20.0                                       | 290.1             | 2.00              |
| 50                  | 122            | 18.3              | 265.4             | 1.83              | 18.4              | 266.9             | 1.84              | 15.3                        | 221.9             | 1.53              | 18.7              | 271.2             | 1.87              | 17.0              | 246.6             | 1.70              | 15.4            | 223.4             | 1.54              | 19.5                                       | 282.8             | 1.95              |
| 100                 | 212            | 15.7              | 227.7             | 1.57              | 16.2              | 235.0             | 1.62              | 13.3                        | 192.9             | 1.33              | 17.4              | 252.4             | 1.74              | 14.4              | 208.9             | 1.44              | 13.5            | 195.8             | 1.35              | 17.7                                       | 256.7             | 1.77              |
| 150                 | 302            | 14.2              | 206.0             | 1.42              | 14.8              | 214.7             | 1.48              | 12.0                        | 174.0             | 1.20              | 15.8              | 229.2             | 1.58              | 13.4              | 194.4             | 1.34              | 12.3            | 178.4             | 1.23              | 15.8                                       | 229.2             | 1.58              |
| 200                 | 392            | 13.2              | 191.4             | 1.32              | 13.7              | 198.7             | 1.37              | 11.2                        | 162.4             | 1.12              | 13.8              | 200.2             | 1.38              | 12.9              | 187.1             | 1.29              | 11.3            | 163.9             | 1.13              | 13.8                                       | 200.2             | 1.38              |
| 250                 | 482            | 12.1              | 175.5             | 1.21              | 12.1              | 175.5             | 1.21              | 10.5                        | 152.3             | 1.05              | 12.1              | 175.5             | 1.21              | 12.1              | 175.5             | 1.21              | 10.4            | 150.8             | 1.04              | 12.1                                       | 175.5             | 1.21              |
| 300                 | 572            | 10.2              | 147.9             | 1.02              | 10.2              | 147.9             | 1.02              | 10.0                        | 145.0             | 1.00              | 10.2              | 147.9             | 1.02              | 10.2              | 147.9             | 1.02              | 9.7             | 140.7             | 0.97              | 10.2                                       | 147.9             | 1.02              |
| 325                 | 617            | 9.3               | 134.9             | 0.93              | 9.3               | 134.9             | 0.93              | 9.3                         | 134.9             | 0.93              | 9.3               | 134.9             | 0.93              | 9.3               | 134.9             | 0.93              | 9.3             | 134.9             | 0.93              | 9.3                                        | 134.9             | 0.93              |
| 350                 | 662            | 8.4               | 121.8             | 0.84              | 8.4               | 121.8             | 0.84              | 8.4                         | 121.8             | 0.84              | 8.4               | 121.8             | 0.84              | 8.4               | 121.8             | 0.84              |                 |                   |                   | 8.4                                        | 121.8             | 0.84              |
| 375                 | 707            | 7.4               | 107.3             | 0.74              | 7.4               | 107.3             | 0.74              | 7.4                         | 107.3             | 0.74              | 7.4               | 107.3             | 0.74              | 7.4               | 107.3             | 0.74              |                 |                   |                   | 7.4                                        | 107.3             | 0.74              |
| 400                 | 752            | 6.5               | 94.3              | 0.65              | 6.5               | 94.3              | 0.65              | 6.5                         | 94.3              | 0.65              | 6.5               | 94.3              | 0.65              | 6.5               | 94.3              | 0.65              |                 |                   |                   | 6.5                                        | 94.3              | 0.65              |
| 425                 | 797            | 5.5               | 79.8              | 0.55              | 5.5               | 79.8              | 0.55              | 5.5                         | 79.8              | 0.55              | 5.5               | 79.8              | 0.55              | 5.5               | 79.8              | 0.55              |                 |                   |                   |                                            |                   |                   |
| 450                 | 842            | 4.6               | 66.7              | 0.46              | 4.6               | 66.7              | 0.46              | 4.6                         | 66.7              | 0.46              | 4.6               | 66.7              | 0.46              | 4.6               | 66.7              | 0.46              |                 |                   |                   |                                            |                   |                   |
| 475                 | 887            | 3.7               | 53.7              | 0.37              | 3.7               | 53.7              | 0.37              |                             |                   |                   | 3.7               | 53.7              | 0.37              | 3.7               | 53.7              | 0.37              |                 |                   |                   |                                            |                   |                   |
| 500                 | 932            | 2.8               | 40.6              | 0.28              | 2.8               | 40.6              | 0.28              |                             |                   |                   | 2.8               | 40.6              | 0.28              | 2.8               | 40.6              | 0.28              |                 |                   |                   |                                            |                   |                   |
| 538                 | 1000.4         | 1.4               | 20.3              | 0.14              | 1.4               | 20.3              | 0.14              |                             |                   |                   | 1.4               | 20.3              | 0.14              | 1.4               | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 550                 | 1022           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 575                 | 1067           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 600                 | 1112           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 625                 | 1157           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 650                 | 1202           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 675                 | 1247           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 700                 | 1292           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 725                 | 1337           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 750                 | 1382           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                 |                   |                   |                                            |                   |                   |
| 775                 | 1427           | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.4 <sup>*2</sup> | 20.3              | 0.14              |                             |                   |                   | 1.4 <sup>*2</sup> | 20.3              | 0.14              | 1.2 <sup>*2</sup> | 17.4              | 0.12              |                 |                   |                   |                                            |                   |                   |
| 800                 | 1472           | 1.2 <sup>*2</sup> | 17.4              | 0.12              | 1.2 <sup>*2</sup> | 17.4              | 0.12              |                             |                   |                   | 1.2 <sup>*2</sup> | 17.4              | 0.12              | 0.9 <sup>*2</sup> | 13.1              | 0.09              |                 |                   |                   |                                            |                   |                   |
| 816                 | 1500.8         | 1.0 <sup>*2</sup> | 14.5              | 0.10              | 1.0 <sup>*2</sup> | 14.5              | 0.10              |                             |                   |                   | 1.0 <sup>*2</sup> | 14.5              | 0.10              | 0.7 <sup>*2</sup> | 10.2              | 0.07              |                 |                   |                   |                                            |                   |                   |

\* 1: Figures shown in psi/MPa columns are calculated values.

\* 2: Applied to welding end valves only. Flanged end valve ratings terminate at 538°C (1000.4°F).

\* 3: SDPV<sup>®</sup> is the trademark registered for KITZ Super Duplex Stainless Steel, which is comparable to 25Cr-7Ni-4Mo-N castings. Ratings terminate at 300°C (572°F).

\* 4: SASV is the trademark registered for KITZ Super Austenite Stainless Steel, which is comparable to 21Cr-25Ni-6.5Mo-N castings.

| Class               |                   | 300             |                   |                   |                  |                   |                   |                             |                   |                   |                 |                   |                   |                 |                   |                   |                 |                   |                   |                                          |                   |                   |
|---------------------|-------------------|-----------------|-------------------|-------------------|------------------|-------------------|-------------------|-----------------------------|-------------------|-------------------|-----------------|-------------------|-------------------|-----------------|-------------------|-------------------|-----------------|-------------------|-------------------|------------------------------------------|-------------------|-------------------|
| Service Temperature |                   | CF8<br>[SCS13A] |                   |                   | CF8M<br>[SCS14A] |                   |                   | CF3M-CF3<br>[SCS16A-SCS19A] |                   |                   | CF8C<br>[SCS21] |                   |                   | CK20<br>[SCS18] |                   |                   | CN7M<br>[SCS23] |                   |                   | SDPV <sup>®3</sup><br>SASV <sup>®4</sup> |                   |                   |
| °C                  | °F                | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar              | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                         | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                      | psi <sup>*1</sup> | MPa <sup>*1</sup> |
| -29 to 38           | -20.2 to 100.4    | 49.6            | 719.4             | 4.96              | 49.6             | 719.4             | 4.96              | 41.4                        | 600.5             | 4.14              | 49.6            | 719.4             | 4.96              | 46.3            | 671.5             | 4.63              | 41.4            | 600.5             | 4.14              | 51.7                                     | 749.8             | 5.17              |
| 50                  | 122               | 47.8            | 693.3             | 4.78              | 48.1             | 697.6             | 4.81              | 40.0                        | 580.2             | 4.00              | 48.8            | 707.8             | 4.88              | 44.5            | 645.4             | 4.45              | 40.1            | 581.6             | 4.01              | 51.7                                     | 749.8             | 5.17              |
| 100                 | 212               | 40.9            | 593.2             | 4.09              | 42.2             | 612.1             | 4.22              | 34.8                        | 504.7             | 3.48              | 45.3            | 657.0             | 4.53              | 37.5            | 543.9             | 3.75              | 35.3            | 512.0             | 3.53              | 50.7                                     | 590.3             | 4.07              |
| 150                 | 302               | 37.0            | 536.6             | 3.70              | 38.5             | 558.4             | 3.85              | 31.4                        | 455.4             | 3.14              | 42.5            | 616.4             | 4.25              | 34.9            | 506.2             | 3.49              | 32.0            | 464.1             | 3.20              | 45.9                                     | 665.7             | 4.59              |
| 200                 | 392               | 34.5            | 500.4             | 3.45              | 35.7             | 517.8             | 3.57              | 29.2                        | 423.5             | 2.92              | 39.9            | 578.7             | 3.99              | 33.5            | 485.9             | 3.35              | 29.4            | 426.4             | 2.94              | 42.7                                     | 619.3             | 4.27              |
| 250                 | 482               | 32.5            | 471.4             | 3.25              | 33.4             | 484.4             | 3.34              | 27.5                        | 398.9             | 2.75              | 37.8            | 548.2             | 3.78              | 32.6            | 472.8             | 3.26              | 27.2            | 394.5             | 2.72              | 40.5                                     | 587.4             | 4.05              |
| 300                 | 572               | 30.9            | 448.2             | 3.09              | 31.6             | 458.3             | 3.16              | 26.1                        | 378.5             | 2.61              | 36.1            | 523.6             | 3.61              | 31.7            | 459.8             | 3.17              | 25.4            | 368.4             | 2.54              | 38.9                                     | 564.2             | 3.89              |
| 325                 | 617               | 30.2            | 438.0             | 3.02              | 30.9             | 448.2             | 3.09              | 25.5                        | 369.8             | 2.55              | 35.4            | 513.4             | 3.54              | 31.2            | 452.5             | 3.12              | 24.4            | 353.9             | 2.44              | 38.2                                     | 554.0             | 3.82              |
| 350                 | 662               | 29.6            | 429.3             | 2.96              | 30.3             | 439.5             | 3.03              | 25.1                        | 364.0             | 2.51              | 34.8            | 504.7             | 3.48              | 30.6            | 443.8             | 3.06              |                 |                   |                   | 37.6                                     | 545.3             | 3.76              |
| 375                 | 707               | 29.0            | 420.6             | 2.90              | 29.9             | 433.7             | 2.99              | 24.8                        | 359.7             | 2.48              | 34.2            | 496.0             | 3.42              | 29.8            | 432.2             | 2.98              |                 |                   |                   | 37.4                                     | 542.4             | 3.74              |
| 400                 | 752               | 28.4            | 411.9             | 2.84              | 29.4             | 426.4             | 2.94              | 24.3                        | 352.4             | 2.43              | 33.9            | 491.7             | 3.39              | 29.1            | 422.1             | 2.91              |                 |                   |                   | 36.5                                     | 529.4             | 3.65              |
| 425                 | 797               | 28.0            | 406.1             | 2.80              | 29.1             | 422.1             | 2.91              | 23.9                        | 346.6             | 2.39              | 33.6            | 487.3             | 3.36              | 28.3            | 410.5             | 2.83              |                 |                   |                   |                                          |                   |                   |
| 450 <sup>*2</sup>   | 842 <sup>*2</sup> | 27.4            | 397.4             | 2.74              | 28.8             | 417.7             | 2.88              | 23.4                        | 339.4             | 2.34              | 33.5            | 485.9             | 3.35              | 27.6            | 400.3             | 2.76              |                 |                   |                   |                                          |                   |                   |
| 475                 | 887               | 26.9            | 390.2             | 2.69              | 28.7             | 416.3             | 2.87              |                             |                   |                   | 31.7            | 459.8             | 3.17              | 26.7            | 387.3             | 2.67              |                 |                   |                   |                                          |                   |                   |
| 500                 | 932               | 26.5            | 384.4             | 2.65              | 28.2             | 409.0             | 2.82              |                             |                   |                   | 28.2            | 409.0             | 2.82              | 25.8            | 374.2             | 2.58              |                 |                   |                   |                                          |                   |                   |
| 538                 | 1000.4            | 24.4            | 353.9             | 2.44              | 25.2             | 365.5             | 2.52              |                             |                   |                   | 25.2            | 365.5             | 2.52              | 23.3            | 337.9             | 2.33              |                 |                   |                   |                                          |                   |                   |
| 550                 | 1022              | 23.6            | 342.3             | 2.36              | 25.0             | 362.6             | 2.50              |                             |                   |                   | 25.0            | 362.6             | 2.50              | 22.9            | 332.1             | 2.29              |                 |                   |                   |                                          |                   |                   |
| 575                 | 1067              | 20.8            | 301.7             | 2.08              | 24.0             | 348.1             | 2.40              |                             |                   |                   | 24.0            | 348.1             | 2.40              | 21.7            | 314.7             | 2.17              |                 |                   |                   |                                          |                   |                   |
| 600                 | 1112              | 16.9            | 245.1             | 1.69              | 19.9             | 288.6             | 1.99              |                             |                   |                   | 21.6            | 313.3             | 2.16              | 19.4            | 281.4             | 1.94              |                 |                   |                   |                                          |                   |                   |
| 625                 | 1157              | 13.8            | 200.2             | 1.38              | 15.8             | 229.2             | 1.58              |                             |                   |                   | 18.3            | 265.4             | 1.83              | 16.8            | 243.7             | 1.68              |                 |                   |                   |                                          |                   |                   |
| 650                 | 1202              | 11.3            | 163.9             | 1.13              | 12.7             | 184.2             | 1.27              |                             |                   |                   | 14.1            | 204.5             | 1.41              | 14.1            | 204.5             | 1.41              |                 |                   |                   |                                          |                   |                   |
| 675                 | 1247              | 9.3             | 134.9             | 0.93              | 10.3             | 149.4             | 1.03              |                             |                   |                   | 12.4            | 179.8             | 1.24              | 11.5            | 166.8             | 1.15              |                 |                   |                   |                                          |                   |                   |
| 700                 | 1292              | 8.0             | 116.0             | 0.80              | 8.4              | 121.8             | 0.84              |                             |                   |                   | 10.1            | 146.5             | 1.01              | 8.8             | 127.6             | 0.88              |                 |                   |                   |                                          |                   |                   |
| 725                 | 1337              | 6.8             | 98.6              | 0.68              | 7.0              | 101.5             | 0.70              |                             |                   |                   | 7.9             | 114.6             | 0.79              | 6.3             | 91.4              | 0.63              |                 |                   |                   |                                          |                   |                   |
| 750                 | 1382              | 5.8             | 84.1              | 0.58              | 5.9              | 85.6              | 0.59              |                             |                   |                   | 5.9             | 85.6              | 0.59              | 4.5             | 65.3              | 0.45              |                 |                   |                   |                                          |                   |                   |
| 775                 | 1427              | 4.6             | 66.7              | 0.46              | 4.6              | 66.7              | 0.46              |                             |                   |                   | 4.6             | 66.7              | 0.46              | 3.1             | 45.0              | 0.31              |                 |                   |                   |                                          |                   |                   |
| 800                 | 1472              | 3.5             | 50.8              | 0.35              | 3.5              | 50.8              | 0.35              |                             |                   |                   | 3.5             | 50.8              | 0.35              | 2.3             | 33.4              | 0.23              |                 |                   |                   |                                          |                   |                   |
| 816                 | 1500.8            | 2.8             | 40.6              | 0.28              | 2.8              | 40.6              | 0.28              |                             |                   |                   | 2.8             | 40.6              | 0.28              | 1.9             | 27.6              | 0.19              |                 |                   |                   |                                          |                   |                   |

| Class               |                   | 600          |                   |                   |               |                   |                   |                          |                   |                   |              |                   |                   |              |                   |                   |              |                   |                   |                                     |                   |                   |
|---------------------|-------------------|--------------|-------------------|-------------------|---------------|-------------------|-------------------|--------------------------|-------------------|-------------------|--------------|-------------------|-------------------|--------------|-------------------|-------------------|--------------|-------------------|-------------------|-------------------------------------|-------------------|-------------------|
| Service Temperature |                   | CF8 [SCS13A] |                   |                   | CF8M [SCS14A] |                   |                   | CF3M-CF3 [SCS16A-SCS19A] |                   |                   | CF8C [SCS21] |                   |                   | CK20 [SCS18] |                   |                   | CN7M [SCS23] |                   |                   | SDPV <sup>®</sup> SASV <sup>®</sup> |                   |                   |
| °C                  | °F                | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar           | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                      | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                 | psi <sup>*1</sup> | MPa <sup>*1</sup> |
| -29 to 38           | -20.2 to 100.4    | 99.3         | 1440.2            | 9.93              | 99.3          | 1440.2            | 9.93              | 82.7                     | 1199.5            | 8.27              | 99.3         | 1440.2            | 9.93              | 92.7         | 1344.5            | 9.27              | 82.7         | 1199.5            | 8.27              | 103.4                               | 1499.7            | 10.34             |
| 50                  | 122               | 95.6         | 1386.6            | 9.56              | 96.2          | 1395.3            | 9.62              | 80.0                     | 1160.3            | 8.00              | 97.5         | 1414.1            | 9.75              | 89.0         | 1290.8            | 8.90              | 80.3         | 1164.7            | 8.03              | 103.4                               | 1499.7            | 10.34             |
| 100                 | 212               | 81.7         | 1185.0            | 8.17              | 84.4          | 1224.1            | 8.44              | 69.6                     | 1009.5            | 6.96              | 90.6         | 1314.0            | 9.06              | 75.1         | 1089.2            | 7.51              | 70.6         | 1024.0            | 7.06              | 101.3                               | 1469.2            | 10.13             |
| 150                 | 302               | 74.0         | 1073.3            | 7.40              | 77.0          | 1116.8            | 7.70              | 62.8                     | 910.8             | 6.28              | 84.9         | 1231.4            | 8.49              | 69.8         | 1012.4            | 6.98              | 64.1         | 929.7             | 6.41              | 91.9                                | 1332.9            | 9.19              |
| 200                 | 392               | 69.0         | 1000.8            | 6.90              | 71.3          | 1034.1            | 7.13              | 58.3                     | 845.6             | 5.83              | 79.9         | 1158.9            | 7.99              | 67.1         | 973.2             | 6.71              | 58.7         | 851.4             | 5.87              | 85.3                                | 1237.2            | 8.53              |
| 250                 | 482               | 65.0         | 942.7             | 6.50              | 66.8          | 968.9             | 6.68              | 54.9                     | 796.3             | 5.49              | 75.6         | 1096.5            | 7.56              | 65.2         | 945.6             | 6.52              | 54.4         | 789.0             | 5.44              | 80.9                                | 1173.4            | 8.09              |
| 300                 | 572               | 61.8         | 896.3             | 6.18              | 63.2          | 916.6             | 6.32              | 52.1                     | 755.6             | 5.21              | 72.2         | 1047.2            | 7.22              | 63.4         | 919.5             | 6.34              | 50.8         | 736.8             | 5.08              | 77.7                                | 1126.9            | 7.77              |
| 325                 | 617               | 60.4         | 876.0             | 6.04              | 61.8          | 896.3             | 6.18              | 51.0                     | 739.7             | 5.10              | 70.7         | 1025.4            | 7.07              | 62.4         | 905.0             | 6.24              | 48.8         | 707.8             | 4.88              |                                     | 1106.6            | 7.63              |
| 350                 | 662               | 59.3         | 860.1             | 5.93              | 60.7          | 880.4             | 6.07              | 50.1                     | 726.6             | 5.01              | 69.5         | 1008.0            | 6.95              | 61.2         | 887.6             | 6.12              |              |                   |                   | 75.3                                | 1092.1            | 7.53              |
| 375                 | 707               | 58.1         | 842.7             | 5.81              | 59.8          | 867.3             | 5.98              | 49.5                     | 717.9             | 4.95              | 68.4         | 992.1             | 6.84              | 59.7         | 865.9             | 5.97              |              |                   |                   | 74.7                                | 1083.4            | 7.47              |
| 400                 | 752               | 56.9         | 825.3             | 5.69              | 58.9          | 854.3             | 5.89              | 48.6                     | 704.9             | 4.86              | 67.8         | 983.4             | 6.78              | 58.2         | 844.1             | 5.82              |              |                   |                   | 73.3                                | 1063.1            | 7.33              |
| 425                 | 797               | 56.0         | 812.2             | 5.60              | 58.3          | 845.6             | 5.83              | 47.7                     | 691.8             | 4.77              | 67.2         | 974.7             | 6.72              | 56.7         | 822.4             | 5.67              |              |                   |                   |                                     |                   |                   |
| 450 <sup>*2</sup>   | 842 <sup>*2</sup> | 54.8         | 794.8             | 5.48              | 57.7          | 836.9             | 5.77              | 46.8                     | 678.8             | 4.68              | 66.9         | 970.3             | 6.69              | 55.2         | 800.6             | 5.52              |              |                   |                   |                                     |                   |                   |
| 475                 | 887               | 53.9         | 781.8             | 5.39              | 57.3          | 831.1             | 5.73              |                          |                   |                   | 63.4         | 919.5             | 6.34              | 53.5         | 776.0             | 5.35              |              |                   |                   |                                     |                   |                   |
| 500                 | 932               | 53.0         | 768.7             | 5.30              | 56.5          | 819.5             | 5.65              |                          |                   |                   | 56.5         | 819.5             | 5.65              | 51.7         | 749.8             | 5.17              |              |                   |                   |                                     |                   |                   |
| 538                 | 1000.4            | 48.9         | 709.2             | 4.89              | 50.0          | 725.2             | 5.00              |                          |                   |                   | 50.0         | 725.2             | 5.00              | 46.6         | 675.9             | 4.66              |              |                   |                   |                                     |                   |                   |
| 550                 | 1022              | 47.1         | 683.1             | 4.71              | 49.8          | 722.3             | 4.98              |                          |                   |                   | 49.8         | 722.3             | 4.98              | 45.9         | 665.7             | 4.59              |              |                   |                   |                                     |                   |                   |
| 575                 | 1067              | 41.7         | 604.8             | 4.17              | 47.9          | 694.7             | 4.79              |                          |                   |                   | 47.9         | 694.7             | 4.79              | 43.3         | 628.0             | 4.33              |              |                   |                   |                                     |                   |                   |
| 600                 | 1112              | 33.8         | 490.2             | 3.38              | 39.8          | 577.3             | 3.98              |                          |                   |                   | 42.9         | 622.2             | 4.29              | 38.8         | 562.7             | 3.88              |              |                   |                   |                                     |                   |                   |
| 625                 | 1157              | 27.6         | 400.3             | 2.76              | 31.6          | 458.3             | 3.16              |                          |                   |                   | 36.6         | 530.8             | 3.66              | 33.7         | 488.8             | 3.37              |              |                   |                   |                                     |                   |                   |
| 650                 | 1202              | 22.5         | 326.3             | 2.25              | 25.3          | 366.9             | 2.53              |                          |                   |                   | 28.1         | 407.6             | 2.81              | 28.1         | 407.6             | 2.81              |              |                   |                   |                                     |                   |                   |
| 675                 | 1247              | 18.7         | 271.2             | 1.87              | 20.6          | 298.8             | 2.06              |                          |                   |                   | 25.2         | 365.5             | 2.52              | 23.0         | 333.6             | 2.30              |              |                   |                   |                                     |                   |                   |
| 700                 | 1292              | 16.1         | 233.5             | 1.61              | 16.8          | 243.7             | 1.68              |                          |                   |                   | 20.0         | 290.1             | 2.00              | 17.5         | 253.8             | 1.75              |              |                   |                   |                                     |                   |                   |
| 725                 | 1337              | 13.5         | 195.8             | 1.35              | 14.0          | 203.1             | 1.40              |                          |                   |                   | 15.4         | 223.4             | 1.54              | 12.7         | 184.2             | 1.27              |              |                   |                   |                                     |                   |                   |
| 750                 | 1382              | 11.6         | 168.2             | 1.16              | 11.7          | 169.7             | 1.17              |                          |                   |                   | 11.7         | 169.7             | 1.17              | 8.9          | 129.1             | 0.89              |              |                   |                   |                                     |                   |                   |
| 775                 | 1427              | 9.0          | 130.5             | 0.90              | 9.0           | 130.5             | 0.90              |                          |                   |                   | 9.0          | 130.5             | 0.90              | 6.3          | 91.4              | 0.63              |              |                   |                   |                                     |                   |                   |
| 800                 | 1472              | 7.0          | 101.5             | 0.70              | 7.0           | 101.5             | 0.70              |                          |                   |                   | 7.0          | 101.5             | 0.70              | 4.6          | 66.7              | 0.46              |              |                   |                   |                                     |                   |                   |
| 816                 | 1500.8            | 5.9          | 85.6              | 0.59              | 5.9           | 85.6              | 0.59              |                          |                   |                   | 5.9          | 85.6              | 0.59              | 3.8          | 55.1              | 0.38              |              |                   |                   |                                     |                   |                   |

\* 1: Figures shown in psi/MPa columns are calculated values.  
\* 2: Use beyond 450°C (842°F) is not allowed.  
\* 3: SDPV<sup>®</sup> is the trademark registered for KITZ Super Duplex Stainless Steel, which is comparable to 25Cr-7Ni-4Mo-N castings. Ratings terminate at 300°C (572°F).  
\* 4: SASV is the trademark registered for KITZ Super Austenite Stainless Steel, which is comparable to 21Cr-25Ni-6.5Mo-N castings.

| Class               |                   | 900          |                   |                   |               |                   |                   |                          |                   |                   |              |                   |                   |              |                   |                   |              |                   |                   |                                         |                   |                   |
|---------------------|-------------------|--------------|-------------------|-------------------|---------------|-------------------|-------------------|--------------------------|-------------------|-------------------|--------------|-------------------|-------------------|--------------|-------------------|-------------------|--------------|-------------------|-------------------|-----------------------------------------|-------------------|-------------------|
| Service Temperature |                   | CF8 [SCS13A] |                   |                   | CF8M [SCS14A] |                   |                   | CF3M-CF3 [SCS16A-SCS19A] |                   |                   | CF8C [SCS21] |                   |                   | CK20 [SCS18] |                   |                   | CN7M [SCS23] |                   |                   | SDPV <sup>®</sup> 3 SASV <sup>®</sup> 4 |                   |                   |
| °C                  | °F                | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar           | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                      | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar          | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                     | psi <sup>*1</sup> | MPa <sup>*1</sup> |
| -29 to 38           | -20.2 to 100.4    | 148.9        | 2159.6            | 14.89             | 148.9         | 2159.6            | 14.89             | 124.1                    | 1799.9            | 12.41             | 148.9        | 2159.6            | 14.89             | 139.0        | 2016.0            | 13.90             | 124.1        | 1799.9            | 12.41             | 155.1                                   | 2249.5            | 15.51             |
| 50                  | 122               | 143.5        | 2081.3            | 14.35             | 144.3         | 2092.9            | 14.43             | 120.1                    | 1741.9            | 12.01             | 146.3        | 2121.9            | 14.63             | 133.4        | 1934.8            | 13.34             | 120.4        | 1746.3            | 12.04             | 155.1                                   | 2249.5            | 15.51             |
| 100                 | 212               | 122.6        | 1778.2            | 12.26             | 126.6         | 1836.2            | 12.66             | 104.4                    | 1514.2            | 10.44             | 135.9        | 1971.1            | 13.59             | 112.6        | 1633.1            | 11.26             | 105.9        | 1535.9            | 10.59             | 152.0                                   | 2204.6            | 15.20             |
| 150                 | 302               | 111.0        | 1609.9            | 11.10             | 115.5         | 1675.2            | 11.55             | 94.2                     | 1366.3            | 9.42              | 127.4        | 1847.8            | 12.74             | 104.7        | 1518.5            | 10.47             | 96.1         | 1393.8            | 9.61              | 137.8                                   | 1998.6            | 13.78             |
| 200                 | 392               | 103.4        | 1499.7            | 10.34             | 107.0         | 1551.9            | 10.70             | 87.5                     | 1269.1            | 8.75              | 119.8        | 1737.6            | 11.98             | 100.6        | 1459.1            | 10.06             | 88.1         | 1277.8            | 8.81              | 128.0                                   | 1856.5            | 12.80             |
| 250                 | 482               | 97.5         | 1414.1            | 9.75              | 100.1         | 1451.8            | 10.01             | 82.4                     | 1195.1            | 8.24              | 113.4        | 1644.7            | 11.34             | 97.8         | 1418.5            | 9.78              | 81.7         | 1185.0            | 8.17              | 121.4                                   | 1760.8            | 12.14             |
| 300                 | 572               | 92.7         | 1344.5            | 9.27              | 94.9          | 1376.4            | 9.49              | 78.2                     | 1134.2            | 7.82              | 108.3        | 1570.8            | 10.83             | 95.2         | 1380.8            | 9.52              | 76.1         | 1103.7            | 7.61              | 116.6                                   | 1691.1            | 11.66             |
| 325                 | 617               | 90.7         | 1315.5            | 9.07              | 92.7          | 1344.5            | 9.27              | 76.4                     | 1108.1            | 7.64              | 106.1        | 1538.9            | 10.61             | 93.6         | 1357.6            | 9.36              | 73.3         | 1063.1            | 7.33              | 114.5                                   | 1660.7            | 11.45             |
| 350                 | 662               | 88.9         | 1289.4            | 8.89              | 91.0          | 1319.8            | 9.10              | 75.2                     | 1090.7            | 7.52              | 104.3        | 1512.7            | 10.43             | 91.7         | 1330.0            | 9.17              |              |                   |                   | 112.9                                   | 1637.5            | 11.29             |
| 375                 | 707               | 87.1         | 1263.3            | 8.71              | 89.6          | 1299.5            | 8.96              | 74.3                     | 1077.6            | 7.43              | 102.6        | 1488.1            | 10.26             | 89.5         | 1298.1            | 8.95              |              |                   |                   | 112.1                                   | 1625.9            | 11.21             |
| 400                 | 752               | 85.3         | 1237.2            | 8.53              | 88.3          | 1280.7            | 8.83              | 72.9                     | 1057.3            | 7.29              | 101.7        | 1475.0            | 10.17             | 87.3         | 1266.2            | 8.73              |              |                   |                   | 109.8                                   | 1592.5            | 10.98             |
| 425                 | 797               | 84.0         | 1218.3            | 8.40              | 87.4          | 1267.6            | 8.74              | 71.6                     | 1038.5            | 7.16              | 100.8        | 1462.0            | 10.08             | 85.0         | 1232.8            | 8.50              |              |                   |                   |                                         |                   |                   |
| 450 <sup>*2</sup>   | 842 <sup>*2</sup> | 82.2         | 1192.2            | 8.22              | 86.5          | 1254.6            | 8.65              | 70.2                     | 1018.2            | 7.02              | 100.4        | 1456.2            | 10.04             | 82.8         | 1200.9            | 8.28              |              |                   |                   |                                         |                   |                   |
| 475                 | 887               | 80.8         | 1171.9            | 8.08              | 86.0          | 1247.3            | 8.60              |                          |                   |                   | 95.1         | 1379.3            | 9.51              | 80.2         | 1163.2            | 8.02              |              |                   |                   |                                         |                   |                   |
| 500                 | 932               | 79.5         | 1153.1            | 7.95              | 84.7          | 1228.5            | 8.47              |                          |                   |                   | 84.7         | 1228.5            | 8.47              | 77.5         | 1124.0            | 7.75              |              |                   |                   |                                         |                   |                   |
| 538                 | 1000.4            | 73.3         | 1063.1            | 7.33              | 75.2          | 1090.7            | 7.52              |                          |                   |                   | 75.2         | 1090.7            | 7.52              | 70.0         | 1015.3            | 7.00              |              |                   |                   |                                         |                   |                   |
| 550                 | 1022              | 70.7         | 1025.4            | 7.07              | 74.8          | 1084.9            | 7.48              |                          |                   |                   | 74.8         | 1084.9            | 7.48              | 68.8         | 997.9             | 6.88              |              |                   |                   |                                         |                   |                   |
| 575                 | 1067              | 62.5         | 906.5             | 6.25              | 71.8          | 1041.4            | 7.18              |                          |                   |                   | 71.8         | 1041.4            | 7.18              | 65.0         | 942.7             | 6.50              |              |                   |                   |                                         |                   |                   |
| 600                 | 1112              | 50.6         | 733.9             | 5.06              | 59.7          | 865.9             | 5.97              |                          |                   |                   | 64.2         | 931.1             | 6.42              | 58.2         | 844.1             | 5.82              |              |                   |                   |                                         |                   |                   |
| 625                 | 1157              | 41.4         | 600.5             | 4.14              | 47.4          | 687.5             | 4.74              |                          |                   |                   | 54.9         | 796.3             | 5.49              | 50.5         | 732.4             | 5.05              |              |                   |                   |                                         |                   |                   |
| 650                 | 1202              | 33.8         | 490.2             | 3.38              | 38.0          | 551.1             | 3.80              |                          |                   |                   | 42.5         | 616.4             | 4.25              | 42.2         | 612.1             | 4.22              |              |                   |                   |                                         |                   |                   |
| 675                 | 1247              | 28.0         | 406.1             | 2.80              | 31.0          | 449.6             | 3.10              |                          |                   |                   | 37.6         | 545.3             | 3.76              | 34.6         | 501.8             | 3.46              |              |                   |                   |                                         |                   |                   |
| 700                 | 1292              | 24.1         | 349.5             | 2.41              | 25.1          | 364.0             | 2.51              |                          |                   |                   | 29.8         | 432.2             | 2.98              | 26.3         | 381.4             | 2.63              |              |                   |                   |                                         |                   |                   |
| 725                 | 1337              | 20.3         | 294.4             | 2.03              | 21.0          | 304.6             | 2.10              |                          |                   |                   | 23.2         | 336.5             | 2.32              | 19.0         | 275.6             | 1.90              |              |                   |                   |                                         |                   |                   |
| 750                 | 1382              | 17.3         | 250.9             | 1.73              | 17.6          | 255.3             | 1.76              |                          |                   |                   | 17.6         | 255.3             | 1.76              | 13.4         | 194.4             | 1.34              |              |                   |                   |                                         |                   |                   |
| 775                 | 1427              | 13.7         | 198.7             | 1.37              | 13.7          | 198.7             | 1.37              |                          |                   |                   | 13.7         | 198.7             | 1.37              | 9.4          | 136.3             | 0.94              |              |                   |                   |                                         |                   |                   |
| 800                 | 1472              | 10.5         | 152.3             | 1.05              | 10.5          | 152.3             | 1.05              |                          |                   |                   | 10.5         | 152.3             | 1.05              | 6.9          | 100.1             | 0.69              |              |                   |                   |                                         |                   |                   |
| 816                 | 1500.8            | 8.6          | 124.7             | 0.86              | 8.6           | 124.7             | 0.86              |                          |                   |                   | 8.6          | 124.7             | 0.86              | 5.7          | 82.7              | 0.57              |              |                   |                   |                                         |                   |                   |

| Class               |                | 1500                          |                   |                   |                                |                   |                   |                                           |                   |                   |                               |                   |                   |                               |                   |                   |                 |                   |                   |                                          |                   |                   |
|---------------------|----------------|-------------------------------|-------------------|-------------------|--------------------------------|-------------------|-------------------|-------------------------------------------|-------------------|-------------------|-------------------------------|-------------------|-------------------|-------------------------------|-------------------|-------------------|-----------------|-------------------|-------------------|------------------------------------------|-------------------|-------------------|
| Service Temperature |                | CF8 <sup>*2</sup><br>[SCS13A] |                   |                   | CF8M <sup>*2</sup><br>[SCS14A] |                   |                   | CF3M-CF3 <sup>*3</sup><br>[SCS16A-SCS19A] |                   |                   | CF8C <sup>*2</sup><br>[SCS21] |                   |                   | CK20 <sup>*2</sup><br>[SCS18] |                   |                   | CN7M<br>[SCS23] |                   |                   | SDPV <sup>®4</sup><br>SASV <sup>*5</sup> |                   |                   |
| °C                  | °F             | bar                           | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                            | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                       | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                           | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                           | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar             | psi <sup>*1</sup> | MPa <sup>*1</sup> | bar                                      | psi <sup>*1</sup> | MPa <sup>*1</sup> |
| -29 to 38           | -20.2 to 100.4 | 248.2                         | 3599.8            | 24.82             | 248.2                          | 3599.8            | 24.82             | 206.8                                     | 2999.4            | 20.68             | 248.2                         | 3599.8            | 24.82             | 231.7                         | 3360.5            | 23.17             | 206.8           | 2999.4            | 20.68             | 258.6                                    | 3750.7            | 25.86             |
| 50                  | 122            | 239.1                         | 3467.9            | 23.91             | 240.6                          | 3489.6            | 24.06             | 200.1                                     | 2902.2            | 20.01             | 243.8                         | 3536.0            | 24.38             | 222.4                         | 3225.6            | 22.24             | 200.7           | 2910.9            | 20.07             | 258.6                                    | 3750.7            | 25.86             |
| 100                 | 212            | 204.3                         | 2963.1            | 20.43             | 211.0                          | 3060.3            | 21.1              | 173.9                                     | 2522.2            | 17.39             | 226.5                         | 3285.1            | 22.65             | 187.7                         | 2722.4            | 18.77             | 176.5           | 2559.9            | 17.65             | 253.3                                    | 3673.8            | 25.33             |
| 150                 | 302            | 185.0                         | 2683.2            | 18.50             | 192.5                          | 2792.0            | 19.25             | 157.0                                     | 2277.1            | 15.7              | 212.4                         | 3080.6            | 21.24             | 174.4                         | 2529.5            | 17.44             | 160.2           | 2323.5            | 16.02             | 229.6                                    | 3330.1            | 22.96             |
| 200                 | 392            | 172.4                         | 2500.5            | 17.24             | 178.3                          | 2586.0            | 17.83             | 145.8                                     | 2114.7            | 14.58             | 199.7                         | 2896.4            | 19.97             | 167.7                         | 2432.3            | 16.77             | 146.8           | 2129.2            | 14.68             | 213.3                                    | 3093.7            | 21.33             |
| 250                 | 482            | 162.4                         | 2355.4            | 16.24             | 166.9                          | 2420.7            | 16.69             | 137.3                                     | 1991.4            | 13.73             | 189.1                         | 2742.7            | 18.91             | 163.1                         | 2365.6            | 16.31             | 136.1           | 1974.0            | 13.61             | 202.3                                    | 2934.1            | 20.23             |
| 300                 | 572            | 154.6                         | 2242.3            | 15.46             | 158.1                          | 2293.1            | 15.81             | 130.3                                     | 1889.8            | 13.03             | 180.4                         | 2616.5            | 18.04             | 158.6                         | 2300.3            | 15.86             | 126.9           | 1840.5            | 12.69             | 194.3                                    | 2818.1            | 19.43             |
| 325                 | 617            | 151.1                         | 2191.5            | 15.11             | 154.4                          | 2239.4            | 15.44             | 127.4                                     | 1847.8            | 12.74             | 176.8                         | 2564.3            | 17.68             | 156.1                         | 2264.0            | 15.61             | 122.1           | 1770.9            | 12.21             | 190.8                                    | 2767.3            | 19.08             |
| 350                 | 662            | 148.1                         | 2148.0            | 14.81             | 151.6                          | 2198.8            | 15.16             | 125.4                                     | 1818.8            | 12.54             | 173.8                         | 2520.8            | 17.38             | 152.9                         | 2217.6            | 15.29             |                 |                   |                   | 188.2                                    | 2729.6            | 18.82             |
| 375                 | 707            | 145.2                         | 2106.0            | 14.52             | 149.4                          | 2166.9            | 14.94             | 123.8                                     | 1795.6            | 12.38             | 171.0                         | 2480.1            | 17.1              | 149.2                         | 2164.0            | 14.92             |                 |                   |                   | 186.8                                    | 2709.3            | 18.68             |
| 400                 | 752            | 142.2                         | 2062.4            | 14.22             | 147.2                          | 2135.0            | 14.72             | 121.5                                     | 1762.2            | 12.15             | 169.5                         | 2458.4            | 16.95             | 145.5                         | 2110.3            | 14.55             |                 |                   |                   | 183.1                                    | 2655.6            | 18.31             |
| 425                 | 797            | 140.0                         | 2030.5            | 14.00             | 145.7                          | 2113.2            | 14.57             | 119.3                                     | 1730.3            | 11.93             | 168.1                         | 2438.1            | 16.81             | 141.7                         | 2055.2            | 14.17             |                 |                   |                   |                                          |                   |                   |
| 450                 | 842            | 137.0                         | 1987.0            | 13.70             | 144.2                          | 2091.4            | 14.42             | 117.1                                     | 1698.4            | 11.71             | 167.3                         | 2426.5            | 16.73             | 138.0                         | 2001.5            | 13.8              |                 |                   |                   |                                          |                   |                   |
| 475                 | 887            | 134.7                         | 1953.7            | 13.47             | 143.4                          | 2079.8            | 14.34             |                                           |                   |                   | 158.2                         | 2294.5            | 15.82             | 133.7                         | 1939.2            | 13.37             |                 |                   |                   |                                          |                   |                   |
| 500                 | 932            | 132.4                         | 1920.3            | 13.24             | 140.9                          | 2043.6            | 14.09             |                                           |                   |                   | 140.9                         | 2043.6            | 14.09             | 129.2                         | 1873.9            | 12.92             |                 |                   |                   |                                          |                   |                   |
| 538                 | 1000.4         | 122.1                         | 1770.9            | 12.21             | 125.5                          | 1820.2            | 12.55             |                                           |                   |                   | 125.5                         | 1820.2            | 12.55             | 116.6                         | 1691.1            | 11.66             |                 |                   |                   |                                          |                   |                   |
| 550                 | 1022           | 117.8                         | 1708.5            | 11.78             | 124.9                          | 1811.5            | 12.49             |                                           |                   |                   | 124.9                         | 1811.5            | 12.49             | 114.7                         | 1663.6            | 11.47             |                 |                   |                   |                                          |                   |                   |
| 575                 | 1067           | 104.2                         | 1511.3            | 10.42             | 119.7                          | 1736.1            | 11.97             |                                           |                   |                   | 119.7                         | 1736.1            | 11.97             | 108.3                         | 1570.8            | 10.83             |                 |                   |                   |                                          |                   |                   |
| 600                 | 1112           | 84.4                          | 1224.1            | 8.44              | 99.5                           | 1443.1            | 9.95              |                                           |                   |                   | 107.0                         | 1551.9            | 10.7              | 97.1                          | 1408.3            | 9.71              |                 |                   |                   |                                          |                   |                   |
| 625                 | 1157           | 68.9                          | 999.3             | 6.89              | 79.1                           | 1147.3            | 7.91              |                                           |                   |                   | 91.2                          | 1322.7            | 9.12              | 84.1                          | 1219.8            | 8.41              |                 |                   |                   |                                          |                   |                   |
| 650                 | 1202           | 56.3                          | 816.6             | 5.63              | 63.3                           | 918.1             | 6.33              |                                           |                   |                   | 70.7                          | 1025.4            | 7.07              | 70.4                          | 1021.1            | 7.04              |                 |                   |                   |                                          |                   |                   |
| 675                 | 1247           | 46.7                          | 677.3             | 4.67              | 51.6                           | 748.4             | 5.16              |                                           |                   |                   | 62.7                          | 909.4             | 6.27              | 57.6                          | 835.4             | 5.76              |                 |                   |                   |                                          |                   |                   |
| 700                 | 1292           | 40.1                          | 581.6             | 4.01              | 41.9                           | 607.7             | 4.19              |                                           |                   |                   | 49.7                          | 720.8             | 4.97              | 43.8                          | 635.3             | 4.38              |                 |                   |                   |                                          |                   |                   |
| 725                 | 1337           | 33.8                          | 490.2             | 3.38              | 34.9                           | 506.2             | 3.49              |                                           |                   |                   | 38.6                          | 559.8             | 3.86              | 31.7                          | 459.8             | 3.17              |                 |                   |                   |                                          |                   |                   |
| 750                 | 1382           | 28.9                          | 419.2             | 2.89              | 29.3                           | 425.0             | 2.93              |                                           |                   |                   | 29.6                          | 429.3             | 2.96              | 22.3                          | 323.4             | 2.23              |                 |                   |                   |                                          |                   |                   |
| 775                 | 1427           | 22.8                          | 330.7             | 2.28              | 22.8                           | 330.7             | 2.28              |                                           |                   |                   | 22.8                          | 330.7             | 2.28              | 15.7                          | 227.7             | 1.57              |                 |                   |                   |                                          |                   |                   |
| 800                 | 1472           | 17.4                          | 252.4             | 1.74              | 17.4                           | 252.4             | 1.74              |                                           |                   |                   | 17.4                          | 252.4             | 1.74              | 11.4                          | 165.3             | 1.14              |                 |                   |                   |                                          |                   |                   |
| 816                 | 1500.8         | 14.1                          | 204.5             | 1.41              | 14.1                           | 204.5             | 1.41              |                                           |                   |                   | 14.1                          | 204.5             | 1.41              | 9.5                           | 137.8             | 0.95              |                 |                   |                   |                                          |                   |                   |

\* 1: Figures in psi/MPa columns are calculated values.

\* 2: Flanged end valve ratings terminate at 538°C (1000°F).

\* 3: Use beyond 425°C is not allowed.

\* 4: SDPV<sup>®</sup> is the trademark registered for KITZ Super Duplex Stainless Steel, which is comparable to 25Cr-7Ni-4Mo-N castings. Ratings terminate at 300°C (572°F).

\* 5: SASV is the trademark registered for KITZ Super Austenite Stainless Steel, which is comparable to 21Cr-25Ni-6.5Mo-N castings.

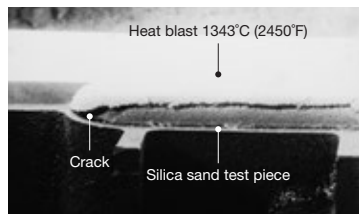
## Valve Closure Test Pressures

| Series | B (KITZ Std.) |      |      |
|--------|---------------|------|------|
|        | Hydrostatic   |      | Air  |
|        | Shell         | Seat | Seat |
| 5K     | 1.05          | 0.7  | 0.6  |
| 10K    | 2.10          | 1.4  |      |
| 20K    | 3.00          | 2.0  | —    |

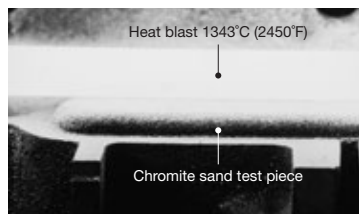
Note: Test pressure for check valves to JIS B2003

## Sand Molds for Stainless Steel Valve Castings

### Silica Sand

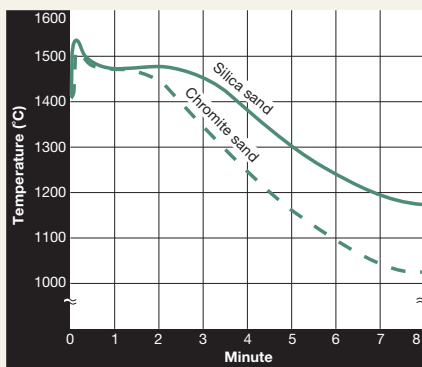


### Chromite Sand



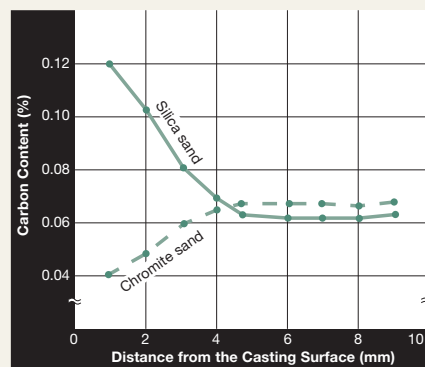
Unlike its competitors, KITZ Corporation employs casting molds made of mixture of chromite sand and silica sand at its Nagasaka stainless and high alloy steel foundries, instead of 100% silica sand which is rather common in the industry. The specific gravity of chromite sand is twice as much as that of silica sand and loading 1.5 MPa (210 psi) surface pressure during molding enables uncomparably solid, hard and uniform structure of casting molds with high precision.

### Mold Sands: Cooling Effect



Much higher cooling effect of chromite sand solidifies the molten metal faster to result in very sound castings without concern of blowholes and other casting defects.

### Mold Sands: Decarbonization



Chromite sand decarbonizes the surface area of stainless steel castings is much better. So, the fine casting surface and high corrosion resistance are guaranteed.

## KITZ Low Emission Service Valves

In the United States, the Federal Clean Air Act was dramatically amended in 1990, to realize the new environmental protection policy of 95% reduction in fugitive emission or leak levels of toxic gases and chemicals from plant equipment. Promulgated in April, 1994, the new law requires all plants handling the toxic gas specified by the Environmental Protection Agency, to periodically monitor their plant equipment for detection of leaks exceeding 500 ppm, and repair or replace all defective parts immediately. California has exceeded the Federal law with state regulation requiring 100 ppm maximum leak level for astonishing 99% reduction of such an environmental pollution for the Northern California Region after 1997.

Our low emission valves, the proud fruits of several years of trial and error at our laboratory, are designed, engineered, manufactured and tested to now meet the 100 ppm maximum emission level. This is the standard specification in North America for KITZ Class 150, 300 and 600 Series A and C stainless and high alloy steel valves. In other markets, all these low emission valves are optionally available. Major design considerations for having upgraded our standard valves to the low emission performers are introduced below.

### Gland packing

Series A: Choice of PTFE or flexible graphite packing.

- (1) Braided PTFE fiber packing with spun carbon core
- (2) KITZ original "SEALEVER®" packing set consisting of 4 dieformed flexible graphite rings\* and 2 braided flexible graphite wiper rings with a pure carbon spacer bush for Class 300 and 600.

Series HA:

- (1) Braided PTFE fiber packing with spun carbon core
- (2) KITZ original "SEALEVER®" packing set consisting of 4 dieformed flexible graphite rings\* and 2 braided flexible graphite wiper rings with a pure carbon spacer bush for Class 300.

Series C: KITZ original "SEALEVER®" graphite packing set with a pure carbon spacer bush for Class 300 and 600.

\*US Patent No.5522603 & 5573253. Other patents registered or pending worldwide.

### Bonnet gaskets and check valve cover gaskets

Series A: Choice of PTFE or flexible graphite gasket.

- (1) Class 150: Reinforced PTFE, Class 300: PTFE filled spiral wound with inner ring. Class 600: PTFE filled spiral wound
- (2) Class 150: S/S inserted flexible graphite seat designed with permeation protective barrier  
Class 300: Spiral wound flexible graphite with inner ring. Class 600: Spiral wound flexible graphite

Series HA: Choice of PTFE or flexible graphite gasket.

- (1) Class 150: Reinforced PTFE, Class 300: PTFE filled spiral wound with inner ring.
- (2) Class 150: S/S inserted flexible graphite seat designed with permeation protective barrier, corrugated metal flexible graphite (6B OVER).  
Class 300: Spiral wound flexible graphite with inner ring.

Series C:

- Class 150: Flexible graphite seat with stainless steel insert and permeation protective barrier for low emission service.
- Class 300: Spiral wound (flexible graphite filler and stainless steel hoop) with a stainless steel inner ring
- Class 600: Ring joint metal gasket

### Diametrical Interface Clearance

20 to 32 mils (0.5 to 0.8 mm): Stem to Gland

20 to 32 mils (0.5 to 0.8 mm): Stem to Bonnet Bushing (Series C)

16 to 28 mils (0.4 to 0.7 mm): Stem to Backseat (Series A, HA)

4 to 12 mils (0.1 to 0.3 mm): Gland to Stuffing Box

### Stem

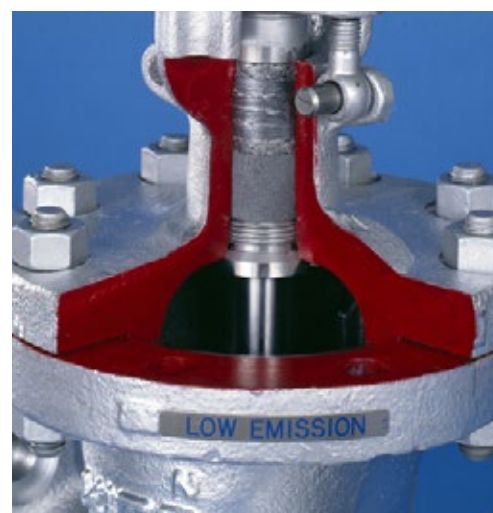
16 to 32 RMS surface finish. Straightness and roundness are precisely controlled according to KITZ design and manufacturing standards.

### Stuffing Box

Maximum 125 RMS surface finish. Cylindricity and verticality are precisely controlled according to KITZ design and manufacturing standards.

### Product Identification

Stainless steel ID plate with the letters "LOW EMISSION" is welded on the bonnet flange.



## Inspection and Warranty Policy of KITZ Corporation

Every piece of KITZ stainless and high alloy steel valves are subjected to 100% pressure tests, according to API 598 or BS 6755 Part 1 requirements. Manufacturer's material test reports and inspection certificates are available on request, while each valve is guaranteed for 12 months after placement in service, but not exceeding 18 months after shipment from the factories of KITZ Corporation.

Various tests and inspection of valves made by KITZ Corporation include the following. Unless otherwise specified, all KITZ stainless and high alloy steel valves shall be subjected to these test or inspection methods and evaluation criteria.

| Test/Inspection Item             | Method                      | Evaluation           |
|----------------------------------|-----------------------------|----------------------|
| Chemical Composition Analysis    |                             | Relevant ASTM Stds.  |
| Mechanical Property Test         | ASTM A370                   | Relevant ASTM Stds.  |
| Pressure Tests                   | API 598 or BS 6755 Part 1   | API 598              |
| Radiographic Inspection          | ASTM E186/280/446           | ASME B16.34          |
| Wet Magnetic Particle Inspection | ASTM E709                   |                      |
| Liquid Penetrant Inspection      | ASTM E165                   |                      |
| Low Temperature Impact Test      | ASTM E23                    | ASTM A352            |
| Dimensional Inspection           |                             | Relevant Valve Stds. |
| Visual Inspection                |                             | MSS SP-55            |
| Emission Test*                   | EPA Method 21 and KITZ Std. | KITZ Std.            |

\*Applicable to low emission service valves

## KITZ Low Temperature and Cryogenic Service Valves

KITZ Corporation offers Series A and C stainless steel gate, globe and check valves for processing, storage, shipment and distribution of ethylene, LPG, LNG and other low temperature or cryogenic services down to  $-196^{\circ}\text{C}$  ( $-321^{\circ}\text{F}$ ). Here, extended bonnets are provided as an insulation vapor column to protect gland packing rings from freezing or shrinking for their trouble-free sealing function. Detailed design information and cryogenic test reports are available on request.

Please refer to our "Low Temperature and Cryogenic Valves" catalog. (No. E-426)



KITZ cryogenic service gate valve



Cryogenic pressure test



KITZ cryogenic service globe valve

SS

Stainless Steel