

One Stop Solution Of Quality Valves

# BUTTERFLY VALVE



CONCENTRIC, ECCENTRIC & TRIPLE-OFFSET TYPE  
CONCENTRIC, ECCENTRIC & TRIPLE-OFFSET TYPE

## PRODUCTS



### **Wafer Style Body**

Size range: 3" to 100", (80mm to 2500mm)

Temp. range: -100 degrees C to over 800 degrees C

Flange rating: ANSI class 150 to ANSI class 600

Flange drilling: ANSI, MSS, API, JIS, DIN, BS

Face to face: API 609



### **Weld End**

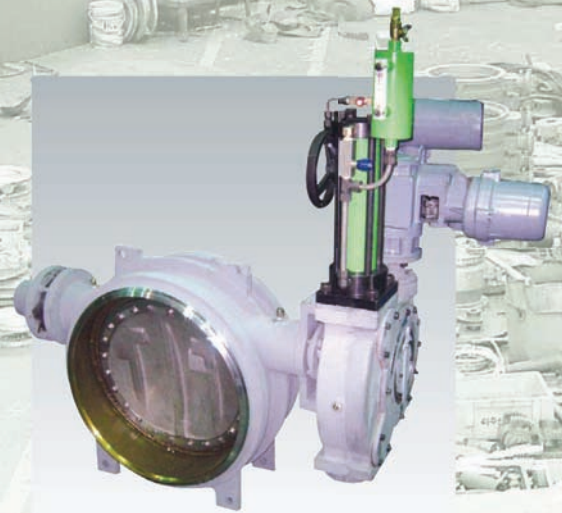
Size range: 3" to 100"

Temp. range: -100 degrees C to over 800 degrees C

Flange rating: ANSI class 150 to ANSI class 1500

Flange drilling: ANSI, MSS, API, JIS, DIN, BS

Face to face: ANSI



*Improve Quality in Order to Provide Customers*



### **Double Flanged Body**

Size range: 3" to 120", (80mm to 3000mm)

Temp. range: -100 degrees C to over 800 degrees C

Flange ratings: ANSI class 150 to ANSI class 1500

Flange drilling: ANSI, MSS, API, JIS, DIN, BS

Face to face: ISO 5752, ANSI B16.10, DIN 3203



### **Lugged Style Body**

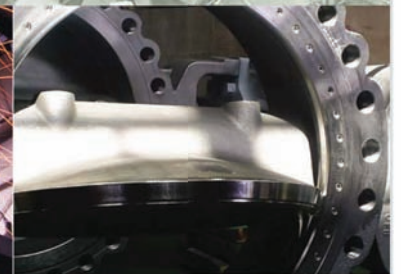
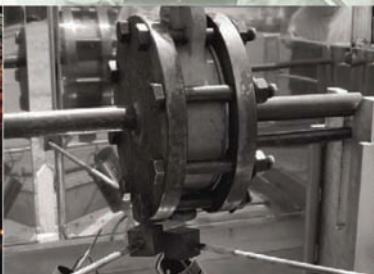
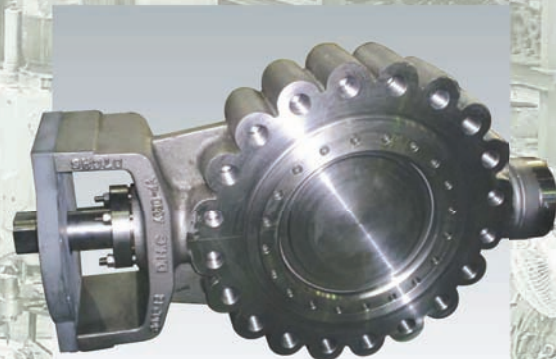
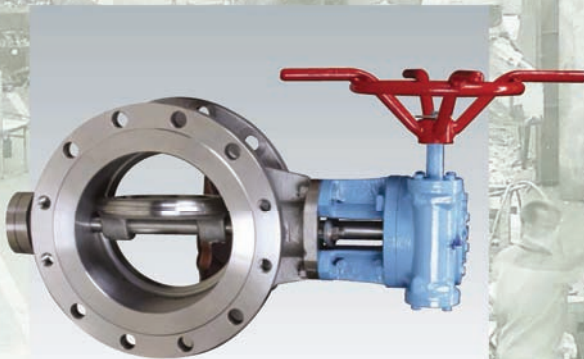
Size range: 3" to 100", (80mm to 2500mm)

Temp. range: -100 degrees C to over 800 degrees C

Flange rating: ANSI class 150 to ANSI class 600

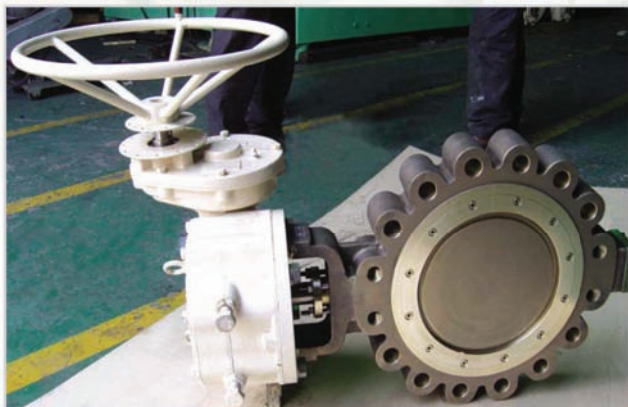
Flange drilling: ANSI, MSS, API, JIS, DIN, BS

Face to face: API 609

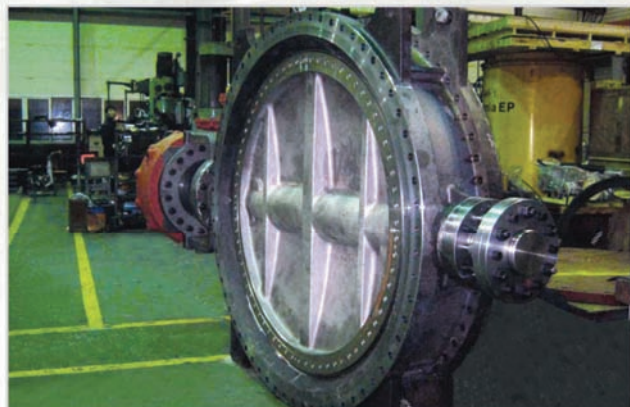


*with 100% Satisfaction.*

# PRODUCTS



FIRE SAFETY TYPE SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION TYPE 8"~60"



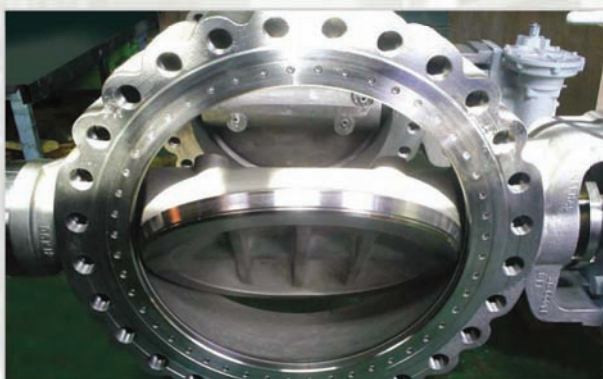
STEAM LINE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE UNI-DIRECTION TYPE 4"~160"

METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE  
ZERO LEAKAGE BI-DIRECTION TYPE 4"~160"



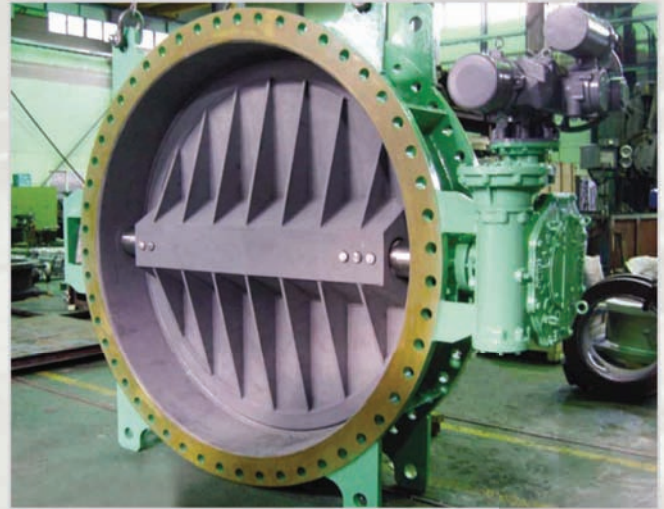
RUBBER LINED METAL SEAT TRIPLE OFFSET  
BUTTERFLY VALVE ZERO LEAKAGE UNI-  
DIRECTION TYPE 1050A ETC. 4"~160"

METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE  
ZERO LEAKAGE UNI-DIRECTION TYPE 8"~60"





METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE ZERO LEAKAGE  
UNI-DIRECTION TYPE 4"~160"



BFC GAS LINE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE  
ZERO LEAKAGE UNI-DIRECTION TYPE 4"~160"



HI-PRESSURE METAL SEAT TRIPLE OFFSET BUTTERFLY VALVE  
ZERO LEAKAGE BI-DIRECTION TYPE 4"~160"



LARGE SIZE BALL VALVE TRUNION TYPE 4"~160"

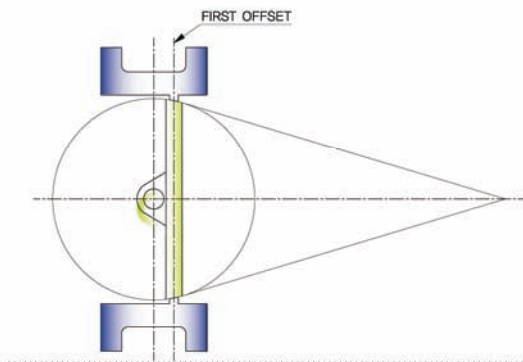


WAFER TYPE BUTTERFLY VALVE ZERO LEAKAGE BI-DIRECTION  
TYPE 4"~160"



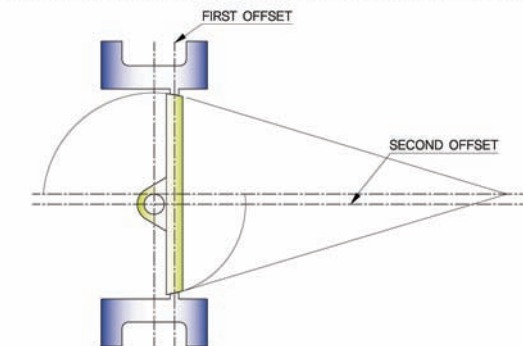
NON-SLAM CHECK VALVE TRIPLE OFFSET ZERO LEAKAGE 4"~160"

# TRIPLE OFFSET BUTTERFLY VALVE DESIGN



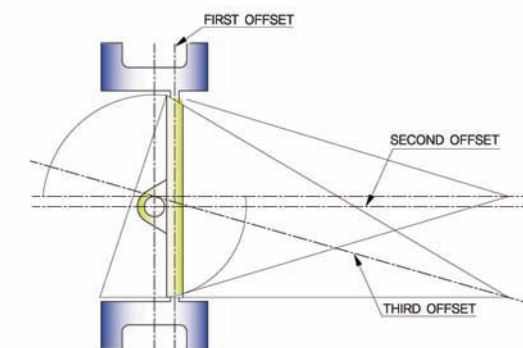
## SINGLE OFFSET

The center of rotation is moved back from the centerline of the valve disc. The seat and seal are designed conically and on center. This design relies on a frictional, interference seal and so is applicable only to soft seated valves.



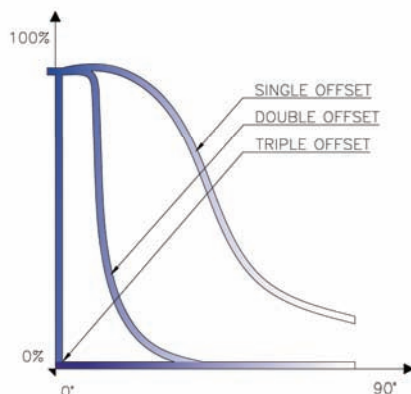
## DOUBLE OFFSET

The center of rotation is moved from the centerline of the valve body. The seat and seal design remains conical and on center. This design again relies on a frictional, interference seal, but the length of rotation over which this friction occurs is reduced, allowing a larger range of process resistant seat materials to be used. However these materials must be relatively soft or highly elastic to prevent "jamming".



## TRIPLE OFFSET

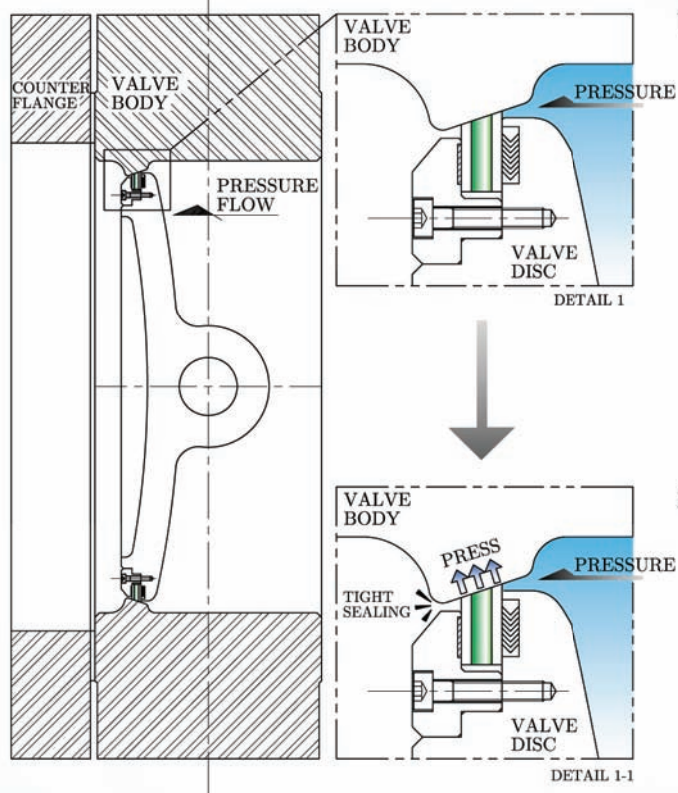
The centerline of the cone is rotated away from the valve centerline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life. The result is a torque seated, process pressure aided **FRITIONLESS** seal. The geometry allows the body seat to be used as the closed limit stop, aiding operator adjustment. The Triple Offset design is ideally suited to metal seated valves providing bubble-tight performance on high temperature, high pressure and firesafe applications.



## FRICION RATE

- Triple offset and ellipsoidal sealing geometry
- Bi-Directional bubble tight shut-off
- Inherently Firesafe by design
- Developed Geometry results in
  - Zero Seat/Seal Friction
  - Low Torques
  - Extended Service Life
  - Continued Seal through Thermal Cycling
  - Torque Seating
- Excellent flow and throttling characteristics covering services from Cryogenic to high temperature
- Excellent control of Fugitive Emission by virtue of Rotary stem movement and advanced packing materials
  - Less than 50ppm on Fugitive
  - Emission Test to cover EPA21

## UNI-DIRECTION DESIGN (DHC-BTMN SERIES)



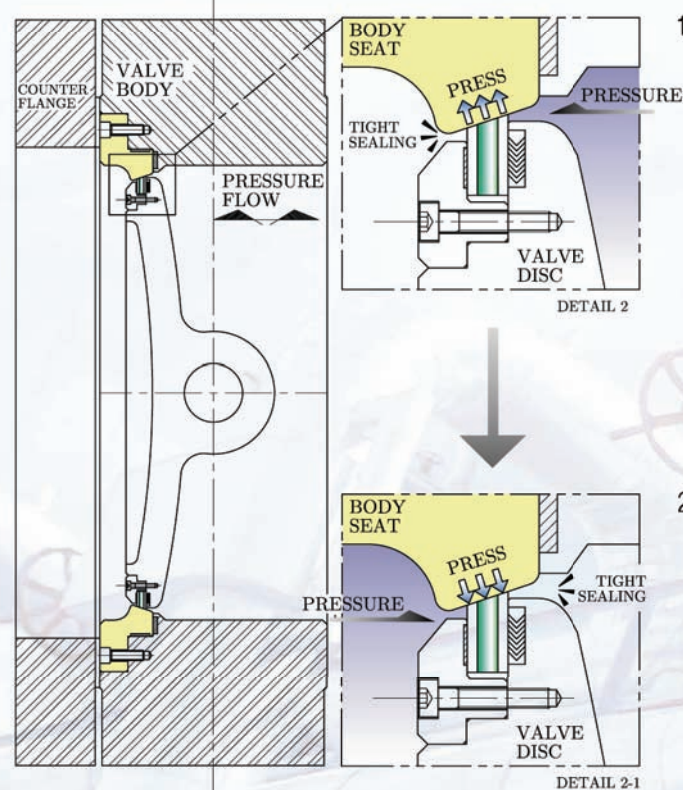
1. As you see the detail 1, this is the structure of inserting seal into disc. There is few changing of seal in the high pressure, and low torque due to small sealing surface.

2. As you see the detail 1-1, the seal in the disc is stuck on body seat surface under the pressure condition.

### Features

- Zero leakage
- Metal seated
- Bi-directional
- Inherently Fire safe
- Low operating torques
- Torque seated
- Continued sealing through thermal cycling
- Zero seat/seal friction
- Extended service life
- Excellent flow and throttling characteristics
- Excellent control of fugitive emissions
- Quarter turn operation

## BI-DIRECTION DESIGN (DHC-BTMS SERIES)



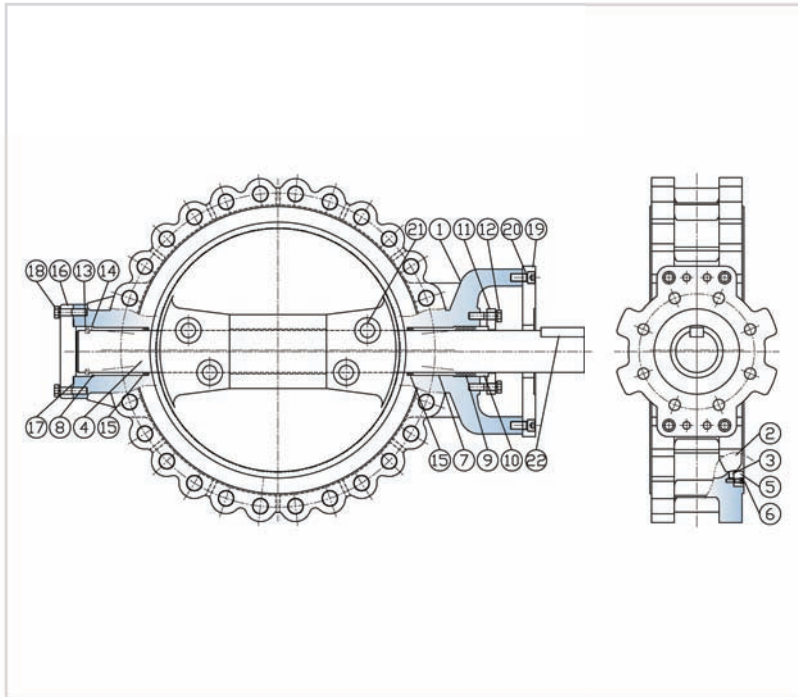
1. As you see the detail 2, this structure has seats both body and disc. This tight sealing can be ensured by the very close contact between the body seat and disc seat, under a flow direction pressure.

2. As you see the detail 2-1, the tight sealing can be ensured by the very close contact between the body seat and disc seat, under a reverse flow direction pressure.

### Design Standard Specifications

- Design: ASME/ANSI B16.34, API 609, BS 5155, DIN 3840, JIS
- Fire safe: API 607, API 6FA, BS 6755
- Pressure Temperature ratings: ASME/ANSI B16.34
- Body & Seat Pressure Test: API Std. 598, API 6D, ISO 5208
- Seat leakage test: ANSI B16.104 class VI
- Flange drilling: ANSI B16.5, ANSI B16.47, MSS SP-44, DIN, JIS, BS
- Face to Face: ISO 5752, ANSI B16.10, API 609, BS 5155
- Marking: MSS SP-25

# TRIPLE OFFSET BUTTERFLY VALVE SPECIFICATION



| ITEM NO | DESCRIPTION          | STANDARD<br>GENERAL SPEC<br>CLEAN WATER & SOUR GAS<br>STEAM & ALL NORMAL CONDITION | ALL SCOPE<br>LOW OR HIGH TEMP'<br>FLUID OF ALL SCOPE &<br>SEA WATER & CORROSIVE MEDIA |
|---------|----------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1       | BODY                 | A216 WCB/ A351 CF8M                                                                | BY A PLAN IT SELECTS.                                                                 |
| 2       | DISC                 | A216 WCB/ A351 CF8M                                                                |                                                                                       |
| 3       | BODY SEAT            | LAMINATED STAINLESS STEEL+GRAPHITE                                                 |                                                                                       |
| 4       | SHAFT                | STAINLESS STEEL (316/ 630/420/ 410/ ETC)                                           |                                                                                       |
| 5       | BODY SEAT RETAINER   | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 6       | RETAINER BOLT        | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 7       | MAIN BUSH            | B148 / B584 / OILESS/ STAINLESS                                                    |                                                                                       |
| 8       | STUB BUSH            | B148 / B584 / OILESS/ STAINLESS                                                    |                                                                                       |
| 9       | PACKING              | GRAPHITE                                                                           |                                                                                       |
| 10      | PACKING BUSH         | B148 / B584 / STAINLESS                                                            |                                                                                       |
| 11      | PACKING GLAND        | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 12      | STUD BOLT & NUT      | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 13      | SHAFT RING           | B148 / B584 / STAINLESS                                                            |                                                                                       |
| 14      | SHAFT RING HOLDER    | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 15      | DUST SEAL            | GRAPHITE                                                                           |                                                                                       |
| 16      | END COVER            | CAST CARBON STEEL/ STAINLESS STEEL                                                 |                                                                                       |
| 17      | END COVER GASKET     | GRAPHITE/ SPIRAL WOUND GASKET                                                      |                                                                                       |
| 18      | END COVER BOLT       | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 19      | TOP FLANGE           | CARBON STEEL                                                                       |                                                                                       |
| 20      | FLANGE BOLT          | STAINLESS STEEL (304/316/316L)                                                     |                                                                                       |
| 21      | LOCK PIN & TAPER PIN | STAINLESS STEEL (316/ 630/420/ 410/ ETC )                                          |                                                                                       |
| 22      | KEY                  | STEEL                                                                              |                                                                                       |

※ AVAILABLE MATERIAL (DUPLEX, AL-BRONZE, INCONEL, MONEL, ETC)

# TRIPLE OFFSET BUTTERFLY VALVE TORQUE TABLE

| VALVE SIZE | CLASS 150Lb(20 BAR G) |               |
|------------|-----------------------|---------------|
|            | PREFERRED DIRECTION   |               |
|            | UNSEATING (N.m)       | SEATING (N.m) |
| 2          | 60                    | 50            |
| 3          | 95                    | 79            |
| 4          | 162                   | 135           |
| 5          | 253                   | 211           |
| 6          | 364                   | 304           |
| 8          | 737                   | 614           |
| 10         | 1187                  | 989           |
| 12         | 1835                  | 1524          |
| 14         | 2670                  | 2225          |
| 16         | 3712                  | 3094          |
| 18         | 4984                  | 4153          |
| 20         | 6506                  | 5422          |
| 24         | 10389                 | 8658          |
| 28         | 15535                 | 12946         |
| 30         | 18636                 | 15530         |
| 32         | 22119                 | 18433         |
| 36         | 30319                 | 25265         |
| 40         | 40311                 | 33592         |
| 42         | 46035                 | 38363         |
| 48         | 66393                 | 55327         |

| VALVE SIZE | CLASS 300Lb(52 BAR G) |               |
|------------|-----------------------|---------------|
|            | PREFERRED DIRECTION   |               |
|            | UNSEATING (N.m)       | SEATING (N.m) |
| 2          | 96                    | 80            |
| 3          | 260                   | 217           |
| 4          | 412                   | 351           |
| 5          | 658                   | 548           |
| 6          | 1028                  | 857           |
| 8          | 1972                  | 1643          |
| 10         | 3307                  | 2756          |
| 12         | 5088                  | 4240          |
| 14         | 7369                  | 6141          |
| 16         | 10205                 | 8504          |
| 18         | 13699                 | 11375         |
| 20         | 17759                 | 14799         |
| 24         | 28189                 | 23491         |

| VALVE SIZE | CLASS 600Lb(100 BAR G) |               |
|------------|------------------------|---------------|
|            | PREFERRED DIRECTION    |               |
|            | UNSEATING (N.m)        | SEATING (N.m) |
| 3          | 518                    | 432           |
| 4          | 878                    | 732           |
| 6          | 2132                   | 1777          |
| 8          | 4069                   | 3390          |
| 10         | 6791                   | 5659          |
| 12         | 10404                  | 8670          |
| 14         | 15012                  | 12510         |
| 16         | 20719                  | 17266         |
| 18         | 27630                  | 23025         |
| 20         | 35850                  | 29875         |
| 24         | 56634                  | 47195         |

## TRIPLE OFFSET BUTTERFLY VALVE TORQUE TABLE

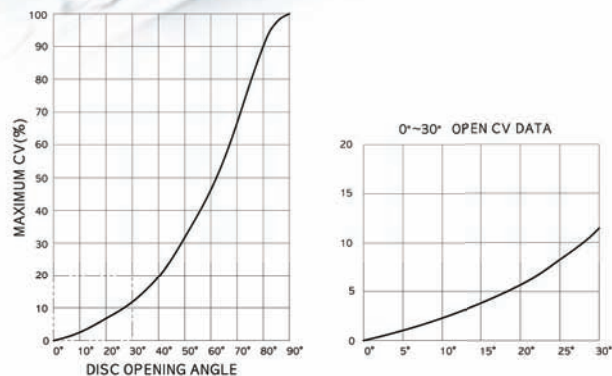
| VALVE SIZE | CLASS 900Lb(150 BAR G) |               |
|------------|------------------------|---------------|
|            | PREFERRED DIRECTION    |               |
|            | UNSEATING (N.m)        | SEATING (N.m) |
| 3          | 777                    | 647           |
| 4          | 1422                   | 1185          |
| 6          | 3432                   | 2860          |
| 8          | 6518                   | 5432          |
| 10         | 10835                  | 9029          |
| 12         | 16539                  | 13782         |
| 14         | 23786                  | 19822         |
| 16         | 32733                  | 27278         |
| 18         | 43537                  | 36281         |
| 20         | 56354                  | 46962         |
| 24         | 88654                  | 73879         |

| VALVE SIZE | CLASS 1500Lb(255 BAR G) |               |
|------------|-------------------------|---------------|
|            | PREFERRED DIRECTION     |               |
|            | UNSEATING (N.m)         | SEATING (N.m) |
| 6          | 5835                    | 4862          |
| 8          | 11080                   | 7233          |
| 10         | 18417                   | 15348         |
| 12         | 28112                   | 23427         |
| 14         | 40430                   | 33692         |
| 16         | 55635                   | 46364         |
| 18         | 73997                   | 61664         |
| 20         | 95777                   | 79814         |
| 24         | 150660                  | 125550        |

- Contact the sales office for torque figures not shown above.
- DHC suggests a minimum of 20% Safety Factor on the above torques.
- Although the valves are suitable for Bi-Directional use, the offset geometry creates a Preferred direction of flow which if used(for uni-directional flow) can show a torque and actuator size reduction.
- Run torques are 40% of the Preferred direction Opening torque.
- Torques shown are valid for temperatures of  $-100^{\circ}\text{C}(-148^{\circ}\text{F})$  to  $+538^{\circ}\text{C}(+1000^{\circ}\text{F})$  For temperatures outside this range consult DHC.
- Torques shown assume a maximum liquid velocity(pipe line) of 5 m/s. For higher liquid velocity, where hydrodynamic torque may need to be considered, consult DHC.
- Please ensure that any actuator chosen to operate the DHC valve is capable of supplying 5° over-travel and has mechanical limit stops controlling the closed position.
- Note that operators must be dowelled to the valve mounting plate. Dowels will be supplied with bare shaft valves but it is the purchasers responsibility to ensure separately purchased operators and mounting kits are machined to accommodate these dowels.
- If in doubt, contact the sales office.

| TORQUE CONVERSION FACTORS |                       |         |        |        |
|---------------------------|-----------------------|---------|--------|--------|
| N m                       | kN m                  | kgf m   | lbf in | lbf ft |
| 1                         | 0.001                 | 0.102   | 8.85   | 0.738  |
| 1000                      | 1                     | 101.972 | 8851   | 737.6  |
| 9.807                     | .0098                 | 1       | 86.8   | 7.233  |
| 0.113                     | $1.13 \times 10^{-4}$ | 0.01155 | 1      | 0.083  |
| 1.356                     | 0.0014                | 0.138   | 12     | 1      |

# TRIPLE OFFSET BUTTERFLY VALVE 'CV' VALUES



FLOW GRAPH

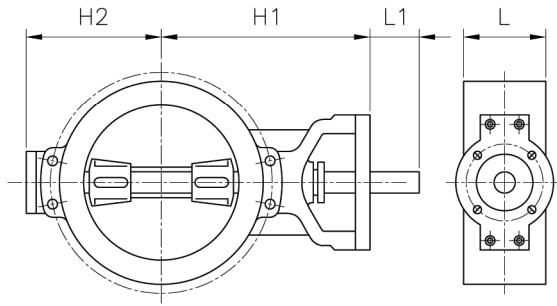
## 150LB MANUAL GEAR OPERATING TYPE

| SIZE |      | 5°   | 10°  | 15°  | 20°  | 25°  | 30°   | 35°   | 40°   | 45°   | 50°   | 55°   | 60°   | 65°   | 70°   | 75°   | 80°   | 85°   | 90°   |
|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm   | inch |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |
| 80   | 3    | 1    | 6    | 14   | 23   | 31   | 39    | 47    | 54    | 62    | 71    | 82    | 96    | 112   | 128   | 143   | 156   | 163   | 165   |
| 100  | 4    | 2    | 12   | 26   | 42   | 57   | 72    | 85    | 98    | 113   | 130   | 150   | 176   | 205   | 234   | 262   | 285   | 299   | 302   |
| 150  | 6    | 16   | 31   | 45   | 59   | 76   | 101   | 134   | 178   | 233   | 297   | 369   | 448   | 531   | 616   | 698   | 758   | 796   | 800   |
| 200  | 8    | 30   | 57   | 82   | 108  | 140  | 185   | 246   | 327   | 427   | 544   | 676   | 821   | 974   | 1130  | 12810 | 1390  | 1460  | 1460  |
| 250  | 10   | 52   | 99   | 142  | 187  | 242  | 320   | 426   | 566   | 739   | 942   | 1170  | 1420  | 1690  | 1960  | 2220  | 2410  | 2530  | 2530  |
| 300  | 12   | 78   | 147  | 212  | 279  | 362  | 478   | 636   | 846   | 1100  | 1410  | 1750  | 2120  | 2520  | 2920  | 3310  | 3600  | 3780  | 3780  |
| 350  | 14   | 106  | 201  | 289  | 380  | 493  | 651   | 866   | 1150  | 1500  | 1920  | 2380  | 2890  | 3430  | 3980  | 4510  | 4890  | 5140  | 5140  |
| 400  | 16   | 165  | 313  | 451  | 594  | 769  | 1020  | 1350  | 1800  | 2350  | 2990  | 3720  | 4510  | 5350  | 6210  | 7040  | 7640  | 8020  | 8020  |
| 450  | 18   | 217  | 413  | 594  | 782  | 1010 | 1340  | 1780  | 2370  | 3090  | 3940  | 4890  | 5940  | 7050  | 8180  | 9270  | 10100 | 10600 | 10600 |
| 500  | 20   | 268  | 509  | 733  | 965  | 1250 | 1650  | 2200  | 2920  | 3820  | 4860  | 6040  | 7340  | 8710  | 10100 | 11400 | 12400 | 13000 | 13000 |
| 600  | 24   | 386  | 734  | 1060 | 1390 | 1800 | 2380  | 3170  | 4210  | 5500  | 7000  | 8700  | 10600 | 12500 | 14500 | 16500 | 17900 | 18800 | 18800 |
| 700  | 28   | 559  | 1060 | 1530 | 2010 | 2610 | 3450  | 4590  | 6100  | 7960  | 10100 | 12600 | 15300 | 18200 | 21100 | 23900 | 25900 | 27200 | 27200 |
| 750  | 30   | 630  | 1200 | 1720 | 2270 | 2940 | 3880  | 5160  | 6870  | 8960  | 11400 | 14200 | 17200 | 20400 | 23700 | 28900 | 29200 | 30700 | 30700 |
| 800  | 32   | 719  | 1370 | 1970 | 2590 | 3360 | 4440  | 5900  | 7840  | 10200 | 13000 | 16200 | 19700 | 23300 | 27100 | 30700 | 33300 | 35000 | 35000 |
| 900  | 36   | 884  | 1680 | 2420 | 3180 | 4120 | 5450  | 7250  | 9630  | 12600 | 16000 | 19900 | 24200 | 28700 | 33300 | 37700 | 40900 | 43000 | 43000 |
| 1000 | 40   | 1170 | 2220 | 3190 | 4210 | 5450 | 7210  | 9580  | 12700 | 16600 | 21200 | 26300 | 31900 | 37900 | 44000 | 49800 | 54100 | 56900 | 56900 |
| 1050 | 42   | 1230 | 2340 | 3370 | 4440 | 5760 | 7610  | 10100 | 13400 | 17600 | 22400 | 27800 | 33700 | 40000 | 46500 | 52600 | 57100 | 60000 | 60000 |
| 1200 | 48   | 1640 | 3120 | 4490 | 5920 | 7670 | 10100 | 13500 | 17900 | 23400 | 29800 | 37000 | 45000 | 53400 | 61900 | 70100 | 76100 | 80000 | 80000 |

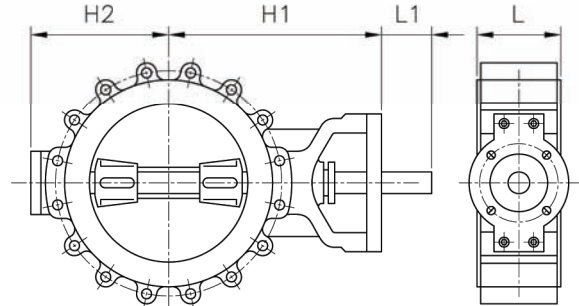
## 300LB MANUAL GEAR OPERATING TYPE

| SIZE |      | 5°  | 10°  | 15°   | 20°  | 25°  | 30°  | 35°   | 40°   | 45°   | 50°   | 55°   | 60°   | 65°   | 70°   | 75°   | 80°   | 85°   | 90°   |
|------|------|-----|------|-------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| mm   | inch |     |      |       |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |
| 80   | 3    | 1   | 6    | 14    | 23   | 31   | 39   | 47    | 54    | 62    | 71    | 82    | 96    | 112   | 128   | 143   | 156   | 163   | 165   |
| 100  | 4    | 2   | 12   | 26    | 42   | 57   | 72   | 85    | 98    | 113   | 130   | 150   | 176   | 205   | 234   | 262   | 285   | 299   | 302   |
| 150  | 6    | 6   | 25   | 41    | 54   | 69   | 91   | 121   | 162   | 212   | 268   | 334   | 407   | 482   | 559   | 634   | 689   | 725   | 725   |
| 200  | 8    | 11  | 45   | 74    | 98   | 126  | 166  | 222   | 298   | 389   | 492   | 613   | 746   | 884   | 1030  | 1160  | 1260  | 1330  | 1330  |
| 250  | 10   | 19  | 82   | 135   | 178  | 229  | 301  | 402   | 540   | 705   | 891   | 1110  | 1350  | 1600  | 1860  | 2110  | 2290  | 2410  | 2410  |
| 300  | 12   | 29  | 122  | 202   | 266  | 342  | 450  | 601   | 807   | 1050  | 1330  | 1660  | 2020  | 2400  | 2780  | 3150  | 3420  | 3600  | 3600  |
| 350  | 14   | 39  | 167  | 274   | 363  | 466  | 613  | 818   | 1100  | 1430  | 1810  | 2260  | 2750  | 3260  | 3780  | 4290  | 4660  | 4900  | 4900  |
| 400  | 16   | 58  | 248  | 408   | 539  | 692  | 910  | 1220  | 1630  | 2130  | 2690  | 3360  | 4090  | 4840  | 5610  | 6370  | 6920  | 7280  | 7280  |
| 450  | 18   | 77  | 326  | 537   | 710  | 911  | 1200 | 1600  | 2150  | 2810  | 3550  | 4420  | 5380  | 6380  | 7400  | 83920 | 9110  | 9590  | 9590  |
| 500  | 20   | 95  | 403  | 663   | 876  | 1130 | 1480 | 1980  | 2650  | 3460  | 4380  | 5460  | 6640  | 7880  | 9130  | 10400 | 11300 | 11800 | 11800 |
| 600  | 24   | 136 | 580  | 955   | 1260 | 1620 | 2130 | 2850  | 3820  | 4990  | 6310  | 7860  | 9570  | 11300 | 13100 | 14900 | 16200 | 17100 | 17100 |
| 700  | 28   | 199 | 844  | 1390  | 1840 | 2360 | 3100 | 4150  | 5560  | 7260  | 9190  | 11400 | 13900 | 16500 | 19100 | 21700 | 23600 | 24800 | 24800 |
| 750  | 30   | 232 | 986  | 1620  | 2150 | 2750 | 3620 | 4840  | 6490  | 8480  | 10700 | 13400 | 16300 | 19300 | 22400 | 25400 | 27500 | 29000 | 29000 |
| 800  | 32   | 261 | 1110 | 1830  | 2420 | 3100 | 4080 | 5450  | 7310  | 9550  | 12100 | 15000 | 18300 | 21700 | 25200 | 28600 | 31000 | 32600 | 32600 |
| 900  | 36   | 332 | 1410 | 2320  | 3070 | 3940 | 5190 | 6930  | 9300  | 12100 | 15400 | 19100 | 23300 | 27600 | 32000 | 36300 | 39400 | 41500 | 41500 |
| 1000 | 40   | 399 | 1700 | 2790  | 3690 | 4740 | 6230 | 8330  | 11200 | 14600 | 18400 | 23000 | 28000 | 33200 | 38400 | 43600 | 47400 | 49900 | 49900 |
| 1050 | 42   | 457 | 1940 | 3200  | 4230 | 5430 | 7140 | 9540  | 12800 | 16700 | 21100 | 26300 | 32000 | 38000 | 44000 | 50000 | 54200 | 57100 | 57100 |
| 1200 | 48   | 480 | 2040 | 33600 | 4440 | 5700 | 7500 | 10000 | 13400 | 17500 | 22200 | 27700 | 33700 | 39900 | 46300 | 52500 | 57000 | 60000 | 60000 |

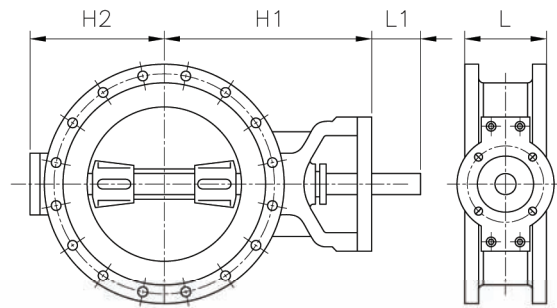
# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



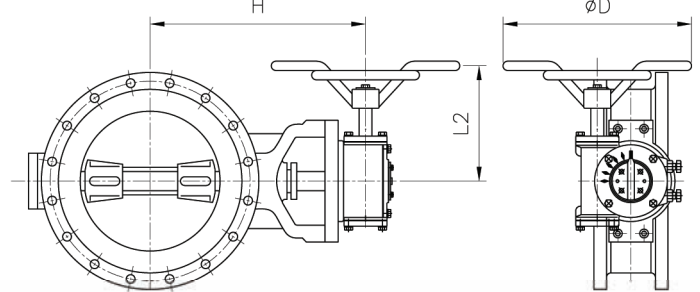
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



MANUAL GEAR OP

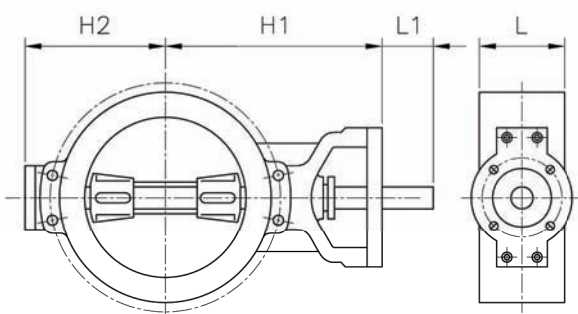
## 150LB MANUAL GEAR OPERATING TYPE

| SIZE |      | H<br>APPROX | H1<br>APPROX | H2<br>APPROX | L1  | 1 L (F TO F) |     |        | L2  | ØD  | ※WEIGHT:Kg(APPROX) |      |        |
|------|------|-------------|--------------|--------------|-----|--------------|-----|--------|-----|-----|--------------------|------|--------|
| mm   | inch |             |              |              |     | WAFER        | LUG | FLANGE |     |     | WAFER              | LUG  | FLANGE |
| 80   | 3    |             | 165          | 127          | 35  | 48           | 48  | 114    | 206 | 300 | 20                 | 21   | 32     |
| 100  | 4    |             | 200          | 150          | 35  | 54           | 54  | 127    | 206 | 300 | 20                 | 21   | 37     |
| 150  | 6    | 300         | 245          | 180          | 35  | 57           | 57  | 140    | 206 | 300 | 20                 | 22   | 48     |
| 200  | 8    | 310         | 260          | 195          | 35  | 64           | 64  | 152    | 206 | 300 | 45                 | 47   | 89     |
| 250  | 10   | 335         | 285          | 225          | 65  | 71           | 71  | 165    | 206 | 300 | 57                 | 61   | 112    |
| 300  | 12   | 390         | 335          | 265          | 80  | 81           | 81  | 178    | 230 | 400 | 85                 | 91   | 161    |
| 350  | 14   | 420         | 365          | 290          | 80  | 92           | 92  | 190    | 230 | 400 | 133                | 142  | 228    |
| 400  | 16   | 500         | 435          | 340          | 80  | 102          | 102 | 216    | 279 | 450 | 186                | 199  | 303    |
| 450  | 18   | 515         | 452          | 360          | 80  | 114          | 114 | 222    | 279 | 450 | 213                | 229  | 364    |
| 500  | 20   | 565         | 500          | 395          | 80  | 127          | 127 | 229    | 312 | 560 | 334                | 364  | 499    |
| 600  | 24   | 635         | 570          | 465          | 110 | 154          | 154 | 267    | 312 | 560 | 455                | 492  | 699    |
| 700  | 28   | 775         | 685          | 570          | 130 | 165          | 165 | 292    | 371 | 630 | 718                | 777  | 860    |
| 750  | 30   | 785         | 695          | 600          | 130 | 165          | 165 | 318    | 371 | 630 | 864                | 934  | 1085   |
| 800  | 32   | 840         | 750          | 630          | 130 | 190          | 190 | 318    | 425 | 710 | 1090               | 1119 | 1241   |
| 900  | 36   | 910         | 820          | 690          | 160 | 200          | 200 | 330    | 425 | 710 | 1418               | 1553 | 1716   |
| 1000 | 40   | 925         | 835          | 720          | 175 | 216          | 216 | 410    | 425 | 710 | 1743               | 1943 | 2208   |
| 1050 | 42   | 980         | 860          | 750          | 175 | 251          | 251 | 410    | 513 | 800 | 2108               | 2343 | 2488   |
| 1200 | 48   | 1140        | 1020         | 845          | 200 | 276          | 276 | 470    | 513 | 800 | 3004               | 3284 | 3440   |

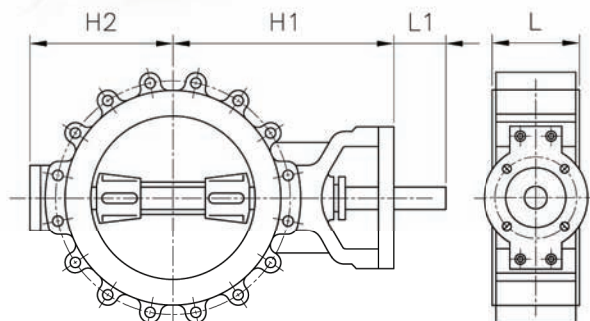
FLANGE RATING—ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

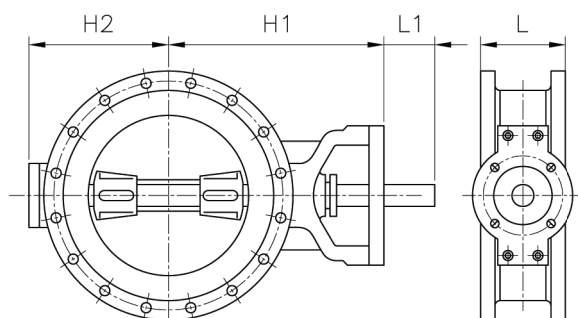
※2 EXCEPT ACTUATOR



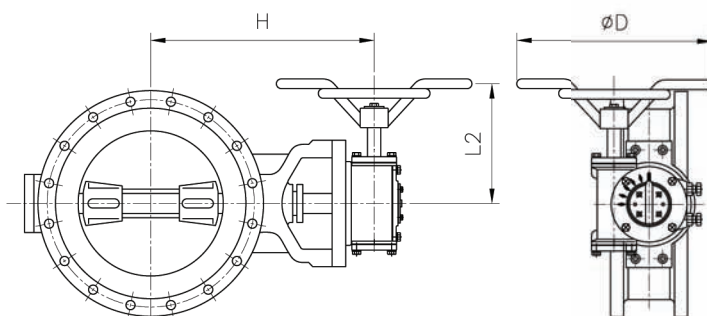
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



MANUAL GEAR OP

## 300LB MANUAL GEAR OPERATING TYPE

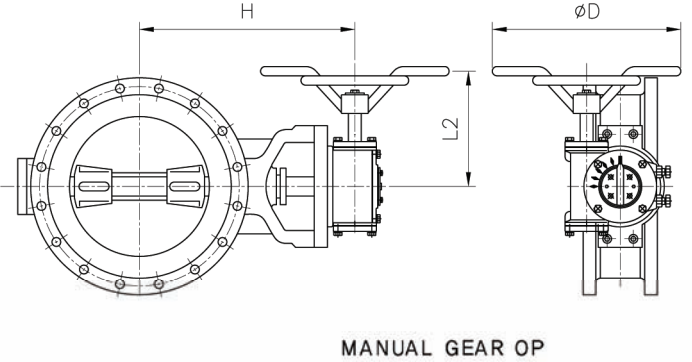
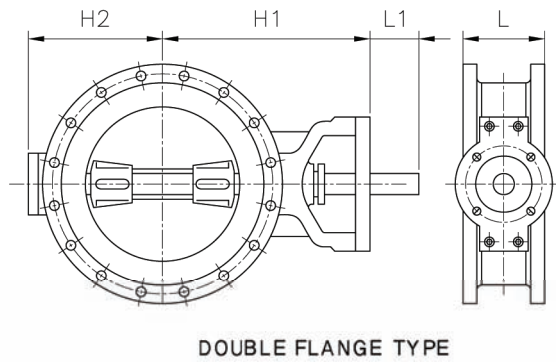
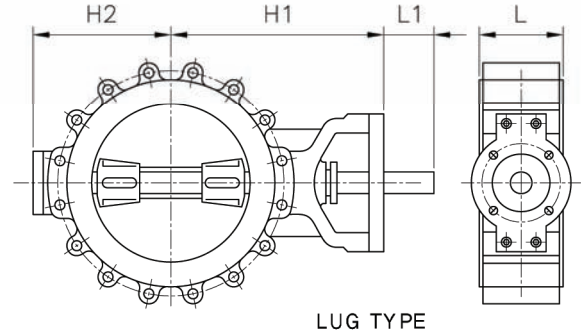
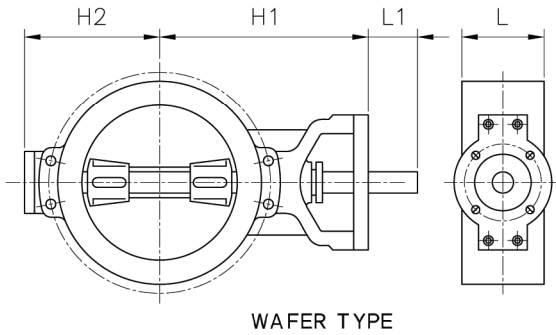
| SIZE |      | H<br>APPROX | H1<br>APPROX | H2<br>APPROX | L1  | 1 L (F TO F) |     |        | L2  | ØD  | *WEIGHT *Kg (APPROX) |      |        |
|------|------|-------------|--------------|--------------|-----|--------------|-----|--------|-----|-----|----------------------|------|--------|
| mm   | inch |             |              |              |     | WAFER        | LUG | FLANGE |     |     | WAFER                | LUG  | FLANGE |
| 80   | 3    |             | 165          | 127          | 35  | 40           | 48  | 114    | 206 | 300 | 20                   | 21   | 36     |
| 100  | 4    |             | 200          | 151          | 35  | 54           | 54  | 127    | 206 | 300 | 20                   | 21   | 46     |
| 150  | 6    | 330         | 280          | 199          | 65  | 59           | 59  | 140    | 206 | 300 | 36                   | 39   | 76     |
| 200  | 8    | 350         | 295          | 218          | 80  | 73           | 73  | 152    | 230 | 400 | 51                   | 56   | 93     |
| 250  | 10   | 395         | 340          | 251          | 80  | 83           | 83  | 165    | 230 | 400 | 100                  | 112  | 164    |
| 300  | 12   | 450         | 395          | 296          | 80  | 92           | 92  | 178    | 230 | 400 | 134                  | 150  | 222    |
| 350  | 14   | 490         | 425          | 331          | 80  | 117          | 117 | 190    | 279 | 450 | 196                  | 229  | 298    |
| 400  | 16   | 545         | 480          | 377          | 110 | 133          | 133 | 216    | 279 | 450 | 232                  | 277  | 357    |
| 450  | 18   | 605         | 540          | 410          | 110 | 149          | 149 | 222    | 312 | 560 | 360                  | 433  | 499    |
| 500  | 20   | 645         | 580          | 440          | 130 | 159          | 159 | 229    | 312 | 560 | 457                  | 549  | 621    |
| 600  | 24   | 740         | 650          | 515          | 130 | 181          | 181 | 267    | 371 | 630 | 670                  | 805  | 916    |
| 700  | 28   | 910         | 820          | 640          | 200 | 229          | 229 | 292    | 371 | 630 | 1193                 | 1363 | 1417   |
| 750  | 30   | 940         | 850          | 690          | 200 | 241          | 241 | 318    | 425 | 710 | 1463                 | 1658 | 1715   |
| 800  | 32   | 970         | 880          | 720          | 200 | 241          | 241 | 318    | 425 | 710 | 1661                 | 1856 | 1957   |
| 900  | 36   | 1050        | 960          | 780          | 200 | 260          | 260 | 330    | 425 | 710 | 2281                 | 2511 | 2590   |
| 1000 | 40   | 1110        | 990          | 800          | 200 | 300          | 300 | 410    | 513 | 800 | 2214                 | 2425 | 2585   |
| 1050 | 42   | 1160        | 1050         | 840          | 200 | 300          | 300 | 410    | 513 | 800 | 2439                 | 2649 | 2849   |
| 1200 | 48   | 1270        | 1150         | 950          | 250 | 320          | 320 | 470    | 536 | 900 | 3384                 | 3684 | 4106   |

FLANGE RATING—ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

\*1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

\*2 EXCEPT ACTUATOR

# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



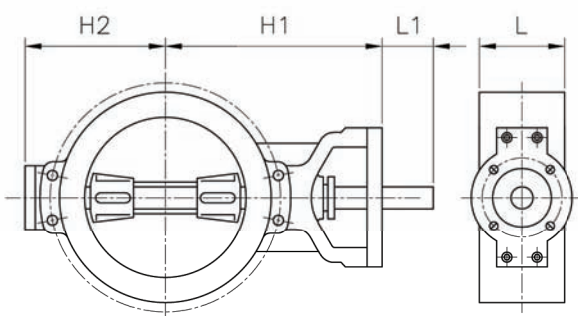
## 600LB MANUAL GEAR OPERATING TYPE

| SIZE |      | H<br>APPROX                      | H1<br>APPROX | H2<br>APPROX | L1  | 1 L (F TO F) |     |        | L2  | ØD  | ※WEIGHT :Kg (APPROX) |      |        |
|------|------|----------------------------------|--------------|--------------|-----|--------------|-----|--------|-----|-----|----------------------|------|--------|
| mm   | inch |                                  |              |              |     | WAFER        | LUG | FLANGE |     |     | WAFER                | LUG  | FLANGE |
| 80   | 3    |                                  | 210          | 154          | 45  | 54           | 54  | 180    | 230 | 400 | 15                   | 16   | 43     |
| 100  | 4    |                                  | 215          | 166          | 45  | 64           | 64  | 190    | 230 | 400 | 28                   | 30   | 69     |
| 150  | 6    | 365                              | 310          | 238          | 80  | 78           | 78  | 210    | 230 | 400 | 65                   | 72   | 135    |
| 200  | 8    | 380                              | 325          | 248          | 80  | 102          | 102 | 230    | 230 | 400 | 92                   | 102  | 162    |
| 250  | 10   | 465                              | 400          | 316          | 80  | 117          | 117 | 250    | 279 | 450 | 134                  | 187  | 268    |
| 300  | 12   | 520                              | 455          | 349          | 110 | 140          | 140 | 270    | 312 | 560 | 224                  | 259  | 369    |
| 350  | 14   | 535                              | 470          | 374          | 110 | 155          | 155 | 290    | 312 | 560 | 285                  | 329  | 364    |
| 400  | 16   | 675                              | 585          | 474          | 130 | 178          | 178 | 310    | 371 | 630 | 455                  | 520  | 632    |
| 450  | 18   | 715                              | 625          | 476          | 130 | 200          | 200 | 330    | 371 | 630 | 555                  | 635  | 739    |
| 500  | 20   | 760                              | 670          | 504          | 130 | 216          | 216 | 350    | 425 | 710 | 694                  | 804  | 879    |
| 600  | 24   | 840                              | 750          | 55           | 180 | 232          | 232 | 390    | 425 | 710 | 1093                 | 1243 | 1423   |
| 700  | 28   | PLEASE CONTACT THE SALES OFFICE. |              |              |     |              |     |        |     |     |                      |      |        |
| 750  | 30   |                                  |              |              |     |              |     |        |     |     |                      |      |        |
| 800  | 32   |                                  |              |              |     |              |     |        |     |     |                      |      |        |
| 900  | 36   |                                  |              |              |     |              |     |        |     |     |                      |      |        |
| 1000 | 40   |                                  |              |              |     |              |     |        |     |     |                      |      |        |
| 1050 | 42   |                                  |              |              |     |              |     |        |     |     |                      |      |        |
| 1200 | 48   |                                  |              |              |     |              |     |        |     |     |                      |      |        |

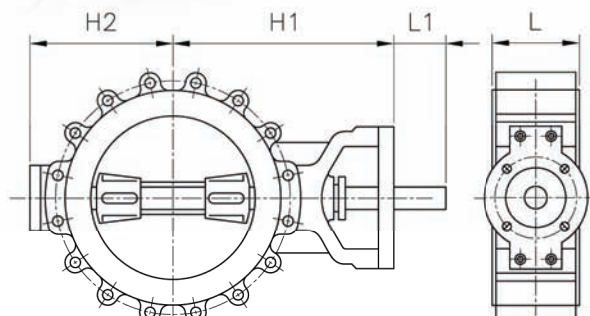
FLANGE RATING—ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

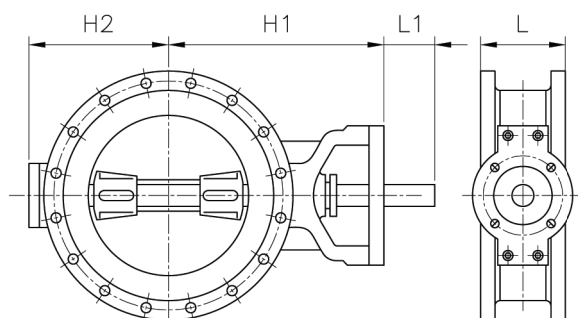
※2 EXCEPT ACTUATOR



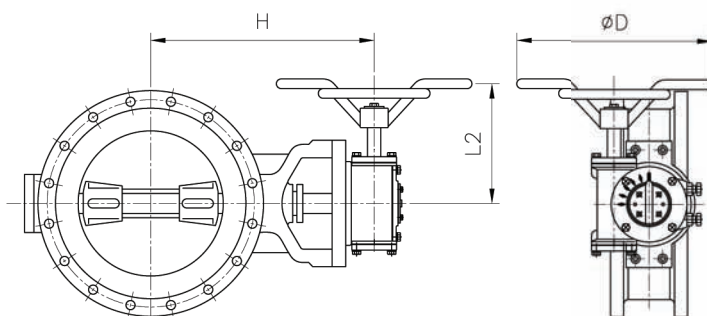
WAFER TYPE



LUG TYPE



DOUBLE FLANGE TYPE



MANUAL GEAR OP

## 900LB MANUAL GEAR OPERATING TYPE

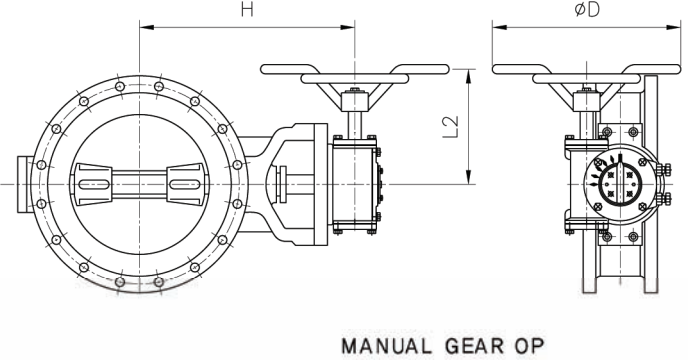
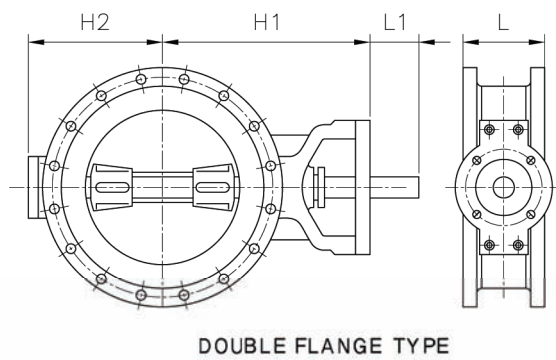
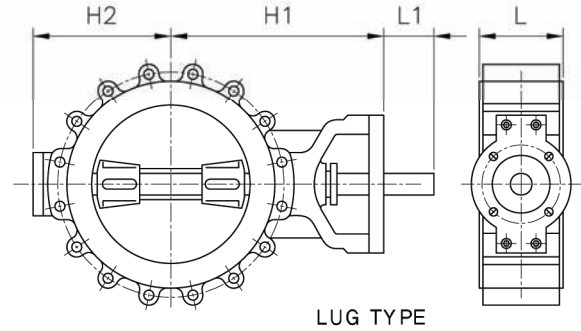
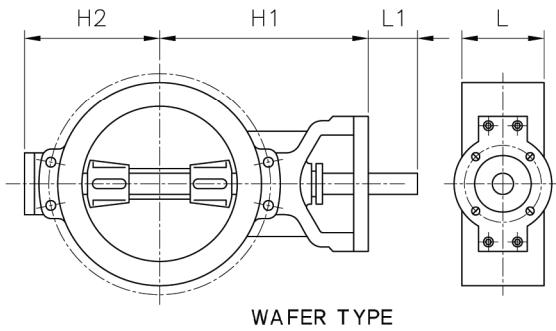
| SIZE |      | H<br>APPROX                      | H1<br>APPROX | H2<br>APPROX | L1  | 1 L (F TO F) |     |        | L2  | ØD  | ※WEIGHT Kg(APPROX) |      |        |
|------|------|----------------------------------|--------------|--------------|-----|--------------|-----|--------|-----|-----|--------------------|------|--------|
| mm   | inch |                                  |              |              |     | WAFER        | LUG | FLANGE |     |     | WAFER              | LUG  | FLANGE |
| 150  | 6    | 400                              | 335          | 238          | 80  | 104          | 104 | 250    | 279 | 450 | 89                 | 100  | 184    |
| 200  | 8    | 445                              | 380          | 281          | 80  | 112          | 112 | 310    | 312 | 560 | 134                | 151  | 266    |
| 250  | 10   | 500                              | 435          | 358          | 110 | 135          | 135 | 350    | 312 | 560 | 224                | 256  | 425    |
| 300  | 12   | 590                              | 500          | 383          | 110 | 170          | 170 | 380    | 371 | 630 | 298                | 352  | 496    |
| 350  | 14   | 635                              | 545          | 419          | 130 | 173          | 173 | 400    | 371 | 630 | 376                | 440  | 656    |
| 400  | 16   | 730                              | 640          | 455          | 130 | 210          | 210 | 430    | 425 | 710 | 570                | 663  | 834    |
| 450  | 18   | 780                              | 690          | 503          | 180 | 228          | 228 | 460    | 425 | 710 | 691                | 824  | 1044   |
| 500  | 20   | 830                              | 710          | 550          | 180 | 250          | 250 | 490    | 513 | 800 | 905                | 1069 | 1273   |
| 600  | 24   | 950                              | 820          | 656          | 200 | 275          | 275 | 530    | 513 | 800 | 1317               | 1704 | 2506   |
| 700  | 28   | PLEASE CONTACT THE SALES OFFICE. |              |              |     |              |     |        |     |     |                    |      |        |
| 750  | 30   |                                  |              |              |     |              |     |        |     |     |                    |      |        |
| 800  | 32   |                                  |              |              |     |              |     |        |     |     |                    |      |        |
| 900  | 36   |                                  |              |              |     |              |     |        |     |     |                    |      |        |
| 1000 | 40   |                                  |              |              |     |              |     |        |     |     |                    |      |        |
| 1050 | 42   |                                  |              |              |     |              |     |        |     |     |                    |      |        |
| 1200 | 48   |                                  |              |              |     |              |     |        |     |     |                    |      |        |

FLANGE RATING—ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

# TRIPLE OFFSET BUTTERFLY VALVE DIMENSION TABLE(mm)



## 1500LB MANUAL GEAR OPERATING TYPE

| SIZE |      | H<br>APPROX                      | H1<br>APPROX | H2<br>APPROX | L1  | 1 L (F TO F) |     |        | L2  | ØD  | ※WEIGHT: Kg(APPROX) |      |        |
|------|------|----------------------------------|--------------|--------------|-----|--------------|-----|--------|-----|-----|---------------------|------|--------|
| mm   | inch |                                  |              |              |     | WAFER        | LUG | FLANGE |     |     | WAFER               | LUG  | FLANGE |
| 150  | 6    | 435                              | 370          | 257          | 110 | 160          | 160 | 290    | 312 | 560 | 124                 | 175  | 207    |
| 200  | 8    | 520                              | 430          | 307          | 110 | 180          | 180 | 330    | 371 | 630 | 202                 | 237  | 406    |
| 250  | 10   | 630                              | 540          | 371          | 130 | 200          | 200 | 390    | 371 | 630 | 282                 | 379  | 646    |
| 300  | 12   | 665                              | 575          | 414          | 130 | 230          | 230 | 430    | 425 | 710 | 360                 | 605  | 842    |
| 350  | 14   | 740                              | 650          | 493          | 180 | 250          | 250 | 470    | 425 | 710 | 589                 | 849  | 1163   |
| 400  | 16   | 820                              | 700          | 530          | 200 | 265          | 265 | 510    | 513 | 800 | 614                 | 995  | 1476   |
| 450  | 18   | 920                              | 800          | 591          | 200 | 300          | 300 | 550    | 513 | 800 | 992                 | 1478 | 1968   |
| 500  | 20   | 975                              | 850          | 664          | 200 | 340          | 340 | 630    | 536 | 900 | 1597                | 2248 | 2782   |
| 600  | 24   | 1125                             | 1000         | 780          | 250 | 400          | 400 | 710    | 536 | 900 | 1792                | 3021 | 4288   |
| 700  | 28   | PLEASE CONTACT THE SALES OFFICE. |              |              |     |              |     |        |     |     |                     |      |        |
| 750  | 30   |                                  |              |              |     |              |     |        |     |     |                     |      |        |
| 800  | 32   |                                  |              |              |     |              |     |        |     |     |                     |      |        |
| 900  | 36   |                                  |              |              |     |              |     |        |     |     |                     |      |        |
| 1000 | 40   |                                  |              |              |     |              |     |        |     |     |                     |      |        |
| 1050 | 42   |                                  |              |              |     |              |     |        |     |     |                     |      |        |
| 1200 | 48   |                                  |              |              |     |              |     |        |     |     |                     |      |        |

FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

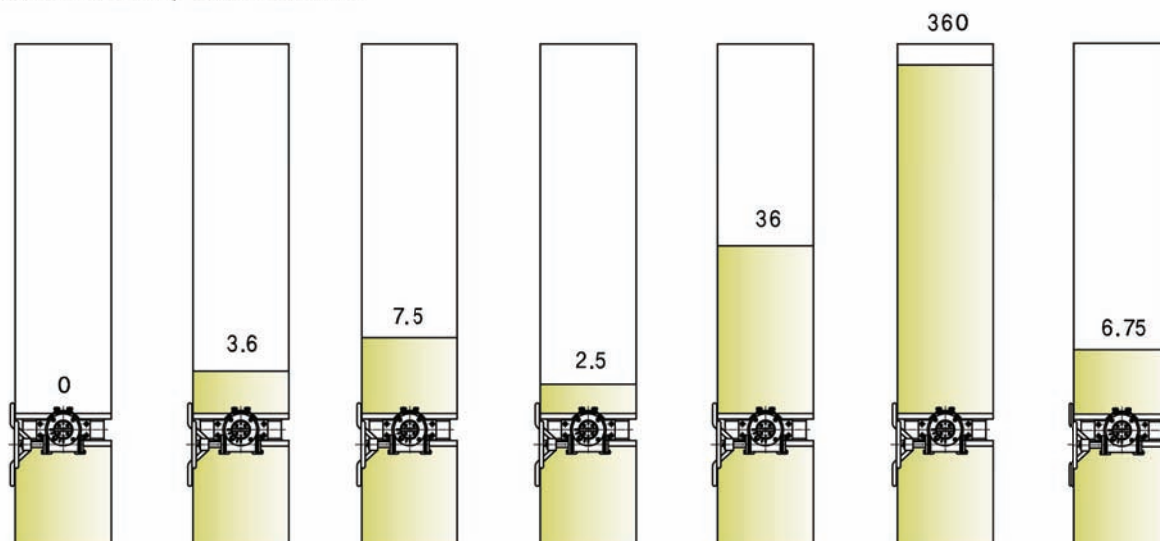
※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

# LEAKAGE RATE BY STANDARD(REFERENCE)

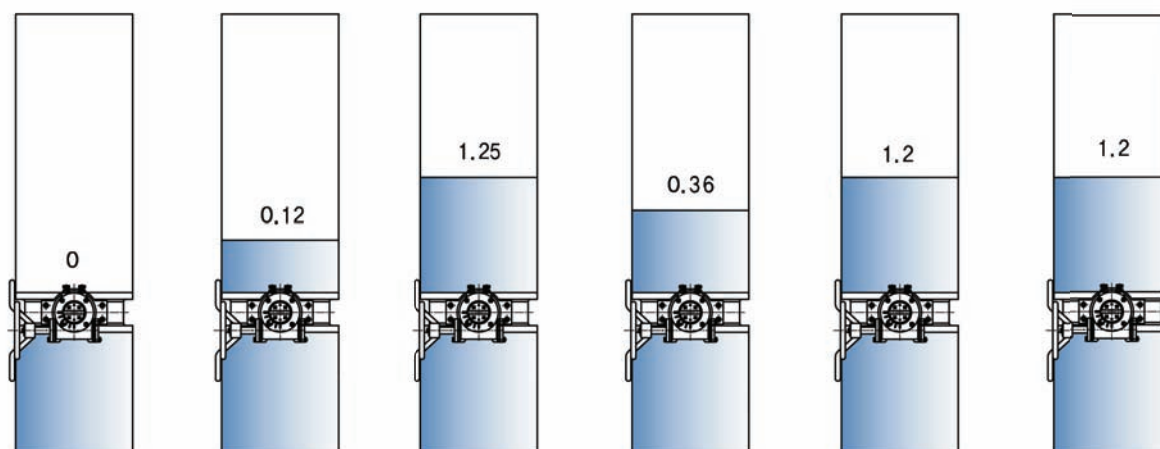
## ■ GAS TEST

Valve Size:200mm, Unit:cc/min



## ■ HYDROSTATIC TEST

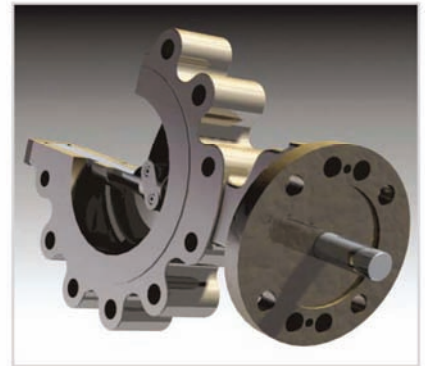
Valve Size:200mm, Unit:cc/min



# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DESIGN FEATURES

## PRODUCT

- RESILIENT SEAT BUTTERFLY
- METAL SEAT BUTTERFLY
- TRIPLE OFFSET TYPE
- HI-PERFORMANCE TYPE
- CONCENTRIC TYPE
- FLANGE, LUG, WAFER, WELDED
- API609 REGISTRATION
- ALL BUTTERFLY VALVES



CRYOGENIC / HIGH TEMP LUGGED TYPE

## SIZE RANGE

- DN150~DN4000

## PRESSURE RATING

- ANSI150LB~900LB
- DIN/BS PN6~PN100
- JIS/KS
- ETC

## TEMPERATURE RATING

- FROM -196°C TO 800°C  
(FROM -320.8°F TO 1472°F)

## CRYOGENIC TESTER

DAEHAN CONTROL's equipments for EXTREMELY LOW TEMPERATURE can maximize its test abilities by detecting various kinds of distortions and leakages of valves in condition of extremely low temperature through the real time data from external monitor.

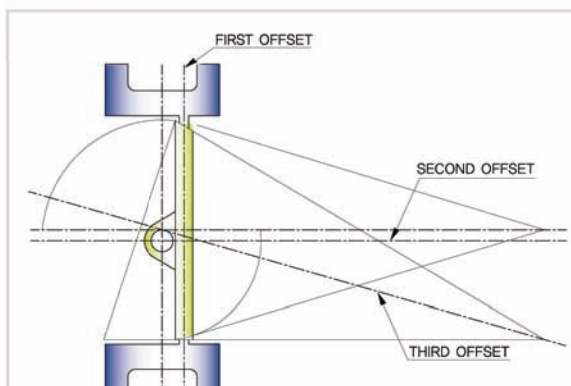
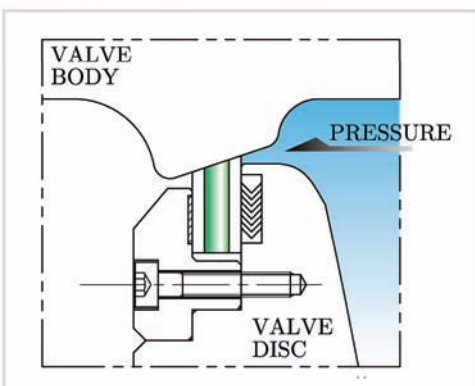
## QUALITY ASSURANCE SYSTEM

- ISO9001
- API609/6D/Q1



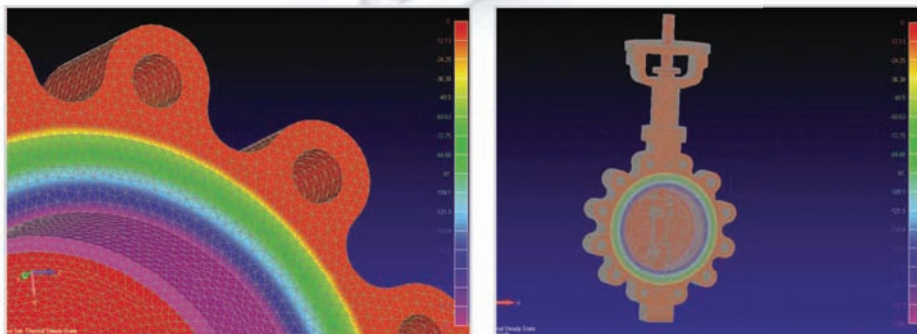
## TRIPLE OFFSET SEAT (CRYOGENIC/HIGH TEMP)

CRYOGENIC PCTFE LAMINATED SEAT type triple offset valve can secure its sealing from leakage in sealing parts by its resilient adjustment of CRYOGENIC PCTFE LAMINATED SEAT in case of contractions in EXTREMELY LOW TEMPERATURE.



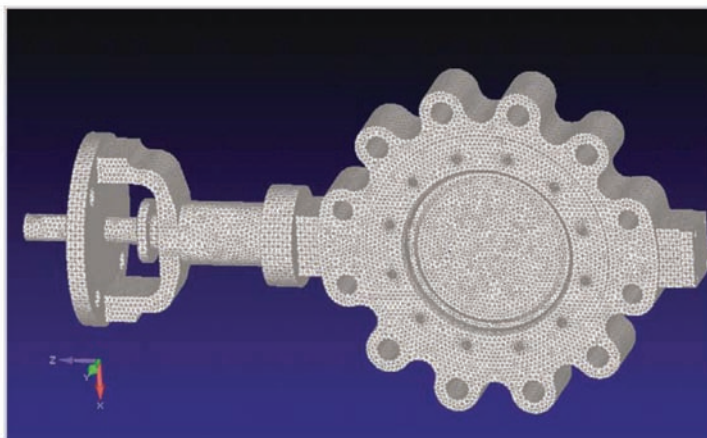
## ANALYSIS(CRYOGENIC/ HIGH TEMP) FEMAP WITH NX NASTRAN (TMG)

The destruction and leakages caused by heat distortion could be shut off by analytical researches of heat distribution and distortion, which is accompanied by various simulations resembled real situation,



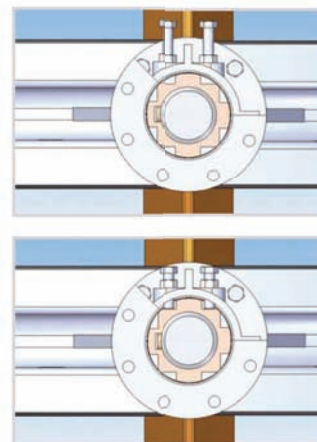
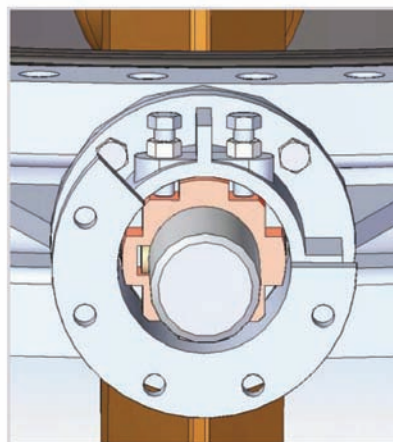
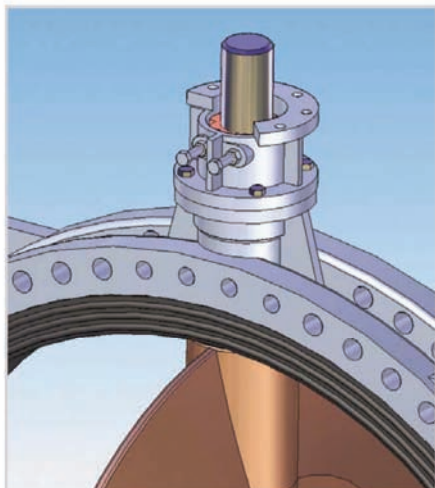
## DESIGN FEATURE

CRYOGENIC/HIGH TEMP VALVES are designed to satisfy customers needs for valve of EXTREME WORKING CONDITION by our experienced engineers



## CAVITATION FREE

It is needed to stop fluid flows when installing or separating a actuator at its open position. However, valve with CAVITATION HOLDER can remove vibrations of valve in its open position. It is possible to attach this device to almost all valves with small installation spaces.

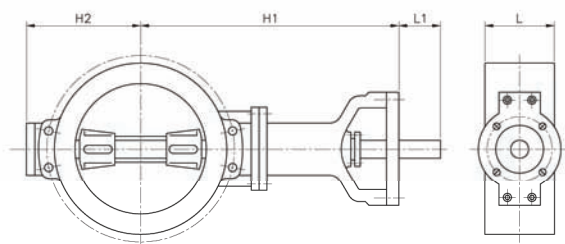


## CAVITATION HOLDER CONNECTING DIMENSION

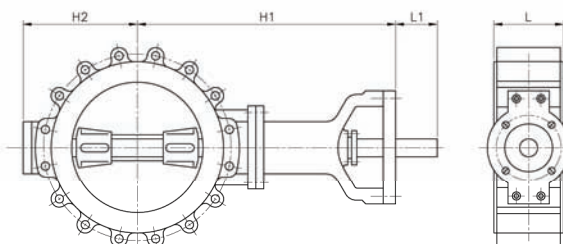
- VALVE SIZE(1050A~4000A)
- FASTENING AREAS OF VALVE : ISO5210/5211 STANDARD
- FASTENING AREAS OF ACTUATOR : ISO5210/5211 STANDARD
- Changeable if required.

※ CONCENTRIC BUTTERFLY VALVE WITH CAVITATION HOLDER

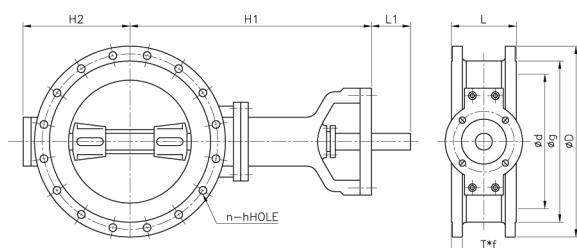
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE(mm)



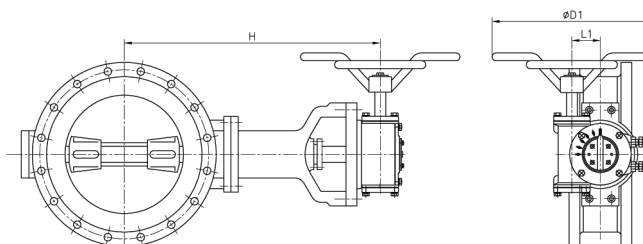
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

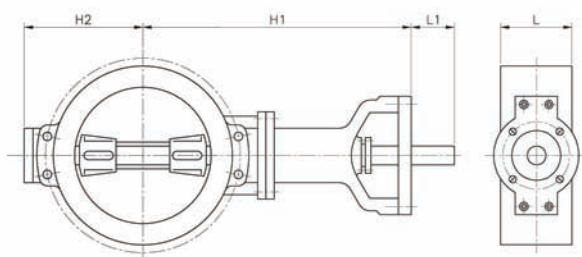
## 150LB MANUAL GEAR OPERATING TYPE

| SIZE     |    | d    | FLANGE |    |              |           |        |        | H1   | H2   | H    | L(FACE TO FACE) |     |        | L1  | L2  | D1   | MINIUM BODY WALL THICKNESS |
|----------|----|------|--------|----|--------------|-----------|--------|--------|------|------|------|-----------------|-----|--------|-----|-----|------|----------------------------|
| DIAMETAL |    |      | PCD C  | a  | h HOLE h TAP | t x f     | g      | D      |      |      |      | WEFER           | LUG | FLANGE |     |     |      |                            |
| 80       | 3  | 80   | 152.5  | 4  | 19<br>5/8    | 22.3×1.6  | 127    | 190    | 315  | 127  | 370  | 48              | 48  | 114    | 35  | 206 | 300  | 5.6                        |
| 100      | 4  | 100  | 190.5  | 8  | 19<br>5/8    | 22.3×1.6  | 157    | 229    | 350  | 150  | 405  | 54              | 54  | 127    | 35  | 206 | 300  | 6.4                        |
| 150      | 6  | 150  | 241.5  | 8  | 22<br>3/4    | 23.8×1.6  | 216    | 279    | 395  | 180  | 450  | 57              | 57  | 140    | 35  | 206 | 300  | 7.1                        |
| 200      | 8  | 200  | 298.5  | 8  | 22<br>3/4    | 27×1.6    | 270    | 343    | 440  | 195  | 490  | 64              | 64  | 152    | 35  | 206 | 300  | 7.9                        |
| 250      | 10 | 250  | 362.0  | 12 | 25<br>7/8    | 28.6×1.6  | 324    | 406    | 465  | 225  | 515  | 71              | 71  | 165    | 65  | 206 | 300  | 8.6                        |
| 300      | 12 | 300  | 432.0  | 12 | 25<br>7/8    | 30.2×1.6  | 381    | 483    | 635  | 265  | 590  | 81              | 81  | 178    | 80  | 230 | 400  | 9.7                        |
| 350      | 14 | 350  | 476.5  | 12 | 29           | 33.4×1.6  | 413    | 533    | 565  | 290  | 620  | 92              | 92  | 190    | 80  | 230 | 400  | 10.7                       |
| 400      | 16 | 400  | 539.5  | 16 | 29           | 35×1.6    | 470    | 597    | 635  | 340  | 700  | 102             | 102 | 216    | 80  | 279 | 450  | 11.4                       |
| 450      | 18 | 450  | 578.0  | 16 | 32<br>1 1/8  | 38.1×1.6  | 533    | 635    | 702  | 360  | 765  | 114             | 114 | 220    | 80  | 279 | 450  | 12.2                       |
| 500      | 20 | 500  | 635.0  | 20 | 32<br>1 1/8  | 41.3×1.6  | 584    | 698    | 750  | 395  | 825  | 127             | 127 | 229    | 80  | 312 | 560  | 13                         |
| 600      | 24 | 600  | 749.5  | 20 | 35<br>1 1/4  | 46.1×1.6  | 692    | 813    | 820  | 465  | 885  | 154             | 154 | 267    | 110 | 312 | 560  | 14.7                       |
| 700      | 28 | 700  | 863.5  | 28 | 35<br>1 1/4  | 69.8×1.6  | 800    | 927    | 1035 | 570  | 1125 | 165             | 165 | 292    | 130 | 371 | 630  | 16.3                       |
| 750      | 30 | 750  | 914.5  | 28 | 35<br>1 1/4  | 73.1×1.6  | 857    | 984    | 1045 | 600  | 1135 | 165             | 165 | 318    | 130 | 371 | 630  | 17                         |
| 800      | 32 | 800  | 978.0  | 28 | 41<br>1 1/2  | 79.4×1.6  | 914    | 1060   | 1100 | 630  | 1190 | 190             | 190 | 318    | 130 | 425 | 710  | 18                         |
| 900      | 36 | 900  | 1086.0 | 32 | 41<br>1 1/2  | 88.8×1.6  | 1022   | 1168   | 1170 | 690  | 1260 | 200             | 200 | 330    | 160 | 425 | 710  | 19.6                       |
| 1000     | 40 | 1000 | 1200.0 | 36 | 41<br>1 1/2  | 88.8×1.6  | 1024   | 1289   | 1335 | 720  | 1425 | 216             | 216 | 410    | 175 | 425 | 710  | 21.3                       |
| 1050     | 42 | 1050 | 1257.5 | 36 | 41<br>1 1/2  | 95.2×1.6  | 1194   | 1346   | 1360 | 750  | 1480 | 251             | 251 | 410    | 175 | 513 | 800  | 22.1                       |
| 1200     | 48 | 1200 | 1422.5 | 44 | 41<br>1 1/2  | 106.4×1.6 | 1359   | 1511   | 1520 | 845  | 1640 | 276             | 276 | 470    | 200 | 513 | 800  | 24.6                       |
| 1250     | 50 | 1250 | 1428.8 | 44 | 48<br>1 3/4  | 111.3×1.6 | 1409.7 | 1568.5 | 1665 | 895  | 1850 | 350             | 350 | 470    | 200 | 513 | 900  | 25.4                       |
| 1300     | 52 | 1300 | 1479.6 | 44 | 48<br>1 3/4  | 115.8×1.6 | 1460.5 | 1625.6 | 1695 | 925  | 1880 | 350             | 350 | 470    | 200 | 513 | 900  | 26.2                       |
| 1350     | 54 | 1350 | 1549.4 | 44 | 48<br>1 3/4  | 120.7×1.6 | 1511.3 | 1682.8 | 1850 | 950  | 2035 | 350             | 350 | 470    | 200 | 513 | 900  | 27.2                       |
| 1400     | 56 | 1400 | 1600.2 | 48 | 48<br>1 3/4  | 124×1.6   | 1574.8 | 1746.3 | 1875 | 985  | 2070 | 390             | 390 | 530    | 210 | 605 | 1000 | 28.2                       |
| 1450     | 58 | 1450 | 1651   | 48 | 48<br>1 3/4  | 128.5×1.6 | 1625.6 | 183.4  | 1900 | 1015 | 2095 | 390             | 390 | 530    | 210 | 605 | 1000 | 29                         |
| 1500     | 60 | 1500 | 1701.8 | 52 | 48<br>1 3/4  | 131.8×1.6 | 1676.4 | 1854.2 | 1930 | 1040 | 2125 | 390             | 390 | 530    | 210 | 605 | 1000 | 30                         |

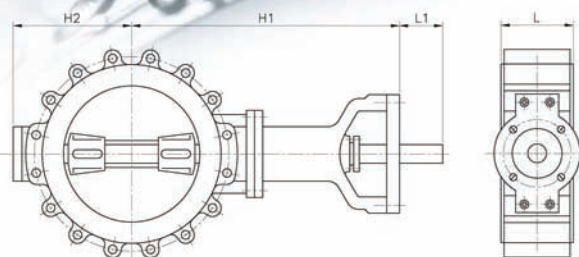
FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

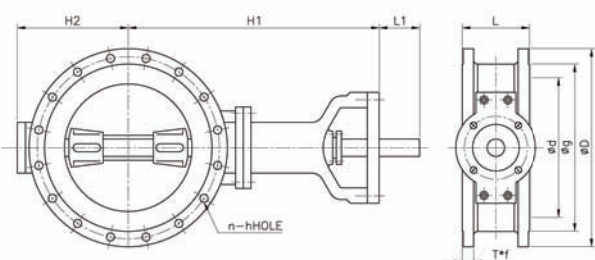
※2 EXCEPT ACTUATOR



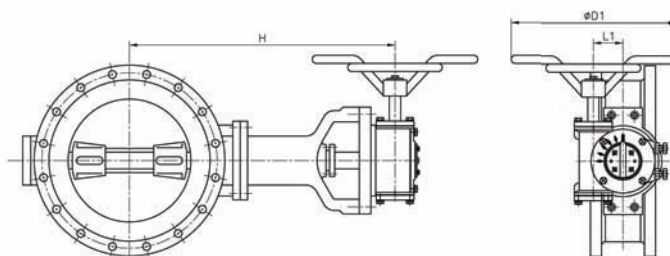
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

## 300LB MANUAL GEAR OPERATING TYPE

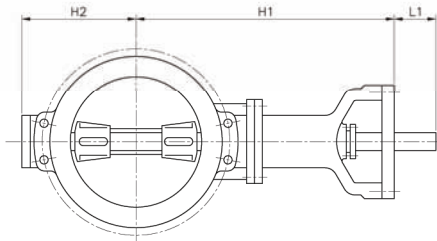
| SIZE     |    | d    | FLANGE |    |            |           |        |        | H1   | H2   | H    | L(FACE TO FACE) |     |        | L1  | L2  | D1   | MINIUM BODY WALL THICKNESS |
|----------|----|------|--------|----|------------|-----------|--------|--------|------|------|------|-----------------|-----|--------|-----|-----|------|----------------------------|
| DIAMETAL |    |      | PCD C  | a  | h HOLE TAP | t x f     | g      | D      |      |      |      | WEFFER          | LUG | FLANGE |     |     |      |                            |
| 80       | 3  | 80   | 168    | 8  | 22 3/4     | 27x1.6    | 127    | 210    | 315  | 127  | 370  | 48              | 48  | 114    | 65  | 206 | 300  | 7.11                       |
| 100      | 4  | 100  | 200    | 8  | 22 3/4     | 30.2x1.6  | 157    | 254    | 350  | 151  | 405  | 54              | 54  | 127    | 65  | 206 | 300  | 7.9                        |
| 150      | 6  | 150  | 270    | 12 | 22 3/4     | 35x1.6    | 216    | 318    | 430  | 199  | 430  | 59              | 59  | 140    | 65  | 206 | 300  | 9.7                        |
| 200      | 8  | 200  | 350    | 12 | 25 7/8     | 39.7x1.6  | 270    | 381    | 475  | 218  | 530  | 73              | 73  | 152    | 80  | 230 | 400  | 11.2                       |
| 250      | 10 | 250  | 387    | 16 | 29 1       | 45.8x1.6  | 324    | 444    | 520  | 251  | 575  | 83              | 83  | 165    | 80  | 230 | 400  | 12.7                       |
| 300      | 12 | 300  | 451    | 16 | 32 1 1/8   | 49.2x1.6  | 381    | 521    | 595  | 296  | 650  | 92              | 92  | 178    | 80  | 230 | 400  | 14.2                       |
| 350      | 14 | 350  | 514.5  | 20 | 32 1 1/8   | 52.4x1.6  | 413    | 584    | 625  | 331  | 690  | 117             | 117 | 190    | 80  | 279 | 450  | 16.5                       |
| 400      | 16 | 400  | 571.5  | 20 | 35 1/8     | 55.6x1.6  | 470    | 648    | 680  | 377  | 745  | 133             | 133 | 216    | 110 | 279 | 450  | 18                         |
| 450      | 18 | 450  | 628.5  | 24 | 32 1 1/4   | 58.8x1.6  | 533    | 711    | 790  | 410  | 855  | 149             | 149 | 222    | 110 | 312 | 560  | 19.8                       |
| 500      | 20 | 500  | 686    | 24 | 32 1 1/4   | 61.9x1.6  | 584    | 775    | 830  | 440  | 895  | 159             | 159 | 229    | 130 | 312 | 560  | 21.3                       |
| 600      | 24 | 600  | 813    | 24 | 41 1/4     | 68.3x1.6  | 692    | 914    | 900  | 513  | 990  | 181             | 181 | 267    | 130 | 371 | 630  | 24.6                       |
| 700      | 28 | 700  | 940    | 28 | 44.5 1 5/8 | 84.3x1.6  | 800    | 1035   | 1170 | 640  | 1260 | 229             | 229 | 292    | 200 | 371 | 630  | 28                         |
| 750      | 30 | 750  | 997    | 28 | 48 1 3/4   | 90.3x1.6  | 857    | 1092   | 1200 | 690  | 1290 | 241             | 241 | 318    | 200 | 425 | 710  | 29.7                       |
| 800      | 32 | 800  | 1054   | 28 | 51 7/8     | 96.9x1.6  | 914    | 1149   | 1230 | 720  | 1320 | 241             | 241 | 318    | 200 | 425 | 710  | 31.2                       |
| 900      | 36 | 900  | 1168.5 | 32 | 54 2       | 103x1.6   | 1022   | 1270   | 1310 | 780  | 1400 | 260             | 260 | 330    | 200 | 425 | 710  | 34.8                       |
| 1000     | 40 | 1000 | 1156   | 32 | 44.5 1 5/8 | 112.7x1.6 | 1086   | 1238   | 1490 | 800  | 1610 | 300             | 300 | 410    | 200 | 513 | 800  | 38.1                       |
| 1050     | 42 | 1050 | 1206.5 | 32 | 44.5 1 5/8 | 117.5x1.6 | 1136   | 1289   | 1550 | 840  | 1660 | 300             | 300 | 410    | 200 | 513 | 800  | 39.6                       |
| 1200     | 48 | 1200 | 1327   | 32 | 51 7/8     | 131.7x1.6 | 1301   | 1467   | 1650 | 950  | 1770 | 320             | 320 | 470    | 250 | 536 | 900  | 44.7                       |
| 1250     | 50 | 1250 | 1428.8 | 32 | 54 2       | 139.7x1.6 | 1358.9 | 1530.4 | 1665 | 895  | 1860 | 350             | 350 | 470    | 210 | 625 | 1000 | 46.5                       |
| 1300     | 52 | 1300 | 1479.6 | 32 | 54 2       | 144.5x1.6 | 1409.7 | 1581.2 | 1695 | 925  | 1890 | 350             | 350 | 470    | 210 | 625 | 1000 | 48.3                       |
| 1350     | 54 | 1350 | 1549.4 | 28 | 60.5 2 1/4 | 152.4x1.6 | 1466.9 | 1657.4 | 1850 | 950  | 2045 | 350             | 350 | 470    | 210 | 625 | 1000 | 50.0                       |
| 1400     | 56 | 1400 | 1600.2 | 28 | 60.5 2 1/4 | 154x1.6   | 1517.7 | 1708.2 | 1875 | 985  | 2080 | 390             | 390 | 530    | 220 | 718 | 1000 | 51.8                       |
| 1450     | 58 | 1450 | 1651   | 32 | 60.5 2 1/4 | 158.8x1.6 | 1574.8 | 1759   | 1900 | 1015 | 2105 | 390             | 390 | 530    | 220 | 718 | 1000 | 53.6                       |
| 1500     | 60 | 1500 | 1701.8 | 32 | 60.5 2 1/4 | 163.6x1.6 | 1625.6 | 1809.8 | 1930 | 1040 | 2135 | 390             | 390 | 530    | 220 | 718 | 1000 | 55.4                       |

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

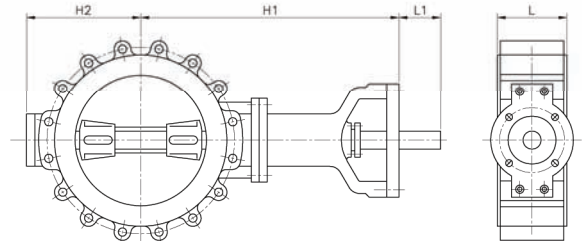
※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

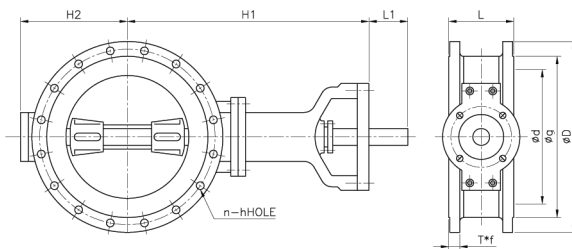
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE(mm)



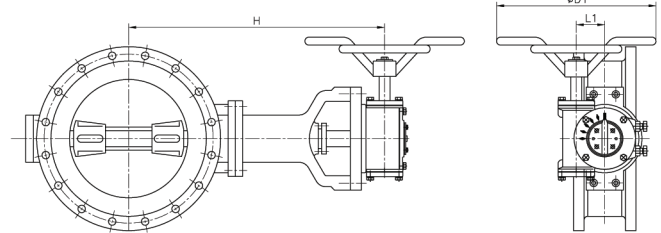
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

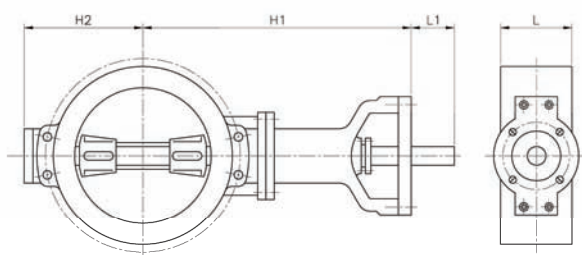
## 600LB MANUAL GEAR OPERATING TYPE

| SIZE     |    | d   | FLANGE |    |                 |         |     |     | H1   | H2  | H    | L(FACE TO FACE) |     |        | L1  | L2  | D1  | MINIUM BODY WALL THICKNESS |
|----------|----|-----|--------|----|-----------------|---------|-----|-----|------|-----|------|-----------------|-----|--------|-----|-----|-----|----------------------------|
| DIAMETAL |    |     | PCDC   | a  | h HOLE<br>h TAP | tXf     | g   | D   |      |     |      | WEFER           | LUG | FLANGE |     |     |     |                            |
| 80       | 3  | 80  | 168    | 8  | 34<br>3/4       | 31.7×4  | 127 | 210 | 360  | 154 | 415  | 54              | 54  | 180    | 80  | 230 | 400 | 7.9                        |
| 100      | 4  | 100 | 200    | 8  | 35<br>7/8       | 38.1×4  | 157 | 273 | 365  | 166 | 420  | 64              | 64  | 190    | 80  | 230 | 400 | 9.7                        |
| 150      | 6  | 150 | 292    | 12 | 28.5<br>1       | 47.8×4  | 216 | 356 | 460  | 238 | 515  | 78              | 78  | 210    | 80  | 230 | 400 | 12.7                       |
| 200      | 8  | 200 | 349.5  | 12 | 32<br>1 1/8     | 55.6×4  | 270 | 419 | 505  | 248 | 560  | 102             | 102 | 230    | 80  | 230 | 400 | 16                         |
| 250      | 10 | 250 | 432    | 16 | 35<br>1 1/4     | 63.5×4  | 324 | 508 | 580  | 316 | 645  | 117             | 117 | 250    | 80  | 279 | 450 | 19.6                       |
| 300      | 12 | 300 | 489    | 20 | 35<br>1 1/4     | 66.5×4  | 381 | 559 | 655  | 349 | 720  | 140             | 140 | 270    | 110 | 312 | 560 | 23.4                       |
| 350      | 14 | 350 | 527    | 20 | 38<br>1 3/8     | 69.8×4  | 413 | 603 | 670  | 374 | 735  | 155             | 155 | 290    | 110 | 312 | 560 | 26.2                       |
| 400      | 16 | 400 | 603    | 20 | 41<br>1 1/2     | 76.2×4  | 470 | 686 | 785  | 474 | 875  | 178             | 178 | 310    | 130 | 371 | 630 | 30                         |
| 450      | 18 | 450 | 654    | 20 | 44.5<br>1 5/8   | 82.6×4  | 533 | 743 | 875  | 476 | 965  | 200             | 200 | 330    | 130 | 371 | 630 | 33.3                       |
| 500      | 20 | 500 | 724    | 24 | 44.5<br>1 5/8   | 88.9×4  | 584 | 813 | 920  | 504 | 1010 | 216             | 216 | 350    | 130 | 425 | 710 | 37                         |
| 600      | 24 | 600 | 838.5  | 24 | 51<br>1 7/8     | 101.6×4 | 692 | 940 | 1000 | 550 | 1090 | 232             | 232 | 390    | 180 | 425 | 710 | 43.7                       |

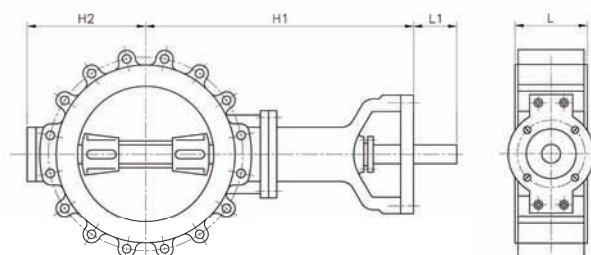
FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

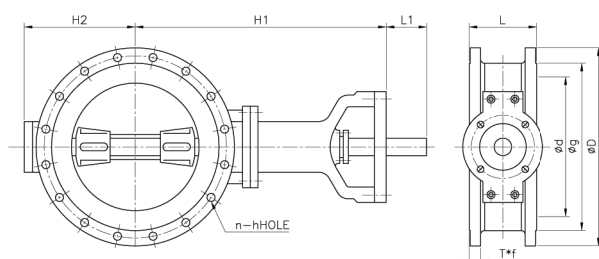
※2 EXCEPT ACTUATOR



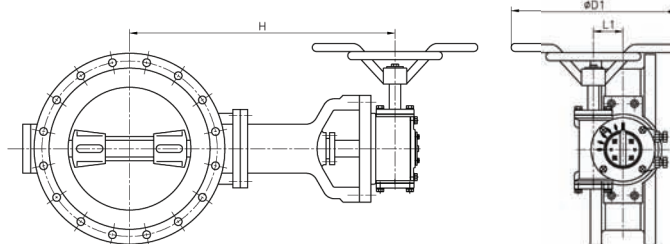
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

## 900LB MANUAL GEAR OPERATING TYPE

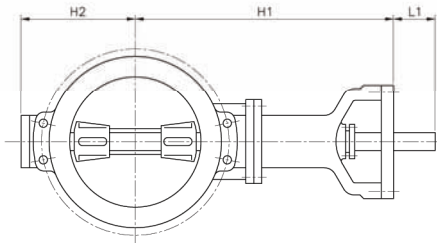
| SIZE     |    | d   | FLANGE |    |               |         |     |        | H1   | H2  | H    | L(FACE TO FACE) |     |        | L1  | L2  | D1  | MINIUM BODY WALL THICKNESS |
|----------|----|-----|--------|----|---------------|---------|-----|--------|------|-----|------|-----------------|-----|--------|-----|-----|-----|----------------------------|
| DIAMETAL |    |     | PCD C  | a  | h HOLE h TAP  | t×f     | g   | D      |      |     |      | WEFER           | LUG | FLANGE |     |     |     |                            |
| 150      | 6  | 150 | 317.5  | 12 | 32<br>1 1/8   | 55,6×4  | 216 | 381    | 485  | 238 | 550  | 104             | 104 | 250    | 80  | 279 | 450 | 18.8                       |
| 200      | 8  | 200 | 393.7  | 12 | 38<br>1 3/8   | 63.5×4  | 270 | 469.9  | 560  | 281 | 625  | 112             | 112 | 310    | 80  | 312 | 560 | 23.6                       |
| 250      | 10 | 250 | 469.9  | 16 | 38<br>1 3/8   | 69.9×4  | 324 | 546.1  | 615  | 358 | 680  | 135             | 135 | 350    | 110 | 312 | 560 | 28.7                       |
| 300      | 12 | 300 | 533.4  | 20 | 38<br>1 3/8   | 79.3×4  | 381 | 609.6  | 700  | 383 | 790  | 170             | 170 | 380    | 110 | 371 | 630 | 34.3                       |
| 350      | 14 | 350 | 558.8  | 20 | 41<br>1 1/2   | 85.9×4  | 413 | 641.4  | 745  | 419 | 835  | 173             | 173 | 400    | 130 | 371 | 630 | 39.6                       |
| 400      | 16 | 400 | 616    | 20 | 44.5<br>1 5/8 | 88.9×4  | 470 | 704.9  | 840  | 455 | 930  | 210             | 210 | 430    | 130 | 425 | 710 | 45                         |
| 450      | 18 | 450 | 685.8  | 20 | 51<br>1 7/8   | 101.6×4 | 533 | 787.4  | 940  | 503 | 1030 | 228             | 228 | 460    | 180 | 425 | 710 | 49.8                       |
| 500      | 20 | 500 | 749.3  | 20 | 54<br>2       | 108×4   | 584 | 857.3  | 960  | 550 | 1080 | 250             | 250 | 490    | 180 | 513 | 800 | 55.1                       |
| 600      | 24 | 600 | 901.7  | 20 | 66.5<br>2 1/2 | 139.7×4 | 692 | 1041.4 | 1070 | 656 | 1200 | 275             | 275 | 530    | 200 | 513 | 800 | 66.3                       |

FLANGE RATING-ACCORDING TO ANSI B 16.5 / ASME 16.47 SERIES "A" & "B" / DIN / BS / JIS / USER SPEC

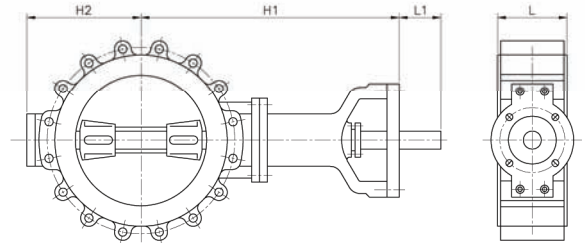
※1 FACE TO FACE DIMENSION-ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR

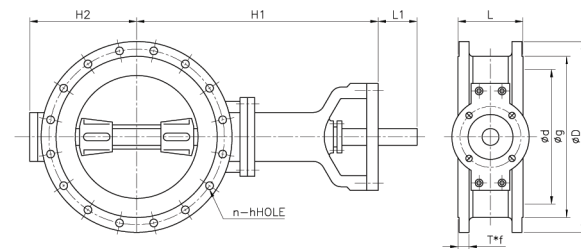
# CRYOGENIC/HIGH TEMP BUTTERFLY VALVE DIMENSION TABLE (mm)



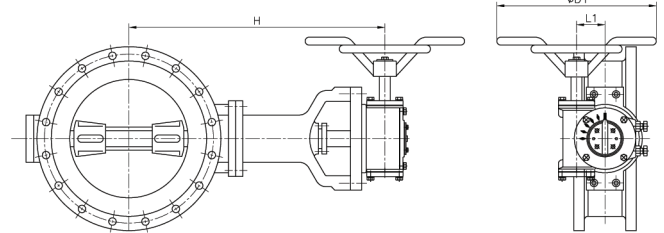
WAFER TYPE



LUG TYPE



FLANGE TYPE



FLANGE GO TYPE

## 1500LB MANUAL GEAR OPERATING TYPE

| SIZE | DIAMETAL | d   | FLANGE |    |               |         |     |        | H1   | H2  | H    | L(FACE TO FACE) |     |        | L1  | L2  | D1  | MINIUM BODY WALL THICKNESS |
|------|----------|-----|--------|----|---------------|---------|-----|--------|------|-----|------|-----------------|-----|--------|-----|-----|-----|----------------------------|
|      |          |     | PCD C  | a  | h HOLE h TAP  | t×f     | g   | D      |      |     |      | WEFER           | LUG | FLANGE |     |     |     |                            |
| 150  | 6        | 150 | 317.5  | 12 | 38.1<br>1 3/8 | 82.6×4  | 216 | 393.7  | 370  | 257 | 435  | 160             | 160 | 290    | 110 | 312 | 560 | 30.8                       |
| 200  | 8        | 200 | 393.7  | 12 | 44.5<br>1 5/8 | 91.9×4  | 270 | 482.6  | 430  | 307 | 520  | 180             | 180 | 330    | 110 | 371 | 630 | 40.4                       |
| 250  | 10       | 250 | 482.6  | 12 | 51<br>1 7/8   | 108×4   | 324 | 584.2  | 540  | 371 | 630  | 200             | 200 | 390    | 130 | 371 | 630 | 49.3                       |
| 300  | 12       | 300 | 571.5  | 16 | 54<br>2       | 124×4   | 381 | 673.1  | 575  | 414 | 665  | 230             | 230 | 430    | 130 | 425 | 710 | 58.7                       |
| 350  | 14       | 350 | 635    | 16 | 60.5<br>2 1/4 | 133.4×4 | 413 | 749.3  | 650  | 493 | 740  | 250             | 250 | 470    | 180 | 425 | 710 | 68.3                       |
| 400  | 16       | 400 | 704.9  | 16 | 66.5<br>2 1/2 | 146.1×4 | 470 | 825.5  | 700  | 530 | 820  | 265             | 265 | 510    | 200 | 513 | 800 | 77.7                       |
| 450  | 18       | 450 | 774.7  | 16 | 73<br>2 3/4   | 162.1×4 | 533 | 914.4  | 800  | 591 | 920  | 300             | 300 | 550    | 200 | 513 | 800 | 86.9                       |
| 500  | 20       | 500 | 831.9  | 16 | 79<br>3       | 177.8×4 | 584 | 984.3  | 850  | 664 | 975  | 340             | 340 | 630    | 200 | 536 | 900 | 96.3                       |
| 600  | 24       | 600 | 990.6  | 16 | 92<br>3 1/2   | 203.2×4 | 692 | 1168.4 | 1000 | 780 | 1125 | 400             | 400 | 710    | 250 | 536 | 900 | 115                        |

FLANGE RATING—ACCORDING TO ANSI B 16.5/ASME 16.47 SERIES "A" & "B"/DIN/BS/JIS/USER SPEC

※1 FACE TO FACE DIMENSION—ACCORDING TO MAKER STANDARD.

※2 EXCEPT ACTUATOR