

**LEVER · GEAR · PNEUMATIC  
ELECTRIC OPERATED.**  
**ALLOWABLE PRESSURE:**  
**ANSI CLASS 150 PN25**  
**SIZE: DN 50(2") - 600(24")**



# SPECIFICATIONS

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## Scope

The specification covers the design and testing of high performance double eccentric design butterfly valves.

## Applicable Standards

The following standards shall apply

|                 |  |
|-----------------|--|
| ANSI B16.5 :    | Pipe Flanges and Flanged Fittings (24"size and smaller)          |
| ANSI B16.34 :   | Valves-Flanged and Butt welding End.                             |
| ANSI/FCI 70-2 : | Control Valve Seat leakage.                                      |
| MSS SP-25 :     | Standard Marking System for Valves, Fittings, Flanges and Unions |
| MSS SP-61 :     | Pressure Testing of Steel Valves                                 |
| MSS SP-68 :     | High Pressure-Offset Seat Butterfly Valves                       |
| API 598 :       | Valve Inspection and Testing                                     |
| API 609 :       | Butterfly Valves, Lug-Type and Wafer-Type                        |
| API 607 :       | Fire Test for Soft-seated Quarter-turn Valves                    |
| PED :           | Pressure Equipment Directive Module H                            |
| ISO 5208 :      | Inspection regulation of valve                                   |
| ISO 5211 :      | Part-turn actuator attachment                                    |
| ISO 5752 :      | Face-to-Face and center-to-face dimensions                       |
| ISO 9001 :      | Quality assurance system   |

## Design Features

1. Valves are high performance with offset seat and double eccentric disc design.
2. Valve seats are designed for full pressure, bi-directional sealing.
3. Valve is equipped with upper and lower low friction bearings.
4. One-Piece shaft design equipped with Blow-Out Proof and Anti-Static devices.
5. Patented Seat Retainer Ring fixed without bolts and offering complete uninterrupted seal face.
6. Valve has integral body stop to prevent over travel

## Inspection and test

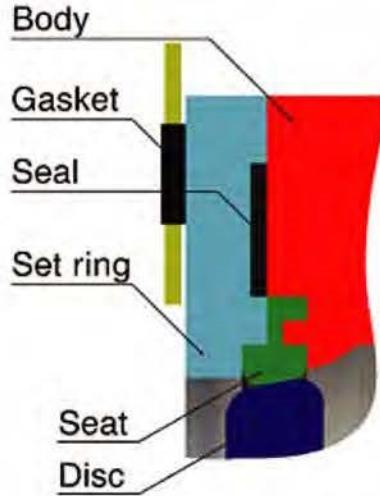
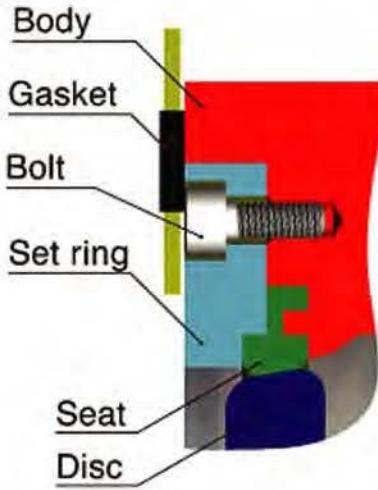
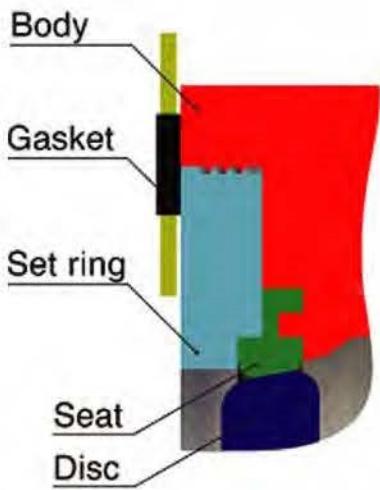
1. Valves shall be hydrostatically shell tested as per ANSI B16.34 , MSS SP-61 , API 598 , and ISO 5208
2. Valves shall be seat tested per MSS SP-61 or ISO 5208 No leakage is permitted for resilient seated valves.  
And allowable leakage of metal seated valves are as per ANSI/FCI 70-2.
3. API 598 testing available upon request.
4. Valves with other then 17-4PH stems, tested to MSS SP-61 or ISO 5208 only.

## Materials

1. Stainless steel valves shall be constructed from materials below :  
Body-ASTM A351 CF8 or CF8M  
Disc-ASTM A351 CF8 or CF8M
2. Carbon steel valves shall be constructed form materials below  
Body-ASTM A105 or A216 WCB  
Disc-ASTM A351 CF8 or CF8M
3. Stem material shall be one of the following ASTM A564 Type 630 (17-4PH)  
A182 F304 or F316

# SPECIFICATIONS

ANSI CLASS 150 LB  
ISO PN10~PN25  
JIS 10K ~ 16K



## Value's Patent Design

Special square thread design between Body and Retainer to offer

1. Wider sealing face between flanges.
2. 100% sealing between retainer and body.
3. When long time storage, valve was in fully closed position and the seat ring was fixed by retainer, it will not cause PTFE enlarge.
4. The retainer has to be at upstream when valve was installed at dead end of pipeline.

**NOTE:**Retaining ring must be upstream for dead end service.

## Conventional Design

1. The seat retainer of some brands extended as a flange surface, which has to be sealed by a gasket and increase a risk of leakage.
2. Most of the seat retainer was fixed by socket bolts, which caused reducing sealing face between flanges and increase a risk of leakage.
3. When long time storage, valve was in fully closed position and the seat ring was fix by retainer, it may cause PTFE enlarge and leaking when service.

## CV-values

| Size<br>inch mm | 10° | 20° | 30°  | Valve Open Degree |      |      |       |       |       |       |
|-----------------|-----|-----|------|-------------------|------|------|-------|-------|-------|-------|
|                 |     |     |      | 40°               | 50°  | 60°  | 70°   | 80°   | 90°   |       |
| 2"              | 50  | 0.3 | 2    | 6                 | 12   | 20   | 32    | 50    | 62    | 66    |
| 2.5"            | 65  | 1   | 11   | 27                | 40   | 60   | 83    | 106   | 133   | 140   |
| 3"              | 80  | 2   | 20   | 50                | 73   | 110  | 154   | 200   | 250   | 260   |
| 4"              | 100 | 4   | 32   | 80                | 120  | 180  | 250   | 320   | 400   | 420   |
| 5"              | 125 | 7   | 55   | 140               | 200  | 300  | 430   | 550   | 680   | 720   |
| 6"              | 150 | 11  | 90   | 230               | 340  | 510  | 710   | 910   | 1140  | 1200  |
| 8"              | 200 | 20  | 150  | 390               | 560  | 850  | 1190  | 1520  | 1900  | 2000  |
| 10"             | 250 | 30  | 240  | 600               | 870  | 1310 | 1840  | 2360  | 2940  | 3100  |
| 12"             | 300 | 40  | 360  | 920               | 1330 | 2000 | 2800  | 3600  | 4500  | 4750  |
| 14"             | 350 | 55  | 450  | 1130              | 1640 | 2500 | 3500  | 4500  | 5500  | 5850  |
| 16"             | 400 | 75  | 650  | 1600              | 2300 | 3500 | 4900  | 6300  | 7850  | 8300  |
| 18"             | 450 | 95  | 800  | 2000              | 2900 | 4400 | 6100  | 7900  | 9900  | 10400 |
| 20"             | 500 | 125 | 1000 | 2700              | 3900 | 5900 | 8200  | 10500 | 13000 | 13800 |
| 24"             | 600 | 200 | 1700 | 4400              | 6300 | 9500 | 13300 | 17000 | 21300 | 22500 |

## SEAT RATING (psig)

| Temperature<br>°F °C | Class 150 |       |
|----------------------|-----------|-------|
|                      | PTFE      | RPTFE |
| -20 to 100 -29 to 38 | 285       | 285   |
| 150 66               | 273       | 273   |
| 200 93               | 260       | 260   |
| 250 121              | 245       | 245   |
| 300 149              | 230       | 230   |
| 350 177              | 140       | 215   |
| 400 204              | 50        | 100   |
| 410 210              | 39        | 78    |

# VV2260HP-TBA

ANSI CLASS 150LB  
ISO PN10~PN25  
JIS 10K、16K、20K

## Construction Details

**Stem (10)** - One-Piece design with ISO 5211 square drive.

**Packing (7)** - Multiply Rows of Teflon Chevron.

**Retainer (4)** - Patented design of square thread, ensures an un-interupted sealing face. Flange face equipped with 125 - 200AARH finish and is compatible with both flat and spiral wound gaskets.

**Integral Disc stop (1)** - To prevent disc from over travel.

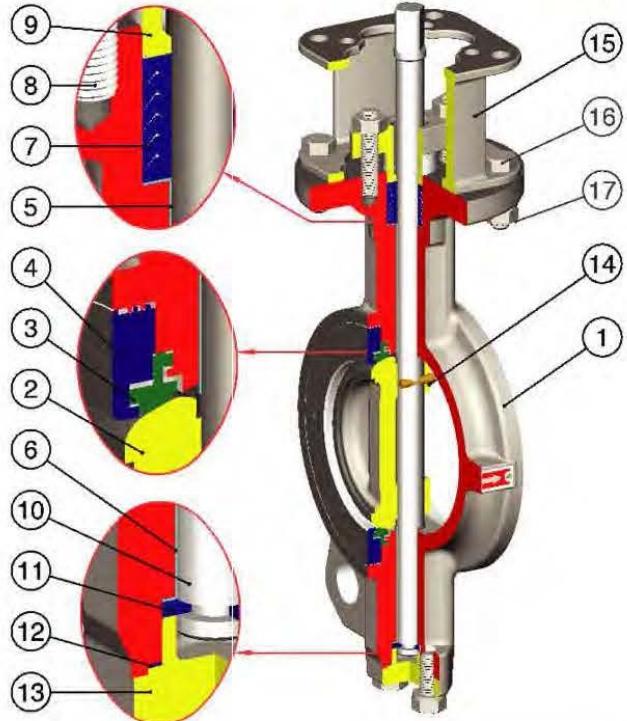
**Teflon Seat (3)** - Pressure assisted to give Bi - directional bubble tight shut off at all pressures. (Valve must be installed with retaining ring upstream for dead end service.)

**Thrust Ring (11)** - Anti blow out shaft and Anti static design.

**Bearings (5&6)** - Upper and Lower bearings are constructed of PTFE impregnated 316 SS.

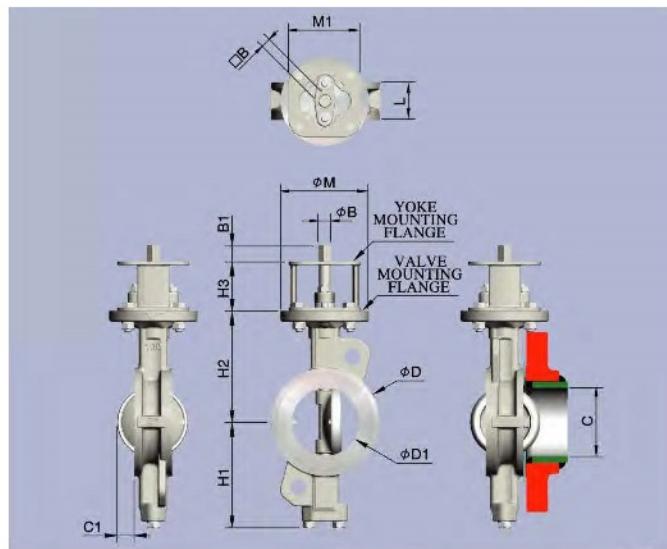
**Yoke (15)** - Investment Cast, per ISO 5211.

**Fugitive Emissions Packing System** is available on customer required.



| No. | Name          | Materials           | Specification |                   | Remark             |
|-----|---------------|---------------------|---------------|-------------------|--------------------|
|     |               |                     | JIS           | ASTM              |                    |
| 1   | BODY          | CARBON STEEL        | SC480         | A216 Gr. WCB      |                    |
|     |               | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
|     |               |                     | SCS 14A       | A351 Gr. CF8M     |                    |
|     |               |                     | SCS 16A       | A351 Gr. CF3M     |                    |
| 2   | DISC          | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
|     |               |                     | SCS 14A       | A351 Gr. CF8M     |                    |
|     |               |                     | SCS 16A       | A351 Gr. CF3M     |                    |
| 3   | SEAT          | PTFE                |               |                   | -29°C ~ 160°C      |
|     |               | PTFE+15%GLASS FIBER | RPTFE         |                   | -29°C ~ 180°C      |
|     |               | PTFE+15%GRAPHITE    | RPTFE         |                   | -29°C ~ 210°C      |
| 4   | RETAINER      | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
|     |               |                     | SCS 14A       | A351 Gr. CF8M     |                    |
|     |               |                     | SCS 16A       | A351 Gr. CF3M     |                    |
| 5   | BUSHING       | PTFE+316SS          |               |                   |                    |
| 6   | BUSHING       | PTFE+316SS          |               |                   |                    |
| 7   | GLAND PACKING | PTFE                |               |                   | -29°C ~ 160°C      |
|     |               | PTFE+15%GRAPHITE    | RPTFE         |                   | -29°C ~ 210°C      |
| 8   | STUD          | STAINLESS STEEL     | SUS 304       | A193 Gr. B8       |                    |
| 9   | GLAND         | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
|     |               |                     | SCS 14A       | A351 Gr. CF8M     |                    |
|     |               |                     | SUS 410       | A182 Gr. F6a      |                    |
| 10  | STEM          | STAINLESS STEEL     | SUS 304       | A182 Gr. F304     |                    |
|     |               |                     | SUS 316       | A182 Gr. F316     |                    |
|     |               |                     | SUS 630       | A564 Gr. 630      |                    |
|     |               |                     | XM-19         | A479 Gr. XM-19    |                    |
|     |               |                     | SUS 316       | A240 Gr. 316      |                    |
| 11  | THRUST RING   | STAINLESS STEEL     |               |                   |                    |
| 12  | SEAL          | PTFE                |               |                   |                    |
| 13  | BOTTOM COVER  | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
|     |               |                     | SCS 14A       | A351 Gr. CF8M     |                    |
|     |               |                     | SCS 16A       | A351 Gr. CF3M     |                    |
| 14  | PIN           | STAINLESS STEEL     | SUS 316       | A182 Gr. F316     |                    |
| 15  | YOKE          | DUCTILE IRON        | FCD 450       | A536 Gr. 65-45-12 | For 24" valve only |
|     |               | CARBON STEEL        | SC480         | A216 Gr. WCB      | Regular Option     |
|     |               | STAINLESS STEEL     | SCS 13A       | A351 Gr. CF8      |                    |
| 16  | BOLT          | STAINLESS STEEL     | SUS 304       | A193 Gr. B8       |                    |
| 17  | NUT           | STAINLESS STEEL     | SUS 304       | A194 Gr. 8        |                    |

# VV2260HP-TBA



| Size |      | Operator<br>Series no. | Lever operator   |     |                      |      | Gear operator |     |     |     |                      |      |     |  |
|------|------|------------------------|------------------|-----|----------------------|------|---------------|-----|-----|-----|----------------------|------|-----|--|
| mm   | inch |                        | Dimensions<br>H4 | L   | Weight (Kg)<br>Wafer | Lug  | H5            | C   | E   | F   | Weight (Kg)<br>Wafer | Lug  |     |  |
| 50   | 2    | L 7A                   | 250              | 200 | 4.9                  | 5.6  | -             | -   | -   | -   | -                    | 7.2  | 8.2 |  |
|      |      | C 07                   | -                | -   | -                    | -    | 215           | 41  | 155 | 150 | -                    | -    | -   |  |
| 65   | 2.5  | L 7A                   | 257              | 200 | 5.2                  | 6.2  | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 07                   | -                | -   | -                    | -    | 222           | 41  | 155 | 150 | 7.8                  | 8.8  |     |  |
| 80   | 3    | L 7B                   | 282              | 250 | 7.8                  | 9.3  | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 07                   | -                | -   | -                    | -    | 247           | 41  | 155 | 150 | 10.3                 | 11.8 |     |  |
| 100  | 4    | L 7B                   | 299              | 250 | 9.8                  | 14.8 | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 10                   | -                | -   | -                    | -    | 268.5         | 63  | 195 | 200 | 16.5                 | 21.5 |     |  |
| 125  | 5    | L 10                   | 318              | 355 | 13.6                 | 19.6 | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 10                   | -                | -   | -                    | -    | 281.5         | 63  | 195 | 200 | 19.5                 | 25.5 |     |  |
| 150  | 6    | L 10                   | 333              | 355 | 15.1                 | 21.1 | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 10                   | -                | -   | -                    | -    | 296.5         | 63  | 195 | 200 | 21                   | 27   |     |  |
| 200  | 8    | L 10                   | 378              | 335 | 23.6                 | 32.6 | -             | -   | -   | -   | -                    | -    | -   |  |
|      |      | C 12                   | -                | -   | -                    | -    | 341           | 61  | 255 | 310 | 31                   | 40   |     |  |
| 250  | 10   | C 12                   | -                | -   | -                    | -    | 381           | 61  | 255 | 310 | 41                   | 56   |     |  |
| 300  | 12   | C 14                   | -                | -   | -                    | -    | 443           | 81  | 340 | 400 | 70                   | 89   |     |  |
| 350  | 14   | C 14                   | -                | -   | -                    | -    | 479           | 81  | 340 | 400 | 88                   | 103  |     |  |
| 400  | 16   | A2                     | -                | -   | -                    | -    | 546           | 123 | 307 | 400 | 142                  | 178  |     |  |
| 450  | 18   | A2                     | -                | -   | -                    | -    | 571           | 123 | 307 | 400 | 165                  | 198  |     |  |
| 500  | 20   | A2                     | -                | -   | -                    | -    | 606           | 123 | 307 | 400 | 198                  | 265  |     |  |
| 600  | 24   | A2                     | -                | -   | -                    | -    | 692           | 123 | 307 | 400 | 305                  | 404  |     |  |
| 600  | 24   | A3+S3                  | -                | -   | -                    | -    | 785           | 160 | 370 | 400 | 387                  | 486  |     |  |

| Size | Face to Face<br>inch | Dimensions |       |      |       |       |       |      | Mounting flange<br>(ISO 5211) |       |     |      |       | Shaft end |      |      | Weight<br>LBS. |
|------|----------------------|------------|-------|------|-------|-------|-------|------|-------------------------------|-------|-----|------|-------|-----------|------|------|----------------|
|      |                      | L          | H1    | H2   | H3    | φ D   | φ D1  | C    | C1                            | Type  | φ M | Type | M1    | φ B       | □ B  | B1   |                |
| 2    | 1.69                 | 3.90       | 4.65  | 2.36 | 3.62  | 1.46  | 1.95  | 0.08 | F07                           | 3.54  | F07 | F05  | 2.76  | 0.55      | 0.43 | 0.71 | 9              |
| 2.5  | 1.81                 | 4.33       | 4.92  | 2.36 | 4.25  | 2.48  | 2.45  | 0.59 | F07                           | 3.54  | F07 | F05  | 2.76  | 0.55      | 0.43 | 0.71 | 10             |
| 3    | 1.85                 | 5.04       | 5.51  | 2.76 | 4.96  | 3.07  | 2.59  | 0.87 | F10                           | 4.92  | F10 | F07  | 4.02  | 0.71      | 0.55 | 0.91 | 15             |
| 4    | 2.09                 | 5.91       | 6.18  | 2.76 | 6.02  | 3.74  | 3.66  | 0.98 | F10                           | 4.92  | F10 | F07  | 4.02  | 0.71      | 0.55 | 0.91 | 20             |
| 5    | 2.24                 | 6.42       | 6.69  | 2.76 | 7.24  | 4.65  | 4.72  | 1.42 | F10                           | 4.92  | F10 | F07  | 4.02  | 0.87      | 0.67 | 0.91 | 26             |
| 6    | 2.20                 | 6.93       | 7.28  | 2.76 | 8.35  | 5.63  | 5.87  | 1.97 | F10                           | 4.92  | F10 | F07  | 4.02  | 0.87      | 0.67 | 0.91 | 30             |
| 8    | 2.44                 | 8.11       | 8.66  | 3.15 | 10.55 | 7.39  | 7.72  | 2.76 | F12                           | 5.91  | F12 | F10  | 4.90  | 0.98      | 0.75 | 1.10 | 48             |
| 10   | 2.68                 | 9.37       | 10.24 | 3.15 | 12.83 | 9.27  | 9.57  | 3.54 | F12                           | 5.91  | F12 | F10  | 4.92  | 1.10      | 0.87 | 1.10 | 70             |
| 12   | 3.07                 | 10.59      | 11.42 | 3.94 | 14.76 | 11.10 | 11.38 | 4.17 | F14                           | 6.89  | F14 | F12  | 6.30  | 1.38      | 1.06 | 1.46 | 106            |
| 14   | 3.07/3.62            | 12.05      | 12.83 | 3.94 | 16.38 | 12.68 | 12.95 | 4.92 | F14                           | 6.89  | F14 | F12  | 6.30  | 1.42      | 1.06 | 1.46 | 145            |
| 16   | 4.02                 | 13.46      | 14.57 | 4.72 | 18.74 | 14.61 | 14.84 | 5.51 | F16                           | 8.27  | F16 | F14  | 7.68  | 1.89      | 1.42 | 1.85 | 236            |
| 18   | 4.49                 | 14.57      | 15.55 | 4.72 | 21.02 | 16.46 | 16.65 | 6.18 | F16                           | 8.27  | F16 | F14  | 7.68  | 2.36      | 1.42 | 1.85 | 286            |
| 20   | 5.00                 | 15.71      | 16.93 | 4.72 | 23.15 | 18.35 | 18.54 | 6.97 | F16                           | 8.27  | F16 | F14  | 7.68  | 2.36      | 1.81 | 2.20 | 359            |
| 24   | 6.06                 | 17.91      | 19.29 | 5.91 | 27.24 | 22.44 | 22.52 | 8.27 | F25                           | 11.81 | F16 | -    | 11.81 | 2.36      | 1.81 | 2.20 | 612            |
| 24   | 6.06                 | 17.91      | 19.29 | 5.91 | 27.24 | 22.44 | 22.52 | 8.27 | F25                           | 11.81 | F25 | -    | 11.81 | 2.36      | 1.81 | 2.20 | 612            |