# Instruction and Operation Manual

## Triple Eccentric Butterfly Valve

Doc.No.: SPECS-IOM-BFV
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Contents

# 1. Usage and Features

## 1.1 Usage

The product is functioned as flow regulating and cutting off in water, gas supply and drainage pipelines of petroleum, chemical, refinery, mining, power plant, energy, transportation, agricultural, waterworks, environmental, construction, pharmacy and biology industry, which temperature is no more than 425 ℃ and nominal pressure no more than 6.4 Mpa.

## 1.2 .Features

| | | | |
|---|---|---|---|
| Nominal diameter(NPS) | | | in |
| Pressure(Class) | | | Lb |
| Test pressure | Shell test | | MPa |
| | Seal test | | |
| | Low seal test | | |
| Applicable Temperature | | | |
| Applicable medium | | Water, Steam, Oil etc, low-corrosive air or liquid | |

## 1.3 The maximum working pressure rating value of valve (pressure-temperature norm)

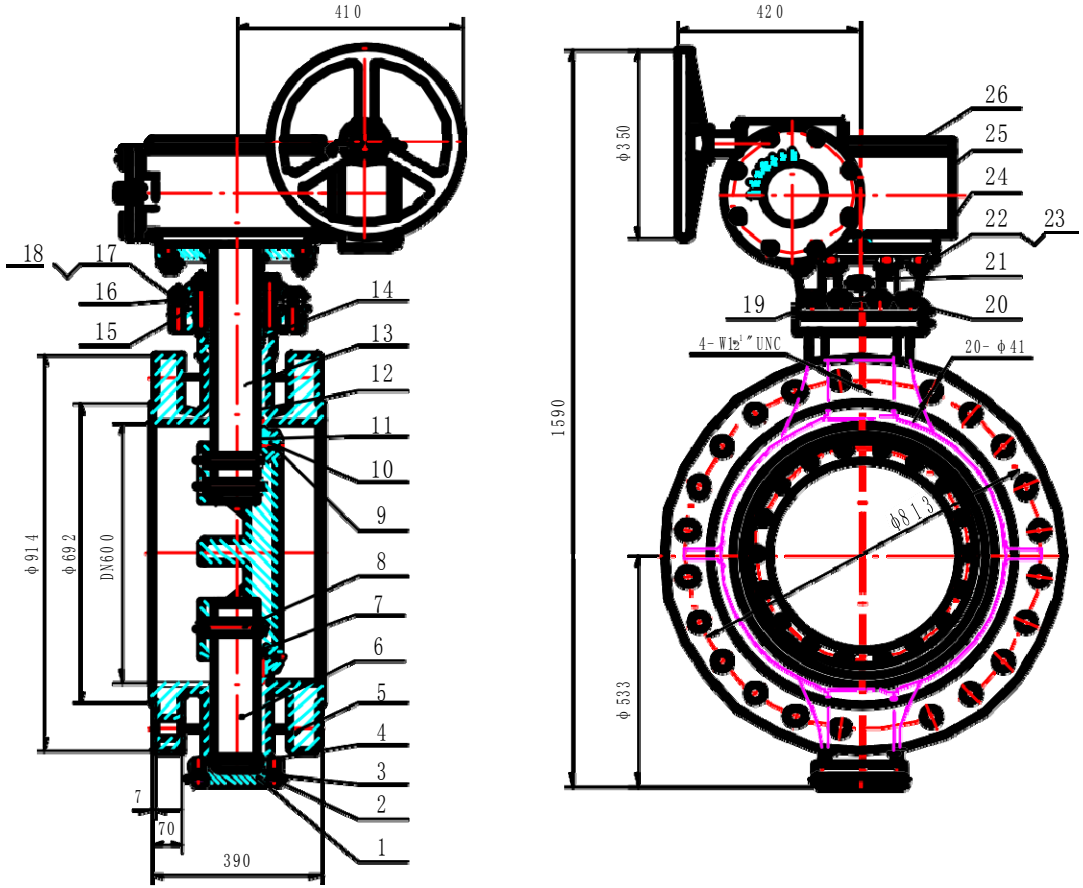
**(Table pressure: Mpa)**

| Temp. (‘C) | -29~38 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 375 | 425 |
|---|---|---|---|---|---|---|---|---|---|---|
| Rating value | 10.21 | 10.02 | 9.28 | 9.05 | 8.76 | 8.34 | 7.75 | 7.39 | 7.29 | 5.75 |

Temperature of table is the pipeline medium temperature under working condition, pressure of table is persisting non-impact pressure.

## 1.4. Structure Feature and Usage Principle

### 1.4.1 Structure and Diagram of Main Outline dimension




1、Bottom Gland 2、Inside Hexangular Column form Bolt 3、Gasket 4、Folio Cirque 5、Body 6、Down Stem 7、Disc 8、General Pin 9、Inside Hexangular Column form Bolt 10、Snap Ring 11、Seat Ring 12、Bushing 13、Up Stem 14、Packing 15、Yoke 16、Spring Washer17、Nut 18、Double-end Stud 19、Gland 20、Washer 21、Double-end Stud 22、Nut 23、Double-end Stud 24 Spring Washer 25、Lock Pin 26、Gear

1.4.2. Innovative and applicable design, unique structure, light weight, easy operation and swift open and close.

1.4.3. The Cam Principle is adopted in the sealing structure, auto drain and no wear and tear at 5 degree opening.

1.4.4. The sealing part is replaceable and adjustable, reliable sealing, the sealing material is wear-resisting and corrosion resistant with long working time.

## 2. Main Standards

a. Design and manufacture according to API 609 and PED/97/23/EC.

b. Face to face dimensions according to API 609.

c. Pressure Testing according to API 598.

d. Pressure-temperature ratings according to ASME B16.34

## 3. Material of Main Parts

| Name of Parts | Body<br>Disc | Stem | Seat ring | Sealing<br>Deposit weld<br>Mate | Packing |
|---|---|---|---|---|---|
| Used Mate | ASTM<br>A216<br>WCB | ASTM<br>A276<br>420 | Graphite<br>+SS304 | D507Mo | Flexible<br>Graphite |

## 4. Safekeeping, Installation, Usage, Check-up

### 4.1 Safekeeping

a. The valve should be stored in dry, ventilated room, placed in order, especially lightly lay the stem.

b. During keeping and storing, the valve should be closed and make the double-side flanges close down.

c. During storing, we should use easily cleaning out antirust for valve surface.

d. If the valve is stored for long-term (over 1 year), it should be checked before installation, wash the dirt and paint antirust. It is recommended to retest in accordance with relevant code(API598) before installation

## 4.2 Installation

a、 The valve could be installed in any positions

b、 b、Before installation, we should carefully check whether the valve mark and nameplate is commensurate with the requirement of the condition.

c、When start installation, the valve should be cleaned inside cavity and sealing face, check sealing face、bolt connection、packing screw、stem rotating is flexible or not.

d、Hand wheel and gearing are not allowed to lift usage.

e、When installation, should evenly screw the bolts symmetrically.

f、 After finishing installation, the valve should be completely opened to test pipeline and system pressure.

## 4.3 Usage

a. Valve usage conditions should be commensurate with nameplate and usage specifications.

b. Using the valve, only allowed to fully opened or closed not to regulating flux resulting in attainting sealing face.

c. Opened or closed the valve only by rotating hand wheel, other assistant level or power could not available.

## 4.4 Check-up

**1. During using valve we should timely check following items, find out the problems and solve it in time.**

a. Whether the tight fittings are evenly equipped or not.

b. Whether the packing is badly attrited, gasket is damaged or not. (Stop working and repairing)

c. Whether the driver is lightly, flexible or not.

d. Whether sealing face is attrited or badly damaged. (stop working and repairing)

e. Whether body is badly corrosive or attrited resulting in clearly becoming thin even appear leakage. If it occurred, the valve should be discarding (stop working and repairing)

f. Regular check wall thickness when the valve is used under corrosive environment.

**2. After be checked 、 repaired and installed, the valve should have a pressure test according to corresponding standards. And write down the records in order to be checked.**

## 5. Installation guide

a. The impurities should be cleaned before valve installation, preventing the sealing face damage by the impurities.

b. The valve should be kept properly and avoiding collisions before its installation.

c. Note the flow direction when installing the valve, the arrow on valve body indicates the flow direction of the medium.

d. Flanges bolts should be bolted symmetrically, to bolt from just on side of the bolt is prohibited.

e. The expansion should be placed after the valve.

f. The valve should not be installed at the turnings or the end of the pipes.

g. try to avoid the stress that produced by it’s accessories and the environment.

h. Do not use the valve for high corrosive or large granule and unsteady medium

# 6. Maintenance Guide

| No. | Performance failures | Causes | Solution |
|---|---|---|---|
| 1 | Packing Gland Leaking | The adjusting nut is not screwed tight or the Packing is damaged | Screw tight the nut or change the packing. |
| 2 | Foot cover leaking | The bolts is not screwed tight or the thrust washer is damaged | Screw tight the bolt or change the thrust washer. |
| 3 | Sealing leaking | The bolts of adjusting gland or impurities on the sealing face / Worm gear limitation screw is placed incorrectly. | Clean the sealing face, if the problem still exists, screw tight the adjusting bolts or adjusting the worm gear limitation screw. |
| 4 | Flange end leaking | The flange is not place parallel or the combination gasket is damaged | Loose the flange bolts and screw tight correctly or change another gasket. |

## 7. Notes:

7.1 The users have to take charge of considering: choosing material, possibility of metamorphose in usage and check termly.

7.2 Valve designing only considers general operating conditions, so some specific Requirements have to be referred in final contract.

7.3 Valve designing only considers negligible corrupt, in the serious corrosive or especial conditions it is not suitable to be installed.

7.4 Valve operating temperature should not excess the provision in table of item 1.2, user will be responsible completely for the results if excess the scope( included instantaneousness).

7.5 Under corresponding temperature valve maximal operating pressure should not excess the provision in table of item 1.3. Excess maximum or use pressure rating value not according with temperature will result in bad effect. The user is responsible completely for it.

7.6 Applicable medium of valve are listed in table of item 1.2, user is responsible completely for this results if excess the maximum scope.

7.7 this valve is double-seat, when it is closed, lumen possibly retain relict liquid, and when rise-temperature in system, relict liquid possibly is heat up resulting in abnormity arise up of lumen pressure. As the valve did not adopt method to relief, user should partly open or close valve during start-up at last system or other ways to discharge remains.

7.8 As the surface temperature of valve operating possibly result in body touch scald, user must in corresponding parts set alert marks.

7.9 Valves are not allowed to replace packing under pressure.

7.10 At process of valve operating, weld repairing and surface painting are not allowed.

7.11 It is not allowed to take off valve under pressure conditions.

7.12 At process of repairing, matching of valve material should be according to table of term 6

7.13 Valve designing not consider calculating lifespan, test and tiredness intension check. User should be timely check and repair, replace in usage.

7.14 Valve designing not consider earthquake load, the manufacturer will not take charge of any results as it.