

Soft Seat Concetric Butterfly Valve



Design Concept, Characteristics &
Advantage

Technics Design Concepts

1、 Completely isolation from medium

Stem and Disc adopt four or six sides without pin connection, perfect integrated as a whole set after assembled, which ensure stem impossible touch with medium, ensure valve long working life and disassemble easily. The spare parts are replaceable to save cost & reduce waste.

2、 Stem blow-out proof design

Stem through precise processing fly groove, the bottom of top flange processing Ω clamp ring groove, through U circlip stuck stem fly groove, O flat mat to resist U circlip, which can maximize prevent stem may blow out.

3、 Stem technology

The problem caused by the circular stem with a semicircle keyway is easy to fall down and the pin wears away, so the disc can not be opened and closed. The four-side valve stem completely avoids the above problems and solves the fundamental problems from the design process.

Manufacturing and standardization concepts

The top mounted flange of valve meets ISO5211 international standard and can be **directly** installed with manual operation mechanism and electric/pneumatic actuator. All actuators are installed without yoke and easy to disassemble on site. The lengthen neck of valve to meet the thermal insulation requirements of the pipeline.



Valve end connection dimensions comply with flange standards for ISO7005.2, GB, DIN, ANSI 150LB, JIS 5K/10K.

Low torque control concept

Through strict control raw materials, machining precision and assembly process, maximum reduce the torque to the minimum, which can reach the standard test pressure be 110% nominal pressure.

The advantage of low torque are as following:

- 1. Valves open and close more easily.
- 2. Install electric /pneumatic actuator with less torque, which can save energy consumption and reduce equipment cost.
- 3. Effective contact between the end face of low torque disc and the seat ensure that in a reasonable range, the seat has less friction with the disc have a longer service life, further reducing the equipment replacement cycle cost.

Product advantage VS other suppliers

Body casting materials reach the standard, high density, weight of body is 1.2-1.5 times higher than other suppliers'. Solid body machining, to reach machining precision, ensure



Most of other suppliers' Body is hollow and bad concentricity, cause bigger torque, increase friction factor, reduce valve service life.



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Valve body comparison

Thickness of body follows 2.5Mpa standard plus 1.2-1.8 safety factor design. Epoxy powder coating follows ocean standard 300 um thickness, shaft concentricity control in 20 nm range.

Thickness of body not reach standard(thin), hollow valve neck, top flange without clamp ring groove, stem possible blow-out, install electric/pneumatic actuator need yoke.



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1. Top mounted flange follows ISO5211 standard ;
2. without yoke to install actuator;
3. with clamp ring groove ;
4. stem blow-out proof.



Seat material comparison

Made by glue injection process, One-step forming, element of raw material uniform distributed ,hardness factor control in the range of 70-76 .



Made by hand drop process, manual trimming is required. The uneven distribution of injection temperature results in excessive hardness and durability.



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Stem material comparison

Material SS420 have hardening and tempering treatment to be strong; stem open/close indicate line; stem have 10 production procedures; stem and disc connection use six-sides design.

Material carbon steel,without any treatment, only have 2 production procedures, stem and disc connection by pin, can not replaceable, pin corroded cause easily dropped.



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Stem technology comparison

With O ring flat washer, U
circlip, Ω clamp ring,
Chamfer processing ,
polishing treatment, good
surface finish.

Not strong,easily corroded, with pin stem
machining only need a semicircle key
groove,without blow-out design.



Disc technology comparison

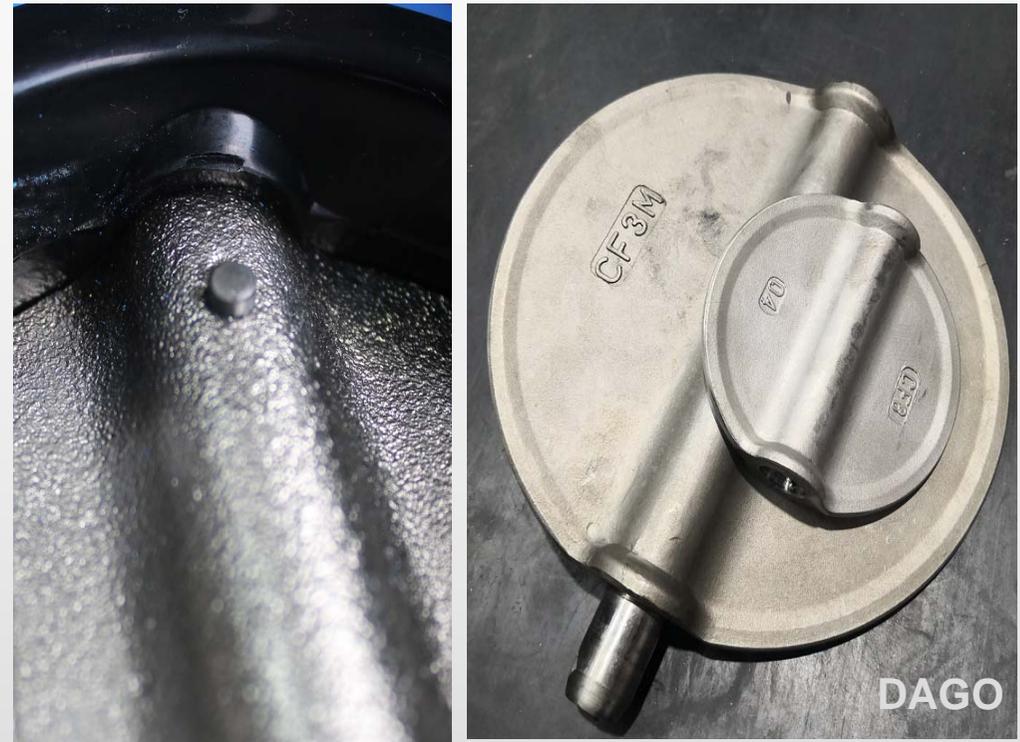
All the Disc without pin and thick type, subject to a substantial increase in pressure, weight is 1.4-2.2 times higher than disc of other suppliers.



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The disc of other suppliers with pin, cause stem touch the medium, smaller thickness or centre is thin but edge is thicker, step shape. Easily out of shape, impact on seal.



Handle lever technology comparison

Aluminium alloy material, easy install and disassemble, inside spring not easily drop, fashionable style, strong and

Cast iron material, simple design, low manufacturing cost, easy corroded and damaged.



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Advantage for installation electric/ pneumatic actuator



No need connect plate or yoke, ISO5211 standard dimensions adapt for most of actuators, good appearance, reduce cost.

Need connect plate or yoke, different top mounted dimensions, increase cost for plate or yoke, bad appearance and performance.



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Valve seat open/close test

- EPDM rubber is selected in the picture. Dry rubbing test is carried out without any lubricant. Pressure test is carried out every 3,000 times. The final test results were leaked about 37,000 times.





Valve seat hardness test

- The hardness of the seat directly affects the service life of the valve and the torque, it's the most important part of the overall sealing of the valve. The hardness of high-quality rubber materials is generally controlled between 68 and 76, which will change with the change of weather temperature.
- Hardness test results of hard seat DN150 and soft seat DN200 are selected in the picture.



Valve torque test

- The following factors affect the torque of the valve :
 - 1、 Machining precision for body, concentricity.
 - 2、 Seat type and material.
 - 3、 Intervention between seat inner diameter and plate outer diameter.
 - 4、 Bearing friction factor etc.

EPDM rubber seat is selected in the picture, the torque of DN100 PN10 is 68 N.m

Actual torque under pressure is 39 N.m

