

GVK-2000 SERIES Friction Zero Double Offset Design

GENERAL

A new Concept of Innovative Double offset Design Valve has been successfully developed and it provides extreme high performance when compared to other type of Metal Seated Butterfly Valves including Triple.

DESIGN CONCEPT

GVK 2000 Double Offset Design is Unique and the First in the world.

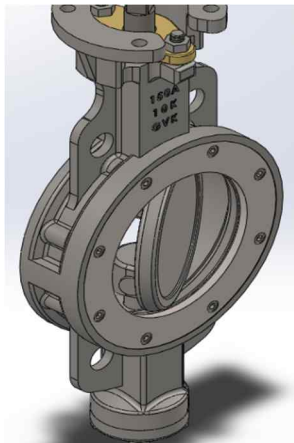
It provides **ZERO friction on overall surface of seats** when both open & close of the disc during operation which leads to **less torque** than ever.

Also, **Perfect seat sealing** with no seat leakage is well achieved.

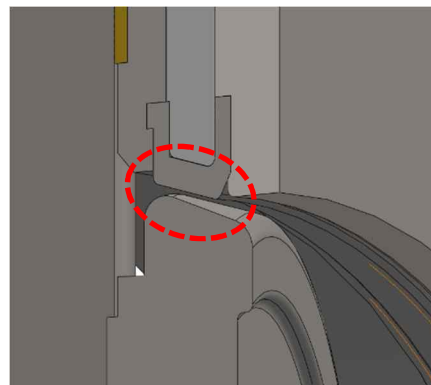
Therefore no friction is during operation, Which maximizes durability.



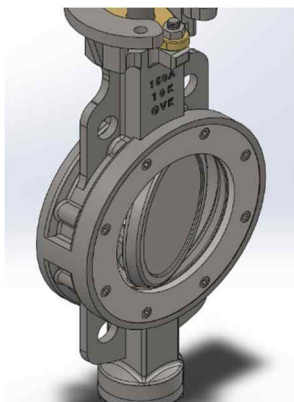
Graphic view to exhibit Seat & Disc Friction of State



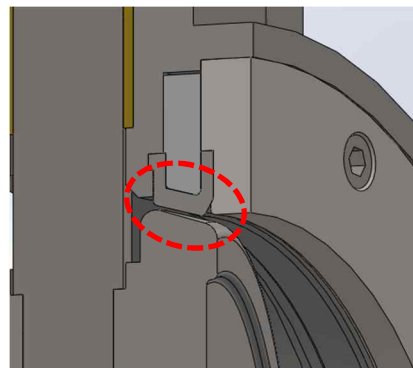
Disc Open 30 Deg



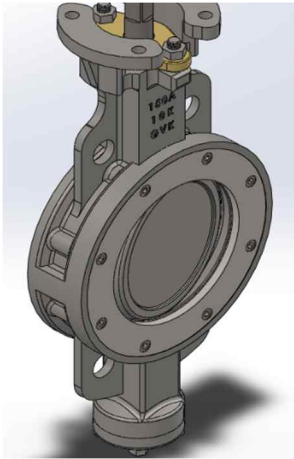
Seat & Disc Friction Zero



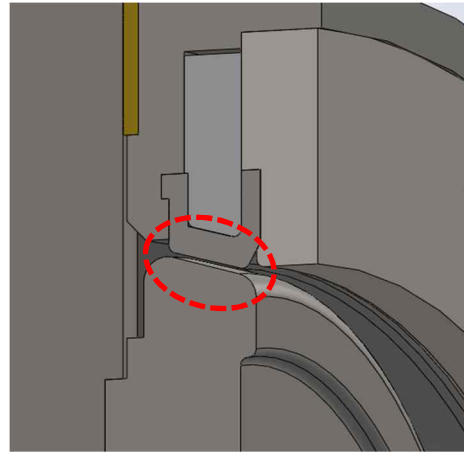
Disc Open 20 Deg



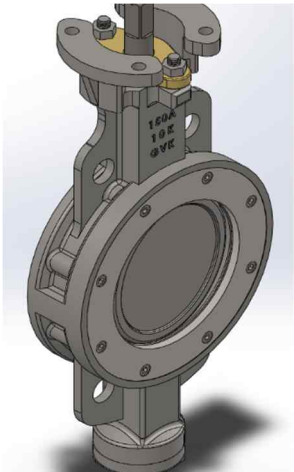
Seat & Disc Friction Zero



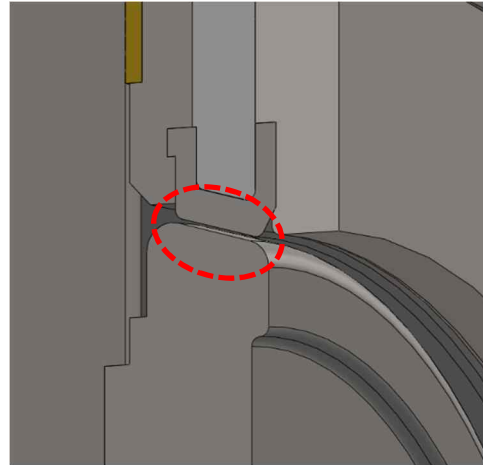
Disc Open 10 Deg



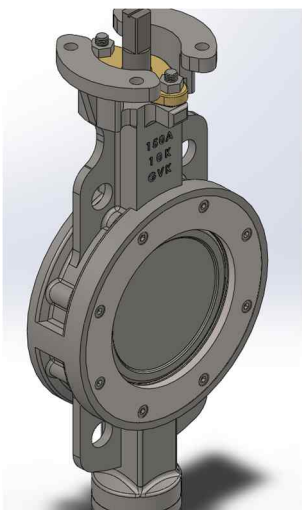
Seat & Disc Friction Zero



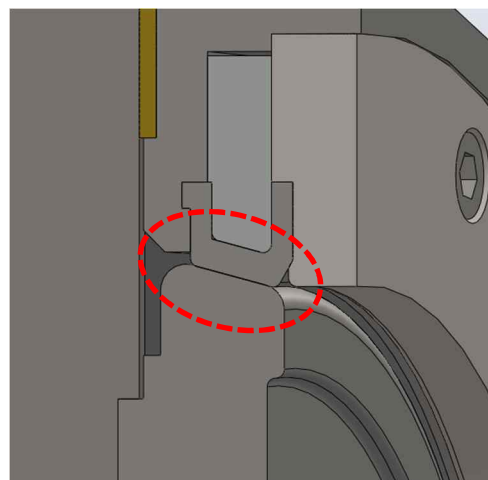
Disc Open 5 Deg



Seat & Disc Friction Zero

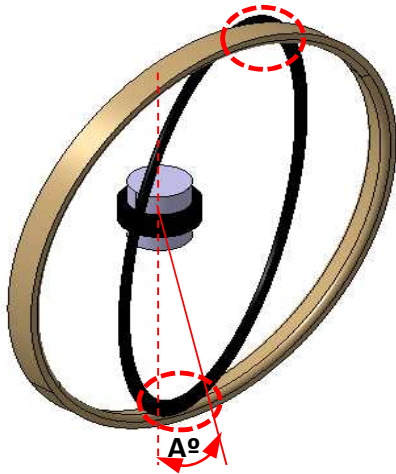


Disc Open 0 Deg



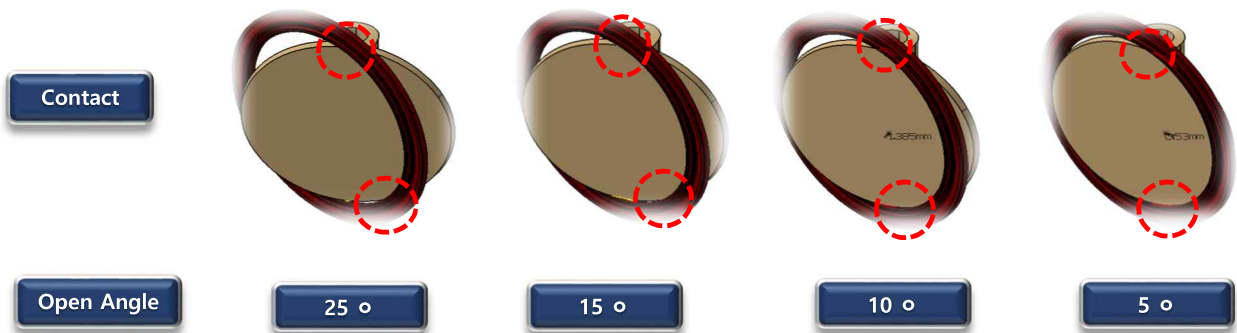
Seat & Disc Contact

Other company Double offset Design Seat & Disc Friction of State



	A° (Interference Angle)	Advantage
Other Company	Friction occur at degree of 0°~25°.	1. Seat damage 2. Increase Torque 3. Low durability
GVK	Friction Zero.	1. Low Seat damage 2. Less Torque 3. Increase durability

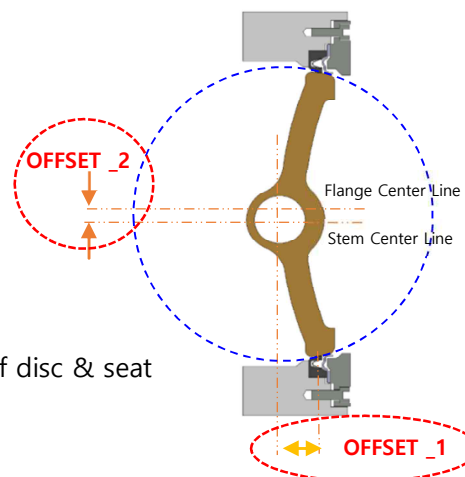
Other company Double offset Design



GVK 2000 DESIGN CONCEPT

- ▶ OFFSET_1 : Stem center line to Seat center line
- ▶ OFFSET_2 : FLANGE center line to Stem center line

By optimizing Offset_1 & Offset_2, the friction of disc & seat Can be zeroed while disc is in during operation.



KEY FEATURES

- Unique and Innovative Functional Design
- World's First and New Development
- Friction Zero Double offset Design
- **Solid Metal to Metal Seat** with hard facing as a basic trim design, Metal to Soft Seat as an option
- Replaceable Metal Seat with Retainer

KEY RESULTS

- **Zero Friction** for Seating when disc is either being closed or opened
- **Intact Seat Face** against Severe Service
- **Bidirectional Tight shutoff**
- **No worry of seat damage** compare to laminated seat of triple offset butterfly valve

KEY BENEFITS FOR CUSTOMER

- Longer Service Life
- Lower costs for Actuation by Zero Friction & Lower Operating Torque
- Cost Saving by Less Trouble
- Cost Saving by Reduced Downtime
- Reliable with long-term operation
- Easy opening even after dormant periods

RECOMMENDED APPLICATION

- Corrosive / Erosive media service including sludge, slurry, oil sand, coal ash, waste water etc
- Severe Service including PP (Propylene Polymer in Vapor/Solid) line, Naptha Cracking line etc
- Frequent Open / Close of the line
- High temperature Service
- High Pressure Service
- Replaceable with current Triple Offset Butterfly Valve
- Replaceable with Soft Seated Valve where abrasive media flows



COMPARISON TABLE

Description	GVK 2000 Double Offset	Other Company Double Offset
Offsets	Double offset	Double offset
Stem / Disc Operating	90Deg Rotaing	90Deg Rotaing
Seat material	Solid metal to metal , Metal to laminated seat	Impossible Solid metal to metal
	Metal to soft seat also available	Impossible Metal to laminated seat
Impacts(seat damage) the on seat against Flow	NO impacts	Impacts
Friction when seating on & off	Zero friction - by Optimizing Offset Design	Friction occur at deg of 0°~25°
Seat Shut off at full pressure rate for non-preferred direction	No seat Leakage under metal to metal seat	Hard to reach metal to metal
Bi-directional tight shut off	Available	Hard to achieve
Seat Surface Hard facing Treatment available	Overlay wedling [Body seat & Disc seat] TCC, CCC by HVOF	Hard to achieve
Parts Repair Disc & seat replacement	Easy & Simple to replace it on site	Easy & Simple to replace it on site
Actuator applicable	Pneumatic, Electric & Hydraulic	Pneumatic, Electric & Hydraulic
	with Quarter turn only	with Quarter turn only
Severe Service application (wear & Tear, erosion)	Suitable with intact metal seat face,	Difficult due to non solid metallic seat
Severe Service application (corrosion)	Suitable with TCC, CCC on the seats	Difficult due to non solid metallic seat
Alternatively replaceable with Ball, Gate, Glove valve	Yes for metal seat	Few
Fire safe	Yes with metal to metal seat design	Yes with metal to metal & soft seat design

DESCRIPTION

- International Standard: API609, JIS F7480, ISO5752, JISB2032, BS5155
- Applicable SIZE Range [Other sizes on request]
 - Wafer DN 50 ~ DN 500
 - Lug DN 50 ~ DN 800
 - Flange DN 50 ~ DN 2000
- Applicable Pressure Range Class 125, 150, 300, 600
- Applicable Temperature Range: -196°C ~ 550°C
- Applicable Flange standard:
 - KS/JIS 10K, 16K, 20K, 30K
 - ASME B16.5, ASME B16.1 Class 125, 150, 300, 600
 - ISO 7005/EN 1092 / DIN 2501 PN6, PN10, PN16, PN25, PN40
- Operations
 - Worm & Bevel Gear operation
 - Actuation operation (Pneumatic, Electric and Hydraulic)