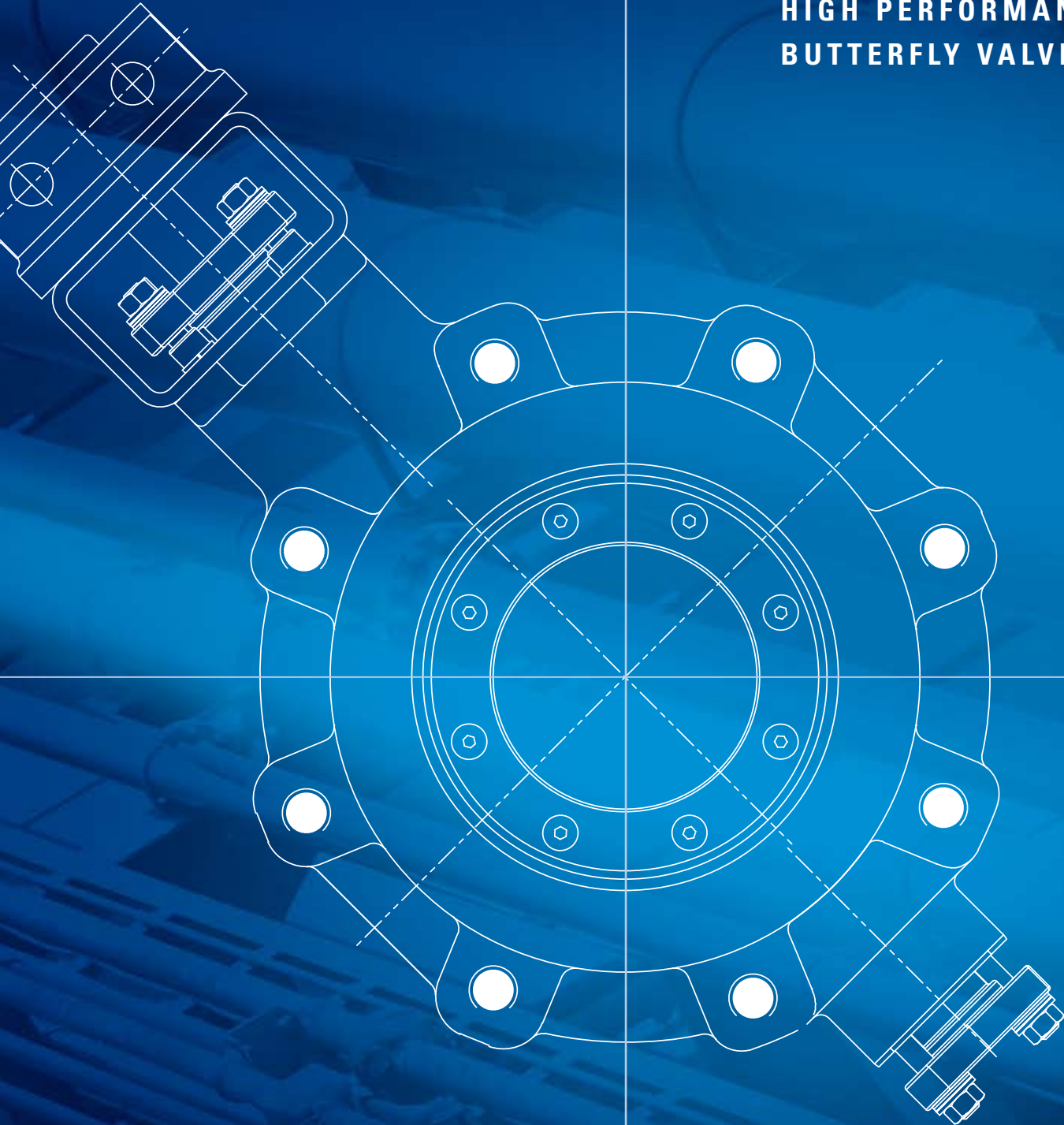


DYNAXE - SETTING THE STANDARD

VALID FROM APRIL 2012



DOUBLE ECCENTRIC HIGH PERFORMANCE BUTTERFLY VALVE



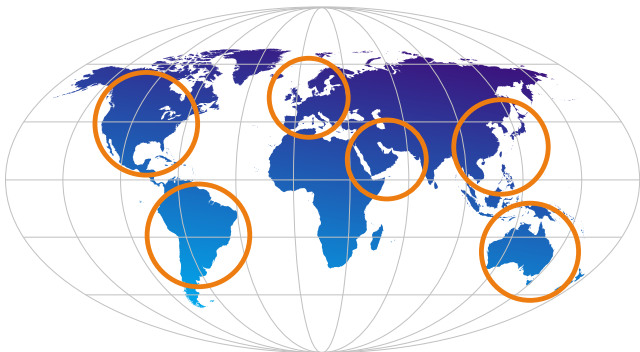
Chemical 	Sugar 	Paper 	Cement 	District Heating 	Oil & Gas Processing 	Energy & Power Supply 	Petrochemical 	Food & Beverages 	Water 	HVAC 	Ship Building 	Tank Store 	On-Off Shore
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DYNAXE

WOUTER WITZEL EUROVALVE

Wouter Witzel EuroValve is the specialist for High Performance butterfly valves, with a proven track record as part of the AVK Group. Innovative products such as Dynaxe have secured the company's technological leadership in the market.

Renowned as the producer and supplier with the most complete range of fluid management solutions, Wouter Witzel EuroValve operates from sales offices all around the world. A strong customer relationship is ensured as Wouter Witzel Eurovalve expert technicians and consultants are always close-by, no matter where the expertise is needed. The production facilities employ the latest technology for the design and manufacturing of valves, pumps and instruments for the industrial, commercial, municipal and utility markets.



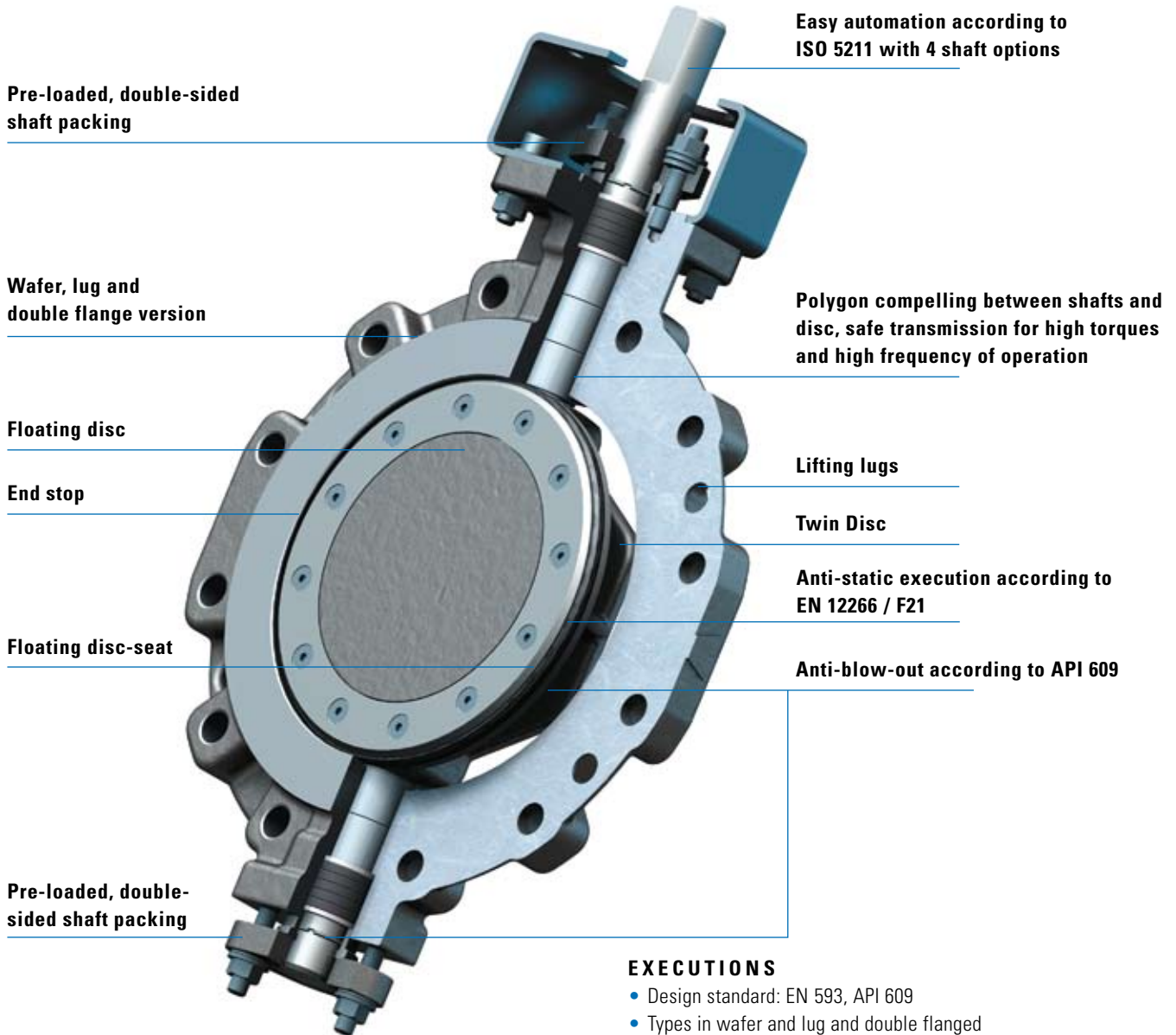
Wouter Witzel is a member
of the AVK Group www.avkvalves.com

DYNAXE

Dynaxe sets the new standard for double-offset butterfly valves. It is the result of an integrated design approach to lift this technology onto an even higher level of performance, with a multitude of new and optimized features complementing each other. Special emphasis was put on a flexible product design enabling an exact finishing according to customer specifications.

The resulting technical and economical advantages of the precise and proven Dynaxe technology have led to an improved life cycle as well as higher productivity and security - guaranteed customer satisfaction!

DYNAXE FEATURES



MARKET SEGMENTS

- Oil and gas processing
- Offshore platforms
- Petrochemical refineries
- Tank storage transportation
- Heating, ventilation, air conditioning (HVAC)
- District heating
- Shipbuilding
- Power generation
- Chemical plants
- Steel plants
- Paper and pulp

EXECUTIONS

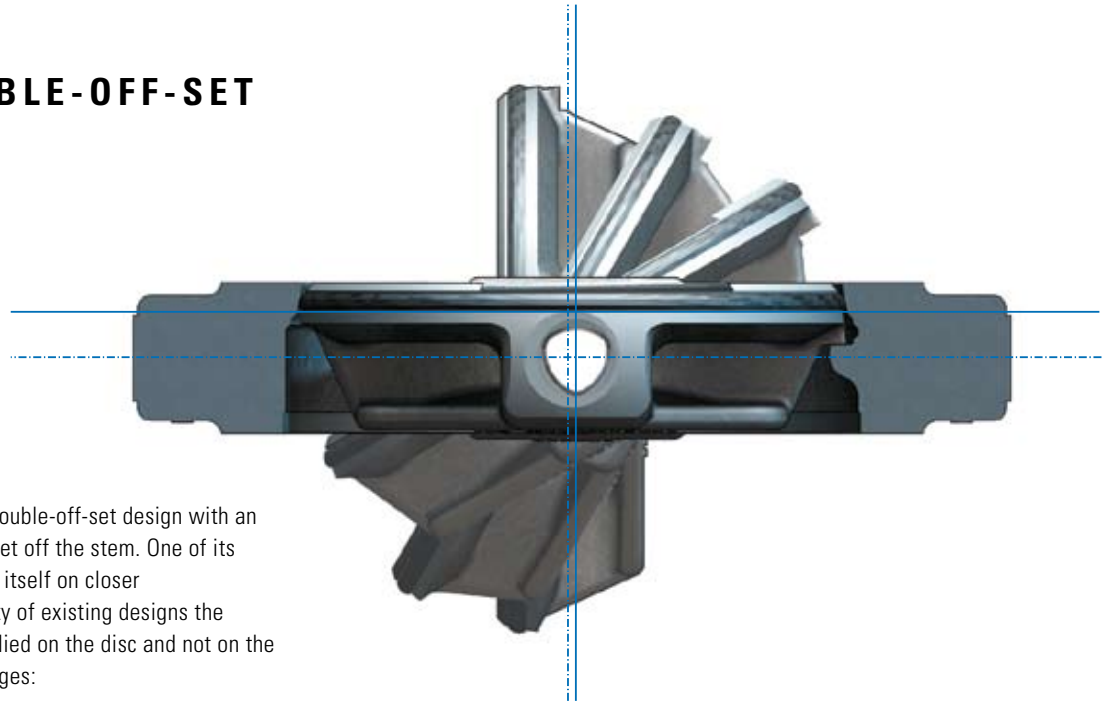
- Design standard: EN 593, API 609
- Types in wafer and lug and double flanged
- Standard sizes: DN 50 / 2" – DN 900 / 36", larger sizes on request
- Flange connections: PN 10 / 16 / 25 / 40, ANSI class 150 / 300
- Face to face dimensions: according to EN 558-1/ 2, ISO 5752, API 609
- Materials: Carbon Steel, Stainless Steel, Titanium and NiAl-Bronze
- Disc-seats: RTFE soft seated, fire-safe, metal-to-metal and reinforced elastomeric (rubber)

OPERATING CONDITIONS

- Operating pressure max. 20/50 bar
- Standard Temperature range -29 °C to +540 °C, depending on medium and material choice
- Pressure-temperature rating according to ASME 16.34 and API 609, ISO 7005
- Leakage rates according to API 598
- In compliance with Pressure Equipment Directive (PED)

DYNAXE

ADVANCED DOUBLE-OFF-SET TECHNOLOGY



At first glance, Dynaxe is a typical double-off-set design with an off-set off the disc-seat and an off-set off the stem. One of its outstanding features though reveals itself on closer inspection. In contrast to the majority of existing designs the disc-seat of the Dynaxe valve is applied on the disc and not on the body, resulting in numerous advantages:

- Better tightness, throughout one-piece body
- Higher safety
- Economical design
- Reduced number of required components

A corrosion-free shut-off operation is ensured at all times by the welded Mn-alloyed overlay seat of the valve-body, thus guaranteeing a long service life. The standard overlay is made of Mn-alloyed-stainless-steel although other overlays like Stellite® are also available.

THE ZERO LEAKAGE SOLUTION

Benefit from the Dynaxe zero leakage solution for pressures of up to 50 bar and – depending on the valve material – a temperature range of -29 to 540 °C. Each disc-seat option is tested according to API 598, providing maximum security. Even the highest leakage rate requirements are met and several specifications exceeded. All soft-seated and fire-safe Dynaxe executions provide a bi-directional service. The metal-to-metal disc-seat is tested uni-directional.

ANTI-STATIC DESIGN

Due to their sophisticated design, all Dynaxe double-off-set butterfly valves are inherently anti-static according to EN 12266-F21. They also meet the requirements of the chemical and petrochemical industries.

Even all RTFE seats are conductable due to the combination of RTFE and carbon.

OPTIMIZED FLOW THROUGH TWIN DISC

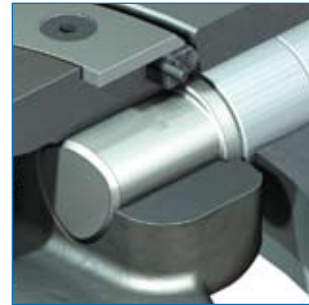
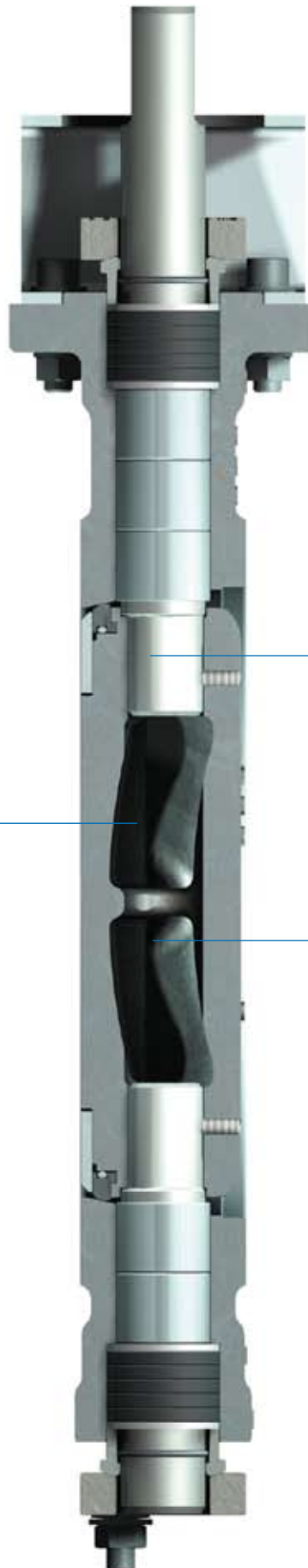
The Twin Disc of the Dynaxe valve is the result of intensive research and development. It is especially designed to optimize the flow characteristics of fluid handling systems. Resembling a framework, its design adds further advantages to the valve:

- Increased Kv / Cv value
- Operation with lower energy costs
- Lower weight
- Minimized bending of the disc
- Thermo-shock resistance
- Quick heating-up to operating temperature

Applicable:

CL150 execution – size DN 250 and larger

CL300 execution – size DN 150 and larger



SUPERIOR POLYGON DESIGN

Another enhancing feature of the Dynaxe butterfly valve is its polygon stem, which has a harmonic trilobed profile P3G according to the German standard DIN 32711. With this polygon joint – a positive fit shaft hub joint – the torque is transmitted directly without using additional elements (e. g. keys). Being superior to other shaft hub designs, the polygon joint provides several advantages:

- Optimized transmission of torque
- Simple assembly and disassembly
- Small stress peaks due to the smooth and convex shaped profile
- Orbiform curve
- Higher load bearing capacities
- Self-centering under torsional load
- Longer service-life
- Guaranteed safe operation



DYNAXE

STANDARD SEATS



TH – RTFE

- PTFE reinforced, filled with glass, carbon, graphite, and a Helix coil energizer.
- Temperature range: $-29\text{ }^{\circ}\text{C}$ to $204\text{ }^{\circ}\text{C}$.
- RTFE TH is the most used disc-seat and suitable for a multitude of applications and high cycle frequencies.



FS – RTFE / Fire Safe

- PTFE reinforced, filled with glass, carbon, graphite and a Helix coil energizer. Additionally, a metal back ring assures tightness under fire conditions.
- Temperature range: $-29\text{ }^{\circ}\text{C}$ to $204\text{ }^{\circ}\text{C}$.
- Fire-safe tested according to API 607 4th Ed. / ISO 10497 / UK Dot.



M – Metal laminated

- Laminated metal seal made of stainless steel and pure graphite.
- C-ring in Inconel X-750 as energizer and back-up sealing.
- Sinus-spring self-aligning.
- Temperature range: $-29\text{ }^{\circ}\text{C}$ to $425\text{ }^{\circ}\text{C}$.
- A typical execution for especially high temperature applications.
- Fire-safe design according to API 607 4th Ed. / ISO 10497 / UK Dot.



MS – METAL SOLID

- C-ring in Inconel X-750 as energizer and back-up sealing.
- Sinus-spring self-aligning.
- The solid metal seal is available in three different materials to extend the range of applications:

1. Stainless Steel with DLC

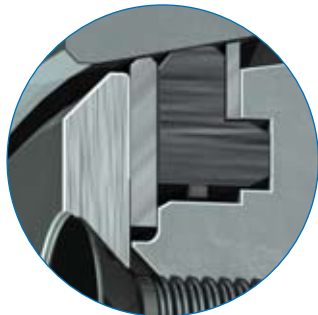
- Temperature range: -29 °C to 425 °C.
- DLC = Diamond-like carbon coating.
- Special solutions for regulation and the resulting high flow velocity for steam and gas applications.

2. PAN-Bronze

- Temperature range: -29 °C to 300 °C.
- Special solutions for regulation and the resulting high flow velocity for steam and gas applications.

3. Inconel X 750

- Temperature range: -29 °C to 540 °C.
- Withstands extreme temperature stress and meets other special requirements.



RE – RUBBER ELASTOMERIC

- Elastomeric reinforced (metal ring). Additionally, a metal front- and back ring assures tightness from both directions.
- Fire-safe design according API 607 4th Ed. / ISO 10497 / UK Dot.
- The RE seal is available in three different materials to extend the range of applications:

1. EPDM

- Temperature range: -10 °C to 120 °C

2. NBR

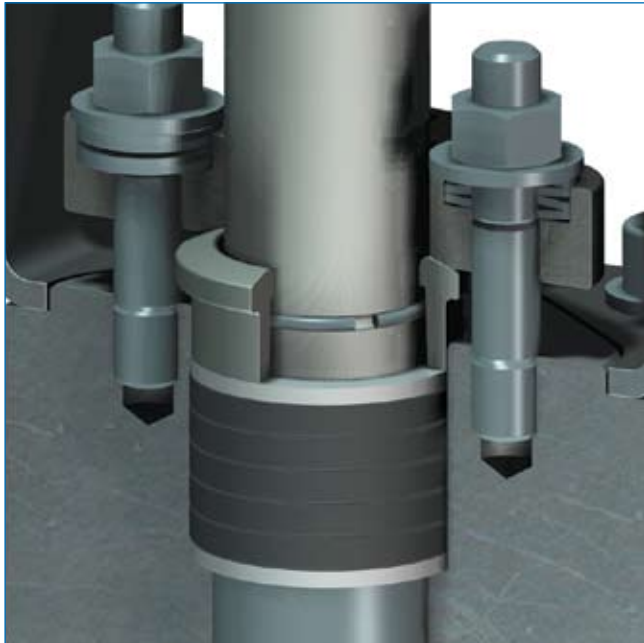
- Temperature range: -10 °C to 100 °C

3. FPM

- Temperature range: -20 °C to 200 °C



DYNAXE



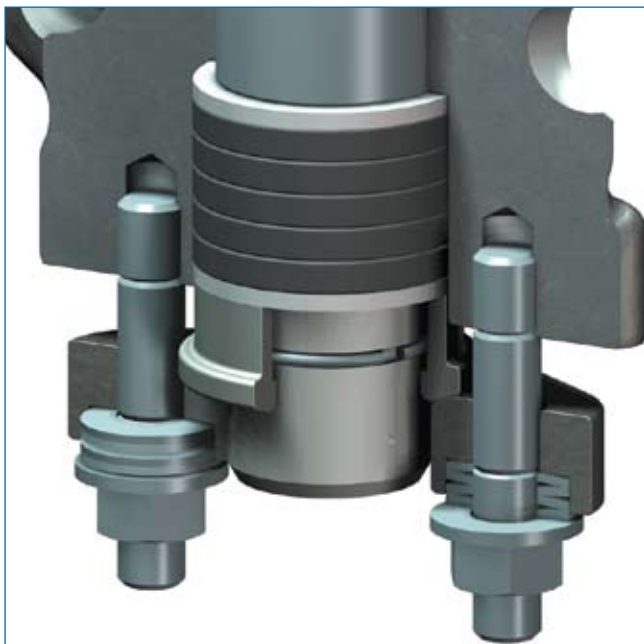
TWO PACKINGS FOR A FLOATING DISC

All Dynaxe valves feature two packing systems as a standard, one at the upper and the other at the lower shaft. This is in stark contrast to most other butterfly valves, which use only one static sealing (cap) at the lower shaft. The modern Dynaxe double-sided packing design not only offers more security, it also provides for a maximum flexibility system with a floating disc. The advantages of this special packing principle are clear especially under high loads, e. g. major temperature changes with a resulting expansion of the material.

The packing glands as well as the gland flanges are spherically wrought. Thus, they are self-aligning, resulting in a constant pressure load on the packings. Additionally, adjustments are not necessary, as the system is under constant tension due to the springs being used. As the Dynaxe disc-seat system is self-centering, a jamming of the disc is securely avoided at all times.

In the standard execution of the Dynaxe butterfly valve, the packings are made of pure graphite (99.8 %). With this material, a wide spectrum of applications is covered, even under high temperature and fire-safe requirements.

The two-sided stuffing box provides a total force and temperature compensation.

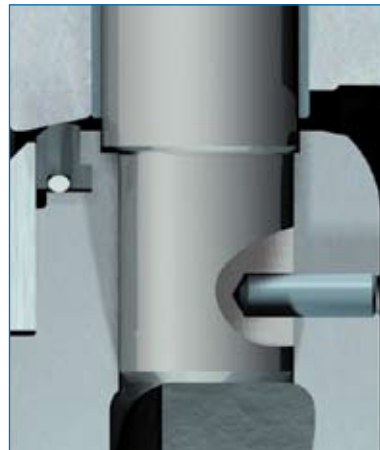
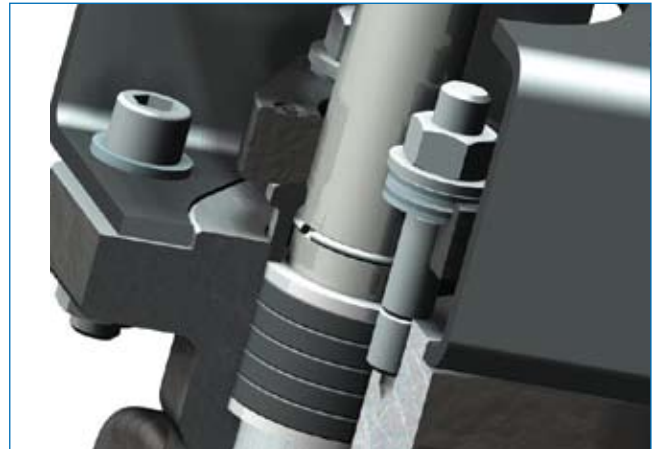


ANTI BLOW-OUT

Two key standards define the requirements for the design of anti blow-out safeguards: EN 736 / 3 and API 609.

Although their contents differ, Dynaxe butterfly valves meet them both. To achieve this, two anti blow-out safeguards are applied.

One internally, a screw at the connection of the polygon shaft with the disc – the other externally, an anti blow-out device at the outer part of the shaft on level with the stuffing box.



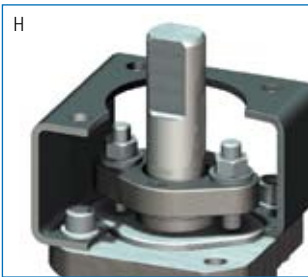
DYNAXE

EASY ACTUATOR AUTOMATION

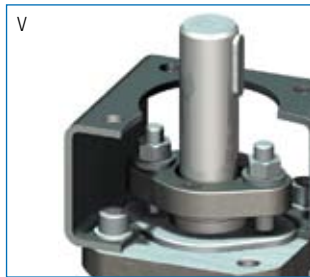
A key feature of the Dynaxe valves is their easy automation, as they are in full accordance with ISO 5211 (flange-shaft combination). All known versions are available, which provides excellent flexibility for the assembly of different types of actuators (see pictures).

Adapters and additional brackets are completely unnecessary, with the result being a much better tolerance level. The company standard of the Dynaxe, without any individual customer specifications being taken into account, is as listed in the table below.

Male connection to the bracket is according to the requirements of the chemical industry.



Flat-head shaft



Shaft with key



Square shaft, parallel



Square shaft, diagonal



A CLASS OF ITS OWN

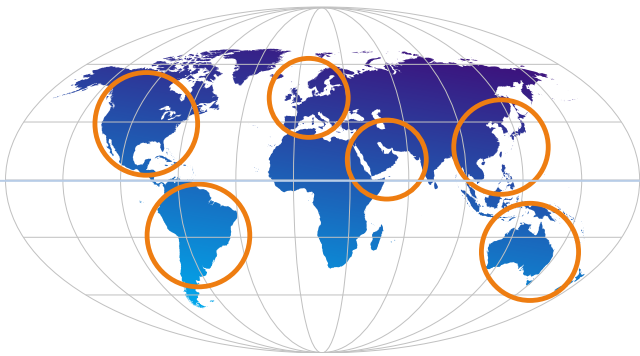
The Dynaxe double eccentric butterfly valve is not just a precise and proven technology – all its designs are also in accordance with the relevant standards throughout the world, approved and certified by renowned testing bodies and institutes (see examples). Thus, EuroValve customers are able to benefit from the Dynaxe advantages no matter where in the world the valve is to be used. Both internal and external controls permanently guarantee the constant high level of quality.



For all Technical details like dimensions, weight, flow and torques, see www.wweurovalve.nl

Technical Standards

● Quality assurance	ISO 9001
● Basic design	EN 593, ASME B16.34, API 609, DIN 3840, EN 12516-2
● Marking	ISO 5209, EN 19, MSS SP-25, API 609
● Flange connections	ISO 7005, EN 1092, ASME B16.5 / B16.47, MSS SP-44, DIN 2501
● Face to face dimensions	ISO 5752, EN 558, ASME B16.10, API 609
● Fire tested design	ISO 10497/ API 607 4 th Edition / UK Dot
● Testing	API 598, EN 12266, DIN 3230 Part 3
● Seat leakage rate	API 598
● Part-turn actuator attachment	ISO 5211
● Pressure-temperature-rating	ASME B16.34, ISO 7005
● PED	PED 97 / 23 / EC (category III) modul H
● Fugitive emissions	Design according ISO 15848-1
● Anti-blow-out	EN 736 / 3, API 609
● Anti-static	EN 12266 / F21
● Code AD 2000	AD-A4



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