ECONAXE
DOUBLE ECCENTRIC HIGH PERFORMANCE BUTTERFLY VALVE
always in touch
Everyone at Wouter Witzel is highly involved. Not just with our valves but especially with their purpose. Making sure we meet your demands and the highest level of quality. Our people make it happen. At every stage of the process.

always in touch

Wouter Witzel is specialist for high performance butterfly valves, with a proven track record. Innovative products such as the Econaxe 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 operates from sales offices all around the world. A strong customer relationship is ensured as Wouter Witzel 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.

Our products are mainly supplied to customers in the following markets:

- Water Treatment
- Shipbuilding
- Oil & Gas
- Desalination
- Building Services
- Power Stations
- District Cooling
- Mining
- Pulp & Paper
- Sugar

Our constant monitoring of market developments allows us to always respond quickly to new demands. In close consultation with our customers we translate state of the art technology into innovative solutions. These match both the desired application and all other requirements.

How you are connected with Sjoerd.

Everyone at Wouter Witzel is highly involved. Not just with our valves but especially with their purpose. Making sure we meet your demands and the highest level of quality. Our people make it happen. At every stage of the process.

always in touch

Who we are

Wouter Witzel is specialist for high performance butterfly valves, with a proven track record. Innovative products such as the Econaxe 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 operates from sales offices all around the world. A strong customer relationship is ensured as Wouter Witzel 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.

Our products are mainly supplied to customers in the following markets:

- Water Treatment
- Shipbuilding
- Oil & Gas
- Desalination
- Building Services
- Power Stations
- District Cooling
- Mining
- Pulp & Paper
- Sugar

Our constant monitoring of market developments allows us to always respond quickly to new demands. In close consultation with our customers we translate state of the art technology into innovative solutions. These match both the desired application and all other requirements.

Sjoerd
Mechanical Technician

“I enrolled in a course to improve my skills. We have various programs that help us to continuously perform on a high level.”
Econaxe and its features

Wouter Witzel presents the Econaxe butterfly valve. This is a new range of double eccentric high performance butterfly valves for many applications in the shipbuilding and other industries. The design is economical, sustainable and robust with optimised features for the required functionality in the applicable market. Special emphasis was put on a flexible product design enabling an exact finishing according to customer specifications. The resulting technical and economic advantages of the design and proven technology have led to an improved life cycle as well as high productivity and security. Guaranteed customer satisfaction!

- Advanced double offset technology

The Econaxe is a typical double-off-set design with an off-set seal configuration due to an off-set stem. One of its outstanding features though reveals itself on closer inspection. The seal of the Econaxe valve is applied in the body, resulting in numerous advantages:

- Long seal life time
- No seal damage during installation
- Economical design
- Reduced number of required components

A corrosion-free shut-off operation is ensured by a stainless steel disc, thus guaranteeing a long service life.

**Market segments**

- Shipbuilding
- Tank storage transportation
- Heating, ventilation, air conditioning (HVAC)
- District heating
- Pulp & paper, sugar
- Mining
- Others

**Operating conditions**

- Operating pressure max. 16 bar
- Temperature range -29 °C to +204 °C, depending on medium, material choice and pressure
- In compliance with Pressure Equipment Directive (PED), Category III
- Pressure-temperature rating to ASME 16.34, ISO 7005
- Bi-directional bubble tight to ISO5208 rate A and API598 for soft seal executions

**Executions**

- Design standard: EN 593
- Types: wafer and lugged
- Standard sizes: DN 50 / 2" - DN 400 / 16", larger sizes on request
- End connections: EN 1092 PN 6 / 10 / 16, ASME B16.35 cl. 150, MSS SP 44 cl. 150, JIS B 2220, 5K, 10K, 16K
- Face to face dimensions: according to EN558 basic series 20 (series 25 for DN50/1/4"), API 609 cat. B Class 150
- Materials: Carbon Steel, Stainless Steel, other materials on request.
- Seal-in-body: elastomer, RTFE, RTFE fire-safe and metal-to-metal

**The Econaxe Standard**

**ECONAXE TEST STANDARD**

<table>
<thead>
<tr>
<th>Standard</th>
<th>ALLOWABLE SEAT LEAKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 5208, rate A</td>
<td>0</td>
</tr>
</tbody>
</table>

**OTHERS STANDARDS**

**OTHER TEST STANDARDS**

<table>
<thead>
<tr>
<th>Standard</th>
<th>ALLOWABLE SEAT LEAKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 5208, rate B</td>
<td>0.12</td>
</tr>
<tr>
<td>ISO 5208, rate C</td>
<td>0.36</td>
</tr>
<tr>
<td>ISO 5208, rate D</td>
<td>1.2</td>
</tr>
<tr>
<td>ANSI - FCI 70-2, cl. V</td>
<td>0.93</td>
</tr>
<tr>
<td>API 598</td>
<td>1</td>
</tr>
</tbody>
</table>

1 ml = 16 drops, according to API 598 9th ed. Test valve DN200/8" test pressure 16 bar

**The Zero Leakage Solution**

Benefit from the Econaxe zero leakage solution for pressures of up to 16 bar. Each soft-seat option is tested according to ISO 5208 Rate A, providing maximum security. Even the highest leakage rate requirements are met and several specifications exceeded. All soft-seat and fire-safe Econaxe executions provide a bi-directional service.

**Anti Static Design**

Due to their sophisticated design, all Econaxe 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 conductible due to the combination of RTFE and carbon.
ELASTOMER
- Metal vulcanised seal ring in NBR, EPDM or FPM (Viton)
- Temperature range depending on elastomers type
- Suitable for abrasive fluids, sea water, hydro carbons, etc.

RTFE
- Reinforced PTFE, filled with glass, carbon, graphite and a Helix coil energizer.
- Temperature range: -29 °C to 204 °C.
- RTFE is suitable for a multitude of applications and high cycle frequencies.

FIRE SAFE
- Reinforced PTFE, filled with glass, carbon, graphite and a Helix coil energizer. Additionally, a metal back ring assures tightness under fire conditions.
- Temperature range: -29 °C to 204 °C.
- Fire safe tested according to API 607 and ISO 10497.
- Inconel or SS 316 back up ring

METAL-TO-METAL
- Profiled, pre-loaded metal seal
- Seals in both directions
- For elevated temperatures, like steam, exhaust gases, etc.

Standard seats
- Only one shaft seal in combination with low-friction bearings is used and resulted in a low torque figure in order to allow for smallest possible actuator selection.
- The packing gland as well as the gland flange are spherically shaped. Thus, self-aligning, resulting in an evenly distributed pressure on the shaft seal. Additionally, adjustment is not necessary, as the system is under constant tension due to the springs being used.

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

Optimised flow through slim disc shape
- The Slim Disc shape of the Econaxe valve is the result of intensive research and development. It is especially designed to optimise 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
  - Minimised bending of the disc

HEXAGON
- Another enhanced feature of the Econaxe butterfly valve is its hexagon stem. With this hexagon joint – a positive fit shaft hub joint – the torque is transmitted directly without using additional elements. Being superior to other shaft hub designs, the hexagon joint provides several advantages:
  - Improved transmission of torque
  - Simple assembly and disassembly
  - Limited stress peaks due to the hexagon profile
  - Longer service-life
  - Guaranteed safe operation

Easy actuator automation
- A key feature of the Econaxe valves is their easy automation, as they are in full accordance with ISO 5211 (flange shaft combination).

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, Econaxe butterfly valves meet them both. To achieve this, two anti-blow out safeguards are applied. One internally, a screw at the connection of the hexagon 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.
A class of its own

The Econaxe 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, Wouter Witzel customers are able to benefit from the Econaxe 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.

Technical Standards

- Quality assurance: ISO 9001
- Basic design: EN593
- Marking: EN 19, MSS SP 25
- Flange connections: EN 1092, ASME B16.5, MSS SP 44, JIS B 2220
- Face to face dimensions: according to EN558 basic series 20 (series 25 for DN350/14”), API 609 cat. B Class ISO
- Anti-blow out: EN 593 and API 609
- Anti Static: EN 736/3, API 609 and EN12266-F21
- Fire tested: EN ISO 10497 and LRS dry fire test procedure HDSC/ENS/T5
- Testing: API 598, ISO5208, EN12266
- Seat leakage rate: ISO 5208 Rate A (soft seal), API 598
- Part-turn actuator attachment: ISO 5211
- Pressure-temperature-rating: ASME B16.34, ISO 7005, API 609
- PED 97 / 23 / EC (category III) modul H
Econaxe Range

**WAFER**

**LUGGED**
Operating Figures

ECONAXE OPERATING TORQUES RTFE (Nm)

<table>
<thead>
<tr>
<th>Size (DN)</th>
<th>50</th>
<th>65</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (NPS)</td>
<td>2</td>
<td>2 1/2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Working pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>0</td>
<td>9</td>
<td>15</td>
<td>27</td>
<td>31</td>
<td>33</td>
<td>54</td>
<td>102</td>
<td>113</td>
<td>165</td>
<td>179</td>
</tr>
<tr>
<td>psi</td>
<td>0</td>
<td>9</td>
<td>15</td>
<td>27</td>
<td>31</td>
<td>33</td>
<td>54</td>
<td>102</td>
<td>113</td>
<td>165</td>
<td>179</td>
</tr>
<tr>
<td>1.5</td>
<td>46</td>
<td>71</td>
<td>97</td>
<td>171</td>
<td>186</td>
<td>211</td>
<td>333</td>
<td>669</td>
<td>783</td>
<td>1179</td>
<td>1296</td>
</tr>
<tr>
<td>5.6</td>
<td>67</td>
<td>103</td>
<td>134</td>
<td>226</td>
<td>246</td>
<td>281</td>
<td>453</td>
<td>894</td>
<td>1017</td>
<td>1525</td>
<td>1653</td>
</tr>
<tr>
<td>10</td>
<td>145</td>
<td>214</td>
<td>259</td>
<td>445</td>
<td>495</td>
<td>558</td>
<td>930</td>
<td>1851</td>
<td>2074</td>
<td>3116</td>
<td>3343</td>
</tr>
<tr>
<td>15</td>
<td>232</td>
<td>342</td>
<td>404</td>
<td>708</td>
<td>777</td>
<td>860</td>
<td>1430</td>
<td>2740</td>
<td>3053</td>
<td>4583</td>
<td>4946</td>
</tr>
</tbody>
</table>

FLOW FIGURES

<table>
<thead>
<tr>
<th>Size</th>
<th>K_v / C_v value according to EN1267</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;DN&quot;</td>
<td>&quot;NPS&quot; (inch)</td>
</tr>
<tr>
<td>-----</td>
<td>---------------</td>
</tr>
<tr>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>65</td>
<td>2 1/2</td>
</tr>
<tr>
<td>80</td>
<td>3</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>125</td>
<td>5</td>
</tr>
<tr>
<td>150</td>
<td>6</td>
</tr>
<tr>
<td>200</td>
<td>8</td>
</tr>
<tr>
<td>250</td>
<td>10</td>
</tr>
<tr>
<td>300</td>
<td>12</td>
</tr>
<tr>
<td>350</td>
<td>14</td>
</tr>
<tr>
<td>400</td>
<td>16</td>
</tr>
</tbody>
</table>

Values based on 90° opening angle

PT - RATING

K_v AND C_v RATIO FOR OTHER OPENING ANGLES

![Graph showing K_v and C_v ratio for other opening angles](image-url)
Wouter Witzel manufacturing expertise is seamlessly continued in the areas of service and sales. For each of our markets we have specialised and dedicated employees who speak our customers’ language and are always in touch. For major projects that cross market boundaries our experts’ joint know-how can be made available integrally.

Marloes
Sales Engineer

“It’s exciting to work internationally. I believe our ability to adapt helps to achieve great results all over the globe, time after time.”

The head office of Wouter Witzel is located in Losser, The Netherlands: www.wouterwitzel.nl.

Wouter Witzel is a member of the AVK Group: www.avkvalves.com. Their main activities are development, production and marketing of valves, hydrants and accessories for the supply of water and gas, sewage treatment and fire protection.

The AVK Group, with its more than 65 companies worldwide, is supplying more than 80 countries with products and services via own sales companies, agents, distributors and license holders. This global network permits close cooperation with our customers and end users, ensuring a high level of service and customer satisfaction.

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

always in touch