

ECONAXE

Version 2.1 - May 2015

DOUBLE ECCENTRIC HIGH PERFORMANCE BUTTERFLY VALVE

always in touch

Chemical



Sugar



Paper



Cement



District Heating



Oil & Gas Processing



Energy & Power Supply



Petrochemical



Food & Beverages



Water



HVAC



Ship Building



Tank Store



On-Off Shore



Mining



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

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."

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:

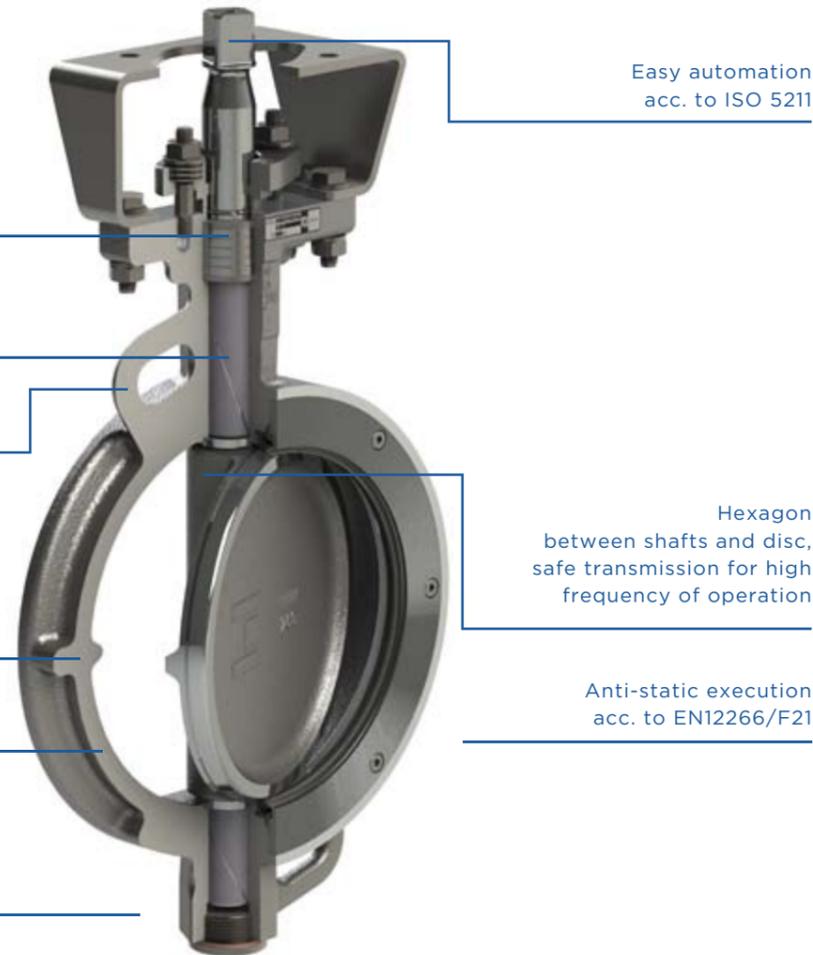
- Water Treatment
- Shipbuilding
- Oil & Gas
- Desalination
- Building Services
- Power Stations
- District Cooling
- Mining
- Pulp & Paper
- Sugar

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.

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!



Pre-loaded shaft packing

Maintenance free, low friction SS/PTFE coated bearings

Wafer/lugged design with centering lugs

End stop

Slim body design

Easy automation acc. to ISO 5211

Hexagon between shafts and disc, safe transmission for high frequency of operation

Anti-static execution acc. to EN12266/F21

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

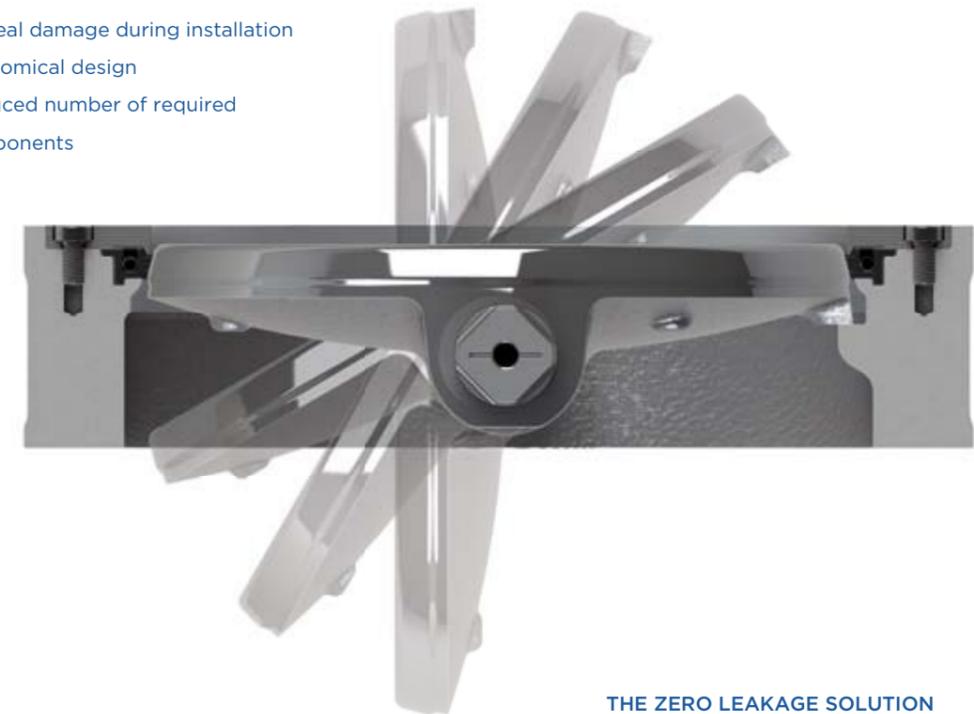
- Design standard: EN 593
- Types: wafer and lugged
- Standard sizes: DN 50 / 2" - DN 400 / 16", larger sizes on request
- End connections: EN 1092 PN 6 / 10 / 16, ASME B16.5 cl. 150, MSS SP 44 cl. 150, JIS B 2220, 5K, 10K, 16K
- Face to face dimensions: according to EN558 basic series 20 (series 25 for DN350/14"), 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

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.



THE EXONAXE STANDARD

ECONAXE TEST STANDARD	ALLOWABLE SEAT LEAKAGE	
	in ml/min	in drops
ISO 5208, rate A	0	0

OTHERS STANDARDS

OTHER TEST STANDARDS	ALLOWABLE SEAT LEAKAGE	
	in ml/min	in drops
ISO 5208, rate B	0.12	2
ISO 5208, rate C	0.36	6
ISO 5208, rate D	1.2	19
ANSI - FCI 70-2, cl. V	0.93	15
API 598	1	16

1ml = 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-seal 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-seal and fire-safe Econaxe executions provide a bi-directional service. The metal-to-metal seal is tested to API 598.

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 conductive due to the combination of RTFE and carbon.

Standard seats



ELASTOMER

- Metal vulcanised seal ring in NBR, EPDM or FPM (Viton)
- Temperature range depending on elastomers type
- Suitable for abrasive fluids, sea water, hydrocarbons, etc.



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



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.



METAL-TO-METAL

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

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.



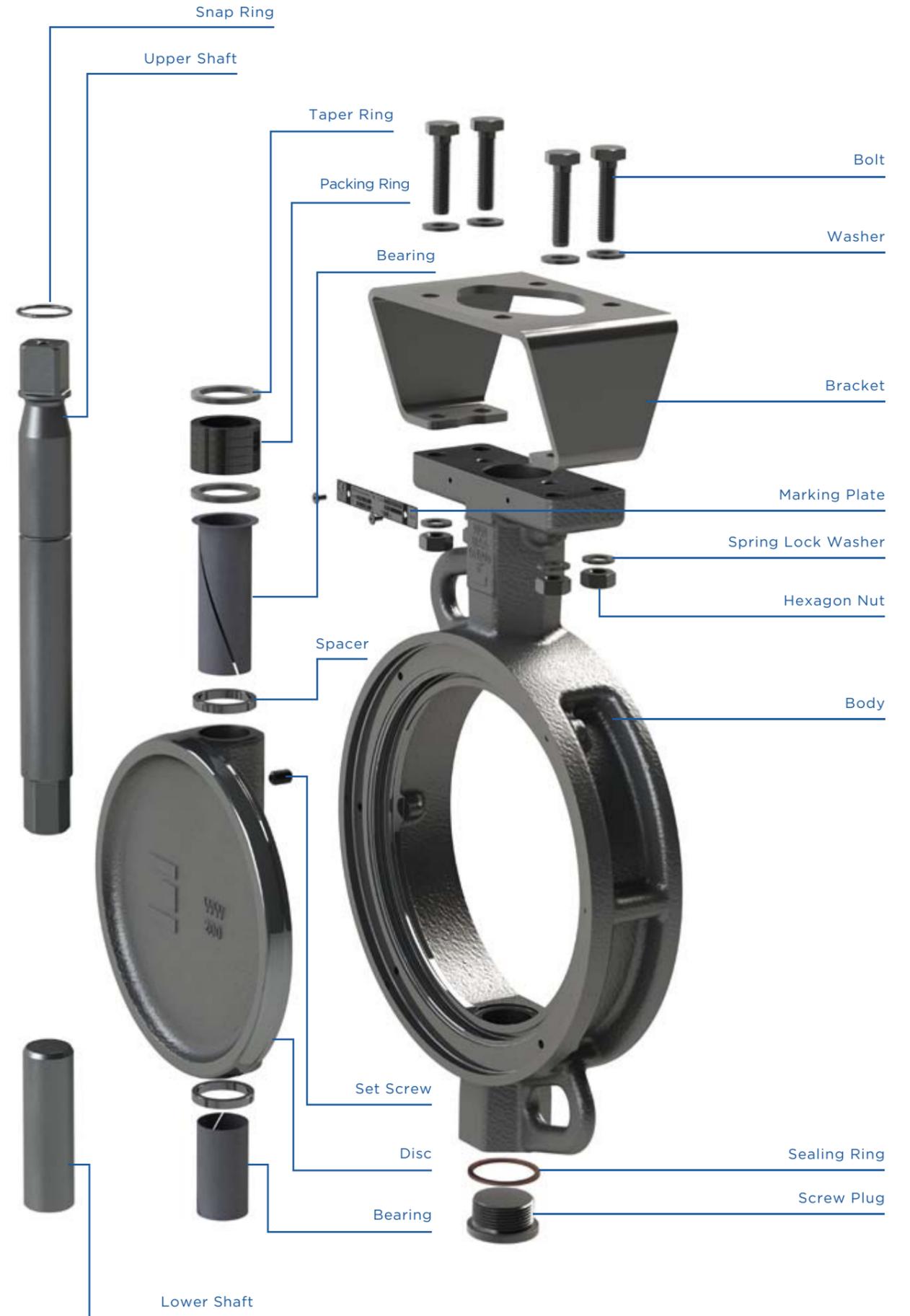
A class of its own

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 150.
- 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/TS
- 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

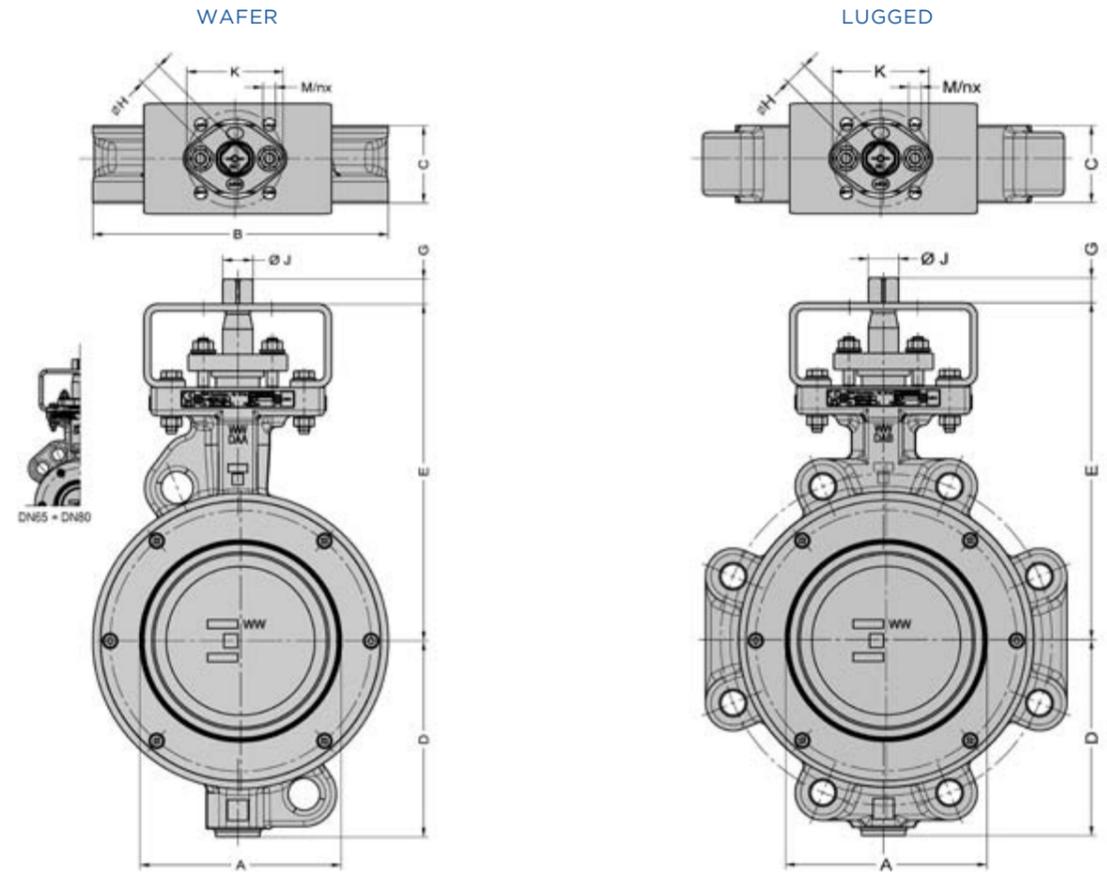


Econaxe Range

WAFER



LUGGED



WAFER

DN	NPS	A	B	C	D	E	G	H	J	ISO 5211	K	M	n	MASS 3kg
50	2"	46	99	43	86	172	11	11	1	F05	50	7	4	4
65	2½"	61	120	46	92	179	11	11	14	F05	50	7	4	5
80	3"	71	130	46	111	201	15	14	18	F05	50	7	4	6
100	4"	91	154	52	116	218	18	17	22	F07	70	9	4	9
125	5"	120	184	56	130	231	18	17	22	F07	70	9	4	11.5
150	6"	146	214	56	142	244	18	17	22	F07	70	9	4	12.5
200	8"	192	258	61	182	301	23	22	28	F10	102	11	4	19.5
250	10"	241	316	70	216	342	28	27	36	F12	125	13	4	32
300	12"	296	368	78	242	368	28	27	36	F12	125	13	4	39
350	14"	329	407	92	286	429	37	36	45	F14	140	17	4	56
400	16"	381	467	102	312	455	37	36	45	F14	140	17	4	69

LUGGED

DN	NPS	A	B	C	D	E	G	H	J	ISO 5211	K	M	n	MASS 3kg
50	2"	46		43	86	172	11	11	14	F05	50	7	4	5.5
65	2½"	61		46	92	179	11	11	14	F05	50	7	4	7.5
80	3"	71		46	111	201	15	14	18	F05	50	7	4	9.5
100	4"	91		52	116	218	18	17	22	F07	70	9	4	12.5
125	5"	120		56	130	231	18	17	22	F07	70	9	4	16
150	6"	146		56	142	244	18	17	22	F07	70	9	4	17
200	8"	192		61	182	301	23	22	28	F10	102	11	4	29
250	10"	241		70	216	342	28	27	36	F12	125	13	4	43.5
300	12"	296		78	242	368	28	27	36	F12	125	13	4	54
350	14"	329		92	286	429	37	36	45	F14	140	17	4	87
400	16"	381		102	312	455	37	36	45	F14	140	17	4	99

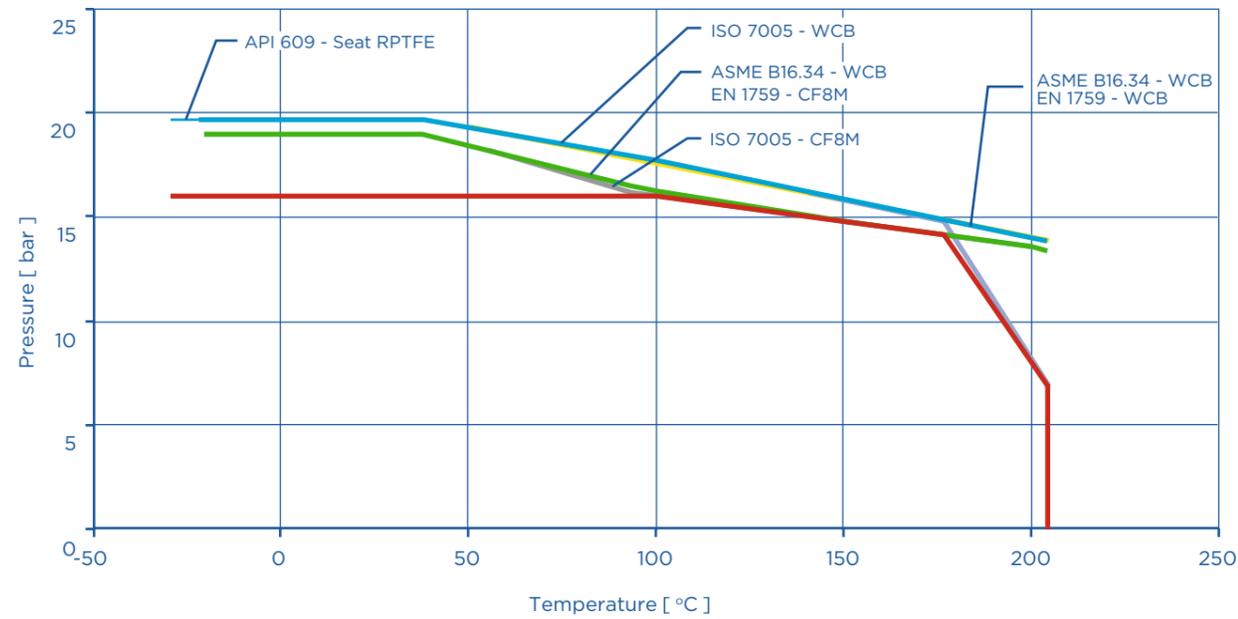
Operating Figures

ECONAXE OPERATING TORQUES RTFE (Nm)

Size (DN)	50	65	80	100	125	150	200	250	300	350	400
Size (NPS)	2	2 1/2	3	4	5	6	8	10	12	14	16

Working pressure												
bar	psi	50	65	80	100	125	150	200	250	300	350	400
0	0	9	9	15	27	31	33	54	102	113	165	179
1	14,5	9	10	16	30	35	39	65	121	142	205	234
2,5	36,3	10	11	18	33	40	48	81	150	185	266	316
6	87	12	14	22	41	54	68	119	218	286	408	507
10	145	14	18	27	50	69	90	162	296	402	570	725
16	232	17	23	35	64	93	125	226	412	576	813	1052

PT - RATING

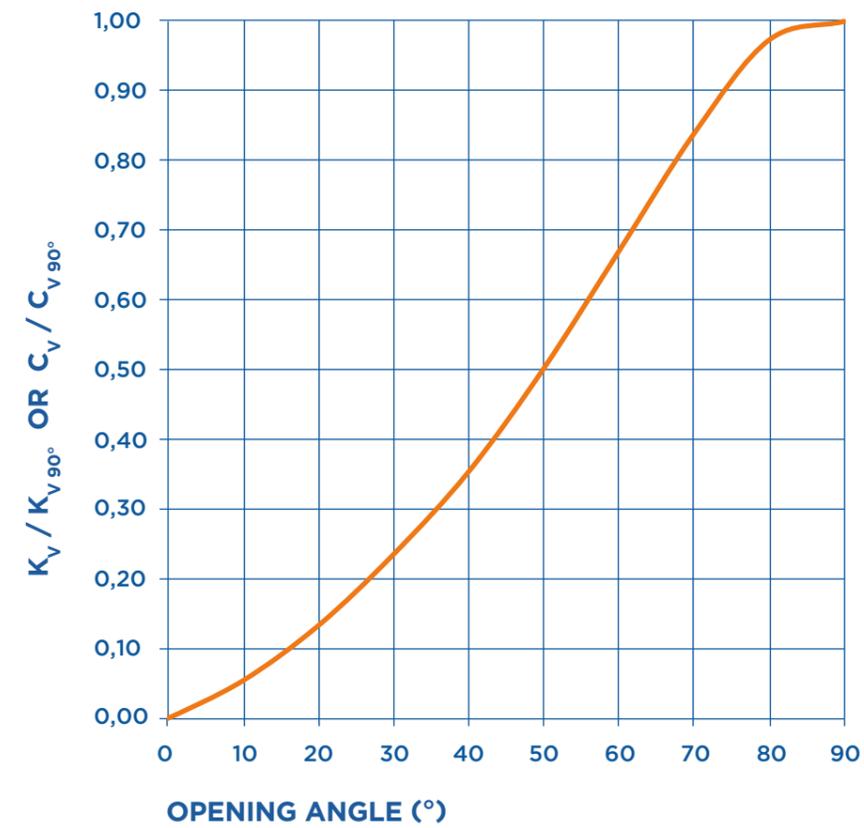


FLOW FIGURES

Size	K _v / C _v value according to EN1267			
"DN"	"NPS (inch)"	"K _{v,90°} (m ³ /h) at Δp = 1 bar"	"C _{v,90°} (US gallons/min) at Δp = 1 psi"	ζ
50	2	43	50	6,8
65	2 1/2	85	99	5,0
80	3	108	125	5,9
100	4	193	223	5,3
125	5	501	579	1,8
150	6	878	1015	1,2
200	8	1430	1653	1,6
250	10	1952	2256	2,1
300	12	4044	4675	1,0
350	14	4592	5309	1,1
400	16	7679	8877	0,7

Values based on 90° opening angle

K_v AND C_v RATIO FOR OTHER OPENING ANGLES





always in touch

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.



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