



ABO valve

GRIP THAT HOLDS

Product lines:

- Concentric butterfly valves
- High performance butterfly valves
- Knife gate valves
- Check valves
- Pneumatic actuators
- Electric actuators



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Note: All information in this brochure is indicative only. Binding specifications will be provided in each individual offer. ABO valve accepts no liability for damages caused by wrong interpretation or use of the information included in this brochure.

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Introduction

ABO was founded in 1993 as a joint venture between a Czech company Siwatec, a. s. and a French entity Buracco SA as Armatury Buracco Olomouc – i.e. ABO. With a history over 20 years, we are currently one of the largest European manufacturers of shut-off and control valves for industrial applications.

We offer to our customers a wide scope of products covering butterfly valves for general and industrial use including high performance valves with double and triple offset design, knife gate and ball valves as well as safety valves for the most demanding applications.

We emphasize quality and innovation. Our valves have obtained several different European and international certificates like TUV, TA Luft, AD 2000 Merkblatt, GOST R, ABS or Lloyd's Register. Our manufacturing facilities are certified by the ISO 9001 quality and management system, which ensures high quality of the products and their durability, as well as meeting of strict safety regulations. All certificates can be found on our website www.abovalve.com.

The company headquarters, as well as the manufacturing facilities, are located in Olomouc, Czech Republic. Our world-wide branch network ensures exports to more than 50 countries all over the world. ABO offices and service centers are located in Banska Bystrica (Slovakia), Smolensk (Russia), Salvador (Brasil), Singapore and Shanghai (China). Moreover, we have direct sales representatives and dealer offices in numerous countries around Europe, the Middle East, Africa, Asia & Pacific and the Americas.



Brief History

1991	Foundation of parent company SIWATEC
1993	Foundation of manufacturing company ABO
1996	Foundation of 1st subsidiary branch - ABO Slovakia
2007	Start of production of high performance butterfly valves
2008	Foundation of subsidiary branch ABO Armatura in Russia
2009	Opening of new manufacturing facility in Olomouc
2010	Foundation of ABO valve branch in Singapore
2011	Foundation of Brazilian branch - ABO Brasil
2013	Foundation of subsidiary branch ABO Flow Control in Shanghai, China

Siwatec Group

ABO together with its mother company Siwatec, a.s. and sister company Aqua Industrial, s.r.o. belong to the family of Siwatec Group companies. Siwatec, a.s. specializes into sales and delivery of solutions (including advisory and projection) for pumping equipment, whereas Aqua Industrial, s.r.o. is one of the leading producers of irrigation, artificial snow production equipment and pumping stations. To learn more about our partner companies, please visit our web sites at www.siwatec.cz or www.aquaindustrial.cz

 **SIWATEC, a. s.** **AQUA
INDUSTRIAL**

ABOUT ABO

Manufacturing

The company headquarters, as well as the manufacturing facilities, are located in Olomouc, Czech Republic. The manufacturing facilities are certified by the ISO 9001, which ensures high quality of the products and their durability, as well as the meeting of strict safety regulations. Our manufacturing facilities are equipped with modern CNC machines, horizontal machining and turning centers and 3D measurement centers. ABO production facilities are supplemented with control laboratories, a research center and an education center.



Sample CNC turning machine SP 430Y



Sample CNC horizontal center H50



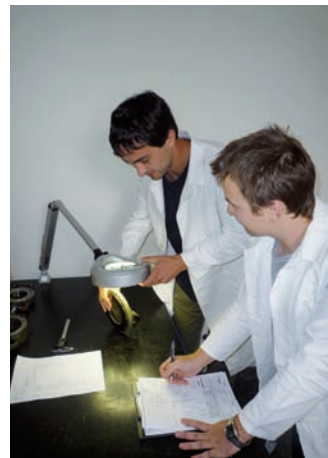
Testing laboratory with different equipment for testing of our products



Sample of a pressure tester for DN 350 – 1200

Research & Development

Through years of field application experience, as well as research and development, ABO team of engineers has developed products that meet the stringent requirements of today's flow control industry. ABO R&D center is located at company headquarters in Olomouc, Czech Republic. The research center is equipped with state of the art technology including test labs, control centers and appropriate 3D engineering software. As basis, software programs running on SolidWorks platform are used for R&D purposes. Not a single series of valves is put into mass production before strict quality and performance tests of designed prototypes are conducted, and a 100% reliability is verified. Control center deployed at ABO, aims to simulate real working conditions of valves designed by ABO engineers. Adhesion to this strict performance test of prototypes, as well as production control, allows ABO to be one of the leading world enterprises in butterfly and knife gate valve production.



ABOUT ABO

Quality assurance and control at ABO

Quality control is a top priority at ABO. During the production process, we employ several stages of quality control:

1. Quality control of incoming materials and components

Incoming materials undergo several types of analysis – for example material composition analysis, hardness analysis or porosity analysis. Further analysis is carried out in cooperation with external laboratories and certification authorities.

2. In-production quality control

During the production stage, all machined components are being checked for accuracy. For this measurement, CNC controlled 3D machines are used (Contura G2 RDS 1000) with error of measurement at 1000 mm = 3,5 µm. Designated specialists are able to measure very effectively complex machined parts in a quick and reliable way via self-generating measurement programs. Before serial production is started, the first piece of each series is checked on CNC controlled 3D machines. In case of positive result, serial production is started. Periodical random checks are performed on the running production. Results from all relevant measurements are recorded and evaluated by quality inspection workers. After evaluation of all recorded results, long term actions are suggested by our professionals. This approach enables us to achieve continuous improvement in our production process.

3. Assembly inspection

ABO quality standards require that every single piece of valve passes a tightness test. This test is performed by assembly line operators and is periodically checked by independent quality workers. Tightness tests at ABO are performed under standard conditions acc. PED 97/23/ES. ABO testing procedures also comply with API 598, EN 12266 and GOST R. Tightness tests according to other standards can be provided upon customer request.

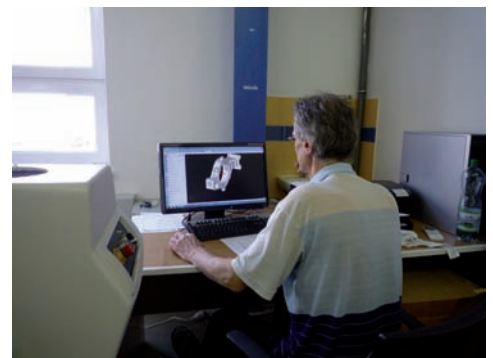
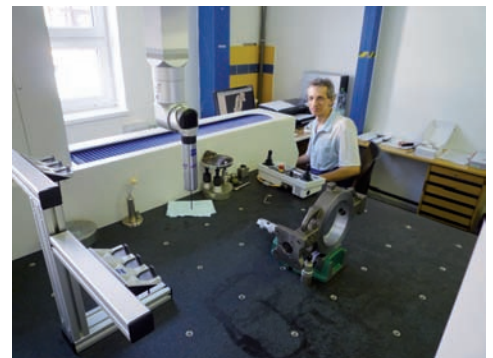
4. Final inspection

At ABO, final quality inspection is performed after complete valves are handed over from the assembly line, but before they are made available for expedition by the packaging and storage department. During the final inspection process, finished valves are inspected for conformity with customer requirements. This check is performed by auditors who are independent from the production department, and only after conformity is confirmed, valves are released for expedition.

Adhering to these strict quality assurance and control standards has helped us to keep non-conformities to an absolute minimum.

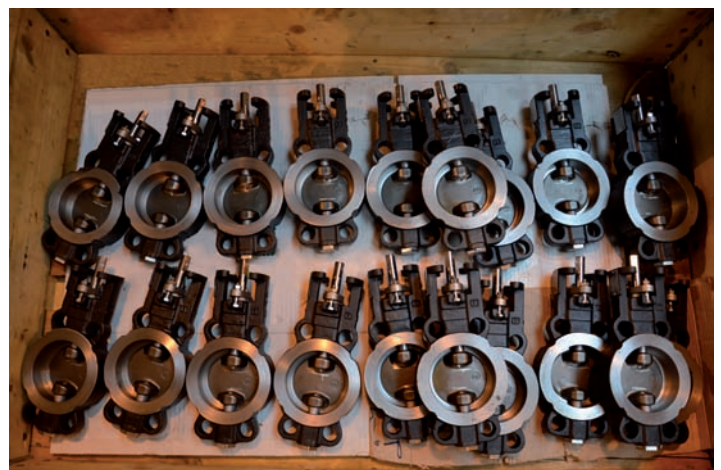


Measurement of valve properties on spectrometer



Important stock and quick deliveries

At ABO, we stock standard valves and their accessories, so that we could deliver to our customers the desired solution within the shortest time period possible. Non-standard products are available on the basis of just-in-time delivery management method.



ABOUT ABO

Certificates



ABOUT ABO

Company objectives

1. Customer satisfaction

Customer satisfaction is the first priority of our company. ABO staff maintains close and friendly relations with our partners in order to accommodate their immediate requirements, as well as to provide them with the best suited products, individual solutions and quality advisory in the long run.

2. Increasing qualifications of our employees and company partners

Training ABO staff and partners is considered to be an important part of the ABO business concept. Our partners are offered an opportunity to participate in a training program called „ABO Academy“ whereby they are exposed to practical as well as theoretical series of trainings with focus on ABO products and their application in various areas of industries. ABO employees have the opportunity to participate in numerous trainings including sales, marketing, product and technical courses. In addition to this, language trainings are available to our staff.

3. Achieving economic targets

Positive economic results secure long-term company existence and they have positive influence on the employment in the region. Profit based on production optimisation, innovations, JIT planning and responsible management is indispensable for further development of the company. Our effort to achieve economic success is in balance with our responsibility towards the society and the environment.

4. Positive suppliers' relations

Suppliers' relations can affect the quality of our products and services significantly and therefore we establish partnership relations with pre-verified and pre-audited suppliers. This way we are able to minimize costs while continuously improving our products.

Main industries served:

- Oil & Gas
- Industrial Processing
- Water & Wastewater
- Shipbuilding
- Petrochemistry & Chemistry
- Power Generation
- HVAC
- Food & Beverage
- Slurry Handling & Paper Mills

Offered product portfolio

- Concentric butterfly valves
- High perf. butterfly valves
- Check valves
- Knife gate valves
- Ball valves
- Ball check valves
- Filters
- Actuators
- Accessories





Note: The branch in China will be opened during year 2013.



Company HQ – Czech Republic:

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General information about materials

Most important seat materials

NBR (- 10°C + 100°C), (14 °F + 212 °F)

- Good mechanical properties
- Resistant against oil and gas

EPDM (- 25°C + 125°C), (- 13 °F + 257 °F)

- Suitable for water applications
- Unsuitable for mineral oils and greases

Carboxylic NBR (- 15°C + 60°C), (5 °F + 140 °F)

- Resistant against abrasive materials

Viton (FPM) (- 25°C + 150°C), (- 13 °F + 302 °F)

- Good resistance against petroleum products
- Suitable for applications with high vacuum
- Not suitable for hot water

Steam silicone (- 25°C + 140°C), (- 13 °F + 284 °F)

- Good resistance against steam up to 140°C (284 °F)

Silicone (- 25°C + 150°C), (- 13 °F + 302 °F)

- Used in applications with hot air
- Poor resistance against hot water and steam

NBR BT (- 25°C + 70°C), (- 13 °F + 158 °F)

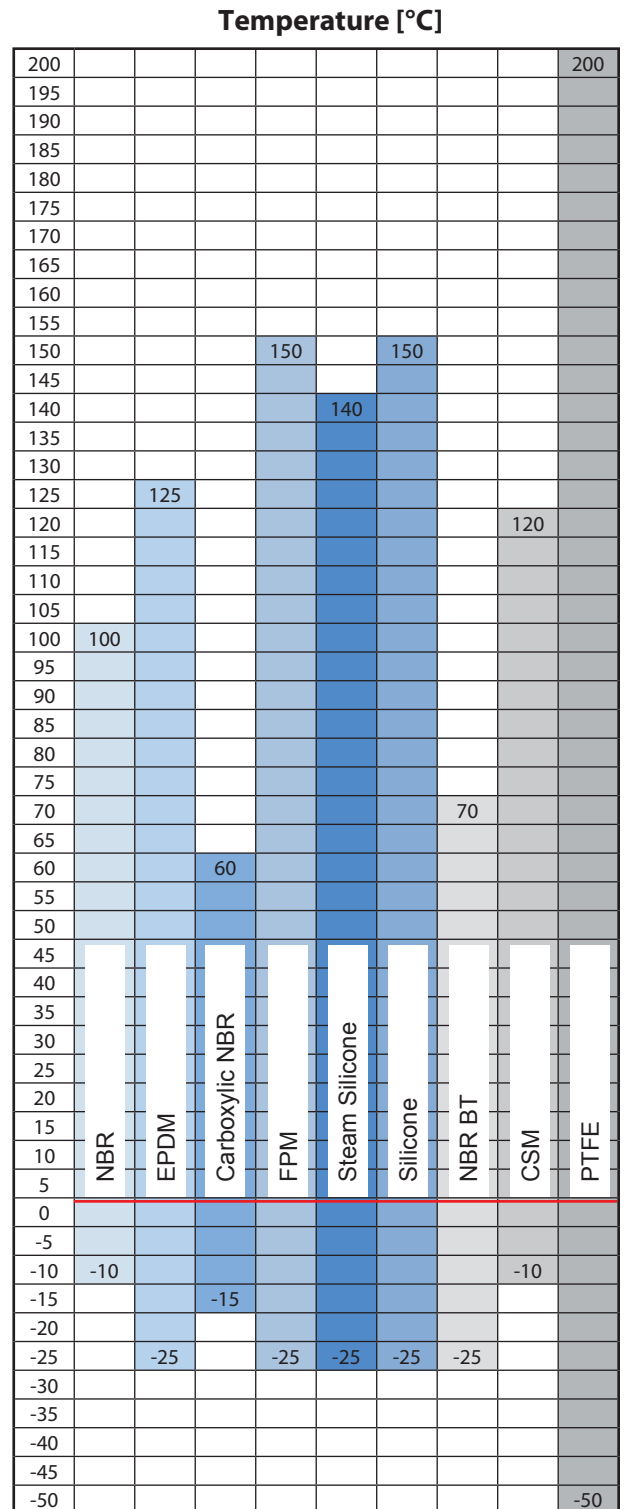
- Characteristics similar to NBR
- Good impermeability with gases, good resistance to low temperatures

CSM (Hypalon) (- 10°C + 120°C), (14 °F + 248 °F)

- Resistant against chlorine, suitable for use in applications with pool water
- Unsuitable for oil and grease

PTFE (- 50°C + 200°C), (- 58 °F + 392 °F)

- Universal chemical and thermal resistance



Note: Limit values of maximum temperature and pressure are advised to be reached just for a short-term period.

General information about materials

Most important body materials

0.6025, GG25 (- 10°C + 180°C), (14 °F + 356 °F)

- Grey cast iron for basic indoor applications

0.7040, GGG40 (- 25°C + 320°C), (- 13 °F + 608 °F)

- Ductile iron for basic outdoor applications

0.7050, GGG50 (- 25°C + 320°C), (- 13 °F + 608 °F)

- Ductile iron for outdoor applications with better mechanical properties than 0.7040

1.0446, A216 WCB (- 29°C + 425°C), (- 20.2 °F + 797 °F)

- Carbon steel for non-corrosive applications including water, oil and gases

1.1156, A352 LCC (- 46°C + 340°C), (- -50.8 °F + 644 °F)

- Carbon steel for low temperature, non-corrosive applications including water, oil and gases

1.4021, AISI 420 (- 50°C + 400°C), (- 58 °F + 752 °F)

- Alloyed stainless steel, austenitic
- Good resistance against oxidation and heat stress

1.4404, AISI 316 (- 60°C + 550°C), (- 76 °F + 1022 °F)

- Cr-Ni-Mo alloyed stainless steel, austenitic
- Used for machinery parts and device in chemical industry
- Good resistance against organic and inorganic acids up to medium temperatures

1.4408, A351 CF8M (- 100°C + 500°C), (- 148 °F + 932 °F)

- Cr-Ni stainless steel for usage in industrial applications with corrosive processes
- Good resistance against sodium and calcium brines and phosphoric acids

1.4539, Uranus B6 (- 20°C + 250°C), (- 4 °F + 482 °F)

- Uranus B6, Cr-Mo austenitic stainless steel
- Recommended for most severe corrosion solutions
- Good stress corrosion resistance properties
- Used in sulphuric and phosphoric acids applications

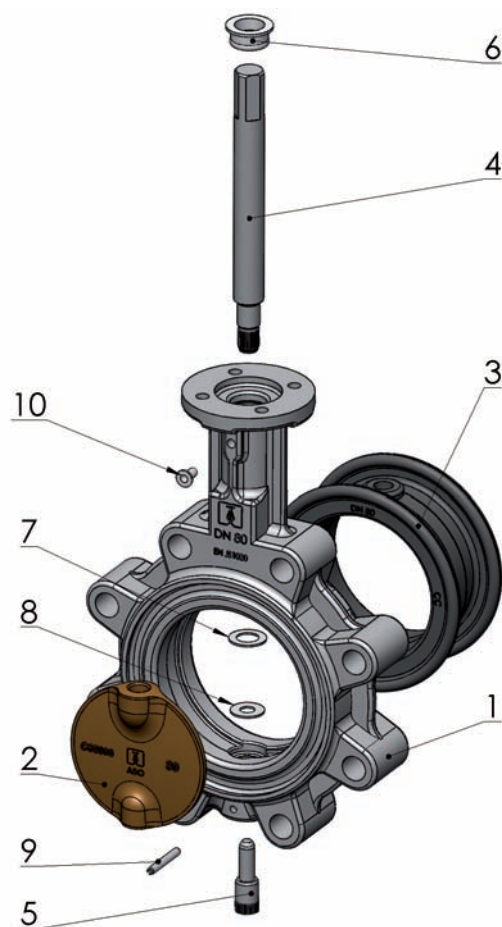
Temperature [°C]

550							550		
540									
530									
520									
510									
500							500		
490									
480									
470									
460									
450									
440									
430									
420				425					
410									
400						400			
390									
380									
370									
360									
350									
340					340				
330									
320		320	320						
310									
300									
290									
280									
270									
260									
250								250	
240									
230									
220									
210									
200									
190									
180	180								
170									
160									
150									
140									
130									
120									
110									
100									
90									
80									
70									
60									
50									
40									
30									
20									
10									
0									
-10	-10								
-20		-25	-25						-20
-30				-29					
-40					-46				
-50						-50			
-60							-60		
-70									
-80									
-90									
-100								-100	

Note: Limit values of maximum temperature and pressure are advised to be reached just for a short-term period.

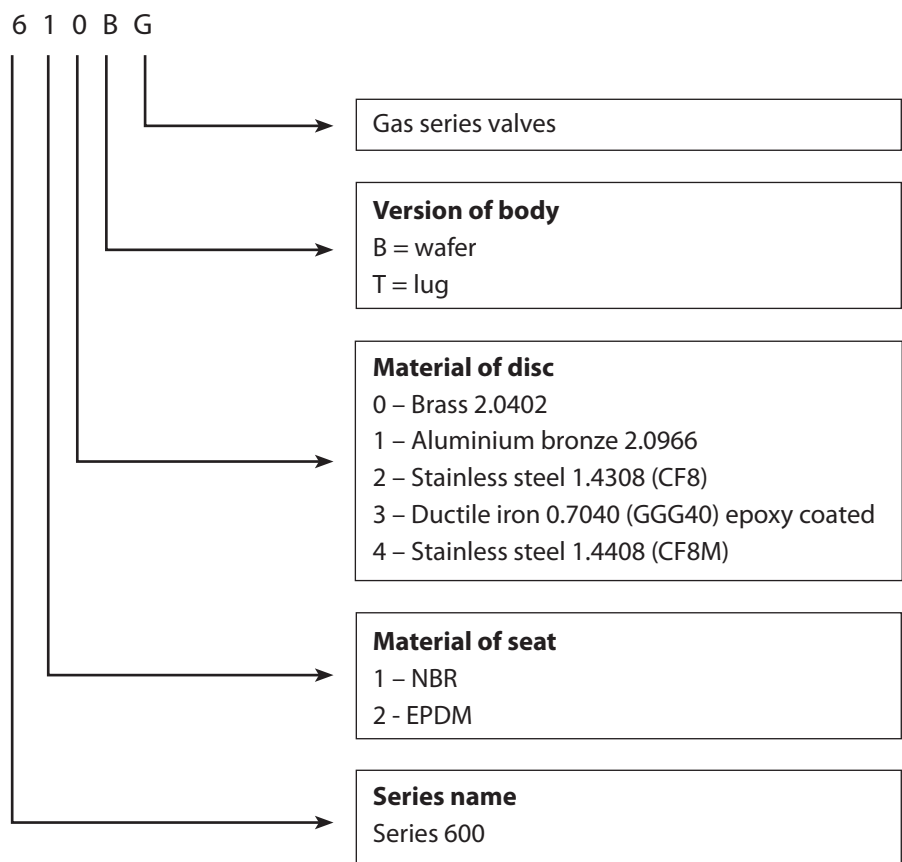
Concentric butterfly valves - Series 600

Drawing



Item	Name
1	Body
2	Disc
3	Seat
4	Shaft
5	Pivot
6	Bushing
7	Distance ring
8	Distance ring
9	Pin
10	Conical plug

Codification



Concentric butterfly valves - Series 600

Available connections

INSTALLATION BETWEEN FLANGES (DN 32-200)

Vers.		32/40	50	65	80	100	125	150	200	
B	PN 6									standard
	PN10									
	PN16									upon request
	Class 150						•			
T	PN 6	•	•	•	•	•	•	•	•	
	PN10									
	PN16									
	Class 150	•	•	•	•	•	•	•	•	

*For JIS 5K/10K, please consult with manufacturer.



Torque chart (Nm)

OPERATING TORQUES UPON WORKING PRESSURE (NM)*

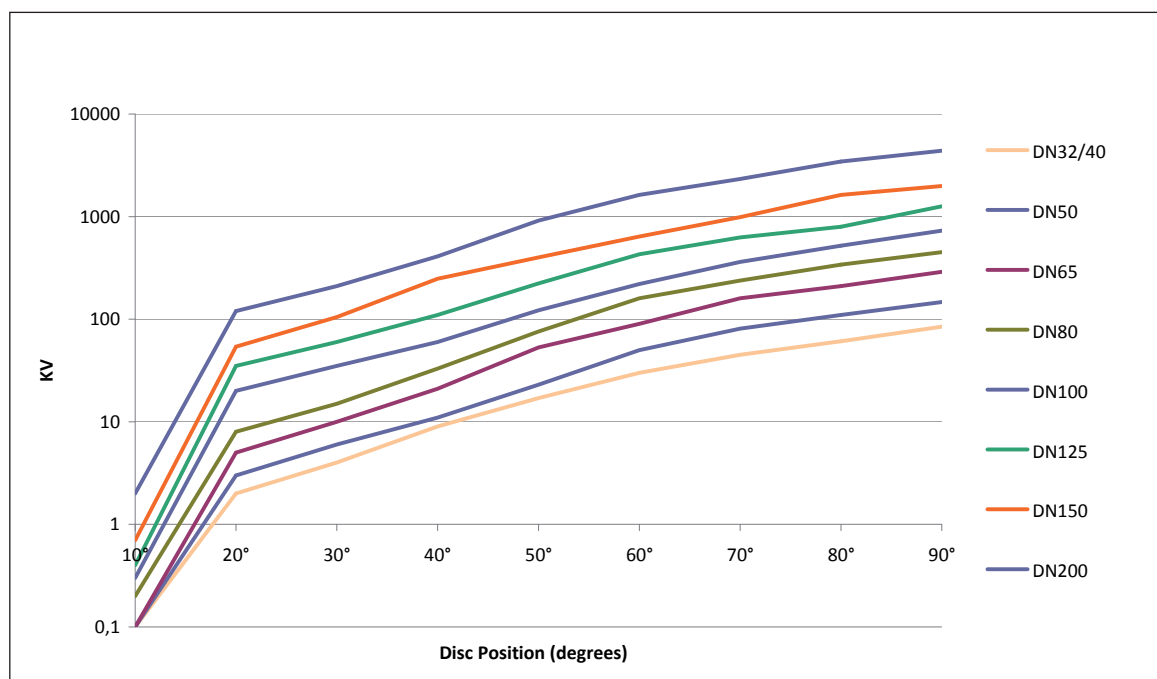
DN	32/40	50	65	80	100	125	150	200
PMA 6 bar	6	8	15	20	41	46	70	100
PMA 10 bar	8	10	17	25	50	60	80	125
PMA 16 bar	10	12	20	30	59	81	100	150

Torques mentioned above are valid for valves with EPDM seat and under the condition that the working medium is water with temperature of 20 °C (68 °F). Torque performance for other material variations and media is available upon request.

KV chart and curve

1 KV = 0,854701 CV

Valve size - DN		Disc Position (degrees)									
mm	inch	10°	20°	30°	40°	50°	60°	70°	80°	90°	
32/40	1 1/2	0,1	2	4	9	17	30	45	61	84,4	
50	2	0,1	3	6	11	23	50	81	110	147	
65	2 1/2	0,1	5	10	21	53	90	160	210	290	
80	3	0,2	8	15	33	76	160	238	340	450	
100	4	0,3	20	35	60	122	220	362	520	730	
125	5	0,4	35	60	110	223	430	626	797	1 260	
150	6	0,7	54	105	248	400	640	987	1 630	1 990	
200	8	2	120	210	410	915	1 630	2 331	3 446	4 396	



Concentric butterfly valves - Series 600

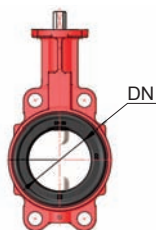
Application

Butterfly valves Series 600 are suitable for many applications where tight shut-off is required, such as:

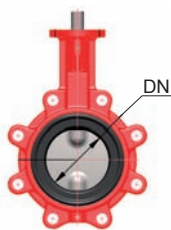
- General and industrial applications
- Potable water
- Heating
- Gas
- HVAC (Heating, Ventilation & Air Conditioning)

Models

Wafer type B



Lug type T



General characteristics

- Concentric design
- Shut-off and regulating device
- Split shaft
- Pressed connections: non - demountable version
- Long neck of the body according to Heating Systems Regulation standards
- Orange epoxy painting RAL 2002 - 80 µm
- Vacuum max 0,2 bar absolute

Materials

Item	Name	Material
1	Body	Cast iron 0.6025 (GG25) epoxy coated Version T, DN 32 - 80, DN 200: Ductile iron 0.7040 (GGG40) epoxy coated
2	Disc	Brass 2.0402 Aluminium bronze 2.0966 Stainless steel 1.4308 (CF8) Ductile iron 0.7040 (GGG40) epoxy coated Stainless steel 1.4408 (CF8M)
3	Seat	NBR EPDM
4	Shaft	Stainless steel 13% Cr
5	Pivot	Stainless steel 13% Cr
6	Bushing	Delrin
7	Distance ring	NBR (for gas)
8	Distance ring	NBR (for gas)
9	Pin	Stainless steel 1.4401 (AISI 316)
10	Conical plug	Plastic

Coating

- Orange epoxy painting RAL 2002 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB. 5

FACE TO FACE ACC.:

- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TABLE 2

TOP FLANGE:

- EN ISO 5211

CONNECTION BETWEEN FLANGES:

- EN 1092-1
- DIN 2631 - 33
- ASME B16.5

WORKING STANDARD:

- EN 593 + A1

Working conditions

- Maximum working pressure: 16 bar
When temperature of medium increases over 120°C (248 °F) the max. allowed pressure falls from 16 bar to 14,4 bar
- Temperature range (based on seat material selection)
– max: - 10°C + 125 °C (14 °F + 257 °F)

Standard and testing

- Test procedures are established according to:
EN 12266-1, ISO 5208
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category I, modul B)

Actuation possibilities

- Handlever
- Manual gearbox with handwheel
- Electric actuator 24V, 230V, 400V, other upon request
- Pneumatic actuator
 - o single acting
 - o double acting



Concentric butterfly valves - Series 600 - Technical details



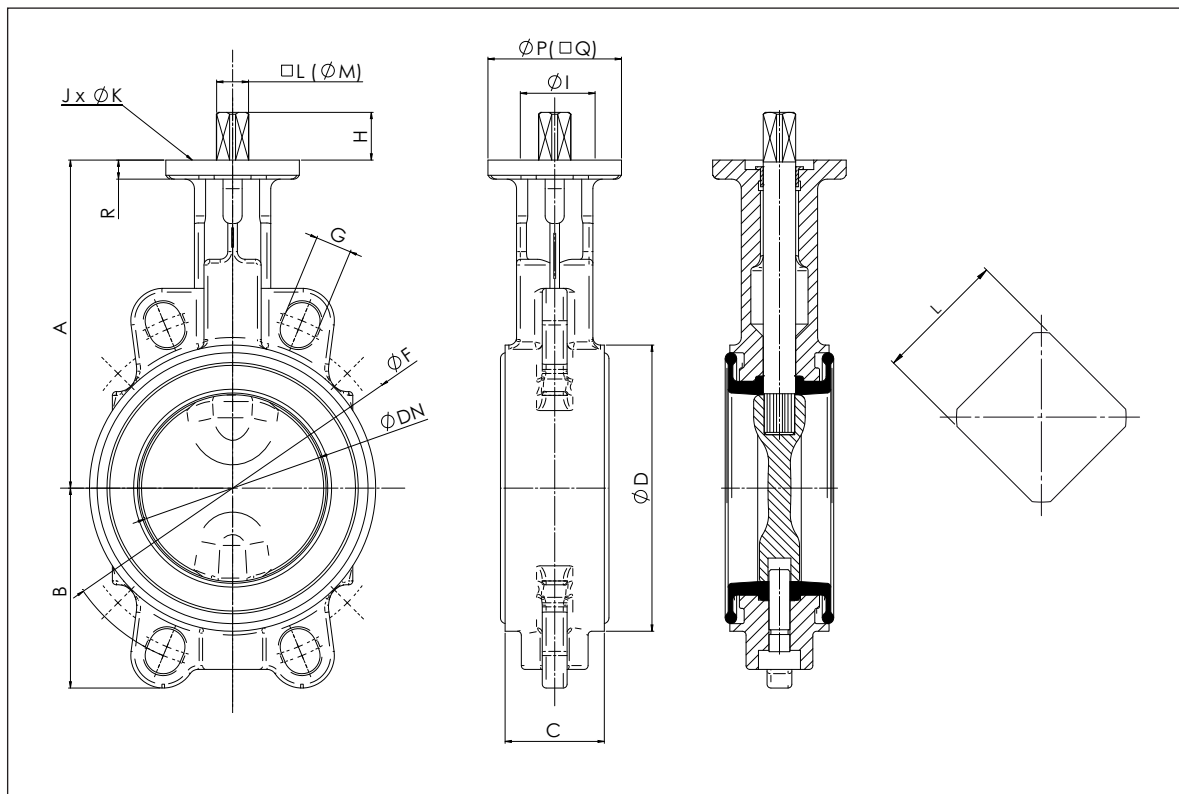
Concentric butterfly valve series 600 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Bare shaft



DN						PN 6			PN 10			PN 16												
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	K	L	P	Q	R	Weight (kg)	
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	25	50	4	7	14	-	70	8	1,9	
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	25	50	4	7	14	-	70	8	1,9	
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	25	50	4	7	14	70	-	8	2,7	
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	25	50	4	7	14	70	-	8	3,2	
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	25	50	4	7	14	70	-	8	3,7	
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	25	50	4	7	14	70	-	8	4,7	
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	25	50/70*	4	9	14	-	75	9,5	6,7	
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	25	50/70*	4	9	14	-	75	9,5	8,4	
200	8"	234	166	60	268	280	18	8	295	22	8	295	22	12	25	70	4	9	17	-	75	14	13,3	

* Standard version: I = 50

Above mentioned dimensions are indicative only.

Concentric butterfly valves - Series 600 - Technical details



Concentric butterfly valve series 600 B

Face to face dimension:

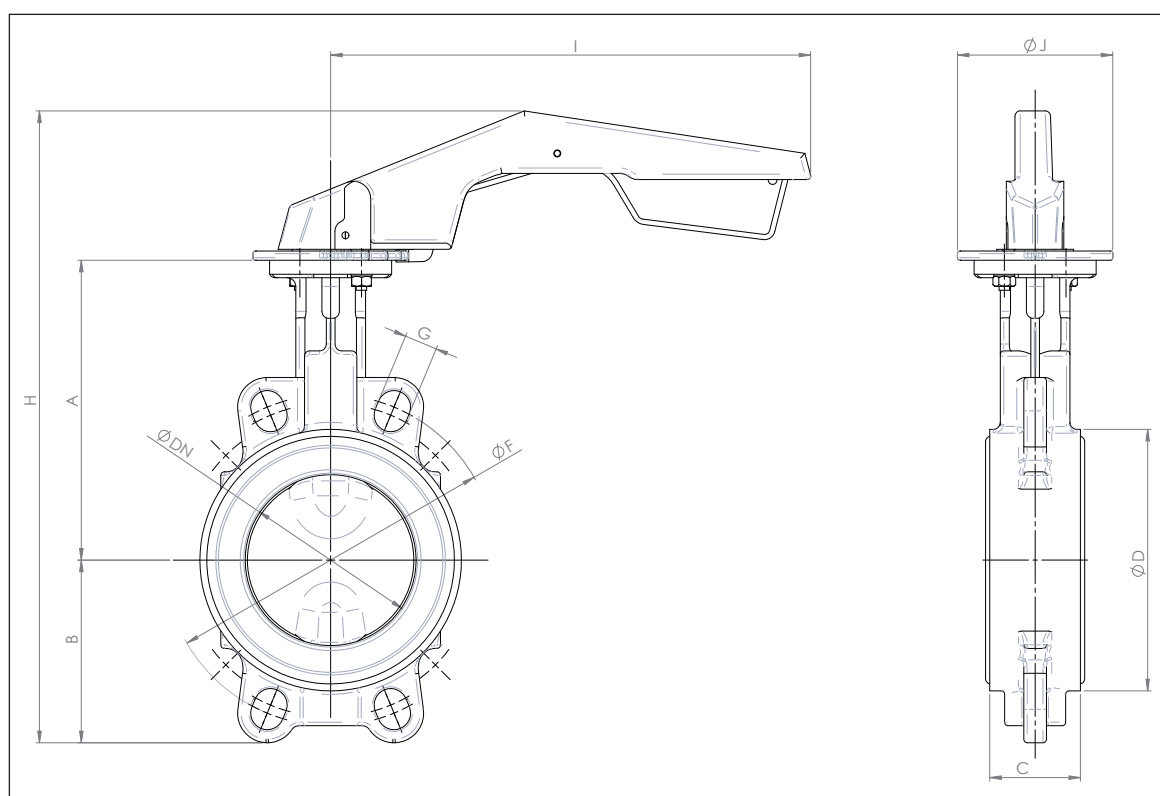
EN 558, SERIES 20

ISO 5752, SERIES 20

API 609, TABLE 2

Actuation:

Handlever



DN		PN 6							PN 10			PN 16						
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	Weight (kg)
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	255	200	90	2,2
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	255	200	90	2,2
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	275	200	90	3,0
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	290,5	200	90	3,5
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	317	200	90	4,0
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	353	273	90	5,0
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	375,5	273	90	7,0
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	401	273	90	8,7
200	8"	234	166	60	268	280	18	8	295	22	8	295	22	12	468	362*	90	14,7

Above mentioned dimensions are indicative only.

* Handlever for DN 200 - carbonsteel variant

Concentric butterfly valves - Series 600 - Technical details



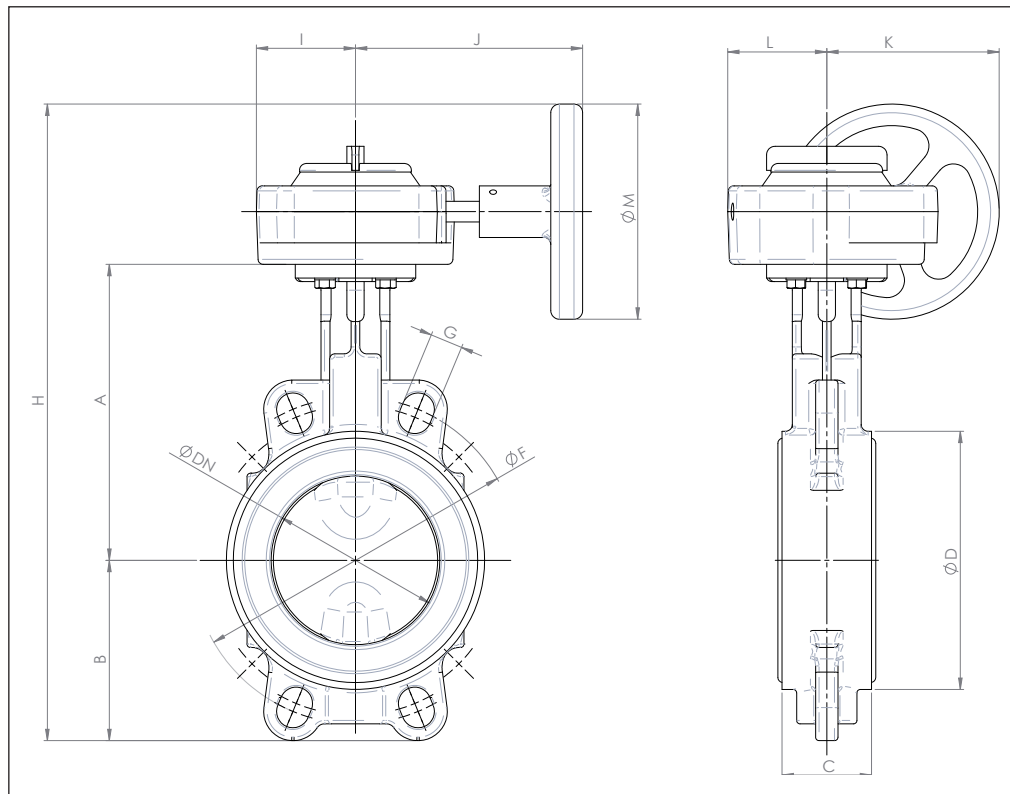
Concentric butterfly valve series 600 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Manual gearbox with handwheel



DN		PN 6							PN 10			PN 16										
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	K	L	M	Weight (kg)	
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	279	51	152	46	101	125	3,5	
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	279	51	152	46	101	125	3,5	
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	299	51	152	46	101	125	4,3	
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	314,5	51	152	46	101	125	4,8	
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	341	51	152	46	101	125	5,3	
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	366	51	152	46	101	125	6,3	
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	399,5	51	152	46	101	125	8,3	
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	422	51	152	46	101	125	10,2	
200	8"	234	166	60	268	280	18	8	295	22	8	295	22	12	527	51	185	46	138,5	200	14,9	

Above mentioned dimensions are indicative only.

Concentric butterfly valves - Series 600 - Technical details



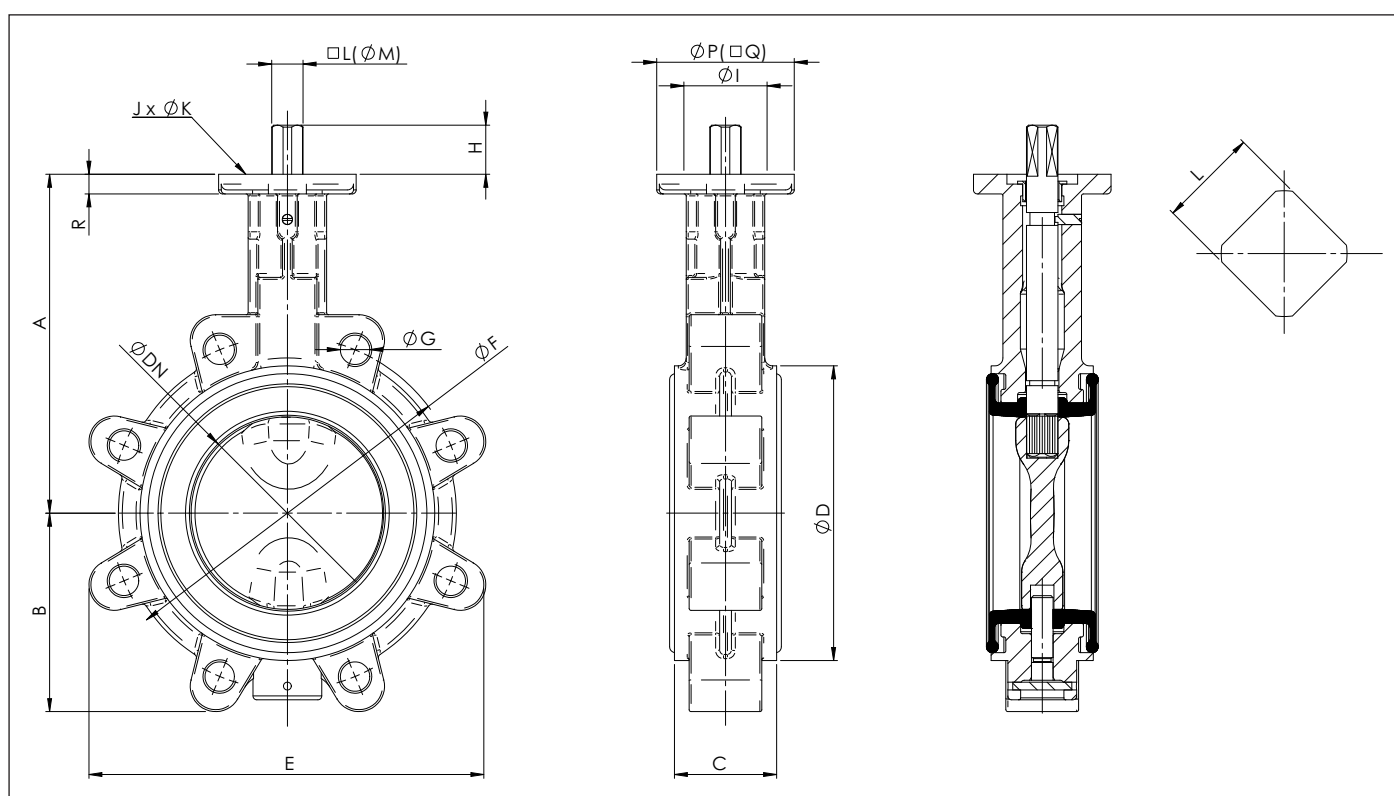
Concentric butterfly valve series 600 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Bare shaft



DN		PN 10								PN 16											
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	K	L	P	Q	R	Weight (kg)
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	25	50	4	7	14	-	70	8	2,3
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	25	50	4	7	14	-	70	8	2,3
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	25	50	4	7	14	70	-	8	3,0
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	25	50	4	7	14	70	-	8	3,7
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	25	50	4	7	14	70	-	8	4,8
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	25	50	4	7	14	70	-	8	6,1
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	25	50/70*	4	9	14	-	75	9,5	9,2
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	25	50/70*	4	9	14	-	75	9,5	10,2
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	25	70	4	9	17	-	75	14	15,3

*Standard version: I = 70

Above mentioned dimensions are indicative only.

Concentric butterfly valves - Series 600 - Technical details



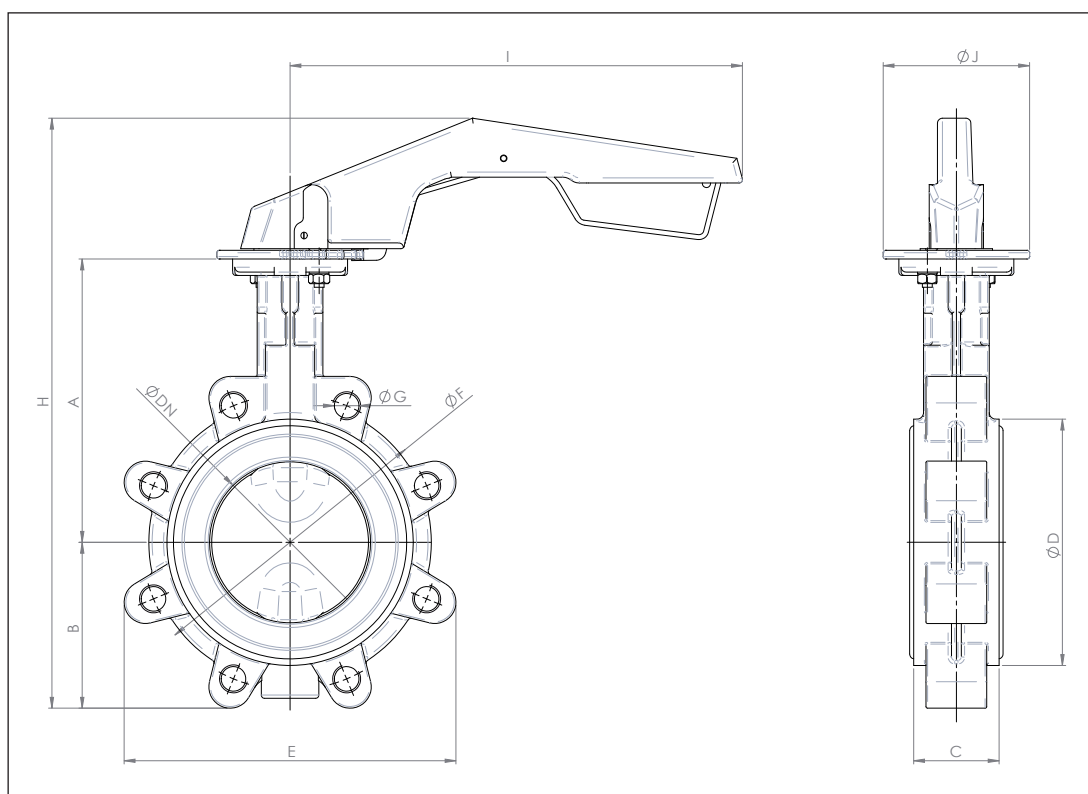
Concentric butterfly valve series 600 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Handlever



DN		PN 10							PN 16							Weight (kg)
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	255	200	90	2,6
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	255	200	90	2,6
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	275	200	90	3,4
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	290,5	200	90	4,0
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	317	200	90	5,1
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	366	273	90	6,5
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	375,5	273	90	9,6
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	401	273	90	10,6
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	468	362*	90	16,7

Above mentioned dimensions are indicative only.

* Handlever for DN 200 - carbonsteel variant

Concentric butterfly valves - Series 600 - Technical details



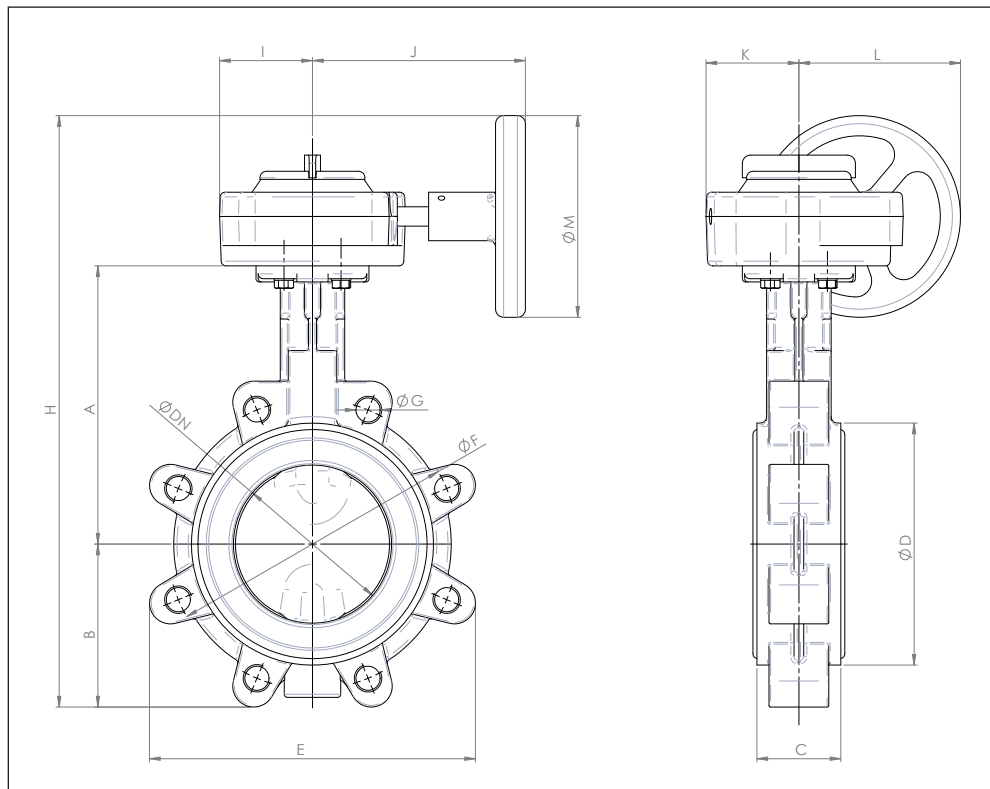
Concentric butterfly valve series 600 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Manual gearbox with handwheel

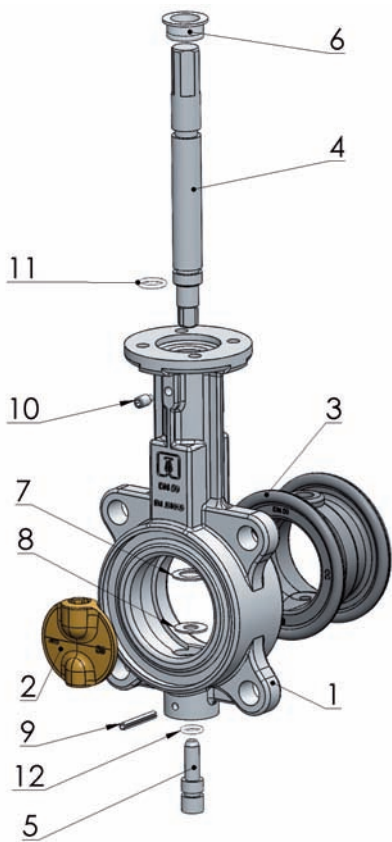


DN		PN 10									PN 16								
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	K	L	M	Weight (kg)
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	279	51	152	46	101	125	3,9
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	279	51	152	46	101	125	3,9
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	299	51	152	46	101	125	4,6
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	314,5	51	152	46	101	125	5,3
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	341	51	152	46	101	125	6,4
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	366	51	152	46	101	125	7,7
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	399,5	51	152	46	101	125	10,8
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	422	51	152	46	101	125	11,8
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	527	51	185	46	138,5	200	17,0

Above mentioned dimensions are indicative only.

Concentric butterfly valves - Series 900

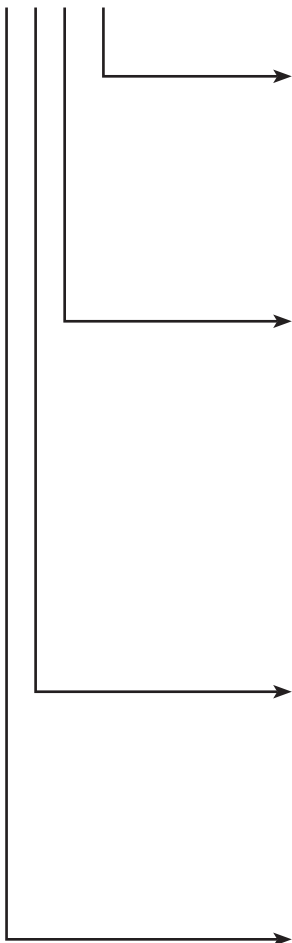
Drawing



Item	Name
1	Body
2	Disc
3	Seat
4	Shaft
5	Pivot
6	Bushing
7	Distance ring
8	Distance ring
9	Pin
10	Retaining screw
11	Shaft O-ring
12	Pivot O-ring

Codification

9 2 4 B



Version of body
B = wafer
T = lug
F = double flange

Material of disc
0 – Brass 2.0402
1 – Aluminium bronze 2.0966
2 – Stainless steel 1.4308 (CF8)
3 – Ductile iron 0.7040 (GGG40)
4 – Stainless steel 1.4408 (CF8M)
5 – HASTELLOY
6 – Stainless steel 1.4539 (Uranus B6)
7 – Titanium

Material of seat
1 – NBR
2 – EPDM
3 – Carboxylic NBR
4 – VITON (FPM)
5 – Silicone Steam
6 – Silicone (UMQ)
7 – NBR BT
8 – HYPALON® (CSM)

Series name
Series 900

Concentric butterfly valves - Series 900

Available connections

INSTALLATION BETWEEN FLANGES (DN 32-600)

Vers.		32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
B	PN 6											•	•	•	•	•
	PN10															
	PN16													•		
	Class 150											•	•	•	•	•
T	PN 6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	PN10															
	PN16								•	•	•	•	•	•	•	•
	Class 150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

*For JIS 5K/10K, please consult with manufacturer.



standard



upon request

INSTALLATION BETWEEN FLANGES (DN 700 – 1600)

Vers.		700	800	900	1000	1100	1200	1300	1400	1500	1600
B	PN 6	•	•	•	•	•	•	•	•	•	•
	PN 10										
	PN 16	•	•	•	•	•	•	•	•	•	•
T	PN 6	•	•	•	•	•	•	•	•	•	•
	PN 10										
	PN 16	•	•	•	•	•	•	•	•	•	•

* For JIS 5K/10K, please consult with manufacturer.



standard



upon request



Torque chart (Nm)

OPERATING TORQUES UPON WORKING PRESSURE (NM)*

DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
PMA 6 bar	6	8	15	20	41	46	70	100	253	289	480	750	1180	1380	2050
PMA 10 bar	8	10	17	25	50	60	80	125	338	359	530	1200	1550	2050	2700
PMA 16 bar	10	12	20	30	59	81	100	150	427	433	580	1650	2100	2700	3750

The above mentioned torques are valid for valves with EPDM seat only, and under the condition that the working medium is liquid. While actuating the valve, the above mentioned figures should be multiplied by a coefficient of 1,2. Using a NBR seat, it is necessary to apply a coefficient of 1,8 for dimensions up to DN 300 and a coefficient of 1,32 for dimensions DN 350 and above. In case the medium is gaseous, or if it contains abrasive particles, it is necessary to apply a secondary coefficient of 1,35. If the working conditions are specific, it is recommended to discuss the selection of the actuator with the manufacturer.



Series 900 - Gas recycling application



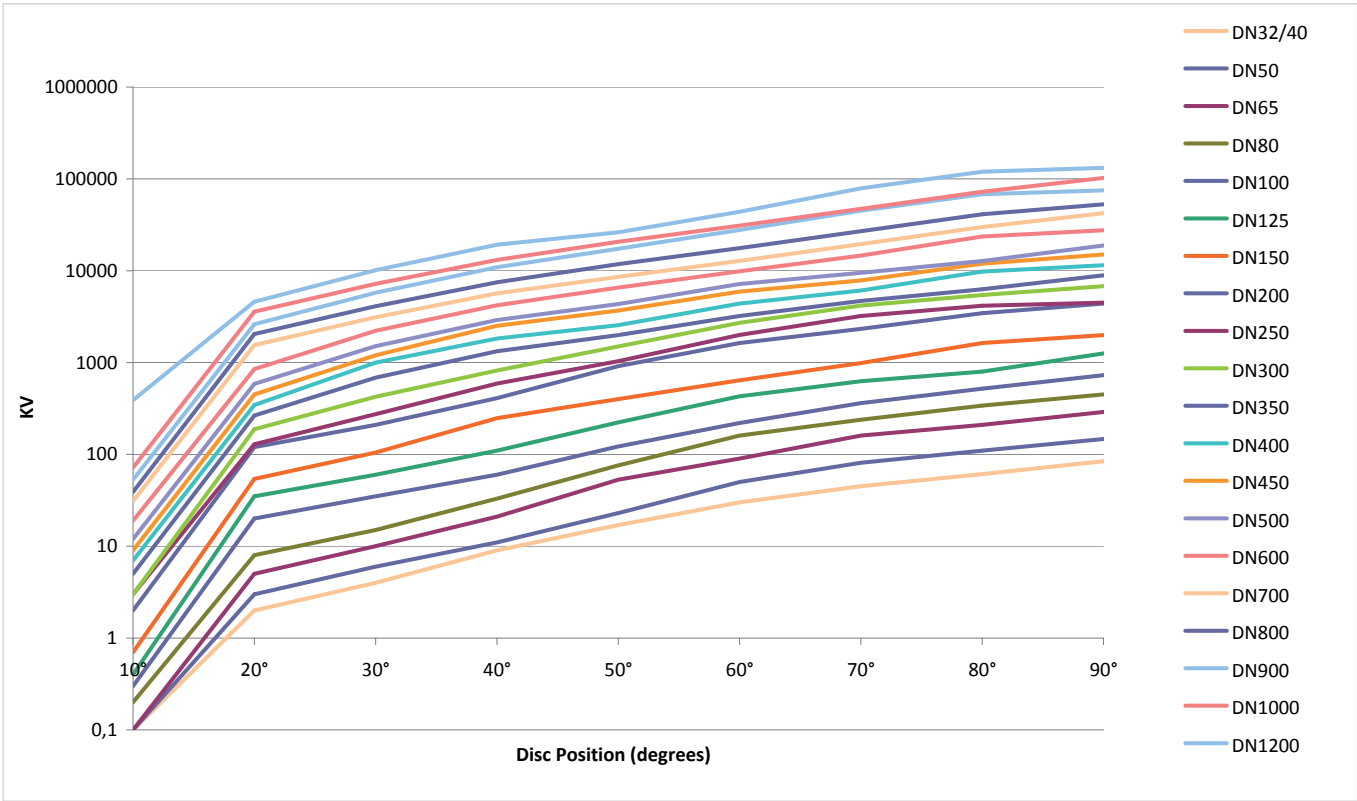
Series 900 - Biogas application

Concentric butterfly valves - Series 900

KV chart and curve

1 KV = 0,854701 CV

Valve size - DN		Disc Position (degrees)								
mm	inch	10°	20°	30°	40°	50°	60°	70°	80°	90°
32/40	1 1/2	0,1	2	4	9	17	30	45	61	84,4
50	2	0,1	3	6	11	23	50	81	110	147
65	2 1/2	0,1	5	10	21	53	90	160	210	290
80	3	0,2	8	15	33	76	160	238	340	450
100	4	0,3	20	35	60	122	220	362	520	730
125	5	0,4	35	60	110	223	430	626	797	1 260
150	6	0,7	54	105	248	400	640	987	1 630	1 990
200	8	2	120	210	410	915	1 630	2 331	3 446	4 396
250	10	3	129	274	590	1 037	2 000	3 210	4 164	4 500
300	12	3	188	424	820	1 500	2 710	4 180	5 433	6 800
350	14	5	265	685	1 327	1 990	3 214	4 690	6 292	8 900
400	16	7	345	1 000	1 825	2 550	4 383	6 090	9 779	11 500
450	18	9	449	1 200	2 518	3 680	5 929	7 840	11 925	15 000
500	20	12	586	1 511	2 909	4 340	7 167	9 508	12 762	18 800
600	24	19	847	2 217	4 203	6 560	9 863	14 614	23 621	27 600
700	28	31	1 554	3 118	5 686	8 569	12 810	19 511	29 904	42 416
800	32	39	2 045	4 105	7 486	11 815	17 633	26 902	41 231	52 776
900	36	53	2 614	5 767	10 917	17 326	27 849	44 987	68 209	74 979
1000	40	72	3 584	7 194	13 117	20 702	30 991	47 201	72 344	102 614
1200	48	390	4 597	10 146	19 195	26 221	43 873	79 092	119 966	131 962



Concentric butterfly valves - Series 900

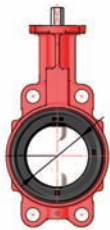
Application

Butterfly valves Series 900 are suited for many applications where tight shut-off is required, such as:

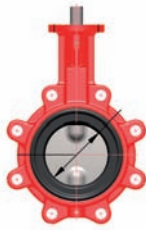
- Industrial Processing
- Water and Wastewater
- Dry Bulk Conveying
- Light Slurry Handling
- Paper Mills
- Food and Beverage
- HVAC (Heating, Ventilation & Air Conditioning)

Models

Wafer type B



Lug type T



Double flanged type (F)
For DN 700 – DN 1600



General characteristics

- Concentric design
- Shut-off and regulating device
- Split shaft
- Pivot fixed by pin allows demounting (demountable version)
- Long neck of the body according to Heating Systems Regulation standards
- Orange epoxy painting RAL 2002 - 80 µm
- Vacuum max 0,2 bar absolute
- Movement of disc ensured by four-squared endstem

Materials

Item	Name	Material
1	Body	Ductile iron 0.7040 (GGG40) epoxy coated Carbon steel 1.0446 (A216 WCB) Low carbon content steel 1.1156 (A352 LCC) Stainless steel 1.4408 (CF8M)
2	Disc	Brass 2.0402 Aluminium bronze 2.0966 Stainless steel 1.4308 (CF8) Ductile iron 0.7040 (GGG40) Stainless steel 1.4408 (CF8M), HALAR coating is an option HASTELLOY Stainless steel 1.4539 (Uranus B6) Titanium
3	Seat	NBR EPDM Carboxylic NBR VITON (FPM) Silicone Steam Silicone (UMQ) Epichlorohydrin HYPALON (CSM)
4	Shaft	Stainless steel 1.4021 (AISI 420)
5	Pivot	Stainless steel 1.4021 (AISI 420)
6	Bushing	Brass (up to DN 300) Delrin (from DN 350)
7	Distance ring	Stainless steel
8	Distance ring	Stainless steel
9	Pin	Stainless steel 1.4401 (AISI 316)
10	Retaining screw	Zinc coated steel Stainless steel
11	Shaft O-ring	NBR, EPDM is an option
12	Pivot O-ring	NBR, EPDM is an option

Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB. 5

FACE TO FACE ACC.:

- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TABLE 2

TOP FLANGE:

- EN ISO 5211

CONNECTION BETWEEN FLANGES:

- EN 1092-1
- DIN 2631-33
- ASME B16.5

WORKING STANDARD:

- EN 593 + A1

Coating

- Orange epoxy painting RAL 2002 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

- Temperature range: - 25°C + 150 °C (-13 °F + 302 °F), based on material selection

DN	Max. working pressure	Note to temperature
32 - 600	16 bar	When temperature of medium increases over + 120 °C (248 °F), the maximum allowed pressure falls from 16 bar to 14,4 bar
700 - 1600	10 bar (16 bar upon request)	When temperature of medium increases over + 120 °C (248 °F), the maximum allowed pressure falls from 16 bar to 14,4 bar and from 10 bar to 9 bar.

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208, API 598, ANSI/FCI 70-2
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)

Actuation possibilities

- Handlever
- Manual gearbox with handwheel
- Electric actuator 24V, 230V, 400V, other upon request
- Pneumatic actuator
 - o single acting
 - o double acting



Concentric butterfly valve - Series 900 - Technical details



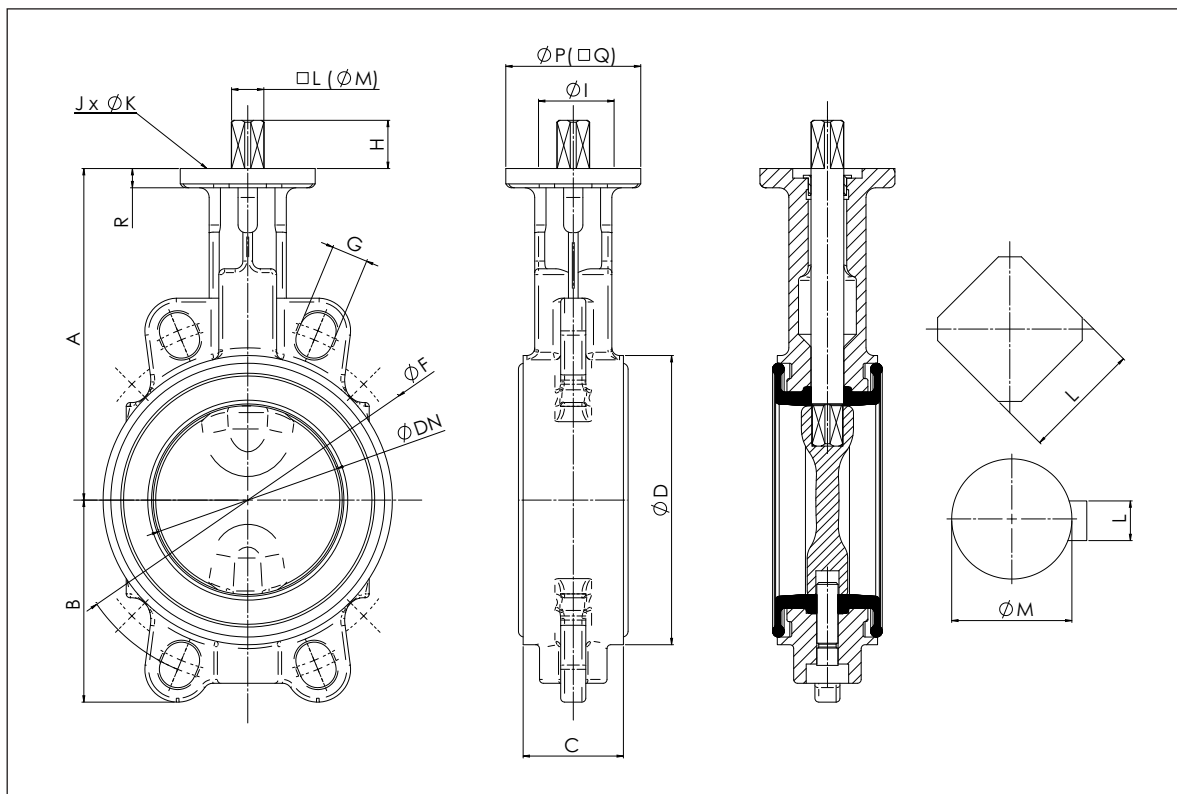
Concentric butterfly valve series 900 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Bare shaft



DN		PN 6				PN 10				PN 16														Weight (kg)
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	K	L	M	P	Q	R	
32	1 1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	25	50	4	7	14	-	-	70	8	1,9
40	1 1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	25	50	4	7	14	-	-	70	8	1,9
50	2	146	64	43	96	110	14	4	125	18	4	125	18	4	25	50	4	7	14	-	70	-	8	2,7
65	2 1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	25	50	4	7	14	-	70	-	8	3,2
80	3	163	89	46	128	150	14	4	160	18	8	160	18	8	25	50	4	7	14	-	70	-	8	3,7
100	4	172,5	105	52	150	170	18	4	180	18	8	180	18	8	25	50	4	7	14	-	70	-	8	4,7
125	5	192,5	118	56	184	200	18	4	210	22	8	210	22	8	25	70	4	9	17	-	-	75	9,5	6,7
150	6	205	128	56	212	225	18	8	240	22	8	240	22	8	25	70	4	9	17	-	-	75	9,5	8,4
200	8	234	166	60	268	280	18	8	295	22	12	295	22	12	25	70	4	9	17	-	-	75	14	13,3
250	10	270	202	68	320	335	18	12	350	22	12	355	26	12	29	102	4	10,5	22	-	-	105	17	22,0
300	12	310	237	78	378	395	18	12	400	22	12	410	26	12	29	102	4	10,5	22	-	-	105	17	29,3
350	14	325	271	78	432	445	22	12	460	22	16	470	26	16	36	125	4	14	27	-	-	132	17	46,4
400	16	365	314	102	483	495	22	16	515	26	16	525	30	16	36	140	4	18	27	-	-	140	21	69,8
450	18	425	330	114	521	550	22	16	565	26	20	585	30	20	80	140	4	18	10	Ø 38	175	-	22	83,0
500	20	482	363	127	590	600	22	20	620	26	20	650	33	20	80	140	4	18	12	Ø 42	175	-	22	112
600	24	565	464	154	695	705	26	20	725	30	20	770	36	20	80	165	4	23	14	Ø 50	210	-	25	216

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



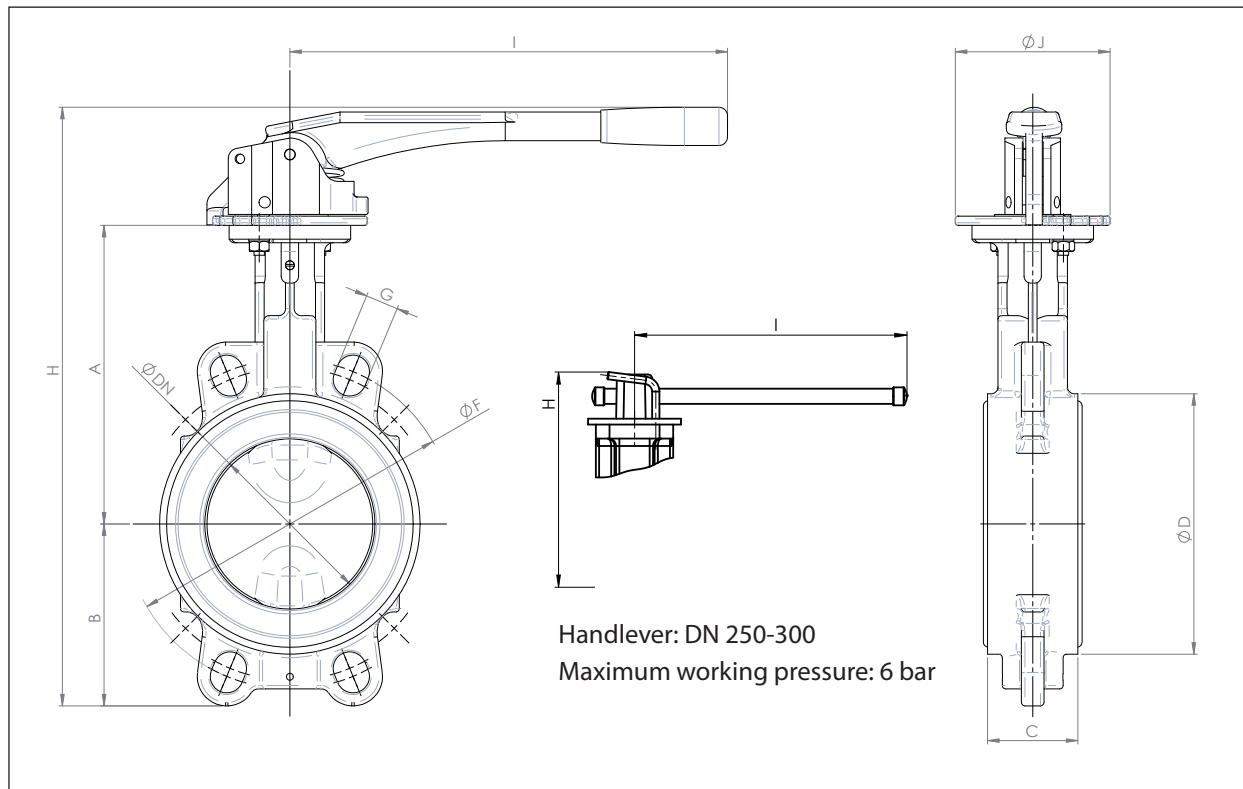
Concentric butterfly valve series 900 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Handlever



DN		PN 6							PN 10			PN 16						
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	Weight (kg)
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	255	270	90	3,14
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	255	270	90	3,14
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	275	270	90	3,94
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	290,5	270	90	4,44
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	317	270	90	4,94
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	353	270	90	5,94
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	375,5	270	90	7,96
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	401	362	90	9,8
200	8"	234	166	60	268	280	18	8	295	22	12	295	22	12	468	362	90	14,7
250	10"	270	202	68	320	335	18	12	350	22	12	355	26	12	587	450	105	24,2
300	12"	310	237	78	378	395	18	12	400	22	12	410	26	12	662	750	105	32,4

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



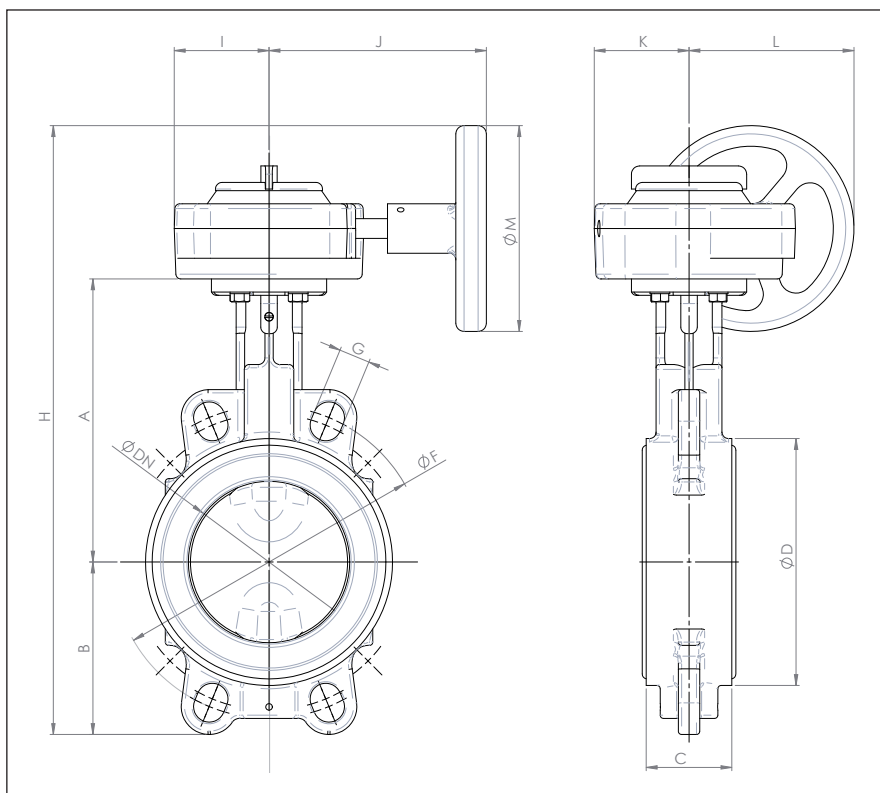
Concentric butterfly valve series 900 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Gearbox with manual handwheel



DN		PN 6							PN 10			PN 16										
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	K	L	M	Weight (kg)	
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	279	51	152	46	101	125	3,5	
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	279	51	152	46	101	125	3,5	
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	299	51	152	46	101	125	4,3	
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	314,5	51	152	46	101	125	4,8	
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	341	51	152	46	101	125	5,3	
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	366	51	152	46	101	125	6,3	
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	393,5	51	152	46	101	125	8,3	
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	422	51	152	46	101	125	10,0	
200	8"	234	166	60	268	280	18	8	295	22	12	295	22	12	527	51	152	46	138,5	200	14,9	
250	10"	270	202	68	320	335	18	12	350	22	12	355	26	12	627	66	254	57	177	250	25,7	
300	12"	310	237	78	378	395	18	12	400	22	12	410	26	12	702	66	254	57	177	250	33,0	
350	14"	325	271	78	432	445	22	12	460	22	16	470	26	16	809	83	302	72	242	350	53,0	
400	16"	365	314	102	483	495	22	16	515	26	16	525	30	16	942	83	334	72	292	450	66,4	
450	18"	425	330	114	521	550	22	16	565	26	20	585	30	20	1030	99	279	86	314	450	97,5	
500	20"	482	363	127	590	600	22	20	620	26	20	650	33	20	1120	99	279	86	314	450	126,5	
600	24"	565	464	154	695	705	26	20	725	30	20	770	36	20	1375	126	360	114	423	600	243,8	

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



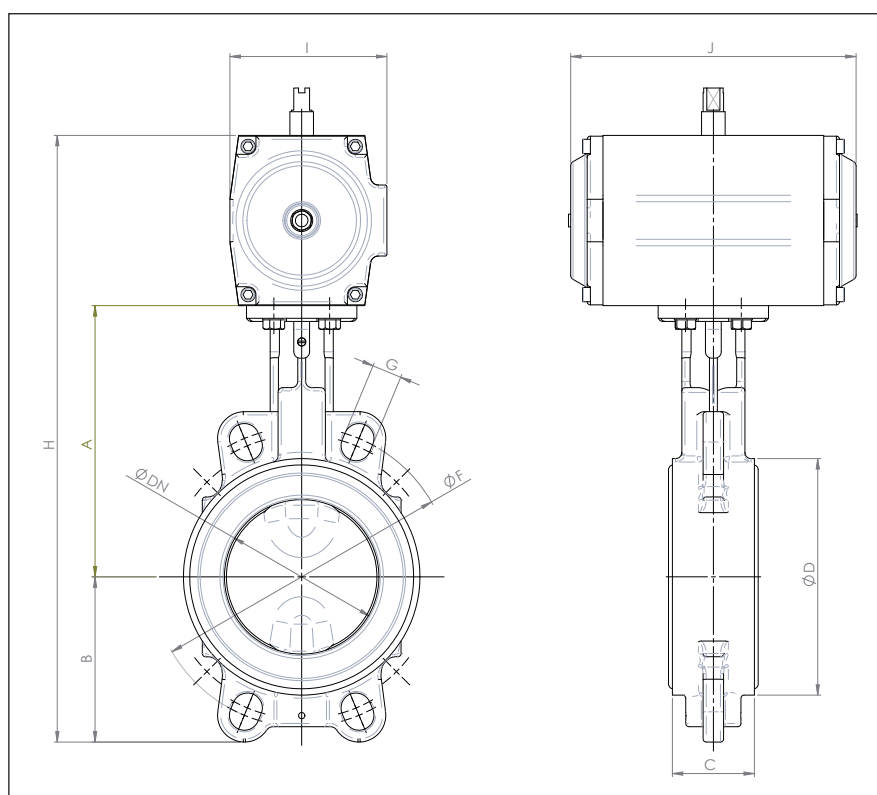
Concentric butterfly valve series 900 B

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Pneumatic actuator



DN		PN 6							PN 10			PN 16						
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	Weight (kg)
32	1"1/4	136	54	33	78	90	14	4	100	18	4	100	18	4	278	80	137	3,35
40	1"1/2	136	54	33	78	100	14	4	110	18	4	110	18	4	278	80	137	3,35
50	2"	146	64	43	96	110	14	4	125	18	4	125	18	4	298	80	137	4,15
65	2"1/2	153,5	72	46	113	130	14	4	145	18	4	145	18	4	225,5	80	137	4,65
80	3"	163	89	46	128	150	14	4	160	18	8	160	18	8	340	80	137	5,15
100	4"	172,5	105	52	150	170	18	4	180	18	8	180	18	8	377,5	92,5	180	7,2
125	5"	192,5	118	56	184	200	18	4	210	22	8	210	22	8	427,5	110,5	209	10,1
150	6"	205	128	56	212	225	18	8	240	22	8	240	22	8	450	110,5	209	11,8
200	8"	234	166	60	268	280	18	8	295	22	12	295	22	12	540	120	221	18,5
250	10"	270	202	68	320	335	18	12	350	22	12	355	26	12	632	137	298	31,0
300	12"	310	237	78	378	395	18	12	400	22	12	410	26	12	745	172	332	41,72
350	14"	325	271	78	432	445	22	12	460	22	16	470	26	16	794	172	374	62,8
400	16"	365	314	102	483	495	22	16	515	26	16	525	30	16	934	224	464	101,6
450	18"	425	330	114	521	550	22	16	565	26	20	585	30	20	1057	272	603	138,5
500	20"	482	363	127	590	600	22	20	620	26	20	650	33	20	1147	272	603	181,2
600	24"	565	464	154	695	705	26	20	725	30	20	770	36	20	1386	272	683	308

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 10 bar, T = 20°C (68 °F).

Concentric butterfly valve - Series 900 - Technical details



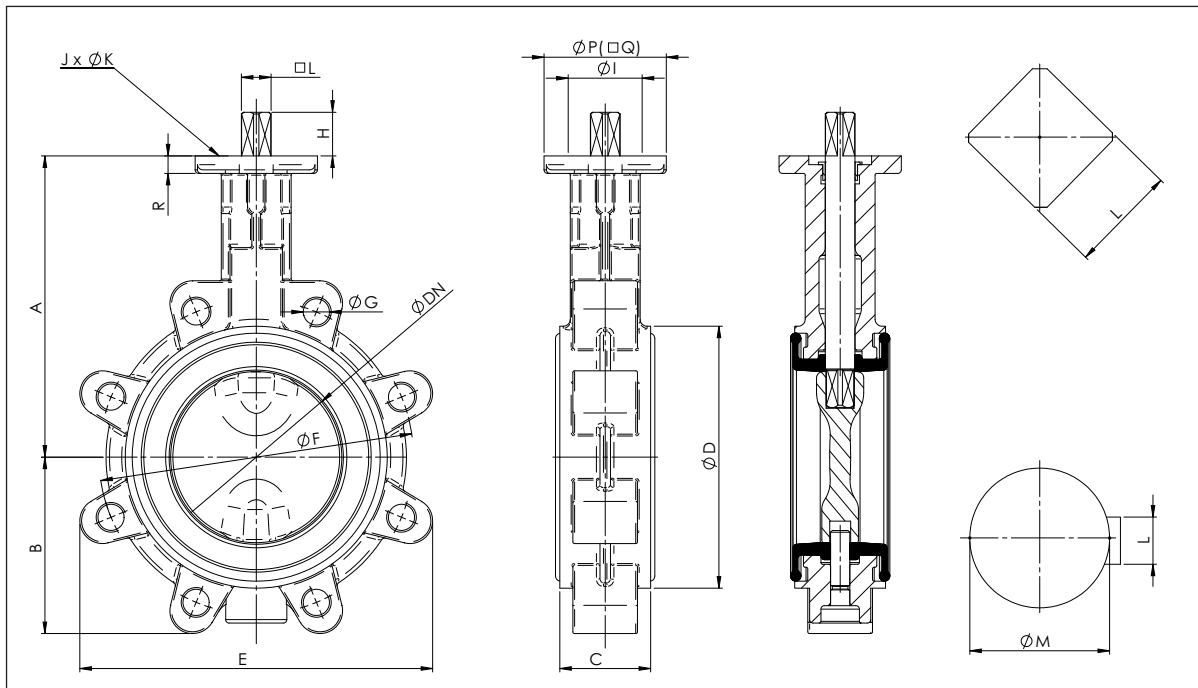
Concentric butterfly valve series 900 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Bare shaft



DN		PN 10									PN 16											
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	K	L	M	P	Q	R	Weight (kg)
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	25	50	4	7	14	-	-	70	8	2,3
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	25	50	4	7	14	-	-	70	8	2,3
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	25	50	4	7	14	-	70	-	8	3,0
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	25	50	4	7	14	-	70	-	8	3,7
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	25	50	4	7	14	-	70	-	8	4,8
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	25	50	4	7	14	-	70	-	8	6,1
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	25	70	4	9	17	-	-	75	9,5	9,2
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	25	70	4	9	17	-	-	75	9,5	10,2
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	25	70	4	9	17	-	-	75	14	15,3
250	10"	270	202	68	320	397	350	M20	12	355	M20	12	29	102	4	10,5	22	-	-	105	17	28,4
300	12"	310	237	78	378	464	400	M20	12	410	M24	12	29	102	4	10,5	22	-	-	105	17	41,2
350	14"	325	271	78	432	505	460	M20	16	470	M24	16	36	125	4	14	27	-	-	132	17	62,0
400	16"	365	314	102	483	587	515	M24	16	525	M27	16	36	140	4	18	27	-	-	140	21	96,3
450	18"	425	330	114	521	633	565	M24	20	585	M27	20	80	140	4	18	10	Ø38	175	-	22	130

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



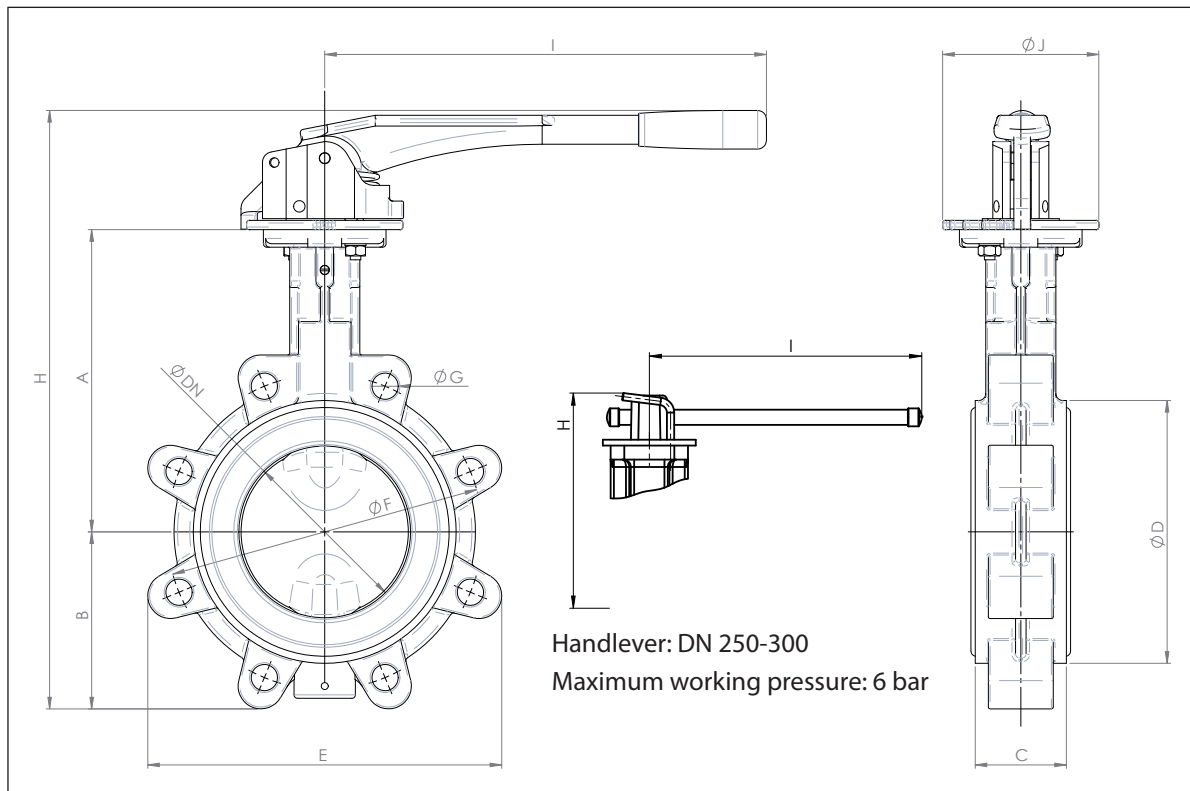
Concentric butterfly valve series 900 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Handlever



DN							PN 10			PN 16						Weight (kg)
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	255	270	90	3,5
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	255	270	90	3,5
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	275	270	90	4,3
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	290,5	270	90	4,8
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	317	270	90	6,0
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	353	270	90	7,3
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	375,5	270	90	11,1
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	401	362	90	12,2
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	468	362	90	16,7
250	10"	270	202	68	320	397	350	M20	12	355	M20	12	587	450	105	28,4
300	12"	310	237	78	378	464	400	M20	12	410	M24	12	662	750	105	41,2

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



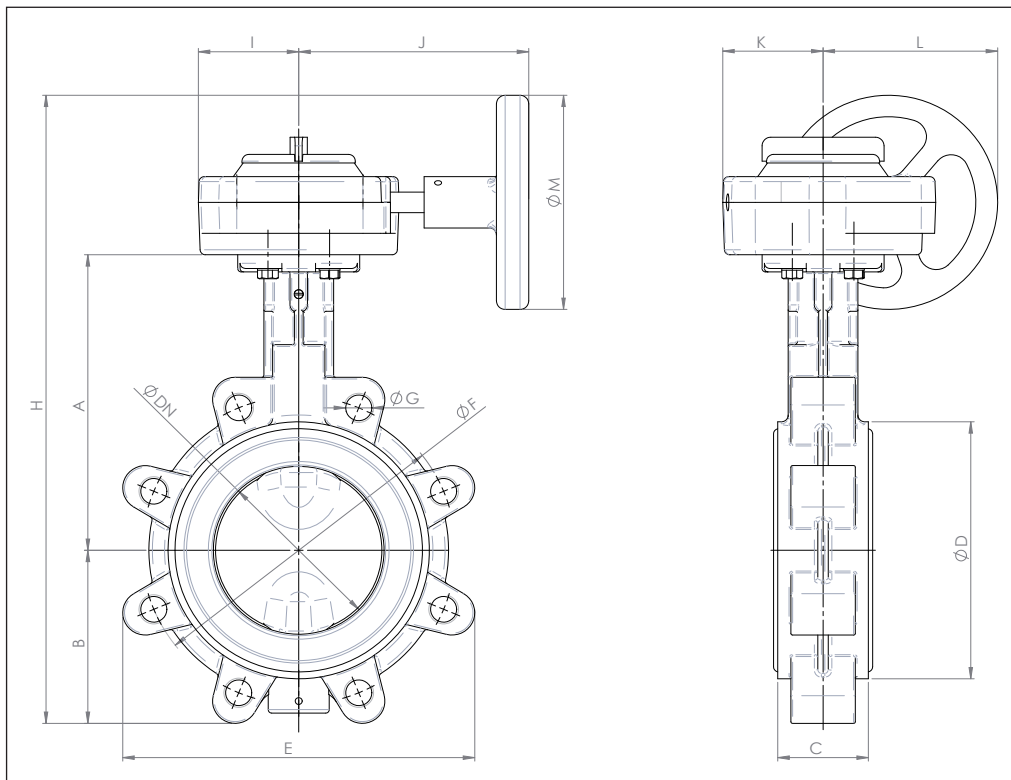
Concentric butterfly valve series 900 T

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Manual gearbox with handwheel



DN							Pn 10			PN 16									
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	K	L	M	Weight (kg)
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	279	51	152	46	101	125	3,9
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	279	51	152	46	101	125	3,9
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	299	51	152	46	101	125	4,9
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	314,5	51	152	46	101	125	5,3
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	341	51	152	46	101	125	6,4
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	366	51	152	46	101	125	7,7
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	393,5	51	152	46	101	125	10,8
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	422	51	152	46	101	125	11,8
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	527	51	152	46	138,5	200	16,9
250	10"	270	202	68	320	397	350	M20	12	355	M20	12	627	66	254	57	177	250	32,1
300	12"	310	237	78	378	464	400	M20	12	410	M24	12	702	66	254	57	177	250	44,9
350	14"	325	271	78	432	505	460	M20	16	470	M24	16	809	83	302	72	242	350	68,6
400	16"	365	314	102	483	587	515	M24	16	525	M27	16	942	83	334	72	292	450	103
450	18"	425	330	114	521	633	565	M24	20	585	M27	20	1030	99	279	86	314	450	144,7

Above mentioned dimensions are indicative only.

Concentric butterfly valve - Series 900 - Technical details



Concentric butterfly valve series 900 T

Face to face dimension:

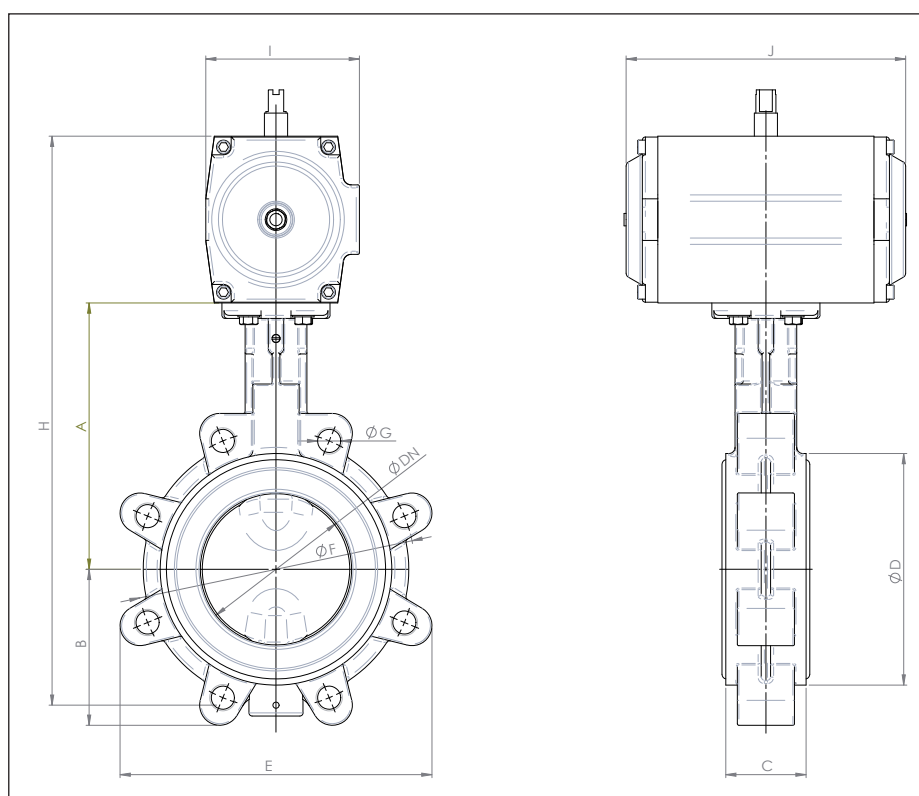
EN 558, SERIES 20

ISO 5752, SERIES 20

API 609, TABLE 2

Actuation:

Pneumatic actuator



DN		PN 10								PN 16							
mm	inch	A	B	C	D	E	F	G	n	F	G	n	H	I	J	Weight (kg)	
32	1"1/4	136	54	33	78	110	100	M16	4	100	M16	4	278	80	137	3,75	
40	1"1/2	136	54	33	78	110	110	M16	4	110	M16	4	278	80	137	3,75	
50	2"	146	64	43	96	116	125	M16	4	125	M16	4	298	80	137	4,45	
65	2"1/2	153,5	72	46	113	131	145	M16	4	145	M16	4	225,5	80	137	5,15	
80	3"	163	89	46	128	173	160	M16	8	160	M16	8	340	80	137	6,25	
100	4"	172,5	105	52	150	192	180	M16	8	180	M16	8	377,5	92,5	180	8,6	
125	5"	192,5	118	56	184	235	210	M16	8	210	M16	8	427,5	110,5	209	12,6	
150	6"	205	128	56	212	258	240	M16	8	240	M16	8	450	110,5	209	13,6	
200	8"	234	166	60	268	325	295	M20	8	295	M20	12	540	120	221	20,5	
250	10"	270	202	68	320	397	350	M20	12	355	M20	12	632	137	298	37,4	
300	12"	310	237	78	378	464	400	M20	12	410	M24	12	745	172	332	53,62	
350	14"	325	271	78	432	505	460	M20	16	470	M24	16	794	172	374	78,4	
400	16"	365	314	102	483	587	515	M24	16	525	M27	16	934	224	464	128,1	
450	18"	425	330	114	521	633	565	M24	20	585	M27	20	1057	272	603	185,5	

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 10 bar, T = 20°C (68 °F).

Concentric butterfly valve - Series 900 - Technical details



Concentric butterfly valve series 900 F

Face to face dimension (double flange version):

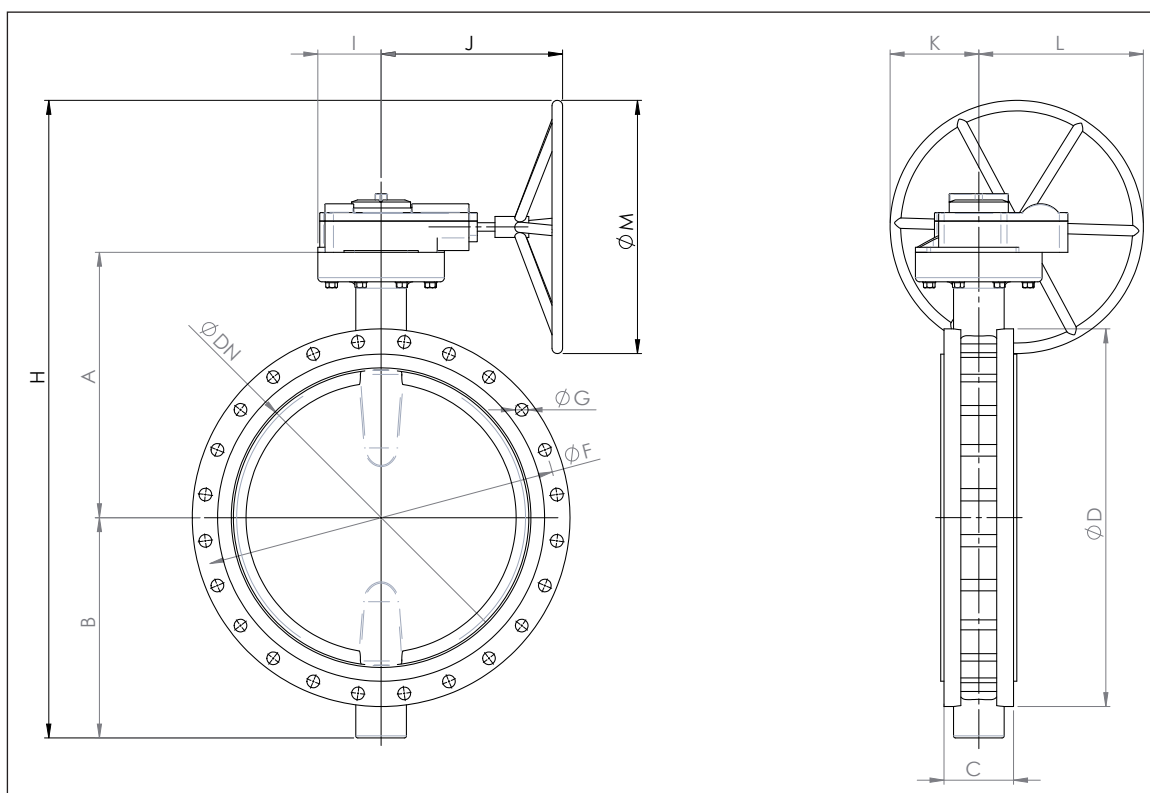
EN 558, SERIES 20

ISO 5752, SERIES 20

API 609, TABLE 2

Actuation:

Manual gearbox with handwheel



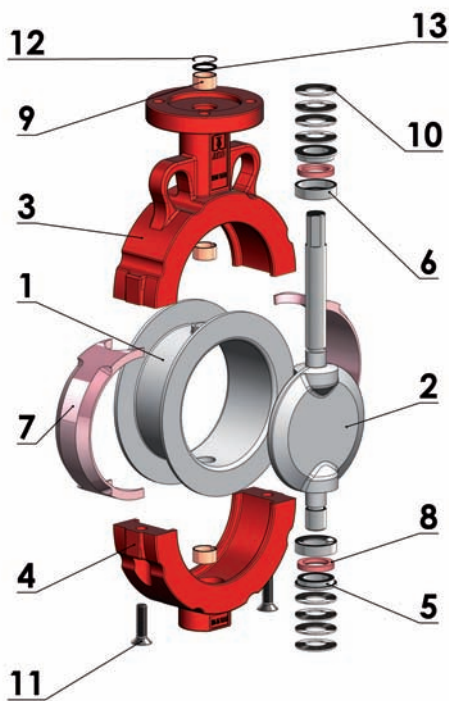
DN		PN 6						PN 10			PN 16											
mm	inch	A	B	C	D	F	G	n	F	G	n	F	G	n	H	I	J	K	L	M	Weight (kg)	
700	28"	629	537	165	910	810	26	24	840	30	26	840	36	24	1516	185	478	210	390	600	391,2	
800	32"	666	601	190	1160	920	30	24	950	33	26	950	39	24	1627	150	478	210	390	600	624,5	
900	36"	720	656	203	1168	1020	30	24	1050	33	28	1050	39	28	1736	150	478	210	407	600	744,5	
1000	40"	800	720	216	1289	1120	30	28	1160	36	28	1170	42	28	1905	185	513	193	407	600	934,5	
1200	48"	940	844	254	1485	1340	33	32	1380	39	32	1390	48	32	2192	243	616	230	370	600	1261,5	
1400	56"	1009	1014	279	1685	1560	36	36	1590	42	36	1590	48	36	2431	243	616	230	425	600	2103,5	
1600	63"	1150	1045	318	1930	1760	36	40	1820	48	40	1820	52	40	2630	307	673	175	425	600	2644,5	

Above mentioned dimensions are indicative only.

Dimensions for water, p = 10 bar.

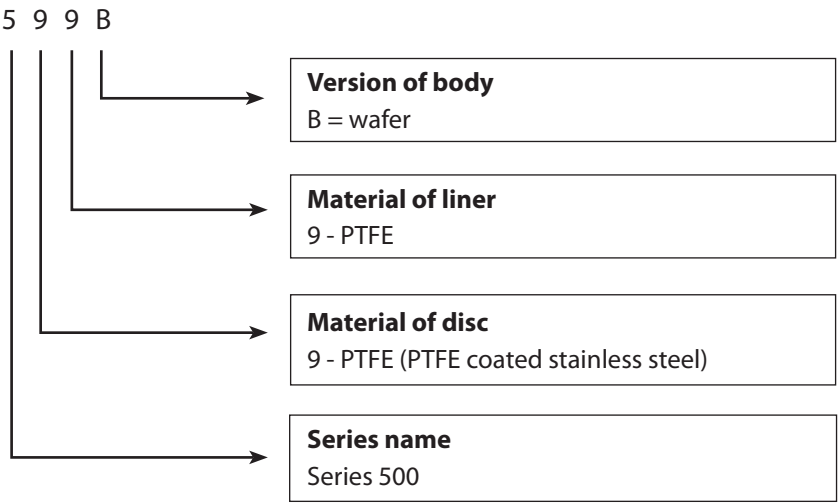
High performance butterfly valves - Series 500

Drawing



Item	Name
1	Liner
2	Disc with shaft
3	Upper part of body
4	Lower part of body
5	Pressure element
6	Seal capsule
7	Energizer
8	Ring
9	Sliding gland ring
10	Disc spring
11	Screw
12	Retaining ring
13	O-ring

Codification



High performance butterfly valves - Series 500 - Technical details

Available connections

INSTALLATION BETWEEN FLANGES (DN 50-200)

Vers.		50	65	80	100	125	150	200
B	PN10							
	PN16							
	Class 150							

standard

Torque chart (Nm)

OPERATING TORQUES UPON WORKING PRESSURE (NM)*

DN	50	65	80	100	125	150	200
N.m ⁻¹	34	41	66	85	113	153	282

For pressure 10 bar, working medium - water 20 °C (68 °F) only.

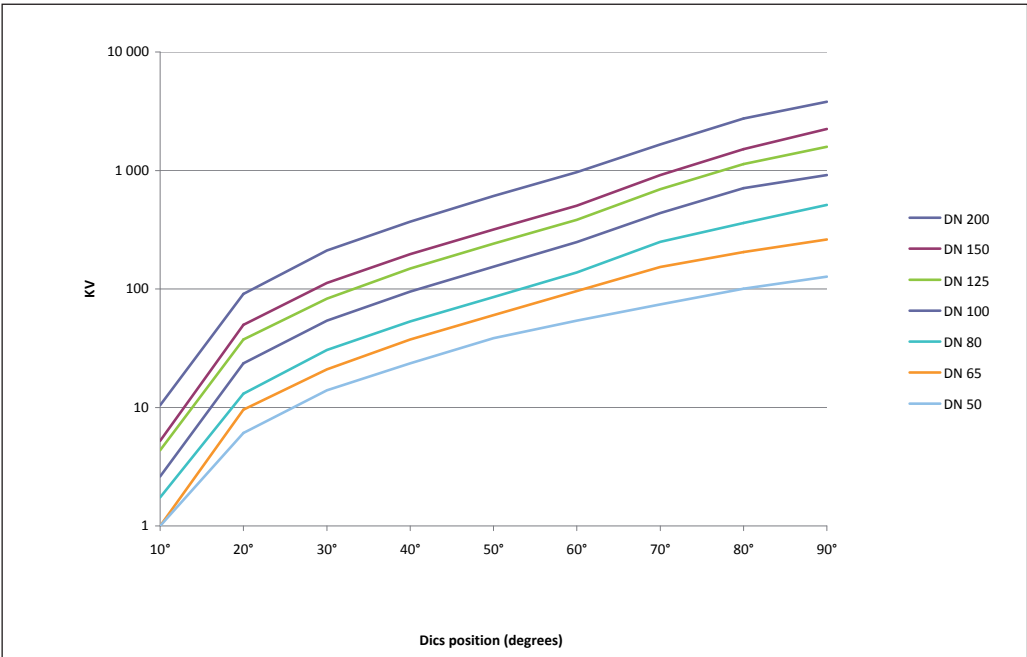


KV chart and curve

1 KV = 0,854701 CV

Valve size - DN		Disc Position (degrees)								
mm	inch	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	2	1	6	14	24	38	54	74	100	127
65	2 1/2	1	10	21	37	60	96	153	205	262
80	3	2	13	31	53	85	138	249	360	511
100	4	3	24	54	95	154	248	439	708	916
125	5	4	37	83	149	241	384	696	1 131	1 581
150	6	5	50	112	197	317	506	914	1 514	2 246
200	8	10	91	211	370	609	969	1 663	2 739	3 796

Other dimensions upon request.



High performance butterfly valves - Series 500 - Technical details

Application

Butterfly valves Series 500 are designed to work with aggressive media in industries such as:

- Chemical industry
- High purity water
- Food industry
- Pharmaceutical industry
- Other sanitary industries

Models

Wafer type B

General characteristics

- Excellent shut off protection (bubble tight shut off) and high KV values
- Disc has 3 mm thickness of pure virgin PTFE
- Disc design allows for a higher flow area
- Body is epoxy coated
- Upper stem seal prevents any environmental contaminants from entering the stem bore
- Extended neck design allows for piping insulation and enables easy access for actuators mounting
- PTFE impregnated steel bearings ensure precision alignment of the upper and lower stem

Materials

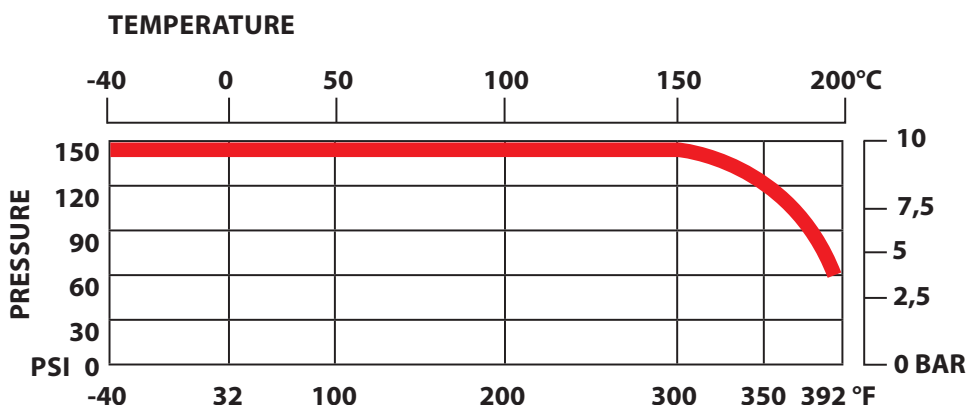
Item	Name	Material
1	Liner	PTFE
2	Disc with shaft	Stainless steel 1.4408 (CF8M) PTFE coated
3	Upper part of body	Ductile iron 0.7043 (GGG40.3)
4	Lower part of body	Ductile iron 0.7043 (GGG40.3)
5	Pressure element	Stainless steel 1.4408 (CF8M)
6	Seal capsule	Stainless steel 1.4408 (CF8M)
7	Energizer	Silicone rubber
8	Ring	Silicone rubber
9	Sliding gland ring	SKF PTFE
10	Disc spring	Carbon steel 1.8159
11	Screw	Stainless steel A4
12	Retaining ring	Stainless steel 1.4401 (AISI 316)
13	O-ring	NBR

Coating

- Orange epoxy painting RAL 2002 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

- Maximum working pressure: 10 bar
- Temperature range – max: - 40°C + 200 °C (- 40°F + 392 °F)



Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB. 5

FACE TO FACE ACC.:

- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TABLE 2

TOP FLANGE:

- EN ISO 5211

CONNECTION BETWEEN FLANGES:

- EN 1092-1
- DIN 2631-32
- ASME B16.5

WORKING STANDARD:

- EN 593 + A1

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208, API 598, ANSI/FCI 70-2
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)

Actuation possibilities

- Handlever
- Manual gearbox with handwheel
- Electric actuator 24V, 230V, 400V, other upon request
- Pneumatic actuator
 - o single acting
 - o double acting



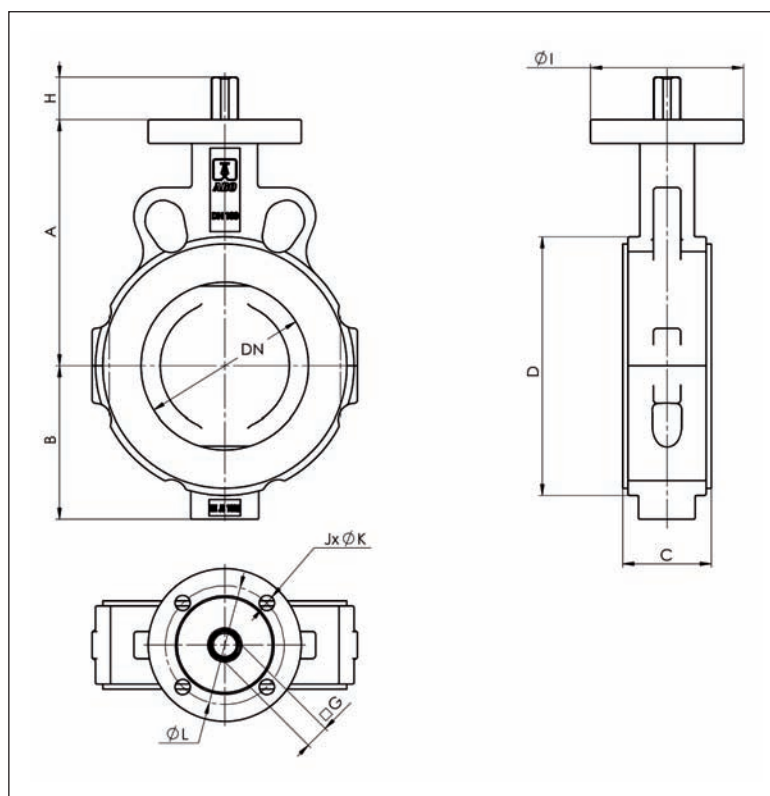
High performance butterfly valve series 500

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Bare shaft



DN		A	B	C	D	G	H	I	J	K	L	Weight (kg)
mm	inch											
50	2"	120,5	61	43	96	11	25	70	4	7	50	2,3
65	2"1/2	128	74	46	115	11	25	70	4	7	50	3,0
80	3"	135,5	78	46	131	14	25	70	4	7	50	3,5
100	4"	145	90	52	152	14	25	90	4	9	70	5,0
125	5"	164	106	56	181	14	25	90	4	9	70	6,5
150	6"	176,5	126	56	207	14	25	90	4	9	70	7,8
200	8"	234	152	60	257	17	25	90	4	9	70	13,2

Above mentioned dimensions are indicative only.



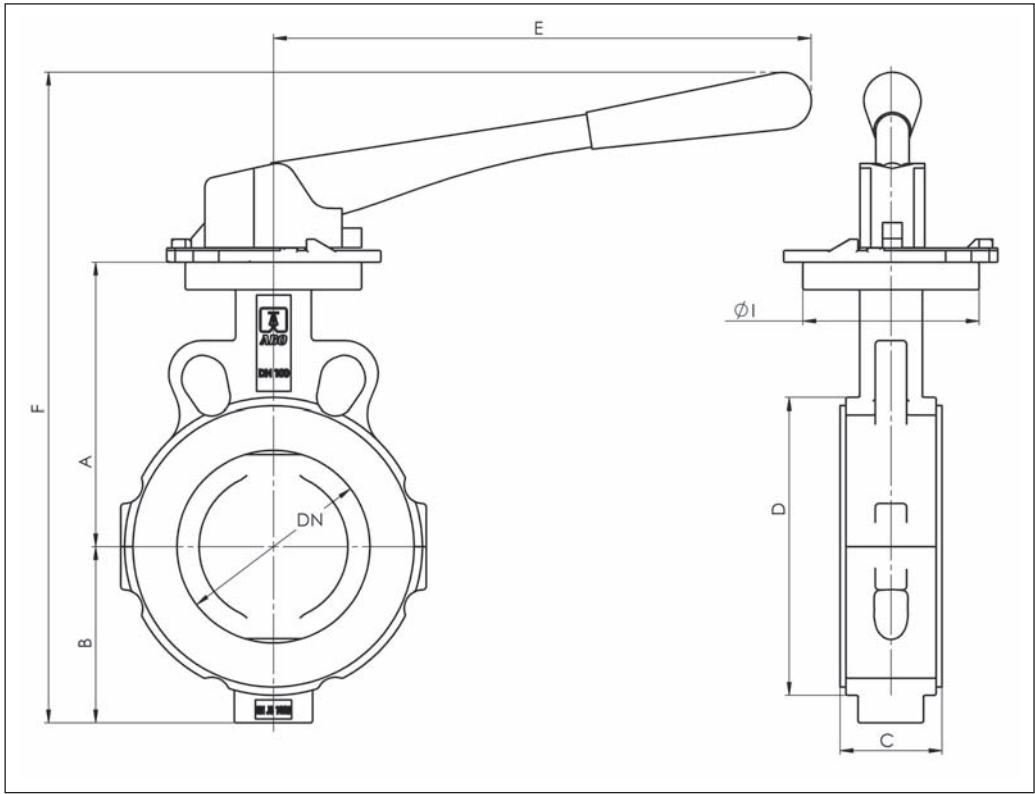
High performance butterfly valve series 500

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Handlever



DN		A	B	C	D	E	F	I	Weight (kg)
mm	inch								
50	2"	120,5	61	43	96	270	246,5	70	3,54
65	2"1/2	128	74	46	115	270	265	70	4,24
80	3"	135,5	78	46	131	270	276,5	70	4,74
100	4"	145	90	52	152	270	319	90	6,24
125	5"	164	106	56	181	270	354	90	7,76
150	6"	176,5	126	56	207	362	399,5	90	9,2

Above mentioned dimensions are indicative only.



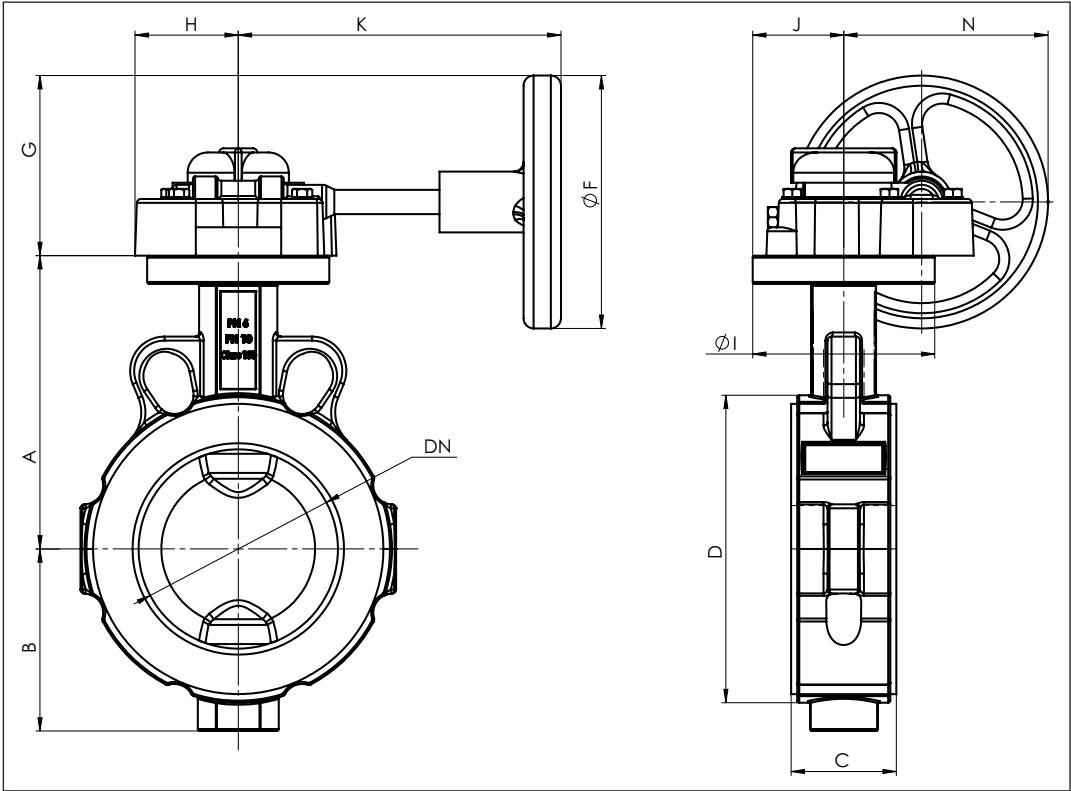
High performance butterfly valve series 500

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Manual gearbox with handwheel



DN													Weight (kg)
mm	inch	A	B	C	D	E	F	G	H	I	J	K	
50	2"	120,5	61	43	96	101	125	89	44	70	45	152	3,9
65	2 1/2"	128	74	46	115	101	125	89	44	70	45	152	4,6
80	3"	135,5	78	46	131	101	125	89	44	70	45	152	5,1
100	4"	145	90	52	152	101	125	89	44	90	45	152	6,6
125	5"	164	106	56	181	101	125	89	44	90	45	152	8,1
150	6"	176,5	126	56	207	235	250	155	66	90	58	252	11,5
200	8"	234	152	60	257	235	250	155	66	90	58	252	16,9

Above mentioned dimensions are indicative only.

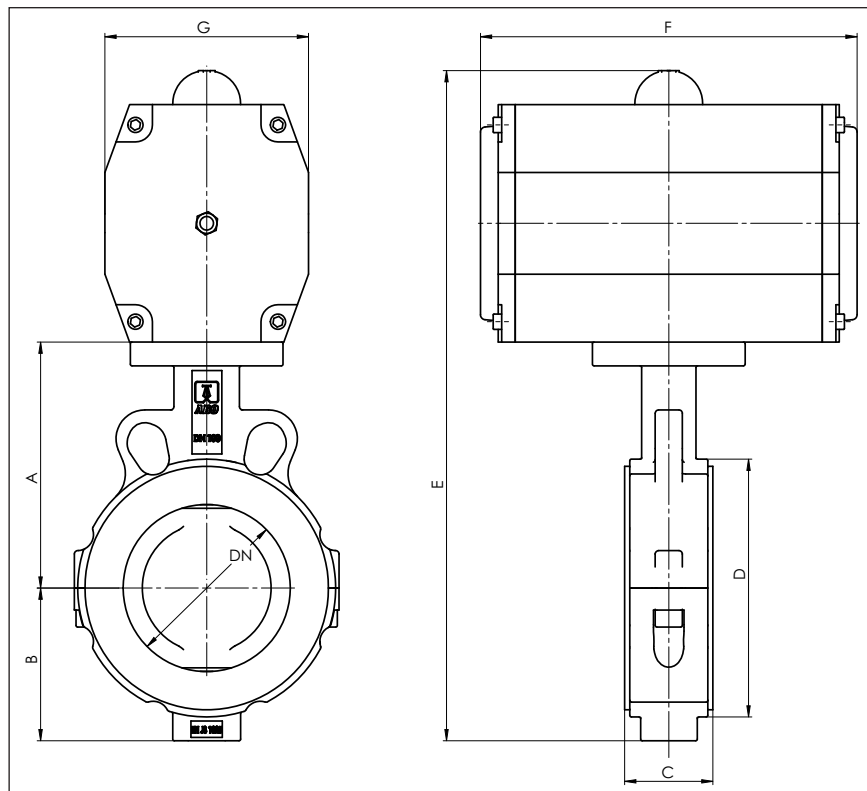
High performance butterfly valve series 500

Face to face dimension:

EN 558, SERIES 20
ISO 5752, SERIES 20
API 609, TABLE 2

Actuation:

Pneumatic actuator



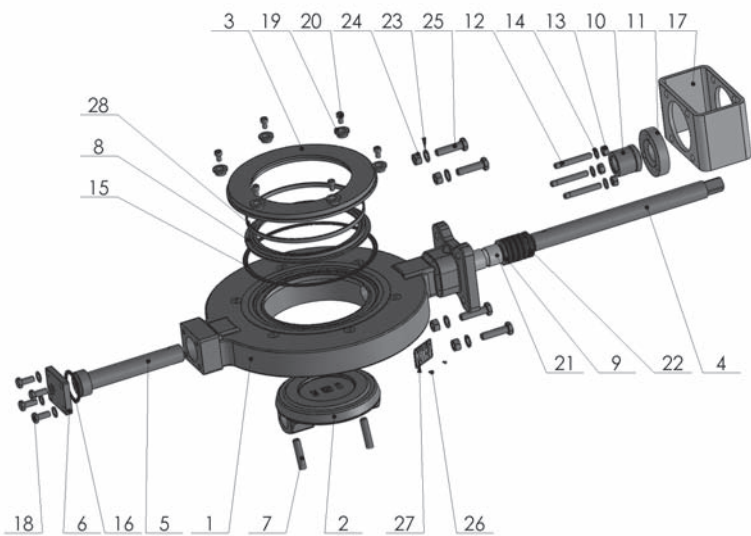
DN		A	B	C	D	E	F	G	Weight (kg)
mm	inch								
50	2"	120,5	61	43	96	311,5	161	92,5	4,8
65	2"1/2	128	74	46	115	332	161	92,5	5,5
80	3"	135,5	78	46	131	343,5	180	92,5	6,3
100	4"	145	90	52	152	382	209	110,5	9,0
125	5"	164	106	56	181	440	221	120	12,0
150	6"	176,5	126	56	207	472,5	291	120	16,2
200	8"	234	152	60	257	576	298	137	24,0

Above mentioned dimensions are indicative only.

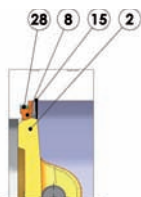
Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 10 bar, T = 20°C. (68 °F).

High performance butterfly valves – Series 2E-5

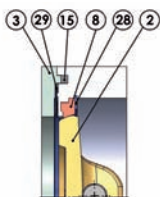
Drawing - Drawing for PTFE version



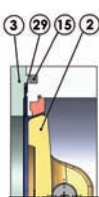
Detail of PTFE seat



Detail of Fire safe seat



Detail of Metal-Metal seat



Item	Name	15	Flange seal
1	Body	16	Cover seal
2	Disc	17	Bracket
3	Ring flange	18	Bolt
4	Shaft	19	Retaining sleeve
5	Pivot	20	Screw
6	Cover	21	Sleeve
7	Pin	22	Packing
8	Seat	23	Lock washer
9	Lock washer	24	Hex nut
10	Packing gland	25	Bolt
11	Gland flange	26	Rivet
12	Stud	27	Name plate
13	Hex nut	28 ¹	Bandage
14	Washer	29 ²	Seat

¹ for PTFE and Fire-Safe versions only

² for Metal-Metal and Fire-Safe versions only

Codification

2E-5 5 9 0 B 100

2E-5	5	9	0	B	100	DN
2E-5	5	9	0	B	100	Version of body B = wafer T = lug
2E-5	5	9	0	B	100	Material of disc 7 - Stainless steel 1.4539 (Uranus B6) 5 - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) 1 - Aluminium bronze 2.0966 0 - Stainless steel 1.4404 (AISI 316L), 1.4401 (AISI 316), 1.4408 (CF8M) / Stainless steel 1.4021 (AISI 420)
2E-5	5	9	0	B	100	Material of seat 9 - PTFE reinforced by 25% glass fibre 8 - FIRE SAFE (PTFE + INCONEL) 7 - 2.4668 INCONEL 718 / Stainless steel 1.4401 (AISI 316) + graphite
2E-5	5	9	0	B	100	Material of body 7 - Stainless steel 1.4539 (Uranus B6) 6 - Low carbon content steel 1.1156 (A352 LCC) 5 - Carbon Steel 1.0625 (A216 WCB) 4 - Stainless Steel 1.4408 (A351 CF8M)
2E-5	5	9	0	B	100	Series name Series 2E-5

High performance butterfly valves – Series 2E-5

Available connections

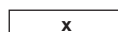
INSTALLATION BETWEEN FLANGES (DN 50-400) TYPE B

DN	50	65	80	100	125	150	200	250	300	350	400
INCH	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
ISO PN 6	x	x	✓	x	*	*	*	*	*	*	*
ISO PN 10	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*
ISO PN 16	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*
ISO PN 25	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*
ISO PN 40	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*
ANSI 150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*
ANSI 300	✓	✓	✓	✓	✓	✓	✓	*	*	x	x
JIS 10K	✓	✓	*	*	*	✓	*	✓	*	*	x
JIS 16K	✓	✓	*	✓	✓	*	✓	✓	*	*	x

DN 500 - DN 800 upon request



suitable



not suitable



suitable with additional machining

For type T installation must be specified in inquiry.

Torque chart (Nm)

OPERATING TORQUES - PTFE SEAT

DN	50	65	80	100	125	150	200	250	300	350	400
16 bar	25	35	40	55	110	140	220	470	650	850	1000
25 bar	30	40	45	65	120	160	260	650	900	1150	1400
40 bar	35	45	60	85	150	225	376	-	-	-	-
50 bar	35	45	60	85	-	-	-	-	-	-	-

DN 500 - DN 800 upon request

Operating torques mentioned include safety reserve.

OPERATING TORQUES - METAL / METAL SEAT - FIRE SAFE SEAT

DN	50	65	80	100	125	150	200	250	300	350	400
16 bar	50	70	100	150	220	260	330	776	1215	1686	2793
25 bar	50	70	100	150	220	290	450	1145	1825	2540	4249

Operating torques mentioned include safety reserve.



Series 2E-5 - Application in bitumen production

High performance butterfly valves – Series 2E-5

Application

High performance applications: chilled water, water, utility lines, gasoline, natural gas, air, oil, jet fuels and process lines, such as:

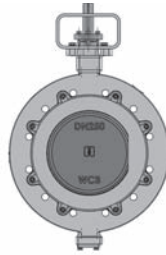
- Airport Refueling
- Hydrocarbon Processing
- HVAC
- Chemical Processing
- Purified Gas
- Steam and Vacuum Services
- Potable Water

Models

Wafer type (B)



Lug type (T)



Standards

LEAK TEST - PTFE & FIRE SAFE VERSION:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB.5

LEAK TEST - VERSION METAL-METAL

- DN 50-125: EN 12266-1, CLASS C
- DN 150-400: EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB.5

FACE TO FACE ACC.:

- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TAB.3

ATEX OPTION:

- Version according to ATEX 94/9/EC
- Zone 1 and 21 – Gr II, Cat. 2 G

TOP FLANGE:

- EN ISO 5211

MARKING:

- EN19

CONNECTION BETWEEN FLANGES:

- EN 1092-1, 2
- DIN 2631-35
- ASME B16.5

WORKING STANDARD:

- EN 593 + A1

General characteristics

- Double offset design
- Shut-off and regulating device
- Split shaft
- High opening & closing performance
- More strength with less weight
- Easy repair & maintenance
- Easy installation & mounting
- Vacuum max 0,01 bar (PTFE version)

Coating

- High temperature resistant coating (up to 600 °C).
More information upon request
- Based on customer's request, higher degree of coating can be provided



High performance butterfly valves – Series 2E-5

Materials

Valve 55XX

Item	Name	DN 50 - DN 125	DN 150 - DN300	DN 350 - DN 400
1	Body	5 - Carbon steel 1.0625 (A216 WCB)		
2	Disc	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4021 (AISI 420)	Stainless steel 1.4021 (AISI 420)
3	Ring flange	-	Stainless steel 1.0553 (A441)	Stainless steel 1.0553 (A441)
4	Shaft	Stainless steel 1.4021 (AISI 420)		
5	Pivot	Stainless steel 1.4021 (AISI 420)		
6	Cover	-	Stainless steel 1.0553 (A441)	Stainless steel 1.0553 (A441)
7	Pin	-	Stainless steel 1.4021 (AISI 420)	Stainless steel 1.4021 (AISI 420)
8	Seat	5590 – PTFE reinforced by 25% glass fibre PTFE		
		5580 – FIRE SAFE (PTFE + INCONEL)		
		5570 - M/M: 2.4668 INCONEL 718	5570 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite	5570 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite
9	Lock washer	Stainless steel 1.4404 (AISI 316L)		
10	Packing gland	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
11	Gland flange	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4301 (AISI 304)	Stainless steel 1.4301 (AISI 304)
12	Stud	Stainless steel A4		
13	Hex nut	Stainless steel A4		
14	Washer	Stainless steel A4		
15	Flange seal	Graphite min. 98%		
16	Cover seal	Graphite		
17	Bracket	Stainless steel A4		
18	Bolt	Stainless steel A4		
19	Retaining sleeve	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
20	Screw	Stainless steel A4		
21	Sleeve	5590 - TP IGUS		
		5580 - Stainless steel 1.4404 (AISI 316L)		
		5570 - Stainless steel 1.4404 (AISI 316L)		
22	Packing	Graphite min. 98%		
23	Lock washer	Stainless steel A4		
24	Hex nut	Stainless steel A4		
25	Bolt	Stainless steel A4		
26	Rivet	Stainless steel A4		
27	Name plate	-		
28	Bandage	Stainless steel 1.4404 (AISI 316L) - for PTFE and Fire Safe versions only		
29	Seat	Inconel® - for Metal-Metal and Fire-Safe versions only		

Other materials upon request

Valve 54XX

Item	Name	DN 50 - DN 125	DN 150 - DN300	DN 350 - DN 400
1	Body	4 - Stainless steel 1.4408 (CF8M)		
2	Disc	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4408 (CF8M)
3	Ring flange	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)
4	Shaft	Stainless steel 1.4462		
5	Pivot	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4462	Stainless steel 1.4462
6	Cover	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
7	Pin	-	Stainless steel 1.4462	Stainless steel 1.4462
8	Seat	5490 – PTFE reinforced by 25% glass fibre PTFE		
		5480 – FIRE SAFE (PTFE + INCONEL)		
		5470 - M/M: 2.4668 INCONEL 718	5470 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite	5470 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite
9	Lock washer	Stainless steel 1.4404 (AISI 316L)		
10	Packing gland	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
11	Gland flange	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4301 (AISI 304)	Stainless steel 1.4301 (AISI 304)
12	Stud	Stainless steel A4		
13	Hex nut	Stainless steel A4		
14	Washer	Stainless steel A4		
15	Flange seal	Graphite min. 98%		
16	Cover seal	Graphite		
17	Bracket	Stainless steel A4		
18	Bolt	Stainless steel A4		
19	Retaining sleeve	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
20	Screw	Stainless steel A4		
21	Sleeve	5590 - TP IGUS		
		5580 - Stainless steel 1.4404 (AISI 316L)		
		5570 - Stainless steel 1.4404 (AISI 316L)		
22	Packing	Graphite min. 98%		
23	Lock washer	Stainless steel A4		
24	Hex nut	Stainless steel A4		
25	Bolt	Stainless steel A4		
26	Rivet	Stainless steel A4		
27	Name plate	-		
28	Bandage	Stainless steel 1.4404 (AISI 316L) - for PTFE and Fire Safe versions only		
29	Seat	Inconel® - for Metal-Metal and Fire-Safe versions only		

Other materials upon request

High performance butterfly valves – Series 2E-5

Valve 56XX

Item	Name	DN 50 - DN 125	DN 150 - DN300	DN 350 - DN 400
1	Body	6 - Low carbon content steel 1.1156 (A352 LCC)		
2	Disc	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4021 (AISI 420)	Stainless steel 1.4021 (AISI 420)
3	Ring flange	Stainless steel 1.0553 (A441)		
4	Shaft	Stainless steel 1.4021 (AISI 420)		
5	Pivot	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4021 (AISI 420)	Stainless steel 1.4021 (AISI 420)
6	Cover	-	Stainless steel 1.0553 (A441)	Stainless steel 1.0553 (A441)
7	Pin	-	Stainless steel 1.4021 (AISI 420)	Stainless steel 1.4021 (AISI 420)
8	Seat	5690 – PTFE reinforced by 25% glass fibre PTFE		
		5680 – FIRE SAFE (PTFE + INCONEL)		
		5670 - M/M: 2.4668 INCONEL 718	5670 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite	5670 - M/M: Stainless Steel 1.4401 (AISI 316) + graphite
9	Lock washer	Stainless steel 1.4404 (AISI 316L)		
10	Packing gland	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4404 (AISI 316L)
11	Gland flange	Stainless steel 1.4301 (AISI 304)		
12	Stud	Stainless steel A4		
13	Hex nut	Stainless steel A4		
14	Washer	Stainless steel A4		
15	Flange seal	Graphite min. 98%		
16	Cover seal	Graphite		
17	Bracket	Stainless steel A4		
18	Bolt	Stainless steel A4		
19	Retaining sleeve	-	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
20	Screw	Stainless steel A4		
21	Sleeve	5590 - TP IGUS		
		5580 - Stainless steel 1.4404 (AISI 316L)		
		5570 - Stainless steel 1.4404 (AISI 316L)		
22	Packing	Graphite min. 98%		
23	Lock washer	Stainless steel A4		
24	Hex nut	Stainless steel A4		
25	Bolt	Stainless steel A4		
26	Rivet	Stainless steel A4		
27	Name plate	-		
28	Bandage	Stainless steel 1.4404 (AISI 316L) - for PTFE and Fire Safe versions only		
29	Seat	Inconel® - for Metal-Metal and Fire-Safe versions only		

Other materials upon request

Working conditions and applications

- Temperature range (depending on material execution) – max: - 100°C + 500 °C (- 148 °F + 932 °F)
- Standard tightness from not-preferential side is 10 bar. State your requirement on higher pressure in your inquiry.

Working conditions and applications

Valve	Temperature range	Working pressure	Typical application media
5590	- 29 °C + 200 °C (- 20.2 °F + 392 °F)	DN 50 - DN 100: 50 bar DN 125 - DN 200: 40 bar DN 250 - DN 800: 25 bar	condensate
			air
5580	- 29 °C + 200 °C (- 20.2 °F + 392 °F)	DN 50 - DN 100: 50 bar (25 bar)* DN 125 - DN 200: 40 bar (25 bar)* DN 250 - DN 400: 25 bar (25 bar)*	non-aggressive gas
			oil products
5570	- 29 °C + 400 °C (- 20.2 °F + 752 °F)	DN 50 - DN 400: 25 bar	bitumen
			steam
5490	- 50 °C + 200 °C (- 58 °F + 392 °F)	DN 50 - DN 100: 50 bar DN 125 - DN 200: 40 bar DN 250 - DN 800: 25 bar	firefighting water
			biogas
5480	- 50 °C + 200 °C (- 58 °F + 392 °F)	DN 50 - DN 100: 50 bar (25 bar)* DN 125 - DN 200: 40 bar (25 bar)* DN 250 - DN 400: 25 bar (25 bar)*	tar heating mixture
			tar off-gases
5470	- 100 °C + 500 °C (- 148 °F + 932 °F)	DN 50 - DN 400: 25 bar	ethanol steam
			combustion gas
5690	- 46 °C + 200 °C (- 50.8 °F + 392 °F)	DN 50 - DN 100: 50 bar DN 125 - DN 200: 40 bar DN 250 - DN 800: 25 bar	cooling water
			condensate
5680	- 46 °C + 200 °C (- 50.8 °F + 392 °F)	DN 50 - DN 100: 50 bar (25 bar)* DN 125 - DN 200: 40 bar (25 bar)* DN 250 - DN 400: 25 bar (25 bar)*	natural gas
			petrol
5670	- 46 °C + 340 °C (- 50.8 °F + 644 °F)	DN 50 - DN 400: 25 bar	steam
			bitumen

* The value of working pressure after fire application is stated in the bracket.

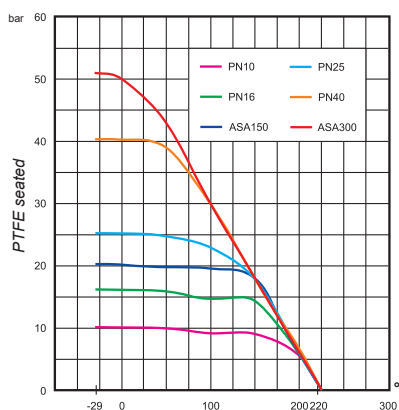
Concrete application of the valve (medium, pressure, temperature, other parameters) is always necessary to consult with the manufacturer.

High performance butterfly valves – Series 2E-5

CARBON STEEL BODY

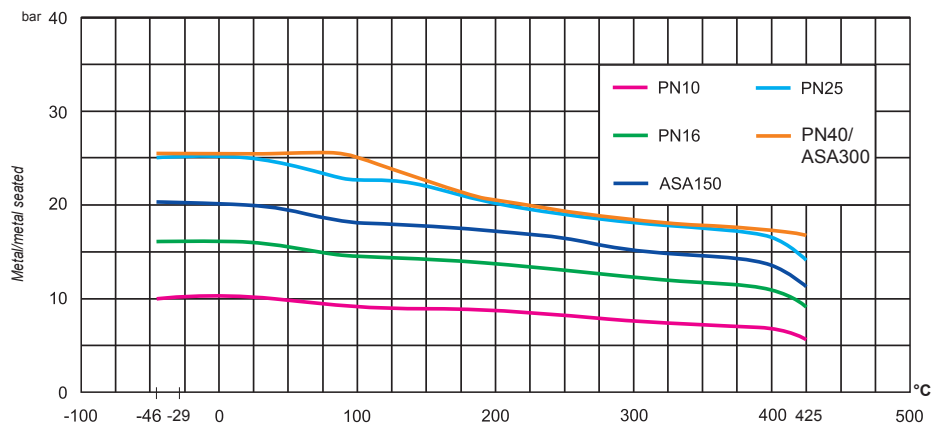
PTFE and FIRE SAFE seat

Body
A216 WCB, A352 LCC



METAL / METAL seat

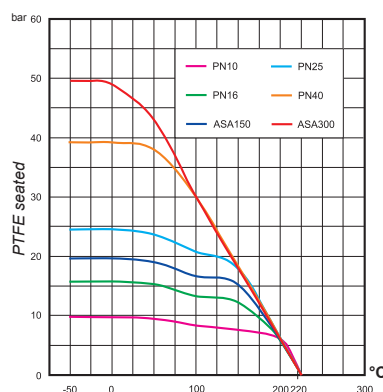
Body
A216 WCB, A352 LCC



STAINLESS STEEL BODY

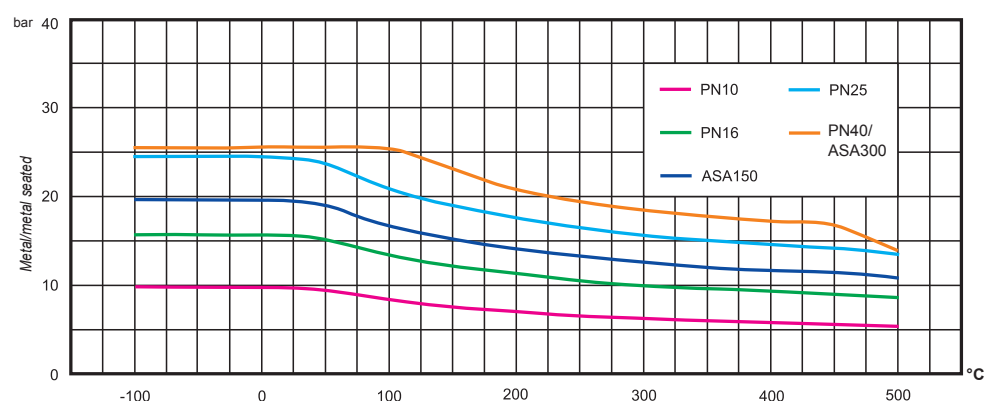
PTFE and FIRE SAFE seat

Body
A351 CF8M



METAL / METAL seat

Body
A351 CF8M



Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208, API 598, ANSI/FCI 70-2
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)

Actuation possibilities

- Handlever (for sizes DN 50 – 200, DN 250 - 300 only upon request)
- Manual gearbox with handwheel
- Electric actuator 24V, 230V, 400V, other upon request
- Pneumatic actuator
 - single acting
 - double acting



Double offset butterfly valve series 2E-5 B

Face to face dimension:

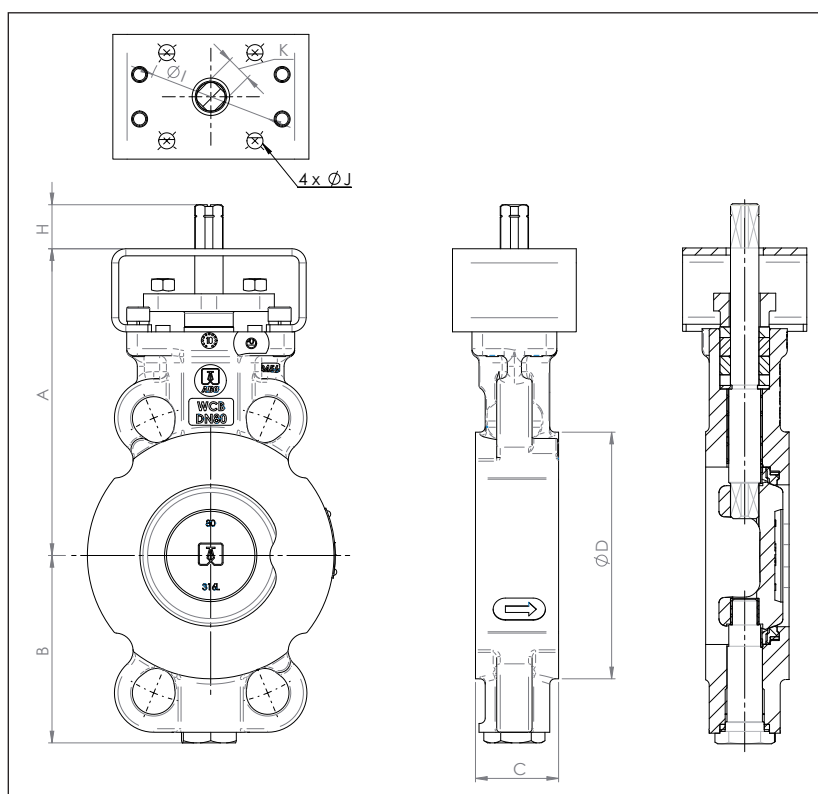
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Bare shaft



DN		A	B	C	D	H	I	J	K	Weight (kg)
mm	mm									
50	2"	163	93	44	104	25	70	9	14	5,3
65	2 1/2"	170	100	47	123	25	70	9	14	6
80	3"	174	106	47	140	25	70	9	14	7
100	4"	206	123	53	163	25	70	9	14	8,7
125	5"	215	137	56	193	25	70	9	14	12

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 B

Face to face dimension:

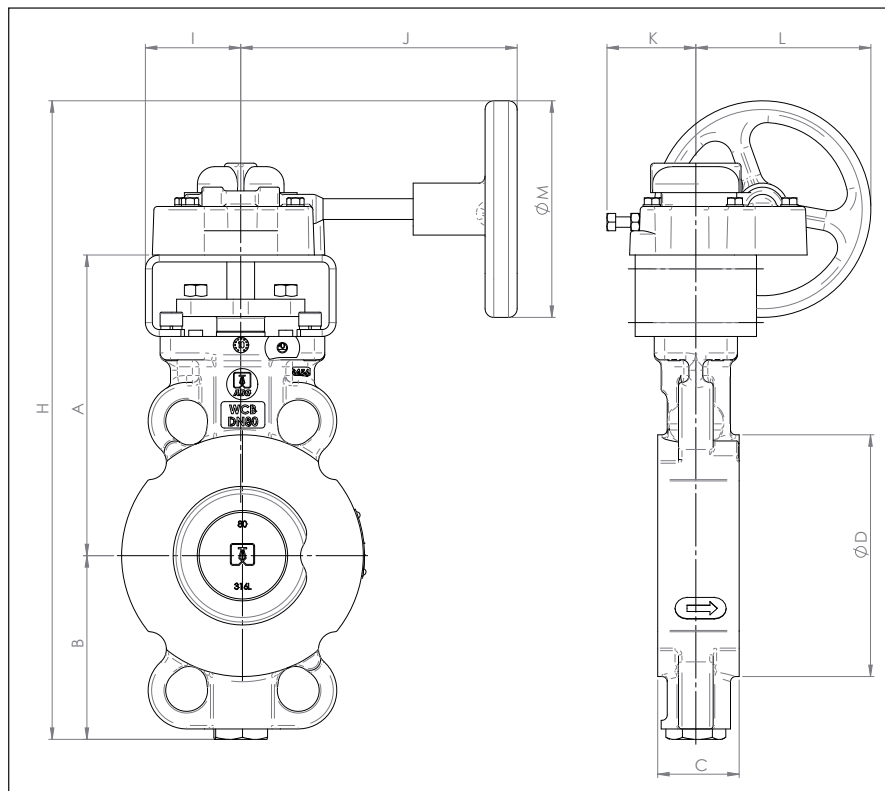
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



PTFE version

DN		A	B	C	D	H	I	J	K	L	M	Weight (kg)
mm	inch											
50	2"	163	93	44	104	345	51	152	44	101	125	7,2
65	2 1/2"	170	100	47	123	359	51	152	44	101	125	7,9
80	3"	174	106	47	140	369	51	152	44	101	125	8,9
100	4"	206	123	53	163	418	51	152	44	101	125	10,6
125	5"	215	137	56	193	507	51	152	44	101	125	13,7

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	H	I	J	K	L	M	Weight (kg)
mm	inch											
50	2"	163	93	44	104	345	51	152	46	101	125	7,2
65	2 1/2"	170	100	47	123	359	51	152	46	101	125	7,9
80	3"	174	106	47	140	369	51	152	46	101	125	8,9
100	4"	206	123	53	163	456	51	192	62	139	200	11,1
125	5"	215	137	57	193	507	66	272	73	177	250	17

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 B

Face to face dimension:

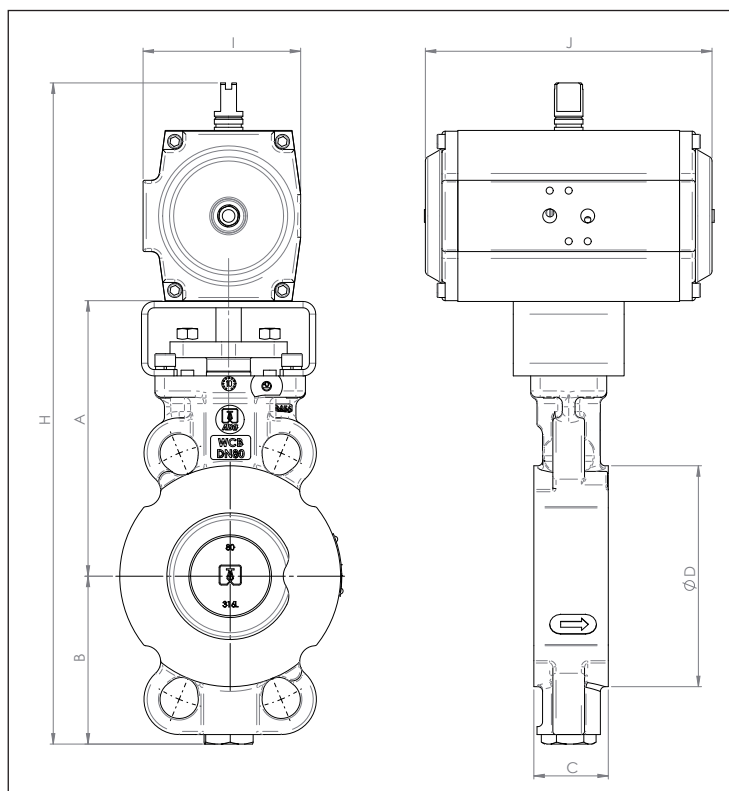
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



PTFE version

DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
50	2"	163	93	44	104	374	80	137	6,75
65	2 1/2"	170	100	47	123	400	92,5	160	8,1
80	3"	174	106	47	140	410	92,5	160	9,1
100	4"	206	123	53	163	459	92,5	180	11,2
125	5"	215	137	56	193	522	120	221	17,2

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
50	2"	163	93	44	104	386	93	180	7,8
65	2 1/2"	170	100	47	123	417	110	209	9,4
80	3"	174	106	47	140	450	120	221	12,2
100	4"	206	123	53	163	499	120	221	15,8
125	5"	215	137	57	193	542	137	298	21

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 16 bar, T = 20°C (68 °F).



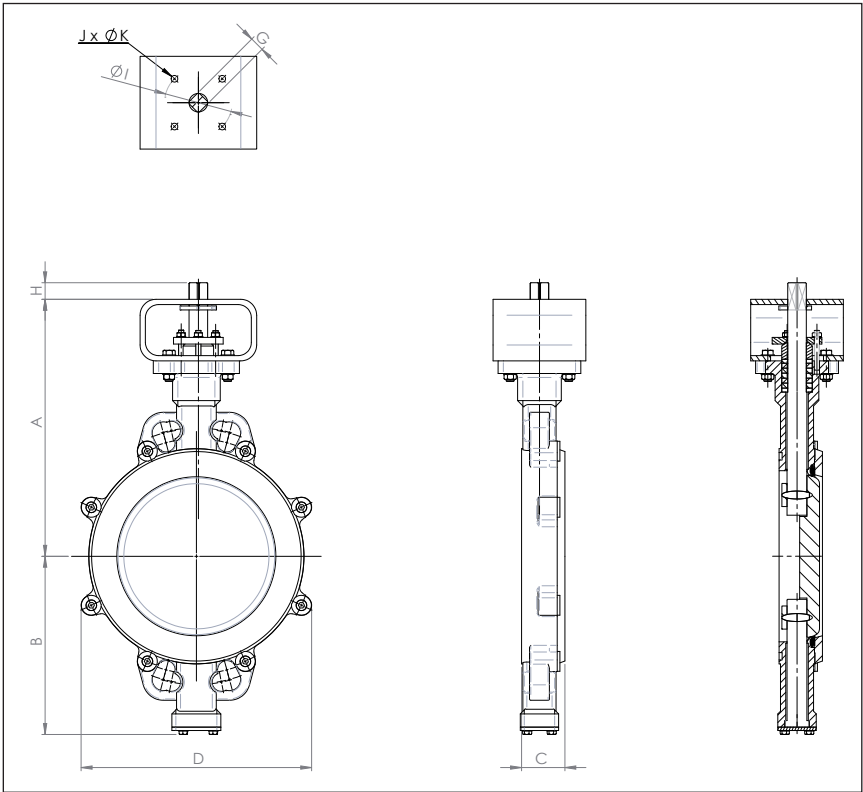
Double offset butterfly valve series 2E-5 B

Face to face dimension:

ISO 5752/20
EN 558
API 609, TABLE 3

Actuation:

Bare shaft



DN											
mm	inch	A	B	C	D	G	H	I	J	K	Weight (kg)
150	6"	307	214	56	252	17	25	102	4	11	21
200	8"	339	246	61	307	17	25	102	4	11	29
250	10"	395	275	69	349	22	31	125	4	13	46
300	12"	460	313	79	393	27	31	140	4	17	67
350	14"	508	355	92	448	27	45	165	4	21	91
400	16"	556	402	103	542	36	58	165	4	21	132

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 B

Face to face dimension:

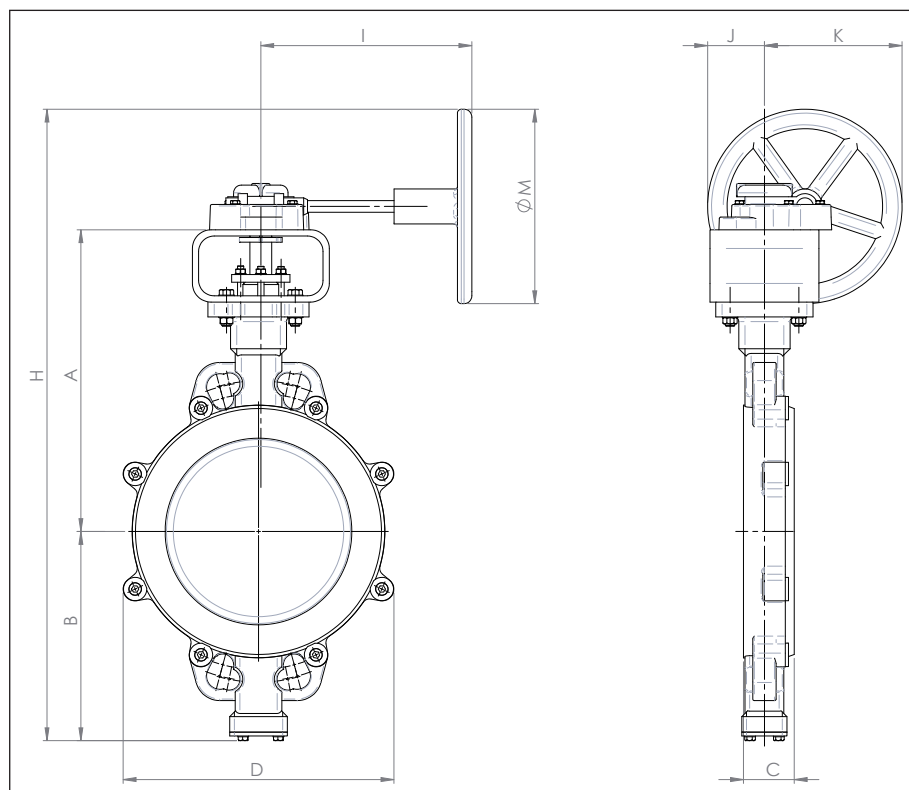
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



PTFE version

DN		A	B	C	D	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	307	214	56	253	676	272	73	177	250	26
200	8"	339	246	61	307	740	272	73	177	250	34
250	10"	395	275	69	348	873	300	108	242	350	55
300	12"	460	313	79	393	1036	340	158	292	450	85
350	14"	508	355	92	448	1126	340	158	292	450	109
400	16"	556	402	103	542	1233	245	135	315	450	163

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	307	214	56	253	676	272	73	177	250	26
200	8"	339	246	60	307	740	272	73	177	250	38
250	10"	395	275	69	348	883	300	108	242	350	55
300	12"	460	313	79	393	1048	245	135	315	450	97,8
350	14"	508	355	92	448	1213	273	177	423	600	122
400	16"	556	402	103	542	1233	360	117	379	450	180

Other dimensions upon request.

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5

Face to face dimension:

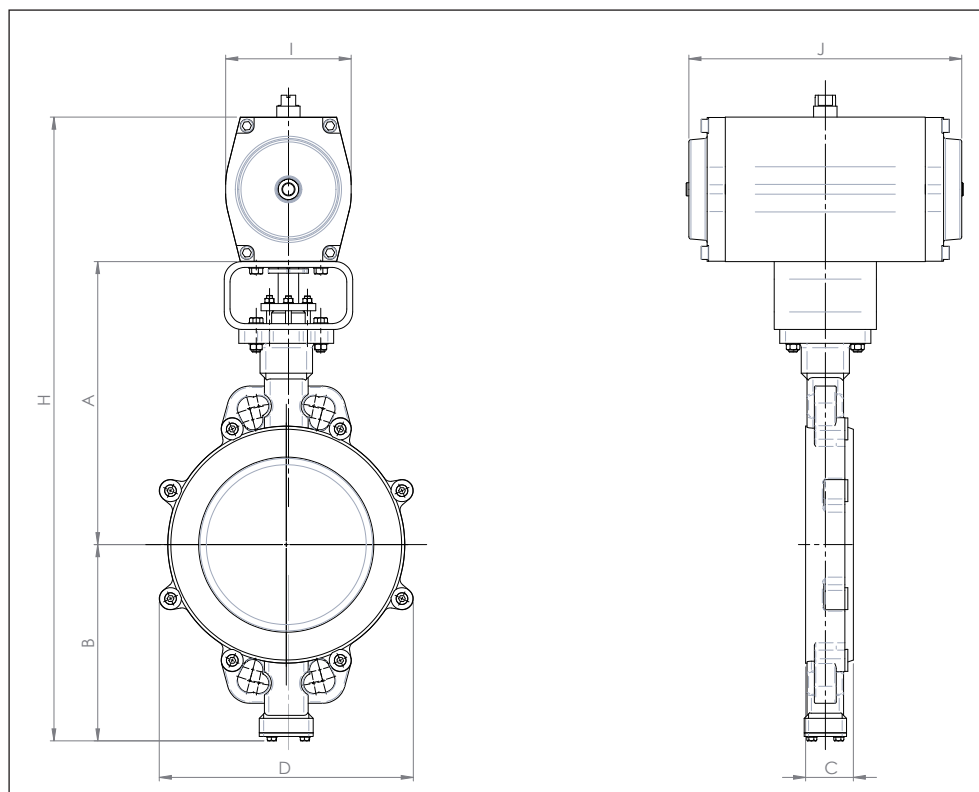
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



PTFE version

DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
150	6"	307	214	56	252	661	120	221	26,2
200	8"	339	246	61	307	725	120	291	37,4
250	10"	395	275	69	349	868	172	332	61,8
300	12"	460	313	79	393	971	172	374	88,1
350	14"	508	355	92	448	1118	224	422	128,6
400	16"	556	402	103	542	1213	224	422	169,6

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
150	6"	307	214	56	252	749	172	332	33,42
200	8"	339	246	60	308	749	172	332	41,42
250	10"	395	275	69	349	955	224	422	73,95
300	12"	460	313	79	393	1058	224	464	94,95
350	14"	508	355	92	448	1195	272	603	146,5
400	16"	556	402	103	542	1260	272	683	201,2

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 16 bar, T = 20°C (68 °F).

Double offset butterfly valve series 2E-5 T

Face to face dimension:

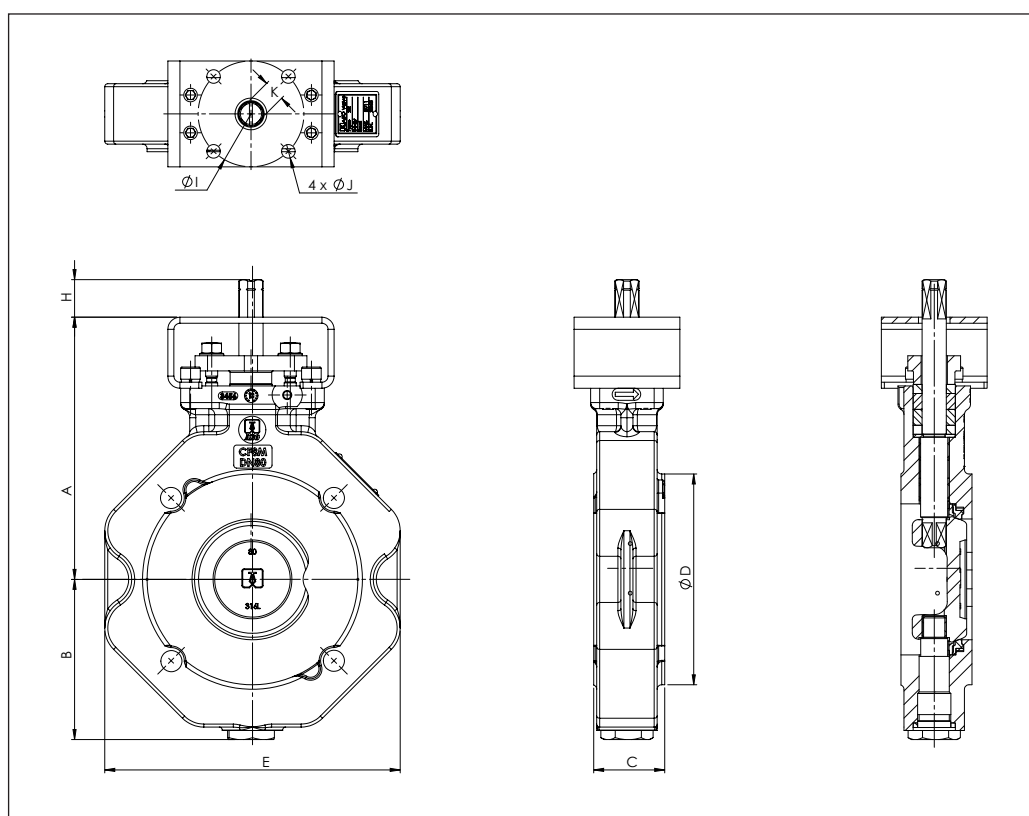
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Bare shaft



DN		A	B	C	E	H	I	J	K	Weight (kg)
mm	inch									
50	2"	163	93	44	154	25	70	9	14	7,3
65	2"1/2	170	100	47	178	25	70	9	14	9
80	3"	174	106	47	198	25	70	9	14	10,1
100	4"	206	123	53	225	25	70	9	14	12,2
125	5"	215	137	56	260	25	70	9	14	16,5

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 T

Face to face dimension:

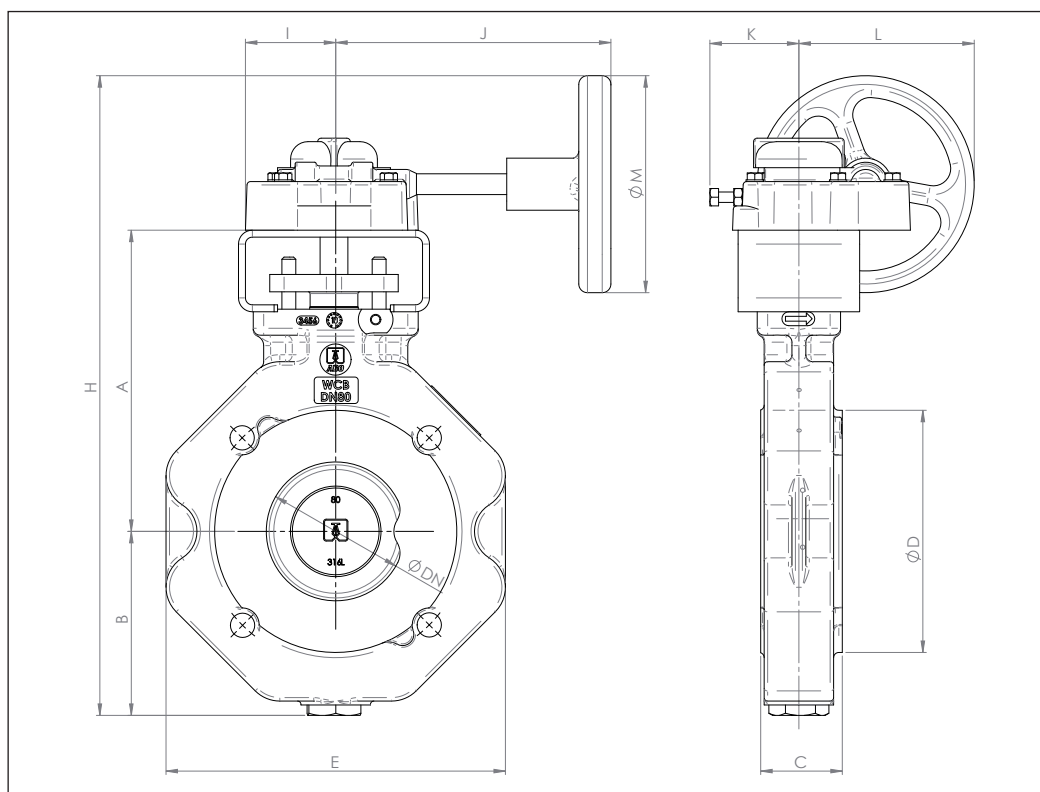
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



PTFE version

DN		A	B	C	D	E	H	I	J	K	L	M	Weight (kg)
mm	inch												
50	2"	163	93	44	104	154	345	51	152	44	101	125	9,2
65	2 1/2"	170	100	47	123	178	359	51	152	44	101	125	10,9
80	3"	174	106	47	140	198	369	51	152	44	101	125	12
100	4"	206	123	53	163	225	418	51	152	44	101	125	14,1
125	5"	215	137	56	193	260	507	51	152	44	101	125	18,4

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	E	H	I	J	K	L	M	Weight (kg)
mm	inch												
50	2"	163	93	44	104	154	345	51	152	46	101	125	9,4
65	2 1/2"	170	100	47	123	178	359	51	152	46	101	125	11,1
80	3"	174	106	47	140	196	369	51	152	46	101	125	12,2
100	4"	206	123	53	163	225	418	51	152	46	101	125	14,3
125	5"	215	137	57	193	260	507	66	278	57	177	250	21,7

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 T

Face to face dimension:

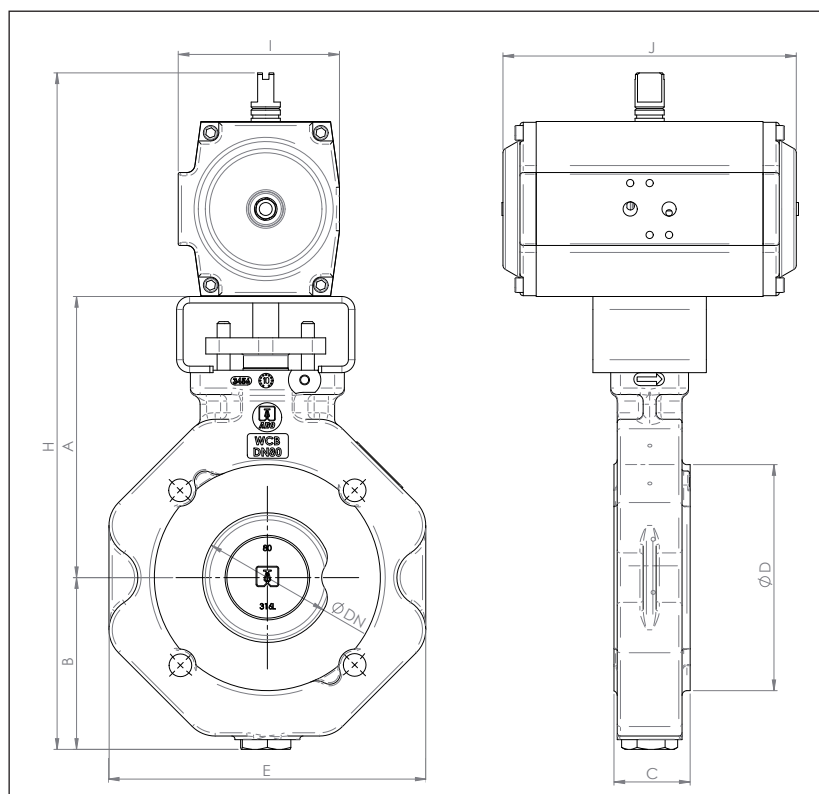
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



PTFE version

DN		A	B	C	D	E	H	I	J	Weight (kg)
mm	inch									
50	2"	163	93	44	104	154	344	80	137	8,95
65	2 1/2"	170	100	47	123	178	370	92,5	160	11,3
80	3"	174	106	47	140	198	380	92,5	160	12,4
100	4"	206	123	53	163	225	429	92,5	180	14,9
125	5"	215	137	56	193	260	492	120	221	21,9

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	E	H	I	J	Weight (kg)
mm	inch									
50	2"	163	93	44	104	154	386	93	180	8,95
65	2 1/2"	170	100	47	123	178	417	110	209	11,3
80	3"	174	106	47	140	196	450	120	221	12,4
100	4"	206	123	53	163	225	499	120	221	14,9
125	5"	215	137	57	193	260	542	137	298	21,9

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 16 bar, T = 20°C (68 °F).

Double offset butterfly valve series 2E-5 T

Face to face dimension:

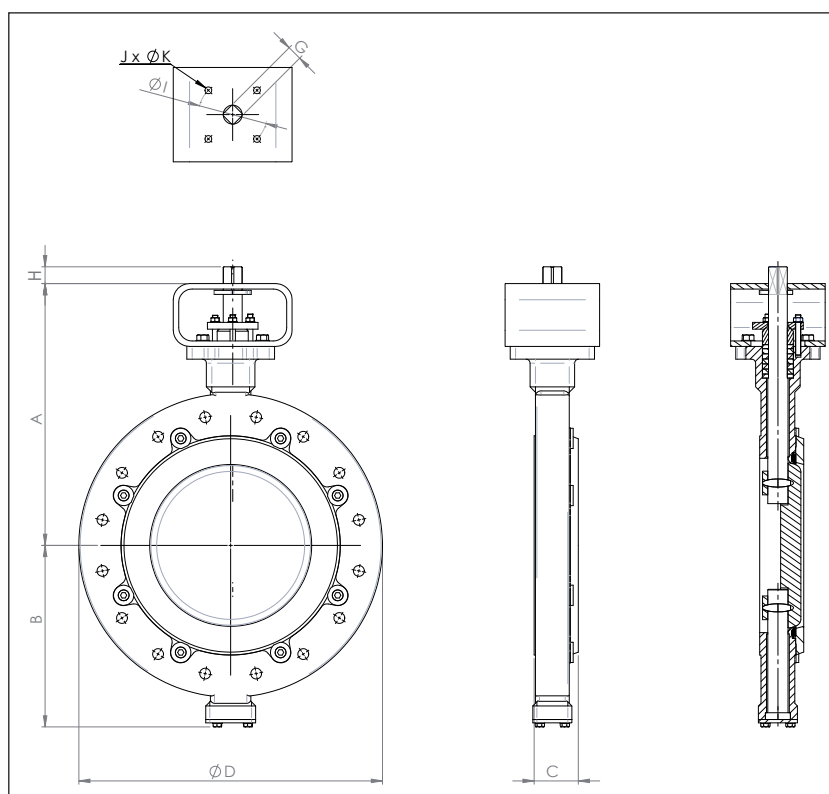
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Bare shaft



DN		A	B	C	E	G	H	I	J	K	Weight (kg)
mm	inch										
150	6"	307	214	56	318	17	25	102	4	11	28
200	8"	339	246	61	381	17	25	102	4	11	41
250	10"	395	275	69	450	22	31	125	4	13	70
300	12"	460	313	79	521	27	31	140	4	17	105
350	14"	508	355	92	577	27	45	165	4	21	140
400	16"	556	402	103	657	36	58	165	4	21	211

Above mentioned dimensions are indicative only.

Double offset butterfly valve series 2E - 5 T

Face to face dimension:

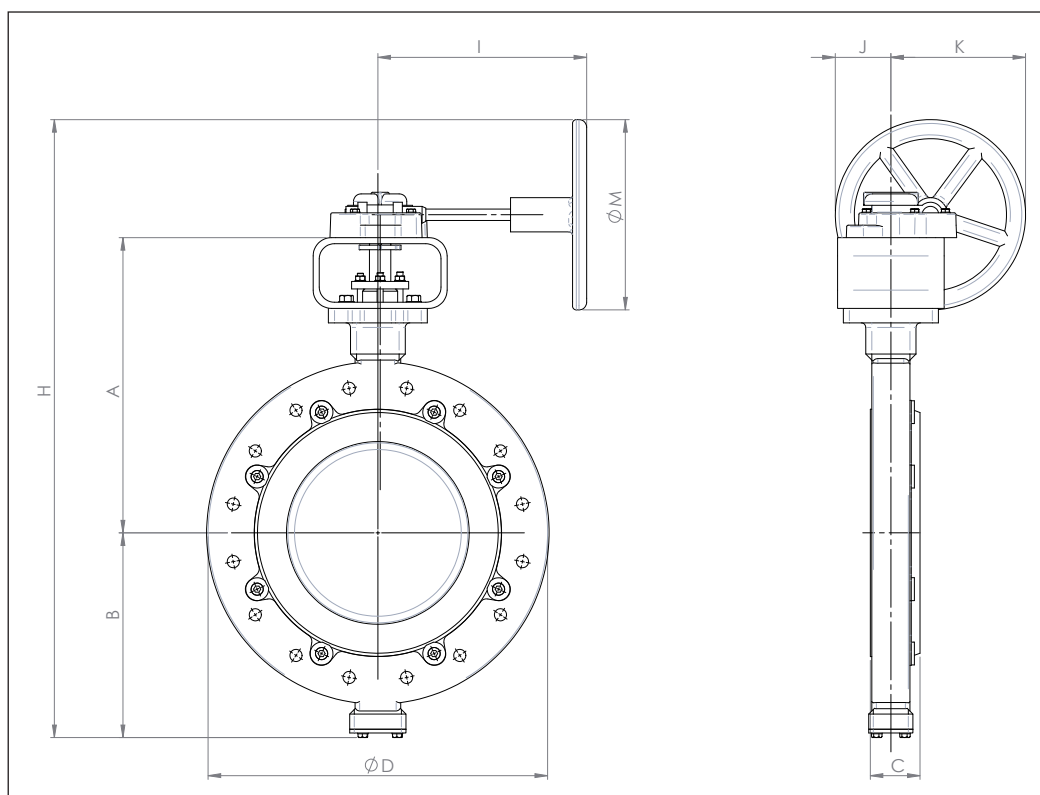
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



PTFE version

DN		A	B	C	E	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	307	214	56	318	676	272	73	177	250	33
200	8"	339	246	61	381	740	272	73	177	250	46
250	10"	395	275	69	450	873	300	108	242	350	79
300	12"	460	313	79	521	1036	340	158	292	450	123
350	14"	508	355	92	577	1126	340	158	292	450	158
400	16"	556	402	103	657	1233	245	135	315	450	242

FIRE SAFE, METAL/METAL VERSION

DN		A	B	C	D	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	307	214	56	318	676	215	73	177	250	33
200	8"	339	246	50	381	740	215	73	177	250	50
250	10"	395	275	69	450	883	250	109	241	350	79
300	12"	460	313	79	521	998	215	135	315	450	136
350	14"	508	355	92	557	1213	215	210	390	600	172
400	16"	556	402	103	657	1408	280	310	490	800	260

Above mentioned dimensions are indicative only. tioned dimensions are indicative only.

Double offset butterfly valve series 2E-5 T

Face to face dimension:

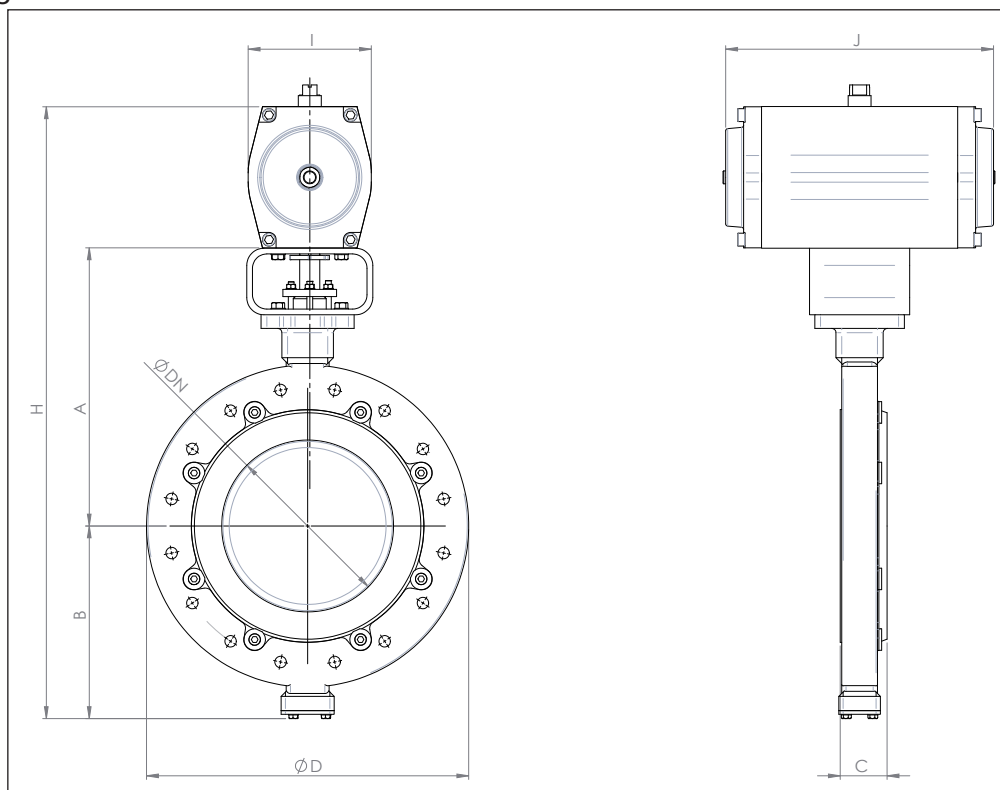
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



PTFE version

DN		A	B	C	E	H	I	J	Weight (kg)
mm	inch								
150	6"	307	214	56	318	691	120	221	34,2
200	8"	339	246	61	381	755	120	291	49,4
250	10"	395	275	69	450	898	172	332	85,8
300	12"	460	313	79	521	1001	172	374	126,1
350	14"	508	355	92	577	1148	224	422	177,6
400	16"	556	402	103	657	1243	224	422	248,6

FIRE SAFE, METAL/METAL VERSION

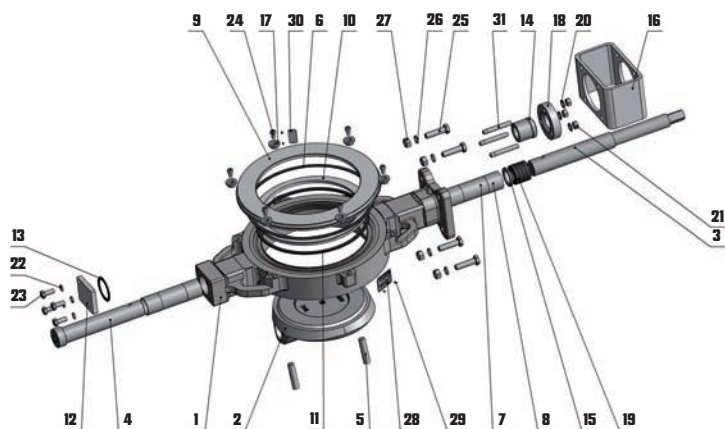
DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
150	6"	307	214	56	318	749	172	332	40,42
200	8"	339	246	50	381	749	172	332	53,42
250	10"	395	275	69	450	955	224	422	97,95
300	12"	460	313	79	521	1058	224	464	136,8
350	14"	508	355	92	557	1195	272	603	195,5
400	16"	556	402	103	657	1260	272	683	280,2

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 16 bar, T = 20°C (68 °F).

High performance butterfly valves – Series 3E

Drawing



Item	Name		
1	Body	16	Bracket
2	Disc	17	Retaining sleeve
3	Shaft	18	Gland flange
4	Pivot	19	Packing
5	Pin	20	Washer
6	Flange seal	21	Hex nut
7	Sleeve	22	Lock washer
8	Sleeve	23	Bolt
9	Ring flange	24	Screw
10	Seat	25	Bolt
11	Bandage	26	Lock washer
12	Cover	27	Hex nut
13	Cover seal	28	Name plate
14	Packaging gland	29	Rivet
15	Lock washer	30	Plate
		31	Stud

Codification

3E-3 5 L 5 B 150

3E-3	5	L	5	B	150	
						DN
						Version of body B = wafer T = lug
						Material of disc 7 - Stainless steel 1.4539 (Uranus B6) 5 - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) + Stellite 4 - Stainless steel 1.4021 (AISI 420) / Stainless steel 1.4408 (CF8M) + Nitride or Stellite
						Material of seat L - lameral version - Stainless steel 1.4401 (AISI 316) + Graphite
						Material of body 7 - Stainless steel 1.4539 (Uranus B6) 6 - Low carbon content steel 1.1156 (A352 LCC) 5 - Carbon Steel 1.0625 (A216 WCB) 4 - Stainless Steel 1.4408 (A351 CF8M)
						Series name Series 3E

High performance butterfly valves – Series 3E

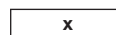
Available connections

INSTALLATION BETWEEN FLANGES (DN 150-400) TYPE B

DN	150	200	250	300	350	400
INCH	6"	8"	10"	12"	14"	16"
ISO PN 6	*	*	*	*	*	*
ISO PN 10	✓	✓	✓	✓	*	*
ISO PN 16	✓	✓	✓	✓	*	*
ISO PN 25	✓	✓	✓	*	*	*
ISO PN 40	✓	✓	✓	*	*	*
ANSI 150	✓	✓	✓	✓	✓	*
ANSI 300	✓	✓	*	*	x	x
JIS 10K	✓	*	✓	*	*	-
JIS 16K	*	✓	✓	*	*	-



suitable



not suitable



suitable with additional machining

Other DN upon request.

For type T installation must be specified in inquiry.

Torque chart (Nm)

DN	150	200	250	300	350	400
PMA 10 bar	120	390	680	1130	2600	4650
PMA 16 bar	168	420	750	1250	2800	4800
PMA 25 bar	240	500	900	1400	3000	5500
PMA 40 bar	250	610*	-	-	-	-

* up to 35 bar

Other dimensions upon request.

Operating torques mentioned include safety reserve.



Series 3E - Application

High performance butterfly valves – Series 3E

Application

High performance applications such as chilled water, water, utility lines, gasoline, natural gas, air, oil, jet fuels and process lines, such as:

- Oil tankers
- Steel & Mining
- Refineries
- Chemical industry
- Oil & Gas

Models

Wafer type (B)



Lug type (T)



General characteristics

- Triple offset design
- Shut-off and regulating device
- Metal/Metal sealing
- High opening & closing performance
- Bubble tight
- Easy repair & maintenance
- Easy installation & mounting

Materials

Body	Stainless steel 1.4539 (Uranus B6) Low carbon content steel 1.1156 (A352 LCC) Carbon Steel 1.0625 (A216 WCB) Stainless Steel 1.4408 (A351 CF8M)
Disc	Stainless steel 1.4539 (Uranus B6) Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) + Stellite Stainless steel 1.4021 (AISI 420) / Stainless steel 1.4408 (CF8M) + Nitride or Stellite
Stem	Stainless steel 1.4021 (AISI 420) Stainless steel 1.4462 (A182 F51)
Sealing	Stainless steel 1.4401 (AISI 316) + Graphite
Pivot	Stainless steel 1.4021 (AISI 420) Stainless steel 1.4462 (A182 F51)
Bushing	Stainless steel 1.4404 (AISI 316L) + Ni
Washer	Stainless steel 1.4404 (AISI 316L)

Coating

- High temperature resistant coating (up to 600 °C).
More information upon request
- Based on customer's request, higher degree of coating can be provided

Working conditions

Working pressure	DN 150: 40 bar DN 200: up to 35 bar DN 250 - DN 400: 25 bar
Working temperature	max temperature range: - 100°C + 500°C with WCB body - 29°C + 425°C with CF8M body - 100°C + 500°C

Specific requirements on tightness please specify in the inquiry.

Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A
- API 598, TAB.5

FACE TO FACE ACC.:

- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TAB.3

TOP FLANGE:

- EN ISO 5211

ATEX OPTION:

- Version according to ATEX 94/9/EC,
- Zone 1 and 21 – Gr II, Cat. 2 G

MARKING

- EN19

CONNECTION BETWEEN FLANGES:

- EN 1092-1, 2
- DIN 2631 - 35
- ASME B16.5

WORKING STANDARD:

- EN 593 + A1



Cross-section view

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208, API 598, ANSI/FCI 70-2
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)

Actuation possibilities

- Manual gearbox with handwheel
- Electric actuator 24V, 230V, 400V, other upon request
- Pneumatic actuator
 - o single acting
 - o double acting



Triple offset butterfly valve serie 3E B

Face to face dimension:

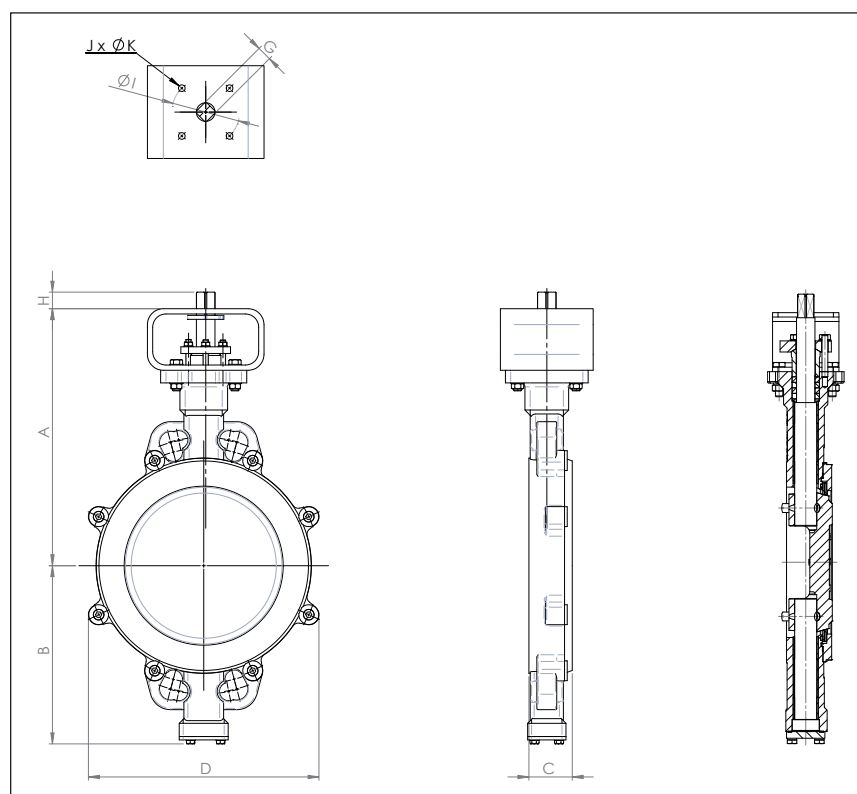
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Bare shaft



DN		A	B	C	D	G	H	I	J	K	Weight (kg)
mm	inch										
150	6"	317	214	56	252	17	25	102	4	11	21
200	8"	349	246	50	308	17	25	102	4	11	29
250	10"	395	275	69	349	22	31	125	4	13	46
300	12"	460	313	79	393	27	31	140	4	17	67
350	14"	508	355	92	448	27	45	165	4	21	91
400	16"	556	402	103	542	36	58	165	4	21	132

Above mentioned dimensions are indicative only.



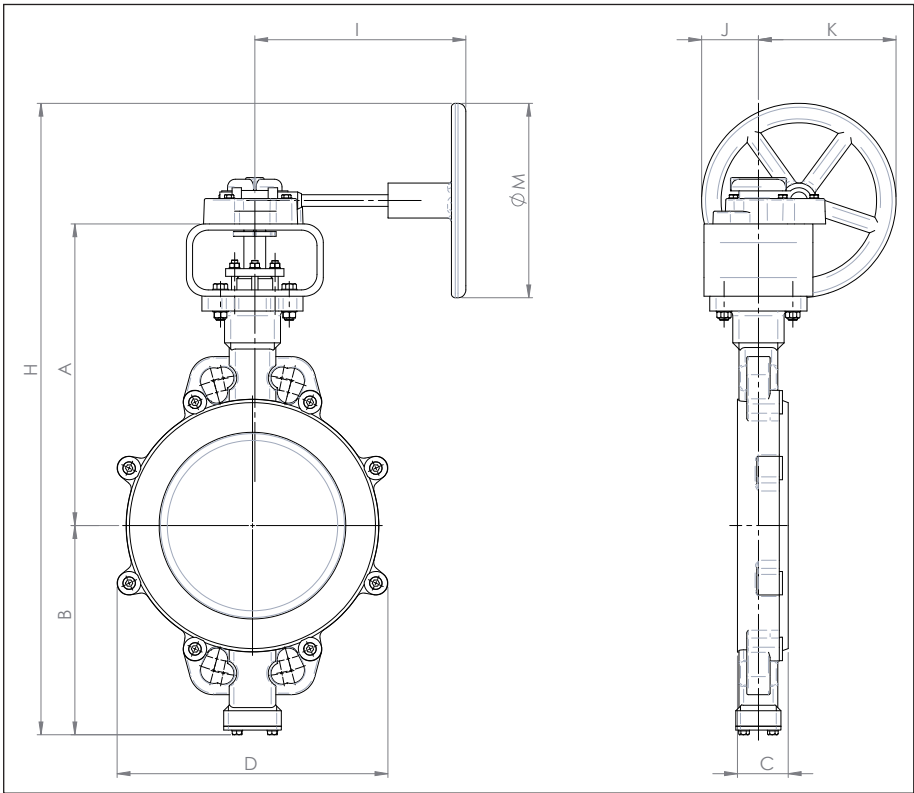
Triple offset butterfly valve series 3E B

Face to face dimension:

ISO 5752/20
EN 558
API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



DN		A	B	C	D	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	317	214	56	253	710	215	73	177	250	24,4
200	8"	349	246	60	307	750	215	73	177	250	44
250	10"	395	275	69	348	883	250	109	241	350	51
300	12"	460	313	79	393	998	215	135	315	450	80,8
350	14"	508	355	92	448	1213	215	210	390	600	102,8
400	16"	556	402	103	542	1408	280	310	490	800	150

Above mentioned dimensions are indicative only.

Triple offset butterfly valve series 3E B

Face to face dimension:

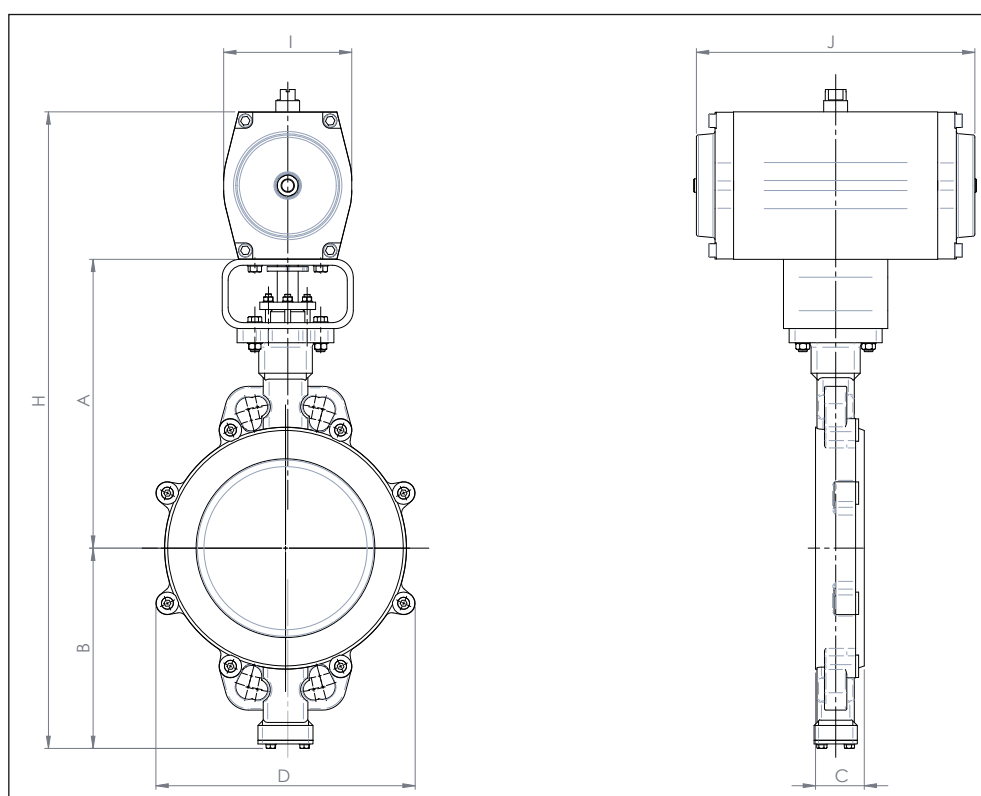
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
150	6"	317	214	56	252	700	172	332	27,2
200	8"	349	246	50	308	790	172	332	37,4
250	10"	395	275	69	349	1065	224	422	61,8
300	12"	460	313	79	393	1175	224	464	88,1
350	14"	508	355	92	448	1195	272	603	128,6
400	16"	556	402	103	542	1318	272	683	169,6

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, $p_{pneu} = 5,6$ bar, medium: water, $p = 10$ bar, $T = 20^{\circ}\text{C}$ (68°F).

Triple offset butterfly valve serie 3E T

Face to face dimension:

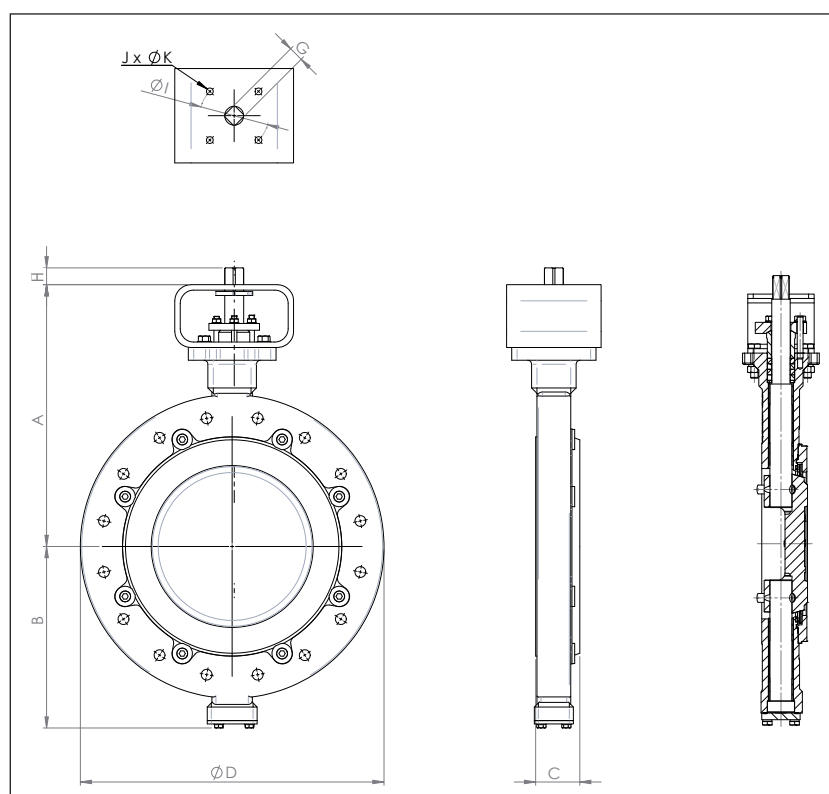
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Bare shaft



DN		A	B	C	D	G	H	I	J	K	Weight (kg)
mm	inch										
150	6"	317	214	56	318	17	25	102	4	11	28
200	8"	349	246	50	381	17	25	102	4	11	41
250	10"	395	275	69	450	22	31	125	4	13	70
300	12"	460	313	79	521	27	31	140	4	17	105
350	14"	508	355	92	557	27	45	165	4	21	140
400	16"	556	402	103	657	36	58	165	4	21	211

Above mentioned dimensions are indicative only.



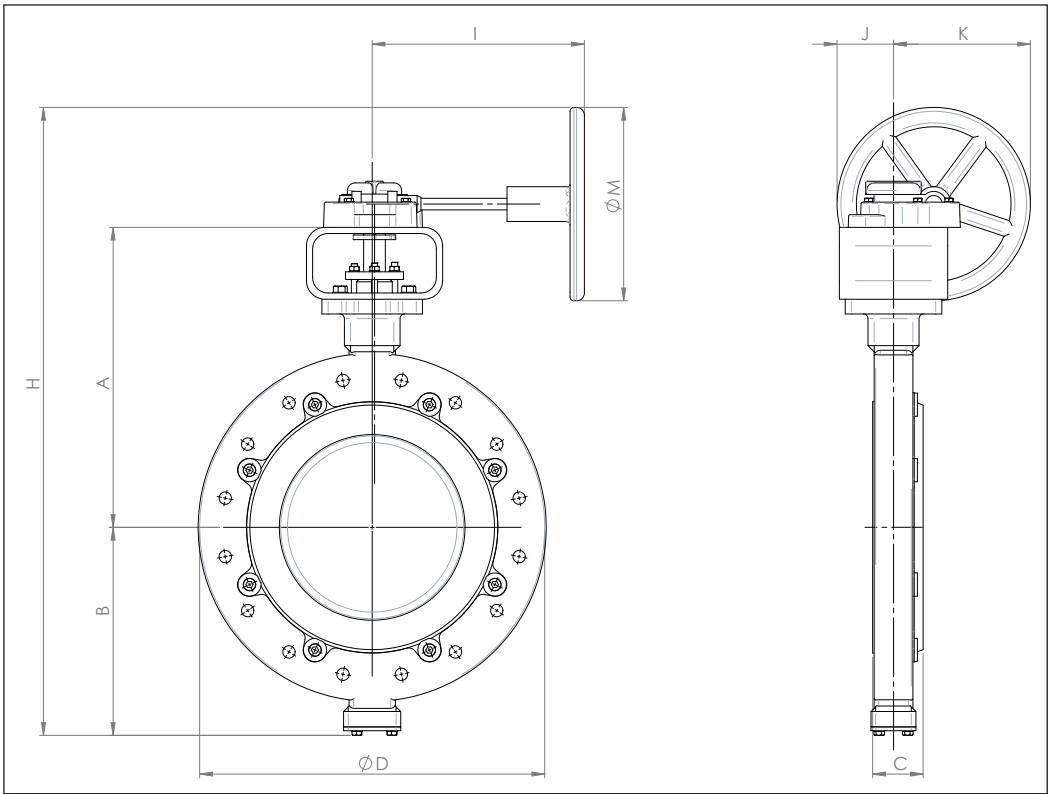
Triple offset butterfly valve series 3E T

Face to face dimension:

ISO 5752/20
EN 558
API 609, TABLE 3

Actuation:

Manual gearbox with handwheel



DN		A	B	C	D	H	I	J	K	M	Weight (kg)
mm	inch										
150	6"	317	214	56	318	710	215	73	177	250	26
200	8"	349	246	50	381	750	215	73	177	250	38
250	10"	395	275	69	450	883	250	109	241	350	53
300	12"	460	313	79	521	998	215	135	315	450	118,8
350	14"	508	355	92	557	1213	215	210	390	600	151,8
400	16"	556	402	103	657	1408	280	310	490	800	229

Above mentioned dimensions are indicative only.

Triple offset butterfly valve series 3E T

Face to face dimension:

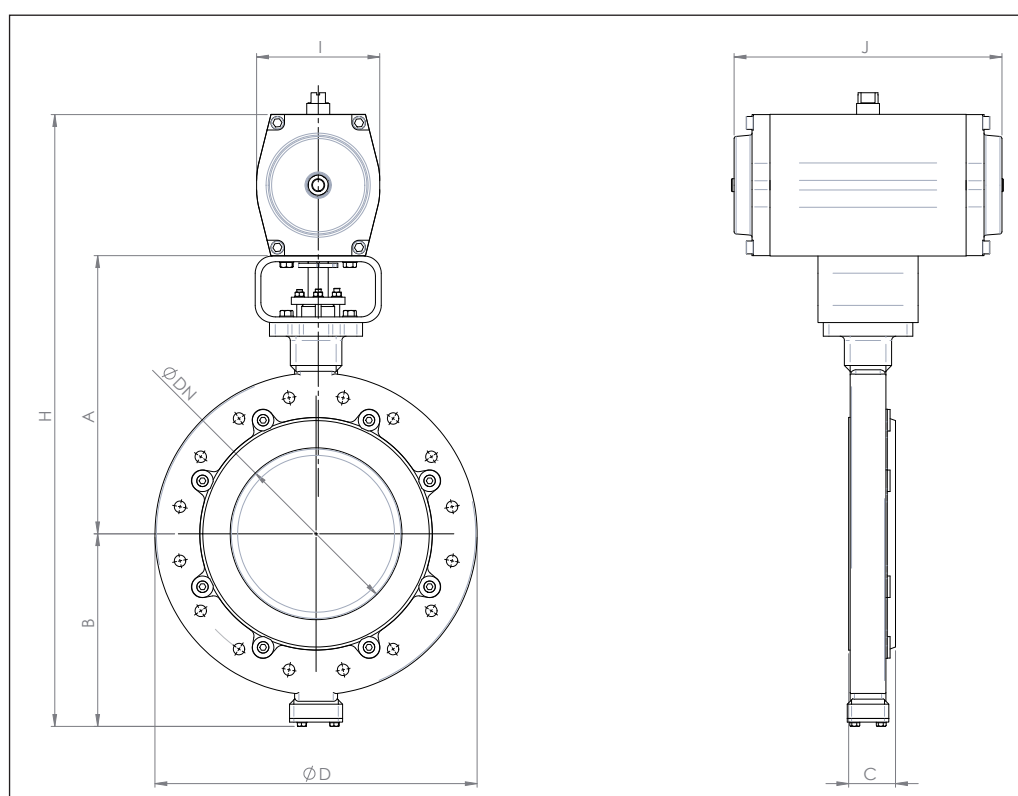
ISO 5752/20

EN 558

API 609, TABLE 3

Actuation:

Pneumatic actuator



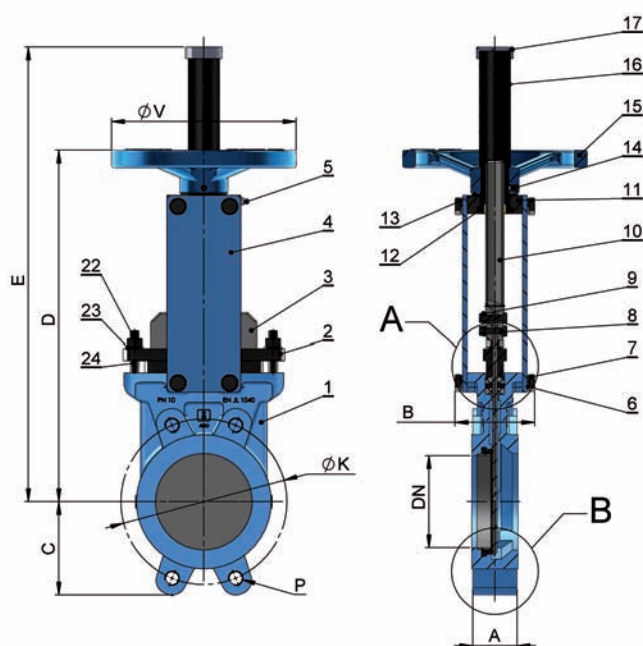
DN		A	B	C	D	H	I	J	Weight (kg)
mm	inch								
150	6"	317	214	56	318	700	172	332	34,2
200	8"	349	246	50	381	790	172	332	49,5
250	10"	395	275	69	450	1065	224	422	85,8
300	12"	460	313	79	521	1175	224	464	126,1
350	14"	508	355	92	557	1195	272	603	177,8
400	16"	556	402	103	657	1318	272	683	248,8

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = 10 bar, T = 20°C (68 °F).

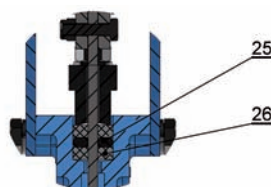
Knife gate valves – Series 200

Drawing



Item	Name
1	Body
2	Packing gland
3	Gate
4	Support plate
5	Greaser
6	Grower washer
7	Bolts
8	Union studs stem – gate
9	Union nuts stem – gate
10	Stem

11	Support bridge
12	Stem drive nut
13	Washer
14	Stop screw
15	Handwheel
16	Tube
17	Cover
18	Sealing ring
19	Seat
20	Deflecting cone 15°
21	Reinforced ring 8°
22	Nut
23	Washer
24	Studs
25	Bushing
26	Packing gland



Codification

2 1 0 B 100 5

Actuation

- 1 - Handlever
- 3 - Pneumatic actuator
- 4 - Electric actuator
- 5 - Handwheel

DN

Version of body

B = wafer

Material of seat

- 0 - EPDM
- 1 - NBR
- 7 - Metal-Metal

Material of body, knife

- 1 - body: Grey cast iron 0.6025 (GG25), knife: Stainless steel 1.4306 (AISI 304L)
- 2 - body: Stainless steel 1.4408 (CF8M), knife: Stainless steel 1.4404 (AISI 316L)

Series name

Series 200

Available connections

PN / DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
PN 6	•	•	•	•	•	•	•	x	x	x	x	x	x	x
PN 10														
PN 16	•	•	•	•	•	•	•	•	•	•	•	•	•	•

standard

upon request

not suitable

x

Torque chart (Nm) - for electric actuator

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Torque (Nm)	10	12	15	20	25	30	35	45	60	70	90	100	110	170

Knife gate valves – Series 200

Application

ABO knife gate valves Series 200 are ideal for installations handling liquids which contain suspended solids and waste water. They are used in following applications:

- Mining
- Chemical treatment
- Water treatment
- Pulp & Paper
- Dry bulk conveying

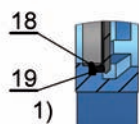
Models

Wafer type

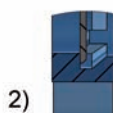


Series 200 - Application

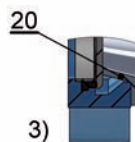
Seat options – Detail B



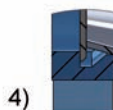
Soft seated



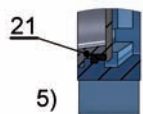
Metal seated



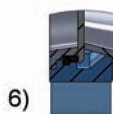
Soft seated with deflecting cone 15°



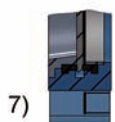
Metal seated with deflecting cone 15°



Soft seated with scraper 8°



Soft seated with deflecting cone 15° and scraper 8



Bidirectional

Standards

LEAK TEST:

- EN 12266-1, CLASS A¹
- ISO 5208, CLASS A¹
- API 598

CONNECTION BETWEEN FLANGES:

- EN 1092-1,2

MARKING:

- EN 19

¹ - for soft seated version

General characteristics

- Unidirectional wafer type valve
- Knife goes through the seal area
- Rising stem
- Monobloc body
- Circular, total passage: enables a high flow capacity with low load loss
- Gate with rounded edges: prolongs the working life of the rings and packing
- Interchangeable drives (hand wheel, electric actuator, pneumatic actuator)

Knife gate valves – Series 200

Materials

Item	Name	Material 1	Material 2
1	Body	Cast iron 0.6025 (GG25)	Stainless steel 1.4408 (CF8M)
2	Packing gland	Aluminium 3.2581	Stainless steel 1.4408 (CF8M)
3	Gate	Stainless steel 1.4306 (AISI 304L)	Stainless steel 1.4404 (AISI 316L)
4	Support plate	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
5	Greaser	Construction steel 0.0553 + Zn	Construction steel 0.0553 + Zn
6	Grower washer	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
7	Bolts	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
8	Union studs stem - gate	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
9	Union nuts stem - gate	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
10	Stem	Stainless steel 1.4305 (AISI 303)	Stainless steel 1.4305 (AISI 303)
11	Support bridge	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
12	Stem drive nut	Brass 2.0402	Brass 2.0402
13	Washer	Brass 2.0402	Brass 2.0402
14	Stop screw	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
15	Handwheel	Cast iron 0.6025 (GG25)	Cast iron 0.6025 (GG25)
16	Tube	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
17	Cover	Plastic	Plastic
18	Sealing ring	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)
19	Seat	EPDM	EPDM
20	Deflecting cone 15°	Stainless steel 1.4404 (AISI 316)	Stainless steel 1.4404 (AISI 316)
21	Reinforced ring 8°	Stainless steel 1.4404 (AISI 316)	Stainless steel 1.4404 (AISI 316)
22	Nut	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
23	Washer	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
24	Studs	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
25	Bushing	EPDM	EPDM
26	Packing gland	SYNT + PTFE	SYNT + PTFE

Other materials upon request.

Coating

- Blue epoxy painting RAL 5015 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

- Maximum working pressure: DN 50 - DN 250 : 10 bar
DN 300 - DN 400 : 6 bar
DN 450 - DN 600 : 4 bar
DN 700 - DN 1200: 2 bar
- Temperature range: from - 50°C + 200°C (- 58 °F + 392 °F)
 - o **Material 1:** -10°C + 125°C (14 °F + 257 °F)
 - o **Material 2:** -25°C + 125°C (- 13 °F + 257 °F)

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category I, modul A)

Actuation possibilities

- Handlever
- Manual gearbox with handwheel
- Electric actuator
- Pneumatic actuator
 - o single acting
 - o double acting



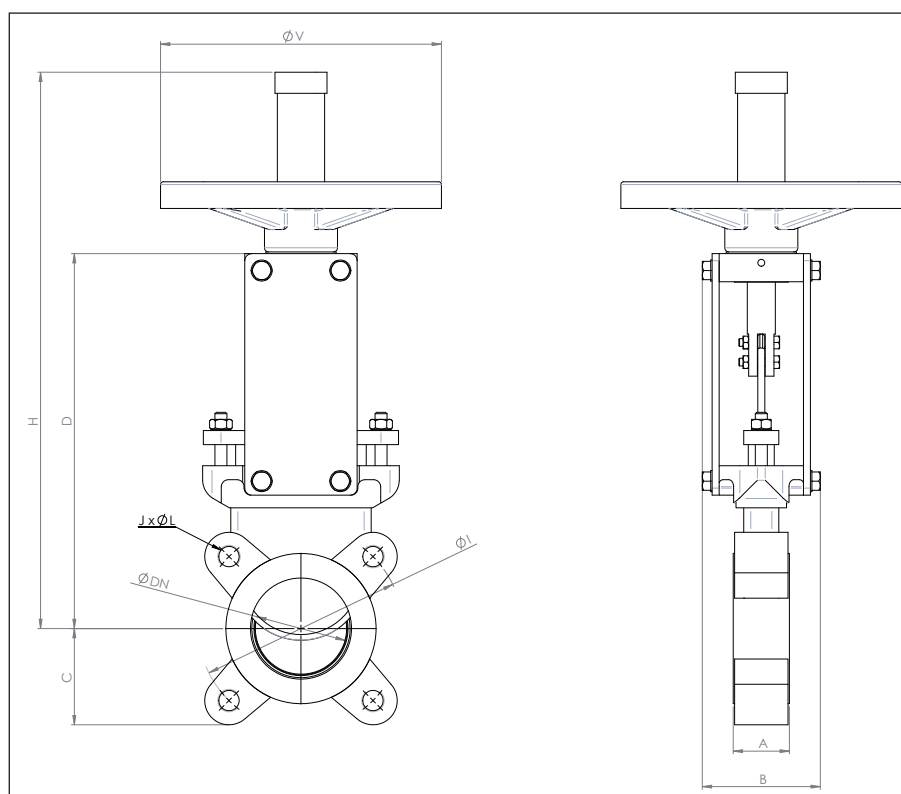
Knife gate valve series 200

Connection between flanges:

• EN 1092-1,2

Actuation:

Handwheel



DN											
mm	inch	A	B	C	D	H	I	J	L	V	Weight (kg)
50	2"	40	90	60	240	425	125	4	M16	200	7,5
65	2 1/2"	40	90	68	270	450	145	4	M16	200	8,5
80	3"	50	90	90	295	480	160	8	M16	200	10
100	4"	50	90	105	335	520	180	8	M16	200	11,5
125	5"	50	100	118	370	600	210	8	M16	250	15
150	6"	60	100	135	418	650	240	8	M20	250	19
200	8"	60	120	170	522	820	295	8	M20	300	31,5
250	10"	70	120	202	625	1020	350	12	M20	300	44
300	12"	70	120	140	725	1120	400	12	M20	300	57
350	14"	96	192	155	845	1380	160	16	M20	400	107
400	16"	100	192	295	945	1490	515	16	M24	400	132
450	18"	106	192	318	1045	1580	565	20	M24	500	160
500	20"	110	192	345	1148	1690	620	20	M24	500	180
600	24"	110	290	405	1360	2030	725	20	M27	500	292

Above mentioned dimensions are indicative only.

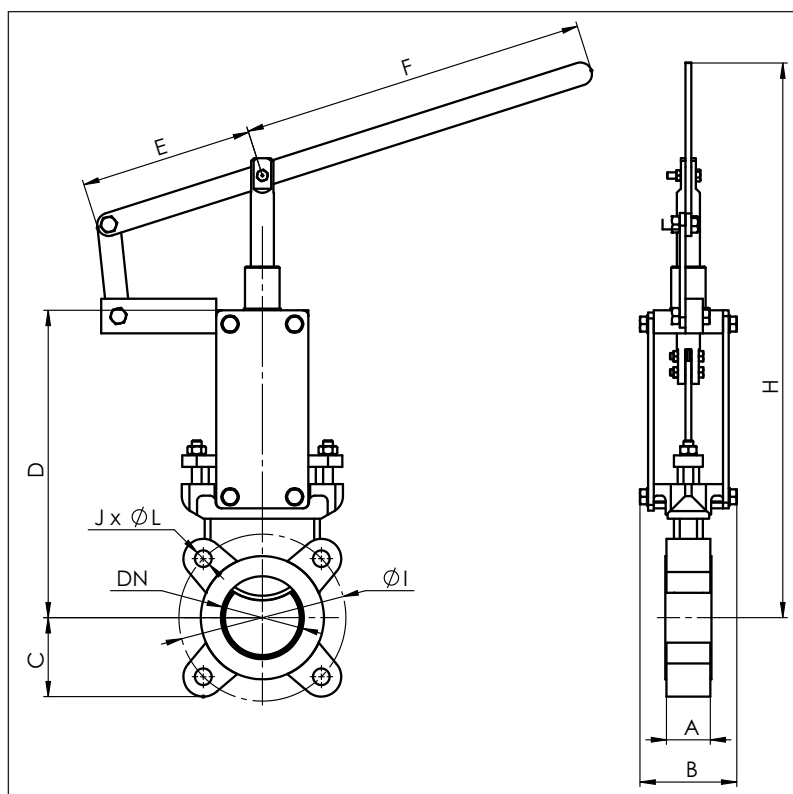
Knife gate valve series 200

Connection between flanges:

• EN 1092-1,2

Actuation:

Handlever



DN												Weight (kg)
mm	inch	A	B	C	D	E	F	H	I	J	L	
50	2"	40	90	60	240	150	300	395	125	4	M16	7,5
65	2 1/2"	40	90	68	270	150	300	435	145	4	M16	7,8
80	3"	50	90	90	295	150	300	458	160	8	M16	8,4
100	4"	50	90	105	335	150	400	590	180	8	M16	10,5
125	5"	50	100	118	370	150	400	725	210	8	M16	14,5
150	6"	60	100	135	418	150	400	892	240	8	M20	16,5
200	8"	60	120	170	522	232	600	1280	295	8	M20	27,5
250	10"	70	120	202	625	232	600	1430	350	12	M20	41
300	12"	70	120	140	725	232	600	1580	400	12	M20	57

Above mentioned dimensions are indicative only.

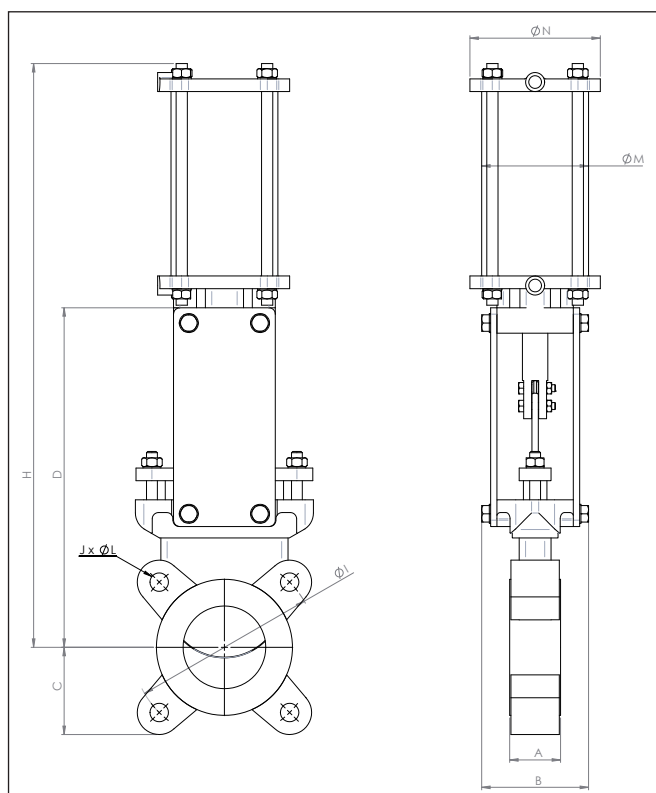
Knife gate valve series 200

Connection between flanges:

• EN 1092-1,2

Actuation:

Pneumatic actuator



DN												
mm	inch	A	B	C	D	H	I	J	L	M	N	Weight (kg)
50	2"	40	90	60	240	410	125	4	M16	80	102,5	7,5
65	2 1/2"	40	90	68	270	456	145	4	M16	80	102,5	8,5
80	3"	50	90	90	295	500	160	8	M16	80	102,5	10
100	4"	50	90	105	335	560	180	8	M16	100	122	13
125	5"	50	100	118	370	640	210	8	M16	125	147	16
150	6"	60	100	135	418	716	240	8	M20	125	147	20,5
200	8"	60	120	170	522	880	295	8	M20	160	182	34,5
250	10"	70	120	202	625	1042	350	12	M20	200	229	52,5
300	12"	70	120	140	725	1182	400	12	M20	200	229	66,5
350	14"	96	192	155	845	1360	160	16	M20	250	291	122
400	16"	100	192	295	945	1540	515	16	M24	250	281	152
450	18"	106	192	318	1045	1675	565	20	M24	300	343	180
500	20"	110	192	345	1148	1840	620	20	M24	300	343	227
600	24"	110	290	405	1360	2145	725	20	M27	300	343	330

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = max according to DN limit, T = 20°C (68 °F).

Knife gate valves - Series 200 - Technical details



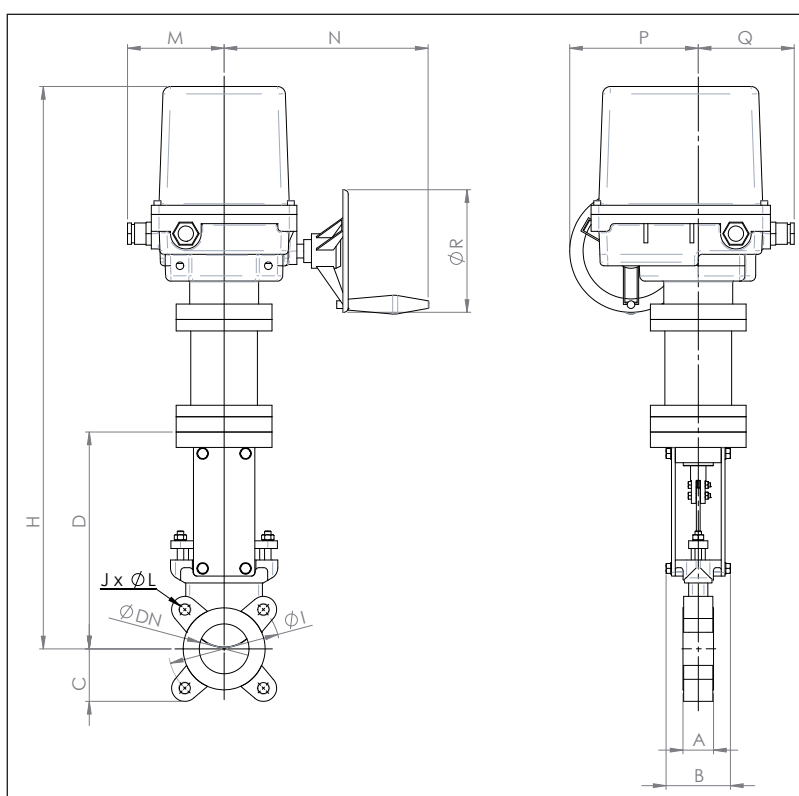
Knife gate valve series 200

Connection between flanges:

• EN 1092-1,2

Actuation:

Electric actuator



DN		A	B	C	D	H	I	J	L	M	N	P	Q	R	Weight (kg)
mm	inch														
50	2"	40	90	60	240	757	125	4	M16	125	201	172	125	160	23
65	2 1/2"	40	90	68	270	795	145	4	M16	125	201	172	125	160	24
80	3"	50	90	90	295	842	160	8	M16	125	201	172	125	160	25,5
100	4"	50	90	105	335	897	180	8	M16	125	201	172	125	160	27
125	5"	50	100	118	370	945	210	8	M16	125	201	172	125	160	29
150	6"	60	100	135	418	1010	240	8	M20	125	201	172	125	160	33

Above mentioned dimensions are indicative only.

Dimensions for electric actuator: max. working pressure, medium: water, seat EPDM, T = 20°C (68 °F).

Knife gate valve - Series 200 - Technical details



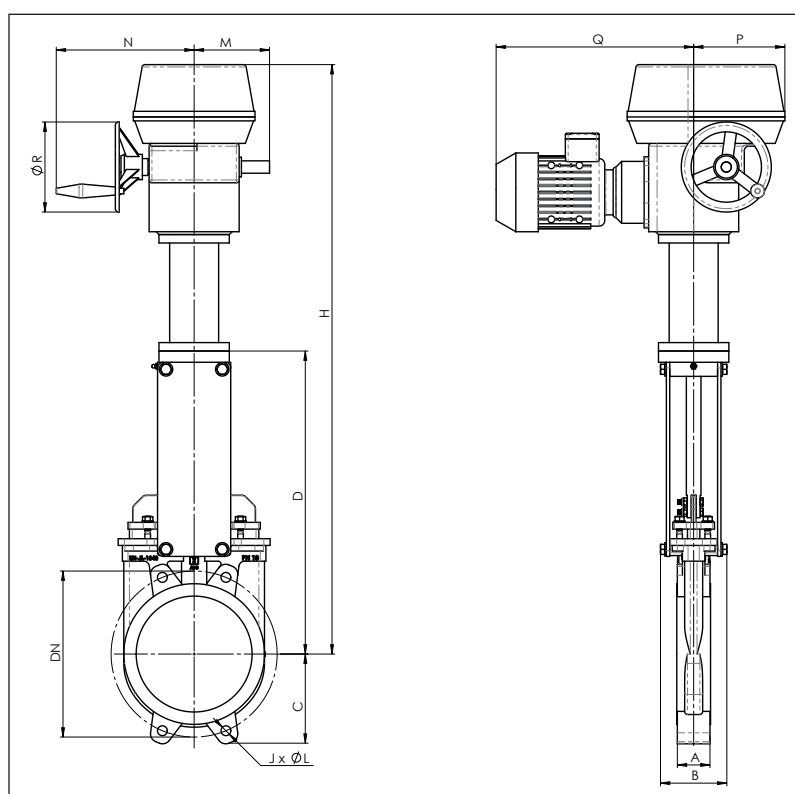
Knife gate valve series 200

Connection between flanges:

• EN 1092-1,2

Actuation:

Electric actuator



DN		A	B	C	D	H	I	J	L	M	N	P	Q	R	Weight (kg)
mm	inch														
200	8"	60	120	170	522	824	295	8	M20	124	188	174	341	160	42
250	10"	70	120	202	625	927	350	12	M20	124	188	174	341	160	54,5
300	12"	70	120	140	725	1027	400	12	M20	124	188	174	341	160	67,5
350	14"	96	192	155	845	1302	160	16	M20	124	188	174	341	160	115
400	16"	100	192	295	945	1542	515	16	M24	124	188	174	341	160	140

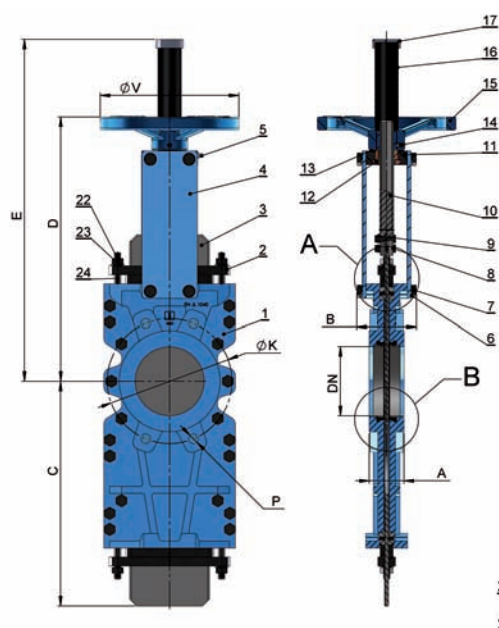
Other dimensions upon request.

Above mentioned dimensions are indicative only.

Dimensions for electric actuator: max. working pressure, medium: water, seat EPDM, T = 20°C (68 °F).

Knife gate valves – Series 300

Drawing



Item	Name
1	Body
2	Packing gland
3	Gate
4	Support plate
5	Greaser
6	Grower washer
7	Bolts
8	Union studs stem – gate
9	Union nuts stem – gate
10	Stem
11	Support bridge

12	Stem drive nut
13	Washer
14	Stop screw
15	Handwheel
16	Tube
17	Cover
18	Sealing ring
19	Seat
20	Deflecting cone 15°
21	Reinforced ring 8°
22	Nut
23	Washer
24	Studs
25	Bushing
26	Packing gland

Codification

3 1 0 B 100 5

Actuation

- 1 - Handlever
- 3 - Pneumatic actuator
- 4 - Electric actuator
- 5 - Handwheel

DN

Version of body

B = wafer

Material of seat

- 0 - EPDM
- 1 - NBR
- 7 - Metal-Metal

Material of body, knife

- 1 - body: Grey cast iron 0.6025 (GG25), knife: Stainless steel 1.4306 (AISI 304L)
- 2 - body: Stainless steel 1.4408 (CF8M), knife: Stainless steel 1.4404 (AISI 316L)

Series name

Series 300

Available connections

PN / DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
PN 6	•	•	•	•	•	•	•	x	x	x	x	x	x	x
PN 10														
PN 16	•	•	•	•	•	•	•	•	•	•	•	•	•	•

standard

upon request

not suitable

Torque chart (Nm) - for electric actuator

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Torque (Nm)	10	12	15	20	25	30	35	45	60	70	90	100	110	170

Knife gate valves – Series 300

Application

ABO knife gate valves Series 300 are bidirectional wafer type valves which are ideal for following installations:

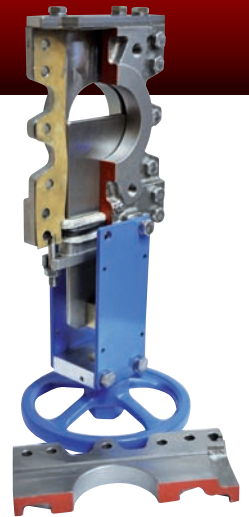
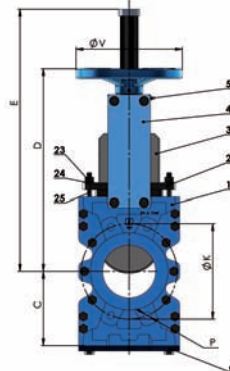
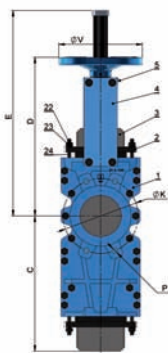
- Classic Series 300: installations handling large solids, very viscous fluids, sludge and highly concentrated slurry
 - Mining
 - Paper industry
 - Cement industry
- Short Series 300: installation handling fluids with a low concentration of solids
 - Waste products industry
 - Recycled products industry

Models

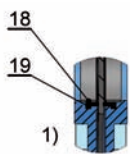
Wafer type

Classic Series 300

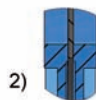
Short Series 300



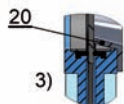
Seat options – Detail B



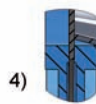
Soft seated



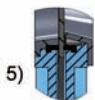
Metal seated



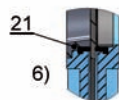
Soft seated with deflecting cone 15°



Metal seated with deflecting cone 15°



Soft seated with scraper 8°



Soft seated with deflecting cone 15° and scraper 8

Standards

LEAK TEST:

- EN 12266-1, CLASS A¹
- ISO 5208, CLASS A¹
- API 598

CONNECTION BETWEEN FLANGES:

- EN 1092-1,2

MARKING:

- EN 19

¹ - for soft seated version

General characteristics

Classic Series 300

- Bidirectional wafer type valve
- Rising stem
- Body and counter-body
- Circular, total passage: enables a high flow capacity with low load loss
- Through gate: in its open position, there are no zones that limit the passage of the fluid (dead zones)
- Double water tightness: packing and seal on both sides
- Interchangeable drives

Short Series 300

- Bidirectional wafer type valve
- Rising stem
- Body and counter-body
- Circular, total passage: enables a high flow capacity with low load loss
- Double water tightness: packing and toric thread on both sides
- Optional bottom cleaning cover
- Interchangeable drives

Knife gate valves – Series 300

Materials

Item	Name	Material 1	Material 2
1	Body	Cast iron 0.6025 (GG25)	Stainless steel 1.4408 (CF8M)
2	Packing gland	Aluminium 3.2581	Stainless steel 1.4408 (CF8M)
3	Gate	Stainless steel 1.4306 (AISI 304L)	Stainless steel 1.4404 (AISI 316L)
4	Support plate	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
5	Greaser	Construction steel 0.0553 + Zn	Construction steel 0.0553 + Zn
6	Grower washer	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
7	Bolts	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
8	Union studs stem - gate	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
9	Union nuts stem - gate	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
10	Stem	Stainless steel 1.4305 (AISI 303)	Stainless steel 1.4305 (AISI 303)
11	Support bridge	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
12	Stem drive nut	Brass 2.0402	Brass 2.0402
13	Washer	Brass 2.0402	Brass 2.0402
14	Stop screw	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
15	Handwheel	Cast iron 0.6025 (GG25)	Cast iron 0.6025 (GG25)
16	Tube	Carbon steel 1.0036 (AISI 1052)	Carbon steel 1.0036 (AISI 1052)
17	Cover	Plastic	Plastic
18	Sealing ring	Stainless steel 1.4404 (AISI 316L)	Stainless steel 1.4404 (AISI 316L)
19	Seat	EPDM	EPDM
20	Deflecting cone 15°	Stainless steel 1.4404 (AISI 316)	Stainless steel 1.4404 (AISI 316)
21	Reinforced ring 8°	Stainless steel 1.4404 (AISI 316)	Stainless steel 1.4404 (AISI 316)
22	Nut	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
23	Washer	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
24	Studs	Stainless steel 1.4306 (AISI 304)	Stainless steel 1.4306 (AISI 304)
25	Bushing	EPDM	EPDM
26	Packing gland	SYNT + PTFE	SYNT + PTFE

Other materials upon request.

Coating

- Blue epoxy painting RAL 5015 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

- Maximum working pressure: DN 50 - DN 250 : 10 bar
DN 300 - DN 400 : 6 bar
DN 450 - DN 600 : 4 bar
DN 700 - DN 1200: 2 bar
- Temperature range: from - 50°C + 200°C (- 58 °F + 392 °F)
 - o **Material 1:** -10°C + 125°C (14 °F + 257 °F)
 - o **Material 2:** -25°C + 125°C (- 13 °F + 257 °F)

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category I, modul A)

Actuation possibilities

- Handlever
- Manual gearbox with handwheel
- Electric actuator
- Pneumatic actuator
 - o single acting
 - o double acting



Knife gate valves - Series 300 - Technical details



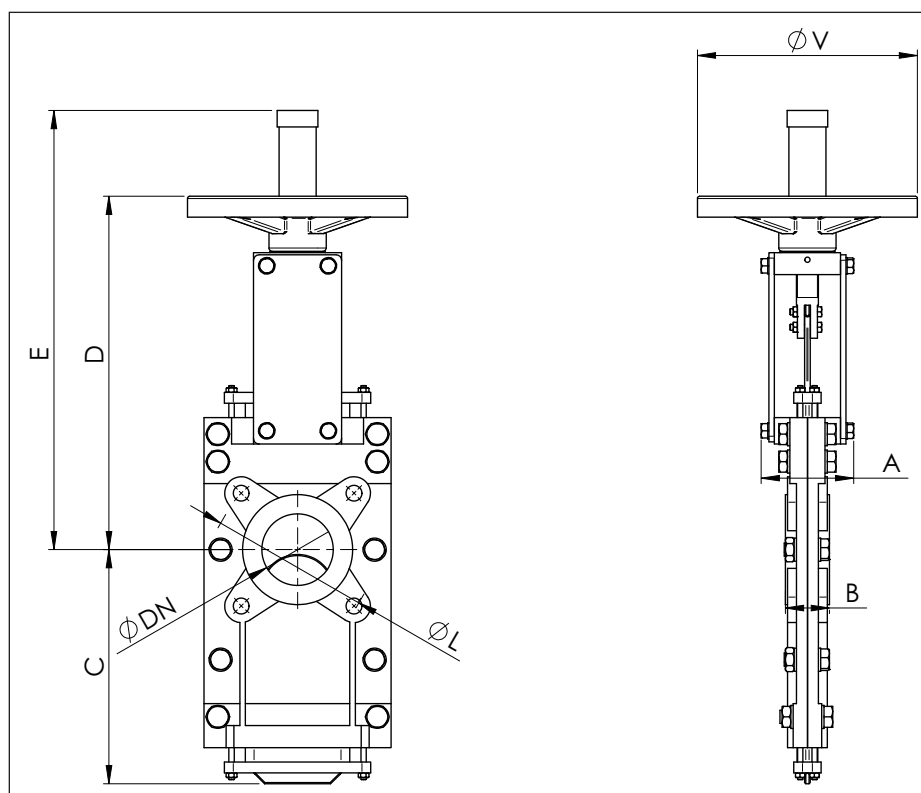
Knife gate valve series 300

Connection between flanges:

• EN 1092-1,2

Actuation:

Handwheel



DN											
mm	inch	A	B	C	D	E	J	K	L	V	Weight (kg)
50	2"	40	90	220	240	425	4	M16	125	200	12,5
65	2 1/2"	40	90	260	270	450	4	M16	145	200	16
80	3"	50	90	303	295	480	8	M16	160	200	19,5
100	4"	50	90	360	335	520	8	M16	180	200	25
125	5"	50	100	428	370	600	8	M16	210	250	28,5
150	6"	60	100	493	418	650	8	M20	240	250	40
200	8"	60	120	632	522	820	8	M20	295	300	63
250	10"	70	120	767	625	1020	12	M20	350	300	99,5
300	12"	70	120	897	725	1120	12	M20	400	300	126
350	14"	96	192	1042	845	1380	16	M20	460	400	219
400	16"	100	192	1167	945	1490	16	M24	515	400	238
500	20"	110	192	1455	1148	1690	20	M24	620	500	336
600	24"	110	290	1705	1360	2030	20	M27	725	500	592

Above mentioned dimensions are indicative only.

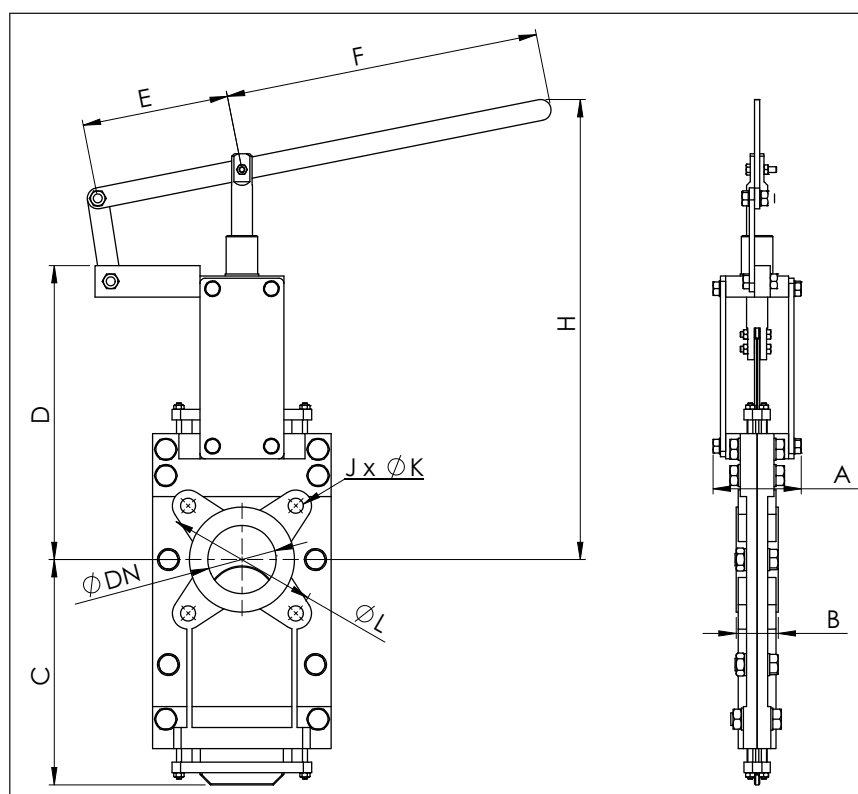
Knife gate valve series 300

Connection between flanges:

• EN 1092-1,2

Actuation:

Handlever



DN		A	B	C	D	E	F	H	J	K	L	Weight (kg)
mm	inch											
50	2"	40	90	220	240	150	300	395	4	M16	125	11,5
65	2 1/2"	40	90	260	270	150	300	435	4	M16	145	15
80	3"	50	90	303	295	150	300	458	8	M16	160	18,5
100	4"	50	90	360	335	150	400	590	8	M16	180	24
125	5"	50	100	428	370	150	400	725	8	M16	210	26,5
150	6"	60	100	493	418	150	400	892	8	M20	240	38
200	8"	60	120	632	522	232	600	1280	8	M20	295	60
250	10"	70	120	767	625	232	600	1430	12	M20	350	96
300	12"	70	120	897	725	232	600	1580	12	M20	400	120

Above mentioned dimensions are indicative only.

Knife gate valves - Series 300 - Technical details



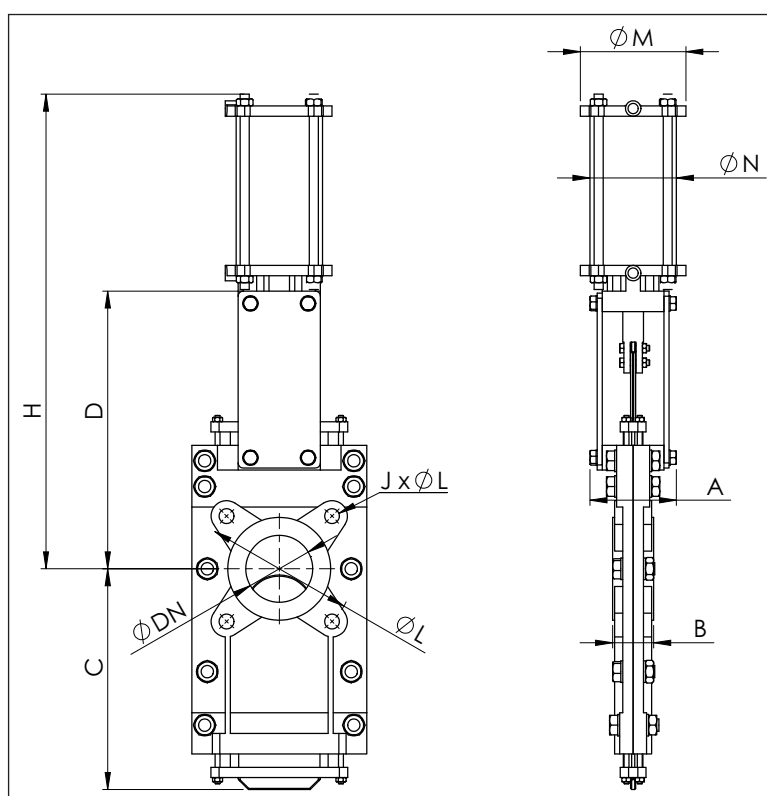
Knife gate valve series 300

Connection between flanges:

• EN 1092-1,2

Actuation:

Pneumatic actuator



DN		A	B	C	D	H	J	K	L	M	N	Weight (kg)
mm	inch											
50	2"	40	90	220	240	410	4	M16	125	80	96	12
65	2 1/2"	40	90	260	270	456	4	M16	145	80	96	16
80	3"	50	90	303	295	500	8	M16	160	80	96	19,5
100	4"	50	90	360	335	560	8	M16	180	100	115	26
125	5"	50	100	428	370	640	8	M16	210	125	138	29,5
150	6"	60	100	493	418	716	8	M20	240	125	138	42
200	8"	60	120	632	522	880	8	M20	295	150	175	71
250	10"	70	120	767	625	1042	12	M20	350	200	218	107,5
300	12"	70	120	897	725	1182	12	M20	400	200	218	135
350	14"	96	192	1042	845	1360	16	M20	460	250	270	230
400	16"	100	192	1167	945	1540	16	M24	515	250	270	260
500	20"	110	192	1455	1148	1840	20	M24	620	300	382	370
600	24"	110	290	1705	1360	2145	20	M27	725	300	382	630

Above mentioned dimensions are indicative only.

Dimensions for double acting pneumatic actuator, ppneu = 5,6 bar, medium: water, p = max according to DN limit, T = 20°C (68 °F).

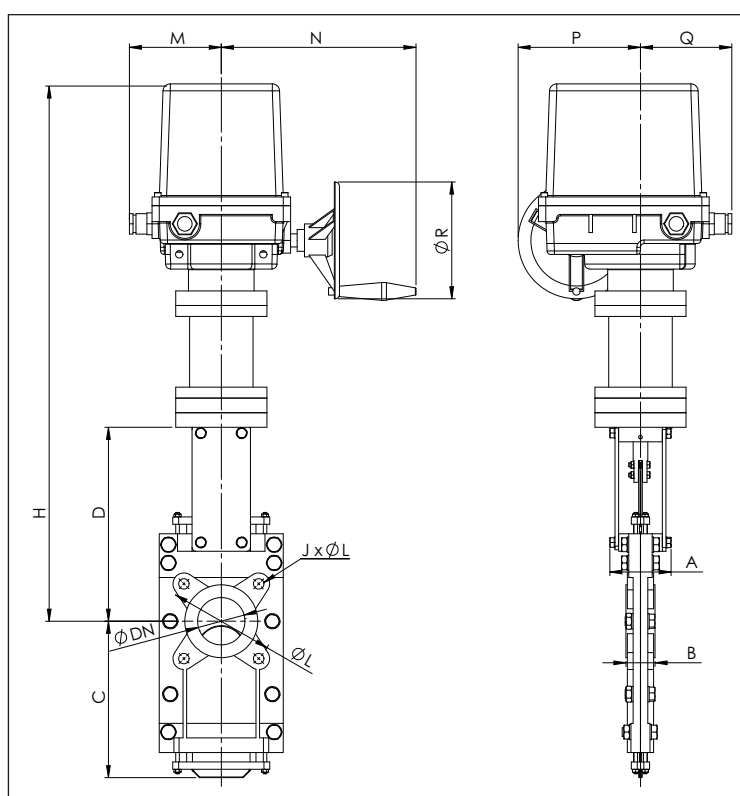
Knife gate valve series 300

Connection between flanges:

• EN 1092-1,2

Actuation:

Electric actuator



DN		A	B	C	D	H	J	K	L	M	N	P	Q	R	Weight (kg)
mm	inch														
50	2"	40	90	220	240	697	4	M16	125	97	201	172	125	160	29
65	2 1/2"	40	90	260	270	717	4	M16	145	97	201	172	125	160	32,5
80	3"	50	90	303	295	752	8	M16	160	97	201	172	125	160	36
100	4"	50	90	360	335	792	8	M16	180	97	201	172	125	160	41,5
125	5"	50	100	428	370	827	8	M16	210	97	201	172	125	160	45
150	6"	60	100	493	418	875	8	M20	240	97	201	172	125	160	56,5

Above mentioned dimensions are indicative only.

Dimensions for electric actuator: max. working pressure, medium: water, seat EPDM, T = 20°C (68 °F).

Knife gate valves - Series 300 - Technical details



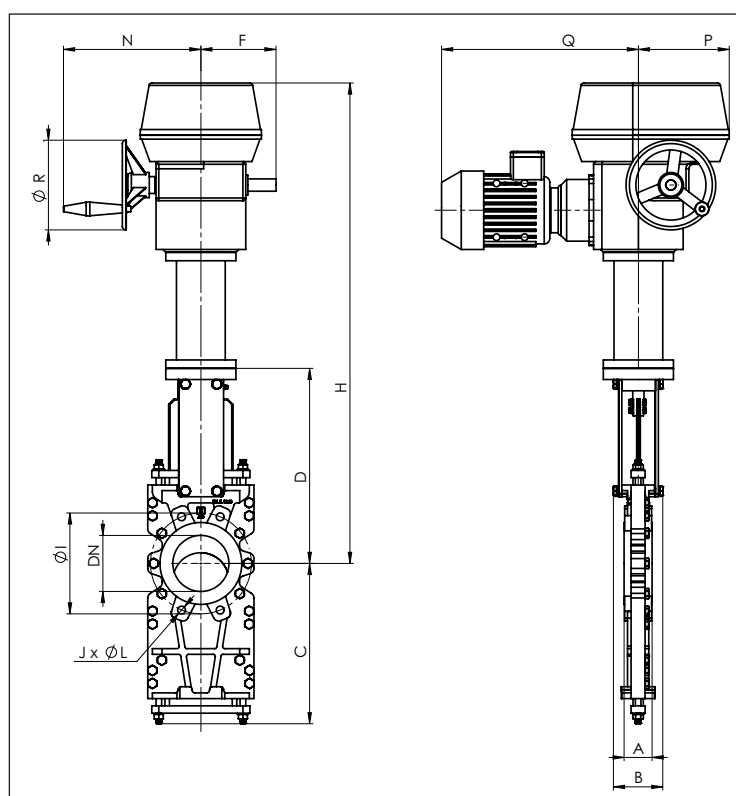
Knife gate valve series 300

Connection between flanges:

- EN 1092-1,2

Actuation:

Electric actuator



DN		A	B	C	D	H	I	J	L	M	N	P	Q	R	Weight (kg)
mm	inch														
200	8"	60	120	632	522	824	295	8	M20	124	188	174	341	160	79,5
250	10"	70	120	767	625	927	350	12	M20	124	188	174	341	160	116
300	12"	70	120	897	725	1027	400	12	M20	124	188	174	341	160	142,5
350	14"	96	192	1042	845	1147	460	16	M20	124	188	174	341	160	247
400	16"	100	192	1167	945	1250	515	16	M24	124	188	174	341	160	266

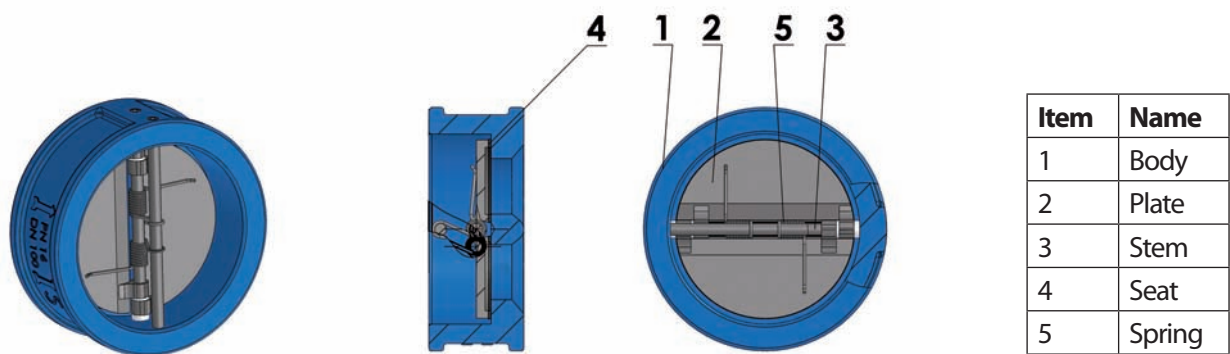
Other dimensions upon request.

Above mentioned dimensions are indicative only.

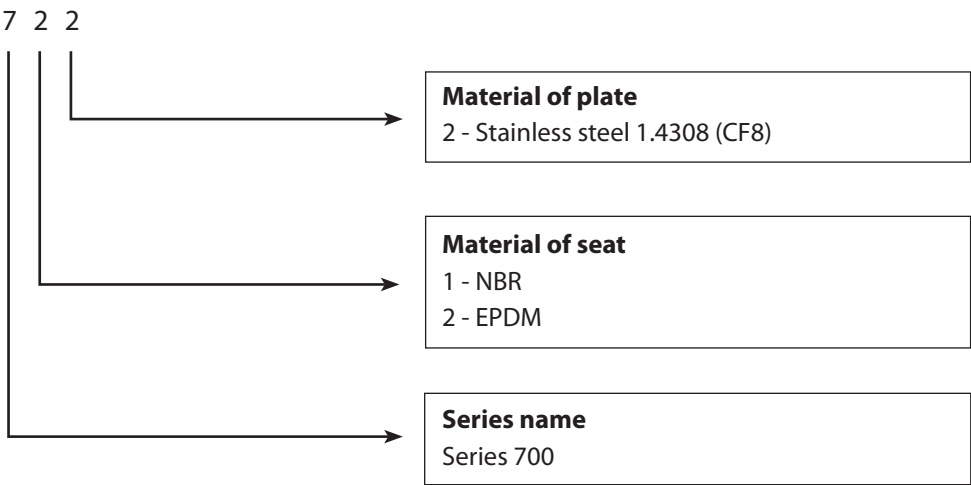
Dimensions for electric actuator: max. working pressure, medium: water, seat EPDM, T = 20°C (68 °F).

Check valves – Series 700

Drawing



Codification



Available connections

PN / DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
PN 10														
PN 16														
Class 125														
Class 150														

standard

Check valves – Series 700

Application

ABO check valves Series 700 are used in applications involving:

- Waste water
- Sewage
- Water treatment
- Potable water
- Thick and viscous liquids

Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A

CONNECTION BETWEEN FLANGES:

- EN ISO 6708
- EN 1092-1,2

WORKING STANDARD:

- EN 12334

FACE TO FACE ACC.:

- EN 558

MARKING:

- EN 19

General characteristics

- Compact valve
- Preferred vertical installation in pipeline
- Short face-to-face connection with optimal hydraulic performance
- Mounting between flanges
- Low head loss
- Stainless steel spring to avoid fluid hammer

Materials

Pos.	Name	Material
1	Body	Ductile iron 0.7040 (GGG40)
2	Plate	Stainless steel 1.4308 (CF8)
3	Stem	Stainless steel 1.4301 (AISI 304)
4	Seat	1 - NBR 2 - EPDM
5	Spring	Stainless steel 1.4301 (AISI 304)

Coating

- Blue epoxy painting RAL 5005 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

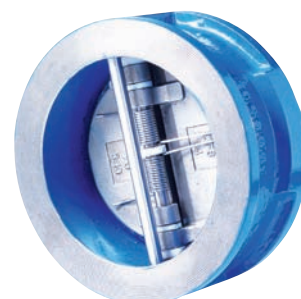
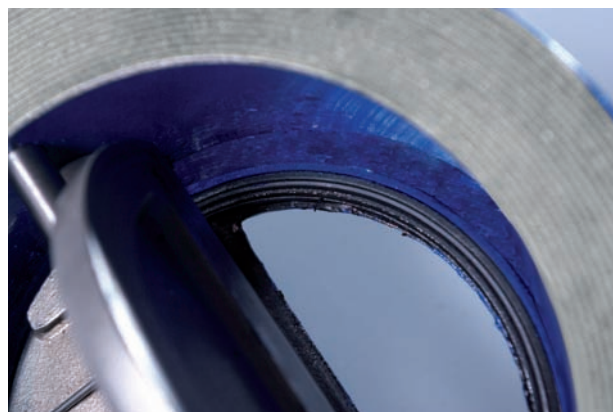
- Maximum working pressure: 16 bar
- Temperature range: from - 25 °C to + 125 °C (- 13 °F + 257 °F)
Seat: 1 - NBR (- 10°C + 100°C), (14 °F + 212 °F)
Seat: 2 - EPDM (- 25°C + 125°C), (- 13 °F + 257 °F)

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category II, modul E1)

Actuation possibilities

- None

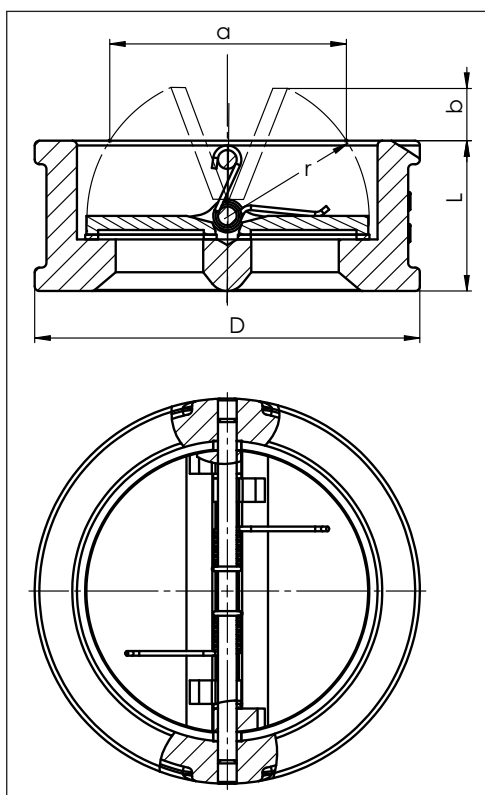


Dual plate check valve series 700

Face to face dimension:

- EN 1092-1,2
- EN 558

Actuation: -

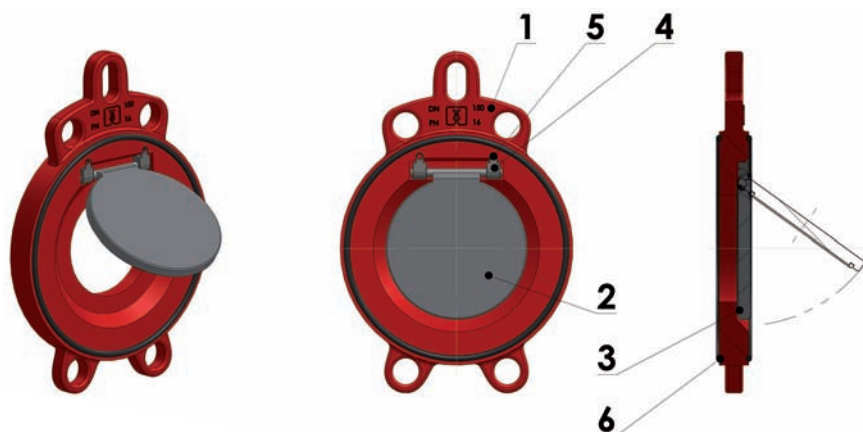


DN		PN 10		PN 16				Weight (kg)
MM	inch	L	D	D	a	b	r	
50	2"	43	107	107	46	7,6	28,8	1,5
65	2 1/2"	46	127	127	58	12,9	33	2,4
80	3"	64	142	142	66	14	40	3,8
100	4"	64	162	162	94	23	53,1	4,7
125	5"	70	192	192	120	32,8	65,7	6,3
150	6"	76	218	218	144,6	42,6	78,6	9,3
200	8"	89	273	273	198	67,4	104,4	15,2
250	10"	114	328	328	244	72	127	26
300	12"	114	378	382	283,9	100	148,3	40,7
350	14"	127	438	438	333	121	172,5	55
400	16"	140	489	495	381	136,8	197,5	75
450	18"	152	539/555	539/555	420	147,7	217,8	118
500	20"	152	594	594	475,3	179,5	244,6	173
600	24"	178	695	695	585	220	301,5	200
700	28"	229	810	810	690	250	352	260
800	32"	241	915	915	780	290	395	340
900	36"	241	1015	1015	850	332	445	520
1000	40"	300	1124	1124	940	332	483	760
1200	48"	350	1340	1340	1150	442	601	1200

Above mentioned dimensions are indicative only.

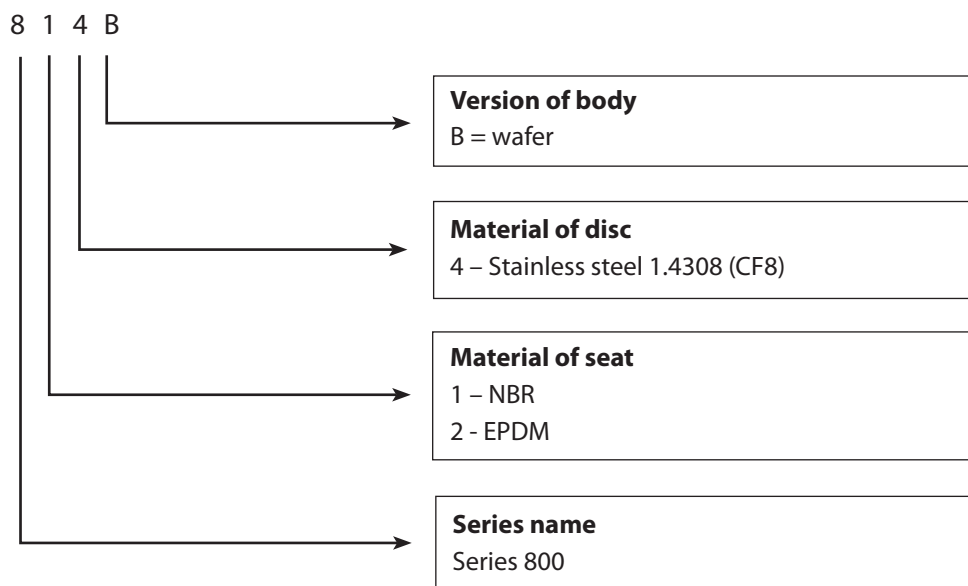
Check valves – Series 800

Drawing



Item	Name
1	Body
2	Disc
3	Seat
4	Holder
5	Bolt
6	Flange sealing

Codification



Available connections

[illegible]

Check valves – Series 800

Application

Check valves Series 800 are used in applications involving:

- Water treatment
- Heating systems
- Oil

Models

Wafer type

Standards

LEAK TEST:

- EN 12266-1, CLASS A
- ISO 5208, CLASS A

CONNECTION BETWEEN FLANGES:

- EN ISO 6708
- EN 1092-1,2

MARKING:

- EN 19

WORKING STANDARD:

- EN 12334

General characteristics

- Easy structure and mounting
- Direct installation between DIN flanges
- Short construction length
- Low weight

Materials

Pos.	Name	Material
1	Body	Ductile iron 0.7040 (GGG40)
2	Disc	Stainless steel 1.4308 (CF8)
3	Seat	1 – NBR: marking 814 2 – EPDM: marking 824 Special materials (Viton, Silicone) upon request
4	Holder	Stainless steel 1.4308 (CF8)
5	Bolt	Stainless steel 1.4301 (AISI 304)
6	Flange sealing	Elastomer

Other materials upon request.

Coating

- Orange epoxy painting RAL 2002 - 80 µm
- Based on customer's request, higher degree of coating can be provided

Working conditions

- Maximum working pressure: 16 bar
- Temperature range: from - 25 °C to + 125 °C (- 13 °F + 257 °F)
Seat: 1 - NBR (- 10°C + 100°C), (14 °F + 212 °F)
Seat: 2 - EPDM (- 25°C + 125°C), (- 13 °F + 257 °F)

Standard and testing

- Test procedures are established according to: EN 12266-1, ISO 5208
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)

Actuation possibilities

- None



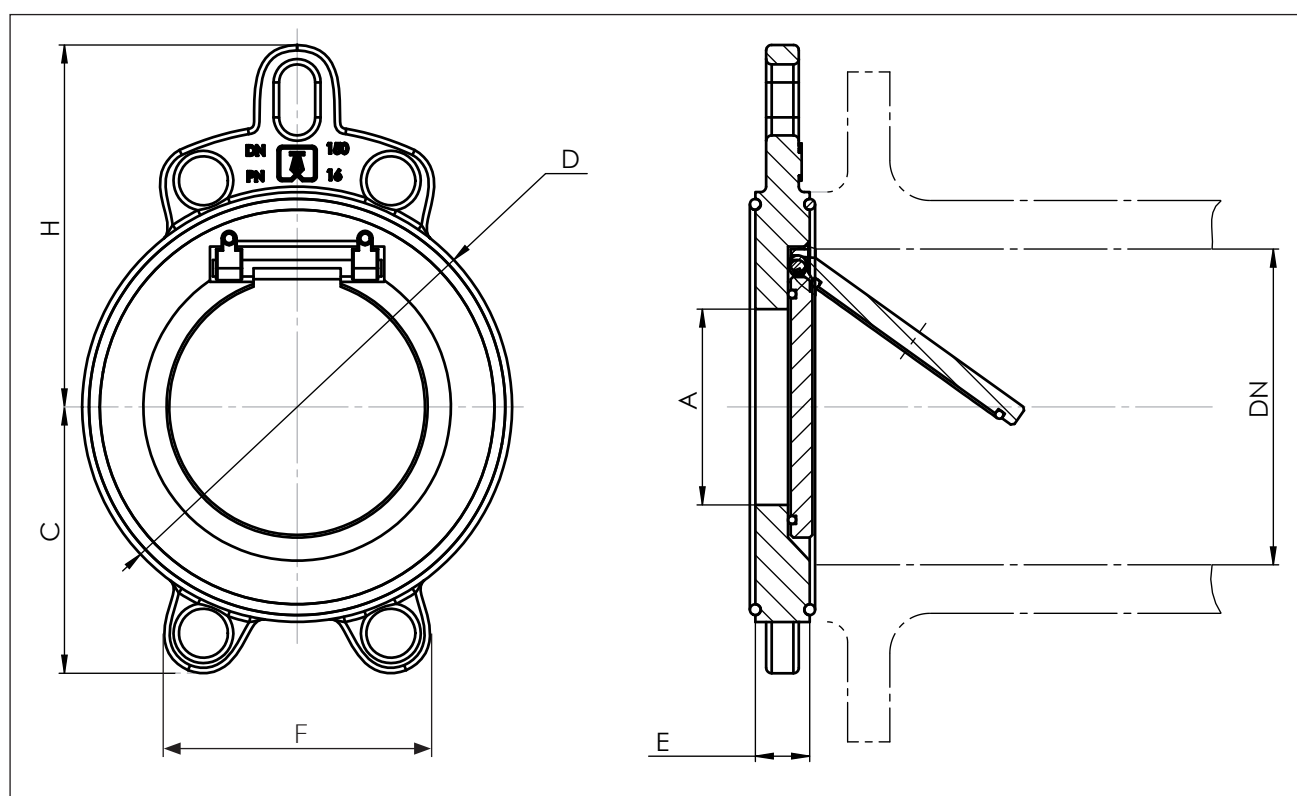
Swing check valve series 800 B

Face to face dimension:

- EN 1092-1,2
- EN 558

Actuation:

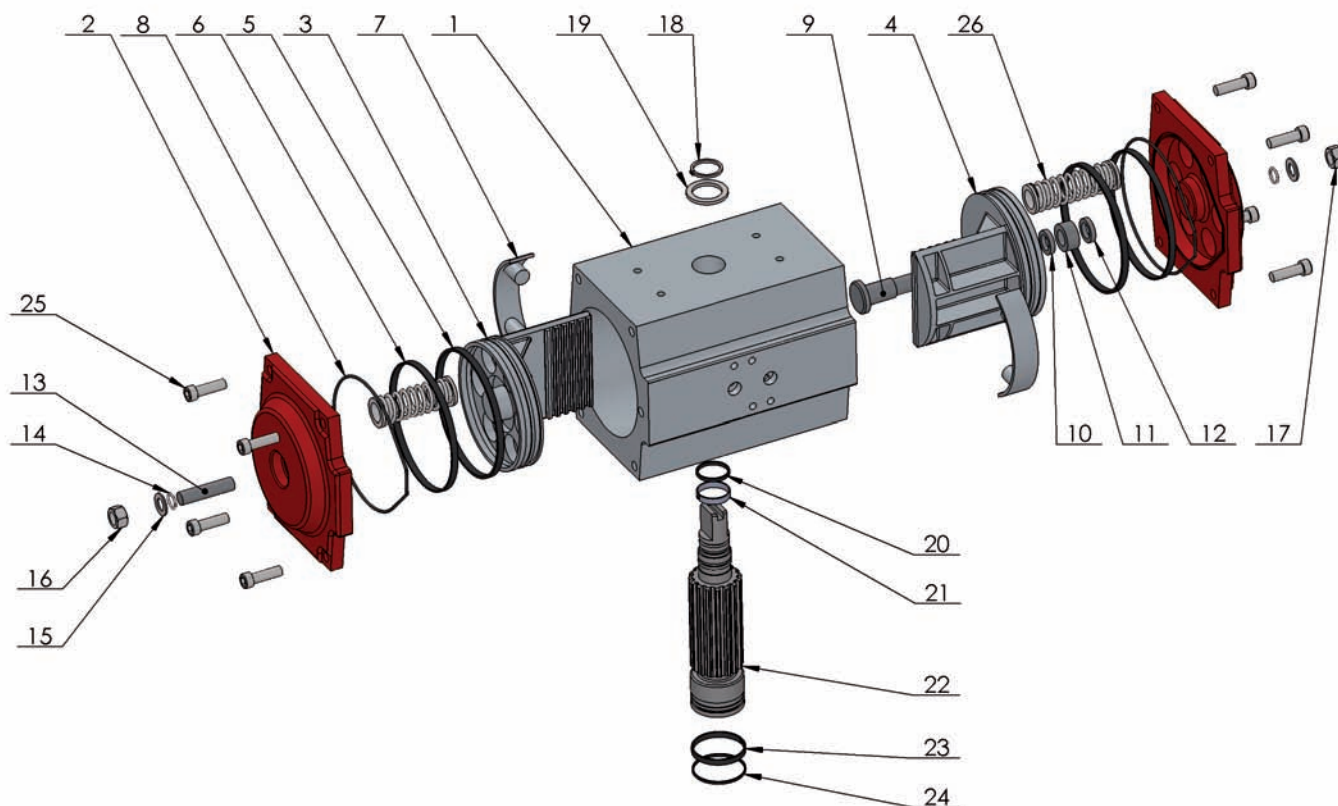
Bare shaft



DN		A	C	D	E	F	H	Weight (kg)
mm	inch							
50	2"	22	64	99	18	130	125	1,3
65	2"1/2	38	72	118	20	142	135	1,8
80	3"	44	93	132	20	150	142	2,3
100	4"	70	107	158	20	112	157	2,6
125	5"	95	119	184	22	120	169	3,5
150	6"	114	133	212	22	137	185	4,5
200	8"	140	166	268	22	159	214	7
250	10"	185	198	319	29	141	246	12
300	12"	216	234	370	38	162	284	21,5

Above mentioned dimensions are indicative only.

PNEUMATIC ACTUATORS



Spare parts list									
Pos.	Description	Q.ty	Spare parts set						
			Set 1,5	Set 2	Set 3	Set 4	Set 6	Set 7	Set 8
1	Actuator body	1	-	-	-	-	-	-	-
2	Actuator end cap	2	1	-	-	-	-	-	-
3	Blind piston	1	-	1	-	-	-	-	-
4	Drilled piston	1	-	-	1	-	-	-	-
5	Piston sealing O-Ring	2	-	1	1	-	-	2	-
6	Piston guide ring	2	-	1	1	-	-	-	2
7	Piston guide skate	2	-	7	1	-	-	-	2
8	End cap sealing O-Ring	2	1	-	-	-	-	2	-
9	Internal travel stop rod	1	-	-	-	-	-	-	-
10	Internal travel stop rod sealing O-Ring	1	-	-	1	-	-	-	-
11	Internal stop rod guide bush	1	-	-	1	-	-	-	-
12	Rod guide bush stop washer	1	-	-	-	-	-	-	-
13	External travel stop screw	1	-	-	-	-	1	-	-
14	Stop sealing O-Ring	2	-	-	-	-	1	2	-
15	O-Ring stop washer	2	-	-	-	-	1	-	-
16	External stop nut	1	-	-	-	-	1	-	-
17	Internal stop nut (yellow)	1	-	-	-	-	-	-	-
18	Pinion stop circlips	1	-	-	-	1	-	-	-
19	Upper pinion washer	1	-	-	-	1	-	-	-
20	Upper pinion O-Ring sealing	1	-	-	-	1	-	1	-
21	Upper pinion guide ring	1	-	-	-	1	-	-	1
22	Pinion	1	-	-	-	1	-	-	-
23	Lower pinion guide ring	1	-	-	-	1	-	-	1
24	Lower pinion O-Ring sealing	1	-	-	-	1	-	24	-
25	End cap screws	8	4	-	-	-	-	-	-
26	Spring cartridges	0 - 12	-	-	-	-	-	-	-

PNEUMATIC ACTUATORS

DESIGN

Single or double acting pneumatic twin piston actuator (rack and pinion).

STANDARD ANGLES

Rotation 90°, 120°, 180° and 240°. Customized angles available as well as three position versions.

STROKE ADJUSTMENT

Type GTW: 0°-Position from -25° to +5°, 90°-Position from -5° to +5°

Type GTK, GTX: 90°-Position from -5° to +5°

TORQUES

5 to 8000 Nm

AIR PRESSURE

2 to 10 bar

SUPPLY

Filtered air PNEUROP/ISO class 4, other fluids upon request.

MATERIALS

Body: Anodized aluminium ASTM 6063, UNI 10681, additional versions upon request
End caps: Aluminium UNI EN1706, EN AC-46100, epoxy coated.
Pistons: Aluminium UNI 5076
Pinion: Nickel plated steel AISI SAE 11L37 - ASTM B 656, stainless steel optional
Bearing pad: Technopolymer
Seals: NBR, alternativ Viton or Silicone

TEMPERATURE RANGE

Standard: From -50°C to +70°C (NBR)
Special versions: From -15°C to + 160°C (Viton) or -30° to +200° (Silicone)

MECHANICAL INTERFACE

ISO 5211, NAMUR VDI/VDE 3845



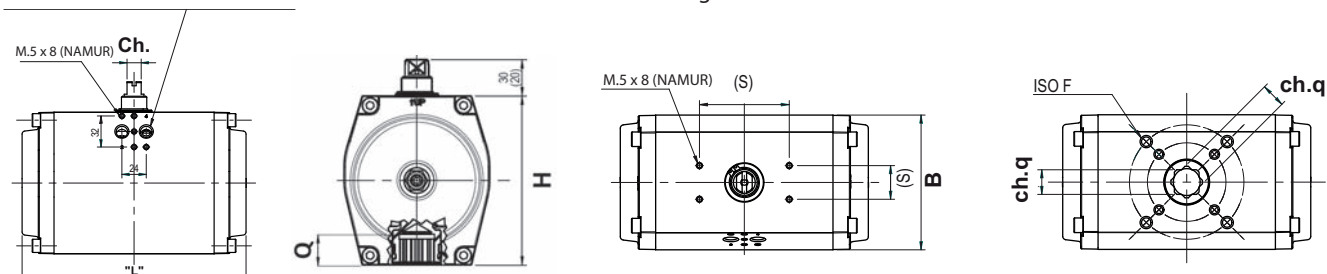
TORQUE [NM] - DOUBLE ACTING ACTUATORS

size	Pneumatic torque [Nm]													
	2 bar	2,5 bar	3 bar	3,5 bar	4 bar	4,5 bar	5 bar	5,6 bar	6 bar	6,5 bar	7 bar	8 bar	9 bar	10 bar
43, 44	4,7	5,8	7,0	8,2	9,4	10,5	11,7	13,1	14,0	15,2	16,4	18,7	21,0	23,4
52	7,8	9,7	11,7	13,6	15,6	17,5	19,5	21,8	23,4	25,3	27,3	31,2	35,1	39,0
63	11,6	14,5	17,4	20,3	23,2	26,1	29,0	32,5	34,8	37,7	40,6	46,4	52,2	58,0
75	20,0	25,0	30,0	35,0	40,0	45,0	50,0	56,0	60,0	65,0	70,0	80,0	90,0	100,0
83	29,0	36,2	43,5	50,7	58,0	65,2	72,5	81,2	87,0	94,2	101,5	116,0	130,5	145,0
92	40,0	50,0	60,0	70,0	80,0	90,0	100,0	112,0	120,0	130,0	140,0	160,0	180,0	200,0
110	58,0	72,5	87,0	101,5	116,0	130,5	145,0	162,4	174,0	188,5	203,0	232,0	261,0	290,0
118	86,0	107,5	129,0	150,5	172,0	193,5	215,0	240,8	258,0	279,5	301,0	344,0	387,0	430,0
127	116,0	145,0	174,0	203,0	232,0	261,0	290,0	324,8	348,0	377,0	406,0	464,0	522,0	580,0
143	186,0	232,5	279,0	325,5	372,0	418,5	465,0	520,8	558,0	604,5	651,0	744,0	837,0	930,0
160	230,0	287,5	345,0	402,5	460,0	517,5	575,5	644,0	690,0	747,5	805,0	920,0	1035	1150
190	400,0	500,0	600,0	700,0	800,0	900,0	1000	1120	1200	1300	1400	1600	1800	2000
210	480,0	600,0	720,0	840,0	959,9	1080	1200	1344	1440	1560	1680	1920	2160	2400
254	920,0	1150	1380	1610	1840	2070	2300	2576	2760	2990	3220	3680	4140	4600
255	1160	1450	1740	2030	2320	2610	2900	3248	3480	3770	4060	4640	5220	5800
300, 300-F25	1600	2000	2400	2800	3200	3600	4000	4480	4800	5200	5600	6400	7200	8000

PNEUMATIC ACTUATORS

Size 43 to 92 = 1/8", size 110 to 300-F25 = 1/4" NAMUR

(S) Feedback interface: Size 43 to 127 = 30 x 80, size 143 to 300-F25 = 30 x 130 according NAMUR



Air connection according NAMUR

ACTUATOR CYCLE TIME

Assembling versions					
star	double D	Pinion	Piston	direction	version
					A
					B
					C
					D

Model	Time of entire cycle (Sec)
GTK. 52x90DLS	0.158
GTK. 63x90DLS	0.214
GTK. 75x90DLS	0.334
GTK. 83x90DLS	0.430
GTK. 92x90DLS	0.444
GTW. 110x90	0.462
GTW. 118x90	0.600
GTW. 127x90	0.858

GTW 143x90	1.580
GTW. 160x90	1.620
GTW. 190x90	3.220
GTW. 210x90	3.330
GTW. 254x90	6.000
GTW. 255x90	7.500
GTW 300x90	9.340

In the table are pointed out necessary times to the rotation of the actuators to double effect, when feed to 5.6 bar (80 Psis) through solenoid valves, to empty or rather without that the actuators are connected with valves to operate.

size	Dimension [mm]									Air consumption [N.l/t]				Weight (2) [kg]			
	L			H	B	Q	Ch	Ch.q	ISO F	90°	120°	180°	90° (1)	90°	120°	180°	90° (1)
	90°	120°	180°														
43	116	-	-	65	61,5	13	10	11	F03/F05	0,18	-	-	0,10	0,60	-	-	0,66
44	116	-	-	65	61,5	13	10	11	F04	0,18	-	-	0,10	0,60	-	-	0,66
52	133	151	195	74	68,5	18	10	14	F03/F05	0,25	0,28	0,46	0,13	0,90	1,10	1,30	1,00
63	137	155	200	88	80	21	10	14	F05/F07	0,40	0,45	0,74	0,21	1,45	1,70	2,00	1,62
75	161	183	237	100	92,5	20	10	17	F05/F07	0,60	0,68	1,12	0,32	2,10	2,46	2,90	2,45
83	180	205	268	100	92,5	20	10	17	F05/F07	0,88	1,00	1,63	0,45	2,50	2,95	3,50	2,95
92	209	239	310	117	110,5	20	14	17	F05/F07	1,20	1,35	2,25	0,62	3,40	4,00	4,60	4,00
110	221	251	322	140	120	25,5	14	22	F07/F10	1,90	2,15	3,52	0,98	5,20	6,10	7,20	6,20
118	291	341	421	140	120	35	20	22	F07/F10	2,70	3,05	5,00	1,40	7,10	8,00	9,70	8,35
127	298	348	448	160	137	36	20	22	F07/F10	3,65	4,10	6,80	2,00	9,00	10,00	12,5	10,7
143	332	-	-	198	172	31	20	27	F10/F12	4,60	-	-	2,50	12,42	-	-	15,78
160	374	436	562	198	172	39	28	27	F10/F12	7,00	8,00	13,00	3,60	16,4	18,8	26,0	21,1
190	422	-	-	255	224	41	28	36	F14	12,5	-	-	6,50	27,95	-	-	37,75
210	464	540	692	255	224	40	32	36	F14	15,0	17,0	21,5	8,00	31,8	37,4	49,2	39,6
254	603	705	905	302	272	50	32	46	F16	27,0	31,5	41,0	14,0	55,5	66,5	79,0	70,6
255	683	809	-	302	272	50	32	46	F16	32,0	38,0	-	17,0	69,2	77,0	-	84,3
300	683	-	-	360	360	50	32	46	F16	46,00	-	-	25,0	92,0	-	-	107,1
300-F25	683	-	-	391,5	360	50	32	55	F25	46,0	-	-	25,0	99,0	-	-	114,0

(1) Spring return with 8 springs (size 43, 44), with 12 springs (size 52 to 300-F25)

(2) Weights referred to protrusion shafts 30mm

(3) Mechanical interfaces according ISO 5211 - DIN 3337 NAMUR VDI/VDE 3845

PNEUMATIC ACTUATORS

TORQUE [NM] - SINGLE ACTING ACTUATORS

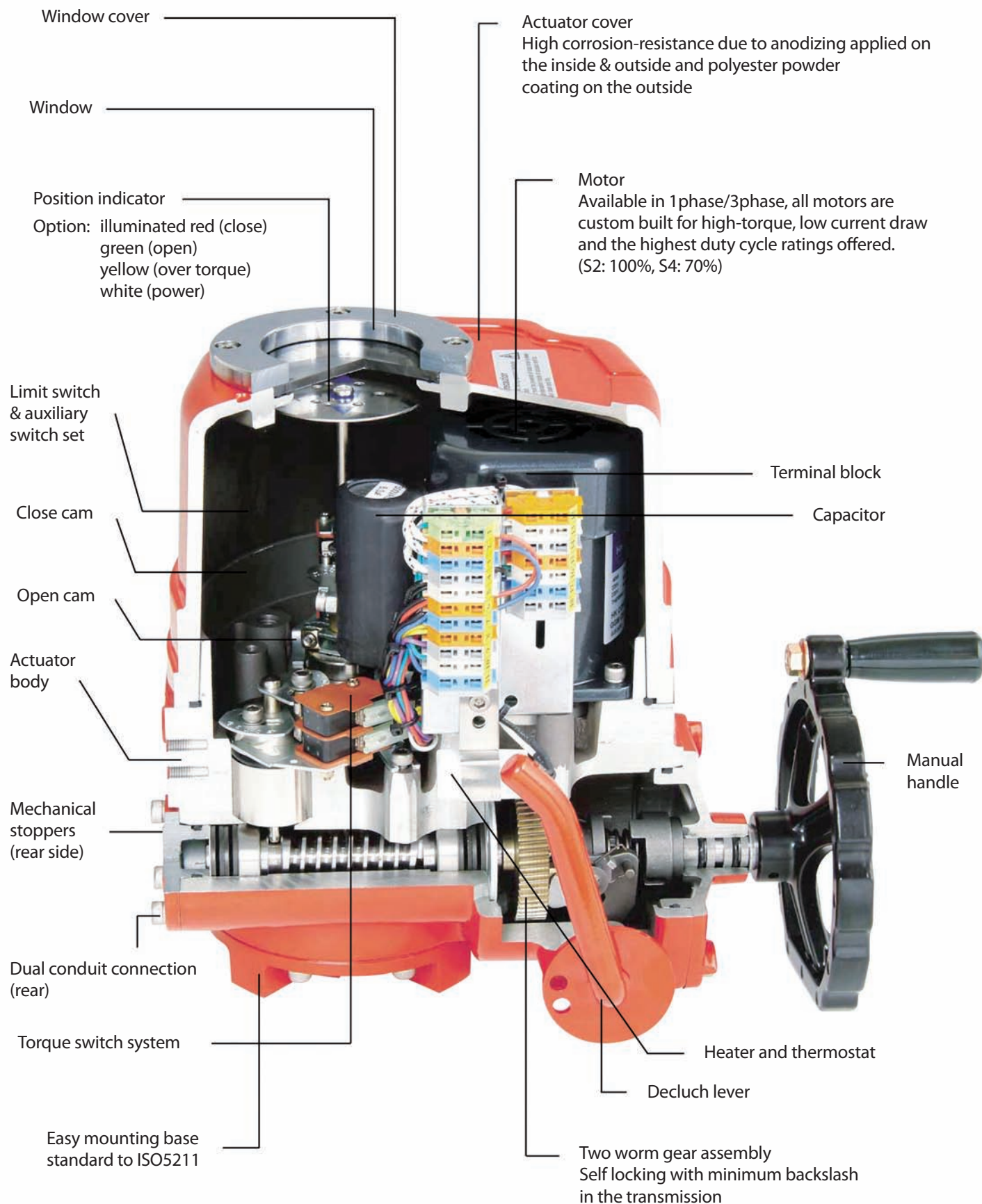
	springs	spring torque		Pneumatic torque																			
										80 PSIG				100 PSIG				8 bar		9 bar		10 bar	
		2 bar		3 bar		4 bar		5 bar		5,6 bar		6 bar		7 bar									
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
43,44	2	1,68	2,53	2,97	2,09	5,31	4,43	7,64	6,77	9,98	9,11	11,39	10,51	12,32	11,45	14,66	13,79	17,00	16,12	19,34	18,46	21,68	20,80
	4	3,36	5,07			3,59	1,85	5,93	4,18	8,27	6,52	9,68	7,93	10,61	8,86	12,95	11,20	15,29	13,54	17,63	15,88	19,97	18,22
	6	5,03	7,60					4,22	1,60	6,56	3,94	7,96	5,34	8,90	6,28	11,24	8,61	13,58	10,95	15,92	13,29	18,26	15,63
	8	6,71	10,14							4,85	1,35	6,25	2,75	7,19	3,69	9,53	6,03	11,87	8,37	14,21	10,71	16,54	13,05
52	2	1,91	3,19	5,84	4,54	9,74	8,44	13,64	12,34	17,54	16,23	19,87	18,57	21,43	20,13	25,33	24,03	29,23	27,92	33,12	31,82	37,02	35,72
	4	3,82	6,37	3,90	1,29	7,59	5,19	11,69	9,09	15,59	12,98	17,92	15,32	19,48	16,88	23,38	20,78	28,28	24,67	31,17	28,57	35,07	32,47
	6	5,73	9,56			5,84	1,94	9,74	5,83	13,64	9,73	15,98	12,07	17,53	13,63	21,43	17,52	25,33	21,42	29,23	25,32	33,12	29,22
	8	7,64	12,75					7,79	2,58	11,69	6,48	14,03	8,82	15,59	10,38	19,48	14,27	23,38	18,17	27,28	22,07	31,17	25,96
	10	9,55	15,94							9,74	3,23	12,08	5,57	13,64	7,13	17,53	11,08	21,43	14,92	25,33	18,82	29,22	22,71
	12	11,46	19,12									10,13	2,32	11,69	3,88	15,59	7,77	19,48	11,67	23,38	15,57	27,28	19,46
63	8	3,01	4,42	8,54	7,09	14,34	12,89	20,14	18,69	25,94	24,50	29,42	27,98	31,74	30,30	37,54	36,10	43,44	41,90	49,14	47,70	54,94	53,50
	4	6,01	8,84	5,47	2,58	11,27	8,38	17,07	14,18	22,87	19,99	26,35	23,47	28,67	25,79	34,47	31,59	40,27	37,39	46,08	43,19	51,88	48,99
	6	9,02	13,26			8,20	3,87	14,00	9,68	19,81	15,48	23,29	18,96	25,61	21,28	31,41	27,08	37,21	32,88	43,01	38,68	48,81	44,48
	8	12,03	17,68					10,94	5,17	16,74	10,97	20,22	14,45	22,54	16,77	28,34	22,57	34,14	28,37	39,44	34,17	45,74	39,97
	10	15,03	22,11							13,67	6,46	17,15	9,94	19,47	12,26	25,27	18,06	31,08	23,86	36,88	29,66	42,68	35,46
	12	18,04	26,53									14,09	5,43	16,41	7,75	22,21	13,55	28,01	19,35	33,81	25,15	39,61	30,95
75	2	5,24	7,96	14,65	11,87	24,65	21,87	34,65	31,87	44,65	41,87	50,65	47,87	54,64	51,67	64,64	61,86	74,64	71,86	84,64	81,86	94,64	91,86
	4	10,48	15,93	9,31	3,75	19,31	13,75	29,31	23,75	39,30	33,75	45,30	39,74	49,30	43,74	59,30	53,74	69,30	63,74	79,30	73,74	89,29	83,74
	6	15,71	23,89			13,96	5,63	23,96	15,63	33,96	25,62	39,96	31,62	43,96	35,62	53,96	45,62	63,95	55,62	73,95	65,62	83,95	75,61
	8	20,95	31,85					18,62	7,50	28,62	17,50	34,62	23,50	38,62	27,50	48,61	37,50	58,61	47,50	68,61	57,49	78,61	67,49
	10	26,19	39,81							23,27	9,38	29,27	15,38	33,27	19,38	43,27	29,38	53,27	39,37	63,27	49,37	79,36	59,37
	12	31,43	47,78							17,93	1,26	23,93	7,26	27,93	11,26	37,93	21,25	47,93	31,25	57,92	41,25	76,2	51,25
83	8	7,23	11,19	21,62	17,58	36,12	32,07	50,62	46,57	65,11	61,07	73,81	69,77	79,61	75,56	94,11	90,06	108,6	104,6	123,1	119,1	137,6	133,6
	4	14,46	22,39	14,25	6,16	28,75	20,65	43,24	35,15	57,74	49,65	66,44	58,35	72,24	64,15	86,73	78,64	101,2	93,14	115,7	107,6	130,2	122,1
	6	21,68	33,58			21,37	9,24	35,87	23,73	50,37	38,23	59,07	46,93	64,86	52,73	79,36	67,23	93,86	81,72	108,4	96,22	122,9	110,7
	8	28,91	44,78					28,50	12,31	42,99	26,81	51,69	35,51	57,49	41,31	71,99	55,81	86,49	70,30	101,0	84,80	115,5	99,30
	10	36,14	55,97							35,62	15,39	44,32	24,09	50,12	29,89	64,62	44,39	79,11	58,89	93,61	73,36	108,1	87,88
	12	43,37	67,17							28,25	3,98	36,95	12,67	42,75	18,47	57,24	32,97	71,74	47,47	86,24	61,96	100,7	76,46
92	2	9,10	14,34	30,72	25,37	50,73	45,38	70,73	65,38	90,73	85,38	102,7	97,39	110,7	105,4	103,7	125,4	150,7	145,4	170,7	165,4	190,7	185,4
	4	18,20	28,69	21,44	10,74	41,44	30,75	61,45	50,75	81,45	70,75	93,45	82,75	101,5	90,76	121,5	110,8	141,5	130,8	161,5	150,8	181,5	170,8
	6	27,31	43,03			32,16	16,12	52,16	36,12	72,16	56,12	84,17	68,12	92,17	76,12	112,2	96,13	132,2	161,1	152,2	136,1	172,2	156,1
	8	36,41	57,38					42,88	21,49	62,88	41,49	74,88	53,49	82,88	61,49	102,9	81,50	122,9	101,5	142,9	121,5	162,9	141,5
	10	45,51	71,72					33,59	6,86	53,60	26,86	65,60	38,86	73,60	46,86	93,60	66,86	113,6	86,87	133,6	106,9	153,6	126,9
	12	54,61	86,07							44,31	12,23	56,31	24,23	64,32	32,23	84,32	52,23	104,3	72,24	124,3	92,24	144,3	112,2
110	2	15,81	23,71	41,9	33,8	70,9	62,8	99,9	91,8	128,9	120,8	146,3	138,2	157,9	149,8	186,9	178,8	215,9	207,8	244,9	236,8	273,9	265,8
	4	31,61	47,42	25,8	9,6	54,8	38,6	83,8	67,6	112,8	96,6	130,2	114,1	141,8	125,7	170,8	154,7	199,8	183,7	228,8	212,7	257,8	241,7
	6	47,42	71,13			38,6	14,5	67,6	43,5	96,6	72,5	114,1	89,9	125,7	101,5	154,7	130,5	183,7	159,5	212,7	188,5	241,7	217,5
	8	63,22	94,84					51,5	19,3	80,5	48,3	97,9	65,7	109,5	77,3	138,5	106,3	167,5	135,3	196,5	164,3	225,5	193,3
	10	79,03	118,5							64,4	24,1	81,8	45,5	93,4	53,1	122,4	82,1	151,4	111,1	180,4	140,1	209,4	169,1
	12	94,84	142,3									65,7	17,3	77,3	28,9	106,3	57,9	135,3	86,9	164,3	115,9	193,3	144,9
118	2	21,25	36,46	64,3	48,8	107,3	91,8	150,3	134,8	193,3	177,8	219,1	203,6	236,3	220,8	279,3	263,8	322,3	306,8	365,3	349,8	408,3	392,8
	4	42,50	72,92	42,7	11,6	85,7	54,6	128,7	97,6	171,7	140,6	197,5	166,4	214,7	183,6	257,7	226,6	300,7	269,6	343,7	312,6	386,7	355,6
	6	63,75	109,4			64,0	17,4	107,0	60,4	150,0	103,4	175,8	129,2	193,0	146,4	236,0	189,4	279,0	232,4	322,0	275,4	365,0	318,4
	8	84,99	145,8					85,3	23,3	128,3	66,3	154,1	92,1	171,3	109,3	214,3	152,3	257,3	257,3	195,3	300,3	238,3	281,3
	10	106,2	182,3							106,6	29,1	132,4	54,9	149,6	72,1	192,6	115,1	235,6	158,1	278,6	201,1	321,6	244,1
	12	127,5	218,7									110,8	17,7	128,0	34,9	171,0	77,9	214,0	120,9	257,0	263,9	300,0	206,9
127	2	29,94	48,78	85,5	66,2	143,5	124,2	201,5	182,2	259,5	240,2	294,2	275,0	317,4	298,2	375,4	356,2	433,4	414,2	491,4	472,2	549,4	530,2
	4	59,88	97,57	54,9	16,5	112,9	74,5	170,9	132,5	228,9	190,5	263,7	225,3	286,9	248,5	344,9	306,5	402,9	364,5	460,9	422,5	518,9	480,5
	6	89,82	146,3			82,4	24,7	140,4	82,7	198,4	140,7	233,2	275,5	256,4	198,7	314,4	256,7	372,4	314,7	430,4	372,7	488,4	430,7
	8	119,8	195,1					109,8	33,0	167,8	91,0	202,6	125,8	225,8	149,0	283,8	206,9	341,8	264,9	399,8	322,9	457,8	380,9
	10	149,7	243,9							137,3	41,2	172,1	76,0	195,3	99,2	253,3	157,2	311,3	215,2	36			

PNEUMATIC ACTUATORS

TORQUE [NM] - SINGLE ACTING ACTUATORS

	springs	spring torque		Pneumatic torque																			
												80 PSIG				100 PSIG							
				2 bar		3 bar		4 bar		5 bar		5,6 bar		6 bar		7 bar		8 bar		9 bar		10 bar	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
143	2	48,1	68,9	137,0	115,7	230,0	208,7	323,0	301,7	416,0	394,7	471,8	450,5	509,0	487,7	602,0	570,7	659,0	673,7	788,0	766,7	881,0	859,8
	4	96,1	137,8	87,9	45,5	181,0	138,5	274,0	231,5	367,0	324,5	422,8	380,3	460,0	417,5	553,0	510,5	646,0	603,5	739,0	696,5	832,0	789,5
	6	144,2	206,7			131,9	68,2	224,9	161,2	317,9	254,2	373,7	310,0	410,9	347,2	503,9	440,2	596,9	533,2	686,9	626,2	782,9	719,2
	8	196,3	275,6					175,9	90,9	268,9	183,9	324,7	239,7	361,9	276,9	454,9	369,9	547,9	462,9	640,9	555,9	733,9	648,9
	10	240,3	344,4					126,9	20,7	219,9	113,7	275,7	169,5	312,9	206,7	405,9	299,7	498,9	392,7	591,9	485,7	684,9	578,7
	12	288,4	413,3							170,8	43,4	226,6	99,2	263,8	136,4	356,8	229,4	449,8	322,4	542,9	415,4	635,9	508,4
160	2	55,9	83,0	172,4	144,5	287,4	259,5	402,5	374,5	517,5	489,5	586,5	558,5	632,5	604,5	747,5	719,5	862,5	834,5	977,5	949,5	1092	1065
	4	111,8	166,0	114,9	59,0	229,9	174,0	344,9	289,0	459,9	404,0	528,9	473,0	574,9	519,0	689,9	634,1	804,9	749,1	919,9	864,1	1035	979,1
	6	167,6	249,0			172,3	88,6	287,3	203,6	402,3	318,6	471,3	387,6	517,3	433,6	632,3	548,6	747,3	663,6	862,3	778,6	977,3	893,6
	8	223,5	332,0					229,8	118,1	344,8	233,1	413,8	302,1	459,8	348,1	574,8	463,1	689,8	578,1	804,8	693,1	919,8	808,1
	10	279,4	415,0					172,2	32,6	287,2	147,6	356,2	216,6	402,2	262,6	517,2	377,6	632,2	492,6	747,2	607,6	862,2	722,6
	12	335,3	498,0							229,7	62,1	298,7	131,1	344,7	177,1	459,7	292,1	574,7	407,1	689,7	522,1	804,7	637,1
190	2	106,2	339,9	190,6	262,1	490,6	462,1	690,6	662,1	890,6	862,1	1011	982,1	1091	1062	1291	1262	1491	1462	1691	1662	1891	1862
	4	212,5	267,8	181,2	124,2	381,2	324,2	581,2	524,2	781,2	724,2	901,2	844,2	981,2	924,2	1181	1124	1381	1324	1581	1524	1781	1724
	6	318,7	401,7			271,8	186,3	471,8	386,3	671,8	586,3	791,8	706,3	871,8	786,3	1072	986,3	1272	1186	1472	1386	1672	1586
	8	424,9	535,6			162,4	48,4	362,4	248,4	562,4	448,4	682,4	568,4	762,4	648,4	962,4	848,4	1162	1048	1362	1248	1562	1448
	10	531,2	669,5					253,0	110,5	453,0	310,5	573,0	430,5	653,0	510,5	853,0	710,5	1053	910,5	1253	1111	1453	1311
	12	637,4	803,4							343,5	172,6	463,6	292,6	543,6	372,6	743,6	572,6	943,6	772,6	1144	972,6	1344	1173
210	2	114,2	160,7	362,4	314,5	602,3	554,5	842,3	794,5	1082	1034	1226	1178	1322	1274	1562	1514	1802	1754	2042	1994	2282	2234
	4	228,4	321,3	244,7	149,0	484,7	389,0	724,7	629,9	964,7	868,9	1109	1016	1205	1109	1445	1349	1685	1589	1925	1829	2165	2069
	6	342,6	482,0			367,1	223,5	607,1	463,5	847,1	703,5	991,1	847,4	1097	943,4	1327	1183	1567	1423	1807	1663	2047	1903
	8	456,8	642,7			249,5	58,0	489,5	298,0	729,4	538,0	873,4	682,0	969,4	777,9	1209	1018	1449	1258	1689	1498	1929	1738
	10	571,0	803,4					371,8	132,5	611,8	372,5	755,8	516,5	851,8	612,5	1092	852,4	1332	1092	1572	1332	1812	1572
	12	685,2	964,0							494,2	207,0	638,2	351,0	734,2	447,0	947,2	686,9	1214	926,9	1454	1167	1694	1407
254	2	238,1	321,3	674,8	589,1	1135	1049	1595	1509	2055	1969	2331	2245	2515	2429	2975	2889	3435	3349	3895	3809	4355	4269
	4	476,3	642,7	429,5	258,1	889,6	718,2	1350	1178	1810	1638	2086	1914	2270	2098	2730	2558	3190	3018	3650	3478	4110	3938
	6	714,4	964,0			644,3	387,2	1104	847,2	1564	1307	1840	1583	2024	1767	2484	2227	2945	2687	3405	3147	3865	3607
	8	952,5	1285					859,1	516,2	1319	976	1595	1252	1779	1436	2239	1896	2699	2356	3159	2816	3619	3276
	10	1191	1607					613,1	185,2	1074	645	1350	921,0	1534	1105	1994	1565	2454	2025	2914	2485	3374	2945
	12	1429	1928							829,0	314	1105	590,0	1289	774,0	1749	1234	2209	1694	2669	2154	3129	2614
255	2	272,2	406,1	880	742	1460	1322	2040	1902	2620	2482	2968	2830	3200	3062	3780	3642	4360	4222	4940	4802	5520	5382
	4	544,4	812,2	599	323	1179	903	1759	1484	2339	2064	2687	2412	2919	2644	3499	3224	4079	3804	4659	4384	5239	4964
	6	816,6	1218			899	485	1479	1065	2059	1645	2407	1993	2639	2225	3219	2805	3799	3385	4379	3965	4959	4545
	8	1089	1624					1199	647	1779	1227	2127	1575	2359	1807	2939	2387	3519	2967	4099	3547	4679	4127
	10	1361	2031					918	229	1498	809	1846	1157	2078	1389	2658	1969	3238	2549	3818	3129	4398	3709
	12	1633	2437							1218	390	1566	738	1798	970	2378	1550	2958	2130	3538	2710	4118	3290
300, 300-F25	2	272	406	1320	1182	2120	1982	2920	2782	3720	3582	4200	4062	4520	4382	5320	5182	6120	5982	6920	6782	7720	7582
	4	544	812	1039	763	1839	1563	2639	2363	3439	3163	3919	3643	4239	3963	5039	4763	5839	5563	6639	6363	7439	7163
	6	817	1218	759	345	1559	1145	2359	1945	3159	2745	3639	3225	3959	3545	4759	4345	5559	5145	6359	5945	7159	6745
	8	1089	1624			1278	727	2078	1527	2878	2327	3358	2807	3678	3127	4479	3927	5279	4727	6079	5527	6879	6327
	10	1361	2031			998	309	1798	1109	2598	1909	3078	2389	3398	2709	4198	3509	4998	4309	5798	5109	6598	5909
	12	1633	2437					1518	690	2318	1490	2798	1970	3118	2290	3918	3090	4718	3890	5518	4690	6318	5490
	14	1906	2843					1237	272	2037	1072	2517	1552	2837	1872	3637	2672	4437	3472	5237	4272	6037	5072
	16	2178	3249							1157	654	2237	1134	2557	1454	3357	2254	4157	3054	4957	3854	5757	4654

ELECTRIC ACTUATORS



ELECTRIC ACTUATORS

PERFORMANCE

S97AQ (MODEL)	Maximum output torque	Operating time (sec.) 60/50Hz	Maximum bore size	Motor class F power (W) 60Hz/50Hz		Rated current (A) 60Hz/50Hz				Duty cycle IEC 34-1	Number of handle turn	Weight
	Kg - m	90	mmm	1 Phase	3 Phase	1 Phase		3 Phase				
						110V	220V	380V	440V			
S97AQ - 015	15	21/25	ø22	185/166	112/216	1.70/1.50	0.84/0.73	0.28/0.37	0.36/0.59	70	11	16.6
S97AQ - 030	30	26/31	ø35	177/148	130/171	1.67/1.37	0.81/0.68	0.27/0.33	0.34/0.55	70	13.5	22
S97AQ - 060	60	26/31	ø35	390/410	184/236	3.56/4.27	1.30/1.40	0.42/0.51	0.47/0.66	70	13.5	23

STANDARD SPECIFICATIONS

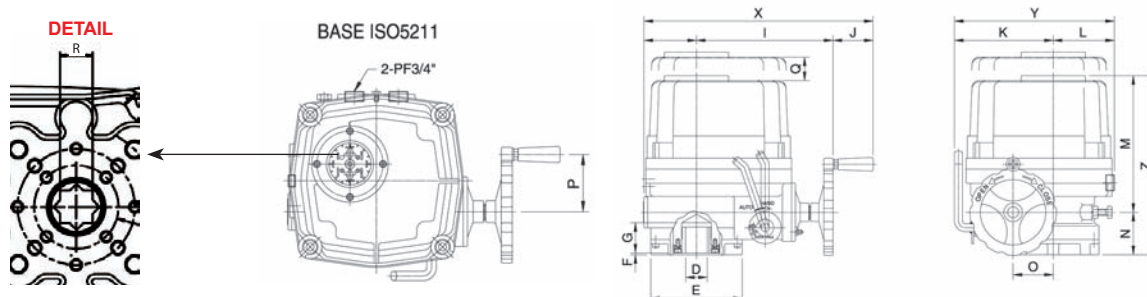
Enclosure	Weatherproof enclosure IP67, NEMA 4 and 6
Power supply	110 / 220V AC 1PH, 380 / 440V AC 3PH 50 / 60Hz, ± 10%
Control power supply	110 / 220V AC 1PH, 50 / 60Hz, ± 10%
Duty cycle (on - off)	S2, 100% Max 30Min
Duty cycle (modulating)	S4, 70% Max 300 ~ 1600 start/hour
Motor	Induction motor (Reversible motor)
Limit switches	Open / close, SPDT, 250V AC 16A rating
Additional limit switches	Open / close, SPDT, 250V AC 16A rating
Torque switches	Open / close, SPDT, 250V AC 16A rating
Stall protection / operating temp	Built-in thermal protection, open 150 ± 5 / close 97 ± 15
Travel angle	90° ± 10° (0 ~ 110°)
Indicator	Continuous position indicator
Manual override	Declutching mechanism
Self locking	Provided by double worm gearing
Mechanical stopper	2x external adjustable screws
Space heater	10W (110 / 220V AC) Anti-condensation
Cable entries	Three PF 3/4" tap (standard type only)
Lubrication	Grease moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Steel, Aluminium alloy, Al bronze, Polycarbonate
Ambient temperature	-20°C ~ +70°C (except option electronic board)
Ambient humidity	90% RH Max. (non-condensing)
Anti vibration	XY Z 10g, 0.2 ~ 34Hz, 30 minute
External coating	Anodizing treatment before dry powder, Polyester



DIMENSIONS

Model	Base ISO 5211	A	D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	X	Y	Z
	ø C	B																		
S97AQ - 015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	17	338	229	268
	ø 70 ø 102	12/15																		
S97AQ - 030	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	22	368	259	290
	ø 102 ø 125	15/18																		
S97AQ - 060	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	27	368	259	304
	ø 102 ø 125	15/18																		

Unit (mm)



ELECTRIC ACTUATORS

PERFORMANCE

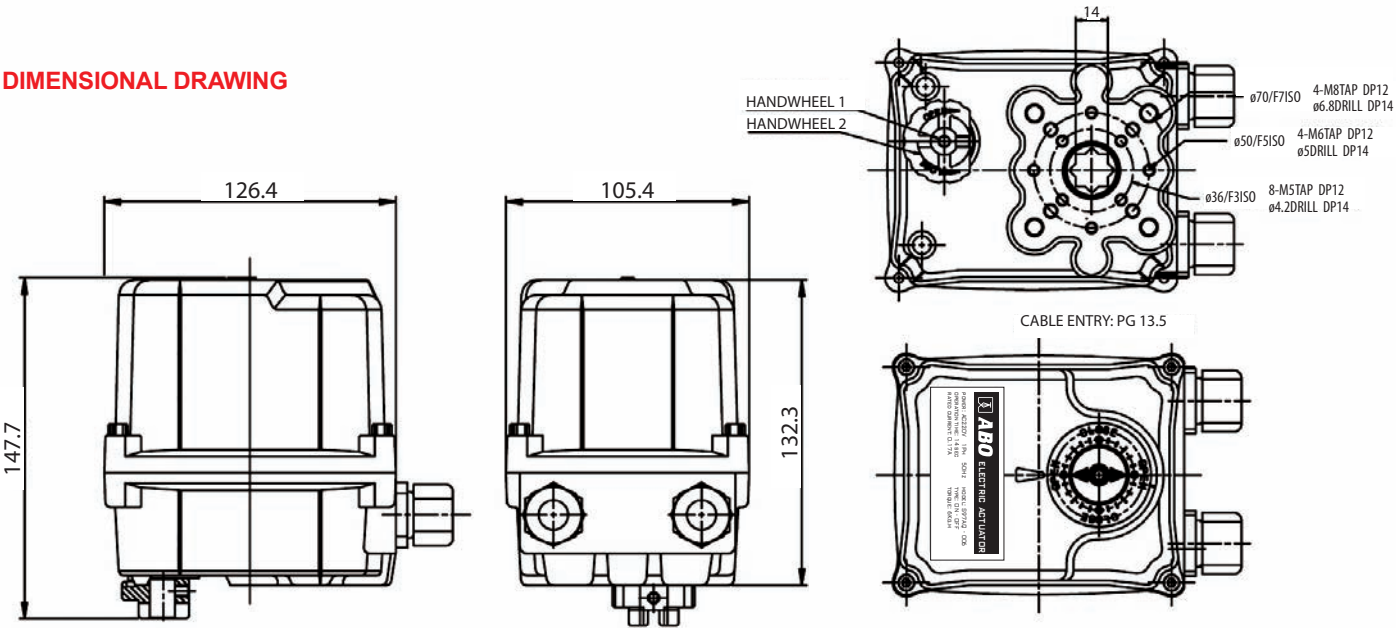
S97AQ (MODEL)	Maximum output torque	Operating time (sec.) 50/60Hz	Mounting size	Motor class F power (W) 60Hz/50Hz		Rated current (A) 60Hz/50Hz		Duty cycle IEC 34-1	Number of handle turn	Weight	
	Kg.m	90°		ISO 5211	110V	220V	110V				220V
					1 Phase	1 Phase					
S97AQ - 006	6	12 / 14	F03 / F05 / F07	54.5/46.8	40.9/38.0	0.39/0.35	0.18/0.17	35	8	3	

STANDARD SPECIFICATIONS

Enclosure	Weatherproof enclosure IP67
Power supply	110/220V AC 1PH, 50/60Hz, ±10%
Duty cycle (on-off duty)	S2 35%
Motor	Reversible motor
Limit switches	Open/close, SPDT, 250V AC 10A rating
Additional limit switches	Open/close, SPDT, 250V AC 10A rating
Space heater	2W (110/220V AC) Anti-condensation
Manual override	Handwheel (hexagon design)
Cable entries	Two PG 13.5 Tap (Option: NPT1/2", PT1/2", PF 1/2")
Movement angle	320° ± 10° (0° - 330°)
Ambient temperature	-20 ~ 70
External coating	Polyester powder coating



DIMENSIONAL DRAWING



ELECTRIC ACTUATORS

