



# AG1 BUTTERFLY VALVE



**ANGODOS**  
*Válvulas*

*“From 1970 close to our clients”*

## ANGODOS

Since 1970 **ANGODOS** has been technological leader in valves industry, manufacturing everything in Madrid (Spain) and commercializing high performance valves internationally for different application fields.

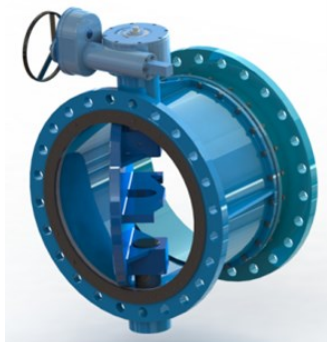
**ANGODOS** Manufacturing range is pretty wide, covering a variety of application for different fields as waste water, drinking water, desalination, sanitation, irrigation system, mining, industry, gas and petroleum. from PN6 to PN100 and from DN40 to DN3000.

Since the creation of **ANGODOS**, the main objective has been providing Taylor-made solutions for the customers, developing a wide range of butterfly valves with different construction types and actuators, overspeed valves, check valves, air valves, and discharge valves solutions as howell-bunger valves.

Constant innovation and technological development allows **ANGODOS** to be the reference for the professionals interested in quality, safety, ease of use and installation and of course durability. **ANGODOS** has established a quality system for valves manufacturing, which has been approved by Lloyd's Register in accordance with the quality management system standard ISO 9001.



ANGODOS valve AG1 DN900 PN100



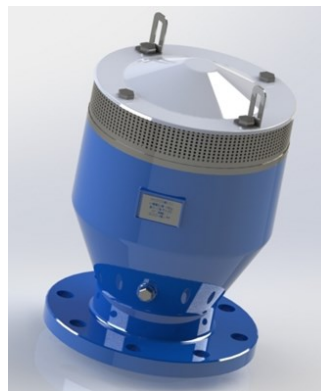
ANGODOS valve model AG1-CT with dismantling joint



Overspeed valve DN2000 PN25, double arm



Interior plant view – big diameter valves



DN150 PN25 air release valve



Check valves DN900 PN16 with hydraulic shock absorber



## Certificates

**CERTIFICATE OF APPROVAL**

This is to certify that the Quality Management System of:

**ANGODOS, S.L.**  
**C/ San Juan, 21-23, Pol. Ind. El Palomo**  
**28946 Fuenlabrada, Madrid**  
**Spain**

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standard:

**ISO 9001:2008**

The Quality Management System is applicable to:

**Development, production, sale and service of valves, accessories and operation and control equipment.**

Approval Certificate No: SGI 2199125

Original Approval: 01 July 1999  
 Current Certificate: 07 December 2016  
 Certificate Expiry: 14 September 2018

Issued by: LRQA España, S.L.  
 For and on behalf of: Lloyd's Register Quality Assurance Limited

C/ Pinarosa, 29 - 1<sup>o</sup> - 28020 Madrid, España  
 For and on behalf of: Trinity Park, Bicknell Lane, Birmington B37 7YS, United Kingdom  
 This approval is conditional on compliance with the applicable standard and certification conditions set out in the certificate.  
 The use of the UKAS Accreditation Mark requires Accreditation in respect of those services covered by the Accreditation Certificate Number 01.

Lloyd's Register Quality Assurance, including Lloyd's Register Quality Assurance Limited (LRQA), and its associated companies, employees or agents, shall not be held liable for any loss or damage, including consequential loss or damage, arising from the use of the information or advice provided in this certificate. The information or advice provided in this certificate is for general information only and does not constitute a contract. The user of this information or advice shall be responsible for its use. This is a copy of an electronic document for the event of any conflict, in integrity between the copy and the electronic document, which is the original and shall prevail over any other copy.

**ISO 9001**

**EU CERTIFICATE OF CONFORMITY**

In accordance with the requirements of the Pressure Equipment Directive 2014/68/EU and the Pressure Equipment (Safety) Regulations 2016, UK Statutory Instrument 2016 No. 1105

This is to certify that the Quality Management System of:

**ANGODOS, S.L.**  
**C/San Juan nº 21/23**  
**28946 – Fuenlabrada (Madrid)**  
**Spain**

has been assessed against the requirements of Annex III, Module H of the Pressure Equipment Directive 2014/68/EU, and Schedule 4, Module H of The Pressure Equipment (Safety) Regulations 2016 and conforms to the requirements for the products shown below:

**Design and Manufacture of Industrial Valves**  
 (see attached schedule)

Approval is subject to the continued maintenance of the quality system in accordance with the requirements of the above Directive and Regulations for the products listed on the attached schedule.

Authorisation is hereby given to use the LRV Notified Body Identification Number in accordance with the requirements of the specified Directive and Regulations in relation to the products as identified above.

Certificate No: 0038PEDMAD0140  
 Original Approval: 31 January 2014  
 Current Certificate: 23 January 2017  
 Certificate Expiry: 31 January 2020  
 LRV Notified Body Number 0038

Lloyd's Register Quality Assurance Limited  
 Teresa Souto  
 28002017  
 Madrid

Teresa Souto on behalf of Lloyd's Register Verification

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**PRESSURE EQUIPMENT 2014/68/EU**

**AENOR Product Certificate**  
 Isolating valves for water supply

**B18/000006**

AENOR, Spanish Association for Standardization and Certification, certifies that the organization

**ANGODOS, S.L.**

registered office: C/ San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

supplies: Isolating valves for water supply

in compliance with: UNE-EN 1074-1:2001 [EN 1074-1:2000]  
 UNE-EN 1074-1:2001 ERRATUM:2008  
 UNE-EN 1074-2(A1):2004 [EN 1074-2:2000(A1):2004]  
 UNE-EN 1074-2:2001 [EN 1074-2:2000]

References: Specified in Annex to the Certificate

Production site: C/ San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

Certification scheme: In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP B18.01

This certificate supersedes B18/000006, dated 2014-06-07

First issued on: 2014-04-07  
 Modified on: 2014-07-23  
 Validity date: 2019-04-07

Avelino BRITO  
 Chief Executive Officer

**AENOR** Asociación Española de Normalización y Certificación | Góndiz 7, 28004 Madrid, España | Tel. 902 102 201 - www.aenor.es

**AG1 BC 1074-1/2 PRODUCT CERTIFICATE**

**AENOR Product Certificate**  
 Isolating valves for water supply

**B18/000007**

AENOR, Spanish Association for Standardization and Certification, certifies that the organization

**ANGODOS, S.L.**

registered office: C/ San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

supplies: Isolating valves for water supply

in compliance with: UNE-EN 1074-1:2001 [EN 1074-1:2000]  
 UNE-EN 1074-1:2001 ERRATUM:2008  
 UNE-EN 1074-2(A1):2004 [EN 1074-2:2000(A1):2004]  
 UNE-EN 1074-2:2001 [EN 1074-2:2000]

References: Specified in Annex to the Certificate

Production site: C/ San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

Certification scheme: In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP B18.01

First issued on: 2014-07-23  
 Validity date: 2019-07-23

Avelino BRITO  
 Chief Executive Officer

**AENOR** Asociación Española de Normalización y Certificación | Góndiz 7, 28004 Madrid, España | Tel. 902 102 201 - www.aenor.es

**AG1 VC 1074-1/2 PRODUCT CERTIFICATE**

## Certificates

**AENOR**  
AENOR Product Certificate  
Air valves for water supply

**B18/000008**  
AENOR certifies that the organization  
**ANGODOS, S.L.**

registered office: Cl San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

supplies: Air valves for water supply

in compliance with: UNE-EN 1076-1:2001  
UNE-EN 1076-1:2001 ERRATUM 2008  
UNE-EN 1076-2:2001

References: Specified in Annex to the Certificate

Production site: Cl San Juan nº 21-23, Polígono Industrial El Palomo 28946 Fuenlabrada (Madrid - España)

Certification scheme: In order to grant this Certificate AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tests periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP B18.02.

First issued on: 2017-03-21  
Validity date: 2022-03-21

*[Signature]*  
Avelino BRITO  
General Manager

**VAIU 1074-1/4 PRODUCT CERTIFICATE**

Our Ref: HLM130483  
Test Report: MAT/LAB 7110/2

22<sup>nd</sup> February 2013

**WRAS**  
Water Regulations Advisory Scheme

Compounds AG,  
Baroldstrasse 1,  
CH-8330 Pfäfers, Switzerland

**WATER REGULATIONS ADVISORY SCHEME (WRAS) MATERIAL APPROVAL**

The material referred to in this letter is suitable for contact with wholesome water for domestic purposes having met the requirements of BS 6903:2000 'Suitability of plastic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water'.

The reference relates solely to its effect on the quality of the water with which it may come into contact and does not signify the approval of its mechanical or physical properties for any use.

**ETHYLENE PROPYLENE DIENE MONOMER (EPDM) - MATERIAL ONLY** **5365**

Sunaflex T 8165, Black coloured, compression moulded EPDM sheet material. Shore hardness 70A. Tested in radius size 1.0mm. For use with water up to 65°C.

APPROVAL NUMBER: 1302524  
APPROVAL HOLDER: COMPOUNDS AG

The Scheme reserves the right to review approval. This approval is valid between February 2013 and February 2018.

An entry, as above, will accordingly be included in the Water Fittings Directory on-line under the section headed, 'Materials which have passed full tests of effect on water quality'.

The Directory can be found at [www.wras.co.uk/directory](http://www.wras.co.uk/directory)

Yours faithfully,  
*[Signature]*  
Jason Burgess  
Approval & Enquiries Manager  
Water Regulations Advisory Scheme

11.10.2016  
Compounds AG  
Baroldstrasse 1  
CH-8330 Pfäfers

**EPDM certificate**

**Product certificate**  
K11557/14

Issued: 2018-03-01  
Revision: K11557/13  
Page: 1 of 3

**Coating systems for potable water applications**

STATEMENT BY KIWA  
With this product certificate, issued in accordance with the Kiwa Regulations for Product Certification, Kiwa declares that legitimate confidence exists that the products supplied by **Akzo Nobel Powder Coatings GmbH** as specified in this product certificate and marked with the Kiwa®-mark in the manner as indicated in this product certificate may, on delivery, be relied upon to comply with Kiwa evaluation guideline BRL-K759 'Coating systems for drinking-water applications' dated 2012-02-01.

*[Signature]*  
Luc Leroy  
Kiwa

Publication of the certificate is allowed.  
Advice: consult [www.kiwa.nl](http://www.kiwa.nl) in order to ensure that this certificate is still valid.

Supplier:  
Akzo Nobel Powder Coatings GmbH  
Markenstrasse 50  
72770 NEULINGEN  
Germany  
Tel: +497121 / 519130  
Fax: +497121 / 519139  
info@rescoat.com  
[www.rescoat.de](http://www.rescoat.de)

Certification process consists of initial and regular assessment of:  
• quality system  
• product

**Epoxy certificate**

**CERTIFICADO DE CALIBRACIÓN**  
Certificate of Calibration

ENAC  
Nº 1157/A.C.12.113

Número: 8852-3667  
Página 1 de 3 páginas  
Page of pages

**CALTEX SISTEMAS, S.L.**  
LABORATORIO DE CALIBRACIÓN  
Av. Juan de La Cerda, nº 10, 46980 Paterna (VALENCIA)  
Tel: 96 182 99 02 - Fax: 96 143 82 72  
E-mail: [calibracion@caltex.com](mailto:calibracion@caltex.com) - [www.calibracion.com](http://www.calibracion.com)

**OBJETO** MANÓMETRO DE PRESIÓN RELATIVA  
Item: DIGITAL

**MARCA** SIKA  
Mark: Sika

**MODELO** E2 400 bar  
Model: E2 400 bar

**IDENTIFICACION** CÓDIGO: NO CONSTA  
Identificación: Nº SERIE: 1189PB2

**SOLICITANTE** Angodos S.L.  
Applicant: P Ind El Palomo - CS San Juan, 21-23 Fuenlabrada MADRID

**FECHAS DE CALIBRACIÓN** 22/10/2013  
Date/s of calibration

Signatarios autorizados / Authorized signatories  
Firmado digitalmente por Rafael Juan Jiménez Villar. Motivo: Me revisó este documento. Fecha: 2013-10-22 16:06:02.00  
Fecha de emisión / Date of issue: martes, 22 de octubre de 2013

Responsable del centro  
Este certificado se expide de acuerdo con las condiciones de la acreditación concedida por ENAC que ha comprobado las capacidades de medida y su trazabilidad a patrones nacionales e internacionales. ENAC es el Entidad del Acuerdo de Reconocimiento Múltiple (MRA) de calibración de European Cooperation for Accreditation (EA) de International Laboratory Accreditation Cooperation (ILAC). Este certificado no podrá ser reproducido parcialmente sin la aprobación por escrito del laboratorio de calibración CALTEX SISTEMAS. This certificate is issued in accordance with the conditions of accreditation granted by ENAC which has assessed the measurement capability of the laboratory and its traceability to national standards. ENAC is one of the signatories of the Multilateral Agreement of the European Cooperation for Accreditation (EA) and the International Laboratory Accreditation Cooperation (ILAC). This certificate may not be partially reproduced, except with the prior written permission of the issuing laboratory CALTEX SISTEMAS.

• CALTEX calibra con el medio ambiente, IMPRESIÓN A DOBLE CARA. LP-DEC-03-01 Ver. 34

**CALIBRATION CERTIFICATES**

## Epoxy coating system

Epoxy Powder is the standard coating material for **ANGODOS** valves. This coating guarantees high corrosion and abrasion resistance while shows outstanding impact resistance. Also excellent bonding with ductile iron is ensured for long service life without servicing the valves.

## Application process

**ANGODOS** Just applies the best epoxy powder, and always following the procedures carefully to ensure the quality and maintain the properties of the coating.

The process comprises four steps:

- Pre-Blasting cleaning of the element.
- Blasting grade SA 2 1/2 according to UNE-EN-ISO 8503 "Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates".
- Heating elements to 180°C.
- Electrostatic spray is applied assuring 300 microns thick creating a polymerized, continue, and airtight film all over the valve.

## Coating performance

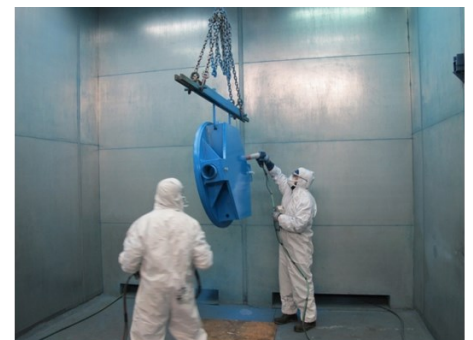
- Perfect airtight, zero porosity.
- Minimum coated thickness 300 microns.
- High adhesion to metal (min. 12 N/mm<sup>2</sup> ).
- High resilience never cracking.
- Smooth surface (makes incrustation more difficult).
- Suitable for drinking water and food use. WRAS certificate.



Manual blasting cabin 4.5x4.5 meters



Polymerization ovens, 3x3x5 meters



Manual powder coating, cabin 4x4 meters

## Polyurethane coating system

Polyurethane (PU) coating is an optional coating material for all **ANGODOS** valves. This coating guarantees high corrosion and abrasion resistance while having more flexibility than epoxy coating higher impact resistance. Also excellent bonding with ductile iron is ensured for long service life without servicing the valves. Polyurethane coating shows outstanding wear resistance and the advantage of being U.V stable, this means that it won't yellow like epoxy does when exposed to small amounts of sunlight over a period of time

### Application process

**ANGODOS** Just applies the best polyurethane and always following the procedures carefully to ensure the quality and maintain the properties of the coating.

The process comprises three steps:

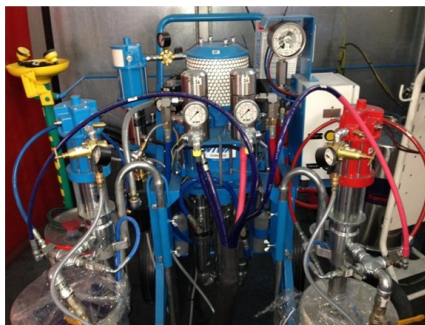
- Pre-Blasting cleaning of the element.
- Blasting grade SA 2 1/2 according to UNE-EN-ISO 8503 "Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates".
- Polyurethane is applied assuring minimum 300 microns thick creating a polymerized, continue, and airtight film all over the valve, but the thickness could be up to 1000 microns.

### Coating performance

- Perfect airtight, zero porosity.
- Minimum coated thickness 300 microns but can reach 1000 microns as desired.
- Very good adhesion to metal (min. 10 N/mm<sup>2</sup> ).
- High resilience never cracking, very flexible, tolerates large temperatures swing.
- High scratch resistance.
- Smooth surface (makes incrustation more difficult).
- Suitable for drinking water and food use. WRAS certificate.



Manual blasting cabin 4.5x4.5 meters



Equipment for corrosion protection with polyurethane coating



Manual powder coating, cabin 4x4 meters



## Butterfly valve AG1

**ANGODOS AG1** is a full bore butterfly valve with flanged body. The valve is manufactured from a single cast iron body (up to DN1000) or mechanical welded body (from DN700 to DN3000)

The sealing gasket is the key for reliable sealing performance and it's placed in the body. The disc is attached to the eccentric (simple or double) shaft bearing assuring an uniform seat and avoiding critical leaking by pressure discontinuities at the sealing area. In this way **ANGODOS AG1** sealing system assures perfect sealing under the most demanding conditions.

Full bore and hydrodynamic internal design provides outstanding hydrodynamic features minimizing the head loss.



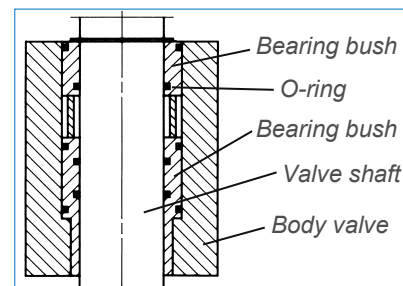
### Product Features

- Full bore.
- Minimum head loss.
- Low maintenance due to robust, simple and compact design.
- Made with top quality materials, certified for drinking water and highly corrosion resistant.
- Easy elastomers replacement.
- Flat lateral gaskets included, body embedded for easy installation.
- Flange connection according to UNE-EN 1092/ ANSI
- Face to face dimensions series 13,14 and 20 according to UNE-EN 558.
- Simple or double eccentricity.
- Low friction and maintenance free bearing system.
- Locking system on the shaft, no need to cut off the fluid flow for gearbox maintenance works (optional).
- Gearbox: smooth drive, IP67 rating, standard motor connection, self-locking, adjustable stop, position indicator.
- Easy installation due to the lifting attachments and compact size.
- Wide manufacture range from DN40 to DN3000 / PN10, PN16, PN25, PN40, PN64, and PN100.
- Wafer, LUG or Flanges
- Optimum performance in clean water and reused water systems up to 60°C.
- Special materials available upon request.
- Other dimensions available upon request.
- Sea water available.

## Design principles

### Bearing system

The stainless steel shafts are completely enclosed by using O-ring sealing embedded inside and outside the bronze bearing bush internally and externally. Bronze material has self-lubricating properties, additionally while mounting the system bearings are lubricated using silicone grease, getting low friction in the system, allowing smooth operation and long and safe service life.

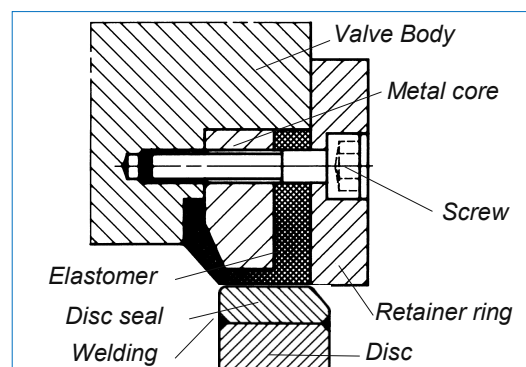


Bearing system design

### Sealing system

The system consists of an elastomer (EPDM) gasket vulcanized to a metal core which is placed in the body using a retainer disk and screws. The sealing system is easily replaceable. Sealing seat in the disk is made of stainless steel for better sealing and longer life of the elastomer.

The cylindrical-conical shape of the sealing system makes **ANGODOS AG1** valve suitable for working pressures up to 100 bar for both flow directions.



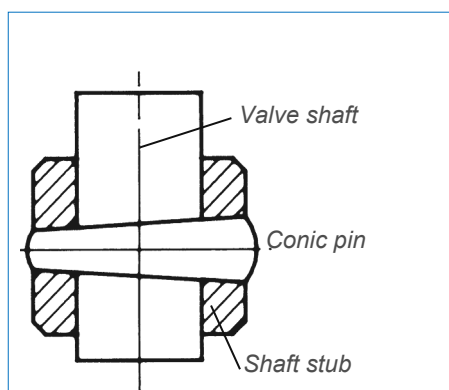
Sealing system design

### Shaft system

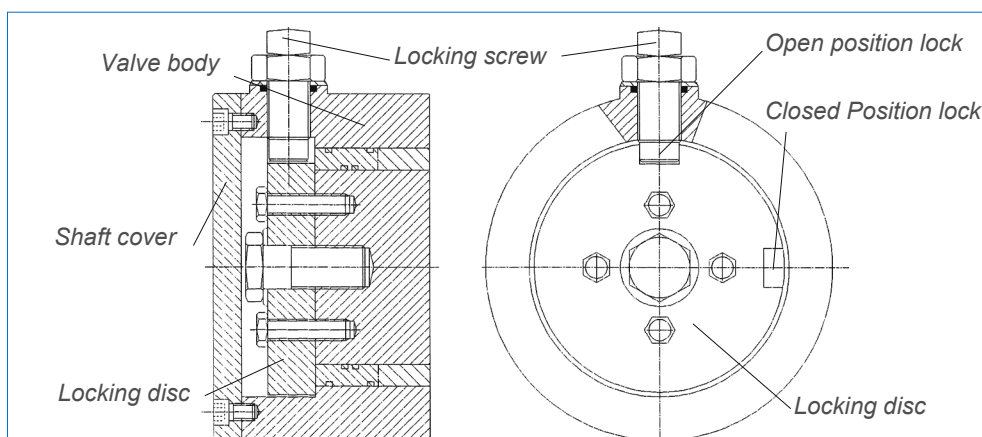
The drive shaft is attached to the using conic pins during the assembly operation, avoiding any kind of displacement. The actuator is attached to the shaft according to ISO 5211 standard.

Optionally a locking system can be mounted on the fixing shaft, enabling to lock the valve on open or closed position, no need to cut off the fluid flow for gearbox maintenance works.

**ANGODOS AG1-BC** is manufactured taking care of the operation conditions and client requirements, the design range includes simple (34mm-150mm according to DN) or double eccentricity (1mm-3mm) shaft, with bidirectional sealing.



Shaft-disc attachment



Optional shaft locking system



## Hydraulic performance

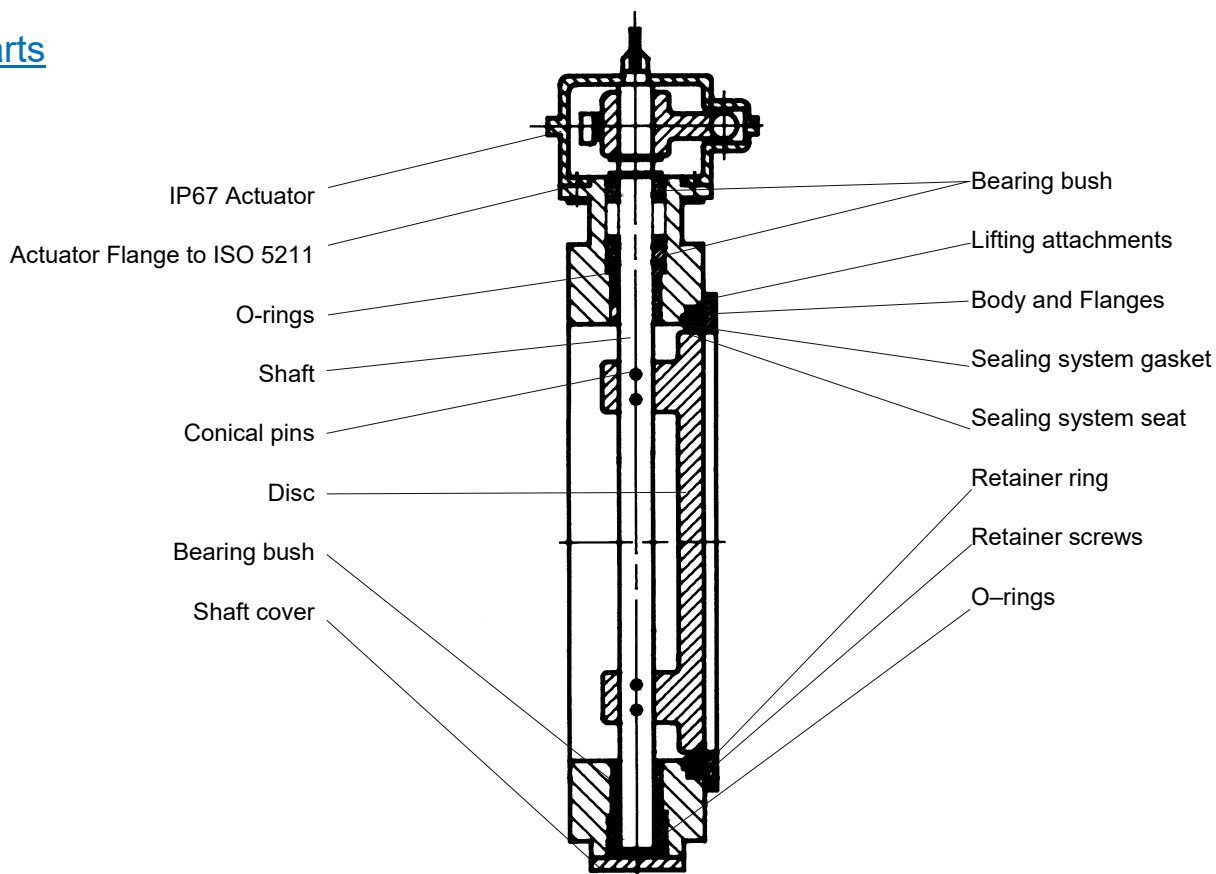
ANGODOS AG1- has been designed to maximize the hydraulic performance. To this end full bore has been ensured and the hydrodynamic design of the valve (interior shape of the body, shaft and disc) minimize head loss

A powerful tool (CFD) has been used to ensure the best valve design and to calculate the air performance (CFD).

Flow coefficient **Kv** is defined as the flow rate in cubic meters per hour [m3/h] of water with a pressure drop across the valve of 1 bar. Flow coefficient will drop as the degree of valve opening **Kv(α)**.

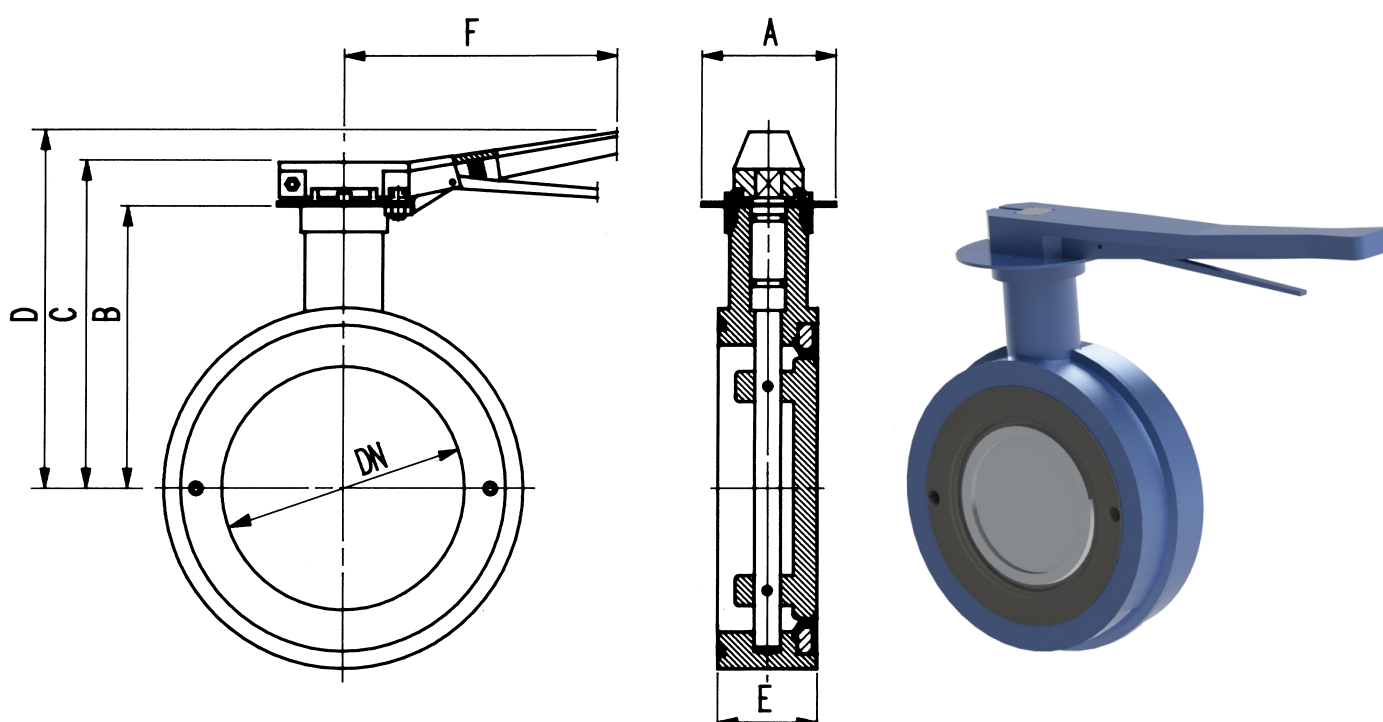
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600	1800	2000
<b>Kv 100 %</b>	72	144	216	360	4.212	1.008	1.552	2.788	3.847	6.052	7.458	9.486	11.665	23.500	29.907	46.216	50.873	65.462	104.673	134.440	176.879	226.833	281.023
<b>Kv 75 %</b>	72	108	144	252	468	720	1.152	1.764	2.592	3.996	4.968	7.848	8.244	14.040	19.188	26.352	29.808	41.112	61.128	89.244	77.148	163.152	227.952
<b>Kv 50 %</b>	36	54	83	130	227	364	468	792	1.152	1.692	2.304	3.024	3.924	5.760	8.676	11.340	14.688	20.160	29.052	39.132	51.084	64.656	79.848
<b>Kv 25 %</b>	11	18	25	72	68	112	144	252	360	504	720	936	1.188	1.764	2.664	3.456	4.464	6.156	8.856	11.916	15.588	19.728	24.336

## Parts



## AG1 Wafer with hand lever DN40-DN150

- AG1 Wafer butterfly valve,
- Simple eccentricity
- DN40 to DN150, PN10/16,
- Hand lever actuated with 7 preset positions.



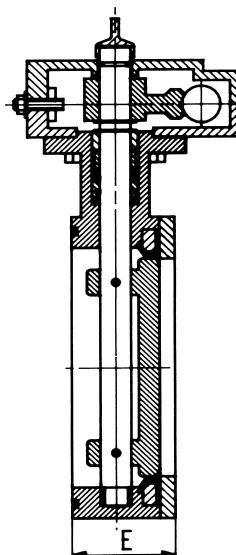
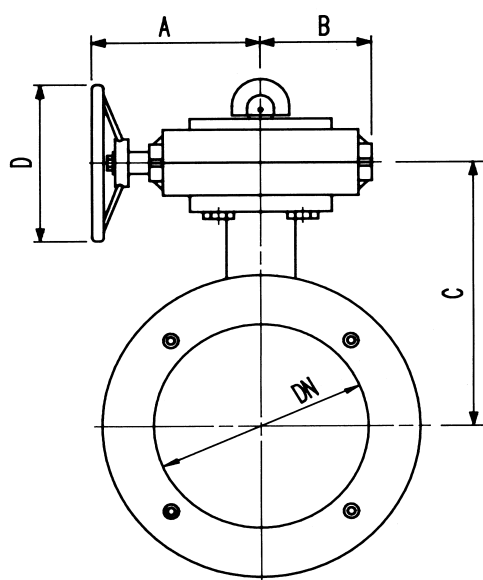
DN	A	B	C	D	E	F
40	86	104	133	149	42	210
50	86	107	136	152	46	210
65	86	113	142	158	46	210
80	86	129	158	174	51	210
100	86	137	166	187	56	260
125	86	155	184	205	56	260
150	86	176	204	226	64	260

<b>Body</b>	Cast Iron EN 156 GJS-400-15
<b>disc</b>	Brass EN 12163 CW507
<b>Shaft</b>	Steel EN 10088-3-95
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.

## AG1 Wafer with manual gearbox DN50-DN300

- AG1 Wafer butterfly valve, simple eccentricity. From DN50 to DN300. PN10/16/25/40, Gearbox actuated.
- One-piece shaft, attached to the disc using conical pins.
- 10 turns actuator.
- Limit Switch and hand Wheel block optional.



DN	A	B	C	D	E	F
50	150	90	137	150	58	46
65	150	90	144	150	58	46
80	150	90	154	150	63	51
100	150	90	168	150	68	56
125	150	90	185	150	68	56
150	150	90	210	150	76	64
200	170	90	265	190	81	64
250	170	90	330	190	97	84
300	170	90	310	190	106	92

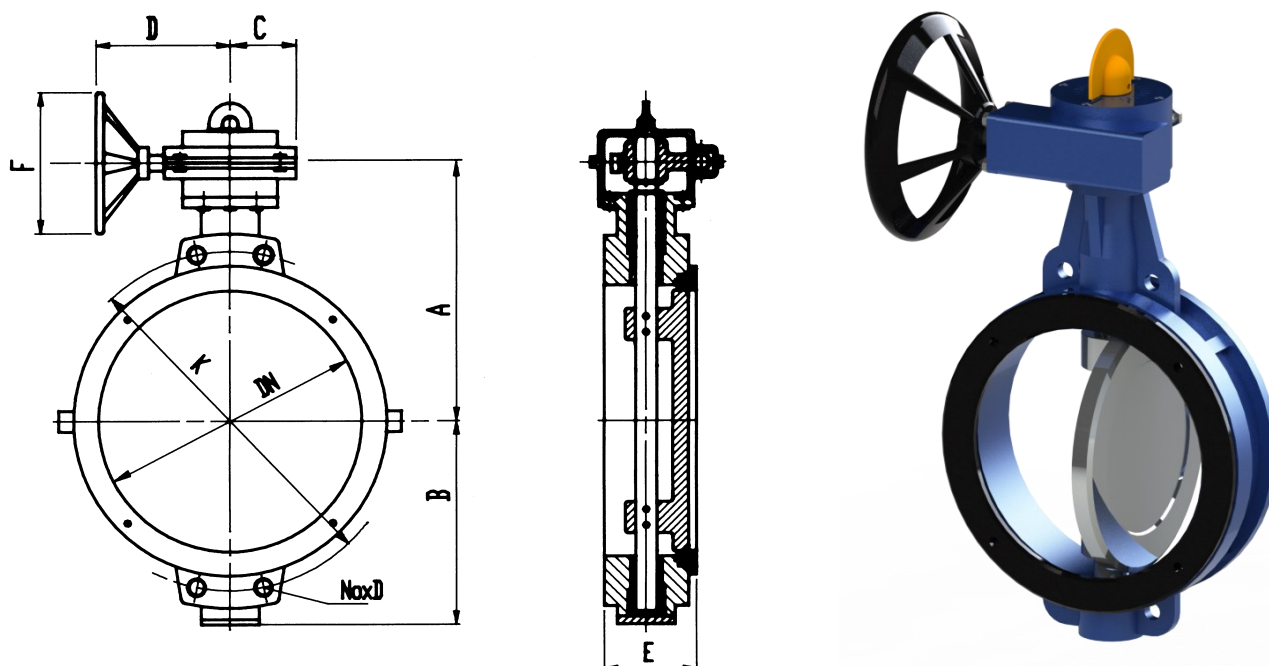
Body	Cast iron EN 156 GJS-400-15
Disc	Steel EN 10088-3-95 14301
	Brass EN 12163 CW507
Shaft	Steel EN 10088-3-95 14301
Elastomer	EPDM EN 681-1

Optional: Any other material is available upon request.



## AG1 Wafer with manual gearbox DN200-DN600

- AG1 Wafer, simple eccentricity, DN200 to DN600, PN16/25, Manual gearbox actuated.
- One-piece shaft, attached to the disc using conical pins.
- 10 turns actuator.
- Limit Switch and hand Wheel block optional.



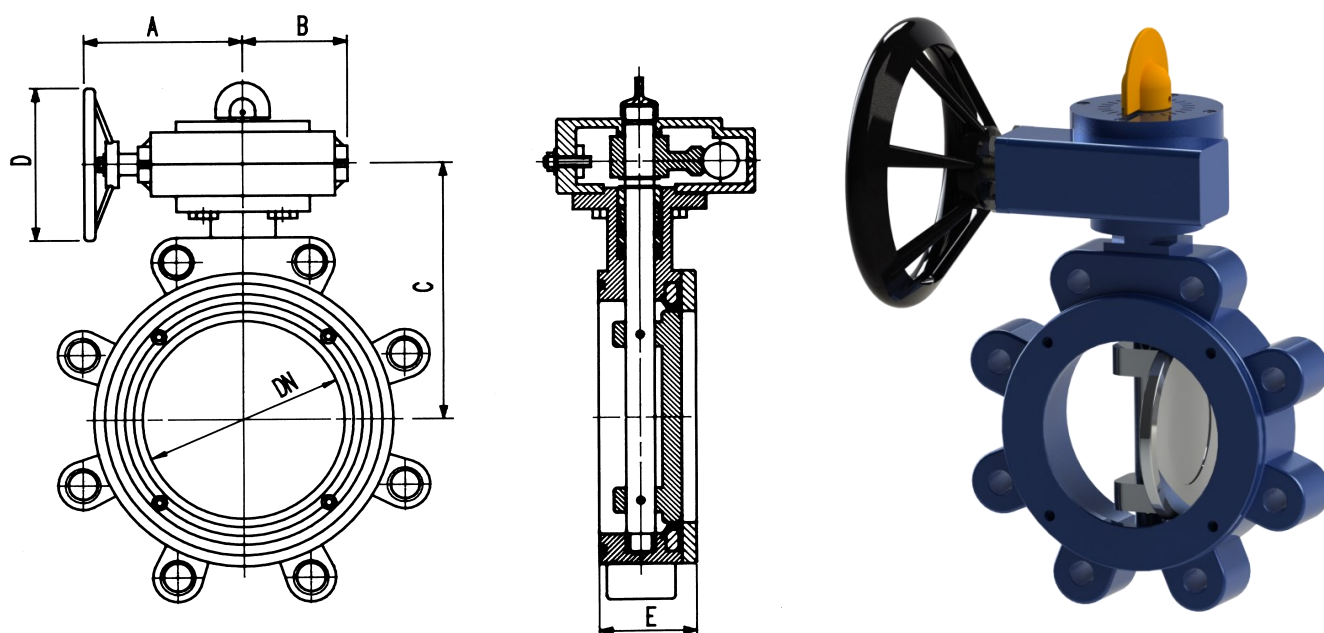
DN	ISO 2531 PN-10		ISO 2531 PN-16		ISO 2531 PN-25							
	A	B	C	D	E	F	K	N°xD	K	N°xD	K	N°xD
200	265	180	95	200	88	210	295	8x23 (M-20)	295	12x23 (M-20)	310	12x27 (M-24)
250	310	230	95	200	102	210	350	12x23 (M-20)	355	12x27 (M-24)	370	12x30 (M-27)
300	335	300	95	200	107	300	400	12x23 (M-20)	410	12x27 (M-24)	430	16x30 (M-27)
350	365	320	95	200	115	300	460	16x27 (M-24)	470	16x27 (M-24)	490	16x33 (M-30)
400	405	340	95	200	130	300	515	16x27 (M-24)	525	16x30 (M-27)	550	16x36 (M-33)
450	430	390	120	260	135	300	565	20x27 (M-24)	585	20x30 (M-27)	600	20x36 (M-33)
500	580	420	120	260	150	300	620	20x27 (M-24)	650	20x33 (M-30)	660	20x36 (M-33)
600	640	465	170	290	175	400	725	20x30 (M-27)	770	20x36 (M-33)	770	20x39 (M-36)

<b>Body</b>	Cast iron EN 1563 GJS-400-15
<b>Disc</b>	Steel EN 10025-2 S275JR+EN 10088-3 14301
<b>Shaft</b>	Steel EN 10088-3-95 14021 A
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.

## AG1 LUG with manual gearbox DN80-DN150

- AG1 LUG butterfly valve, simple eccentricity, DN80 to DN150, PN16/25, with manual gearbox.
- One-piece shaft, attached to the disc using conical pins.
- 10 turns actuator.
- Limit Switch and hand Wheel block optional.



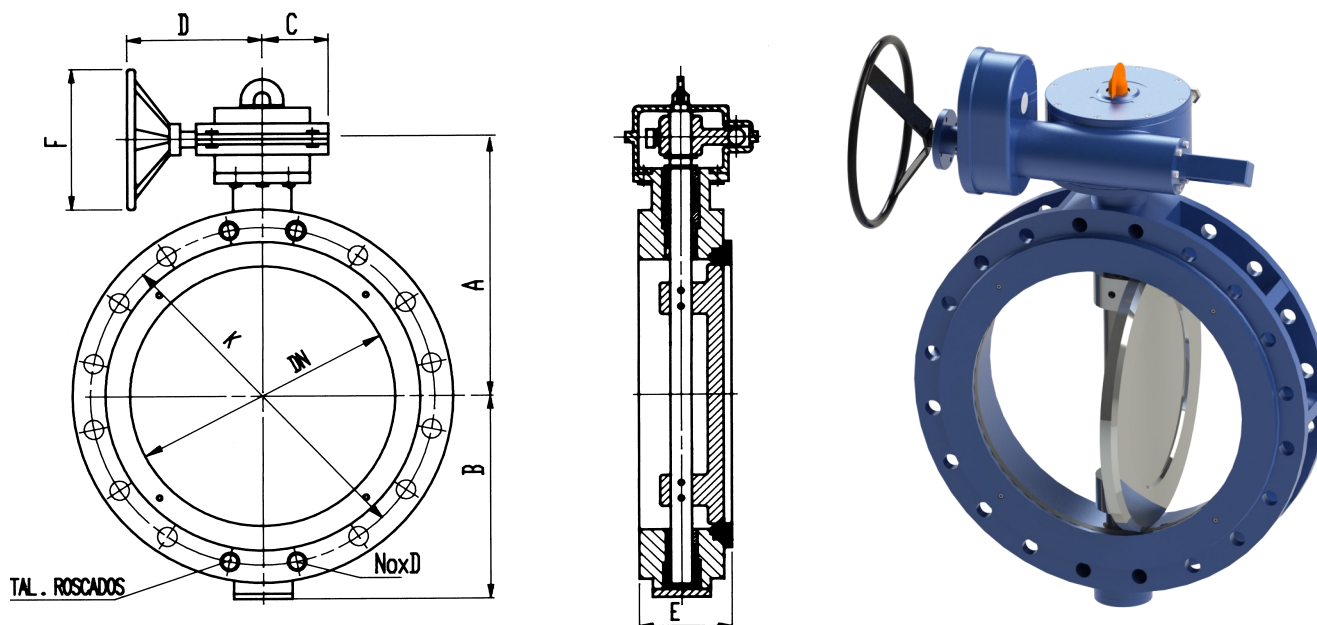
DN	A	B	C	D	E	ISO 2531 PN-16		ISO 2531 PN-25	
						K	NºxM	K	NºxM
80	150	90	154	150	63	160	8xM-16	160	8xM-16
100	150	90	168	150	68	180	8xM-16	190	8xM-20
125	150	90	185	150	68	210	8xM-16	220	8xM-24
150	150	90	210	150	76	240	8xM-20	250	8xM-27

<b>Body</b>	Cast Iron EN 1563 GJS-400-15
<b>Disc</b>	Steel EN 10088-3-95 14301
<b>Shaft</b>	Steel EN 10088-3-95 14021A
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.

## AG1 Flanged with manual gearbox DN200-DN600

- AG1 flanged butterfly valve, simple or double eccentricity. DN200 to DN600, PN10/16/25.
- Manual gearbox actuator, with position indicator, limit switch and possibility of electric motor.
- Easy elastomer replacement.
- Bidirectional sealing system
- Epoxy coating with potability certificate, 250 microns.
- One-piece Shaft.



DN	ISO 2531 PN-10						ISO 2531 PN-16		ISO 2531 PN-25			
	A	B	C	D	E	F	K	N°xD	K	N°xD	K	N°xD
200	265	180	95	200	88	210	295	8x23 (M-20)	295	12x23 (M-20)	310	12x27 (M-24)
250	310	230	95	200	102	210	350	12x23 (M-20)	355	12x27 (M-24)	370	12x30 (M-27)
300	335	300	95	200	107	300	400	12x23 (M-20)	410	12x27 (M-24)	430	16x30 (M-27)
350	365	320	95	200	115	300	460	16x27 (M-24)	470	16x27 (M-24)	490	16x33 (M-30)
400	405	340	95	200	130	300	515	16x27 (M-24)	525	16x30 (M-27)	550	16x36 (M-33)
450	430	390	120	260	135	300	565	20x27 (M-24)	585	20x30 (M-27)	600	20x36 (M-33)
500	580	420	120	260	150	300	620	20x27 (M-24)	650	20x33 (M-30)	660	20x36 (M-33)
600	640	465	170	290	175	400	725	20x30 (M-27)	770	20x36 (M-33)	770	20x39 (M-36)

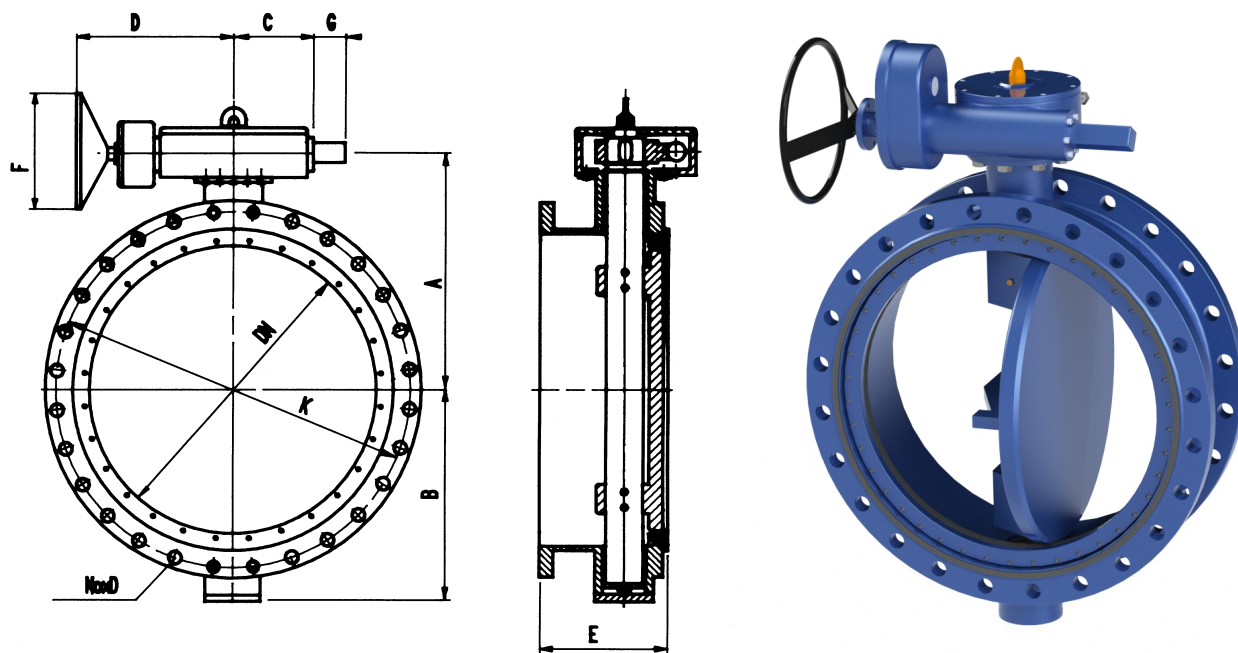
<b>Body</b>	Cast iron EN 1563 GJS-400-15
<b>Disc</b>	Steel EN 10025 S275JR + EN 10088-3-95 14301
<b>shaft</b>	Steel EN 10088-3-95 14021 A
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.



## AG1 Flanged with manual gearbox. DN700-DN1.200.

- AG1 Flanged butterfly valve, Simple or double eccentricity. From DN700 to DN1200, PN-10/16/25.
- Manual gearbox actuator, with position indicator, limit switch and possibility of electric motor.
- Easy elastomer replacement.
- Bidirectional sealing system
- Epoxy coating with potability certificate, 250 microns.
- One-piece Shaft.



DN	ISO 2531 PN-10							ISO 2531 PN-16		ISO 2531 PN-25		
	A	B	C	D	E	F	K	NxD	K	NxD	K	NxD
700	620	547	245	320	292	500	840	24x30(M-27)	840	24x36(M-33)	875	24X42(M-39)
800	660	590	245	400	318	500	950	24x33(M-30)	950	24x39(M-36)	990	24X48(M-45)
900	720	650	340	500	330	500	1050	28x33(M-30)	1050	28x39(M-36)	1090	28X48(M-45)
1000	790	700	340	500	410	500	1170	28x36(M-33)	1170	28x42(M-39)	1210	28X56(M-52)
1200	940	830	340	500	470	500	1390	32x39(M-36)	1390	32x48(M-45)	1420	28X56(M-52)

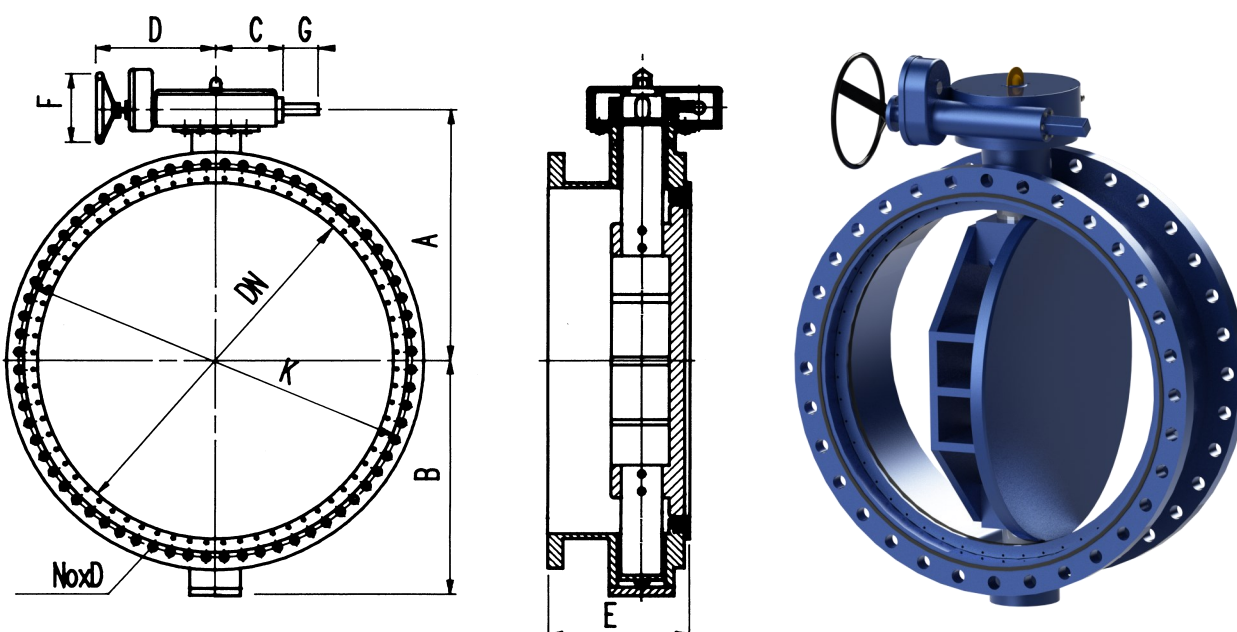
<b>Body</b>	Steel EN 10025-2 S275JR
<b>Disc</b>	Steel EN 10025-2 S275JR ST-44 + EN 10088-3-95 14301
<b>Shaft</b>	Steel EN 10088-3-95 14021 A
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.

## AG1 flanged with manual gearbox actuator. DN1.200-DN2.600.

AG1 flanged butterfly valve, simple or double eccentricity. From DN1400 to DN1600, PN-10/16/25.

- Manual gearbox actuator, with position indicator, limit switch and possibility of electric motor.
- Easy elastomer replacement.
- Bidirectional sealing system
- Epoxy coating with potability certificate, 250 microns.



DN	ISO 2531 PN-10						ISO 2531 PN-16		ISO 2531 PN-25			
	A	B	C	D	E	F	K	NxD	K	NxD	K	NxD
1400	1150	980	520	550	530	400	1590	36x42 (M-39)	1590	36x48 (M-45)	1640	36x62 (M-56)
1600	1320	1130	520	550	600	400	1820	40x48 (M-45)	1930	40x56 (M-52)	1860	40x62 (M-56)
1800	1400	1325	550	600	650	450	2020	44x48 (M-45)	2020	44x56 (M-52)	2070	44x70 (M-64)
2000	1515	1370	550	600	725	450	2230	48x48 (M-45)	2230	48x62 (M-56)	2300	48x70 (M-64)
2200	1710	1460	550	600	725	500	2650	56x56 (M-52)	2440	52x62 (M-56)		
2400	1820	1590	700	720	725	500	2650	56x56 (M-52)	2650	56x62 (M-56)		
2600	1930	1830	700	720	750	500	2850	60x56 (M-52)	2850	60x62 (M-56)		

<b>Body</b>	Steel EN 10025-2 S275JR
<b>Disc</b>	Steel EN 10025-2 S275JR ST-44 + EN 10088-3-95 14301
<b>Shaft</b>	Steel EN 10088-3-95 14021 A
<b>Elastomer</b>	EPDM EN 681-1

Optional: Any other material is available upon request.