CMO VALVES

manufacturing the valve you need

MANUFACTURING RANGE

+40 YEARS OF EXPERIENCE IN THE DESIGN AND MANUFACTURE OF INDUSTRIAL VALVES

www.cmovalves.com

Distributed by

WAGNER Armaturen

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LRQA CERTIFIED ISO 9001

CMO VALVES
manufacturing the valve you need

We are a company dedicated to the design, manufacture and assembly of standard and special valves and penstocks. Our extensive manufacturing range allows us to cover countless industrial applications and control all kinds of fluids.

Founded in February 1993, its personnel has **more than 40 years of experience** in the valve design and manufacturing sector. This experience and the satisfaction of a job well done has helped us to evolve and become the company we are today.

CMO Valves is today one of the largest manufacturers of valves both nationally and internationally, and counts on a young team of qualified personnel to provide the best service to its customers.

CMO Valves has extensive experience in multiple industry sectors and has put in place numerous valve solutions throughout the five continents.

We have various solutions for water treatment, paper mills, mining and sludge, desalination plants, hydroelectric plants, dams, pumping stations, cement plants, gas and oil.

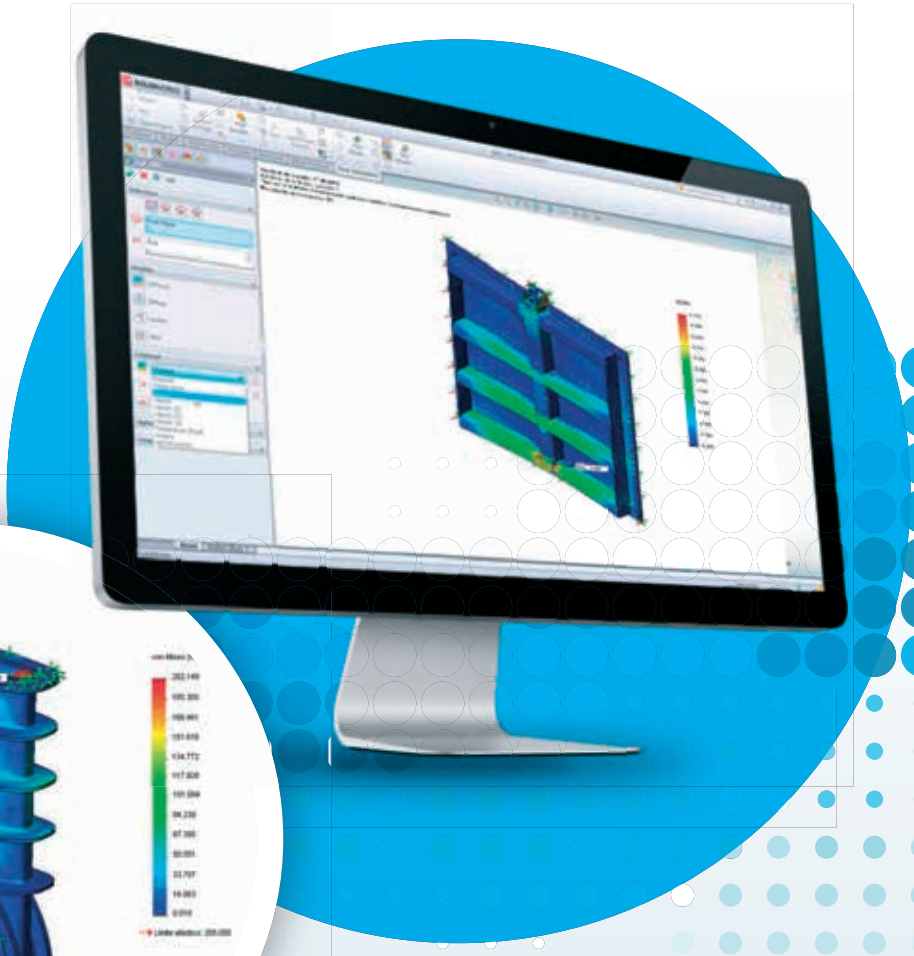
...

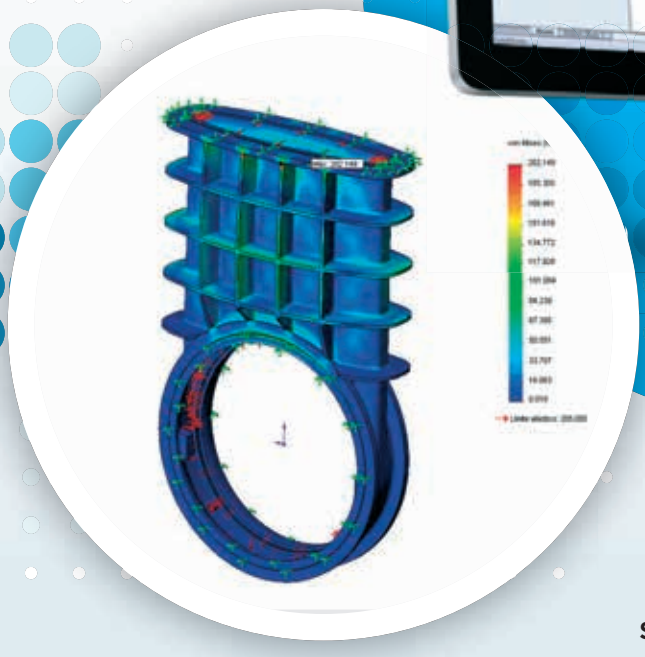
(R + D + I)

Research + Development + Investigation

***CMO Valves** is today one of the largest manufacturers of valves both nationally and internationally, and counts on a young team of qualified personnel to provide the best service to its customers.*

Teamwork is our major asset. Experience and knowledge, combined with technological innovation capability, are the driving force behind the company. For this reason it is one of our greatest values, and helps us to maintain a competitive position in the sector on a global level.





SOLIDWORKS

® ***3D Mechanical Design Software***
® ***EFlow-Simulation modeling elements.***

The team at **CMO Valves**, uses the best state-of-the art software tools to carry out its valve calculations and designs, complying with all the standards of the European Union. (EN 12516).

Certified quality management

At CMO Valves the priority has always been the concept of quality as a fundamental principle of our activity and as a factor of success to achieve continuous improvement.

CMO Valves is committed to quality as one of the main assets of its business and a key success factor. Quality is always directed towards the continuous process improvement in order to meet customer needs and expectations, while at the same time ensuring maximum satisfaction.

Our company holds the ISO 9001: 2015 certificate, the standard for the internationally recognized quality management systems (QMS).

We manufacture our products in accordance with the European directive on pressure equipment. (2014/68- EC).

WRAS

We manufacture our products in accordance with the European directive (2014/34- EC).

Production and distribution

Main headquarters are located in
Tolosa (Gipuzkoa) - Spain
and the facilities are divided into various sections at different locations.

International commercial network

***CMO Valves** has branches and distributors located around the five continents, able to obtain effective response times, both commercially and in manufacturing.*

Production and Manufacturing Distributors International Agents

Contact our agents:

www.cmovalves.com/sales-network

Some of our references

For the past 40 years, CMO Valves. has supplied more than 1 Million units of different types of valves and penstocks for major projects in industries, dams, water treatment plants and projects in more than 70 countries around the world.

DAMS AND HYDRAULIC PROJECTS

ALGERIA Constantine WTP, Nabeul WTP, Boughardaine WTP **ARGENTINA** Axion WTP, Las Talitas WTP **AUSTRALIA** Watercorp WTP **BELIZE** Cow Dam Project **BOLIVIA** Taca WTP **BULGARIA** Novi Iskar WTP **CAMEROON** Sonel HPP **CHILE** Farfana WTP, Copec Desalination **CYPRUS** Nicosia WTP **COSTA RICA** Los Tajos WTP **COLOMBIA** Bello WTP, Mosquera WTP, Bojacá WTP, Caruquia & Guanaquita HPP, Alto Y Bajo Tolúa HPP, Paraiso WTP **ECUADOR** Guayaquil WTP, Ibarra WTP, Ambato WTP, Esmeraldas WTP, Pradera WTP **EGYPT** Gabal Al Asfar WTP UAE Al Ramtha WTP, Al Dhaid WTP, Al Jazeerah Desalination **ESTONIA** Tallinn WTP **FRANCE** Cegelec WTP **PHILIPPINES** Putatan WTP **GHANA** Nungua Desalination GUATEMALA Xacbal HPP **NETHERLANDS** Zeeland WTP UK Cogmoors Wales WTP IRAN Dousti Dam HPP **IRELAND** Dublin WTP **ICELAND** Hafnarfjordur WTP **KUWAIT** Kuwait WTP **KAZAKHSTAN** Astana WTP **LATVIA** Sarlin WTP Riga WTP **LEBANON** Rabi & Tunis WTP, Al Kamaliya WTP, Kesrouane Coastal Area WTP **MACEDONIA** Complete Lisice Dam **MOROCCO** Fez Meknes WTP, Azrou WTP **NIGERIA** Gavi Dam **OMAN** Darssait Desalination **PANAMA** Ciudad David WTP, Sabanitas WTP **PERU** La Chira WTP **POLAND** Raciborj WTP, Sosnowiec WTP **PORTUGAL** Daivoes Dam, Rio Mel HPP, Sabugal Dam, Porto WTP QATAR Anabeeb Desalination **DOMINICAN REPUBLIC** Ozama **WTP ROMANIA** Aktor WTP, Dumbraveni WTP, Beius Pumping St **TRINIDAD & TOBAGO** Trinidad Tobago WTP **SAUDI ARABIA** Al Khobar WTP, Jeddah Pumpin Stn, Shuaibah III Expansion II Desalination Plant **TUNISIA** Emi WTP **URUGUAY** Montevideo WTP **USES** Milliken Dam **SPAIN** Presa Algar Dam, Canal Isabel II WTP, Baix WTP, Melonares DAM, Tenerife WTP, Canal De Orellana WTP, Manzanares River, Laberne DAM, Ibiur DAM, Valdabra DAM, Candelaria Desalination, Riosequillo WTP, Sotogutierrez WTP, Orense WTP, Burgos WTP, Villaperez WTP, Gijon WTP, Ribeira WTP, Ria Ferrol WTP, Villarejo WTP, Salvanes WTP, Leon Alfoz WTP, Valdeorras WTP, Cervera WTP, El Berrueco WTP, Estiviel WTP, San Pedro II HPP, Badajoz WTP, Merida WTP, Submarine Emissary of Vigo, Ablaneda WTP, Los Urrutias HPP, Estepona WTP and many more.

Visit our website, to see, access or download in pdf format, all the national and international references in addition to the projects where CMO Valves has participated in the supply of various types of industrial equipment.

www.cmovalves.com/references

PAPER INDUSTRY

BELGIUM Sappi, Lanaken Paper Mill, Stora Enso, Langerbrugge BRAZIL Munksjö Paper, Jacarei Paper Mill **CHILE** Celulosa Arauco Arauco Pulp Mill, Valdivia Pulp Mill, San José de la Mariquina CMPC Pacifico Mill **CHINA** Fujian Hengli, Nanan, Fujian, Fushun Paper Co Ltd, Liaoning **DENMARK** Dansk Bølgepap Industri. **EGYPT** Al Bardi Paper Mill, 6th of October City, International Paper Industries, El Obour paper Egypt, EG Paper **FINLAND** Georgia-Pacific, Nokia Paper Mill, Metsä Tissue, Mänttä Paper Mill, Oulu Paper Mill, Kaukas Paper Mill, Lappeenranta, Rauma Paper Mill **FRANCE** Nantes Paper Mill, Munksjö Arches SAS, La Gère Paper Mill, Pont-Évêque **INDONESIA** Indah Kiat Pulp & Paper Perawang Mill, Indah Kiat Pulp & Paper Serang Mill, Pindo Deli Pulp & Paper, Pabrik Kertas Tjiwi Kimia, Ekamas Fortuna, OKI Pulp & Paper, Lontar Papyrus Pulp & Paper, Riau Andalan Pulp & Paper, Pura Barutama IRAN Zarrin Barg Paper Mill, Saveh **ISRAEL** Hadera Paper Mill **ITALY** Fedrigoni Verona Paper Mill, Industria Cartaria Pieretti KUWAIT United Paper Industries **MALAYSIA** Muda paper mill sdn bhd, Gs paper & packaging sdn bhd, Trio paper mill sdn bhd **MEXICO** Papelera del Nevado, Gondi Paper Mill NORWAY Nordic Paper, Greåker Paper Mill **POLAND** ICT Poland (Kostrzyn nad Odr) **PORTUGAL** Portucel Soporcel, Cacia, Figueira da Foz, Setúbal Pulp and Paper Mill, Celbi, Celulose Beira Industrial, Caima-Indústria de Celulose S.A. Constância **RUSSIA** Mondi, Syktyvkar Paper Mill **SLOVAKIA** Mondi, Ruzomberok **SOUTH AFRICA** Sappi Saaicor, Ngodwana, Stanger, Felixton, Tugela, Mandeni, Lomati. Kimberly Clark Gayatri Paper Twinsaver SWEDEN Stora Enso Paper AB, Hyltebrik, SCA Östrand Pulp mill- Helios project, Timrå Södra Cell AB, Väröbacka, Karlsborg Paper Mill, Lafarge, Örebro Paper Mill, Metsä Board, Husum Paper Mill, Mondi, Dynäs Paper Mill , Swedish Tissue Kisa Paper Mill **THAILAND** SCG Group Thailand (various paper mills), Siam Kraft Industry Co., Ltd. Hiang Seng Fiber Container Co., Ltd., Advance Agro Public Company Limited, Panjapol Pulp & Paper **TURKEY** Kipas Paper paper mill, Söke, Aydin **URUGUAY** UPM-Kymmene Corporation, Fray Bentos Pulp Mill, Stora Enso Montes del Plata Paper Mill **VIETNAM** Siam Paper Vietnam - Vina Kfrat Paper Mill **SPAIN** Gallur Pulp Mill, Munskjö Paper Decor Spain, Vilaseca Pulp Mill, Alier Smurfit Papelera de Almazán, Zubialde Pulp Mill, Oria Pulp Mill, Aralar Pulp Mill, Miquel y Costas Papresa, Papelera Peninsular Papalera del Araxes, ENCE Pontevedra, Navarra Pulp Mill, Papelera Cicuñaga (Iberpapel), Papelera del Centro, Papelera La Paquita Papelera Uranga CEASA Flutecsa, Papelera del Besos Papelera de Buñol, Sniace Papelera Nesa, SAICA I Papelera Silla, Papelera de Amaroz, Papelera Clariana Ruidevitlles - Ruidesa Unión Industrial Papelera, Guarro Casas Papelera la Riba.

AIR / GAS TREATMENT

FRANCE L'AIR LIQUIDE Shenyang Steel, Weihe Steel, Bagawati Steel, Hamilton Steel, Hutakonotice, TGHM Steel, Krakatau II Steel, NICU Baiona Steel, Fushun Steel, Richemont II Steel, Fos Audience II Steel, Magang Steel, KM- LURGI Steel, Japan Steel, Shanghai coking Steel, Chagres Steel, Posco IV & V Steel **MEXICO** Loesche Tepeaca & Boyano Cement **GREECE** Foster Wheeler Atherinolakos Plant **MOROCCO** Mohammedia Thermal Plant, OCP Phosphates, Ait Baha Cement, **INDIA** National Power Thermal **THAILAND** Bayer Thai **RUSSIA** Lukoil Plant & Gazprom Plants **ALGERIA** Meftah Cement **SPAIN** Imasa Cement, FL Smidth-Fuller Sirusa, Sugimat Intamasa Teruel, Sugimat Finsa Santiago, Finsa Fibranor Santiago, Finsa Cesures Padron, Aceralia Aviles, Aceralia Gijon Italimpianti, Erpo, CSI, Elcogas Puertollano, Babcok Wilcox Española Thermal, Endesas Thermal Plant, Stein Industries, Foster Wheeler Spain (various thermal plants), Loesche Cement.

MINING INDUSTRY

AUSTRALIA - NEWMONT - Boddington Gold Mine, BHP BILLITON - Worsley Alumina Refinery, FMG - Cloud Break Iron Ore Mine, SANDFIRE RESOURCES - Degrussa Copper Mine, REGIS RESOURCES - Garden Well & Duketon Gold Mines, ANGLOGOLD ASHANTI - Tropicana Gold Mine **BULGARIA** - Chepelopech Mining, Aurubis Gold Plant, Gold Project Krumovgrad **FINLAND** - Sydvaranger Iron Ore Mine, Kevitsa Mine **CHILE** - CODELCO - North of Chile Norte - North & Salvador - Chuquicamata, CODELCO Andina & Teniente - Central Chile, BHP BILLITON - Minería Escondida, ANGLOAMERICAN - Collauhasi & Los Bronces, FREEPORT - Candelaria, ATACAMA MINERALS - Pelambres & Esperanza **PERU** - MOSAIC/VALE - Miski Mayo - ANGLOAMERICAN - Quellaveco **NORWAY** Sydvaranger Iron Ore Mine **SOUTH AFRICA** - Samancor Chrome Mine, Impala Platinum, Xstrata Coal, BHP Billiton Manganese, Various Gold Mines Anglo Ashanti, Voorspood Welkom Gold **MOZAMBIQUE** Moma Titanium Mine **NAMIBIA** Langer Heinrich Uranium Rossing Uranium **LESOTHO** Lestsing Diamonds **BOTSWANA** De Beers Diamonds Opapa Diamonds **ZIMBAWE** Anglo Platinum **KAZHAKSTAN** KAZ MINERALS - Aktogay Copper Mine & Bozshakol Copper Mine ZHEZKAZGAN - Copper Complex **MOROCCO** OCP Phosphate Mining **INDONESIA** Newcrest - Gosowong Gold Mine Archipelago Resources - Toka Tindung Gold Mine Straits Resources - Mt Muro Gold Mine **GHANA** Newmont - Ahafo Gold Mine **PHILIPPINES** Semirara Coal Mining **UKRANIE** Northem and Southern Mining - Metinvestholding LLC - Nikitovsky granite quarry LLC - Obscheprommash **RUSSIA** Alrosa Diamond Mining Evraz Iron Ore Mine Kemerovo **KYRGYSTAN** Kumtor Gold Mine **IRAN** Golgohar Iron Ore Mine **EGYPT** Centamin - Sukari Gold Mine.

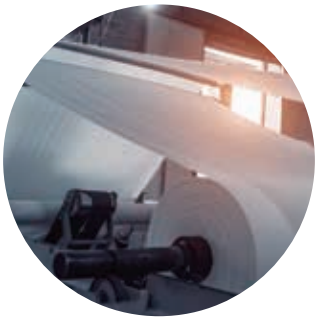
Industrial applications

DAMS

CEMENT PLANTS

WATER TREATMENT

HYDROELECTRIC PLANTS



PAPER MILLS

PUMPING STATIONS

MINING AND SLUDGE

DESALINATION PLANTS

GAS AND OIL

MORE THAN 300 PROJECTS EACH YEAR

***CMO valves** exports 85% of its production to more than 70 countries worldwide.*

Manufacturing Range

CMO Valves has an extensive catalogue of standard valves, enabling us to cover a multitude of sectors in the industry. We offer different sizes and different pressures, as well as different types of actuators, to adapt the product to the needs of each project. We can also design, manufacture and supply different sizes and pressures for special projects.

Stock control allows **CMO Valves** to supply, finished products in very short times, making them ready to ship anywhere in the world. We have extensive facilities, where we assemble and stock the finished product.

ISO 9001
EAC
AWWA STANDARDS

Our valves and penstocks cover and service a wide sector in industry, among which we can highlight:

- DAMS AND HYDRAULIC PROJECTS.
- PETROCHEMICAL PLANTS.
- PAPER INDUSTRY.
- MINING INDUSTRY.
- THERMAL PLANTS.
- PUMPING STATIONS.
- WATER TREATMENT.

FACILITIES

Offices:	800 m²
Production:	10.000 m²
Testing:	600 m²
Shipping:	600 m²
Quality control	300 m²
Storage and Stock	4.000 m²

MANUFACTURING THE VALVE YOU NEED

Solutions

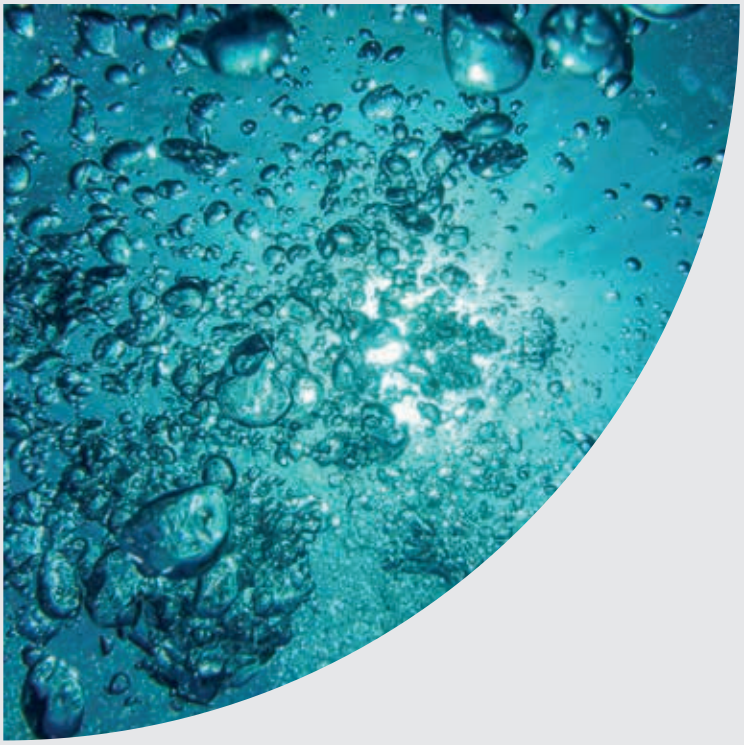
Different types and product lines are available depending on the requirements of each project.
We have a wide range of valves and penstocks in our manufacturing catalogue.

KNIFE GATE VALVES
UNIDIRECTIONAL /
BIDIRECTIONAL

PENSTOCKS
WATER TREATMENT,
DESALINATION

HYDROMECHANICAL EQUIPMENTS
DAMS
RESERVOIRS

DAMPERS
AIR- GAS
HIGH TEMPERATURES



SPECIAL APPLICATIONS

Types

Valve types and solutions for industry cover a wide range which can cover the most demanding requirements.

- KNIFE GATE VALVES
- GATE VALVES
- PENSTOCKS
- BUTTERFLY VALVES
- CHECK VALVES
- AIR-GAS VALVES (DAMPERS)
- SPECIAL VALVES

Likewise, we can manufacture and implement special solutions in valves and penstocks tailored to each project.

***CMO Valves** are able to manufacture and supply different types of valves, applied to different uses and industrial solutions.*

Summary / Contents

KNIFE GATE VALVES

PENSTOCKS / CHECK VALVES

HYDROMECHANICAL EQUIPMENT

DAMPERS AIR / GAS

WATER SUPPLIES

KNIFE GATE VALVES


CMO

Assembly and special manufacturing

At **CMO Valves** we carry out all nature of adaptations and special assemblies, such as limit switches, pneumatic drives, electric drives, special seals, air flushing, and supports as needed.

Industrial applications

- Paper industry.
- Mining.
- Silos unloading.
- Storage.
- Pumping stations.
- Food industry.
- Water treatment.
- Energy generation.
- Dams and reservoirs.
- Hydraulic projects.
- Petrochemical industry.
- Air and gas treatment.
- Steel industry.
- ...

The standard knife gate valve from **CMO Valves**

1. **CAST IRON MONOBLOCK BODY.**
   Distortion resistant, strong, leak free.
2. **INTERCHANGEABLE SEAL.**
   Elastomer seal.
3. **ADJUSTABLE PACKING GLAND.**
   Adjustable during service.
4. **SUPPORT PLATES.**
   Support plates.
5. **ANTICORROSION PAINT.**
   Electrostatic powder coating.
6. **KNIFE.**
   In stainless materials.
7. **ACTUATOR.**
   Multiple possibilities, manual or automatic.
8. **STEM PROTECTION PIPE.**
   Stem protection and lubrication.
9. **ASSEMBLING FLANGE.**
   For installation.

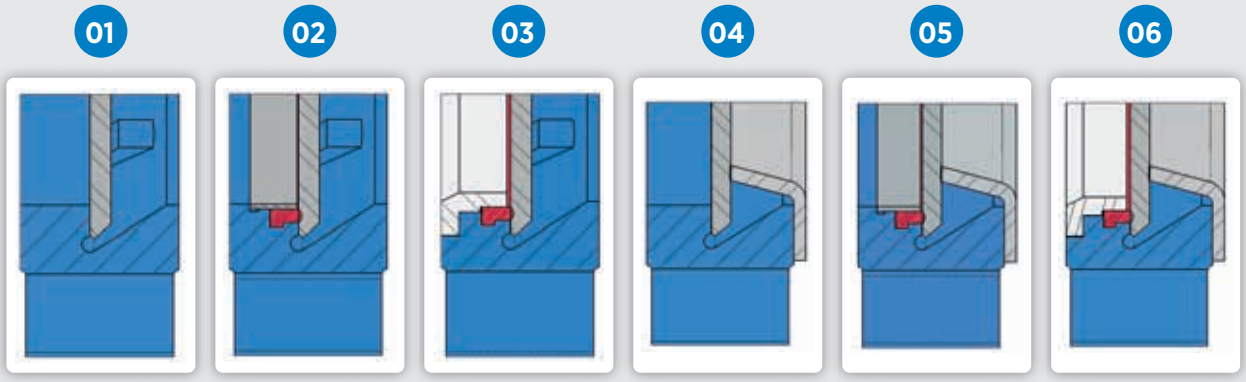
CE **(PED) ART 4.3/CAT.1**
In accordance with the European directive 2014/68.

Ex **ATEX) CAT.3 ZONE 2 and 22 GD.**
In accordance with the European directive 2014/34.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

Standard seats

Various types of seats are available according to the working application and the valve model.



01	02	03	04	05	06
METAL SEAT	SOFT SEAT	SOFT SEAT WITH REINFORCED RING	METAL SEAT WITH DEFLECTOR	SOFT SEAT WITH DEFLECTOR	SOFT SEAT WITH DEFLECTOR & REINFORCED RING

A SERIES

UNIDIRECTIONAL KNIFE GATE VALVE - WAFER DESIGN

DESCRIPTION

- One-piece cast unidirectional valve with body with guides to support the knife gate and sealing wedges. The interior of the body is tapered, providing more space. This means that the solids stored inside can be easily released when the valve is closed.
- Designed with full passage to provide large flows with low pressure losses.
- The body's internal design prevents any build up of solids in the seat area.
- High flow rates with low pressure drops.
- Multiple sealing and packing materials.
- Face-to-face distance in accordance with **CMO Valves** standard.
- An arrow is marked on the body indicating the flow direction.
- Manual drives (handwheel, lever, geared motor with handwheel) and actuated drives (pneumatic, hydraulic, and electric drives) are available, depending on application requirements.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 5% suspended solids. If it is used for dry solids in gravity feed applications it should be installed with the arrow on the body pointing in the opposite direction to the flow.

Designed for applications such as:
- Paper industry.
- Mining.
- Silo emptying.
- Chemical plants.
- Pumping.
- Food Industry.
- Sewage treatment.

SIZES

From DN50 to DN1200.

Other DNs on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1200	3 bar

Other pressures consult..

The mentioned working pressures are just valid for the pressures applied on the direction of the arrow market on the body. As the valve is designed with gate support guides, the valves are able to support a 30% of these pressures from the opposite direction without any damage on them. Achieving watertight integrity under these conditions requires additional brackets; contact **CMO Valves** in such cases..

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- JIS10K.

Others on request.

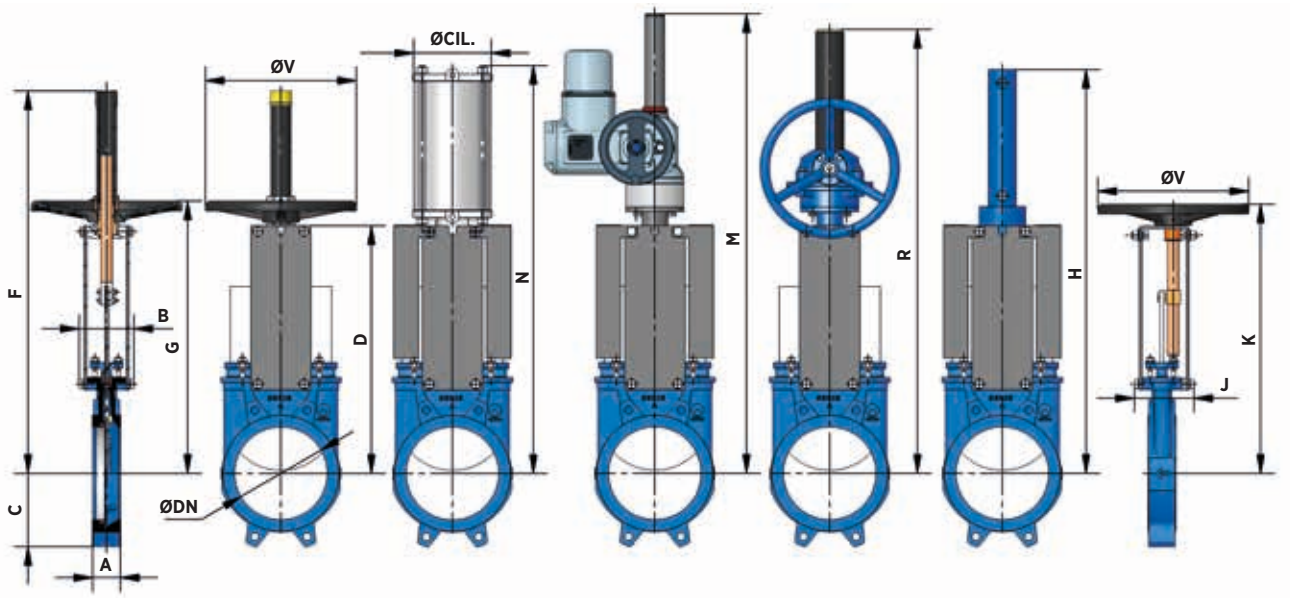
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – A

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H	J	K
50	40	92	63	241	409	280	220	415	80	595	540	460	101	280
65	40	92	70	268	436	307	220	455	80	622	566	500	101	308
80	50	92	92	294	469	333	220	498	80	647	592	560	101	330
100	50	92	105	334	502	373	220	565	100	687	632	620	101	373
125	50	102	120	367	585	406	220	636	125	720	665	683	111	407
150	60	102	130	419	644	458	220	717	125	772	717	755	111	458
200	60	119	160	525	815	578	320	874	160	990	942	926	128	578
250	70	119	198	626	1016	679	320	1036	200	1090	1043	1077	128	679
300	70	119	234	726	1116	779	400	1182	200	1190	1194	1245	128	779
350	96	290	256	797	1336	906	450	1380	250	1302	1335	1376	305	906
400	100	290	292	903	1442	1012	450	1530	250	1460	1441	1535	305	1012
450	106	290	308	989	1628	1098	450	1677	300	1755	1677	1710	305	1098
500	110	290	340	1101	1738	1210	450	1839	300	1870	1789	1870	305	1210
600	110	290	398	1307	2046	1416	450	2146	300	2043	2045	2175	305	1416
700	110	320	453	1506	-	-	-	2481	350	2401	2401	2525	-	-
800	110	320	503	1720	-	-	-	2798	350	2715	2715	2839	-	-
900	110	320	583	1953	-	-	-	3167	400	3043	3043	3172	-	-
1000	110	320	613	2137	-	-	-	3451	400	3351	3351	3496	-	-
1200	150	340	728	2616	-	-	-	4135	400	4042	4042	4174	-	-

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **A/A-LUG** Series.*

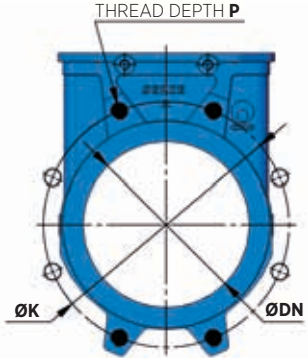
FLANGE DRILLING – A

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	6	6	M 20	12	350	6	6	7/8"	12	361,9
300	6	6	6	M 20	12	400	6	6	7/8"	12	431,8
350	6	10	6	M 20	21	460	8	4	1"	21	476,2
400	6	10	6	M 24	21	515	10	6	1"	21	539,7
450	5	14	6	M 24	22	565	10	6	1 ⅛"	22	577,8
500	4	14	6	M 24	22	620	14	6	1⅛"	22	635
600	4	14	6	M 27	22	725	14	6	1 ¼"	22	749,3
700	3	16	8	M 27	22	840	20	8	1 ¼"	22	863,6
800	3	16	8	M 30	22	950	20	8	1 ½"	22	977,9
900	3	20	8	M 30	20	1050	20	12	1 ½"	20	1085,9
1000	3	20	8	M 33	20	1160	24	12	1 ½"	20	1200,2
1200	3	20	12	M 36	22	1380	26	18	1 ½"	24	1422,4

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



AB SERIES

BIDIRECTIONAL WAFER TYPE KNIFE GATE VALVE

DESCRIPTION

- Bidirectional valve with one-piece cast body and seat inserted in valve.
- Stainless steel gate.
- High flow rates with low load losses.
- Various constructions materials and seal and packing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 4% suspended solids.

Designed for applications such as:
- Industry.
- Chemical plants.
- Pumping.
- Food industry.
- Clean water treatment.

In all these applications the instalation of thevalve is recommended once the fl uid has been fi ltered so the solids or big particles are eliminated.

SIZES

From DN50 to DN600.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN200	10 bar
DN250-DN400	6 bar
DN450	5 bar
DN500	4 bar
DN600	3 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- JIS10K.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

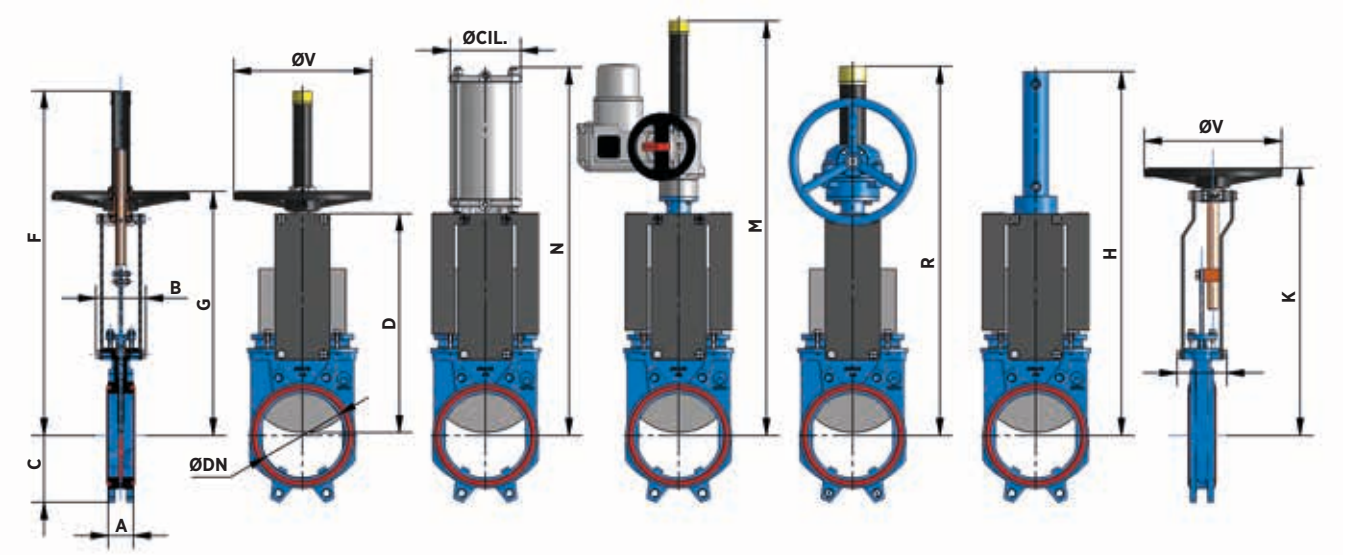
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – AB

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H	J	K
50	40	91	61	241	410	280	220	400	80	587	540	457	101	280
65	40	91	68	268	437	308	220	442	80	614	566	500	101	308
80	50	91	91	294	463	333	220	483	80	640	592	560	101	333
100	50	91	104	334	503	373	220	546	100	680	632	620	101	373
125	50	101	118	367	586	407	220	630	125	713	665	683	111	407
150	60	101	130	419	638	458	220	692	125	765	717	755	111	458
200	60	118	159	525	816	578	320	869	160	880	942	926	128	578
250	70	118	196	626	1017	679	320	1032	200	981	1033	1077	128	679
300	70	118	230	726	1117	779	400	1182	200	1141	1121	1246	128	779
350	96	290	254	797	1337	906	450	1379	250	1347	1305	1376	305	906
400	100	290	287	903	1443	1012	450	1535	250	1550	1403	1532	305	1012
450	106	290	304	989	1629	1098	450	1677	300	1847	1677	1707	305	1098
500	110	290	340	1101	1741	1210	450	1839	300	1959	1789	1869	305	1210
600	110	290	398	1307	2047	1416	450	2145	300	2165	1995	2176	305	1416

No obligation consultation on dimensions and drawings. ***CMO Valves*** *reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

Visit our website to see the full features of the a ***AB*** *Series.*

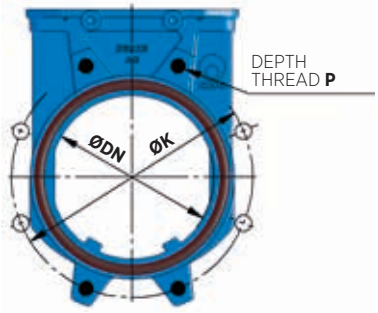
FLANGE DRILLING – AB

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	6	6	M 20	12	350	6	6	7/8"	12	361,9
300	6	6	6	M 20	12	400	6	6	7/8"	12	431,8
350	6	12	4	M 20	21	460	8	4	1"	21	476,2
400	6	12	4	M 24	21	515	12	4	1"	21	539,7
450	5	16	4	M 24	22	565	12	4	1⅛"	22	577,8
500	4	16	4	M 24	22	620	16	4	1 ⅛"	22	635
600	4	16	4	M 27	22	725	16	4	1 ¼"	22	749,3

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



AD SERIES

UNIDIRECTIONAL FLANGED KNIFE GATE VALVE

DESCRIPTION

- One-piece cast body with guides to support gate and seat wedges.
- High flow rates with low load losses.
- Stainless steel gate.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standard.
- An arrow is marked on the body indicating the flow direction.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 5% suspended solids. If it is used for dry solids in gravity feed applications it should be installed with the arrow on the body pointing in the opposite direction to the flow.

Designed for applications such as:
- Paper industry.
- Mining.
- Chemical plants.
- Pumping.
- Food industry.
- Sewage treatment.

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1200	3 bar

Other pressures on request.

Indicated work pressures will only be valid following the direction of the arrow marked on the valve. Due to the valve's design with gate support guides, 30% of these pressures can be applied in the opposite direction to the arrow without causing any damage to it. In these circumstances the valve is not watertight. An additional series of supports is necessary in order to achieve tightness in these conditions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- JIS10K.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

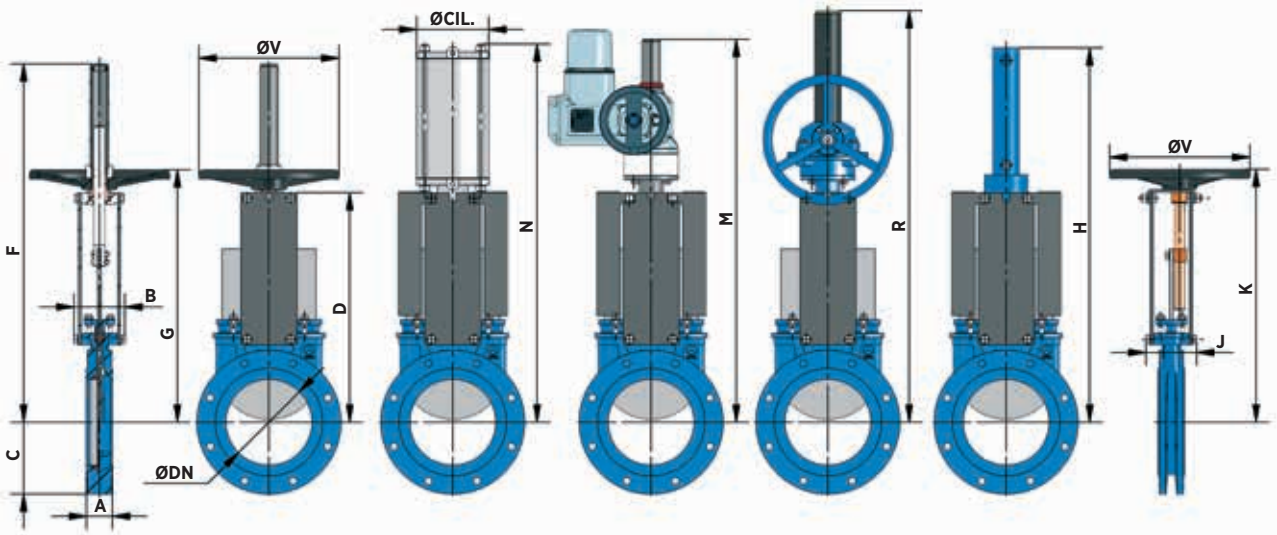
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – AD

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H	J	K
50	40	92	63	241	409	280	225	415	80	595	540	460	101	280
65	40	92	70	268	436	307	225	455	80	622	566	500	101	308
80	50	92	100	294	469	333	225	498	80	647	592	560	101	333
100	50	92	114,5	334	502	373	225	565	100	687	632	620	101	373
125	50	102	127	367	585	406	225	636	125	720	665	683	111	407
150	60	102	142,5	419	644	458	225	717	125	772	717	755	111	458
200	60	119	171,5	525	815	578	325	874	160	990	942	926	128	578
250	70	119	203	626	1016	679	325	1036	200	1090	1043	1077	128	679
300	70	119	242,5	726	1116	779	380	1182	200	1190	1194	1245	128	779
350	96	290	267,5	797	1336	906	450	1380	250	1305	1335	1376	305	906
400	100	290	297,5	903	1442	1012	450	1530	250	1460	1441	1535	305	1012
450	106	290	320	989	1628	1098	450	1677	300	1755	1677	1710	305	1098
500	110	290	357,5	1101	1738	1210	450	1839	300	1870	1789	1870	305	1210
600	110	290	420	1307	2046	1416	450	2146	300	2045	2045	2175	305	1416
700	110	320	455	1506	-	-	-	2481	350	2401	2401	2525	-	-
800	110	320	505	1720	-	-	-	2798	350	2715	2715	2839	-	-
900	110	320	585	1953	-	-	-	3167	400	3043	3043	3172	-	-
1000	110	320	615	2137	-	-	-	3451	400	3351	3351	3496	-	-
1200	150	340	730	2616	-	-	-	4135	400	4042	4042	4174	-	-

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

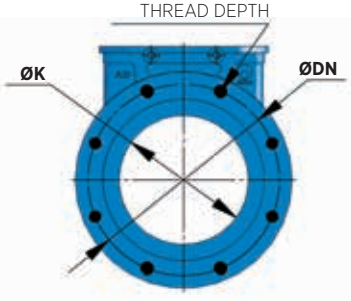
*Visit our website to see the full features of the **AD** Series.*

FLANGE DRILLING – AD

DN	ΔP (bar)	PN10				ND	ASA150			
		●	M	P	ØK		●	R UNC	P	ØK
50	10	4	M 16	8	125	2"	4	5/8"	8	120,6
65	10	4	M 16	8	145	2 ½"	4	5/8"	8	139,7
80	10	8	M 16	9	160	3"	4	5/8"	9	152,4
100	10	8	M 16	9	180	4"	8	5/8"	9	190,5
125	10	8	M 16	9	210	5"	8	3/4"	9	215,9
150	10	8	M 20	10	240	6"	8	3/4"	10	241,3
200	10	8	M 20	10	295	8"	8	3/4"	10	298,4
250	10	12	M 20	12	350	10"	12	7/8"	12	361,9
300	6	12	M 20	12	400	12"	12	7/8"	12	431,8
350	6	16	M 20	21	460	14"	12	1"	21	476,2
400	6	16	M 24	21	515	16"	16	1"	21	539,7
450	5	20	M 24	22	565	18"	16	1⅛"	22	577,8
500	4	20	M 24	22	620	20"	20	1⅛"	22	635
600	4	20	M 27	22	725	24"	20	1¼"	22	749,3
700	3	24	M 27	22	840	28"	28	1¼"	22	863,6
800	3	24	M 30	22	950	32"	28	1½"	22	977,9
900	3	28	M 30	20	1050	36"	32	1½"	20	1085,8
1000	3	28	M 33	20	1160	40"	36	1½"	20	1200,2
1200	3	32	M 36	20	1380	48"	44	1½"	24	1422,4

Larger sizes on request.

● *Threaded holes.*



B SERIES

BIDIRECTIONAL WAFER TYPE KNIFE GATE VALVE

DESCRIPTION

- Bidirectional knife gate valve.
- Cast body, comprised of two bolted parts, with internal sliding guides to provide smooth operation.
- High flow rates with low load losses.
- Stainless steel gate.
- Various seal and gasket materials available.
- Distance between faces according to the **CMO Valves** standard.
- It has a cleaning record.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids with a maximum solids concentration of 8%.

Designed for applications such as:
- Paper industry.
- Mining.
- Chemical plants.
- Pumping.
- Food industry.
- Sewage treatment.

SIZES

From DN50 to DN600.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1000	3 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- JIS10K.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

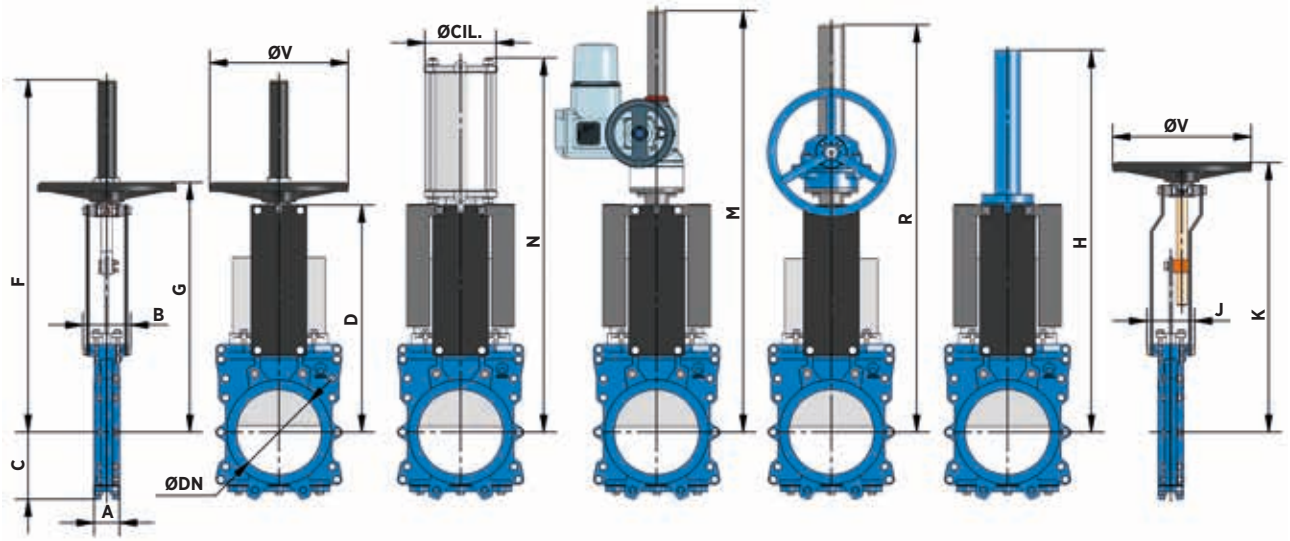
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – B

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H	J	K
50	40	92	63	241	409	280	225	415	80	595	540	460	101	280
65	40	92	70	268	436	307	225	455	80	622	566	500	101	308
80	50	92	92	294	469	333	225	498	80	647	592	560	101	330
100	50	92	105	334	502	373	225	565	100	687	632	620	101	373
125	50	102	120	367	585	406	225	636	125	720	665	683	111	407
150	60	102	130	419	644	458	225	717	125	772	717	755	111	458
200	60	119	160	525	815	578	325	874	160	990	942	926	128	578
250	70	119	198	626	1016	679	325	1036	200	1090	1043	1077	128	679
300	70	119	234	726	1116	779	380	1182	200	1190	1194	1245	128	779
350	96	290	256	797	1336	906	450	1380	250	1302	1335	1376	305	906
400	100	290	292	903	1442	1012	450	1530	250	1460	1441	1535	305	1012
450	106	290	308	989	1628	1098	450	1677	300	1755	1677	1710	305	1098
500	110	290	340	1101	1738	1210	450	1839	300	1870	1789	1870	305	1210
600	110	290	400	1307	2046	1416	450	2146	300	2045	2045	2175	305	1416

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **B** Series*

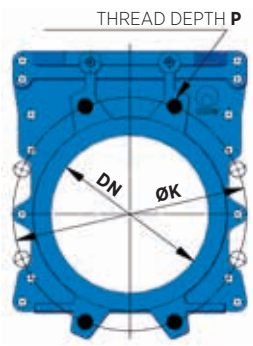
FLANGE DRILLING – B

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	6	6	M 20	12	350	6	6	7/8"	12	361,9
300	6	6	6	M 20	12	400	6	6	7/8"	12	431,8
350	6	10	6	M 20	21	460	10	6	1"	21	476,2
400	6	10	6	M 24	21	515	10	6	1"	21	539,7
450	5	14	6	M 24	22	565	14	6	1 ⅛"	22	577,8
500	4	14	6	M 24	22	620	14	6	1 ⅛"	22	635
600	4	14	6	M 27	22	725	14	6	1 ¼"	22	749,3

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



C SERIES

UNIDIRECTIONAL SQUARE KNIFE GATE VALVE

DESCRIPTION

- Square or rectangular section unidirectional knife gate valve.
- Body is mechanically welded.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.
- We also manufacture face-to-face inserts and dimensions to suit the customer.

GENERAL APPLICATIONS

This knife gate valve is suitable for solids. It is also recommended in gravity discharge applications for highly solid-laden fluids.

Designed for a wide range of applications such as:
- Storage, silos.
- Mining.
- Chemical plants.
- Food industry.

SIZES

From DN125 x 125 to DN1400 x 1400.

Other DNs on request.

Custom-made valves for each project are available.

WORKING PRESSURE (ΔP)

STANDARD	0.6 bar

Other pressures on request.

This knife gate valve is specially designed to work with solids and dust. When the valve is open it provides full, continuous flow without any type of obstruction enabling the product to be freely discharged.

FLANGE DRILLING

- Standard **CMO Valves**.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

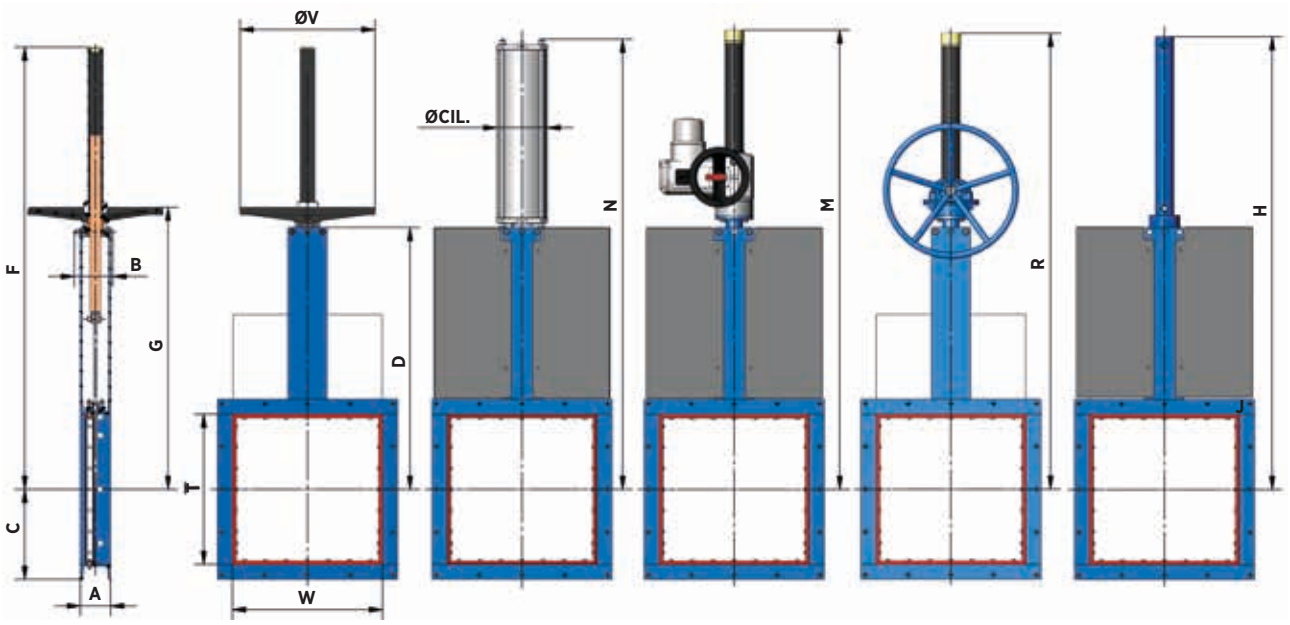
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.



MANUFACTURING RANGE

DIMENSIONS – C

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H
125x125	80	102	107,5	281,5	496	317	225	511	80	631	556	561
150x150	80	102	120	319	534	354	225	574	80	668	619	623
200x200	80	102	145	394	650	429	225	699	80	743	744	723
250x250	80	111	170	471	802	524	325	824	80	831	869	903
300x300	80	111	195	546	935	599	325	949	80	956	994	1028
350x350	100	116	225	621	1060	674	325	1074	100	1086	1124	1156
400x400	100	116	250	697	1185	749	325	1215	125	1211	1249	1286
450x450	100	128	275	785	1338	852	450	1351	125	1365	1384	1421
500x500	100	128	300	864	1465	929	450	1486	160	1492	1511	1558
550x550	100	128	325	939	1590	1004	450	1611	160	1617	1636	1683
600x600	100	128	350	1014	1715	1079	450	1736	160	1742	1761	1808
650x650	100	128	375	1089	1840	1154	450	1861	160	1867	1886	1933
700x700	120	148	405	1178	1981	1245	450	2014	200	2008	2027	2097
750x750	120	148	430	1253	2106	1320	450	2182	250	2133	2152	2222
800x800	120	148	455	1328	2231	1395	450	2307	250	2258	2277	2347
900x900	140	168	510	1478	2481	1545	450	2560	250	2508	2527	2597
1000x1000	140	168	560	1628	2746	1695	-	2815	300	2758	2777	2847
1200x1200	160	186	665	1929	3280	2040	-	3310	350	3229	3251	3387
1400x1400	160	218	765	2229	3760	2340	-	3877	400	3729	3751	3918

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **C** Series.*

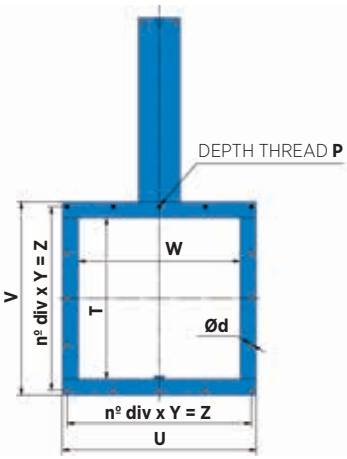
FLANGE DRILLING – C

W x T	ΔP (bar)	FLANGE DRILLING						
		●	○	M	P	Ød	U x V	nº div x Y=Z
125x125	0,6	3	5	M 10	8	12	215x215	2 x 92,5 = 185
150x150	0,6	3	5	M 10	8	12	240x240	2 x 105 = 210
200x200	0,6	3	5	M 10	8	12	290x290	2 x 130 = 260
250x250	0,6	3	5	M 10	8	12	340x340	2 x 155 = 310
300x300	0,6	4	8	M 10	8	12	390x390	3 x 120 = 360
350x350	0,6	4	8	M 12	8,5	14	450x450	3 x 140 = 420
400x400	0,6	5	11	M 12	8,5	14	500x500	4 x 117,5 = 470
450x450	0,6	5	11	M 12	8,5	14	550x550	4 x 130 = 520
500x500	0,6	5	11	M 12	8,5	14	600x600	4 x 142,5 = 570
550x550	0,6	5	11	M 12	8,5	14	650x650	4 x 155 = 620
600x600	0,6	5	11	M 12	8,5	14	700x700	4 x 167,5 = 670
650x650	0,6	5	11	M 12	8,5	14	750x750	4 x 180 = 720
700x700	0,6	6	14	M 12	9	14	810x810	5 x 155 = 775
750x750	0,6	6	14	M 12	9	14	860x860	5 x 166 = 830
800x800	0,6	6	14	M 12	9	14	910x910	5 x 175 = 875
900x900	0,6	7	17	M 12	10	14	1020x1020	6 x 162,5 = 975
1000x1000	0,6	8	20	M 12	10	14	1120x1120	7 x 155 = 1085
1200x1200	0,6	8	20	M 12	10,5	14	1320x1320	7 x 184,5 = 1291,5
1400x1400	0,6	8	20	M 12	10,5	14	1520x1520	7 x 213 = 1491

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



D SERIES

UNIDIRECTIONAL FLANGED KNIFE GATE VALVE

DESCRIPTION

- Unidirectional flanged gate valve (bidirectional option on request), designed for high pressure applications, with selfcleaning seal.
- One-piece die-cast body, with wedges to ensure seal and screwed down bonnet.
- Stainless steel gate.
- Provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.
- An arrow is marked on the body indicating the flow direction.

GENERAL APPLICATIONS

This gate valve is suitable for working with clean liquids or liquids with a concentration of solids.

Designed for applications such as:
- Paper industry.
- Mining.
- Chemical plants.
- Pumping.
- Food industry.
- Sewage treatment.

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

STANDARD	PN2.5-PN100

Other pressures on request.

When a gate valve remains open for long periods of time and the body's internal walls are parallel, a very large torque is required to close it. The inside of the D model body has a conical shape which provides more space; moreover, the width between the faces in this type of valves is greater than standard, thus achieving more space. This way, when the valve is shut off the solids stored inside it can be easily released.

FLANGE DRILLING

- EN 1092 PN10.
- ANSI B16.5 (150 LB).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- PN40.
- PN64.
- PN100.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

*Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...). In some applications other types of rubber are used, such as: hypalon, butyl or natural rubber. Please contact **CMO Valves** if you have such requirements.*

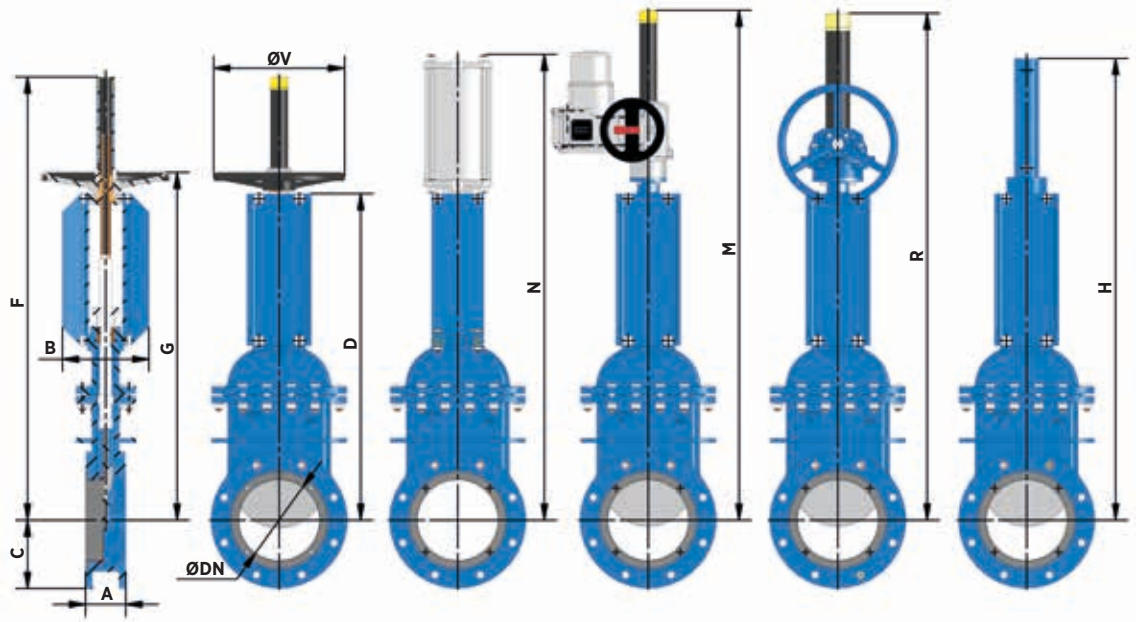
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – D

DN	A	B	C	D	F	G	ØV	N	M	R	H
50	70	106	83	330	498	369	225	535	642	601	546
65	70	106	93	365	574	404	225	582	702	661	597
80	70	106	100	401	570	440	225	650	737	697	667
100	70	160	110	468	637	507	225	720	792	752	742
125	90	180	127	553	772	592	225	824	864	824	844
150	90	180	140	619	838	658	225	949	957	917	955
200	100	215	170	809	1100	862	300	1167	1273	1227	1210
250	114	215	198	907	1300	960	300	1418	1370	1324	1358
300	114	215	223	1033	1425	1090	300	1603	1446	1450	1553
350	127	290	260	1166	1695	1265	402*	1774	1694	1694	1735
400	140	290	290	1372	1905	1482	402*	2083	1905	1905	2000
450	152	290	308	1472	2160	1566	402*	2184	2160	2160	2190
500	152	290	335	1670	2263	1669	402*	2410	2263	2263	2343
600	178	290	390	1825	2613	1919	402*	2759	2613	2613	2720
700	229	380	448	2210	2930	2221	402*	3144	2930	2930	3108
800	241	340	508	2490	3410	2512	402*	3574	3410	3410	3478
900	241	340	558	2690	3895	2898	402*	3944	3895	3895	3930
1000	300	350	615	2920	4052	3015	402*	-	4052	4052	4220
1200	350	520	728	3630	5120	3835	402*	-	5120	5120	5175

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

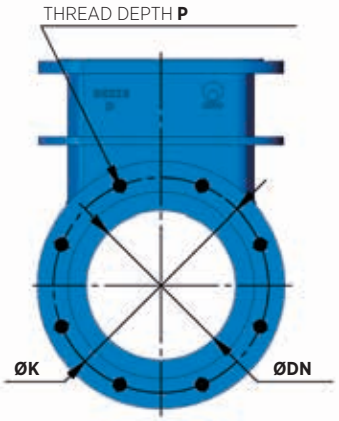
*Visit our website to see the full features of the **D** Series.*

FLANGE DRILLING – D

DN	ΔP (bar)	PN10				ASA150			
		●	M	P	ØK	●	R UNC	P	ØK
50	10	4	M 16	12	125	4	5/8"	12	120,6
65	10	4	M 16	12	145	4	5/8"	12	139,7
80	10	8	M 16	12	160	4	5/8"	12	152,4
100	10	8	M 16	12	180	8	5/8"	12	190,5
125	10	8	M 16	16	210	8	3/4"	16	215,9
150	10	8	M 20	16	240	8	3/4"	16	241,3
200	10	8	M 20	16	295	8	3/4"	16	298,4
250	10	12	M 20	20	350	12	7/8"	20	361,9
300	10	12	M 20	18	400	12	7/8"	18	431,8
350	10	16	M 20	19	460	12	1"	19	476,2
400	10	16	M 24	22	515	16	1"	22	539,7
450	10	20	M 24	24	565	16	1 ⅛"	24	577,8
500	10	20	M 24	24	620	20	1 ⅛"	24	635
600	10	20	M 27	30	725	20	1 ¼"	30	749,3
700	10	24	M 27	35	840	24	1 ¼"	35	863,6
800	6	24	M 30	35	950	28	1 ½"	35	977,9
900	6	28	M 30	35	1050	32	1 ½"	35	1085,9
1000	6	28	M 33	40	1160	36	1 ½"	40	1200,2
1200	6	32	M 36	40	1380	44	1 ½"	40	1422,4

Larger sizes on request.

● *Threaded holes.*



E SERIES

UNIDIRECTIONAL KNIFE GATE VALVE

DESCRIPTION

- Knife gate valve, unidirectional with wafer design and round inlet and square outlet
- The valve body for model **E** comprise two half bodies. The inside of these two parts is machined and is joined using bolts to create thereby a solid block.
- The gate moves smoothly thanks to high resistance slides inserted on the inside of both parts of the body. There is also an option that these guide can be in PTFE or bronze.
- Both body composed of two screwed halves, with sliders to provide a smooth manoeuvre.
- It provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for working in very difficult conditions with fluids that contain a high solid load. It is very suitable for pulp shredders in paper recycling lines and in general in places working with hard particles such as metal parts (staples, clips...) and stones. Positioning is preferable in a horizontal position and the outlet (square) is larger than the inlet (round), so that solids are not accumulated in the valve and thus do not interfere when closing the gate.

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN450	7 bar
DN500-DN1200	4 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ANSI B16.5 (150 LB).

Only for the inlet mouth of the valve, round flange.

OTHERS COMMONLY USED

- PN6.
- PN16.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

*Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...). In some applications other types of rubber are used, such as: hypalon, butyl or natural rubber. Please contact **CMO Valves** if you have such requirements.*

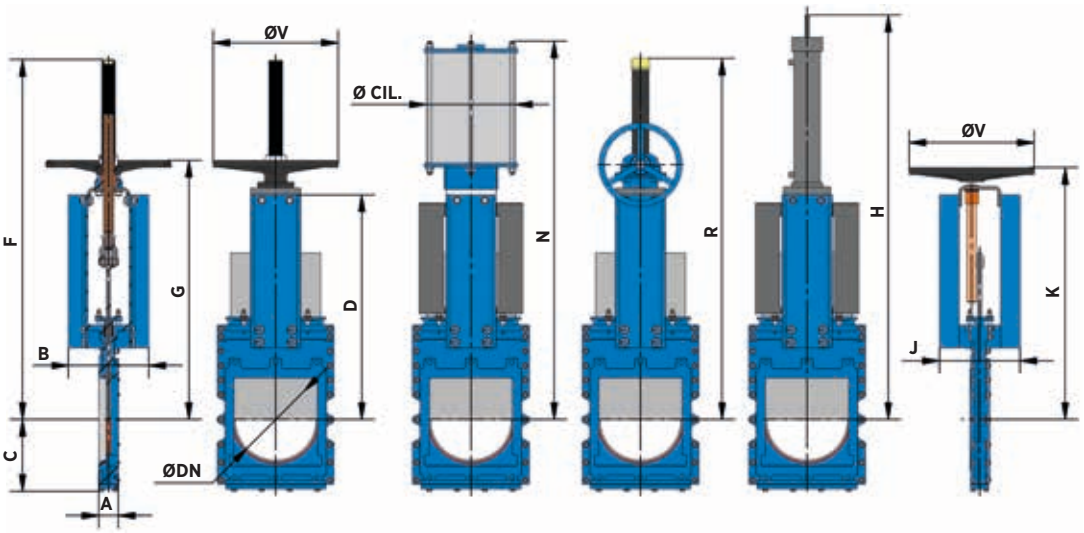
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – E

DN	A	B	C	D	F	G	ØV	N	ØCIL.	R	H	J	K
50	40	91	86	243	410	280	225	425	80	540	457	91	280
65	40	91	95	269	437	308	225	470	80	566	500	91	308
80	50	91	114	292	463	333	225	510	100	592	560	91	333
100	50	91	135	334	503	373	225	557	100	632	620	91	373
125	50	102	145	392	586	407	225	665	125	665	683	102	407
150	60	119	155	425	638	458	225	814	160	717	683	119	458
200	60	119	185	525	816	578	325	940	200	942	755	119	578
250	70	290	235	620	1007	669	325	1070	250	1043	926	290	679
300	70	290	265	715	1095	757	380	1220	250	1193	1077	290	779
350	96	290	290	781	1307	876	450	1440	300	1335	1246	290	906
400	100	290	325	861	-	-	-	1480	300	1441	1376	-	-
450	106	290	350	985	-	-	-	1780	350	1677	1532	-	-
500	110	320	380	1064	-	-	-	1875	350	1789	1707	-	-
600	110	320	470	1224	-	-	-	2095	350	2108	1869	-	-
700	110	350	525	1425	-	-	-	2540	400	2406	2202	-	-
800	110	350	575	1615	-	-	-	2720	400	2790	2839	-	-
900	110	350	650	1823	-	-	-	3060	400	3130	3193	-	-
1000	110	400	725	1992	-	-	-	3470	400	3440	3437	-	-
1100	150	400	800	2234	-	-	-	3820	400	3765	3775	-	-
1200	150	400	870	2351	-	-	-	4220	400	4050	4161	-	-

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

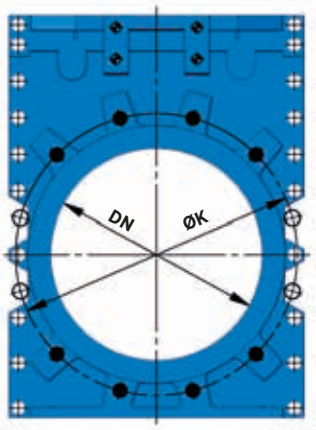
*Visit our website to see the full features of the **E** Series.*

FLANGE DIMENSIONS INFORMATION IN ACCORDANCE WITH EN 1092- 2 PN10

FLANGE DRILLING – E

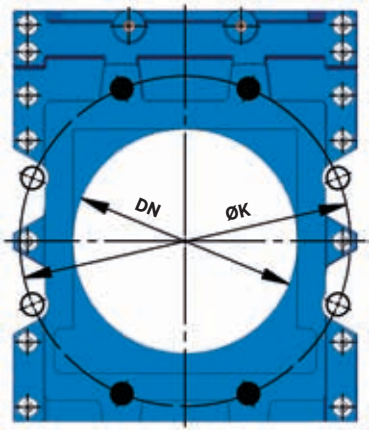
DN	ROUND FLANGE			SQUARE FLANGE							R	P
	○	●	ØK	N	T	U	W	●	○	ØK		
50	4	-	125	= ROUND FLANGE				4	-	125	M 16	8
65	4	-	145	= ROUND FLANGE				4	-	145	M 16	8
80	4	4	160	= ROUND FLANGE				4	4	160	M 16	9
100	4	4	180	= ROUND FLANGE				4	4	180	M 16	9
125	4	4	210	= ROUND FLANGE				4	4	210	M 16	9
150	4	4	240	= ROUND FLANGE				4	4	240	M 20	10
200	4	4	295	= ROUND FLANGE				4	4	295	M 20	10
250	8	4	350	= ROUND FLANGE				4	4	350	M 20	12
300	8	4	400	2x148	-	400	-	6	4	400	M 20	12
350	12	4	460	3x100	300	460	460	12	4	460	M 20	21
400	12	4	515	3x110	330	515	515	12	4	515	M 24	21
450	16	4	565	4x116	344	565	565	14	4	565	M 24	22
500	16	4	620	4x130	360	620	620	14	4	620	M 24	22
600	16	4	725	4x155	415	725	725	14	4	725	M 27	22
700	20	4	840	6x120	115+305+115	832	832	22	4	840	M 27	22
800	20	4	950	6x137	145+360+145	940	940	22	4	950	M 30	22
900	24	4	1050	6x155	160+410+160	1042	1042	22	4	1050	M 30	20
1000	24	4	1160	162+(5x164)+162	(2x170)+465+(2x170)	1144	1145	24	4	1160	M 33	20

ROUND FLANGE

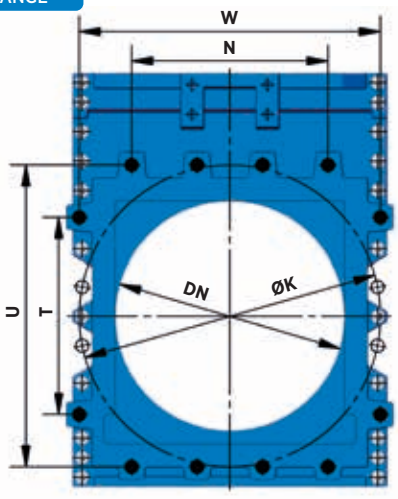


DN50 ➜ DN1000

SQUARE FLANGE



DN50 ➜ DN250



DN300 ➜ DN1000

FLANGE DIMENSIONS INFORMATION IN ACCORDANCE WITH EN ANSI B16, CLASS 150

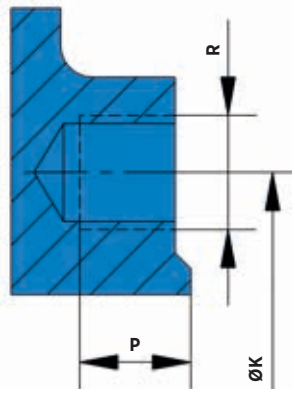
FLANGE DRILLING – E

DN	ROUND FLANGE			SQUARE FLANGE						R – UNC	P
	○	●	ØK	N	T	U	W	●	○	ØK		
2”	4	-	120,6	= ROUND FLANGE				4	-	120,6	5/8”	8
2 ½”	4	-	139,7	= ROUND FLANGE				4	-	139,7	5/8”	8
3”	4	-	152,4	= ROUND FLANGE				4	-	152,4	5/8”	9
4”	4	4	190,5	= ROUND FLANGE				4	4	190,5	5/8”	9
5”	4	4	215,9	= ROUND FLANGE				4	4	215,9	3/4”	9
6”	4	4	241,3	= ROUND FLANGE				4	4	241,3	3/4”	10
8”	4	4	298,4	= ROUND FLANGE				4	4	298,4	3/4”	10
10”	8	4	361,9	= ROUND FLANGE				4	4	361,9	7/8”	12
12”	8	4	431,8	2x148	-	400	-	6	4	431,8	7/8”	12
14”	8	4	476,2	3x100	300	460	460	12	4	476,2	1”	21
16”	12	4	539,7	3x110	330	515	515	12	4	539,7	1”	21
18”	12	4	577,8	4x116	344	565	565	14	4	577,8	1⅛”	22
20”	16	4	635	4x130	360	620	620	14	4	635	1⅛”	22
24”	16	4	749,3	4x155	415	725	725	14	4	749,3	1¼”	22
28”	24	4	863,6	6x120	115+305+115	832	832	22	4	863,6	1¼”	22
32”	24	4	977,9	6x137	145+360+145	940	940	22	4	977,9	1½”	22
36”	28	4	1085,9	6x155	160+410+160	1042	1042	22	4	1085,9	1½”	20
40”	32	4	1200,2	162+(5x164)+162	(2x170)+465+(2x170)	1144	1145	24	4	1200,2	1½”	20

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*




+40
YEARS
OF EXPERIENCE
IN THE
DESIGN AND
MANUFACTURE
OF INDUSTRIAL
VALVES

F SERIES

UNIDIRECTIONAL WAFER TYPE KNIFE GATE VALVE

DESCRIPTION

- One-piece EXTRA-WIDE cast body with guides to support gate and seat wedges.
- Provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.
- An arrow is marked on the body indicating the flow direction.
- Flushing holes in the body.

GENERAL APPLICATIONS

Due to the special design of this knife gate valve, it is suitable for working with dry products such as dust and grain. Generally used in gravity discharge of dry solids.

Designed for applications such as:
- Storage, silos.
- Food industry.

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1200	3 bar

Other pressures and applications with flows containing liquids upon request.

*For application with flows containing liquids check with **CMO Valves***

This valve is usually mounted under a hopper. To prevent any type of solids from accumulating in the seat, the valve has a special body design and will be mounted with the body arrow in the same direction as the flow.

FLANGE DRILLING

- EN 1092 PN10.
- ANSI B 16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

*In some applications other types of rubber are used, such as: hypalon, butyl or natural rubber. Please contact **CMO Valves** if you have such requirements*

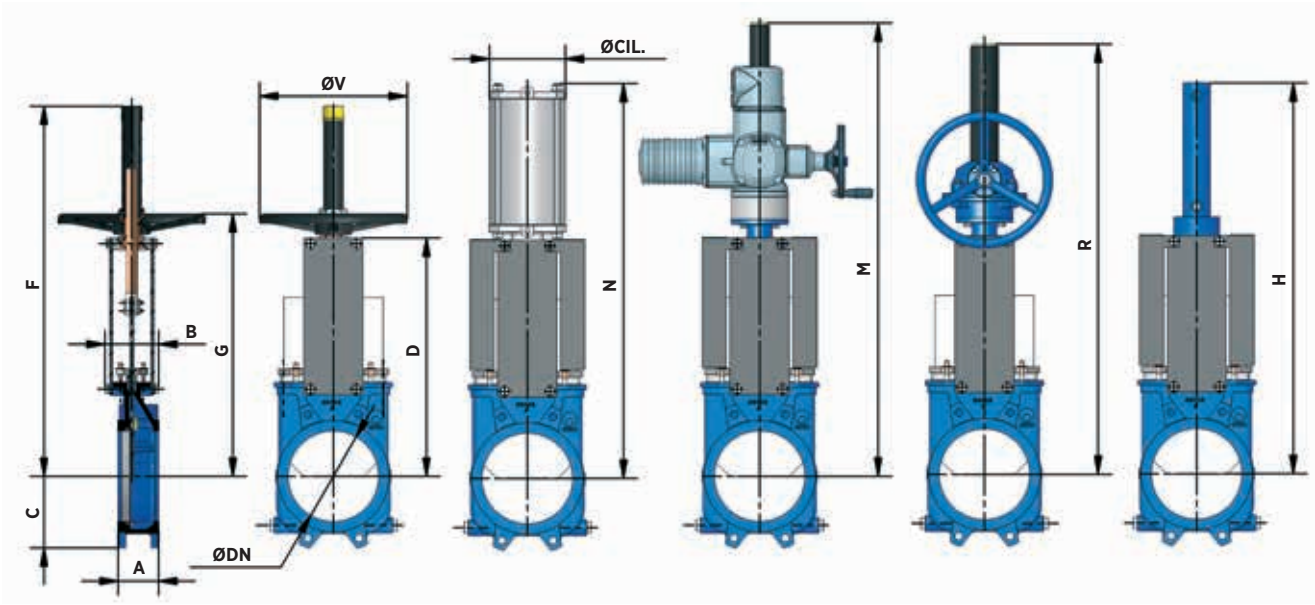
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

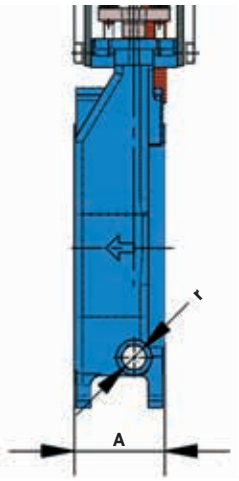
All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – F

DN	A	B	C	D	F	G	ØV	N	M	R	H	r (B.S.P.)	ØCIL.
50	60	91	61	241	410	280	225	416	581	537	457	1/4"	80
65	60	91	68	268	437	308	225	456	607	564	500	1/4"	80
80	64	91	91	294	463	333	225	498	632	590	560	1/4"	80
100	64	91	104	334	503	373	225	562	672	630	620	1/4"	100
125	70	101	118	367	586	407	225	636	705	663	683	3/8"	125
150	76	101	130	419	638	458	225	717	757	715	755	3/8"	125
200	89	118	158	525	816	578	325	874	988	943	926	3/8"	160
250	114	118	196	616	1007	669	325	1036	1089	1033	1077	1/2"	200
300	114	118	230	704	1095	757	380	1182	1190	1121	1246	1/2"	200
350	127	290	247	767	1307	876	450	1381	1302	1305	1376	1/2"	250
400	140	290	290	865	1405	974	450	1530	1458	1403	1532	1/2"	250
450	152	290	304	989	1629	1098	450	1676	1754	1677	1707	1/2"	300
500	152	290	340	1101	1741	1210	450	1839	1866	1788	1869	1/2"	300
600	178	290	398	1307	2047	1416	450	2145	2073	1995	2176	1/2"	300
700	178	320	453	1506	2401	1656	-	2481	2391	2401	2525	1/2"	350
800	178	320	503	1720	2715	1870	-	2798	2705	2715	2839	1/2"	350
900	178	320	583	1953	3043	2103	-	3167	3033	3043	3172	1/2"	400
1000	178	320	613	2137	3351	2287	-	3451	3328	3351	3496	1/2"	400
1200	203	340	728	2616	4042	2766	-	4133	4047	4042	4175	1/2"	400



FLANGE DRILLING – F

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	8	4	M 20	12	350	8	4	7/8"	12	361,9
300	6	8	4	M 20	12	400	8	4	7/8"	12	431,8
350	6	12	4	M 20	21	460	8	4	1"	21	476,2
400	6	12	4	M 24	21	515	12	4	1"	21	539,7
450	5	16	4	M 24	22	565	12	4	1⅛"	22	577,8
500	4	16	4	M 24	22	620	16	4	1⅛"	22	635
600	4	16	4	M 27	22	725	16	4	1¼"	22	749,3
700	3	20	4	M 27	22	840	24	4	1¼"	22	863,6
800	3	20	4	M 30	22	950	24	4	1½"	22	977,9
900	3	24	4	M 30	20	1050	28	4	1½"	20	1085,9
1000	3	24	4	M 33	20	1160	32	4	1½"	20	1200,2
1200	2	28	4	M 36	22	1380	40	4	1⅝"	20	1422,4

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*

www.cmovalves.com/valves

*Visit our website to see the full features of the **F** Series.*

FK SERIES

UNIDIRECTIONAL KNIFE GATE VALVE WITH COVER

DESCRIPTION

- Unidirectional knife gate valve with wafer design.
- One-piece EXTRA-WIDE cast body interior slides for optimum movement of the knife during operation and seal wedges.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.
- An arrow is marked on the body indicating the flow direction.
- Flushing holes in the body.

GENERAL APPLICATIONS

This knife gate valve is suitable for working with dry products such as powder and grain. It is completely seal tight, meaning it is recommended for toxic and hazardous fluids. Generally used in gravity discharge of dry solids.

Designed for applications such as:
- Storage, silos.
- Mining.
- Chemical plants.
- Food industry.
- Drying plants

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1200	3 bar

Other pressures on request.

This valve is usually mounted under a hopper to prevent any kind of solids from accumulating on the seat, while the valve has a specially designed body and is assembled with the body arrow pointing in the same direction as the fluid.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN25.
- Australian standard.
- JIS standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

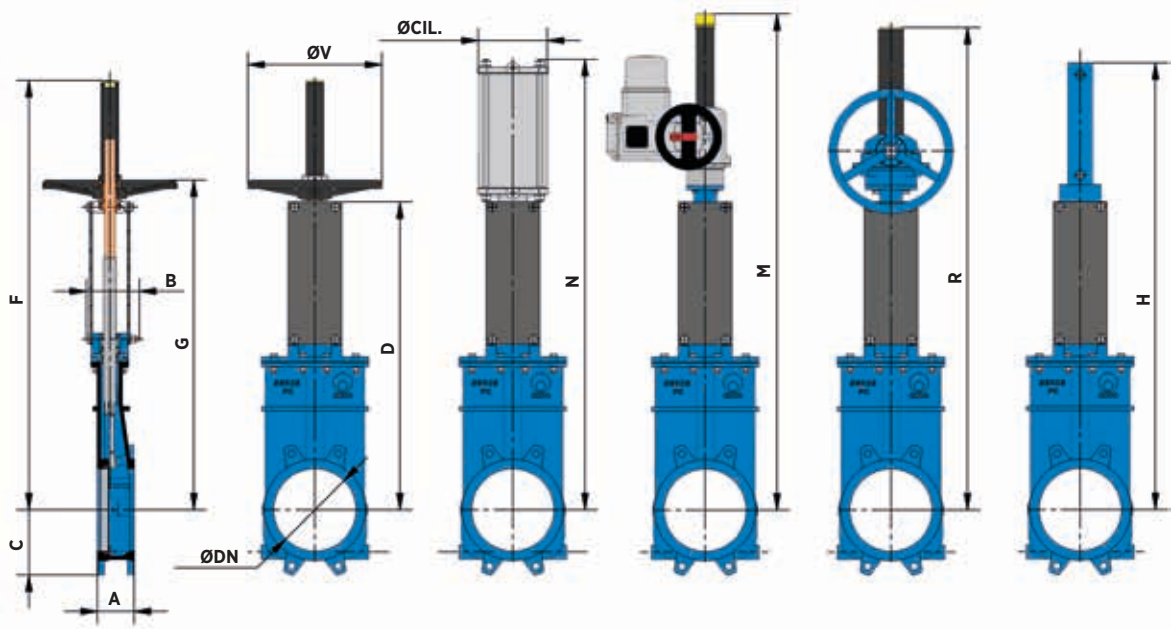
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

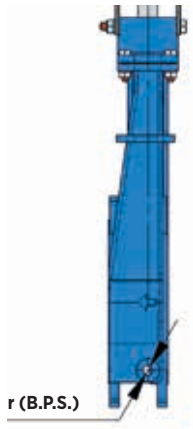
All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – FK

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H	r (B.S.P.)
50	60	91	61	323	492	362	225	498	80	674	620	539	1/4"
65	60	91	68	362	531	401	225	550	80	713	659	593	1/4"
80	64	91	91	404	573	443	225	608	80	755	701	670	1/4"
100	64	91	104	453	622	492	225	680	100	804	750	739	1/4"
125	70	101	118	511	730	550	225	774	125	862	808	827	3/8"
150	76	101	130	574	793	613	225	866	125	925	871	906	3/8"
200	89	118	158	745	1036	798	325	1090	160	1209	1164	1146	3/8"
250	114	118	196	880	1271	933	325	1287	200	1344	1299	1331	1/2"
300	114	118	230	1005	1396	1058	380	1462	200	1469	1424	1545	1/2"
350	127	290	255	1141	1681	1250	450	1724	250	1648	1680	1720	1/2"
400	140	290	290	1266	1806	1375	450	1899	250	1823	1805	1895	1/2"
450	152	290	306	1393	2033	1502	450	2081	300	2160	2082	2112	1/2"
500	152	290	340	1529	2169	1638	450	2267	300	2296	2218	2297	1/2"
600	178	290	398	1782	2522	1891	450	2620	300	2549	2471	2650	1/2"
700	178	320	453	2105	2967	2217	-	3085	350	3000	3000	3124	1/2"
800	178	320	503	2376	3338	2488	-	3455	350	3371	3371	3495	1/2"
900	178	320	583	2655	3717	2767	-	3870	400	3745	3745	3874	1/2"
1000	178	320	613	2935	4097	3047	-	4249	400	4149	4149	4294	1/2"
1200	203	340	728	3440	4802	3552	-	4957	400	4866	4866	4995	1/2"



*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

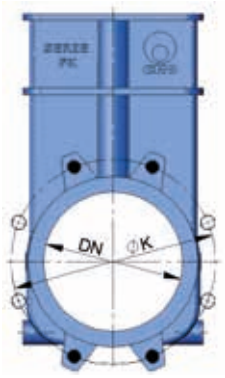
Larger sizes on request.

FLANGE DRILLING– FK

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	8	4	M 20	12	350	8	4	7/8"	12	361,9
300	6	8	4	M 20	12	400	8	4	7/8"	12	431,8
350	6	12	4	M 20	21	460	8	4	1"	21	476,2
400	6	12	4	M 24	21	515	12	4	1"	21	539,7
450	5	16	4	M 24	22	565	12	4	1 ⅛"	22	577,8
500	4	16	4	M 24	22	620	16	4	1 ⅛"	22	635
600	4	16	4	M 27	22	725	16	4	1 ¼"	22	749,3
700	3	20	4	M 27	22	840	24	4	1 ¼"	22	863,6
800	3	20	4	M 30	22	950	24	4	1 ½"	22	977,9
900	3	24	4	M 30	20	1050	28	4	1 ½"	20	1085,9
1000	3	24	4	M 33	20	1160	32	4	1 ½"	20	1200,2
1200	3	28	4	M 36	22	1380	40	4	1 ½"	20	1422,4

www.cmovalves.com/valves

*Visit our website to see the full features of the **FK** Series.*



● *Threaded holes.*

○ *Through holes.*

K SERIES

UNIDIRECTIONAL WAFER TYPE KNIFE GATE VALVE WITH COVER

DESCRIPTION

- One-piece cast body with guides to support gate and seat wedges.
- It provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.
- An arrow is marked on the body indicating the flow direction.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 5% suspended solids.

Designed for applications such as:
- Mining.
- Chemical plants.
- Pumping.
- Food industry.

SIZES

From DN50 to DN2000.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1200	3 bar

Other pressures on request.

Indicated work pressures will only be valid following the direction of the arrow marked on the valve. Due to the valve's design with gate support guides, 30% of these pressures can be applied in the opposite direction to the arrow without causing any damage to it. In these circumstances the valve is not watertight. An additional series of supports is necessary in order to achieve tightness in these conditions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- ANSI 150

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

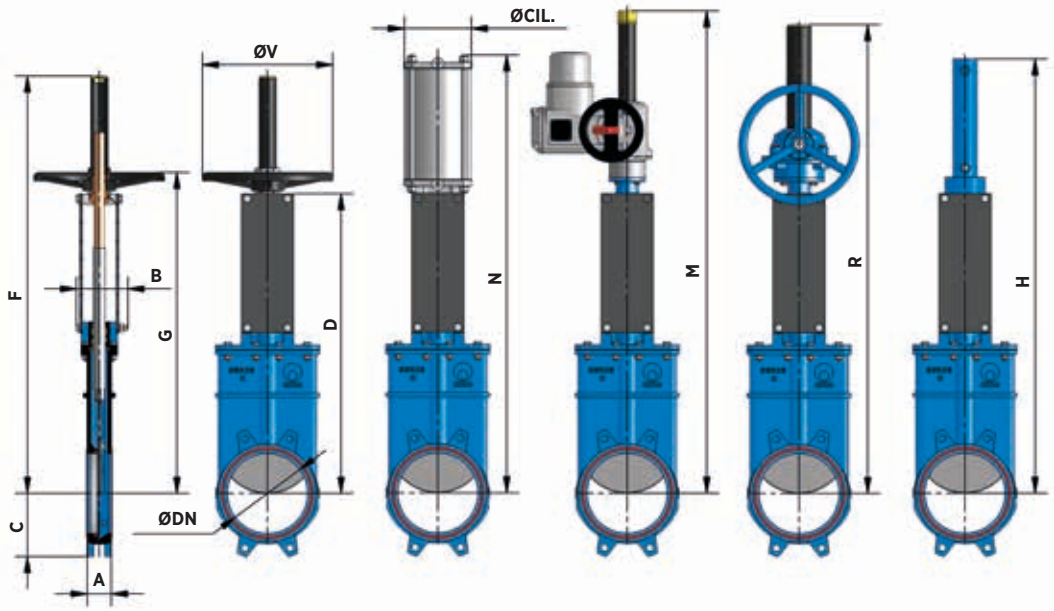
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – K

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H
50	40	92	61	323	501	369	225	502	80	677	631	539
65	40	92	68	362	539	407	225	555	80	716	669	593
80	50	92	91	404	583	451	225	614	80	758	713	670
100	50	92	104	453	630	498	225	684	100	807	760	739
125	50	102	118	511	740	558	225	786	125	865	820	827
150	60	102	130	574	801	619	225	872	125	928	881	910
200	60	119	158	745	1046	806	325	1098	160	1210	1175	1146
250	70	119	196	880	1277	938	325	1292	200	1345	1307	1331
300	70	119	230	1005	1401	1061	380	1465	200	1470	1430	1524
350	96	290	255	1141	1682	1250	450	1724	250	1649	1684	1720
400	100	290	290	1266	1807	1375	450	1899	250	1823	1809	1895
450	106	290	306	1393	2034	1502	450	2081	300	2159	2086	2111
500	110	290	340	1529	2170	1638	450	2267	300	2298	2222	2297
600	110	290	398	1782	2523	1891	450	2620	300	2520	2475	2650
700	110	320	453	2105	-	-	-	3087	350*	3000	3000	3124
800	110	320	503	2376	-	-	-	3456	350*	3371	3371	3495
900	110	320	583	2655	-	-	-	3855	400*	3745	3745	3874
1000	110	320	613	2935	-	-	-	4220	400*	4149	4149	4294
1100	150	340	670	3187	-	-	-	4586	400*	4487	4487	4572
1200	150	340	728	3440	-	-	-	4939	400*	4866	4866	5000

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **K** Series.*

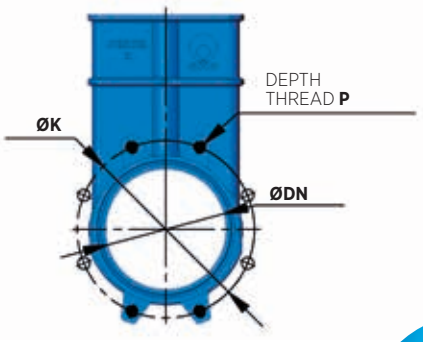
FLANGE DRILLING – K

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	6	6	M 20	12	350	6	6	7/8"	12	361,9
300	6	6	6	M 20	12	400	6	6	7/8"	12	431,8
350	6	10	6	M 20	21	460	8	4	1"	21	476,2
400	6	10	6	M 24	21	515	10	6	1"	21	539,7
450	5	14	6	M 24	22	565	10	6	1 ⅛"	22	577,8
500	4	14	6	M 24	22	620	14	6	1⅛"	22	635
600	4	14	6	M 27	22	725	14	6	1 ¼"	22	749,3
700	3	16	8	M 27	22	840	20	8	1 ¼"	22	863,6
800	3	16	8	M 30	22	950	20	8	1 ½"	22	977,9
900	3	20	8	M 30	20	1050	20	12	1 ½"	20	1085,9
1000	3	20	8	M 33	20	1160	24	12	1 ½"	20	1200,2
1200	3	20	12	M 36	22	1380	26	18	1 ½"	24	1422,4

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



GA SERIES

BIDIRECTIONAL FLANGED KNIFE GATE VALVE

DESCRIPTION

- This knife gate valve's main characteristic is that it provides a full continuous flow. This means that in open position it produces no cavities and there is no turbulence in the fluid.
- Valve suitable for use as end-of-line.
- Monoblock cast body.
- Stainless steel gate.
- Two screwed-down rubber sleeves.
- Provides high flow rates with low load loss.
- Various sealing materials available.
- Face-to-face distance in accordance with standard of **CMO Valves.**

GENERAL APPLICATIONS

This knife gate valve is suitable for working in the mining industry, in conveyance lines loaded with, for example: water with stones, mud... and is generally used for abrasive fluids in the chemical and wastewater industries.

Designed for applications such as:
- Water treatment.
- Mining.
- Thermal power stations.

SIZES

From DN50 to DN1500.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN150	16 bar
DN200-DN600	10 bar
DN700-DN900	8 bar
DN1000-DN1200	6 bar

Other pressures on request.

Pressures indicated in the table can be used in either of the valve's two directions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- NATURAL RUBBER.
- POLYURETHANE.
- EPDM.
- NITRILE.
- FKM.

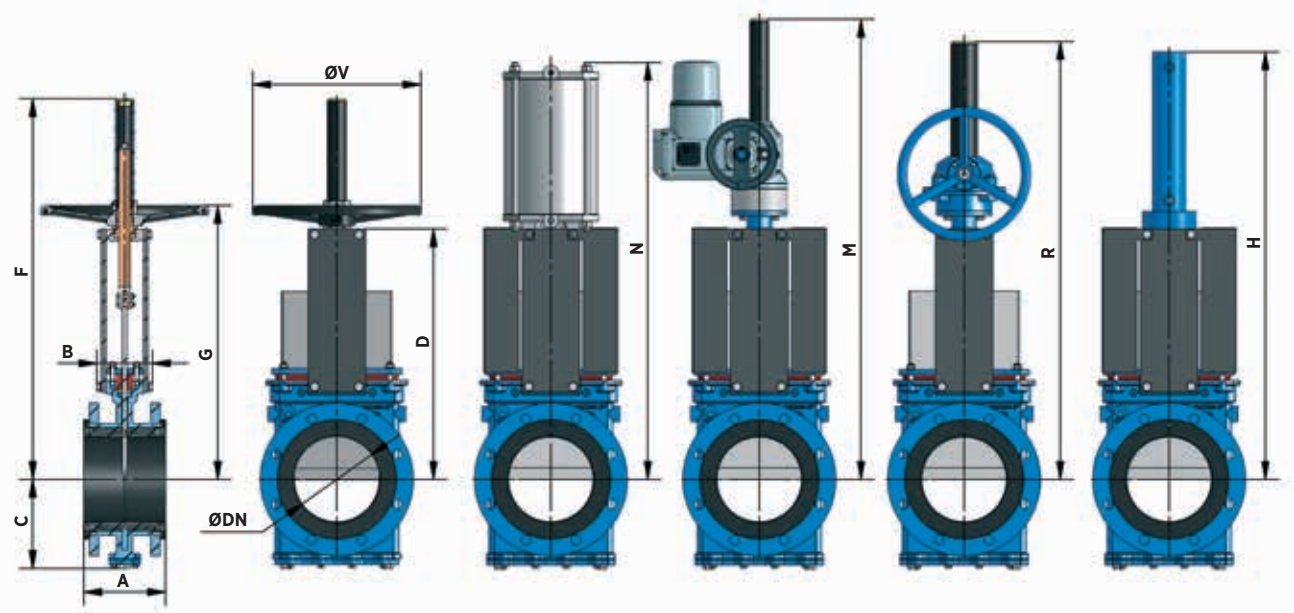
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – GA

DN	A	B	C	D	F	G	ØV	N	M	R	H
50	175	109	106	280	449	319	225	475	631	581	482
65	175	109	113	306	500	345	225	515	657	621	524
80	175	109	122	332	551	372	225	555	683	633	566
100	175	109	136	368	587	407	225	620	719	669	615
125	178	126	153	421	713	474	325	700	769	800	702
150	178	126	168	466	757	519	325	775	819	848	789
200	184	126	199	565	957	618	325	940	1033	948	958
250	225	197	234	626	1125	749	450	1140	1121	1119	1100
300	257	197	272	739	1213	837	450	1300	1219	1217	1272
350	257	350	297	842	1342	942	-	1485	1384	1384	1441
400	279	350	330	933	1483	1033	-	1655	1627	1627	1613
450	311	350	355	1019	1619	1119	-	1805	1719	1719	1766
500	367	380	391	1156	1806	1256	-	2000	1889	1889	1939
600	371	400	461	1338	2088	1438	-	2285	2171	2171	2273

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

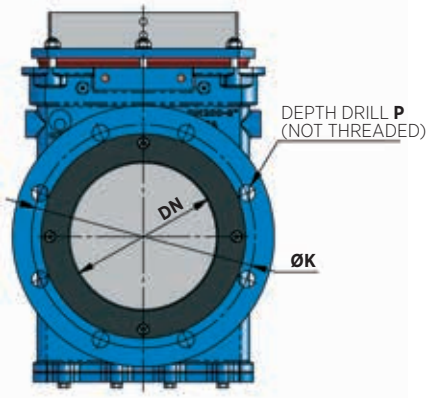
*Visit our website to see the full features of the **GA** Series.*

FLANGE DRILLING – GA

DN	ΔP (bar)	PN10				ASA150			
		O	Ød	P	ØK	O	Ød	P	ØK
50	16	4	18	32	125	4	3/4"	32	120,6
80	16	8	18	32	160	4	3/4"	32	152,4
100	16	8	18	32	180	8	3/4"	32	190,5
125	16	8	18	32	210	8	7/8"	32	215,9
150	16	8	22	32	240	8	7/8"	32	241,3
200	10	8	22	33	295	8	7/8"	33	298,4
250	10	12	22	35	350	12	1"	35	361,9
300	10	12	22	37	400	12	1"	37	431,8
350	10	16	22	37	460	12	1 ⅛"	37	476,2
400	10	16	26	41	515	16	1 ⅛"	41	539,7
450	10	20	26	45	565	16	1 ¼"	45	577,8
500	10	20	26	46	620	20	1 ¼"	46	635
600	10	20	30	49	725	20	1 ⅜"	49	749,3

Larger sizes on request.

O Through holes.



GD SERIES

BIDIRECTIONAL SEMI-LUG TYPE KNIFE GATE VALVE

DESCRIPTION

- Monoblock cast body.
- Stainless steel gate.
- Two screwed-down rubber sleeves.
- Provides high flow rates with low load loss.
- Various sealing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for working in the mining industry, in conveyance lines loaded with, for example: water with stones, mud... and is generally used for abrasive fluids in the chemical and wastewater industries.

Designed for applications such as:
- Mining.
- Thermal power stations.
- Water treatment.

SIZES

From DN50 to DN1500.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN150	16 bar
DN200-DN600	10 bar
DN700-DN900	8 bar
DN1000-DN1200	6 bar

Other pressures on request.

Pressures indicated in the table can be used in either of the valve's two directions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- JIS10K.

Others on request.

RESILIENT SEALS

- NATURAL RUBBER.
- POLYURETHANE.
- EPDM.
- NITRILE.
- FKM.

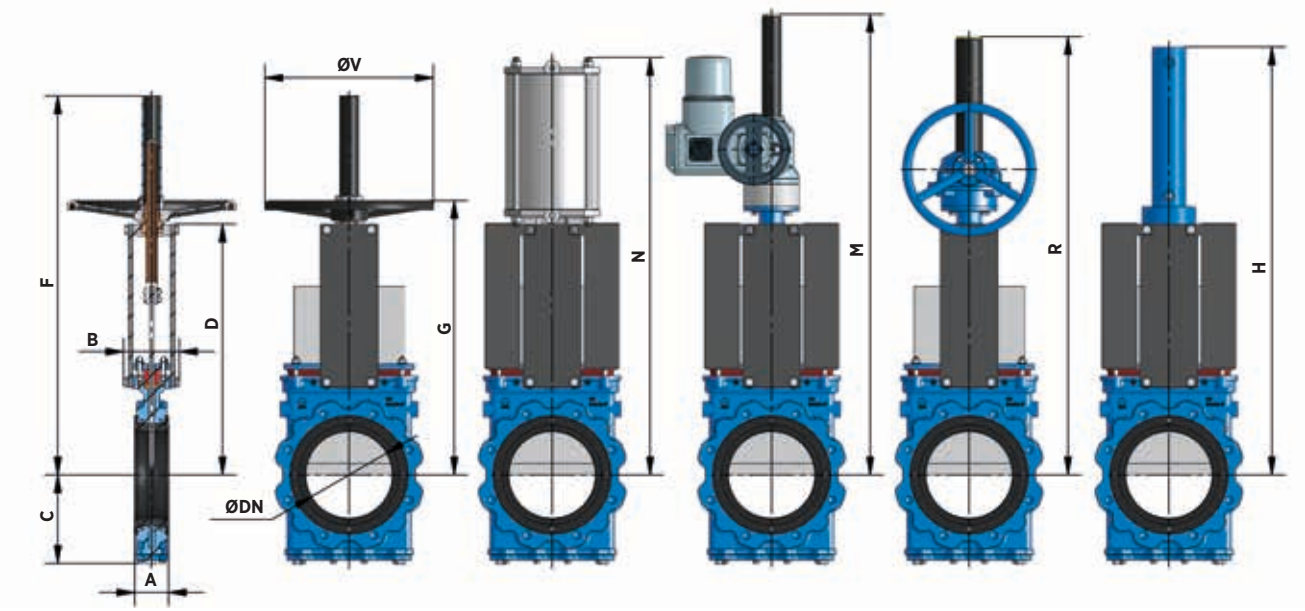
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – GD

DN	A	B	C	D	F	G	ØV	N	M	R	H
50	54	109	106	280	451	319	225	475	631	581	482
65	54	109	113	306	502	345	225	515	657	621	524
80	57	109	122	332	553	372	225	555	683	633	566
100	57	109	136	368	589	407	225	620	719	669	615
125	64	126	153	421	675	474	325	700	769	800	702
150	64	126	168	466	759	519	325	775	819	848	789
200	76	126	199	565	958	618	325	940	1033	948	958
250	76	197	234	626	1127	750	450	1140	1121	1119	1100
300	83	197	272	739	1230	838	450	1300	1219	1217	1272
350	83	350	297	842	-	-	-	1485	1384	1384	1441
400	96	350	330	933	-	-	-	1655	1627	1627	1613
450	96	350	355	1019	-	-	-	1805	1719	1719	1766
500	121	380	391	1156	-	-	-	2000	1889	1889	1939
600	121	400	461	1338	-	-	-	2285	2171	2171	2273

No obligation consultation on dimensions and drawings. ***CMO Valves*** *reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

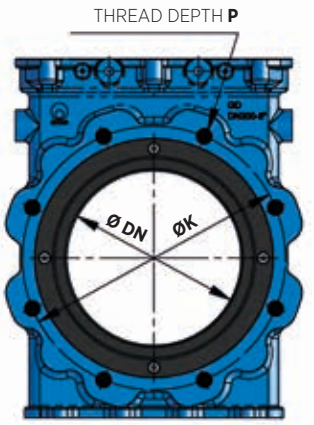
Visit our website to see the full features of the ***GD*** *Series.*

FLANGE DRILLING – GD

DN	ΔP (bar)	PN10				ASA150			
		●	M	P	ØK	●	R UNC	P	ØK
50	16	4	M 16	14	125	4	5/8"	14	120,6
65	16	4	M 16	14	145	4	5/8"	14	139,7
80	16	8	M 16	14	160	4	5/8"	14	152,4
100	16	8	M 16	14	180	8	5/8"	14	190,5
125	16	8	M 16	15	210	8	3/4"	15	215,9
150	16	8	M 20	15	240	8	3/4"	15	241,3
200	10	8	M 20	17	295	8	3/4"	17	298,4
250	10	12	M 20	17	350	12	7/8"	17	361,9
300	10	12	M 20	20	400	12	7/8"	20	431,8
350	10	16	M 20	21	460	12	1"	21	476,2
400	10	16	M 24	23	515	16	1"	23	539,7
450	10	20	M 24	24	565	16	1 ⅛"	24	577,8
500	10	20	M 24	25	620	20	1 ⅛"	25	635
600	10	20	M 27	26	725	20	1 ¼"	26	749,3

Larger sizes on request.

● *Threaded holes.*



GH SERIES

BIDIRECTIONAL FLANGED KNIFE GATE VALVE

DESCRIPTION

- Valve suitable for use with high pressure.
- Monoblock cast body.
- Stainless steel gate.
- Two screwed-down rubber sleeves.
- Provides high flow rates with low load loss.
- Various sealing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for working at **HIGH PRESSURE** in the mining industry, in conveyance lines loaded with, for example: water with stones, mud... and is generally used for abrasive fluids in the chemical and wastewater industries.

Designed for applications such as:
- Mining.
- Thermal power stations.
- Water treatment.

SIZES

From DN80-3" to DN900-36".

Other DNs on request.

FLANGE DRILLING

- PN25, PN40.
- ANSI B16.5 (300 LB).

WORKING PRESSURE (ΔP)

ASA150	**DN80-DN600**	21 bar
PN25	**DN80-DN600**	25 bar
ASA300/PN40	**DN80-DN600**	40 bar

Other pressures on request.

Pressures indicated in the table can be used in either of the valve's two directions.

OTHERS COMMONLY USED

- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- NATURAL RUBBER.
- POLYURETHANE.
- EPDM.
- NITRILE.
- FKM.

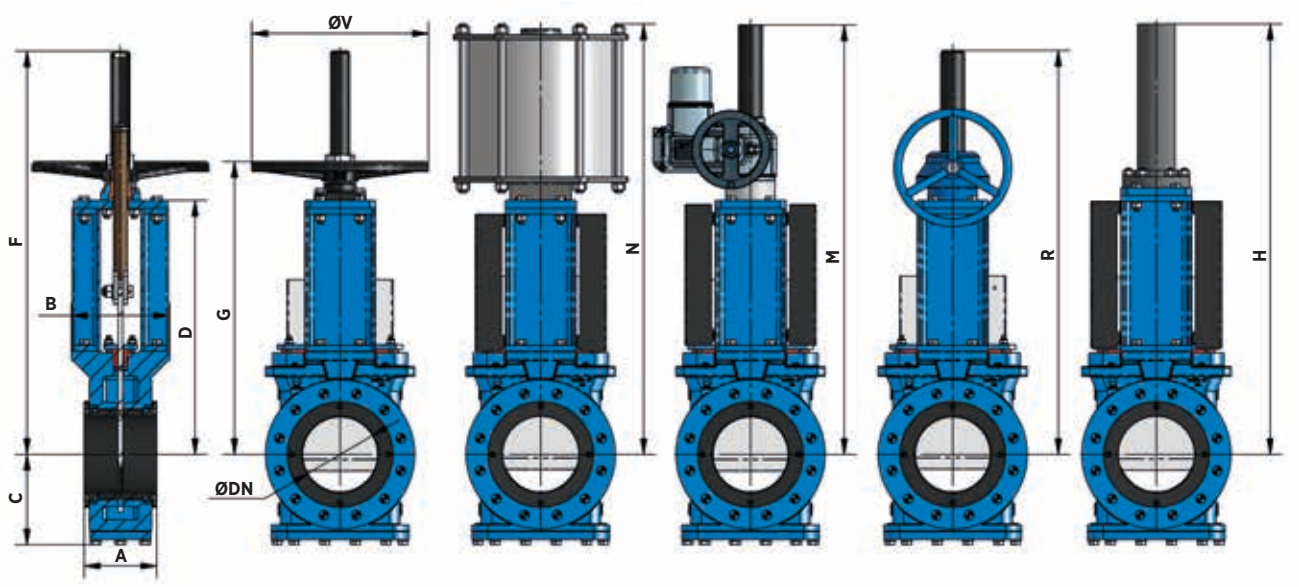
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – GH

DN	A	B	C	D	F	G	ØV	N	M	R	H
80	175	110	125	364	529	401	225	594	738	634	604
100	175	110	155	420	635	457	225	682	794	690	642
150	178	126	198	529	823	582	325	920	907	878	870
200	185	250	223	645	1024	729	-	1095	1024	1024	1060
250	226	260	279	733	1142	817	-	1276	1142	1142	1168
300	258	275	296	832	1361	916	-	1429	1361	1361	1384
350	258	290	347	934	1435	1036	-	1572	1435	1435	1551
400	279	320	376	1087	1688	1189	-	1802	1688	1688	1710
450	321	350	401	1220	1919	1456	-	2032	1919	1919	1890
500	367	350	436	1326	2100	1562	-	-	2100	2100	2219
600	371	350	515	1507	2426	1817	-	-	2426	2426	2510

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

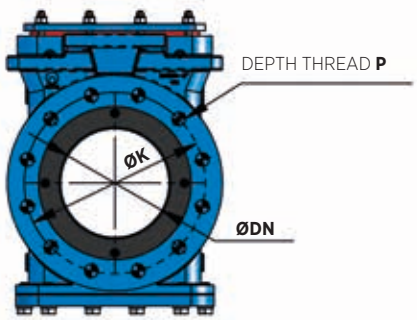
*Visit our website to see the full features of the **GH** Series.*

FLANGE DRILLING – GH

	EN 1092-2 PN25					EN 1092-2 PN40						ANSI B16.5, clase 300					
DN	**ΔP (bar)**	**●**	**M**	**P**	**ØK**	**DN**	**ΔP (bar)**	**●**	**M**	**P**	**ØK**	**DN**	**ΔP (psi)**	**●**	**R UNC**	**P**	**ØK**
80	25	8	M 16	29	160	80	40	8	M 16	29	160	3”	300	8	3/4”	1,14”	6,63”
100	25	8	M 20	32	190	100	40	8	M 20	32	190	4”	300	8	3/4”	1,26”	7,87”
150	25	8	M 24	36	250	150	40	8	M 24	36	250	6”	300	12	3/4”	1,42”	10,63”
200	25	12	M 24	36	310	200	40	12	M 27	36	320	8”	300	12	7/8”	1,42”	13”
250	25	12	M 27	38	370	250	40	12	M 30	38	385	10”	300	16	1”	1,5”	15,25”
300	25	16	M 27	38	430	300	40	16	M 30	38	450	12”	300	16	1 ⅛”	1,5”	17,75”
350	25	16	M 30	40	490	350	40	16	M 33	40	510	14”	300	20	1 ⅛”	1,57”	20,25”
400	25	16	M 33	44	550	400	40	16	M 36	44	585	16”	300	20	1 ¼”	1,73”	22,5”
450	25	20	M 33	50	600	450	40	20	M 36	50	610	18”	300	24	1 ¼”	1,97”	24,75”
500	25	20	M 33	50	660	500	40	20	M 39	50	670	20”	300	24	1 ¼”	1,97”	27”
600	25	20	M 36	50	770	600	40	20	M 45	50	795	24”	300	24	1 ½”	1,97”	32”

Larger sizes on request.

● *Threaded holes.*



GL SERIES

BIDIRECTIONAL SEMI-LUG TYPE KNIFE GATE VALVE

DESCRIPTION

- Monoblock cast body.
- Stainless steel gate.
- Two rubber sleeves.
- Provides high flow rates with low load loss.
- Various sealing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for working in the mining industry, in conveyance lines loaded with, for example: water with stones, mud... and is generally used for abrasive fluids in the chemical and wastewater industries.

Designed for applications such as:
- Mining.
- Thermal power stations.
- Water treatment.

SIZES

From DN50 to DN1500.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN150	16 bar
DN200-DN600	10 bar
DN700-DN900	8 bar
DN1000-DN1200	6 bar

Other pressures on request.

Pressures indicated in the table can be used in either of the valve's two directions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- NATURAL RUBBER.
- POLYURETHANE.
- EPDM.
- NITRILE.
- FKM.

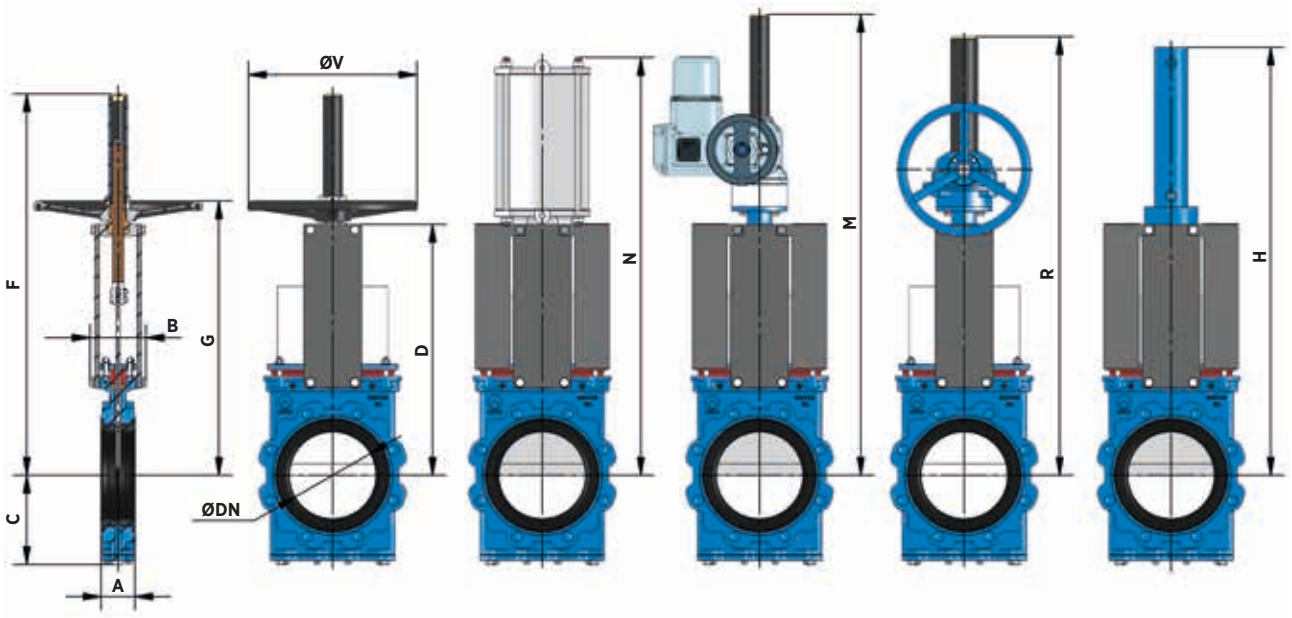
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – GL

DN	A	B	C	D	F	G	ØV	N	M	R	H
50	54	109	106	280	451	319	225	475	631	581	482
65	54	109	113	306	502	345	225	515	657	621	524
80	57	109	122	332	553	372	225	555	683	633	566
100	57	109	136	368	589	407	225	620	719	669	615
125	64	126	153	421	675	474	325	700	769	800	702
150	64	126	168	466	759	519	325	775	819	848	789
200	76	126	199	565	958	618	325	940	1033	948	958
250	76	197	234	626	1127	750	450	1140	1121	1119	1100
300	83	197	272	739	1230	838	450	1300	1219	1217	1272
350	83	350	297	842	-	-	-	1485	1384	1384	1441
400	96	350	330	933	-	-	-	1655	1627	1627	1613
450	96	350	355	1019	-	-	-	1805	1719	1719	1766
500	121	380	391	1156	-	-	-	2000	1889	1889	1939
600	121	400	461	1338	-	-	-	2285	2171	2171	2273

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **GL** Series.*

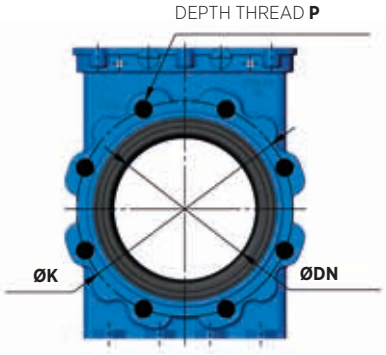
FLANGE DRILLING – GL

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	16	4	-	M 16	14	125	4	-	5/8"	14	120,6
65	16	4	-	M 16	14	145	4	-	5/8"	14	139,7
80	16	8	-	M 16	14	160	4	-	5/8"	14	152,4
100	16	8	-	M 16	14	180	8	-	5/8"	14	190,5
125	16	8	-	M 16	15	210	8	-	3/4"	15	215,9
150	16	8	-	M 20	15	240	8	-	3/4"	15	241,3
200	10	8	-	M 20	17	295	8	-	3/4"	17	298,4
250	10	12	-	M 20	17	350	12	-	7/8"	17	361,9
300	10	12	-	M 20	20	400	12	-	7/8"	20	431,8
350	10	12	4	M 20	21	460	8	4	1"	21	476,2
400	10	12	4	M 24	23	515	12	4	1"	23	539,7
450	10	16	4	M 24	24	565	12	4	1 ⅛"	24	577,8
500	10	16	4	M 24	25	620	16	4	1 ⅛"	25	635
600	10	16	4	M 27	26	725	16	4	1 ¼"	26	749,3

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



L SERIES

THROUGH CONDUIT BIDIRECTIONAL WAFER STYLE KNIFE GATE VALVE

DESCRIPTION

- Die-cast body, comprising two bolted parts, with internal guides for smooth movement of the gate during operation.
- Provides high flow rates with low load loss.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 20% suspended solids. It is also recommended in gravity discharge applications in solid and powder silos, due to the "crescent" shape on the gate, which cuts through flow and high consistency fluids.

Designed for applications such as:
- Paper Industry - Long Fibre.
- Mining.
- Chemical plants.
- Food industry.
- Sewage treatment.

SIZES

From DN50 to DN2000.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1400	3 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- BS "D" and "E".
- ANSI 150

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

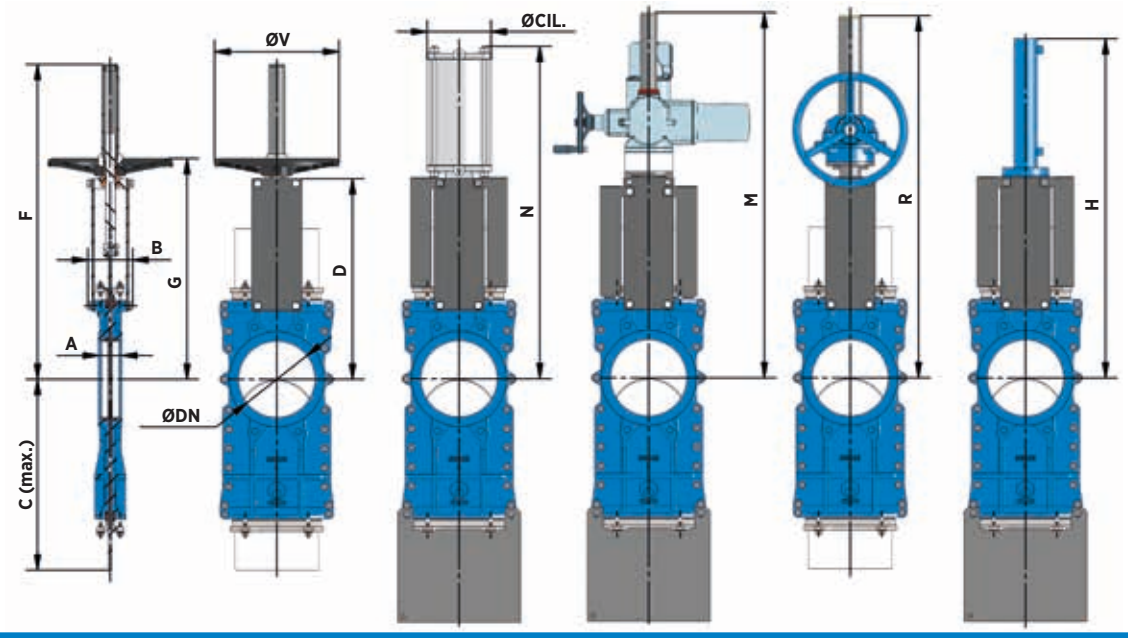
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – L

DN	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H
50	40	91	225	243	412	282	225	416	80	587	540	459
65	40	91	265	269	437	308	225	456	80	614	566	500
80	50	91	310	293	462	332	225	497	80	640	591	559
100	50	91	370	334	503	373	225	561	100	680	631	620
125	50	101	430	367	586	407	225	636	125	713	665	683
150	60	101	495	419	638	458	225	717	125	765	717	755
200	60	118	630	525	816	578	325	874	160	880	943	927
250	70	118	770	620	1017	679	325	1030	200	981	1037	1071
300	70	118	895	704	1117	779	380	1160	200	1141	1171	1223
350	96	290	1050	780	1337	906	450	1364	250	1347	1318	1360
400	100	290	1185	855	1443	1012	450	1482	250	1550	1393	1484
450	106	290	1320	975	1629	1098	450	1662	300	1847	1662	1693
500	110	290	1455	1064	1741	1210	450	1802	300	1959	1752	1832
600	110	290	1720	1244	2047	1416	450	2081	300	2165	1981	2111
700	110	320	1995	1425	-	-	-	2400	350	2451	2320	2444
800	110	320	2230	1615	-	-	-	2693	350	2665	2610	2734
900	110	320	2465	1823	-	-	-	3037	400	2998	2913	3042
1000	110	320	2620	1992	-	-	-	3306	-	3178	3206	3351
1100	150	340	3030	2217	-	-	-	3587	-	3675	3777	3560
1200	150	340	3250	2351	-	-	-	3868	-	4042	4042	3910

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **L** Series.*

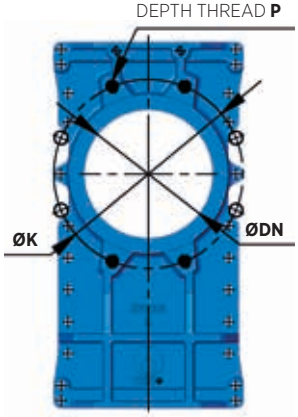
FLANGE DRILLING – L

DN	ΔP (bar)	PN10					ASA150				
		●	○	M	P	ØK	●	○	R UNC	P	ØK
50	10	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	10	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	10	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	10	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	10	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	10	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	10	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	10	8	4	M 20	12	350	8	4	7/8"	12	361,9
300	6	8	4	M 20	12	400	8	4	7/8"	12	431,8
350	6	12	4	M 20	21	460	8	4	1"	21	476,2
400	6	12	4	M 24	21	515	12	4	1"	21	539,7
450	5	16	4	M 24	22	565	12	4	1 ⅛"	22	577,8
500	4	16	4	M 24	22	620	16	4	1 ⅛"	22	635
600	4	16	4	M 27	22	725	16	4	1 ¼"	22	749,3
700	3	20	4	M 27	22	840	24	4	1 ¼"	22	863,6
800	3	20	4	M 30	22	950	24	4	1 ½"	22	977,9
900	3	24	4	M 30	20	1050	28	4	1 ½"	20	1085,9
1000	3	24	4	M 33	20	1160	32	4	1 ½"	20	1200,2
1200	3	28	4	M 36	20	1380	40	4	1 ½"	20	1422,4

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



T SERIES

UNIDIRECTIONAL LUG TYPE KNIFE GATE VALVE

DESCRIPTION

- One-piece cast body, with interior slides for optimum movement of the knife during operation.
- Provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with MSS -81 standards.
- An arrow is marked on the body indicating the flow direction.

GENERAL APPLICATIONS

This knife gate valve is suitable for working with liquids with a maximum solids concentration of 10%. If used for solids, it should be installed with the body arrow indicating the direction of flow in the opposite direction

Designed for applications such as:
- Paper industry.
- Mining.
- Chemical plants.
- Pumping.
- Food industry.
- Water treatment.

SIZES

From DN50-2" to DN1200-48".

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-2"**-DN600**-24"	10 bar
DN700-28"**-DN800**-36"	6 bar
DN900-40"**-DN1200**-48"	4 bar

Other pressures on request.

Indicated work pressures will only be valid following the direction of the arrow marked on the valve. Due to the valve's design with gate support guides, 30% of these pressures can be applied in the opposite direction to the arrow without causing any damage to it. In these circumstances the valve is not watertight. An additional series of supports is necessary in order to achieve tightness in these conditions.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

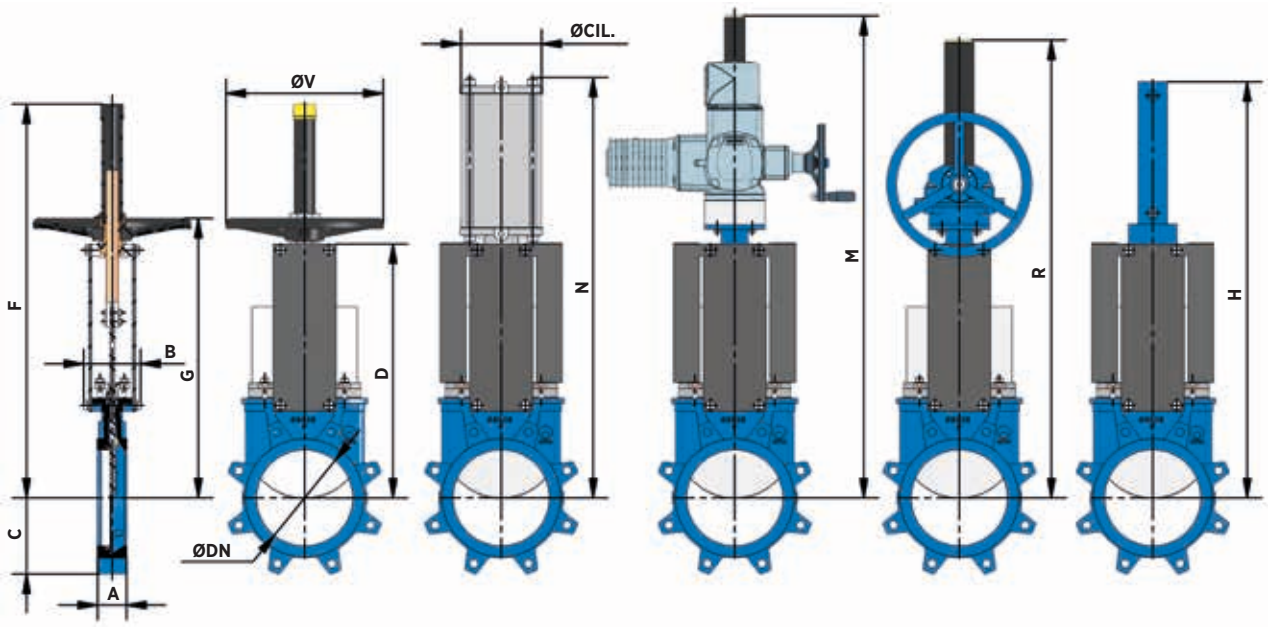
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – T

DN	DN	A	A	B	C	D	F	G	ØV	N	ØCIL.	M	R	H
50	2"	47,6	1 7/8"	91	61	241	410	280	225	416	80	581	540	457
65	2 ½"	47,6	1 7/8"	91	68	268	437	308	225	456	80	607	566	500
80	3"	50,8	2"	91	91	294	463	333	225	498	80	632	592	560
100	4"	50,8	2"	91	104	334	503	373	225	562	100	672	632	620
125	5"	57,2	2 1/4"	101	118	367	586	407	225	636	125	705	665	683
150	6"	57,2	2 1/4"	101	130	419	638	458	225	723	160	757	717	755
200	8"	69,9	2 3/4"	118	159	525	816	578	325	886	200	988	942	926
250	10"	69,9	2 3/4"	118	196	626	1017	679	325	1133	250	1089	1043	1077
300	12"	76,2	3"	118	231	726	1117	779	380	1278	300	1189	1193	1246
350	14"	76,2	3"	290	257	797	1337	906	450	1383	350	1335	1335	1376
400	16"	88,9	3 ½"	290	290	903	-	-	-	1532	400	1441	1441	1532
450	18"	88,9	3 ½"	290	312	989	-	-	-	-	-	1677	1677	1707
500	20"	114,3	4 ½"	290	340	1101	-	-	-	-	-	1789	1789	1869
600	24"	114,3	4 ½"	290	398	1307	-	-	-	-	-	2108	2108	2202
700	28"	114,3	4 ½"	320	453	1506	-	-	-	-	-	2406	2406	2525
750	30"	117,5	4 58"	320	489	1620	-	-	-	-	-	2565	2565	2670
800	32"	117,5	4 58"	320	503	1720	-	-	-	-	-	2790	2790	2818
900	36"	117,5	4 58"	320	583	1953	-	-	-	-	-	3130	3130	3193
1000	40"	117,5	4 58"	320	613	2137	-	-	-	-	-	3440	3440	3437
1100	44"	152,4	6"	340	670	2375	-	-	-	-	-	3765	3765	3775
1200	48"	152,4	6"	340	728	2616	-	-	-	-	-	4050	4050	4161

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **T** Series.*

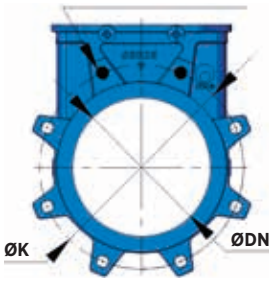
FLANGE DRILLING – T

DN	DN	ΔP (bar)	PN10				ASA150			
			●	M	P	ØK	●	R UNC	P	ØK
50	2"	10	4	M 16	8	125	4	5/8"	8	120,6
65	2 1/2"	10	4	M 16	8	145	4	5/8"	8	139,7
80	3"	10	8	M 16	9	160	4	5/8"	9	152,4
100	4"	10	8	M 16	9	180	8	5/8"	9	190,5
125	5"	10	8	M 16	9	210	8	3/4"	9	215,9
150	6"	10	8	M 20	10	240	8	3/4"	10	241,3
200	8"	10	8	M 20	10	295	8	3/4"	10	298,4
250	10"	10	12	M 20	12	350	12	7/8"	12	361,9
300	12"	10	12	M 20	12	400	12	7/8"	12	431,8
350	14"	10	16	M 20	21	460	12	1"	21	476,2
400	16"	10	16	M 24	21	515	16	1"	21	539,7
450	18"	10	20	M 24	22	565	16	1 1/8"	22	577,8
500	20"	10	20	M 24	22	620	20	1 1/8"	22	635
600	24"	10	20	M 27	22	725	20	1 1/4"	22	749,3
700	28"	6	24	M 27	22	840	28	1 1/4"	22	863,6
750	30"	6	24	M 30	22	900	28	1 1/4"	22	914,4
800	32"	6	24	M 30	22	950	28	1 1/2"	22	977,9

Larger sizes on request.

● *Threaded holes.*

DEPTH THREAD **P**



TD SERIES

UNIDIRECTIONAL KNIFE GATE VALVE

DESCRIPTION

- Knife gate valve, unidirectional wafer design and very fast opening and closing.
- Both body composed of two screwed halves, with sliders to provide a smooth manoeuvre.
- It has two opposing stainless steel gates which come together in the centre of the opening and all its components subject to wear and tear are easy to replace.
- Provides high flow rates with low pressure drops.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve has been designed to work in the most demanding conditions. They are generally used in the paper industry in pulp mills, water treatment plants.

Designed for applications such as:
- Paper industry.
- Mining.
- Chemical plants.
- Water treatment plants.
- Food industry.
- Water treatment.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700	3 bar
DN800-DN1200	2 bar

Other pressures on request.

SIZES

From DN50 to DN1200.

Other DNs on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.

In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

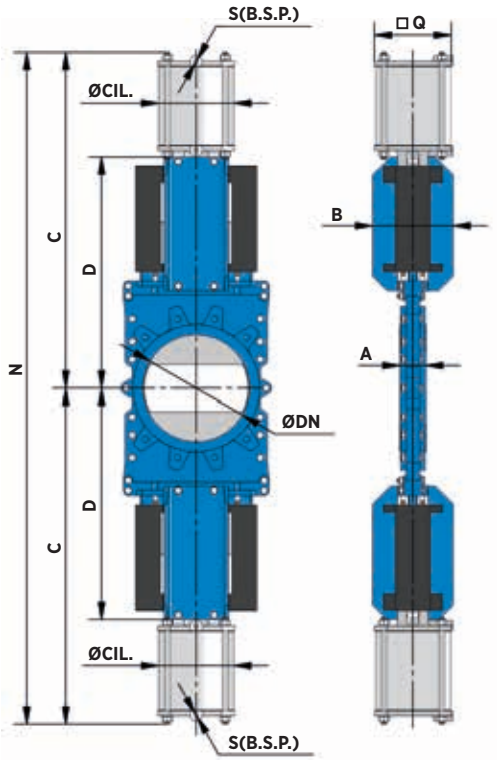
All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

MANUFACTURING RANGE

DIMENSIONS – TD

DOUBLE-ACTING PNEUMATIC CYLINDER

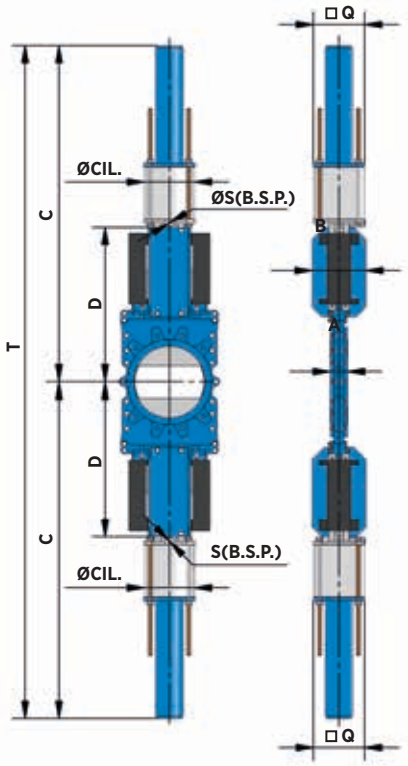
DN	ΔP (bar)	A	B	C	D	N	Q	ØCIL	ØV	S (B.S.P)
50	10	40	92	370	235	740	96	80	20	1/4"
65	10	40	92	398	256	796	96	80	20	1/4"
80	10	50	92	435	285	870	96	80	20	1/4"
100	10	50	92	493	328	985	110	100	20	1/4"
125	10	50	92	548	371	1095	110	100	20	1/4"
150	10	60	102	595	395	1190	135	125	25	1/4"
200	10	60	119	730	495	1460	170	160	30	1/4"
250	10	70	119	855	585	1710	215	200	30	3/8"
300	6	70	119	937	645	1874	215	200	30	3/8"
350	6	96	290	1098	705	2195	270	250	40	3/8"
400	6	100	290	1215	790	2429	270	250	40	3/8"
450	5	106	290	1318	850	2635	382	300	45	1/2"
500	4	110	290	1420	930	2840	382	300	45	1/2"
600	4	110	290	1590	1055	3180	382	300	45	1/2"
700	3	110	290	1880	1260	3760	444	350	45	1/2"
800	2	110	290	2034	1365	4067	444	350	45	1/2"
900	2	110	350	2208	1475	4415	508	400	50	1/2"
1000	2	110	350	2378	1595	4756	508	400	50	1/2"
1100	2	150	350	2548	1720	5095	508	400	50	1/2"
1200	2	150	400	2765	1885	5530	508	400	50	1/2"



DIMENSIONS – TD

SINGLE-ACTING PNEUMATIC CYLINDER

DN	ΔP (bar)	A	B	C	D	T	Q	ØCIL	ØV	S (B.S.P)
50	10	40	92	660	235	1320	135	125	25	1/4"
65	10	40	92	688	256	1376	135	125	25	1/4"
80	10	50	92	725	285	1450	135	125	25	1/4"
100	10	50	92	785	328	1570	135	125	25	1/4"
125	10	50	92	840	371	1680	135	125	25	1/4"
150	10	60	102	850	395	1700	170	160	30	1/4"
200	10	60	119	1225	495	2450	215	200	30	3/8"
250	10	70	119	1660	585	3320	270	250	40	3/8"
300	6	70	119	1742	645	3484	270	250	40	3/8"



The most habitual actuators are those detailed on the tables on previous pages with their respective dimensions, operations with two double-acting pneumatic cylinders and operations with two single-acting pneumatic cylinders. Although they can be supplied with other actuators, for example with a manual handwheel, geared, electric motor or hydraulics. What they do have in common is that each valve requires two actuators as this type of valve in particular has two knives.

*If you wish the valve to have one of these actuators, please request information regarding dimensions and characteristics from the technical-commercial department at **CMO Valves**.*

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

*Visit our website to see the full features of the **TD** Series.*

INFORMATION ON FLANGE DIMENSIONS

FLANGE DRILLING – TD

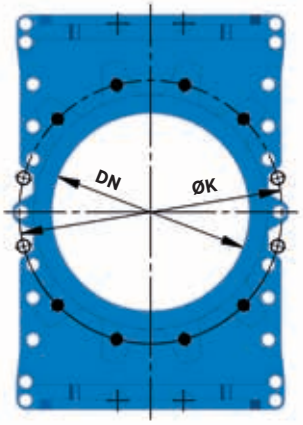
EN 1092-2 PN10

DN	●	○	R	p	ØK
50	4	-	M 16	8	125
65	4	-	M 16	8	145
80	4	4	M 16	9	160
100	4	4	M 16	9	180
125	4	4	M 16	9	210
150	4	4	M 20	10	240
200	4	4	M 20	10	295
250	8	4	M 20	12	350
300	8	4	M 20	12	400
350	12	4	M 20	21	460
400	12	4	M 24	21	515
450	16	4	M 24	22	565
500	16	4	M 24	22	620
600	16	4	M 27	22	725
700	20	4	M 27	22	840
800	20	4	M 30	22	950
900	24	4	M 30	20	1050
1000	24	4	M 33	20	1160
1100	28	4	M 33	20	1270
1200	28	4	M 36	22	1380

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



FLANGE DRILLING – TD

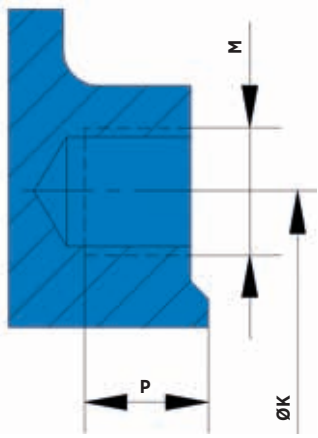
ANSI B16, clase 150

DN	●	○	R UNC	p	ØK
2”	4	-	5/8”	8	120,6
2 ½”	4	-	5/8”	8	139,7
3”	4	-	5/8”	9	152,4
4”	4	4	5/8”	9	190,5
5”	4	4	3/4”	9	215,9
6”	4	4	3/4”	10	241,3
8”	4	4	3/4”	10	298,4
10”	8	4	7/8”	12	361,9
12”	8	4	7/8”	12	431,8
14”	8	4	1”	21	476,2
16”	12	4	1”	21	539,7
18”	12	4	1⅛”	22	577,8
20”	16	4	1⅛”	22	635
24”	16	4	1¼”	22	749,3
28”	24	4	1¼”	22	863,6
32”	24	4	1¼”	22	977,9
36”	28	4	1½”	20	1085,9
40”	32	4	1½”	20	1200,2

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*




CMO VALVES
MANUFACTURING
THE VALVE
YOU NEED

U SERIES

UNIDIRECTIONAL WAFER STYLE KNIFE GATE VALVE

DESCRIPTION

- Unidirectional wafer knife gate valve with Wafer design.
- One-piece cast body with guides to support gate and seat wedges.
- Provides high flow rates with low pressure drop.
- Various seat and packing materials available.
- Face-to-face dimension in accordance with **CMO Valves** standard.
- It has an arrow on the body indicating the flow direction.

GENERAL APPLICATIONS

This knife gate valve is suitable for liquids that contain a maximum of 5% suspended solids. If it is used for dry solids in gravity feed applications it should be installed with the arrow on the body pointing in the opposite direction to the flow.
Designed for applications such as:
- Paper Industry.
- Sewage treatment.
- Mining.
- Pumping.
- Silo emptying.
- Food Industry.

SIZES

From DN50 to DN800.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN800	3 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

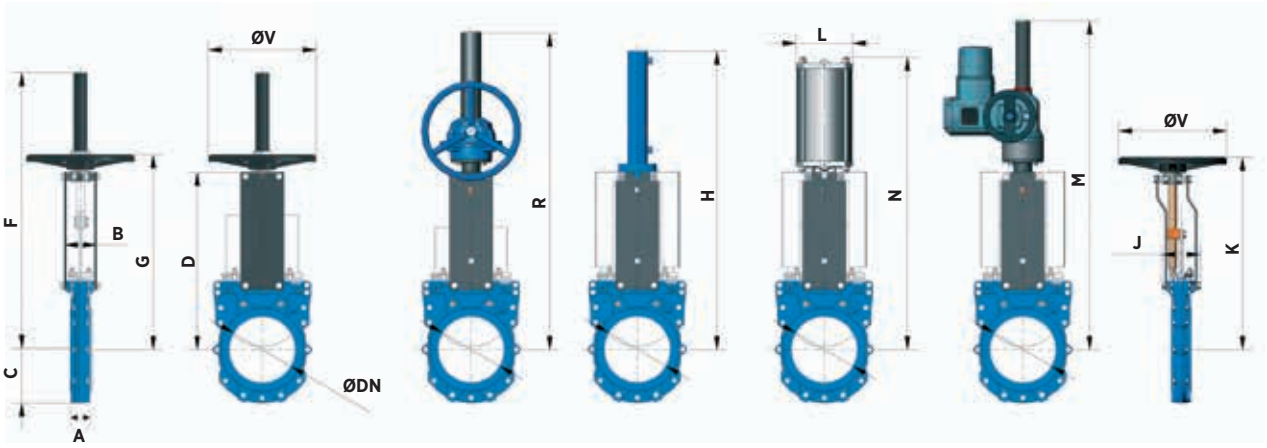
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – U

DN	ΔP (bar)	A	B	C	D	F	G	ØV	L	M	N	R	H	J	K
50	10	40	92	63	241	409	280	225	96	595	415	540	460	101	280
65	10	40	92	70	268	436	307	225	96	622	455	566	500	101	308
80	10	50	92	92	294	469	333	225	96	647	498	592	560	101	333
100	10	50	92	105	334	502	373	225	115	687	565	632	620	101	373
125	10	50	102	120	367	585	406	225	138	720	636	665	683	111	407
150	10	60	102	130	419	644	458	225	138	772	717	717	755	111	458
200	10	60	119	160	525	815	578	325	175	990	874	942	926	128	578
250	10	70	119	198	626	1.016	679	325	218	1.090	1.036	1.043	1.077	128	679
300	6	70	119	234	726	1.116	779	380	218	1.190	1.182	1.194	1.245	128	779
350	6	96	290	256	797	1.336	906	450	270	1.305	1.380	1.335	1.376	305	906
400	6	100	290	292	903	1.442	1.012	450	270	1.460	1.530	1.441	1.535	305	1.012
450	5	106	290	308	989	1.628	1.098	450	382	1.755	1.677	1.677	1.710	305	1.098
500	4	110	290	340	1.101	1.738	1.210	450	382	1.870	1.839	1.789	1.870	305	1.210
600	4	110	290	400	1.307	2.046	1.416	450	382	2.045	2.146	2.045	2.175	305	1.416

FLANGE DRILLING – U

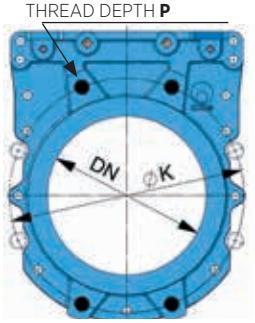
DN	PN10					ASA150				
	●	○	M	P	ØK	●	○	M UNC	P	ØK
50	4	-	M 16	8	125	4	-	5/8"	8	120,6
65	4	-	M 16	8	145	4	-	5/8"	8	139,7
80	4	4	M 16	9	160	4	-	5/8"	9	152,4
100	4	4	M 16	9	180	4	4	5/8"	9	190,5
125	4	4	M 16	9	210	4	4	3/4"	9	215,9
150	4	4	M 20	10	240	4	4	3/4"	10	241,3
200	4	4	M 20	10	295	4	4	3/4"	10	298,4
250	6	6	M 20	12	350	6	6	7/8"	12	361,9
300	6	6	M 20	12	400	6	6	7/8"	12	431,8
350	10	6	M 20	21	460	8	4	1"	21	476,2
400	10	6	M 24	21	515	10	6	1"	21	539,7
450	14	6	M 24	22	565	10	6	1 ⅛"	22	577,8
500	14	6	M 24	22	620	14	6	1 ⅛"	22	635
600	14	6	M 27	22	725	14	6	1 ⅛"	22	749,3

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*



UB SERIES

BIDIRECTIONAL WAFER STYLE KNIFE GATE VALVE

DESCRIPTION

- Die-cast body, comprising two bolted parts, with internal guides for smooth movement of the gate during operation.
- Provides high flow rates with low pressure drop.
- Wide range of manufacturing materials, seals and stuffing materials available.
- Stainless steel gate.
- Face-to-face distance accordincg to UNE-EN 558 for **Basic 20 Series**. Other series according to **CMO Valves** standard.

GENERAL APPLICATIONS

This knife gate valve is suitable for applications with clean liquids or liquids with a concentration of soft solids.

Designed for applications such as:
- Industry.
- Mining.
- Chemical plants.
- Food industry.
- Sewage treatment.
- Drying plants.
- Oil extraction.

SIZES

From DN50 to DN2000.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN250	10 bar
DN300	7 bar
DN350-DN400	6 bar
DN450	5 bar
DN500-DN600	4 bar
DN700-DN1400	3 bar
DN1600-DN2000	2 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- Australian standard.
- JIS standard.
- British standard.

Other flange drilling on request.

RESILIENT SEALS

- EPDM.
- NITRILE.
- FKM.
- SILICONE.
- PTFE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M, Ni-hard, etc...).

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information about categories and zones for EX (ATEX) applications, please contact **CMO Valves**. Technical-Sales Department.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

FLANGE DRILLING – UB

DN	PN10					ASA150				
	●	○	M	P	ØK	●	○	R UNC	P	ØK
50	2	2	M 16	9	125	2	2	5/8"	9	120,6
65	2	2	M 16	9	145	2	2	5/8"	9	139,7
80	2	6	M 16	11	160	2	2	5/8"	11	152,4
100	2	6	M 16	12	180	2	6	5/8"	12	190,5
125	2	6	M 16	12	210	2	6	3/4"	12	215,9
150	2	6	M 20	14	240	2	6	3/4"	14	241,3
200	2	6	M 20	14	295	2	6	3/4"	14	298,4
250	4	8	M 20	14	350	4	8	7/8"	14	361,9
300	4	8	M 20	14	400	4	8	7/8"	14	431,8
350	6	10	M 20	20	460	4	8	1"	20	476,2
400	6	10	M 24	21	515	6	10	1"	21	539,7
450	8	12	M 24	22	565	6	10	1 ⅛"	22	577,8
500	8	12	M 24	22	620	8	12	1 ⅛"	22	635
600	8	12	M 27	22	725	8	12	1 ¼"	22	749,3

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

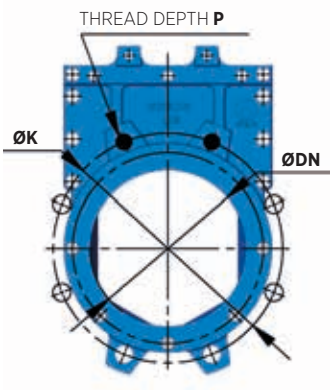
Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*

www.cmovalves.com/valves

*Visit our website to see the full features of the **UB** Series.*



FLANGE DRILLING – UB

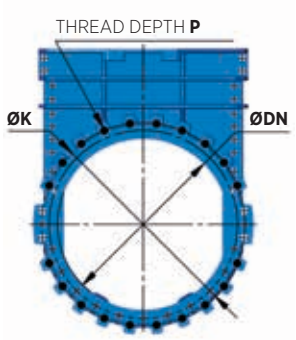
DN	PN10					ASA150				
	●	○	M	P	ØK	●	○	R UNC	P	ØK
700	10	14	M 27	23	840	20	8	1 ¼"	23	863,6
800	10	14	M 30	23	950	24	4	1 ½"	23	977,9
900	12	16	M 30	23	1050	28	4	1 ½"	23	1085,9
1.000	12	16	M 33	23	1160	32	4	1 ½"	23	1200,2
1.200	14	18	M 36	30	1380	40	4	1 ½"	30	1422,4
1.400	16	20	M 39	30	1590	44	4	1 ¾"	30	1651

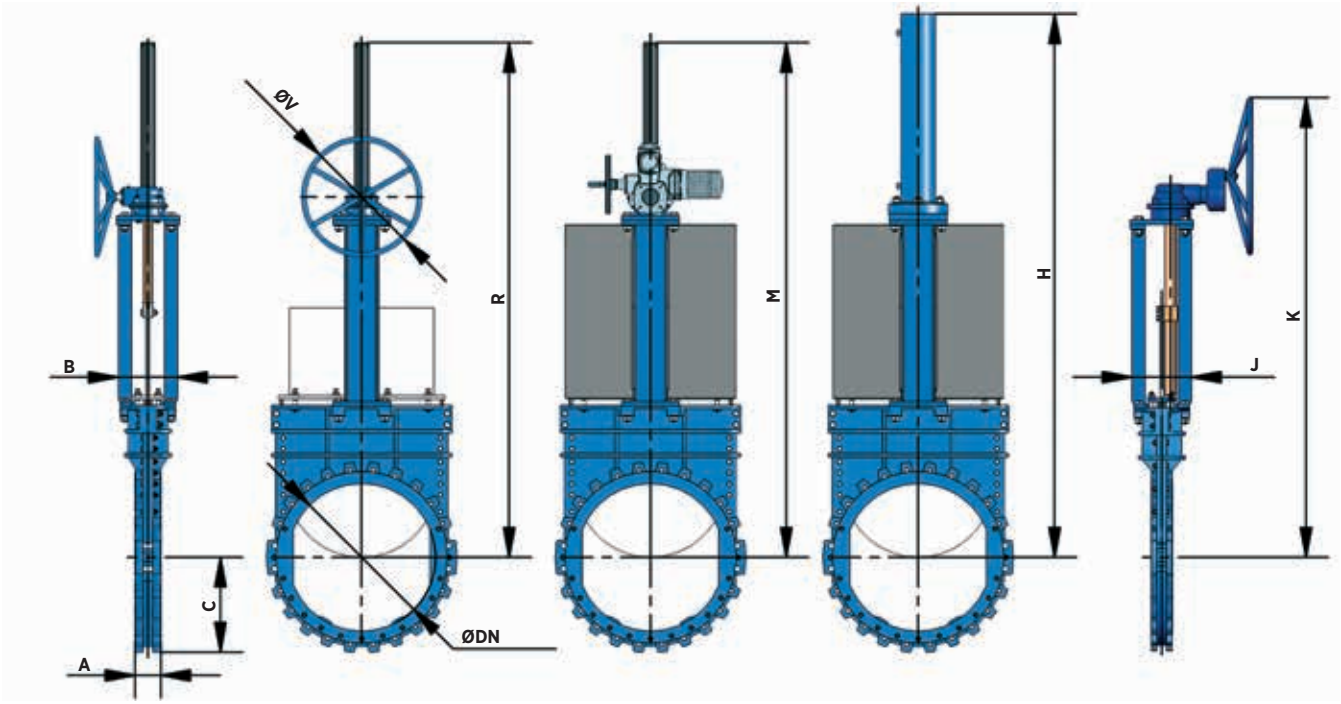
*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

● *Threaded holes.*

○ *Through holes.*

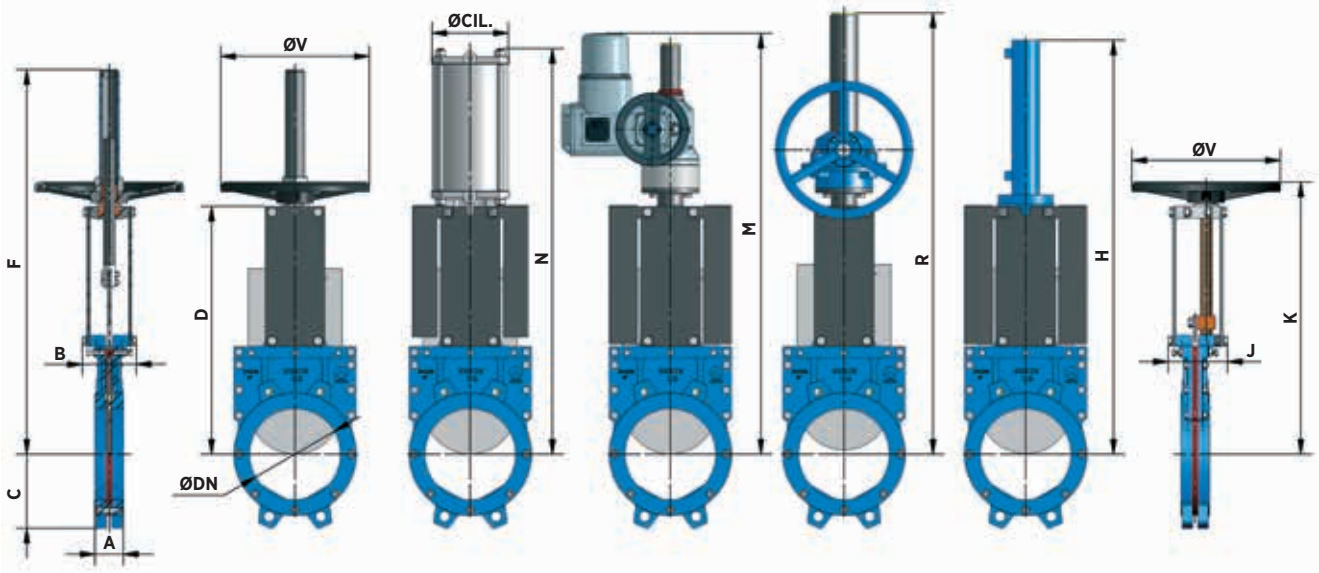




MANUFACTURING RANGE

DIMENSIONS – UB

DN	ΔP (bar)	A	B	C	D	F	R	ØV	M	H	J	K
700	3	140	320	446	1548	1650	2403	1000	2.403	2.447	320	1991
800	3	140	320	513	1823	2029	2816	300	2.816	2.770	320	2219
900	3	140	320	585	2059	2295	3152	450	3.152	3.107	320	2451
1000	3	145	320	614	2190	2426	3383	650	3.383	3.511	320	2797
1200	3	150	350	726	2616	2890	4059	1350	4.059	4.230	350	3412
1400	3	160	350	837	2990	3264	4633	850	4.923	4.917	350	3917



MANUFACTURING RANGE

DIMENSIONS – UB

DN	ΔP (bar)	A	B	C	D	F	ØV	N	ØCIL.	M	R	H	J	K
50	10	43	90	66	245	418	225	420	80	623	548	424	101	281
65	10	46	90	73	270	443	225	460	80	648	573	479	101	306
80	10	46	90	96	295	468	225	500	80	673	598	504	101	331
100	10	52	90	110	327	500	225	553	100	705	630	556	101	363
125	10	56	100	123	365	588	225	632	125	743	668	624	111	401
150	10	56	100	136	415	638	225	706	125	793	718	719	111	451
200	10	62	118	162	541	840	325	886	160	919	964	904	130	578
250	10	69	118	199	630	1.029	325	1037	200	1086	1.053	1043	130	687
300	7	78	218	257	869	1.149	450	1202	200	1209	1.414	1213	130	779
350	6	78	254	318	1117	-	-	1454	250	1414	1.815	1400	-	-
400	6	103	294	418	1442	-	-	1619	250	1529	2.140	1565	-	-
450	5	114	254	318	1117	-	-	1815	300	1815	1815	1770	-	-
500	4	127	267	355	1222	-	-	1970	300	1920	1920	1935	-	-
600	4	154	294	418	1442	-	-	2290	300	2140	2140	2255	-	-

XB SERIES

BIDIRECTIONAL LUG TYPE POLYURETHANE COATED KNIFE GATE VALVE

DESCRIPTION

- One-piece cast body with polyurethane coated interior.
- High flow rates with low/medium pressure drops.
- Various construction and packing materials available.
- Stainless steel gate.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

This knife gate valve is suitable for working in the mining industry, in conveyance lines loaded with, for example: Water with stones, mud...

Designed for applications such as:
- Mining industry.
- Chemical and thermal plants.
- Energy sector.
- Sewage treatment.

SIZES

From DN50 to DN1200.

Other DNs on request.

WORKING PRESSURE (ΔP)

DN50-DN600	10 bar
DN700-DN800	6 bar
DN900-DN1000	4 bar
DN1050-DN1200	3 bar

Other pressures on request.

FLANGE DRILLING

- EN 1092 PN10.
- ANSI B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- Australian standard.
- JIS standard.
- British standard.

Others on request.

RESILIENT SEALS

- POLYURETHANE.

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

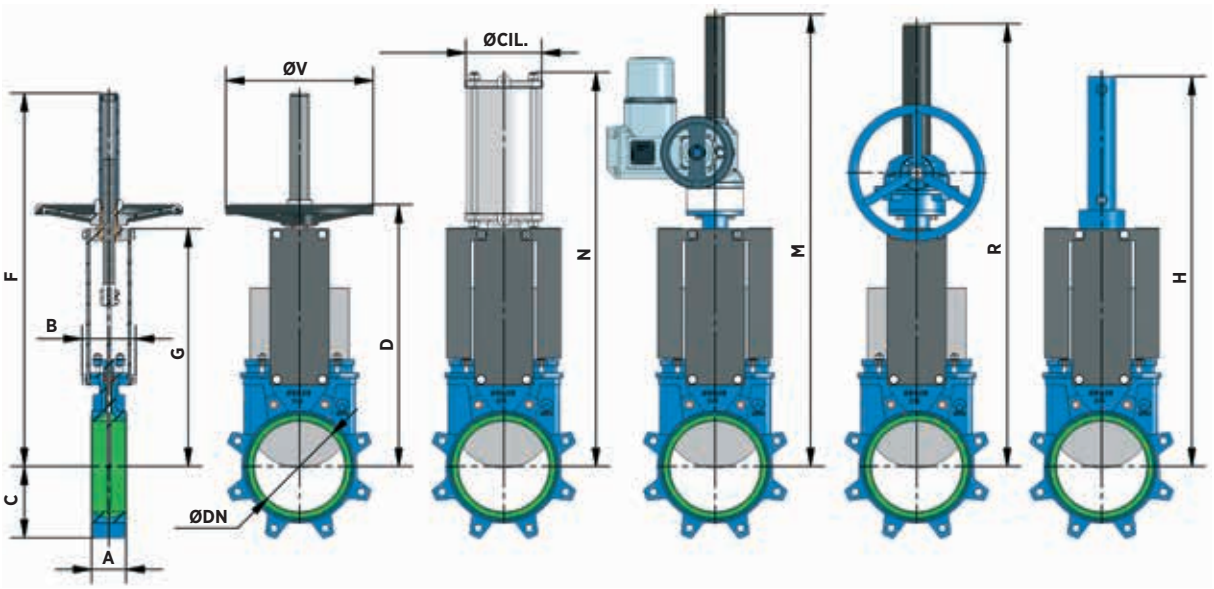
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information about categories and zones for Ex (ATEX) applications, please contact **CMO Valves** Technical-Sales department.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



MANUFACTURING RANGE

DIMENSIONS – XB

DN	A	B	C	G	F	D	ØV	N	ØCIL.	M	R	H
50	54	91	61	241	410	280	225	416	80	581	540	457
65	54	91	68	268	437	308	225	456	80	607	566	500
80	57	91	91	294	463	333	225	498	80	632	592	560
100	57	91	104	334	503	373	225	562	100	672	632	620
125	64	101	118	367	586	407	225	636	125	705	665	683
150	64	101	130	419	638	458	225	723	160	757	717	755
200	76	118	159	525	816	578	325	886	200	988	942	926
250	76	118	196	626	1017	679	325	1133	250	1089	1043	1077
300	83	118	231	726	1117	779	380	1278	300	1189	1193	1246
350	83	290	257	797	1337	906	450	1383	350	1335	1335	1376
400	96	290	290	903	-	-	-	1532	400	1441	1441	1532
450	96	290	312	989	-	-	-	*	*	1677	1677	1707
500	121	290	340	1101	-	-	-	*	*	1789	1789	1869
600	121	290	398	1307	-	-	-	*	*	2108	2108	2202

** Please consult.*

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Larger sizes on request.

www.cmovalves.com/valves

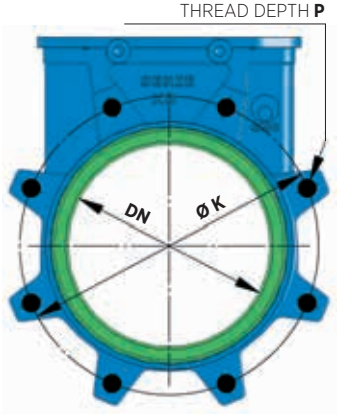
*Visit our website to see the full features of the **XB** Series.*

FLANGE DRILLING – XB

DN	ΔP (bar)	PN10				ASA150			
		●	M	P	ØK	●	R UNC	P	ØK
50	10	4	M 16	8	125	4	5/8"	8	120,6
65	10	4	M 16	8	145	4	5/8"	8	139,7
80	10	8	M 16	9	160	4	5/8"	9	152,4
100	10	8	M 16	9	180	8	5/8"	9	190,5
125	10	8	M 16	9	210	8	3/4"	9	215,9
150	10	8	M 20	10	240	8	3/4"	10	241,3
200	10	8	M 20	10	295	8	3/4"	10	298,4
250	10	12	M 20	12	350	12	7/8"	12	361,9
300	10	12	M 20	12	400	12	7/8"	12	431,8
350	10	16	M 20	21	460	12	1"	21	476,2
400	10	16	M 24	21	515	16	1"	21	539,7
450	10	20	M 24	22	565	16	1 ⅛"	22	577,8
500	10	20	M 24	22	620	20	1 ⅛"	22	635
600	10	20	M 27	22	725	20	1 ¼"	22	749,3

Larger sizes on request.

● *Threaded holes.*




INSTALLATION
MAINTENANCE

Characteristics

BODY

- For diameters greater than DN1400 the body is machine-welded with the necessary reinforcements to withstand the maximum working pressure.
- Designed with full passage to provide large flows with low pressure losses.
- The body's internal design prevents any build-up of solids in the seat area.
- The standard manufacturing materials are GJL-250 cast iron and CF8M stainless steel. Likewise materials, such as GJS-500 nodular cast iron, A216WCB carbon steel and stainless steel alloys ,(AISI316Ti, Duplex, 254SMO, Uranus B6...) are available to order. As standard, iron or carbon steel valves are painted with an anti-corrosive protection of 80 microns of EPOXY (colour RAL 5015).
- Other types of anti-corrosive protections and colours are available on request.

KNIFE

The standard manufacturing materials are AISI304 stainless steel in valves with a cast iron, or steel body. AISI316 Stainless Steel in valves with a CF8M body. Other materials or combinations can be supplied to order. The knife is polished on both sides to provide a smooth contact surface with the resilient seal. At the same time, the knife is rounded to prevent the sealing joint from being cut. Different degrees of polishing, anti-abrasion treatments and modifications are available to adapt the valves to the customer's requirements.

RESILIENT SEAL MATERIALS

EPDM
This is the standard resilient seal fitted on **CMO Valves**. It can be used in many applications, however, it is generally used for water and products diluted in water at temperatures no higher than 90°C **(*see note)**. It can also be used with abrasive products and provides the valve with 100% tightness.

NITRILE
It is used in fluids containing fats or oils at temperatures no higher than 90°C **(*see note)**. It provides the valve with 100% tightness.

FKM
Suitable for corrosive applications and high temperatures up to 190°C continuously and peaks of 210°C. Provides the valve with 100% tightness.

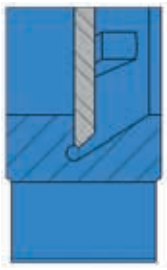
SILICONE
Mainly used in the food industry and for pharmaceutical products with temperatures no higher than 200°C. Provides the valve with tightness of 100%.

PTFE
Suitable for corrosive applications and pH between 2 and 12. It does not provide the valve with 100% tightness. Estimated leakage: 0.5% of the pipe flow.

*** Note:** *EPDM and nitrile: is possible until serving temperature Max.:120°C under request.*

STANDARD SEAT

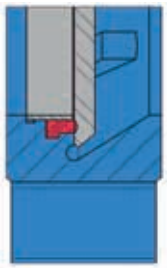
01



METAL SEAT

This type of seat does not include any type of resilient seal and the estimated leakage.
(Considering water as the test fluid)is 1.5% of the flow in the pipe).

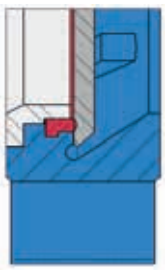
02



SOFT SEAT

This type of seat includes a resilient seal which is fixed to the inside of the body via an AISI316 stainless steel retaining ring. Watertight closure.

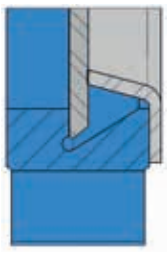
03



SOFT SEAT WITH REINFORCED RING

This type of seat includes a resilient seat which is fixed to the inside of the body via a dual-function stainless steel retaining ring.
(Protect the valve from abrasionand clean the gate when working with solids that can adhere to the gate).

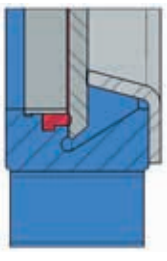
04



METAL SEAT WITH DEFLECTOR

The deflector is a conical ring located at the valve inlet with two functions.
(Protect the valve from abrasion and guide the flow to the centre of the passage area).

05

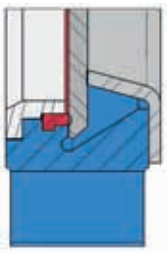


SOFT SEAT WITH DEFLECTOR

Seat combination.

02 + 04

06



SOFT SEAT WITH DEFLECTOR & REINFORCED RING

Seat combination.

03 + 04

Various materials are available for the reinforced socket and the deflector (CA-15, CF8M and Ni-hard...).

Installation / Maintenance

INSTRUCTIONS, INSTALLATION OF STANDARD KNIFE GATE VALVES

In order to avoid personal injury and other types of damage (to property, the plant...), we recommend following these recommendations:

- Use non-electrical hand tools during installation and maintenance, according to current regulations.
- The personnel responsible for the installation or operation of the equipment must be qualified and trained.
- Use suitable Personal Protective Equipment (PPE) (gloves, safety boots, goggles...).
- Shut off all lines which affect the valve and put up a warning sign to inform about the work being carried out.
- Completely isolate the valve from the whole process. De-pressurise the process.
- Drain all the line fluid through the valve.

Before installation, inspect the valve to ensure no damage has occurred during transport or storage. Make sure that the inside of the valve body and, in particular, the seal area are clean. Inspect the installation's pipes and the flanges to make sure they are clean. Inspect the pipes and the flanges to make sure they contain no foreign material and are clean.

Knife gate valves can be **unidirectional or bidirectional**, and there is an arrow marked on the body indicating the flow direction of the unidirectional valves. The word **SEAT** is also marked on one side of the body (near the packing) to indicate the side where the sealing joint is located.

Bidirectional valves do not need markings indicating the direction of pressure or the location of the seal. They can be installed in either of its two directions. The direction of the fluid and the pressure do not always coincide, but in bidirectional valves, this plays no importance when it comes to mounting the valve, since the subsequent performance is the same.

HANDLING

Pay special attention to the following points when handling the equipment:

- SAFETY WARNING: Before handling the valve, check that the crane to be used is capable of withstanding its weight.

- Do not lift the valve or hold it by the drive. Lifting the valve by the drive can lead to operating problems as it is not designed to withstand the valve's weight.

- Do not lift the valve by holding it in the flow passage area. The valve's seal is located in this area. If the valve is held and lifted by this area it can damage the surface and the O-ring seal and lead to leakage problems whilst the valve is operating.

- To prevent damage, especially to the anti-corrosive protection, we recommend using soft straps to lift knife gate valves. These straps must be fitted around the top of body.

DIRECTIVES

Valve from **CMO Valves** valves may comply with the directive on protection systems and apparatus for use in explosive atmospheres. In these cases the logo will appear on the identification label. This label shows the exact classification of the zone in which the valve can be used. The user is responsible for its use in any other zone.

See document of directives applicable to **CMO Valves**.

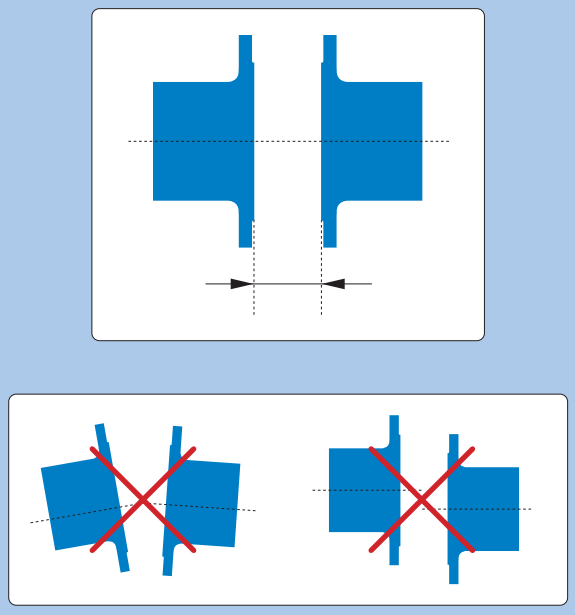
IMPORTANT ASPECTS TO CONSIDER DURING ASSEMBLY

Special care must be taken to respect the correct distance between the flanges and ensure they are correctly aligned and parallel.

The incorrect position or installation of the flanges can cause loss of shape on the valve's body and this could lead to operating problems.

It is very important to make sure that the valve is correctly aligned and parallel to the flanges to prevent leakages and avoid deformations. The bolts in the threaded blind holes will have a maximum depth and will never reach the bottom of the hole.

CORRECT PARALLELISM AND ALIGNMENT



As standard, when the unidirectional valve operates with clean liquids or with low solid content, it is recommended to install it so that the pressure pushes the gate against the seat. That way, the fluid direction will be the same as the direction indicated by the arrow on the body ***(figure 1)***.

It should be remembered that the pressure and the fluid direction do not always coincide ***(figure 2)***.

Special care must be taken to maintain the correct distance between the flanges and ensure they are correctly aligned and parallel.

The incorrect position or installation of the flanges can cause deformations on the valve's body which can cause difficulties during operation.

A SERIES

figure 1

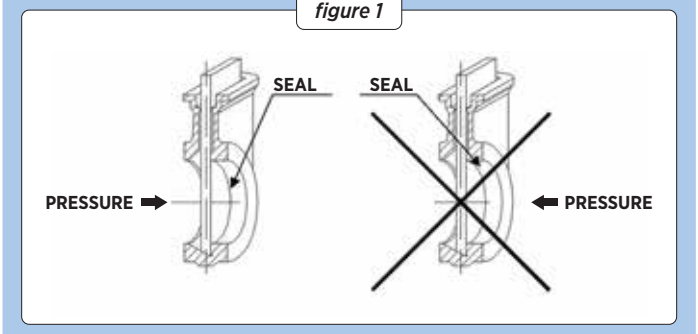
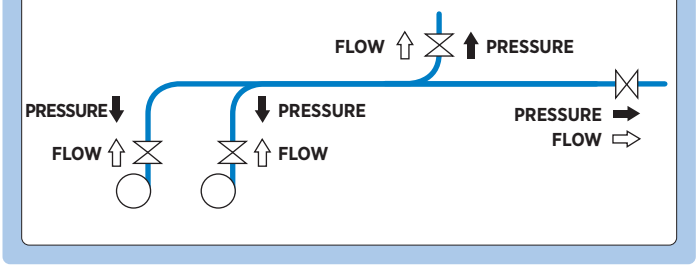


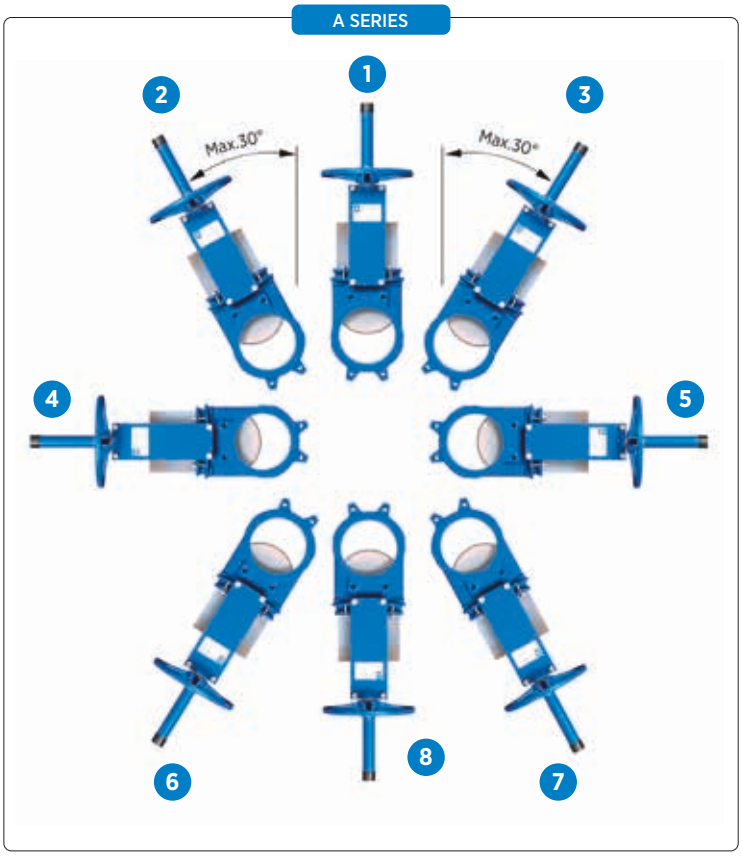
figure 2



Installation / Maintenance

ASSEMBLY POSITIONS
(horizontal pipe)

The valve must always be installed in the **OPEN** position. Valves from **CMO Valves** valves can be assembled in all positions; however, recommendations do exist for some of them.



POSITION 1:
This is the most advisable position.

POSITION 8:
The valve can be installed in this position, but you are advised to contact **CMO Valves** if this is necessary.

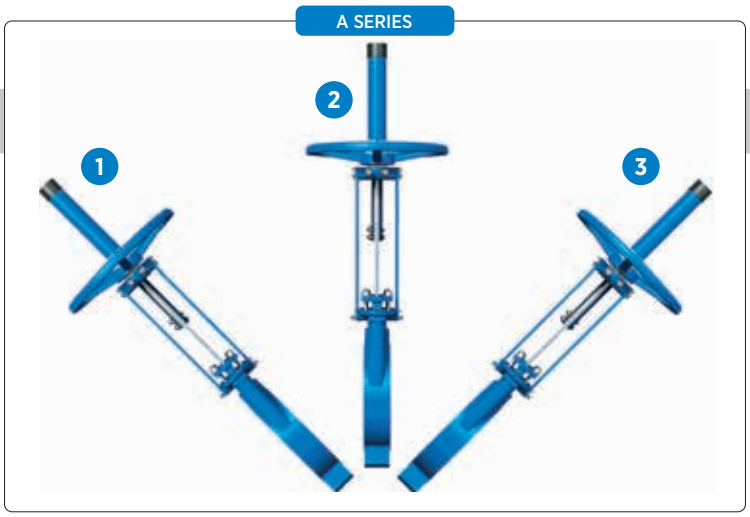
POSITIONS 2, 3, 6 AND 7:
For large valves (over DN300), the maximum installation angle permitted with vertical of 30°. For sizes smaller than DN250 the angle can be increased up to 90°. When it is necessary to install large valves in any of these positions, please check with us, as in these cases, due to the weight of the actuator, a suitable support must be made to prevent deformations and operating problems in the valves. To install valves larger than DN200 in any of these positions, please check with **CMO Valves** In these positions it is recommended to secure the actuator to prevent the shaft from bending due to the weight of the actuator. If this is not carried out it could lead to operating problems.

POSITIONS 4 AND 5:
This knife gate valve has no exterior gate guides, and the larger the valve the heavier it is, meaning that it could rub internally with the body during movement and stop it. To install valves larger than DN200 in any of these positions, please check with **CMO Valves** as special guides must be installed. For sizes smaller than DN250 the valves can be installed in these positions.

In all these positions the actuator should be secured to prevent the shaft from suffering due to the weight of the actuator. If this is not taken into account, it can lead to problems during valve operation.

IMPORTANT SAFETY ASPECTS

- In order to work under ideal safety conditions, the magnetic and electrical elements must be in idle mode and the air tanks depressurised. Moreover, the electrical control cabinets must also be out of service. The maintenance personnel must be up to date with the safety regulations and work can only start under orders from the site's safety personnel.
- The safety areas must be clearly marked and you must avoid placing auxiliary equipment (ladders, scaffolding...) on levers or moving parts which may lead to the movement of the knife gate.
- In units fitted with spring return actuators, the knife gate valve must be mechanically locked and only unlocked when the actuator is pressurised.
- In equipment with electrical actuator, it is recommended to disconnect it from the mains in order to access the mobile parts without any risk.
- Its great importance means you should check that the penstock's shaft has no load before disassembling the drive system.



ASSEMBLY POSITIONS
(vertical/inclined pipe)

Valves from **CMO Valves** valves can be assembled in all positions; however, certain aspects must be taken into account:

Positions numbers 1, 2, and 3:: A suitable support should be made in these positions, since the weight of the actuator may lead to loss of shape, resulting in valve operation problems.

Once the valve has been installed, check that all the screws and nuts have been correctly tightened and that the whole valve action system has been correctly adjusted (electrical connections, pneumatic connections, instruments...).

All **CMO Valves** are tested at its facilities, although the bolts used to tighten the packing gland may come loose during handling and transport and have to be re-tightened.

Once the valve is installed in the pipe and has been pressurised, it is very important to check for any leakages from the packing gland to the outside.

In the event of a leakage, tighten the packing gland bolts crosswise until the leakage stops, making sure there is no contact between the packing gland and the knife gate.

Once the valve is in place, check that the flanges and electrical and pneumatic connections are secure. If electrical connections are present or you are in an ATEX zone, earth connections must be made before starting.

In an **ATEX** zone, check the continuity between the valve and the pipe (EN 12266-2, annex B, points B.2.2.2. and B.2.3.1.). Check the pipe's earth connection and the conductivity between the outlet and inlet pipes.

*Not all knife gate valves from **CMO Valves** can be mounted in these depicted positions, consult for the model required and the possible mounting positions.*

MAINTENANCE

- In order to prevent personal injury and other types of damage (in the plant...) we recommend following these recommendations:
- The person responsible for the installation, operation and maintenance of the valves must be qualified and trained in the operation of similar valves.

- Appropriate personal protection must be used (gloves, safety boots, goggles, hard hat...).
- Shut off all operating lines to the valve and put up a warning sign.
- Completely isolate the valve from the process.
- Fully depressurise the process.
- Drain all the line fluid through the valve.
- Use non-electrical hand tools during installation and maintenance, in according to current regulations.

The only maintenance required in this type of valve is to change the seat's rubber joint (if soft seated valve is used) and the packing. Seals should be checked every 6 months, although their working life will depend on the working conditions of the valve, such as: pressure, temperature, number of operations, fluid composition, among others.

In an ATEX ,electrostatic charges may be present inside the valve, which can cause explosions. The user is responsible for minimising the risks.

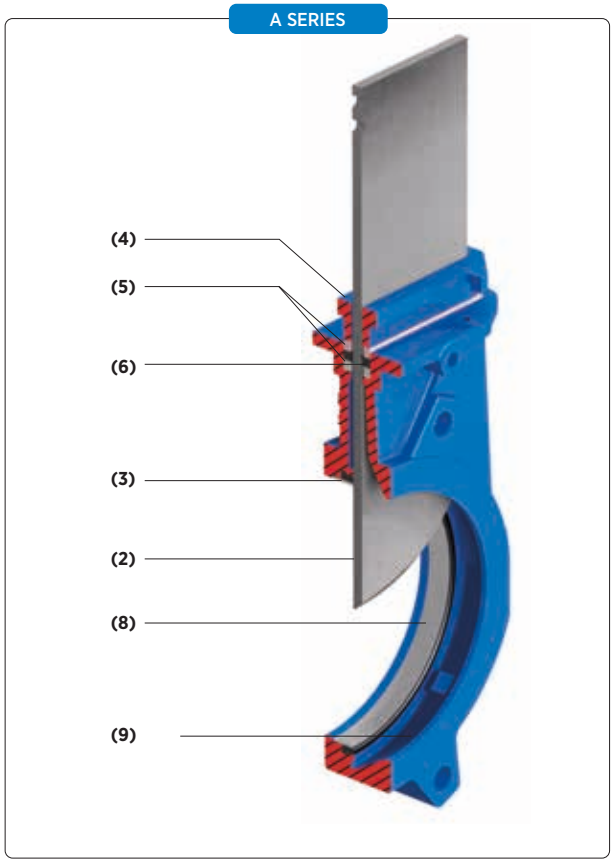
- Personnel must consider the risks of explosion and ATEX training is recommended.
- If the fluid transported constitutes an internal explosive atmosphere, the user must regularly check the installation's correct tightness.
- Regular cleaning of the valve to prevent accumulation of dust.
- Assemblies are not permitted at the end of the line.
- Avoid painting the products supplied.

Installation / Maintenance

REPLACING THE SEAL

(except metal/metal and PTFE)

1. Make sure there is absolutely no pressure and fluid in the installation.
2. Remove the valve from the pipeline.
3. Remove the actuator and safety guards (if present) by unscrewing and removing the bolts connecting the stem to the gate and the support plate to the body.
4. Remove the packing gland **(4)**.
5. Remove the old packing **(5)**, taking care not to damage the packing rubber strip **(6)**.
6. Remove the gate **(2)** carefully without losing the PA6 slides **(3)** .
7. Clean the inside surfaces of the valve.
8. Remove the ring **(8)** that secures the sealing joint **(9)**. To this end, apply a few sharp knocks to the outside with a bronze object at the base of the ring until it comes out.
9. Remove the old sealing joint **(9)** and clean its housing.
10. Fit a new sealing joint **(9)** with the same dimensions as the old one or use the dimensions shown below **(table 1)**.
11. Insert the retaining ring **(8)** in its original position as indicated:
    - Place the retaining ring **(8)** in perfect alignment parallel to the sealing joint.
    - Push the ring **(8)** as a whole towards the base of the channel.
12. The valve assembly will be performed in exactly the opposite way to the disassembly.



During the assembly of the new sealing joint it is recommended to apply "Vaseline" to the seal to facilitate the assembly process and the correct operation of the valve (do not use oil or grease) ***table 2*** *details of the Vaseline used by* ***CMO Valves***.

table 1

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
Length	190	250	290	370	445	530	690	845	1005	1175	1350	1520	1710	2020	2300	2680	3030	3367	3681	3995

REPLACING THE SEAL JOINT (PTFE)

The following aspects must be considered:

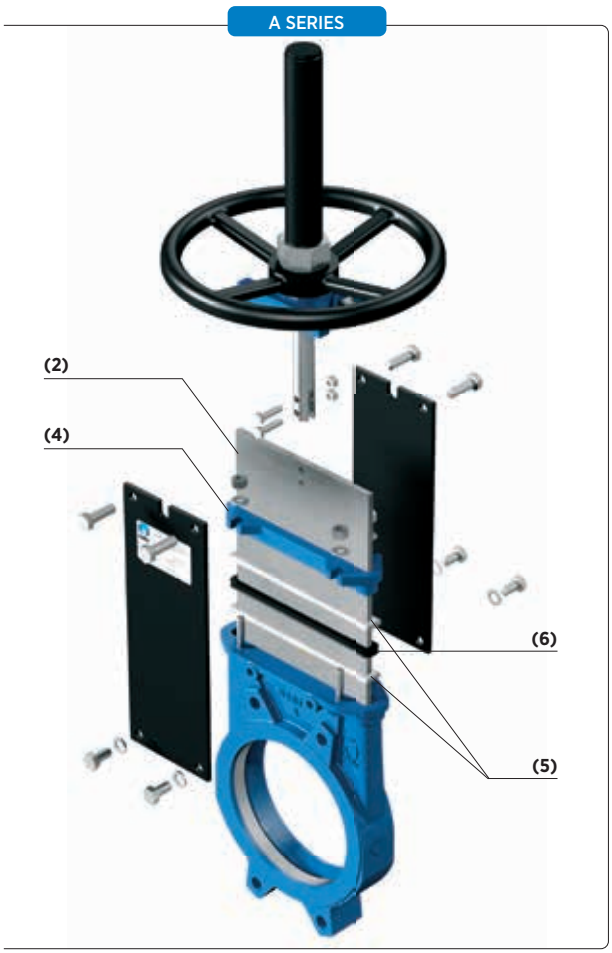
1. To obtain greater watertight integrity in the stainless steel bodies it is advisable to apply plastic glue to the joint housing. If the body is painted this is not necessary.
2. With the rubber seal tab pointing outwards, make a circle and then form a heart shape.
3. It is recommendable to insert the joint in the top part, press the arched part and insert the seal into the housing.

table 2

WHITE PETROLEUM JELLY		
Saybolt colour	ASTM D-156	15
Melting point (ºC)	ASTM D-127	60
Viscosity at 100°C	ASTM D-1445	5
Penetration 25°C mm./10	ASTM D-1937	165
Silicone content	None	
Pharmacopoeia BP	OK	

REPLACING THE PACKING

1. Make sure there is absolutely no pressure and fluid in the installation.
2. Place the valve in open position.
3. If the valve has safety protections, remove them.
4. Loosen the screws that connect the stem or rod to the gate.
5. Release the connection between the support plates and the body.
6. Loosen and remove the stuffing **(4)**.
7. Remove the old packing **(5 and 6)** using a pointed tool, taking care not to damage the surface of the gate**. (2)**.
8. Carefully clean the packing, making sure there are no residues anywhere so the new packing strips fit correctly.
9. Insert the new packing **(5 and 6)**. During this operation it is very important for both ends to be perfectly joined. The packing dimensions are shown below ***(table 3)***. As standard, at **CMO Valves**.valve packing is composed of 3 lines (2 packing lines and 1 rubber seal line in the middle).
10. Place the stuffing in its original position **(4)** , making sure it does not touch the gate, carefully tighten all the screws crosswise and make sure the same distance is left between the gate and the stuffing on both sides.
11. Screw down the support plates and the stem, in reverse order to that described in steps **(4 and 5)**.
12. Perform several manoeuvres with no load, checking the correct operation of the valve and ensuring the stuffing is correctly centred.
13. Pressurise the valve in the line and tighten the stuffingcrosswise, enough to prevent leakages to the atmosphere.



*If it is not possible to place a rubber joint in the middle, another packing line should be used instead **(table 3)**.*

table 3

DIAMETER	PACKING 2 LÍNEAS	RUBBER RING 1 LÍNEA
DN50	☐8 mm x 204 mm.	☐8 mm x 204 mm.
DN65	☐8 mm x 234 mm.	☐8 mm x 234 mm.
DN80	☐8 mm x 264 mm.	☐8 mm x 264 mm.
DN100	☐8 mm x 304 mm.	☐8 mm x 304 mm.
DN125	☐8 mm x 356 mm.	☐8 mm x 356 mm.
DN150	☐8 mm x 406 mm.	☐8 mm x 406 mm.
DN200	☐8 mm x 516 mm.	☐8 mm x 516 mm.
DN250	☐10 mm x 636 mm.	☐10 mm x 636 mm.
DN300	☐10 mm x 740 mm.	☐10 mm x 740 mm.
DN350	☐10 mm x 810 mm.	☐10 mm x 810 mm.
DN400	☐10 mm x 928 mm.	☐10 mm x 928 mm.
DN450	☐10 mm x 1028 mm.	☐10 mm x 1028 mm.
DN500	☐14 mm x 1144 mm.	☐14 mm x 1144 mm.
DN600	☐14 mm x 1346 mm.	☐14 mm x 1346 mm.

Installation / Maintenance

PACKING

Standard packing from **CMO Valves** comprises three lines with a specially designed EPDM seal in the middle which provides watertight integrity between the body and the gate, preventing any type of leakage to the atmosphere. It is located in an easily accessible place and can be replaced without dismantling the valve from the pipeline. Below we indicate various types of packing available according to the application in which the valve is located:

1. SYNTHETIC + PTFE

This high performance packing is the standard from **CMO Valves**. This packing is composed of braided synthetic fibres soaked in PTFE both inside and out. It is for general use in hydraulic applications in both pumps and valves and in all types of fluids, especially corrosive ones, including concentrated and oxidising oils. It is also used in liquids with solid particles in suspension.

2. GREASED COTTON

This packing is composed of braided cotton fibres soaked in grease both inside and out. It is for general use in hydraulic applications in both pumps and valves.

3. DRY COTTON

This packing is composed of cotton fibres. It is for general use in applications with solids.

4. COTTON + PTFE

This packing is composed of braided cotton fibres soaked in PTFE both inside and out. It is for general use in hydraulic applications in both pumps and valves.

5. GRAPHITE

This packing for high temperatures is composed of high-purity graphite fibres. A diagonal braiding system is used and it is impregnated with graphite and lubricant which helps to reduce porosity and improve operation. It has a wide range of applications as graphite is resistant to steam, water, oils, solvents, alkali and most acids. It is also used in liquids with solid particles in suspension.

6. CERAMIC FIBRE

This packing is composed of ceramic material fibres. Its main applications are with air or gas at high temperatures and low pressures.

SEATS / SEALS

MATERIAL	Max temp (ºC)	APPLICATIONS
Metal/Metal	>250	High temperature/Low tightness
EPDM (E)	90º **(*see note)**	Non-mineral oils and acids.
Nitrile (N)	90º **(*see note)**	Hydrocarbons, oils and greases
FKM (V)	200º	Hydrocarbons and solvents
Silicone (S)	200º	Food Products
PTFE (T)	250º	Resistant to corrosion

PACKING

MATERIAL	P(Bar)	Max temp (ºC)	pH
Greased cotton	10	100º	6-8
Dry cotton (AS)	0.5	100º	6-8
Cotton + PTFE	30	120º	6-8
Synthetic + PTFE	100	250º	0-14
Graphite	40	650º	0-14
Ceramic Fibre	0.3	1400º	0-14

(*) *In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you have such requirements.*

GREASING

It is recommended to lubricate the stem at least twice a year by removing the cap from the bonnet and filling it with grease up to half its volume.

After maintenance in an **ATEX** zone, it is necessary to check the electrical continuity between the pipe and the rest of the valve's components, such as the body, gate, stem; standard EN 12266- 2, Annex B, points B.2.2.2. and B.2.3.1.

Accessories and options

Different types of accessories are available to adapt the valve to specific working conditions such as:

1. **MIRROR POLISHED GATE**
   The mirror polished gate is especially recommended in the food industry and, as standard, in applications in which solids can stick to the gate.

2. **PTFE LINED GATE**
   As with the mirror polished gate, it improves the valve's resistance to products that can stick to the gate.

3. **STELLITED GATE:**
   Stellite is added to the gate's lower edge to protect it from abrasion.

4. **SCRAPER IN THE PACKING**
   Its function is to clean the gate during the opening movement and prevent possible damage to the packing.

5. **AIR INJECTION IN THE PACKING**
   By injecting air in the packing, an air chamber is created which improves tightness.

6. **JACKETED BODY**
   Recommended in applications in which the fluid can harden and solidify inside the valve body. An external jacket keeps the body temperature constant, preventing the fluid from solidifying.

7. **ACTUATOR OR YOKE SUPPORT**
   Made of EPOXY-coated steel (or stainless steel to order), its robust design gives it great rigidity in order to withstand the most adverse operation conditions.

8. **MECHANICAL LIMIT SWITCHES, INDUCTIVE SENSORS AND POSITIONERS**
   Limit switches or inductive switches are installed to indicate precise valve position, as well as positioners to indicate continuous position.

9. **SOLENOID VALVES**
   For air distribution to pneumatic actuators.

10. **MECHANICAL LOCKING DEVICE**
    Allows the valve to be mechanically locked in a position.

11. **CONNECTION BOXES, WIRING AND PNEUMATIC PIPING**
    Fully assembled units can be supplied with all the necessary accessories.

12. **STROKE LIMITING MECHANICAL STOPS**
    These allow the stroke to be mechanically adjusted, limiting the valve run.

13. **EMERGENCY MANUAL ACTUATOR (HANDWHEEL / GEARS)**
    Allows manual operation of the valve in the event of power or air failure.

14. **FLUSHING HOLES IN THE BODY**
    Several holes can be drilled in the body to flush air, steam or other fluids out in order to clean the valve seat before sealing.

Accessories and options

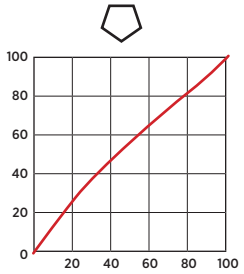
15. V-NOTCH AND PENTAGONAL DIAPHRAGM WITH INDICATION RULE

Recommended for applications in which flow regulation is required. Allows flow control according to the valve's opening percentage.

VERTICAL:
% MAXIMUM FLOW.

HORIZONTAL:
% OF VALVE OPENING.

PENTAGONAL DIAPHRAGM



16. INTERCHANGEABLE ACTUATORS

The actuators are easily interchangeable.

17. EPOXY COATING

All cast iron and carbon steel bodies and components on **CMO Valves** valves are EPOXY coated, giving the valves great resistance to corrosion and an excellent finish. The standard colour of **CMO Valves** is blue, RAL 5015.

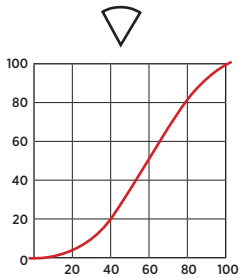
18. GATE SAFETY PROTECTION

In accordance with European Safety standards ("EC" marking) **CMO Valves** automatic valves are fitted with metal guards in the gate run in order to prevent objects from being accidentally caught or dragged along.

19. BONNET / LID

The bonnet provides total tightness to the outside, reducing the stuffing maintenance required.

TRIANGULAR (V-NOTCH) DIAPHRAGM



TYPES OF EXTENSIONS

When the valve needs to be operated from a distance, the following different types of actuators can be fitted.

01

COLUMN/PEDSTAL

This extension is done by coupling a rod to the stem. The desired extension is achieved by defining the length of the rod. A floor stand is normally installed to support the actuator.

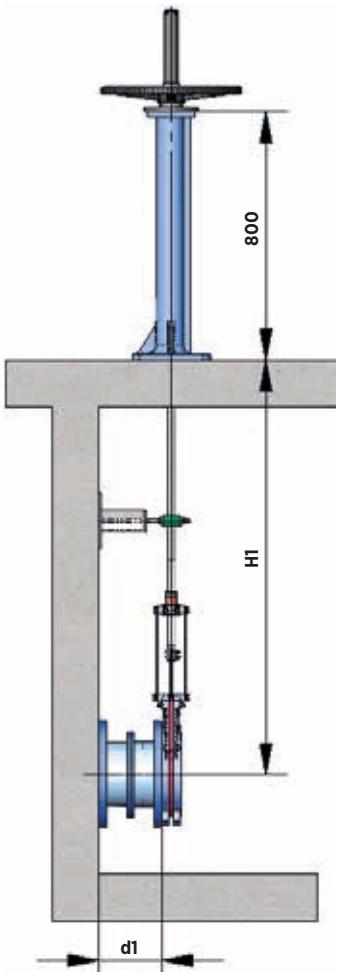
The definition variables are as follows:

- **H1** Distance from the valve's centre to the base of the stand.
- **d1** Separation from the wall to the end of the connecting flange.

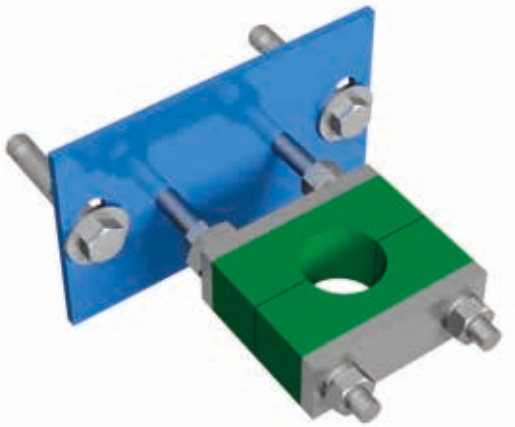
CHARACTERISTICS:

- It can be coupled to any type of actuator.
- A pipe support-guide is recommended every 1.5 m.
- The standard floor stand is 800 mm high
- Other floor stand measurements available on request.
- Position indicator can be fitted to determine the valve's percentage of opening.
- Leaning stand available to order.

STANDARD COLUMN



SPINDLE GUIDE BRACKET



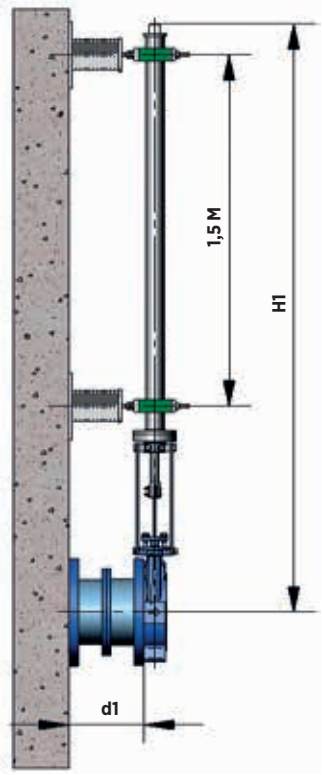
INCLINED COLUMN

COMPONENTS LIST

COMPONENT	STANDARD VERSION
Support	AISI 304
Guides	AISI 304
Support-Guide	AISI 304
Slide	PA6
Floor Stand	GJS-500 with EPOXY coating

Types of extensions

GA SERIES



02

PIPE WITH INTERNAL SPINDLE

This consists of raising the actuator. The pipe will rotate in the same direction as the wheel when the valve is operated. It always remains at the same height.

The definition variables are as follows:
- **H1** Distance from the valve's centre to the base of the stand.
- **d1** Separation from the wall to the end of the connecting flange.

CHARACTERISTICS:
- Standard actuators: Handwheel and square stem.
- A pipe support-guide is recommended every 1.5 m.
- The standard materials are: EPOXY coated carbon steel and stainless steel.

03

EXTENDED SUPPORT PLATES

When a short extension is required, it can be achieved by extending the support plates.
An intermediate yoke can be fitted to reinforce the support plates structure.

GA SERIES

04

CARDAN

If the valve and the actuator are not in correct alignment, the problem can be resolved by fitting a universal joint.

GH SERIES

05

STEM

The valve stem from **CMO Valves** is manufactured in stainless steel AISI 304. This characteristic makes it highly resistant and provides excellent properties against corrosion. The valve design can be rising stem or non-rising stem. When a rising stem is required, a bonnet is supplied to protect the stem from contact with dust and dirt, besides keeping it greased.

06

ACCESSORIES

- Mechanical stoppers
- Locking devices
- Emergency manual actuators.
- Electrovalves
- Positioners
- Limit switches
- Proximity detectors
- Straight floor stand
- Leaning floor stand

STRAIGHT COLUMN

INCLINED COLUMN

Stem extensions have also been developed, allowing the actuator to be located far away from the valve, to suit all needs. Please ask our technicians beforehand.

07

TYPES OF EXTENSIONS

All types of actuators can be supplied, with the advantage that thanks to the design they are interchangeable.
This design allows customers to change the actuators themselves and no extra assembly accessories are required.
A design characteristic of **CMO Valves** is that all actuators are interchangeable.

MANUALS:
- Handwheel with rising stem.
- Handwheel with non-rising stem.
- Chain handwheel
- Lever
- Geared motor
- Others (square stem...).

AUTOMATIC:
- Electric actuator
- D/E and S/E pneumatic cylinder.
- Hydraulic cylinder

Types of actuators and drives

HANDWHEEL WITH RISING STEM

HANDWHEEL WITH NON-RISING STEM

PNEUMATIC ACTUATOR

DOUBLE AND SINGLE ACTING

ELECTRIC-MOTOR ACTUATOR

MULTIPLE VOLTAGES

GEARED WHEEL

WITH RISING, NON-RISING STEM

HYDRAULIC ACTUATOR

150-170 bar

Seat materials temperature

EPDM

Cold or hot water, sea water, dry air without oil, alkalis, alcohols, sodium hydroxide, acids. (mineral and organic), acid salt.

NITRILE

Mineral oils, hydrocarbons, lubricated air.

FPM/FKM

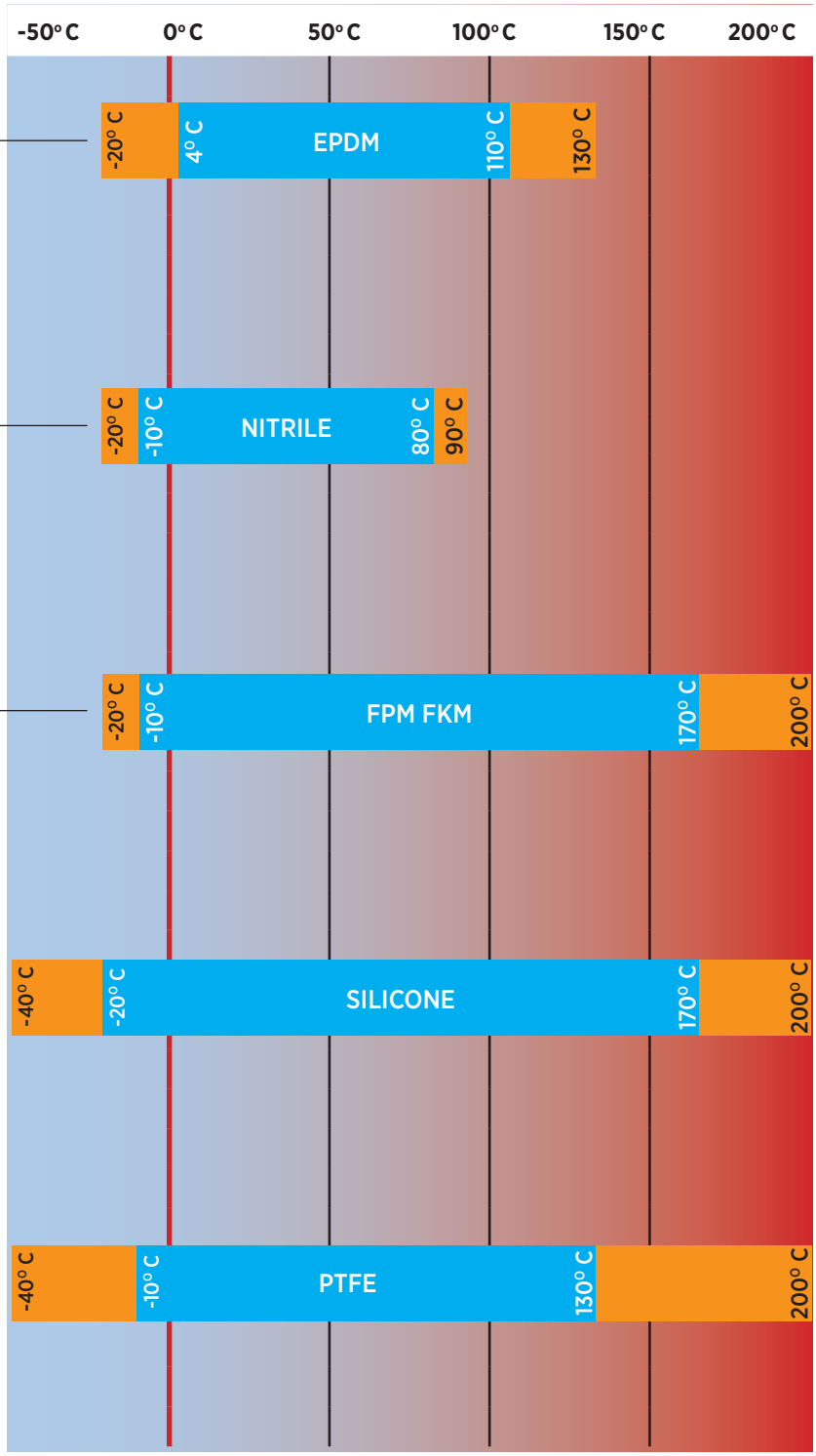
Acids, fats, hydrocarbons.

SILICONE

Food Industry, high temperatures.

PTFE

Highly corrosive products.



Maximum supported temperatures.

Working temperatures.

Pneumatic actuator maintenance

The pneumatic cylinders in our valves are manufactured and assembled at our premises. The maintenance of these cylinders is simple, if your need to replace any elements and you have any questions please consult **CMO Valves**. Below is an exploded diagram of the pneumatic actuator ***(fig 3)*** and a list of the cylinder's components ***(table 4)***. The top cover and the support cover are usually made of aluminium, but from pneumatic cylinders greater than Ø200 mm, they are made of cast ductile iron.

The maintenance kit normally includes the bushing and its seals and the scraper, and if the customer wishes, the piston is also supplied.

The steps to follow to replace these parts are shown below.

1. Position the valve in closed position and shut off the pneumatic circuit pressure.
2. Release the cylinder air input connections.
3. Release and remove the top cover **(5)**, the casing **(4)** the tie-rods **(16)**.
4. Loosen the nut **(14)** which connects the piston **(3)** to the rod **(1)**, remove the pieces. Disassemble the cir-clip **(10)** and remove the bushing **(7)** with its joints **(8/9)**.
5. Release and remove the mount cover **(2)**, in order to remove the scraper **(6)**.
6. Replace the damaged parts with new ones and assemble the actuator in reverse order to that described for disassembly.

figure 3

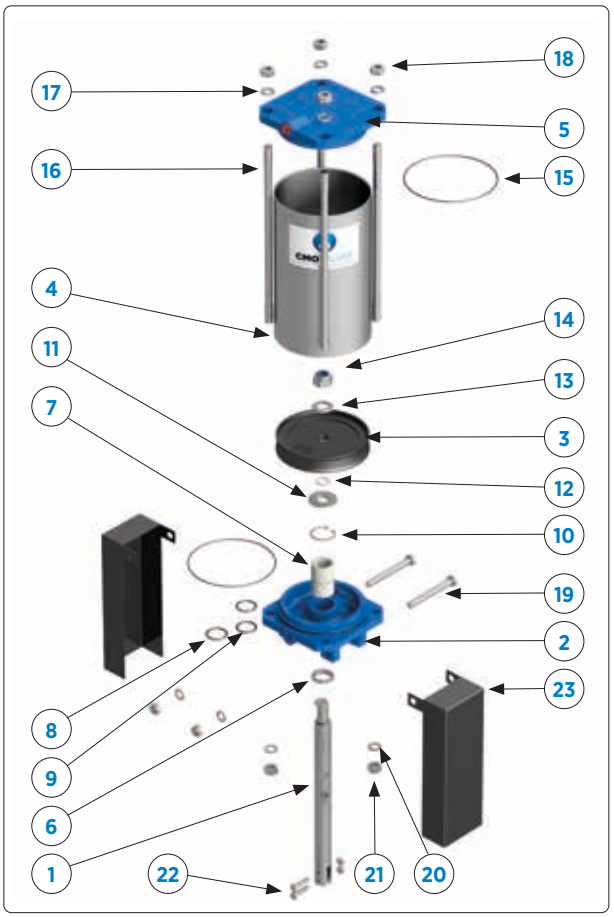


table 4

	DESCRIPTION	MATERIAL
1	STEM	AISI-304
2	MOUNT COVER	ALUMINUM
3	PISTON	S275JR + EPDM
4	CASING	ALUMINIUM
5	TOP COVER	ALUMINUM
6	SCRAPER	NITRILE
7	BUSHING	PA6
8	EXTERIOR O-RING	NITRILE
9	INTERIOR O-RING	NITRILE
10	CIR-CLIP	STEEL
11	WASHER	ST ZINC
12	O-RING	NITRILE
13	WASHER	ST ZINC
14	SELF-LOCKING NUT	5.6 ZINC
15	O-RING	NITRILE
16	TIE-BOLTS	F-114 ZINC
17	WASHER	ST ZINC
18	NUT	5.6 ZINC
19	BOLT	5.6 ZINC
20	WASHER	ST ZINC
21	NUT	5.6 ZINC
22	BOLT	A-2
23	PROTECTION	S275JR

Storage

To ensure the valve is in optimum conditions of use after long periods of storage, it should be stored in a well-ventilated place at temperatures below 30°C.

It is not advisable, but, if it is stored outside, the valve must be covered to protect it from heat and direct sunlight, with good ventilation to prevent humidity.

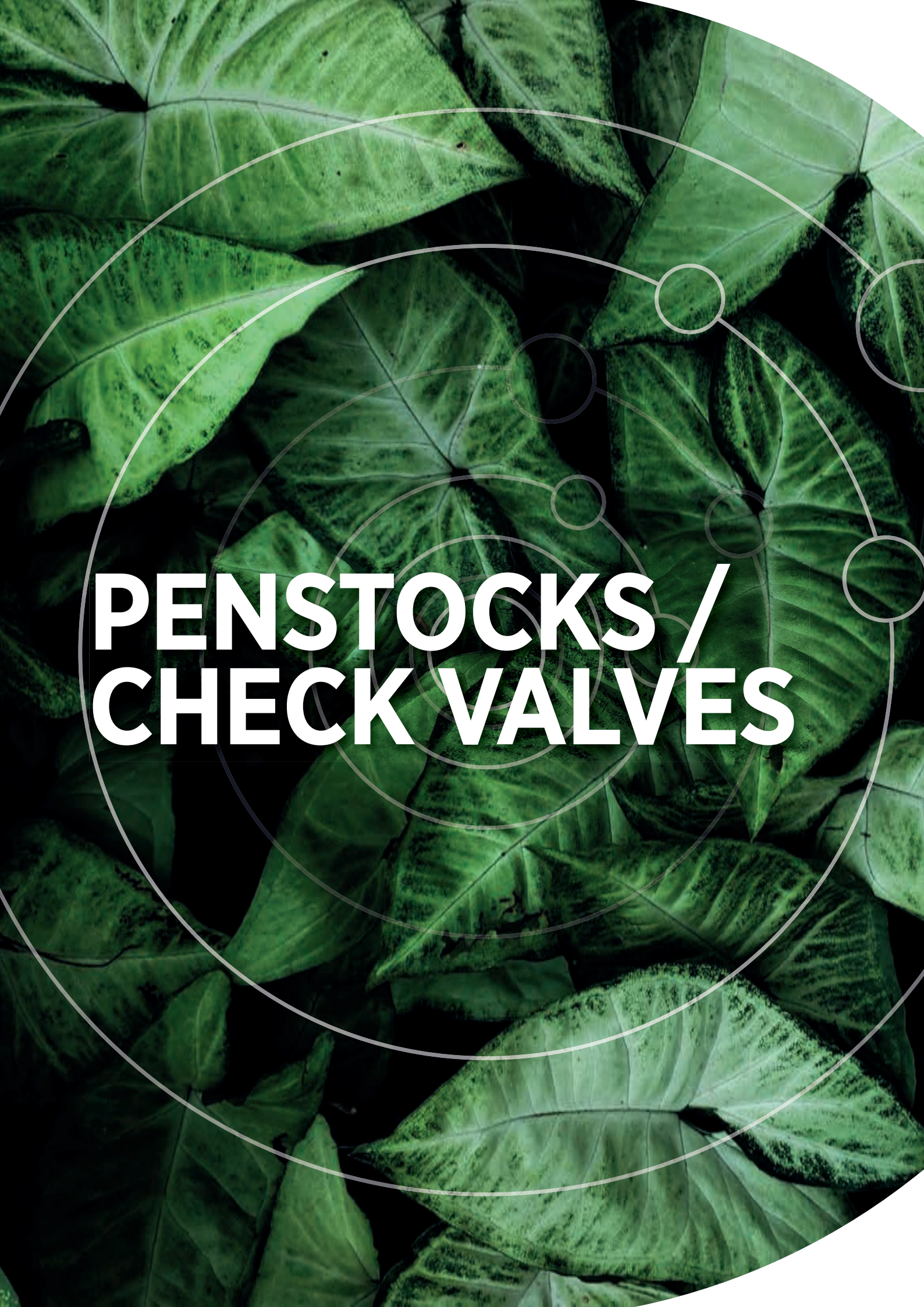
The following aspects must be considered for storage purposes:

- The storage place must be dry and undercover.
- It is not recommended to store the equipment outdoors with direct exposure to adverse weather conditions, such as rain, wind... Even less so if the equipment is not protected with packaging.
- This recommendation is even more important in areas with high humidity and saline environments. Wind can carry dust and particles which can come into contact with the valve's mobile parts and this can lead to operating difficulties. The drive system can also be damaged due to the introduction of particles in the different elements.
- The equipment must be stored on a flat surface to avoid loss of shape.
- If the equipment is stored without suitable packaging it is important to keep the valve's mobile parts lubricated, for this reason it is recommended to carry out regular checks and lubrication.
- Likewise, if there are any machined surfaces without surface protection, it is important for some form of protection to be applied to prevent the appearance of corrosion.

General dimensions of pneumatic cylinders CMO VALVES

DIMENSIONS

Ø CYLINDER	Ø STEM	AIR CONNECTION (BSP)
80	20	1/4"
100	20	1/4"
125	25	1/4"
160	30	1/4"
200	30	3/8"
250	40	3/8"
300	45	1/2"
350	45	1/2"
400	50	1/2"
450	50	3/4"
500	50	3/4"
635	70	1"



PENSTOCKS / CHECK VALVES

MC SERIES

AT SERIES

*At **CMO Valves** we carry out all nature of adaptations and special assemblies, such as limit switches, pneumatic actuators, electric actuators, special seals, and supports as needed.*

Technical data and options

- Flexible manufacture for different water loads and drive heights.
- Bespoke penstock design - square/rectangular **MC** or round **MR** suited to customer requirements.
- Various construction materials and seals available.
- Option of unidirectional or bidirectional fluid direction.
- Installation supported on walls using anchors or concrete.
- Manual or automatic drives in line with demand.
- Hinged, overflow, radial, rotating, telescopic gates, self-tilting cleaners.

VM SERIES

RE SERIES

Uses and applications

- Penstocks of 3 or 4 side sealing.
- The hole to be closed can be rectangular, round or square.
- Channel and dam adjustment.
- Fluid control at high speeds.
- Used in pressure pipes in hydroelectric plants.
- It is suitable to work with clean liquids or loaded with solids.
- Floating evacuation by overflow.
- Water treatment plants - Irrigation - hydroelectric power stations - pipelines.

CA SERIES

UNIDIRECTIONAL OR BIDIRECTIONAL CHANNEL PENSTOCK

DESCRIPTION

- Channel penstock.
- Square or rectangular penstock design.
- Option of unidirectional or bidirectional.
- Various construction materials and seals available.
- Usual design to embed in canal walls.

GENERAL APPLICATIONS

This channel penstock is designed for installation in open channels. It has a 3-side seal: (base and sides). It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Irrigation.
- Conduits.
- Hydroelectric power stations.
- Water treatment.

SIZES

From 150 x 150 to 3000 x 3000.
Check for the general dimensions of a specific penstock with. **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure is the height of the gate. Because these gates closed on 3 sides, it would overflow above the gate if the fluid were higher than the gate.

BUILDING WORK

The standard in **CA**, channel penstocks is to leave installation holes in the channel into which it can be inserted for concreting later.

Penstocks can be manufactured to order in line with customer requirements.

TIGHTNESS

Sealtight integrity of **CA** penstocks complies with that set out in regulation DIN 19569, class 5, leaks.

RESILIENT SEALS

- EPDM.
- NITRILE.
- SILICONE.

In some applications other types of rubber are used, such as: hypatlon, butyl... Please contact in case you have such a requirement.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

FL SERIES

UNIDIRECTIONAL CHECK GATE FOR END OF PIPE

FL SERIES

DESCRIPTION

- Check gate for clean liquids or loaded with solids.
- Round, square or rectangular penstock design.
- Option of vertical or inclined closing.
- Various construction materials and seals available.
- Designed to be installed supported on walls by means of anchors or bolted to a flange.
- Possibility of slimline design.

GENERAL APPLICATIONS

This gate is designed for end-of-line mounting. Can be installed supported on walls by means of anchors or bolted to a flange. Its design can be circular, square or rectangular.

Designed for applications such as:
- Irrigation.
- Conduits.
- Hydroelectric power stations.
- Water treatment.

SIZES

From DN80 (125 x 125) to DN3000 (3000 x 3000).
To ascertain the general dimensions of a specific overflow penstock, check with **CMO Valves.**

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure adapts to the needs of the customer in every project. These penstocks are designed to comply with working conditions in the place of installation.

FLANGES

Can be screw-mounted onto a flange or supported on a wall. The connection of the gate to a flange can be carried out according to different standards: PN2,5 PN10, PN6, PN16, ANSI 150, Australian standard, British standard, JIS standard,...

TIGHTNESS

Tightness of **FL** penstocks complies with that set out in regulation DIN 19569, class 5, leaks.

BUILDING WORK:

These penstocks can also be designed to be secured to the wall through chemical or expansion anchors. The boreholes necessary for attachment are made when assembling, using the body of the penstock as a guide.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

GI SERIES

TILTING WEIR GATE

DESCRIPTION

- Tilting gate that turns on a horizontal shaft at the bottom of the channel.
- Panel design with side wheels, to guide the panel throughout its run.
- Option of 3- or 4-side seal.
- Design of rectangular or square gate.
- Various sealing materials available.
- To install embedded in concrete or mounted on walls with chemical or expansion anchors.

GENERAL APPLICATIONS

The tilting or folding gate controls the water flow in channels, rivers or reservoirs. It consists of a valve gate that can tilt or fold around a horizontal shaft to regulate the water level and flow. By adjusting the gate angle, operators can precisely manage the water discharge and maintain the required water levels, both upstream and downstream.

This type of gate is often used in irrigation systems and in flood control and water treatment facilities to ensure flexible, efficient water management.

Designed for applications such as:
- Water treatment plants
- Irrigation
- Hydroelectric power stations.
- Conduits

SIZES

From 500 x 500 to 3000 x 3000.
To ascertain the general dimensions of hinged penstock GI consult **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure adapts to the needs of the customer requirement in every project. These penstocks are designed to comply with working conditions in the place of installation.

BUILDING WORK:

The assembly system is supported on concrete and secured with expansion anchors. In this case it is essential that both the base and the walls are completely smooth. The walls where the gate is to be installed must be level and the base completely horizontal.

Another assembly system is embedded in the concrete. This option ensures there is no protrusion in the channel, requiring a series of housings in the building work in order to install the gate.

RESILIENT SEALS

The tightness of **GI** descending gates complies with that set out in regulation DIN 19569, class 5 of leaks.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

SL SERIES

STOP LOG GATE

DESCRIPTION

- Penstock for clean or solid loaded liquids
- Squared or rectangular penstock design, modular system, possible to modify the height by adding or removing modules.
- Bidirectional sealing system
- Multiple sealing materials available.
- Common design to install embedded in concrete or mounted on walls with chemical or expansion anchors
- Three drive systems (lifting devices): Manual, semi-automatic and automatic, by means of davit beams.

GENERAL APPLICATIONS

This stop log penstock, formed by stackable stopboards is designed to work in open channelings or in wall orificies, it has a seal in three sides (sill and sides) and its main applications are:

- Wastewater treatment plants
- Irrigation
- Hydroelectric power stations
- Conduits
- Storm tank
- Drainage collectors

SIZES

The stop log penstocks can be manufactured to customer's requirements within a very wide range of dimensions thanks to their modular design (height x width). To know the general dimensiones of a specific penstock, consult with **CMO Valves.**

WORKING PRESSURE (ΔP)

The working pressure will be the same to the penstock stopboard's height (formed by modules).

BUILDING WORK

The standar installation of the **CMO Valves Stop log SL** is to be embedded in the channel, which needs to have cashiers that facilitate the installation and posterior concreting of the penstock's frame. Other installing options are through wall fixation by means of expansion or chemical anchors. The necessary drill for its wall fixation are done to the installation using the penstock's frame as a guide.

RESILIENT SEALS

The stop log penstocks present a high tightness, they comply with the DIN 19569 normative requirements.

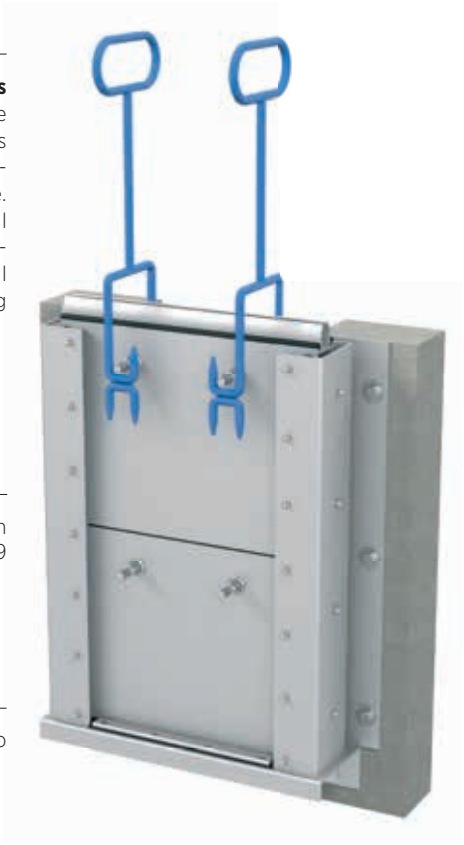
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges
- Material and testing certificated can be supplied on request.



MX-MZ SERIES

UNIDIRECTIONAL OR BIDIRECTIONAL WALL TYPE PENSTOCK

DESCRIPTION

- Penstock for clean liquids or loaded with solids.
- Round, square or rectangular penstock design.
- Possibility of unidirectional or bidirectional.
- Various seal materials available.
- Common design to install supported on walls with chemical or expansion anchors.

GENERAL APPLICATIONS

This wall penstock is designed for installation in orifices in walls. The orifice can be rectangular, round or square; this penstock has a 4-sided seal. It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Irrigation.
- Conduits.
- Hydroelectric power stations.
- Water treatment.

SIZES

From 150 x 150 to 1200 x 1200 **(MX)**.
From DN150 to DN1200 **(MZ)**.

To ascertain the general dimensions of a wall type penstock consult **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

The maximum working pressure adapts to the needs of the customer in every project. These penstocks are designed to comply with working conditions in the place of installation.

BUILDING WORK:

CMO Valves standard **MX/MZ** wall penstocks are designed to be secured to the wall using chemical or expansion anchors. The boreholes necessary for attachment are made when assembling, using the body of the penstock as a guide.

TIGHTNESS

The sealtightness of the **MX/MZ** wall penstocks complies with that set out in regulation DIN 19569, class 5 of leaks..

RESILIENT SEALS

- EPDM.
- NITRILE.
- SILICONE.

In some applications other types of rubber are used, such as: hypatlon, butyl... Please contact in case you have such a requirement.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

MX SERIES

MZ SERIES

MC-MR SERIES

UNIDIRECTIONAL OR BIDIRECTIONAL WALL TYPE PENSTOCK

DESCRIPTION

- Penstock for clean liquids or loaded with solids.
- Round, square or rectangular penstock design.
- Option of unidirectional or bidirectional.
- Various construction materials and seals available.
- Designed generally to be installed supported on walls with chemical or expansion anchors.

GENERAL APPLICATIONS

This wall penstock is designed for installation in orifices in walls. The orifice can be rectangular, round or square; this penstock has a 4-sided seal. It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Irrigation.
- Conduits.
- Hydroelectric power stations.
- Water treatment.

SIZES

From 150 x 150 to 3000 x 3000 **(MC)**.
From DN150 to DN3000 **(MR).**

To ascertain the general dimensions of a wall type penstock consult **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

The maximum working pressure adapts to the needs of the customer in every project. These penstocks are designed to comply with working conditions in the place of installation.

BUILDING WORK:

Standard wall type penstocks **MC/MR** from **CMO Valves** are designed to be secured to the wall using chemical or expansion anchors. The boreholes necessary for attachment are made when assembling, using the body of the penstock as a guide.

TIGHTNESS

The sealtightness of the **MC/MR** wall penstocks complies with that set out in regulation DIN 19569, class 5 of leaks.

RESILIENT SEALS

- EPDM.
- NITRILE.
- SILICONE.

In some applications other types of rubber are used, such as: hypatlon, butyl... Please contact in case you have such a requirement.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

MC SERIES

MR SERIES

RE SERIES

UNIDIRECTIONAL OR BIDIRECTIONAL OVERFLOW PENSTOCK

DESCRIPTION

- Penstock for clean liquids or loaded with solids.
- Square or rectangular penstock design.
- Option of unidirectional or bidirectional.
- Various construction materials and seals available.
- Designed generally to be installed supported on walls with chemical or expansion anchors.

GENERAL APPLICATIONS

This overflow penstock is designed for installation in orifices in walls or at the end of channels. This gate has a 3-side seal: (base and sides). It is designed to regulate the level of fluid. It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Irrigation.
- Conduits.
- Channels.
- All kinds of water treatment.

SIZES

From 150 x 150 to 2000 x 2000.
Check for the general dimensions of a specific penstock with. **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure is the height of the gate. These penstocks have 3-side seals. The fluid flows over the gate-knife.

BUILDING WORK:

The standard **RE** overflow gates frp, **CMO Valves** are designed to be secured to the wall through chemical or expansion anchors. The boreholes necessary for attachment are made when assembling, using the body of the penstock as a guide.

TIGHTNESS

The tightness of the **RE** overflow penstocks complies with that set out in regulation DIN 19569, class 5 leaks.

RESILIENT SEALS

- EPDM.
- NITRILE.
- SILICONE.

In some applications other types of rubber are used, such as: hypatlon, butyl... Please contact in case you have such a requirement.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- The tightness of the seat area is measured with gauges.


CMO VALVES

TE SERIES

TELESCOPIC VALVE FOR LEVEL CONTROL

DESCRIPTION

- Telescopic valve to capture surface water.
- Circular body and obturator, highly functional requiring minimum maintenance.
- Various construction materials available.
- Various sealing materials available.
- Designed for installation in upright position on the water run-off pipe flange in the tank.

GENERAL APPLICATIONS

TE telescopic valves are designed for installation in chambers or ponds in which the fluid level needs to be regulated. It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Water treatment plants.
- Ponds.
- Hydroelectric power stations.

SIZES

From DN50 to DN1500.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure depends on the valve stroke and this is the same as the difference between the maximum and minimum water level required.
These units adapt to the customer's requirements in each project, and are designed to meet the working conditions in accordance with the final location where they will be installed.

TIGHTNESS

Tightness of **TE** telescopic valves complies with that set out in regulation DIN 19569, class 5 leaks.

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHERS COMMONLY USED

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Other DNs on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

R SERIES

UNIDIRECTIONAL WAFER TYPE CHECK VALVE

R SERIES

DESCRIPTION

- Wafer type swing disk check valve type (can be manufactured with flanges on request).
- One-piece cast body with an internal conical shape which provides easy evacuation of the solid particles contained in the flow.
- High flow rates with low load losses.
- Low pressure opening
- Face-to-face distance in accordance with **CMO Valves** standards.
- It has an arrow on the body indicating the flow direction.
- The **R** swing check valve only lets fluid though in one direction. It is opened by the fluid passing through and it closes due to the weight of the disc and the return of the fluid in a short time.

SIZES

DN50 to DN1200.

Other DNs on request.

GENERAL APPLICATIONS

This check valve is suitable for liquids that contain a maximum of 5% suspended solids.

Designed for a wide range of applications such as:
- Paper industry.
- Sewage treatment.
- Chemical plants.
- Pumping.

FLANGE DRILLING

Valid for all types of installations with standard flanges

WORKING PRESSURE (ΔP)

DN50-DN250	40 bar
DN300-DN600	25 bar
DN700-DN1200	16 bar

Other pressures on request.

ACCESSORIES AND OPTIONS

- Counterweight and/or shock absorber.
- It can be supplied with an auxiliary spring to obtain faster sealing.
- Flanged manufacturing.

DIRECTIVES

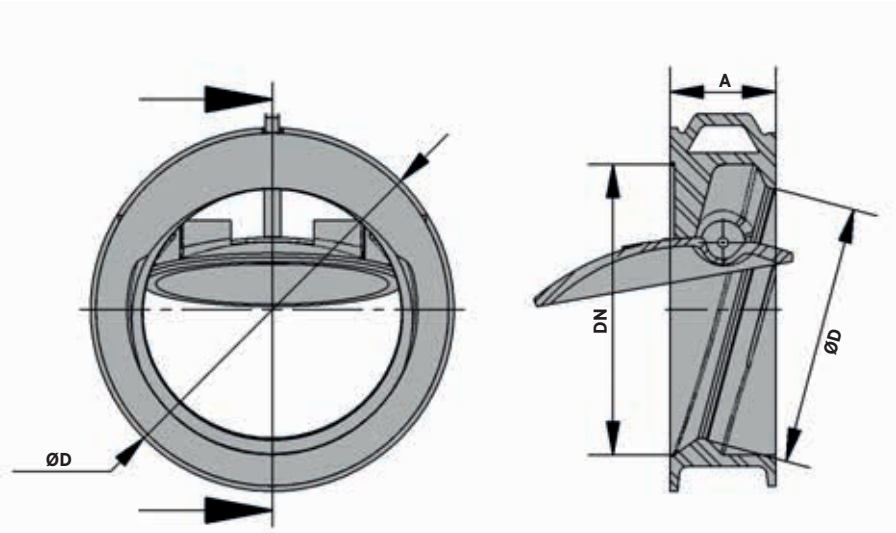
See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** and material and test certificates can be provided.

- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.



OPTIONS

STANDARD

SPRING

COUNTERWEIGHT

BACKPRESSURE FOR COUNTERWEIGHT + DAMPER

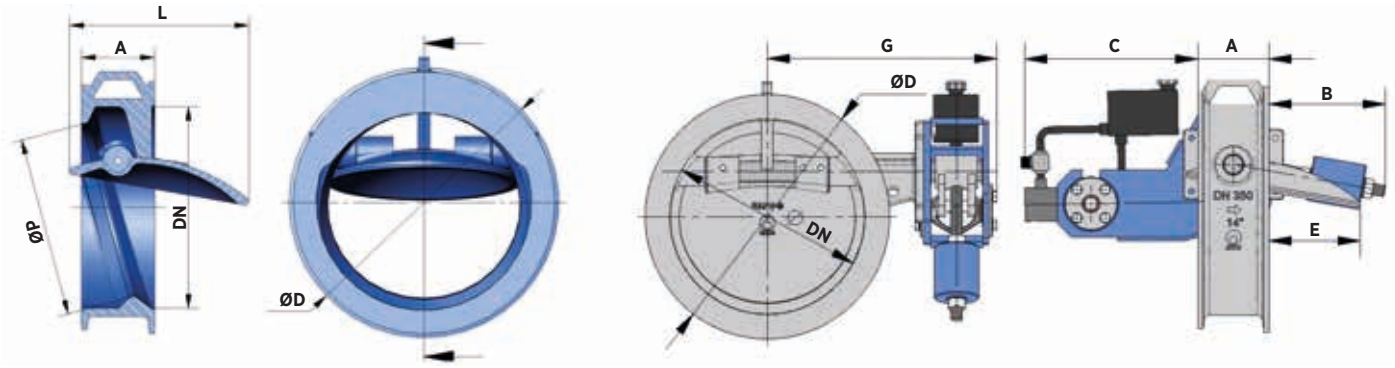
DN	150	200	250	300	350	400	450	500	600	700	800
Back pressure	5	5	3	3	3	2,5	2,5	2,5	2	2	2

*No obligation consultation on dimensions and drawings. **CMO Valves** reserves the right to modify them at any time, at its discretion and without prior notice.*

Maximum closing time 8 seconds.

Use hydraulic oil.

SERIES - R STANDARD VERSION / DAMPER + COUNTERWEIGHT



MANUFACTURING RANGE

DIMENSIONS – R

DN	VALID FOR THE FOLLOWING FLANGES								A	ØP	L	Weight	ØD
	PN6	PN10	PN16	PN25	PN40	PN64	ASA150	ASA300					
40	87	94	94	94	94	103	83	93	33	34	45	0,6	94
50	97	107	107	107	107	113	102	109	43	44	60	1	107
65	117	127	127	127	127	138	121	128	46	58	70	1,1	127
80	132	142	142	142	142	148	134	147	64	72	90	2	142
100	152	162	162	162	168	174	172	178	64	90	102	3	162
125	182	194	194	194	194	211	194	213	70	112	120	4	192
150	207	219	219	224	224	248	219	248	76	135	140	6	218
200	262	273	273	284	291	310	273	305	89	180	185	10	273
250	317	329	329	340	352	365	337	359	114	225	220	15	328
300	373	378	384	401	418	425	407	420	114	270	262	21	378
350	423	438	444	458	475	487	448	483	127	315	310	30	438
400	473	490	496	515	547	544	512	537	140	365	360	40	489
450	528	539	556	565	586	603	547	594	152	420	400	52	539
500	578	594	618	625	629	657	604	652	152	460	450	62	594
600	679	696	735	732	747	764	715	771	178	555	535	94	696
700	784	811	805	834	852	879	828	895	229	650	620	172	811
800	891	918	912	943	974	988	935	1004	241	740	715	236	918
900	991	1018	1012	1043	1084	1108	1043	1115	275	835	800	303	1018
1000	1091	1124	1128	1154	1194	1220	-	-	300	940	920	564	1122
1200	1307	1341	1342	1364	1398	1452	-	-	350	1140	1147	-	1340

Optionally, an outer centring ring can be added.

Larger sizes on request.

Bodies greater than DN1200 mechanical-welded construction.

▶ *Width between faces according to EN 558 Table 2 Series 16.*

DIMENSIONS - R + DAMPER + COUNTERWEIGHT

DN	VALID FOR THE FOLLOWING FLANGES								A	B	C	E	G	ØD
	PN6	PN10	PN16	PN25	PN40	PN64	ASA150	ASA300						
50*	97	107	107	107	107	113	102	109	43	121	-	17	225	107
65*	117	127	127	127	127	138	121	128	46	121	-	24	240	127
80*	132	142	142	142	142	148	134	147	64	121	-	26	255	142
100*	152	162	162	162	168	174	172	178	64	138	-	35	272	162
125	182	194	194	194	194	211	194	213	70	138	240	50	280	192
150	207	219	219	224	224	248	219	248	76	142	245	67	285	218
200	262	273	273	284	291	310	273	305	89	155	250	96	309	273
250	317	329	329	340	352	365	337	359	114	160	261	110	330	328
300	373	378	384	401	418	425	407	420	114	160	270	145	356	378
350	423	438	444	458	475	487	448	483	127	215	308	168	398	438
400	473	490	496	515	547	544	512	537	140	230	334	190	452	489
450	528	539	556	565	586	603	547	594	152	382	367	221	515	539
500	578	594	618	625	629	657	604	652	152	428	398	252	580	594
600	679	696	735	732	747	764	715	771	178	472	412	319	609	696
700	784	811	805	834	852	879	828	895	229	510	443	380	659	811
800	891	918	912	943	974	988	935	1004	241	590	346	390	730	918
900	991	1018	1012	1043	1084	1108	1043	1115	275	590	365	468	805	1018
1000	1091	1124	1128	1154	1194	1220	-	-	300	623	370	526	825	1122
1200	1307	1341	1342	1364	1398	1452	-	-	350	645	392	587	1044	1340

Optionally, an outer centring ring can be added.

Larger sizes on request.

Bodies greater than DN1200 mechanical-welded construction.

▶ *Width between faces according to EN 558 Table 2 Series 16.*

* *Valve diameters equal to or less than DN100, are only manufactured with a counterweight, without the damper option.*

RT SERIES

DOUBLE ECCENTRIC DISC CHECK VALVE

RT SERIES

DESCRIPTION

- Disc check valve with dual eccentricity and straight seat.
- The **RT** check valve allows fluid to flow in one direction; it opens as fluid passes through and closes due to the weight of the returning fluid, the disc, and the counterweight.
- These valves are fitted with an arrow indicating the direction of flow.
- It is equipped with a hydraulic damper with adjustable speed, designed to regulate closing time through a control valve.
- The disc cannot be stopped in intermediate positions.
- Available in wafer-type or with flange boring as per customer requirements.
- Various construction materials available.
- Face-to-face distance in accordance with EN 558 Table 2 Series 13.

SIZES

From DN150 to DN2000.

Other DNs on request.

FLUID SPEED

The maximum fluid speed these valves can work at is 4.9 m/s (in accordance with standard AWWA C 504).

GENERAL APPLICATIONS

The swing check valve is mainly used for one way flow in pipelines, allowing the medium to flow in one direction without backflow. It is suitable for inline use and as a safety valve in emergencies.

It is used in applications such as:
- Irrigation systems.
- Cooling circuits.
- Water treatment.
- Water supply systems.

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

WORKING PRESSURE (ΔP)

The working differential pressure (ΔP) these valves can operate at depends on the established design; the valves are designed for the needs of each project and can withstand high pressures.
Ask **CMO Valves**.

FLANGE DRILLING

There are two options to secure these valves to the duct:
- Joint between flanges, the valve is manufactured with Wafer type design.
- Bolted flanges, the valve is manufactured with drilled flanges in according to the standard requested by the customer.

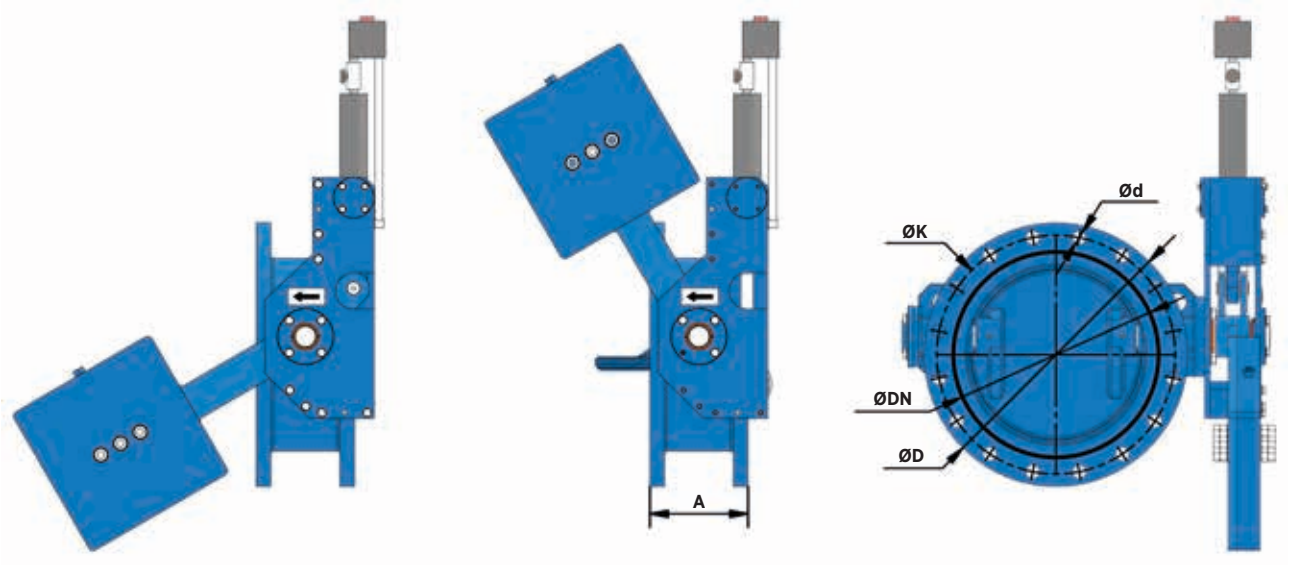
In both variants, the valves are designed for attachment according to specific standards.

The most usual are as follows:
- PN10/ANSI 150/PN6/PN16/PN25. according to EN 1092.
- ASME B16.5 (class 150).
- Australian standard.
- British standard.
- JIS standard.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For Ex applications (ATEX), information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



MANUFACTURING RANGE

DIMENSIONS - R

DN	FLANGE DRILLING in accordance with EN 1092- 2 PN10				
	A	Qty.	Ød	ØD	ØK
150	140	8	22	315	240
200	152	8	22	340	295
250	165	12	22	395	350
300	178	12	22	445	400
350	190	16	22	505	460
400	216	16	26	565	515
450	222	20	26	615	565
500	229	20	26	670	620
600	267	20	30	780	725
700	292	24	30	895	840
800	318	24	33	1015	950
900	330	28	33	1115	1050
1000	410	28	36	1230	1160
1200	470	32	39	1455	1380
1400	530	36	42	1675	1590
1600	600	40	48	1915	1820
1800	670	44	48	2115	2020
2000	760	48	48	2325	2230

According to the flange standard (PN10, PN6, PN16, PN25, PN64, ANSI150...).

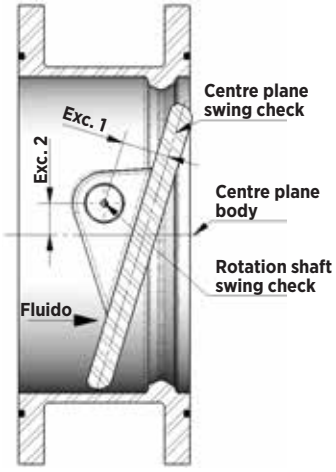
▶ *Width between faces according to EN 558 Table 2 Series 13.*

No obligation consultation on dimensions and drawings. ***CMO Valves*** *reserves the right to modify them at any time, at its discretion and without prior notice.*

The check valves are unidirectional and have an arrow marked on the body indicating the flow direction.

CHARACTERISTICS:

- Designed to withstand the same pressure and back pressure.
- They always have a damper and counterweight.
- Reinforced design.
- Possibility of regulating the closing time.
- The disc cannot be stopped in intermediate positions.
- The final 10% of closing stroke cushioned.
- Use hydraulic oil.



V 3V-4V SERIES

FLANGED MULTI-WAY VALVE

DESCRIPTION

- Flanged 3-way and 4-way diverter valve at 90º.
- One piece integral cast body with bolted cap.
- Stainless steel distributor
- Various construction materials.
- Dimensions as per **CMO Valves** standard.
- Though-flow can be straight, L-shaped and T-shaped

GENERAL APPLICATIONS

This valve is suitable for liquids with dry matter content, products with a concentration of 4% and over. It is specially designed to handle pulp.

Designed for applications such as:
- Paper industry.
- Chemical plants.

SIZES

From DN80 to DN300.

Other DNs on request.

ACTUATORS

- ManualGear motor with handwheel.
- Lever.
- Double action pneumatic.
- Single action pneumatic.
- Geared motor actuator.

WORKING PRESSURE (ΔP)

The working pressure is determined by each project as well as the working temperature.

DN80-DN150	10 bar
DN200	8 bar
DN250-DN300	6 bar
DN350-DN400	5 bar

FLANGE DRILLING

- EN 1092 PN10.
- ASME B16.5 (class 150).

OTHER OPTIONAL FLANGE DRILLING

- PN6.
- PN16.
- PN25.
- JIS standard.
- Australian standard.
- British standard.

Others on request.

TIGHTNESS

Tightness is 99.5%, reaching 100% for pastes with densities greater than 4%.

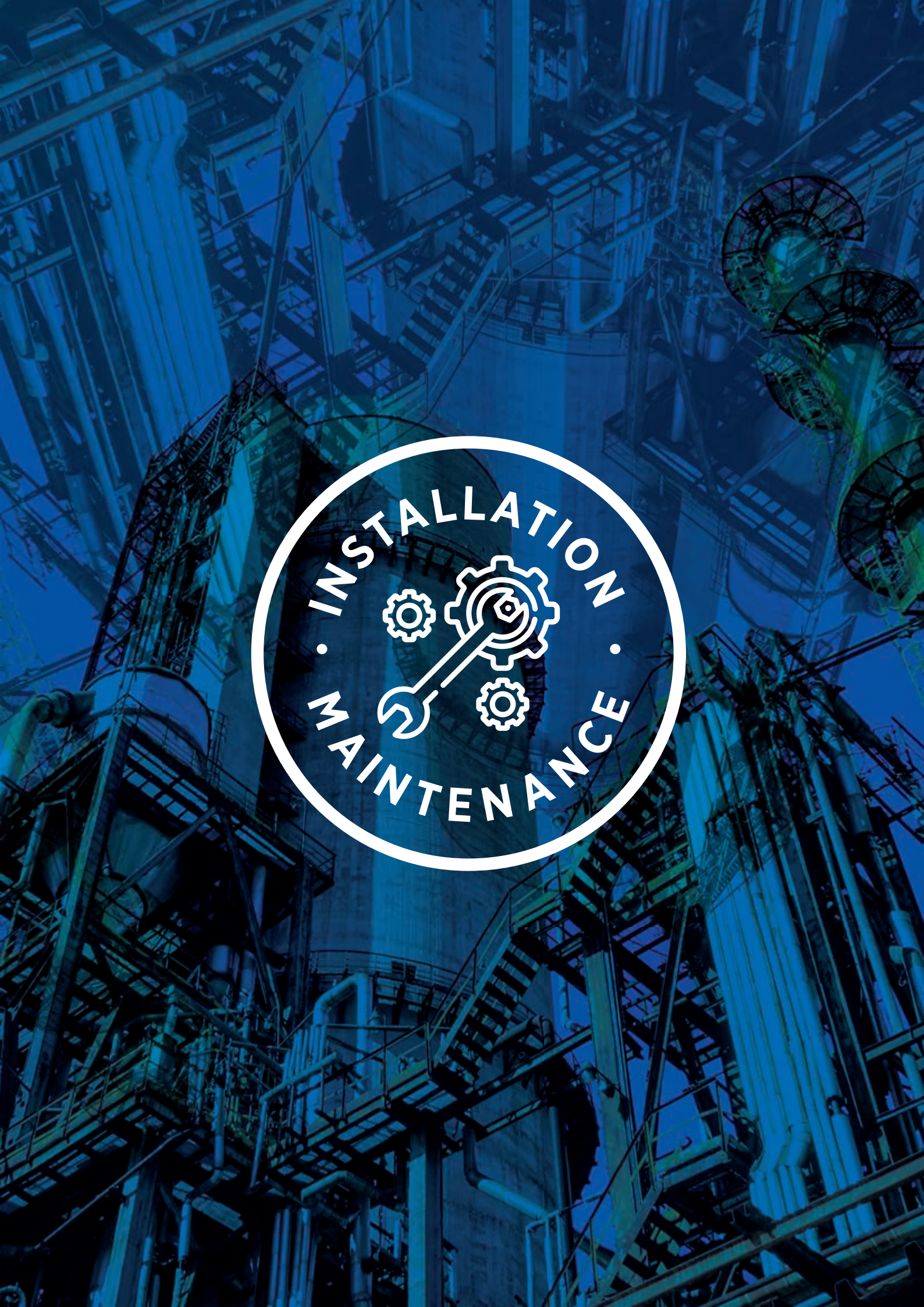
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically in accordance with **CMO Valves** and material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.


INSTALLATION
MAINTENANCE

Installation

ASSEMBLY AND INSTALLATION FOR PENSTOCKS

In order to avoid personal injury and other types of damage (to property, the plant...), we recommend following these recommendations:

- Use non-electrical hand tools during installation and maintenance, in according to current regulations.
- The personnel responsible for the installation or operation of the equipment must be qualified and trained.
- Use suitable Personal Protective Equipment (PPE) (gloves, safety boots, goggles...).
- Shut off all lines which affect the valve and put up a warning sign to inform about the work being carried out.
- Completely isolate the valve from the whole process. De-pressurise the process.
- Drain all the line fluid through the valve.

Before installation, inspect the penstock or valve to ensure no damage has occurred during transport or storage.
Make sure that the inside of the valve body and, in particular, the seal area are clean. Inspect the installation's pipes and the flanges to make sure they are clean.

Inspect the pipes and the flanges to make sure they contain no foreign material and are clean.

HANDLING

Pay special attention to the following points when handling the equipment:

- SAFETY WARNING:
  Before handling the valve, check that the crane to be used is capable of withstanding its weight.
- Do not lift the valve or hold it by the drive. Lifting the valve by the drive can lead to operating problems as it is not designed to withstand the valve's weight.
- Do not lift the valve by holding it in the flow passage area. The valve's seal is located in this area. If the valve is held and lifted by this area it can damage the surface and the O-ring seal and lead to leakage problems whilst the valve is operating.
- To prevent damage, especially to the anti-corrosive protection, we recommend using soft straps to lift knife gate valves. These straps must be fitted around the top of body.

- **IMPORTANT**:
  The valve must always be installed in the OPEN position.
- If the equipment is packed in wooden boxes these must be provided with clearly marked holding areas where the slings will be placed when securing them. In the event that two or more valves are packed together, separation and securing elements must be provided between them to prevent possible movements, knocks and friction during transport. When storing two or more valves in the same box you must ensure they are correctly supported to prevent deformations. In the case of dispatches by sea we recommend the use of vacuum bags inside the boxes to protect the equipment from contact with sea water.
- Pay special attention to maintaining the correct levelling of the valves during loading and unloading as well as during transport to prevent loss of shape in the equipment. For this purpose we recommend the use of mounts or stands.

DIRECTIVES

Wall type penstocks and valves from **CMO Valves** may comply with the directive on protection systems and apparatus for use in explosive atmospheres. In these cases the logo will appear on the identification label. This label shows the exact classification of the zone in which the valve can be used. The user is responsible for its use in any other zone.

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

ASPECTS TO BE CONSIDERED DURING ASSEMBLY

The most common system for mounting these penstocks is supported on a wall and attached by means of chemical or expansion anchors. ***(Figure 4)***, but as we can see in ***figure 5*** and ***figure 6***, there are also other mounting options. Whatever the fastening option, the upper and side profiles are always secured with chemical or expansion anchors; for this reason it is very important that the wall is completely flat, otherwise the body could become deformed and suffer irreparable damage when starting to tighten the anchors. It is therefore recommended to use a flat rule when screwing down the body. Support the rule on the body and begin to tighten the chemical or expansion anchors, and stop tightening as soon as the body begins to lose shape.

MC SERIES

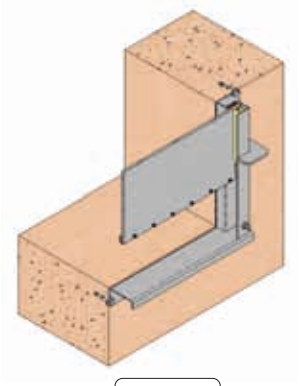


figure 4

SECURED TO THE WALL (STANDARD)

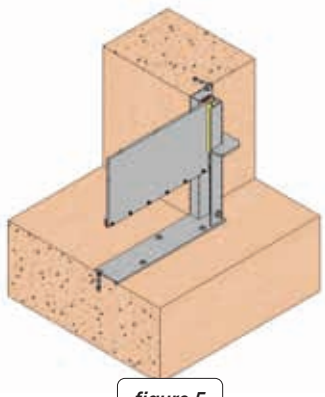


figure 5

FLAT SILL

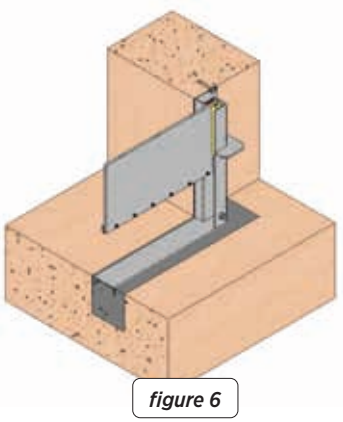


figure 6

SILL WITH GROOVE

To mount these penstocks **using chemical or expansion anchors** (the most common system ***figure 4***), the steps are as follows:

- Start by placing the penstock completely open on the wall, ensuring the passage of the penstock coincides with the wall orifice.
- Using the holes of the body of the penstock as a guide, make the boreholes necessary in the wall for the chemical or expansion anchors.
- Remove the penstock and apply sealing paste such as SIKAFLEX-11FC or similar to where it will be placed in order to prevent leakages between the body and the channel.
- Return the penstock to its location above the sealing paste and introduce the chemical or expansion anchors. These anchorings must also be suitable for the operating conditions and their measurements must be in accordance with the approved plans.
- Once all the chemical or expansion anchors are in place, carry out the initial tightening with low torque and then, once all the anchors have been slightly tightened, carry out the final crosswise tightening. Tighten using a flat ruler, avoiding over tightening which may cause loss of shape of the penstock. The final torque must be correct in accordance with the applicable standard.

This procedure works for both flat sill ***(figure 5)*** and for standard penstocks ***(figure 4)***.

Proceed as follows to mount the penstock with the **base embedded in the concrete (fig 6)**.

- Building work must include housing in the ground, which should be clean and of sufficient size.
- Place the penstock in the housing and align it with regards to the wall orifice, ensuring that the base of the penstock is level with the building work, thus meaning there is no protrusion in the base and guaranteeing entirely continuous passage.
- Keeping the penstock in this position, make the boreholes necessary for the upper and side profiles, using the holes of the body of the penstock as a guide.
- Remove the penstock and apply sealing paste such as SIKAFLEX-11FC or similar where the penstock is to be located on the wall, in order to prevent leakages between the body and the wall.
- Return the penstock to its location above the sealing paste and screw down with chemical or expansion anchors using the usual procedure, namely with the help of a flat rule, screwing crosswise and without excessive force.
- After having correctly secured the upper and side profiles, proceed with the second layer of cementing. This involves filling the base pocket with concrete, ensuring there is no protrusion in the passage of the fluid.

Installation

The penstock can be installed completely with chemical or expansion anchors or with the base embedded in the concrete. In either case, the following points must be taken into account:

- The equipment must be firmly secured to the wall.
- As regards scaffolding, ladders and other auxiliary elements to be used during the assembly, follow the safety recommendations indicated in this dossier.
- Once the equipment has been assembled, make sure that there are no elements which can interfere with the gate movement.
- Make the relevant connections (electrical, pneumatic, hydraulic) in the equipment's actuator system following the instructions and wiring diagrams supplied with it.
- The assembly of the equipment must be coordinated with the site's control and safety staff and no modifications are permitted in the equipment's external indication elements (limit switches, positioners...).
- When operating the equipment, follow the safety recommendations indicated in this dossier.

figure 7

ASSEMBLY POSITIONS

This type of penstock is mounted on vertical walls, in which there is a square, round or rectangular hole, this hole can be at a certain height ***(figure 8)*** or at ground level ***(figure 7)***. The penstock position is always vertical.

Once the penstock has been installed, check that all the screws and nuts have been correctly tightened and that the whole penstock operation system has been correctly adjusted (electrical connections, pneumatic connections, instruments...).

All **CMO Valves** penstocks are tested at its facilities, although the penstock may have become damaged during handling or transport. Once the penstock is installed, it is very important to check that there is no leakage when fluid load is applied to the penstock.

Once the penstock is in place, check the electrical or pneumatic connections. If the penstock has electrical accessories or you are in an ATEX zone, earth connections must be made before operating it.

If you are in an ATEX zone, check the continuity between the different elements of the penstock **(EN 12266-2, annex B, points B.2.2.2. y B.2.3.1.)**. Check the earth connection of the penstock.

figure 8

Actuators

To operate and slide the **CMO Valves** penstock, different actuator system are available which can be incorporated according to the needs of the project, installation, use.

Manual actuators (handwheel, gearbox, lever...) should not be subjected to excessive force (max. 25 kg/mt) so that the lower closure closes correctly. If we exert excessive force, on the one hand the bottom seal is not improved and on the other hand there is a risk of irreparable damage to the equipment.

HANDWHEEL
(RISING STEM, NON-RISING STEM AND GEARED)

To operate the penstock: Turn the handwheel clockwise to close or anticlockwise to open. It is possible to stop the handwheel from turning at any degree of opening of the penstock; the gate will maintain its position since the actuator is self-locking.

CHAIN HANDWHEEL

To operate the penstock, pull one of the chain's vertical drops, taking into account that sealing is carried out when the handwheel turns clockwise. It is possible to stop pulling the chain at any degree of opening of the penstock; the gate will maintain its position since the actuator is self-locking.

LEVER

First loosen the position locking clamp located on the yoke. Once it is unlocked raise the lever to open it or lower to close it. Lock the lever again to complete the operation. This actuator also allows the option of locking the gate at any degree of opening.

PNEUMATIC
(DOUBLE AND SINGLE ACTING)

CMO Valves pneumatic actuators are designed to be connected to a pneumatic grid of between 6 bar and 10 bar. The pressurised air used for the pneumatic actuator must be correctly dried, filtered and lubricated. This type of actuator does not require any adjustment, due to the fact that the pneumatic cylinder is designed for the exact stroke required by the gate.

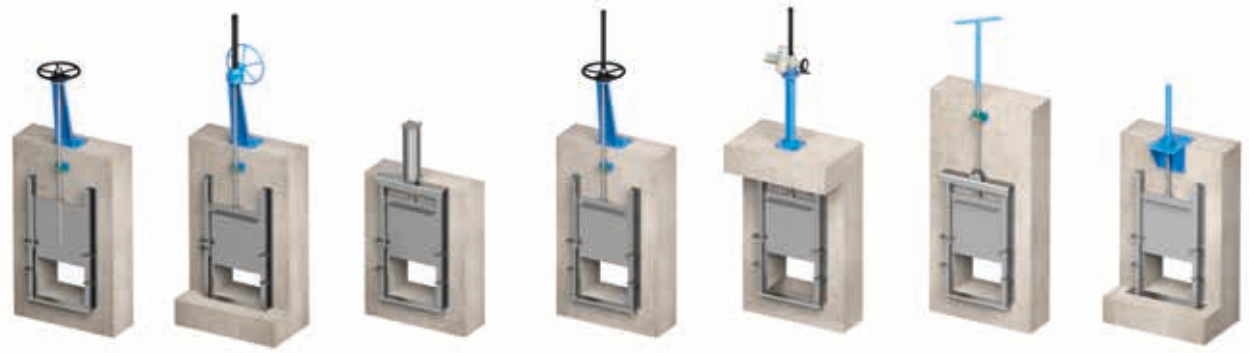
HYDRAULIC:

CMO Valves hydraulic actuators are designed to work at a standard pressure of 135 bar (other pressures can be used in accordance with needs). This type of actuator does not require any adjustment, due to the fact that the hydraulic cylinder is designed for the exact stroke required by the gate.

MOTORIZED
(RISING, NON-RISING STEM)

If the valve is fitted with a motorised actuator, the instructions of the supplier of the electric actuator will be included.

figure 9



The handwheel, chainwheel, gearbox and motorised actuators are also available with non-rising stem.

Maintenance

The only maintenance required in this type of penstocks is to change the rubber sealing joint. Seals should be checked every 6 months, although their working life will depend on the working conditions of the valve, such as: pressure, temperature, number of operations, fluid composition, among others. These sealing joints are screwed on with flanges; both the flanges and the screws are made of stainless steel, and can be reused several times.

CMO Valves will not be liable if the penstocks suffer any damage due to improper handling or without proper authorisation. The penstocks must not be modified except under express authorisation. Following these instructions is recommended in order to avoid personal or material damage when performing the maintenance tasks:

- The personnel responsible for the maintenance or operation of the equipment must be qualified and trained.
- Use suitable Personal Protective Equipment (PPE) (gloves, safety boots, goggles...).
- Shut off all lines which affect the valve and put up a warning sign to inform about the work being carried out.
- Completely isolate the valve from the whole process. De-pressurise the process.
- Drain all the line fluid through the valve.
- Use non-electric hand tools during maintenance, in accordance with to current regulations.

In an ATEX zone, electrostatic charges may be present inside the penstock, which can cause a risk of explosion. The user will be responsible for carrying out the appropriate actions in order to minimise the risks. The maintenance personnel must be informed about the risks of explosion and ATEX training is recommended

Regular cleaning of the penstock to prevent accumulation of dust. Avoid re-painting the products supplied.

IMPORTANT SAFETY ASPECTS

- In order to work under ideal safety conditions, the magnetic and electrical elements must be in idle mode and the air tanks depressurised. Moreover, the electrical control cabinets must also be out of service. The maintenance staff must be up to date with the safety regulations and work can only start under orders from the site's safety staff.
- The safety areas must be clearly marked and you must avoid placing auxiliary equipment (ladders, scaffolding...) on levers or moving parts which may lead to the movement of the knife gate.
- In units fitted with spring return actuators, the gate must be mechanically locked and only unlocked when the actuator is pressurised.
- In equipment with electrical actuator, it is recommended to disconnect it from the mains in order to access the mobile parts without any risk.
- Its great importance means you should check that the penstock's shaft has no load before disassembling the actuator system.

Taking into account the recommendations indicated, the maintenance operations carried out in this type of equipment are shown below:

REPLACING THE SEALING JOINT

1. Make sure there is absolutely no pressure and fluid in the duct.
2. Release the yoke and the stoppers (when fitted) and remove the complete through conduit from the body in order to facilitate the change of sealing joint.
3. Loosen and extract the screws **(7)** which secure the flanges **(6)** and the sealing joint **(3)**.
4. Remove the fl anges **(6)** and fi nally the deteriorated joint **(3)**, clean the housing.
5. Fit a new sealing joint **(3)** with the same dimensions as the old one.
6. Replace the flanges **(6)**, securing the seal **(3)**. It is important that the bottom gasket protrudes about five millimeters from the bottom of the gate **(2)** in order to make the lower seal. Having checked that they are correctly assembled, screw them down.
7. Introduce the through conduit in the body.
8. Screw down the yoke and the stoppers.
9. Before starting up the installation, perform various operations to open and close the penstock while empty.

During the assembly of the new sealing joint it is recommended to apply "Vaseline" to the seal to facilitate the assembly process and the correct operation of the valve (do not use oil or grease) ***table 5****, shows details of the Vaseline used by* ***CMO Valves****.*

The numbers included in the graph refer to ***figure 10****.*

figure 10

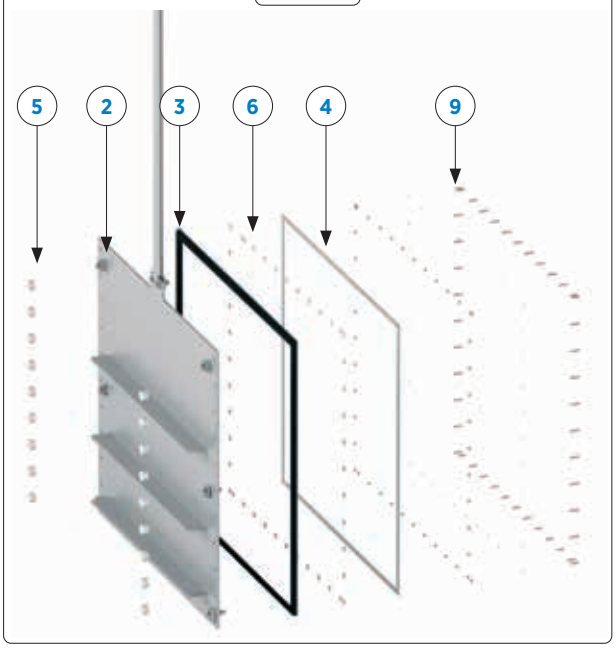
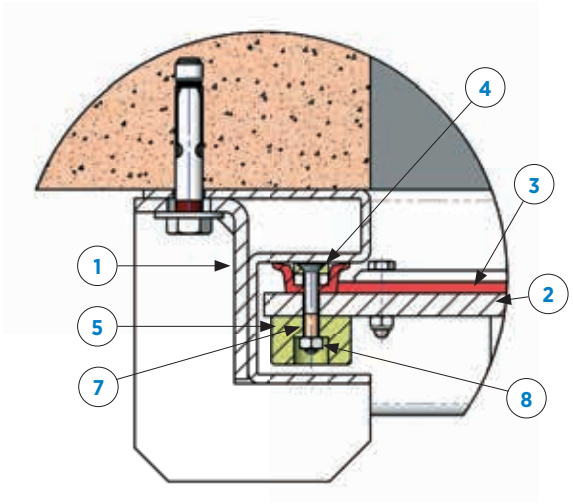


figure 11



GREASING

It is recommended to lubricate the stem twice a year by removing the cap from the bonnet and filling it with grease up to half its volume.

After maintenance in an ATEX zone, it is necessary to check the electrical continuity between the pipe and the rest of the valve's components, such as the body, gate, stem...

Standard **EN 12266-2**, **annex B**, **points B.2.2.2.** and **B.2.3.1**.

table 5

PETROLEUM JELLY

Saybolt colour	ASTM D-156	15
Melting point (ºC)	ASTM D-127	60
Viscosity at 100ºC	ASTM D-1445	5
Penetration 25ºC mm./10	ASTM D-1937	165
Silicone content	None	
Pharmacopoeia BP	OK	

Storage

To ensure the penstock is in optimum conditions of use after long periods of storage, it should be stored in a well ventilated place at temperatures below 30ºC. It is not advisable, but, if it is stored outside, the penstock must be covered to protect it from heat and direct sunlight, with good ventilation to prevent humidity.

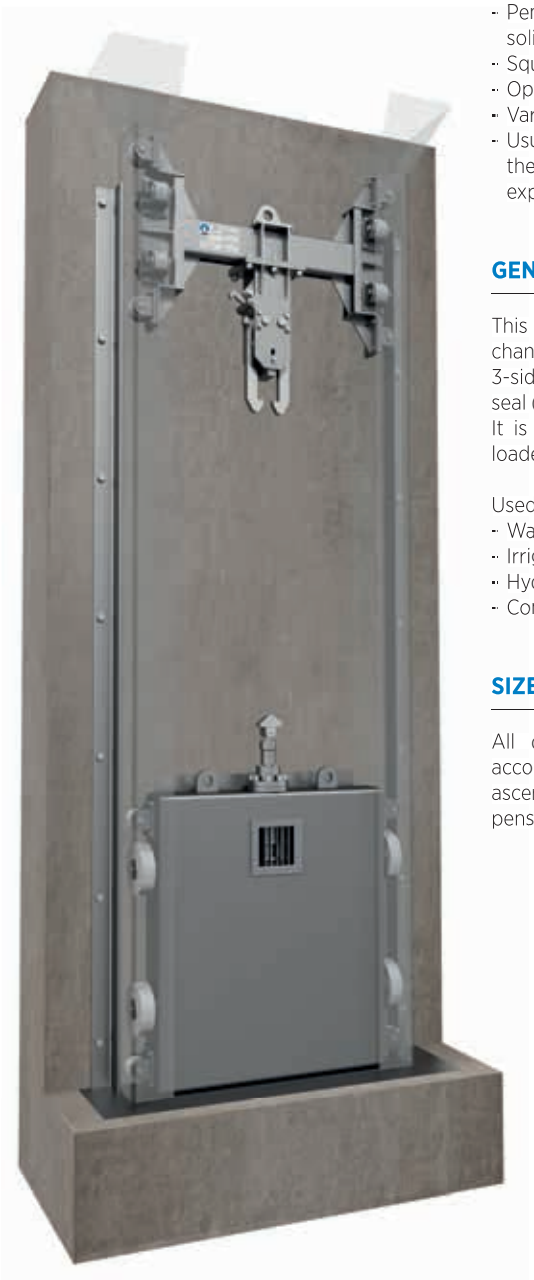
The following aspects must be considered for storage purposes:

- The storage place must be dry and undercover.
- It is not recommended to store the equipment outdoors with direct exposure to adverse weather conditions, such as rain, wind... even when the equipment is packaged.
- This recommendation is even more important in areas with high humidity and saline environments. Wind can carry dust and particles which can come into contact with the penstock's moving parts and this can lead to operating difficulties. The drive system can also be damaged due to the introduction of particles in the different elements.
- The equipment must be stored on a flat surface to avoid loss of shape.
- If the equipment is stored without suitable packing it is important to keep the penstock's moving parts greased, for this reason it is recommended to carry out regular checks and lubrication.
- Likewise, if there are any machined surfaces without surface protection, it is important for some form of protection to be applied to prevent the appearance of corrosion.

HYDRO-MECHANICAL EQUIPMENT

AT SERIES

UNIDIRECTIONAL / BIDIRECTIONAL STOP GATE



DESCRIPTION

- Penstock for clean liquids or loaded with solids.
- Square or rectangular penstock design.
- Option of unidirectional or bidirectional.
- Various sealing materials available.
- Usual design to embed in the sides of the channel or in walls using chemical or expansion anchors.

GENERAL APPLICATIONS

This stop gate is designed to work in open channels or in orifices in walls, and has a 3-sided seal (base and sides) or a 4-sided seal (base, sides and lintel).
It is suitable to work with clean liquids or loaded with solids.

Used mainly in:
- Water treatment plants.
- Irrigation.
- Hydroelectric power stations.
- Conduits.

SIZES

All dimensions can be manufactured in accordance with customer's needs. To ascertain the general dimensions of a penstock consult with **CMO Valves**.

WORKING PRESSURE (ΔP)

Maximum working pressure adapts to the needs of the customer in every project. These penstocks are designed to comply with working conditions in the place of installation.

BUILDING WORK:

Standard installation for **CMO Valves AT** stop gates is to build pockets in the channel in order to introduce the frame and secure it to the channel by cementing. It can also be designed to be secured to the wall through chemical or expansion anchors. The boreholes necessary to secure to the concrete are made when assembling, using the frame of the penstock as a guide. These gates can be manufactured to order in line with customer requirements.

TIGHTNESS

The tightness of the **AT** channel penstocks complies with that set out in regulation DIN 19569, class 5 of leaks.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

CB SERIES

NARROW GROOVE SLIDING PENSTOCK "BUREAU"

DESCRIPTION

- Narrow groove sliding penstock.
- Mechanically welded body, consisting of two bolted parts.
- Penstock design made according to: "US BUREAU OF RECLAMATION ".
- Rectangular section penstock, although there is also the option of the inlet and outlet having a circular section.
- Various construction materials available.
- Face-to-face distance in accordance with **CMO Valves**.

GENERAL APPLICATIONS

This narrow groove sliding penstock is designed to work with fluids at high speeds. Its main application is in run-offs at the bottom of dams.

Designed for applications such as:
- Dams and reservoirs.
- Hydrological projects.
- Chemical plants.
- Pumping.
- Sewage treatment.

SIZES

The construction sizes of this type of Penstock are adapted according to the needs of each specific project.

WORKING PRESSURE (ΔP)

As is the case with the dimensions of the penstock, the working **ΔP** is also adapted in accordance with the specific needs of each project.

Indicated work pressures will only be valid following the direction of the arrow marked on the valve.

FLANGE DRILLING

Flange drilling is carried out according tothe **CMO Valves** standard or it can also be adapted to the needs of the customer requirements in each specific project

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** and material and test certificates can be provided
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

CT SERIES

TAINTOR TYPE RADIAL GATE

CT SERIES

DESCRIPTION

- Mechanically welded stopboard with sectoral shape. Fitted with side wheels to guarantee correct guiding of the penstock throughout its run.
- The stopboard is fitted with arms for swivelling and to radially transmit the hydraulic thrust to the concrete through the embedded turning points
- Square or rectangular section penstock valve.
- Various construction materials available.
- Option of 3- or 4-side tightness.

GENERAL APPLICATIONS

There are two main types of design within the radial penstocks:

- **3-Side Seal:** Designed for installation in dam channels or spillways. They are used for water level control; with this design the fluid can overflow above the stopboard.
- **4-SIDE SEAL:** Designed for installation in water connection points or bottom outlets. They are used as a regulation element.

Designed for use in dams and reservoirs.

SIZES

The construction sizes for this type of penstocks are adapted to the needs of each particular project.

WORKING PRESSURE (ΔP)

As is the case with the dimensions of the penstock, the working **ΔP** is also adapted in accordance with the specific needs of each project.

BUILDING WORK

Given the large dimensions of the **CT** radial penstock and the high hydraulic forces they have to withstand, the most common assembly system (recommended by **CMO Valves**) is with the turn points embedded in concrete hormigón. This type of assembly requires a series of gaps in the civil engineering work for the installation of the penstock.

RESILIENT SEALS

- EPDM.
- NITRILE.
- SILICONE.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

When the penstock is designed for a channel or spillway, it will have seals on the base and in the two sides, known as a 3-side seal. In this case the elastomer profiles are attached to the stopboard and close against the stainless steel strips which are secured in the civil engineering work.

HD SERIES

HOLLOW JET DISCHARGE VALVE

HD SERIES

DESCRIPTION

The hollow jet discharge valve is designed to release large volumes of high-pressure water, reducing potential downstream damage by converting the flow into a hollow jet that dissipates energy. Its robust design and adjustable capabilities make it essential for controlling large water volumes.

The valve consists of a cylindrical body with radial ribs or fins that guide and evenly distribute the water jet, minimizing cavitation, vibrations, and turbulence. It features a cone-shaped seat that helps form the jet's spray pattern, with annular openings serving as the outlet. An obturator cylinder (movable part), actuated electrically or hy draulically via two shafts, adjusts the direction and shape of the water jet by opening or closing the annular openings. This cylinder creates the «hollow jet,» essential for energy dissipation. A deflector or diffuser transforms the conical jet into a cylindrical one. A sealing ring ensures the valve can close completely without leaks.

The discharge from a fixed cone valve can be directed either into the atmosphere or underwater.

The main advantages of these valves are:
- Efficiency in flow control: Handles large volumes of high-pressure water, facilitating energy dissipation without cavitation or vibrations.
- Precision: Offers a control range of up to 96% with slow-closing functionality.
- Safety: Minimizes the risk of water hammer, preventing damage from cavitation and vibrations.
- Robust construction: Designed for years of reliable, trouble-free service.

SIZES

DN250 to DN2500.

Other DNs on request.

GENERAL APPLICATIONS

This valve is especially used as a closure or regulation device in bottom outlets of dams and reservoirs, allowing controlled water release and dissipating flow energy. It provides a cost-effective way to regulate outflows and maintain ecological flow rates.

Designed for applications such as:
- Hydroelectric power plants.
- Water treatment plants.

WORKING PRESSURE (ΔP)

The maximum operating pressure is customized according to the specific demands of each project. These valves are designed to meet the service conditions (pressure, flow rate, service frequency) and project requirements where they will be installed.

The maximum operating pressures specified in the technical data sheet, the order confirmation, and the valve nameplate must not be exceeded.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** according to our manufacturing and quality protocols, material and test certificates can be provided..
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

ME SERIES

DOUBLE ECCENTRIC BUTTERFLY VALVE

DESCRIPTION

- Unidirectional butterfly valve with double eccentricity.
- Various construction materials and seals available.

Two options for width between faces:
- **Short series**: according to EN558 SERIES 13.
- **Long series**: according to EN558 SERIES 14.

It has an arrow on the body indicating the flow direction.

The main characteristic of the **ME** butterfly valve is the double eccentric design. The rotation shaft is offset from the central plane of the clapper and in turn is also offset from the central plane of the valve body thus obtaining double eccentricity.

A highly effective sealing system is achieved thanks to this dual eccentricity. As soon as the valve starts to open, the elastomer seal is no longer pressed and does not come into contact with the body.

GENERAL APPLICATIONS

The butterfly valve is suitable for working in line and as a safety valve in emergency cases. It is widely used in pressure pipes in hydroelectric plants.

SIZES

From DN200 to DN3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The differential pressure (**ΔP**) these valves can work at is very variable; they are designed for the specific needs of each project, but can be designed to withstand pressures of up to 100 bar.

Fluid speed

The maximum fluid speed these valves can work at is 4.9 m/s (in accordance with standard AWWA C 504).

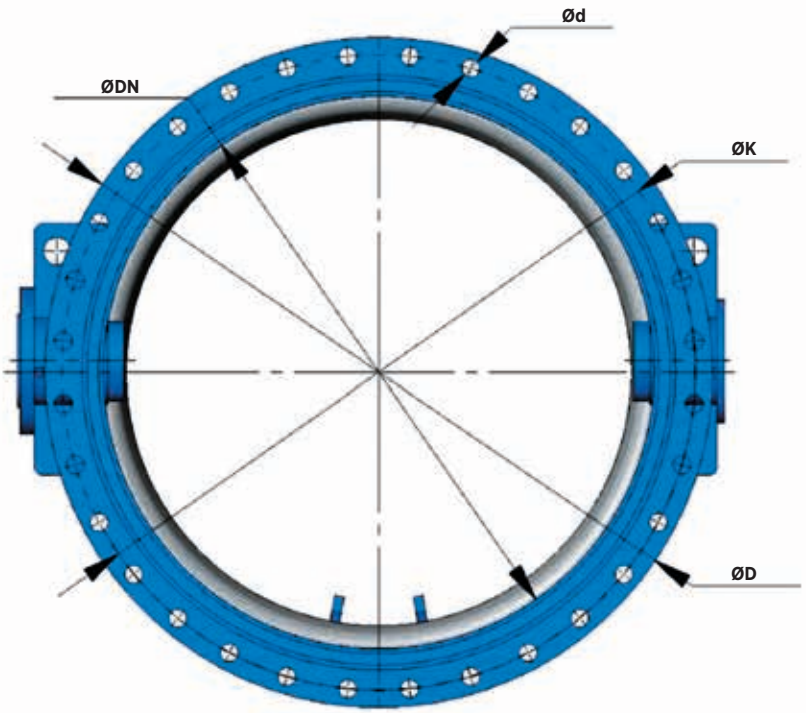
DIRECTIVES

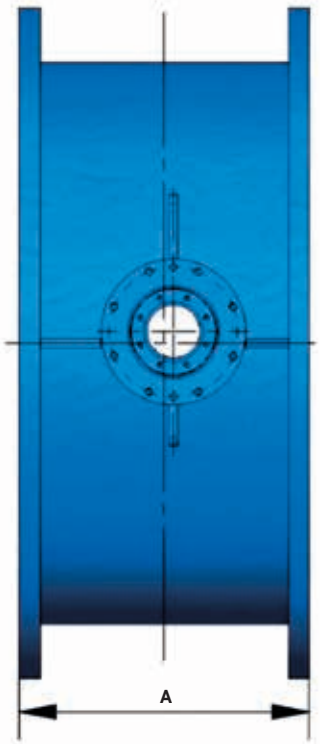
See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are tested hydrostatically at **CMO Valves** and material and test certificates can be provided.
- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.





INFORMATION AND DIMENSIONS OF FLANGES AND BETWEEN FACES

DIMENSIONS – ME

DN	FLANGE DRILLING in accordance with EN 1092- 2 PN10					
	A1	A2	Qty.	Ød	ØD	ØK
200	152	230	8	22	340	295
250	165	250	12	22	395	350
300	178	270	12	22	445	400
350	190	290	16	22	505	460
400	216	310	16	26	565	515
500	229	350	20	26	670	620
600	267	390	20	30	780	725
700	292	430	24	30	895	840
800	318	470	24	33	1015	950
900	330	510	28	33	1115	1050
1000	410	550	28	36	1230	1160
1200	470	630	32	39	1455	1380
1400	530	710	36	42	1675	1590
1600	600	790	40	48	1915	1820
1800	670	870	44	48	2115	2020
2000	760	950	48	48	2325	2230
2200	-	1030	52	56	2550	2440
2400	-	1110	56	56	2760	2650
2600	-	1190	60	56	2960	2850
2800	-	1270	64	56	3180	3070
3000	-	1350	68	62	3405	3290

*CMO'S butterfly Valves **ME** have two distances between faces (Dimensions "A1"and"A2" fig. 28) long and short series.*

Flange drilling varies depending on customer needs, but is commonly carried out in accordance with standard EN 1092-2 PN10.

www.cmovalves.com/valves

*Visit our website to see the full features of the **TD** Series.*

VM SERIES

UNIDIRECTIONAL OR BIDIRECTIONAL WAGON TYPE PENSTOCK

DESCRIPTION

- Gate designed for large sections with high water loads.
- Board with side wheels, to facilitate gate operation under high water loads.
- Square or rectangular penstock design.
- Option of unidirectional or bidirectional.
- Various construction materials and seals available.
- To install embedded in concrete or mounted on walls with chemical or expansion anchors.

GENERAL APPLICATIONS

This vertical-lift gate is designed for installation in channels or in orifices in walls. The orifice can be rectangular, round or square, and this penstock can have a 3-side or 4-side seal. It is suitable to work with clean liquids or loaded with solids.

Designed for applications such as:
- Irrigation.
- Conduits.
- Hydroelectric power stations.
- Water treatment.

SIZES

From 500 x 500 to 5000 x 5000.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum working pressure adapts to the needs of the customer in every project. These penstocks are designed to comply with working conditions in the place of installation.

TIGHTNESS

The tightness of **VM** vertical-lift gates complies with that set out in regulation DIN 19569, class 5 of leaks.

FLANGES/BUILDING WORKS

Given the large dimensions of the **VM** vertical lift gate and the high hydraulic forces it have to withstand, the most common assembly system (recommended by **CMO Valves**) is with the turn points embedded in concrete. This type of assembly requires a series of gaps in the civil engineering work for the installation of the penstock. But there is also the possibility of attaching it to the wall by means of chemical or expansion anchors. It is very important that the walls of the channel where the penstock is to be located are completely flat and level.

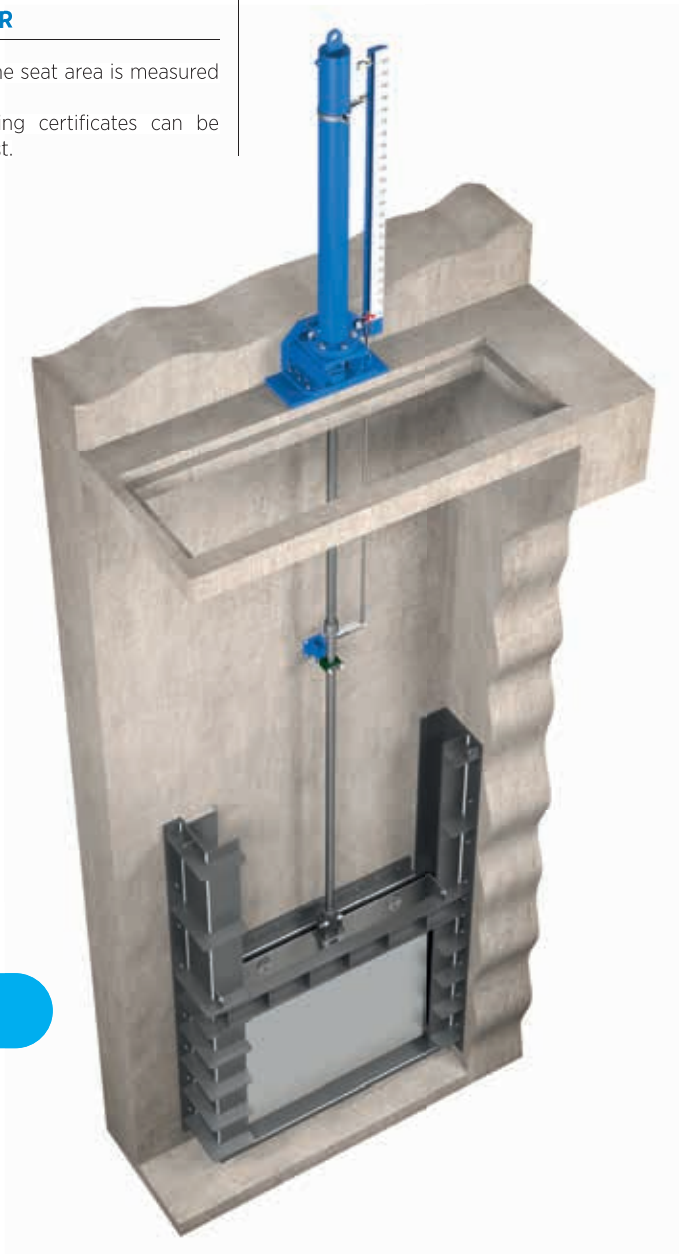
QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*



CM SERIES

MULTIJET FLOW CONTROL REGULATION VALVE

DESCRIPTION

Multiple jet valve, round, with a unidirectional design, for fine flow regulation of fluids throughout its stroke. This valve consists of two circular plates, one fixed and one movable, with perforations or passages that allow the fluid to pass through, varying its passage or opening through the movement of the movable plate. It has an excellent cavitation coefficient, generating jets that are evenly distributed inside the pipe, ensuring precise and stable performance. The valve design is defined based on the operating and service parameters of the application to optimize the performance of the multi-jet valve.

Various construction materials and seals available.

Face-to-face valve dimension according to **CMO Valves** standard, other dimensions under request.

The valve is manufactured with a wafer-type design.

GENERAL APPLICATIONS

These valves are especially used as flow regulation devices in pipelines, or for certain associated parameters, such as pressure, temperature, or level.

Designed for applications such as:
- Water networks.
- Hydroelectric power stations.
- Urban supply.
- Irrigation systems.

SIZES

DN200 to DN2000.

Other DNs on request.

WORKING PRESSURE (ΔP)

Maximum standard work pressure is 16 bar; greater pressures upon request.

VALVE ACTUATION

Generally, these valves are operated by electric actuators for regulation and modulation, with a setpoint signal of 4-20mA generated from the control system (PLC, SCADA, etc.) to regulate the percentage of valve opening/closing

Other actuators on request.

TIGHTNESS

The purpose of the multiple jet valve is the precise regulation of flow; the valve is not 100% tight. For such cases, it is recommended to install the valve between two isolation valves. The standard tightness percentage for these valves from **CMO Valves** is 97%.

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures. It is possible to provide material and test certifi cates.

- Body test = working pressure x 1.5.
- Seal test = working pressure x 1.1.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

DAMPERS AIR / GAS

Energy generation
Petrochemical industry.
Air and gas treatment
Steel industry.

GC SERIES

UNIDIRECTIONAL SQUARE GUILLOTINE DAMPER

DESCRIPTION

- Gas valve, with square or rectangular damper design.
- Unidirectional guillotine damper.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.
- Usually the body of this type of Damper is usually mechanically welded and built with sheet metal of different thicknesses with reinforcements and structural profiles to avoid possible deformations. The body is approximately twice the height of the conduit, to be able to house the gate inside it when it is in the open position.

GENERAL APPLICATIONS

This knife gate damper valve is suitable for working with a wide range of airs and gasses. It is especially indicated as an insulation element to allow inspections, maintenance and repairs in the ducts.

Designed for applications such as:
- Cement plants.
- Steel plants.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From 125 x 125 to 3000 x 3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600ºC.

Other pressures and temperatures on request.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

TIGHTNESS

The standard sealing percentage of **CMO Valves** ranges between 98.5% and 99.5%, but 100% tightness is also possible (on request) by means of double gate systems and air injections by means of a fan.

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

GR SERIES

UNIDIRECTIONAL ROUND GUILLOTINE DAMPER

DESCRIPTION

- Gas valve, with round damper design.
- Unidirectional guillotine damper.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.
- The body of this type of damper is usually mechanically welded and built with sheet metal of different thicknesses with reinforcements and structural profiles to avoid possible deformations. The body is approximately twice the height of the conduit, to be able to house the gate inside it when it is in the open position.

GENERAL APPLICATIONS

This knife gate damper valve is suitable for working with a wide range of airs and gasses. It is especially indicated as an insulation element to allow inspections, maintenance and repairs in the ducts.

Designed for applications such as:
- Cement plants.
- Steel plants.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From DN125 to DN3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600**°**C.

Other pressures and temperatures on request.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

TIGHTNESS

Standard tightness rate for **CMO valves** is between 98.5% and 99.5%. 100% tightness can also be obtained (upon request) using systems sealed by air injection and double gates.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

GF SERIES

GOGGLE DAMPER VALVE

DESCRIPTION

The goggle Damper valve is a specially designed valve to isolate a pipe area in environments with high dust concentration.

Once the gate is closed, it is pushed by hydraulic jacks to press it against the closure and thus ensure sealing.

When the goggle is fully open the conduit is completely free, so there are no pressure drops. It cannot be used for regulation purposes.

GENERAL APPLICATIONS

The goggle damper is designed for pneumatic transport of air or gases at different temperatures. They are particularly suitable for controlling the flow of gas in pipelines.

Designed for applications such as:
- Cement plants.
- Steel plants.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From DN500 to DN2500.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600°C.

Other pressures and temperatures on request.

OTHERS COMMONLY USED

PN2.5	PN25
PN 6	BS "D" and "E"
PN 16	ANSI 150

Others on request.

TIGHTNESS

The closing is achieved by pressing a seal installed in the gate against the valve body. The standard tightness percentage for these valves is 100%.

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- All valves are tested and material and test certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

VD SERIES

BIDIRECTIONAL MULTISECTOR DAMPER DIAPHRAGM VALVE

DESCRIPTION

- Bidirectional design multi sector damper diaphragm valve **VD**.
- Designed for pneumatic transport of air or gases at different temperatures.
- Manufactured using **CMO Valves** standards for drilled flanges.
- Tightness between 98% and 99%.
- Face-to-face distance in accordance with **CMO Valves** standard.

FUNCTIONALITY

The diaphragm valve operating system consists of a series of interposed blades, which at one end have a fixed point that facilitates rotation and at the other have a sliding type socket that enables circular movement combined with displacement concentric, enabling the opening/closing effect, similar to that of a photographic optic, in such a way that the flow always circulates through the centre of the conduit.

GENERAL APPLICATIONS

These multi sector damper diaphragm valves are suitable to work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines.

Used mainly in:
- Co generation plants.
- Thermal power stations.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From DN100 to DN600.
To ascertain the general dimensions of multi sector damper diaphragm valves consult **CMO Valves**.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.25 bar and temperature is 200°C.

Other pressures and temperatures on request.

TIGHTNESS

The standard tightness for these valves from **CMO Valves**, ranges between 98% and 99%.

FLANGES

These valves are attached to the pipeline by screwing in the drilled flanges with which the equipment is manufactured. The connection of the flanges and the inter-faces thereof is according to **CMO Valves**, standard, however, on request, other options can also be built adapting to the needs of the customer.

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- All valves are tested and material and test certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

LR SERIES

BIDIRECTIONAL ROUND MULTILOUVRE DAMPER

DESCRIPTION

- Multi louvre damper butterfly valve, shutter type, with bidirectional design.
- Designed for pneumatic transport of air or gases at different temperatures.
- Tightness between 97% and 99%.
- Various construction materials, seals and packing available.
- Normally their use in regulation means they are manufactured with relative tightness.
- Face-to-face distance in accordance with **CMO Valves** standards. Other distances upon request.

GENERAL APPLICATIONS

Multi louvre damper butterfly valves are suitable for work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines.

Designed for applications such as:
- Cement plants.
- Steel plants.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

DN400 to DN3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600°C.

Other pressures and temperatures on request.

TIGHTNESS

Standard tightness rate for **CMO valves** is between 98.5% and 99.5%.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

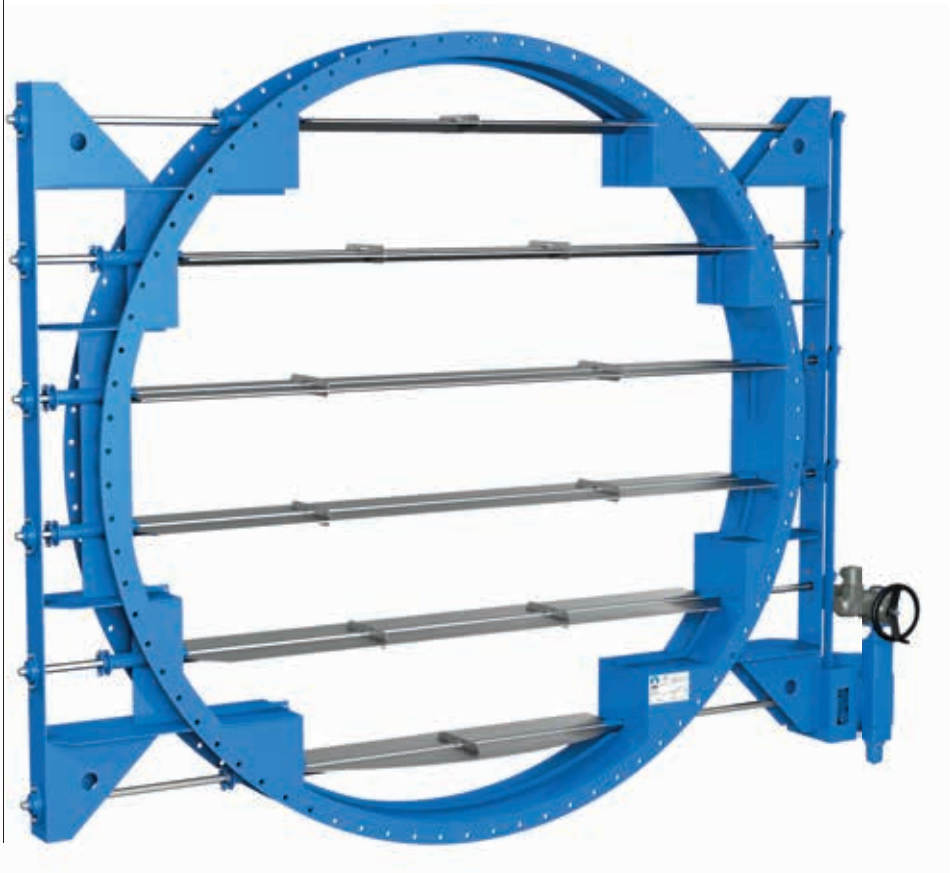
QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*



MD SERIES

BIDIRECTIONAL ROUND DISTRIBUTOR DAMPER

DESCRIPTION

- Valve with round, square or rectangular T-shaped damper design
- Various constructions materials and seal and stuffing materials available.
- Distance between widths according to the standard of **CMO Valves** with the possibility of adapting to customer specifications.
- Normally their use in regulation means they are manufactured with relative tightness.
- The manufacture of this type of damper also includes the possibility of multi-blade sealing.

GENERAL APPLICATIONS

Damper valve that allows to distribute gas inlet and outlet flow.

Designed for applications such as:
- Cement plants.
- Steel plants.
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From DN200 to DN3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600ºC.

Other pressures and temperatures on request.

TIGHTNESS

Standard tightness rate for **CMO Valves** ranges between 98.5% and 99.5% depending on the seal design. 100% tightness is possible by air injection sealing.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*


CMO VALVES

MF-ML SERIES

BIDIRECTIONAL ROUND DAMPER BUTTERFLY VALVE

DESCRIPTION

- Round damper butterfly valve, with bidirectional design.
- Designed for pneumatic transport of air or gases at different temperatures.
- Option of manufacturing wafer type or with bored flanges.
- Watertight integrity between 97% and 100%.
- Option of using an air sealing system to increase watertight integrity up to 100%.
- Various seal and gasket materials available.
- Opening in accordance with **CMO Valves** standard. Other openings upon request.

GENERAL APPLICATIONS

Butterfly damper valves are suitable to work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines.

Used mainly in:
- Cogeneration plants.
- Electrical power stations.
- Energy sector.
- Thermal power stations.
- Chemical plants.

SIZES

DN80 to DN3000.

Other DNs on request.

Check with **CMO Valves** *for the general dimensions of a specific butterfly.*

WORKING PRESSURE (ΔP)

- The most significant difference between the **ML** and **MF** series is the differential working pressure (P). For lower pressures, choose the **ML** series (Light Butterfly); for higher pressures, choose the **MF** series.
- Maximum standard work pressure is 0.5 bar; greater pressures upon request.

TIGHTNESS

These standard watertight integrity rate for these **CMO Valves** is between 97% and 99%. 100% watertight integrity can also be obtained using dual swing check systems sealed by air injection (upon request).

FLANGES

There are two options to secure these valves to the conduit:
- Flange connection: The valve is manufactured with wafer type design.
- Bolting the flanges: The valve is manufactured with bored flanges.

In both variants, the flange connections and openings are in line with ***CMO Valves*** *standard, although these can be tailored to customer requirements upon request.*

QUALITY DOSSIER

- All valves are tested at **CMO Valves** and material and testing certificates can be supplied on request.
- The watertight integrity of the seat area is measured with gauges.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at ***CMO Valves****.*

PL SERIES

BIDIRECTIONAL MULTILOUVRE DAMPER BUTTERFLY VALVE

DESCRIPTION

- Designed for pneumatic transport of air or gases at different temperatures.
- Possibility of manufacturing Wafer type or with drilled flanges.
- Tightness between 97% and 99%.
- Possibility of using an air sealing system to increase tightness up to 100%
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards. Other distances upon request.
- Other distances and configurations upon request.

GENERAL APPLICATIONS

Butterfly damper valves are suitable to work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines.

Used mainly in:
- Co generation plants.
- Thermal power stations.
- Electrical power stations.
- Chemical plants.
- Energy sector.
- ...

SIZES

From 400 x 400 to 3000 x 3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600°C.

Other pressures and temperatures on request.

TIGHTNESS

The standard tightness for these valves from **CMO Valves**, ranges between 97% and 100%. To obtain 100% tightness at high temperatures double clapper systems must be applied and sealed by air injection.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures and material and test certificates can be supplied on request.
The watertight integrity of the seat area is measured with gauges.

UL SERIES

RECTANGULAR BIDIRECTIONAL DAMPER

DESCRIPTION

- Gas valve, with square or rectangular damper design and single blade.
- Unidirectional butterfly type damper.
- Various constructions materials and seal and stuffing materials available.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

Butterfly damper valves are suitable to work with a wide range of air and gases. They are particularly suitable for controlling the flow of gas in pipelines.

Used mainly in:
- Co generation plants.
- Thermal power stations.
- Electrical power stations.
- Chemical plants.
- Energy sector.
- ...

SIZES

From 125 x 125 to 3000 x 3000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard maximum working pressure is <0.5 bar and temperature is 600**º**C.

Other pressures on request.

TIGHTNESS

Standard tightness rate for **CMO valves** is between 98.5% and 99.5%. 100% tightness can also be obtained (upon request) using double clapper systems and air injections.

FLANGES

Flange and inter face connections are according to the standard of **CMO Valves**, but can also be manufactured to the requirements of the customer on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

- The tightness of the seat area is measured with gauges.
- Material and testing certificates can be supplied on request.

MP SERIES

MULTIPLE LEVER FLANGED DAMPER

DESCRIPTION

- One-way round valve for gases, with a damper design that incorporates an eccentric front closure by means of a series of levers with 90º rotation.
- Construction materials and closures as required.
- Face-to-face distance in accordance with **CMO Valves** standard.
- The body of this type of damper is usually mechanically welded and built with sheet metal of different thicknesses with reinforcements and structural profiles to avoid possible deformations.

GENERAL APPLICATIONS

The **MP series** unidirectional damper butterfly valve is suitable for working with a wide range of gases, with pressures up to 40 bar and operating temperatures up to 600ºC; other conditions available upon request. These valves are particularly suited for controlling and distributing gas flow in pipelines.

Designed for applications such as:
- Cement plants
- Steel plants
- Electrical power stations.
- Chemical plants.
- Energy sector.

SIZES

From DN150 to DN2000.

Other DNs on request.

WORKING PRESSURE (ΔP)

The working pressure and temperature of each project determine the valve's technical characteristics and design. Application range, gases with pressures up to 40 bar and temperatures up to 600ºC.

TIGHTNESS

The standard sealtight integrity for **CMO Valves MP series** valves ranges between 97% and 99.5%, depending on the type of seat, reaching up to 100% with a rubber seal.

FLANGES

- EN1092 PN10.
- ASME B16.5 (CLASS 150).

Others on request.

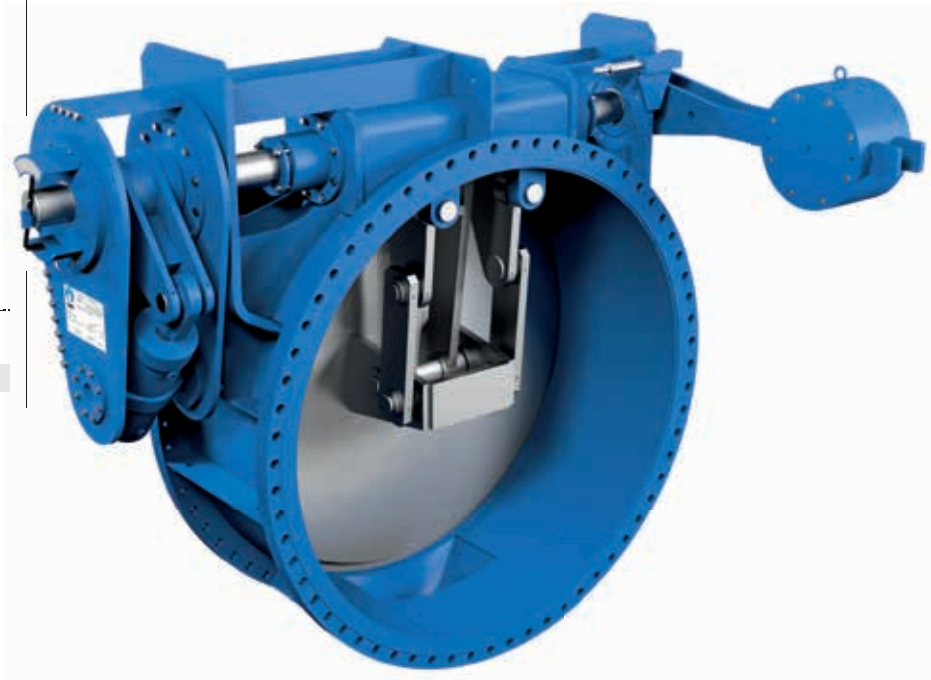
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures, and material and test certificates can be supplied on request.



SD SERIES

UNIDIRECTIONAL CHECK VALVE

DESCRIPTION

- Flanged unidirectional quick-closing check valve with swing disc, with a cast or fabricated body and shut-off mechanism in various materials.
- Possibility of multiple options for closures:
  • Various elastomers.
  • Hardened closures.
- It typically has a pneumatic drive using a rotary lever to achieve the quick closing movement.
- An arrow is marked on the body indicating the pressure direction.
- Face-to-face distance in accordance with **CMO Valves** standards.

GENERAL APPLICATIONS

Valve specially designed for the pneumatic transport of highly abrasive dry fluids such as fly ash, sand and pastes, due to its optimal full flow. The **SD** valve is unidirectional.

Designed for applications such as:
- Paper industry
- Cement plants.
- Steel plants.
- Chemical plants.
- Energy sector.

SIZES

From DN80 to DN600.

Other DNs on request.

WORKING PRESSURE (ΔP)

The standard working pressure is 2 bar.

Other pressures on request.

***SD** series valves are designed based on customer application specifications and parameters, such as pressure, service temperature and fluid.*

*Contact **CMO Valves** for specifi c information on the most suitable **SD** valve for your application.*

TIGHTNESS

The standard sealing percentage of **CMO Valves** ranges from 98.5% and 99.5%.for the metal/metal closure version and a 100% seal with the rubberised seal.

FLANGES

- EN1092 PN10.
- ASME B16.5 (CLASS 150).

Others on request.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For information on categories and zones related to applications in potentially explosive atmospheres (ATEX), please contact the technical-commercial department at **CMO Valves**.*

QUALITY DOSSIER

All valves are hydrostatically tested at **CMO Valves** according to quality control protocols and procedures and material and test certificates can be supplied on request. For non-watertight seals, the tightness of the seating area is measured using calibrated gauges.

WATER SUPPLIES

We provide huge added value for all our customers, thanks to a extensive experience in engineering and fluid handling, an exclusive experience at the disposal of each customer.

5 years warranty

ASME STANDARDS
EC PED DIRECTIVE
ALL INTERNATIONAL STANDARDS


LRQA

Certificate of Approval

CMO VALVES Technology, S.L.

ISO 9001:2015

CE

LRQA CERTIFIED ISO 9001

EAC

WRAS

ACS

TÜV SÜD

UNE-EN 1074-2

RESILIENT SEAT GATE VALVES

BUTTERFLY VALVES

CHECK VALVES

ACCESSORIES

AUTOMATIC VALVES

FIRE PROTECTION VALVES

11A RESILIENT SEAT GATE VALVE

DESCRIPTION

The resilient seat gate valve is built in ductile cast iron GJS500 and designed to satisfy the most demanding needs in fields of application such as firefighting services, purification and pumping of waste water, irrigation, industrial installations, hydraulic and building work in general.

- Minimal load loss.
- Continuous flow.
- Repackable under pipeline pressure.
- 100% tightness.
- Bidirectional flow.
- Flanges PN 10/16/25 type RF.
- Guided gate to facilitate sealing.
- Bolts protected against external agents.
- WRAS certified for contact with drinking water.
- EN 1074-2 certified.
- Working temperature between -10ºC and 90ºC.

GENERAL APPLICATIONS

Gate valve, for supply, pumping, irrigation, running water connections, purification and pumping of waste water... It presents minimal pressure drop and is 100% watertight, full-flow and removable with the installation under load.

SIZES

From DN40 to DN1000.

WORKING PRESSURE (ΔP)

Design pressure (bar): 10- 16-25.

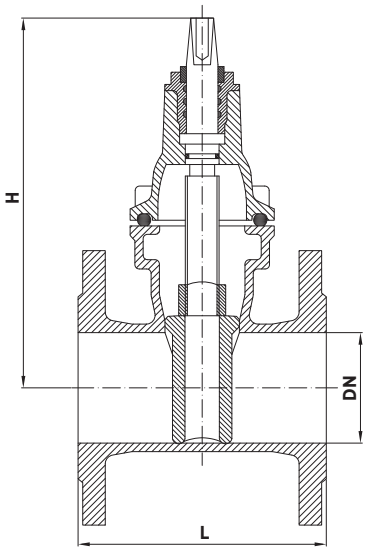
STANDARDS

- Design according to DIN 3352.
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Manufacture according to EN 1074-2.
- Distance between widths in accordance with standard EN 558 series 14/15.
- Side flanges according to ISO 7005-2.
- Top flange (optional) ISO 5210.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



DIMENSIONS

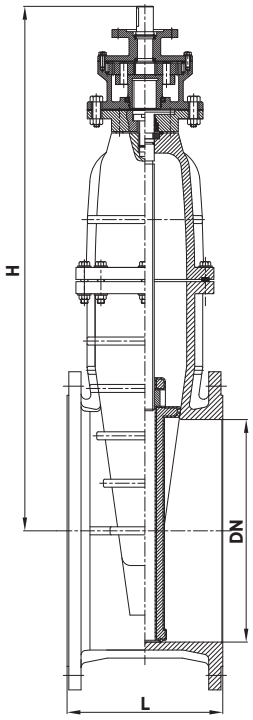
DN	L (F4)	L (F5)	H	TORQUE (N-m)	Weight (kg) (F4)	Weight (kg) (F5)
40	140	240	205	32	9	10,5
50	150	250	218	40	10,6	11,8
65	170	270	255	52	11	12,2
80	180	280	277	64	12,6	14,35
100	190	300	325	80	18	20,2
125	200	325	355	100	26,9	32,7
150	210	350	395	120	30,2	34,8
200	230	400	482	160	53	64
250	250	450	572	200	73,5	87
300	270	500	662	240	107,4	146,4
350	290	-	830	300	166,3	-
400	310	600	915	345	210,8	250.6
450	330	-	960	400	300	-
500	350	700	1000	450	361,2	402.0
600	390	800	1050	540	570,2	642.0

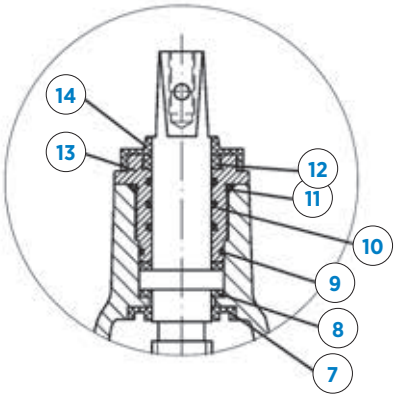
11A RESILIENT SEAT GATE VALVE > DN600

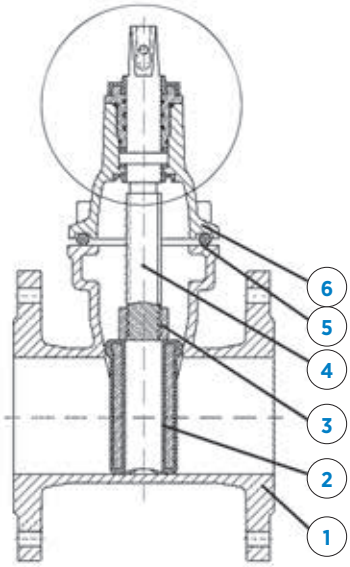
DIMENSIONS

Valves with diameters larger than DN600 are equipped with a vertical reducer, included in the price. These gate valves are only available with EN 558-1 series 14 width spacing.

DN	L	H	Weight (kg)	Top flange	Shaft	Wheel
700	430	1491	840	F14	Φ32	Φ400
800	470	1663	1160	F14	Φ32	Φ400
900	510	1820	1560	F14	Φ32	Φ400
1000	550	2071	3020	F14	Φ32	Φ400







	COMPONENTS	MATERIAL
1	BODY	GJS500
2	SEAT	GJS500+EPDM/NBR
3	NUT	BRASS
4	SHAFT	AISI 420
5	SEAL BODY-COVER	EPDM
6	COVER	GJS500
7	RETAINER	EPDM
8	PACKING	PTFE
9	O-RINGS	EPDM
10	SHAFT- NUT SEALS	NBR
11	O-RINGS	EPDM
12	O-RINGS	NBR
13	PRESS SCREW	BRASS
14	DUSTCOVER	NBR
	RAL PAINT 5015	EPOXY 250 µm

11A RISING STEM RESILIENT SEAT GATE VALVE

DESCRIPTION

The resilient seat gate valve is built in ductile cast iron GJS500 and designed to satisfy the most demanding needs in fields of application such as firefighting services, purification and pumping of waste water, irrigation, industrial installations, hydraulic and building work in general.

- Minimal load loss.
- Continuous flow.
- 100% tightness.
- Bidirectional flow.
- Flanges PN 10/16 type RF.
- Guided gate to facilitate sealing.
- Bolts protected against external agents.
- WRAS certified for contact with drinking water.
- Working temperature between -10°C and 90°C.

GENERAL APPLICATIONS

Gate valve, for supply, pumping, irrigation, potable water connections, purification and pumping of waste water... It presents minimal pressure drop and is 100% watertight, full-flow and removable with the installation under load.

SIZES

DN50 to DN600.

WORKING PRESSURE (ΔP)

Design pressure (bar): 10-16.

Other pressures on request.

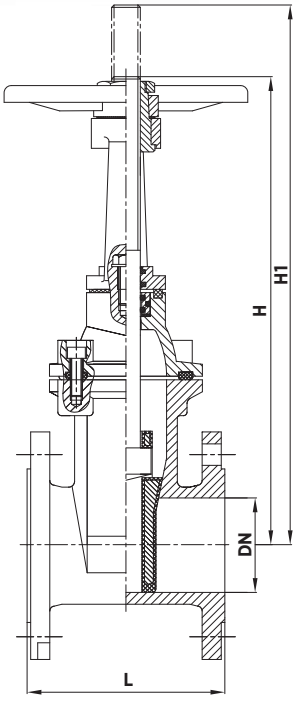
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Distance between widths in accordance with standard EN 558 series 14.
- Side flanges according to ISO 7005-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



DIMENSIONS

DN	L	H	H1	Weight (kg)
50	150	317	367	12
65	170	354	419	15
80	180	391	471	17
100	190	450	550	20
125	200	549	674	31
150	210	605	755	38
200	230	756	956	59
250	250	896	1146	97
300	270	1031	131	125
350	290	1169	1519	182
400	310	1297	1697	227
450	330	1434	1884	323
500	350	1564	2064	473
600	390	1836	2436	668

11A METAL RESILIENT SEAT GATE VALVE

DESCRIPTION

Metal shut-off gate valve for pumping, irrigation, drinking water supply, treatment and pumping of dirty water...

- Minimal load loss.
- Continuous flow.
- Bidirectional flow.
- Flanges PN 10/16 type RF.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

GENERAL APPLICATIONS

Gate valve, for purification and pumping of wastewater, irrigation, fire fighting installations, industrial installations... It presents minimal pressure drop and is full flow.

SIZES

DN50 to DN400.

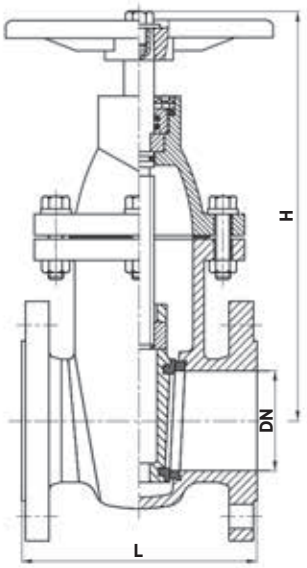
STANDARDS

- EC Directive.
- Distance between widths in accordance with standard EN 558 series 14.
- Side flanges according to ISO 7005-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



DIMENSIONS

DN	L	H
40	140	214
50	150	232
65	170	258
80	180	281
100	190	315
125	200	358
150	210	408
200	230	500
250	250	572
300	270	662
350	290	751
400	310	832

12A THREADED CONNECTION GATE VALVE

DESCRIPTION

Threaded gate valve, for drinking water supply, irrigation, hydraulic and building work. It presents minimal pressure drop and is 100% watertight, full-flow and removable with the installation under load.

- Minimal load loss.
- Continuous flow.
- Repackable under pipeline pressure.
- 100% tightness.
- Bidirectional flow.
- Threaded connection.
- Guided gate to facilitate sealing.
- Bolts protected against external agents.
- WRAS certified for contact with drinking water.
- EN 1074-2 certified
- Maximum working pressure 16 bar.
- Working temperature between -10°C and 90°C.

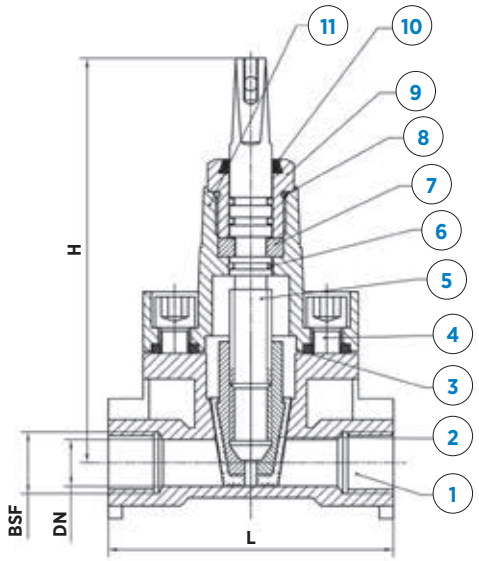
STANDARDS

- Design according to DIN 3352.
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	BODY	GJS500
2	GATE	BRASS + EPDM
3	SEAL	EPDM
4	BOLTS	STEEL 8.8
5	SHAFT	AISI 420
6	SEAL	NBR
7	BEARING	BRASS
8	SEAL	NBR
9	NUT	BRASS
10	DUST CAP	NBR
11	COVER	GJS500
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	BSF	L	H	Weight (kg)
20	3/4"	122	173	3
25	1"	127	185	3,3
32	1 1/4"	127	186	3,8
40	1 1/2"	154	221	4,5
50	2"	154	233	5,3

13A GATE VALVE CONNECTION TO PVC PIPE

DESCRIPTION

Gate valve with connection for PVC pipes, for purification and pumping of wastewater, irrigation, fire fighting installations, industrial installations... It presents minimal pressure drop and is 100% watertight with full flow.

- Continuous flow.
- Repackable under pipeline pressure.
- Bidirectional flow.
- Connection for PVC pipe.
- Guided gate to facilitate sealing.
- Bolts protected against external agents.
- WRAS certified for contact with drinking water.
- Maximum working pressure 16 bar.
- Working temperature between -10ºC and 90ºC.

GENERAL APPLICATIONS

Gate valve, for supply, pumping, irrigation, running water connections, purification and pumping of waste water, full-flow and removable with the installation under load.

SIZES

DN50 to DN400.

WORKING PRESSURE (ΔP)

From 10 to 16 bars.

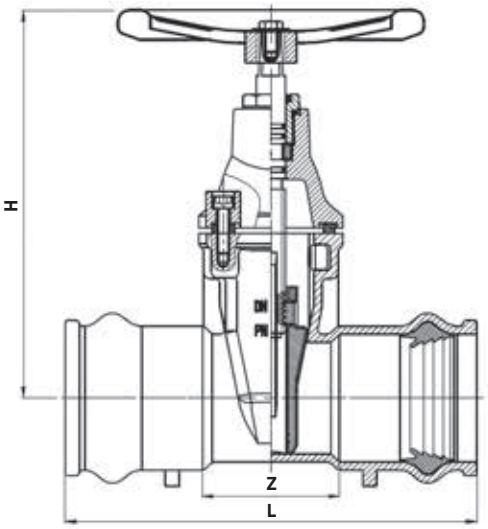
STANDARDS

- Design according to DIN 3352.
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Manufacture according to EN 1074-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



DIMENSIONS

DN	Z	L	H	Weight (kg)
50/63	85	250	220	8
65/75	90	269	250	9,5
80/90	99	298	280	12
100/110	114	326	325	16
125/125	110	330	365	26
150/160	140	390	405	30
200/200	150	422	500	44
250/250	160	473	595	70
300/315	180	541	680	110

21A

DESCRIPTION

Wafer type butterfly valve for supply, pumping, irrigation, running water supply, treatment and pumping of dirty water...

- Minimal load loss.
- 100% watertight.
- Bidirectional flow.
- Seals are not required for installation.
- Stainless steel bolts.
- Working temperature between -10°C and 120°C.

STANDARDS

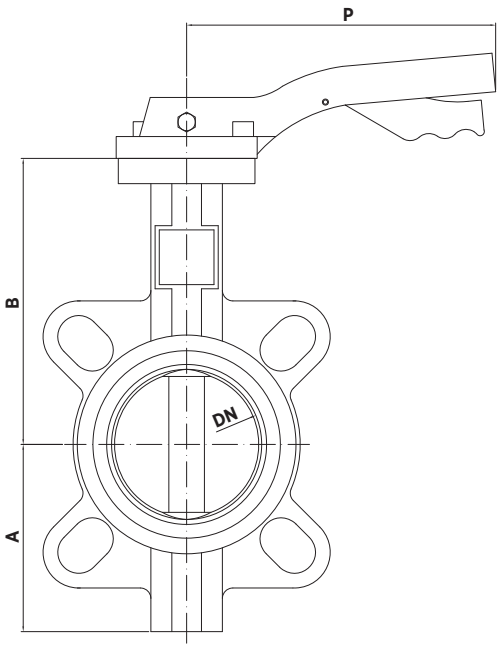
- Design according to EN 593.
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Top flange ISO 5211.
- Distance between widths in accordance with standard EN 558-1 series 20.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

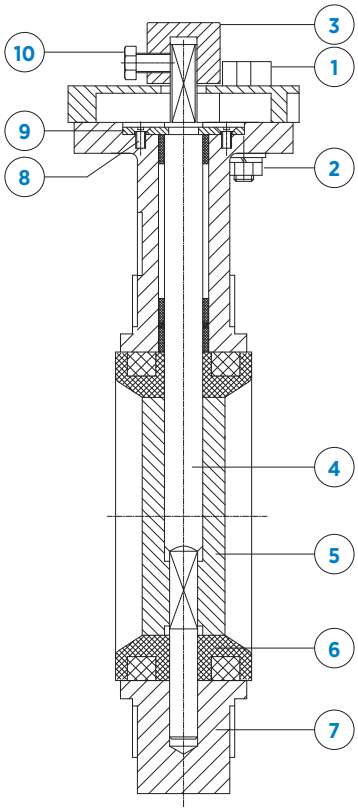
DN	Flange	Shaft
40	F05	9 x 9
50	F05	9 x 9
65	F05	9 x 9
80	F05	9 x 9
100	F07	11 x 11
125	F07	14 x 14
150	F07	14 x 14
200	F07	17 x 17
250	F10	22 x 22
300	F10	22 x 22
350	F10	22 x 22
400	F16	27 x 27
450	F16	27 x 27
500	F16	27 x 27
600	F16	36 x 36



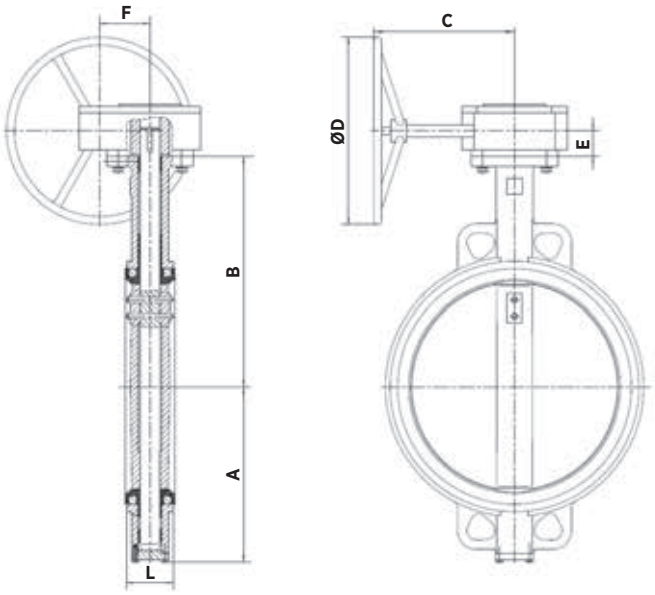
DIMENSIONS

DN	A	B	P	Face-to-face	Weight (kg)
40	70	124	198	33	1.9
50	76	129	198	43	2.5
65	89	136	198	46	2.9
80	95	144	198	46	3.9
100	114	162	270	52	5.2
125	127	188	270	56	7.0
150	139	204	270	56	8.4
200	177	238	270	60	12.0
250	203	282	540	68	22.0
300	242	311	540	78	29.0

WAFER TYPE BUTTERFLY VALVE



	COMPONENTS	MATERIAL
1	BOLTS	A2
2	NUTS	A2
3	LEVER	ALUMINUM/CAST IRON
4	SHAFT	AISI 420
5	DISC	GJS400/CF8M/AL- BRONZE/DUPLEX
6	SEAT RING	EPDM/NBR/PTFE/FKM
7	BODY	GJS400
8	O-RINGS	EPDM
9	CLAMPING PLATE	STEEL 8.8
10	BOLT	A2
	RAL PAINT 5015	EPOXY 250 µm



DIMENSIONS

DN	A	B	C	D	E	F	L	Weight (kg)
40	79	145	154	144	27	45	33	4,5
50	85	162	154	144	27	45	43	5
65	98	174	154	144	27	45	46	5,5
80	104	181	154	144	27	45	46	6
100	123	200	156	144	27	45	52	7,4
125	136	213	156	144	27	45	56	9,4
150	148	225	156	144	27	45	56	10,7
200	186	260	211	283	39	72	60	19,8
250	212	292	211	283	39	72	68	28,7
300	251	337	200	283	37	75	78	37,4
350	277	368	200	283	42	75	78	46
400	308	400	285	385	48	130	102	75
450	342	422	285	385	48	130	114	89
500	374	479	250	283	115	180	127	128
600	459	562	293	385	120	215	154	206
700	520	624	355	423	172	251	165	332
800	575	672	355	423	172	165	190	436
900	635	768	375	423	185	165	203	616
1000	685	823	375	423	185	330	216	700,8
1200	839	940	530	423	247	330	254	960

22A LUG TYPE BUTTERFLY VALVE

DESCRIPTION

Lug butterfly valves, for supply, pumping, running water supply, treatment and pumping of dirty water... It presents minimal pressure drop and is 100% watertight and full flow.

- 100% watertight.
- Bidirectional flow.
- Seals are not required for installation.
- Stainless steel bolts.
- Maximum working pressure 16 bar.
- Working temperature between -10ºC and 90ºC.

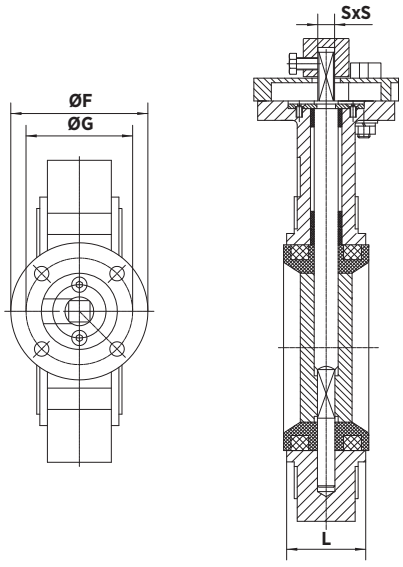
STANDARDS

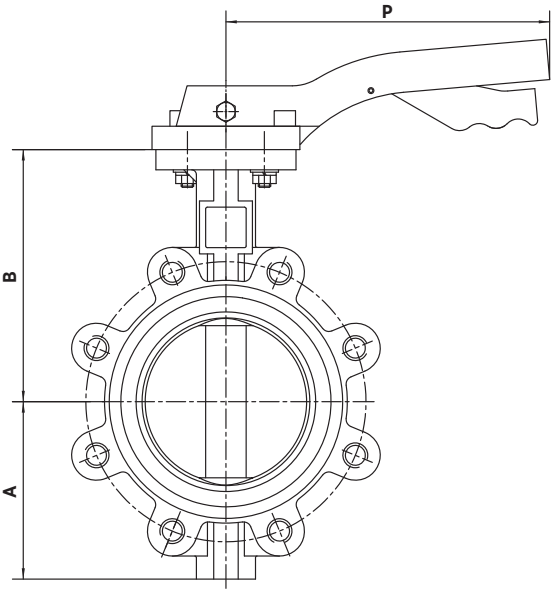
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-2.
- Distance between widths in accordance with standard EN 558 series 20.
- Top flange ISO 5211.
- Manufacture according to EN 593.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*





DIMENSIONS

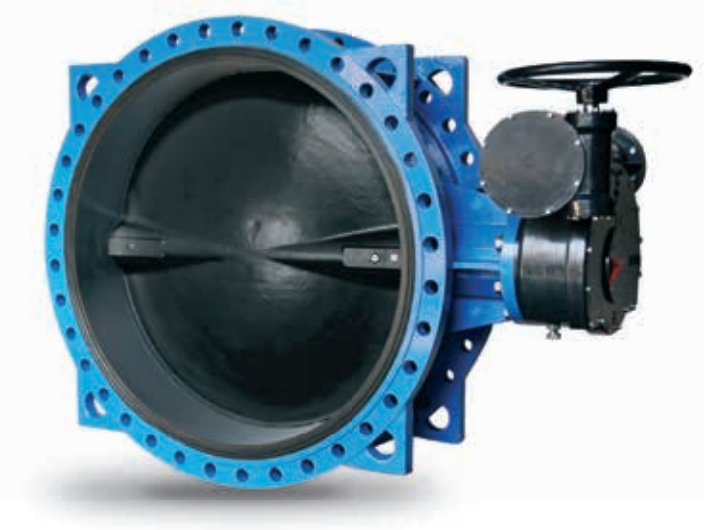
DN	A	B	F	G	L	P	S
40	70	124	65	50	33	198	9
50	76	129	65	50	43	198	9
65	89	126	65	50	46	198	9
80	95	144	65	50	46	198	9
100	114	162	90	70	52	270	11
125	127	188	90	70	56	270	14
150	139	204	90	70	56	270	14
200	177	238	90	70	60	270	17
250	203	282	125	102	68	540	22
300	242	311	125	102	78	540	22

23A DOUBLE FLANGE BUTTERFLY VALVE

DESCRIPTION

Double flange butterfly valves, for flow regulation and sectioning in water supply and distribution networks, pumping, irrigation... It presents minimal pressure drop due to the hydrodynamic design of the disc, it is 100% watertight and does not require any seals for installation.

- Vulcanized seat that prevents fluid contact with the body, thus avoiding wear and corrosion.
- 100% tightness.
- Bidirectional flow.
- Polished disc edges to prevent damage to the seat.
- Does not require mounting seals.
- Maximum working pressure, according to PN.
- Working temperature between -10ºC and 90ºC.



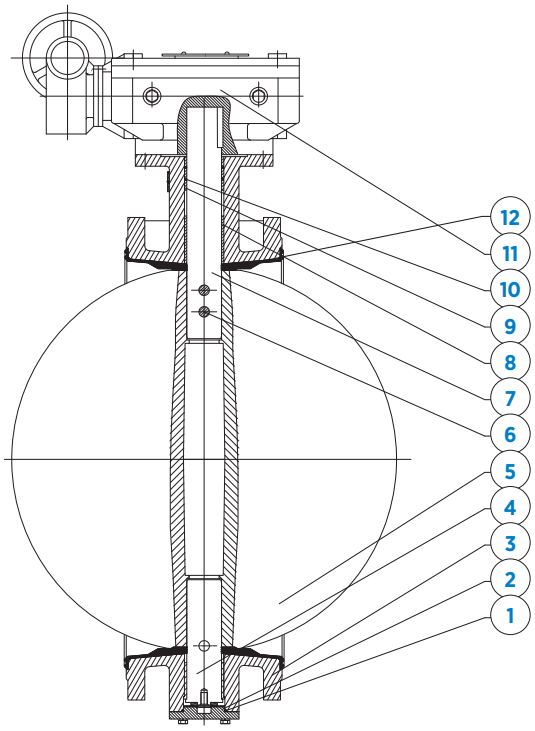
STANDARDS

- Design according to EN 593.
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- EN 1074-2 certified.
- Distance between widths in accordance with standard EN 558 series 13.

DIRECTIVES

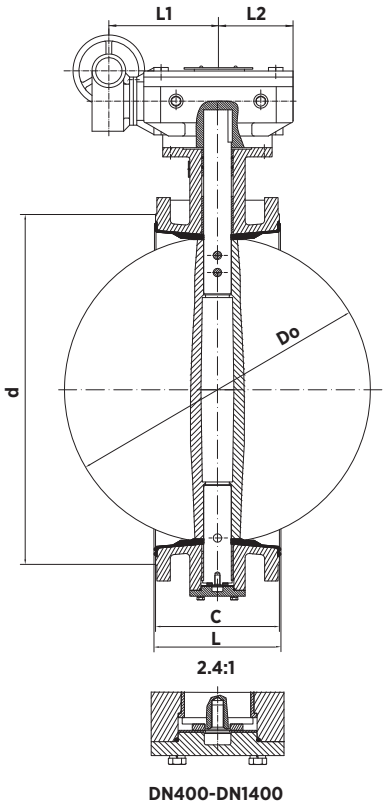
See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

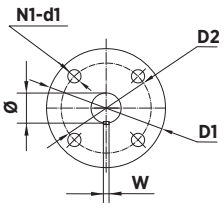


	COMPONENTS	MATERIAL
1	O-RING	NBR
2	COVER	GJS400
3	BODY	GJS400
4	LOWER SHAFT	AISI 420
5	DISC	CF8M/GJS400/Al-Bronze/Duplex
6	PINS	AISI 420
7	UPPER SHAFT	AISI 420
8	LONG BEARING	BRONZE
9	SHORT BEARING	BRONZE
10	O-RING	NBR
11	GEARBOX	GJL250
12	SEAT	EPDM/NBR
	RAL PAINT 5015	EPOXY 250 µm

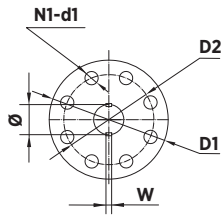
23A



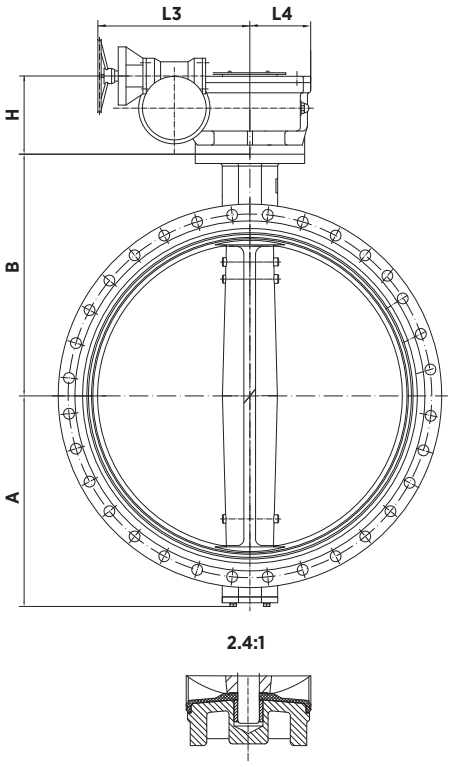
DN400-DN1400



DN50-DN600



DN700-DN1400

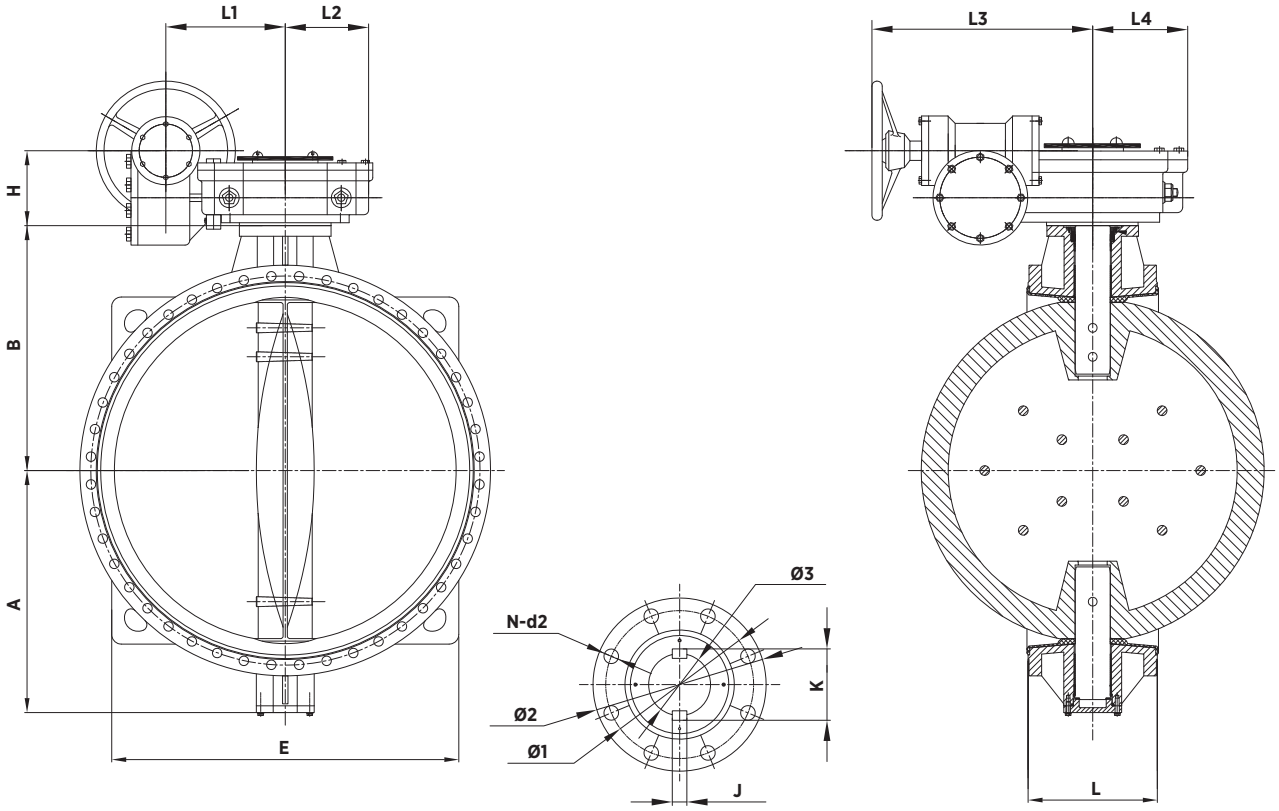


DN50-DN350

DIMENSIONS

DN	A	B	H	Do	C	L	d	D1	D2	N1-d1	Φ	W	L1	L2	L3	L4	PN10 (kg)	PN16 (kg)
50	80	120	40	53	108	111	99	65	50	4-7	12.6	3	45	53	155	53	7.6	7.6
65	89	130	40	64	112	115	118	65	50	4-7	12.6	3	45	53	155	53	9.7	9.7
80	95	145	40	79	114	117	132	65	50	4-7	12.6	3	45	53	155	53	10.6	10.6
100	114	155	40	104	127	130	156	90	70	4-10	15.77	5	45	53	155	53	13.8	13.8
125	125	170	40	123	140	143	184	90	70	4-10	18.92	5	45	53	155	53	18.2	18.2
150	139	190	40	156	140	143	211	90	70	4-10	18.92	5	45	53	155	53	21.7	21.7
200	170	205	40	202	152	155	266	125	102	4-12	22.1	5	63	76	235	76	31.8	31.8
250	198	235	40	250	165	168	319	125	102	4-12	28.45	8	63	76	235	76	44.7	44.7
300	223	280	46	302	178	182	370	125	102	4-12	31.6	8	78	78	225	78	57.9	59
350	254	310	46	333	190	194	429	150	125	4-14	31.6	8	78	78	225	78	81.6	86
400	306	340	112	340	216	221	480	175	140	4-18	37.95	10	181	104	254	104	106	119
450	345	375	112	441	222	227	548	175	140	4-18	42.86	12	181	104	254	104	147	165
500	378	430	112	492	229	234	609	175	140	4-18	45.72	14	181	104	254	104	165	185
600	440	500	130	592	267	272	720	210	165	4-22	53.98	16	200	131	301	131	235	263
700	510	560	167	694	292	299	794	300	254	8-18	63.35	18	228	146	355	146	238	361
800	560	620	167	795	318	325	901	300	254	8-18	70	20	228	146	355	146	475	484
900	638	685	173	864	330	337	1001	300	254	8-18	80	22	243	170	403	170	595	598
1000	705	735	173	964	410	417	1112	300	254	8-18	90	25	243	170	403	170	794	824
1200	815	917	231	1159	470	478	1328	350	298	8-22	105	28	302	250	491	180	1290	1223

DOUBLE FLANGE BUTTERFLY VALVE



DIMENSIONS

DN	A	B	H	E	L	Φ1	Φ2	N-d2	Φ3	K	J	L1	L2	L3	L4	PN10 (kg)	PN16 (kg)
1400	918	1040	292	1410	530	356	415	8-33	120	134	32	370	320	600	230	2130	2386
1600	1110	1150	310	1630	600	356	415	8-33	140	156	36	448	425	665	316	3560	4055
1800	1255	1270	327	1800	670	406	475	8-40	160	178	40	461	475	715	360	4620	5570
2000	1350	1323	438	1960	760	406	475	8-40	160	178	40	695	562	980	405	6160	7240
2200	1430	1500	438	2150	636	483	560	12-40	180	200	45	695	562	980	405	6730	7900
2400	1523	1560	462	2330	750	603	686	20-40	220	242	50	831	714	1056	438	9586	11600

24D

DESCRIPTION

Double eccentric butterfly valves, for regulation and sectioning of the flow in water supply and distribution networks, pumping, irrigation... It ensures adequate and reliable closure at high pressures and is 100% watertight.

- Great durability of the seal.
- AISI 304 stainless steel welded seat.
- 100% tightness.
- The seal can be changed without removing the valve.
- Maximum working pressure according to design pressure PN10/16/25.

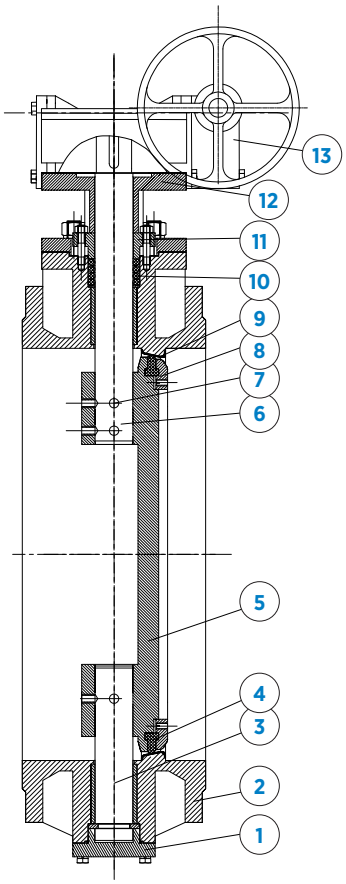
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-2.
- Upper flange for actuator coupling according to ISO 5211.
- Distance between widths in accordance with standard EN 558-1 series 14.

DIRECTIVES

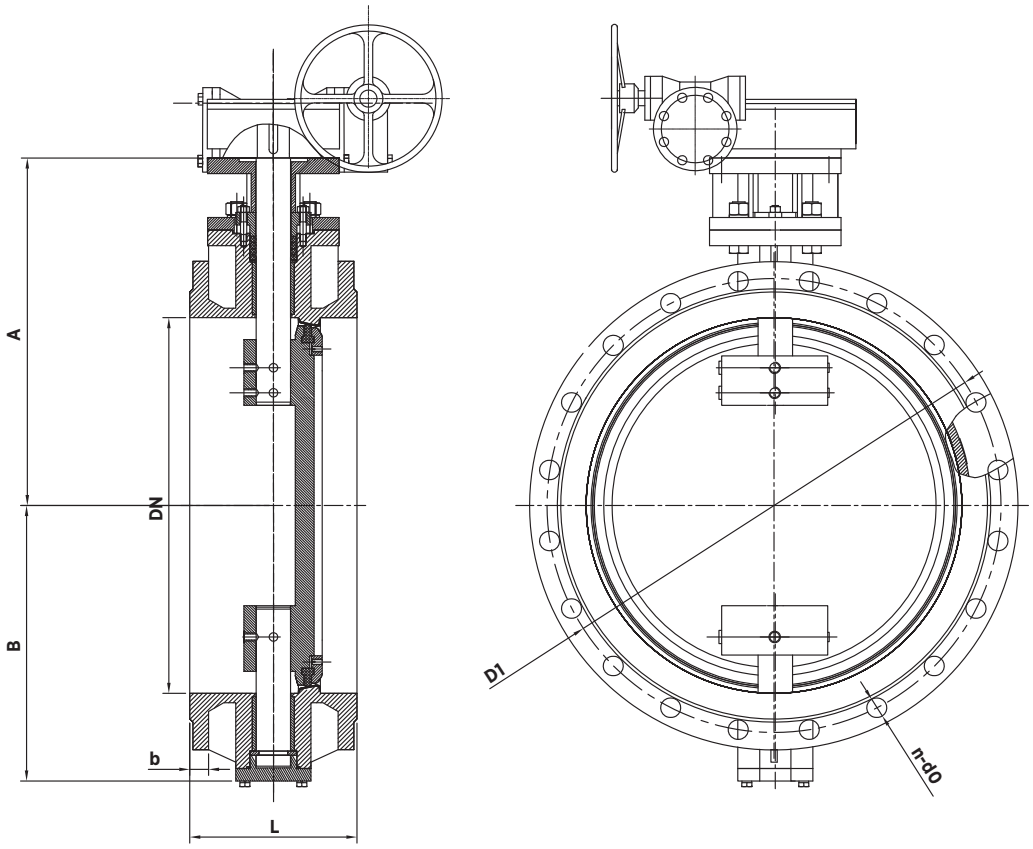
See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	BOTTOM COVER	GJS400
2	BODY	GJS400
3	LOWER SHAFT	AISI 420
4	SEALED RING	EPDM/NBR
5	DISC	GJS400
6	UPPER SHAFT	AISI 420
7	PIN	AISI 420
8	TIGHTENING RING	GJS400
9	SEAT	AISI 304
10	O-RING SEAL	NBR
11	PACKING	GJS400
12	COLLAR	GJS400
13	GEARBOX	GJL250
	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

DOUBLE ECCENTRIC BUTTERFLY VALVE



DIMENSIONS

DN	L	FLANGE		PN10							PN16							PN25						
		ISO 5211	ISO 5210	A	B	b	D1	n-d0	Torque		A	B	b	D1	n-d0	Torque		A	B	b	D1	n-d0	Torque	
									Free Axis	Re-duc.						Free Axis	Re-duc.						Free Axis	Re-duc.
100	190	F07	F10	210	122	19	180	8-19	70	6	210	122	19	180	8-19	100	9	210	122	19	190	8-23	120	11
150	210	F07	F10	270	168	19	240	8-23	200	14	270	168	19	240	8-23	280	20	270	168	20	250	8-28	336	24
200	230	F10	F10	290	195	20	295	8-23	310	22	290	195	20	295	12-23	440	31	290	195	22	310	12-28	530	38
250	250	F10	F10	358	230	22	350	12-23	400	28	358	230	22	355	12-28	560	40	358	230	24.5	370	12-31	670	48
300	270	F14	F10	378	267	24.5	400	12-23	600	26	378	267	24.5	410	12-28	840	36	378	267	27.5	430	16-31	1008	43
350	290	F14	F10	392	320	24.5	460	16-23	890	38	392	320	26.5	470	16-28	1240	53	392	320	30	490	16-34	1480	63
400	310	F14	F10	521	330	24.5	515	16-28	1100	13	521	330	28	525	16-31	1540	19	521	330	32	550	16-37	1840	22
450	330	F14	F10	530	378	25.5	565	20-28	1600	19	530	378	30	585	20-31	2240	27	530	378	34.5	600	20-37	2690	33
500	350	F16	F10	576	420	26.5	620	20-28	2500	28	576	420	31.5	650	20-34	3500	40	576	420	36.5	660	20-37	4200	48
600	390	F16	F10	657	450	30	725	20-31	3000	34	657	450	36	770	20-37	4200	48	657	450	42	770	20-41	5040	57
700	430	F25	F10	680	520	32.5	840	24-31	3700	41	680	520	39.5	840	24-37	5180	58	680	520	46.5	875	24-44	6220	70
800	470	F25	F12	730	545	35	950	24-34	5600	63	730	545	43	950	24-41	7840	88	730	545	51	990	24-50	9400	105
900	510	F25	F12	770	635	37.5	1050	28-34	6800	63	770	635	46.5	1050	28-41	9520	88	770	635	55.5	1090	28-50	11400	106
1000	550	F25	F12	902	716	40	1160	28-37	9800	91	902	716	50	1170	28-44	13700	127	902	716	60	1210	28-57	16440	153
1200	630	F30	F12	957	820	45	1380	32-41	14700	108	957	820	57	1390	32-50	18900	139	957	820	69	1420	32-57	22680	167


WATER
SUPPLIES
CMO VALVES

25A GROOVED TYPE BUTTERFLY VALVE

DESCRIPTION

Grooved butterfly valves, for supplying, pumping, supplying drinking water, treating and pumping dirty water... They allow the regulation and sectioning of the flow in fire-fighting installations, supply and distribution of water and irrigation, especially designed for quick connection using clamps. It ensures an adequate and reliable seal at high pressures and is 100% watertight.

- Minimal load loss.
- Bidirectional flow.
- Maximum working pressure 16 bar.
- Working temperature between -10°C and 90°C.

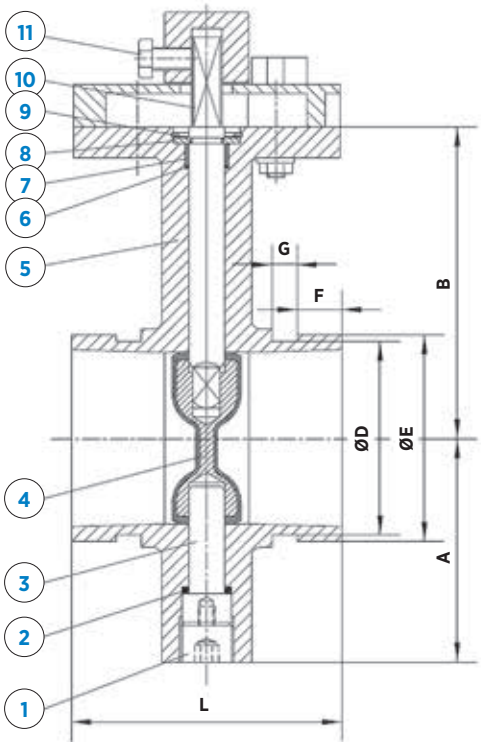
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Top flange ISO 5211.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	PLUG	CARBON STEEL
2	O-RING	EPDM
3	LOWER SHAFT	AISI 420
4	DISC	GJS400 + EPDM
5	BODY	GJS400
6	O-RING	EPDM
7	BEARING	PTFE
8	WASHER	CARBON STEEL
9	RETAINING RING	CARBON STEEL
10	UPPER SHAFT	AISI 420
11	BOLT	A2
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	A	B	D	E	F	G	L
50	65	102	57	60.5	16	8	81
65	72	112	69	73	16	8	97
80	80	118	85	89	16	8	97
100	100	137	110	114.5	16	9.5	116
125	118	149	137	141.5	16	9.5	148
150	140	170	164	168.5	16	9.5	148
200	175	204	214.5	219	19	11.5	134
250	215	250	268.5	273	19	13	159
300	258	275	318.5	324	19	13	165

27A

DESCRIPTION

Double flange butterfly valves, for flow regulation and sectioning in water supply and distribution networks, pumping, irrigation... It presents minimal pressure drop due to the hydrodynamic design of the disc, it is 100% watertight and does not require any seals for installation.

- Minimal load loss.
- Vulcanized seat that adjusts to the grooving with the body, thus avoiding wear and corrosion.
- 100% tightness.
- Bidirectional flow.
- Polished disc edges to prevent damage to the seat.
- Does not require mounting seals.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

STANDARDS

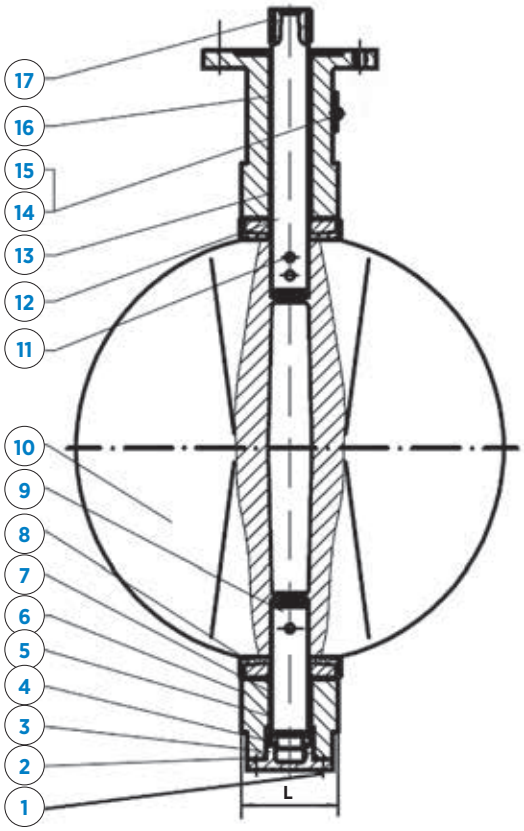
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-1.
- Upper flange for actuator coupling according to ISO 5211.
- Distance between widths in accordance with standard EN 558-1 series 20.
- Design according to EN 593.

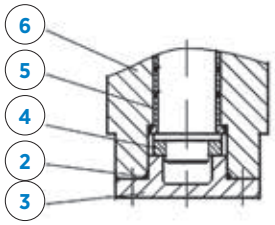
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

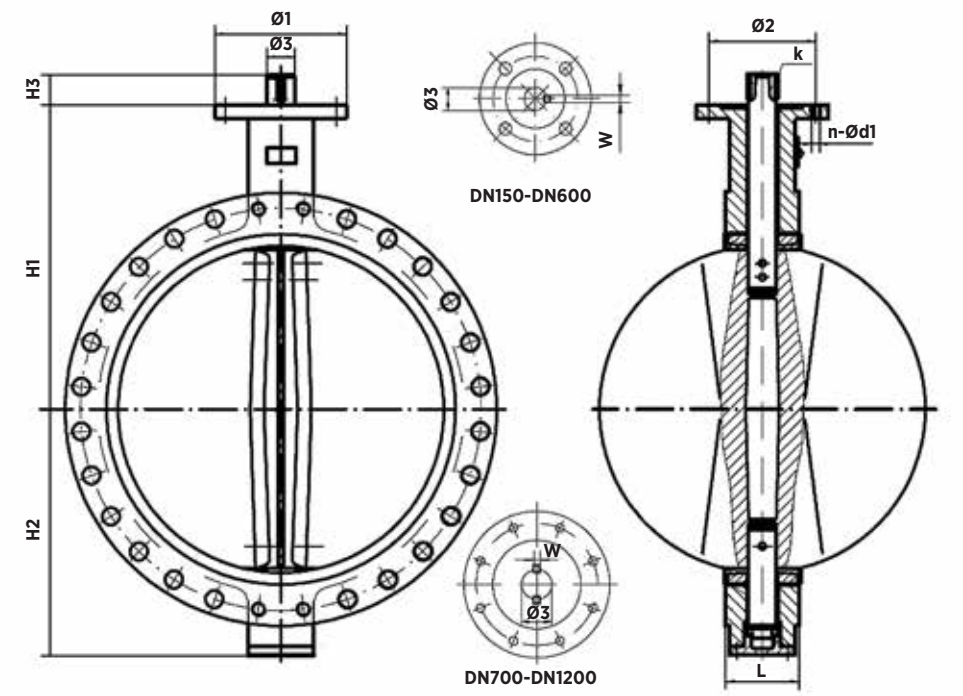
	COMPONENTS	MATERIAL
1	BOLTS	A2
2	O-RING	NBR
3	BOTTOM COVER	GJS400
4	SEAL	BRASS
5	LOWER BEARING	SELF-LUBRICATED BRONZE
6	BODY	GJS400
7	O-RING	NBR
8	SEAT	EPDM
9	LOWER SHAFT	AISI 420
10	DISC	CF8M/GJS400/Al-Bronze/Duplex
11	PIN	AISI 420
12	UPPER SHAFT	AISI 420
13	UPPER BEARING	SELF-LUBRICATED BRONZE
14	PLATE	AISI 304
15	RIVETS	ALUMINIUM
16	BEARINGS	SELF-LUBRICATED BRONZE
17	KEY	ASTM A29
	RAL PAINT 5015	EPOXY 250 µm





DETAILED VIEW
LOWER PART

DOUBLE FLANGE BUTTERFLY VALVE



Note:
DN150-DN800 One-piece shaft.
DN900-DN1200 Two-piece shaft

DIMENSIONS

DN	1	2	3	n-d1	L	H1	H2	H3	W	Weight (kg)
150	90	70	18.92	4-10	56	229	139	28	5	15,2
200	125	102	22.1	4-12	60	260	175	38	5	29
250	125	102	28.45	4-12	68	292	203	38	8	39
300	125	102	31.6	4-12	78	337	242	38	8	49
350	150	125	31.6	4-14	78	368	267	45	8	64
400	175	140	37.95	4-18	102	400	325	60	10	126,9
450	175	140	42.86	4-18	114	422	345	60	12	152,9
500	175	140	45.72	4-18	127	480	378	75	14	186,9
600	210	165	53.98	4-22	154	562	475	75	16	270,4
700	300	254	63.35	8-18	165	624	535	75	18	439
800	300	254	70	8-18	190	672	606	75	20	569
900	300	254	80	8-18	203	720	670	110	22	818
1000	300	254	90	8-18	216	800	735	135	25	918
1200	350	298	105	8-22	254	940	878	150	28	1402

31A BALL CHECK VALVES

DESCRIPTION

Ball check valves to prevent fluid return in the event of a lack of pressure, specially designed to work with waste water, viscous or loaded fluids.

- 100% tightness.
- Stainless steel bolts.
- Stainless steel drain plug.
- Suitable for installation in horizontal and vertical position.
- WRAS certified for contact with drinking water.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

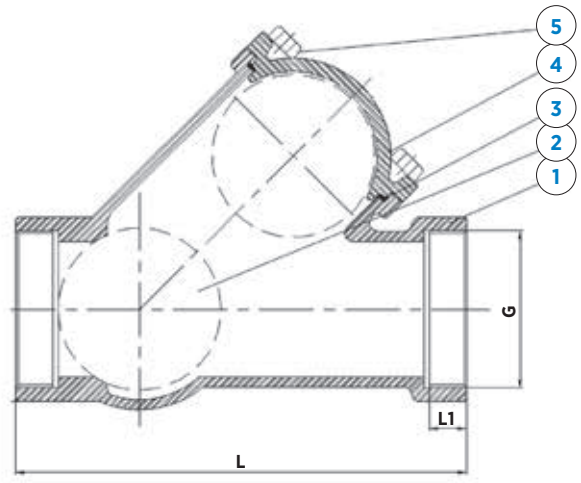
STANDARDS

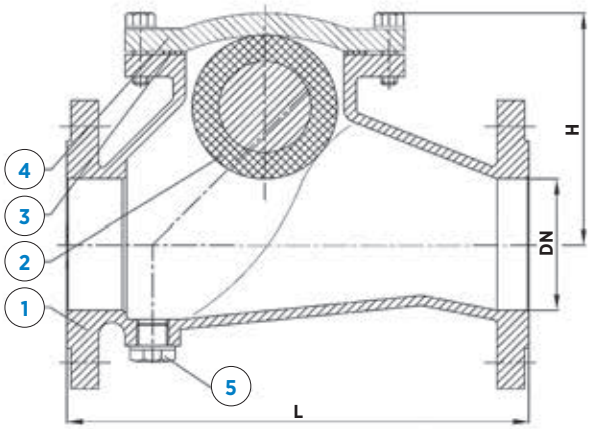
- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Distance between widths in accordance with standard DIN 3202 F6.
- Side flanges according to ISO 7005-1.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*





FLANGED MODEL DIMENSIONS

DN	L	H	Weight (kg)
50	200	115	9,0
65	240	124	12,0
80	260	138	15,0
100	300	162	20,0
125	350	202	31,0
150	400	228	40,0
200	500	298	75,0
250	600	368	115,0
300	700	438	160,0
400	900	584	280,0
500	1100	740	450,0

THREADED MODEL DIMENSIONS

DN	L	G	L1	Weight (kg)
32	140	1.25"	21.4	2
40	145	1.5"	21.4	2,5
50	170	2"	25.7	3,5
65	210	2.5"	30.2	6
80	240	3"	33.3	8

	COMPONENTS	MATERIAL
1	BODY	GJS500
2	BALL	STEEL + EPDM
3	SEAL	NBR
4	COVER	GJS500
5	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

32A RUBBERISED SEAT SWING CHECK VALVE

DESCRIPTION

Rubberised seat swing check valves used to stop the return of the fluid in case of a lack of pressure, designed to work both with clean and dirty waters. Low pressure drop and is 100% watertight.

- Stainless steel bolts.
- Stainless steel drain plug.
- WRAS certified for contact with drinking water.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

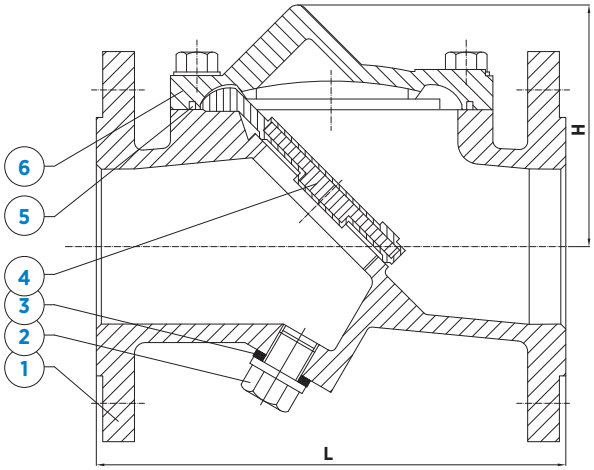
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Distance between widths in accordance with standard DIN 3202 F6.
- Side flanges according to ISO 7005-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	BODY	GJS500
2	BLEED PLUG	A2
3	WASHER	PTFE
4	DISC	GJS500 + EPDM
5	SEAL	EPDM
6	COVER	GJS500
	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	L	H	Weight (kg)
50	200	83	11
65	240	90	13
80	260	95	17
100	300	110	28
125	350	135	38
150	400	156	50
200	500	186	80
250	600	214	115
300	700	245	160
350	800	360	230
400	900	420	315

33A DUAL PLATE CHECK VALVES

DESCRIPTION

Dual plate check valves are ideal for use in fire fighting, air conditioning, water distribution and irrigation installations thanks to their small size and high performance. 100% watertight.

- 100% tightness.
- Stainless steel shaft and spring.
- Maximum working pressure 16 bar.
- Working temperature between -10°C and 90°C.

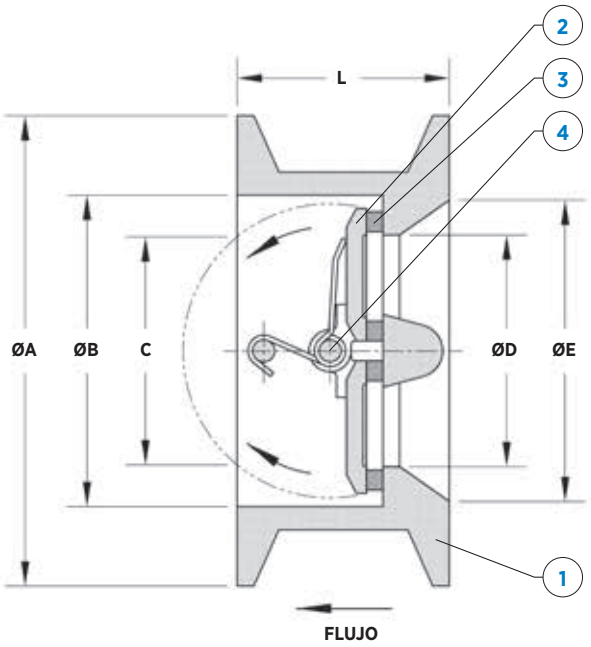
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Distance between widths in accordance with standard EN 558- 1 series 16.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	BODY	GJL250
2	PLATES	GJS500/CF8M
3	SEAL	NBR
4	SHAFT	AISI 410
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	A	B	C	D	E	L	Weight (kg)
40	92	65	49	48	59	43	0,8
50	107	65	49	48	59	43	1,3
65	127	80	63	60	78	46	1,6
80	142	94	69	70	91	64	2,8
100	162	117	97	88	110	64	4
125	192	145	121	115	142	70	5,5
150	218	170	145	134	170	76	8
200	273	224	197	182	222	89	13,5
250	328	265	234	223	264	114	24,4
300	378	310	284	260	310	114	33
350	438	360	333	300	360	127	46,3
400	489	410	379	355	414	140	62
450	539	450	415	382	450	152	100
500	594	505	472	435	505	152	107
600	695	624	579	536	605	178	158

35A AXIAL CHECK VALVE

DESCRIPTION

Axial check valves to prevent the return of the fluid in case of lack of pressure, designed to avoid water hammer. Low pressure drop and is 100% watertight.

- 100% tightness.
- Stainless internal elements.
- WRAS certified for contact with drinking water.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

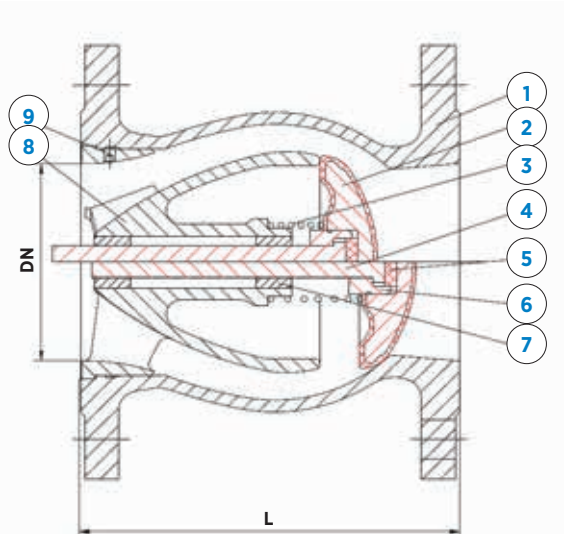
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Distance between widths in accordance with standard DIN 3202 F4.
- Side flanges according to ISO 7005-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	BODY	GJS500
2	DISC	GJS500 + PDM
3	SPRING	AISI 304
4	SHAFT	AISI 420
5	WASHER	EPDM
6	NUT	AISI 420
7	BEARING	BRONZE
8	DIFFUSER	GJS500
9	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

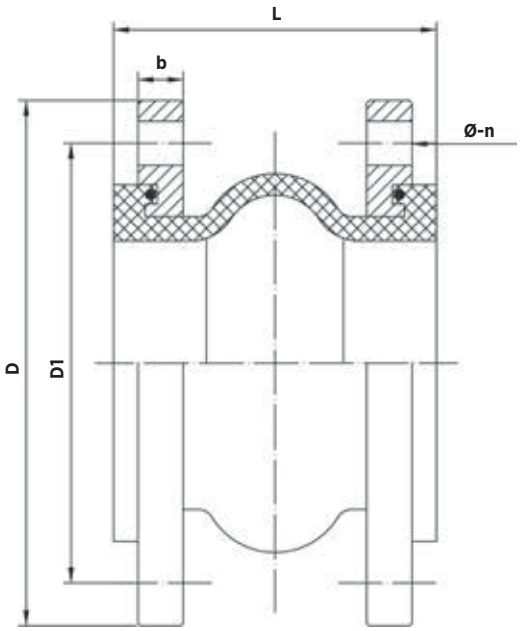
DN	L	Weight (kg)
50	150	6.2
65	170	9.1
80	180	11.3
100	190	14.5
125	200	18.3
150	210	25.5
200	230	38.5
250	250	57.0
300	270	73.0
350	290	109.0

41A

DESCRIPTION

Rubber expansion joints to absorb and eliminate noise and vibrations in fluid lines. Their design allows longitudinal, transverse and angled movement. It presents minimal pressure drop, is 100% watertight and does not need joints for installation.

- Minimal load loss.
- Continuous flow.
- 100% tightness.
- Bidirectional flow.
- Seals are not required for installation.
- Bursting pressure over 60 bar.
- Working temperature between -10°C and 120°C.



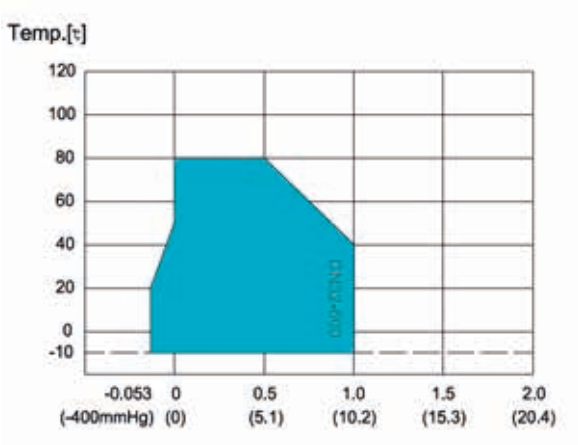
SINGLE WAVE EXPANSION JOINT DIMENSIONS

DN	L	Weight (kg)	PN10				PN16				Exten.	Compr.	Transv.	Ang.
			D	D1	b	Φ-n	D	D1	b	Φ-n				
32	95	2,6	140	100	14	18-4	140	100	14	18-4	6	9	9	15°
40	95	3,1	150	110	14	18-4	150	110	14	18-4	6	10	9	15°
50	105	4,2	165	125	15	18-4	165	125	15	18-4	7	10	10	15°
65	115	5,2	185	145	15	18-4	185	145	15	18-4	7	13	11	15°
80	130	6,2	200	160	17	18-8	200	160	17	18-8	8	15	12	15°
100	135	7,5	220	180	17	18-8	220	180	17	18-8	10	19	13	15°
125	170	10,3	250	210	19	18-8	250	210	19	18-8	12	19	13	15°
150	180	12,8	285	240	19	22-8	285	240	19	22-8	12	20	14	15°
200	205	18,6	340	295	21	22-8	340	295	21	22-12	16	25	22	15°
250	240	27,2	395	350	23	22-12	405	355	23	26-12	16	25	22	15°
300	260	34,5	445	400	22	22-12	460	410	24	26-12	16	25	22	15°
350	255	45,6	505	460	22	22-16	520	470	26	26-16	16	25	22	15°
400	255	58,4	565	515	22	26-16	580	525	28	30-16	16	25	22	15°
450	255	68	615	565	22	26-20	640	585	28	30-20	16	25	22	15°
500	255	90,2	670	620	24	26-20	715	650	30	33-20	16	25	22	15°
600	260	122,5	780	725	23	30-20	840	770	31	36-20	16	25	22	15º

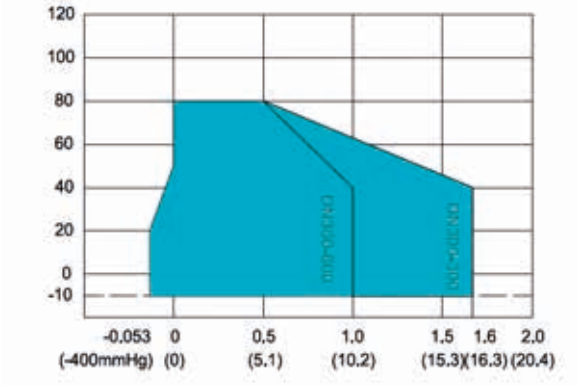
SINGLE AND DOUBLE WAVE RUBBER EXPANSION JOINTS

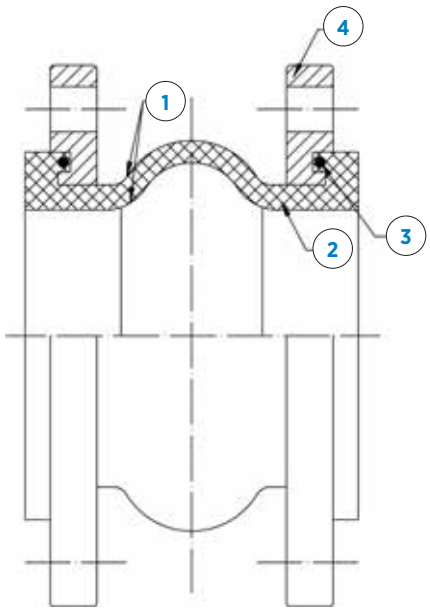
WORKING PRESSURE / TEMPERATURE TABLE

PN10 EXPANSION JOINT



PN16 EXPANSION JOINT





	SINGLE WAVE COMPONENTS	MATERIAL
1	RUBBER	EPDM/NBR
2	INTERNAL REINFORCEMENT	FABRIC
3	PRESSURE RING	STEEL WIRE
4	FLANGES	Q235

SINGLE WAVE EXPANSION JOINT DIMENSIONS

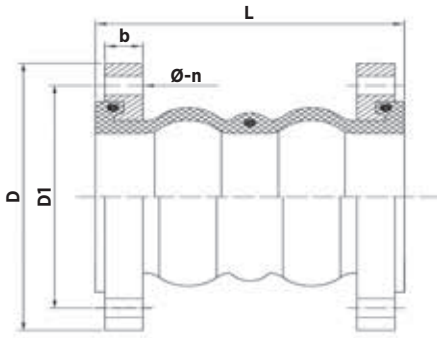
DN	L	PN10				PN16				DISPLACEMENTS			
		D	D1	b	Φ-n	D	D1	b	Φ-n	Exten.	Compr.	Transv.	Ang.
700	260	895	840	30	30-24	910	840	36	36-24	6	9	9	15°
800	260	1015	950	32	33-24	1025	950	38	39-24	6	10	9	15°
900	260	1115	1050	34	33-28	1125	1050	40	39-28	7	10	10	15°
1000	260	1230	1160	34	36-28	1255	1170	42	42-28	7	13	11	15°

41A SINGLE AND DOUBLE WAVE RUBBER EXPANSION JOINTS

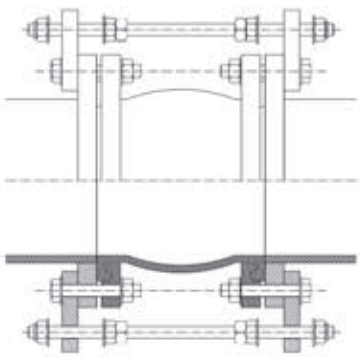
DOUBLE WAVE EXPANSION JOINT DIMENSIONS

MEASURES AND WEIGHTS			PN10				PN16				DISPLACEMENTS			
DN	L	Weight (kg)	D	D1	b	Φ-n	D	D1	b	Φ-n	Exten.	Compr.	Transv.	Ang.
40	175	3,1	150	110	14	18-4	150	110	14	18-4	10	20	20	15°
50	175	4,3	165	125	15	18-4	165	125	15	18-4	10	20	20	15°
65	175	5,4	185	145	15	18-4	185	145	15	18-4	10	20	20	15°
80	175	6,5	200	160	17	18-8	200	160	17	18-8	10	20	20	15°
100	225	8,1	220	180	17	18-8	220	180	17	18-8	15	30	25	15°
125	225	10,8	250	210	19	18-8	250	210	19	18-8	15	30	25	15°
150	225	13,4	285	240	19	22-8	285	240	19	22-8	15	30	25	15°
200	325	21,1	340	295	21	22-8	340	295	21	22-12	20	40	30	15°
250	325	27,3	395	350	23	22-12	405	355	23	26-12	20	40	30	15°
300	325	31	445	400	22	22-12	460	410	24	26-12	20	40	30	15°

For the correct working of the rubber expansion joints, security bolts must be installed according to the tables below.



SECURITY BOLTS



NO. OF BOLTS PER EXPANSION JOINT

ACCORDING TO PN

DN	PN10	PN16
40	-	2
50	-	2
65	-	2
80	-	2
100	-	2
125	-	2
150	-	2
200	4	2
250	4	2
300	4	4
350	4	4
400	4	4
450	4	4
500	4	4
600	4	4

ACCORDING TO PRESSURE

DN	4 BOLT	6 BOLT
700	7 bar	-
800	6 bar	-
900	6 bar	-
1000	6 bar	-
1100	6 bar	-
1200	6 bar	-
1300	5 bar	6 bar
1400	5 bar	6 bar
1500	4 bar	6 bar
1600	4 bar	6 bar
1800	3 bar	6 bar

42A METAL COMPENSATORS

DESCRIPTION

Metal compensators for working at high temperatures, allow axial dilatations, vibrations and small misalignments in the pipeline to be absorbed.

- Minimal load loss.
- 100% tightness.
- Allow extensive longitudinal mobility.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 400°C.

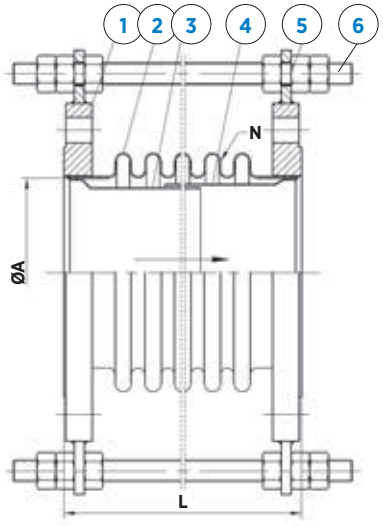
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-2.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	FLANGES	STEEL Q235
2	BELLOWS	AISI 304
3	INTERIOR SLEEVE	AISI 304
4	EXTERIOR SLEEVE	AISI 304
5	TIE-BOLTS	GALVANISED STEEL
6	BOLTS	STEEL 8.8

DIMENSIONS

DN	L	A	N	Mov. Expan	Axial Comp.	Weight (kg)
32	150	40	20	10	-25	4,9
40	150	50	18	10	-25	5,5
50	150	60	15	10	-20	6,9
65	150	76	13	10	-20	9,2
80	150	89	13	10	-20	10
100	150	108	12	10	-20	12
125	150	133	11	10	-20	14,3
150	150	159	10	8	-25	18,9
200	200	200	10	8	-30	24,7
250	200	250	7	8	-35	33,3
300	200	300	6	8	-35	44,2
350	200	350	5	10	-40	57,6
400	200	400	4	10	-40	72,8
450	200	450	4	10	-40	89,4
500	200	500	3	10	-40	127,2
600	250	600	3	10	-40	190,4

TEMPERATURE / MAXIMUM PRESSURE

°C	50	100	150	200	250	300	350	400
BAR	14.6	12.3	11.3	10	9.5	8	6	4

42A METAL COMPENSATORS

DESCRIPTION

Metal compensators for working at high temperatures, allow axial dilatations, vibrations and small misalignments in the pipeline to be absorbed.

- Minimal load loss.
- 100% tightness.
- Allow extensive longitudinal mobility.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 400°C.

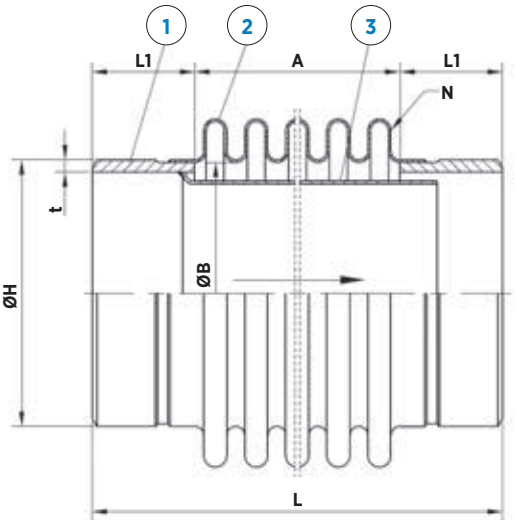
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.

DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



	COMPONENTS	MATERIAL
1	PIPE END	CARBON STEEL
2	BELLOWS	AISI 304
3	INTERIOR SLEEVE	AISI 304
	RAL PAINT 5015	250 µm

DIMENSIONS

DN	L	A	Φ HxtxL1	B	N	Mov. Expan	Axial Comp.	Weight (kg)
20	250	120	27x2.5x65	25	24	5	-25	0,3
25	250	120	34x3.0x65	32	21	5	-25	0,4
32	350	180	42x3.0x85	40	30	10	-30	0,6
40	350	180	48x3.0x85	50	25	10	-30	0,8
50	350	180	60x3.5x85	60	20	10	-35	1
65	350	180	76x3.5x85	76	17	10	-35	1,5
80	350	180	89x4.0x85	89	17	10	-40	2
100	350	180	114x4.0x85	114	11	10	-40	2,6
125	350	180	140x4.0x85	140	11	10	-40	3,2
150	350	180	168x5.0x85	168	11	10	-40	4
200	350	180	219x6.0x85	200	8	10	-40	5,2
250	350	180	273x7.0x85	250	8	10	-40	10,4
300	350	180	325x8.0x85	300	7	10	-40	16,2

TEMPERATURE / MAXIMUM PRESSURE

°C	50	100	150	200	250	300	350	400
BAR	10	9	8.5	7.5	7	6.3	5	4

44A DISMANTLING JOINTS

DESCRIPTION

Dismantling joints, used together with the valves for easy dismantling, without the need to replace the pipe.

- Minimal load loss.
- O-ring seal, for 100% tightness.
- Mechanized intermediate flanges to house the seal perfectly.
- Allow extensive longitudinal mobility.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between 0°C and 90°C.

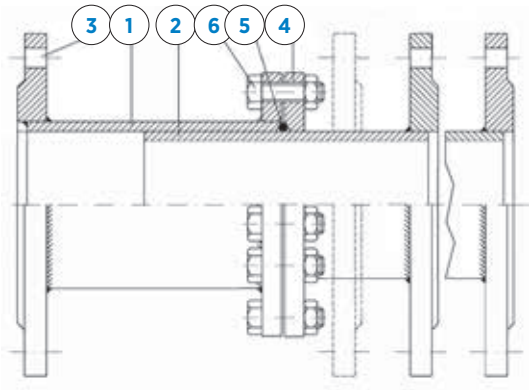
STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-2.

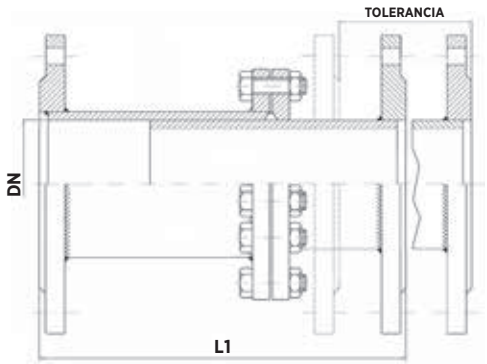
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*



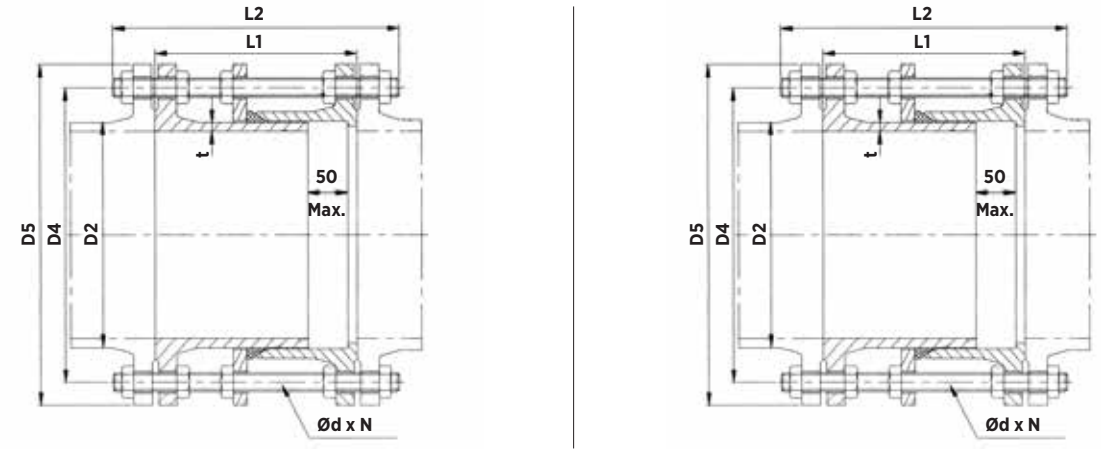
	COMPONENTS	MATERIAL
1	EXTERIOR SLEEVE	AISI 304
2	INTERIOR SLEEVE	AISI 304
3	FLANGES	CARBON STEEL A-42
4	TIGHTENING FLANGES	CARBON STEEL A-42
5	SEAL	NEOPRENE
6	BOLTS	STEEL 5.6
	RAL PAINT 5015	EPOXY 50 µm



DIMENSIONS

DN	L1	Tolerancia	PN10	PN16
50	180	±30	10	10
65	180	±30	12	12
80	180	±30	14	14
100	180	±30	18	18
125	180	±30	20	20
150	180	±30	24	24
200	200	±40	30	31
250	200	±40	40	42
300	200	±40	46	53
350	240	±40	62	78
400	240	±40	80	82
450	240	±40	88	95
500	240	±40	110	136
600	300	±50	140	166
700	300	±50	188	210
800	300	±50	276	308
900	300	±50	316	350
1000	300	±50	375	412
1100	350	±50	450	515
1200	350	±50	535	610
1300	350	±50	635	675
1400	350	±50	700	767
1500	350	±50	785	852
1600	350	±50	895	955
1700	380	±50	950	1100
1800	380	±50	1075	1132
2000	380	±50	1285	1373

44A



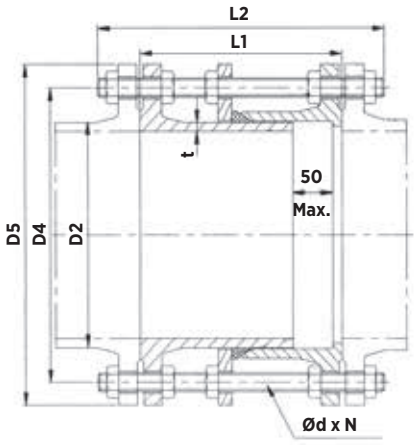
DIMENSIONS

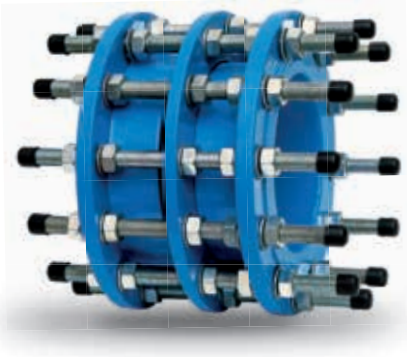
DN	PN10									PN16								
	D2	D4	D5	L1	L2	d	N	T	Peso (kg)	D2	D4	D5	L1	L2	d	N	T	Peso (kg)
50	66	125	165	180	320	19	4	6.0	9,9	66	125	165	180	320	19	4	6.0	9,9
65	82	145	185	180	320	19	4	6.0	12	82	145	185	180	320	19	4	6.0	12
80	98	160	200	200	340	19	8	7.0	12,8	98	160	200	200	340	19	8	7.0	12,8
100	118	180	220	200	340	19	8	7.5	14,1	118	180	220	200	340	19	8	7.5	14,1
125	144	210	250	200	340	19	8	7.5	17,7	144	210	250	200	340	19	8	7.5	17,7
150	170	240	285	200	340	23	8	8.0	23,9	170	240	285	200	340	23	8	8.0	23,9
200	222	295	340	220	350	23	8	8.5	34,9	222	295	340	220	350	23	12	8.5	26
250	274	350	400	230	370	23	12	90	47,1	274	355	400	230	380	28	12	9.0	37,5
300	326	400	455	230	390	23	12	10.0	59,3	326	410	455	230	410	28	12	10.0	51,8
350	378	460	505	250	400	23	16	10.5	78,2	378	470	520	260	410	28	16	10.5	63,8
400	429	515	565	250	420	28	16	11.0	92,6	429	525	580	250	450	31	16	11.0	84,2
450	480	565	615	270	435	28	16	11.5	105	480	585	640	270	450	31	20	11.5	112,3
500	532	620	670	280	440	28	20	12.0	122,5	532	650	715	280	500	34	20	12.0	182,6
600	635	725	780	300	460	31	20	13.5	173,9	635	770	840	300	500	37	20	13.5	260,3
700	738	840	895	300	480	31	24	14.5	222,3	738	840	910	300	500	37	24	14.5	248,7
800	842	950	1015	320	500	34	24	16.0	279,6	842	950	1025	320	530	40	24	16.0	367
900	945	1050	1115	320	500	34	28	17.0	345,2	945	1050	1125	320	530	40	28	17.0	421,1
1000	1048	1160	1230	340	545	37	28	180	426,2	1048	1170	1255	340	560	43	28	18.0	565,1
1100	1152	1270	1340	350	545	37	32	19.5	566,2	1152	1270	1355	350	570	43	32	19.5	647
1200	1255	1380	1455	370	580	40	32	20.5	608,2	1255	1390	1485	360	620	49	32	20.5	765,3

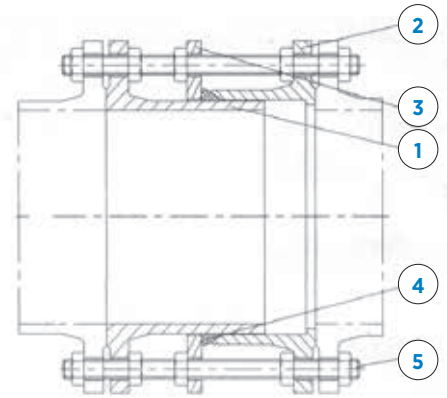
DISMANTLING JOINTS

DIMENSIONS

DN	PN25								
	D2	D4	D5	L1	L2	d	N	T	Peso (kg)
50	66	125	165	180	320	19	4	6.0	14,9
65	82	145	185	180	320	19	4	6.0	18
80	98	160	200	200	340	19	8	7.0	19,3
100	118	190	235	200	340	23	8	7.5	20,8
125	144	220	270	200	340	28	8	7.5	26,5
150	170	250	300	201	341	28	8	8.0	32,6
200	222	310	360	222	352	28	12	8.5	53,4
250	274	370	425	232.5	383	31	12	9.0	78,5
300	326	430	485	233	413	31	16	10.0	89,7
350	378	490	555	253.5	414	34	16	10.5	95,7
400	429	550	620	254	454	37	16	11.0	144,8
450	480	600	670	274.5	455	37	20	11.5	168,5
500	532	660	730	285	505	37	20	12.0	210,1
600	635	770	845	306	506	40	20	13.5	390,4
700	738	875	960	307	507	43	24	14.5	373,1
800	842	990	1085	328	538	49	24	16.0	548,3
900	945	1090	185	329	539	49	28	17.0	631,6
1000	1048	1210	1320	350	570	56	28	18.0	945
1100	1152	1310	1420	361	581	56	32	19.5	1112,2
1200	1255	1420	1530	372	632	56	32	20.5	1192,8







	COMPONENTS	MATERIAL
1	PIPE	GJS500
2	BODY	GJS500
3	TIGHTENING FLANGES	GJS500
4	SEAL	EPDM
5	TIE-BOLTS	GALVANISED STEEL
	RAL PAINT 5015	EPOXY 250 µm

Plans and photos are not contractual. The specifications of the products shown may be modified without prior notice.

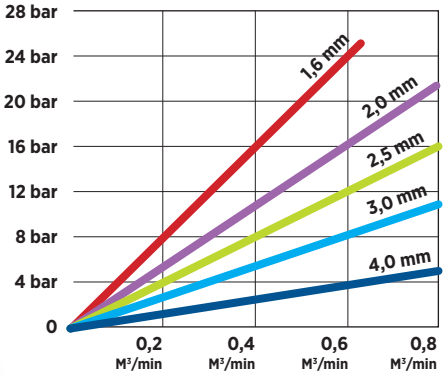
51A TRIPLE EFFECT AIR VALVE

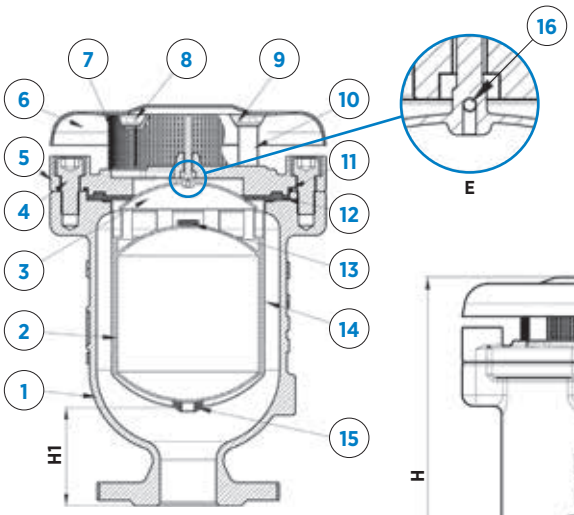
DESCRIPTION

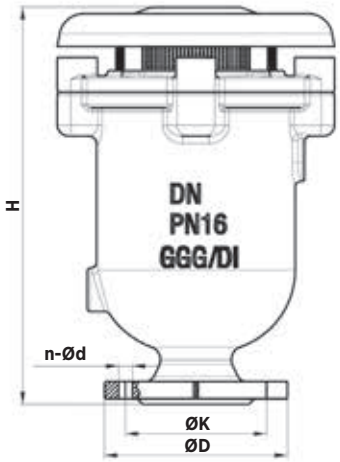
Triple acting air-release valve, for the release of air when filling pipes, for the admission of air when emptying pipes and for purging air during the normal operation of the installation.

- 100% tightness.
- Stainless steel screws.
- WRAS certified for contact with drinking water.
- Working temperature between -10°C and 90°C.

AIR EXPLUSION UNDER WORKING CONDITIONS







	COMPONENTS	MATERIAL
1	BODY	GJS500
2	FLOAT	AISI 304
3	SEALING ARC	AISI 304
4	BOLTS	STEEL 8.8
5	COVER	GJS500
6	DEFLECTOR	STEEL Q235A
7	SCREEN	AISI 304
8	BOLTS	STEEL 8.8
9	WASHERS	STEEL 8.8
10	SUPPORT	ALUMINIUM
11	O-RINGS	NBR
12	SEAT	EPDM
13	BLEED SEAT	EPDM
14	GUIDE	AISI 304
15	DAMPER	EPDM
16	BLEEDER	AISI 304
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	H	H1	Weight (kg)	Ø hole (mm)	D			K			n-Ød		
					PN10	PN16	PN25	PN10	PN16	PN25	PN10	PN16	PN25
50	280	55	9	1.6	165	165	165	125	125	125	4-Ø19	4-Ø19	4-Ø19
80	362	87.5	20	2	200	200	200	160	160	160	8-Ø19	8-Ø19	8-Ø19
100	395	87.5	26	2.5	220	220	235	180	180	190	8-Ø19	8-Ø19	8-Ø23
150	485	101.5	45	3	285	285	300	240	240	250	8-Ø23	8-Ø23	8-Ø28
200	582	133	75	4	340	340	360	295	295	310	8-Ø23	12-Ø23	12-Ø28
250	582	133	85	4	405	405	425	350	355	370	12-Ø23	12-Ø28	12-Ø31
300	750	144.5	175	4	445	460	485	400	410	430	12-Ø23	12-Ø28	16-Ø31

Plans and photos are not contractual. The specifications of the products shown may be modified without prior notice.

52A

FLOAT VALVE

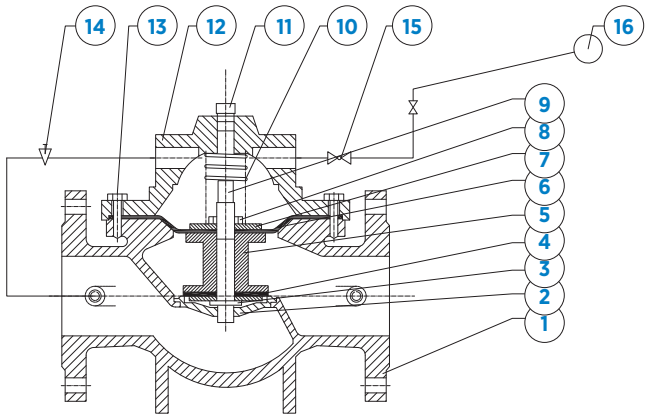
DESCRIPTION

Float valves for level control in tanks. The float can be positioned at a distance from the valve for easier installation.

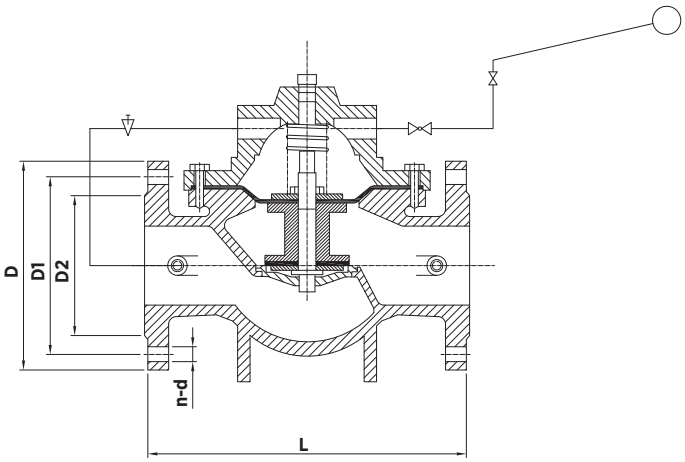
- 100% tightness.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10ºC and 90ºC.
- The float can be positioned at a distance from the valve.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- Side flanges according to ISO 7005-1.



	COMPONENTS	MATERIAL
1	BODY	GJS500-7
2	SEAT	BRASS
3	ARC	CARBON STEEL
4	SEAL	EPDM
5	DISC	GJS500-7
6	DIAPHRAGM	EPDM
7	ARC	CARBON STEEL
8	NUT	STAINLESS STEEL.
9	SHAFT	STAINLESS STEEL.
10	SPRING	STAINLESS STEEL.
11	PLUG	BRASS
12	COVER	GJS500-7
13	BOLTS	A2
14	NEEDLE	BRASS
15	PILOT	BRASS
16	FLOAT	STAINLESS STEEL.
	RAL PAINT 5015	EPOXY 250 µm



DIMENSIONS

DN	L	D	D1		D2	N-D	
50	215	165	125		99	4-19	
65	235	185	145		119	4-19	
80	250	200	160		133	8-19	
100	290	220	180		154	8-19	
125	325	250	210		184	8-19	
150	360	285	240		210	8-23	
200	430	335	295		266	8-23	12-23
250	510	400	350	355	319	12-23	12-28
300	600	455	400	410	370	12-23	12-28
350	675	515	460	470	429	16-23	16-28
400	730	575	515	525	480	16-28	16-31

53A

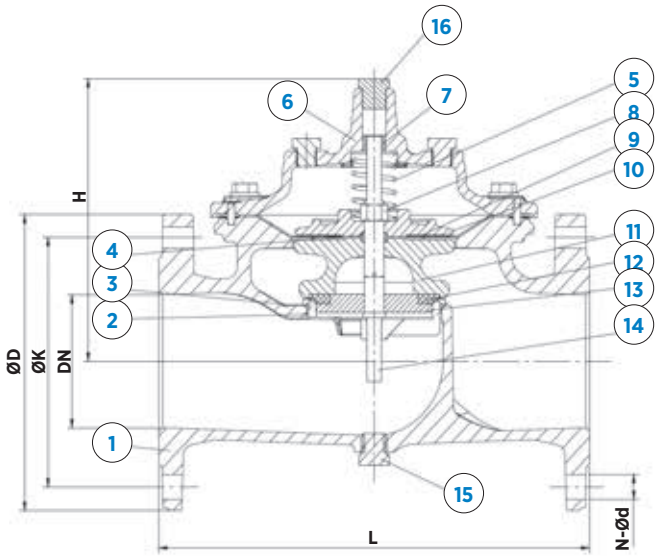
DESCRIPTION

Control valves, for the automatic regulation of different characteristics of the installation such as pressure, flow or level. They provide the possibility of combining the parameters to be controlled as well as the remote control.

- Wide variety of controllable features.
- 100% tightness.
- Maximum working pressure according to design pressure PN10/16.
- Working temperature between -10°C and 90°C.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- Manufacture according to EN 1074-5.
- Distance between widths in accordance with standard DIN 3202.
- EC Directive.
- Side flanges according to ISO 7005-1.



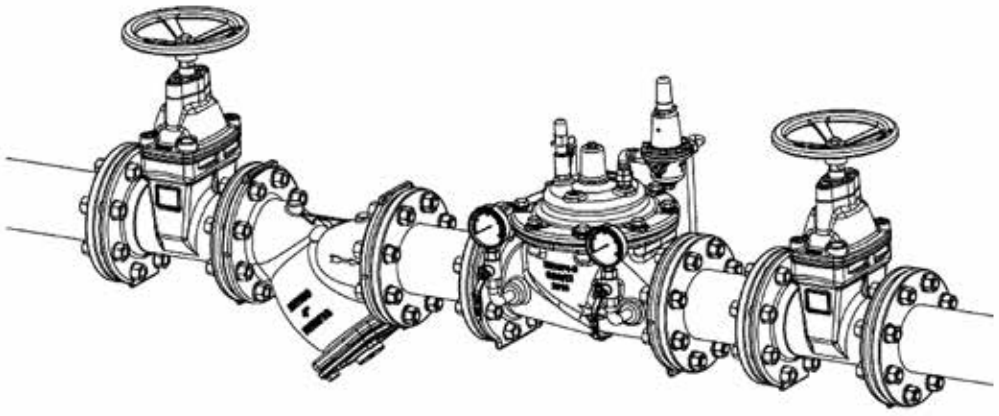
	COMPONENTS	MATERIAL
1	BODY	GJS500
2	BODY SEAT	AISI 304 (DN <400) BRASS/BRONZE
3	O-RING	NBR
4	O-RING	NBR
5	SPRING	AISI 304
6	COVER	GJS500
7	GUIDE BEARING	BRASS/BRONZE
8	SHAFT NUT	AISI 304/ BRONZE
9	DIAPHRAGM	EPDM + PA6
10	TOP SUPPORT	GJS500
11	DISC HOLDER	GJS500
12	SEAT	EPDM/NBR
13	SEAT RETAINER	AISI 304 (DN<400) GJS500
14	SHAFT	AISI 304
15	PLUG	AISI 304
16	PLUG	AISI 304 (DN <400) CARBON STEEL
	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

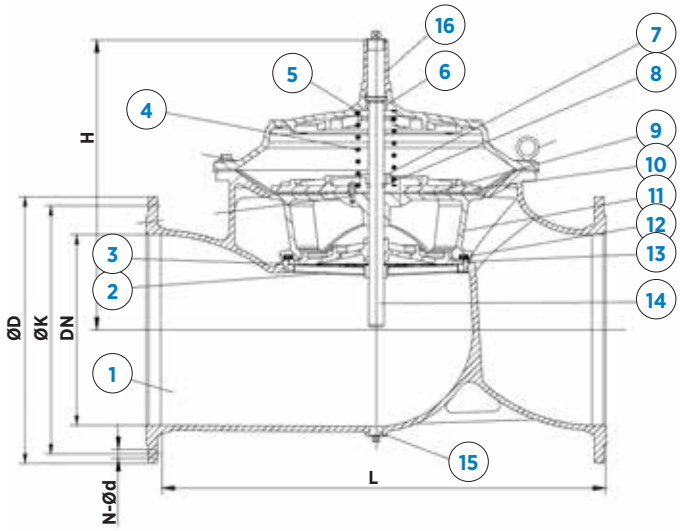
DIMENSIONS DN50-DN350

DN	L	H	Weight (kg)	D			K			n-Ød		
				PN10	PN16	PN25	PN10	PN16	PN25	PN10	PN16	PN25
50	230	139	14	165	165	165	125	125	125	4-Ø19	4-Ø19	4-Ø19
65	290	159	19	185	185	185	145	145	145	4-Ø19	4-Ø19	8-Ø19
80	310	179	23	200	200	200	160	160	160	8-Ø19	8-Ø19	8-Ø19
100	350	214	32	220	220	235	180	180	190	8-Ø19	8-Ø19	8-Ø23
150	480	333	68	285	285	300	240	240	250	8-Ø23	8-Ø23	8-Ø28
200	600	407	125	340	340	360	295	268	310	8-Ø23	12-Ø23	12-Ø28
250	730	476	200	405	405	425	350	355	370	12-Ø23	12-Ø28	12-Ø31
300	850	526	260	460	460	485	400	410	430	12-Ø23	12-Ø28	16-Ø31
350	850	526	310	520	520	555	460	470	490	16-Ø23	16-Ø28	16-Ø34

CONTROL VALVE

The assembly of these valves should be done according to the following diagram, which includes two gate type isolation valves on both sides of the control valve and a filter at the inlet of the same.





	COMPONENTS	MATERIAL
1	BODY	GJS500
2	BODY SEAT	BRASS/BRONZE
3	O-RING	NBR
4	SPRING	AISI 304
5	COVER	GJS500
6	GUIDE BEARING	BRASS/BRONZE
7	SHAFT NUT	AISI 304/ BRONZE
8	FIXING WASHER	BRASS/BRONZE
9	DIAPHRAGM	EPDM + PA6
10	TOP SUPPORT	GJS500
11	DISC HOLDER	GJS500
12	SEAT	EPDM/NBR
13	SEAT RETAINER	GJS500
14	SHAFT	AISI 304
15	PLUG	AISI 304
16	PLUG	CARBON STEEL
	BOLTS	A2
	RAL PAINT 5015	EPOXY 250 µm

DIMENSIONS

DN	L	H	Weight (kg)	D			K			n-Ød		
				PN10	PN16	PN25	PN10	PN16	PN25	PN10	PN16	PN25
400	1100	650	560	580	580	620	515	525	550	16-Ø28	16-Ø31	16-Ø37
450	1100	650	620	640	640	670	565	585	600	20-Ø28	20-Ø31	20-Ø37
500	1250	650	880	715	715	730	620	650	660	20-Ø28	20-Ø34	20-Ø37
600	1450	930	1300	840	840	845	725	770	770	20-Ø31	20-Ø37	20-Ø40
700	1450	930	1400	910	910	960	840	840	875	24-Ø31	24-Ø37	20-Ø43

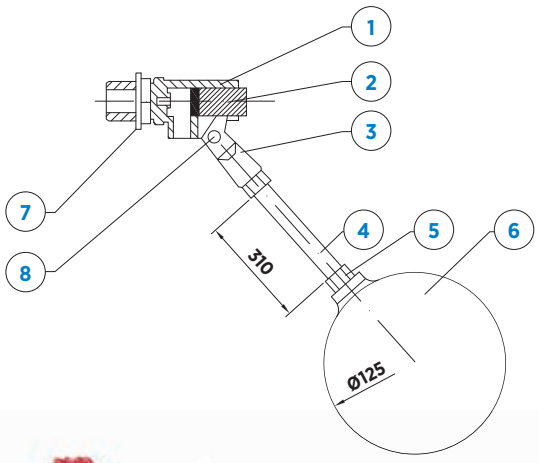
53A

To carry out the different functions that these valves can perform, the following pilots must be installed in them. The pilot functions can be combined so that one valve controls different parameters.

LEVEL CONTROL (FLOATER).

The level control valve maintains the water level in a tank, so that when the water level drops, the valve opens, filling the tank to the set level. The pilot can be placed next to the valve in the tank, or it can be placed separately from the valve, so that it is in the lower part of the pipeline and the pilot is on the surface of the tank.

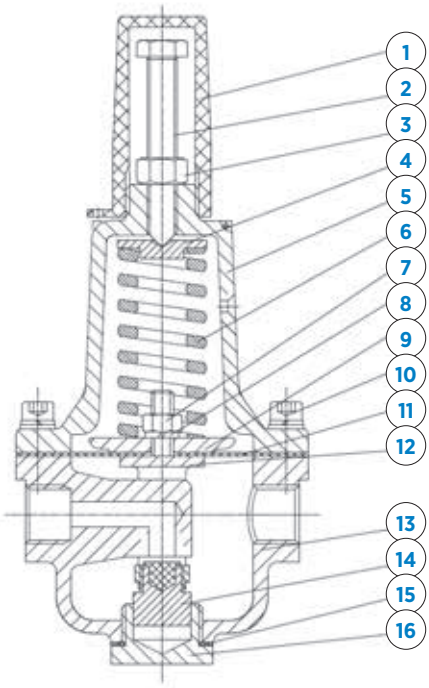
	COMPONENTS	MATERIAL
1	BODY	AISI 304
2	DISC	AISI 304 + EPDM
3	FORK	AISI 304
4	ROD	AISI 304
5	NUT	AISI 304
6	FLOAT	AISI 304
7	NUT	AISI 304
8	FASTENING PIN	AISI 304



PRESSURE REDUCING VALVE

Pressure reducing valves maintain a maximum pressure value downstream of the valve. This maximum pressure value is set manually and the valve automatically operates to keep this value constant, regardless of what happens downstream, whenever conditions upstream of the valve allow it. If the pressure drops downstream, the valve will open to increase the pressure to the set value. If the pressure increases downstream, the valve will close to decrease the pressure to the set value. These changes are instantaneous and constant, making such pressure variations imperceptible.

	COMPONENTS	MATERIAL
1	COVER	ABS
2	ADJUSTING SCREW	AISI 304
3	LOCK NUT	A2
4	SPRING GUIDE	AISI 304
5	COVER	AISI 304
6	SPRING	Cr-VA
7	NUT	A2
8	WASHER	A2
9	FASTENING SUPPORT	AISI 304
10	BOLTS	A2
11	DIAPHRAGM	EPDM + PA6
12	WASHER	AISI 304
13	BODY	AISI 304
14	DISC	AISI 304 + EPDM
15	SEAL	EPDM
16	PLUG	AISI 304

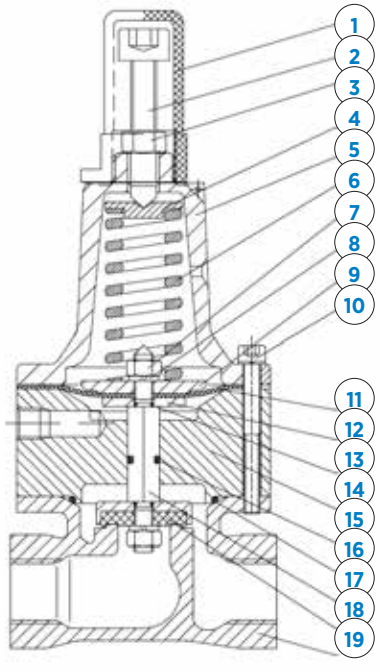


CONTROL VALVE

MAINTENANCE AND RELIEF PRESSURE

If the valve is configured as pressure relief, the pilot will open the valve in the event that the line upstream of the valve reaches a pressure value higher than that set, thus, when the valve is opened, the pressure in the line is lowered. If we configure the valve to maintain the pressure, this will ensure a minimum pressure value upstream of the valve, so that if the demand downstream of the valve were to lower the pressure upstream, the valve would close to guarantee the upstream pressure.

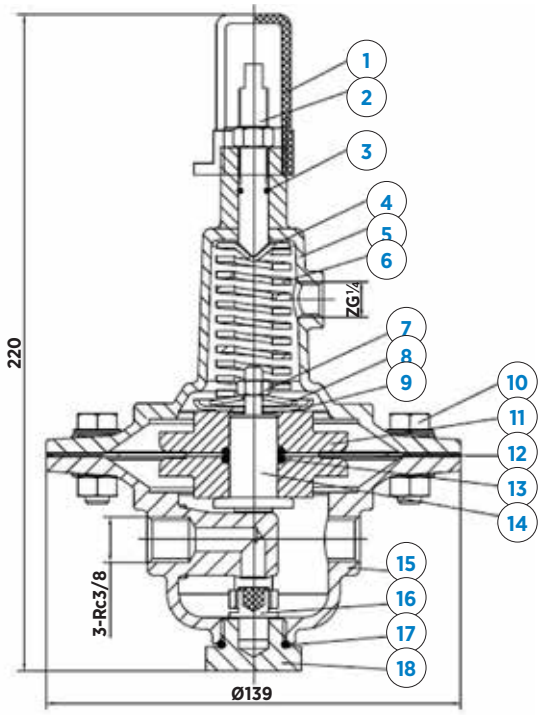
	COMPONENTS	MATERIAL
1	COVER	ABS
2	ADJUSTING SCREW	AISI 304
3	LOCK NUT	A2
4	SPRING GUIDE	AISI 304
5	COVER	AISI 304
6	SPRING	CR-VA
7	NUT	A2
8	WASHER	A2
9	FASTENING SUPPORT	AISI 304
10	BOLT	A2
11	DIAPHRAGM	EPDM + PA6
12	WASHER	AISI 304
13	O-RING	EPDM
14	INTERNAL BODY	AISI 304
15	O-RING	EPDM
16	O-RING	EPDM
17	SHAFT	AISI 304
18	DISC	AISI 304
19	BODY	AISI 304



FLOW CONTROL

The flow control valve maintains a maximum flow value, this means that the flow downstream of the valve will remain constant even though demand increases.

	COMPONENTS	MATERIAL
1	COVER	ABS
2	ADJUSTING SCREW	AISI 304
3	O-RING	EPDM
4	SPRING GUIDE	AISI 304
5	COVER	AISI 304
6	SPRING	Cr-VA
7	NUT	A2
8	WASHER	A2
9	FASTENING SUPPORT	AISI 304
10	BOLT	A2
11	DIAPHRAGM PLATE	AISI 304
12	DIAPHRAGM	EPDM + PA6
13	O-RING	EPDM
14	SHAFT	AISI 304
15	BODY	AISI 304
16	DISC	AISI 304 + EPDM
17	O-RING	EPDM
18	PLUG	AISI 304



11A NON-RISING STEM GATE VALVE

DESCRIPTION

Gate valves with non-rising stem, for fire fighting installations. It has low pressure drop and is full-flow, 100% watertight and is UL-FM certified.

- Minimal load loss.
- 100% watertight.
- Bidirectional flow.
- Stainless steel bolts.
- Working pressure up to 16 bar.
- Flanges PN10/16 type RF.
- Working temperature between -10°C and 90°C.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- UL-FM certification.

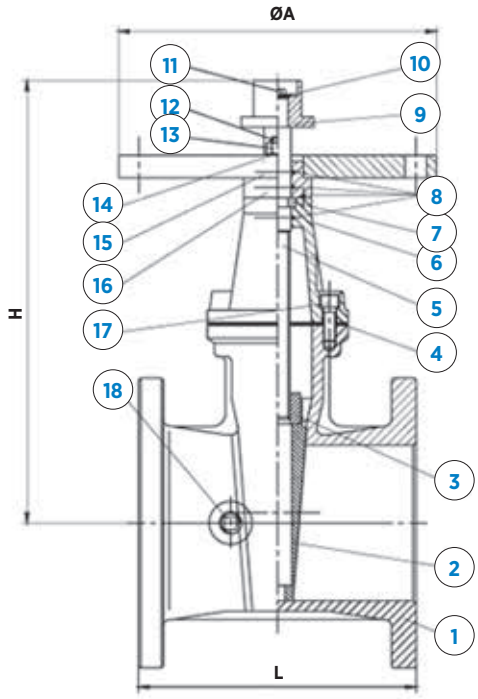
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

DIMENSIONS

DN	L	H	A
65	190	289	305
80	203	326	305
100	229	355	305
125	254	410	305
150	267	455	305
200	292	558	305
250	330	648	305
300	356	745	305



	COMPONENTS	MATERIAL
1	BODY	GJS400-15
2	GATE	GJS400-15 + EPDM
3	CONNECTION NUT	ALUMINUM-BRONZE C95400
4	SEALED GASKET	EPDM
5	SHAFT	AISI 304
6	COVER	GJS400-15
7	RETAINING RING	ALUMINUM-BRONZE C95400
8	O-RINGS	EPDM
9	PLUMBING SQUARE CAP	GJS400-15
10	WASHER	STEEL
11	BOLT	STEEL
12	BOLT	STEEL
13	BLIND NUT	STEEL
14	WASHER	STEEL
15	COUPLING FLANGES	GJS400-15
16	PLATE	GJS400-15
17	BOLT	STEEL
18	PLUG	ALUMINUM-BRONZE C95400
	PAINT	Epoxy 250 µm

11A RISING STEM GATE VALVE

DESCRIPTION

Gate valves with rising stem, for fire fighting installations. It has low pressure drop and is full-flow, 100% watertight and is UL-FM certified.

- Minimal load loss.
- 100% watertight.
- Bidirectional flow.
- Stainless steel bolts.
- Working pressure up to 16 bar.
- Flanges PN10/16 type RF.
- Working temperature between -10°C and 90°C.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- UL-FM certification.

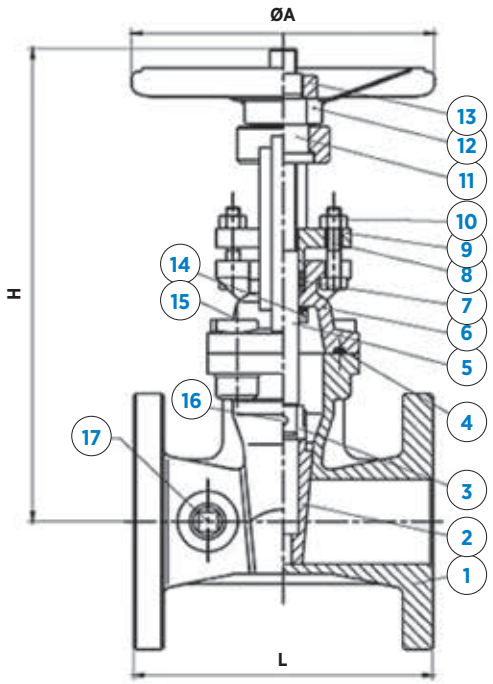
DIRECTIVES

See document of directives applicable to **CMO Valves**.

*For further information on categories and zones please contact **CMO Valves**. Technical-Commercial Department.*

DIMENSIONS

DN	L	H	A
50	178	313	180
65	190	340	200
80	203	387	220
100	229	440	250
125	254	546	280
150	267	607	300
200	292	786	350
250	330	946	406
300	356	1110	406
350	381	1130	465
400	406	1330	465



	COMPONENTS	MATERIAL
1	BODY	GJS400-15
2	GATE	GJS400-15 + EPDM
3	CONNECTION NUT	ALUMINUM-BRONZE C95400
4	SEALED GASKET	EPDM
5	SHAFT	AISI 304
6	COVER	GJS400-15
7	SEALS	GRAPHITE
8	BOLTS	STEEL 8.8
9	PRESS	GJS400-15
10	NUT	STEEL 8.8
11	CROWN	ALUMINUM-BRONZE C95400
12	WHEEL	STEEL
13	NUT	STEEL
14	KEY	AISI 416
15	BOLTS	STEEL
16	PIN	STEEL
17	PLUG	ALUMINUM-BRONZE C95400
	PAINT	EPOXY 250 µm

21A WAFER TYPE BUTTERFLY VALVE

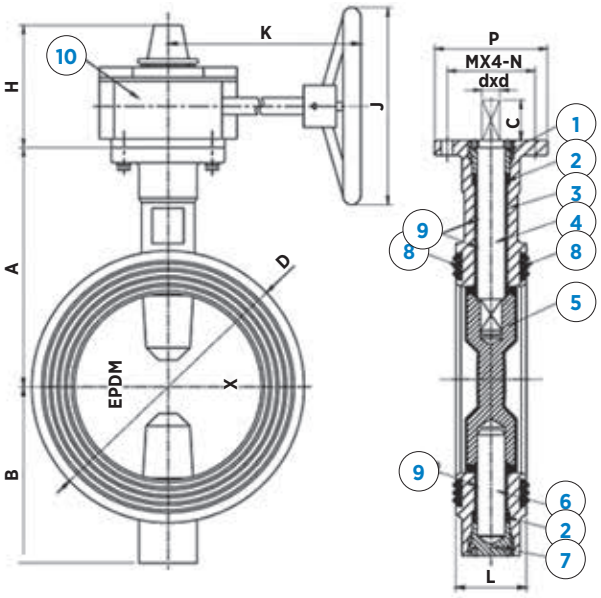
DESCRIPTION

Wafer type butterfly valves, for fire fighting installations. Low pressure drop and is 100% watertight.

- Minimal load loss.
- 100% watertight.
- Bidirectional flow.
- Seals are not required for installation.
- Stainless steel bolts.
- Working pressure up to 16 bar.
- Limit switches included.
- Working temperature between -10°C and 90°C.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- UL-FM certification.
- Top flange ISO 5211.



	COMPONENTS	MATERIAL
1	UPPER SHAFT RETAINING NUT	WCB
2	O-RING	EPDM
3	BODY	GJS400
4	UPPER SHAFT	AISI 416
5	DISC	GJS400 + EPDM
6	LOWER SHAFT	AISI 416
7	LOWER SHAFT RETAINING NUT	WCB
8	SIDE SEALS	EPDM
9	BEARINGS	PTFE
10	REDUCER WITH LIMIT SWITCHES	GJL250
	PAINT	EPOXY 250 µm

DIMENSIONS

DN	A	B	C	D	H	K	J	P	M	N	d	L
50	110	85	32	100	111	153	152	90	70	9	10	42
65	125	95	32	112	111	153	152	90	70	9	10	44.2
80	140	100	32	120	111	153	152	90	70	9	11	45.3
100	160	100	32	161	111	153	152	90	70	9	14	52
125	170	125	32	182	111	153	152	90	70	9	14	54.4
150	190	140	32	216	111	153	200	90	70	9	16	55.8
200	230	175	32	260	126	210	300	125	102	12	19	60.5
250	260	200	45	320	126	210	300	125	102	12	24	66.5
300	300	240	45	375	161	249	350	150	102	14	26	76.9

25A GROOVED TYPE BUTTERFLY VALVE

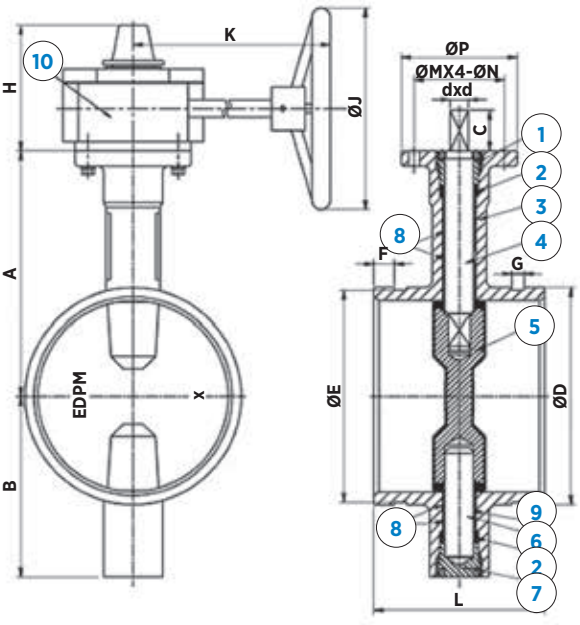
DESCRIPTION

Grooved type butterfly valves, for fire fighting installations. Low pressure drop and is 100% watertight and full flow.

- Minimal load loss.
- 100% watertight.
- Bidirectional flow.
- Seals are not required for installation.
- Stainless steel bolts.
- Working pressure up to 16 bar.
- Limit switches included.
- Working temperature between -10°C and 90°C.

STANDARDS

- Hydraulic tests according to EN 12266-1, class A.
- EC Directive.
- UL-FM certification.
- Top flange ISO 5211.



	COMPONENTS	MATERIAL
1	UPPER SHAFT RETAINING NUT	WCB
2	O-RING	EPDM
3	BODY	GJS400
4	UPPER SHAFT	AISI 416
5	DISC	GJS400 + EPDM
6	LOWER SHAFT	AISI 416
7	LOWER SHAFT RETAINING NUT	WCB
8	SIDE SEALS	EPDM
9	BEARINGS	PTFE
10	REDUCER WITH LIMIT SWITCHES	GJL250
	PAINT	EPOXY 250 µm

DIMENSIONS

DN	A	B	C	D	E	F	G	H	K	J	P	M	N	d	L
50	110	85	32	60.3	57.15	15.9	7.9	111	153	152	90	70	9	10	88
65	125	95	32	76.1	72.3	15.9	7.9	111	153	152	90	70	9	10	96.4
80	140	100	32	88.9	84.9	15.9	7.9	111	153	152	90	70	9	11	97
100	160	100	32	114.3	110.1	15.9	9.5	111	153	152	90	70	9	14	115.1
125	170	125	32	141.3	135.5	15.9	9.5	111	153	152	90	70	9	14	132.4
150	190	140	32	168.3	160.9	15.9	9.5	111	153	200	90	70	9	16	132.4
200	230	175	32	219.1	214.4	19	11.1	126	210	300	125	102	12	19	147.4
250	260	200	45	273	268.3	19	12.7	126	210	300	125	102	12	24	159
300	300	240	45	323.8	318.3	19	12.7	161	249	350	150	125	14	26	165

NOTES


CMO VALVES
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