TECHNICAL DATA
AB SERIES

ARNETT
ENGINEERED SOLUTIONS

ARNETT ENGINEERED SOLUTIONS
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BIDIRECTIONAL KNIFE GATE VALVE - WAFER DESIGN

DESCRIPTION

- Bidirectional valve with one-piece cast body and seat inserted in valve. Its design provides a completely flat seat with no internal cavities, preventing any build up of solids in the seal area.
- Stainless steel knife gate.
- High flow rates with low load losses.
- Various construction materials and seal and packing materials available.
- Face-to-face distance in accordance with **CMO Valves** standard.

GENERAL APPLICATIONS

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

Designed for applications such as:
- Paper industry
- Chemical plants.
- Pumping.
- Food industry.
- Water treatment (clean and waste)

In all these applications, the valve should be installed once the fluid has been filtered, to eliminate solids or large particles it contains.

SIZES

DN50 to DN600.

** Others ND on request.*

WORKING PRESSURE (ΔP)

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

** Other pressures, consult.*

The indicated working pressures are valid both ways.

STANDARD FLANGES

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

OTHER COMMON STANDARDS

- PN6.
- PN16.
- PN25.
- BS “D” and “E”.
- JIS10K.

** Others on request*

Fig. 1

APPLICATION OF EUROPEAN DIRECTIVES

See document of European 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.

Installation and Maintenance Manual available at **www.cmovalves.com.**

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ADVANTAGES

The main characteristic of this valve is the body design, made from a single piece with sealing guides on both sides to work with fluids in both directions and withstand the pressure. This design provides a completely flat seat with no internal cavities and avoids any build up of solids in the seat area. The passage is circular and full-bore, allowing for high flow capacity and minimal pressure drop. The knife gate is guided throughout its travel, ensuring bidirectional sealing. Optionally, upon request, the knife gate valve can be supplied with a triangular (V-shaped) or pentagonal diaphragm for applications requiring more precise regulation.

The stem in **CMO Valves** is made from AISI304 stainless steel. This is another additional benefit, since some manufacturers supply it with 13% chrome, which quickly rusts. Other materials are possible on request.

The stem protection cap is independent from the handwheel's fastening nut, meaning the bonnet can be disassembled without the need to release the handwheel. This allows regular maintenance operations to be carried out, such as lubricating the stem, etc.

The operating handwheel is made of ductile cast iron, a material with superior mechanical properties than standard grey cast iron handwheels, which are more prone to breaking under high operating torque or impact.

The yoke has a compact design with the bronze actuator nut protected in a sealed, lubricated box. This makes it possible to move the valve with a key, even without the handwheel (in other manufacturers' products this is not possible).

The pneumatic drive's top and bottom bonnets are made of ductile cast iron, making them highly shock- or impact-resistant. This characteristic is essential in pneumatic drives.

The pneumatic cylinder seals are commercial and can be obtained worldwide, thus ensuring easy maintenance and operational availability while eliminating the need to contact the manufacturer for every replacement.

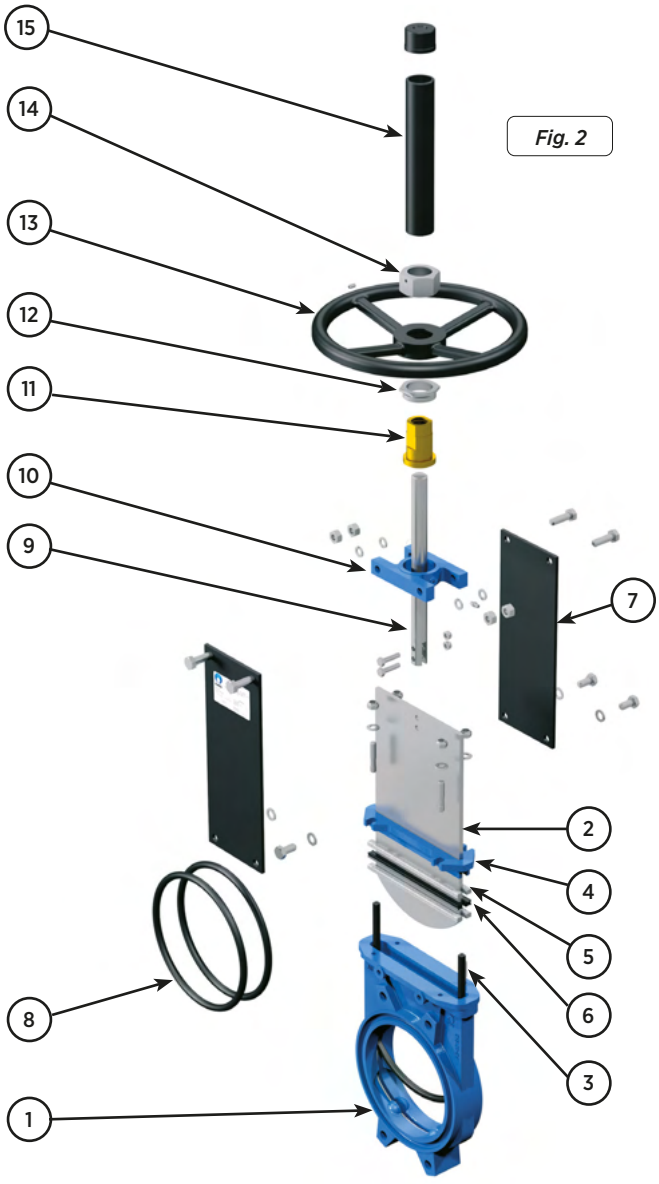

Fig. 2

STANDARD COMPONENTS LIST

COMPONENT		NODULAR IRON	ST.STEEL
1	BODY	GJS500-7	CF8M
2	GATE	AISI304	AISI316
3	SEAT	EPDM	
4	PACKING GLAND	GJS500-7	CF8M
5	PACKING	SYNT + PTFE	
6	O-RING SEAL	EPDM	
7	SUPPORT PLATES	S275JR	
8	O-RING	NITRILE	
9	STEM	AISI303	
10	YOKE	STEEL	
11	STEM NUT	BRONZE	
12	CHECK NUT	ST44.2 + ZINC	
13	HANDWHEEL	FUN. NODULAR	
14	NUT	STEEL	
15	HOOD	STEEL	

Table. 1

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DESIGN CHARACTERISTICS

1. BODY

- Bidirectional wafer-design knife gate valve. One-piece cast iron body.
- Full port designed to provide high flow rates with low pressure drop.
- The body's internal design prevents any build up of solids in the seat area.
- The standard manufacturing materials are GJS500-7 cast iron and CF8M stainless steel.
- Other materials, such as GJS500-7 nodular cast iron, A216WCB carbon steel and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6...) are available on request.
- As standard, **CMO Valves'** carbon steel gate valves are coated with 80-micron epoxy anti-corrosive protection (RAL 5015). Other types of anti-corrosion and finish protections are available.

2. GATE

The standard manufacturing materials are AISI304 stainless steel in valves with iron body and AISI316 stainless steel in valves with CF8M body. Other materials or combinations can be supplied on request.

The gate is polished on both sides to provide a smooth contact surface with the resilient seat. At the same time, the gate is rounded to prevent the seat from being cut. Di erent degrees of polishing, anti-abrasion treatments and modifications are available to adapt the valves to the customer's requirements.

RESILIENT SEAT MATERIALS

EPDM
This is the standard resilient seat 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 it provides the valve with 100% watertight integrity.

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% watertight integrity.

FKM
Suitable for corrosive applications and continuous high temperatures of up to 190°C and peaks of 210°C. It provides the valve with 100% watertight integrity.

SILICONE
Mainly used in the food industry and for pharmaceutical products with temperatures no higher than 200°C.
It provides the valve with 100% watertight integrity.

***Note**: In some applications other types of elastomer are used, such as: hypalon, butyl, etc. Please contact **CMO Valves** for any such requirements

3. SEAT

There is only one seat design available on the AB valve and it must always be soft seated. **It can never have a metal or PTFE sealing joint.**
Below we show the detail of the seat:

The **AB valve** seat is a square rubber joint with an internal stainless steel wire.

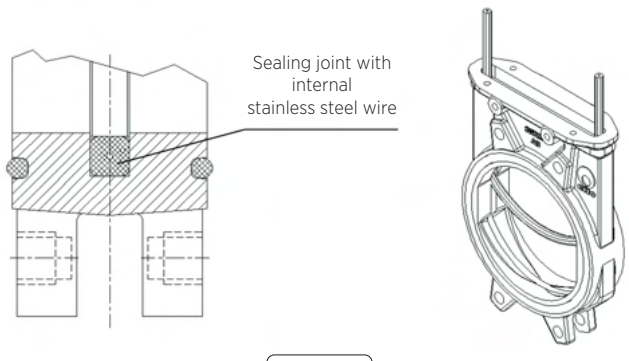

Fig. 3 & 4

This rubber joint is inserted inside the body in such a way that it starts on one side, level with the packing, and continues around the body to reach the other end of the packing area.

This means that the sealing joint is not installed around the whole perimeter of the valve's fl ow passing hole, but rather, it is installed in a U shape, to cover the gate's perimeter.

The internal stainless steel wire helps to keep the U shape and ensures that the joint does not come out of the body because of the fl ow as it passes through the valve.

This design provides a completely flat seal with no cavities and avoids any solids being stored in the seal area.

On request, reinforced rings and deflectors can be fitted to the valve for improved durability and performance in demanding applications. Several materials are available for the reinforced ring and deflector (CA-15 steel, CF8M and Ni-hard)

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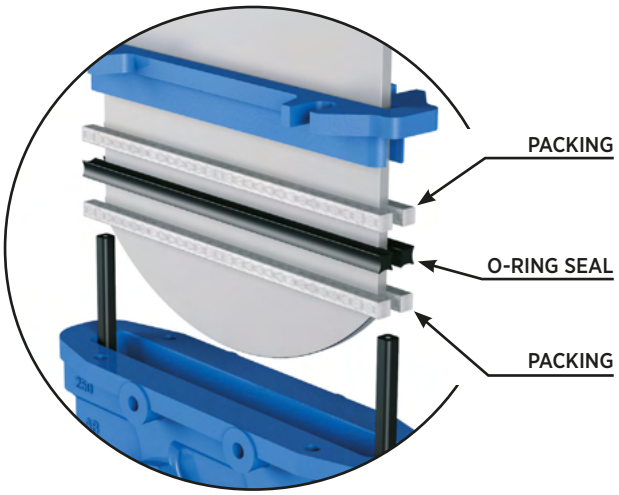
4. PACKING

CMO Valves's standard packing is composed of three lines with a specially designed EPDM O-ring 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. GREASED COTTON (Recommended for hydraulic services):

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.

2. DRY COTTON

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

3. 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.

4. SYNTHETIC + PTFE

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.

5. GRAPHITE

This packing 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.

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			PACKING			
MATERIAL	**Tª MÁX (ºC)**	**APLICATIONS**	**MATERIAL**	**P(Bar)**	**Tª. MÁX**	**pH**
EPDM (E)	90º (* see note)	Mineral acids and oils	Greased cotton	10	100º	6-8
Nitril (N)	90º (* see note)	Hydrocarbons, oils and greases	Dry cotton (AS)	0,5	100º	6-8
FKM (V)	200º	Hydrocarbons and solvents	Synthetic + PTFE	100	-200º +270º	0-14
Silicon (S)	200º	Food Products	Graphite	40	650º	0-14
			Ceramic Fibre	0,3	1400º	0-14

* **EPDM and nitrile:** is possible until serving temperature Max.: 120°C under request.
Note: More details and other materials available on request

Table. 2

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5. STEM

The stem on the **CMO Valves** valve is made of AISI 304 stainless steel. This characteristic provides high resistance and excellent corrosion-resistant properties. The valve design can be rising stem or non-rising stem. When rising stem is required a stem hood is supplied to protect the stem from contact with dust and dirt, as well as keeping it lubricated.

6. PACKING GLAND

The packing gland allows uniform force and pressure to be applied to the packing to ensure watertight integrity. As standard, valves with cast iron body include GJS500-7 packing glands, whilst valves with stainless steel body have CF8M packing glands.

7. ACTUATORS

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

Manual Drives
Handwheel **(*)**
Chain handwheel **(*)**
Lever
Geared motor **(*)**
Others (square stem)

Automatic Drives
Electric actuator **(*)**
D/E & S/E pneumatic cylinder
Hydraulic cylinder

(*) Available in rising and non-rising stem versions.

Availability of Accessories
Mechanical stoppers
Locking devices
Emergency manual drives
Electrovalves
Positioners
Limit switches
Proximity detectors
Straight floor stand (Fig. 5)
Leaning floor stand (Fig. 6)

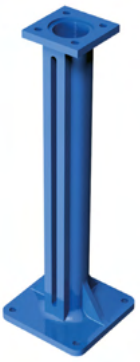

Fig. 5

LEANING FLOOR STANDS.

Fig. 6

STRAIGHT FLOOR STANDS.

For those applications in which moving the actuator away from the valve is wanted, **CMO Valves** has a its disposal extension axis and stem extensions, allowing the guillotine actuation from remote positions from the valve's location. It is recommended to previously consult to our technicians.

H/A = RISING STEM
H/NA = NON-RISING STEM

Fig. 7

LEVER **H/A**

HANDWHEEL NON-RISING STEM **H/NA**

HANDWHEEL RISING STEM **H/A**

CHAIN HANDWHEEL **H/A** **H/NA**

ELECTRIC-MOTOR ACTUSTOR **H/A** **H/NA**

HANDWHEEL GEAR-BOX **H/A** **H/NA**

HYDRAULIC ACTUATOR **H/A**

PNEUMATIC ACTUATOR **H/A**

SINGLE-ACTING PNEUMATIC ACTUATOR **H/A**

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ACCESSORIES AND OPTIONS

Limit switches or detectors to indicate valve positions (open/closed and/or intermediate positions), and position transmitters to indicate continuous position.

PTFE LINED GATE
The steel provides the mecanic resistence to the chopper while the PTFE or PPFA coating isolates the metal corrosive medium, providing a high chemical and abrasion resistence. This way maintenance periods are reduced and the valve's lifespam is highly increased.

STELLITED GATE
Stellite is added to the lower perimeter of the cutter to harden its surface, increasing its resistance to abrasion, heat, impact and corrosion, or their combinations.

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

AIR INJECTION IN THE PACKING GLAND
Through the injection of air in the packing gland, an air gasket that enhances the watertightness is created, prevents leaks and reduces friction and wear.

DRIVE 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.

MECHANICAL LIMIT SWITCHES, INDUCTIVE SWITCHES AND POSITIONERS
Race endings or detectors for valve positions indicator (open/closed and/or intermedium positions), and and position transmitters for continuous position indication.

ELECTROVALVES:
For air distribution to pneumatic drives.

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

MECHANICAL STROKE LIMITING STOP (MECHANICAL STOPPERS):
These allow the stroke to be mechanically adjusted, limiting the valve run.

MECHANICAL LOCKING DEVICE:
Allows the valve to be mechanically locked in a fixed position.

EMERGENCY MANUAL ACTUATOR (HAND WHEEL /GEAR BOX)
Allows the manual operation of the valve in the event of power or air failure.

ACTUATOR INTERCHANGEABILITY
The actuators are easily interchangeable with each other, especially in those applications where future motorizations are foreseen.

EPOXY COATING:
All cast-iron and carbon steel valve bodies and components are EPOXY coated, making the valves hugely resistant to corrosion while giving them an excellent finish.
The standard colour in **CMO Valves** is blue, RAL-5015.

SAFETY GUARDS FOR THE KNIFE GATE:
In accordance with European Safety Standards ("EC" marking), automatic valves are equipped with metal guards for protection, preventing any objects from being accidentally caught or dragged along in the knife gate's run.

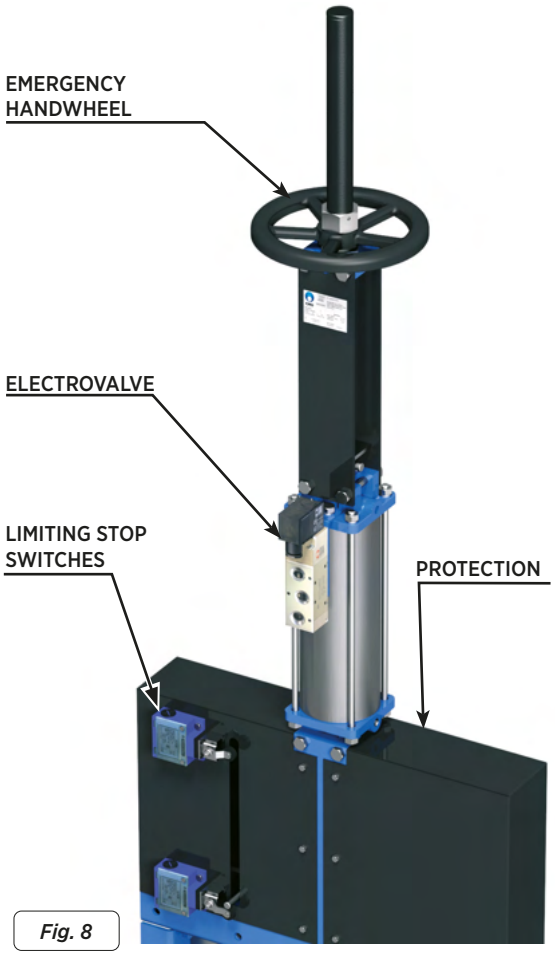

Fig. 8

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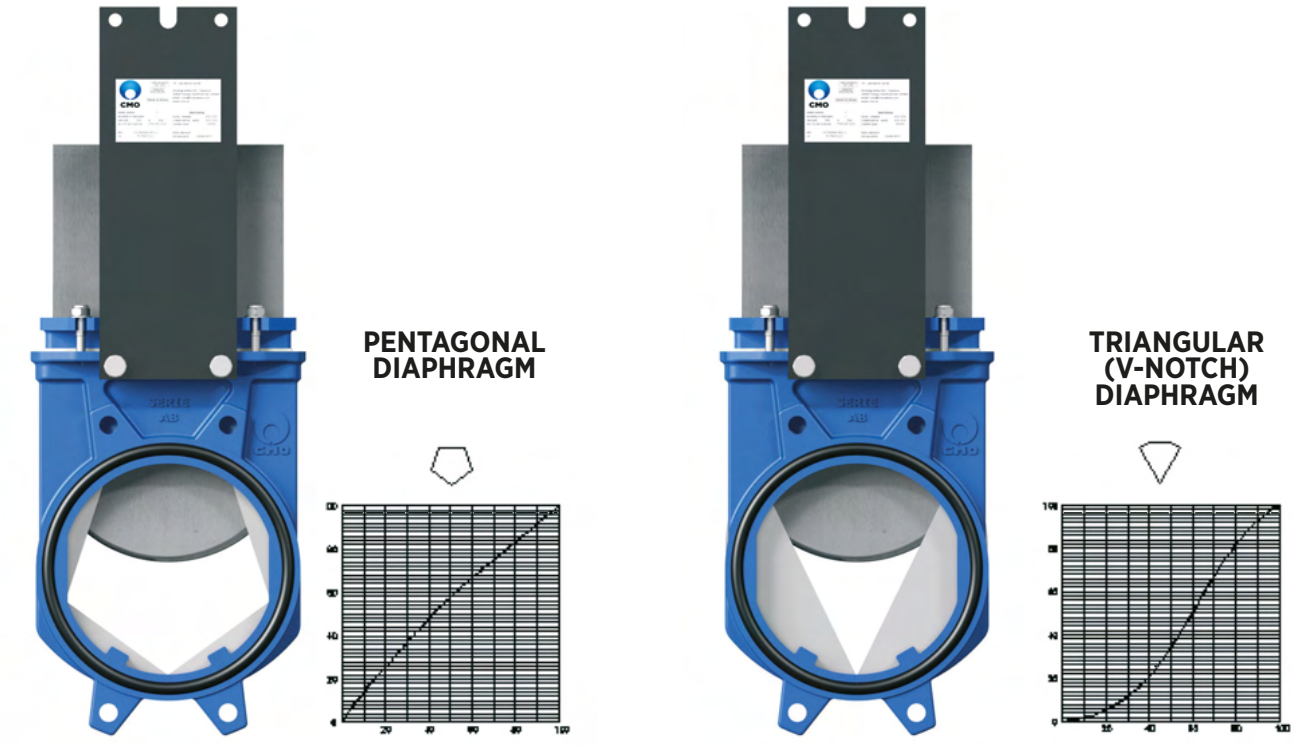

Fig. 9

VERTICAL
% MAXIMUM FLOW

HORIZONTAL
% VALVE OPENING

PENTAGONAL AND V-SHAPED DIAPHRAGM WITH INDICATION RULER

This option is intended for applications requiring flow regulation. Allows flow control according to the valve's opening percentage. The valve's response can be characterised by the diaphragm's design (V-shaped, pentagonal, etc.). Check with **CMO Valves** for further information on characteristic and inherent curves.

DRIVE INTERCHANGEABILITY

The drives are easily interchangeable, especially in applications anticipating future motorisation.

EPOXY COATING:

All cast iron and carbon steel valve bodies and components are coated with a layer of EPOXY, which makes the valves highly resistant to corrosion and provides an excellent surface finish.
The standard colour of **CMO Valves** is blue, RAL 5015. Other colours and/or finishes upon request.

KNIFE GATE SAFETY GUARDS

In accordance with European Safety Standards ("CE" marking), the automatic valves are equipped with metal guards for protection, isolating the moving parts in the knife gate's travel and preventing anyone or anything from being accidentally caught or dragged along.

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TYPES OF EXTENSIONS

For those applications in which the actuation is required to be moved further away from the valve, **CMO Valves** has various solutions (mounting brackets, extension shafts and spindle extensions) that allow the actuation of the guillotine from positions far from the valve location.

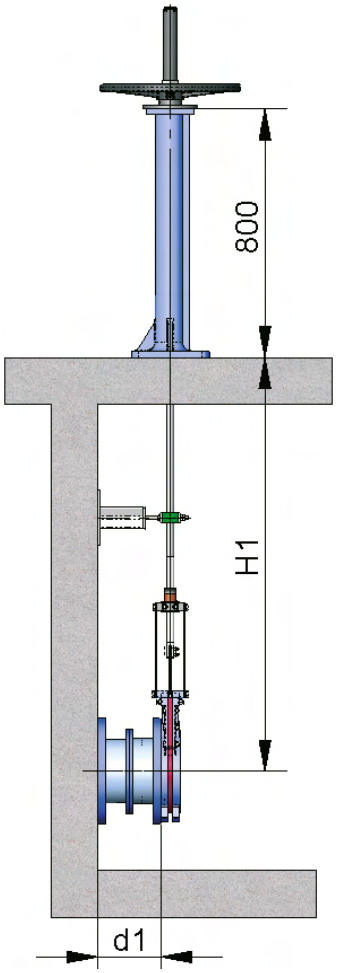

Fig. 11

STANDARD OPERATION STAND.

1- FLOOR STAND

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

The definition variables are as follows:

H1 = Distance from valve centre to 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 drive.
- We recommend a stem guide bracket every 1.5 m
- The standard floor stand is 800 mm high.
- Option to use a position indicator to determine the valve's percentage of opening.
- Leaning stand available to order
- Other floor stand measurements available on request.

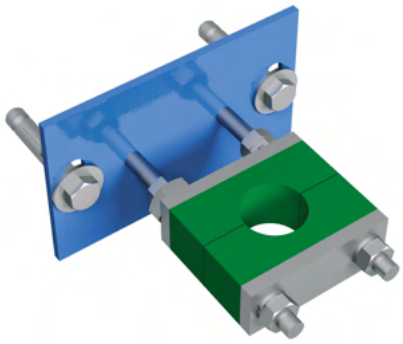

Fig. 12

STEM GUIDE BRACKET

COMPONENT LIST

COMPONENT	STANDARD VERSION
Stem	AISI 304
Rod	AISI 304
Support-Guide	Carbon steel with EPOXY coating
Guide	PA6
Stand	GJS500-7 with EPOXY coating

Table. 3

LEANING STAND.

Fig. 13

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2.- PIPE

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

The definition variables are as follows:

H1 = Distance from valve centre to base of the stand

d1 = Separation from the wall to the end of the connecting flange

CHARACTERISTICS:

- Standard drives: handwheel and top square.
- A pipe guide bracket is recommended every 1.5 m.
- The standard materials are: EPOXY-coated carbon steel and stainless steel.

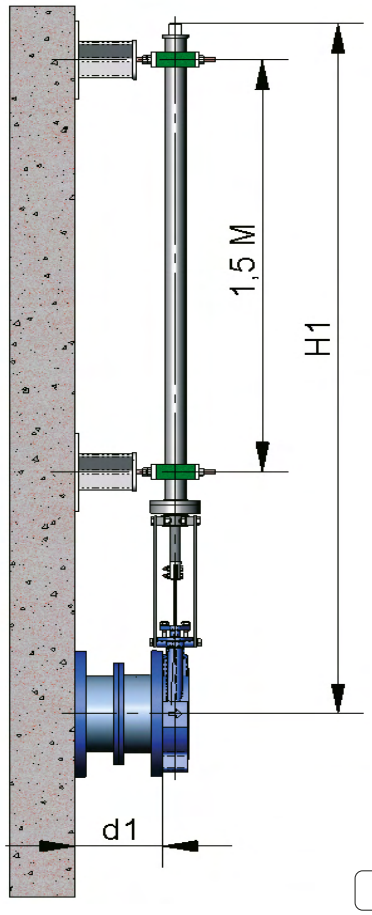

Fig. 14

3.- ELONGATED 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.

Fig. 15

4.- UNIVERSAL CARDAN JOINT

If the valve and the drive are not in correct alignment, the problem can be resolved by fitting a universal cardan joint. This option is only valid for non-rising stem drives.

Fig. 16

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RISING-STEM HANDWHEEL

The definition variables are as follows:

B = Max. width of the valve (without actuator).

D= Max. height of the valve (without actuator).

OPTIONS:

- Locking devices.
- Extensions: stand, pipe, plates.
- DN above those given in the table

ACTUATOR:

- Handwheel
- Stem
- Nut
- Stem protection bonnet

AVALAIBLE:

- Standard ND50 to DN350.
- From ND600 the actuator is with gears.

** Other ND on request.*

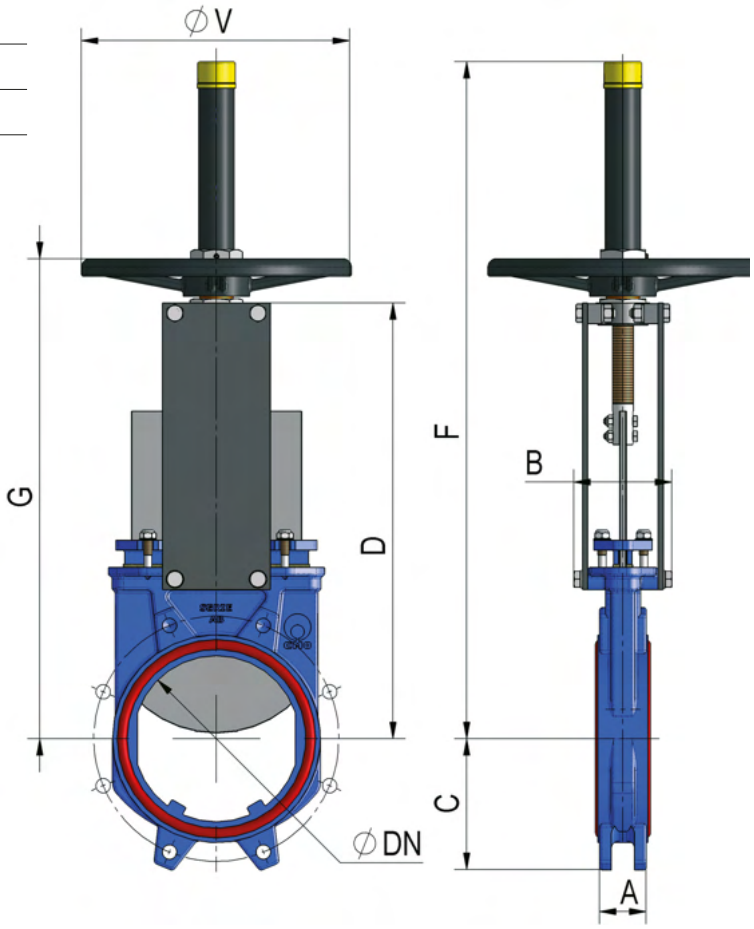

Fig. 17

ND	ΔP (bar)	A	B	C	D	F	G	øV	WEIGHT (kg.)
50	10	40	91	61	241	410	280	220	7
65	10	40	91	68	268	437	308	220	8
80	10	50	91	91	294	463	333	220	9
100	10	50	91	104	334	503	373	220	11
125	10	50	101	118	367	586	407	220	13
150	10	60	101	130	419	638	458	220	17
200	10	60	118	159	525	816	578	320	28
250	6	70	118	196	626	1017	679	320	40
300	6	70	118	230	726	1117	779	400	56

Table. 4

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HANDWHEEL WITH NON-RISING STEM

Suitable when no size limitations exist.

The definition variables are as follows:

B = Max. width of the valve (without actuator)

J = Max. height of the valve (without actuator)

OPTIONS:

- Square nut
- Locking devices
- Extensions: elongated plates...
- ND higher than those give in the table

ACTUATOR:

- Handwheel
- Stem
- Guide bearings on the yoke.
- Nut

AVALAIBLE:

- ND50 to DN600.
- From ND350 the actuator is with gears

** Other ND on request.*

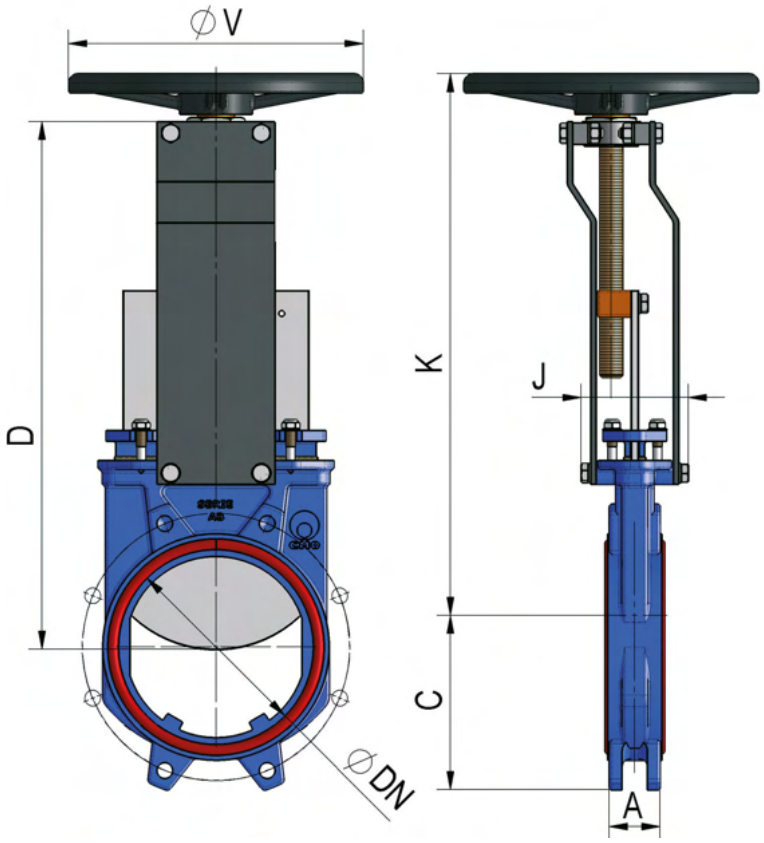

Fig. 18

ND	ΔP (bar)	A	C	D	J	K	øV	WEIGHT (kg.)
50	10	40	61	241	101	280	220	7
65	10	40	68	268	101	308	220	8
80	10	50	91	294	101	333	220	9
100	10	50	104	334	101	373	220	11
125	10	50	118	367	111	407	220	13
150	10	60	130	419	111	458	220	17
200	10	60	159	525	128	578	320	28
250	6	70	196	626	128	679	320	40
300	6	70	230	726	128	779	400	56

Table. 5

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CHAIN HANDWHEEL

Widely used in raised installations with difficult access, the wheel is fitted in vertical position.

The definition variables are as follows:

B = Max. width of the valve (without actuator)

D = Max. height of the valve (without actuator)

OPTIONS:

- Locking devices
- Extensions: stand, pipe, plates...
- Non-rising stem
- ND higher than those give in the table

ACTUATOR:

- Handwheel
- Stem
- Nut
- Hood
- Chain

AVAILABLE:

- ND50 to DN600.
- From ND350 the actuator is with gears.

** Other ND on request.*

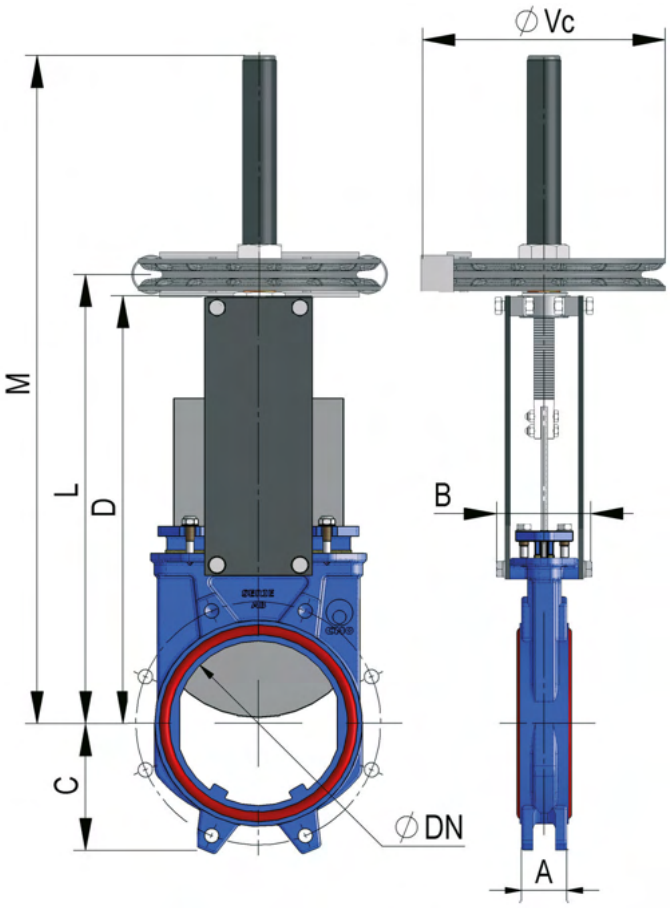

Fig. 19

ND	ΔP (bar)	A	B	C	D	L	M	øVc	WEIGHT (kg.)
50	10	40	91	61	241	264	410	220	7
65	10	40	91	68	268	291	437	220	8
80	10	50	91	91	294	317	463	220	9
100	10	50	91	104	334	357	503	220	11
125	10	50	101	118	367	390	586	220	13
150	10	60	101	130	419	442	638	220	17
200	10	60	118	159	525	551	816	300	28
250	6	70	118	196	626	652	1017	300	40
300	6	70	118	230	726	752	1117	300	56

Table. 6

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LEVER

It is a fast actuator.

The definition variables are as follows:

B = Max. width of the valve (without actuator)

D = Max. height of the valve (without actuator)

OPTIONS:

- Locking devices
- Extensions: elongated plates...

ACTUATOR:

- Lever
- Rod
- Guide bearing
- External limiting switches to maintain the position

AVALAIBLE:

- ND50 to DN200.
- Other pressures on request

** Others ND on request.*

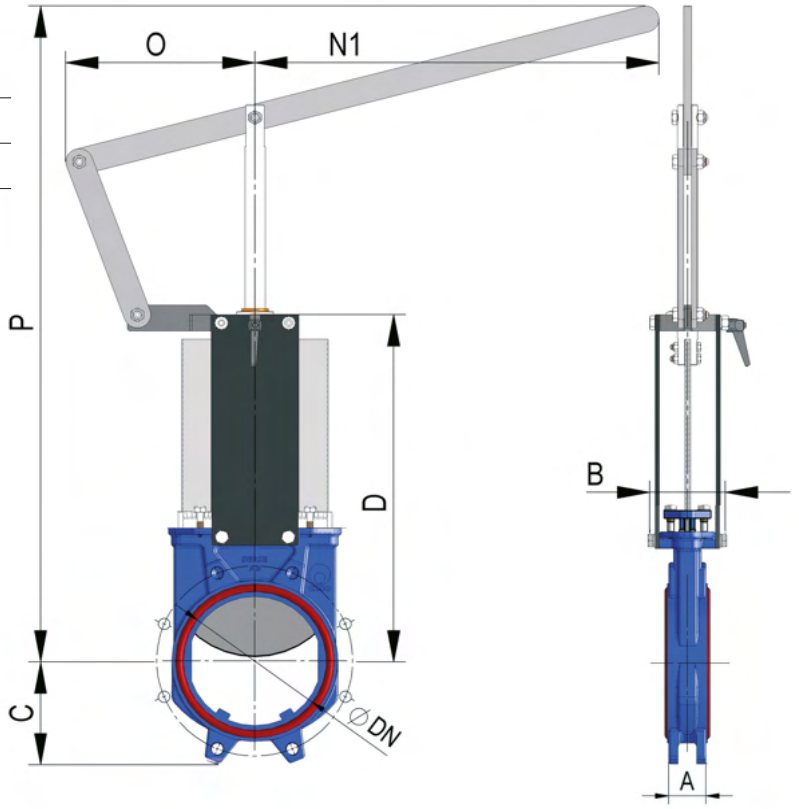

Fig. 20

ND	ΔP (bar)	A	B	C	D	L	M	øVc	WEIGHT (kg.)
50	10*	40	91	61	241	325	155	504	8
65	10*	40	91	68	268	325	155	526	9
80	10*	50	91	91	294	325	155	549	10
100	10*	50	91	104	334	325	155	605	11
125	10*	50	101	118	367	425	155	902	14
150	10*	60	101	130	419	425	155	956	16
200	10*	60	118	159	525	620	290	1027	32

Table. 7

Rev.02 / 11-07-2024

GEAR BOX

The definition variables are as follows:

B = Max. width of the valve (without actuator)

P = Max. height of the valve (without actuator)

OPTIONS:

- Chainwheel
- Extensions: stand, pipe, plates...
- Locking devices
- Non-rising stem

ACTUATOR:

- Stem
- Yoke
- Cone-shaped gear box
- Handwheel
- Standard ratio = 4 to 1.

AVALAIBLE:

- ND50 to DN600.

** Other ND on request.*

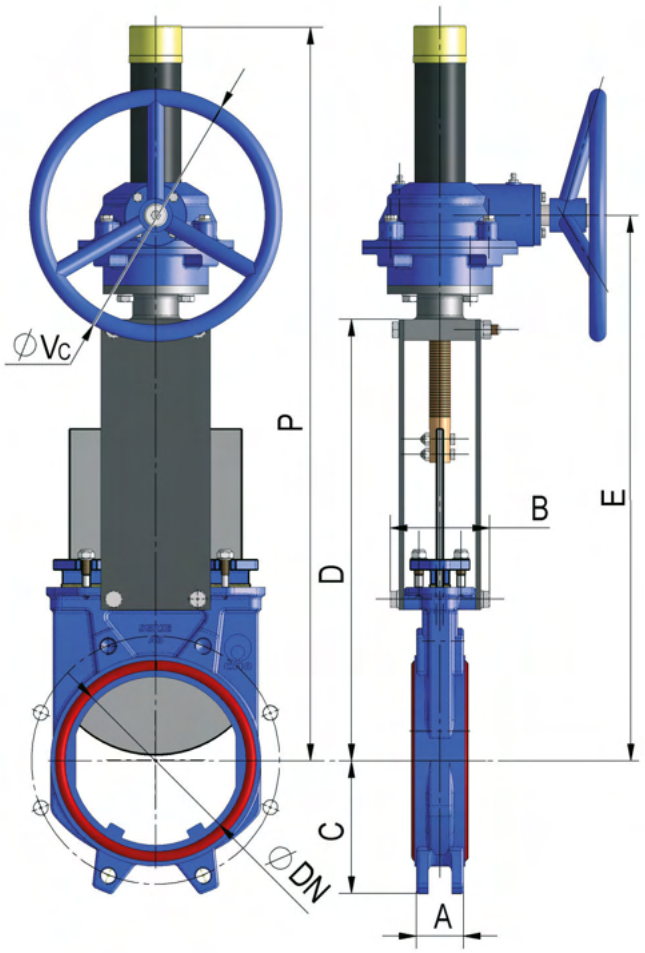

Fig. 21

ND	ΔP (bar)	A	B	C	D	E	P	øVc	WEIGHT (kg.)
50	10	40	91	61	241	366	540	300	20
65	10	40	91	68	268	392	566	300	21
80	10	50	91	91	294	418	592	300	22
100	10	50	91	104	334	458	632	300	24
125	10	50	101	118	367	491	665	300	26
150	10	60	101	130	419	543	717	300	30
200	10	60	118	159	525	648	942	300	41
250	6	70	118	196	626	749	1033	300	53
300	6	70	118	230	726	850	1121	300	69
350	6	96	290	254	797	891	1305	450	107
400	6	100	290	287	903	997	1403	450	130
450	5	106	290	304	989	1083	1677	450	183
500	4	110	290	340	1101	1195	1789	450	204
600	3	110	290	398	1307	1401	1995	450	288

Table. 8

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DOUBLE-ACTING PNEUMATIC CYLINDER

The definition variables are as follows:

B = Max. width of the valve (without actuator)

D = Max. height of the valve (without actuator)

CMO Valves double-acting pneumatic actuators are designed to work at a pressure between 6 and 10 bar.

10 bar is the maximum admissible air pressure. For air pressures below 6 bar please consult manufacturer.

For ND50 to ND200 valves, the cylinder's jacket and covers.

are made of aluminium, the rod of AISI304, the piston of rubber-coated steel and the O-ring seals are made of nitrile.

For valves larger than ND200 the covers are made of nodular cast iron or carbon steel.

On request, we can also supply the actuator made entirely of stainless steel, especially for installation in corrosive atmospheres.

Optionally, a wide variety of elements such as positioners, air treatment units (filter/regulator), sensors, etc., can be mounted on the D/A pneumatic cylinder.

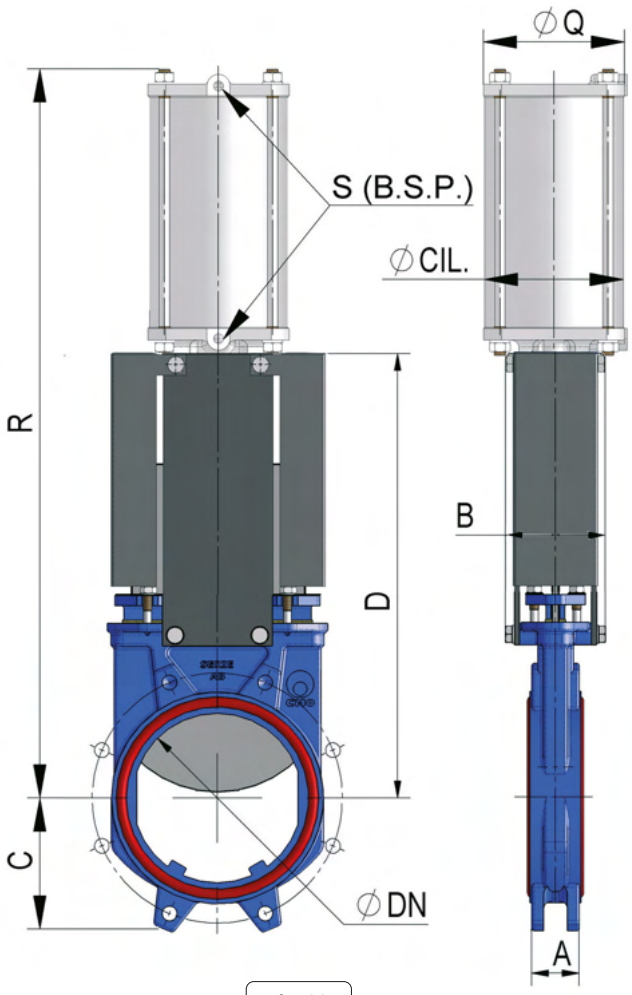

Fig. 22

AVALAIBLE:

- ND50 to DN600.

** Other ND on request.*

ND	P (bar)	A	B	C	D	R	Ø CIL.	Ø VAST	ØQ	S (B.S.P.)	WEIGHT (kg.)
50	10	40	91	61	241	415	80	20	96	1/4"	7
65	10	40	91	68	268	455	80	20	96	1/4"	8
80	10	50	91	91	294	498	80	20	96	1/4"	9
100	10	50	91	104	334	565	100	20	115	1/4"	12
125	10	50	101	118	367	636	125	25	138	1/4"	18
150	10	60	101	130	419	717	125	25	138	1/4"	22
200	10	60	118	159	525	874	160	30	175	1/4"	37
250	6	70	118	196	626	1036	200	30	218	3/8"	58
300	6	70	118	230	726	1182	200	30	218	3/8"	72
350	6	96	290	254	797	1380	250	40	270	3/8"	130
400	6	100	290	287	903	1535	250	40	270	3/8"	148
450	5	106	290	304	989	1677	300	45	382	1/2"	235
500	4	110	290	340	1101	1839	300	45	382	1/2"	260
600	3	110	290	398	1307	2146	300	45	382	1/2"	334

Table. 9

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SINGLE-ACTING PNEUMATIC CYLINDER

CMO Valves single-acting pneumatic actuators are designed to work at a pressure between 6 and 10 bar.

10 bar is the maximum admissible air pressure. For air pressures below 6 bar please consult manufacturer.

Available (spring closes or spring opens).

The jacket is made of aluminium, the covers of nodular cast iron or carbon steel, the rod of AISI304, the piston of rubber-coated steel and the O-ring seals of nitrile.

The actuator design is spring activated for valves with diameters up to ND200. For larger diameters the actuator contains a double-acting cylinder and an air tank which stores the volume of air necessary to perform the last movement in the event of a fault.

Note: Please see the "**CMO Valves** Pneumatic Actuators" catalogue if you require further information.

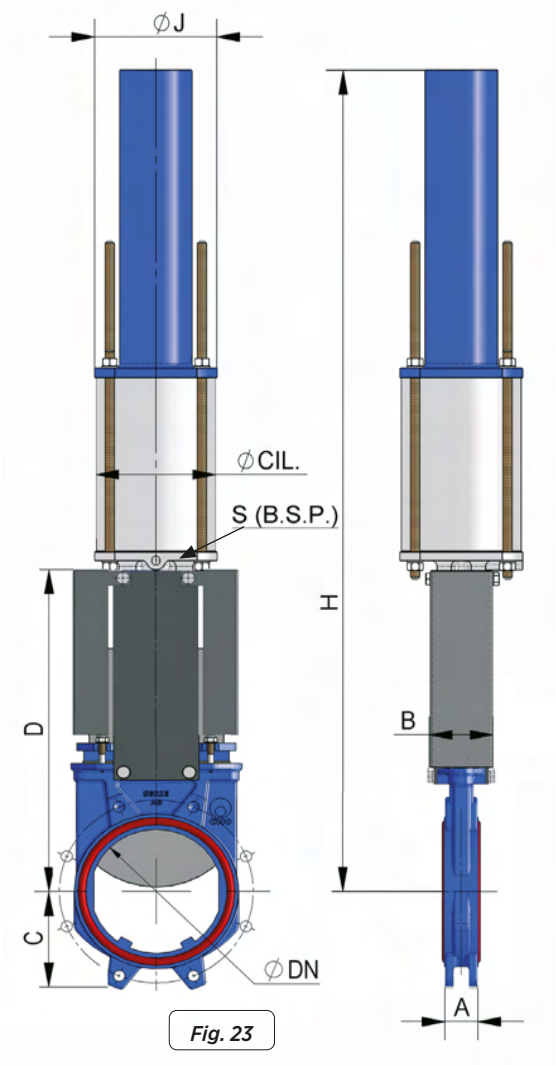

Fig. 23

DN	ΔP (bar)	A	B	C	D	H	ØJ	Ø CIL.	Ø VAST	S (B.S.P.)	WEIGHT (kg.)
50	10	40	91	61	248	785	138	125	25	1/4"	19
65	10	40	91	68	274	810	138	125	25	1/4"	22
80	10	50	91	91	302	840	138	125	25	1/4"	23
100	10	50	91	104	340	880	138	125	25	1/4"	24
125	10	50	101	118	380	920	138	160	30	1/4"	35
150	10	60	101	130	425	995	138	160	30	1/4"	36
200	10	60	118	159	533	1340	175	200	30	3/8"	66

Table. 10

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ELECTRIC ACTUATOR

This drive is automatic and includes the following parts:

- Electric motor
- Stem
- Yoke

The electric motor includes:

- Emergency manual handwheel,
- Limit switches
- Torque limiting stops

OPTIONS:

- Option to mount any brand/manufacturer.
- Different types of controls and a wide range of options.
- Direct mounting for small DN valve sizes. For larger sizes, the electric actuator can be mounted in combination with a gearbox.

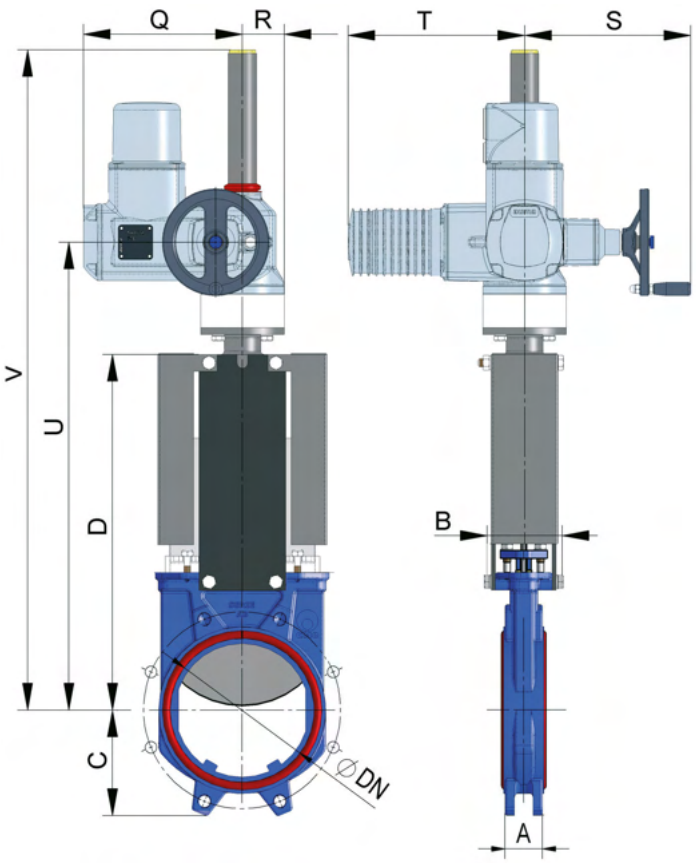

Fig. 24

DN	ΔP (bar)	A	B	C	D	Q	R	S	T	U	V	WEIGHT (kg.)
50	10	40	91	61	241	238	62	249	265	400	595	24
65	10	40	91	68	268	238	62	249	265	426	622	25
80	10	50	91	91	294	238	62	249	265	452	647	26
100	10	50	91	104	334	238	62	249	265	492	687	27
125	10	50	101	118	367	238	62	249	265	525	720	30
150	10	60	101	130	419	238	62	249	265	577	772	32
200	10	60	118	159	525	238	62	249	265	685	990	42
250	6	70	118	196	626	238	62	249	265	785	1090	55
300	6	70	118	230	726	238	62	249	265	885	1190	72
350	6	96	290	254	797	248	65	254	283	940	1305	99
400	6	100	290	287	903	248	65	254	283	1045	1460	136
450	5	106	290	304	989	248	65	254	283	1175	1755	166
500	4	110	290	340	1101	248	65	254	283	1290	1870	245
600	3	110	290	398	1307	286	90	336	389	1495	2075	362

Table. 11

Rev.02 / 11-07-2024

HYDRAULIC ACTUATOR

The definition variables are as follows:

B = Max. width of the valve (without actuator)

D= Max. height of the valve (without actuator)

THE HYDRAULIC ACTUATOR INCLUDES:

- Hydraulic cylinder
- Yoke

AVAILABLE:

- ND50 to DN600

Di erent types and brands available according to customer's requirements.

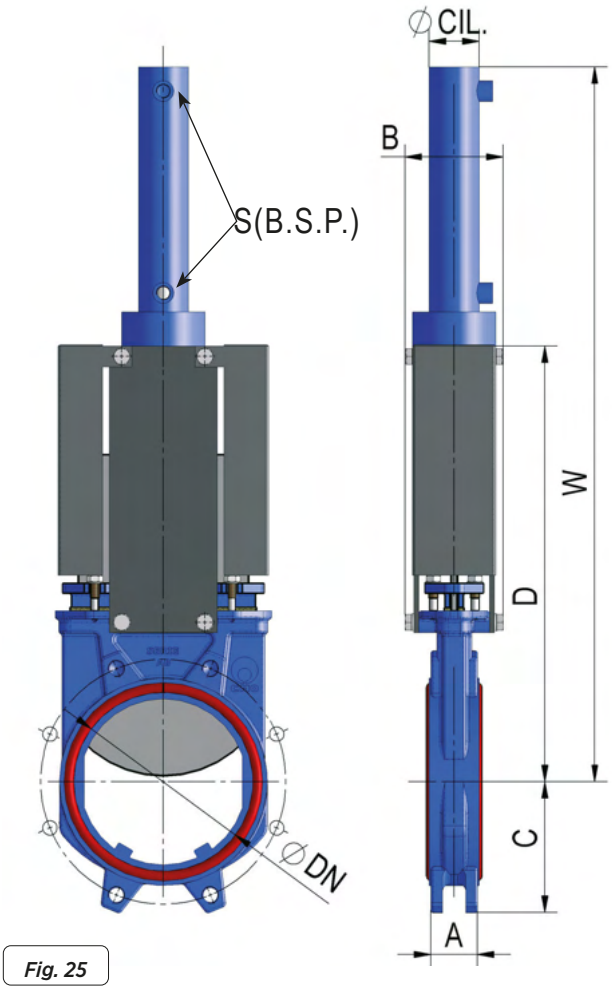

Fig. 25

ND	ΔP (bar)	A	B	C	D	W	ø CIL	Ø VAST	S (B.S.P.)	OIL CAP. (dm³)	WEIGHT (kg.)
50	10	40	91	61	241	457	25	18	3/8"	0.03	7
65	10	40	91	68	268	500	25	18	3/8"	0.04	8
80	10	50	91	91	294	560	25	18	3/8"	0.06	9
100	10	50	91	104	334	620	32	22	3/8"	0.09	12
125	10	50	101	118	367	683	32	22	3/8"	0.13	15
150	10	60	101	130	419	755	40	28	3/8"	0.25	20
200	10	60	118	159	525	926	50	28	3/8"	0.42	31
250	6	70	118	196	626	1077	50	28	3/8"	0.52	44
300	6	70	118	230	726	1246	50	28	3/8"	0.6	62
350	6	96	290	254	797	1376	50	28	3/8"	0.8	100
400	6	100	290	287	903	1532	63	36	3/8"	1.3	138
450	5	106	290	304	989	1707	63	36	3/8"	1.5	161
500	4	110	290	340	1101	1869	63	36	3/8"	1.7	223
600	3	110	290	398	1307	2176	80	36	3/8"	3.12	325

Table. 12

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FLANGE DIMENSIONS

EN 1092-2 PN10

DN	ΔP (bar)	●	o	M (Metric)	P.	ØK
50	10	4	-	M 16	8	125
65	10	4	-	M 16	8	145
80	10	4	4	M 16	9	160
100	10	4	4	M 16	9	180
125	10	4	4	M 16	9	210
150	10	4	4	M 20	10	240
200	10	4	4	M 20	10	295
250	6	6	6	M 20	12	350
300	6	6	6	M 20	12	400
350	6	12	4	M 20	21	460
400	6	12	4	M 24	21	515
450	5	12	4	M 24	22	565
500	4	16	4	M 24	22	620
600	3	16	4	M 27	22	725

Table. 13

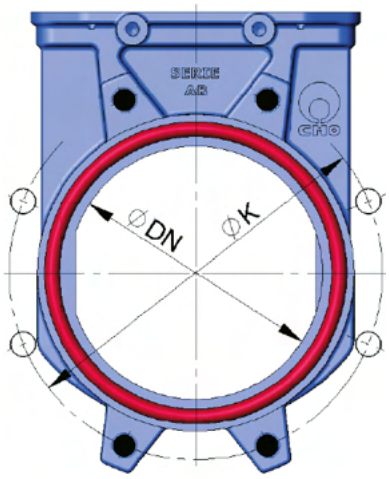

Fig. 26

● BLIND TAPED HOLES
o THROUGH HOLE

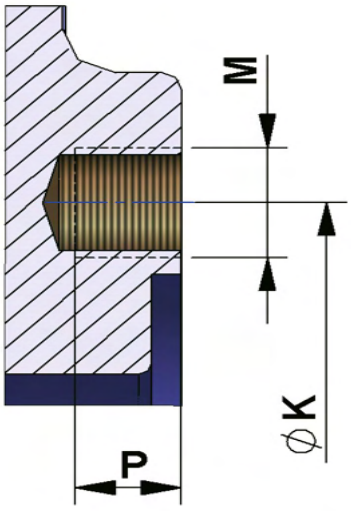

Fig. 27

ASME B16, Class 150

DN	ΔP (bar)	●	o	M (UNC)	P	ØK
2"	10	4	-	5/8"	8	120,6
2 1/2"	10	4	-	5/8"	8	139,7
3"	10	4	-	5/8"	9	152,4
4"	10	4	4	5/8"	9	190,5
5"	10	4	4	3/4"	9	215,9
6"	10	4	4	3/4"	10	241,3
8"	10	4	4	3/4"	10	298,4
10"	6	6	6	7/8"	12	361,9
12"	6	6	6	7/8"	12	431,8
14"	6	12	4	1"	21	476,2
16"	6	12	4	1"	21	539,7
18"	5	12	4	1 1/8"	22	577,8
20"	4	16	4	1 1/8"	22	635
24"	3	16	4	1 1/4"	22	749,3

Table. 14

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