TECHNICAL DATA
E SERIES

ARNETT
ENGINEERED SOLUTIONS

ARNETT ENGINEERED SOLUTIONS
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Rev.02 / 11-07-2024

UNIDIRECTIONAL GATE VALVE - WAFER DESIGN

DESCRIPTION

- Unidirectional knife gate valve with wafer design. With round input and square output.
- Body made up of two screwed-down halves, with slides to provide smooth operation.
- Provides high flow rates with low pressure drop.
- Various seal and packing materials available.
- Face-to-face distance in accordance with **CMO Valves** standard.

GENERAL APPLICATIONS

The knife gate valve is suitable for working in very dificult conditions with fluids that contain a large amount of solids.

It is very suitable for paper recycling pulp facilities and, in general, sites that work with hard particles such as metal pieces (staples, clips, etc) and stones.

It is best placed horizontally. The output (square) is larger than the input (round), thus avoiding the accumulation of solids in the valve and preventing any interference when shutting the gate.

SIZES

ND50 to ND1200

** Others **ND** on request.*

WORKING PRESSURE (ΔP)

ND50 - ND450	7 bar
ND500 - ND1200	4 bar

FLANGES

- EN1092 PN10.
- ASME B16.5 (clase 150).
- 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 category and zone information, contact 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.
- Seat test = working pressure x 1.1.

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

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ADVANTAGES

The **E valve** body comprises two half-bodies; the inside of these two parts is machined and joined with screws to form a solid block. The gate slides smoothly thanks to the slides inserted inside both parts of the body; these guides can optionally be made of PTFE or bronze. Other manufacturers produce similar valves with interiors completely of PTFE, but this results in the metal pieces or other solids becoming attached to the PTFE and the gate ends up blocked.

The stem protection hood is independent from the handwheel securing nut, this means the hood can be disassembled without the need to release the handwheel. This advantage allows regular maintenance operations to be performed, such as lubricating the stem, etc. The **CMO Valves** valve spindle is made in CARBON STEEL. This is another added advantage, as some manufacturers supply it with 13% chromium, resulting in quick oxidisation.

The operating wheel is manufactured made in carbon steel. Some manufacturers supply it in common cast-iron, which can lead to breakage in the event of very high operation torque or a bang.

The yoke has a compact design with the bronze actuator nut protected in a sealed and 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 upper and lower pneumatic actuator covers are manufactured in aluminium, and nodular cast iron for Øcylinder > 250 mm, meaning shock resistance is high. This characteristic is essential in pneumatic actuators.

The pneumatic cylinder's seals are commercial products and can be purchased worldwide. This means it is not necessary to contact **CMO Valves** every time a seal is required.

STANDARD COMPONENTS LIST

	COMPONENT	NODULAR IRON	ST.STEEL
1	BODY	GJS500-7	CF8M
2	GATE	AISI304	AISI316
3	BOTTOM COVER	S275JR	AISI316
4	BOTTOM SEAL	EPDM	
5	RING	AISI316	
6	SEAL	EPDM	
7	RUNNER	BRONZE	
8	PACKING	SINT+PTFE	
9	SEAL (PACKING)	EPDM	
10	PACKING GLAND	GJS500-7	CF8M
11	FORK	STEEL	
12	SUPPORT PLATES	S275JR	
13	YOKE	GJS500-7	
14	STEM NUT	BRONZE	
15	STEM	AISI 304	
16	YOKE	GJS500-7	
17	HANDWHEEL	STEEL	
18	HOOD NUT	STEEL	
19	HOOD	STEEL	
20	PROTECTION CAP	PLASTIC	

Table. 1

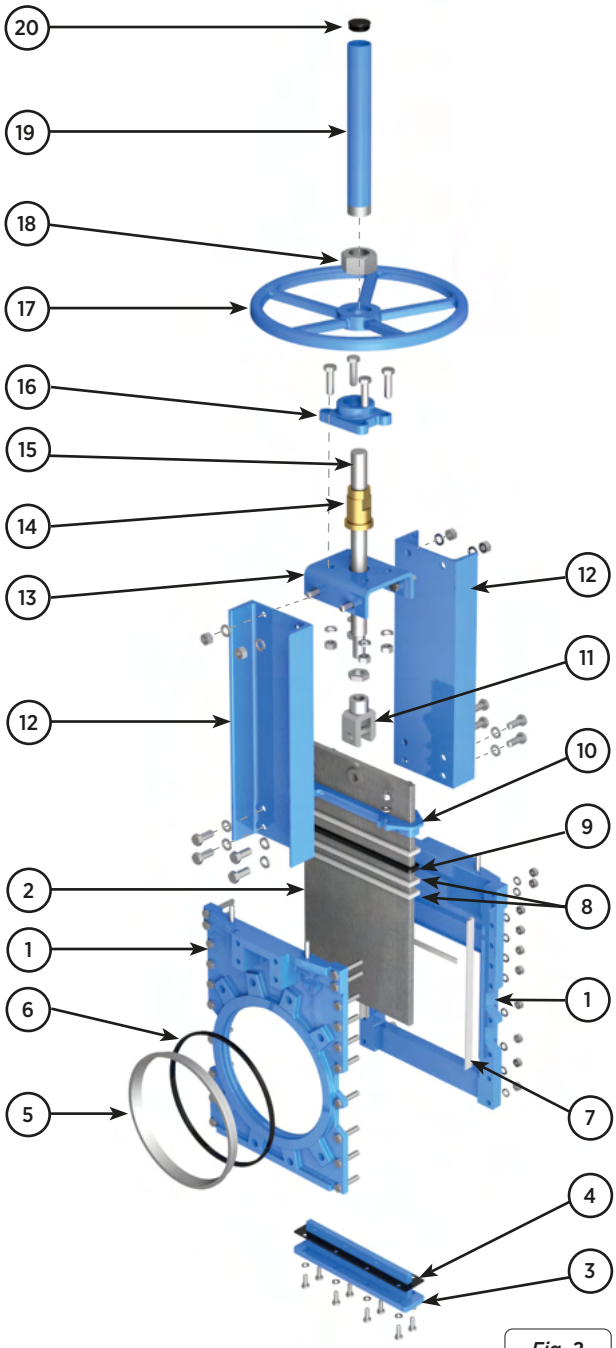

Fig. 2

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DESIGN CHARACTERISTICS

1. BODY

The **E** valve body consists of two cast half-bodies with reinforcements. The interior of these two parts is machined and joined by screws with a paper seal in between, creating a solid block. The square part of the body (output) is larger than the round input, ensuring solids do not become accumulated on the seat, whilst its design guarantees high flow loads and minimum pressure drops. For larger diameters, the body is mechanically welded with the reinforcements necessary to withstand the maximum working pressure. The body has a cover on the lower section which can be opened for cleaning. Blowers can also be installed for minor cleaning tasks without having to dismount any parts. The steel and stainless steel bodies will be fitted with slides.

Standard manufacturing materials are GJS500-7 and CF8M stainless steel. Other materials such as GJS500-7, A216WCB carbon steel and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6, etc) are available on request. As standard, carbon steel or iron valves are painted with an anti-corrosive protection of 80 microns of EPOXY (colour RAL 5015). Other types of anti-corrosive protections are available to order. The inside of the body has a series of recesses to house the slides, thus making it easier for the gate to slide. Standard slides are RCH 1000, but they can also be made of PTFE or bronze.

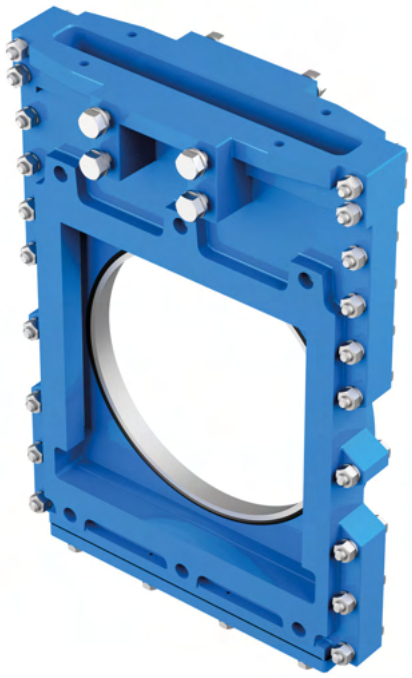

Fig. 3

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. Different degrees of polishing, antiabrasion treatments and modifications are available to adapt the valves to the customer's requirements.

3. SEAT

Four types of seats are available according to the working application:

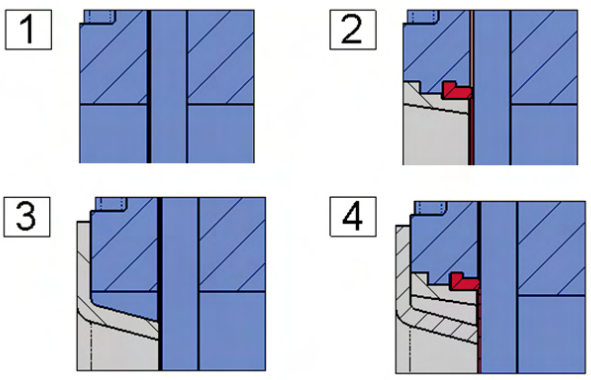

Fig. 4

SEAT 1
Metal / metal seat.
This type of seat does not include any kind of resilient seal and the estimated leakage (considering water as the test fluid) is 1.5% of the pipe flow.

SEAT 2
Seat Metal / rubber seat with reinforced ring.
This type of seat includes a resilient seal which is fixed to the inside of the body by way of a reinforced ring with two functions (to protect the valve from abrasion and to clean the gate when working with solids that can stick to the gate).

SEAT 3 AND 4
As seats 1 and 2 but including a deflector.
The deflector is an O-ring located at the valve input with two functions: firstly to protect the valve from abrasion and secondly to guide the flow to the centre of the valve).

***Note:** Three materials are available for the reinforced ring and the deflector: Steel CA-15, CF8M and Ni-hard.

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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*. 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*. It provides the valve with 100% watertight integrity.

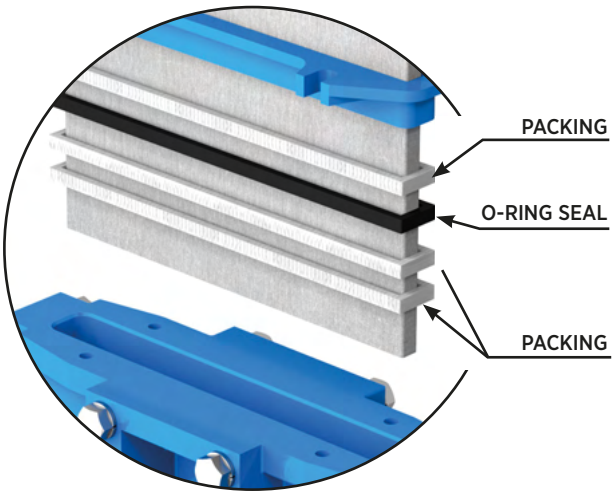
FKM
Suitable for corrosive applications and continuous high temperatures of up to 190°C and peaks of 210°C. It provides the valve with 100% watertight integrity.

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.

PTFE
Suitable for corrosive applications and pH between 2 and 12. Does not provide the valve with 100% watertight integrity. Estimated leakage: 0.5% of the tube flow.

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.

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SEATS / SEALS			PACKING			
MATERIAL	**Tª MÁX (ºC)**	**APLICATIONS**	**MATERIAL**	**P(Bar)**	**Tª. MÁX**	**pH**
Steel/Steel	>250	High temp./Low watertight integ	Greased cotton	10	100	6-8
EPDM (E)	90*	Non-mineral acids and oils	Dry cotton	0.5	100	6-8
Nitrile (N)	90*	Hydrocarbons, oils and greases	Cotton + PTFE	30	120	6-8
FKM (V)	200	Hydrocarbons and solvents	Synthetic + PTFE	100	-200+270	0-14
Silicone (S)	200	Food Products	Graphite	40	650	0-14
PTFE (T)	250	Corrosion resistant	Ceramic Fibre	0.3	1400	0-14
Note: More details and other materials on request			*** EPDM and Nitrile:** it is possible up to Tª Max: 120ºC on request			

Table. 2

5. STEM

The stem on the **CMO Valves** is made of 18/8 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)

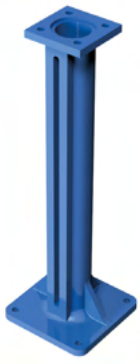

Fig. 5

STRAIGHT FLOOR STANDS.

Fig. 6

LEANING FLOOR STAND

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

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

LEVER **H/A**

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

HANDWHEEL RISING STEM **H/A**

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

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

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

HYDRAULIC ACTUATOR **H/A**

PNEUMATIC ACTUATOR **H/A**

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

Fig. 7

ACCESSORIES AND OPTIONS

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

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. It is an alternative to ensure the solids slide off and do not stick to the gate.

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

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

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

AIR INJECTION IN THE PACKING GLAND
By injecting air in the packing, an air chamber is created which improves the watertight integrity.

HEATING JACKET
Recommended in applications in which the fluid can harden and solidify inside the valve's body. An external jacket keeps the body temperature constant, preventing the fluid from solidifying.

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
Limit switches or inductive switches are installed to indicate precise valve position, as well as positioners to indicate continuous position.

SOLENOID VALVES
For air distribution to pneumatic actuators.

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 manual operation of the valve in the event of power or air failure.

FLUSHING HOLES IN 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.

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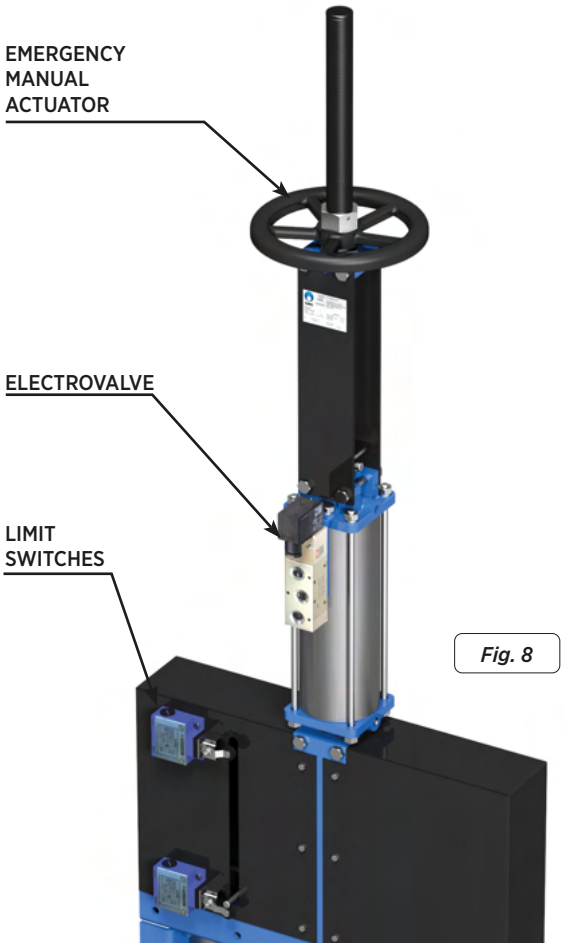


Fig. 8

TRIANGULAR (V-NOTCH) AND PENTAGONAL DIAPHRAGM WITH INDICATION RULE

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

INTERCHANGEABLE ACTUATORS

All actuators are easily interchangeable, except the lever.

RECUBRIMIENTO DE EPOXI

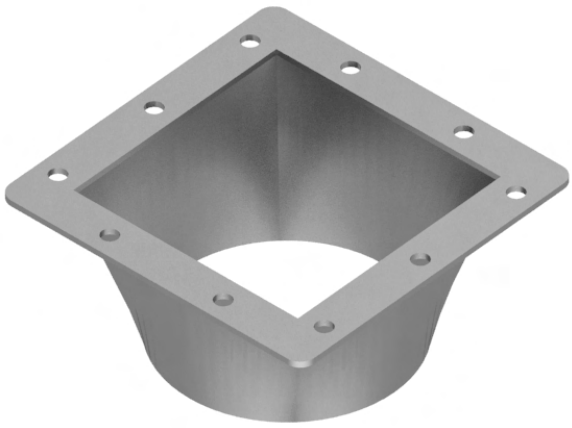
All cast iron and carbon steel bodies and components on **CMO Valves** are EPOXY coated, giving the valves great resistance to corrosion and an excellent finish.
CMO Valves's standard colour is blue, RAL-5015.

GATE SAFETY PROTECTION

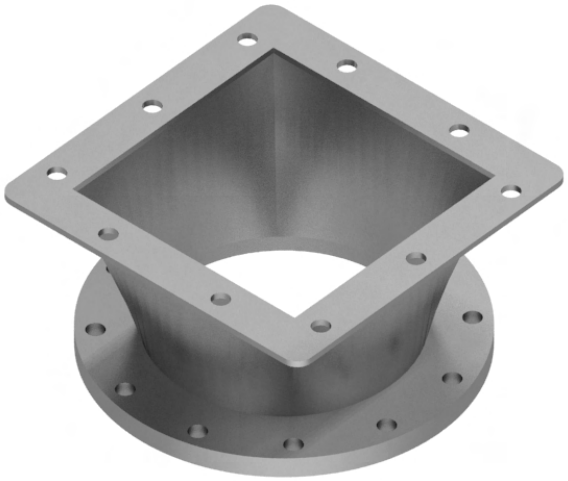
In accordance with European Safety Standards ("EC" marking), **CMO Valves** automated valves are equipped with gate guards, to prevent any objects from being accidentally caught in the gate.

TRANSITION

Optionally, the valve can be supplied with a square to round transition piece, to connect the square output of the valve to a round pipe. The connection to the round pipe can use flanges or by directly welding to the pipe. Check with **CMO Valves** technical commercial department to define the dimensions of these transitions.



TRANSITION TO WELD



TRANSITION TO SCREW BY FLANGE

Fig. 9

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TYPES OF EXTENSIONS

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

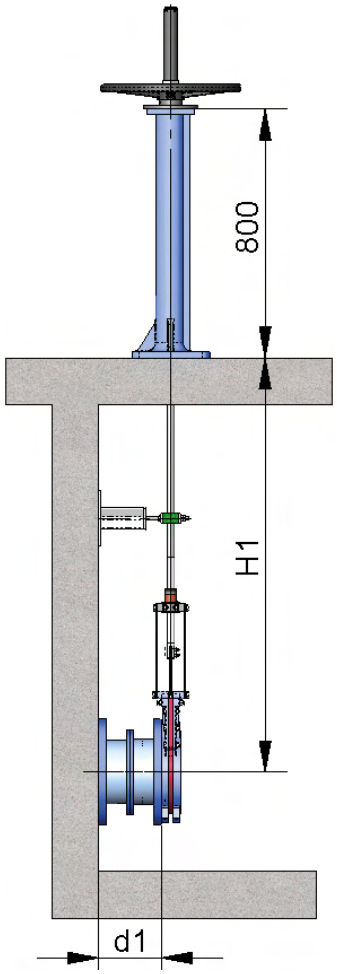

Fig. 10

STANDARD OPERATION STAND.

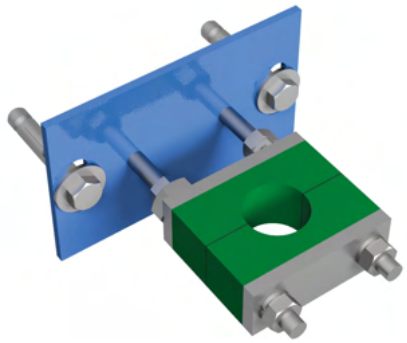

Fig. 11

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

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.

LEANING STAND.

Fig. 12

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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.

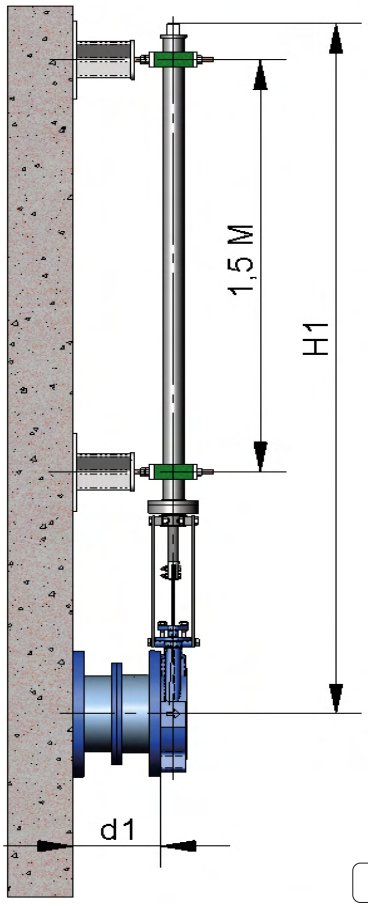


Fig. 13

3.- ELONGATED SUPPORT PLATES

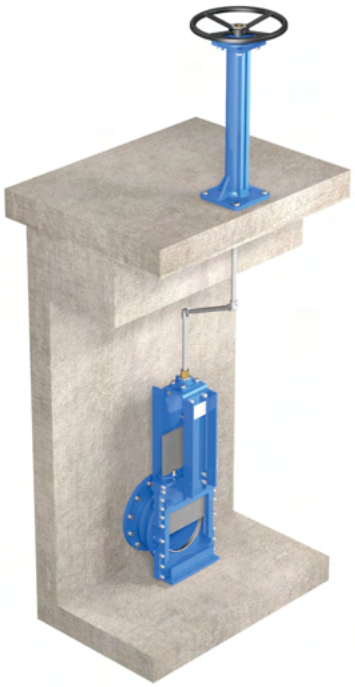
When a short extension is required, it can be achieved by extending the support plates. An intermediate yoke can be fitted to reinforce the support plates structure.

Fig. 14

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. 15



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HANDWHEEL WITH RISING STEM

The definition variables are as follows:

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

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

OPTIONS:

- Locking devices.
- Extensions: stand, pipe, plates...
- DN higher than those shown in the table

ACTUATOR:

- Handwheel
- Stem
- Nut
- Stem protection bonnet

AVALAIBLE:

- DN50 to DN350

** Other ND on request.*

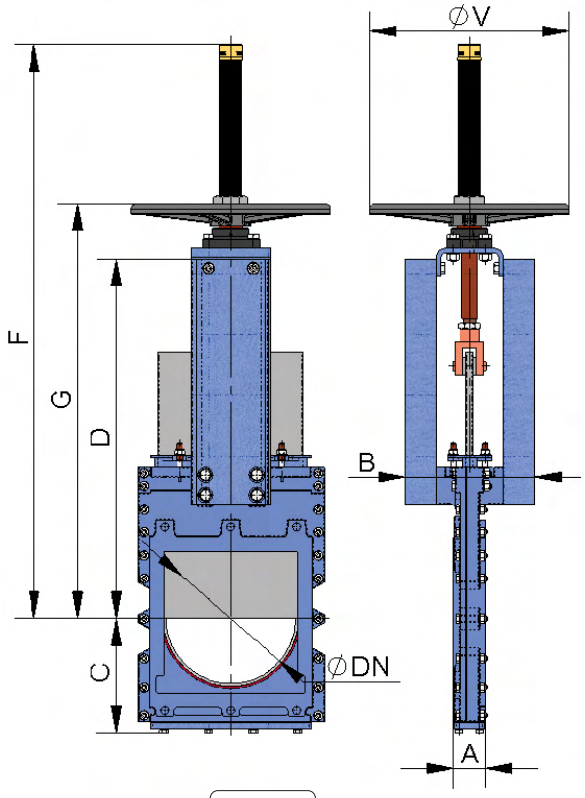

Fig. 16

DN	ΔP (bar)	A	B	C	D	F	G	øV
50	7	40	91	86	243	410	280	225
65	7	40	91	95	269	437	308	225
80	7	50	91	114	292	463	333	225
100	7	50	91	135	334	503	373	225
125	7	50	102	145	392	586	407	225
150	7	60	119	155	425	638	458	225
200	7	60	119	185	525	816	578	325
250	7	70	290	235	620	1007	669	325
300	7	70	290	265	715	1095	757	380
350	7	96	290	290	781	1307	876	450

Table. 4

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HANDWHEEL WITH NON-RISING STEM

The definition variables are as follows:

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

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

OPTIONS:

- Locking devices.
- Extensions: stand, pipe, plates...
- DN higher than those shown in the table

ACTUATOR:

- Handwheel
- Stem
- Nut
- Stem protection bonnet

AVALAIBLE:

- DN50 to DN350

** Other ND on request.*

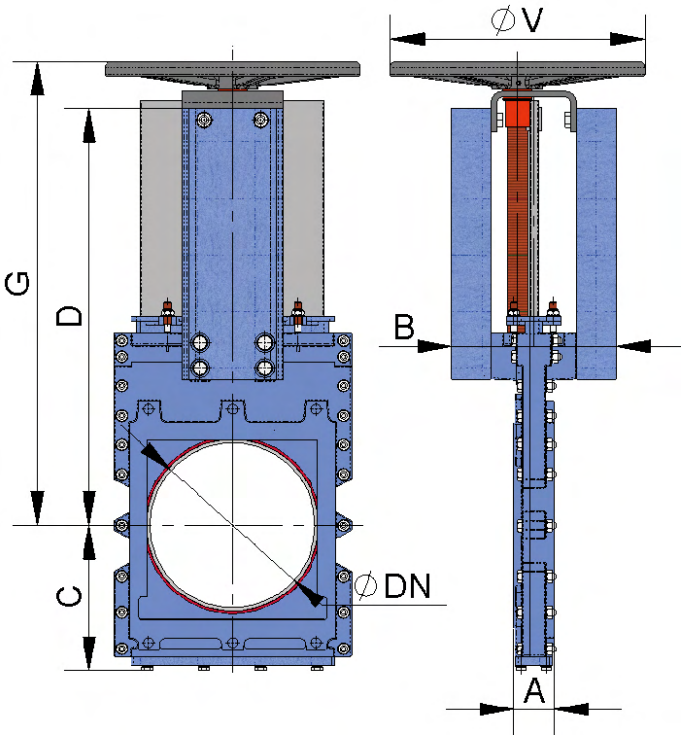

Fig. 17

DN	ΔP (bar)	A	B	C	D	G	øV
50	7	40	91	86	243	280	225
65	7	40	91	95	269	308	225
80	7	50	91	114	292	333	225
100	7	50	91	135	334	373	225
125	7	50	102	145	392	407	225
150	7	60	119	155	425	458	225
200	7	60	119	185	525	578	325
250	7	70	290	235	620	679	325
300	7	70	290	265	715	779	380
350	7	96	290	290	781	906	450

Table. 5

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CHAINWHEEL

Widely used in raised installations with di cult access, the handwheel is fi tted 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.
- DN higher than those shown in the table

ACTUATOR:

- Handwheel
- Stem
- Nut
- Hood
- Chain

AVALAIBLE:

- DN50 to DN1200
- From DN350 the actuator is with geared motor.

** Other ND on request.*

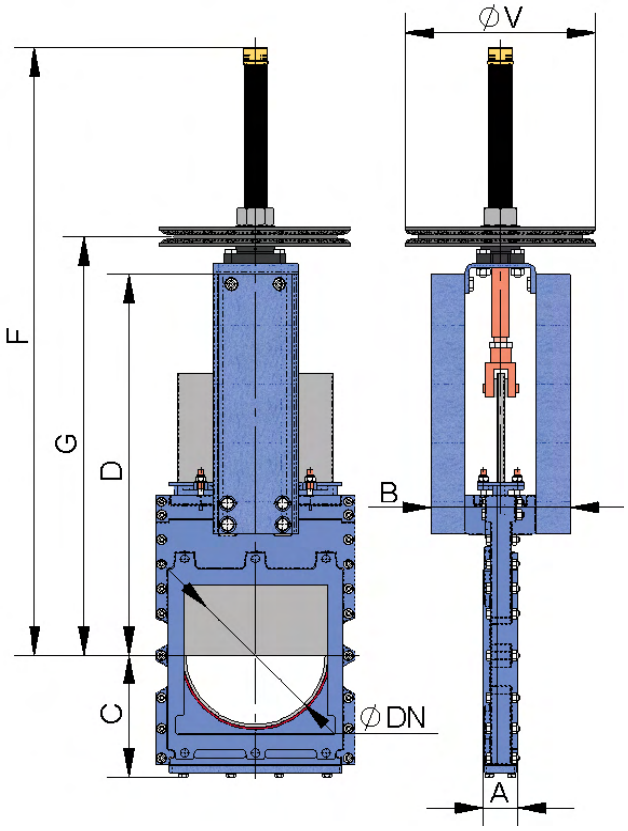

Fig. 18

DN	ΔP (bar)	A	B	C	D	F	G	øV
50	7	40	91	86	243	410	280	225
65	7	40	91	95	269	437	308	225
80	7	50	91	114	292	463	333	225
100	7	50	91	135	334	503	373	225
125	7	50	102	145	392	586	407	225
150	7	60	119	155	425	638	458	225
200	7	60	119	185	525	816	578	300
250	7	70	290	235	620	1007	669	300
300	7	70	290	265	715	1095	757	300
350	7	96	290	290	781	1307	876	402
400	7	100	290	325	861	1441	997	402*
450	7	106	290	350	985	1677	1083	402*
500	4	110	320	380	1064	1789	1195	402*
600	4	110	320	470	1224	2108	1420	402*
700	4	110	350	525	1425	2406	1658	402*
800	4	110	350	575	1615	2790	1905	402*
900	4	110	350	650	1823	3130	2115	402*
1000	4	110	400	725	1992	3440	2310	402*
1100	4	150	400	800	2234	3765	2565	402*
1200	4	150	400	870	2351	4050	2815	402*

Table. 6

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GEAR BOX

The definition variables are as follows:

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

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

OPTIONS:

- Chain handwheel.
- Locking devices.
- Extensions: stand, pipe, plates, etc.
- Non-rising stem.

ACTUATOR:

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

AVALAIBLE:

- DN50 to DN1200.

** Other ND on request.*

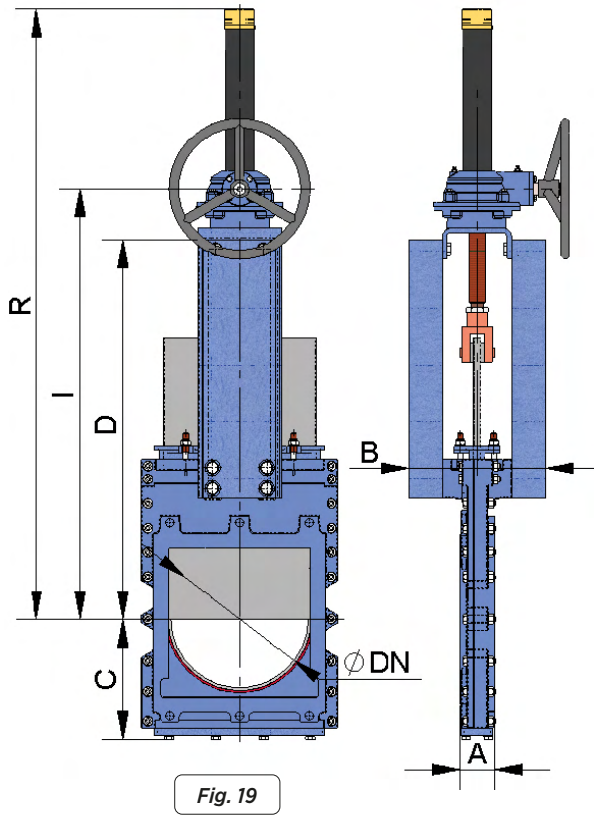

Fig. 19

DN	ΔP (bar)	A	B	C	D	I	R
50	7	40	91	86	243	366	540
65	7	40	91	95	269	392	566
80	7	50	91	114	292	418	592
100	7	50	91	135	334	458	632
125	7	50	102	145	392	491	665
150	7	60	119	155	425	543	717
200	7	60	119	185	525	648	942
250	7	70	290	235	620	749	1043
300	7	70	290	265	715	849	1193
350	7	96	290	290	781	891	1335
400	7	100	290	325	861	997	1441
450	7	106	290	350	985	1083	1677
500	4	110	320	380	1064	1195	1789
600	4	110	320	470	1224	1420	2108
700	4	110	350	525	1425	1658	2406
800	4	110	350	575	1615	1905	2790
900	4	110	350	650	1823	2115	3130
1000	4	110	400	725	1992	2310	3440
1100	4	150	400	800	2234	2565	3765
1200	4	150	400	870	2351	2815	4050

Table. 7

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PNEUMATIC CYLINDER, DOUBLE ACTING

The defi nition variables are as follows:

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

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

The air supply pressure to the pneumatic cylinder is a minimum of 6 bar and a maximum of 10 bar, the air must be dry and lubricated.

10 bar is the maximum admissible air pressure. For air pressures below 6 bar please consult to **CMO Valves.**

For DN50 to DN200 valves, the cylinder's jacket and covers are made of aluminium, the spindle of AISI304, the piston of rubber-coated steel and the O-ring seals are made of nitrile.

For valves larger than DN200 the covers are made of nodular cast iron or carbon steel.

To order, we can also supply the actuator made entirely of stainlesssteel, especially for installation in corrosive atmospheres.

AVAILABLE:

- DN50 to DN1200.

** Other ND on request..*

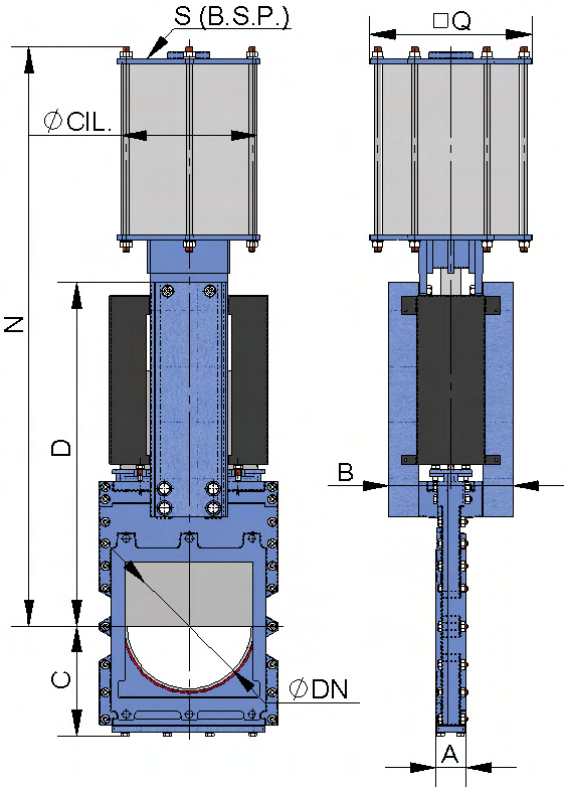

Fig. 20

DN	ΔP (bar)	A	B	C	D	N	Q	ø CIL	Ø VAST.	S (B.S.P.)
50	7	40	91	86	243	425	96	80	20	1/4"
65	7	40	91	95	269	470	96	80	20	1/4"
80	7	50	91	114	292	510	115	100	20	1/4"
100	7	50	91	135	334	557	115	100	20	1/4"
125	7	50	102	145	392	665	138	125	25	1/4"
150	7	60	119	155	425	814	175	160	30	1/4"
200	7	60	119	185	525	940	218	200	30	3/8"
250	7	70	290	235	620	1070	270	250	40	3/8"
300	7	70	290	265	715	1220	270	250	40	3/8"
350	7	96	290	290	781	1440	382	300	45	1/2"
400	7	100	290	325	861	1480	382	300	45	1/2"
450	7	106	290	350	985	1780	426	350	45	1/2"
500	4	110	320	380	1064	1875	426	350	45	1/2"
600	4	110	320	470	1224	2095	426	350	45	1/2"
700	4	110	350	525	1425	2540	508	400	50	1/2"
800	4	110	350	575	1615	2720	508	400	50	1/2"
900	4	110	350	650	1823	3060	508	400	50	1/2"
1000	4	110	400	725	1992	3470	508	400	50	1/2"
1100	4	150	400	800	2234	3820	508	400	50	1/2"
1200	4	150	400	870	2351	4220	508	400	50	1/2"

Table. 8

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HYDRAULIC ACTUATOR

The definition variables are as follows:

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

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

THE HYDRAULIC ACTUATOR INCLUDES:

- Hydraulic cylinder
- Yoke

Different types and brands available according to customer's requirements.

AVALAIBLE:

- DN50 to DN1200.

** Other ND on request..*

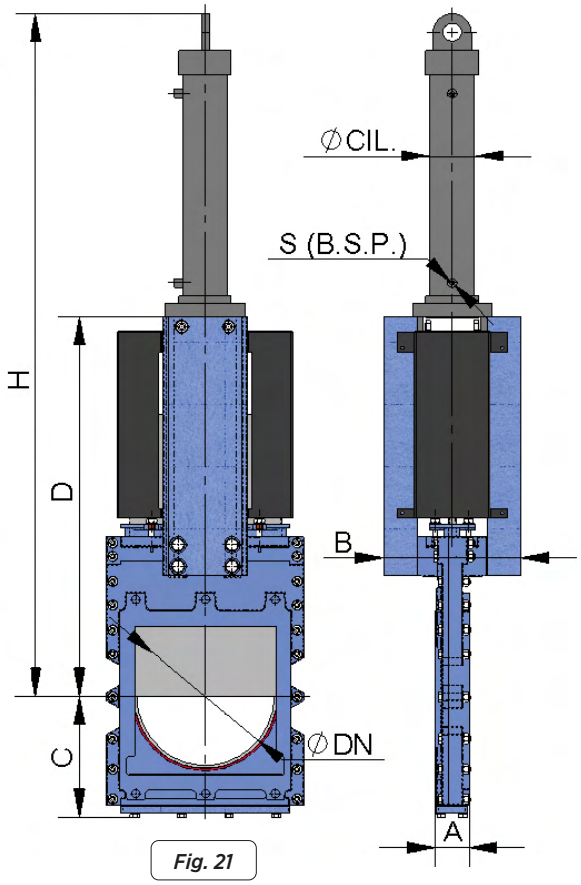

Fig. 21

DN	ΔP (bar)	A	B	C	D	H	ø CIL	Ø VAST.	S (B.S.P.)	OIL CAP. (dm³)
50	7	40	91	86	243	457	25	18	3/8"	0,03
65	7	40	91	95	269	500	25	18	3/8"	0,04
80	7	50	91	114	292	560	25	18	3/8"	0,04
100	7	50	91	135	334	620	32	22	3/8"	0,09
125	7	50	102	145	392	683	32	22	3/8"	0,11
150	7	60	119	155	425	683	40	28	3/8"	0,2
200	7	60	119	185	525	755	50	28	3/8"	0,42
250	7	70	290	235	620	926	50	28	3/8"	0,52
300	7	70	290	265	715	1077	63	36	3/8"	0,98
350	7	96	290	290	781	1246	80	45	3/8"	1,88
400	7	100	290	325	861	1376	80	45	3/8"	2,14
450	7	106	290	350	985	1532	100	56	1/2"	3,73
500	4	110	320	380	1064	1707	80	45	3/8"	2,64
600	4	110	320	470	1224	1869	100	56	1/2"	4,91
700	4	110	350	525	1425	2202	125	56	1/2"	8,9
800	4	110	350	575	1615	2839	125	56	1/2"	10,12
900	4	110	350	650	1823	3193	160	70	1/2"	18,6
1000	4	110	400	725	1992	3437	160	70	1/2"	20,7
1100	4	150	400	800	2234	3775	160	70	1/2"	22,8
1200	4	150	400	870	2351	4161	200	90	1/2"	38,6

Table. 9

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OTHER POSSIBLE ACTUATORS

The most common actuators are detailed in the tables in the pages above, with their respective dimensions, although there is also the possibility of supplying them with other actuators, for example those indicated below. If the valve is to be used with any of these actuators, ask **CMO Valves** technical commercial department for information on sizes and characteristics.

SINGLE ACTING
PNEUMATIC ACTUATOR

Fig. 21

ELECTRIC
MOTOR ACTUATOR

Fig. 22

LEVER
ACTUATOR

Fig. 23

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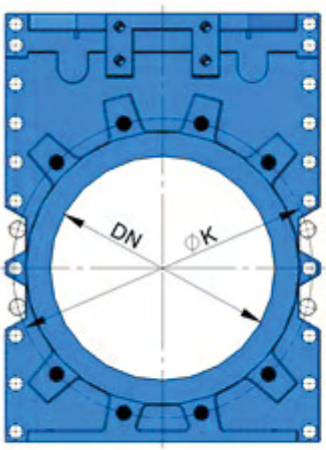
FLANGE DIMENSIONS

EN 1092-2 PN10

DN	ΔP (bar)	ROUND FLANGE			SQUARE FLANGE							M (Metric)	P
		●	o	ØK	N	T	U	W	●	o	ØK		
50	7	4	-	125	= ROUND FLANGE				4	-	125	M 16	8
65	7	4	-	145	= ROUND FLANGE				4	-	145	M 16	8
80	7	4	4	160	= ROUND FLANGE				4	4	160	M 16	9
100	7	4	4	180	= ROUND FLANGE				4	4	180	M 16	9
125	7	4	4	210	= ROUND FLANGE				4	4	210	M 16	9
150	7	4	4	240	= ROUND FLANGE				4	4	240	M 20	10
200	7	4	4	295	= ROUND FLANGE				4	4	295	M 20	10
250	7	8	4	350	= ROUND FLANGE				4	4	350	M 20	12
300	7	8	4	400	2x148	---	400	---	6	4	400	M 20	12
350	7	12	4	460	3x100	300	460	460	12	4	460	M 20	21
400	7	12	4	515	3x110	330	515	515	12	4	515	M 24	21
450	7	16	4	565	4x116	344	565	565	14	4	565	M 24	22
500	4	16	4	620	4x130	360	620	620	14	4	620	M 24	22
600	4	16	4	725	4x155	415	725	725	14	4	725	M 27	22
700	4	20	4	840	6x120	115+305+115	832	832	22	4	840	M 27	22
800	4	20	4	950	6x137	145+360+145	940	940	22	4	950	M 30	22
900	4	24	4	1050	6x155	160+410+160	1042	1042	22	4	1050	M 30	20
1000	4	24	4	1160	162+(5x164)+162	(2x170)+465+(2x170)	1144	1145	24	4	1160	M 33	20

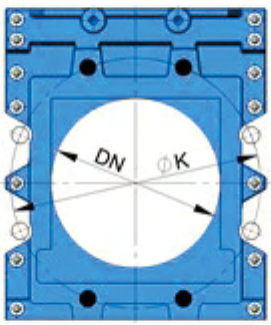
Table. 10

ROUND FLANGE



DN50➔1000

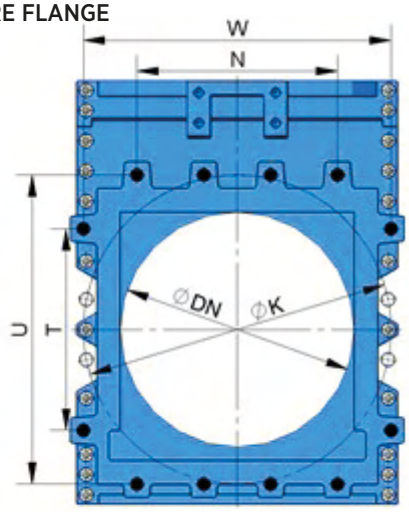
Fig. 24



DN50➔250

Fig. 25

SQUARE FLANGE



DN300➔1000

Fig. 26

● BLIND TAPPED HOLES
o THROUGH HOLE

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ANSI B16, class 150

ND	ΔP (bar)	ROUND FLANGE			SQUARE FLANGE							M (UNC)	P
		●	o	ØK	N	T	U	W	●	o	ØK		
2"	7	4	-	120,6	= ROUND FLANGE				4	-	120,6	5/8"	8
2 ½"	7	4	-	139,7	= ROUND FLANGE				4	-	139,7	5/8"	8
3"	7	4	4	152,4	= ROUND FLANGE				4	-	152,4	5/8"	9
4"	7	4	4	190,5	= ROUND FLANGE				4	4	190,5	5/8"	9
5"	7	4	4	215,9	= ROUND FLANGE				4	4	215,9	3/4"	9
6"	7	4	4	241,3	= ROUND FLANGE				4	4	241,3	3/4"	10
8"	7	4	4	298,4	= ROUND FLANGE				4	4	298,4	3/4"	10
10"	7	8	4	361,9	= ROUND FLANGE				4	4	361,9	7/8"	12
12"	7	8	4	431,8	2x148	---	400	---	6	4	431,8	7/8"	12
14"	7	8	4	476,2	3x100	300	460	460	12	4	476,2	1"	21
16"	7	12	4	539,7	3x110	330	515	515	12	4	539,7	1"	21
18"	7	12	4	577,8	4x116	344	565	565	14	4	577,8	1 ⅛"	22
20"	4	16	4	635	4x130	360	620	620	14	4	635	1 ⅛"	22
24"	4	16	4	749,3	4x155	415	725	725	14	4	749,3	1 ¼"	22
28"	4	24	4	863,6	6x120	115+305+115	832	832	22	4	863,6	1 ¼"	22
32"	4	24	4	977,9	6x137	145+360+145	940	940	22	4	977,9	1 ½"	22
36"	4	28	4	1085,9	6x155	160+410+160	1042	1042	22	4	1085,9	1 ½"	20
40"	4	32	4	1200,2	162+(5x164)+162	(2x170)+465+(2x170)	1144	1145	24	4	1200,2	1 ½"	20

Table. 11

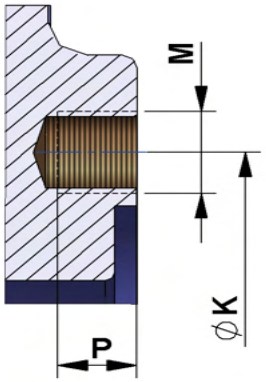

Fig. 27

As part of its ongoing product and service improvement process, **CMO Valves** reserves the right to alter the data and content of this document at its discretion at any time without notice. The publication of the latest revision renders all previous documents invalid.

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

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