



KNIFE GATE VALVES

E SERIES

08/03/2016

UNIDIRECTIONAL Knife Gate Valve

- 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 **C.M.O.** standard.

General Applications:

- The knife gate valve is suitable for working in very difficult conditions with fluids which contain a large amount of solids.
- It is very suitable for paper recycling pulp facilities and, in general, sites which 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: DN50 to DN1200 (larger sizes to order).

Working (ΔP):	DN50 to DN450	7 kg/cm ²
	DN500 to DN1200	4 kg/cm ²

Standard flanges: DIN PN10 and ANSI B16.5 (class 150)
(Only for the valve inlet, round flange)

Other common flanges:

DIN PN 16	JIS Standard	Australian standard
DIN PN 6	DIN PN25	British Standard

Directives:

- Machinery Directive:
- Pressure Equipment Directive: **(PED) ART.3, / CAT.1**
- Potentially Explosive Atmospheres Directive (optional): **(ATEX) CAT.3 ZONE 2 and 22 GD**, for information on categories and zones please contact **C.M.O.** Technical-Sales Department.

Quality dossier:

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

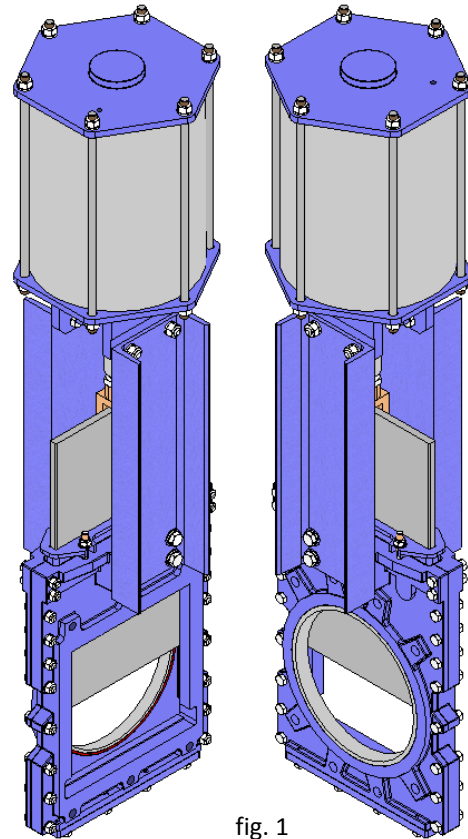


fig. 1

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Advantages of C.M.O. "E Model"

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 RCH 1000 nylon 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 C.M.O. valve spindle is made of stainless steel 18/8. This is another added advantage, as some manufacturers supply it with 13% chromium, resulting in quick oxidisation.

The operating wheel is manufactured in nodular cast GJS-500. 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 GJS-400 nodular cast iron for \varnothing cylinder > 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 C.M.O. every time a seal is required.

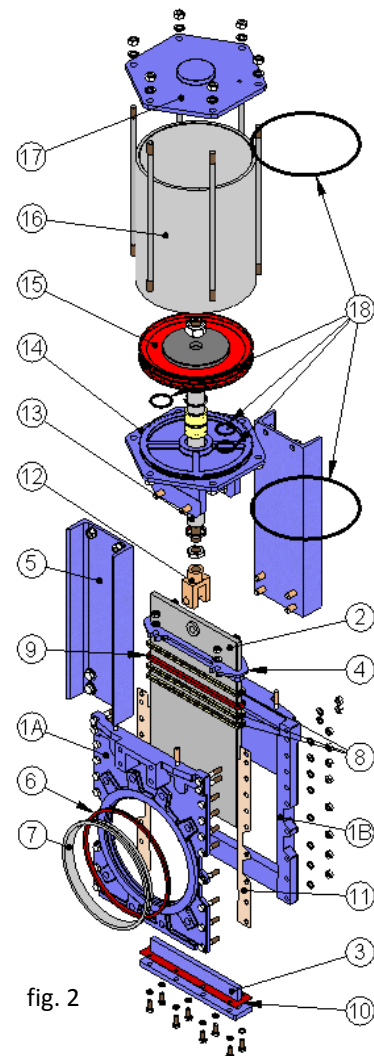


fig. 2

STANDARD COMPONENTS LIST		
COMPONENT	STEEL VERSION	STAINLESS STEEL VERSION
1A - Input Body	GJL-250	CF8M
1B - Output Body	GJL-250	CF8M
2- Gate	AISI304	AISI316
3- Bottom Cover	S275JR	AISI316
4- Packing gland	GJS-450	CF8M
5- Support Plates	S275JR	S275JR
6- Seal	EPDM	EPDM
7- Ring	AISI316	AISI316
8- Packing	SYNTH+PTFE	SYNTH+PTFE
9- Packing gland seal	EPDM	EPDM
10 - Bottom seal	EPDM	EPDM
11- Body seal	CARDBOARD	CARDBOARD
12- Fork	STEEL	STEEL
13- Stem	AISI304	AISI304
14- Support cover	ALUMINIUM/GJS-400	ALUMINIUM/GJS-400
15- Piston	S275JR+EPDM	S275JR+EPDM
16- Casing	ALUMINIUM	ALUMINIUM
17- Upper Cover	ALUMINIUM/GJS-400	ALUMINIUM/GJS-400
18- O-ring seals	NITRILE	NITRILE

table 1

C.M.O.

Amategui Aldea 142, 20400 Txarama-Tolosa (SPAIN)

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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 GJL-250 and CF8M stainless steel. Other materials such as GJS-500, 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.

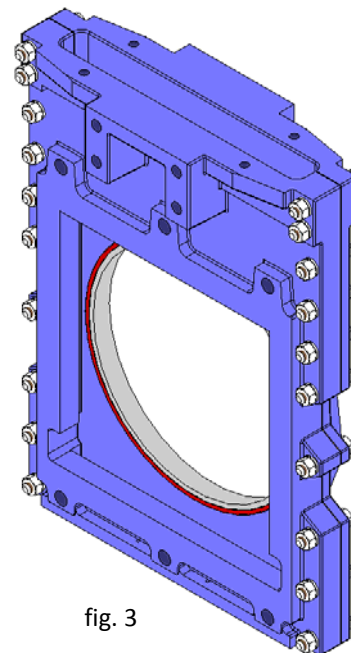


fig. 3

2- GATE

Due to the harsh working conditions in which E valves are often installed, the gate usually has extra thickness. The standard manufacturing materials are AISI304 stainless steel in valves with carbon steel body and AISI316 stainless steel in valves with CF8M body. Other materials or combinations can be supplied to order. The gate is polished on both sides to provide a smooth contact surface with the resilient seal. At the same time, the gate is rounded to prevent the seal from being cut. Different degrees of polishing, anti-abrasion treatments and modifications are available to adapt the valves to the customer's requirements.

3- SEAT: (seal-tight)

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

-**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:** 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).

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- **Seats 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.

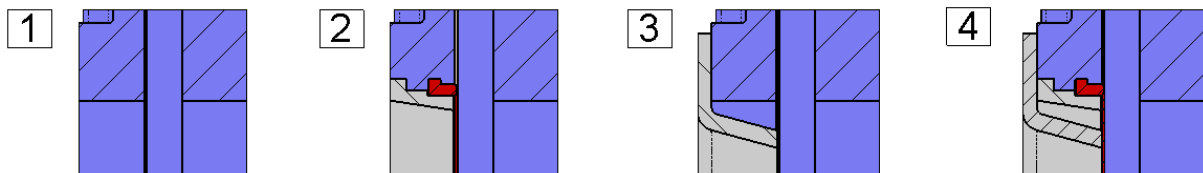


fig. 4

Resilient seat materials

EPDM

This is the standard resilient seat fitted on **C.M.O.** 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.

VITON


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.

 **Note:** In some applications other types of resilient materials are used, such as hypalon, butile or natural rubber. Please contact us if you require one of these materials.

4- PACKING

C.M.O.'s standard packing comprises three lines with a specially designed EPDM seal in the middle which provides seal-tightness 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 use to be given to the valve:

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.

DRY COTTON

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

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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.

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.

LUBRICATED PTFE

It is made with PTFE filaments and designed to work at great speed. It is braided with a diagonal system. Suitable for valves and pumps which work with almost all types of fluids, particularly with the most corrosive, such as: oxidant and concentrated oils. It is also used in liquids with solid content.

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.

CERAMIC FIBRE

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

SEAT/SEALS			PACKING			
Material	Max. T. (°C)	Applications	Material	P(bar)	Max. T. (°C)	pH
Metal/Metal	>250	High temperature/Low seal tightness	Greased cotton	10	100	6-8
EPDM (E)	90 *	Non-mineral oils, acids and water.	Dry cotton (AS)	0,5	100	6-8
Nitrile (N)	90 *	Hydrocarbons, oils and greases	Cotton + PTFE	30	120	6-8
Viton (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	Resistant to corrosion	Ceramic Fibre	0.3	1400	0-14

NOTE: More details and other materials available to order.

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

table 2

5- STEM

The C.M.O. valve spindle is made of stainless steel 18/8. 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 for the valve, a stem hood is supplied to protect the stem from contact with dust and dirt, besides keeping it lubricated.

6- PACKING GLAND

The packing gland allows uniform force and pressure to be applied to the packing to ensure seal-tightness.

As standard, valves with carbon steel or cast iron body include a GJS-450 packing gland, while for valves with stainless steel body this is made of CF8M.

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7- ACTUATORS

All types of actuators can be supplied, with the advantage that thanks to the **C.M.O.** 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 **C.M.O.** valves is that all actuators are interchangeable.

Manual:

- Handwheel with rising stem
- Handwheel with non-rising stem
- Chainwheel
- Lever
- Geared motor
- Others (square nut,...)

Automatic:

- Electric actuator
- Pneumatic cylinder
- Hydraulic cylinder

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

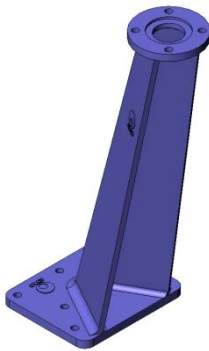


fig. 5

Wide range of accessories available:

- Mechanical stops
- Locking devices
- Emergency manual actuators
- Electrovalves
- Positioners
- Limit switches
- Proximity switches
- Straight floor stands (fig. 6)
- Leaning floor stand (fig. 5)
- Etc.

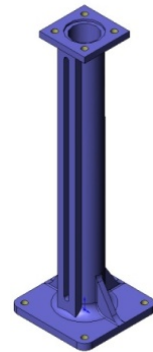
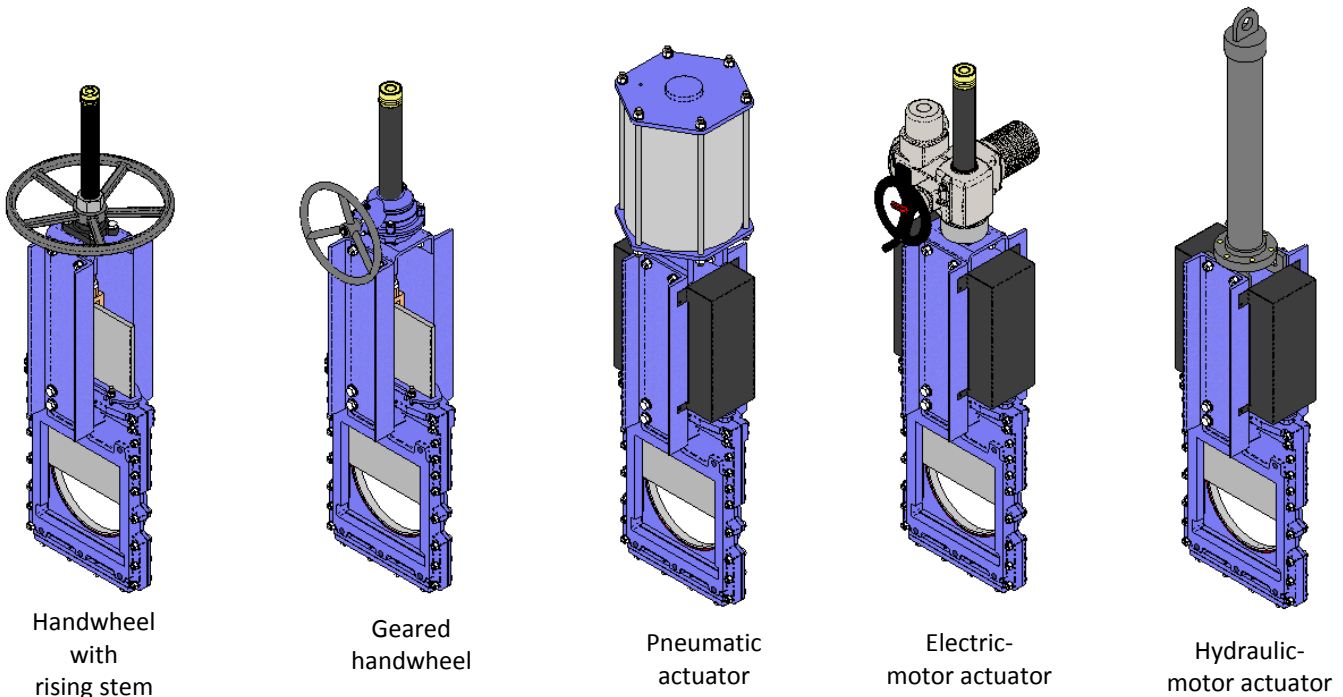


fig. 6



Handwheel with rising stem

Geared handwheel

Pneumatic actuator

Electric-motor actuator

Hydraulic-motor actuator

fig. 7

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ACCESSORIES AND OPTIONS

Different 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.

Stellite gate:

Stellite is added to the gate's internal circle 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 injections in the packing gland:

By injecting air in the packing, an air chamber is created which improves the seal-tightness.

Cased body:

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.

Flushing holes in body:

Several holes are drilled in the body to flush air, steam or other fluids out with the aim of cleaning the valve seat before sealing.

Electrovalves (fig. 8):

For air distribution to pneumatic actuators.

Connection boxes, wiring and pneumatic piping:

Units supplied fully assembled with all the necessary accessories.

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 (fig. 8).

Mechanical locking system:

Allows the valve to be mechanically locked in a set position for long periods.

Stroke limiting mechanical stops:

They allow the stroke to be mechanically adjusted, limiting the valve run.

Emergency manual actuator (hand wheel / gear box) (fig. 8):

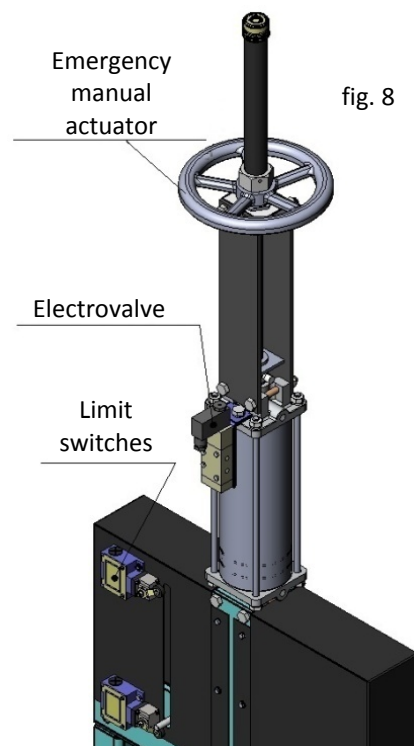
Allows manual operation of the valve in the event of power or air failure.

Triangular (V-Notch) and Pentagonal Diaphragm with Indication Rule:

Recommended for applications in which it is necessary to regulate the flow, it allows flow control according to the valve's opening percentage.

Interchangeable actuators:

All actuators are easily interchangeable.





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Actuator or yoke support:

Made of EPOXY-coated steel (or stainless steel to order), its robust design gives it great rigidity in order to resist the most adverse operation conditions.

Epoxy coating:

All carbon steel components and bodies of **C.M.O.** valves are EPOXY coated, giving the valves great resistance to corrosion and an excellent surface finish. **C.M.O.**'s standard colour is blue RAL-5015.

Gate safety guard:

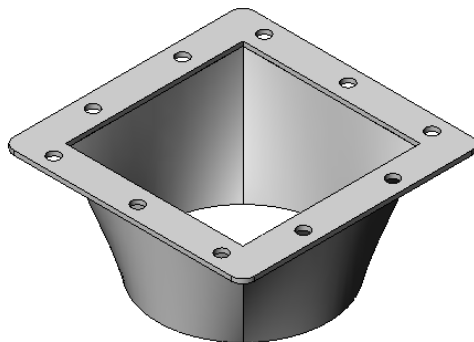
In accordance with European Safety Standards ("EC" marking), **C.M.O.** automated valves are equipped with gate guards, to prevent any objects from being accidentally caught or dragged in the gate.

Bonnet:

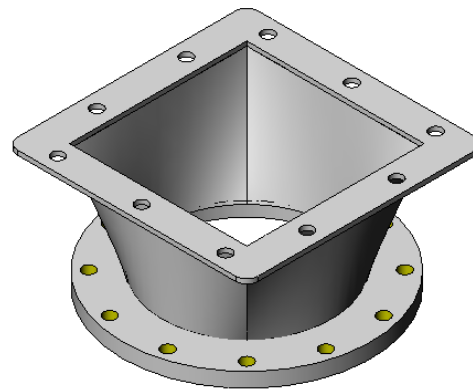
Provides total seal-tightness to the outside, reducing the packing maintenance required.

Transition (fig. 9):

Optionally, the **E** 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 **C.M.O.**'s technical commercial department to define the dimensions of these transitions.



Welding
transition



Transition to screw with
flange

fig. 9

TYPES OF EXTENSION

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

1 - Extension: Floor Stand.

This extension is made by coupling a spindle to the stem. By defining the length of the spindle, the desired extension is achieved. A floor stand is normally installed to support the actuator. The definition variables are as follows:

H1: Distance from the valve shaft 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 stem support-guide is recommended (fig. 12) every 1.5 m.
- The standard floor stand is 800 mm high (fig. 10). Other floor stand measurements are available to order.
- A position indicator can be fitted to determine the valve's percentage of opening.
- Leaning Column to order (fig. 11).

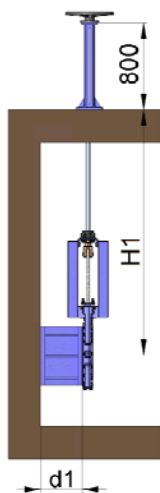


fig. 10

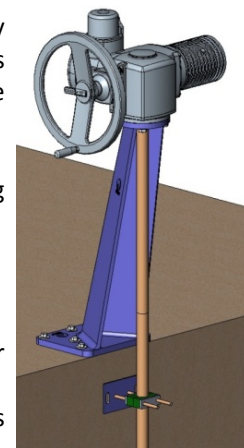


fig. 11



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LIST OF COMPONENTS	
Component	Standard Version
Stem	AISI 303
Spindle	AISI 304
Support-guide	EPOXI coated carbon steel
Slide	Nylon
Column	GJS-500 with EPOXI coating

table 3

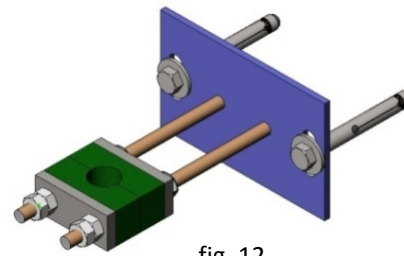


fig. 12

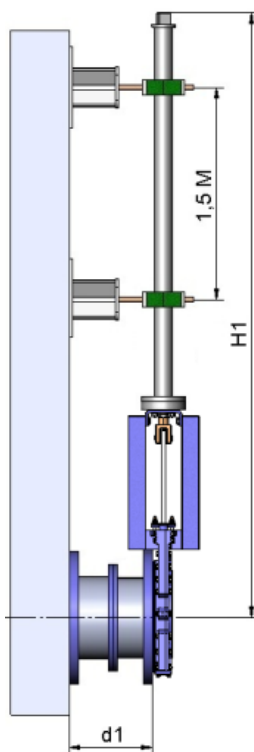


fig. 13

2 - Extension: Pipe (fig.13)

Consists of raising the actuator. The pipe will rotate with the wheel or key when the valve is operated, although this will always remain at the same height.

The definition variables are as follows:

H1: Distance from the valve shaft to the desired height of the actuator.

d1: Separation from the wall to the end of the connecting flange.

Characteristics:

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

3 - Extension: Extended Support Plates (fig. 14)

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 plate structure.

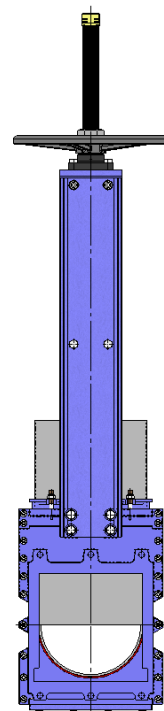


fig. 14

4 - Extension: Cardan joint (Fig. 15)

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

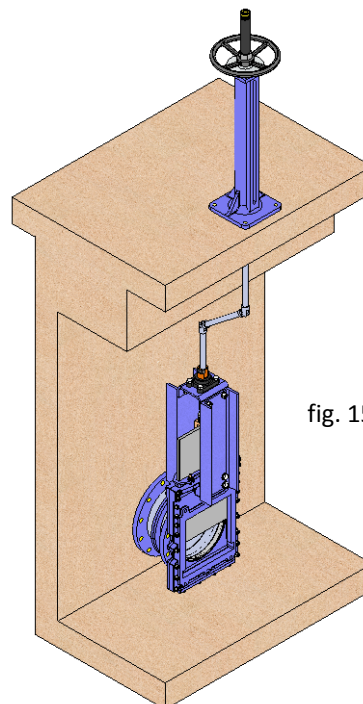


fig. 15

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HANDWHEEL with rising stem

- **B = Max.** width of the valve (without actuator).
- **D = Max.** height of the valve (without actuator).
- Options:
 - Locking devices.
 - Extensions: stand, pipe, plates,...
 - DN higher than those shown in the table.
- Actuator comprising:
 - Handwheel.
 - Stem.
 - Nut.
 - Stem protection hood.
- Available: DN50 to DN1200, other DN to order.
- From DN350 the actuator is with geared motor.

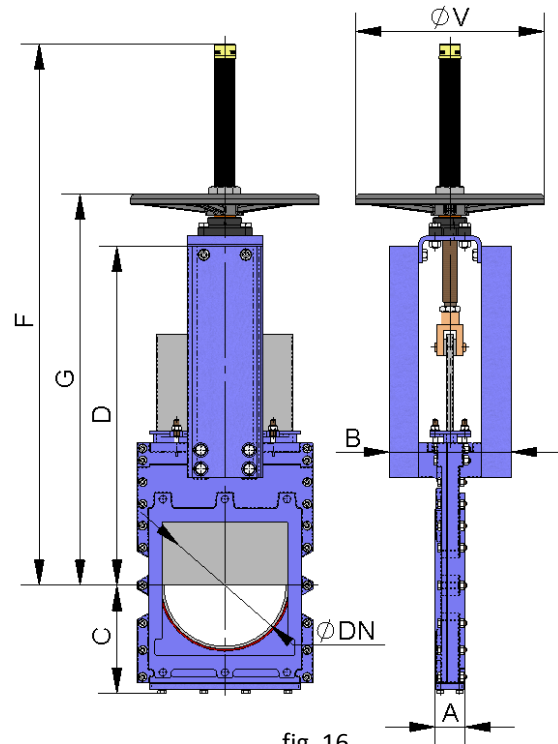


fig. 16

DN	ΔP (Kg/cm ²)	DRAW (Nw)	TORQUE (Nm)	A	B	C	D	F	G	$\varnothing V$
50	7	573	1,31	40	91	86	243	410	280	225
65	7	966	2,21	40	91	95	269	437	308	225
80	7	1461	3,34	50	91	114	292	463	333	225
100	7	2280	5,21	50	91	135	334	503	373	225
125	7	3559	8,13	50	102	145	392	586	407	225
150	7	5134	11,7	60	119	155	425	638	458	225
200	7	9138	26,1	60	119	185	525	816	578	325
250	7	14291	40,8	70	290	235	620	1007	669	325
300	7	20614	58,9	70	290	265	715	1095	757	380
350	7	28041	108,7	96	290	290	781	1307	876	450
400	7	36771	142,5	100	290	325	861	--	--	--
450	7	46471	180,1	106	290	350	985	--	--	--
500	4	32964	127,8	110	320	380	1064	--	--	--
600	4	47735	212	110	320	470	1224	--	--	--
700	4	65003	355	110	350	525	1425	--	--	--
800	4	85363	467	110	350	575	1615	--	--	--
900	4	108088	701	110	350	650	1823	--	--	--
1000	4	134063	870	110	400	725	1992	--	--	--
1100	4	163403	1227	150	400	800	2234	--	--	--
1200	4	194485	1460	150	400	870	2351	--	--	--

table 4

C.M.O.

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HANDWHEEL with non-rising stem

- Suitable when no size limitations exist.
- **B = Max. width** of the valve (without actuator).
D = Max. height of the valve (without actuator).
- Options:
 - Square nut.
 - Locking devices.
 - Extensions: stand, pipe, plates,...
 - DN higher than those shown in the table.
- Actuator comprising:
 - Handwheel.
 - Stem.
 - Guide bushing on the yoke.
 - Nut.
- Available: DN50 to DN1200, other DN to order.
- From DN350 the actuator is with geared motor.

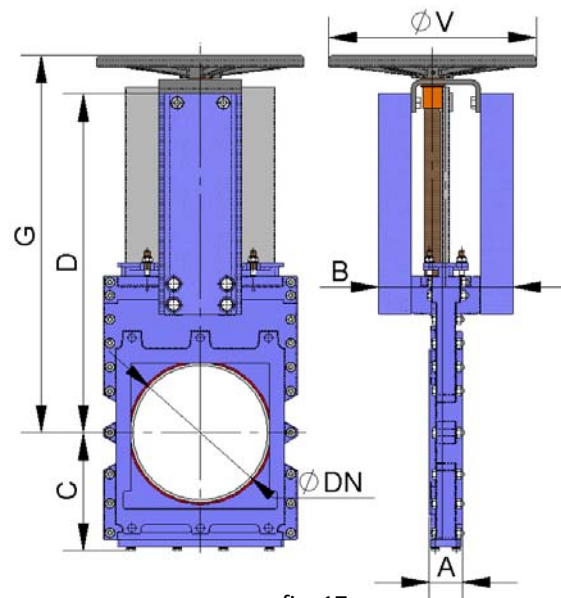


fig. 17

DN	ΔP (Kg/cm ²)	DRAW (Nw)	TORQUE (Nm)	A	B	C	D	G	ϕV
50	7	573	1,31	40	91	86	243	280	225
65	7	966	2,21	40	91	95	269	308	225
80	7	1461	3,34	50	91	114	292	333	225
100	7	2280	5,21	50	91	135	334	373	225
125	7	3559	8,13	50	102	145	392	407	225
150	7	5134	11,7	60	119	155	425	458	225
200	7	9138	26,1	60	119	185	525	578	325
250	7	14291	40,8	70	290	235	620	679	325
300	7	20614	58,9	70	290	265	715	779	380
350	7	28041	108,7	96	290	290	781	906	450
400	7	36771	142,5	100	290	325	861	--	--
450	7	46471	180,1	106	290	350	985	--	--
500	4	32964	127,8	110	320	380	1064	--	--
600	4	47735	212	110	320	470	1224	--	--
700	4	65003	355	110	350	525	1425	--	--
800	4	85363	467	110	350	575	1615	--	--
900	4	108088	701	110	350	650	1823	--	--
1000	4	134063	870	110	400	725	1992	--	--
1100	4	163403	1227	150	400	800	2234	--	--
1200	4	194485	1460	150	400	870	2351	--	--

table 5

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KNIFE GATE VALVES

E SERIES

CHAINWHEEL

- Widely used in raised installations with difficult access, the handwheel is fitted in vertical position.
- **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.
- Including:
 - Handwheel.
 - Stem.
 - Nut.
 - Hood.
- Available: DN50 to DN1200, other DN to order.
- From DN350 the actuator is with geared motor, see * in table.

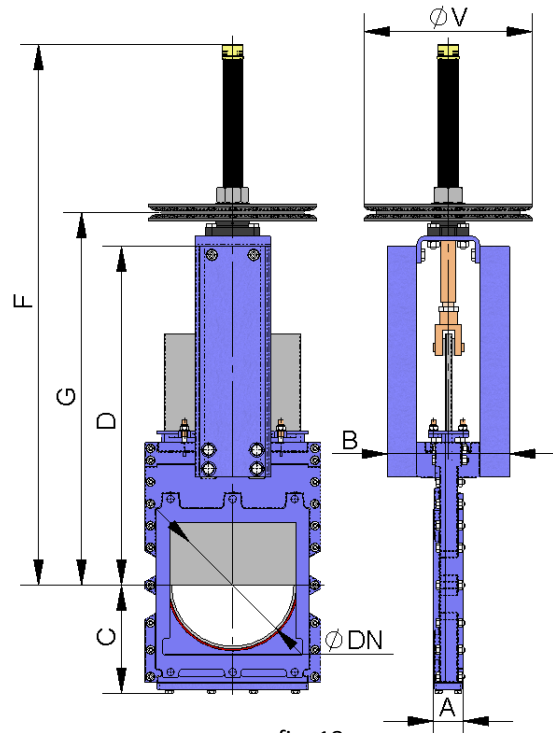


fig. 18

DN	ΔP (Kg/cm ²)	DRAW (Nw)	TORQUE (Nm)	A	B	C	D	F	G	ϕV
50	7	573	1,31	40	91	86	243	410	280	225
65	7	966	2,21	40	91	95	269	437	308	225
80	7	1461	3,34	50	91	114	292	463	333	225
100	7	2280	5,21	50	91	135	334	503	373	225
125	7	3559	8,13	50	102	145	392	586	407	225
150	7	5134	11,7	60	119	155	425	638	458	225
200	7	9138	26,1	60	119	185	525	816	578	300
250	7	14291	40,8	70	290	235	620	1007	669	300
300	7	20614	58,9	70	290	265	715	1095	757	300
350	7	28041	108,7	96	290	290	781	1307	876	402
400	7	36771	142,5	100	290	325	861	1441	997	402*
450	7	46471	180,1	106	290	350	985	1677	1083	402*
500	4	32964	127,8	110	320	380	1064	1789	1195	402*
600	4	47735	212	110	320	470	1224	2108	1420	402*
700	4	65003	355	110	350	525	1425	2406	1658	402*
800	4	85363	467	110	350	575	1615	2790	1905	402*
900	4	108088	701	110	350	650	1823	3130	2115	402*
1000	4	134063	870	110	400	725	1992	3440	2310	402*
1100	4	163403	1227	150	400	800	2234	3765	2565	402*
1200	4	194485	1460	150	400	870	2351	4050	2815	402*

table 6

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KNIFE GATE VALVES

E SERIES

GEAR BOX

- It is recommendable for DN greater than 350.
- **B = Max. width** of the valve (without actuator).
D = Max. height of the valve (without actuator).
- Options:
 - Chainwheel.
 - Locking devices.
 - Extensions: stand, pipe, plates,...
 - Non-rising stem.
- Actuator comprising:
 - Stem.
 - Yoke.
 - Cone-shaped gear box.
 - Handwheel.
- Standard reduction ratio = 4 to 1.
- Available: DN 50 to DN 1200, other DN to order.

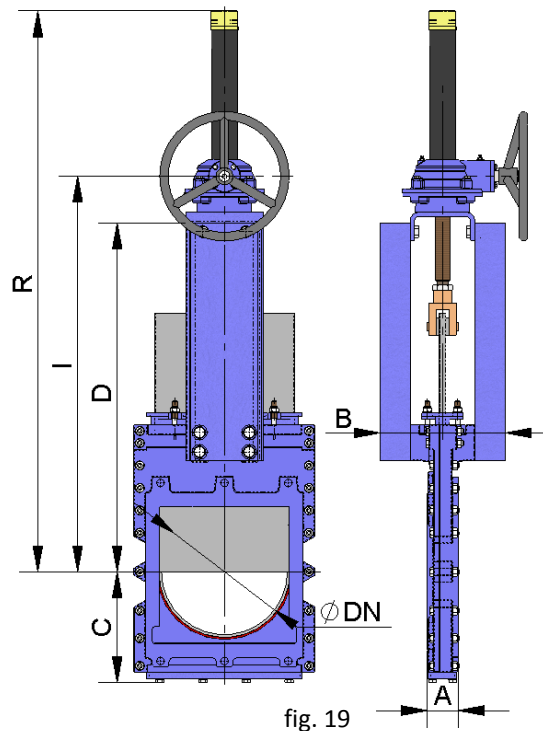


fig. 19

DN	ΔP (Kg/cm ²)	DRAW (Nw)	TORQUE (Nm)	A	B	C	D	I	R
50	7	573	1,31	40	91	86	243	366	540
65	7	966	2,21	40	91	95	269	392	566
80	7	1461	3,34	50	91	114	292	418	592
100	7	2280	5,21	50	91	135	334	458	632
125	7	3559	8,13	50	102	145	392	491	665
150	7	5134	11,7	60	119	155	425	543	717
200	7	9138	26,1	60	119	185	525	648	942
250	7	14291	40,8	70	290	235	620	749	1043
300	7	20614	58,9	70	290	265	715	849	1193
350	7	28041	108,7	96	290	290	781	891	1335
400	7	36771	142,5	100	290	325	861	997	1441
450	7	46471	180,1	106	290	350	985	1083	1677
500	4	32964	127,8	110	320	380	1064	1195	1789
600	4	47735	212	110	320	470	1224	1420	2108
700	4	65003	355	110	350	525	1425	1658	2406
800	4	85363	467	110	350	575	1615	1905	2790
900	4	108088	701	110	350	650	1823	2115	3130
1000	4	134063	870	110	400	725	1992	2310	3440
1100	4	163403	1227	150	400	800	2234	2565	3765
1200	4	194485	1460	150	400	870	2351	2815	4050

table 7

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KNIFE GATE VALVES

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DOUBLE-ACTING PNEUMATIC CYLINDER

- The air supply pressure to the pneumatic cylinder is a minimum of 6 Kg/cm² and a maximum of 10 Kg/cm², the air must be dry and lubricated.
- 10 Kg/cm² is the maximum admissible air pressure. For air pressures below 6 Kg/cm², please check with **C.M.O.**
- 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 stainless steel, especially for installation in corrosive atmospheres.
- **B = Max. width** of the valve (without actuator)
D = Max. height of the valve (without actuator).
- Available: DN50 to DN1200, other DN to order.

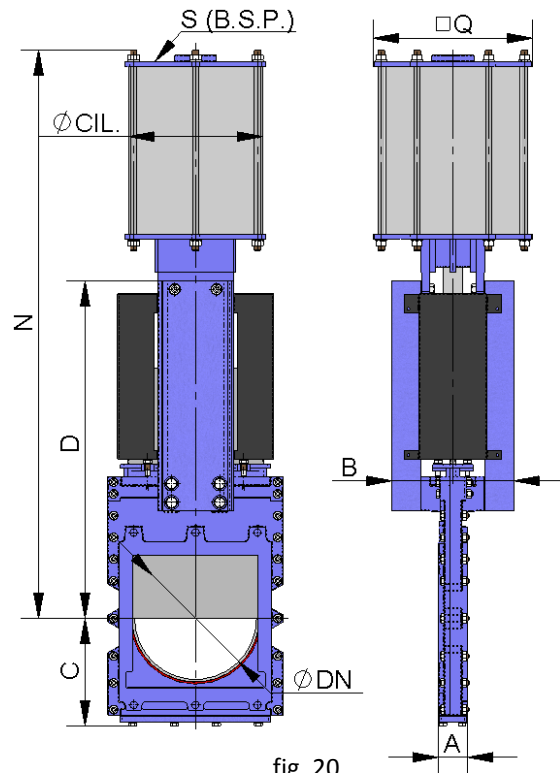


fig. 20

DN	ΔP (Kg/cm ²)	DRAW (Nw)	A	B	C	D	N	Q	Ø CYL.	Ø STEM	S (B.S.P.)
50	7	573	40	91	86	243	425	90	80	20	1/4"
65	7	966	40	91	95	269	470	90	80	20	1/4"
80	7	1461	50	91	114	292	510	110	100	20	1/4"
100	7	2280	50	91	135	334	557	110	100	20	1/4"
125	7	3559	50	102	145	392	665	135	125	25	1/4"
150	7	5134	60	119	155	425	814	170	160	30	1/4"
200	7	9138	60	119	185	525	940	215	200	30	3/8"
250	7	14291	70	290	235	620	1070	270	250	40	3/8"
300	7	20614	70	290	265	715	1220	270	250	40	3/8"
350	7	28041	96	290	290	781	1440	382	300	45	1/2"
400	7	36771	100	290	325	861	1480	382	300	45	1/2"
450	7	46471	106	290	350	985	1780	444	350	45	1/2"
500	4	32964	110	320	380	1064	1875	444	350	45	1/2"
600	4	47735	110	320	470	1224	2095	444	350	45	1/2"
700	*	*	110	350	525	1425	2540	508	400	50	1/2"
800	*	*	110	350	575	1615	2720	508	400	50	1/2"
900	*	*	110	350	650	1823	3060	508	400	50	1/2"
1000	*	*	110	400	725	1992	3470	508	400	50	1/2"
1100	*	*	150	400	800	2234	3820	508	400	50	1/2"
1200	*	*	150	400	870	2351	4220	508	400	50	1/2"

* → Consult

table 8

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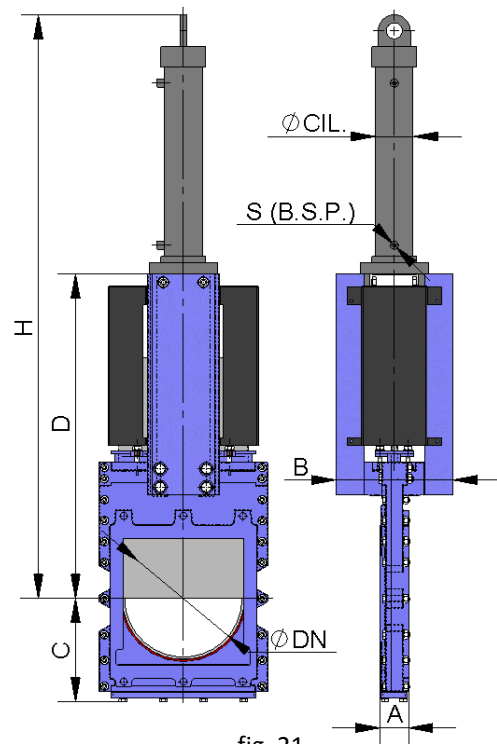
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KNIFE GATE VALVES

E SERIES

HYDRAULIC ACTUATOR (Oil pressure: 135 Kg/cm²)

- **B = Max. width** of the valve (without actuator).
- **D = Max. height** of the valve (without actuator).
- The hydraulic actuator includes:
 - Hydraulic cylinder.
 - Yoke.
- Available: DN50 to DN1200
- Different types and brands available according to customer's requirements.



DN	ΔP (Kg/cm ²)	DRAW (Nw)	A	B	C	D	H	Ø CYL.	Ø STEM	S (B.S.P.)	Cap. Oil (dm ³)
50	7	573	40	91	86	243	457	25	18	3/8"	0,03
65	7	966	40	91	95	269	500	25	18	3/8"	0,04
80	7	1461	50	91	114	292	560	25	18	3/8"	0,04
100	7	2280	50	91	135	334	620	32	22	3/8"	0,09
125	7	3559	50	102	145	392	683	32	22	3/8"	0,11
150	7	5134	60	119	155	425	683	40	28	3/8"	0,2
200	7	9138	60	119	185	525	755	50	28	3/8"	0,42
250	7	14291	70	290	235	620	926	50	28	3/8"	0,52
300	7	20614	70	290	265	715	1077	63	36	3/8"	0,98
350	7	28041	96	290	290	781	1246	80	45	3/8"	1,88
400	7	36771	100	290	325	861	1376	80	45	3/8"	2,14
450	7	46471	106	290	350	985	1532	100	56	1/2"	3,73
500	4	32964	110	320	380	1064	1707	80	45	3/8"	2,64
600	4	47735	110	320	470	1224	1869	100	56	1/2"	4,91
700	4	65003	110	350	525	1425	2202	125	56	1/2"	8,9
800	4	85363	110	350	575	1615	2839	125	56	1/2"	10,12
900	4	108088	110	350	650	1823	3193	160	70	1/2"	18,6
1000	4	134063	110	400	725	1992	3437	160	70	1/2"	20,7
1100	4	163403	150	400	800	2234	3775	160	70	1/2"	22,8
1200	4	194485	150	400	870	2351	4161	200	90	1/2"	38,6

table 9

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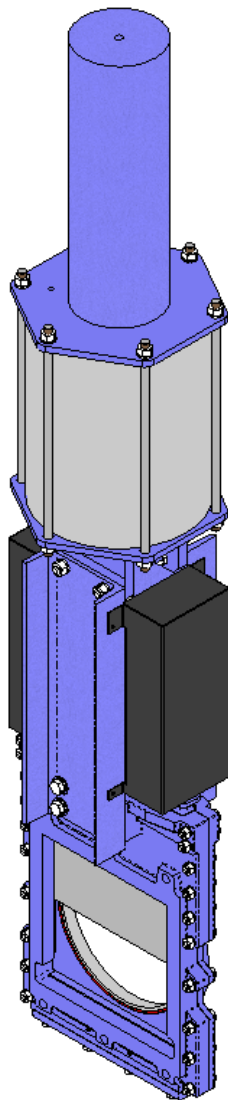


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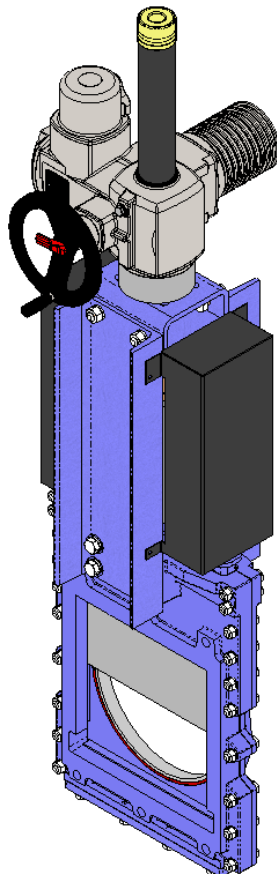
E SERIES

OTHER POSSIBLE ACTUATORS

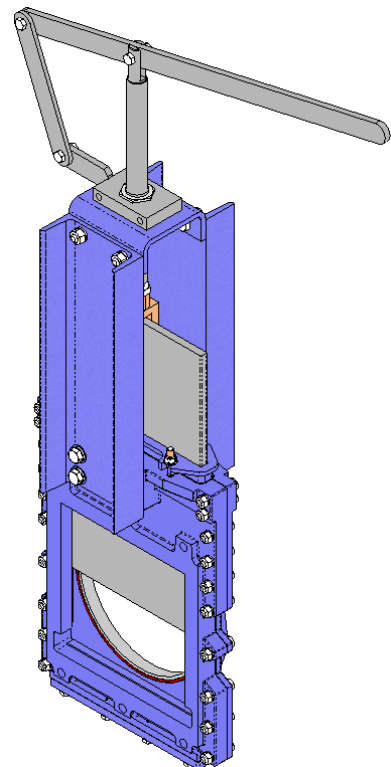
The most common actuators are detailed in the tables in the pages above, with their respective dimensions, although there is also the possibility of supplying them with other actuators, for example those indicated below. If the valve is to be used with any of these actuators, ask **C.M.O.** technical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



Single acting
pneumatic
actuator
fig.22



Electric-
motor actuator
fig.23



Lever
actuator
fig.24

KNIFE GATE VALVES

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INFORMATION ON FLANGE DIMENSIONS

EN 1092-2 PN10

DN	ΔP (Kg/cm ²)	ROUND FLANGE			SQUARE FLANGE							Metric	P			
		●	○	ØK	N	T	U	W	●	○	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

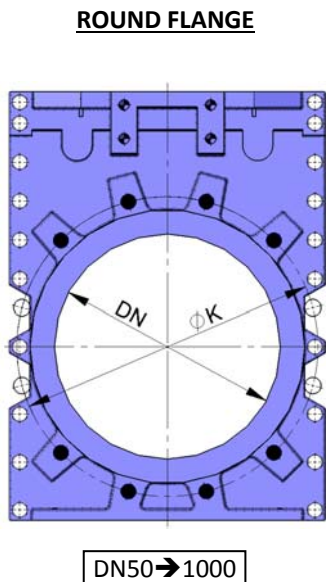


fig. 25

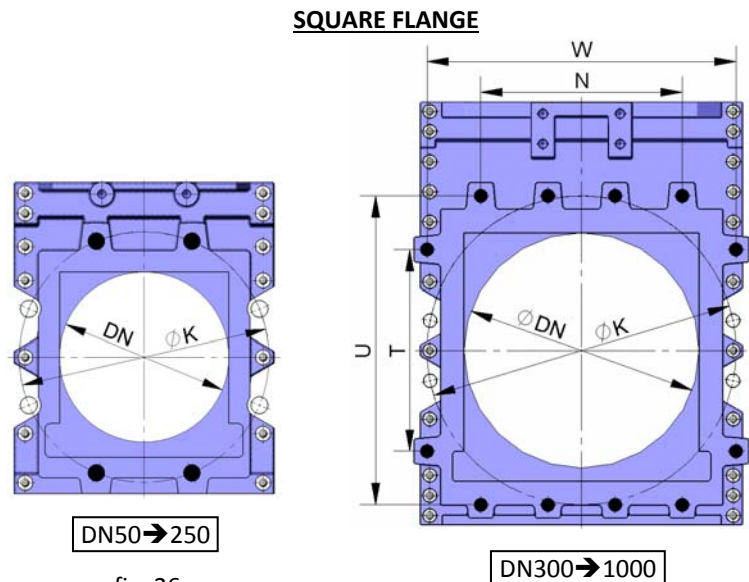


fig. 26

fig. 27

- BLIND TAPPED HOLE
- THROUGH HOLE

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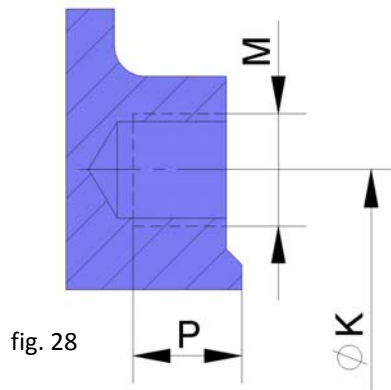
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KNIFE GATE VALVES

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ANSI B16.5, class 150

DN	ΔP (Kg/cm ²)	ROUND FLANGE			SQUARE FLANGE						R UNC	P			
		●	○	ØK	N	T	U	W	●	○			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	-	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 ¼"	22		
20"	4	16	4	635	4x130	360	620	620	14	4	635	1 ¼"	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