



KNIFE-GATE VALVES

A SERIES

03/01/2011

UNIDIRECTIONAL WAFER Knife Gate Valve

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

General Applications:

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

- Paper Industry
- Mining
- Silo emptying
- Chemical plants
- Pumping
- Food Industry
- Sewage treatment

Sizes: ND50 to ND2000 (larger sizes on request).

Working Pressure:

| | |
|--------------------------------------|---------------------------------------|
| -ND50 to ND125: 10kg/cm ² | |
| -ND150: 8kg/cm ² | -ND200: 7kg/cm ² |
| -ND250 to ND300: 5kg/cm ² | -ND350 to ND400: 4kg/cm ² |
| -ND450 to ND600: 3kg/cm ² | -ND700 to ND1400: 2kg/cm ² |

-These pressures must be applied to the valve in the direction of the arrow marked on the valve's body. Due to the valve's design with gate support guides, 30% of these pressures can be applied in the opposite direction to the arrow.

Standard Flanges: DIN PN10 and ANSI B16.5 (class 150)

Other Common Flanges: DIN PN 6 DIN PN 16 DIN PN25
BS "D" and "E" ANSI 150 Others on request:

Directives: Machinery Directive: DIR 2006/42/EC (MACHINERY)
Pressure Equipment Directive: DIR 97/23/EC (PED) ART.3, P.3
Potential Explosive Atmospheres Directive: DIR 94/9/EC (ATEX) CAT.3 ZONE 2 and 22 GD
For further information on categories and zones please contact the CMO Technical-Commercial Dept.

Quality Dossier:

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

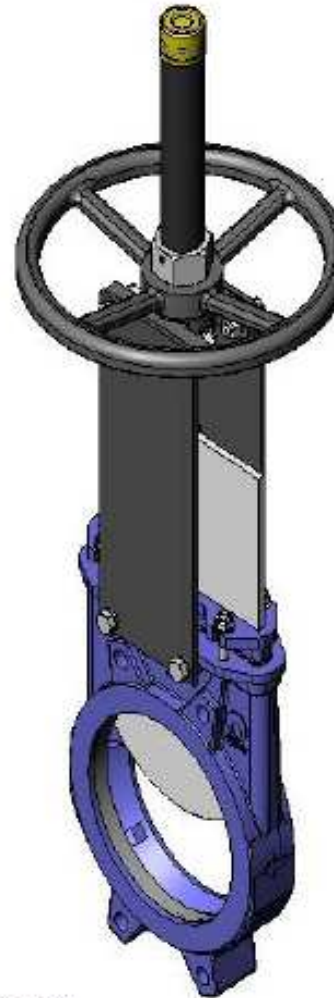


Fig 1



KNIFE-GATE VALVES

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Advantages of CMO's "Model A" compared to similar products

When a knife gate valve remains open for long periods of time and the body's internal walls are parallel a very large torque is required to close it. Model A's body is cone-shaped inside, providing greater space. This way, when the valve is closed the solids stored inside it can be easily removed.

This valve is defined as unidirectional and these valves are normally at risk of the gate bending due to counter-pressure. This cannot happen with the CMO valve because it contains internal guides that support the knife gate and allow it to work under counter-pressure of 30% of the maximum working pressure, without the knife gate bending.

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 stem on the CMO valve is made of 18/8 stainless steel. This is another added advantage, as some manufacturers produce it with 13% chrome and it gets rusty very quickly.

The handwheel is made of GGG-50 nodular cast iron. Some manufacturers produce them in normal cast iron which can lead to breakages in the event of very high operating torque or knocks.

The yoke is 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 pneumatic actuator's upper and lower covers are made of GGG-50 nodular cast iron, making them highly shock resistant. This characteristic is essential in pneumatic actuators.

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

| STANDARD COMPONENTS LIST | | |
|--------------------------|--------------------|--------------------|
| COMPONENT: | CAST IRON VERSION: | ST. STEEL VERSION: |
| 1- Body | GG25 | CF8M |
| 2- Gate | AISI304 | AISI316 |
| 3- Guide | RCH1000 | RCH1000 |
| 4- Packing gland | GGG 50 | CF8M |
| 5- Packing | SYNT + PTFE | SYNT + PTFE |
| 6- O-ring seal | EPDM | EPDM |
| 7- Support plates | S275JR | S275JR |
| 8- Ring | AISI316 | AISI316 |
| 9- Seat | EPDM | EPDM |
| 10- Stem | AISI303 | AISI303 |
| 11- Yoke | STEEL | STEEL |
| 12- Stem nut | BRONZE | BRONZE |
| 13- Check nut | ST44.2 + ZINC | ST44.2 + ZINC |
| 14- Handwheel | NODULAR CAST IRON | NODULAR CAST IRON |
| 15- Nut | STEEL | STEEL |
| 16- Hood | STEEL | STEEL |
| 17- Top cap | PLASTIC | PLASTIC |

table 1

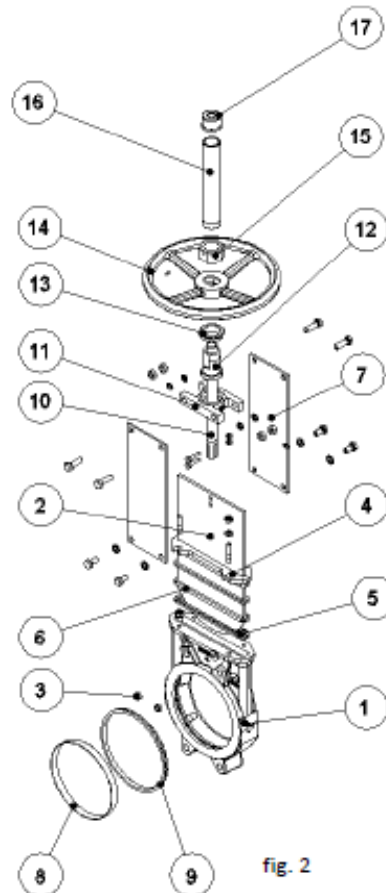


fig. 2



KNIFE-GATE VALVES

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DESIGN CHARACTERISTICS

1- BODY

Unidirectional wafer-design knife gate valve. One-piece cast body with guides to support gate and seat wedges.

For diameters greater than ND1200 the body is machine-welded with the necessary reinforcements to resist the maximum working pressure.

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 GG25 cast iron and CF8M stainless steel. Other materials, such as GGG50 nodular cast iron, A216WCB carbon steel and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6...) are available on request. As standard, iron or carbon steel valves are painted with an anti-corrosive protection of 80 microns of EPOXY (colour RAL 5015). Other types of anti-corrosive protections are available on request.

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, anti-abrasion treatments and modifications are available to adapt the valves to the customer's requirements.

3- SEAT: (watertight)

Six 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 seat and the estimated leakage (considering water as the test fluid) is 1.5% of the pipe flow.

Seat 2: Standard soft-seated valve. This type of seat includes a resilient seat which is fixed to the inside of the body via an AISI316 stainless steel retaining ring.

Seat 3: Soft-seated valve with reinforced socket. This type of seat includes a resilient seat which is fixed to the inside of the body via an AISI316 stainless steel retaining ring with two functions (to protect the valve from abrasion and clean the gate when working with solids that can stick to it).

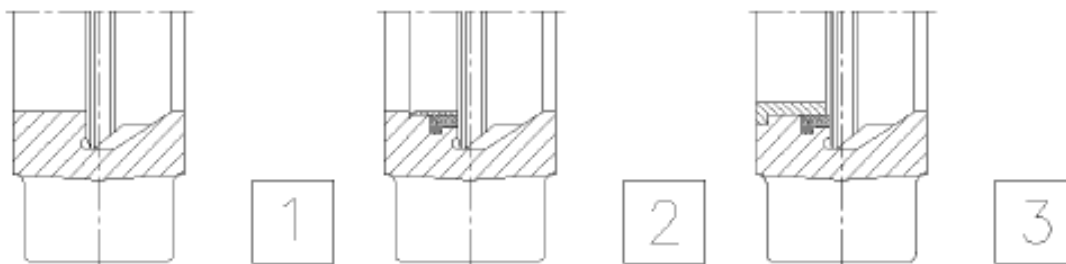


fig. 3

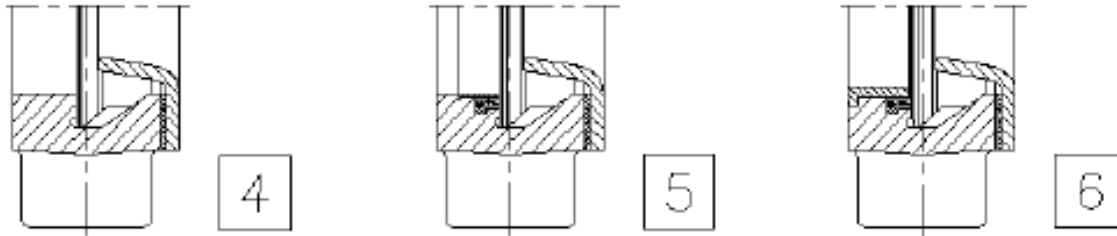


fig. 4

Seats 4, 5 and 6: The same as seats 1, 2 and 3 but including a deflector. The deflector is a cone-shaped ring located at the valve's entrance with two functions (to protect the valve from abrasion and guide the flow to the centre of the valve).

Note: Three materials are available for the reinforced socket and the deflector (CA-15 steel, CF8M and Ni-hard).

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.

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

CMO'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:



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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.

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.

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 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 |
| Viton (N) | 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 available on request.

table 2

5- STEM

The stem on the CMO valve 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 GGG50 packing glands, whilst valves with stainless steel body have CF8M packing glands.



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7- ACTUATORS

All types of actuators can be supplied, with the advantage that the CMO design is fully interchangeable. This design allows the customer to change the actuators themselves and normally no extra assembly accessories are required. In the event any accessory is required, CMO will supply it.

Manual:

Handwheel with rising stem
Handwheel with non-rising stem
Chainwheel
Lever
Gear Box
Others (square nut,...)

Automatic:

Electric actuator
Pneumatic cylinder
Hydraulic cylinder

A design characteristic of CMO S.L. valves is that all actuators are interchangeable.

Wide Range of Accessories Available:

Mechanical stops
Locking devices
Emergency manual actuators
Solenoid valves
Positioners
Limit switches
Proximity switches
Floor stands (Fig 5)
...



Fig. 5

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.



Handwheel
rising stem



Handwheel
non-rising stem



Handwheel
pneumatic
stem



Handwheel electric
actuator stem



Handwheel
gear box



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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.

Flushing Holes in Body (Fig 7)

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.

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.

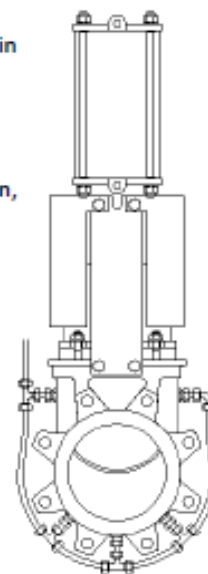


Fig.7



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Connection Boxes, Wiring and Pneumatic Piping

Fully assembled units can be supplied with all the necessary accessories.

Stroke Limiting Mechanical Stops

Mechanical Locking Device

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

Emergency Manual Actuator (Hand Wheel /Gear Box)

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

Triangular (V-Notch) and Pentagonal Diaphragm with Indication Rule (Fig 8)

Recommended for applications in which flow regulation is required.

Allows flow control according to the valve's opening percentage.

Interchangeable Actuators

All actuators are easily interchangeable.

Actuator or Yoke Support

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

Epoxy Coating

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.

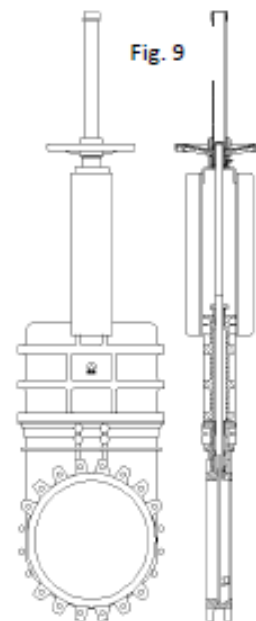
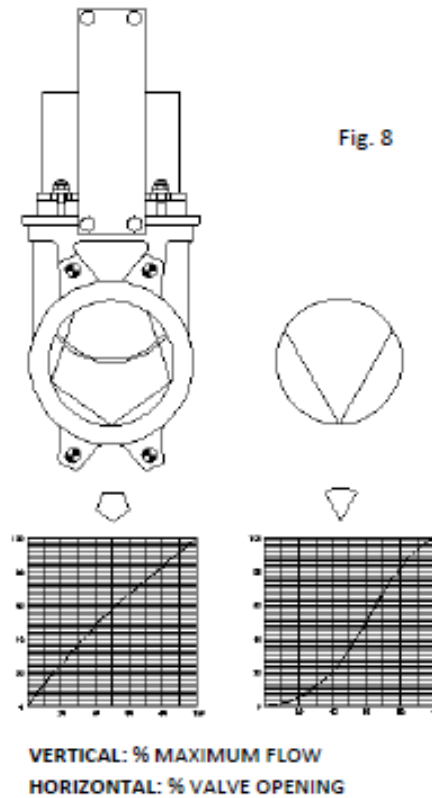
CMO's standard colour is blue, RAL-5015.

Gate Safety Protection

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

Bonnet (Fig 9)

The bonnet provides total watertight integrity to the outside, reducing the packing maintenance required.



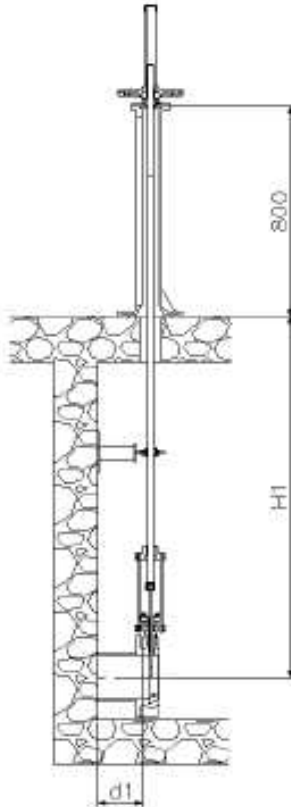


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TYPES OF EXTENSION

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



- Extension: Floor Stand.

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

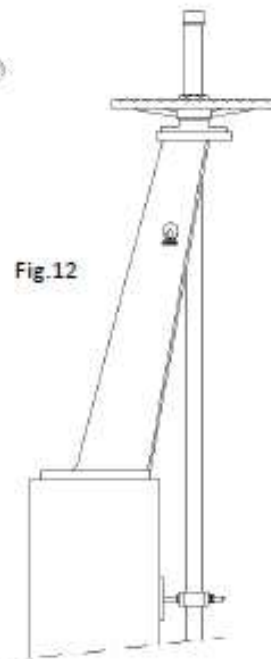
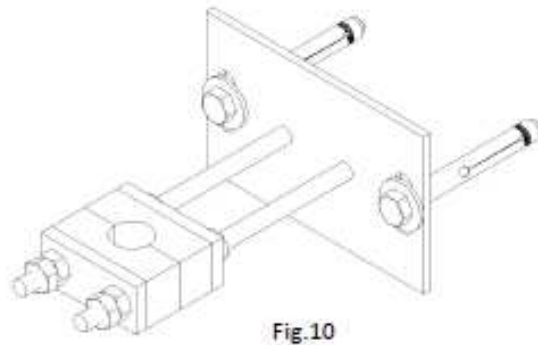
The definition variables are as follows:

H1: Distance from the valve's centre to the base of the stand.

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

Characteristics:

- It can be coupled to any type of actuator.
- A stem support-guide (Fig 11) is recommended every 1.5 m.
- The standard floor stand is 800mm high (Fig 10). Other floor stand measurements available on request:
- A position indicator can be fitted to determine the valve's percentage of opening.
- Tilting stand available on request (Fig 12).



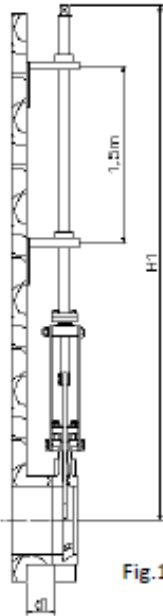
| COMPONENTS LIST | |
|-----------------|---------------------------------|
| Component: | Standard Version: |
| AISI 304 Stem | AISI 303 |
| Rod | AISI 304 |
| Support-Guide | Carbon steel with EPOXY coating |
| Nylon Guide | Nylon |
| Stand | GGG 50 with EPOXY coating |

Table 3



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2 - Extension: Pipe (Fig 13)

Consists of raising the actuator. The pipe will rotate in the same direction as the handwheel when the valve is operated. The valve always remains at the same height.

The definition variables are as follows:

H1: Distance from the valve's centre to the base of the stand.

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

Characteristics:

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

Fig.13

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 plates' structure.

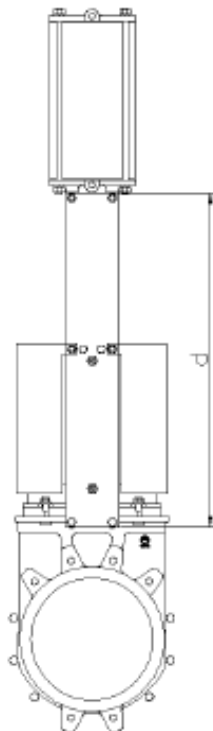


fig.14

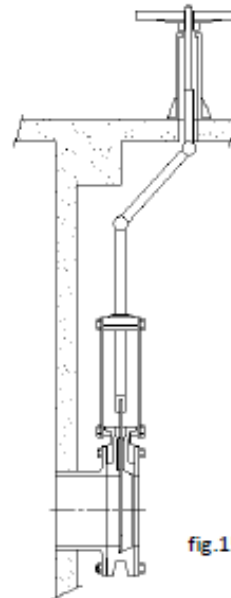


fig.15

4 - Extension: Universal Joint (Fig15)

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



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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...
 - ND higher than those give in the table
- Actuator including:
 - Handwheel
 - Stem
 - Nut
 - Stem protection hood
- Available: ND50 to ND 1200, other ND on request.

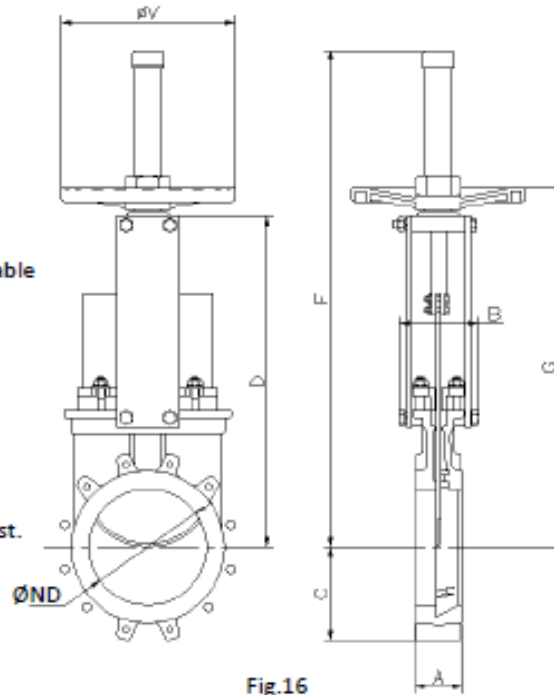


Fig.16

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | F | G | Ø STEM | GATE WIDTH | ØV | Weight (kg.) |
|------|----------------------------|--------------|---------------|-----|-----|-----|------|------|------|-----------|---------------|-----|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 410 | 280 | Ø20x4 | 5 | 225 | 7 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 437 | 308 | Ø20x4 | 5 | 225 | 8 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 463 | 333 | Ø20x4 | 5 | 225 | 9 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 503 | 373 | Ø20x4 | 5 | 225 | 11 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 586 | 407 | Ø20x4 | 6 | 225 | 13 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 638 | 458 | Ø20x4 | 8 | 225 | 17 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 816 | 578 | Ø25x5 | 8 | 325 | 28 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 1017 | 679 | Ø25x5 | 8 | 325 | 40 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 1117 | 779 | Ø25x5 | 10 | 325 | 56 |
| 350 | 4 | 16064 | 62.3 | 96 | 290 | 254 | 797 | 1337 | 906 | Ø35x6 | 10 | 450 | 94 |
| 400 | 4 | 21042 | 81.6 | 100 | 290 | 287 | 903 | 1443 | 1012 | Ø35x6 | 12 | 450 | 116 |
| 450 | 3 | 20043 | 77.7 | 106 | 290 | 304 | 989 | 1629 | 1098 | Ø35x6 | 12 | 450 | 162 |
| 500 | 3 | 24883 | 96.5 | 110 | 290 | 340 | 1101 | 1741 | 1210 | Ø35x6 | 15 | 450 | 191 |
| 600 | 3 | 36081 | 139.9 | 110 | 290 | 398 | 1307 | 2047 | 1416 | Ø35x6 | 15 | 450 | 264 |
| 700 | 2 | 39945 | 180.1 | 110 | 320 | 453 | 1506 | 2246 | 1656 | Ø50x8 | 15 | 620 | 441 |
| 800 | 2 | 43493 | 237.8 | 110 | 320 | 503 | 1720 | 2560 | 1870 | Ø50x8 | 20 | 620 | 568 |
| 900 | 2 | 55024 | 300.9 | 110 | 320 | 583 | 1953 | 2893 | 2103 | Ø50x8 | 20 | 620 | 736 |
| 1000 | 2 | 68580 | 374.9 | 110 | 320 | 613 | 2137 | 3177 | 2287 | Ø50x8 | 25 | 800 | 921 |
| 1200 | 2 | 99025 | 642.5 | 150 | 340 | 728 | 2616 | 3856 | 2766 | Ø60x9 | 30 | 800 | 1350 |



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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 give in the table
- Actuator including:
 - Handwheel
 - Stem
 - Guide bearings on the yoke.
 - Nut
- Available: ND50 to ND2000, other ND on request.

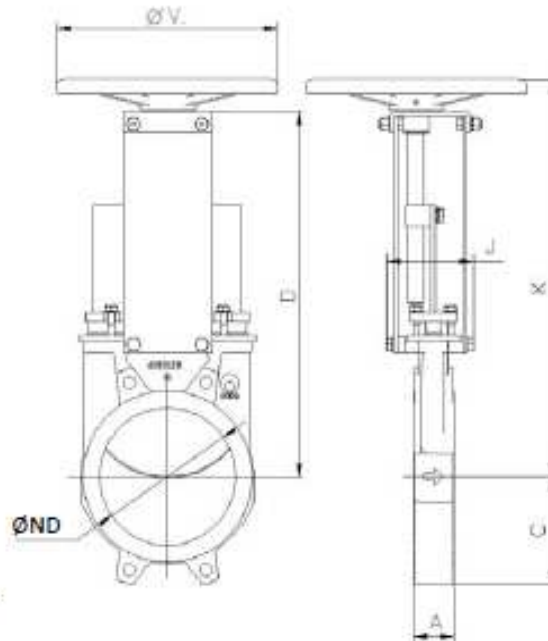


Fig.17

| ND | P (Kg/cm ²) | DRAW TORQUE | | A | C | D | J | K | Ø STEM | GATE WIDTH | ØV | Weight (kg.) |
|------|----------------------------|-------------|-------|-----|-----|------|-----|------|-----------|---------------|-----|-----------------|
| | | (Nw) | (Nm) | | | | | | | | | |
| 50 | 10 | 815 | 1.86 | 40 | 61 | 241 | 101 | 277 | Ø20x4 | 5 | 225 | 7 |
| 65 | 10 | 1375 | 3.14 | 40 | 68 | 268 | 101 | 304 | Ø20x4 | 5 | 225 | 8 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 294 | 101 | 330 | Ø20x4 | 5 | 225 | 9 |
| 100 | 10 | 3252 | 7.43 | 50 | 104 | 334 | 101 | 370 | Ø20x4 | 5 | 225 | 11 |
| 125 | 10 | 5080 | 11.6 | 50 | 118 | 367 | 111 | 402 | Ø20x4 | 6 | 225 | 13 |
| 150 | 8 | 5134 | 11.7 | 60 | 130 | 419 | 111 | 454 | Ø20x4 | 6 | 225 | 17 |
| 200 | 7 | 9138 | 26.1 | 60 | 159 | 525 | 128 | 578 | Ø25x5 | 8 | 325 | 29 |
| 250 | 5 | 10227 | 29.2 | 70 | 196 | 626 | 128 | 679 | Ø25x5 | 8 | 325 | 40 |
| 300 | 5 | 14748 | 42.1 | 70 | 230 | 726 | 128 | 779 | Ø25x5 | 10 | 325 | 53 |
| 350 | 4 | 16064 | 62.3 | 96 | 254 | 797 | 305 | 860 | Ø35x6 | 10 | 450 | 93 |
| 400 | 4 | 21042 | 81.6 | 100 | 287 | 903 | 305 | 981 | Ø35x6 | 12 | 450 | 126 |
| 450 | 3 | 20043 | 77.7 | 106 | 304 | 989 | 305 | 1067 | Ø35x6 | 12 | 450 | 160 |
| 500 | 3 | 24883 | 96.5 | 110 | 340 | 1101 | 305 | 1179 | Ø35x6 | 12 | 450 | 193 |
| 600 | 3 | 36081 | 139.9 | 110 | 398 | 1307 | 305 | 1386 | Ø35x6 | 15 | 450 | 264 |
| 700 | 2 | 39945 | 180.1 | 110 | 453 | 1506 | 335 | 1596 | Ø50x8 | 15 | 620 | 435 |
| 800 | 2 | 43493 | 237.8 | 110 | 503 | 1720 | 335 | 1810 | Ø50x8 | 20 | 620 | 580 |
| 900 | 2 | 55024 | 300.9 | 110 | 583 | 1953 | 335 | 2043 | Ø50x8 | 20 | 620 | 740 |
| 1000 | 2 | 68580 | 374.9 | 110 | 613 | 2137 | 335 | 2227 | Ø50x8 | 25 | 800 | 925 |
| 1200 | 2 | 99025 | 642.5 | 150 | 728 | 2616 | 355 | 2706 | Ø60x9 | 30 | 800 | 1350 |



KNIFE-GATE VALVES

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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 give in the table
- Including:
 - Handwheel
 - Stem
 - Nut
 - Hood
- Available: ND50 to ND1200, other ND on request.

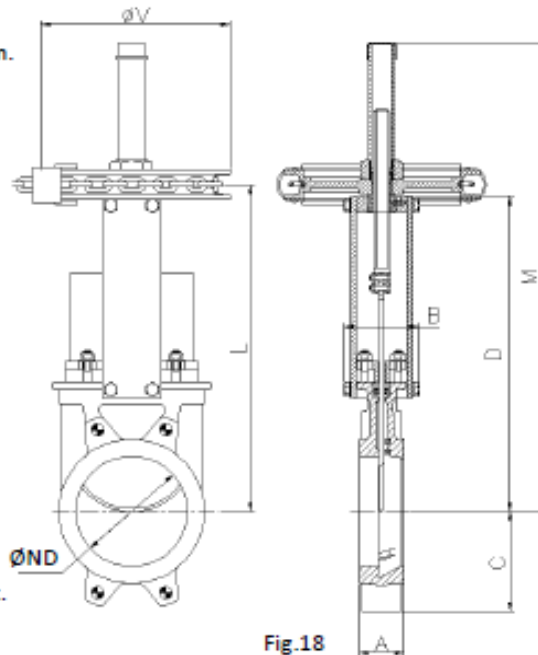


Fig.18

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | L | M | Ø STEM | GATE WIDTH | ØV | Weight (kg.) |
|------|----------------------------|--------------|---------------|-----|-----|-----|------|------|------|-----------|---------------|-----|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 264 | 437 | Ø20x4 | 5 | 225 | 7 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 291 | 464 | Ø20x4 | 5 | 225 | 8 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 317 | 490 | Ø20x4 | 5 | 225 | 9 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 357 | 530 | Ø20x4 | 5 | 225 | 11 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 390 | 613 | Ø20x4 | 6 | 225 | 13 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 442 | 665 | Ø20x4 | 6 | 225 | 17 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 551 | 849 | Ø25x5 | 8 | 325 | 29 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 652 | 1050 | Ø25x5 | 8 | 325 | 40 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 752 | 1150 | Ø25x5 | 10 | 325 | 53 |
| 350 | 4 | 16064 | 62.3 | 96 | 290 | 254 | 797 | 879 | 1398 | Ø35x6 | 10 | 450 | 93 |
| 400 | 4 | 21042 | 81.6 | 100 | 290 | 287 | 903 | 985 | 1504 | Ø35x6 | 12 | 450 | 126 |
| 450 | 3 | 20043 | 77.7 | 106 | 290 | 304 | 989 | 1071 | 1690 | Ø35x6 | 12 | 450 | 160 |
| 500 | 3 | 24883 | 96.5 | 110 | 290 | 340 | 1101 | 1183 | 1802 | Ø35x6 | 12 | 450 | 193 |
| 600 | 3 | 36081 | 139.9 | 110 | 290 | 398 | 1307 | 1389 | 2108 | Ø35x6 | 15 | 450 | 264 |
| 700 | 2 | 39945 | 180.1 | 110 | 320 | 453 | 1506 | 1606 | 2406 | Ø50x8 | 15 | 620 | 435 |
| 800 | 2 | 43493 | 237.8 | 110 | 320 | 503 | 1720 | 1820 | 2720 | Ø50x8 | 20 | 620 | 580 |
| 900 | 2 | 55024 | 300.9 | 110 | 320 | 583 | 1953 | 2053 | 3053 | Ø50x8 | 20 | 620 | 740 |
| 1000 | 2 | 68580 | 374.9 | 110 | 320 | 613 | 2137 | 2257 | 3337 | Ø50x8 | 25 | 800 | 925 |
| 1200 | 2 | 99025 | 642.5 | 150 | 340 | 728 | 2616 | 2836 | 4016 | Ø60x9 | 30 | 800 | 1350 |



KNIFE-GATE VALVES

A SERIES

LEVER

- It is a fast actuator
- B = Max. width of the valve (without actuator)
 D = Max. height of the valve (without actuator)
- The actuator includes:
 - Lever
 - Rod
 - Guide bearing
 - External limiting switches to maintain the position
- Available: ND50 to ND300, other ND on request.

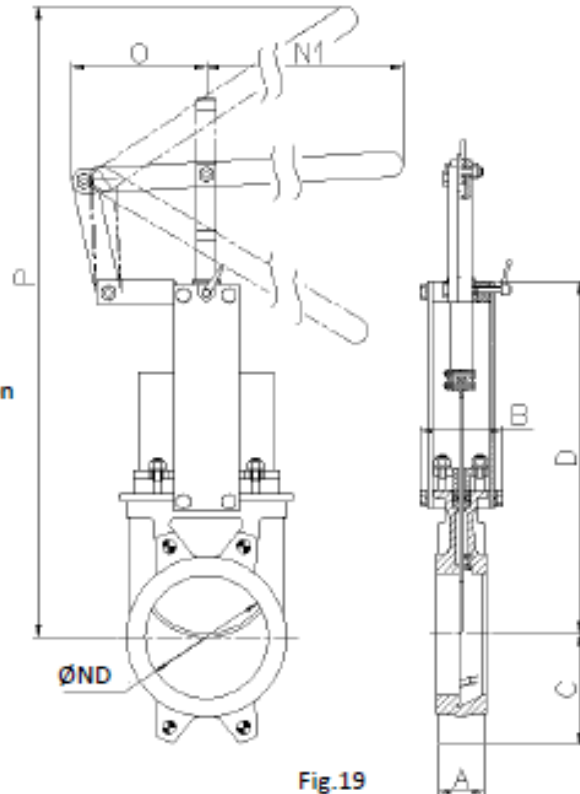


Fig.19

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | N | O | P | Ø ROD | GATE WIDTH | Weight (kg.) |
|-----|----------------------------|--------------|---------------|----|-----|-----|-----|-----|-----|------|----------|---------------|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 315 | 165 | 389 | 25 | 5 | 8 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 315 | 165 | 436 | 25 | 5 | 9 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 315 | 165 | 507 | 25 | 5 | 10 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 315 | 165 | 614 | 25 | 5 | 11 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 415 | 165 | 725 | 25 | 6 | 14 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 415 | 165 | 851 | 25 | 6 | 16 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 620 | 290 | 1098 | 30 | 8 | 32 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 620 | 290 | 1345 | 30 | 8 | 54 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 620 | 290 | 1594 | 30 | 10 | 57 |

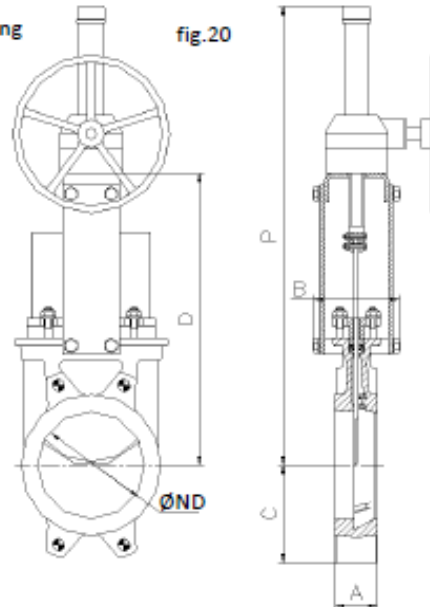


KNIFE-GATE VALVES

A SERIES

GEAR BOX

- It is recommendable for ND above 350 and working pressures higher than 3.5 Kg/cm²
- 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 including:
 - Stem
 - Yoke
 - Cone-shaped gear box
 - Handwheel
- Standard ratio = 4 to 1.
- Available: ND 50 to ND 2000, other ND on request.



| DN | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | P | Ø STEM | GATE WIDTH | Weight (kg.) |
|------|----------------------------|--------------|---------------|-----|-----|------|------|------|-----------|---------------|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 540 | Ø20x4 | 5 | 17 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 566 | Ø20x4 | 5 | 18 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 592 | Ø20x4 | 5 | 19 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 632 | Ø20x4 | 5 | 20 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 665 | Ø20x4 | 6 | 24 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 717 | Ø20x4 | 6 | 26 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 942 | Ø25x5 | 8 | 50 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 1043 | Ø25x5 | 8 | 63 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 1194 | Ø25x5 | 10 | 77 |
| 350 | 4 | 16064 | 62.3 | 96 | 290 | 254 | 797 | 1335 | Ø35x6 | 10 | 106 |
| 400 | 4 | 21042 | 81.6 | 100 | 290 | 287 | 903 | 1441 | Ø35x6 | 12 | 134 |
| 450 | 3 | 20043 | 77.7 | 106 | 290 | 304 | 989 | 1677 | Ø35x6 | 12 | 173 |
| 500 | 3 | 24883 | 96.5 | 110 | 290 | 340 | 1101 | 1789 | Ø35x6 | 12 | 216 |
| 600 | 3 | 36081 | 139.9 | 110 | 290 | 398 | 1307 | 2045 | Ø35x6 | 15 | 284 |
| 700 | 2 | 39945 | 180.1 | 110 | 320 | 453 | 1506 | 2401 | Ø50x8 | 15 | 430 |
| 800 | 2 | 43493 | 237.8 | 110 | 320 | 503 | 1720 | 2715 | Ø50x8 | 20 | 615 |
| 900 | 2 | 55024 | 300.9 | 110 | 320 | 583 | 1953 | 3043 | Ø50x8 | 20 | 768 |
| 1000 | 2 | 68580 | 374.9 | 110 | 320 | 613 | 2137 | 3351 | Ø50x8 | 25 | 972 |
| 1100 | 2 | 83196 | 539.8 | 150 | 340 | 670 | 2375 | 3675 | Ø60x9 | 25 | 1142 |
| 1200 | 2 | 99026 | 642.5 | 150 | 340 | 728 | 2616 | 4042 | Ø60x9 | 30 | 1298 |
| 1300 | 2 | 117653 | 763.3 | 150 | 390 | 787 | 2882 | 4382 | Ø60x9 | 30 | 1400 |
| 1400 | 2 | 136884 | 888.1 | 150 | 390 | 837 | 3250 | 4852 | Ø70x10 | 30 | N.D. |
| 1500 | 2 | 158591 | 1190.6 | 170 | 426 | 890 | 3517 | 5217 | Ø70x10 | 35 | N.D. |
| 1600 | 2 | 180653 | 1518.6 | 170 | 426 | 957 | 3775 | 5575 | Ø80x12 | 35 | N.D. |
| 1700 | 2 | 204052 | 1715.2 | 190 | 440 | 1010 | 4008 | 5908 | Ø80x12 | 40 | N.D. |
| 1800 | 2 | 230715 | 1939.4 | 190 | 440 | 1057 | 4242 | 6242 | Ø80x12 | 40 | N.D. |
| 1900 | 2 | 258472 | 2172.6 | 210 | 480 | 1110 | 4390 | 6490 | Ø90x12 | 40 | N.D. |
| 2000 | 2 | 289155 | 2760.9 | 210 | 480 | 1162 | 4540 | 6740 | Ø90x12 | 45 | N.D. |

N.D.: Weight not given



KNIFE-GATE VALVES

A SERIES

DOUBLE-ACTING PNEUMATIC CYLINDER (Air pressure: 6 Kg/cm)

- CMO double-acting pneumatic actuators are designed to work at a pressure between 6 and 10 kg/cm².
- 10 Kg/cm² is the maximum admissible air pressure. For air pressures below 6 Kg/cm² 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.
- B = Max. width of the valve (without actuator)
D = Max. height of the valve (without actuator)
- Available: ND50 to ND2000, other ND on request.

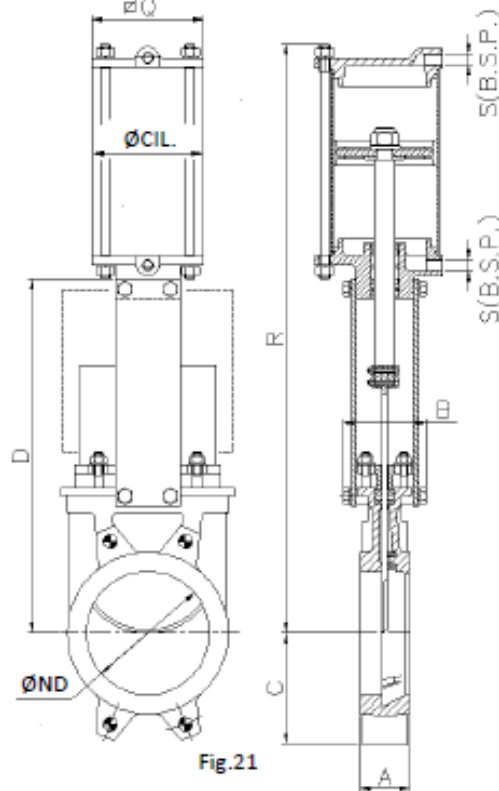


Fig.21

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | Ø CIL. | Ø ROD | ØQ | S (B.S.P.) | R | GATE WIDTH | Weight (kg.) |
|------|----------------------------|--------------|---------------|-----|-----|-----|------|-----------|----------|-----|---------------|------|---------------|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 80 | 20 | 96 | 1/4" | 400 | 5 | 7 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 80 | 20 | 96 | 1/4" | 442 | 5 | 8 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 80 | 20 | 96 | 1/4" | 483 | 5 | 9 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 100 | 20 | 115 | 1/4" | 546 | 5 | 12 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 125 | 25 | 138 | 1/4" | 630 | 6 | 18 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 125 | 25 | 138 | 1/4" | 692 | 6 | 22 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 160 | 30 | 175 | 1/4" | 869 | 8 | 37 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 200 | 30 | 218 | 3/8" | 1032 | 8 | 58 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 200 | 30 | 218 | 3/8" | 1182 | 10 | 72 |
| 350 | 4 | 16064 | 62.3 | 96 | 290 | 254 | 797 | 250 | 40 | 270 | 3/8" | 1379 | 10 | 130 |
| 400 | 4 | 21042 | 81.6 | 100 | 290 | 287 | 903 | 250 | 40 | 270 | 3/8" | 1535 | 12 | 155 |
| 450 | 3 | 20043 | 77.7 | 106 | 290 | 304 | 989 | 300 | 45 | 382 | 1/2" | 1677 | 12 | 225 |
| 500 | 3 | 24883 | 96.5 | 110 | 290 | 340 | 1101 | 300 | 45 | 382 | 1/2" | 1839 | 12 | 257 |
| 600 | 3 | 36081 | 139.9 | 110 | 290 | 398 | 1307 | 300 | 45 | 382 | 1/2" | 2145 | 15 | 340 |
| 700 | 2 | 39945 | 180.1 | 110 | 320 | 453 | 1506 | 350 | 45 | 426 | 1/2" | 2488 | 15 | 556 |
| 800 | 2 | 43493 | 237.8 | 110 | 320 | 503 | 1720 | 350 | 45 | 426 | 1/2" | 2798 | 20 | 679 |
| 900 | 2 | 55024 | 300.9 | 110 | 320 | 583 | 1953 | 400 | 50 | 538 | 1/2" | 3162 | 20 | 840 |
| 1000 | 2 | 68580 | 374.9 | 110 | 320 | 613 | 2137 | 450 | 50 | 552 | 3/4" | 3452 | 25 | 1053 |
| 1100 | 2 | 83196 | 539.8 | 150 | 340 | 670 | 2375 | 450 | 50 | 552 | 3/4" | 3792 | 25 | 1210 |
| 1200 | 2 | 99026 | 642.5 | 150 | 340 | 728 | 2616 | 450 | 50 | 552 | 3/4" | 4133 | 30 | 1366 |



KNIFE-GATE VALVES

A SERIES

SINGLE-ACTING PNEUMATIC CYLINDER (Air pressure: 6 Kg/cm)

- CMO single-acting pneumatic actuators are designed to work at a pressure between 6 and 10 kg/cm².
- 10 Kg/cm² is the maximum admissible air pressure. For air pressures below 6 Kg/cm² please consult manufacturer.
- Available for opening or closing in case of failure (spring opening or closing).
- 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, the O-ring seals of nitrile and the spring is made of steel.
- The actuator design is spring activated for valves with diameters up to ND300. 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.
- B = Max. width of the valve (without actuator)
D = Max. height of the valve (without actuator)
- Available: ND50 to ND2000, other ND on request.

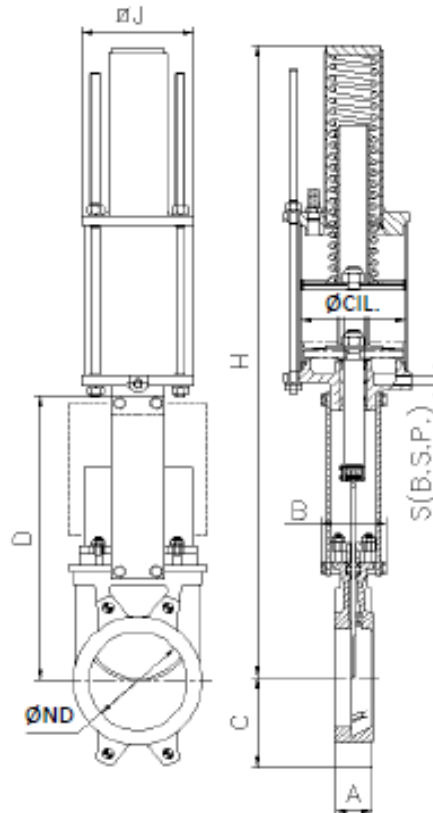


fig.22

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

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ. (Nm) | A | B | C | D | Ø CIL. | ØJ | S (B.S.P.) | Ø ROD | H | GATE WIDTH | Weight (kg.) |
|-----|----------------------------|--------------|---------------|----|-----|-----|-----|-----------|-----|---------------|----------|------|---------------|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 125 | 135 | 1/4" | 25 | 781 | 5 | 19 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 125 | 135 | 1/4" | 25 | 806 | 5 | 22 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 125 | 135 | 1/4" | 25 | 833 | 5 | 23 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 125 | 135 | 1/4" | 25 | 873 | 5 | 24 |
| 125 | 10 | 5080 | 11.61 | 50 | 101 | 118 | 367 | 160 | 170 | 1/4" | 30 | 909 | 6 | 35 |
| 150 | 8 | 7316 | 16.72 | 60 | 101 | 130 | 419 | 160 | 170 | 1/4" | 30 | 960 | 6 | 36 |
| 200 | 7 | 13017 | 37.19 | 60 | 118 | 159 | 525 | 200 | 215 | 3/8" | 30 | 1355 | 8 | 66 |
| 250 | 5 | 20352 | 58.1 | 70 | 118 | 196 | 626 | 250 | 270 | 3/8" | 40 | 1451 | 8 | 130 |
| 300 | 5 | 29342 | 83.9 | 70 | 118 | 230 | 726 | 250 | 270 | 3/8" | 40 | 1551 | 10 | 143 |



KNIFE-GATE VALVES

A SERIES

ELECTRIC ACTUATOR

- This actuator is automatic and includes the following parts:
 - Electric motor
 - Stem
 - Yoke
- The electric motor includes:
 - Emergency manual handwheel
 - Limit switches
 - Torque switches
- Options:
 - Different types and brands
 - Non-rising stem
- ISO 5210 / DIN 3338 Flanges
- Available: ND 50 to ND 2000, other ND on request.

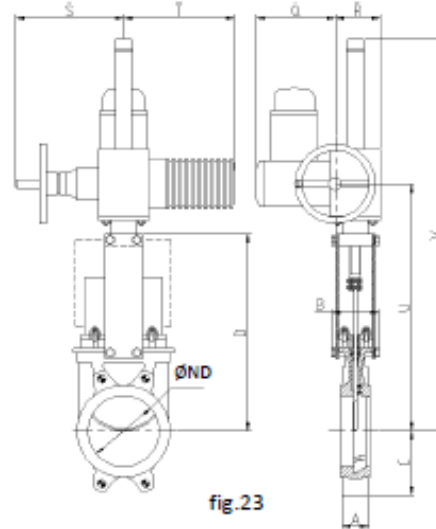


fig.23

| ND | P (Kg/cm ²) | DRAW (Nw) | TORQ.(Nm) | A | B | C | D | Q | R | S | T | U | V | Ø STEM | GATE WIDTH | Weight (kg.) |
|------|----------------------------|--------------|-----------|-----|-----|------|------|-----|-----|-----|-----|------|------|-----------|---------------|-----------------|
| 50 | 10 | 815 | 1.86 | 40 | 91 | 61 | 241 | 197 | 102 | 234 | 265 | 347 | 587 | Ø20x4 | 5 | 24 |
| 65 | 10 | 1375 | 3.14 | 40 | 91 | 68 | 268 | 197 | 102 | 234 | 265 | 374 | 614 | Ø20x4 | 5 | 25 |
| 80 | 10 | 2083 | 4.76 | 50 | 91 | 91 | 294 | 197 | 102 | 234 | 265 | 400 | 640 | Ø20x4 | 5 | 26 |
| 100 | 10 | 3252 | 7.43 | 50 | 91 | 104 | 334 | 197 | 102 | 234 | 265 | 440 | 680 | Ø20x4 | 5 | 27 |
| 125 | 10 | 5080 | 11.6 | 50 | 101 | 118 | 367 | 197 | 102 | 234 | 265 | 473 | 713 | Ø20x4 | 6 | 30 |
| 150 | 8 | 5134 | 11.7 | 60 | 101 | 130 | 419 | 197 | 102 | 234 | 265 | 525 | 765 | Ø20x4 | 6 | 32 |
| 200 | 7 | 9138 | 26.1 | 60 | 118 | 159 | 525 | 197 | 102 | 234 | 265 | 640 | 880 | Ø25x5 | 8 | 42 |
| 250 | 5 | 10227 | 29.2 | 70 | 118 | 196 | 626 | 197 | 102 | 234 | 265 | 741 | 981 | Ø25x5 | 8 | 55 |
| 300 | 5 | 14748 | 42.1 | 70 | 118 | 230 | 726 | 197 | 102 | 234 | 265 | 841 | 1141 | Ø25x5 | 10 | 72 |
| 350 | 4 | 16064 | 62.3 | 96 | 290 | 254 | 797 | 197 | 115 | 256 | 282 | 944 | 1347 | Ø35x6 | 10 | 99 |
| 400 | 4 | 21042 | 81.6 | 100 | 290 | 287 | 903 | 197 | 115 | 256 | 282 | 1050 | 1550 | Ø35x6 | 12 | 136 |
| 450 | 3 | 20043 | 77.7 | 106 | 290 | 304 | 989 | 222 | 153 | 325 | 385 | 1147 | 1847 | Ø35x6 | 12 | 166 |
| 500 | 3 | 24883 | 96.5 | 110 | 290 | 340 | 1101 | 222 | 153 | 325 | 385 | 1259 | 1959 | Ø35x6 | 12 | 245 |
| 600 | 3 | 36081 | 139.9 | 110 | 290 | 398 | 1307 | 222 | 153 | 325 | 385 | 1465 | 2165 | Ø35x6 | 15 | 362 |
| 700 | 2 | 39945 | 180.1 | 110 | 320 | 453 | 1506 | 222 | 153 | 325 | 385 | 1651 | 2451 | Ø50x8 | 15 | 432 |
| 800 | 2 | 43493 | 237.8 | 110 | 320 | 503 | 1720 | 222 | 153 | 332 | 385 | 1865 | 2665 | Ø50x8 | 20 | 630 |
| 900 | 2 | 55024 | 300.9 | 110 | 320 | 583 | 1953 | 222 | 153 | 332 | 385 | 2098 | 2998 | Ø50x8 | 20 | 764 |
| 1000 | 2 | 68580 | 374.9 | 110 | 320 | 613 | 2137 | 222 | 153 | 332 | 385 | 2288 | 3178 | Ø50x8 | 25 | 998 |
| 1100 | 2 | 83196 | 539.8 | 150 | 340 | 670 | 2375 | 227 | 195 | 355 | 510 | 2575 | 3675 | Ø60x9 | 25 | 1194 |
| 1200 | 2 | 99026 | 642.5 | 150 | 340 | 728 | 2616 | 227 | 195 | 355 | 510 | 2866 | 4042 | Ø60x9 | 30 | 1350 |
| 1300 | 2 | 117653 | 763.3 | 150 | 390 | 787 | 2882 | 227 | 195 | 355 | 510 | 3082 | 4382 | Ø60x9 | 30 | 1452 |
| 1400 | 2 | 136884 | 888.1 | 150 | 390 | 837 | 3250 | 222 | 153 | 332 | 385 | 3395 | 4852 | Ø70x10 | 30 | N.D. |
| 1500 | 2 | 158591 | 1190.6 | 170 | 426 | 890 | 3517 | 222 | 153 | 332 | 385 | 3662 | 5217 | Ø70x10 | 35 | N.D. |
| 1600 | 2 | 180653 | 1518.6 | 170 | 426 | 957 | 3775 | 227 | 195 | 355 | 510 | 3975 | 5575 | Ø80x12 | 35 | N.D. |
| 1700 | 2 | 204052 | 1715.2 | 190 | 440 | 1010 | 4008 | 227 | 195 | 355 | 510 | 4210 | 5908 | Ø80x12 | 40 | N.D. |
| 1800 | 2 | 230715 | 1939.4 | 190 | 440 | 1057 | 4242 | 227 | 195 | 355 | 510 | 4257 | 6242 | Ø80x12 | 40 | N.D. |
| 1900 | 2 | 258472 | 2172.6 | 210 | 480 | 1110 | 4390 | 227 | 195 | 355 | 510 | 4590 | 6490 | Ø90x12 | 40 | N.D. |
| 2000 | 2 | 289155 | 2760.9 | 210 | 480 | 1162 | 4540 | 227 | 195 | 355 | 510 | 4740 | 6740 | Ø90x12 | 45 | N.D. |

N.D.: Weight not given

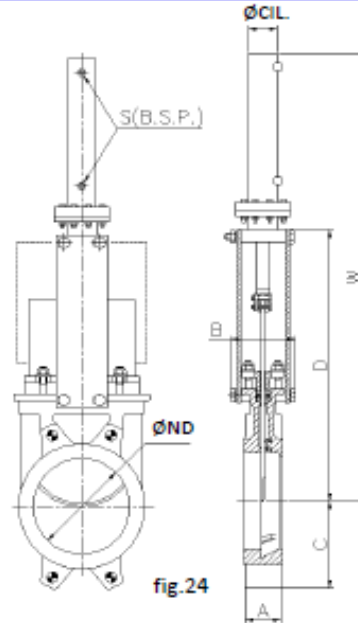


KNIFE-GATE VALVES

A 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
 - Stem
 - Puente
- Available: ND 50 a ND 2000
- Different types and brands available according to customer's requirements.



| ND | P Kg/cm ² | DRAW (Nw) | A | B | C | D | W | Ø CYL. | S (B.S.P.) | Oil Cap. (dm ³) | Ø ROD | Wei ght (kg.) |
|------|-------------------------|--------------|-----|-----|------|------|------|-----------|---------------|-----------------------------------|----------|---------------------|
| 50 | 10 | 815 | 40 | 91 | 61 | 241 | 457 | 25 | 3/8" | 0.03 | 18 | 7 |
| 65 | 10 | 1375 | 40 | 91 | 68 | 268 | 500 | 25 | 3/8" | 0.03 | 18 | 8 |
| 80 | 10 | 2083 | 50 | 91 | 91 | 294 | 560 | 25 | 3/8" | 0.04 | 18 | 9 |
| 100 | 10 | 3252 | 50 | 91 | 104 | 334 | 620 | 32 | 3/8" | 0.09 | 22 | 12 |
| 125 | 10 | 5080 | 50 | 101 | 118 | 367 | 683 | 32 | 3/8" | 0.11 | 22 | 15 |
| 150 | 8 | 5134 | 60 | 101 | 130 | 419 | 755 | 40 | 3/8" | 0.20 | 28 | 20 |
| 200 | 7 | 9138 | 60 | 118 | 159 | 525 | 926 | 40 | 3/8" | 0.27 | 22 | 31 |
| 250 | 5 | 10227 | 70 | 118 | 196 | 626 | 1077 | 40 | 3/8" | 0.33 | 22 | 44 |
| 300 | 5 | 14748 | 70 | 118 | 230 | 726 | 1246 | 50 | 3/8" | 0.97 | 28 | 62 |
| 350 | 4 | 16064 | 96 | 290 | 254 | 797 | 1376 | 50 | 3/8" | 1.13 | 28 | 100 |
| 400 | 4 | 21042 | 100 | 290 | 287 | 903 | 1532 | 63 | 3/8" | 1.29 | 36 | 138 |
| 450 | 3 | 20043 | 106 | 290 | 304 | 989 | 1707 | 80 | 3/8" | 2.31 | 56 | 161 |
| 500 | 3 | 24883 | 110 | 290 | 340 | 1101 | 1869 | 80 | 3/8" | 2.58 | 56 | 223 |
| 600 | 3 | 36081 | 110 | 290 | 398 | 1307 | 2176 | 100 | 3/8" | 3.09 | 56 | 325 |
| 700 | 2 | 39945 | 110 | 320 | 453 | 1506 | 2525 | 100 | 1/2" | 5.66 | 70 | 481 |
| 800 | 2 | 43493 | 110 | 320 | 503 | 1720 | 2839 | 100 | 1/2" | 6.46 | 70 | 678 |
| 900 | 2 | 55024 | 110 | 320 | 583 | 1953 | 3172 | 125 | 1/2" | 7.25 | 70 | 861 |
| 1000 | 2 | 68580 | 110 | 320 | 613 | 2137 | 3496 | 125 | 1/2" | 8.05 | 70 | 1103 |
| 1100 | 2 | 83196 | 150 | 340 | 670 | 2375 | 3760 | 125 | 1/2" | 8.84 | 70 | 1266 |
| 1200 | 2 | 99026 | 150 | 340 | 728 | 2616 | 4174 | 125 | 1/2" | 9.62 | 70 | 1430 |
| 1300 | 2 | 117653 | 150 | 390 | 787 | 2882 | 4451 | 160 | 1/2" | 10.45 | 70 | 1647 |
| 1400 | 2 | 136884 | 150 | 390 | 837 | 3250 | 4939 | 160 | 1/2" | 11.39 | 70 | N.D. |
| 1500 | 2 | 158591 | 170 | 426 | 890 | 3517 | 5286 | 160 | 1/2" | 12.02 | 70 | N.D. |
| 1600 | 2 | 180653 | 170 | 426 | 957 | 3775 | 5658 | 160 | 1/2" | 20.00 | 90 | N.D. |
| 1700 | 2 | 204052 | 190 | 440 | 1010 | 4008 | 5991 | 200 | 1/2" | 21.23 | 90 | N.D. |
| 1800 | 2 | 230715 | 190 | 440 | 1057 | 4242 | 6325 | 200 | 1/2" | 22.46 | 90 | N.D. |
| 1900 | 2 | 258472 | 210 | 480 | 1110 | 4390 | 6578 | 200 | 1/2" | 23.75 | 90 | N.D. |
| 2000 | 2 | 289155 | 210 | 480 | 1162 | 4540 | 6828 | 200 | 1/2" | 24.97 | 90 | N.D. |

N.D.: Weight not given



KNIFE-GATE VALVES

A SERIES

INFORMATION ON FLANGE DIMENSIONS

EN 1092-2 PN10

| ND | P (Kg/cm ²) | • | O | Metric | Prof. | ØK |
|------|----------------------------|----|----|--------|-------|------|
| 50 | 10 | 4 | - | M 16 | 10 | 125 |
| 65 | 10 | 4 | - | M 16 | 10 | 145 |
| 80 | 10 | 4 | - | M 16 | 12 | 160 |
| 100 | 10 | 4 | 4 | M 16 | 12 | 180 |
| 125 | 10 | 4 | 4 | M 16 | 12 | 210 |
| 150 | 8 | 4 | 4 | M 20 | 17 | 240 |
| 200 | 7 | 4 | 4 | M 20 | 16 | 295 |
| 250 | 5 | 8 | 4 | M 20 | 19 | 350 |
| 300 | 5 | 8 | 4 | M 20 | 19 | 400 |
| 350 | 4 | 12 | 4 | M 20 | 28 | 460 |
| 400 | 4 | 12 | 4 | M 24 | 28 | 515 |
| 450 | 3 | 16 | 4 | M 24 | 28 | 565 |
| 500 | 3 | 16 | 4 | M 24 | 34 | 620 |
| 600 | 3 | 16 | 4 | M 27 | 26 | 725 |
| 700 | 3 | 20 | 4 | M 27 | 25 | 840 |
| 800 | 3 | 20 | 4 | M 30 | 22 | 950 |
| 900 | 3 | 24 | 4 | M 30 | 21 | 1050 |
| 1000 | 3 | 24 | 4 | M 33 | 21 | 1160 |
| 1100 | 3 | 28 | 4 | M 33 | 30 | 1270 |
| 1200 | 3 | 28 | 4 | M 36 | 30 | 1380 |
| 1300 | 2 | 28 | 4 | M 36 | 35 | 1490 |
| 1400 | 2 | 24 | 12 | M 39 | 35 | 1590 |
| 1500 | 2 | 24 | 12 | M 39 | 28 | 1700 |
| 1600 | 2 | 28 | 12 | M 45 | 40 | 1820 |
| 1700 | 2 | 30 | 14 | M 45 | 40 | 1920 |
| 1800 | 2 | 30 | 14 | M 45 | 36 | 2020 |
| 1900 | 2 | 32 | 16 | M 45 | 45 | 2120 |
| 2000 | 2 | 32 | 16 | M 45 | 45 | 2230 |

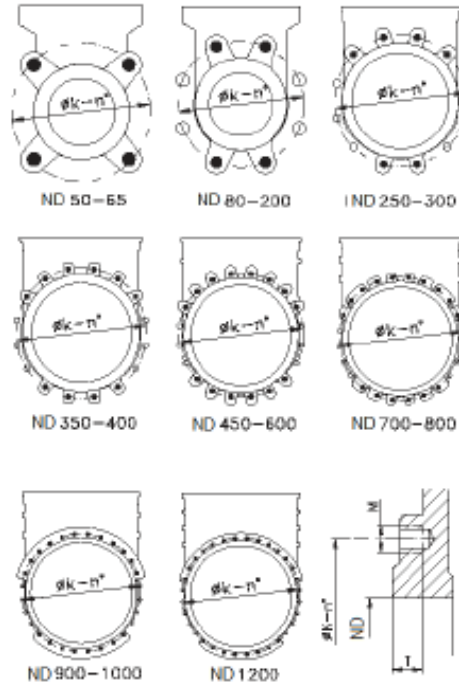


fig. 25

□ BLIND TAPPED HOLES
 ○ THROUGH HOLE

ANSI B16.5, class 150

| ND | P (Kg/cm ²) | • | O | R UNC | Prof. | ØK |
|--------|----------------------------|----|---|----------|-------|--------|
| 2" | 10 | 4 | - | 5/8" | 10 | 120,6 |
| 2 1/2" | 10 | 4 | - | 5/8" | 10 | 139,7 |
| 3" | 10 | 4 | - | 5/8" | 12 | 152,4 |
| 4" | 10 | 4 | 4 | 5/8" | 12 | 190,5 |
| 5" | 10 | 4 | 4 | 3/4" | 12 | 215,9 |
| 6" | 8 | 4 | 4 | 3/4" | 17 | 241,3 |
| 8" | 7 | 4 | 4 | 3/4" | 16 | 298,4 |
| 10" | 5 | 8 | 4 | 7/8" | 19 | 361,9 |
| 12" | 5 | 8 | 4 | 7/8" | 19 | 431,8 |
| 14" | 4 | 8 | 4 | 1" | 28 | 476,2 |
| 16" | 4 | 12 | 4 | 1" | 28 | 539,7 |
| 18" | 3 | 12 | 4 | 1 1/4" | 28 | 577,8 |
| 20" | 3 | 16 | 4 | 1 1/4" | 34 | 635 |
| 24" | 3 | 16 | 4 | 1 1/4" | 26 | 749,3 |
| 28" | 3 | 20 | 4 | 1 1/4" | 25 | 863,6 |
| 30" | 3 | 24 | 4 | 1 1/2" | 22 | 977,9 |
| 32" | 3 | 28 | 4 | 1 1/2" | 21 | 1085,9 |
| 36" | 3 | 32 | 4 | 1 1/2" | 21 | 1200,2 |
| 40" | 3 | 40 | 4 | 1 1/2" | 30 | 1422,4 |

