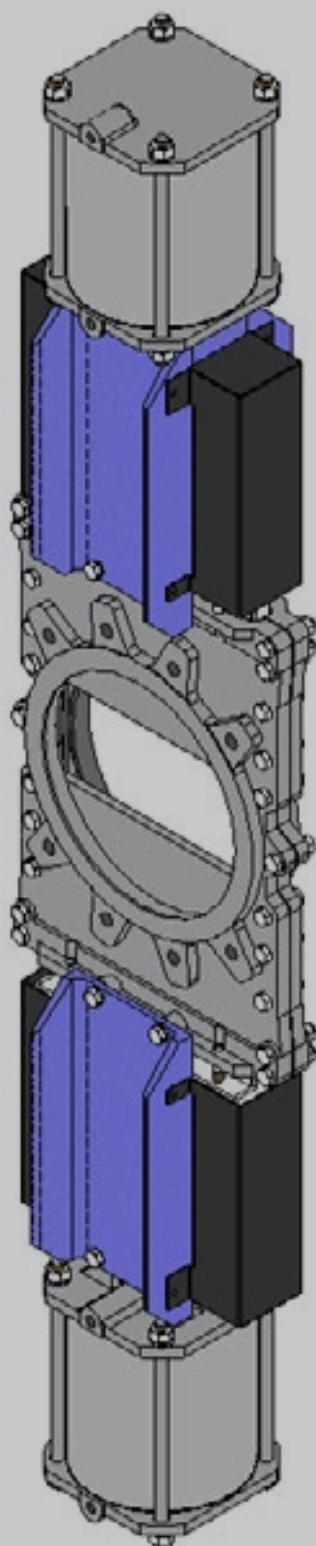




Double Piston Unidirectional
Knife Gate Valves

Type TD





Type TD Series

Double Piston Unidirectional Knife Gate Valves

The TD valve body comprises two half-bodies; the inside of these two parts is machined and joined with screws to form a solid block. In the steel and stainless steel valve versions, 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 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 Como 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.

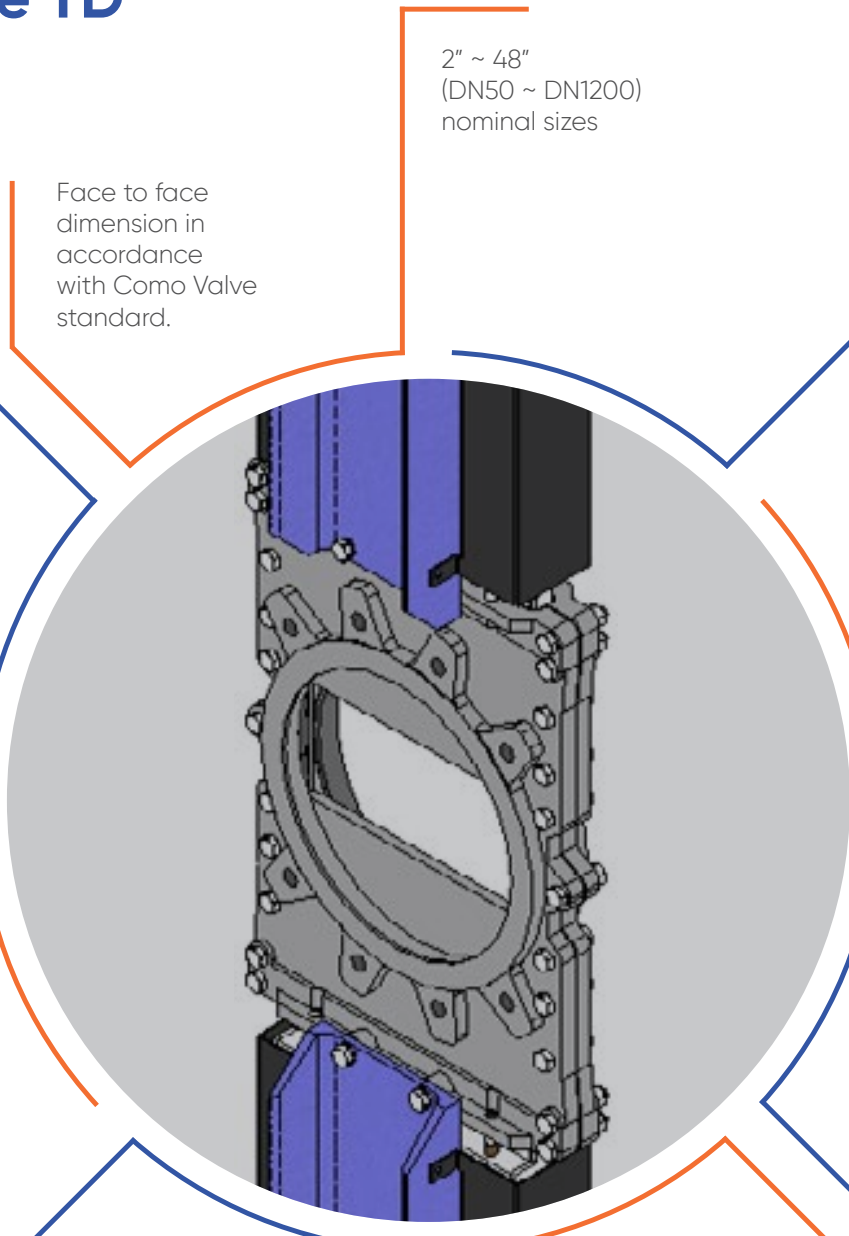
The operating wheel is manufactured in nodular cast GJS-500. Some manufacturers supply it in common cast-iron, which can lead to breakage in the event of very high operation torque or a bang. The yoke has a compact design with the bronze actuator nut protected in a sealed and lubricated box. This makes 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 Como Valve every time a seal is required.

Double Piston Unidirectional Knife Gate Valves

Type TD



2" ~ 48"
(DN50 ~ DN1200)
nominal sizes

%100
tightness
testing before
shipment,
standard

Face to face
dimension in
accordance
with Como Valve
standard.

The perfect
solution for control
of intensive fluids
and solid particles

Unidirectional knife
gate valve, with
wafer design and
quick opening
and closing

According to the
type of fluid wide
seal option (EPDM,
Metal to Metal,
VITON, Nitrile,
Silicone, PTFE)

Various seat and
packing materials
available

Preventing to fluid
accumulation
body design

Provides high flow
rates with low
pressure drop

It has two opposing gates
which come together in the
centre of the mouth, and all
the components which are
liable to deteriorate can be
easily replaced

Body made up of two
screwed-down halves,
with slides to provide
smooth operation

DIN, ANSI
norms

Application Area



PAPER INDUSTRY



PURIFICATION PLANTS

Product Standards



Flange Standard

DIN PN10
ASME B16.5 (Class 150)
DIN PN6
DIN PN16
DIN PN25
JIS Standard

Operation Pressure

DN50 ~ DN250 : 10 Bar
DN300 ~ DN400 : 6 Bar
DN450 : 5 Bar
DN500 ~ DN600 : 4 Bar
DN700 : 3 Bar
DN800 ~ DN1200 : 2 Bar

Certification

CE

Acc. To Directive 97/23/EC (Module-H)

ISO

ISO 9001:2015

Pressure Equipment Directive

DIR 97/23/EC (PED) ART.3, P.3

Machinery Directive

DIR 2006/42/EC (Machinery)

Potential Explosive Atmospheres Directive

DIR 94/9/EC (ATEX) CAT.3 ZONA 2 and 22 GD



***Your flow
solutions
partner***

Design Characteristics



Body

The TD 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.

Designed with full passage to provide large flows with small losses of load. For larger diameters, the body is mechanically welded with the reinforcements necessary to withstand the maximum working pressure. The body can also be supplied with blowers 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, A216WCB steel and CF8M stainless steel. Other materials such as GJS-500 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.

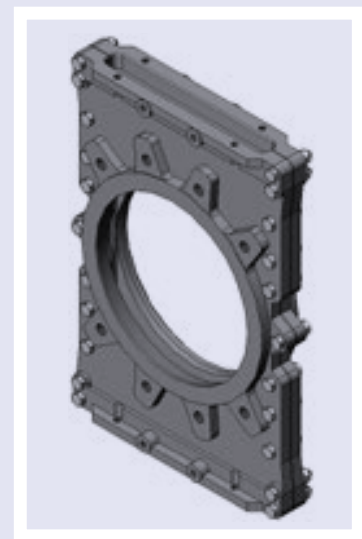


Fig.3

Gate

Due to the harsh working conditions in which TD 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. TD valves can be supplied with two types of gate: with flat or "V" seal, the latter being suitable when working with fluids laden with soft lightweight solids, in order to stop the fluid and for easy shut-off.



Fig.4

Resilient Seat Materials

EPDM

This is the standard resilient seat fitted on Como 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

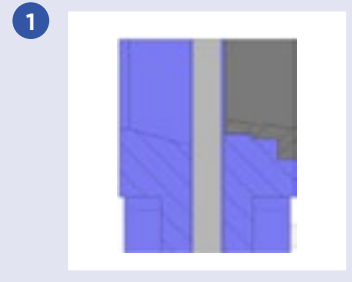
Suitable for corrosive applications and pH between 2 and 12. Does not provide the valve with 100% watertight integrity. Estimated leakage: 0.5% of the tube flow.

Seat Types

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

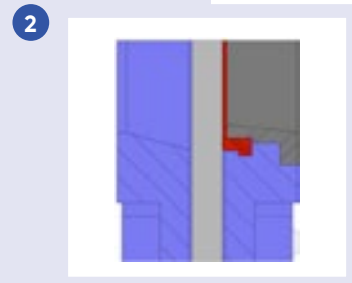
Seat 1: Metal / Metal Seal

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); this ring can be removed and easily replaced. The estimated leakage (considering water as the test fluid) is 1.5% of the flow in pipes. (Fig.5)



Seat 2: Metal / Rubber Seal

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); this ring can be removed and easily replaced. (Fig.6)



Packing

The TD valves, since they have two half gates, also have two packing glands, one at each end of the body. Each CMO 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 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's 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.

Lubricated PTFE

This 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.

SEATS / SEALS			PACKING			
MATERIAL	T MAX (°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 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+27	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

Stem or Spindle

The Como 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.

TD valves are normally supplied with pneumatic actuators, meaning they have spindles instead of stems.

In both spindles and stems the connection to the gate is made with a reinforced fork, in order to guarantee a resistant joint for the high number of day-to-day operations carried out by these valves.

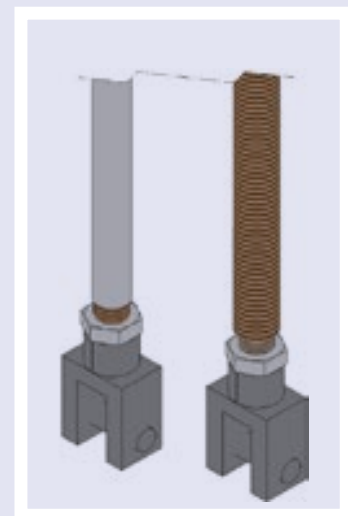


Fig.7

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 GJS-450 packing glands, whilst valves with stainless steel body have CF8M packing glands.

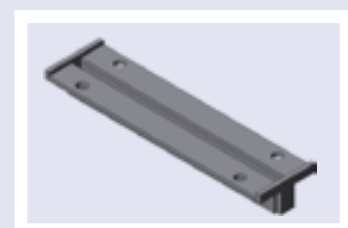


Fig.8



TD valves are commonly supplied with dual pneumatic coupling, although it is also possible to supply with other types of actuators; as they have two gates, there are always two actuators, one on each side of the body.

All types of actuators can be supplied, with the advantage that thanks to the Como Valve 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 Como Valves is that all actuators are interchangeable.

MANUEL

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

ACTUATED

- Electrical Actuated
- Pneumatic Cylinder
- Hydraulic Cylinder

WIDE RANGE OF ACCESSORIES AVAILABLE

- Mechanical stops
- Locking devices
- Emergency manual handwheel
- Solenoid valves
- Positioners for proportional control
- Open / Close Mechanical Limit switches
- Open / Close Proximity Limit switches
- Straight floor stands (Fig. 5)
- Leaning floor stand (Fig. 6)



Straight Floor Stands.
Fig. 6



Leaning Floor Stands.
Fig. 5

Material Options



- GJL-250 CAST IRON
- A216 WCB CARBON STEEL
- AISI316 STAINLESS STEEL

Body Material

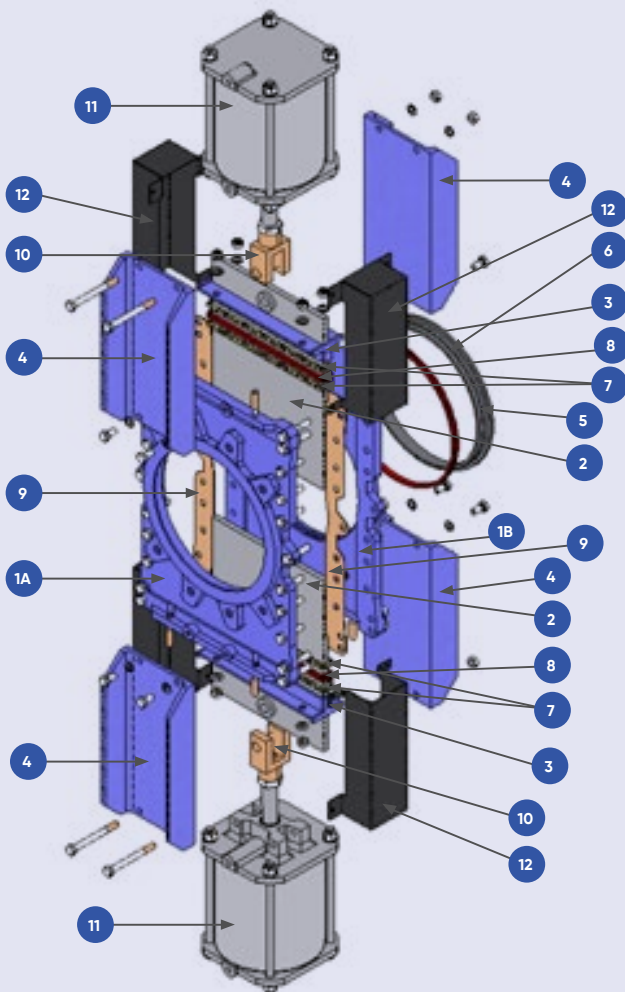
- EPDM
- METAL TO METAL
- VITON
- NITRILE
- SILICONE
- PTFE

Seat Material

Gate Material

- AISI304 STAINLESS STEEL
- AISI316 STAINLESS STEEL

Material Specifications



STANDARD COMPONENTS LIST

No	COMPONENT	STEEL		STAINLESS STEEL
1A	BODY	GJL-250	A216WCB	CF8M
1B	COUNTERBODY	GJL-250	A216WCB	CF8M
2	GATE	AISI304		AISI316
3	PACKING GLAND	S275JR		AISI316
4	SUPPORT PLATES	STEEL		
5	SEAL	EPDM		
6	REINFORCED RING	CF8M		
7	PACKING	SYNT + PTFE		
8	PACKING GLAND SEAL	EPDM		
9	BODY SEAL	CARDBOARD		
10	FORK	STEEL		
11	PNEUMATIC CYLINDER	MISCELLANEOUS		
12	PROTECTION	STEEL		

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 so-lids 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 re-sistance to products that can stick to the gate .

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.

Stellited Gate

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

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.12)

Scraper In The Packing

It cleans the gate during the opening movement and prevents possible damage to the packing.

Interchangeable Actuators

All actuators are easily interchangeable.

Stroke Limiting Mechanical Stops

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

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.

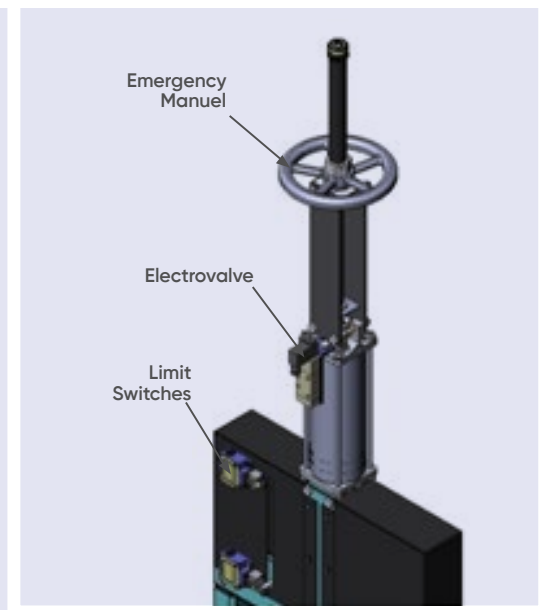


Fig. 12

Solenoid Valves

For air distribution to pneumatic actuators. (Fig.12)

Connection Boxes, Wiring And Pneumatic Piping

Units supplied fully assembled with all the necessary accessories..

Triangular (V-Notch) And Pentagonal Diaphragm With Indication Rule

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

Epoxy Coating

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

Emergency Manual Actuator (Hand Wheel / Gear Box)

Allows manual operation of the valve in the event of power or air failure. (Fig.12)

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.

Gate Safety Protection

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

Air Injection In The Packing Gland

By injecting air in the packing, an air chamber is created which improves the watertight integrity.

Mechanical locking system

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

Square or rectangular inlet

Valves can be built with square or rectangular mouths (fig. 11), in order to adapt to the needs of the customer.

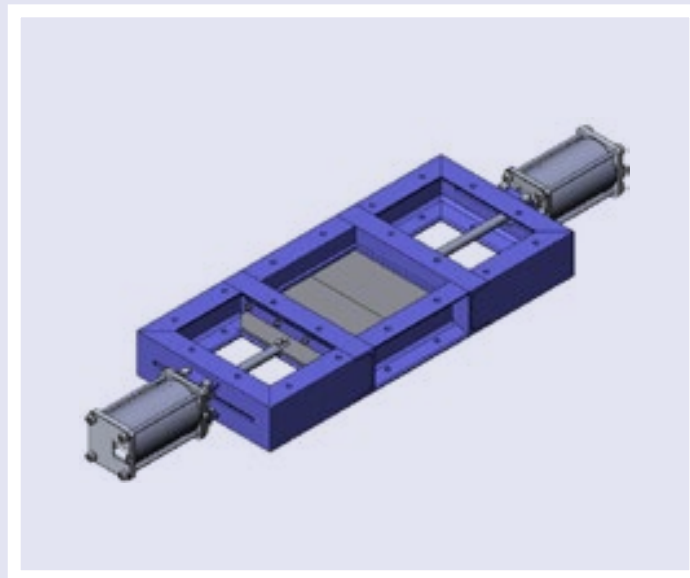


Fig.11



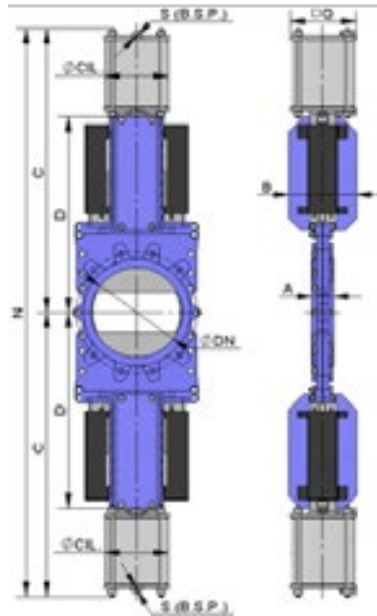
***Quality made
accessible...***

Dimensions



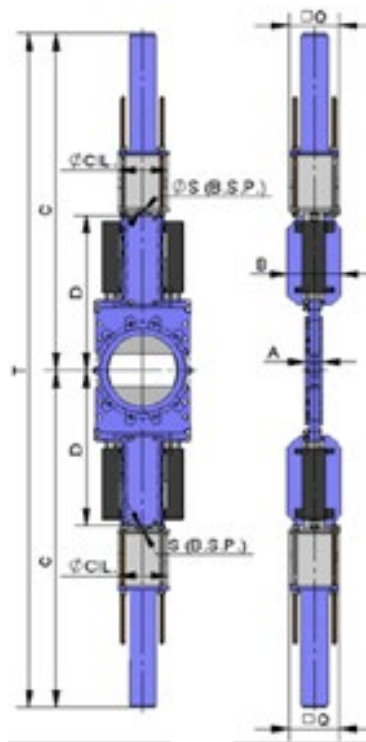
Valve Measurement Tables

a) Double Acting Pneumatic Cylinder Double Piston Unidirectional Knife Gate Valves



d mm	R Inch	DN	ΔP (kg/cm ²)	A	B	C	D	N	Q	Ø ROD	Ø STEM.	S (B.S.P.)	Weight KG
63	2"	DN50	PN10	40	92	370	235	740	96	80	20	1/4"	--
75	2,5"	DN65	PN10	40	92	398	256	796	96	80	20	1/4"	--
90	3"	DN80	PN10	50	92	435	285	870	96	80	20	1/4"	--
110	4"	DN100	PN10	50	92	493	328	985	110	100	20	1/4"	--
140	5"	DN125	PN10	50	92	548	371	1095	110	100	20	1/4"	--
160	6"	DN150	PN10	60	102	595	395	1190	135	125	25	1/4"	--
225	8"	DN200	PN10	60	119	730	495	1460	170	160	30	1/4"	--
280	10"	DN250	PN10	70	119	855	585	1710	215	200	30	3/8"	--
315	12"	DN300	PN6	70	119	937	645	1874	215	200	30	3/8"	--
355	14"	DN350	PN6	96	290	1098	705	2195	270	250	40	3/8"	--
400	16"	DN400	PN6	100	290	1215	790	2429	270	250	40	3/8"	--
450	18"	DN450	PN5	106	290	1318	850	2635	382	300	45	1/2"	--
500	20"	DN500	PN4	110	290	1420	930	2840	382	300	45	1/2"	--
600	24"	DN600	PN4	110	290	1590	1055	3180	382	300	45	1/2"	--
700	28"	DN700	PN3	110	290	1880	1260	3760	444	350	45	1/2"	--
800	32"	DN800	PN2	110	290	2034	1365	4067	444	350	45	1/2"	--
900	36"	DN900	PN2	110	350	2208	1475	4415	508	400	50	1/2"	--
1000	40"	DN1000	PN2	110	350	2378	1595	4756	508	400	50	1/2"	--
1100	44"	DN1100	PN2	150	350	2548	1720	5095	508	400	50	1/2"	--
1200	48"	DN1200	PN2	150	400	2765	1885	5530	508	400	50	1/2"	--

b) Single Acting Pneumatic Cylinder Double Piston Unidirectional Knife Gate Valves



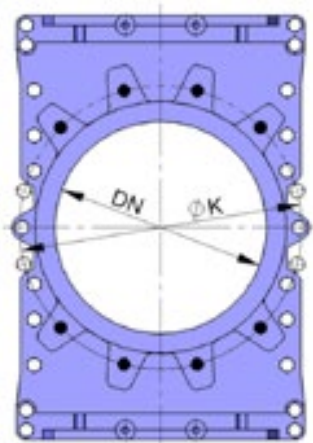
d mm	R Inch	DN	ΔP (kg/cm ²)	A	B	C	D	T	Q	Ø CIL.	Ø STEM	S (B.S.P.)	Weight KG
63	2"	DN50	PN10	40	92	660	235	1320	135	125	25	1/4"	--
75	2,5"	DN65	PN10	40	92	688	256	1376	135	125	25	1/4"	--
90	3"	DN80	PN10	50	92	725	285	1450	135	125	25	1/4"	--
110	4"	DN100	PN10	50	92	785	328	1570	135	125	25	1/4"	--
140	5"	DN125	PN10	50	92	840	371	1680	135	125	25	1/4"	--
160	6"	DN150	PN10	60	102	850	395	1700	170	160	30	1/4"	--
225	8"	DN200	PN10	60	119	##	495	2450	215	200	30	3/8"	--
225	8"	DN200	PN10	70	119	##	585	3320	270	250	40	3/8"	--
280	10"	DN250	PN6	70	119	##	645	3484	270	250	40	3/8"	--

c) Other Possible Actuators

The most common actuators are detailed in the tables in the pages above, with their respective dimensions, actuator with two double acting pneumatic cylinders and actuator with two single acting pneumatic cylinders. They can also be supplied with other actuators, for example with a manual wheel, geared motor, electric or hydraulic motor, etc.

They all have in common that each valve requires two actuators, since this type of valves has two gates. If the valve is to be used with any of these actuators, ask Como Valve technical commercial department for information on sizes and characteristics.

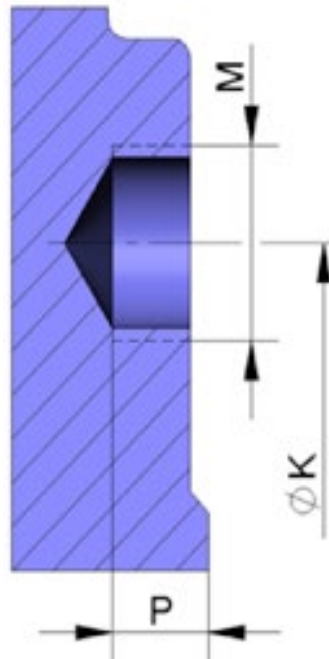
Flange Dimensions



- BLIND TAPPED HOLES
- THROUGH HOLE

EN 1092-2 PN10

d mm	R Inch	DN	ΔP (kg/cm ²)	•	○	Metric	P	ØK
63	2"	DN50	PN10	4	□	M 16	8	125
75	2,5"	DN65	PN10	4	□	M 16	8	145
90	3"	DN80	PN10	4	4	M 16	9	160
110	4"	DN100	PN10	4	4	M 16	9	180
140	5"	DN125	PN10	4	4	M 16	9	210
160	6"	DN150	PN10	4	4	M 20	10	240
225	8"	DN200	PN10	4	4	M 20	10	295
280	10"	DN250	PN10	8	4	M 20	12	350
315	12"	DN300	PN10	8	4	M 20	12	400
355	14"	DN350	PN10	12	4	M 20	21	460
400	16"	DN400	PN10	12	4	M 24	21	515
450	18"	DN450	PN10	16	4	M 24	22	565
500	20"	DN500	PN10	16	4	M 24	22	620
600	24"	DN600	PN10	16	4	M 27	22	725
700	28"	DN700	PN8	20	4	M 27	22	840
800	32"	DN800	PN8	20	4	M 30	22	950
900	36"	DN900	PN8	24	4	M 30	20	1050
1000	40"	DN1000	PN4	24	4	M 33	20	1160
1100	44"	DN1100	PN4	28	4	M 33	20	1270
1200	48"	DN1200	PN4	28	4	M 36	22	1380



ANSI B16, Class 150

d mm	R Inch	DN	ΔP (kg/cm ²)	•	◊	R UNC	P	ØK
63	2"	DN50	PN3	4	◻	5/8"	8	120,6
75	2,5"	DN65	PN3	4	◻	5/8"	8	139,7
90	3"	DN80	PN3	4	◻	5/8"	9	152,4
110	4"	DN100	PN3	4	4	5/8"	9	190,5
140	5"	DN125	PN3	4	4	3/4"	9	215,9
160	6"	DN150	PN3	4	4	3/4"	10	241,3
225	8"	DN200	PN2	4	4	3/4"	10	298,4
280	10"	DN250	PN2	8	4	7/8"	12	361,9
315	12"	DN300	PN2	8	4	7/8"	12	431,8
355	14"	DN350	PN1,5	8	4	1"	21	476,2
400	16"	DN400	PN1,5	12	4	1"	21	539,7
450	18"	DN450	PN1	12	4	1 1/8"	22	577,8
500	20"	DN500	PN1	16	4	1 1/8"	22	635
600	24"	DN600	PN1	16	4	1 1/4"	22	749,3
700	28"	DN700	PN1	24	4	1 1/4"	22	863,6
800	32"	DN800	PN1	24	4	1 1/4"	22	977,9
900	36"	DN900	PN1	28	4	1 1/2"	20	1085,9
1000	40"	DN1000	PN1	32	4	1 1/2"	20	1200,2
1000	40"	DN1000	PN2	32	4	1 1/2"	20	1200,2

Types Of Extension

Several types of extensions can be positioned if the valve needs to be operated from a far-off position.

A) Floor Stand

This extension is done 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.

- Can be coupled to any type of actuator.
- We recommend a stem support-guide every 1.5 m (fig. 13).
- The standard floor stand is 800 mm high and may be straight or leaning (fig. 9 and 10).
- A position indicator can be fitted to determine the valve's percentage of opening.

B) Pipe Extension

This extension is done by coupling a pipe to the spindle by way of a flange. When the valve is operated, the pipe will turn along with the wheel or key, which will always remain at the same height.

- The most common actuators with pipe extension are the wheel and square nut.
- We recommend a pipe support-guide every 1.5 m (fig. 13).
- The standard materials in this type of extension are EPOXI-coated carbon steel epoxy or stainless steel.

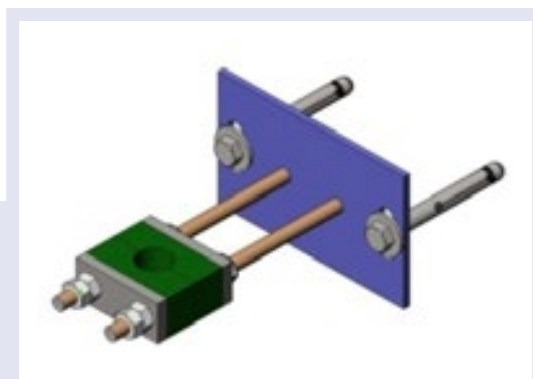


Fig.13

C) Extended support plates

This type of extension is common when a small extension is required. It is done by extending the support plates, inserting an intermediate bridge if necessary due to the increased length of the plates. (fig.14).

- Cardan type extension:

This type of extension is used when there is a misalignment between the valve and actuator. This problem can be overcome by using a cardan-type joint (fig. 15).

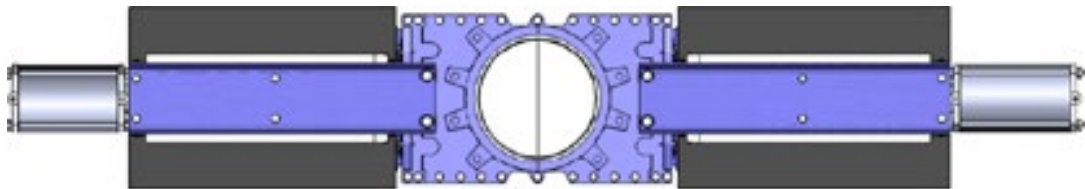


Fig.14

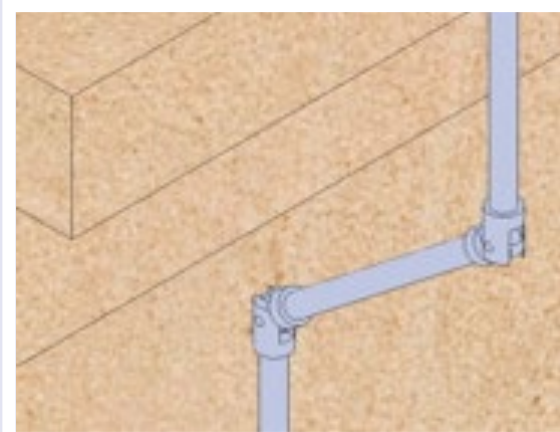


Fig.15



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