

PRODUCT DESCRIPTION

Wafer style, **unidirectional** knife gate valve.
Cast body, composed by two bolted parts, with inside sliding guides to provide a smooth operation.
Double gate design with two pneumatic actuators that provides full bore when opening.
High flow rates with low pressure drops.
Several seat and packing materials available.
Face to face dimension according CMO standard.

GENERAL APPLICATIONS

This knife gate valve is recommended for Paper Industry and especially for “rejects handling” (impurities contained in paper fibres like metal clips, staples, wires and others).

TECHNICAL DATA

Standard manufacturing sizes:

From DN80 up to DN600 (bigger sizes under request)

Working pressures:

From DN 80 to DN 125: 10 (kg/cm²)

DN 150: 8 (kg/cm²)

DN 200: 7 (kg/cm²)

From DN 250 to DN 300: 5 (kg/cm²)

From DN 350 to DN 400: 4 (kg/cm²)

From DN 450 to DN 600: 3 (kg/cm²)



Note: *These pressures are to be applied on the seat side of the valve.*

Flange connection drillings:

The standard flange connection is according to DIN PN10.

Other flange connections such as, ANSI 150, DIN PN6 – PN16 – PN25, British Standard, Australian Standard, JIS Standard, are available under request.

Applied Directives:

Directive 98/37/CE (machinery), **Directive 97/23/CE (PED: Group 2)**, Directive 94/9/CE (ATEX: Group II, Cat. 3 / Zones 2 and 22)

Quality Dossier: All valves are hydrostatically tested at CMO with water and CMO material and test certificates can be provided.

Body test pressure = Maximum rated pressure x 1,5

Seat test pressure = Maximum rated pressure x 1,1

ADVANTAGES OF CMO “MODEL DT” COMPARING WITH SIMILAR PRODUCTS

The inside surfaces of the body are precisely machined to avoid the stocking of impurities and solid particles inside of the two body parts. Also several nylon (RCH-1000) sliding guides are located to provide a smooth movement and avoiding the jamming of the gates.

The outlet of the valve is conically shaped and when closing the knife the body is cleared easily.

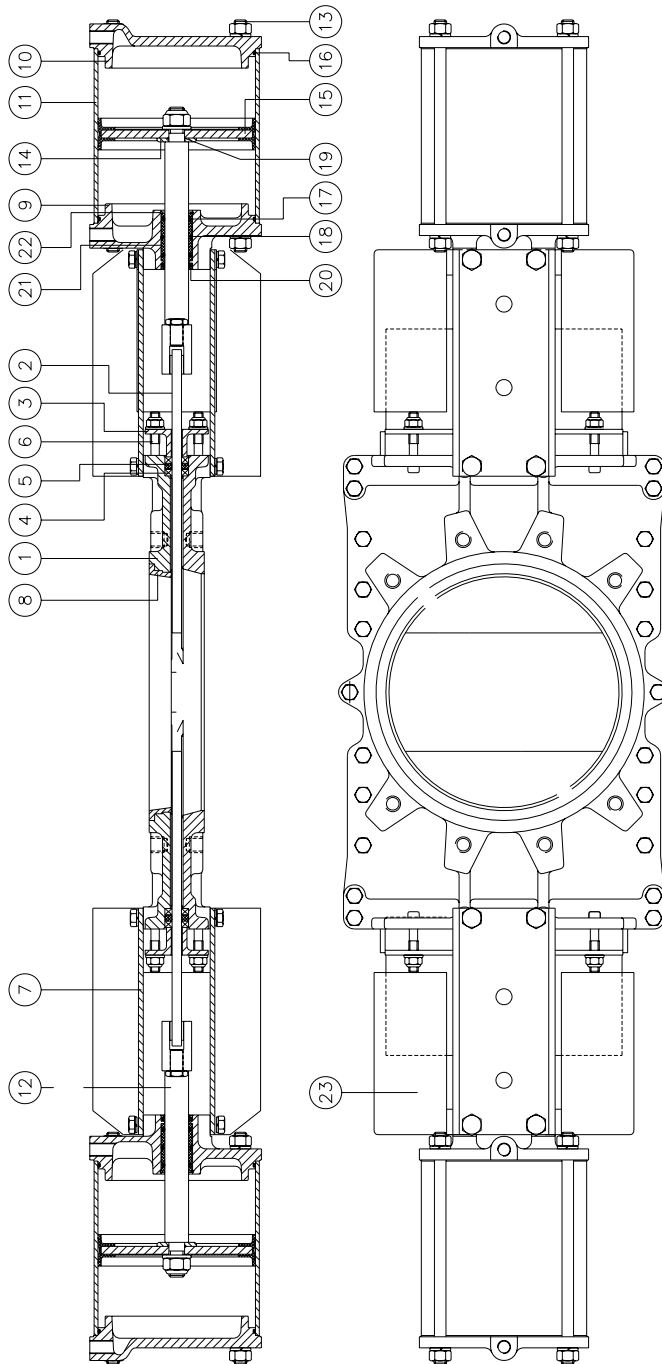
This valve is defined as unidirectional because it is used always for one direction flow. But, on the other hand, the body is composed by two bolted body parts which allows to the valve to resist the same pressure from both sides.

The sealing o-rings of the pneumatic cylinders are commercial and they can be bought all over the world, it is not needed, therefore, to contact CMO every time that these spares are needed.

KNIFE GATE VALVES -- MODEL DT

DOC. DT.04/08

STANDARD MANUFACTURING MATERIALS (OPTIONS 1 AND 2)



POS.	DESCRIPTION: OPTION 1	MATERIAL
1	BODY	CARBON STEEL
2	KNIFE	AISI304
3	PACKING GLAND	STAINLESS STEEL
4	PACKING	SYN'TET+PTFE
5	O-RING	EPDM
6	STUD	ZINC PLATED STEEL
7	SUPPORT PLATES	STEEL
8	REINFORCED RING	CF8M
9	CILINDER HEAD	GGG45
10	CILINDER CAP	GGG45
11	JACKET	ALUMINIUM
12	PISTON ROD	AISI304
13	TIE ROD	ZINC PLATED STEEL
14	WASHER	STEEL
15	PISTON	STEEL+NITRILE
16	O-RING	NITRILE
17	O-RING	NITRILE
18	O-RING	NITRILE
19	O-RING	NITRILE
20	SCRAPER	STEEL+NITRILE
21	GUIDE SLEEVE	NYLON
22	ELASTIC RING	STEEL
23	PROTECTIONS	STEEL

POS.	DESCRIPTION: OPTION 2	MATERIAL
1	BODY	CF8M
2	KNIFE	AISI316
3	PACKING GLAND	STAINLESS STEEL
4	PACKING	SYN'TET+PTFE
5	O-RING	EPDM
6	STUD	STAINLESS STEEL
7	SUPPORT PLATES	STEEL
8	REINFORCED RING	CF8M
9	CILINDER HEAD	GGG45
10	CILINDER CAP	GGG45
11	JACKET	ALUMINIUM
12	PISTON ROD	AISI304
13	TIE ROD	ZINC PLATED STEEL
14	WASHER	STEEL
15	PISTON	STEEL+NITRILE
16	O-RING	NITRILE
17	O-RING	NITRILE
18	O-RING	NITRILE
19	O-RING	NITRILE
20	SCRAPER	STEEL+NITRILE
21	GUIDE SLEEVE	NYLON
22	ELASTIC RING	STEEL
23	PROTECTIONS	STEEL



DESIGN FEATURES IN DETAIL

1) BODY

Wafer style cast body with reinforcing ribs, composed by two bolted parts, with inside RCH1000 nylon sliding guides to provide a smooth operation. These sliding guides can be supplied also in bronze, brass or PTFE under request.

The inside surface of the two bodies is machined and they are assembled with bolts creating a solid block. It has full and continuous bore and in open position it has no cavity, therefore there are no turbulences in the fluid, it provides high flow rates and the pressure drop is minimal.

The standard manufacturing materials are A216WCB Carbon Steel and CF8M stainless steel. Other materials like GGG50 nodular cast iron and stainless steel alloys (AISI316Ti, Duplex, 254SMO, Uranus B6 ...) under request. Carbon steel valves are painted as standard with 80 microns anticorrosive protection of EPOXY (colour RAL 5015). Other anticorrosive protections available under request.

2) GATE

The standard manufacturing materials are AISI304 stainless steel for carbon steel body valve and AISI316 stainless steel for CF8M stainless steel body valve. Other materials and combinations available under request. The gate is polished in both sides to provide a smooth contact surface with the body inside nylon sliding guides. Several polishing grades, anti abrasion treatments and modifications are available to adapt the valve to the customer requirements.

3) SEAT

The closing of this valve is performed by the movement of the two gates at the same time in the opposite direction until the wedges of both gates get in contact.

Considering this point we can say that the valve seat is composed by a metal to metal contact which does not provide a complete tightness. The estimated leakage (considering water) is 1.5% of the flow.

4) PACKING

This type of valve is composed by two packing areas to provide the tightness with the two gates.

As standard the packing is composed by three lines with an EPDM o-ring in the middle. It provides the tightness between the body and the gate and avoids any kind of leakage to the atmosphere.

The packing is located in an easily accessible place and can be changed without dismantling the valve from the pipeline.

Several types of packing can be supplied according to the different applications in which the valve can be located as follows:

GREASED COTTON (Recommended for hydraulic services)

This packing is made with cotton threads and has impregnated both the inside and the outside with tallow. It is manufactured by the solid system. It is a packing for general use in hydraulic services for pumps as well as for valves.

$$P(\text{bar}) = 10 / T = 100^{\circ}\text{C} \text{ PH} = 6-8$$

DRY COTTON

This packing is made with cotton threads. It is manufactured by the solid system. This is a packing only for solid products.

$$P(\text{bar}) = 0.5 / T = 100^{\circ}\text{C} \quad \text{PH} = 6-8$$



COTTON + P.T.F.E.

This packing is made with cotton threads and has the inside and outside impregnated with P.T.F.E.. It is a packing for general use in hydraulic services for pumps as well as for valves.

$$P(\text{bar}) = 30 / T = 120^{\circ}\text{C} \text{ PH} = 6-8$$

P.T.F.E. LUBRICATED

It is made of PTFE filament threads which are impregnated using vacuum with a dispersion of PTFE and a special lubricant which helps the work at high speed.

It is braided by the diagonal system. Suitable for valves and pumps working with nearly all the fluids, specially the more corrosives, including concentrated oils and oxidants. It is also suitable for fluids with solid contents.

$$P(\text{bar}) = 100 / T = -200+270^{\circ}\text{C} \text{ PH} = 0-14$$

6) PACKING GLAND

The packing gland gives the possibility to apply a uniform pressing force on the packing to ensure the tightness of the packings. This knife gate valve is composed by two packing glands which are **always supplied in CF8M stainless steel material.**

7) ACTUATORS

The knife gate valve type DT is supplied with pneumatic double acting actuator in most of the cases since it is located in an application where automatic valves are necessary.

ACCESSORIES

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

Mirror Polished Gate

The mirror polished gate is specially recommended for food industry and applications where the solids can stick on the gate. The mirror polished gate is an alternative to solve such kind issues.

PTFE Lined Gate

As the mirror polished gate, it improves the performance of the valve against the adherence.

Stellite gate

Addition of stellite material on the gate wedge to protect it from abrasion.

Scraper in the body and in the packing

It cleans the gate during the opening movement to avoid the damage of the packing and jamming of the gate.

Mechanical Limit Switches, Inductive Switches and Positioners

Limit switches for punctual valve position indication and positioners for continuous valve position indication.

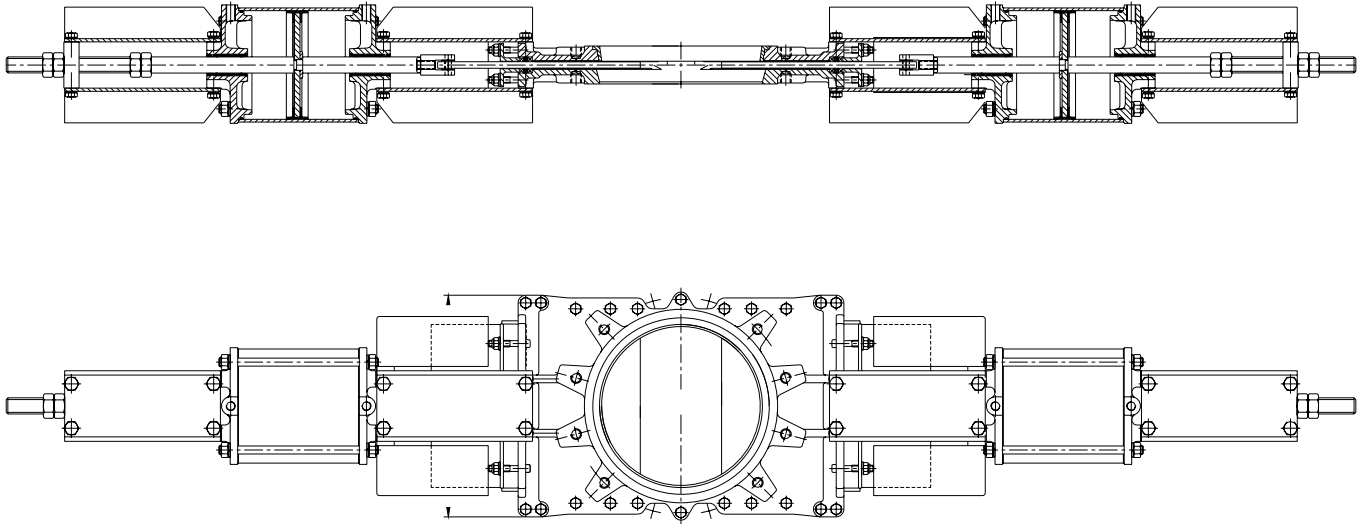
Solenoid valves

For air distribution into pneumatic actuators

Connection electrical boxes, electrical wiring and pneumatic piping

Completely assembled units with all accessories can be supplied.

Stroke limiting mechanical stops



ACTUATORS

The knife gate valve type DT is supplied with pneumatic double acting actuator in most of the cases since it is located in an application where automatic valves are necessary.

As standard the CMO double acting actuator is designed to work between 6 and 10 Kg/cm² air supply pressure.

10 Kg/cm² is the maximum allowed air supply pressure. When the air supply pressure is less than 6 Kg/cm² the actuator is oversized.

Double acting actuator:

For valves of diameter DN50 up to DN200 the cylinder jacket and the caps are in aluminium, the piston rod in AISI304, the cylinder piston in steel covered by nitrile and the o-rings in nitrile.

For valves bigger than DN200 the caps are manufactured in nodular cast iron or carbon steel.

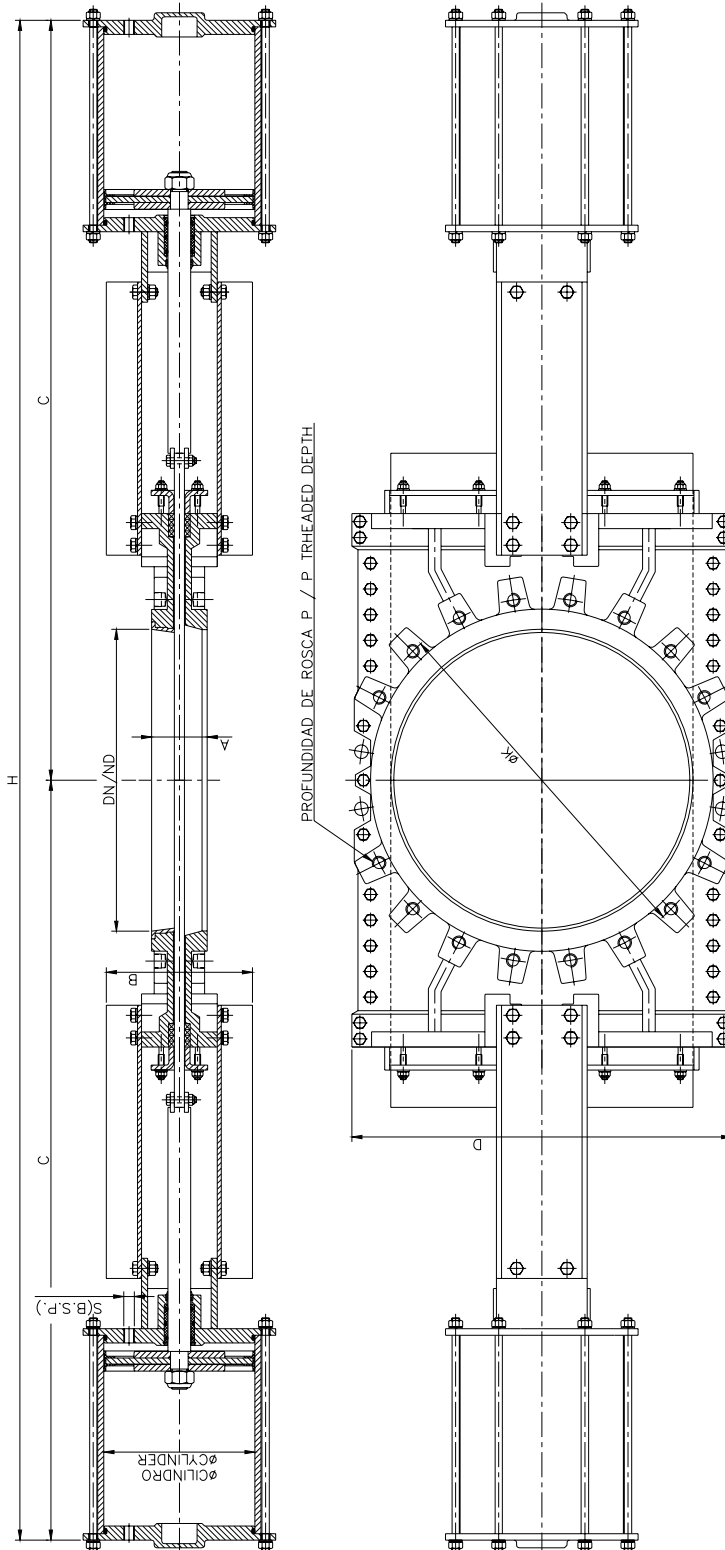
The actuator can be manufactured fully in stainless steel under request and especially for very corrosive ambient.

 **Note:** Please read the "CMO pneumatic actuators" catalogue for more information.

KNIFE GATE VALVES -- MODEL DT

DOC. DT.04/08

GENERAL DIMENSIONS: PNEUMATIC DOUBLE ACTING (air supply pressure: 6 kg/cm²)



DN	ND	Nº TALABRO	M. MÉRICA	P	ØK
100	8	8	M16	10	180
150	8	8	M20	10	240
200	8	8	M20	10	295
250	12	12	M20	12	350
300	12	12	M20	12	400
350	16	16	M24	21	460
400	16	16	M24	21	515
450	20	20	M24	22	565
500	20	20	M24	22	620
600	24	24	M27	22	725
700	24	24	M27	22	840
800	24	24	M30	22	950
900	28	28	M30	20	1050
1000	28	28	M33	20	1160

DN	A	B	D	Ø CILINDRO	S.p.	C	H
100	50	72	204	100	1/4"	488	976
150	60	110	230	125	1/4"	561	1122
200	60	110	296	160	1/4"	671	1342
250	70	110	330	200	3/8"	777	1554
300	70	110	408	200	3/8"	851.5	1703
350	96	290	475	250	3/8"	1030	2060
400	100	290	510	250	3/8"	1136	2272
450	106	290	575	300	1/2"	1241	2482
500	110	290	627	300	1/2"	1346	2692
600	110	290	755	300	1/2"	1520	3040
700	110	300	855	350	1/2"	1880	3760
800	110	300	955	350	1/2"	2090	4180
900	110	350	1055	400	1/2"	2235	4470
1000	110	350	1155	400	1/2"	2378	4756



FLANGE CONNECTION DETAILS

FLANGE DETAIL										
ND	DIN PN10					ANSI150				
			M Metrica	P	øK			R UNC	P	øK
50	4		M.16	8	125	4		5/8"	8	120'6
65	4		M.16	8	145	4		5/8"	8	139'7
80	4	4	M.16	9	160	4		5/8"	9	152'4
100	4	4	M.16	9	180	4	4	5/8"	9	190'5
125	4	4	M.16	9	210	4	4	3/4"	9	215'9
150	4	4	M.20	10	240	4	4	3/4"	10	241'3
200	4	4	M.20	10	295	4	4	3/4"	10	298'4
250	6	6	M.20	12	350	6	6	7/8"	12	361'9
300	6	6	M.20	12	400	6	6	7/8"	12	431'8
350	10	6	M.20	21	460	8	4	1"	21	476'2
400	10	6	M.24	21	515	10	6	1"	21	539'7
450	14	6	M.24	22	565	10	6	1 1/8"	22	577'8
500	14	6	M.24	22	620	14	6	1 1/8"	22	635
600	14	6	M.27	22	725	14	6	1 1/4"	22	749'3
700	16	8	M.27	22	840					
800	16	8	M.30	22	950					
900	20	8	M.30	20	1050					
1000	20	8	M.33	20	1160					
1200	22	10	M.36	22	1380					