Model **TH**

THROUGH CONDUIT KNIFE GATE VALVE

The TH model knife gate is a bi-directional high pressure wafer valve designed for media with high consistency. The double seat design assures a non-clogging shut off on either normal or reverse flow. The valve is used in a wide range of demanding applications in industries such as:

- Pulp and Paper
- Wastewater treatment plants
- Chemical plants
- Power plants
- Etc.

Sizes

DN 200 to DN 1000
Larger diameters on request

Pressure and temperature ratings

DN 200 to DN 1000: up to 20 bar
For higher pressures, please contact ORBINOX

CF8M / AISI 316: -20°C / 80°C

Standard flange connection

EN 1092 PN 10/16/25
ASME B16.5 (class 150)
Other flange connections on request

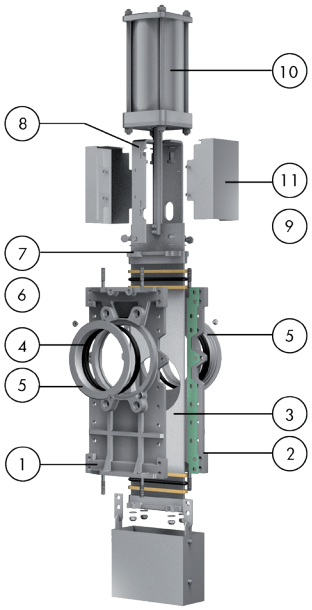
Directives

For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

Testing

All valves are tested prior to shipping in accordance with the standard EN-12266-1

STANDARD PARTS LIST



Part		Stainless Steel
1	Body	CF8M / AISI 316
2	Body	CF8M / AISI 316
3	Gate	AISI 316
4	Seat	PTFE
5	"K" Ring	AISI 316
6	Packing	Dynapack (Graphite impregnated PTFE and Aramid yam combination with an elastomeric core) + (EPDM O-ring)
7	Gland follower	CF8M / AISI 316
8	Yoke	AISI 304
9	Piston rod	AISI 304
10	Cylinder	Aluminum
11	Gate guards	AISI 304

DESIGN FEATURES

Body
Wafer style fabricated or cast two-part bolted stainless steel body, both internally machined, with reinforcing ribs in larger diameters for extra body strength. Internal high density polyethylene sliders (HMWPE) that ensure smoother gate traveling. Full port design to allow a greater flow capacity and to guarantee a minimal pressure drop.

Selfcleaning gate
Stainless steel as standard. One piece through-going gate with o-port design. When closing, the gate cuts and moves a disc of material downwards, which is again returned to the flow when opening. Gate is polished on both sides to avoid jamming and to ensure a greater seal between the gate with both packing and seat. The thickness and/or the material of the gate can be changed on request for higher pressure requirement

Seat (resilient)
Unique resilient seat design for all sizes, that mechanically locks the seal in the internal of the valve body with a cast, easy to replace, stainless steel seat ring. PTFE as standard, also available in different materials such as EPDM, NBR, Viton, Polyurethane, etc

Packing
Long-life packing with several graphite impregnated PTFE and Aramid yarn combination with an elastomeric core, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials.

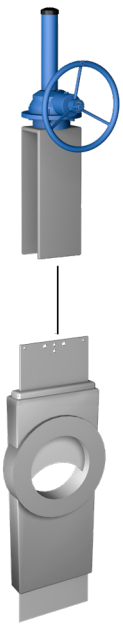
Stem
The standard stainless steel stem offers a long corrosion resistant life. For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust while the valve is in the open position

Yoke or actuator support
Made of stainless steel. Compact design makes it extremely robust even under the most severe conditions

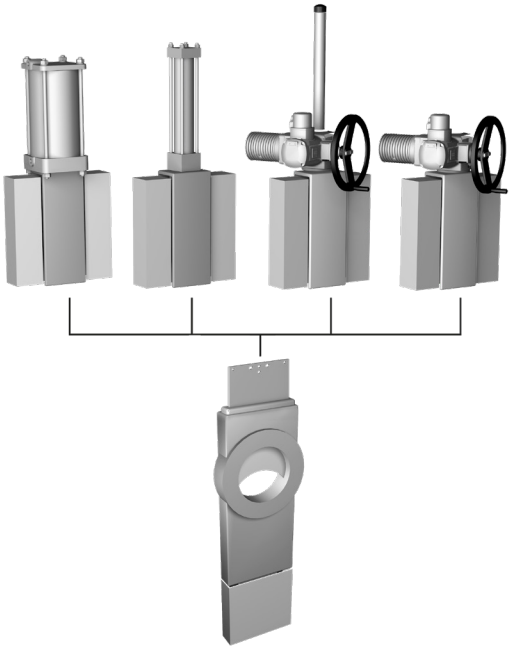
Gate safety protection
ORBINOX automated valves are provided with gate guards in accordance with EU Safety Standards. The design feature prevents any objects from being caught accidentally while the gate is moving

Actuators
ORBINOX offers a complete range of actuator solutions, including manual, pneumatic, electric and hydraulic actuators

Bevel Gear



Pneumatic Double Acting | Hydraulic | Electric RS | Electric NRS



OTHER OPTIONS

Other materials of construction
Special alloys such as AISI 317 (1.4449), 254SMO (1.4547), Hastelloys,etc

Fabricated valves
ORBINOX designs, produces and delivers special fabricated valves for special process conditions (big sizes and/or high pressures)

Surface treatments
Valve components can be protected or coated for a longer life expectancy, depending on the application of the valves and the valve service conditions. At ORBINOX we can offer alternative treatments and coatings for the different valve components to improve their properties against abrasion (Stellite, Polyurethane...), against corrosion (Halar, Rilsan, Galvanised...) and against adherence (Polishing, PTFE...)

Gate guards for actuators with proximity switches
It has been made a special design which allows horizontal and parallel mounting of the proximity switches including protection to them

Locking device
The valve can be designed with a locking pin system to block the gate in emergency situations or for maintenance operations

Flush ports
Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. Purging can be made with air, steam, liquids, etc. depending on the process

Actuator manual override
Pneumatic and electric actuators can be equipped with manual overraide handwheels to manually operate the actuators in emergency situations on maintenance operations

Stem extensions and floor stand
Extensions for valve operation when valves are installed in positions below operation level are available, including wall brackets and different types of pedestals for actuators

Accessories for valve automation
Positioners, proximity switches, solenoid valves, limit switches, flow regulations, air filter units, silencers

SEAT/SEAL TYPES

Material	Max.T (°C)	Applications
PTFE (T) + O-ring*		
*NBR (N)	120	Corrosion resistance[1]
*FKM-FPM (V)	200	Corrosion resistance
*VMQ (S)	250	Corrosion resistance
Polyurethan (PU)	90	Abrasion resistance
EPDM (E)	120	Acids and non mineral oils
NBR (N)	120	Resistance to petroleum products
FKM-FPM (V)	200	Chemical service / High temp.

(1) PTFE + NBR O-ring standard ORBINOX arrangement

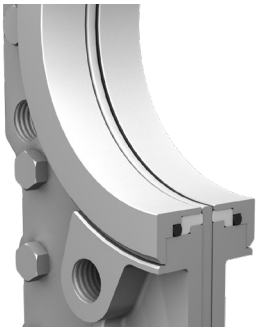
PACKING TYPES

Material	Max.T. (°C)	pH
Dynapack (DP)	270	2 - 14
Braided PTFE (TH)	260	0 - 14
Graphited (GR)	600	0 - 14
Ceramic fibre (FC)	1200	- - -

All types include an elastomere O-ring (same material as seal)

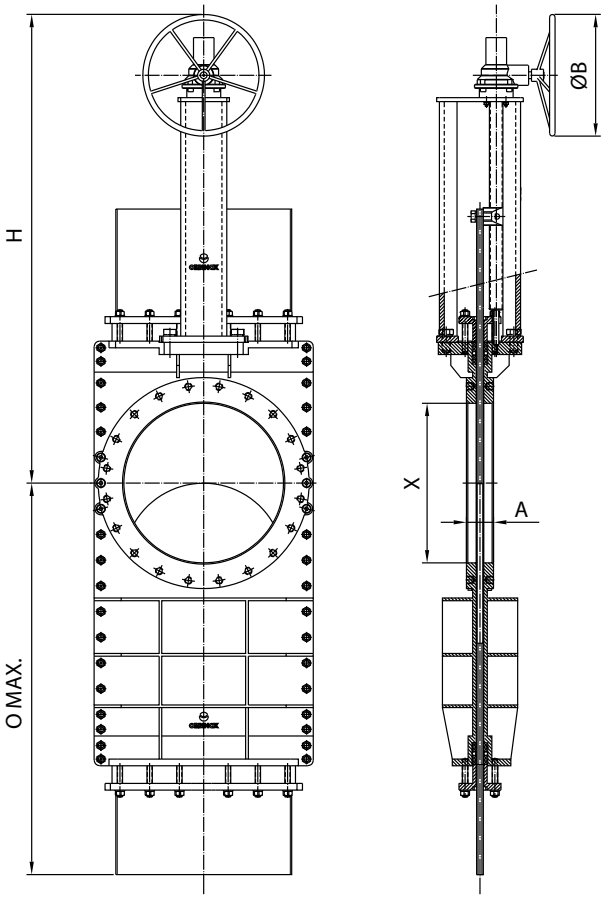
SEAT CONFIGURATIONS/DESIGNS

Type	Features
Type K seat (PTFE)	-Replaceable resilient PTFE + O-ring seat -Replaceable stainless steel ring



BEVEL GEAR NON RISING STEM

Manual actuator available from DN 300 to DN 1000. Available both for rising stem and non-rising stem configurations and with different reduction ratios

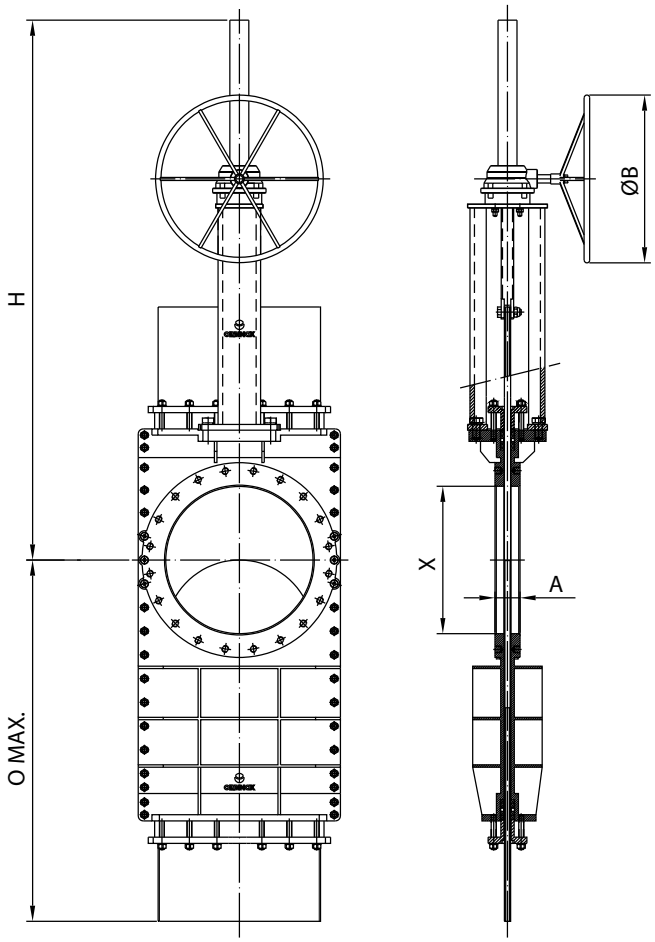


DN	X	A	ØB	H	O max.
300	302	78	310	822	905
350	332	78	410	897	1047
400	380	89	410	997	1171
450	420	89	550	1120	1301
500	490	114	550	1210	1575
600	540	122	550	1389	1711
700	665	128	650	997	2005
800	760	128	650	1120	2295
900	880	128	650	1210	2585
1000	970	128	650	1389	2875

NOTE: DN300-800 dimensions for 10 bar design pressure and PN10 flange drilling and DN900-1000 for 6 bar design pressure and PN10 flange drilling

BEVEL GEAR RISING STEM

Manual actuator available from DN 300 to DN 1000. Available both for rising stem and non-rising stem configurations and with different reduction ratios



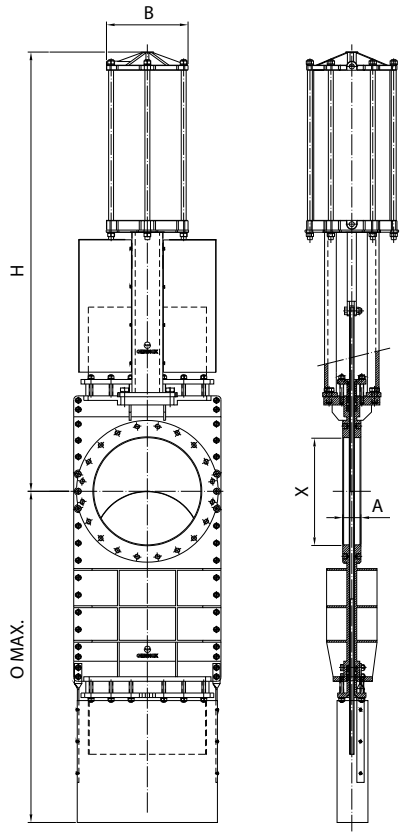
DN	X	A	ØB	H	O max.
300	302	78	310	1102	905
350	332	78	410	1286	1047
400	380	89	410	1386	1171
450	420	89	550	1583	1301
500	490	114	550	1673	1575
600	540	122	550	1963	1171
700	665	128	650	2300	2005
800	760	128	650	2640	2295
900	880	128	650	2980	2585
1000	970	128	650	3310	2875

NOTE: DN300-800 dimensions for 10 bar design pressure and PN10 flange drilling and DN900-1000 for 6 bar design pressure and PN10 flange drilling

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 300 to DN 1000. Single-acting pneumatic cylinders, manual overrides, fail-safe systems as well as a wide variety of pneumatic accessories for valve automation available.

For valves installed in a horizontal position, actuator supports to plant structure is recommended



DN	X	A	O max.	B	H	Connect.
300	302	78	905	220	1172	3/8" G
350	332	78	1047	277	1344	3/8" G
400	380	89	1171	277	1494	3/8" G
450	420	89	1301	382	1693	1/2" G
500	490	114	1575	382	1959	1/2" G
600	540	122	1711	444	2206	3/4" G
700	665	128	1820	444	2485	3/4" G
800	760	128	1930	444	2775	3/4" G
900	880	128	2040	444	3080	3/4" G
1000	970	128	2135	444	3390	3/4" G

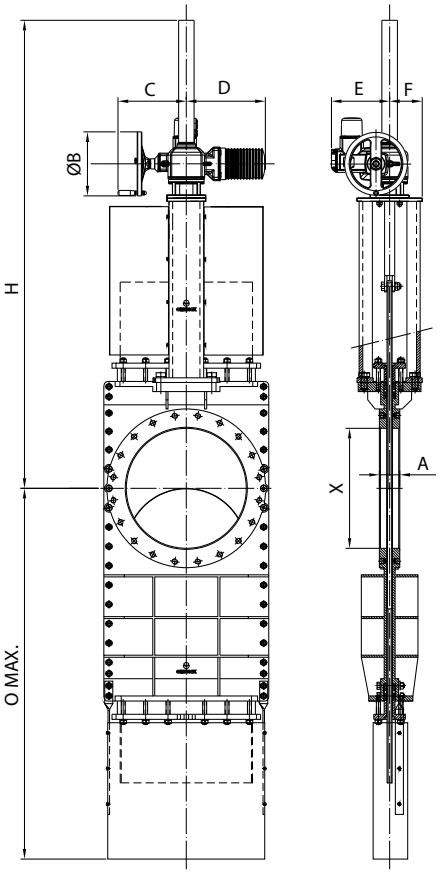
NOTE: DN300-800 dimensions for 10 bar design pressure and PN10 flange drilling and DN900-1000 for 6 bar design pressure and PN10 flange drilling

ELECTRIC ACTUATOR RISING STEM

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from DN 300 to DN 1000, both for rising stem and non-rising stem configurations and with manual overrides.

Knife gate valves with a wide range of electric actuator brands available

For valves installed in a horizontal position, actuator supports to plant structure is recommended



DN	X	A	ØB	H	O max.	C	D	E	F	Torque (Nm)
300	302	78	200	1434	905	282	256	62	247	60
350	332	78	200	1515	1047	282	256	65	247	60
400	380	89	315	1615	1171	282	256	65	247	60
450	420	89	315	1793	1301	385	325	65	285	120
500	490	114	315	1883	1575	385	325	90	285	250
600	540	122	315	2143	1711	385	325	90	285	250
700	665	128	400	2300	1820	385	332	90	285	500
800	760	128	500	2640	1930	510	355	115	310	500
900	880	128	500	2980	2040	510	355	115	310	650
1000	970	128	500	3310	2135	510	355	115	310	1000

NOTE: DN300-800 dimensions for 10 bar design pressure and PN10 flange drilling and DN900-1000 for 6 bar design pressure and PN10 flange drilling

FLANGE AND BOLTING DETAILS

EN-1092 PN10

DN	K	nº	M
300	400	12	M-20
350	460	16	M-20
400	515	16	M-24
450	565	20	M-24
500	620	20	M-24
600	725	20	M-27
700	840	24	M-27
800	950	24	M-30
900	1050	28	M-30
1000	1160	28	M-33

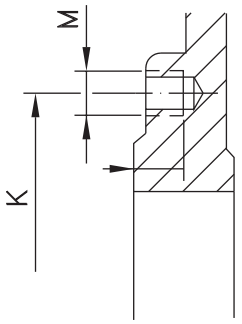
EN-1092 PN16

DN	K	nº	M
300	410	12	M-24
350	470	16	M-24
400	525	16	M-27
450	585	20	M-27
500	650	20	M-30
600	770	20	M-33
700	840	24	M-33
800	950	24	M-36
900	1050	28	M-36
1000	1170	28	M-39

ASME B16.5, CLASS 150

DN	K	nº	M
12″	17″	12	7/8″ - 9 UNC
14″	18 ¾″	12	1″ - 8 UNC
16″	21 ¼″	16	1″ - 8 UNC
18″	22 ¾″	16	1 1/8″ - 7 UNC
20″	25″	20	1 1/8″ - 7 UNC
24″	29 ½″	20	1 1/4″ - 7 UNC
28″	34″	28	1 1/4″ - 7 UNC
32″	38 ½″	28	1 1/2″ - 6 UNC
36″	42 ¾″	32	1 1/2″ - 6 UNC
40″	47 ¼″	36	1 1/2″ - 6 UNC

NOTE: Other flange drillings available upon request



BLIND TAPPED HOLES