

Model TH

THROUGH CONDUIT KNIFE GATE VALVE

The TH model knife gate is a bi-directional high pressure 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

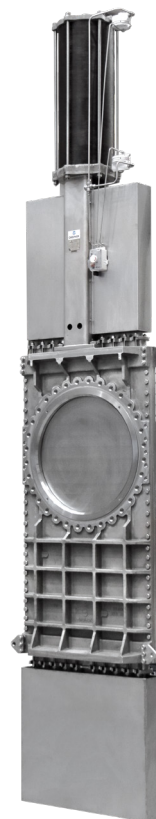
EN 1092 PN 10/16/25
ASME B16.5 (class 150)
Other flange connections on request

Directives

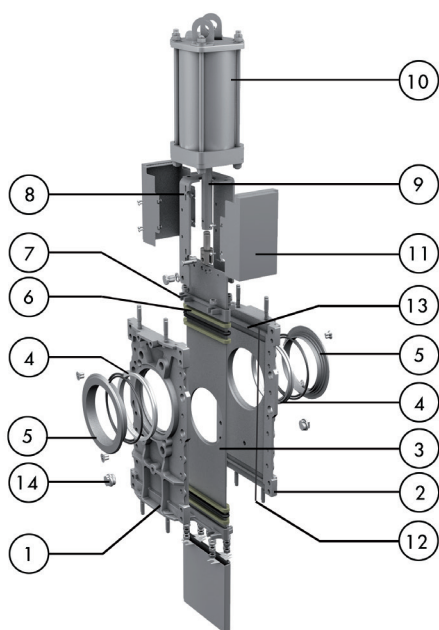
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

Testing

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



STANDARD PARTS LIST



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

DESIGN FEATURES

Body

Fabricated or cast two-part bolted stainless steel body, both internally machined, with reinforcing ribs in larger diameters for extra body strength. With internal glass filled PTFE sliders 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

Unique design that mechanically locks the seal in the interior of the valve body with a cast, easy to replace, stainless steel seat ring. Standard PTFE + NBR O-ring

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

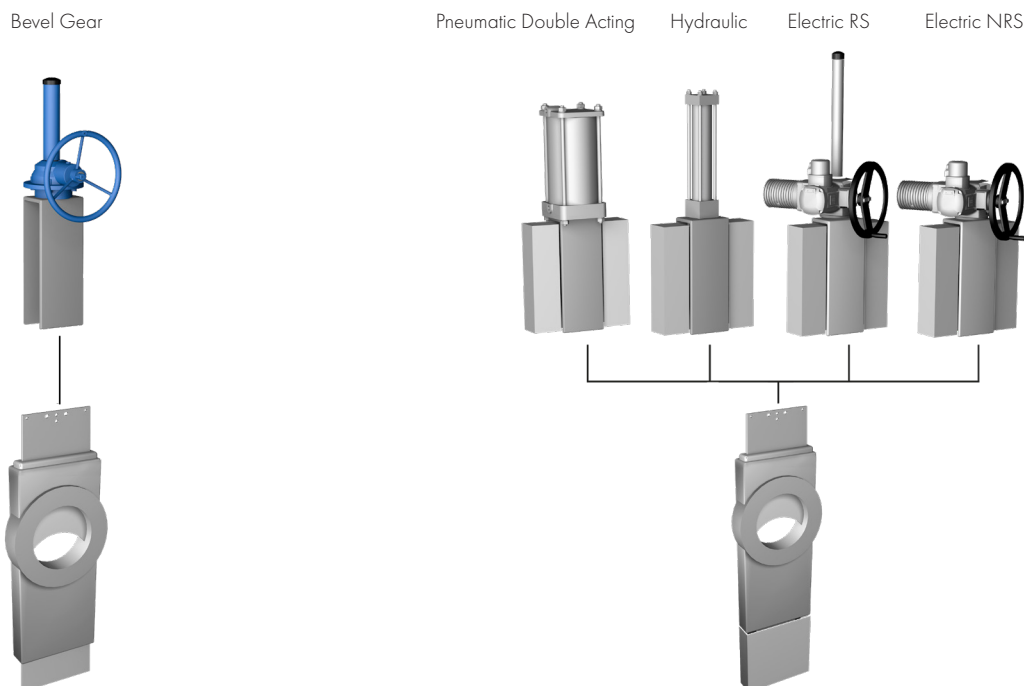
Made of stainless steel. Compact design makes it extremely robust even under the most severe conditions

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



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

Flush ports allow direct cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. All valve bodies are delivered with plugged pre-drilled ports, ready for final purging connection. 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 override 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

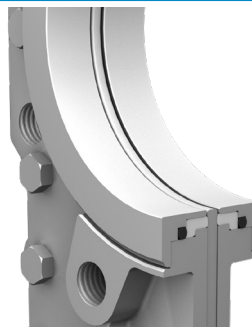
PACKING TYPES

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)

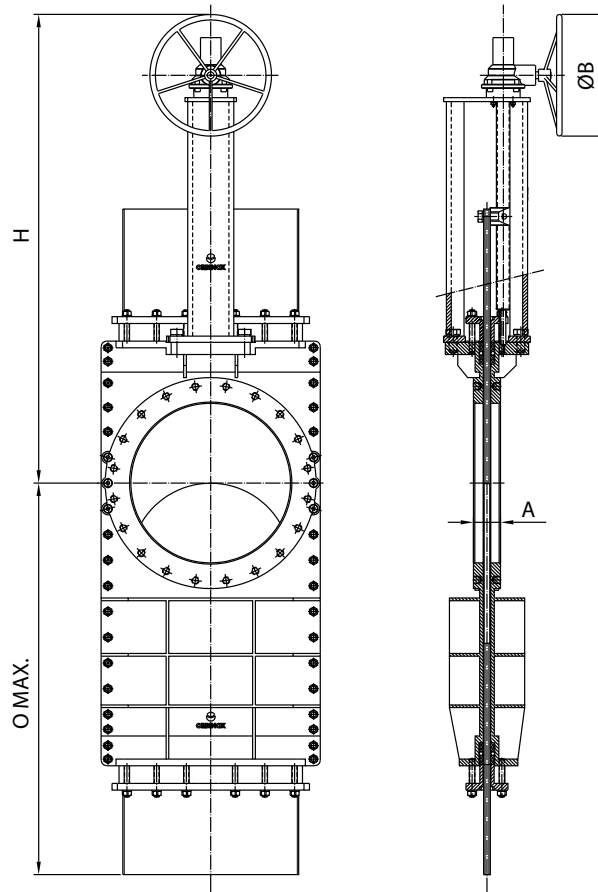
SEAT CONFIGURATIONS/DESIGNS

Type	Features
Type K seat (PTFE)	<ul style="list-style-type: none"> -Replaceable resilient PTFE + O-ring seat -Replaceable stainless steel ring



BEVEL GEAR NON RISING STEM

Manual actuator available from DN 200 to DN 1000. Available both for rising stem and non-rising stem configurations and with different reduction ratios

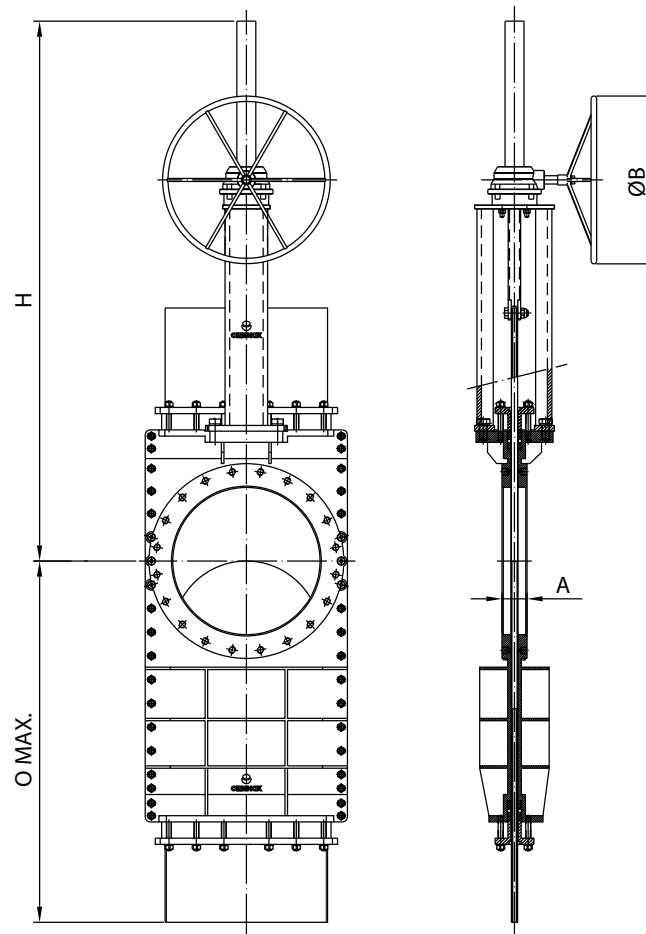


DN	A	ØB	H	O max.
200	90	310	656	637
300	114	310	822	905
350	125	410	897	1047
400	125	410	997	1171
450	150	550	1120	1301
500	150	550	1210	1575
600	170	550	1389	1711
700	180	650	997	2005
800	190	650	1120	2295
900	210	650	1210	2585
1000	210	650	1389	2875

NOTE: DN 200-800 dimensions for 10 bar design pressure and PN10 flange drilling and
DN 900-1000 for 6 bar design pressure and PN10 flange drilling

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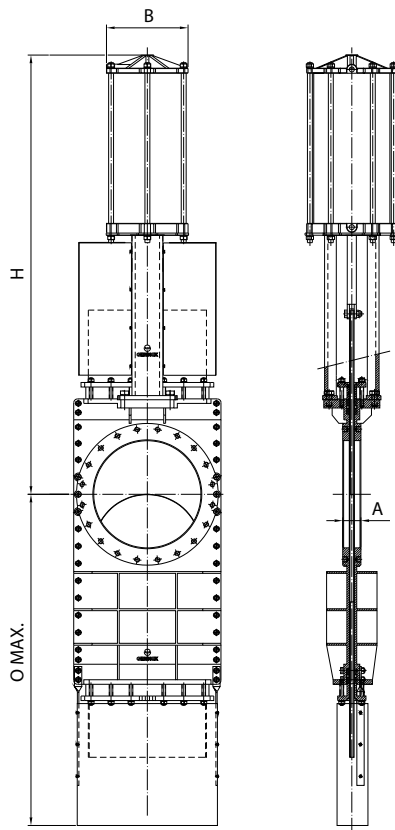
DN	A	ØB	H	O max.
200	90	300	773	637
300	114	310	1102	905
350	125	410	1286	1047
400	125	410	1386	1171
450	150	550	1583	1301
500	150	550	1673	1575
600	170	550	1963	1171
700	180	650	2300	2005
800	190	650	2640	2295
900	210	650	2980	2585
1000	210	650	3310	2875

NOTE: DN 200-800 dimensions for 10 bar design pressure and PN10 flange drilling and
DN 900-1000 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 200 to DN 1000. 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	A	O max.	B	H	Connect.
200	90	637	175	872	1/4" G
300	114	905	220	1172	3/8" G
350	125	1047	277	1344	3/8" G
400	125	1171	277	1494	3/8" G
450	150	1301	382	1693	1/2" G
500	150	1575	382	1959	1/2" G
600	170	1711	444	2206	3/4" G
700	180	1820	444	2485	3/4" G
800	190	1930	444	2775	3/4" G
900	210	2040	444	3080	3/4" G
1000	210	2135	444	3390	3/4" G

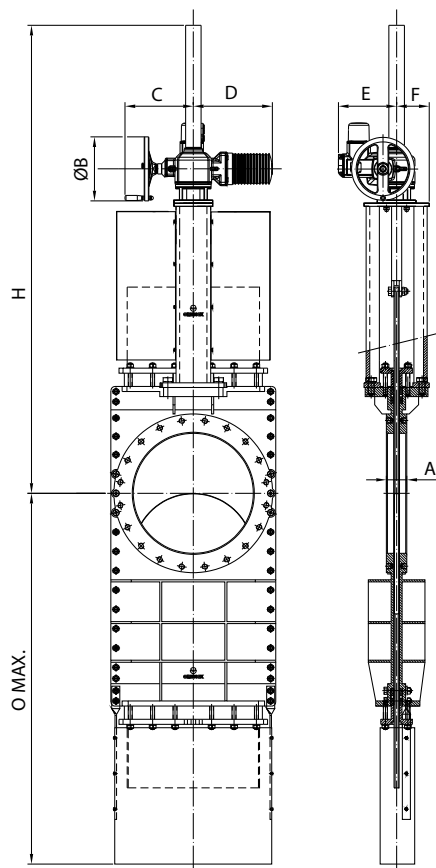
NOTE: DN 200-800 dimensions for 10 bar design pressure and PN10 flange drilling and
 DN 900-1000 for 6 bar design pressure and PN10 flange drilling

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 200 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	A	ØB	H	O max.	C	D	E	F	Torque (Nm)
200	90	160	867	637	265	249	62	238	40
300	114	200	1434	905	282	256	62	247	60
350	125	200	1515	1047	282	256	65	247	60
400	125	315	1615	1171	282	256	65	247	60
450	150	315	1793	1301	385	325	65	285	120
500	150	315	1883	1575	385	325	90	285	250
600	170	315	2143	1711	385	325	90	285	250
700	180	400	2300	1820	385	332	90	285	500
800	190	500	2640	1930	510	355	115	310	500
900	210	500	2980	2040	510	355	115	310	650
1000	210	500	3310	2135	510	355	115	310	1000

NOTE: DN 200-800 dimensions for 10 bar design pressure and PN 10 flange drilling and DN 900-1000 for 6 bar design pressure and PN 10 flange drilling

FLANGE AND BOLTING DETAILS

EN-1092 PN10

DN	K	n°	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

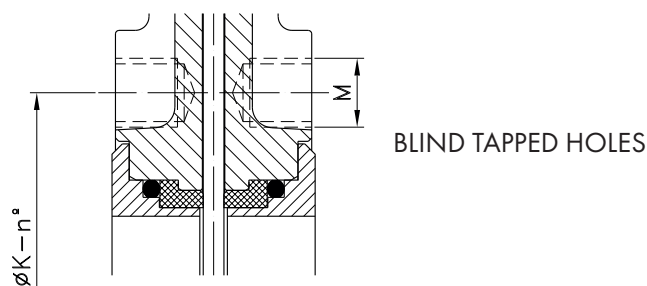
EN-1092 PN16

DN	K	n°	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	n°	M
12"	17"	12	7/8" - 9 UNC
14"	18 3/4"	12	1" - 8 UNC
16"	21 1/4"	16	1" - 8 UNC
18"	22 3/4"	16	1 1/8" - 7 UNC
20"	25"	20	1 1/8" - 7 UNC
24"	29 1/2"	20	1 1/4" - 7 UNC
28"	34"	28	1 1/4" - 7 UNC
32"	38 1/2"	28	1 1/2" - 6 UNC
36"	42 3/4"	32	1 1/2" - 6 UNC
40"	47 1/4"	36	1 1/2" - 6 UNC

* From NPS 24, acc. to ASME B16.47 Series A (class 150)



NOTE: Other flange drillings available upon request