MODEL TH

ORBINOX
VALVE SOLUTIONS IN MORE THAN 70 COUNTRIES

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 & Paper
- Chemical
- Wastewater Treatment
- etc.
- Power

Sizes: DN 300 to DN 1000 (larger diameters on request).

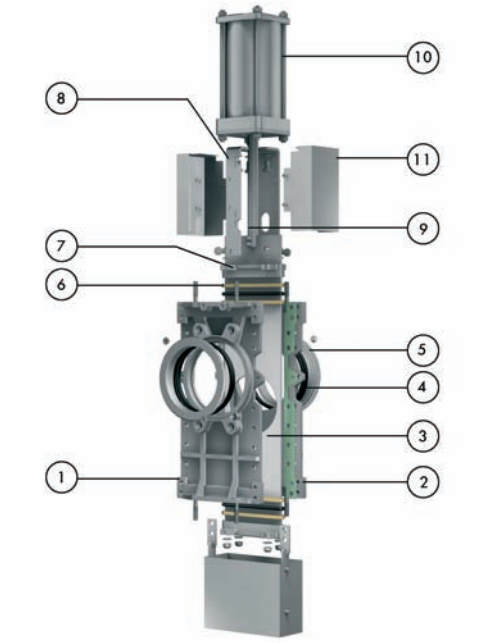
Working pressure: DN 300 to DN 800: 10 kg/cm^2
DN 900 to DN 1000: 6 kg/cm^2

Standard flange connection: DIN PN 10.

Note: other flange connections are available on request such as:
ANSI B16.5 (class 150) DIN PN 6 DIN PN 16

Directives: DIR 2006/42/CE (MACHINES)
DIR 97/23/CE (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)
DIR 94/9/CE (ATEX) Please contact Orbinox for information and availability of categories and zones.

All valves are tested prior to shipping in accordance with the standard developed by the Quality Control Department at ORBINOX.



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	Carbon Steel- Epoxy Coated
9- Piston Rod	AISI 304 (1.4301)
10- Cylinder	Aluminum
11- Gate guards	AISI 304 (1.4301)

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DESIGN FEATURES

BODY:
Wafer style two-part bolted stainless steel body, internally machined, with reinforced ribs in larger diameters for extra body strength.
Internal UHMW Polyethylene sliders for smoother gate travel (stainless steel version only).
Full port design for greater flow capacity and minimal pressure drop.

SELFCLEANING GATE:
Stainless steel gate as standard. One piece gate with o-port design.
While closing, the gate moves a disc of material laterally which returns to the flow when opening.
Gate is polished on both sides for a greater seal between the gate with both packing and seat.
On request: thickness and/or material of the gate can be changed for higher pressure requirement.

SEAT: (resilient)
Unique design that mechanically locks the seat in the internal of the valve body with a cast, easy to replace, stainless steel seat ring.
Standard PTFE seat.

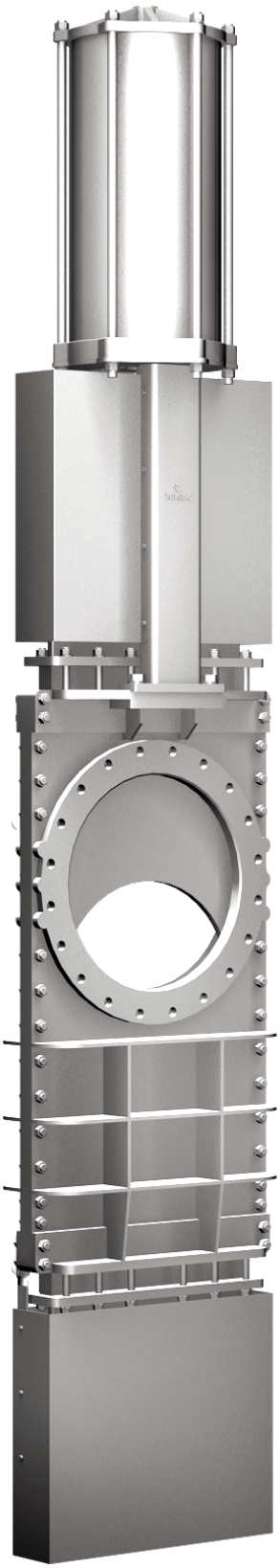
PACKING:
Long-life packing with several graphite impregnated PTFE and Aramid yarn combination with an elastomeric core, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials.

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.

ACTUATORS:
All actuators supplied by **ORBINOX** are interchangeable, and supplied with an standard mounting kit to allow for installation on site.

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.



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OTHER OPTIONS

Gate guards for actuators with proximity switches (Fig.1)

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.

Other materials of construction:
Special alloys such as AISI 317, 254SMO, Hastelloys, Titanium, etc.

Fabricated valves:
ORBINOX is equipped for in house fabrication of special valves. Depending on the design, diameter, pressures, construction material, etc.

Fig.1

SURFACE TREATMENTS

Valve components can be protected or coated for a longer life expectancy, depending on the application and the service conditions.

At **ORBINOX** we can offer treatments and coatings for the valve components to improve the properties against **abrasion** (Stellite, Polyurethane…), **corrosion** (Halar, Rilsan, Galvanised…) and **adherence** (Polishing, PTFE…).

ATEX

Please contact our Orbinox representative for info and availability. Some considerations:

- Hand operated TH valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive.Therefore hand operated valves are suitable for ALL ATEX zones.
- Electrical, pneumatical and hydraulically operated valves must be subjected to a conformity assesment of their own and also of the whole unit valve-actuator to get EC Type Approval to Directive 94/9.

We recommend consultation with our technical department.

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ACTUATOR TYPES

Manual:

Handwheel (rising & non-rising stem)
Chainwheel
Bevel Gear
Others (square nut...)

Automatic:

Electric
Double Acting Pneumatic
Hydraulic

All actuators supplied by ORBINOX are interchangeable.

ACCESSORIES

Mechanical stops
Locking device **(Fig.1)**
Manual override
Solenoid valves
Positioners
Limit switches
Proximity switches
Floor stands
Stem extensions

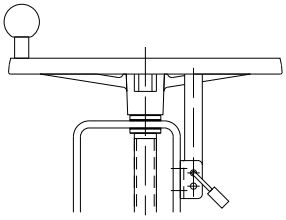
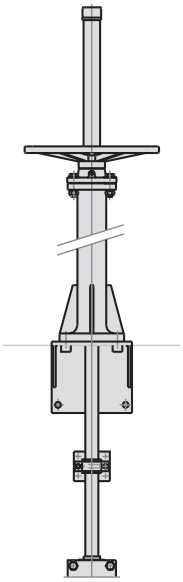


Fig. 1.



Wide range of extensions available.

For further information about fail safe systems and valve extensions, see EK chapter.

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TEMPERATURE CHART

SEAT / SEALS

Material	Max.Temp.(°C)	Applications
Metal/Metal	>250	High temp. Low tightness.
EPDM (E)	120	Acids and non mineral oils.
Nitrile (N)	120	Resistance to petroleum products.
Viton (V)	200	General chemical service. High temperature.
Silicone (S)	250	Food service. / High temperature.
PTFE (T)	250	Corrosion resistance.

More details and other materials under request.

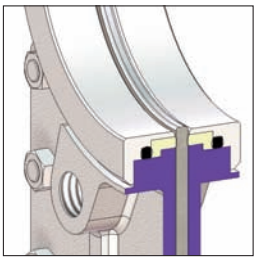
PACKING

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

NOTE: all types include an elastomere O-ring (same material as seal).

SEAT TYPES

TYPE "K" SEAT (PTFE)



- Replaceable resilient PTFE + O-ring seats
- Replaceable stainless steel rings

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BEVEL GEAR (non-rising stem)

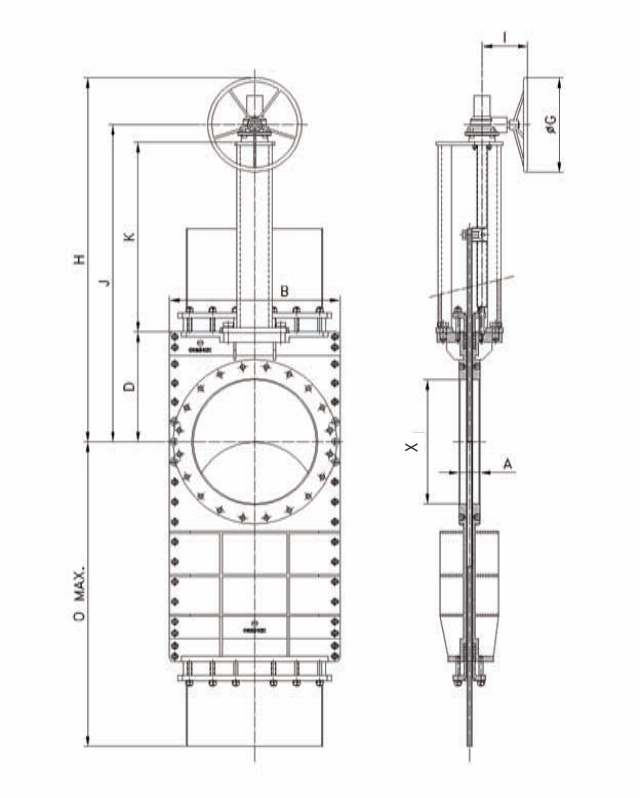
- Consists of:

  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)

- Available from DN 300 to DN 1000.

- Options (on request):

  - Locking Device
  - Chainwheel
  - Extension
  - Non-rising stem



DN	X	A	B	D	J	K	ØG	H	O max.
300	302	78	410	280	810	420	310	822	905
350	332	78	473	300	900	490	410	897	1047
400	380	89	538	350	1000	540	410	997	1171
450	420	89	588	420	1125	595	550	1120	1301
500	470	114	646	450	1215	655	550	1210	1461
600	540	122	754	530	1395	755	550	1389	1711
700	665	128	860	650	1615	855	650	1400	2005
800	760	128	964	740	1805	955	650	1430	2295
900	880	128	1070	845	2010	1055	650	1500	2585
1000	970	128	1180	955	2220	1155	650	1530	2875

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  - Extension
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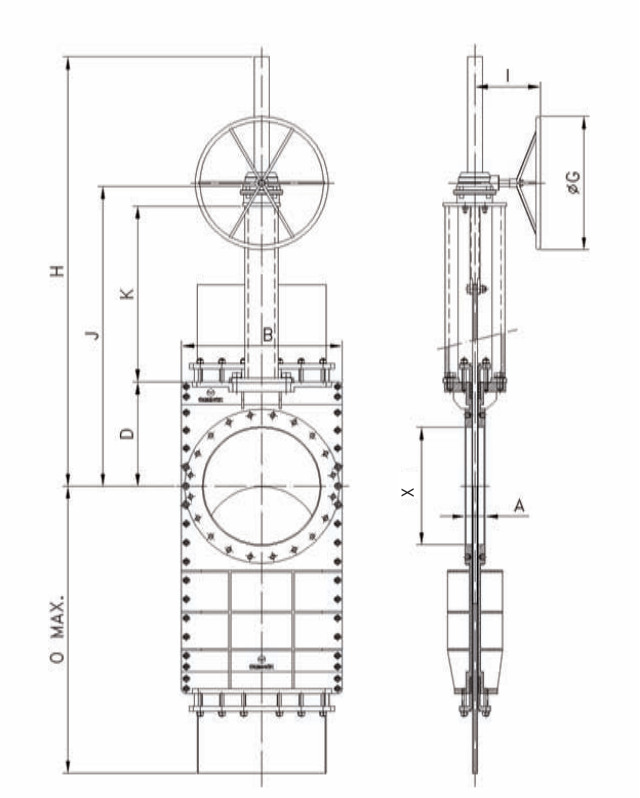

DN	X	A	B	D	J	K	ØG	H	O max.
300	302	78	410	280	810	420	310	1102	905
350	332	78	473	300	900	490	410	1286	1047
400	380	89	538	350	1000	540	410	1386	1171
450	420	89	588	420	1125	655	550	1583	1301
500	470	114	646	450	1395	755	550	1673	1461
600	540	122	754	530	1615	855	550	1963	1171
700	665	128	860	650	1615	855	650	2300	2005
800	760	128	964	740	1805	955	650	2640	2295
900	880	128	1070	845	2010	1055	650	2980	2585
1000	970	128	1180	955	2220	1155	650	3310	2875

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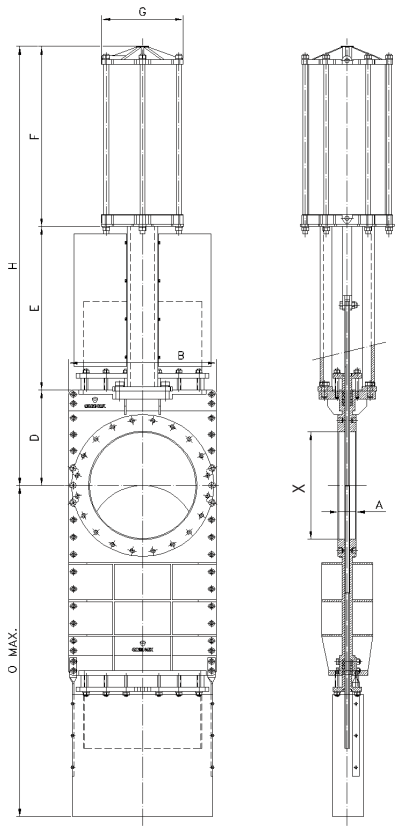
PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - DN 50-250: Aluminum barrels
  - DN ≥ 300: Composite barrels
  - Aluminum end caps
  - Stainless Steel (AISI 304) piston rod
  - Nitrile coated steel piston
- Available in DN 300 to DN 1000.
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support.
- Options:
  - Gate guards for proximity switches (see pag. 3)
  - Hard anodized jacket and covers
  - Stainless Steel jacket and covers
  - Manual override
  - Fail Safe System
  - Travel stops
- Instrumentation (on request):
  - Positioners
  - Flow regulators
  - Solenoid valves
  - Air preparation units



DN	X	A	B	D	O max.	E	F	G	H	Standard Cyl.	Connect.
300	302	78	410	280	905	414	478	220	1172	C200/320	3/8" G
350	332	78	473	300	1047	510	535	277	1344	C200/320	3/8" G
400	380	89	538	350	1171	560	585	277	1494	C200/320	3/8" G
450	420	89	588	420	1301	608	665	382	1693	C250/320	1/2" G
500	470	114	646	450	1461	668	715	382	1833	C250/320	1/2" G
600	540	122	754	530	1711	796	880	444	2206	C350/625	3/4" G
700	665	128	960	650	1820	855	980	444	2485	C350/725	3/4" G
800	760	128	964	740	1930	955	1080	444	2775	C350/825	3/4" G
900	880	128	1070	845	2040	1055	1180	444	3080	C400/925	3/4" G
1000	970	128	1180	955	2135	1155	1280	444	3390	C400/1025	3/4" G

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ELECTRIC ACTUATOR

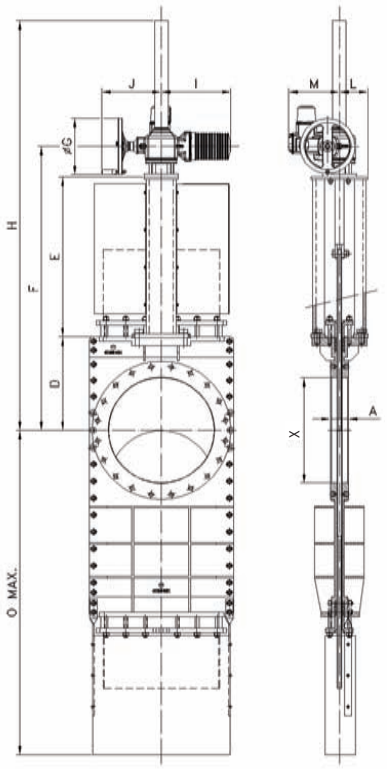
- Consists of:
  - Electric motor
  - Rising stem
  - Motor support yoke
    (Acc. to ISO 5210/DIN 3338)

- The standard electric motor is equiped with:
  - Manual emergency operation
  - Limit switches (open/closed)
  - Torque switches

- Available from DN 300 to DN 1000.

- Wide range of types and marks available to meet customer's needs.

- Option:
  - Non rising stem



DN	X	A	B	D	E	F	ØG	H	O max.	I	J	L	N	Torque (Nm)
300	302	78	410	280	420	849	200	1434	905	282	256	65	247	60
350	332	78	473	300	490	930	200	1515	1047	282	256	85	247	60
400	380	89	538	350	540	1030	200	1615	1171	282	256	85	247	60
450	420	89	588	420	595	1193	315	1793	1301	385	325	90	285	120
500	470	114	646	450	655	1283	315	1883	1461	385	325	90	285	250
600	540	122	754	530	755	1443	315	2143	1711	385	325	90	285	250
700	665	128	860	630	855	1660	400	2300	1820	385	332	90	285	500
800	760	128	964	740	955	1850	500	2640	1930	510	355	115	310	500
900	880	128	1070	845	1055	2060	500	2980	2040	510	355	115	310	650
1000	970	128	1180	955	1155	2300	500	3310	2135	510	355	115	310	1000

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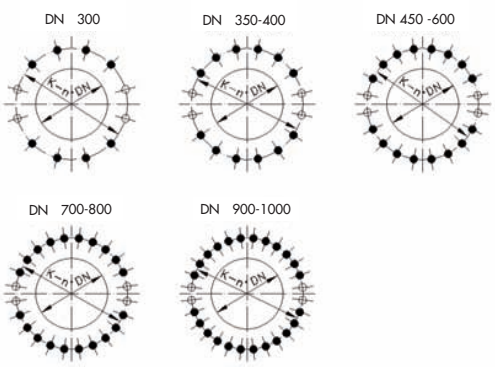
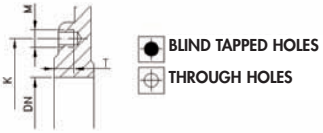
FLANGE AND BOLTING DETAILS

EN 1092-2 PN10

DN	K	nº	M	T	● ⊕
300	400	12	M-20	22	8 - 4
350	460	16	M-20	28	12 - 4
400	515	16	M-24	28	12 - 4
450	565	20	M-24	32	16 - 4
500	620	20	M-24	32	16 - 4
600	725	20	M-27	32	16 - 4
700	840	24	M-27	32	20 - 4
800	950	24	M-30	32	20 - 4
900	1050	28	M-30	32	24 - 4
1000	1160	28	M-33	32	24 - 4





ANSI B16.5, class 150

DN	K	nº	M	T	● ⊕
12″	17″	12	7/8″ UNC	7/9″	8 - 4
14″	18 3/4″	12	1″ UNC	1 1/8″	8 - 4
16″	21 1/4″	16	1″ UNC	1 1/8″	12 - 4
18″	22 3/4″	16	1 1/8″ UNC	1 1/4″	12 - 4
20″	25″	20	1 1/8″ UNC	1 1/4″	16 - 4
24″	29 1/2″	20	1 1/4″ UNC	1 1/4″	16 - 4
28″	36 1/2″	28	1 1/2″ UNC	1 1/4″	20 - 4
32″	41 3/4″	28	1 1/2″ UNC	1 1/4″	20 - 4
36″	46″	32	1 1/2″ UNC	1 1/4″	24 - 4
40″	50 3/4″	36	1 1/2″ UNC	1 1/4″	24 - 4