

# Model HK

## WAFER STYLE KNIFE GATE VALVE

The HK model knife gate is an uni-directional wafer valve designed for general industrial service applications. The design of the body and seat assures non clogging shut off on suspended solids in industries such as:

- Pulp and Paper
- Power plants
- Wastewater treatment plants
- Chemical plants
- Food and Beverage
- Bulk handling
- Mining
- etc.

### Sizes

DN 150 to DN 300

### Working pressure and temperatures

ON SEATING  
DN 150 to DN 300: 10 bar

OFF SEATING <sup>1</sup>  
DN 100 to DN 200: 3,5 bar  
DN 250: 3 bar  
DN 300: 2 bar

<sup>1</sup> Only resilient seats

CF8M: -20°C / 80°C

### Standard flange drilling

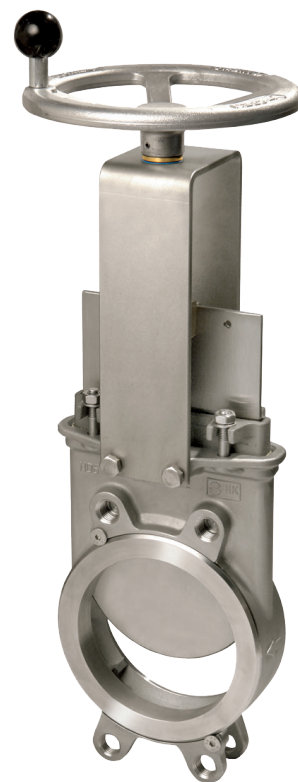
EN-1092 PN 10 / PN 16  
ASME B16.5 (class 150)  
Other flange drillings available on request

### Directives

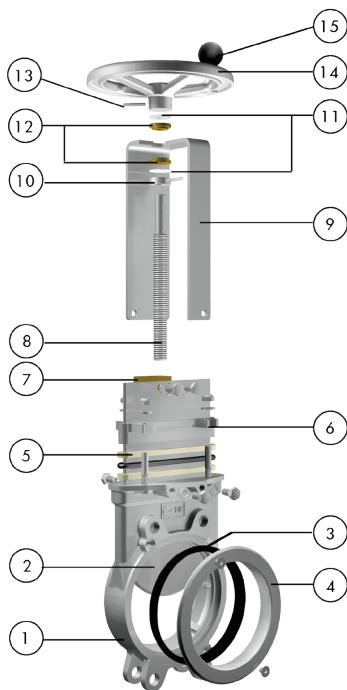
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves – Catalogues and Datasheets

### Testing

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



## STANDARD PARTS LIST



Part	Description
1	Body CF8M
2	Gate AISI 316
3	Seat EPDM
4	K ring CF8M
5	Packing Dynapack (Graphite impregnated PTFE and Aramid yarn combination with an elastomeric core) + EPDM O-ring
6	Gland follower CF8M
7	Stem nut Brass
8	Stem Stainless Steel
9	Yoke AISI 304
10	Axial fixing bush AISI 304
11	Friction washer PET + solid lubricant
12	Bushing Bronze
13	Spring Pin AISI 420 (ISO 8752)
14	Handwheel Ø≤310: Aluminium (AISI12); Ø≥410: EN-GJS400
15	Knob Black bakelite

## DESIGN FEATURES

### Body

Wafer style cast stainless steel monoblock with raised face, with reinforced ribs in larger diameters for extra body strength. Internal cast-in gate wedges and guides allows for tighter shut-off. Full port design for greater flow capacity and minimal pressure drop. Internal design avoids any build up of solids that would prevent valve from closing

### Gate

Stainless steel gate. Gate is polished on both sides to avoid jamming and seat damage. Bottom of the gate edge is machined to a bevel to cut through solids for a tighter seal in the closed position. The thickness and/or material of the gate can be changed on request for higher pressure requirements

### Seat (resilient)

Unique design that mechanically locks the seal in the internal of the valve body with a cast, easy to replace, stainless steel seat ring. Standard EPDM also available in different materials such as PTFE, etc.(Fig.1) .

### Packing

Long-life packing with several graphite impregnated PTFE / Aramid yarn combination with an elastomeric core, plus an EPDM O-ring, with an easy access packing gland ensuring a tight seal. Long-life packing is available in a wide range of materials

### Stem

The standard stainless steel stem offers a long corrosion resistant life. Standard configuration is non-rising stem. For those pneumatic actuated valves, stem linkage is provided by means of a stainless steel coupling and a pin (Fig. 2)

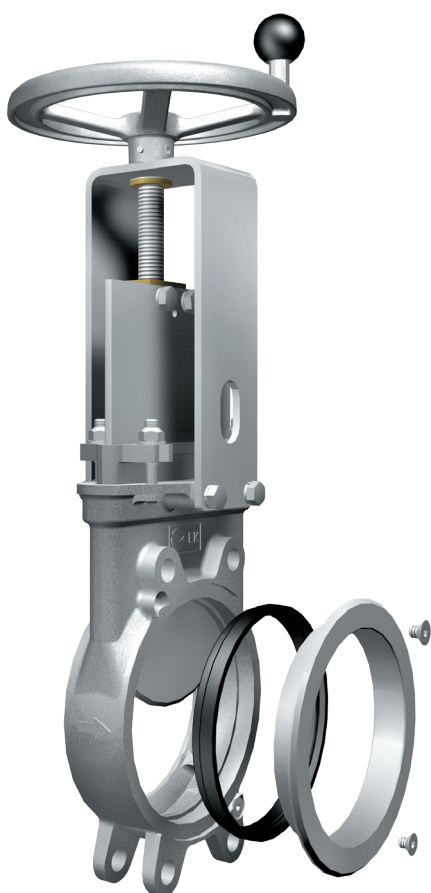


Fig.1

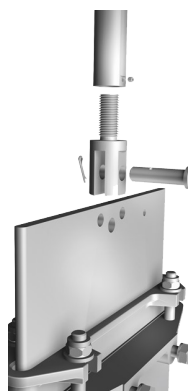


Fig.2

## DESIGN FEATURES

### Yoke or actuator support

Made of stainless steel (Epoxy coated steel available on request). Compact design makes it extremely robust even under the most severe conditions

### Epoxy coating

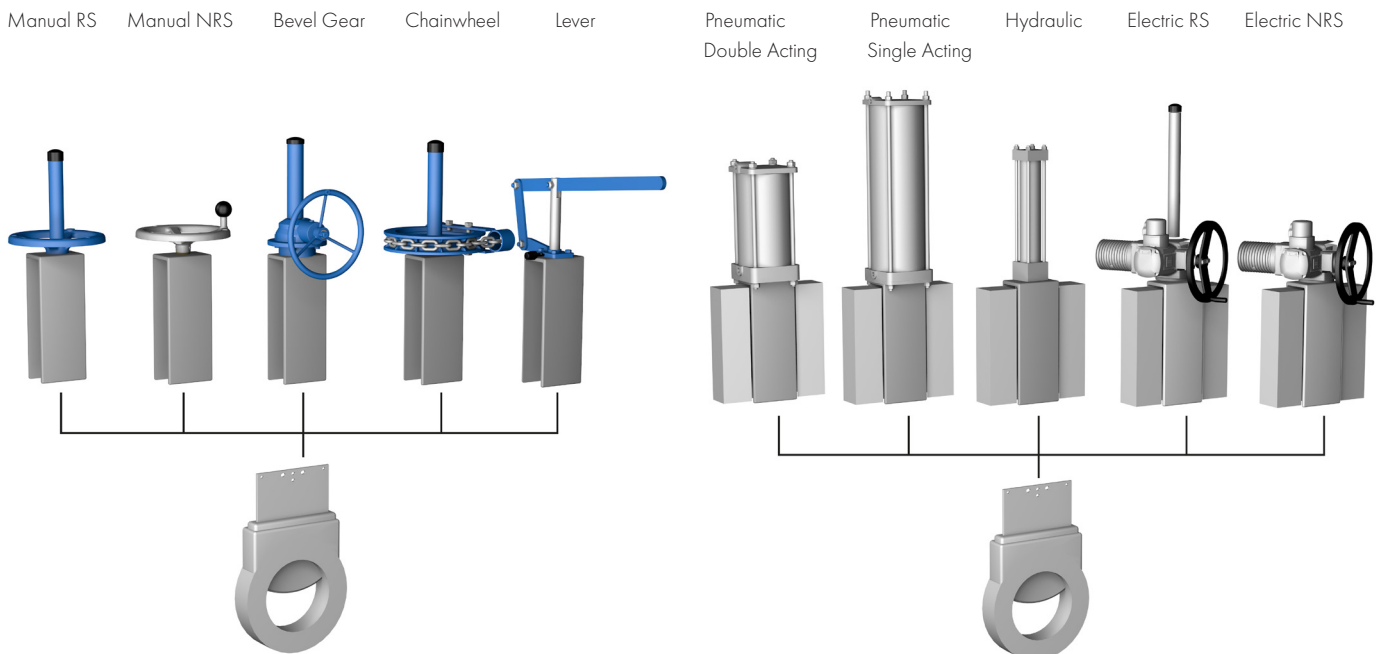
The Epoxy coating on all ORBINOX cast iron and carbon steel components is electrostatically applied making the valves corrosion-resistant with a high quality finished surface. The ORBINOX standard colour is RAL-5015 blue

### 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

All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit for installation purposes on site



## OTHER OPTIONS

### Other materials of construction

Ductile iron, carbon steel, special stainless steels (Duplex, ...), special alloys (254SMO, Hastelloys, ...), etc.

### Fabricated valves

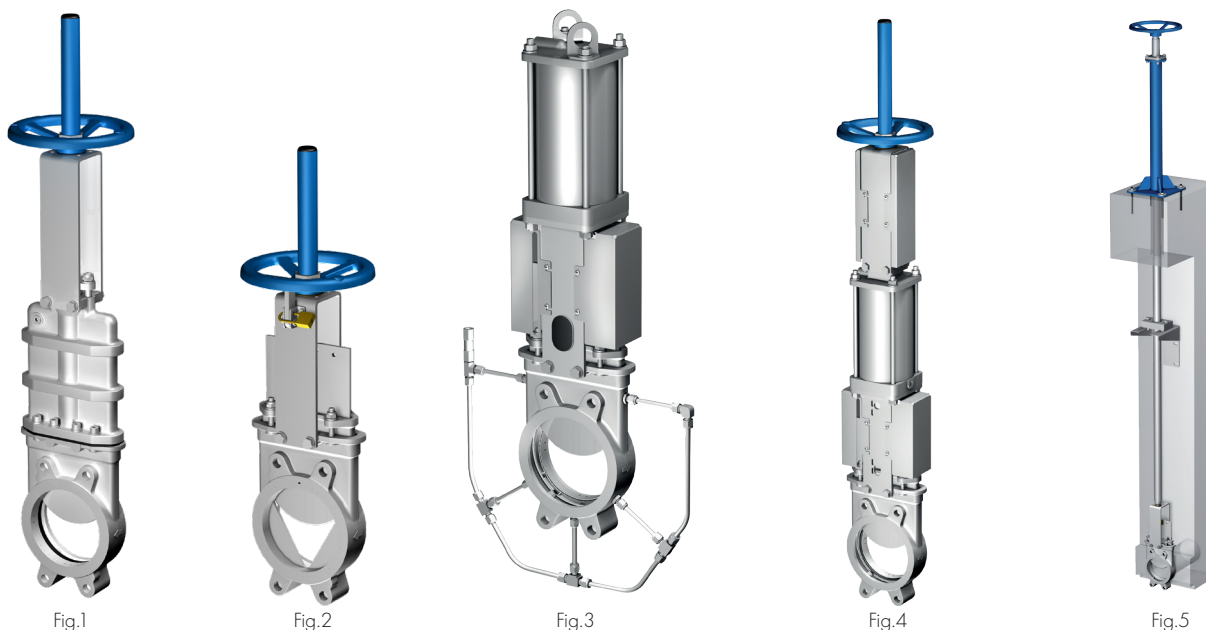
ORBINOX designs, produces and delivers special fabricated valves for special process conditions (big sizes and/or high pressures)

### 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, hard-chroming, carbides, ...), against corrosion and against adherence

### Bonnet (Fig. 1)

Assures tight sealing to atmosphere. Reduces packing maintenance. Double packing as alternative solution to bonnet also available



### V-Port (Fig. 2)

60 degree and pentagonal port design. Selection depends on the desired fluid control type

### Locking device (Fig. 2)

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

### Flush ports (Fig. 3)

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

### Mechanical stops

Mechanical stops can be added to limit stem travel at a certain stroke position

### Actuator manual override (Fig. 4)

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

### Stem extensions and floor stand (Fig. 5)

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 pneumatic valve automation

Limit and proximity switches, solenoid valves, positioners, flow regulations, air filter units, silencers, junction boxes

## SEAT/SEAL TYPES

Material	Max.T (°C)	Applications
EPDM (E)	120	Acids and non mineral oils
NBR (N)	120	Resistance to petroleum products
FKM-FPM (V)	200	Chemical service / High temp.
VMQ (S)	250	Food service / High temp.
PTFE (T)	250	High corrosion
Polyurethane	90	Corrosion resistance

## PACKING TYPES

Material	Max.T (°C)	pH
Dynapack (DP)	270	41671
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), excluding TH, GR and FC

More details and other materials under request

## SEAT CONFIGURATIONS/DESIGNS

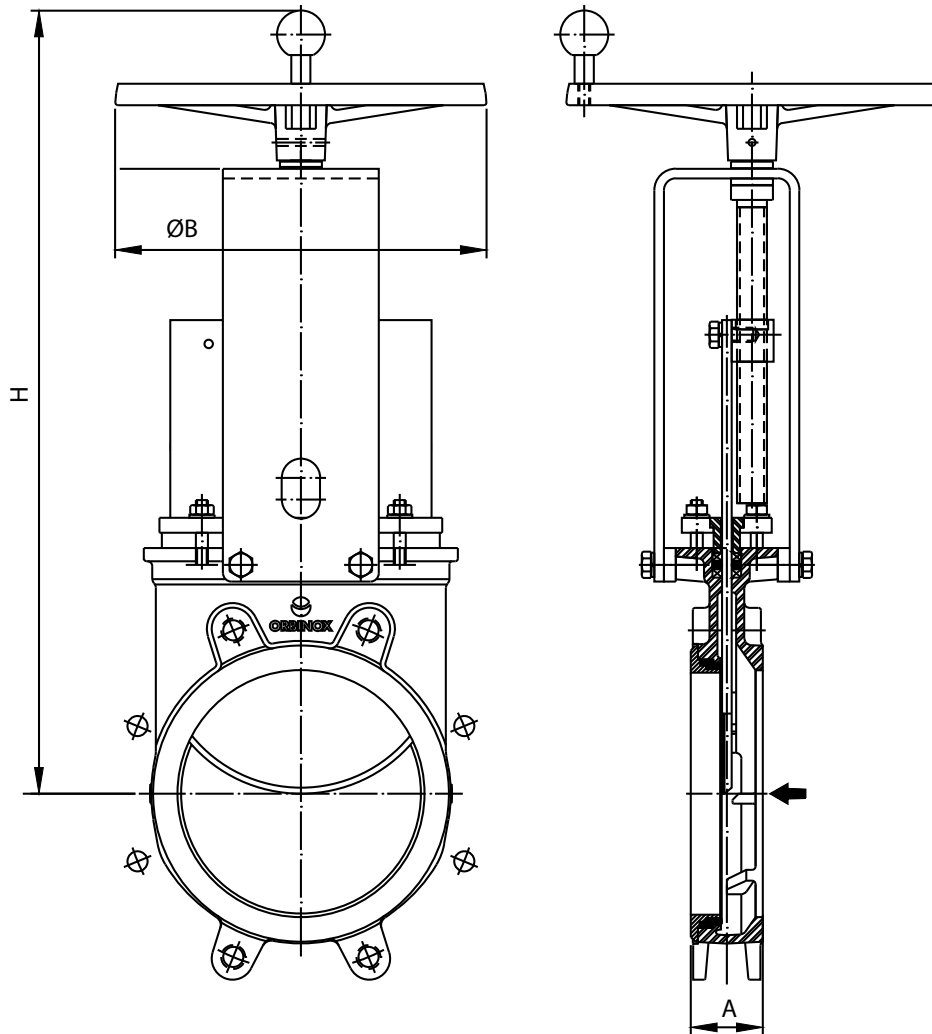
Type	Features	
<b>Type K seat (EPDM)</b>	<ul style="list-style-type: none"> <li>- Standard replaceable resilient EPDM seat</li> <li>- Replaceable stainless steel ring</li> </ul>	
<b>Type K seat (PTFE)</b>	<ul style="list-style-type: none"> <li>- Replaceable resilient PTFE + O-ring seat</li> <li>- A Replaceable stainless steel ring</li> </ul>	
<b>Polyurethane</b>	<ul style="list-style-type: none"> <li>- Replaceable polyurethane seat ring</li> </ul>	
<b>Metal / Metal</b>	<ul style="list-style-type: none"> <li>- High temperature applications</li> <li>- High density media applications</li> <li>- When full tightness is not required</li> </ul>	

## OTHER SEAT FEATURES

Type	Features	
<b>Deflection cone C</b>	<ul style="list-style-type: none"> <li>- Used to protect valve seats and internals</li> <li>- Material: AISI 316, Ni-Hard, etc.</li> <li>- Face-to-face dimension increases: DN 50 to DN 250, X = 9mm DN 300 to DN 600, X = 12mm Larger diameters on request</li> </ul>	

## HANDWHEEL NON-RISING STEM

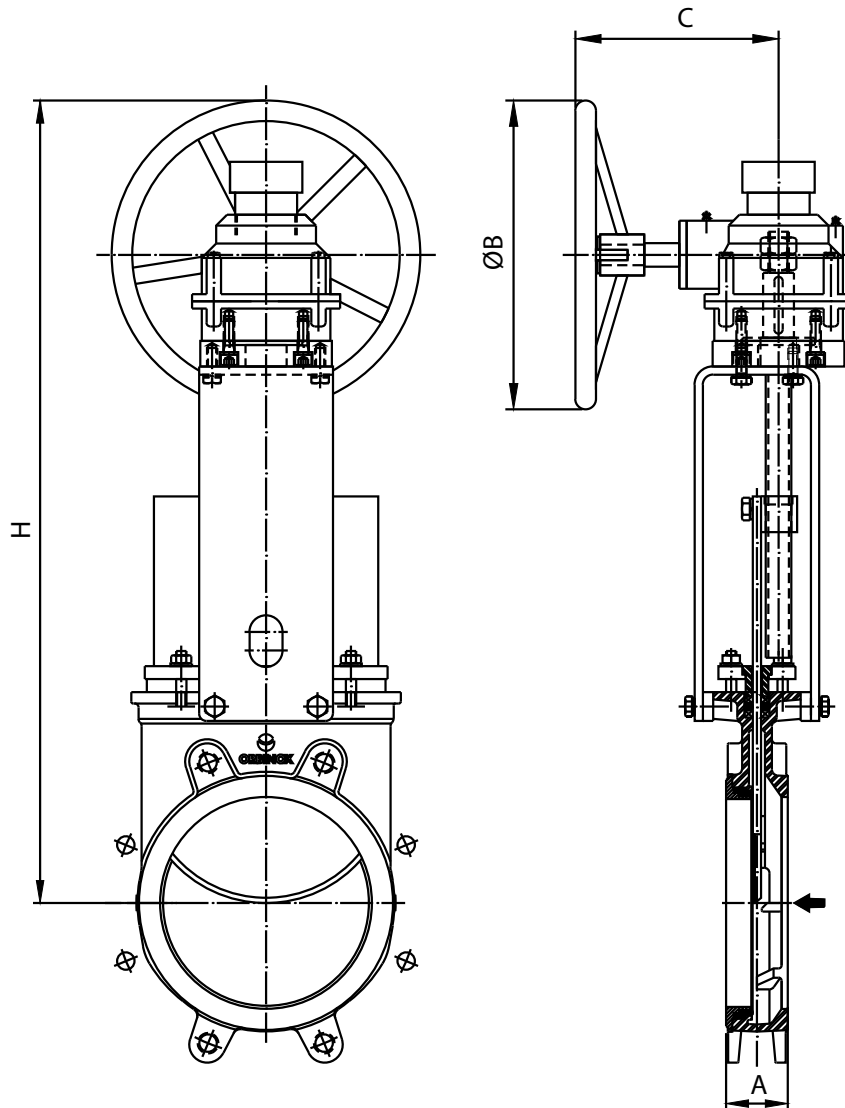
Manual actuator recommended for installation where space is limited, available from DN 150 to DN 300



DN	A	ØB	H	Weight (Kg)
150	60	225	551	16
200	60	310	656	29
250	69	310	756	43
300	78	310	856	62

## GEAR

Available from DN150 to DN 300 both for rising stem and non-rising stem configurations and with different reduction ratios

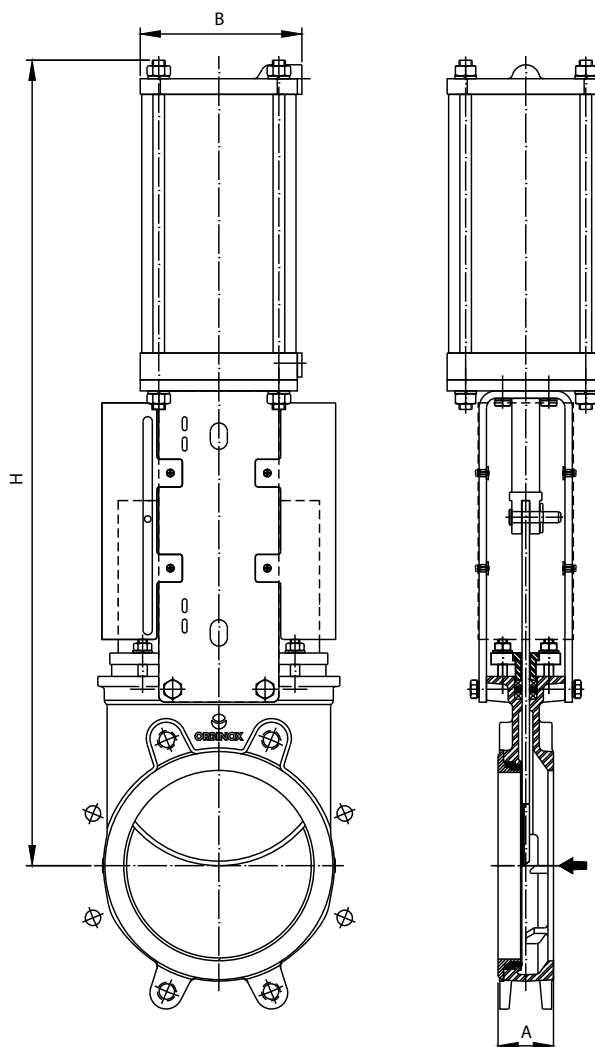


DN	A	ØB	H	C
200	60	300	735	200
250	69	300	835	200
300	78	300	940	200

## PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 150 to DN 300. Single-acting pneumatic cylinders, manual overrides, fail-safe systems as well as a wide variety of pneumatic accessories for valve automation available. Actuator sized for 6 bar air supply, see ORBINOX Pneumatic Solutions Catalogue for more information

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



DN	A	B	H	Connect.	Weight (Kg)
150	60	140	708	1/4" G	22
200	60	175	872	1/4" G	39
250	69	220	1042	3/8" G	59
300	78	220	1192	3/8" G	79

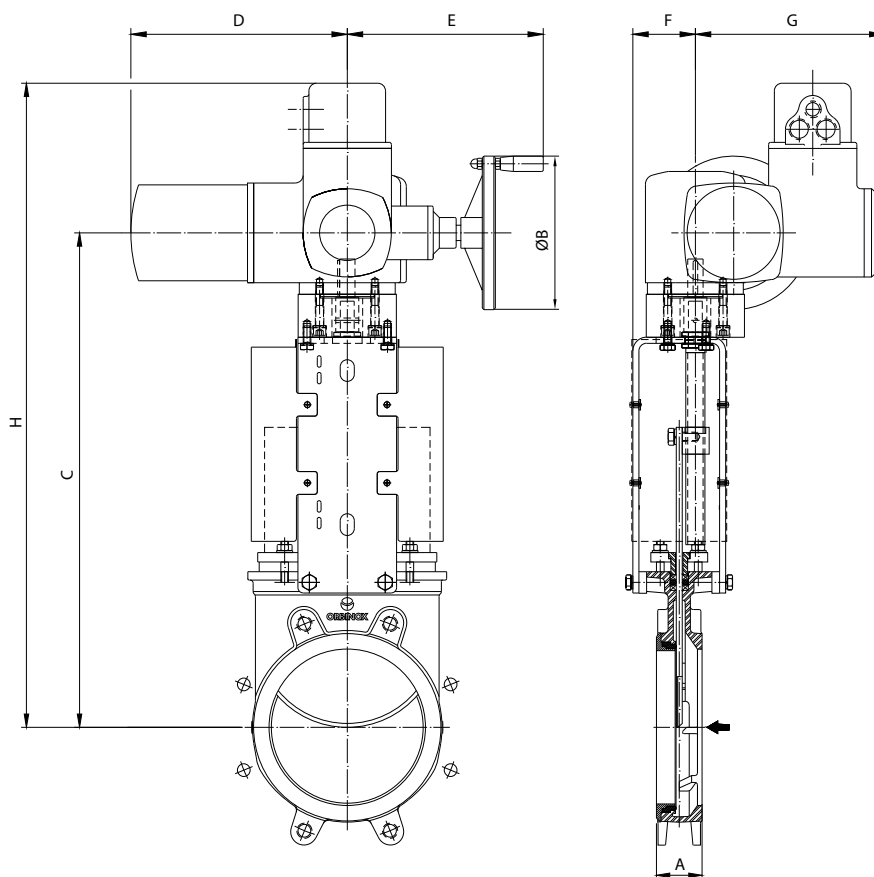


## ELECTRIC ACTUATOR

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from DN 150 to DN 300, both for rising stem and non-rising stem configurations and with manual overrides.

Wide range of electric actuator brands available

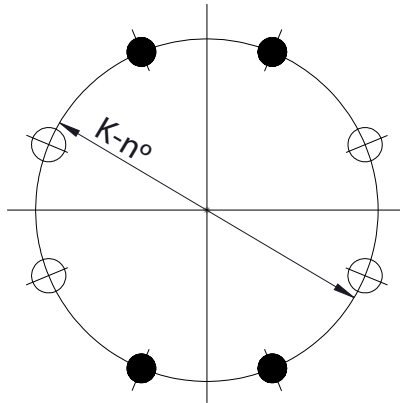
For valves installed in a horizontal position, actuator supports to plant structure is recommended



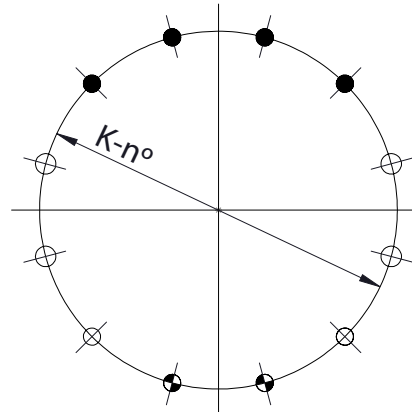
DN	A	C	ØB	H	D	E	F	G	Torque (Nm)
150	60	560	160	730	265	249	72	238	20
200	60	669	160	814	265	249	82	238	30
250	69	799	160	944	265	249	82	238	45
300	78	904	160	1044	265	249	82	238	40

## FLANGE AND BOLTING DETAILS EN-1092 PN10

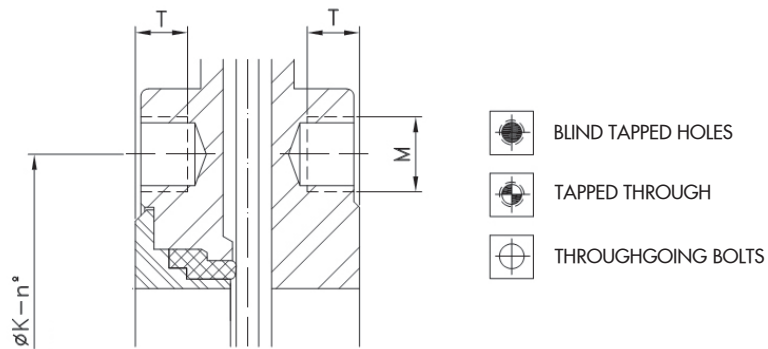
DN	K	n°	M	T	
150	240	8	M-20	14	2 - 2 - 4
200	295	8	M-20	14	2 - 2 - 4
250	350	12	M-20	18	4 - 2 - 6
300	400	12	M-20	18	4 - 2 - 6





DN 150-200

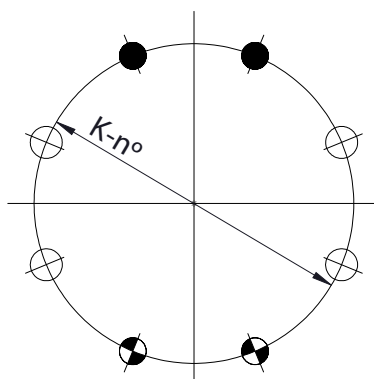


DN 250-300

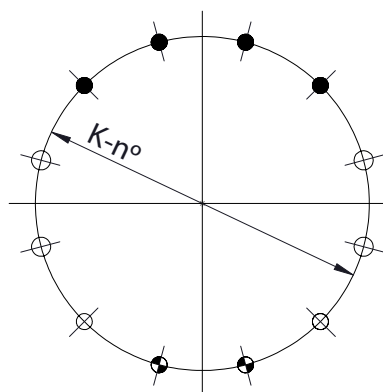


## FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150 \*

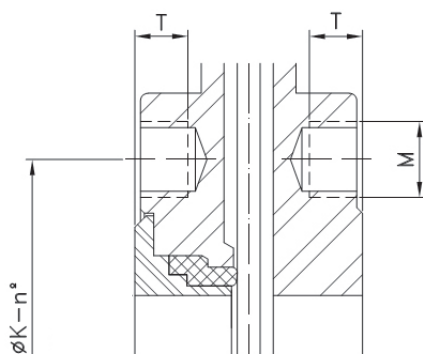
DN	K	n°	M	T	  
6"	9 1/2"	8	3/4" - 10 UNC	1/2"	2 - 2 - 4
8"	11 3/4"	8	3/4" - 10 UNC	1/2"	2 - 2 - 4
10"	14 1/4"	12	7/8" - 9 UNC	18/32"	4 - 2 - 6
12"	17"	12	7/8" - 9 UNC	18/32"	4 - 2 - 6






DN 6" - 8"



DN 10" - 12"



-  BLIND TAPPED HOLES
-  TAPPED THROUGH
-  THROUGHGOING BOLTS