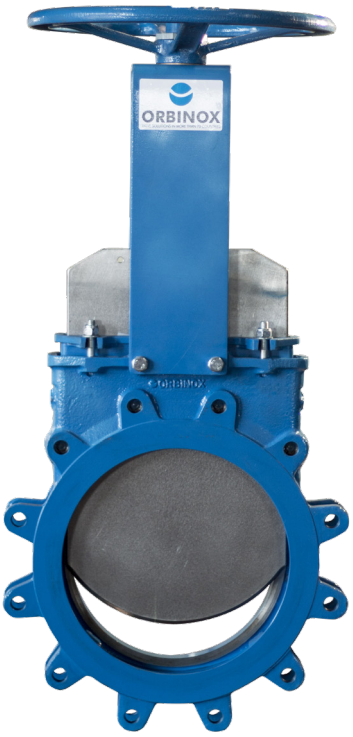
Model **EW**

HEAVY DUTY KNIFE GATE VALVE



The EW model knife gate is an uni-directional lug type valve designed according to AWWA C520-14 for general industrial service applications. The design of the body and seat also assures non-clogging shut off on suspended solids in industries such as:

- Pulp and paper
- Power plants
- Chemical plants
- Food and beverages
- Etc

Sizes (DN)

50mm/2in to 900mm/36in
Larger diameters on request

Working pressure and temperatures

DN 50mm/2in to DN 900mm/36in:
10 bar/150 psi

GJS 400: -10°C / 80°C

Standard flange drilling

EN-1092 PN10
ASME B16.5 (class 150)
Other flange drillings available on request

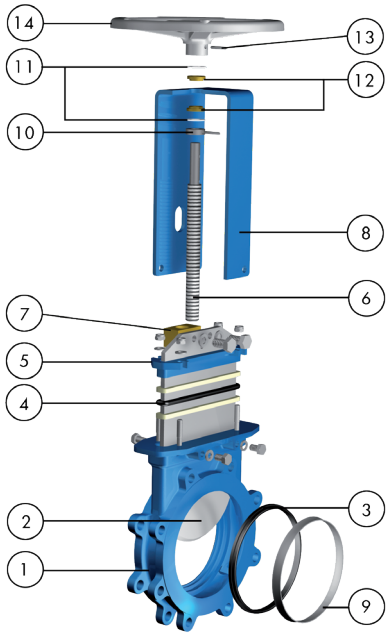
Directives

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		Materials
1	Body	EN-GJS400
2	Gate	AISI 304
3	Seat	Metal/Metal or EPDM
4	Packing	PTFE Impreg. Synth. Fibre with an EPDM O-Ring
5	Gland follower	CF8 DN 50mm/2in to DN 300mm/12in or EN-GJS400 DN 350mm/14in to DN 900mm/36in
6	Stem	Stainless steel
7	Stem nut	Brass
8	Yoke	Epoxy-coated carbon steel
9	Seat retainer ring	AISI 304
10	Axial fixing bush	AISI 304
11	Friction washer	PET + solid lubricant
12	Guide bush	Bronze
13	Spring pin	AISI 420 (ISO 8752)
14	Handwheel	DN≤310mm/12.20in: Aluminium (AlSi12); DN≥410mm/16.70in: EN-GJS400

DESIGN FEATURES

Body
Lug type monoblock ductile iron body with reinforced ribs in larger diameters for extra body strength. Internal cast gate wedges and guides allows for tighter shut off. Port design follows the AWWA C520-14 standard.The internal design of the valve avoids any build up of solids that would prevent the valve from closing

Gate
Standard AISI 304 stainless steel gate. The gates are polished and lapped to attain a greater seal between the gate and both the packing and the seat. The bottom of the gate edge is also machined to a bevel, so that it cuts through the solids for a tighter seal in the closed position

Seat (resilient)
Unique design that mechanically locks the seal in the internal of the valve body with a stainless steel retainer ring. Standard EPDM also available in different materials such as Viton, PTFE, etc.

Packing
Long-life packing with several layers of PTFE impregnated fibre plus and EPDM o-ring, 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. Non rising stem configuration as standard, for rising stem a stem protector is provided for additional protection against dust while the valve in the open position

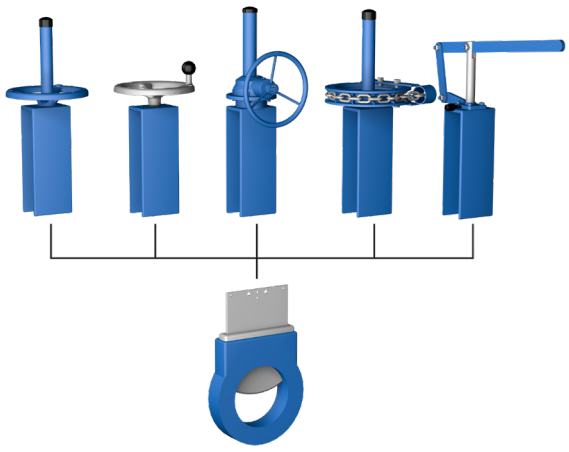
Yoke or actuator support
Made of Epoxy coated steel (stainless steel available on request). Compact design makes it extremely robust even under the most severe condition

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

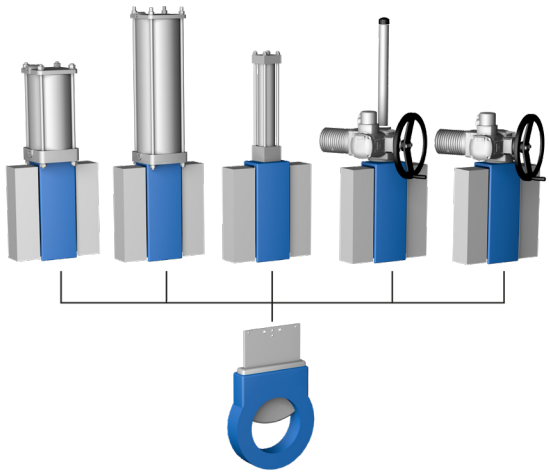
Gate safety protection
ORBINOX automated valves are provided with gate guards in accordance with EU Safety Standards. The design feature prevents any objects from being caught accidentally while the gate is moving

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

Manual RS Manual NRS Bevel Gear Chainwheel Lever



Pneumatic Double Acting Pneumatic Single Acting Hydraulic Electric RS Electric NRS



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, Polyurethane...), against corrosion (Halar, Rilsan, Galvanised...) and against adherence (Polishing, PTFE...)

Bonnet (Fig. 1)
Assures tight sealing to atmosphere. Reduces packing maintenance. Two types of packing are available: packing type with layers of PTFE impregnated fibre (Fig.1-A) and also o-ring type solution (Fig.1-B)

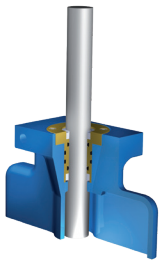


Fig. 1-A

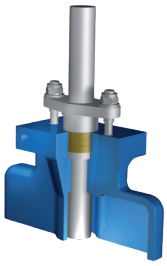


Fig. 1-B

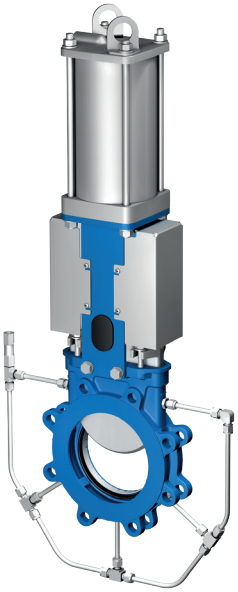


Fig. 2

Fig. 3

Fig. 4

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

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 (Fig. 2)
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. 3)
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 (Fig. 4)
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
Metal/Metal	>250	High temp./Low tightness
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	Corrosion resistance

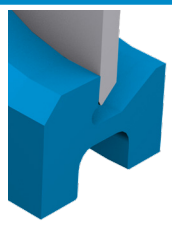
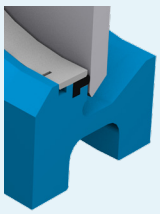
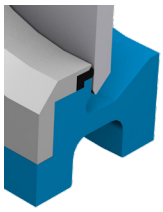
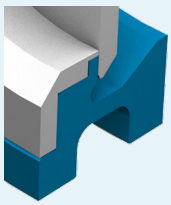
More details and other materials under request

PACKING TYPES

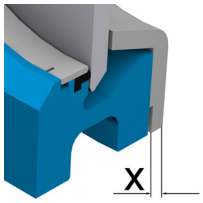
Material	Max.T. (°C)	pH
PTFE impregn. synth. fibre (ST)	250	2-13
Braided PTFE (TH)	260	0-14
Graphited (GR)	600	0-14
Ceramic fibre (FC)	1200	- - -

All types include an elastomere O-ring (same material as seal), excluding TH, GR and FC.

SEAT CONFIGURATIONS/DESIGNS

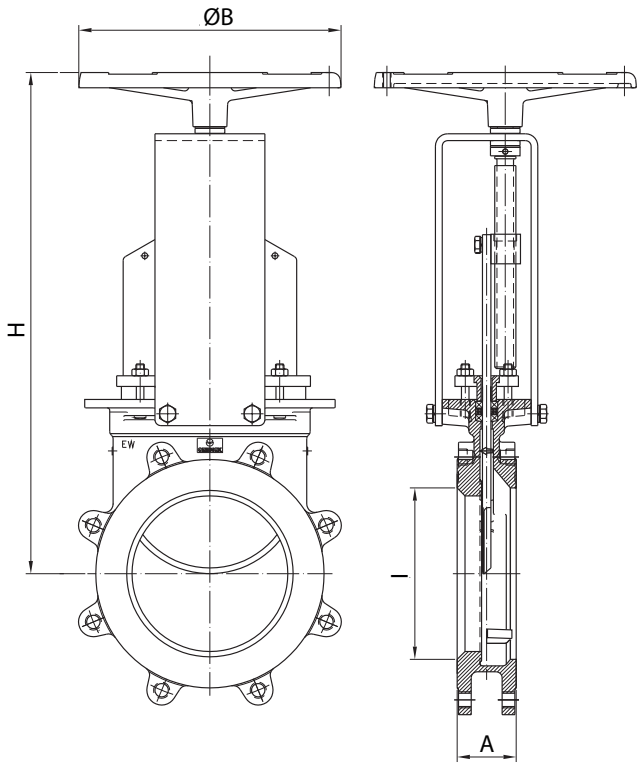
Type	Features	
Metal / Metal	-High temperature applications -High density media applications -When full tightness is not required	
A ring Resilient	-Standard resilient seat -See temperature chart for seat materials -Seat with replaceable ring	
B ring Resilient	-Reinforced resilient seat design -See temperature chart for seat materials -Seat with replaceable retainer ring - Ring available in different materials: AISI 316, Ni Hard,...	
B Ring Metal / Metal	- High temperature applications - High density media applications - When full tightness is not required - Replaceable ring	

OTHER SEAT FEATURES

Type	Features	
Deflection cone C	-Used to protect valve seats and internals from wear deflecting the media away from them -Material: AISI 316, CA15, Ni-Hard, etc. -Face-to-face dimension increases: DN 50 to DN 250 X = 9mm DN 300 to DN 600 X = 12mm Larger diameters on request	

HANDWHEEL NON-RISING STEM

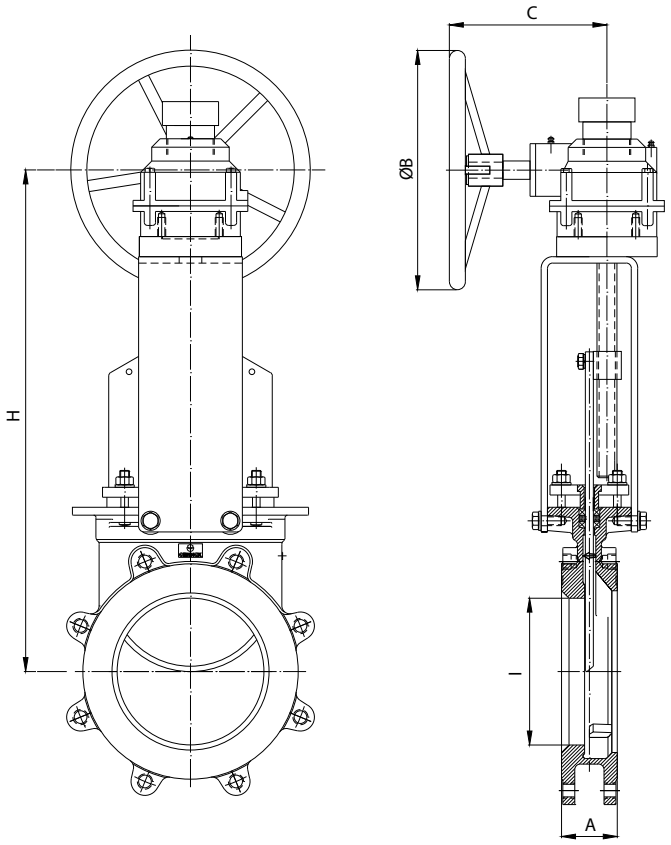
Standard manual actuator available from DN 50 to DN 600 and recommended with gearbox from DN 300 and above



DN (mm)	I	A	ØB	H
50	50	48	225	297
80	80	51	225	344
100	97	51	225	389
125	117	57	225	436
150	140	57	225	465
200	184	70	310	585
250	230	70	310	651
300	275	76	410	736
350	305	76	410	843
400	351,6	89	410	923
450	390	89	550	1065
500	435	114	550	1159
600	522	114	550	1296

BEVEL GEAR NON-RISING STEM

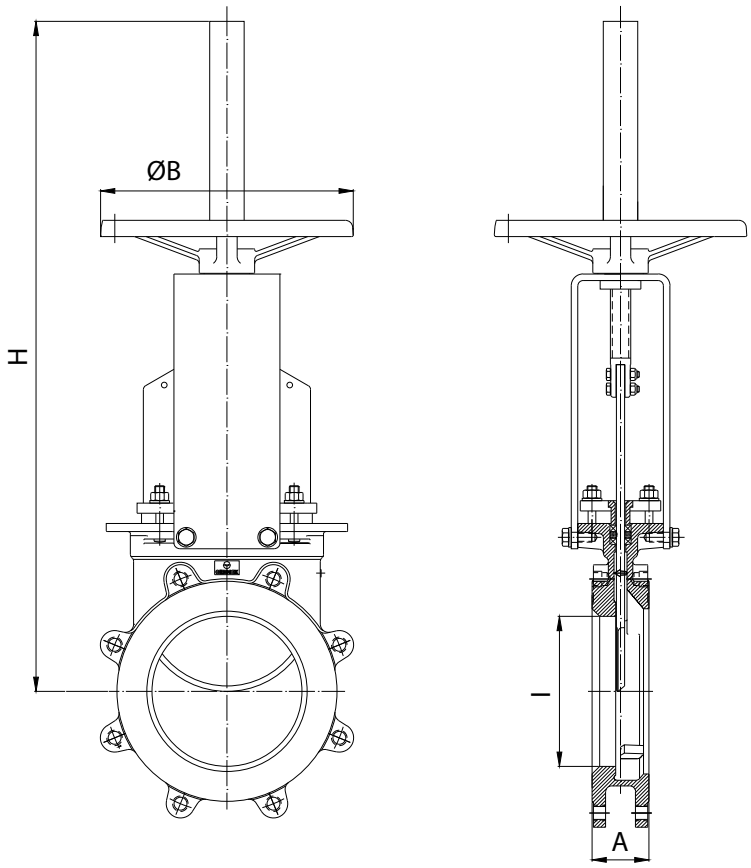
Manual actuator recommended for valves larger than DN 350. Available with different reduction ratios



DN (mm)	I	A	ØB	H	C
200	184	70	300	614	200
250	230	70	300	680	200
300	275	76	300	765	200
350	305	76	450	847	262
400	351,6	89	450	927	262
450	390	89	450	1069	262
500	435	114	450	1163	262
600	522	114	650	1300	262
700	620	114	650	1556	308
750	670	117	650	1616	308
800	720	117	650	1697	308
900	810	117	650	1927	288

HANDWHEEL RISING STEM

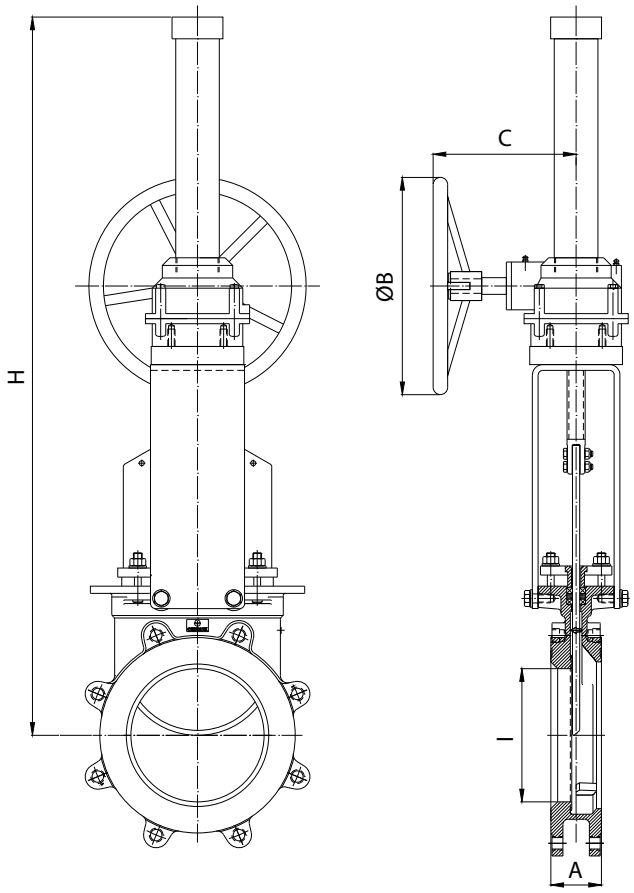
Manual actuator available from DN 50 to DN 600 and recommended with gearbox from DN 350 and above



DN (mm)	I	A	ØB	H	Weight (kg.)
50	50	48	225	428	8
80	80	51	225	471	11
100	97	51	225	516	14
125	117	57	225	601	17
150	140	57	225	642	20
200	184	70	310	822	34
250	230	70	310	988	48
300	275	76	410	1069	67
350	305	76	410	1280	100
400	351,6	89	410	1359	130
450	390	89	410	1576	165
500	435	114	550	1683	210
600	522	114	550	1901	300

BEVEL GEAR RISING STEM

Manual actuator recommended for valves larger than DN 350. Available with different reduction ratios

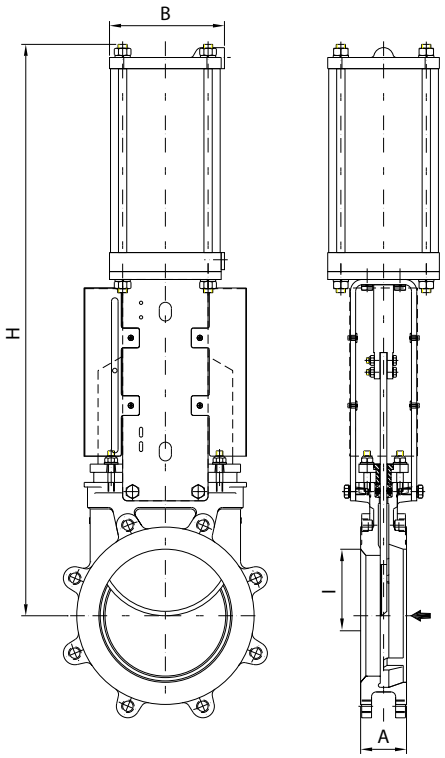


DN (mm)	I	A	ØB	H	C	Weight (kg.)
200	184	70	300	992	200	34
250	230	70	300	1058	200	48
300	275	76	300	1143	200	67
350	305	76	450	1504	270	100
400	351,6	89	450	1584	270	130
450	390	89	450	1631	270	165
500	435	114	450	1859	280	210
600	522	114	650	1980	280	300
700	620	114	650	2423	280	455
750	670	117	650	2555	280	610
800	720	117	650	2926	280	572
900	810	117	650	3160	280	750

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 to DN 900. 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 Cylinder Catalogue for more information.

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



DN (mm)	I	A	B	H	Connect.	Weight (kg.)
50	50	48	115	412	1/4" G	10
80	80	51	115	492	1/4" G	12
100	97	51	115	557	1/4" G	15
125	117	57	140	644	1/4" G	21
150	140	57	140	698	1/4" G	27
200	184	70	175	870	1/4" G	46
250	230	70	220	1006	3/8" G	70
300	275	76	220	1141	3/8" G	89
350	305	76	277	1320	3/8" G	135
400	351,6	89	277	1424	3/8" G	162
450	390	89	382	1647	1/2" G	212
500	435	114	382	1791	1/2" G	290
600	522	114	382	2028	1/2" G	375
700	620	114	444	2459	3/4" G	610
750	670	117	444	2549	3/4" G	645
800	720	117	444	2700	3/4" G	730
900	810	117	515	3077	3/4" G	780

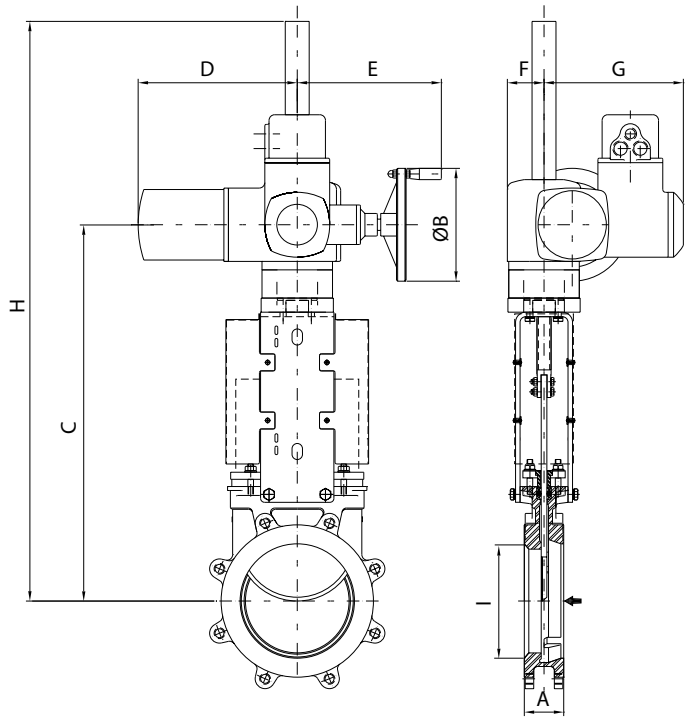
* For sizes DN 300 and above, actuator diameter may need to be oversized depending on the actual working pressure

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 50 to DN 900, 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



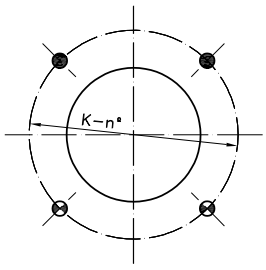
DN (mm)	I	A	C	ØB	H	D	E	F	G
50	50	48	377	160	454	265	249	62	238
80	80	51	424	160	501	265	249	62	238
100	97	51	469	160	546	265	249	62	238
125	117	57	516	160	593	265	249	62	238
150	140	57	545	160	1122	265	249	62	238
200	184	70	667	160	1255	265	249	62	238
250	230	70	733	160	1321	265	249	62	238
300	275	76	793	200	1381	283	254	65	248
350	305	76	875	200	1463	283	254	65	248
400	351,6	89	955	315	1543	389	336	91	286
450	390	89	1142	315	1870	389	336	91	286
500	435	114	1222	400	1950	389	339	91	286
600	522	114	1444	400	2172	389	339	91	286
700	620	114	1631	500	2614	430	365	114	303
750	670	117	1779	500	2832	430	365	117	303
800	720	117	1867	500	2920	430	365	117	303
900	810	117	2035	500	3080	430	365	117	303

* For sizes DN 300mm and above, Torque figures calculated based on pressure rate for EX valve model

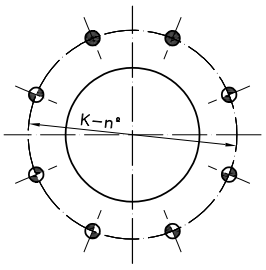
FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150 *

DN	K	nº	M	T	⌖ ⌖
2"	4 ¾"	4	5/8" - 11 UNC	7/16"	2 - 2
3"	6"	4	5/8" - 11 UNC	11/32"	2 - 2
4"	7 ½"	8	5/8" - 11 UNC	11/32"	2 - 6
5"	8 ½"	8	3/4" - 10 UNC	3/8"	2 - 6
6"	9 ½"	8	3/4" - 10 UNC	3/8"	2 - 6
8"	11 ¾"	8	3/4" - 10 UNC	15/32"	2 - 6
10"	14 ¼"	12	7/8" - 9 UNC	15/32"	4 - 8
12"	17"	12	7/8" - 9 UNC	15/32"	4 - 8
14"	18 ¾"	12	1" - 8 UNC	19/32"	4 - 8
16"	21 ¼"	16	1" - 8 UNC	19/32"	4 - 12
18"	22 ¾"	16	1 1/8" - 7 UNC	19/32"	6 - 10
20"	25"	20	1 1/8" - 7 UNC	7/8"	6 - 14
24"	29 ½"	20	1 1/4" - 7 UNC	7/8"	6 - 14
28"	34"	28	1 1/4" - 7 UNC	1"	10 - 18
30"	36"	28	1 1/4" - 7 UNC	1 1/8"	10 - 18
32"	38.5"	28	1 1/2" - 6 UNC	1 1/8"	10 - 18
36"	42 ¾"	32	1 1/2" - 6 UNC	1 1/4"	12 - 20

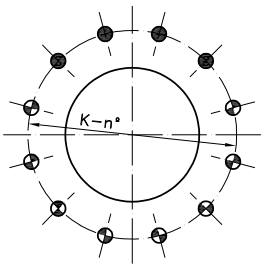
* From NPS 24, acc. to ASME B16.47 Series A (class 150)



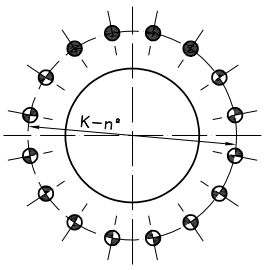
DN 2"–3"



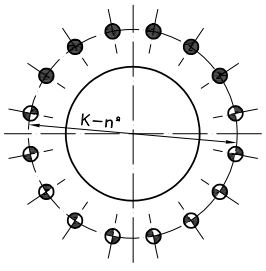
DN 4"–8"



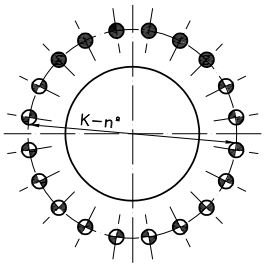
DN 10"–14"



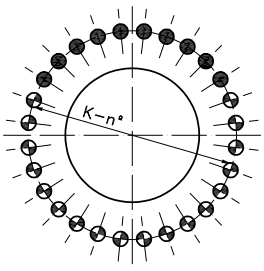
DN 16"



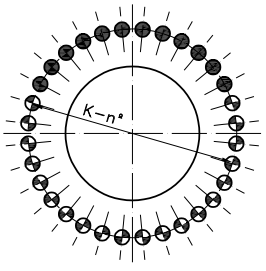
DN 18"



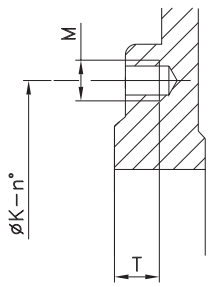
DN 20"–24"



DN 28"–32"



DN 36"

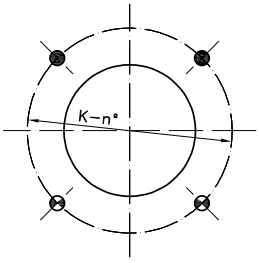


BLIND TAPPED HOLES

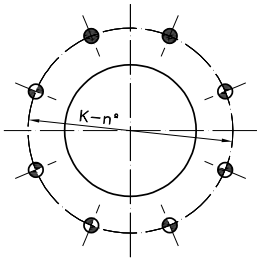
TAPPED THROUGH

FLANGE AND BOLTING DETAILS EN 1092 PN10

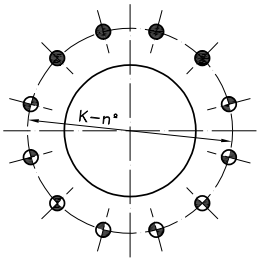
DN	K	nº	M	T	
50	125	4	M-16	11	2 - 2
80	160	8	M-16	9	2 - 6
100	180	8	M-16	9	2 - 6
125	210	8	M-16	10	2 - 6
150	240	8	M-20	10	2 - 6
200	295	8	M-20	12	2 - 6
250	350	12	M-20	12	4 - 8
300	400	12	M-20	12	4 - 8
350	460	16	M-20	15	6 - 10
400	515	16	M-24	15	4 - 12
450	565	20	M-24	15	6 - 14
500	620	20	M-24	22	6 - 14
600	725	20	M-27	22	6 - 14
700	840	24	M-27	24	8 - 16
800	950	24	M-30	28	8 - 16
900	1050	28	M-30	32	10 - 18



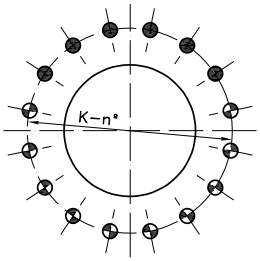
DN 50



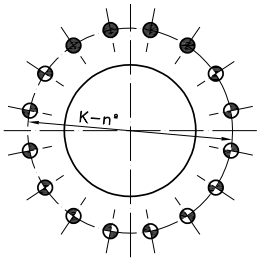
DN 80–200



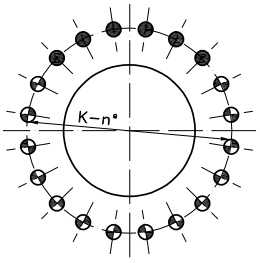
DN 250–300



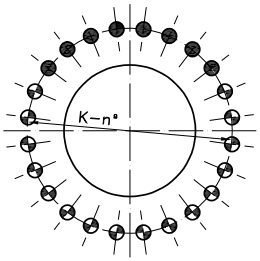
DN 350



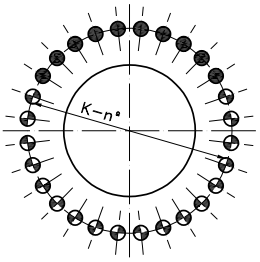
DN 400



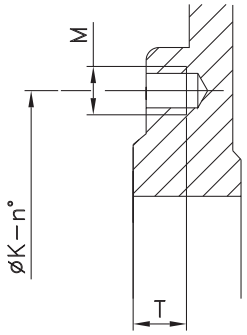
DN 450–600



DN 700–800



DN 900



BLIND TAPPED HOLES

TAPPED THROUGH