

Model EB (Stainless steel)

STAINLESS STEEL BI-DIRECTIONAL KNIFE GATE VALVE

The stainless steel EB model is a bi-directional full bore knife gate 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 & Paper
- Wastewater treatment plants
- Food and Beverage
- Chemical plants
- Fish industry
- etc.

Sizes

DN 50 to DN 800
Larger diameters on request

Working pressure and temperatures

DN 50 to DN 125: 16 bar
DN 150 to DN 250: 10 bar
DN 300 to DN 400: 6 bar
DN 450: 5 bar
DN 500 to DN 600: 4 bar
DN 700 to DN 800: 2 bar

CF8M: -20°C / 80°C

Standard flange drilling

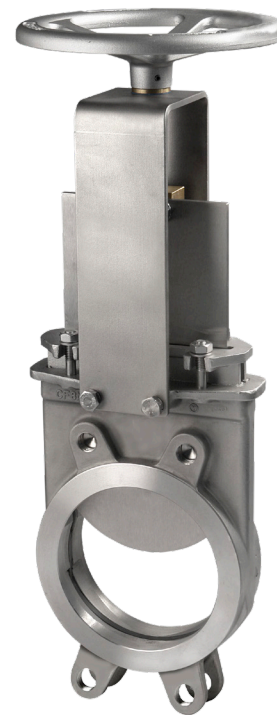
EN-1092 PN10
ASME B16.5 (class 150)
Other flange drillings available on request

Directives

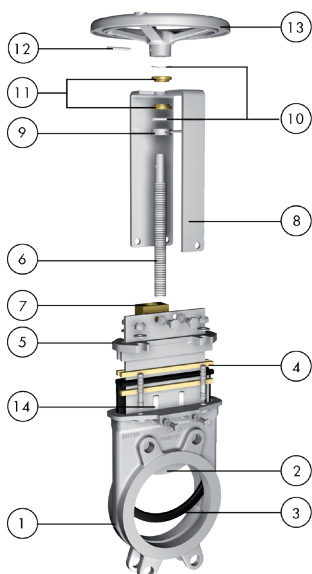
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

Testing

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



STANDARD PARTS LIST



Part	Description
1	Body CF8M
2	Gate AISI 316
3	Seat EPDM / NBR
4	Packing PTFE Impreg. Synth. Fibre (ST) + EPDM O-ring
5	Gland follower CF8M
6	Stem Stainless Steel
7	Stem nut Brass
8	Yoke AISI 304
9	Axial fixing bush AISI 304
10	Friction washer PET + solid lubricant
11	Bushing Bronze
12	Spring pin AISI 420 (ISO 8752)
13	Handwheel DN≤310: Aluminium (AISI12); DN≥410 EN-GJS400
14	Slider (up to DN300) Nylon

DESIGN FEATURES

Body

Wafer style cast monoblock design, internally machined up to DN 500, with reinforced ribs in larger diameters for extra body strength. Special design that includes a new manufacturing process, the machining of the body inside, allowing for more control in the different dimensions tolerances. This machining results in a perfect adjustment of the body with the gate and the seal, reducing the required torque to maintain the tightness and avoiding any build-up of solids that could prevent the valve from closing. The valve design allows an end-of-line installation from DN50 to DN300. The valve design changes from DN 600 and above to atwo-part bolted body, also internally machined. Full port design in all cases for greater flow capacity and minimal pressure drop. The gate is guided on the whole stroke to ensure bi-directional shutoff

Gate

Stainless steel gate, as standard. Gate is polished on both sides for a greater seal between the gate with both the packing and the seat. Gate is fully guided in the body along the whole valve stroke in order to avoid gate fluttering and to ensure maximum tightness

Seat (resilient)

The joint is seated on the body, fitted with a metallic core, in contact with the gate all over its perimeter. This layout provides an adequate water-tightness and seamless liquid flow on both ways, avoiding at the same time any build-up of solids that would prevent the valve from closing. The o-ring is protected by the body itself

Packing

Standard PTFE impregnated synthetic fibre (ST) with 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

Non rising stem

The standard stainless steel stem offers a high and long corrosion resistant life

Yoke or actuator support

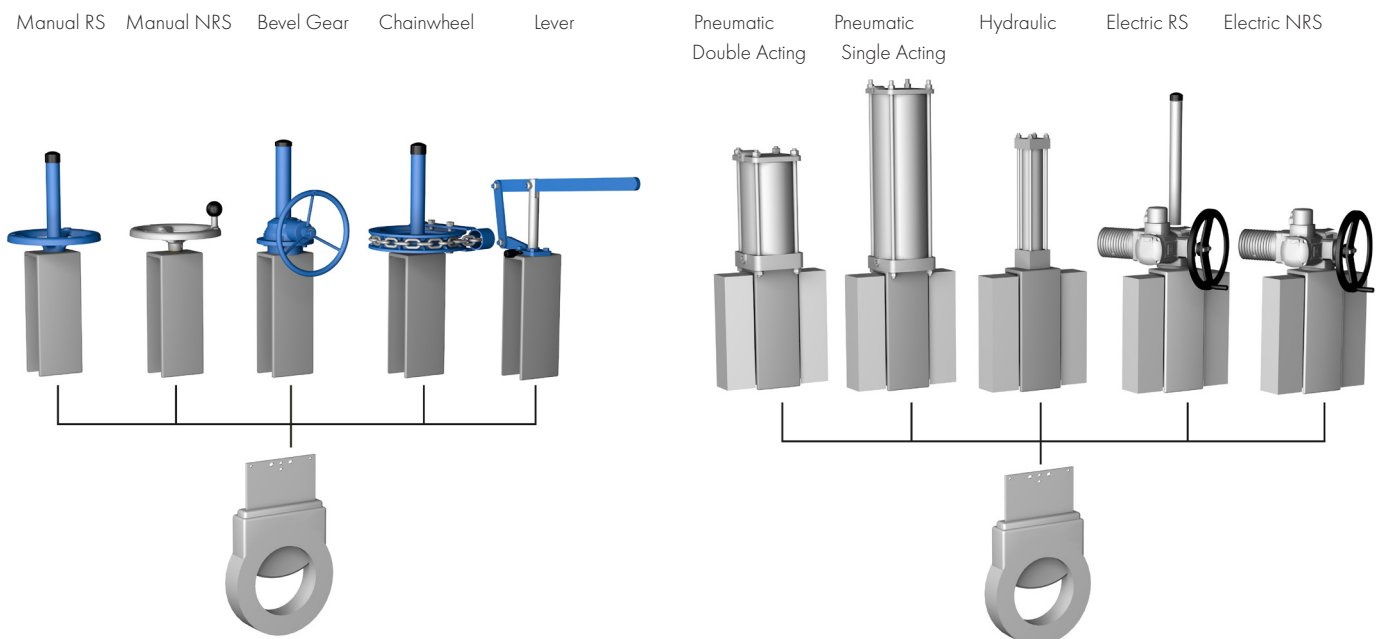
Made of stainless steel (coated steel available on request). Compact design makes it extremely robust even under the most severe conditions

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

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

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

Locking device

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

Mechanical stops

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

Actuator manual override (Fig. 1)

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. 2)

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



Fig.1



Fig.2

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.

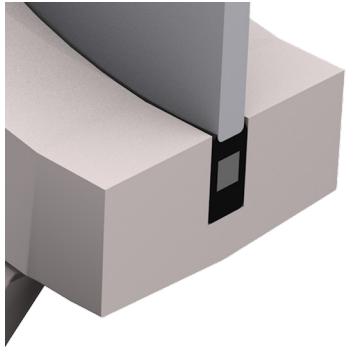
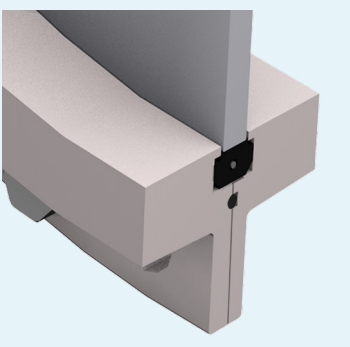
More details and other materials under request

PACKING TYPES

Material	Max.T (°C)	pH
PTFE impregn.synth fibre (ST)	250	2-13
Dynapack (DP)	270	2-14
Braided PTFE (TH)	260	0-14

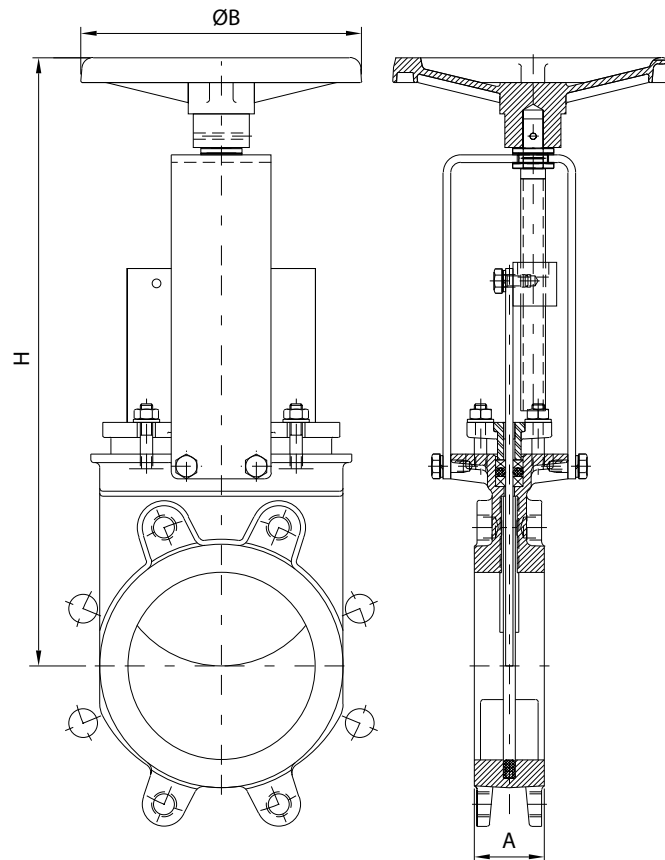
All types include an elastomere O-ring (same material as seal), excluding TH.
Standard packing: ST

SEAT CONFIGURATIONS/DESIGNS

Sizes	Features	
DN50-500	Moulded seal with an internal steel core	
DN ≥ 600	Extruded seal with an internal steel wire	

HANDWHEEL NON-RISING STEM

Standard manual actuator, available from DN 50 to DN 600 and recommended with gearbox from DN 350 and above

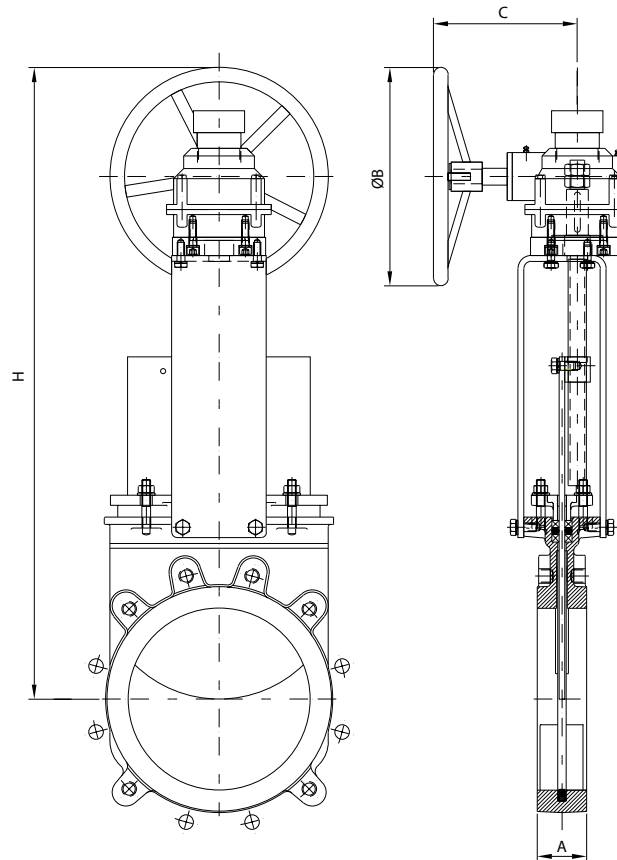


DN	A	ØB	H	Weight (Kg)
50	43	225	312	9
65	46	225	339	10
80	46	225	364	11
100	52	225	405	13
125	56	225	439	15
150	56	225	485	17
200	60	310	595	30
250	68	310	695	43
300	78	310	785	58
350	78	410	932	92
400	89	410	1017	113
450	89	550	1119	168
500	114	550	1219	193
600	114	550	1379	271

A: EN558-1 series 20 up to DN350, for DN400 and above acc. ORBINOX standard

BEVEL GEAR

Recommended for valves larger than DN 350, available for non-rising stem configurations and with different reduction ratios

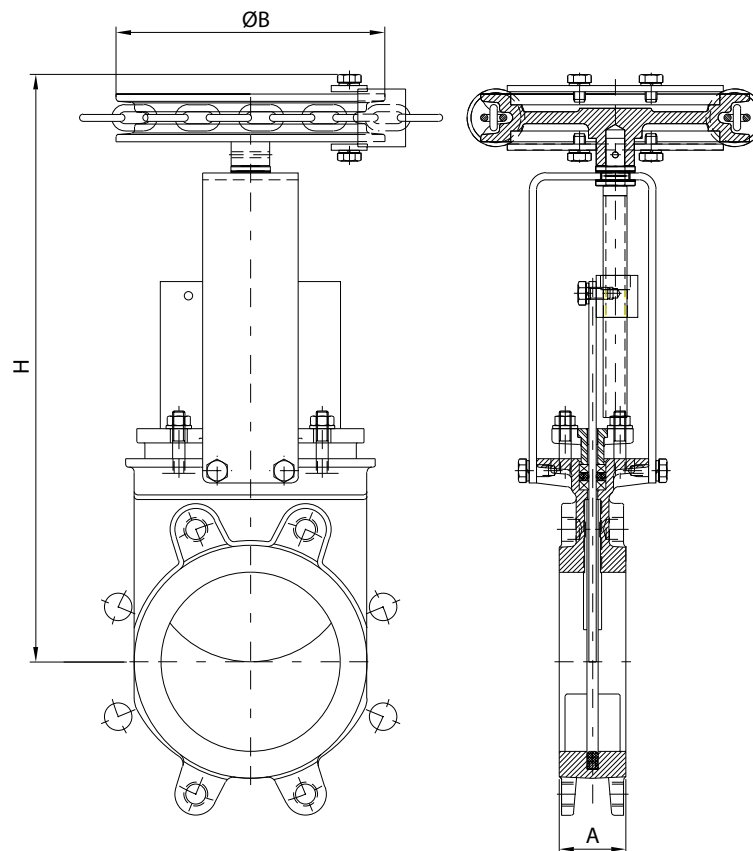


DN	A	ØB	H	C	Weight (Kg)
200	60	300	730	200	-
250	68	300	830	200	-
300	78	300	920	200	-
350	78	450	1115	262	-
400	89	450	1200	262	-
450	89	450	1305	262	49
500	114	450	1405	262	62
600	114	450	1565	262	77
700	114	450	1847	308	108
800	117	650	2007	308	129

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CHAINWHEEL

Recommended for elevated installations, the handwheel is replaced by a chainwheel to accommodate the chain. Available for sizes from DN 50 to DN 600

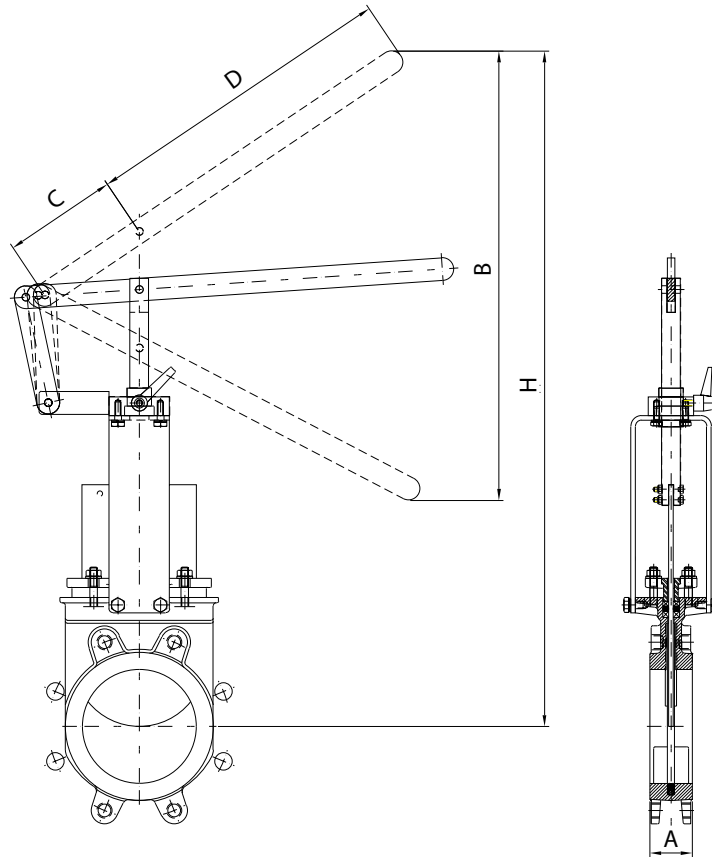


DN	A	ØB	H
50	43	225	331
65	46	225	358
80	46	225	383
100	52	225	424
125	56	225	458
150	56	225	504
200	60	300	610
250	68	300	710
300	78	300	800
350	78	454	932
400	89	454	1017
450	89	454	1119
500	114	454	1219
600	114	454	1379

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LEVER

Recommended for quick opening and closing, available from DN 50 to DN 150



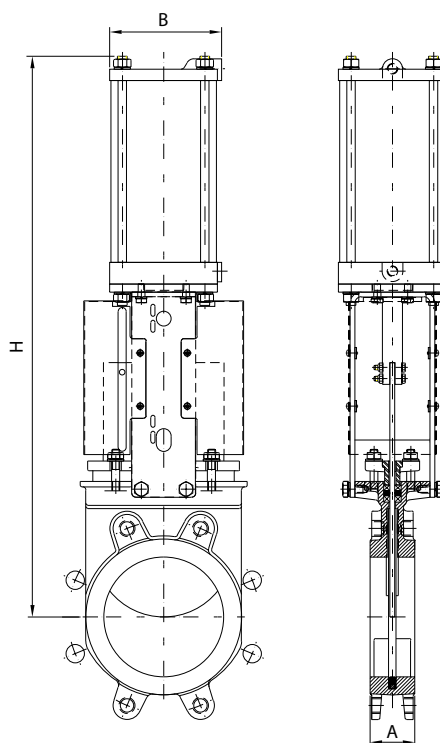
DN	A	B	C	D	H
50	43	242	150	315	410
65	46	245	150	315	437
80	46	287	150	315	510
100	52	415	150	415	633
125	56	503	150	415	755
150	56	592	150	415	890

A: EN558-1 series 20 up to DN350

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 to DN 800. 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 Solutions for more information.

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



DN	A	B	H	Connect.	Weight (Kg)
50	43	115	412	1/4 "G	10
65	46	115	454	1/4 "G	11
80	46	115	497	1/4 "G	13
100	52	115	558	1/4 "G	14
125	56	140	632	1/4 "G	21
150	56	140	703	1/4 "G	23
200	60	175	872	1/4 "G	40
250	68	220	1042	3/8" G	59
300	78	220	1182	3/8" G	75
350	78	277	1374	3/8" G	131
400	89	277	1509	3/8" G	155
450	89	382	1688	1/2" G	225
500	114	382	1838	1/2" G	253
600	114	382	2098	1/2" G	343
700	114	444	2461	3/4" G	480
800	117	444	2704	3/4" G	585

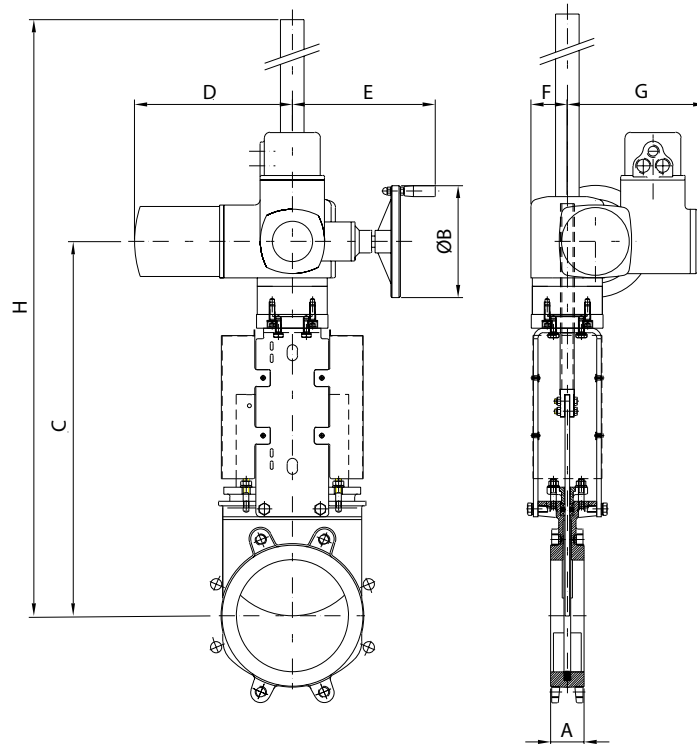
A: EN558-1 series 20 up to DN350, for DN400 and above acc. ORBINOX standard

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 800, for rising stem configuration and with manual override.

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)	Weight (Kg)
50	43	377	160	532	265	249	62	238	10	67
65	46	404	160	600	265	249	62	238	10	68
80	46	429	160	674	265	249	62	238	10	70
100	52	470	160	665	265	249	62	238	10	71
125	56	504	160	700	265	249	62	238	15	74
150	56	550	160	1120	265	249	62	238	20	76
200	60	657	160	1237	265	249	62	238	30	88
250	68	757	160	1337	265	249	62	238	45	102
300	78	847	160	1427	265	249	62	238	40	118
350	78	955	200	1535	283	254	65	248	70	124
400	89	1040	200	1620	283	254	65	248	90	146
450	89	1129	200	1724	283	254	65	248	110	200
500	114	1238	200	1833	283	254	65	248	95	226
600	114	1376	315	2093	389	336	91	286	140	331
700	114	1660	315	2800	389	336	91	285	120	-
800	117	1849	315	2989	389	336	91	286	180	-

A: EN558-1 series 20 up to DN500 (DIN 3202-K1)

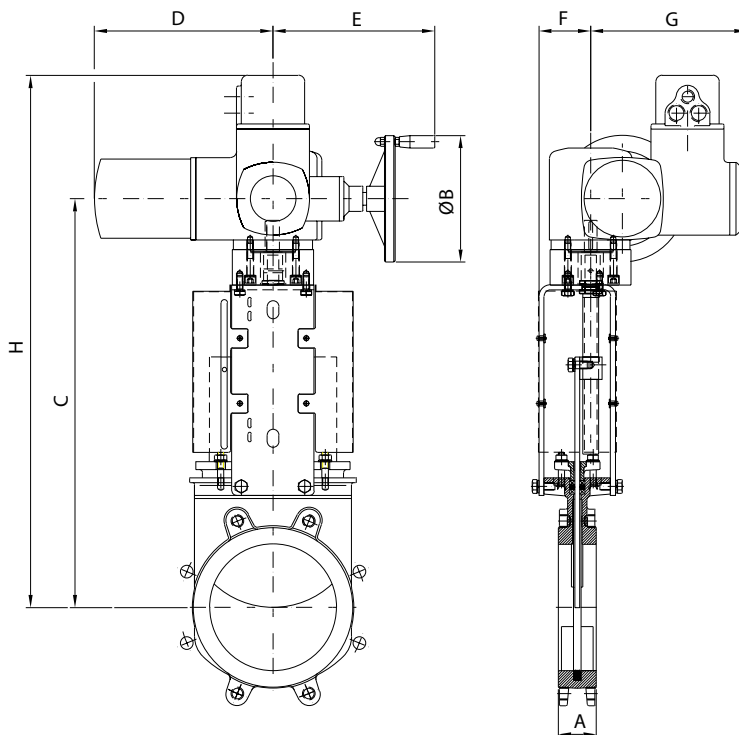
Maximum pressure torque in clean water at room temperature

ELECTRIC ACTUATOR NON 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 800, for non-rising stem configuration and with manual override.

Wide range of electric actuator brands available

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



DN	A	C	ØG	H	D	E	F	G	Torque (Nm)	Weight (Kg)
50	43	370	160	545	265	249	72	238	10	66
65	46	397	160	572	265	249	72	238	10	67
80	46	422	160	597	265	249	72	238	10	69
100	52	463	160	638	265	249	72	238	10	71
125	56	497	160	672	265	249	72	238	15	73
150	56	543	160	718	265	249	72	238	20	75
200	60	681	160	856	265	249	82	238	30	88
250	68	751	160	926	265	249	82	238	45	102
300	78	841	160	1016	265	249	82	238	40	118
350	78	925	200	1100	283	254	128	248	70	117
400	89	1010	200	1185	283	254	128	248	90	138
450	89	1112	200	1287	283	254	130	248	110	203
500	114	1212	200	1387	283	254	130	248	95	229
600	114	1500	315	1685	389	336	130	286	140	336
700	114	1680	315	1865	389	336	202	285	120	-
800	117	1855	315	2040	389	336	202	286	180	-

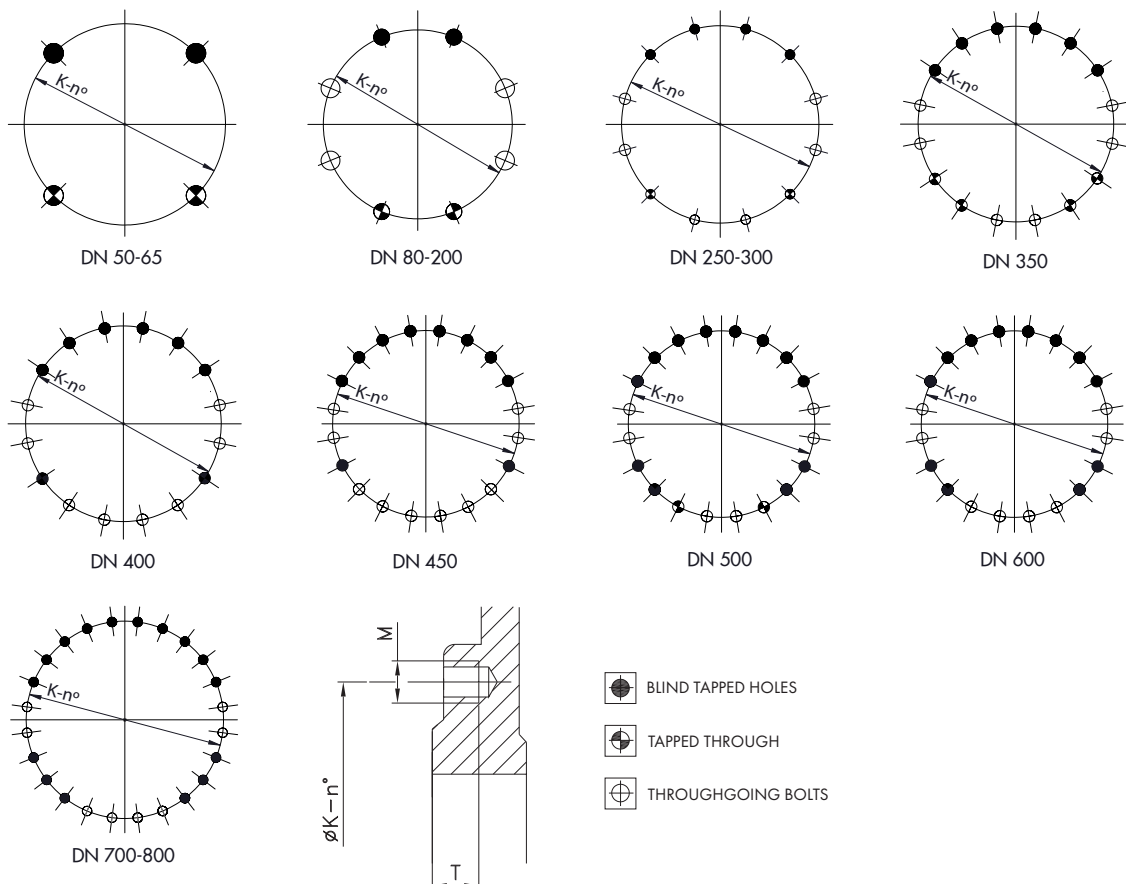
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Maximum pressure torque in clean water at room temperature

FLANGE AND BOLTING DETAILS EN-1092 PN10

DN	K	n°	M	T	
50	125	4	M-16	10	2 - 2 - 0
65*	145	4	M-16	10	2 - 2 - 0
80	160	8	M-16	12	2 - 2 - 4
100	180	8	M-16	12	2 - 2 - 4
125	210	8	M-16	14	2 - 2 - 4
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	21	4 - 2 - 6
350	460	16	M-20	21	6 - 4 - 6
400	515	16	M-24	28	8 - 0 - 8
450	565	20	M-24	30	10 - 0 - 10
500	620	20	M-24	40	12 - 2 - 6
600	725	20	M-27	26	12 - 0 - 8
700	840	24	M-27	28	16 - 0 - 8
800	950	24	M-30	24	16 - 0 - 8

* Flange drilling of DN 65 PN10/16 according to EN-1092 allow 4 or 8 drills. ORBINOX designs of DN 65 PN10/16 have 4 drills



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

DN	K	n°	M	T	
2"	4 3/4"	4	5/8" - 11 UNC	3/8"	2 - 2 - 0
2 1/2"	5 1/2"	4	5/8" - 11 UNC	3/8"	2 - 2 - 0
3"	6"	4	5/8" - 11 UNC	3/8"	2 - 2 - 0
4"	7 1/2"	8	5/8" - 11 UNC	3/8"	2 - 2 - 4
5"	8 1/2"	8	3/4" - 10 UNC	3/8"	2 - 2 - 4
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	3/4"	4 - 2 - 6
12"	17"	12	7/8" - 9 UNC	3/4"	4 - 2 - 6
14"	18 3/4"	12	1" - 8 UNC	7/8"	4 - 2 - 6
16"	21 1/4"	16	1" - 8 UNC	1"	8 - 0 - 8
18"	22 3/4"	16	1 1/8" - 7 UNC	1"	8 - 0 - 8
20"	25"	20	1 1/8" - 7 UNC	1"	12 - 2 - 6
24"	29 1/2"	20	1 1/4" - 7 UNC	1"	12 - 0 - 8

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

