Model **Ser.68 (HG)**

RUBBER SLEEVE KNIFE GATE VALVE

The Series 68 (HG) model knife gate is a bi-directional full flanged valve equipped with two metal reinforced rubber sleeves designed for use in the handling of abrasive slurries, mainly in industries such as:

- Mining
- Chemical plants
- Power plants
- Wastewater treatment plants
- etc.

Sizes (DN)

2in/50mm to DN 40in/1000mm
Larger diameters on request

Working pressure and temperatures

2in/ 50mm to 40in/1000mm : 300 psi (20 bar)
Higher pressures and/or diameters on request

GJS 400: 14°F (-10°C) / 176°F (80°C)
CF8M: -4°F (-20°C) / 176°F (80°)

Standard flange connection

ASME B16.5 (class 150 & 300)
EN-1092 PN16 & 25
Other flange drillings available on request

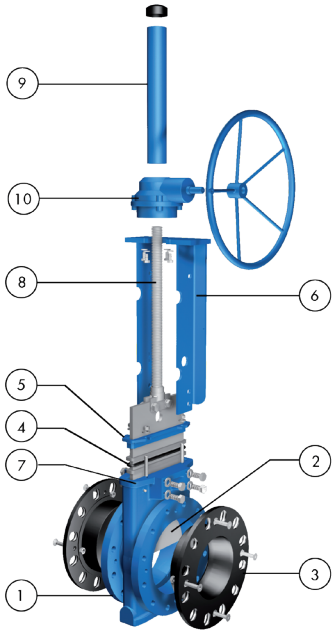
Directives

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	Ductile iron A536 (60-40-18) / Carbon Steel S275JR
2	Gate	AISI 304 + Chrome / Duplex 2205 + Chrome
3	Sleeves	Natural rubber / EPDM
4	Packing	PTFE Impreg. Synth. Fibre + EPDM O-Ring
5	Gland follower	A570 GR.40 / 1.0044 Epoxy coated
6	Yoke	A570 GR.40 / 1.0044 Epoxy coated
7	Grease nipple	Zinc coated carbon-steel
8	Stem	Stainless steel
9	Stem protector	A570 GR.40 / 1.0044 Epoxy coated
10	Bevel gear	-

DESIGN FEATURES

Body

Full flange style cast monoblock, for installation between flanges, with reinforced ribs in larger diameters, providing the body with extra strength. Internal body design allows the gate to be fully guided. The grease nipples allow the gate to be lubricated, thus enhancing its capacity to slide between the sleeves. Additionally, the design allows draining through the lower part, where a cover or a bottom splash guard can be installed. Some leakage will occur from the bottom of the valve during operation, this allows solids to be flushed from body cavity and will ensure the full stroke of the valve

Gate

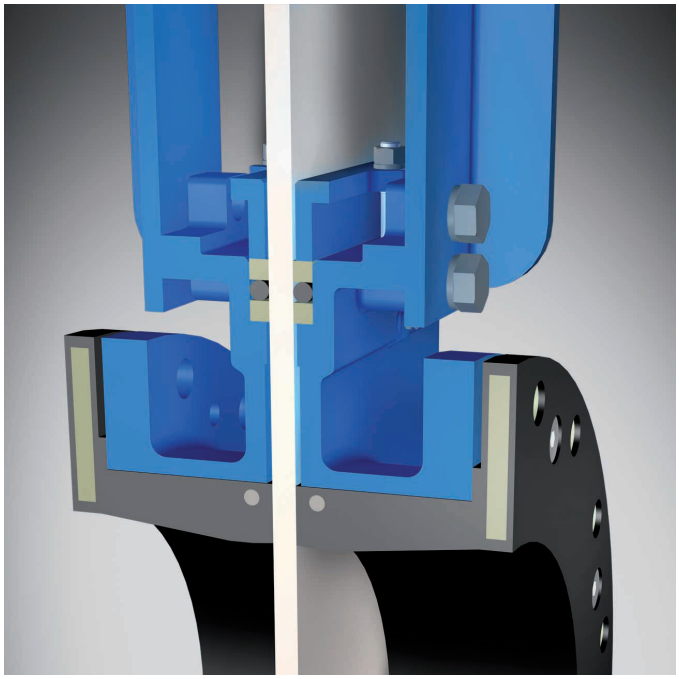
Made of stainless steel, polished on both sides, and of rectangular shape, the gate is machined to an edge. As well as reducing friction and damage to the seats, this design allows to cut perfectly through the fluid. The gate material can be changed upon request, thus allowing greater working pressures

Rubber sleeves

The seat is made up of two highly resistant, long-lasting sleeves, made of rubber with a metal core. Its solid sleeve design allows for maximum flexibility during gate travel, minimising the effort necessary for operation. In the open position, the two sleeves are in permanent contact with each other, assuring full bore flow. There are no seat cavities which may cause material build-up, and the fluid does not come into contact with the metallic parts of the valve. This design allows for easy replacement of damaged sleeves

Packing

Long-life packing with several layers of braided fibre plus an 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

Made of stainless steel, which provides a high resistance to corrosion and a long life. In rising stem valves the stem protector protects the stem against dirt build up

DESIGN FEATURES

Yoke or actuator support

Made of steel (stainless steel available on request) and Epoxy coated. Reinforced design is standard and its robust design provides it with great rigidity, withstanding the most adverse operating conditions

Epoxy coating

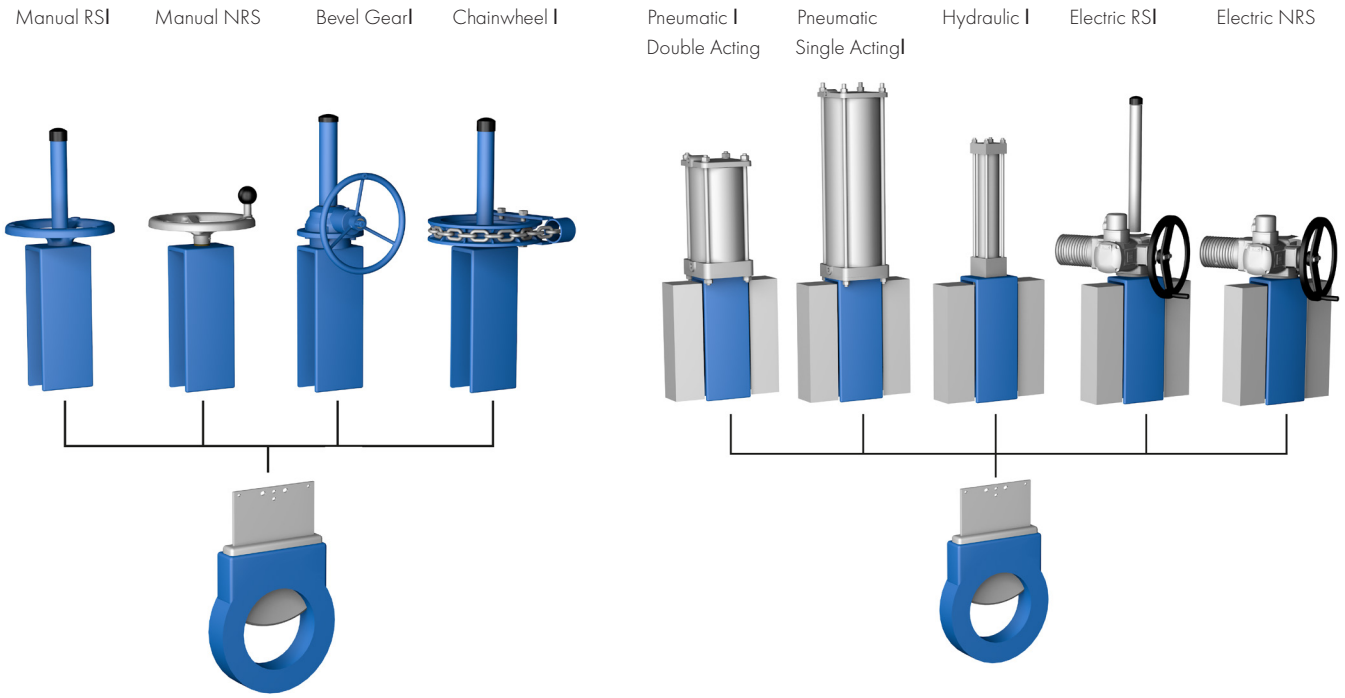
The Epoxy coating on all ORBINOX cast iron and carbon steel components is electrostatically applied making them corrosion resistant with a high quality surface finish. The ORBINOX standard colour is RAL-5015 blue

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.*ONLY IN EUROPE

Actuators

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

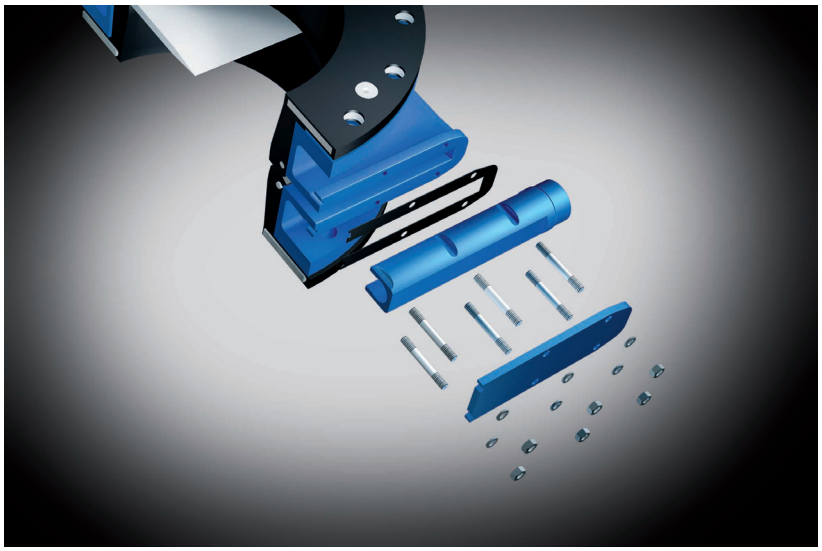


OTHER OPTIONS

Bottom splash guard (Fig. 1 and 2)

There are two types of splash guards that can be installed on the lower part of the valve body. They permit either periodic or continuous removal of solids that may accumulate during operation of the valve. They shall always be connected to a drain line

(Fig. 1) Flat plate



(Fig. 2) Tubular design

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...)

OTHER OPTIONS

Open-closed lockout system (Fig. 4)
The standard valve is ready to install a lockout pin for emergency or maintenance situations

Flush ports (Fig. 5)
Allows flushing out of solids trapped within the body cavity and the sleeves. This option can be used in conjunction with splash guards

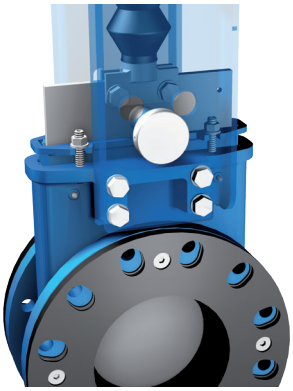


Fig. 4

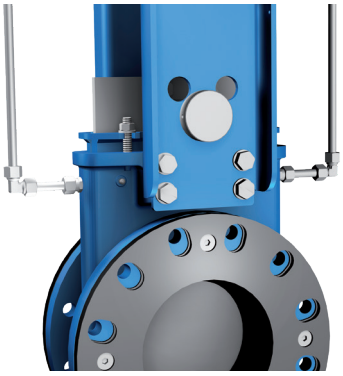


Fig. 5

Actuator manual override (Fig. 6)
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. 7)
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. 6

Fig. 7

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.(°F)	Max. T. (°C)	Applications
Natural rubber (NR)	167	75	General
EPDM (E)	248	120	Acids and non mineral oils.
Chlorobutyl	257	125	High temperatures
NBR (N)	194	90	Hydrocarbons/Oils/Greases
FKM-FPM (V)	302	150	Hot temperatures, hot oil, many chemicals

All of them are reinforced with a metal core. For other temperatures and applications, contact our technical department.

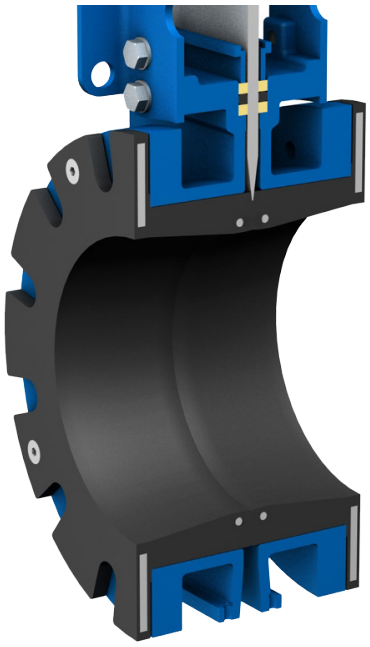
Operating conditions at very low temperatures may differ from the absolute minimum temperature conditions supported by these rubber grades. Please contact our technical department for more information

PACKING TYPES

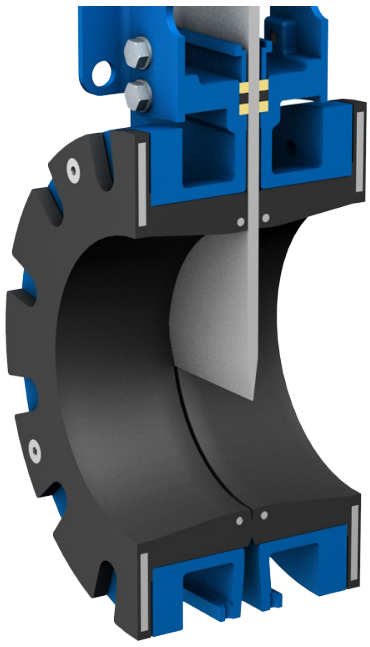
Material	Max.T (°F)	Max.T (°C)
PTFE impregn. synth. fiber (ST)	482	250

SEAT CONFIGURATIONS/DESIGNS

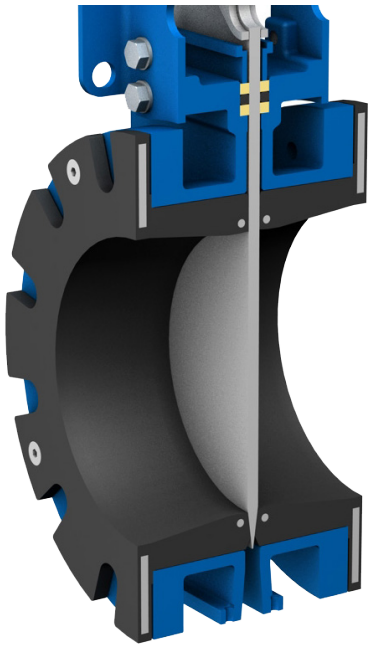
Type	Features
Rubber sleeves	The closure of the Series 68 (HG) valve is achieved by its two characteristic high resistance elastomer sleeves, which improve the tight seal both in the adjustment with the flanges and in the closure. These sleeves have a metal core which provides them with a great resistance to demanding working conditions and pressures



OPENI



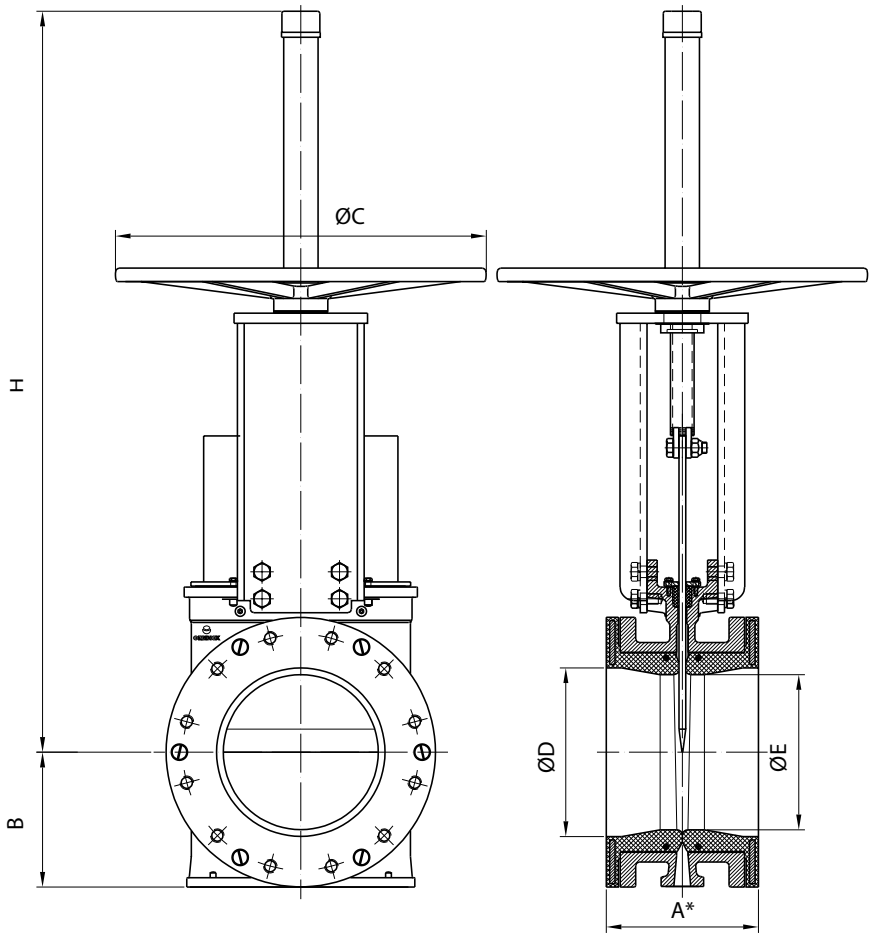
INTERMEDIATE



ICLOSED

HANDWHEEL RISING STEM

Standard manual actuator, available from 2in/50mm to DN 4in/100mm (larger diameters on request) and recommended with gearbox from 6in/150mm and above

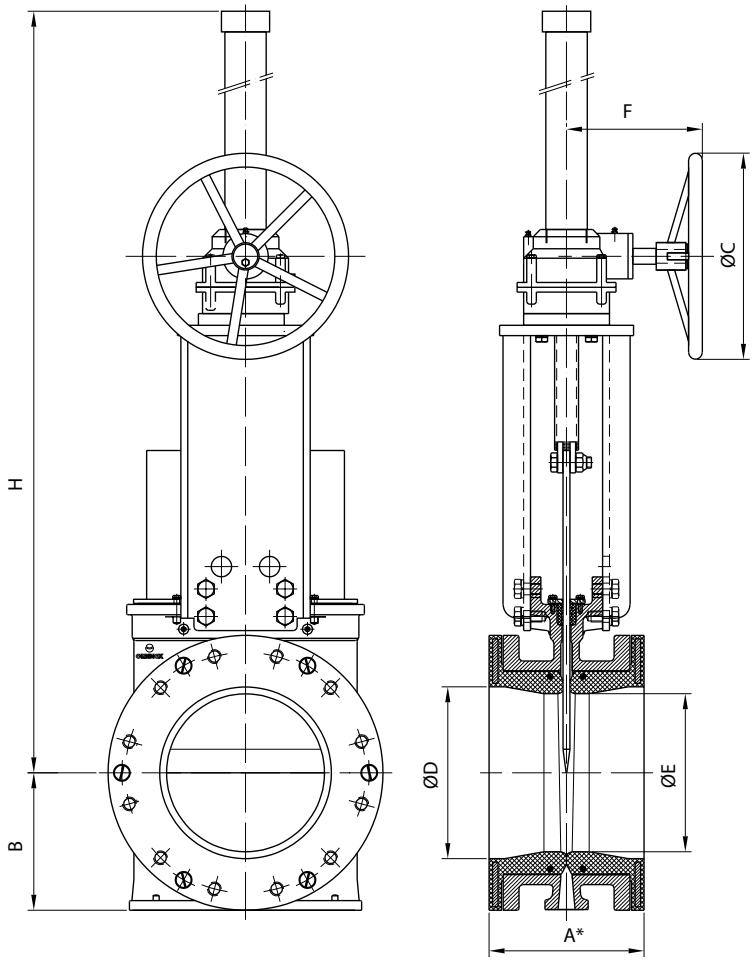


DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Weight (lbs./kg.)
2/50	6,50/165	6,77/172	3,35/85	8,86/225	18,11/460	1,97/50	1,77/45	44/20
3/80	6,88/175	7,20/183	3,54/90	8,86/225	21,45/545	2,83/72	2,44/62	64/29
4/100	6,88/175	7,20/183	3,93/100	12,20/310	24,40/620	3,93/100	3,34/85	93/42

A1*: installed face to face A2*: minimum required dimension for installation

BEVEL GEAR RISING STEM

Recommended for valves larger than 4in/100mm



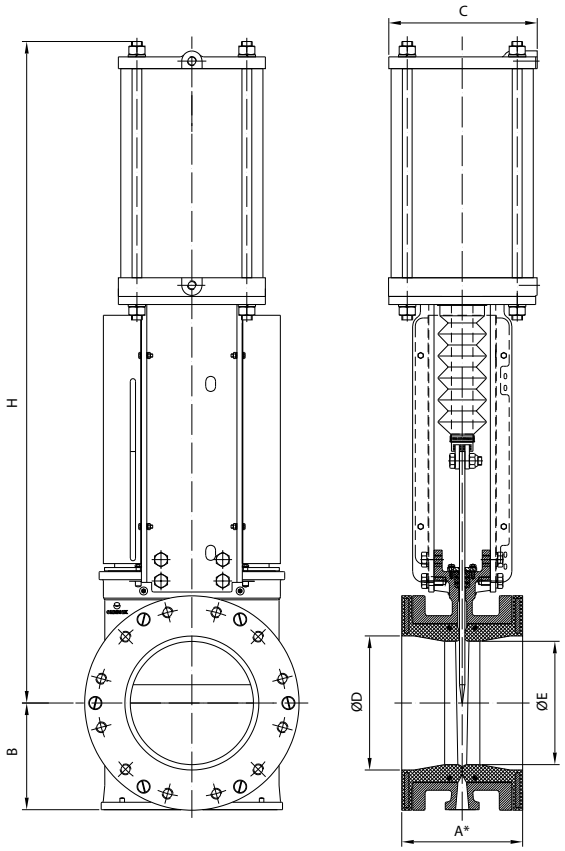
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	H (in/mm)	F (in/mm)	ØD (in/mm)	ØE (in/mm)	Weight (lbs./kg.)
6/150	7,00/178	7,32/186	5,11/130	12,00/300	36,00/900	10,35/263	5,83/148	5,39/137	203/92
8/200	7,24/184	7,55/192	6,30/160	12,00/300	38,97/990	10,35/263	7,76/197	6,89 /175	294/133
10/250	8,75/222,5	9,17/233	7,87/200	12,00/300	59,44/1510	10,35/263	10,00/250	9,05/230	-
12/300	10,11/257	10,39/264	9,13/232	18,00/450	62,60/1590	10,35/263	11,50/292	10,75/273	-
14/350	10,11/257	10,39/264	10,15/258	18,00/450	66,93/1700	10,35/263	13,27/337	12,52/318	750/340
16/400	11,00/279,5	11,29/287	11,50/292	18,00/450	70,07/1780	10,35/263	14,77/375	14,01/356	944/428
18/450	12,24/311	12,55/319	12,51/318	18,00/450	85,63/2175	10,35/263	16,73/425	14,88 /378	-
20/500	14,13/359	14,44/367	13,58/345	25,60/650	90,74/2305	10,35/263	18,50/470	16,54/420	-
24/600	14,62/371,5	14,96/380	16,00/400	25,60/650	99,21/2520	10,35/263	23,03/585	21,22/539	-

A1*: installed face to face A2*: minimum required dimension for installation

PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from 2in/50mm to 16in/400mm. 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 85psi/(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



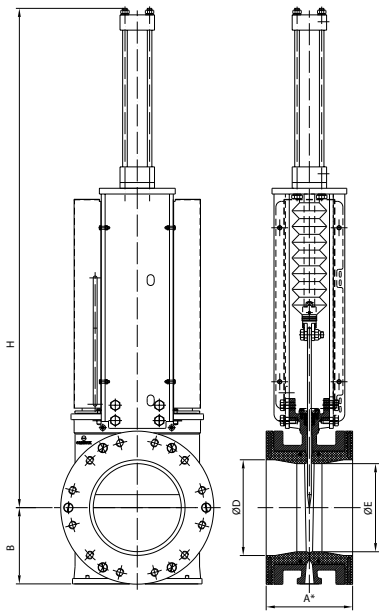
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	C (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Connect.	Weight (lbs./kg.)
2/50	6,50/165	6,77/172	3,35/85	4,53/115	20,91/531	1,97/50	1,77/45	1/4" G	51/23
3/80	6,88/175	7,20/183	3,50/90	6,89/175	22,01/559	2,83/72	2,44/62	1/4" G	75/34
4/100	6,88/175	7,20/183	4,00/100	8,66/220	24,33/618	4,00/100	3,34/85	1/4" G	113/51
6/150	7,00/178	7,32/186	5,12/130	10,90/277	30,90/785	5,83/148	5,39/137	3/8" G	-
8/200	7,24/184	7,55/192	6,30/160	15,04/382	37,28/947	7,76/197	6,89 /175	3/8" G	203/92
10/250	8,75/222,5	9,17/233	8,00/200	17,48/444	45,87/1165	10,00/250	9,05/230	1/2" G	329/149
12/300	10,11/257	10,39/264	9,14/232	20,27/515	52,44/1332	11,50/292	10,75/273	3/4" G	481/218
14/350	10,11/257	10,39/264	10,15/258	17,48/444	62,59/1590	13,27/337	12,52/318	3/4" G	-
16/400	11,00/279,5	11,29/287	11,50/292	17,48/444	67,51/1715	14,77/375	14,01/356	3/4" G	1158/525

A1*: installed face to face A2*: minimum required dimension for installation

HYDRAULIC ACTUATOR

Standard hydraulic actuator consists of a double acting cylinder in accordance with ISO 6020/2 , available from 2in/50mm to 40in/1000mm with PVC bellows. Open-closed lockout, pressure indicators (mechanical and inductive), position transducers, hydraulic groups and electrical cabinets are optional.

Hydraulic pressure: 1450psi/(100 bar) and maximum hydraulic pressure: 2320psi/(160 bar)



DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Connect.
2/50	6,50/165	6,77/172	3,35/85	21,85/555	1,97/50	1,77/45	1/4" G
3/80	6,88/175	7,20/183	3,50/90	25,07/637	2,83/72	2,44/62	1/4" G
4/100	6,88/175	7,20/183	4,00/100	27,28/693	3,93/100	3,34/85	3/8" G
6/150	7,00/178	7,32/186	5,12/130	34,76/883	5,83/148	5,39/137	1/2" G
8/200	7,24/184	7,55/192	6,30/160	40,83/1037	7,76/197	6,89 /175	3/4" G
10/250	8,75/222,5	9,17/233	8,00/200	51,53/1309	10,00/250	9,05/230	3/4" G
12/300	10,11/257	10,39/264	9,14/232	58,26/1480	11,50/292	10,75/273	1" G
14/350	10,11/257	10,39/264	10,15/258	64,05/1627	13,27/337	12,52/318	1" G
16/400	11,00/279,5	11,29/287	11,50/292	70,00/1778	14,77/375	14,01/356	1" G
18/450	12,24/311	12,55/319	12,51/318	77,40/1966	16,73/425	14,88 /378	1" G
20/500	14,13/359	14,44/367	13,58/345	86,14/2188	18,50/470	16,54/420	1" G
24/600	14,62/371,5	14,96/380	16,00/400	102,13/2594	23,03/585	21,22/539	1 1/4" G
26/650	14,88/378	15,28/388	18,70/475	106,30/2700	25,00/635	23,50/597	1" G
28/700	14,88/378	15,28/388	18,70/475	106,30/2700	25,00/635	23,50/597	1" G
30/750	15,57/395.5	15,00/405	20,27/515	117,60/2987	29,02/737	26,77/680	1" G
32/800	18,50/470	18,90/480	22,05/560	118,11/3000	31,02/788	28,31/719	1" G
34/850	18,50/470	18,90/480	22,05/560	118,11/3000	31,02/788	28,31/719	1" G
36/900	18,50/470	18,89/480	24,41/620	140,39/3566	35,00/889	31,88/810	1" G
40/1000	21.10/536	21.50/546	26.46/672	135.83/3450	38.98/990	36.22/920	1" G

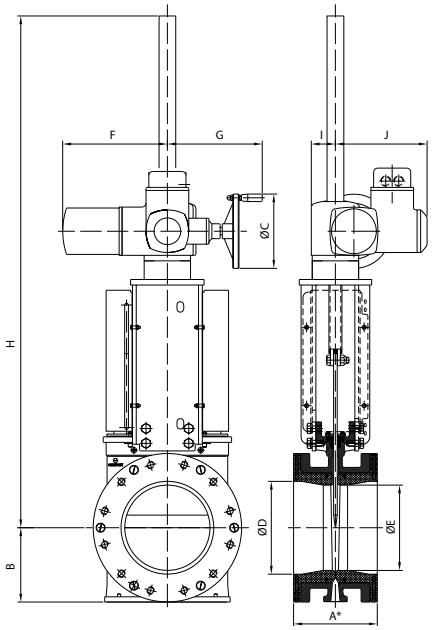
A1*: installed face to face A2*: minimum required dimension for installation

ELECTRIC ACTUATOR RISING STEM

Designed with a yoke flange for the actuator according to ISO 5210 / DIN 3338 as standard, it is available from 2in/50mm to DN 40in/1000mm, 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



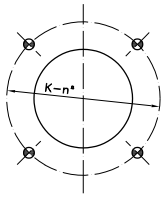
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	H (in/mm)	F (in/mm)	G (in/mm)	I (in/mm)	J (in/mm)	ØD (in/mm)	ØE (in/mm)
2/50	6,50/165	6,77/172	3,35/85	6,30/160	24,33/618	10,43/265	9,80/249	2,44/62	9,37/238	1,97/50	1,77/45
3/80	6,88/175	7,20/183	3,54/90	6,30/160	40,00/1000	10,43/265	9,80/249	2,44/62	9,37/238	2,83/72	2,44/62
4/100	6,88/175	7,20/183	3,93/100	6,30/160	40,74/1035	10,43/265	9,80/249	2,44/62	9,37/238	3,93/100	3,34/85
6/150	7,00/178	7,32/186	5,11/130	6,30/160	44,68/1135	10,43/265	9,80/249	2,44/62	9,37/238	5,83/148	5,39/137
8/200	7,24/184	7,55/192	6,00/150	7,87/200	49,02/1245	11,10/282	10,00/254	2,55/65	9,76/248	7,76/197	6,89/175
10/250	8,75/222,5	9,17/233	8,00/200	7,87/200	54,25/1378	11,10/282	10,00/254	2,55/65	9,76/248	10,00/250	9,05/230
12/300	10,11/257	10,39/264	9,13/232	7,87/200	57,87/1470	11,10/282	10,00/254	2,55/65	9,76/248	11,50/292	10,75/273
14/350	10,11/257	10,39/264	10,15/258	12,40/315	65,24/1657	15,15/385	13,23/336	3,58/91	11,25/286	13,27/337	12,52/318
16/400	11,00/279,5	11,29/287	11,49/292	12,40/315	68,19/1732	15,15/385	13,23/336	3,58/91	11,25/286	14,77/375	14,01/356
18/450	12,24/311	12,55/319	12,51/318	12,40/315	77,71/1974	15,15/385	13,23/336	3,58/91	11,25/286	16,73/425	14,88/378
20/500	14,13/359	14,44/367	13,58/345	16,00/400	97,67/2481	15,15/385	13,35/339	3,58/91	11,25/286	18,50/470	16,54/420
24/600	14,62/371,5	14,96/380	16,00/400	16,00/400	103,54/2630	15,15/385	13,35/339	3,58/91	11,25/286	23,03/585	21,22/539
26/650	14,88/378	15,28/388	18,70/475	15,75/400	109,06/2770	15,31/389	13,35/339	3,54/90	11,26/286	25,00/635	23,50/597
28/700	14,88/378	15,28/388	18,70/475	15,75/400	109,06/2770	15,31/389	13,35/339	3,54/90	11,26/286	25,00/635	23,50/597
30/750	15,57/395.5	15,00/405	20,27/515	20,00/500	120,20/3053	20,08/510	14,37/365	4,61/117	11,93/303	29,02/737	26,77/680
32/800	18,50/470	18,89/480	22,64/575	20,00/500	126,30/3208	20,08/510	14,37/365	4,61/117	11,93/303	31,02/788	28,31/719
34/850	18,50/470	18,89/480	22,64/575	20,00/500	126,30/3208	20,08/510	14,37/365	4,61/117	11,93/303	31,02/788	28,31/719
36/900	18,50/470	18,89/480	24,41/620	20,00/500	134,17/3408	20,08/510	14,37/365	4,61/117	11,93/303	35,00/889	31,88/810
40/1000	21,10/536	21,50/546	26,45/672	20,00/500	129,92/3300	20,08/510	14,37/365	4,61/117	11,93/303	38,97/990	36,22/920

A1*: installed face to face A2*: minimum required dimension for installation

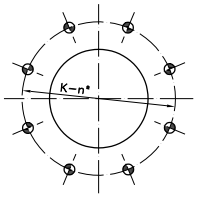
FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150 *

DN	K	nº	M	T	⌖
2"	4 ¾"	4	5/8" - 11 UNC	1 ¼"	4
3"	6"	4	5/8" - 11 UNC	1 ½"	4
4"	7 ½"	8	5/8" - 11 UNC	1 ½"	8
6"	9 ½"	8	3/4" - 10 UNC	1 ½"	8
8"	11 ¾"	8	3/4" - 10 UNC	1 ½"	8
10"	14 ¼"	12	7/8" - 9 UNC	1 ¾"	12
12"	17"	12	7/8" - 9 UNC	2"	12
14"	18 ¾"	12	1" - 8 UNC	2 ¼"	12
16"	21 ¼"	16	1" - 8 UNC	2 ¼"	16
18"	22 ¾"	16	1 1/8" - 7 UNC	2 ¼"	16
20"	25"	20	1 1/8" - 7 UNC	2 ½"	20
24"	29 ½"	20	1 1/4" - 7 UNC	2 ¾"	20
26"	31 ¾"	24	1 1/4" - 7 UNC	2 ¾"	24
28"	34"	28	1 1/4" - 7 UNC	2 ¾"	28
30"	36"	28	1 1/4" - 7 UNC	3"	28
32"	38 ½"	28	1 1/2" - 6 UNC	3 ¼"	28
34"	40 ½"	32	1 1/2" - 6 UNC	3 ¼"	32
36"	42 ¾"	32	1 1/2" - 6 UNC	3 ½"	32
40"	47 ¼"	36	1 1/2" - 6 UNC	3 ½"	36

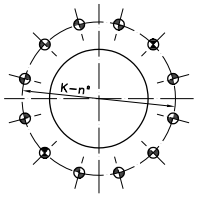
* From NPS 24, acc. to ASME B16.47 Series A (class 150)



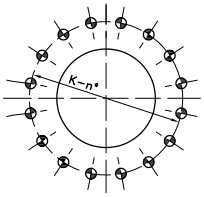
DN 2" - 3"



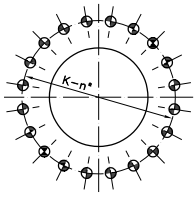
DN 4" - 8"



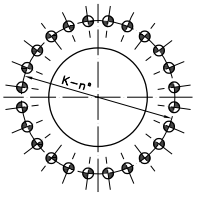
DN 10" - 14"



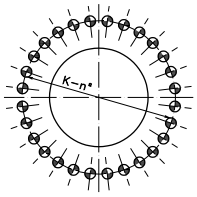
DN 16" - 18"



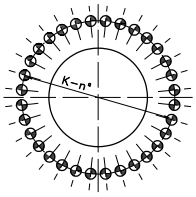
DN 20" - 24"



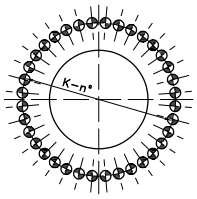
DN 26"



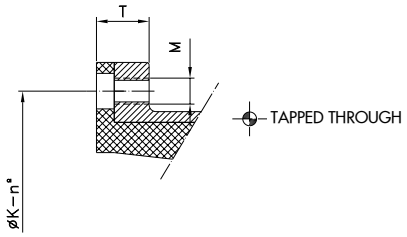
DN 28" - 32"



DN 34" -36"



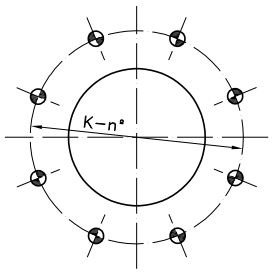
DN 40"



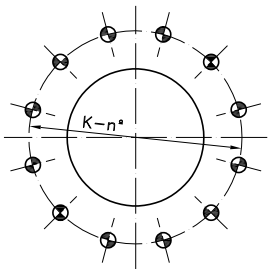
FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 300*

DN	K	nº	M	T	⌖
2″	5″	8	5/8″ - 11 UNC	1 ¼″	8
3″	6 5/8″	8	3/4″ - 10 UNC	1 ½″	8
4″	7 7/8″	8	3/4″ - 10 UNC	1 ½″	8
6″	10 5/8″	12	3/4″ - 10 UNC	1 ½″	12
8″	13″	12	7/8″ - 9 UNC	1 ¾″	12
10″	15 1/4″	16	1″ - 8 UNC	1 ¾″	16
12″	17 3/4″	16	1 1/8″ - 7 UNC	2″	16
14″	20 1/4″	20	1 1/8″ - 7 UNC	2 ¼″	20
16″	22 1/2″	20	1 1/4″ - 7 UNC	2 ¼	20
18″	24 3/4″	24	1 1/4″ - 7 UNC	2 ½″	24
20″	27″	24	1 1/4″ - 7 UNC	2 ½″	24
24″	32″	24	1 1/2″ - 6 UNC	2 ¾″	24
26″	34.5″	28	1 5/8″ - 8 UN	2 ¾″	28
28″	37″	28	1 5/8″ - 8 UN	2 ¾″	28
30″	39 1/4″	28	1 3/4″ - 5 UNC	3″	28
32″	41 1/2″	28	1 7/8″ - 8 UN	3 ¼″	28
34″	43.5″	28	1 7/8″ - 8 UN	3 ¼″	28
36″	46″	32	2″ - 4.5 UNC	3 ½″	32
40″	45.5″	32	1 5/8″ - 8 UN	3 ½″	32

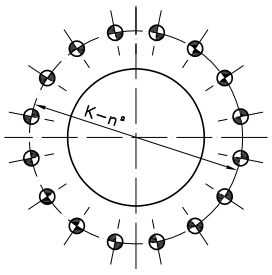
* From NPS 24, acc. to ASME B16.47 Series A (class 300)



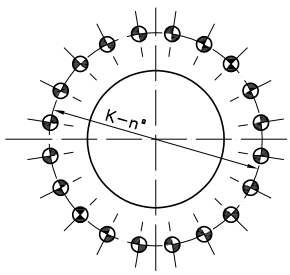
DN 2"- 5"



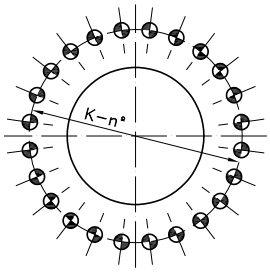
DN 6" - 8"



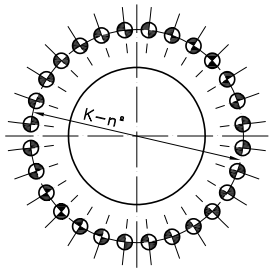
DN 10" - 12"



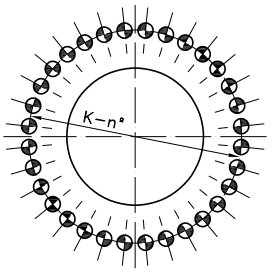
DN 14" - 16"



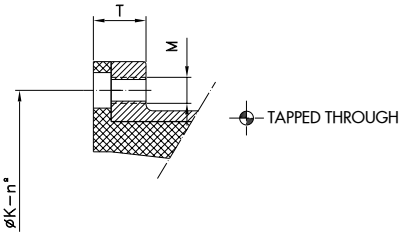
DN 18" - 24"



DN 26"- 34"

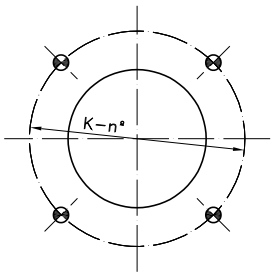


DN 36"- 40"

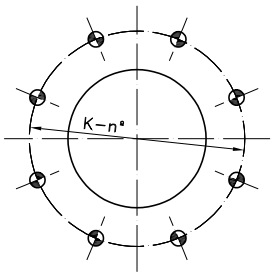


FLANGE AND BOLTING DETAILS EN-1092 PN25

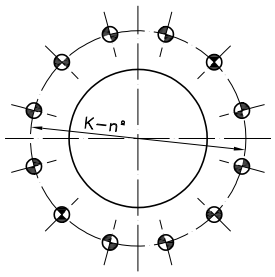
DN	K	nº	M	T	⌖
50	125	4	M-16	36	4
80	160	8	M-16	39	8
100	190	8	M-20	39	8
150	250	8	M-24	42	8
200	310	12	M-24	45	12
250	370	12	M-27	47	12
300	430	16	M-27	52	16
350	490	16	M-30	57	16
400	550	16	M-33	61	16
450	600	20	M-33	63	20
500	660	20	M-33	67	20
600	770	20	M-36	72	20
700	875	24	M-39	73	24
800	990	24	M-45	82	24
900	1090	28	M-45	91	28
1000	1210	28	M-52	91	28



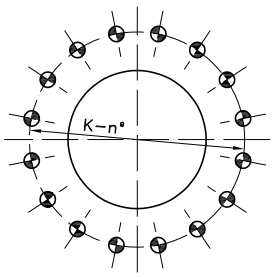
DN 50



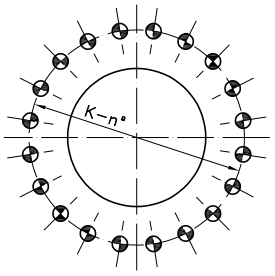
DN 80-150



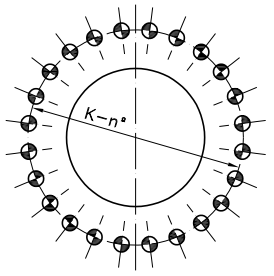
DN 200-250



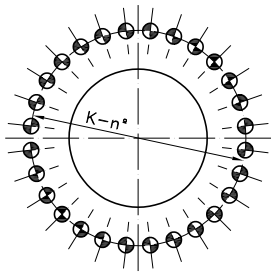
DN 300-400



DN 450-600



DN 700-800



DN 900-1000