

Model Ser.65 (WG)

RUBBER SLEEVE KNIFE GATE VALVE

The Series 65 (WG) 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 40in/1000mm
Larger diameters on request

Working pressure and temperatures

DN 2in/ 50mm to 16in/400mm : 150 psi/10 bar
DN 18in/450mm to 24in/600mm: 90 psi/6 bar
or 150 psi/ 10 bar ¹
DN 26in/650mm to 40in/1000mm: 75 psi/5 bar
or 150 psi/ 10 bar
Higher pressures and/or diameters on request
¹ Duplex gate for 150 psi/10 bar

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

Standard flange drilling

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

Directives

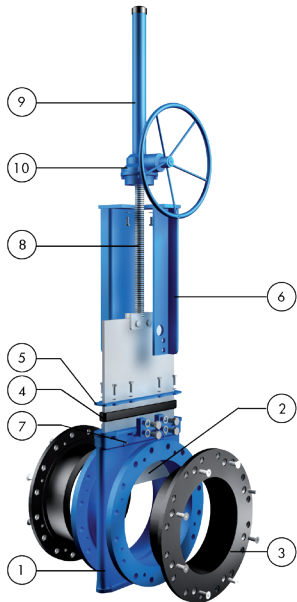
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves –Catalogues and Datasheets

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) / 0.7040 / EN-GJS400
2 Gate	AISI 304 / AISI 316
3 Sleeves	Natural rubber / EPDM
4 Packing	EPDM
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 natural 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

Made of EPDM, it eliminates possible leaks to the exterior as well as minimising the maintenance needs of traditional packings. In combination with the grease nipples, it guarantees an optimal functioning of the gate

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

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

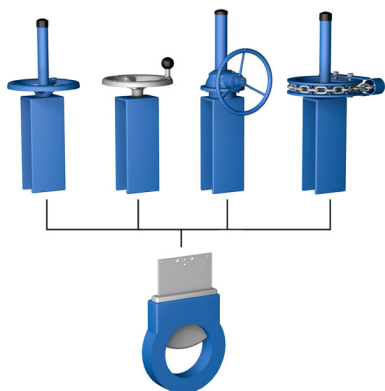
Gate safety protection

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

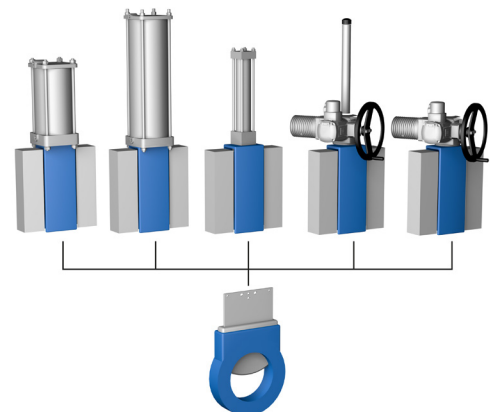
Actuators

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

Manual RS Manual NRS Bevel Gear Chainwheel



Pneumatic Double Acting Pneumatic Single Acting Hydraulic Electric RS Electric NRS



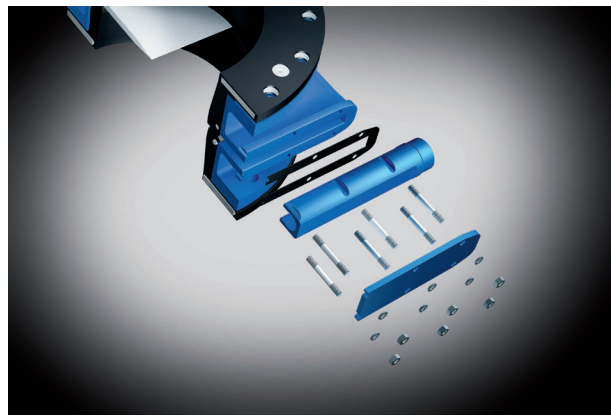
OTHER OPTIONS

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.



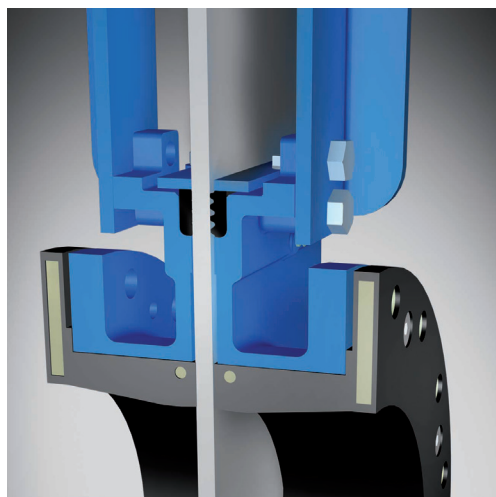
(Fig. 1) Flat plate



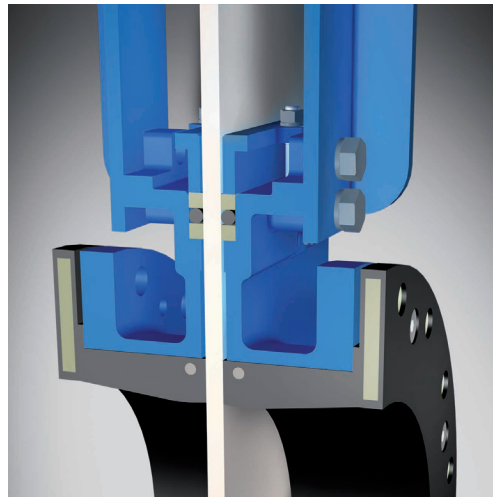
(Fig. 2) Tubular design

Conventional leak proof packing (Fig. 3 and 4)

The Series 65 (WG) can use conventional leak proof packing and packing gland follower which guarantee full tightness at maximum design pressure



(Fig. 3) Standard packing



(Fig. 4) Optional: conventional leak proof packing

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...)

OTHER OPTIONS

Open-closed lockout system (Fig. 5)

The standard valve is ready to install a lockout pin for emergency or maintenance situations

Flush ports (Fig. 6)

Allows flushing out of solids trapped within the body cavity and the sleeves. This option can be used in conjunction with splash guards

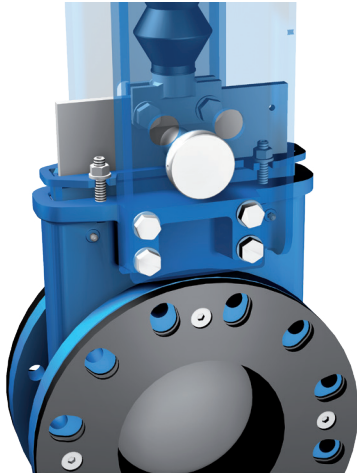


Fig.5

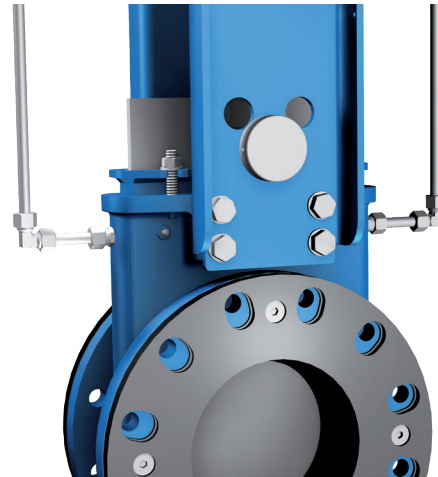


Fig.6

Actuator manual override (Fig. 7)

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

Stem extensions and floor stand (Fig. 8)

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.7



Fig.8

Accessories for pneumatic valve automation

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

SEAT/SEAL TYPES

PACKING 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

Material	Max.T. (°F)	Max.T. (°C)
EPDM (E)	248	120
PTFE impregn. synth. fiber (ST)	482	250

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

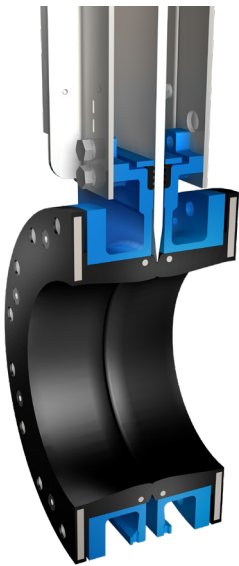
Operating conditions at very low temperatures may differ from the absolute minimum temperature conditions supported by these rubber grades. Please contact our technical department for more information

SEAT CONFIGURATIONS/DESIGNS

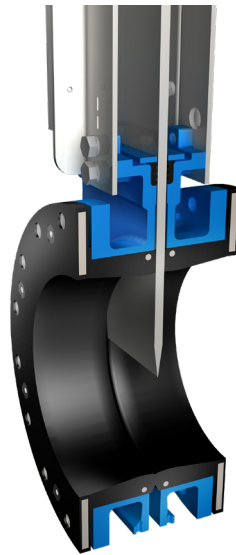
Type	Features
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Rubber sleeves

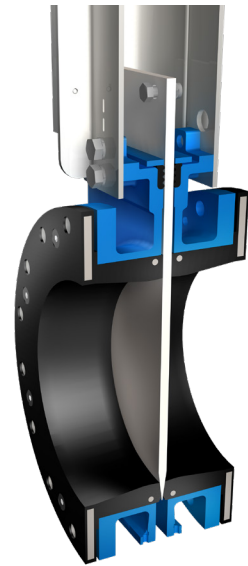
The closure of the Series 65 (WG) valve is achieved by its two characteristic high resistance elastomer sleeves, which improve the tight seal both in the adjustment with the flanges and in the closure. These sleeves have a metal core which provides them with a great resistance to demanding working conditions and pressures



OPEN



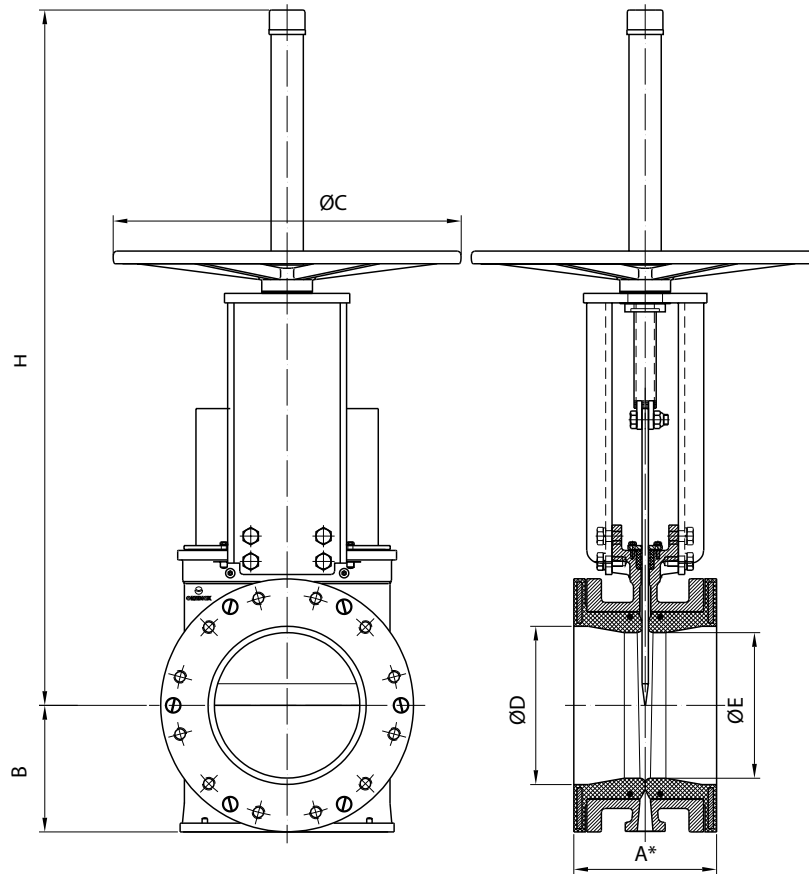
INTERMEDIATE



CLOSED

HANDWHEEL RISING STEM

Standard manual actuator, available from 3in/ 80mm to 8in/200mm (larger diameters on request) and recommended with gearbox from 8in/200mm and above

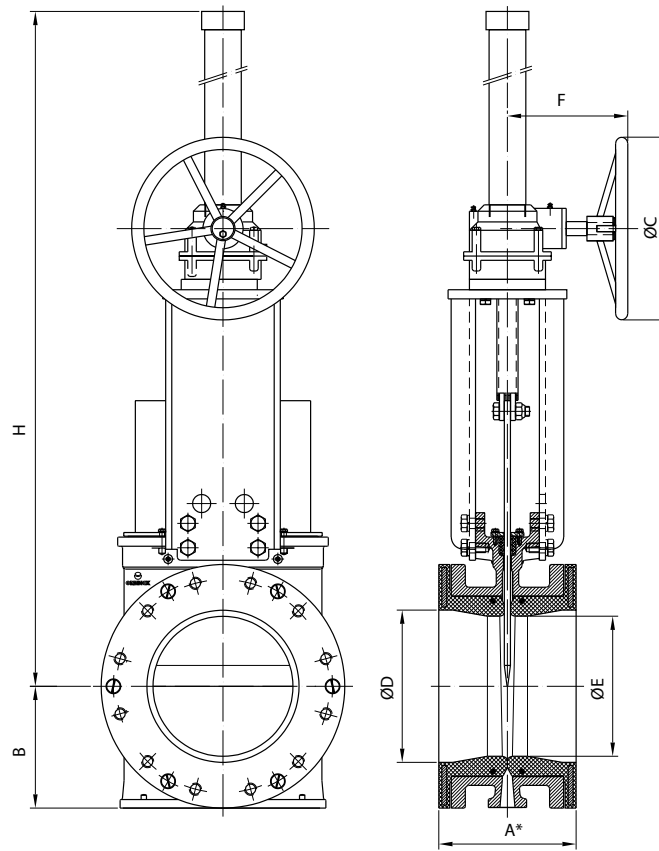


DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Weight (lbs./kg.)
2/50	6,50/165	6,77/172	3,35/85	8,86/225	18,11/460	1,97/50	1,77/110	44/20
2,5/65	6,88/175	7,20/183	3,78/96	8,86/225	19,48/495	2,83/72	2,44/62	51/23
3/80	6,88/175	7,20/183	3,78/96	8,86/225	19,48/495	2,83/72	2,44/62	51/23
4/100	6,88/175	7,20/183	4,53/115	12,20/310	25,39/645	4,00/100	3,34/85	69/31
5/125	7,00/178	7,32/186	5,12/130	12,21/310	28,15/715	4,77/121	4,33/110	88/40
6/150	7,00/178	7,32/186	5,55/141	12,20/310	29,33/745	5,83/148	5,39/137	95/43
8/200	7,24/184	7,55/192	6,81/173	16,14/410	37,20/945	7,76/197	6,89/175	148/67

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

GEAR

Recommended for valves larger than 8in/200mm



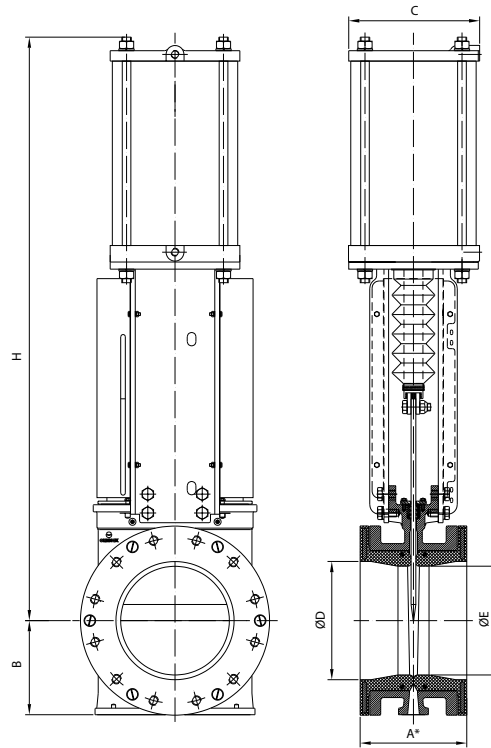
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	F (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Weight (lbs./kg.)
8/200	7,24/184	7,55/192	6,81/173	12,00/300	8,00/200	40,94/1040	7,76/197	6,89/175	183/83
10/250	8,88/225,50	9,17/233	8,03/204	12,00/300	8,00/200	41,73/1060	10,00/250	9,05/230	250/113
12/300	10,11/257	10,39/264	9,61/244	12,00/300	8,00/200	57,48/1460	11,50/292	10,75/273	364/165
14/350	10,11/257	10,39/264	10,55/268	18,00/450	8,66/220	60,23/1530	13,27/337	12,52/318	490/222
16/400	11,00/279,50	11,29/287	11,81/300	18,00/450	8,66/220	64,57/1640	14,77/375	14,02/356	607/275
18/450	12,24/311	12,55/319	12,60/320	18,00/450	8,66/220	68,90/1750	16,73/425	14,88/378	732/332
20/500	14,13/359	14,44/367	14,13/359	25,60/650	11,34/288	75,98/1930	18,50/470	16,53/420	979/444
24/600	14,62/371,50	14,96/380	16,61/422	25,60/650	11,34/288	95,47/2425	23,03/585	21,22/539	-
25/650	14,92/378	15,28/388	18,70/475	25,59/650	11,34/288	102,95/2615	24,96/635	23,50/597	-
28/700	14,92/378	15,28/388	18,70/475	25,59/650	11,34/288	102,95/2615	24,96/635	23,50/597	-
30/750	15,57/395,50	15,94/405	20,94/532	25,60/650	11,34/288	107,48/2730	29,02/737	26,77/680	-
32/800	18,50/470	18,90/480	22,05/560	25,59/650	11,34/288	113,39/2880	31,02/788	28,30/719	-
33/850	18,50/470	18,90/480	22,05/560	25,59/650	11,34/288	113,39/2880	31,02/788	28,30/719	-
36/900	18,50/470	18,90/480	24,92/633	25,60/650	11,34/288	118,50/3010	35,00/889	31,88/810	-
40/1000	21,10/536	21,4/546	26,46/672	40,00/1000	18,31/465	125,98/3200	39,02/990	36,22/920	-

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 3in/80mm to 24in/600mm. 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



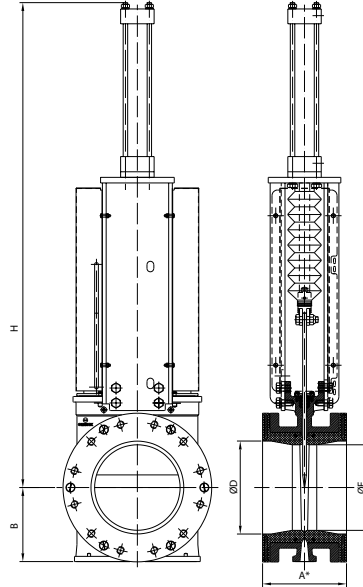
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	C (in/mm)	H (in/mm)	ØD (in/mm)	ØE (in/mm)	Connect.	Weight (lbs./kg.)
2/50	6,50/165	6,77/172	3,35/85	4,53/115	20,91/531	1,97/50	1,77/45	1/4" G	52/23
2,5/65	6,88/175	7,20/183	3,78/96	4,53/115	24,45/621	2,83/72	2,44/62	1/4" G	58/26
3/80	6,88/175	7,20/183	3,78/96	5,51/140	24,45/621	2,83/72	2,44/62	1/4" G	62/28
4/100	6,88/175	7,20/183	4,53/115	5,51/140	26,30/668	4,00/100	3,34/85	1/4" G	73/33
5/125	7,00/178	7,20 / 183	5,12/130	6,89/175	32,76/832	4,76/121	4,33/110	1/4" G	106/48
6/150	7,00/178	7,32/186	5,55/141	6,89/175	35,15/893	5,83/148	5,39/137	1/4" G	115/52
8/200	7,24/184	7,55/192	6,81/173	8,66/220	42,01/1067	7,76/197	6,89/175	3/8" G	183/83
10/250	8,88/225,50	9,17/233	8,03/204	10,90/277	48,03/1220	10,00/250	9,05/230	3/8" G	289/130
12/300	10,11/257	10,39/264	9,61/244	13,18/335	58,03/1474	11,50/292	10,75/273	1/2" G	470/213
14/350	10,11/257	10,39/264	10,55/268	17,48/444	66,42/1687	13,27/337	12,52/318	3/4" G	629/285
16/400	11,00/279,50	11,29/287	11,81/300	17,48/444	71,81/1824	14,77/375	14,02/356	3/4" G	748/339
18/450	12,24/311	12,55/319	12,60/330	20,27/515	79,72/2025	16,73/425	14,88/378	3/4" G	951/431
20/500	14,13/359	14,44/367	14,13/359	20,27/515	86,53/2198	18,50/470	16,53/420	3/4" G	1176/533
24/600	14,62/371,50	14,96/380	16,61/422	20,27/515	95,27/2420	23,03/585	21,22/539	3/4" G	-

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
2,5/65	6,89/175	7,20/183	3,78/96	24,92/634	2,83/72	2,44/62	1/4" G
3/80	6,88/175	7,20/183	3,78/96	24,96/634	2,83/72	2,44/62	1/4" G
4/100	6,88/175	7,20/183	4,53/115	26,89/683	4,00/100	3,34/85	1/4" G
5/125	7,09/178	7,20/183	5,12/130	32,96/837	4,76/121	4,33/110	1/4" G
6/150	7,00/178	7,32/186	5,55/141	36,42/925	5,83/148	5,39/137	3/8" G
8/200	7,24/184	7,55/192	6,81/173	42,60/1082	7,76/197	6,89/175	1/2" G
10/250	8,88/225,5	9,17/233	8,03/204	47,95/1218	10,00/250	9,05/230	1/2" G
12/300	10,11/257	10,39/264	9,61/244	58,27/1480	11,50/292	10,75/273	3/4" G
14/350	10,11/257	10,39/264	10,55/268	64,21/1631	13,27/337	12,52/318	3/4" G
16/400	11,00/279,50	11,29/287	11,81/300	69,61/1768	14,77/375	14,02/356	3/4" G
18/450	12,24/311	12,55/319	12,60/330	77,48/1968	16,73/425	14,88/378	3/4" G
20/500	14,13/359	14,44/367	14,13/359	83,86/2130	18,50/470	16,53/420	3/4" G
24/600	14,62/371,50	14,96/380	16,61/422	92,60/2352	23,03/585	21,22/539	1" G
25/650	14,88/378	15,28/388	18,70/475	104,84/2651	24,98/635	23,50/597	3/4" G
28/700	14,88/378	15,28/388	18,70/475	104,84/2651	24,98/635	23,50/597	3/4" G
30/750	15,57/395,50	15,94/405	20,94/532	116,69/2964	29,02/737	26,77/680	3/4" G
32/800	18,50/470	18,90/480	22,05/560	116,93/2970	31,06/788	28,30/719	1" G
33/850	18,50/470	18,90/480	22,05/560	116,93/2970	31,06/788	28,30/719	1" G
36/900	18,50/470	18,90/480	31,89/633	140,51/3569	35,00/889	31,88/810	1" G
40/1000	21,10/536	21,46/546	26,46/672	133,86/3400	38,98/990	36,22/920	1" G

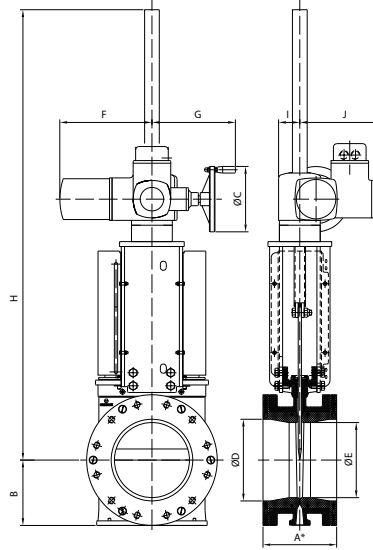
A1*: installed face to face A2*: minimum required dimension for installation

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 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



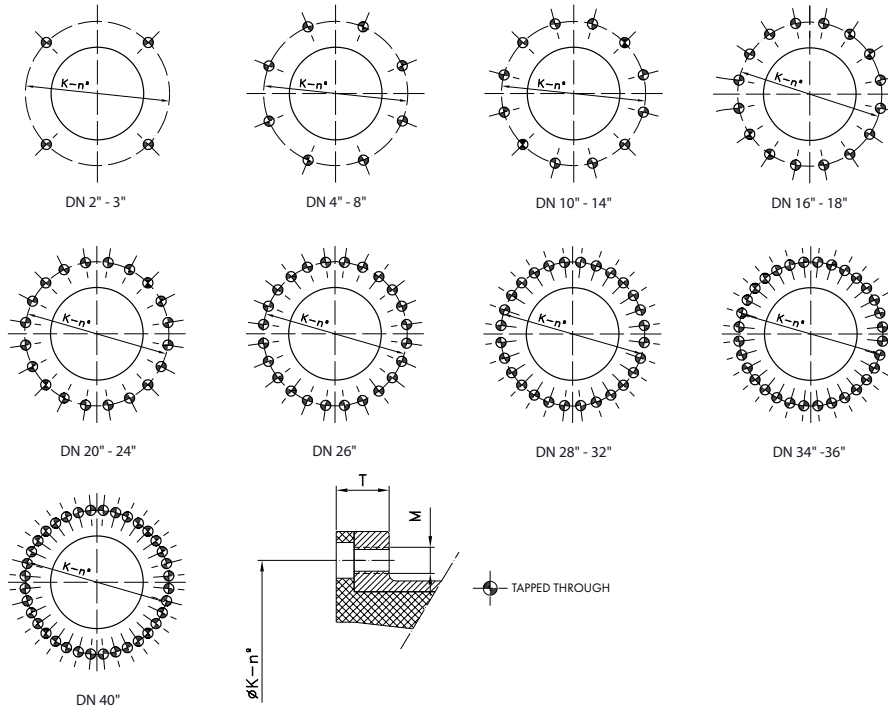
DN (in/mm)	A1* (in/mm)	A2* (in/mm)	B (in/mm)	ØC (in/mm)	H (in/mm)	F (in/mm)	G (in/mm)	I (in/mm)	J (in/mm)	ØD (in/mm)	ØE (in/mm)
2/50	6,50/165	6,77/172	3,35/85	6,30/160	24,33/618	10,43/265	9,80/249	2,44/62	9,37/238	1,97/50	1,77/45
2,5/65	6,88/175	7,20/183	3,78/96	6,30/160	26,06/662	10,43/265	9,80/249	2,44/62	9,37/238	2,83/72	2,44/62
3/80	6,88/175	7,20/183	3,78/96	6,30/160	26,06/662	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	4,53/115	6,30/160	27,09/688	10,43/265	9,80/249	2,44/62	9,37/238	4,00/100	3,34/85
5/125	7,00/178	7,32/186	5,55/141	6,30/160	45,59/1158	10,43/265	9,80/249	2,44/62	9,37/238	4,76/121	4,33/110
6/150	7,00/178	7,32/186	5,55/141	6,30/160	45,59/1158	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	6,81/173	7,87/200	50,08/1272	11,14/283	10,00/254	2,55/65	9,76/248	7,76/197	6,89/175
10/250	8,88/225,50	9,17/233	8,03/204	7,87/200	54,60/1387	11,14/283	10,00/254	2,55/65	9,76/248	10,00/250	9,05/230
12/300	10,11/257	10,39/264	9,61/244	7,87/200	57,24/1454	11,14/283	10,00/254	2,55/65	9,76/248	11,50/292	10,75/273
14/350	10,11/257	10,39/264	10,55/268	12,40/315	63,07/1602	15,31/389	13,22/336	3,58/91	11,25/286	13,27/337	12,52/318
16/400	11,00/279,50	11,29/287	11,81/300	12,40/315	66,54/1690	15,31/389	13,22/336	3,58/91	11,25/286	14,77/375	14,02/356
18/450	12,24/311	12,55/319	12,60/330	16,10/409	71,73/1822	15,31/389	13,22/336	3,58/91	11,25/286	16,73/425	14,88/378
20/500	14,13/359	14,44/367	14,13/359	16,00/400	75,79/1925	15,31/389	13,34/339	3,58/91	11,25/286	18,50/470	16,53/420
24/600	14,62/371,50	14,96/380	16,61/422	20,00/500	83,46/2120	16,93/430	14,37/365	4,52/115	11,93/303	23,03/585	21,22/539
25/650	14,88/378	15,28/388	18,70/475	15,75/400	109,06/2770	15,32/389	13,35/339	3,54/90	11,26/286	24,98/635	23,50/597
28/700	14,88/378	15,28/388	18,70/475	15,75/400	109,06/2770	15,32/389	13,35/339	3,54/90	11,26/286	24,98/635	23,50/597
30/750	15,57/39,50	15,94/405	20,94/532	20,00/500	113,38/2880	16,93/430	14,37/365	4,52/115	11,93/303	29,02/737	26,77/680
32/800	18,50/470	18,90/480	22,05/560	19,69/500	119,49/3035	16,93/430	14,37/365	4,53/115	11,93/303	31,06/788	28,30/719
33/850	18,50/470	18,90/480	22,05/560	19,69/500	119,49/3035	16,93/430	14,37/365	4,53/115	11,93/303	31,06/788	28,30/719
36/900	18,50/470	18,90/480	24,92/633	20,00/500	125,20/3180	16,93/430	14,37/365	4,52/115	11,93/303	35,00/889	31,88/810
40/1000	21,10/536	21,46/546	26,46/672	19,69/500	129,92/3300	16,93/430	14,37/365	4,53/115	11,93/303	38,98/990	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	n°	M	T	⊕
2"	4 3/4"	4	5/8" - 11 UNC	1 1/4"	4
2 1/2"	5 1/2"	4	5/8" - 11 UNC	1 1/2"	4
3"	6"	4	5/8" - 11 UNC	1 1/2"	4
4"	7 1/2"	8	5/8" - 11 UNC	1 1/2"	8
5"	8 1/2"	8	3/4" - 10 UNC	1 1/2"	8
6"	9 1/2"	8	3/4" - 10 UNC	1 1/2"	8
8"	11 3/4"	8	3/4" - 10 UNC	1 1/2"	8
10"	14 1/4"	12	7/8" - 9 UNC	1 3/4"	12
12"	17"	12	7/8" - 9 UNC	2"	12
14"	18 3/4"	12	1" - 8 UNC	2 1/4"	12
16"	21 1/4"	16	1" - 8 UNC	2 1/4"	16
18"	22 3/4"	16	1 1/8" - 7 UNC	2 1/4"	16
20"	25"	20	1 1/8" - 7 UNC	2 1/2"	20
24"	29 1/2"	20	1 1/4" - 7 UNC	2 3/4"	20
26"	31 3/4"	24	1 1/4" - 7 UNC	2 3/4"	24
28"	34"	28	1 1/4" - 7 UNC	2 3/4"	28
30"	36"	28	1 1/4" - 7 UNC	3"	28
32"	38 1/2"	28	1 1/2" - 6 UNC	3 1/4"	28
34"	40 1/2"	32	1 1/2" - 6 UNC	3 1/4"	32
36"	42 3/4"	32	1 1/2" - 6 UNC	3 1/2"	32
40"	47 1/4"	36	1 1/2" - 6 UNC	3 1/2"	36

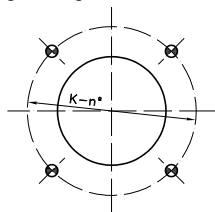
* From NPS 24, acc. to ASME B16.47 Series A (class 150)



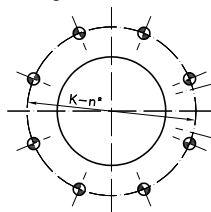
FLANGE AND BOLTING DETAILS EN-1092 PN10

DN	K	n°	M	T	
50	125	4	M-16	36	4
65*	145	4	M-16	39	4
80	160	8	M-16	39	8
100	180	8	M-16	39	8
125	210	8	M-16	41	8
150	240	8	M-20	41	8
200	295	8	M-20	41	8
250	350	12	M-20	46	12
300	400	12	M-20	52	12
350	460	16	M-20	57	16
400	515	16	M-24	61	16
450	565	20	M-24	61	20
500	620	20	M-24	67	20
600	725	20	M-27	72	20
700	840	24	M-27	73	24
800	950	24	M-30	82	24
900	1050	28	M-30	91	28
1000	1380	28	M-33	91	28

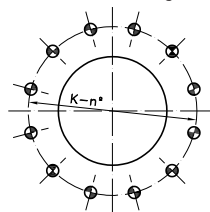
* Flange drilling of DN 65 PN10/16 according to EN-1092 allow 4 or 8 drills. ORBINOX designs of DN 65 PN10/16 have 4 drills



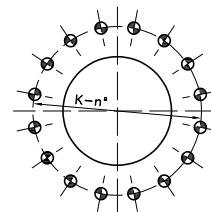
DN 50-65



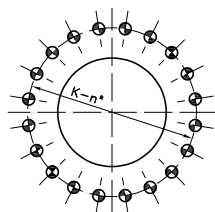
DN 80-200



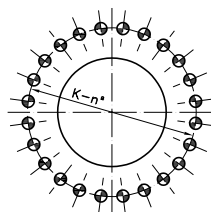
DN 250-300



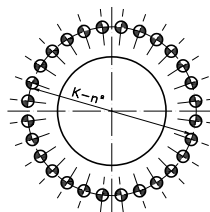
DN 350-400



DN 450-600



DN 700-800



DN 900-1000

