

# Model HG

## RUBBER SLEEVE KNIFE GATE VALVE

The 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 50 to DN 1000  
Larger diameters on request

### Working pressure and temperatures

DN 50 to DN 1000 : 20 bar  
Higher pressures and/or diameters on request

GJS 400: -10°C / 80°C  
CF8M: -20°C / 80°C

### Standard flange connection

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

### Directives

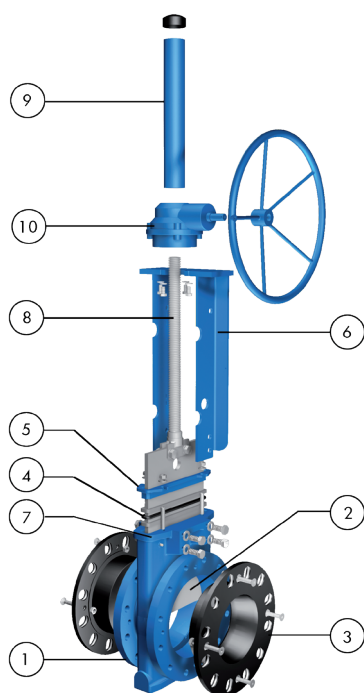
For EU Directives and other Certificates please see the document: Directives & Certificates Compliance - Knife Gate Valves  
–Catalogues and Datasheets

### 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

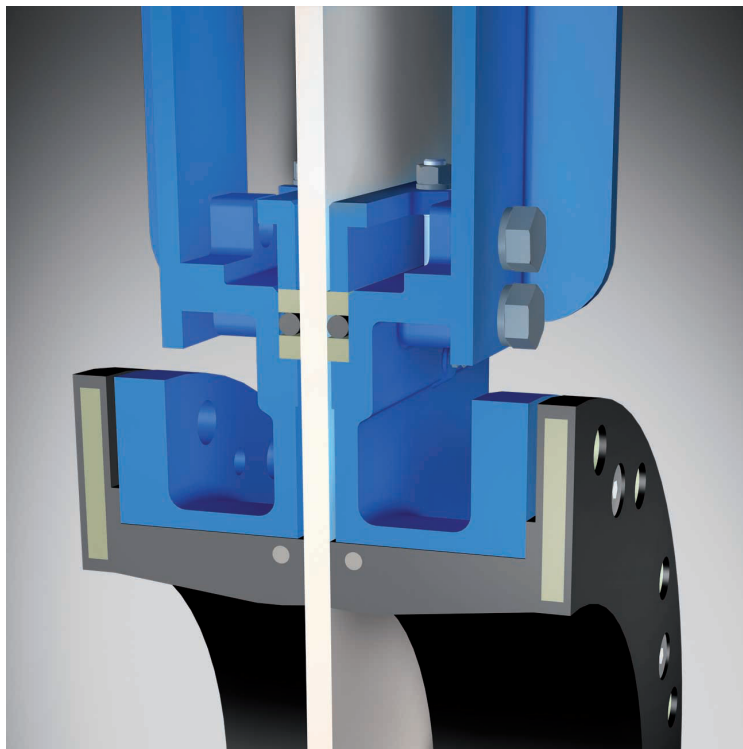
Made of stainless steel, polished on both sides, and of rectangular shape, the gate is machined to an edge. As well as reducing friction and damage to the seats, this design allows to cut perfectly through the fluid. The gate material can be changed upon request, thus allowing greater working pressures

### 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

### Actuators

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

Manual RS

Manual NRS

Bevel Gear

Chainwheel

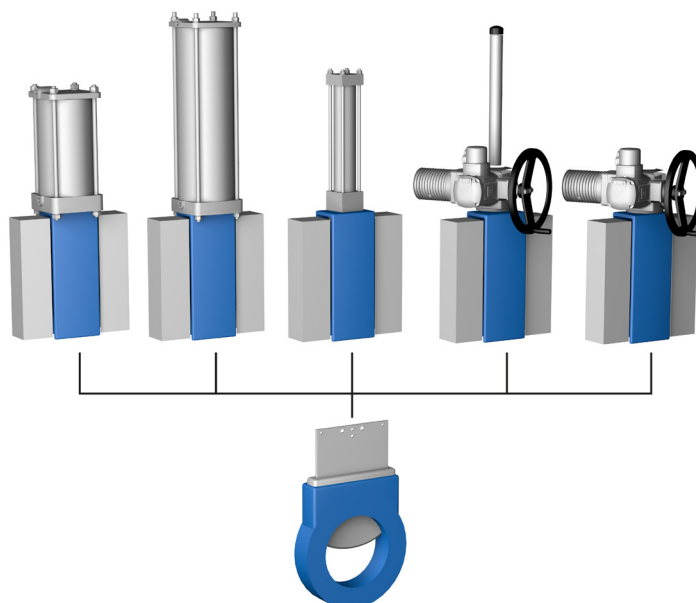
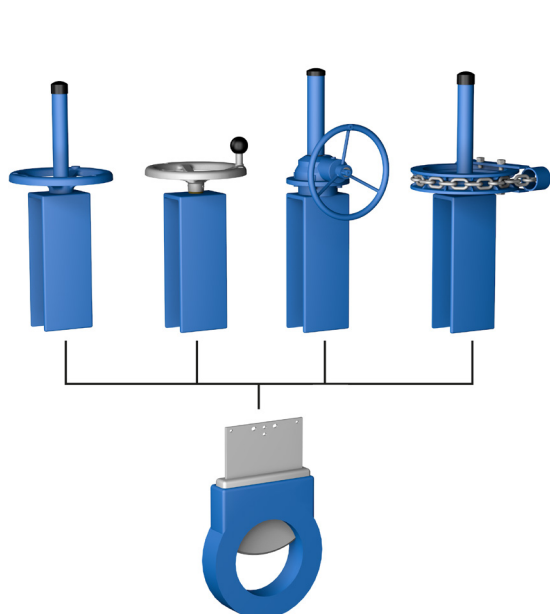
Pneumatic  
Double Acting

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

### 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

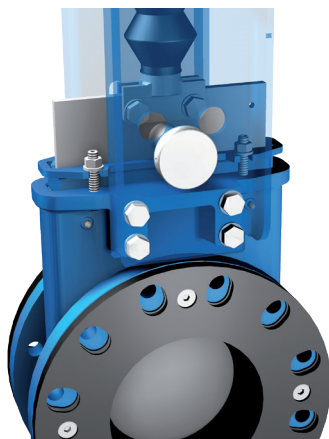


Fig. 4



Fig. 5

### Actuator manual override (Fig. 6)

Pneumatic and electric actuators can be equipped with manual override handwheels to manually operate the actuators in emergency situations or 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. (°C)	Applications
Natural rubber (NR)	75	General
EPDM (E)	120	Acids and non mineral oils.
Chlorobutyl	125	High temperatures
NBR (N)	90	Hydrocarbons/Oils/Greases
FKM-FPM (V)	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

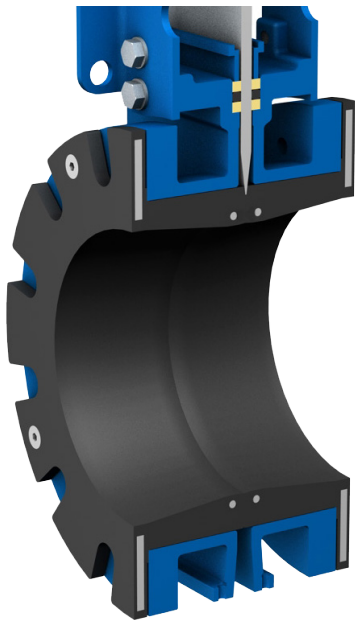
Material	Max.T (°C)
PTFE impregn. synth. fiber (ST)	250

SEAT CONFIGURATIONS/DESIGNS

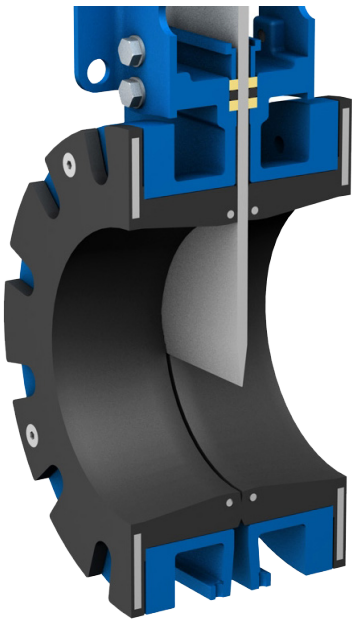
Type	Features
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**Rubber sleeves**

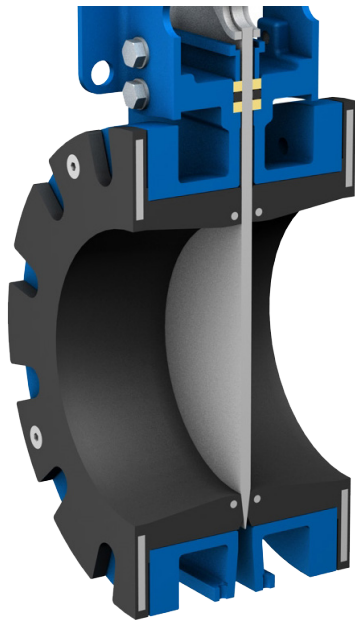
The closure of the HG valve is achieved by its two characteristic high resistance elastomer sleeves, which improve the tight seal both in the adjustment with the flanges and in the closure. These sleeves have a metal core which provides them with a great resistance to demanding working conditions and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



OPEN



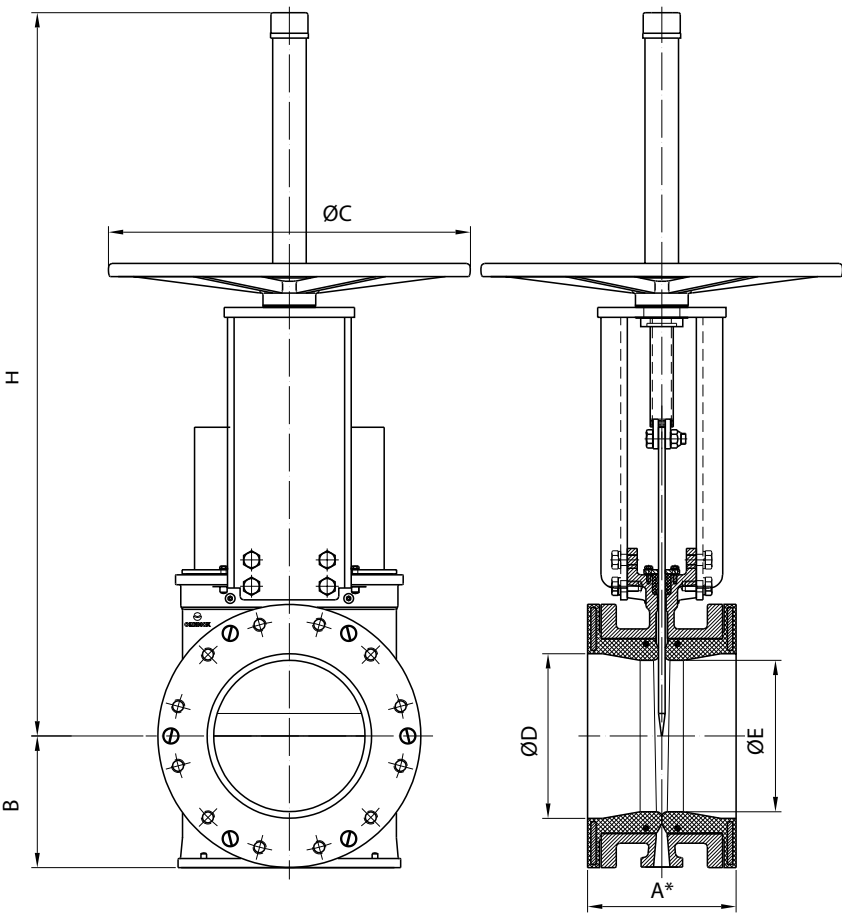
INTERMEDIATE



CLOSED

# HANDWHEEL RISING STEM

Standard manual actuator, available from DN 50 to DN 100 (larger diameters on request) and recommended with gearbox from DN 150 and above

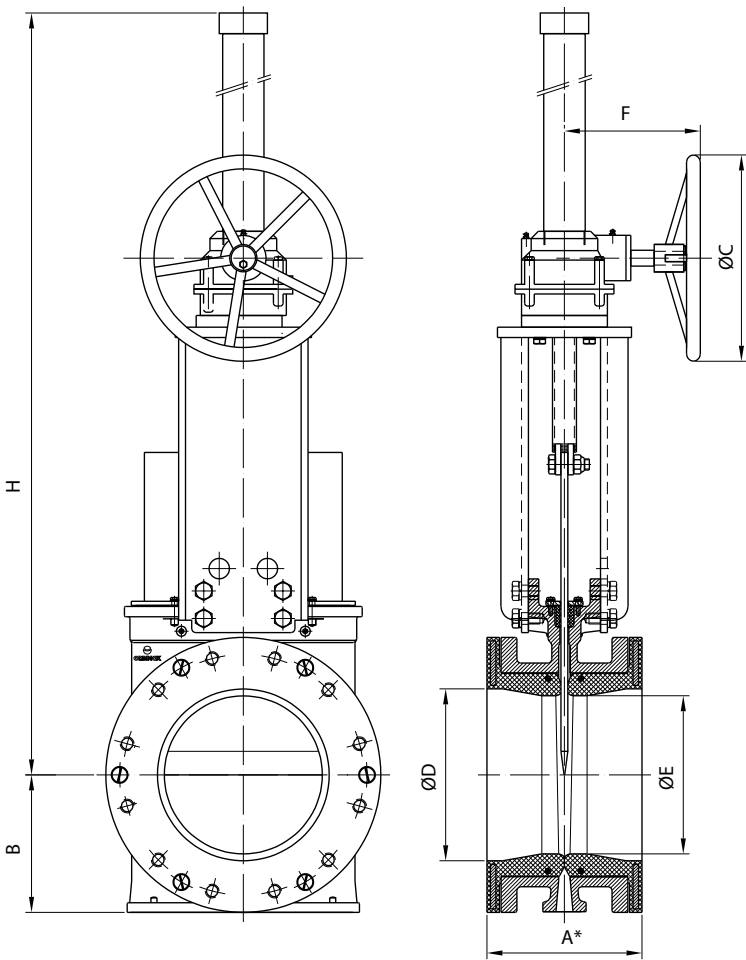


DN	A1 *	A2 *	B	ØC	H	ØD	ØE	Weight (Kg)
50	165	172	85	225	460	50	45	20
80	175	183	90	225	545	72	62	29
100	175	183	100	310	620	100	85	42

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

BEVEL GEAR RISING STEM

Recommended for valves larger than DN 100



DN	A1 *	A2 *	B	ØC	H	F	ØD	ØE	Weight (Kg)
150	178	186	130	300	900	263	148	137	92
200	184	192	160	300	990	263	197	175	133
250	225,5	233	200	300	1510	263	250	230	-
300	257	264	232	450	1590	263	292	273	-
350	257	264	258	450	1700	263	337	318	340
400	279,5	287	292	450	1780	263	375	356	428
450	311	319	318	450	2175	263	425	378	-
500	359	367	345	650	2305	263	470	420	-
600	371,5	380	400	650	2520	263	585	539	-

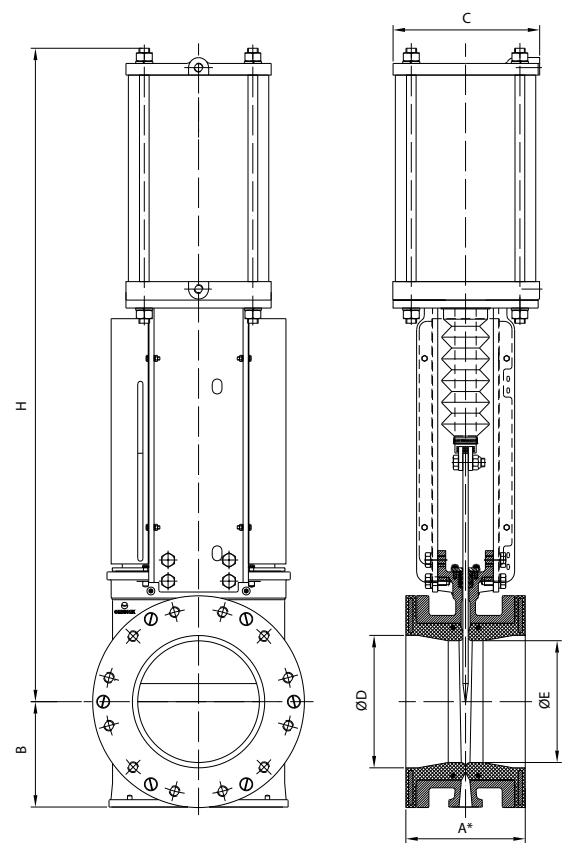
A1 \*: installed face to face A2 \*: minimum required dimension for installation



PNEUMATIC CYLINDER

With a double-acting pneumatic cylinder as standard, it is available in sizes from DN 50 to DN 400. 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



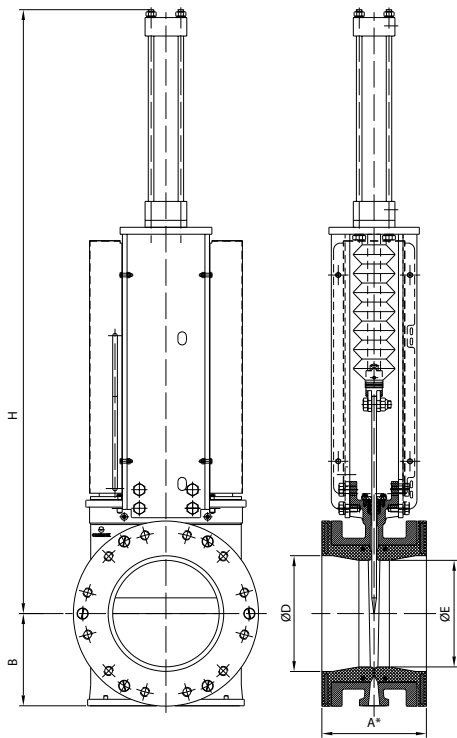
DN	A1 *	A2 *	B	C	H	ØD	ØE	Connect.	Weight (Kg)
50	165	172	85	115	531	50	45	1/4" G	23
80	175	183	90	175	559	72	62	1/4" G	34
100	175	183	100	220	618	100	85	1/4" G	51
150	178	186	130	277	785	148	137	3/8" G	-
200	184	192	160	382	947	197	175	3/8" G	92
250	222,5	233	200	444	1165	250	230	1/2" G	149
300	257	264	232	515	1332	292	273	3/4" G	218
350	257	264	258	444	1590	337	318	3/4" G	-
400	279,5	287	292	444	1715	375	356	3/4" G	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 DN 50 to DN 1000 with PVC bellows. Open-closed lockout, pressure indicators (mechanical and inductive), position transducers, hydraulic groups and electrical cabinets are optional.

Hydraulic pressure: 100 bar and maximum hydraulic pressure: 160 bar



DN	A1 *	A2 *	B	H	ØD	ØE	Connect.
50	165	172	85	555	50	45	1/4" G
80	175	183	90	637	72	62	1/4" G
100	175	183	100	693	100	85	3/8" G
150	178	186	130	883	148	137	1/2" G
200	184	192	160	1037	197	175	3/4" G
250	222,5	233	200	1309	250	230	3/4" G
300	257	264	232	1480	292	273	1" G
350	257	264	258	1627	337	318	1" G
400	279,5	287	292	1778	375	356	1" G
450	311	319	318	1966	425	378	1" G
500	359	367	345	2188	470	420	1" G
600	371,5	380	400	2594	585	539	1 1/4" G
650	378	388	475	2700	635	597	1" G
700	378	388	475	2700	635	597	1" G
750	395.5	405	515	2987	737	680	1" G
800	470	480	560	3000	788	719	1" G
850	470	480	560	3000	788	719	1" G
900	470	480	620	3566	889	810	1" G
1000	536	546	672	3450	990	920	1" G

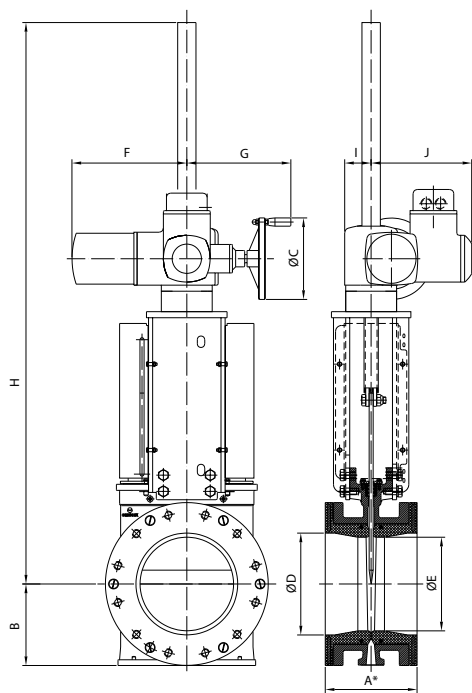
A1\*: installed face to face A2\*: minimum required dimension for installation

# ELECTRIC ACTUATOR RISING STEM

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

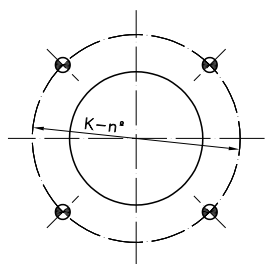


DN	A1 *	A2 *	B	ØC	H	F	G	I	J	ØD	ØE
50	165	172	85	160	618	265	249	62	238	50	45
80	175	183	90	160	1000	265	249	62	238	72	62
100	175	183	100	160	1035	265	249	62	238	100	85
150	178	186	130	160	1135	265	249	62	238	148	137
200	184	192	150	200	1245	282	254	65	248	197	175
250	222,5	233	200	200	1378	282	254	65	248	250	230
300	257	264	232	200	1470	282	254	65	248	292	273
350	257	264	258	315	1657	385	336	91	286	337	318
400	279,5	287	292	315	1732	385	336	91	286	375	356
450	311	319	318	315	1974	385	336	91	286	425	378
500	359	367	345	400	2481	385	339	91	286	470	420
600	371,5	380	400	400	2630	385	339	91	286	585	539
650	378	388	475	400	2770	389	339	90	286	635	597
700	378	388	475	400	2770	389	339	90	286	635	597
750	395.5	405	515	500	3053	510	365	117	303	737	680
800	470	480	560	500	3035	430	365	115	303	788	719
850	470	480	560	500	3035	430	365	115	303	788	719
900	470	480	620	500	3408	510	365	117	303	889	810
1000	536	546	672	500	3300	510	365	117	303	990	920

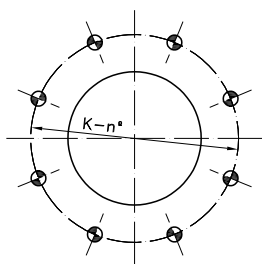
A1 \*: installed face to face A2 \*: minimum required dimension for installation

## FLANGE AND BOLTING DETAILS EN-1092 PN25

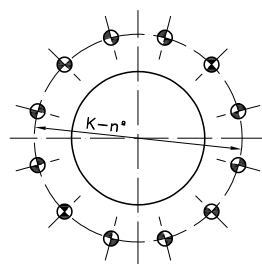
DN	K	n°	M	T	
50	125	4	M-16	36	4
80	160	8	M-16	39	8
100	190	8	M-20	39	8
150	250	8	M-24	42	8
200	310	12	M-24	45	12
250	370	12	M-27	47	12
300	430	16	M-27	52	16
350	490	16	M-30	57	16
400	550	16	M-33	61	16
450	600	20	M-33	63	20
500	660	20	M-33	67	20
600	770	20	M-36	72	20
700	875	24	M-39	73	24
800	990	24	M-45	82	24
900	1090	28	M-45	91	28
1000	1210	28	M-52	91	28



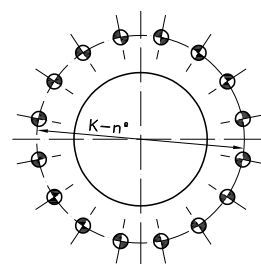
DN 50



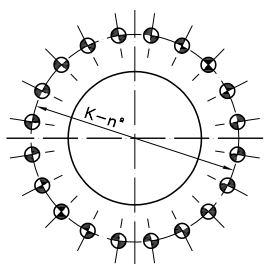
DN 80-150



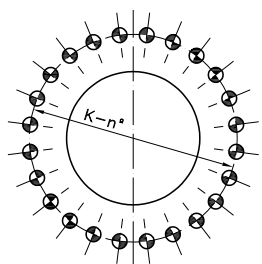
DN 200-250



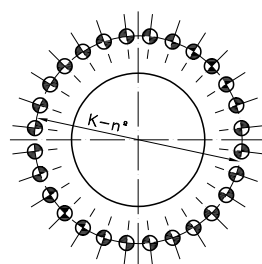
DN 300-400



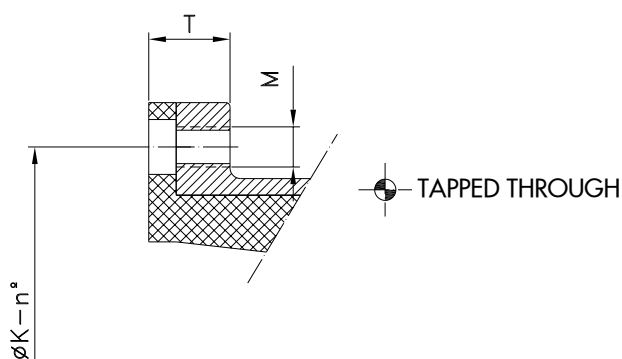
DN 450-600



DN 700-800



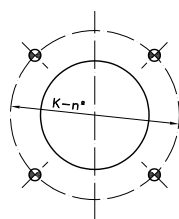
DN 900-1000



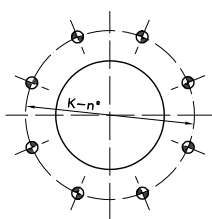
## FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150\*

DN	K	n°	M	T	
2"	4 3/4"	4	5/8" - 11 UNC	1 1/4"	4
3"	6"	4	5/8" - 11 UNC	1 1/2"	4
4"	7 1/2"	8	5/8" - 11 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

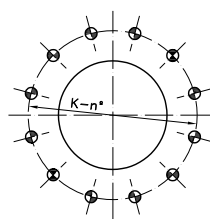
\* From NPS 24, acc. to ASME B16.47 Series A (class 150)



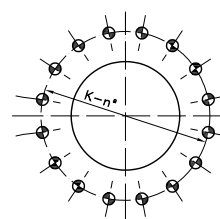
DN 2" - 3"



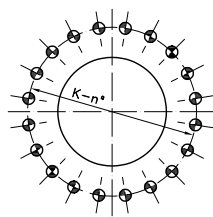
DN 4" - 8"



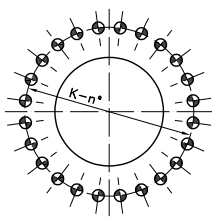
DN 10" - 14"



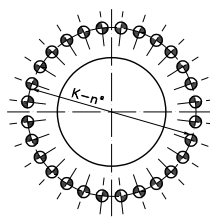
DN 16" - 18"



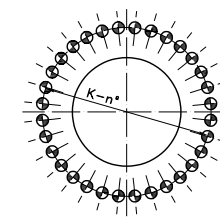
DN 20" - 24"



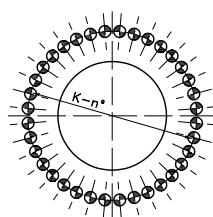
DN 26"



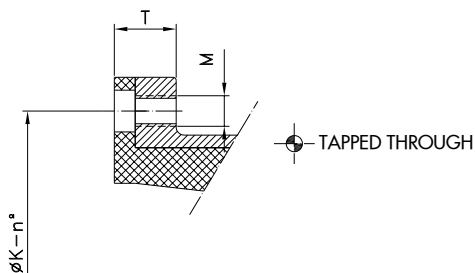
DN 28" - 32"



DN 34" - 36"



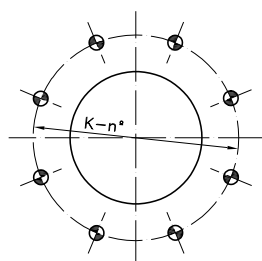
DN 40"



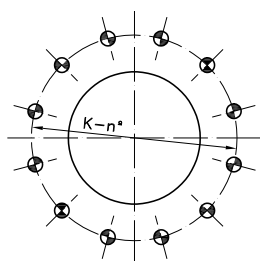
## FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 300\*

DN	K	n°	M	T	
2"	5"	8	5/8" - 11 UNC	1 1/4"	8
3"	6 5/8"	8	3/4" - 10 UNC	1 1/2"	8
4"	7 7/8"	8	3/4" - 10 UNC	1 1/2"	8
6"	10 5/8"	12	3/4" - 10 UNC	1 1/2"	12
8"	13"	12	7/8" - 9 UNC	1 3/4"	12
10"	15 1/4"	16	1" - 8 UNC	1 3/4"	16
12"	17 3/4"	16	1 1/8" - 7 UNC	2"	16
14"	20 1/4"	20	1 1/8" - 7 UNC	2 1/4"	20
16"	22 1/2"	20	1 1/4" - 7 UNC	2 1/4"	20
18"	24 3/4"	24	1 1/4" - 7 UNC	2 1/2"	24
20"	27"	24	1 1/4" - 7 UNC	2 1/2"	24
24"	32"	24	1 1/2" - 6 UNC	2 3/4"	24
26"	34.5"	28	1 5/8" - 8 UN	2 3/4"	28
28"	37"	28	1 5/8" - 8 UN	2 3/4"	28
30"	39 1/4"	28	1 3/4" - 5 UNC	3"	28
32"	41 1/2"	28	1 7/8" - 8 UN	3 1/4"	28
34"	43.5"	28	1 7/8" - 8 UN	3 1/4"	28
36"	46"	32	2" - 4.5 UNC	3 1/2"	32
40"	45.5"	32	1 5/8" - 8 UN	3 1/2"	32

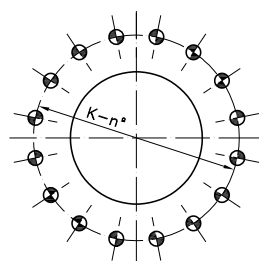
\* From NPS 24, acc. to ASME B16.47 Series A (class 300)



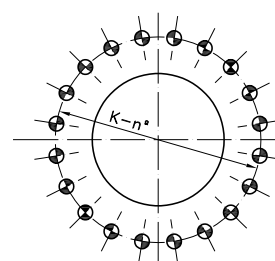
DN 2" - 5"



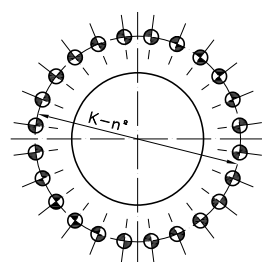
DN 6" - 8"



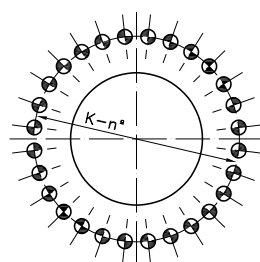
DN 10" - 12"



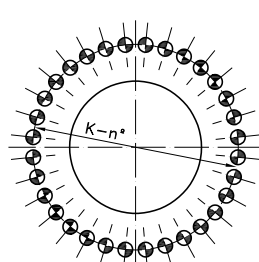
DN 14" - 16"



DN 18" - 24"



DN 26" - 34"



DN 36" - 40"

