

**MODEL****VG****SERIES 61**

## RUBBER SLEEVE KNIFE GATE VALVE

The VG(SER.61) model knife gate is a bi-directional wafer valve equipped with two metal reinforced rubber sleeves, designed for applications with abrasive slurries. The VG(SER.61) slurry knife gate valve is mainly used in industries such as:

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

### Sizes:

DN 2"/50mm to 36"/DN 900mm (larger DN on request)

### Working pressure:

DN 2"/50mm to 16"/400mm 150 psi/(10 kg/cm<sup>2</sup>)  
 DN 18"/450mm to 24"/600mm 90 psi/( 6 kg/cm<sup>2</sup>) or 150psi/(10 kg/cm<sup>2</sup>) <sup>(1)</sup>  
 DN 28"/700mm to 36"/900mm 75 psi/( 5 kg/cm<sup>2</sup>) or 150psi/(10 kg/cm<sup>2</sup>) <sup>(1)</sup>  
 Higher pressures and/or diameters on request  
<sup>(1)</sup> Duplex gate for 150psi/(10 kg/cm<sup>2</sup>)

### Standard Flange connection:

EN 1092 PN 10 and ANSI B16.5 (class 150)

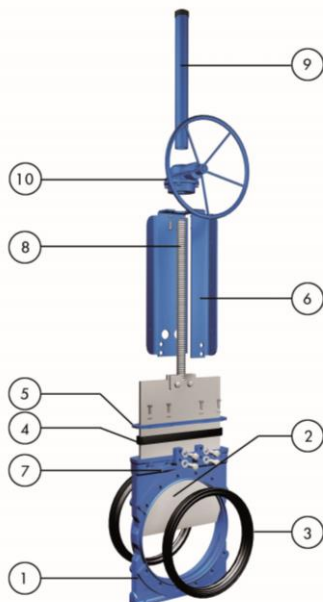
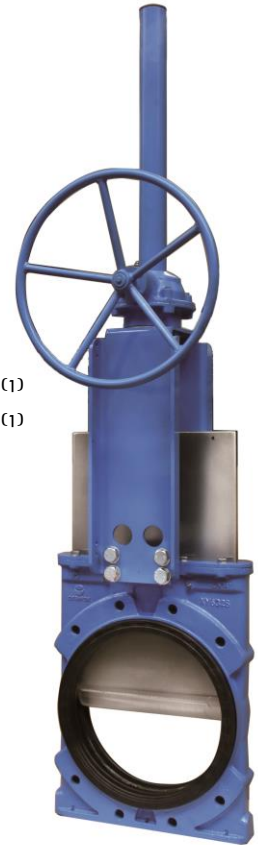
Other: (On request)

EN 1092 PN 6      EN 1092 PN 16      EN 1092 PN 25  
 BS "D" and "E"      Others on request

### Directives:

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

All ORBINOX valves are tested prior to shipping



### STANDARD PARTS LIST

Part:	Materials:
1- Body	Ductile iron A536 (60-40-18) / 0.7040 / GJS 400
2- Gate	AISI 304 (1.4301) / AISI 316 (1.4401)
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	/



Reserves the right to change specifications without notice

ORBINOX CANADA, ORBINOX USA, ORBINOX BRAZIL, ORBINOX CHILE, ORBINOX PERU, ORBINOX SPAIN, ORBINOX UK, ORBINOX FRANCE, ORBINOX GERMANY, ORBINOX INDIA, ORBINOX CHINA, ORBINOX S.E.A.

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OBX 10/22

Rev.13

VG (SER.61)\_1

## DESIGN FEATURES

### BODY:

Wafer 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. It is equipped with two machined lateral mouths where the sleeves fit perfectly. 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 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. The patented sleeve design allows for maximum flexibility during gate travel, minimising the effort necessary for its 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. See available materials on page VG(SER.61)-6.

### 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 it with a high resistance to corrosion and a long life. In rising stem valves the stem protector also protects the spindle against dirt.

### ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and supplied with a standard mounting kit for installation purposes on site.

### YOKE or ACTUATOR SUPPORT:

Made of steel (stainless steel available on request) and EPOXY coated. Its robust design provides it with great rigidity, withstanding the most adverse operating conditions. Reinforced design is standard starting from DN 8"/200mm.

### EPOXY COATING:

The epoxy coating on all ORBINOX cast iron and carbon steel 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.

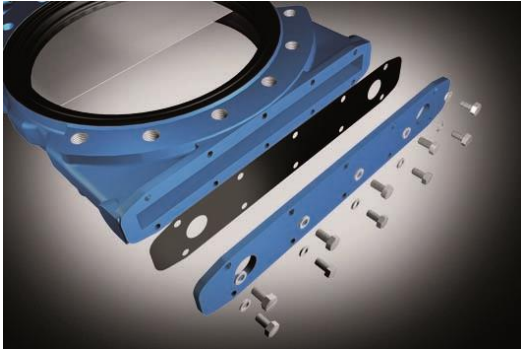
\*ONLY IN EUROPE



## 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



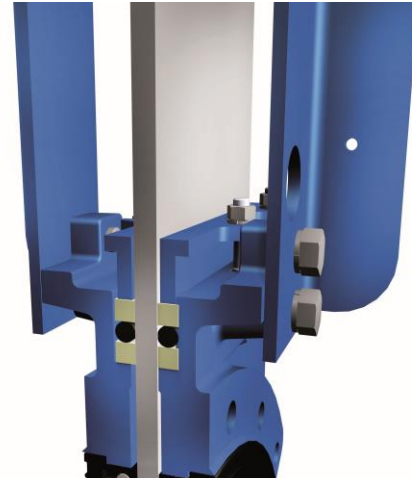
(Fig. 2) Tubular design

### Conventional leak proof packing (Fig. 3 and 4):

The VG (SER.61) can use conventional leak proof packing and packing gland follower which guarantee full tightness at maximum design pressure.



(Fig. 3) Standard packing



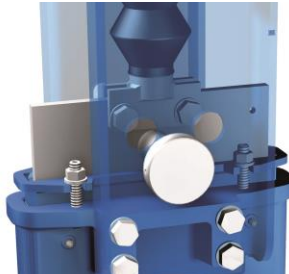
(Fig. 4) Optional: conventional leak proof packing

We recommend to contact our technical department

## OTHER OPTIONS

### Open-closed lockout system (Fig. 5):

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



(Fig. 5)

### Other materials of constructions:

Other materials may be used, such as carbon steel, different stainless steels (AISI 316, AISI 317, 2205, ...), 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)

### 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. 6)

### Gate coatings:

Gates can be provided with different coatings to improve wear and corrosion resistance, non-adherence properties, etc.

We recommend to contact our technical department

## ACTUATOR TYPES

### MANUAL:

Handwheel (rising stem)  
 Bevel Gear  
 Others (on request)



### AUTOMATIC:

Electric (rising stem)  
 Pneumatic (single & double-acting)  
 Hydraulic



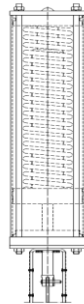
All actuators supplied by ORBINOX are interchangeable

## FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

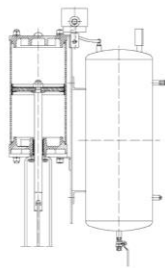
### SINGLE ACTING (SPRING RETURN)

- Available from  
 DN 2"/50mm to DN 12"/300mm
- Supply pressure:
  - min. 75 psi / (5 kg/cm<sup>2</sup>)
  - max. 150 psi / (10 kg/cm<sup>2</sup>)
- Options:
  - Pneumatic or electric fail open
  - Pneumatic or electric fail close
  - Other options on request



### DOUBLE ACTING WITH AIR TANK

- Available for all valve sizes
- Supply pressure:
  - min. 50 psi / (3.5 kg/cm<sup>2</sup>)
  - max. 150 psi / (10 kg/cm<sup>2</sup>)
- Options:
  - Pneumatic or electric fail open
  - Pneumatic or electric fail close
  - Other options on request



## ACCESSORIES

Open-closed lockout  
 Mechanical stops  
 Manual override actuators  
 Solenoid valves  
 Positioners  
 Limit switches  
 Proximity switches  
 Floor stand  
 Spindle extensions

*For further information, please see corresponding EX(SER. 10) catalog*

We recommend to contact our technical department

**MODEL****VG****SERIES 61****TEMPERATURE CHART****SEAT / SLEEVES**

Material	Min/Max T.(°F)	Min/Max.T. (°C)	Applications
Natural rubber	-22/167	-30/75	General
EPDM	-22/248	-30/120	Acids/Non-mineral oils
Neoprene	-22/194	-30/90	Oils/Solvents
Chlorobutyl	-22/257	-30/125	High temperatures
NBR	-22/248	-30/120	Hydrocarbons/Oils/Greases

**PACKINGS**

Material	Max.T. (°F)	(°C)
EPDM	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

**SEAT**

The closure of the VG(SER.61) 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



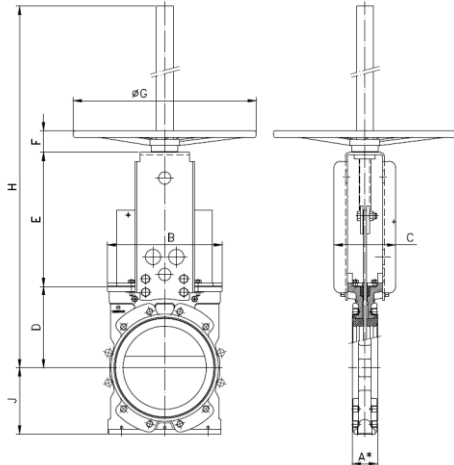
INTERMEDIATE



CLOSED

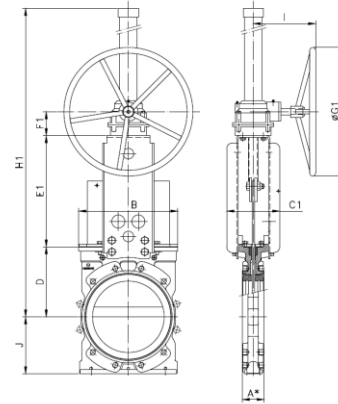
**HAND OPERATED (rising stem)**

**HANDWHEEL**



- Consists of: - Epoxy coated cast iron handwheel  
- Yoke  
- Stem and stem nut  
- Stem protector
- Available from DN 2"/50mm to DN 24"/600mm (larger sizes on request)
- Options (on request):  
- Open-closed lockout  
- Extensions and floor stands  
- PVC bellow
- Note: bevel gear is recommended for valve sizes DN>8"/200mm (full force on handwheel > DN 56lb/250N)

**GEAR**



- Recommended for valves larger than DN 8"/200mm
- Consists of:  
- Stem and stem protector  
- Yoke  
- Bevel Gear Actuator with Handwheel
- Available from DN (8"/200mm to DN 36"/900mm)
- Options (on request):  
- Chainwheel  
- Open-closed lockout  
- Extensions and floor stands  
- PVC bellow

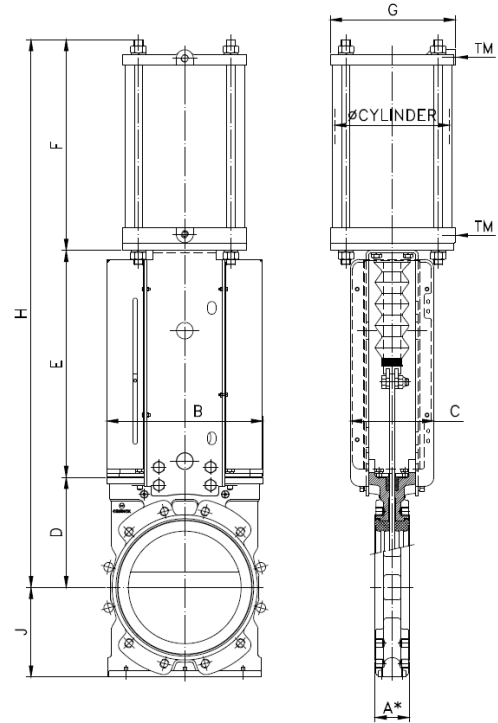
DN	GEAR	A1*	A2*	B	C	C1	D	E	EI	F	FI	ØG	ØG1	H	H1	J	I
2"/50	-	2.12/54	2.36/60	5.67/144	4/100	-	4.13/105	5.79/147	-	1.85/47	-	8.86/225	-	17.52/445	-	2.48/63	-
2 1/2"/65	-	2.12/54	2.36/60	6.46/164	4/100	-	4.52/115	6.38/162	-	1.85/47	-	8.86/225	-	18.50/470	-	2.75/70	-
3"/80	-	2.24/57	2.48/63	7.05/179	4/100	-	4.88/124	6.97/177	-	1.85/47	-	8.86/225	-	19.49/495	-	3.54/90	-
4"/100	-	2.24/57	2.48/63	6.73/171	4.21/107	-	5.52/140	7.60/193	-	30.20/67	-	12.20/310	-	54.39/645	-	4/100	-
5"/125	-	2.5/63,5	2.71/69	8.23/209	4.21/107	-	6/150	9.21/234	-	30.20/67	-	12.20/310	-	28/700	-	4.80/122	-
6"/150	-	2.5/63,5	2.71/69	9.37/238	4.21/107	-	6.89/175	10.20/259	-	30.20/67	-	12.20/310	-	29.33/745	-	5.07/129	-
8"/200	FL.4	3/76	3.26/83	11.45/291	6.50/165	6.50/165	8.07/205	12.83/326	12.40/315	2.75/70	4.29/109	16.14/410	12/300	37.20/945	40.94/1040	6.46/164	8/200
10"/250	FL.4	3/76	3.26/83	13.62/346	-	7.28/185	9.64/245	-	15.31/389	-	3.30/84	-	12/300	-	41.73/1060	7.83/199	8/200
12"/300	FL.4	3.24/82,5	3.54/90	15.67/398	-	10/250	11.02/280	-	17.55/446	-	3.30/84	-	12/300	-	57.48/1460	9.09/231	8/200
14"/350	FL.4	3.24/82,5	3.54/90	18/450	-	10/250	12.79/325	-	19.72/501	-	3.30/84	-	18/450	-	60.23/1530	10.12/257	8.66/220
16"/400	FL.4	3.74/95	4.02/102	20.11/511	-	10.63/270	14/350	-	21.97/558	-	3.30/84	-	18/450	-	64.57/1640	11.45/291	8.66/220
18"/450	FL.4	3.74/95,5	4.06/103	22.20/564	-	11.42/290	16.53/420	-	24.60/625	-	3.30/84	-	18/450	-	68.90/1750	12.48/317	8.66/220
20"/500	FL.6	4.76/121	5.08/129	24.52/623	-	11.42/290	18.19/462	-	27/686	-	4.02/102	-	25.60/650	-	75.98/1930	13.58/345	11.33/288
24"/600	FL.6	4.76/121	5.08/129	28.74/730	-	11.42/290	20.08/510	-	30.70/780	-	4.02/102	-	25.60/650	-	84.65/2150	16.26/413	11.33/288
28"/700	FL.6	7.12/181	7.48/190	33.26/845	-	12.60/320	22.64/575	-	35.27/896	-	4.02/102	-	25.60/650	-	102.95/2615	18.70/475	11.33/288
30"/750	FL.6	7.36/187	36.04/195	36.22/920	-	12.60/320	23.82/605	-	38.78/985	-	4.02/102	-	25.60/650	-	179.48/2730	20/500	11.33/288
32"/800	FL.6	8.11/206	8.42/214	39.68/1008	-	12.60/320	25.79/655	-	41.72/1085	-	4.02/102	-	25.60/650	-	113.38/2880	21.65/550	11.33/288
36"/900	FL.6	8.87/225,5	9.21/234	43.50/1105	-	12.60/320	27.75/705	-	45.86/1165	-	4.02/102	-	25.60/650	-	118.50/3010	24.40/620	11.33/288

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



PNEUMATIC ACTUATOR

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - $\varnothing \leq 12''/300\text{mm}$ : Aluminum barrels
  - $\varnothing \geq 14''/350\text{mm}$ : Composite barrels
  - Aluminum end caps
  - Stainless Steel (AISI 304) piston rod
  - Nitrile coated steel piston
  - PVC bellows
- Available from DN 2''/50mm to DN 24''/600mm
- Supply Pressure: 90psi / (6 kg/cm<sup>2</sup>)
- Reinforced design of support plates is standard starting from DN 8''/200mm
- Options (on request):
  - Hard anodized barrel and covers
  - Stainless steel barrel and covers on request
  - Open-closed lockout
  - Manual override actuator
  - Fail-safe systems
- Instrumentation (on request):
  - Positioners
  - Flow regulators
  - Solenoid valves
  - Air preparation unit
- Note: in order to guarantee the correct functioning of the pneumatic cylinder for the catalogue pressures, a supply pressure of 90psi/(6 kg/cm<sup>2</sup>) is required. For lower pressures, we recommend to contact our technical department



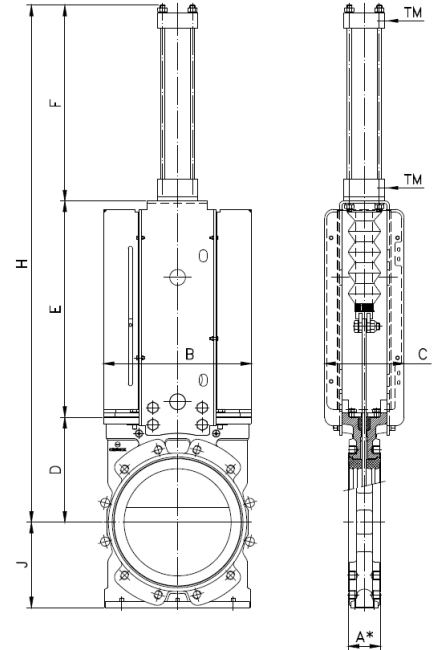
DN(″/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	G	H	J
2″/50	C4″-3.15″/(100-80)	¼″ G	2.12/54	2.36/60	5.67/144	4/100	4.13/105	8.30/211	8 / 200	4.58/115	20.31/516	2.48/63
2 ½″/65	C4″-3.74″/(100-95)	¼″ G	2.12/54	2.36/60	6.46/164	4/100	4.52/115	8.70/221	8.42/214	4.58/115	21.65/550	2.75/70
3″/80	C5″-4.33″/(125-110)	¼″ G	2.24/57	2.48/63	7.05/179	4/100	4.88/124	10.12/257	9.44/240	5.51/140	24.45/621	3.5/90
4″/100	C5″-5.12″/(125-130)	¼″ G	2.24/57	2.48/63	7.05/179	4.21/107	5.52/140	10.63/270	10.16/258	5.51/140	27.08/688	4/100
5″/125	C6.30″-6.30″/(160-160)	¼″ G	2.5/63.5	2.71/69	8.23/209	4.21/107	6/150	14.52/369	11.73/298	6.89/175	32.16/817	4.80/122
6″/150	C6.30″-7.28″/(160-185)	¼″ G	2.5/63.5	2.71/69	9.37/238	4.21/107	6.89/175	15.55/395	12.72/323	6.89/175	35.15/893	5.08/129
8″/200	C8″-9.44″/(200-240)	3/8″ G	2.99/76	3.26/83	11.45/291	6.50/165	8.07/205	18.26/464	15.67/398	8.66/220	42.01/1067	6.46/164
10″/250	C10″-11.42″/(250-290)	3/8″ G	2.99/76	3.26/83	13.62/346	7.28/185	9.64/245	19.88/505	18.50/470	10.90/277	48.03/1220	7.83/199
12″/300	C12″-13.58″/(300-345)	1/2″ G	3.24/82.5	3.54/90	15.67/398	10/250	11.02/280	25.83/656	21.18/538	13.18/335	58.03/1474	9.10/231
14″/350	C14″-15.55″/(350-395)	¾″ G	3.24/82.5	3.54/90	18/450	11.42/290	12.79/325	28.03/712	25.60/650	17.48/444	66.42/1687	10.12/257
16″/400	C14″-17.72″/(350-450)	¾″ G	3.74/95	4.02/102	20.11/511	11.42/290	13.77/350	30.27/769	27.75/705	17.48/444	71.81/1824	11.46/291
18″/450	C16″-19.68″/(400-500)	¾″ G	3.75/95.5	4.06/103	22.20/564	11.42/290	16.53/420	32.99/838	30.19/767	20.27/515	79.72/2025	12.48/317
20″/500	C16″-22.04″/(400-560)	¾″ G	4.76/121	5.08/129	24.52/623	11.42/290	18.19/462	35.31/897	33.03/839	20.27/515	86.53/2198	13.58/345
24″/600	C16″-25.78″/(400-655)	¾″ G	4.76/121	5.08/129	28.74/730	11.42/290	20.08/510	38.93/989	36.25/921	20.27/515	95.27/2420	16.26/413

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



HYDRAULIC ACTUATOR

- The hydraulic actuator consists of a double acting cylinder in accordance with ISO 6020/2
- Available from DN 2"/50mm to DN 36"/900mm with PVC bellows
- Hydraulic pressure: 1450psi/(100 kg/cm<sup>2</sup>)
- Maximum hydraulic pressure: 2320psi/(160 kg/cm<sup>2</sup>)
- Options:
  - Pressure indicators: mechanical and inductive
  - Open-closed lockout
  - Position transducers
  - Hydraulic groups
  - Electrical cabinets



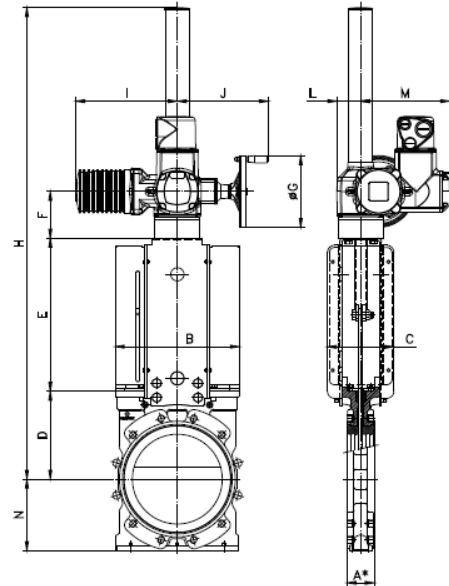
DN(“/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	H	J
2"/50	C1.25"-3.15"/(32-80)	¼" G	2.12/54	2.36/60	5.67/144	4/100	4.13/105	8.30/211	8.78/223	21.22/539	2.48/63
2 ½"/65	C1.25"-3.74"/(32-95)	¼" G	2.12/54	2.36/60	6.46/164	4/100	4.52/115	8.70/221	9.37/238	22.60/574	2.75/70
3"/80	C1.25"-4.33"/(32-110)	¼" G	2.24/57	2.48/63	7.05/179	4/100	4.88/124	10.12/257	9.96/253	24.96/634	3.5/90
4"/100	C1.25"-5.12"/(32-130)	¼" G	2.24/57	2.48/63	7.05/179	4.21/107	5.52/140	10.63/270	10.74/273	26.88/683	4/100
5"/125	C1.25"-6.30"/(32-160)	¼" G	2.5/63.5	2.71/69	8.23/209	4.21/107	6/150	14.52/369	11.93/303	32.36/822	4.80/122
6"/150	C1.25"-7.63"/(40-185)	3/8" G	2.5/63.5	2.71/69	9.37/238	4.21/107	6.89/175	15.55/395	13.97/355	36.42/925	5.08/129
8"/200	C1.97"-9.44"/(50-240)	1/2" G	2.99/76	3.26/83	11.45/291	6.50/165	8.07/205	18.26/464	16.26/413	42.59/1082	6.46/164
10"/250	C2.48"-11.42"/(63-290)	1/2" G	2.99/76	3.26/83	13.62/346	7.28/185	9.64/245	19.88/505	18.42/468	47.95/1218	7.83/199
12"/300	C3.15"-13.58"/(80-345)	¾" G	3.24/82.5	3.54/90	15.67/398	10/250	11.02/280	25.83/656	21.42/544	58.26/1480	9.10/231
14"/350	C3.15"-15.55"/(80-395)	¾" G	3.24/82.5	3.54/90	18/450	10/250	12.79/325	28.03/712	23.38/594	64.21/1631	10.12/257
16"/400	C3.15"-17.72"/(80-450)	¾" G	3.74/95	4.02/102	20.11/511	10.63/270	13.77/350	30.27/769	25.55/649	69.60/1768	11.46/291
18"/450	C4"-19.68"/(100-500)	¾" G	3.75/95.5	4.06/103	22.20/564	11.42/290	16.53/420	32.99/838	27.95/710	77.48/1968	12.48/317
20"/500	C4"-22.04"/(100-560)	¾" G	4.76/121	5.08/129	24.52/623	11.42/290	18.19/462	35.31/897	30.35/771	83.85/2130	13.58/345
24"/600	C4.92"-25.70"/(125-653)	1" G	4.76/121	5.08/129	28.74/730	11.42/290	20.08/510	38.93/989	33.58/853	92.59/2352	16.26/413
28"/700	C4"-30.12"/(100-765)	¾" G	7.12/181	7.48/190	33.26/845	12.60/320	22.68/575	43.31/1100	38.42/976	104.37/2651	18.70/475
30"/750	C4"-32.09"/(100-815)	¾" G	7.36/187	7.67/195	36.22/920	12.60/320	23.82/605	45.28/1150	40.39/1026	109.49/2781	20/500
32"/800	C4"-34.25"/(125-870)	1" G	8.11/206	8.42/214	39.68/1008	12.60/320	25.78/655	47.44/1205	43.31/1100	116.93/2970	21.65/550
36"/900	C4"-38.38"/(125-975)	1" G	8.87/225.5	9.21/234	43.50/1105	12.60/320	27.75/705	51.57/1310	47.83/1215	127.16/3230	24.41/620

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

Reserves the right to change specifications without notice

**ELECTRIC ACTUATOR (rising stem)**

- Automatic actuator which consists of:
  - Electric motor
  - Motor support yoke flange (standardised flanges as per ISO 5210/DIN 3338)
- The standard electric motor is equipped with:
  - Manual emergency handwheel
  - Limit switches (open/closed)
  - Torque switches
- Available from DN 2"/50mm to DN 36"/900mm
- Wide range of types and brands available to meet customer requirements
- Options: (on request)
  - Open-closed lockout



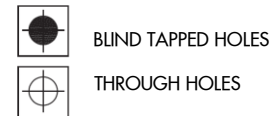
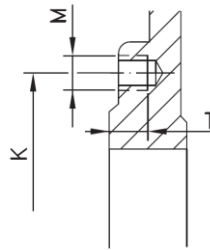
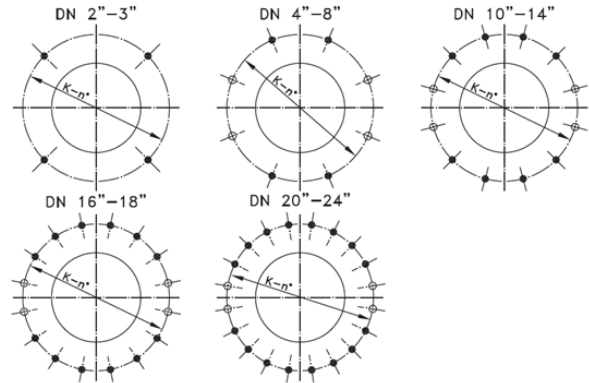
DN ("/mm)	A1*	A2*	B	C	D	E	F	ØG	H	I	J	LHAND	M	HANDWHEEL	N
2"/50	2.12/54	2.36/60	5.67/144	4/100	4.13/105	5.70/145	5.63/143	6.30/160	23.74/603	10.43/265	9.80/249	2.44/62	9.37/238	2.48/63	
2½"/65	2.12/54	2.36/60	6.46/164	4/100	4.52/115	6.29/160	5.63/143	6.30/160	24.72/628	10.43/265	9.80/249	2.44/62	9.37/238	2.75/70	
3"/80	2.24/57	2.48/63	7.05/179	4/100	4.88/124	7.28/185	5.63/143	6.30/160	26.06/662	10.43/265	9.80/249	2.44/62	9.37/238	3.54/90	
4"/100	2.24/57	2.48/63	7.05/179	4.21/107	5.52/140	7.68/195	5.63/143	6.30/160	27.08/688	10.43/265	9.80/249	2.44/62	9.37/238	3.93/100	
5"/125	2.5/63.5	2.71/69	8.23/209	4.21/107	6/150	9.25/235	5.63/143	6.30/160	43.31/1100	10.43/265	9.80/249	2.44/62	9.37/238	4.80/122	
6"/150	2.5/63.5	2.71/69	9.37/238	4.21/107	6.89/175	10.24/260	5.63/143	6.30/160	45.59/1158	10.43/265	9.80/249	2.44/62	9.37/238	5.08/129	
8"/200	2.99/76	3.26/83	11.45/291	6.50/165	8.07/205	13.00/330	6.10/155	7.87/200	50.07/1272	11.14/283	10/254	2.55/65	9.76/248	6.45/164	
10"/250	2.99/76	3.26/83	13.62/346	7.28/185	9.64/245	15.94/405	6.10/155	7.87/200	54.60/1387	11.14/283	10/254	2.55/65	9.76/248	7.83/199	
12"/300	3.24/82.5	3.54/90	15.67/398	10/250	11.02/280	18.19/462	6.10/155	7.87/200	57.24/1454	11.14/283	10/254	2.55/65	9.76/248	9.09/231	
14"/350	3.24/82.5	3.54/90	18/450	10/250	12.79/325	20.47/520	6.22/158	12.40/315	63.07/1602	15.31/389	13.22/336	3.54/90	1.25/286	10.12/257	
16"/400	3.74/95	4.02/102	20.11/511	10.63/270	13.77/350	22.83/580	6.22/158	12.40/315	66.53/1690	15.31/389	13.22/336	3.54/90	11.25/286	11.46/291	
18"/450	3.75/95.5	4.06/103	22.20/564	11.42/290	16.53/420	25.39/645	6.22/158	16/400	71.78/1822	15.31/389	13.22/336	3.54/90	11.25/286	12.48/317	
20"/500	4.76/121	5.08/129	24.52/623	11.42/290	18.19/462	27.75/705	6.22/158	16/400	75.78/1925	15.31/389	13.34/339	3.54/90	11.25/286	13.58/345	
24"/600	4.76/121	5.08/129	28.74/730	11.42/290	20.08/510	31.65/804	6.22/158	20/500	83.46/2120	16.93/430	14.37/365	4.53/115	11.93/303	16.26/413	
28"/700	7.12/181	7.48/190	33.26/845	12.60/320	22.68/575	36.81/935	6.22/158	16/400	109.05/2770	15.31/389	13.34/339	3.58/91	11.25/286	18.70/475	
30"/750	7.36/187	7.67/195	36.22/920	12.60/320	23.82/605	38.07/967	7.48/190	20/500	113.38/2880	16.93/430	14.37/365	4.53/115	11.93/303	20/500	
32"/800	8.11/206	8.42/214	39.68/1008	12.60/320	25.78/655	42.44/1078	7.48/190	20/500	119.48/3035	16.93/430	14.37/365	4.53/115	11.93/303	21.65/550	
36"/900	8.87/225.5	9.21/234	43.50/1105	12.60/320	27.75/705	46.06/1170	7.48/190	20/500	125.20/3180	16.93/430	14.37/365	4.53/115	11.93/303	24.40/620	

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

FLANGE AND BOLTING DETAILS

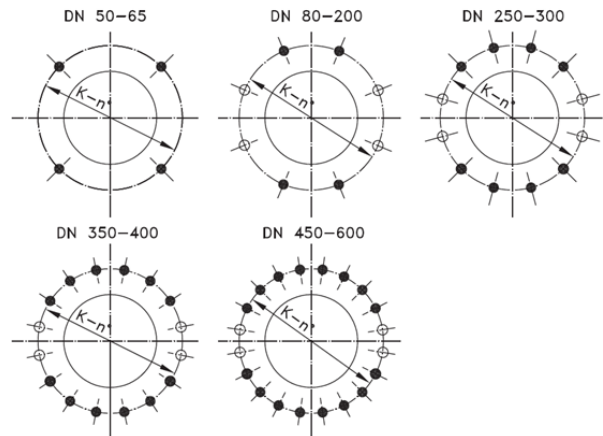
ASME B16.5, class 150

DN	K	n°	M	T	⊕ ⊖
2"	4 3/4"	4	5/8" - 11 UNC	3/8"	4 - 0
2 1/2"	5 1/2"	4	5/8" - 11 UNC	1/2"	4 - 0
3"	6"	4	5/8" - 11 UNC	1/2"	4 - 4
4"	7 1/2"	8	5/8" - 11 UNC	1/2"	4 - 4
5"	8 1/2"	8	3/4" - 10 UNC	9/16"	4 - 4
6"	9 1/2"	8	3/4" - 10 UNC	9/16"	4 - 4
8"	11 3/4"	8	3/4" - 10 UNC	5/8"	4 - 4
10"	14 1/4"	12	7/8" - 9 UNC	5/8"	8 - 4
12"	17"	12	7/8" - 9 UNC	3/4"	8 - 4
14"	18 3/4"	12	1" - 8 UNC	3/4"	8 - 4
16"	21 1/4"	16	1" - 8 UNC	3/4"	12 - 4
18"	22 3/4"	16	1 1/8" - 7 UNC	3/4"	12 - 4
20"	25"	20	1 1/8" - 7 UNC	15/16"	16 - 4
24"	29 1/2"	20	1 1/4" - 7 UNC	15/16"	16 - 4



EN 1092 PN10

DN	K	n°	M	T	⊕ ⊖
50	125	4	M-16	10	4 - 0
65*	145	4	M-16	12	4 - 0
80	160	8	M-16	12	4 - 4
100	180	8	M-16	12	4 - 4
125	210	8	M-16	14	4 - 4
150	240	8	M-20	14	4 - 4
200	295	8	M-20	16	4 - 4
250	350	12	M-20	16	8 - 4
300	400	12	M-20	20	8 - 4
350	460	16	M-20	20	12 - 4
400	515	16	M-24	20	12 - 4
450	565	20	M-24	20	16 - 4
500	620	20	M-24	25	16 - 4
600	725	20	M-27	24	16 - 4



\* Flange drilling of DN-65 PN10/16 according to EN1092 allow 4 or 8 drills. ORBINOX designs of DN-65 PN10/16 have 4 drills