

MODEL**WG****SERIES 65**
ORBINOX
VALVE SOLUTIONS IN MORE THAN 70 COUNTRIES

RUBBER SLEEVE KNIFE GATE VALVE

The WG(SER.65) 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
- etc.
- Power plants
- Wastewater treatment

Sizes:

DN 3"/80mm to DN 36"/900mm (larger DN on request)

Working pressure:

DN 3"/ 80mm to 16"/400mm	150 psi/(10 bar)
DN 18"/450mm to 24"/600mm	90 psi/(6 bar) or 150psi/(10 bar) ⁽¹⁾
DN 30"/750mm	75 psi/(5 bar) or 150psi/(10 bar) ⁽¹⁾
DN 36"/900mm	75 psi/(5 bar) or 150psi/(10 bar) ⁽¹⁾
Higher pressures on request	
⁽¹⁾ Duplex gate for 10 bar (150 psi)	

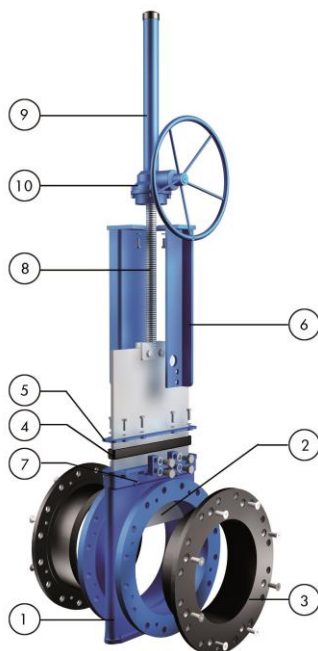
Standard Flange connection:

DIN PN 10 and ANSI B16.5 (class 150)

Directives:

2006/42/CE (MACHINES)
 2014/68/EU (PED) Fluid: Group 1(b), 2 (Cat. I, mod. A)
 2014/34/EU (ATEX)

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	-

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. See available materials on page WG(SER.65)-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 a high resistance to corrosion and a long life. In rising stem valves the stem protector protects the stem against dirt build up.

ACTUATORS:

All actuators supplied by ORBINOX are interchangeable, and are 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. 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



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.



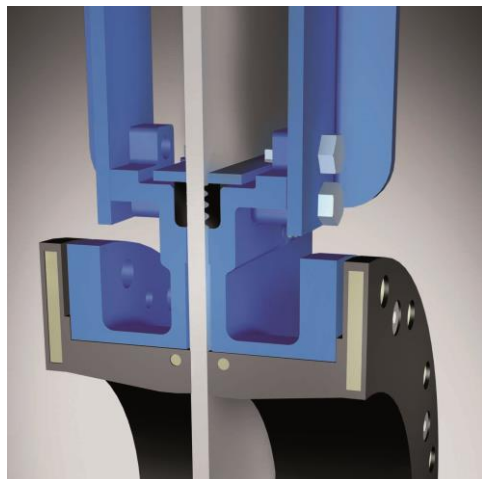
(Fig. 1) Flat plate



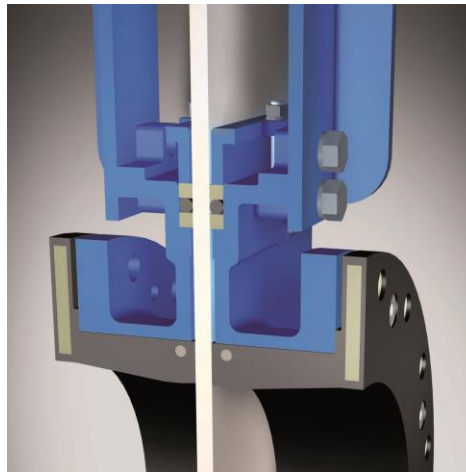
(Fig. 2) Tubular design

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

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



(Fig. 3) Standard packing



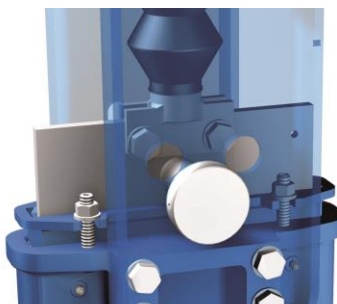
(Fig. 4) Optional: conventional leak proof packing

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 construction:

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

MODEL**WG****SERIES 65**

ACTUATOR TYPES

MANUAL:

Handwheel (rising stem)

Bevel Gear

Others (on request)

AUTOMATIC:

Electric (rising stem)

Pneumatic (single & double-acting)

Hydraulic



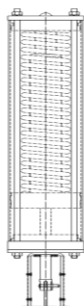
All actuators supplied by ORBINOX are interchangeable

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

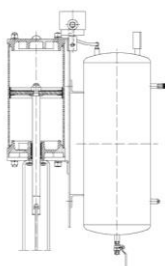
SINGLE ACTING (SPRING RETURN)

- Available from
DN 2"/50mm to DN 8"/200mm
- Supply pressure:
 - min. 75 psi/ (5 bar)
 - max. 150 psi/ (10 bar)
- 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 bar)
 - max. 150 psi / (10 bar)
- 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
Stem extensions

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

We recommend to contact our technical department

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
Nitrile	-22/248	-30/120	Hydrocarbons/Oils/Greases

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

PACKINGS

Material	Max.T. (°F)	(°C)
EPDM	248	120
PTFE impregn. synth. fiber (ST)	464	240

SEAT

The closure of the WG(SER.65) 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

ATEX

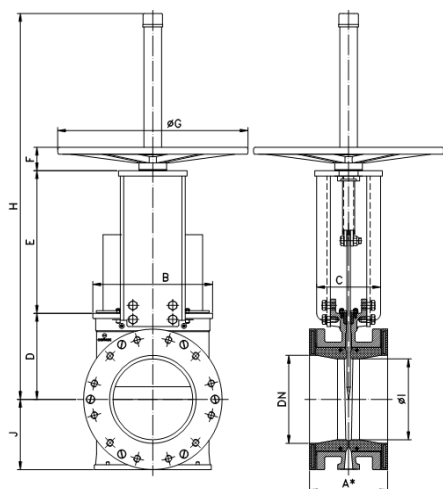


Please contact an ORBINOX representative for info and availability. Some considerations:

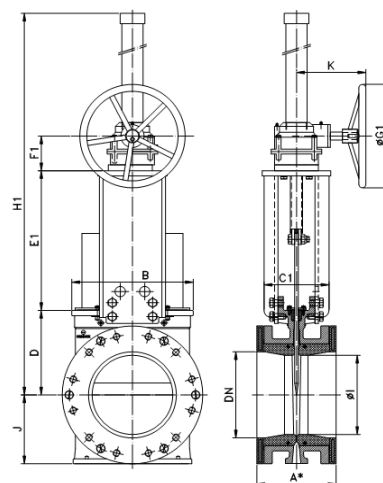
- Hand operated WG(SER.65) valves have been subjected to an ignition risk assessment according to DIN EN 13463: 1-5 and they are out the scope of application of ATEX Directive. Therefore hand operated valves are suitable for ALL ATEX zones.
- Electrically, pneumatically and hydraulically operated valves must be subjected to a conformity assessment of their own and also of the whole unit valve-actuator to get EC Type Approval to Directive 2014/34.

HAND OPERATED (rising stem)

HANDWHEEL



GEAR



- Consists of: - Epoxy coated cast iron handwheel
- Yoke
- Stem and stem nut
- Stem protector
- Available from DN 3"/80mm to DN 8"/200mm (larger sizes on request)
- Options (on request):
- Open-closed lockout
- Extensions and floor stands
- PVC bellows
- Splash guards
- Note: bevel gear is recommended for valve sizes DN>6"/150mm (full force on handwheel > 56lb/250 N)

- Recommended for valves larger than DN 6"/150mm
- 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 bellows

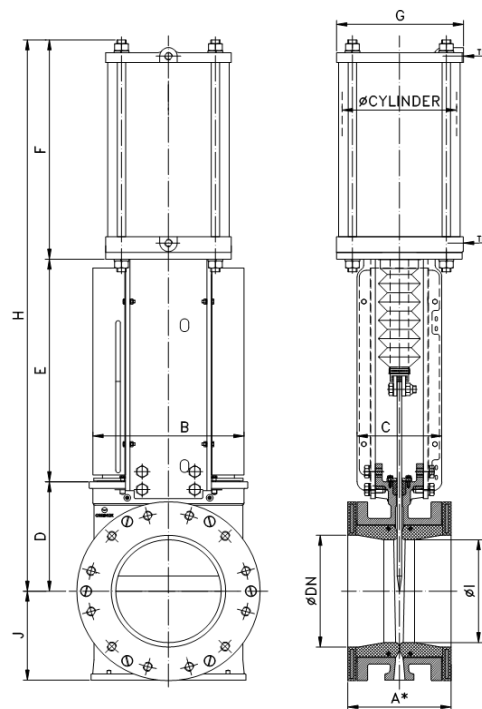
DN	GEAR	A1*	A2*	B	C	C1	D	E	E1	F	F1	ØG	ØG1	H	H1	J	K	ØI
3"/80	-	6.88/175	7.20/183	7.05/179	4/100	-	4.88/124	6.97/177	-	1.85/47	-	8.86/225	-	19.48/495	-	3.78/96	-	2.75/70
4"/100	-	6.88/175	7.20/183	6.73/171	4.21/107	-	5.52/140	7.60/193	-	2.63/67	-	12.20/310	-	25.39/645	-	4.53/115	-	3.34/85
6"/150	-	7/178	7.32/186	9.37/238	4.21/107	-	6.89/175	10.20/259	-	30.20/67	-	12.20/310	-	29.33/745	-	5.55/141	-	5.31/135
8"/200	FL0.4	7.24/184	7.55/192	11.61/295	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	6.81/173	8/200	7.08/180
10"/250	FL0.4	8.88/225.5	9.17/233	13.62/346	-	7.28/185	9.64/245	-	15.31/389	-	3.30/84	-	12/300	-	41.73/1060	8.03/204	8/200	9.05/230
12"/300	FL0.4	10.11/257	10.39/264	15.55/395	-	10/250	11.02/280	-	17.56/446	-	3.30/84	-	12/300	-	57.48/1460	9.61/244	8/200	11.02/280
14"/350	FL0.4	10.11/257	10.39/264	18/450	-	10/250	12.79/325	-	19.72/501	-	3.30/84	-	18/450	-	60.23/1530	10.55/268	8.66/220	12.99/330
16"/400	FL0.4	11/279.5	11.29/287	20.11/511	-	10.63/270	14/350	-	21.97/558	-	3.30/84	-	18/450	-	64.57/1640	11.81/300	8.66/220	14.96/380
18"/450	FL0.4	12.24/311	12.55/319	22.20/564	-	11.42/290	16.53/420	-	24.60/625	-	3.30/84	-	18/450	-	68.90/1750	12.60/320	8.66/220	16/400
20"/500	FL1.6	14.13/359	14.44/367	24.52/623	-	11.42/290	18.19/462	-	27/686	-	4.02/102	-	25.60/650	-	75.98/1930	14.13/359	11.34/288	18/450
24"/600	FL1.6	14.62/371.5	14.96/380	28.74/730	-	11.42/290	20.08/510	-	30.71/780	-	4.02/102	-	25.60/650	-	95.47/2425	16.61/422	11.34/288	21.65/550
30"/750	FL1.6	15.57/395.5	15.94/405	35.87/911	-	11.42/290	24/600	-	38.78/985	-	4.02/102	-	25.60/650	-	107.48/2730	20.94/532	11.34/288	26.77/680
36"/900	FL1.6	18.50/470	18.90/480	42.68/1084	-	11.42/290	28/700	-	45.87/1165	-	4.02/102	-	25.60/650	-	118.50/3010	24.92/633	11.34/288	31.88/810

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 3''/80mm to DN24''/ 600mm
- Supply Pressure: 90psi/(6 bar)
- 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
 - Splash guards
- Instrumentation (on request):
 - Positioners
 - Flow regulators
 - Solenoid valves
 - Air preparation unit
 - Limit/proximity switches
- Note: in order to guarantee the correct functioning of the pneumatic cylinder for the catalogue pressures, a supply pressure of 90psi/(6 bar) is required. For lower pressures, we recommend to contact our technical department



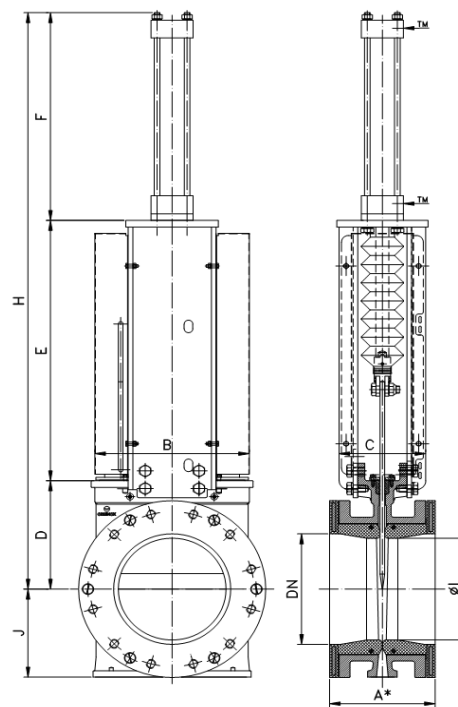
DN(″/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	G	H	J	ØI
3″/80	C5″-4.33″/(125-110)	¼″ G	6.88/175	7.20/183	7.05/179	4/100	4.88/124	10.12/257	9.44/240	5.51/140	24.45/621	3.78/96	2.75/70
4″/100	C5″-5.12″/(125-130)	¼″ G	6.88/175	7.20/183	6.73/171	4.21/107	5.52/140	10.63/270	10.16/238	5.51/140	26.30/668	4.53/115	3.34/85
6″/150	C6.30″-7.28″/(160-185)	¼″ G	7/178	7.32/186	9.37/238	4.21/107	6.89/175	15.55/395	12.72/323	6.89/175	35.15/893	5.55/141	5.31/135
8″/200	C8″-9.44″/(200-240)	3/8″ G	7.24/184	7.55/192	11.45/291	6.50/165	8.07/205	18.26/464	15.67/398	8.66/220	42.01/1067	6.81/173	7.08/180
10″/250	C10″-11.42″/(250-290)	3/8″ G	8.88/225.5	9.17/233	13.62/346	7.28/185	9.64/245	19.88/505	18.50/470	10.90/277	48.03/1220	8.03/204	9.05/230
12″/300	C12″-13.58″/(300-345)	1/2″ G	10.11/257	10.39/264	15.67/398	10/250	11.02/280	25.60/650	21.18/538	13.18/335	58.03/1474	9.61/244	11.02/280
14″/350	C14″-15.55″/(350-395)	¾″ G	10.11/257	10.39/264	18/450	11.42/290	12.79/325	28.03/712	25.60/650	17.48/444	66.42/1687	10.55/268	12.99/330
16″/400	C14″-17.72″/(350-450)	¾″ G	11/279.5	11.29/287	20.11/511	11.42/290	13.77/350	30.27/769	27.75/705	17.48/444	71.81/1824	11.81/300	14.96/380
18″/450	C16″-19.68″/(400-500)	¾″ G	12.24/311	12.55/319	22.20/564	11.42/290	16.53/420	32.99/838	30.19/767	20.27/515	79.72/2025	12.60/330	16/400
20″/500	C16″-22.04″/(400-560)	¾″ G	14.13/359	14.44/367	24.52/623	11.42/290	18.19/462	35.31/897	33.03/839	20.27/515	86.53/2198	14.13/359	18/450
24″/600	C16″-25.78″/(400-655)	¾″ G	14.62/371.5	14.96/380	28.74/730	11.42/290	20.08/510	38.98/990	36.25/921	20.27/515	95.27/2420	16.61/422	21.65/550

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 3"/80mm to DN 36"/900mm with PVC bellows
- Hydraulic pressure: 1450psi/(100 bar)
- Maximum hydraulic pressure: 2320psi/(160 bar)
- Options:
 - Pressure indicators: mechanical and inductive
 - Open-closed lockout
 - Position transducers
 - Hydraulic groups
 - Electrical cabinets
 - Splash guards
 - Limit/proximity switches



DN(″/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	H	J	ØI
3″/80	C1.26″-4.33″/(32-110)	¼″ G	6.88/175	7.20/183	7.05/179	4/100	4.88/124	10.12/257	9.96/253	24.96/634	3.78/96	2.75/70
4″/100	C1.26″-5.12″/(32-130)	¼″ G	6.88/175	7.20/183	6.73/171	4.21/107	5.52/140	10.63/270	10.75/273	26.89/683	4.53/115	3.34/85
6″/150	C1.57″-7.28″/(40-185)	3/8″ G	7/178	7.32/186	9.37/238	4.21/107	6.89/175	15.55/395	13.98/355	36.42/925	5.55/141	5.31/135
8″/200	C1.96″-9.45″/(50-240)	1/2″ G	7.24/184	7.55/192	11.45/291	6.50/165	8.07/205	18.26/464	16.26/413	42.60/1082	6.81/173	7.08/180
10″/250	C2.48″-11.42″/(63-290)	1/2″ G	8.88/225.5	9.17/233	13.62/346	7.28/185	9.64/245	19.88/505	18.42/468	47.95/1218	8.03/204	9.05/230
12″/300	C3.14″-13.58″/(80-345)	¾″ G	10.11/257	10.39/264	15.67/398	10/250	11.02/280	25.60/650	21.42/544	58.27/1480	9.61/244	11.02/280
14″/350	C3.14″-15.55″/(80-395)	¾″ G	10.11/257	10.39/264	18/450	11.42/290	12.79/325	28.03/712	23.38/594	64.21/1631	10.55/268	12.99/330
16″/400	C3″-18″/(80-450)	¾″ G	11/279.5	11.29/287	20.11/511	11.42/290	13.77/350	30.27/769	25.55/649	69.61/1768	11.81/300	14.96/380
18″/450	C4″-20″/(100-500)	¾″ G	12.24/311	12.55/319	22.20/564	11.42/290	16.53/420	32.99/838	27.95/710	77.48/1968	12.60/330	16/400
20″/500	C4″-22.05″/(100-560)	¾″ G	14.13/359	14.44/367	24.52/623	11.42/290	18.19/462	35.31/897	30.35/771	83.86/2130	14.13/359	18/450
24″/600	C4.92″-25.70″/(125-653)	1″ G	14.62/371.5	14.96/380	28.74/730	11.42/290	20.08/510	38.93/989	33.58/853	92.60/2352	16.61/422	21.65/550
30″/750	C4″-32.09″/(100-815)	¾″ G	15.57/395.5	15.94/405	35.87/911	11.42/290	24/600	49.09/1247	43.97/1117	116.69/2964	20.94/532	26.77/680
36″/900	C4.92″-38.38″/(125-975)	1″ G	18.50/470	18.90/480	42.68/1084	11.42/290	28/700	56.97/14447	55.98/1422	140.51/3569	31.89/633	31.88/810

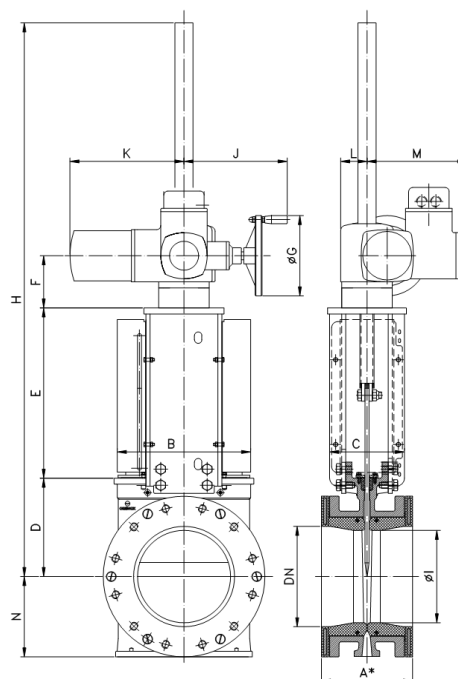
A1*: installed face to face

A2*: minimum required dimension for installation

MODEL**WG****SERIES 65**

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 3"/80mm to DN 36"/900mm
- Wide range of types and brands available to meet customer requirements
- Options: (on request)
 - Open-closed lockout
 - Splash guards



DN ^("/mm)	A1*	A2*	B	C	D	E	F	ØG	H	K	J	L	M	N	ØI	TORQUE (ft.LBS/Nm)
3"/80	6.88/175	7.20/183	7.04/179	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	3.78/96	2.75/70	22.2/30
4"/100	6.88/175	7.20/183	6.74/171	4.21/107	5.52/140	7.68/195	5.63/143	6.30/160	27.09/688	10.43/265	9.80/249	2.44/62	9.37/238	4.53/115	3.34/85	25.81/35
6"/150	7/178	7.32/186	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	5.55/141	5.31/135	36.87/50
8"/200	7.24/184	7.55/192	11.46/291	6.50/165	8.07/205	12.99/330	6.10/155	7.87/200	50.08/1272	11.14/283	10/254	2.55/65	9.76/248	6.81/173	7.08/180	51.8/70
10"/250	8.88/225.5	9.17/233	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	8.03/204	9.05/230	81.4/110
12"/300	10.11/257	10.39/264	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	9.61/244	11.02/280	88.50/120
14"/350	10.11/257	10.39/264	18/450	11.42/290	12.79/325	20.47/520	6.22/158	12.40/315	63.07/1602	15.31/389	13.22/336	3.58/91	11.25/286	10.55/268	12.99/330	117.99/160
16"/400	11/279.5	11.29/287	20.12/511	11.42/290	13.77/350	22.83/580	6.22/158	12.40/315	66.54/1690	15.31/389	13.22/336	3.58/91	11.25/286	11.81/300	14.96/380	177.04/240
18"/450	12.24/311	12.55/319	22.20/564	11.42/290	16.53/420	25.40/645	6.22/158	16.10/409	71.73/1822	15.31/389	13.22/336	3.58/91	11.25/286	12.60/330	16/400	147.49/200
20"/500	14.13/359	14.44/367	24.53/623	11.42/290	18.19/462	27.75/705	6.22/158	16/400	75.79/1925	15.31/389	13.34/339	3.58/91	11.25/286	14.13/359	18/450	221.27/300
24"/600	14.62/371.5	14.96/380	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	4.52/115	11.93/303	16.61/422	21.65/550	295.02/400
30"/750	14.13/359	14.44/367	24.52/623	11.42/290	24/600	38.07/967	7.48/190	20/500	113.38/2880	16.93/430	14.37/365	4.52/115	11.93/303	20.94/532	26.77/680	405.60/550
36"/900	14.62/371.5	14.96/380	28.74/730	11.42/290	28/700	46.06/1170	7.48/190	20/500	125.20/3180	16.93/430	14.37/365	4.52/115	11.93/303	24.92/633	31.89/810	553.10/750

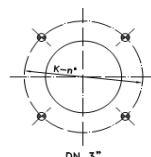
A1*: installed face to face

A2*: minimum required dimension for installation

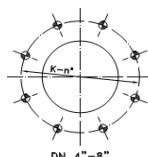
FLANGE AND BOLTING DETAILS

ANSI B16.5, class 150(*)

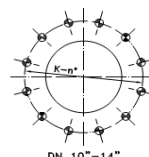
DN	K	n°	M	T	⌀
3"	6"	4	5/8" - 11 UNC	1 1/2"	4
4"	7 1/2"	8	5/8" - 11 UNC	1 1/2"	8
6"	9 1/2"	8	3/4" - 10 UNC	1 1/2"	8
8"	11 3/4"	8	3/4" - 10 UNC	1 1/2"	8
10"	14 1/4"	12	7/8" - 9 UNC	1 3/4"	12
12"	17"	12	7/8" - 9 UNC	2"	12
14"	18 3/4"	12	1" - 8 UNC	2 1/4"	12
16"	21 1/4"	16	1" - 8 UNC	2 1/4"	16
18"	22 3/4"	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
30"	36"	28	1 1/4" - 7 UNC	4"	28
36"	42 3/4"	32	1 1/2" - 6 UNC	4 3/4"	32



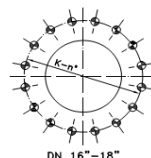
DN 3"



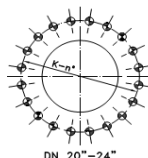
DN 4"-8"



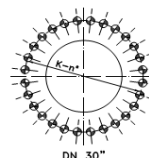
DN 10"-14"



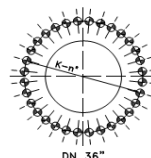
DN 16"-18"



DN 20"-24"

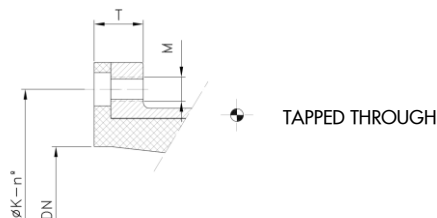


DN 30"



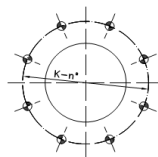
DN 36"

(*) From DN 28", acc. to ANSI B16.47 "series A"(class 150)

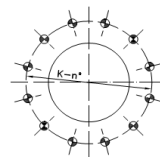


EN 1092-2 PN10

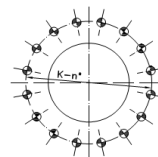
DN	K	n°	M	T	⌀
80	160	8	M-16	39	8
100	180	8	M-16	39	8
150	240	8	M-20	41	8
200	295	8	M-20	41	8
250	350	12	M-20	46	12
300	400	12	M-20	52	12
350	460	16	M-20	57	16
400	515	16	M-24	61	16
450	565	20	M-24	61	20
500	620	20	M-24	67	20
600	725	20	M-27	72	20
900	1050	28	M-30	122	28



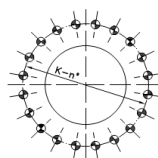
DN 80-200



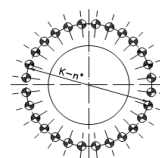
DN 250-300



DN 350-400



DN 450-600



DN 900