

**RUBBER SLEEVE KNIFE GATE VALVE**

The HG(SER.68) 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 DN 36"/900mm      300 psi / (20 bar)  
Higher pressures and/or diameters on request

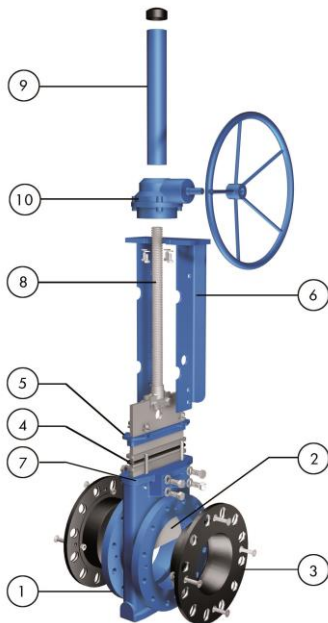
**Standard Flange connection:**

ASME B 16.5 (class 300)  
EN 1092 PN 25  
Others available

**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) / Carbon Steel S275JR
2- Gate	AISI 304 (1.4301) + Chrome / Duplex 2205 + Chrome
3- Sleeves	Natural rubber / EPDM
4- Packing	PTFE Impreg. Synth. Fibre (with a 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. See available materials on page HG(SER.68)-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.



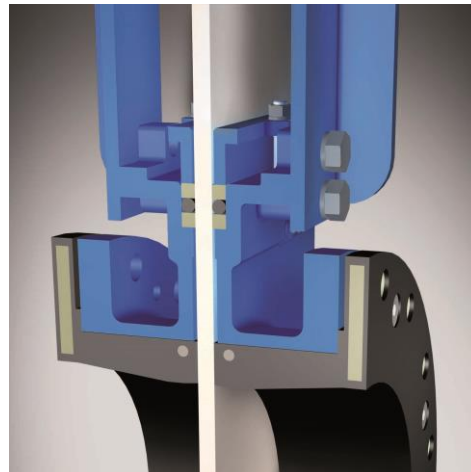
(Fig. 1) Flat plate



(Fig. 2) Tubular design

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

The HG(SER.68) can use conventional leak proof packing and packing gland follower which guarantee full tightness at maximum design pressure.



(Fig. 3) Conventional leak proof packing

## OTHER OPTIONS

### Open-closed lockout system (Fig. 4):

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



(Fig. 4)

### 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. 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. 5)

### 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**

**HG**

**SERIES 68**



## ACTUATOR TYPES

### MANUAL:

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

### AUTOMATIC:

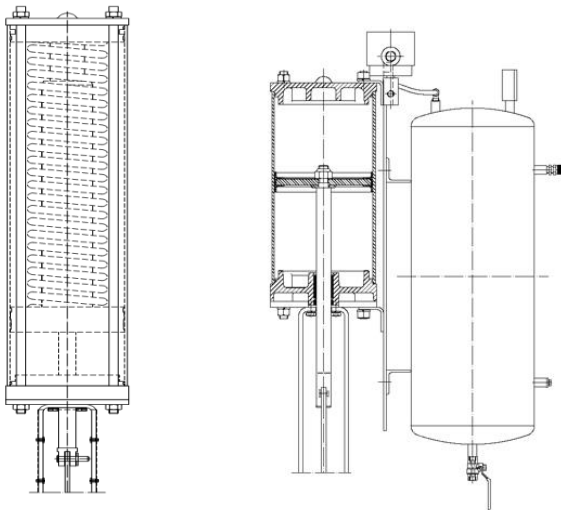
Electric (rising stem)  
Pneumatic (single & double-acting)  
Hydraulic



All actuators supplied by ORBINOX are interchangeable

## FAIL SAFE SYSTEMS

Used on pneumatic actuated valves  
Different pneumatic solutions available  
Fail open/ Fail close  
DN < 8"/200mm Single acting spring return cylinder  
DN => 8"/200mm Air tank



## 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) catalogue*

We recommend to contact our technical department

**MODEL****HG****SERIES 68**

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

## SEAT

The closure of the HG(SER.68) 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



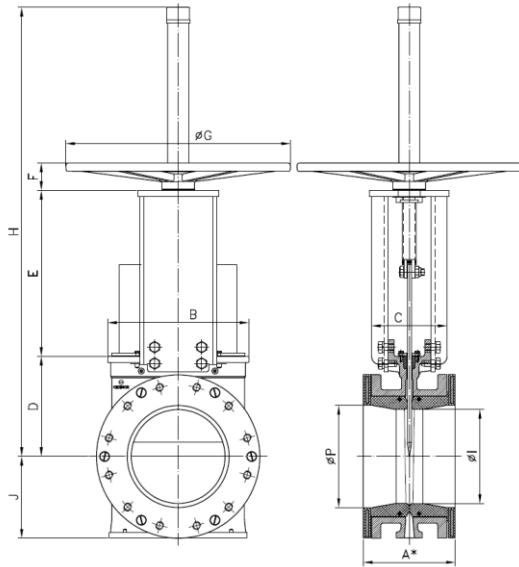
INTERMEDIATE



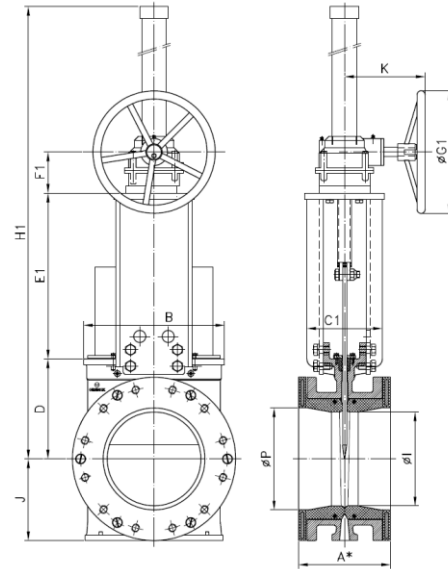
CLOSED

HAND OPERATED (rising stem)

HANDWHEEL



GEAR



- Consists of:
  - Epoxy coated cast iron handwheel
  - Yoke
  - Stem and stem nut
  - Stem protector
- Available from DN 3"/80mm to DN 4"/100mm
- Options (on request):
  - Open-closed lockout
  - Extensions and floor stands
  - PVC bellows
  - Splash guards
- Note: bevel gear is recommended for valve sizes DN>4"/100mm (full force on handwheel > 56lb/250 N)

- Recommended for valves larger than DN 4"/100mm
- Consists of:
  - Stem and stem protector
  - Yoke
  - Bevel Gear Actuator with Handwheel
- Available from DN 6"/150mm
- Options (on request):
  - Chainwheel
  - Open-closed lockout
  - Extensions and floor stands
  - PVC bellows
  - Splash guards

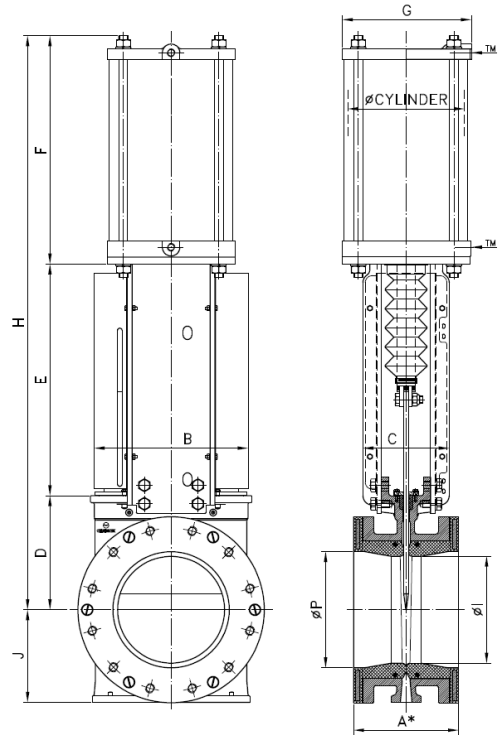
DN	GEAR	A1*	A2*	B	C	C1	D	E	E1	F	F1	ØG	ØG1	H	H1	J	K	ØP	ØI
3"/80	-	6.88/175	7.20/183	6.89/175	4/100	-	4.88/124	6.89/175	-	2.63/67	-	8.86/225	-	21.45/545	-	3.54/90	-	2.83/72	2.44/62
4"/100	-	6.88/175	7.20/183	6.70/170	4/100	-	5.52/140	8/200	-	2.63/67	-	12.20/310	-	24.40/620	-	3.93/100	-	4/100	3.34/85
6"/150	FL 0.4	7/178	7.32/186	9.05/230	-	6.50/165	6.89/175	-	10.35/263	-	3.30/84	-	12/300	-	36/900	5.11/130	10.35/263	5.83/148	5.39/137
8"/200	FL 0.4	7.24/184	7.55/192	11.02/280	-	6.50/165	8.07/205	-	12.68/322	-	3.30/84	-	12/300	-	38.97/990	6.30/160	10.35/263	7.76/197	6.89 /175
10"/250	FL 0.4	8.88/225,5	9.17/233	13.18/335	-	7.28/185	9.64/245	-	15.62/397	-	3.30/84	-	12/300	-	59.44/1510	7.87/200	10.35/263	10/250	9.05/230
12"/300	FL 0.4	10.11/257	10.39/264	15.37/390	-	10.47/266	11.02/280	-	17.36/441	-	3.30/84	-	18/450	-	62.60/1590	9.13/232	10.35/263	11.50/292	10.75/273
14"/350	FL 0.4	10.11/257	10.39/264	17.32/440	-	10.63/270	12.79/325	-	20/508	-	3.30/84	-	18/450	-	66.93/1700	10.15/258	10.35/263	13.27/337	12.52/318
16"/400	FL 0.4	11/279,5	11.29/287	19.88/505	-	10.63/270	14/350	-	22.32/567	-	3.30/84	-	18/450	-	70.07/1780	11.50/292	10.35/263	14.77/375	14.01/356
18"/450	FL 1.6	12.24/311	12.55/319	22.04/560	-	10.63/270	16.53/420	-	24.84/631	-	4.01/102	-	25.60/650	-	85.63/2175	12.51/318	10.35/263	16.73/425	14.88 /378
20"/500	FL 1.6	14.13/359	14.44/367	24.40/620	-	10.63/270	18.19/462	-	28/700	-	4.01/102	-	25.60/650	-	90.74/2305	13.58/345	10.35/263	18.50/470	16.54/420
24"/600	FL 1.6	14.62/371,5	14.96/380	28.74/730	-	10.63/270	20.08/510	-	31.69/805	-	4.01/102	-	25.60/650	-	99.21/2520	16/400	10.35/263	23.03/585	21.22/539

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 DN16''/ 400mm
- Supply Pressure: 90psi/(6 bar)
- 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



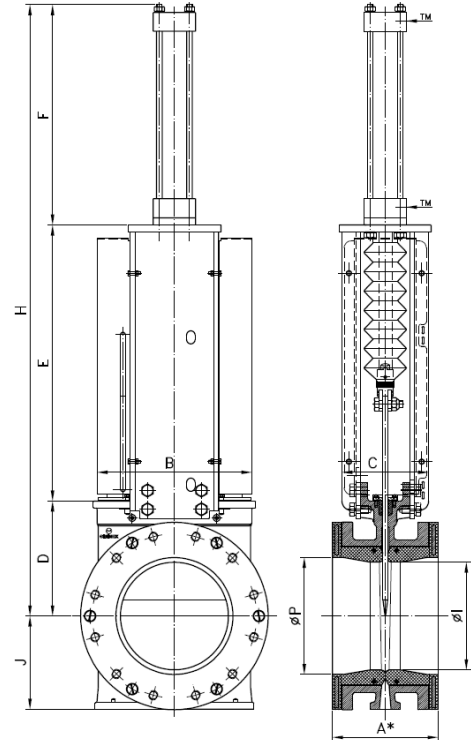
DN(″/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	G	H	J	ØP	ØI
3″/80	C5″-4.49″/(1125-114)	1/4″ G	6.88/175	7.20/183	6.88/175	4/100	5.28/134	10.51/267	10.98/279	6.89/175	26.77/680	4.21/107	2.83/72	2.44/62
4″/100	C6.30″-5.51″/(160-140)	1/4″ G	6.88/175	7.20/183	6.69/170	6.50/165	6.30/160	12.52/318	12.72/323	8.66/220	32.53/801	5.08/129	4/100	3.34/85
6″/150	C8″-8″/(200-200)	3/8″ G	7/178	7.32/186	9.05/230	7.28/185	8.86/225	17.09/434	16/400	10.90/277	41.69/1059	6.38/162	5.83/148	5.39/137
8″/200	C10″-9.92″/(250-252)	3/8″ G	7.24/184	7.55/192	13.06/320	10.47/266	10.83/275	19.73/501	18.82/478	15.04/382	49.37/1254	7.55/192	7.76/197	6.89/175
10″/250	C12″-12.32″/(300-313)	1/2″ G	8.75/222,5	9.17/233	13.19/335	10.63/270	12.20/310	22.05/560	22.01/559	17.48/444	56.35/1429	8.85/225	10/250	9.05/230
12″/300	C14″-14.13″/(350-359)	3/4″ G	10.11/257	10.39/264	15.35/390	10.63/270	13.78/350	27.64/702	25.39/645	17.48/444	66.81/1697	10.35/263	11.50/292	10.75/273
14″/350	C16″-16.46″/(400-418)	3/4″ G	10.11/257	10.39/264	17.32/440	10.63/270	15.35/390	31.81/808	28.74/730	20.27/515	75.90/1928	11.61/295	13.27/337	12.52/318
16″/400	C16″-18.30″/(400-465)	3/4″ G	11/279,5	11.29/287	19.88/505	10.63/270	16.73/425	33.66/855	30/750	20.27/515	80/2000	12.91/328	14.77/375	14.01/356

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

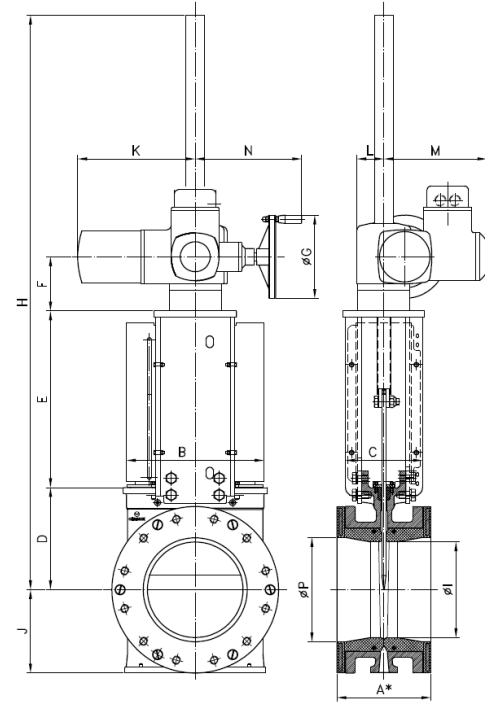


DN(″/mm)	ØCYL.	TM	A1*	A2*	B	C	D	E	F	H	J	ØP	ØI
3″/80	C1.26″-4.49″/(32-114)	1/4″ G	6.88/175	7.20/183	6.88/175	4/100	4.88/124	11.14/283	9.05/230	25.07/637	3.5/90	2.83/72	2.44/62
4″/100	C1.57″-5.51″/(40-140)	3/8″ G	6.88/175	7.20/183	6.69/170	4/100	5.52/140	12.01/305	9.76/248	27.28/693	4/100	4/100	3.34/85
6″/150	C2.48″-8″/(63-200)	1/2″ G	7/178	7.32/186	9.05/230	6.50/165	6.89/175	14.57/370	13.31/338	34.76/883	5.12/130	5.83/148	5.39/137
8″/200	C3.15″-9.92″/(80-252)	3/4″ G	7.24/184	7.55/192	11.02/280	7.28/185	8.07/205	16.81/427	15.94/405	40.83/1037	6.30/160	7.76/197	6.89 /175
10″/250	C4″-12.32″/(100-313)	3/4″ G	8.75/222.5	9.17/233	13.19/335	10.47/266	9.64/245	22.83/580	19.05/484	51.53/1309	8/200	10/250	9.05/230
12″/300	C4.92″-14.13″/(125-359)	1″ G	10.11/257	10.39/264	15.35/390	10.63/270	11.02/280	25.16/639	21.92/557	58.26/1480	9.14/232	11.50/292	10.75/273
14″/350	C4.92″-16.46″/(125-418)	1″ G	10.11/257	10.39/264	17.32/440	10.63/270	12.79/325	27.67/703	23.58/599	64.05/1627	10.15/258	13.27/337	12.52/318
16″/400	C4.92″-18.30″/(125-465)	1″ G	1/279,5	11.29/287	19.88/505	10.63/270	13.77/350	30.67/779	25.55/649	70/1778	11.50/292	14.77/375	14.01/356
18″/450	C6.30″-20.47″/(160-520)	1″ G	12.24/311	12.55/319	22.04/560	10.63/270	16.53/420	32.91/836	27.95/710	77.40/1966	12.51/318	16.73/425	14.88 /378
20″/500	C6.30″-23.62″/(160-600)	1″ G	14.13/359	14.44/367	24.41/620	10.63/270	18.19/462	37.48/952	31.10/790	86.14/2188	13.58/345	18.50/470	16.54/420
24″/600	C8″-28.03″/(200-712)	1 1/4″ G	14.62/371,5	14.96/380	28.74/730	10.63/270	20.08/510	46.26/1175	37.01/940	102.13/2594	16/400	23.03/585	21.22/539
30″/750	C10″-32.48″/(250-825)	1″ G	15.57/395.5	15/405	36.61/930	12.60/320	23.81/605	50.12/1273	43.66/1109	117.60/2987	20.27/515	29.02/737	26.77/680
32″/800	C10″-35.70″/(250-907)	1″ G	18.50/470	18.89/480	40.94/1040	18.90/480	27.16/690	56.81/1443	45.98/1168	128.58/3266	22.64/575	31.02″/788	28.31/719
36″/900	C12.60″-39.49″/(320-1003)	1″ G	18.50/470	18.89/480	45/1143	19.09/485	29.92/760	60.08/1526	52.56/1335	140.39/3566	24.41/620	35/889	31.88/810

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

**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 24"/600mm
- Wide range of types and brands available to meet customer requirements
- Options: (on request)
  - Open-closed lockout
  - Splash guards



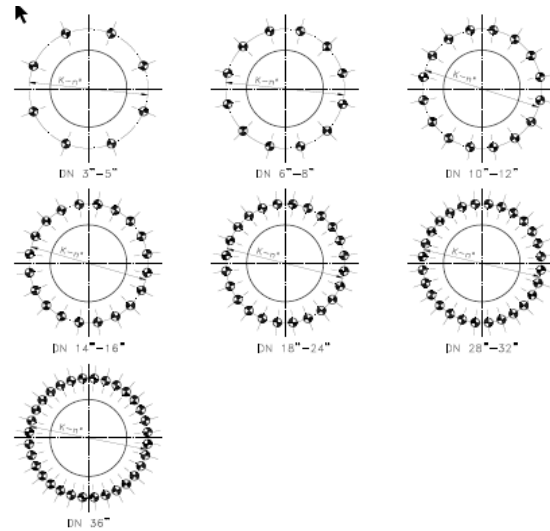
DN(°/mm)	A1*	A2*	B	C	D	E	F	ØG	H	K	J	L	M	N	ØP	ØI
3"/80	6.88/175	7.20/183	6.88/175	4/100	4.88/124	6.89/175	17.40/442	6.30/160	40/1000	10.43/265	3.54/90	2.44/62	9.37/238	9.80/249	2.83/72	2.44/62
4"/100	6.88/175	7.20/183	6.69/170	4/100	5.52/140	7.80/198	18.93/481	6.30/160	40.74/1035	10.43/265	3.93/100	2.44/62	9.37/238	9.80/249	4/100	3.34/85
6"/150	7/178	7.32/186	9.05/230	4/100	6.89/175	10.43/265	22.95/533	6.30/160	44.68/1135	10.43/265	5.11/130	2.44/62	9.37/238	9.80/249	5.83/148	5.39/137
8"/200	7.24/184	7.55/192	11.02/280	6.50/165	8.07/205	12.67/322	26.85/682	7.87/200	49.02/1245	11.10/282	6/150	2.55/65	9.76/248	10/254	7.76/197	6.89/175
10"/250	8.75/222,5	9.17/233	13.19/335	7.28/185	9.64/245	16.33/415	31.10/790	7.87/200	54.25/1378	11.10/282	8/200	2.55/65	9.76/248	10/254	10/250	9.05/230
12"/300	10.11/257	10.39/264	15.35/390	10.47/266	11.02/280	18.58/472	34.72/882	7.87/200	57.87/1470	11.10/282	9.13/232	2.55/65	9.76/248	10/254	11.50/292	10.75/273
14"/350	10.11/257	10.39/264	17.32/440	10.63/270	12.79/325	21.85/555	41.53/1055	12.40/315	65.24/1657	15.15/385	10.15/258	3.58/91	11.25/286	13.23/336	13.27/337	12.52/318
16"/400	11/279,5	11.29/287	19.88/505	10.63/270	13.77/350	23.81/605	44.49/1130	12.40/315	68.19/1732	15.15/385	11.49/292	3.58/91	11.25/286	13.23/336	14.77/375	14.01/356
18"/450	12.24/311	12.55/319	22.04/560	10.63/270	16.53/420	26.65/677	50.07/1272	12.40/315	77.71/1974	15.15/385	12.51/318	3.58/91	11.25/286	13.23/336	16.73/425	14.88/378
20"/500	14.13/359	14.44/367	24.41/620	10.63/270	18.19/462	29.21/742	54.29/1379	16/400	97.67/2481	15.15/385	13.58/345	3.58/91	11.25/286	13.35/339	18.50/470	16.54/420
24"/600	14.62/371,5	14.96/380	28.74/730	10.63/270	20.08/510	33.19/843	60.15/1528	16/400	103.54/2630	15.15/385	16/400	3.58/91	11.25/286	13.35/339	23.03/585	21.22/539
30"/750	15.57/395,5	15/405	36.61/930	12.60/320	23.81/605	43.90/1115	75.98/1930	20/500	120.20/3053	20.08/510	20.27/515	4.61/117	11.93/303	14.37/365	29.02/737	26.77/680
32"/800	18.50/470	18.89/480	40.94/1040	18.90/480	27.16/690	48.03/1220	82.09/2085	20/500	126.30/3208	20.08/510	22.64/575	4.61/117	11.93/303	14.37/365	31.02/788	28.31/719
36"/900	18.50/470	18.89/480	45/1143	19.09/485	29.92/760	53.94/1370	89.96/2285	20/500	134.17/3408	20.08/510	24.41/620	4.61/117	11.93/303	14.37/365	35/889	31.88/810

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

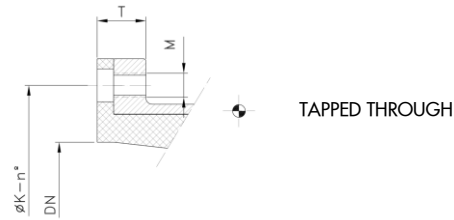
FLANGE AND BOLTING DETAILS

ASME B16.5, class 300(\*)

DN	K	n°	M	T	⌀
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
30"	39 1/4"	28	1 3/4" - 5 UNC	4"	28
32"	41 1/2"	28	1 7/8" - 8 UN	3"	28
36"	46"	32	2" - 4.5 UNC	3 1/4"	32



(\*) From DN 28", acc. to ASME B16.47 "series A"(class 300)



EN 1092-2 PN25

DN	K	n°	M	T	⌀
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
800	990	24	M-45	80	24
900	1090	28	M-45	84	28

