

## BI-DIRECTIONAL KNIFE GATE VALVE

The **EB** model knife gate is a bi-directional valve designed for general industrial service applications. The design of the body and seat assures non-clogging shut off on suspended solids in industries such as:

- Wastewater treatment plants
- Food and Beverage
- Chemical plants
- etc.

**Sizes:** DN 50 to DN 1200 (larger diameters on request)

**Working pressure:**

DN 50 to DN 250:	10 kg/cm <sup>2</sup>
DN 300 to DN 400:	6 kg/cm <sup>2</sup>
DN 450:	5 kg/cm <sup>2</sup>
DN 500 to DN 600:	4 kg/cm <sup>2</sup>
DN 700 to DN 1200:	2 kg/cm <sup>2</sup>

**Standard flange connection:** DIN PN 10

Other flange connections: on request

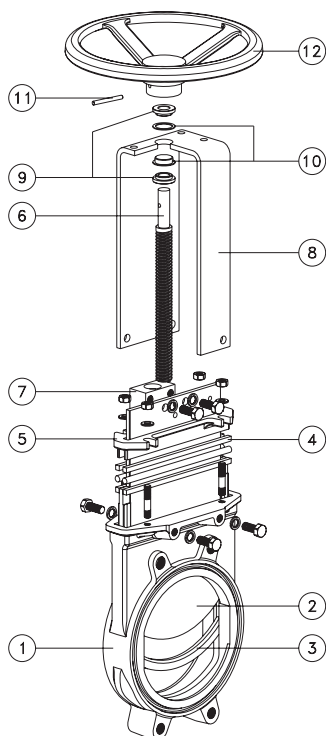
**Directives:** DIR 98/37/CE (MACHINES)

DIR 97/23/CE (PED)

DIR 94/9/CE (ATEX)

Face to face dimensions acc. to K1 DIN 3202 up to DN 300.

All valves are tested prior to shipping in accordance with the standard developed by the Quality Control Department at ORBINOX.



### STANDARD PARTS LIST

Part:	Cast Iron:
1- Body	GJL (GG25)
2- Gate	AISI 316 Ti
3- Seat	EPDM / Nitrile
4- Packing	PTFE Impreg. Synth. Fibre (ST)
5- Gland Follower	$\phi \leq 300$ : Ductile Iron / $\phi \geq 350$ : Aluminium
6- Stem	AISI 303
7- Stem Nut	Brass
8- Yoke	Carbon Steel - Epoxy Coated
9- Collar	Brass
10- Collar and washer	Nylon
11- Spring Pin	Steel DIN 1481
12- Handwheel	$\phi < 310$ : Ductile Iron / $\phi \geq 410$ : GJL 250 (GG25)

## DESIGN FEATURES

### BODY:

Wafer style cast **monoblock** design up to DN 700 with reinforced ribs in larger diameters for extra body strength.

Two-part bolted body, internally machined, from DN 800.

Full port design for greater flow capacity and minimal pressure drop.

Gate guides on full stroke ensure bi-directional shutoff.

Internal design avoids any build up of solids that would prevent valve from closing.

Full flange connection from DN 50 to DN 300.

Standard EPDM o-ring on flange connection of the valve for sealing.

### GATE:

Stainless steel gate, as standard.

Gate is polished on both sides for a greater seal between the gate with both packing and seat.

Gate is fully guided in the body allowing for bi-directional service.

### PACKING:

Standard braided cotton with EPDM o-ring for better shut-off.

Long-life braided packing is available in a wide range of materials.

### NON RISING STEM:

The standard stainless steel stem offers a high and long corrosion resistant life.

### ACTUATORS:

All actuators supplied by **ORBINOX** are interchangeable, and supplied with an standard mounting kit for easy installation on site.

### YOKE or ACTUATOR SUPPORT:

Made of EPOXY coated steel (stainless steel available on request).

Compact design makes it extremely robust even under the most severe conditions.

### EPOXY COATING:

The epoxy coating on all **ORBINOX** cast iron and carbon steel valve bodies and components is electrostatically applied making the valves to be corrosion resistant with a high quality finished product.

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.

### OTHER MATERIALS

On request, following materials can be also supplied:

#### Body:

- Ductile Iron (GGG-40)
- CF8M on some sizes

#### Slide:

- AISI 316 or 304

#### Stem:

- AISI 316 or 316 Ti



## ACTUATOR TYPES

### Manual:

Handwheel (non-rising stem)  
 Chainwheel (non-rising stem)  
 Lever  
 Bevel Gear (non-rising stem)  
 Handwheel (rising stem)  
 Others (square nut...)

### Automatic:

Double Acting Pneumatic  
 Electric (rising or non-rising stem)  
 Single Acting Pneumatic  
 Hydraulic

All actuators supplied by ORBINOX are interchangeable.

## FAIL SAFE SYSTEMS

Used on pneumatic actuated valves

### SINGLE ACTING / SPRING RETURN

Available from DN 50 to DN 200

Options:

- Fail open
- Fail closed

### SINGLE ACTING / VOLUME TANK

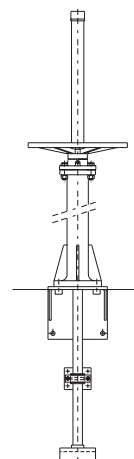
Available for all sizes (DN>200)

Options:

- Pneumatic Failsafe
- Pneumatic or Electric Failsafe

## ACCESSORIES

Mechanical stops  
 Locking device  
 Manual override  
 Solenoid valves  
 Positioners  
 Limit switches  
 Proximity switches  
 Floor stands  
 Stem extensions



Wide range of valve extensions available.

*For further information about fail safe systems and valve extensions, please see EX chapter.*

We recommend consultation with our technical department.

## TEMPERATURE CHART

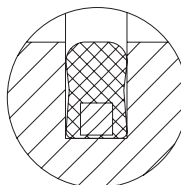
SEAT / SEALS			PACKING		
Material	Max.Temp.(°C)	Applications	Material	Max. Temp. (°C)	pH
EPDM (E)	120	Acid and non mineral oils.	Tallowed cotton (AH)	50	6 - 8
Nitrile (N)	120	Resistance to petroleum products.	Dry cotton (AS)	50	6 - 8
<b>On request:</b>			PTFE impregn.synth fibre (ST)	240	2 - 13
Viton (V)	200	General chemical service	Braided PTFE (TH)	260	0 - 14
		High temperature	NOTE:		
More details and other materials on request.			All types include an elastomere O-ring (same material as seal), excluding TH. Standard packing: ST		

## SEAT TYPES

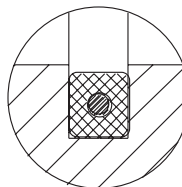
### RESILIENT SEAT

This is the standard seat. The joint is seated on the body, fitted with a metallic core, in contact with the gate all over its perimeter. This layout provide an adequate watertightness and seamless liquid flow on both ways, avoiding at the same time any build-up of solids that would prevent the valve from closing. The o-ring is protected by the body itself.

\* DN50-300: Moulded seal with an internal steel core.

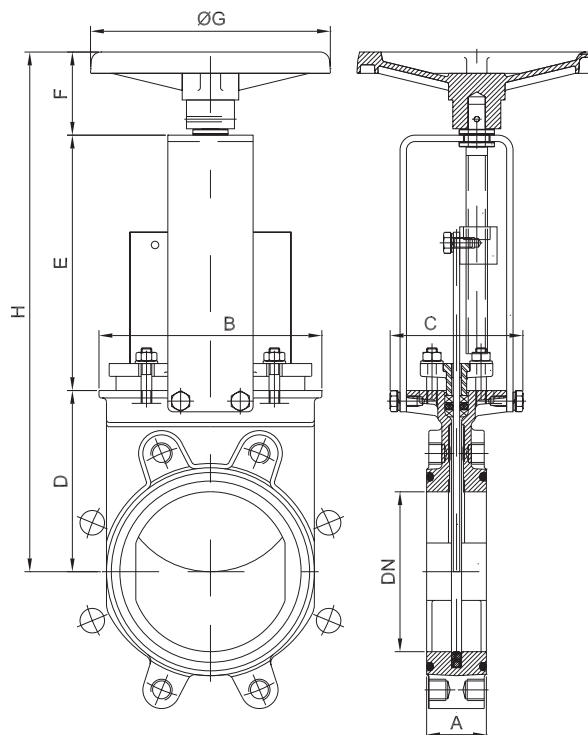


\* DN350-600: Extruded seal with an internal steel wire.



## HANDWHEEL (non-rising stem)

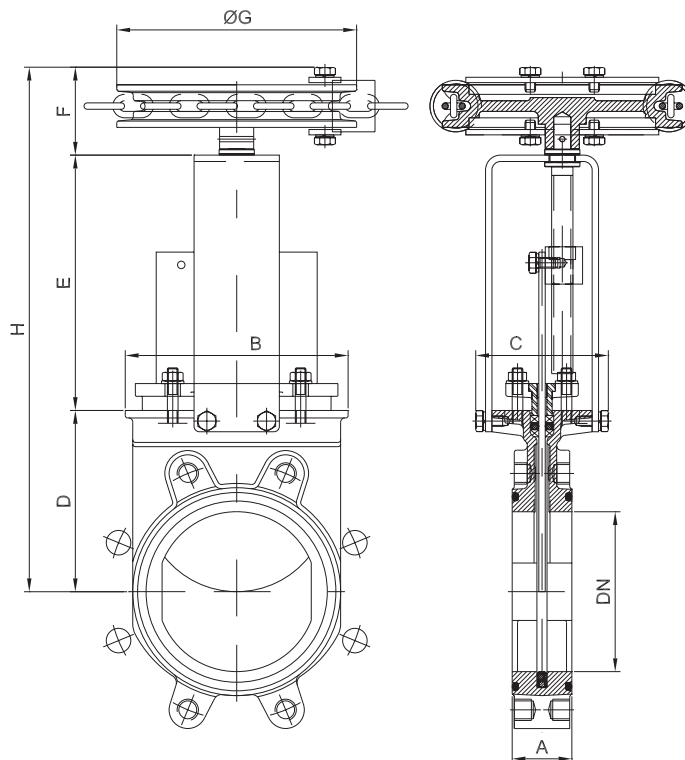
- Standard handwheel actuator.
- Consists on:
  - Handwheel:Epoxy coated Cast Iron
  - Stem
  - Yoke bushing
  - Stem nut fixed to the gate
- Available from DN 50 to DN 1000
- Options:
  - Locking Device
  - Extension
  - Square Nut Drive



DN	A	B	C	D	E	F	ØG	H	Weight (kg.)
50	43	113	124	105	132	78	225	315	8
65	46	128	124	115	149	78	225	342	9
80	46	143	124	124	165	78	225	367	10
100	52	162	124	140	190	78	225	408	12
125	56	181	124	150	214	78	225	442	15
150	56	209	124	170	240	78	225	488	17
200	60	263	142	205	305	92	310	602	30
250	68	315	142	250	360	92	310	702	42
300	78	370	142	290	410	92	310	792	60
350	80	423	193	315	553	82	410	950	90
400	80	480	193	350	603	82	410	1035	140
450	90	530	197	505	653	82	550	1240	185
500	90	595	197	450	713	82	550	1245	204
600	100	700	197	510	813	82	550	1405	230
700	110	890	398	610	979	147	800	1736	380
800	110	1012	320	700	1076	147	800	1923	550
900	110	1112	320	785	1115	147	800	2047	680
1000	110	1240	320	1120	1220	147	800	2487	800

## CHAINWHEEL

- Recommended for elevated installations.
- Consists on:
  - Chainwheel: Epoxy coated Cast Iron
  - Stem
  - Stem nut
  - Grease nipple
- Available from DN 50 to DN 600
- Options (on request):
  - Locking Device
  - Extensions and floor stand



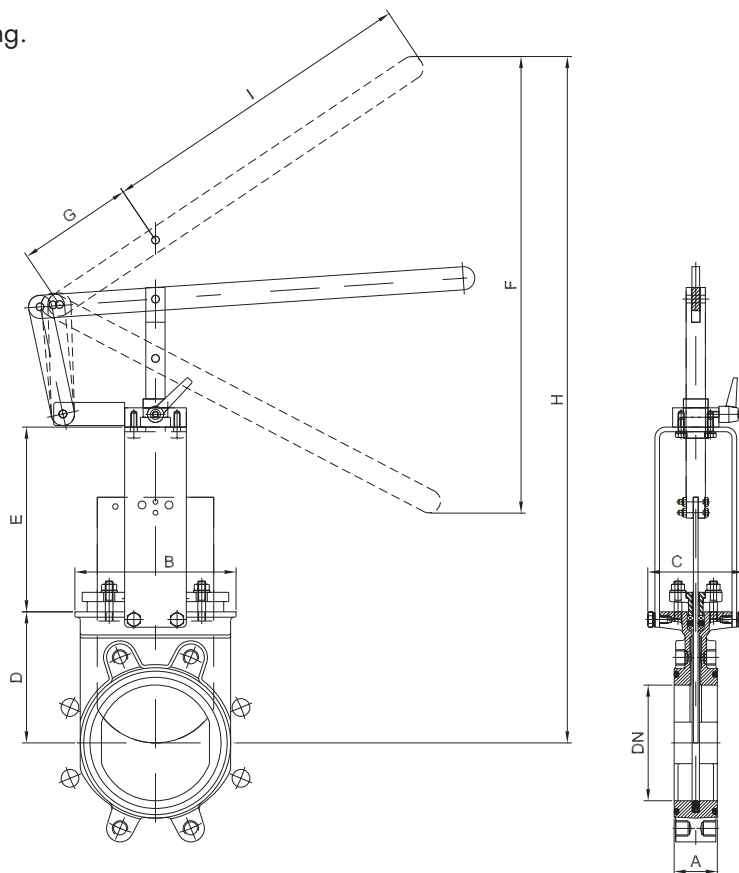
DN	A	B	C	D	E	F	ØG	H
50	43	113	124	105	132	82	225	319
65	46	128	124	115	149	82	225	346
80	46	143	124	124	165	82	225	371
100	52	162	124	140	190	82	225	412
125	56	181	124	150	214	82	225	446
150	56	209	124	170	240	82	225	492
200	60	263	142	205	305	88	300	598
250	68	315	142	250	360	88	300	698
300	78	370	142	290	410	88	300	788
350	80	423	193	315	553	75	454	943
400	80	480	193	350	603	75	454	1028
450	90	530	197	505	653	75	454	1233
500	90	595	197	450	713	75	454	1238
600	100	700	197	510	813	75	454	1398

## LEVER

- Recommended for quick opening and closing.

- Consists on:
  - Lever
  - Stem
  - Yoke sleeve
  - Lever lock

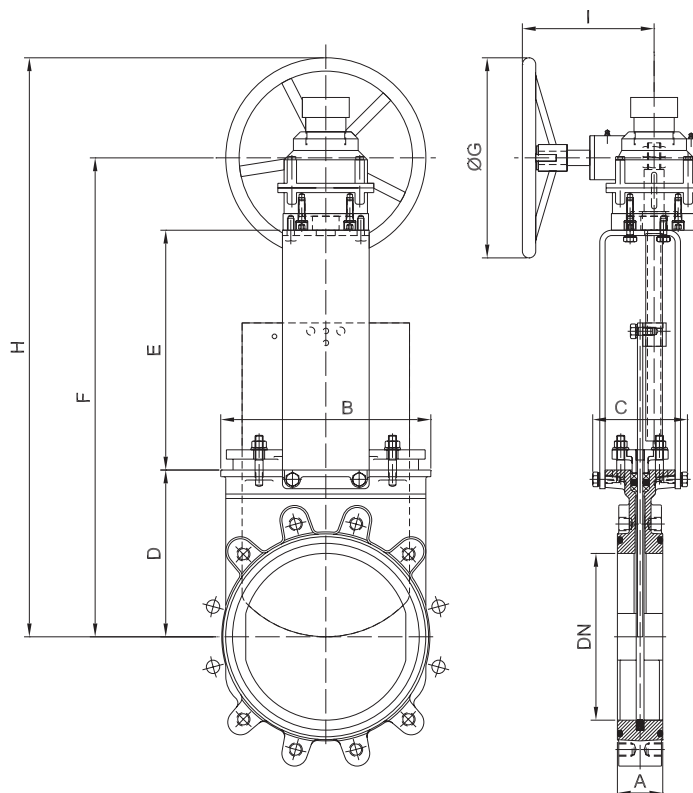
- Available from DN 50 to DN 150



DN	A	B	C	D	E	F	G	H	I
50	43	113	124	105	132	242	150	410	315
65	46	128	124	115	149	245	150	437	315
80	46	143	124	124	165	287	150	510	315
100	52	162	124	140	190	415	150	633	415
125	56	181	124	150	214	503	150	755	415
150	56	209	124	170	240	592	150	890	415

## GEAR, non-rising stem

- Recommended for valves larger than DN 350 and working pressures greater than 3.5 kg/cm<sup>2</sup>
- Consists of:
  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)
- Available from DN 200 to DN 1200
- Options:
  - Locking device
  - Extensions
  - Chainwheel
  - Rising stem



DN	A	B	C	D	E	F	ØG	H	I
200	60	263	142	205	305	618	300	768	198
250	68	315	142	250	360	718	300	868	198
300	78	370	142	290	410	808	300	958	198
350	80	423	193	315	553	1040	450	1265	250
400	80	480	193	350	603	1125	450	1350	250
450	90	530	197	505	653	1330	450	1555	250
500	90	595	197	450	713	1335	450	1560	250
600	100	700	197	510	813	1495	450	1720	250
700	110	890	398	610	979	1765	450	1990	250
800	110	1012	320	700	1076	1950	650	2275	250
900	110	1112	320	785	1115	2075	650	2400	250
1000	110	1240	320	1120	1220	2515	650	2840	250
1200	150	1470	450	1340	1455	3005	800	3405	250



## PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:

- Aluminium jacket and covers
- Stainless Steel (AISI 304) piston rod
- Nitrile coated steel piston

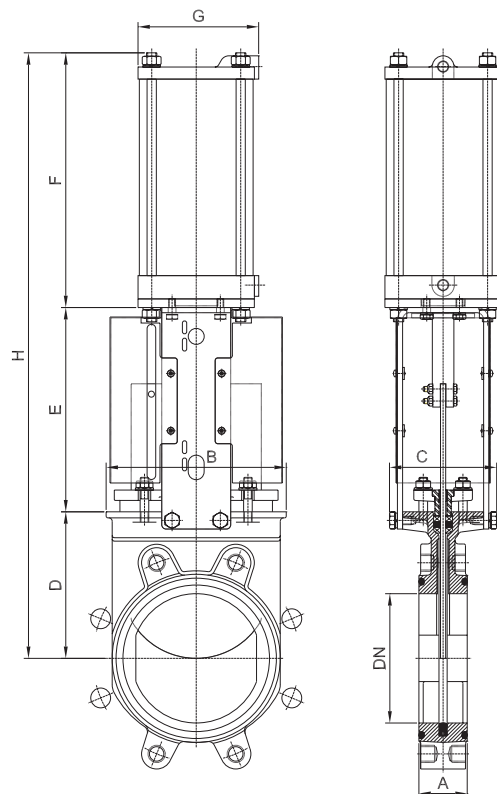
- Available from DN 50 to DN 800
- Supply Pressure: minimum 3.5 kg/cm<sup>2</sup> - maximum 10 kg/cm<sup>2</sup>
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support.

- Options (on request):

- Hard anodized jacket and covers
- Over / Undersized cylinder
- Stainless Steel jacket and covers
- Manual override
- Fail safe system
- Travel stops

- Instrumentation (on request):

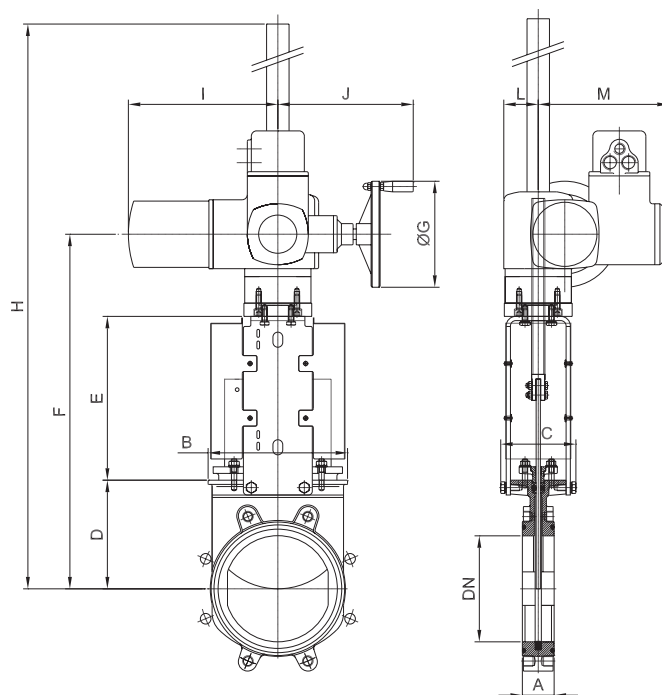
- Positioners
- Solenoid valves
- Flow regulators
- Air preparation units



DN	A	B	C	D	E	F	G	H	Weight (kg.)	Standard Cyl	Connect.
50	43	113	124	105	129	178	95	412	9	C100/62	1/4" G
65	46	128	124	115	146	193	95	454	10	C100/77	1/4" G
80	46	143	124	124	162	211	95	497	11	C100/95	1/4" G
100	52	162	124	140	187	231	115	558	13.5	C100/115	1/4" G
125	56	181	124	150	214	270	140	634	19	C125/143	1/4" G
150	56	209	124	170	237	296	140	703	22	C125/168	1/4" G
200	60	263	142	205	305	362	175	872	47	C160/220	1/4" G
250	68	315	142	250	364	428	220	1042	58	C200/270	3/8" G
300	78	370	142	290	414	478	220	1182	84	C200/320	3/8" G
350	80	423	193	315	553	519	277	1387	130	C250/353	3/8" G
400	80	480	193	350	603	569	277	1522	181	C250/403	3/8" G
450	90	530	270	505	653	647	382	1805	235	C300/453	1/2" G
500	90	595	270	450	713	697	382	1860	302	C300/503	1/2" G
600	100	700	270	510	813	797	382	2120	315	C300/603	1/2" G
700	110	890	380	610	979	943	444	2532	480	C350/703	3/4" G
800	110	1012	320	700	1076	1043	444	2819	585	C350/803	3/4" G

## ELECTRIC ACTUATOR (rising stem)

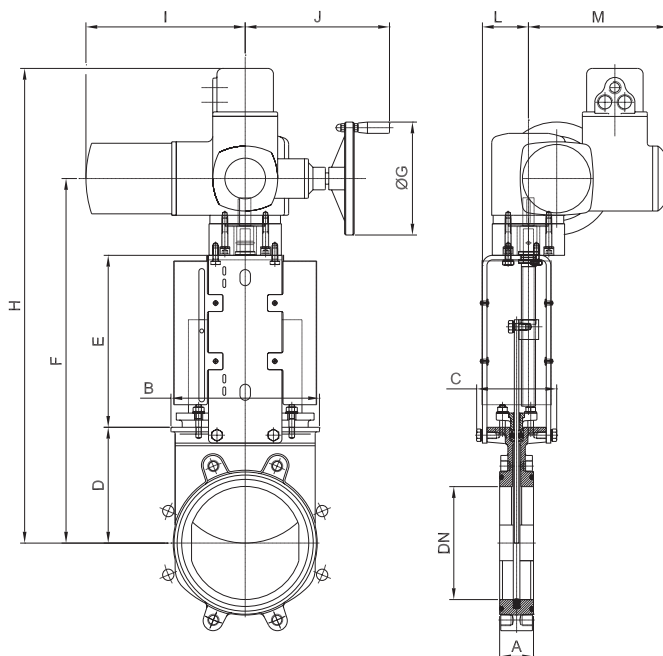
- Consists on:
  - Electric motor
  - Rising stem
  - Motor support yoke flange (Acc. to ISO 5210 / DIN 3338)
- The standard electric motor is equipped with:
  - Manual emergency operation
  - Limit switches (open/closed)
  - Torque switches
- Available from DN 50 to DN 1200
- Wide range of types and marks available to meet customer's needs.



DN	A	B	C	D	E	F	ØG	H	I	J	L	M	Stem Ø x pitch	Torque(Nm)
50	43	113	124	105	129	377	140	547	265	234	63	237	20 x 4	20
65	46	128	124	115	146	404	140	574	265	234	63	237	20 x 4	25
80	46	143	124	124	162	429	140	600	265	234	63	237	20 x 4	30
100	52	162	124	140	189	472	160	667	265	250	63	237	20 x 4	40
125	56	181	124	150	214	506	160	702	265	250	63	237	20 x 4	50
150	56	209	124	170	237	550	160	1120	265	250	63	237	20 x 4	60
200	60	263	142	205	309	669	200	1250	282	256	65	247	25 x 5	70
250	68	315	142	250	364	769	200	1350	282	256	65	247	25 x 5	80
300	78	370	142	290	414	859	200	1440	282	256	65	247	25 x 5	90
350	80	423	193	315	553	1087	200	1742	282	256	128	247	35 x 6	105
400	80	480	193	350	603	1170	200	1827	282	256	128	247	35 x 6	120
450	90	530	270	505	653	1403	315	2087	385	325	130	285	35 x 6	160
500	90	595	270	450	713	1408	315	2092	385	325	130	285	35 x 6	180
600	100	700	270	510	813	1568	315	2252	385	325	130	285	35 x 6	210
700	110	890	380	610	979	1838	315	2918	385	325	202	285	40 x 7	250
800	110	1012	320	700	1076	2025	400	3041	385	332	202	285	50 x 8	400
900	110	1112	320	785	1115	2129	400	3165	385	332	202	285	50 x 8	450
1000	110	1240	320	1120	1220	2564	400	3605	385	332	202	285	50 x 8	500
1200	150	1470	450	1340	1455	3079	500	4390	510	355	284	307	60 x 9	700

## ELECTRIC ACTUATOR (non-rising stem)



- Consists on:
  - Electric motor
  - Non rising stem
  - Motor support yoke flange  
(Acc. to ISO 5210 / DIN 3338)
- The standard electric motor is equipped with:
  - Manual emergency operation
  - Limit switches (open/closed)
  - Torque switches
- Available from DN 50 to DN 1200
- Wide range of types and marks available to meet customer's needs.

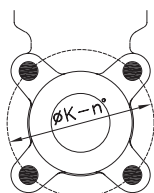


DN	A	B	C	D	E	F	ØG	H	I	J	L	M	Stem Ø x pitch	Torque(Nm)
50	43	113	124	105	132	359	140	530	265	234	72	237	20 x 4	20
65	46	128	124	115	149	386	140	557	265	234	72	237	20 x 4	25
80	46	143	124	124	165	411	140	582	265	234	72	237	20 x 4	30
100	52	162	124	140	190	452	160	648	265	250	72	237	20 x 4	40
125	56	181	124	150	214	486	160	682	265	250	72	237	20 x 4	50
150	56	209	124	170	240	532	160	728	265	250	72	237	20 x 4	60
200	60	263	142	205	335	645	200	841	282	256	82	247	25 x 5	70
250	68	315	142	250	360	745	200	941	282	256	82	247	25 x 5	80
300	78	370	142	290	410	835	200	1031	282	256	82	247	25 x 5	90
350	80	423	193	315	553	1068	200	1238	282	256	128	247	35 x 6	105
400	80	480	193	350	603	1151	200	1321	282	256	128	247	35 x 6	120
450	90	530	270	505	653	1403	315	1583	385	325	130	285	35 x 6	160
500	90	595	270	450	713	1408	315	1588	385	325	130	285	35 x 6	180
600	100	700	270	510	813	1568	315	1748	385	325	130	285	35 x 6	210
700	110	890	380	610	979	1838	315	2038	385	325	202	285	40 x 7	250
800	110	1012	320	700	1076	2025	400	2225	385	332	202	285	50 x 8	400
900	110	1112	320	785	1115	2129	400	2329	385	332	202	285	50 x 8	450
1000	110	1240	320	1120	1220	2564	400	2764	385	332	202	285	50 x 8	500
1200	150	1470	450	1340	1455	3079	500	3329	510	355	284	307	60 x 9	700

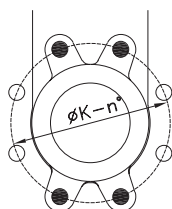
## FLANGE AND BOLTING DETAILS

## DIN PN10

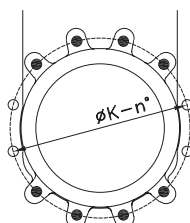
DN	K	n°	M	T	 
50	125	4	M-16	10	4 - 0
65	145	4	M-16	10	4 - 0
80	160	8	M-16	12	4 - 4
100	180	8	M-16	12	4 - 4
125	210	8	M-16	12	4 - 4
150	240	8	M-20	14	4 - 4
200	295	8	M-20	14	4 - 4
250	350	12	M-20	18	8 - 4
300	400	12	M-20	18	8 - 4
350	460	16	M-20	18	8 - 8
400	515	16	M-24	18	8 - 8
450	565	20	M-24	20	12 - 8
500	620	20	M-24	20	12 - 8
600	725	20	M-27	20	12 - 8
700	840	24	M-27	20	16 - 8
800	950	24	M-30	20	16 - 8
900	1050	28	M-30	20	20 - 8
1000	1160	28	M-33	20	20 - 8
1200	1380	32	M-36	35	22 - 10



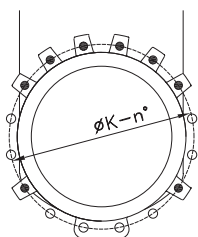
DN 50-65



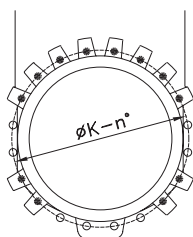
DN 80-200



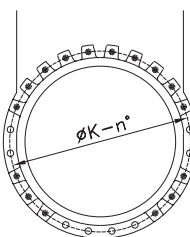
DN 250-300



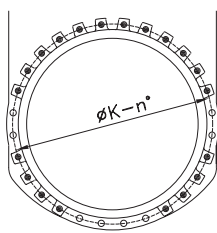
DN 350-400



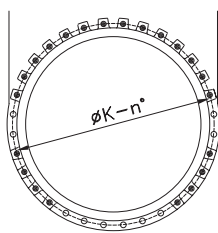
DN 450-600



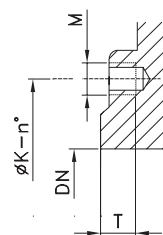
DN 700-800



DN 900-1000



DN 1200


 BLIND TAPPED BOLTS

 THROUGH BOLTS