

WAFER STYLE KNIFE GATE VALVE

The **EX** model knife gate is a uni-directional wafer 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:

- Pulp and Paper
- Wastewater treatment plants
- Food and Beverage
- Mining
- Power plants
- Chemical plants
- Bulk handling
- 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>)

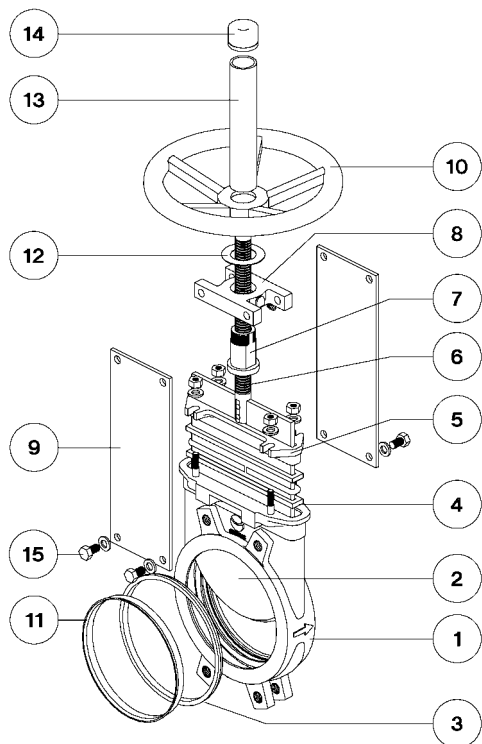
**Standard flange connection:** DIN PN 10 and ANSI B16.5 (class 150)

**Note:** other flange connections are available on request such as:

DIN PN 6                      DIN PN 16                      DIN PN 25  
 BS "D" and "E"              ANSI 125



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



| Part:                  | Cast Iron:  | Stainless Steel: |
|------------------------|---|------------------|
| 1- Body                | GG25  | CF8M             |
| 2- Gate                | AISI 304  | AISI 316         |
| 3- Seat                | Metal or Resilient  |                  |
| 4- Packing             | AH  | NT               |
| 5- Gland Follower      | Aluminum (DN 50 to DN 300)<br>S.G. Iron (DN 350 to DN 1000)     | CF8M             |
| 6- Stem                | AISI 303  |                  |
| 7- Stem Nut            | Bronze  |                  |
| 8- Yoke                | Carbon Steel (DN 50 to DN 150)<br>S.G. Iron (DN 200 to DN 1000) |                  |
| 9- Support Plates      | Carbon Steel - Epoxy Coated                                     |                  |
| 10- Handwheel          | Cast Iron   |                  |
| 11- Seat Retainer Ring | AISI 304  | AISI 316         |
| 12- Thrust Washer      | Bronze  |                  |
| 13- Stem Protector     | Carbon Steel - Epoxy Coated                                     |                  |
| 14- Cap                | Plastic   |                  |

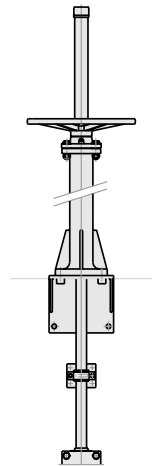
ACTUATOR TYPES

- Handwheel (rising & non-rising stem)
- Chainwheel
- Lever
- Bevel Gear
- Others (square nut....)
- Electric
- Double Acting Pneumatic
- Single Acting Pneumatic
- Hydraulic

All actuators supplied by ORBINOX are interchangeable.

Accessories

- Mechanical Stops
- Actuator manual override
- Positioners
- Electric controls
- Stem extensions
- Locking device
- Solenoid valves
- Limit Switches
- Floor stands



Wide range of valve extensions available.

Please consult our technical department.



Standard Handwheel  
(Rising Stem)

Handwheel  
(Non Rising Stem)

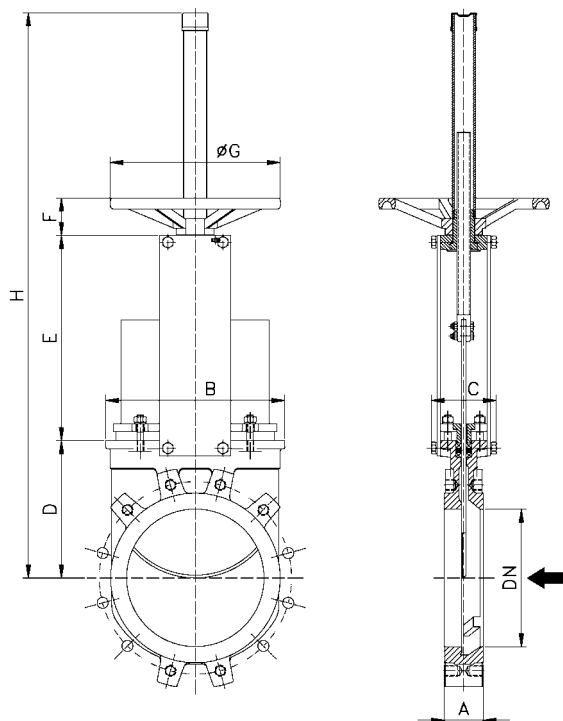
Pneumatic  
Double Acting

Electric

Lever

## HANDWHEEL (rising stem)

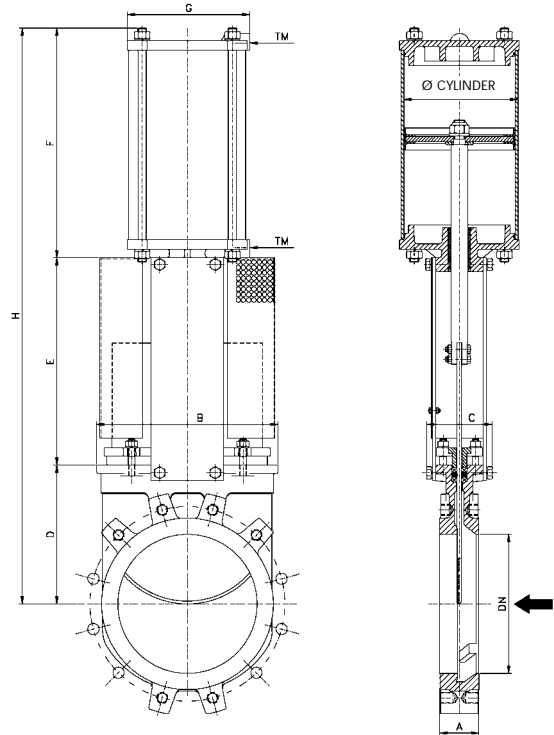
- Standard handwheel actuator.
- Consists of:
  - Handwheel: Epoxy coated Cast Iron
  - Stem
  - Stem nut
  - Stem protector
  - Grease nipple
- Available in DN 50 to DN 1000
- Options:
  - Locking Device
  - Extensions



| DN   | A   | B    | C   | D   | E    | F  | ØG  | H    | Weight (kg.) |
|------|-----|------|-----|-----|------|----|-----|------|--------------|
| 50   | 40  | 124  | 90  | 105 | 135  | 48 | 200 | 429  | 7            |
| 65   | 40  | 139  | 90  | 115 | 152  | 48 | 200 | 456  | 8            |
| 80   | 50  | 154  | 90  | 124 | 168  | 48 | 200 | 481  | 9            |
| 100  | 50  | 174  | 90  | 140 | 193  | 48 | 200 | 522  | 11           |
| 125  | 50  | 192  | 104 | 150 | 217  | 52 | 250 | 606  | 15           |
| 150  | 60  | 217  | 104 | 175 | 243  | 52 | 250 | 657  | 18           |
| 200  | 60  | 270  | 118 | 205 | 318  | 63 | 300 | 830  | 30           |
| 250  | 70  | 326  | 118 | 250 | 373  | 63 | 300 | 1030 | 44           |
| 300  | 70  | 380  | 118 | 300 | 423  | 63 | 300 | 1130 | 58           |
| 350  | 96  | 438  | 193 | 338 | 503  | 68 | 410 | 1341 | 96           |
| 400  | 100 | 493  | 193 | 392 | 553  | 68 | 410 | 1445 | 124          |
| 450  | 106 | 546  | 197 | 432 | 603  | 68 | 550 | 1610 | 168          |
| 500  | 110 | 620  | 197 | 485 | 663  | 68 | 550 | 1723 | 192          |
| 600  | 110 | 714  | 197 | 590 | 763  | 68 | 550 | 2038 | 245          |
| 700  | 110 | 834  | 400 | 686 | 890  | 74 | 800 | 2370 | 405          |
| 750  | 110 | 884  | 400 | 760 | 945  | 74 | 800 | 2579 | 455          |
| 800  | 110 | 1015 | 320 | 795 | 989  | 74 | 800 | 2737 | 512          |
| 900  | 110 | 1040 | 320 | 900 | 1118 | 74 | 800 | 3051 | 680          |
| 1000 | 110 | 1150 | 320 | 980 | 1220 | 74 | 800 | 3319 | 865          |

**PNEUMATIC CYLINDER**

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - Aluminium jacket and covers
  - Stainless (AISI 304) piston rod
  - Nitrile coated steel piston
- Available in DN 50 to DN 1000
- Supply Pressure: minimum 3.5 kg/cm<sup>2</sup> - maximum 7 kg/cm<sup>2</sup>
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support.
- Options:
  - Hard anodised jacket and covers
  - Over / Under sized cylinder
  - Stainless jacket and covers
  - Manual override
  - Fail safe system (Page EX-14)
  - Travel stops
- Instrumentation (on request):
  - Positioners
  - Solenoid valves
  - Flow regulators
  - Air preparation units



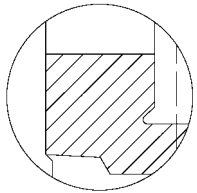
| DN   | A   | B    | C   | D   | E    | F    | G   | H    | Weight (kg.) | Standard Cyl | Connect. |
|------|-----|------|-----|-----|------|------|-----|------|--------------|--------------|----------|
| 50   | 40  | 124  | 90  | 105 | 135  | 170  | 95  | 410  | 9            | C80/62       | 1/4" G   |
| 65   | 40  | 139  | 90  | 115 | 152  | 186  | 95  | 453  | 10           | C80/77       | 1/4" G   |
| 80   | 50  | 154  | 90  | 124 | 168  | 204  | 95  | 496  | 11           | C80/95       | 1/4" G   |
| 100  | 50  | 174  | 90  | 140 | 193  | 225  | 115 | 558  | 14           | C100/115     | 1/4" G   |
| 125  | 50  | 192  | 104 | 150 | 217  | 268  | 140 | 635  | 20           | C125/143     | 1/4" G   |
| 150  | 60  | 217  | 104 | 175 | 243  | 292  | 140 | 710  | 25           | C125/168     | 1/4" G   |
| 200  | 60  | 270  | 118 | 205 | 318  | 355  | 175 | 878  | 44           | C160/220     | 1/4" G   |
| 250  | 70  | 326  | 118 | 250 | 373  | 413  | 220 | 1036 | 67           | C200/270     | 3/8" G   |
| 300  | 70  | 380  | 118 | 300 | 423  | 463  | 220 | 1186 | 82           | C200/320     | 3/8" G   |
| 350  | 96  | 438  | 193 | 338 | 503  | 541  | 277 | 1382 | 135          | C250/375     | 3/8" G   |
| 400  | 100 | 493  | 193 | 392 | 553  | 591  | 277 | 1536 | 165          | C250/425     | 3/8" G   |
| 450  | 106 | 546  | 197 | 432 | 603  | 669  | 382 | 1704 | 220          | C300/475     | 1/2" G   |
| 500  | 110 | 620  | 197 | 485 | 663  | 719  | 382 | 1867 | 280          | C300/525     | 1/2" G   |
| 600  | 110 | 714  | 197 | 590 | 763  | 819  | 382 | 2172 | 330          | C300/625     | 1/2" G   |
| 700  | 110 | 834  | 400 | 686 | 890  | 970  | 444 | 2546 | 520          | C350/730     | 3/4" G   |
| 750  | 110 | 884  | 400 | 760 | 945  | 1020 | 444 | 2725 | 585          | C350/780     | 3/4" G   |
| 800  | 110 | 1015 | 320 | 795 | 989  | 1070 | 444 | 2854 | 650          | C350/830     | 3/4" G   |
| 900  | 110 | 1040 | 320 | 900 | 1118 | 1185 | 515 | 3203 | 850          | C400/930     | 3/4" G   |
| 1000 | 110 | 1150 | 320 | 980 | 1220 | 1285 | 515 | 3485 | 1060         | C400/1030    | 3/4" G   |

| SEAT / SEALS |               |  | PACKING                          |                 |        |
|--------------|---------------|--|----------------------------------|-----------------|--------|
| Material     | Max.Temp.(°C) | Applications                                   | Material                         | Max. Temp. (°C) | pH     |
| Metal/Metal  | >250          | High temp. Low tightness.                      | Tallowed cotton (AH)             | 50              | 6 - 8  |
| EPDM (E)     | 120           | Acids and non mineral oils.                    | Dry cotton (AS)                  | 50              | 6 - 8  |
| Nitrile (N)  | 120           | Resistance to petroleum products.              | PTFE impregn. natural fibre (NT) | 120             | 4 - 12 |
| Viton (V)    | 200           | General chemical service.<br>High temperature. | PTFE impregn. synth. fibre (ST)  | 240             | 2 - 13 |
| Silicone (S) | 250           | Food service. / High temperature.              | Braided PTFE (TH)                | 260             | 0 - 14 |
| PTFE (T)     | 250           | Corrosion resistance.                          | Graphited (GR)                   | 300             | 4 - 12 |
|              |               |  | Ceramic fibre (FC)               | 1200            | --     |

More details and other materials under request.

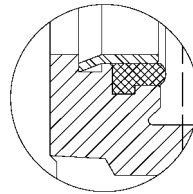
NOTE: all types include an elastomere O-ring (same material as seal), excluding TH, GR and FC.

## SEAT TYPES



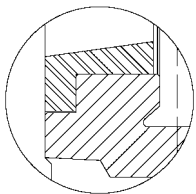
### METAL / METAL

- High temperature
- High density media application
- Positive shut off



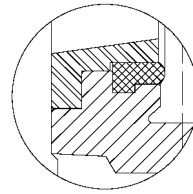
### RESILIENT, TYPE "A"

- Standard resilient seat.
- Temperature limitations according to seat material selected. Consult the above chart or our technical department for more information.
- Replaceable seat retainer ring.



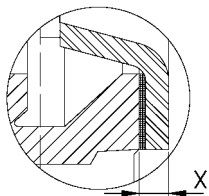
### TYPE "B" SEAT (metal / metal)

- High temperature
- High density media application
- Positive shut off
- Replaceable design without dismantling the valve



### TYPE "B" SEAT (resilient)

- Temperature limitations according to seat material selected. Consult the above chart or our technical department for more information.
- Replaceable design without dismantling the valve



### DEFLECTION CONE "C"

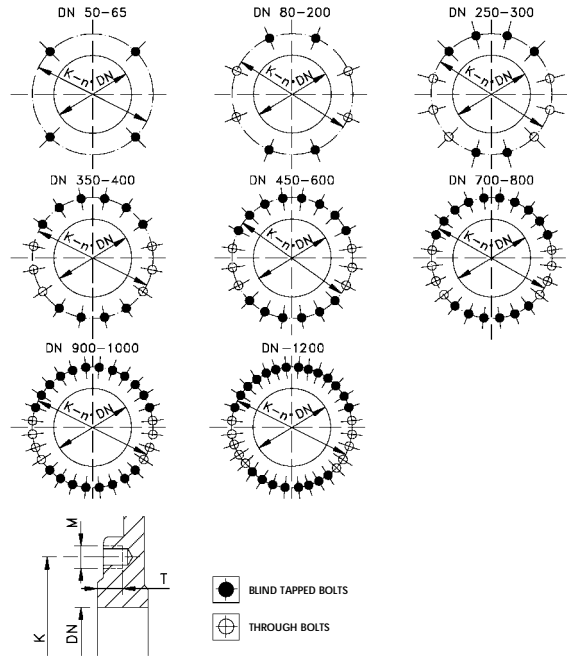
- Deflects the media away from any internal exposed parts of the valve such as gate guides, seat, etc....
- Different types of material available such as AISI 316 stainless, CA15, Ni-Hard, etc....

Face to face dimensions increase:  
 DN 50 to DN 250 = 9mm  
 DN 300 to DN 600 = 12mm

FLANGE AND BOLTING DETAILS

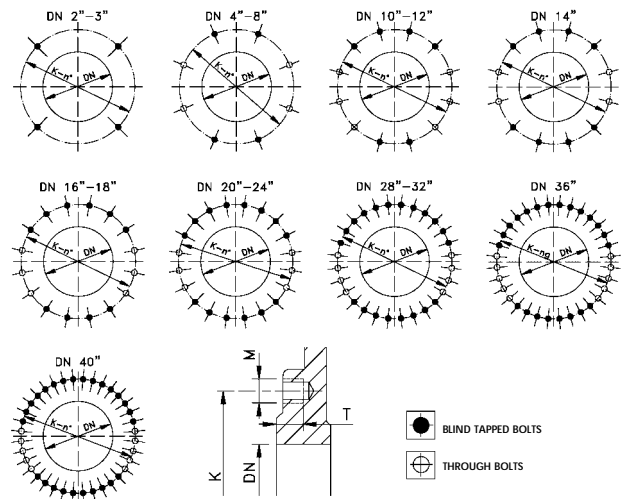
DIN PN10

| DN   | K    | n° | M    | T  |         |
|------|------|----|------|----|---------|
| 50   | 125  | 4  | M-16 | 10 | 4 - --  |
| 65   | 145  | 4  | M-16 | 10 | 4 - --  |
| 80   | 160  | 8  | M-16 | 10 | 4 - 4   |
| 100  | 180  | 8  | M-16 | 10 | 4 - 4   |
| 125  | 210  | 8  | M-16 | 10 | 4 - 4   |
| 150  | 240  | 8  | M-20 | 14 | 4 - 4   |
| 200  | 295  | 8  | M-20 | 14 | 4 - 4   |
| 250  | 350  | 12 | M-20 | 18 | 6 - 6   |
| 300  | 400  | 12 | M-20 | 18 | 6 - 6   |
| 350  | 460  | 16 | M-20 | 22 | 10 - 6  |
| 400  | 515  | 16 | M-24 | 24 | 10 - 6  |
| 450  | 565  | 20 | M-24 | 24 | 14 - 6  |
| 500  | 620  | 20 | M-24 | 24 | 14 - 6  |
| 600  | 725  | 20 | M-27 | 24 | 14 - 6  |
| 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 | 30 | 22 - 10 |



ANSI B16.5, class 150(\*)

| DN     | K       | n° | M          | T    |         |
|--------|---------|----|------------|------|---------|
| 2"     | 4 3/4"  | 4  | 5/8" UNC   | 3/8" | 4 - --  |
| 2 1/2" | 5 1/2"  | 4  | 5/8" UNC   | 3/8" | 4 - --  |
| 3"     | 6"      | 4  | 5/8" UNC   | 3/8" | 4 - --  |
| 4"     | 7 1/2"  | 8  | 5/8" UNC   | 3/8" | 4 - 4   |
| 5"     | 8 1/2"  | 8  | 3/4" UNC   | 3/8" | 4 - 4   |
| 6"     | 9 1/2"  | 8  | 3/4" UNC   | 1/2" | 4 - 4   |
| 8"     | 11 3/4" | 8  | 3/4" UNC   | 1/2" | 4 - 4   |
| 10"    | 14 1/4" | 12 | 7/8" UNC   | 3/4" | 6 - 6   |
| 12"    | 17"     | 12 | 7/8" UNC   | 3/4" | 6 - 6   |
| 14"    | 18 3/4" | 12 | 1" UNC     | 7/8" | 8 - 4   |
| 16"    | 21 1/4" | 16 | 1" UNC     | 1"   | 10 - 6  |
| 18"    | 22 3/4" | 16 | 1 1/8" UNC | 1"   | 10 - 6  |
| 20"    | 25"     | 20 | 1 1/8" UNC | 1"   | 14 - 6  |
| 24"    | 29 1/2" | 20 | 1 1/4" UNC | 1"   | 14 - 6  |
| 28"    | 34"     | 28 | 1 1/4" UNC | 3/4" | 20 - 8  |
| 30"    | 36"     | 28 | 1 1/4" UNC | 3/4" | 20 - 8  |
| 32"    | 38 1/2" | 28 | 1 1/2" UNC | 3/4" | 20 - 8  |
| 36"    | 42 3/4" | 32 | 1 1/2" UNC | 3/4" | 22 - 10 |
| 40"    | 47 1/4" | 36 | 1 1/2" UNC | 3/4" | 26 - 10 |



(\*) From DN 24", acc. to MSS SP 44 (class 150)