

# Model CW

## (SPECIAL) CASTED HIGH PRESSURE BONNETED KNIFE GATE VALVE

The CW casted knife gate valve is designed to withstand high pressures in abrasive and corrosive applications such as:

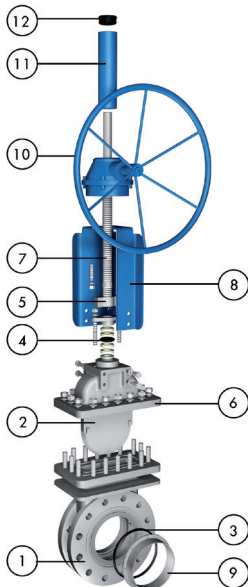
- Steel
- Power
- Chemical
- Paper industry
- Dams & Reservoirs
- Water treatment
- Water transmission
- Pumping stations
- Petrochemical
- Other

The CW knife gate valves are designed as both isolation special valves and also service applications

- Valve series from DN 80 up to DN 1000. Larger sizes available upon request.
  - DN 80 to DN 200: PN 100
  - DN 250 to DN 400: PN 63
  - DN 400 to DN 600: PN 40
  - DN 700 to DN 1000: PN10
- Valves designed for specific application working pressures and temperatures
- Only uni-directional service available
- Rising and non-rising stem configurations available
- Resilient seat and metal seat configurations available
- Manual, pneumatic, electric and hydraulic actuators available
- Standard flange connection as per EN 1092, ASME 16.5, ASME 16.47 and AWWA C207. Other flange drillings available upon request
- Valve testing and leakage rate according to EN 12666, ASME 16.34, AWWA C520 & MSS-SP-151
- For EU Directives and other Certificates requirements, please see the Directives & Certificates Compliance - Knife Gate Valves - Catalogues and Datasheets
- Design features:
  - Design code for water applications: DIN 19704 and AWWA C520 standards. Design following other standards available upon request
  - Design code for industrial applications: EN13445 and ASME IX standards. Design following other standards available upon request
  - Custom face to face



## STANDARD PARTS LIST



Part	Description
1 Body	A216 WCB / CF8 <sup>1</sup>
2 Gate	AISI 304
3 Seat	Metal/Metal or resilient
4 Packing	PTFE Impreg. Synth. Fibre(With a EPDM o-ring)
5 Gland follower	ASTM A570 Gr.40 / CF8 <sup>1</sup>
6 Bonnet	A216 WCB / CF8 <sup>1</sup>
7 Stem	AISI 430
8 Yoke	Epoxy-coated Carbon Steel
9 B-Ring	AISI 304
10 Bevel Gear	-
11 Stem Protector	Epoxy-coated Carbon Steel
12 Cap	Plastic

## DESIGN FEATURES

### Body

CW knife gate valves are of carbon steel ASTMA216 WCB construction and include bonnets to ensure complete tightness to the outside. Both body and bonnet are cast. Other available materials are stainless steel ASTM A351, type AISI 304 (CF8), type AISI 316 (CF8M), DUPLEX 2205 (CD3M) and SUPERDUPLEX (CD4MCU). Both body and bonnets are strongly reinforced to withstand high pressures. The body and gate include wedges that provide the require pressure against the machined seat and assuring the application leakage rate. The body is interiorly slotted, so the gate is fully guided through the stroke which minimizes fluttering and vibrations during intermediate openings. Flushing systems can be optionally added around the seating area

### Gate

The gate is a solid plate in stainless steel type AISI 304 or AISI 316, cut and machined with a sharpen end at the bottom for better performance in loaded fluids which guarantees full tightness under worst circumstances. Gates, designed for specific application working pressures and temperatures, include wedges to work against those of the body. Optionally bronze seat can be bolted for special metal seated design

### Seat

Both body and gate have wedges which help the gate pushing against the seat. Resilient seat with reinforced retainer rings and metal seats are available. EPDM as standard in case of resilient seats, also available in other materials such as Viton, PTFE, etc. For water applications, metal-seated configurations may also include a bronze ring bolted to the gate for closing against the seat in the body.

### Packing

The packing system guarantees the fluid tightness of the shaft and allows replacement whilst the valve is loaded in open position. Long-life PTFE packing with several layers of braided fiber, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials

### Stem

The standard stainless steel with DIN103 / ACME trapezoidal thread stem offers a long corrosion resistant life. For rising stem configurations, a stem protector is provided for additional protection against dust while the valve is in the open position.

### 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. Reinforced design is standard starting from DN 250

### Epoxy coating

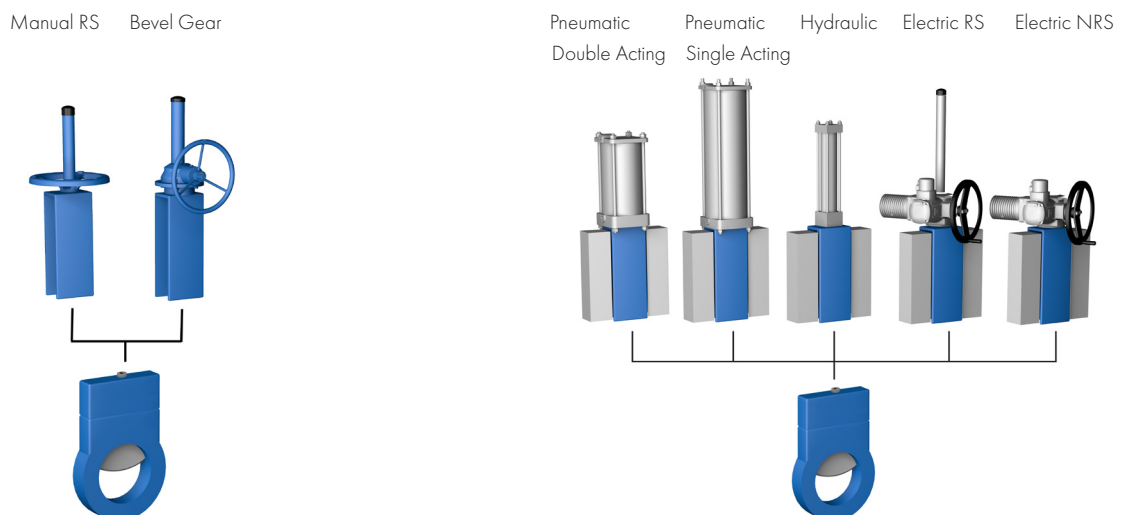
The Epoxy coating on all ORBINOX cast iron and carbon steel valve bodies and components is electrostatically applied making the valves to be corrosion resistant with a high quality finished surface. The ORBINOX standard colour is RAL-5015 blue. It is available with different ISO 12994 protection levels

### 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

### Actuators

ORBINOX offers a complete range of actuator solutions, including manual, pneumatic, electric and hydraulic actuators



## OTHER OPTIONS

### Other materials of construction

Other stainless steel materials (AISI 316, ...), special stainless steel materials such as Duplex (2205) or Superduplex (2507), special alloys (254SMO, Hastelloys, ...), etc.

### Surface treatments

Valve components can be protected or coated for a longer life expectancy, depending on the application of the valves and the valve service conditions. At ORBINOX we can offer alternative treatments and coatings for the different valve components to improve their properties against abrasion (Stellite, hard-chroming, carbides, ...), against corrosion and against adherence

### Locking device

The valve can be designed with a locking pin system to block the gate in emergency situations or for maintenance operations

### Flush ports

Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. Depending on the process, purging can be made with air, steams, liquids, etc.

### Accessories for pneumatic valve automation

Alternatively, 4-20mA linear transducers can also be installed to provide remote position at any time. ORBINOX provides valve automation solutions for pneumatic actuated valves. A whole set of pneumatic accessories are available, including limit, proximity and magnetic switches, solenoid valves, positioners, flow regulations, air filter units, silencers, PVC and stainless steel junction boxes and stainless steel piping, all available in a wide variety of brands

### Accessories for hydraulic cylinders

Position indicator can be included, consisting of a frame with an aluminum graduated strip and an indication needle moved by a stainless steel shaft, fixed to the panel and which moves vertically along the outside through the bonnet cover by means of a compression gland. There are position indications on the indicator (open and closed)

### HPU and electrical cabinets for hydraulic valve automation

ORBINOX provides valve automation solutions for hydraulic actuated valves, including hydraulic power units (HPU) and electrical cabinets. The hydraulic unit usually includes a double motor pump and an emergency manual pump. Nitrogen accumulators can also be provided for emergency shutdown operations. The electrical cabinet is designed based on Customer requirements and specifications, and may include PLCs, HMIs, local control panels, remote communication features, etc., all available in a wide variety of brands

### Stem extensions and floor stand

Extensions for valve operation when valves are installed in positions below operation level are available, including wall brackets and different types of pedestals for actuators

### Bypass and venting systems

ORBINOX also supplies bypass and venting systems for water applications. Bypass solutions include a pipe from upstream side of the valve to the downstream side, with two gate valves, one security pipe and one service pipe. Venting system consist of either a simple pipe installed downstream the valve and connected the exterior or simple pipe ending in an double action air relief valve, including an isolation gate valve

## SEAT/SEAL TYPES

Material	Max.T (°C)	Applications
SS / SS	>250	Industry & high temperatures
EPDM (E)	120	Acids and non mineral oils
NBR (N)	120	Resistance to petroleum products
FKM-FPM (V)	200	Chemical service / High temp.
PTFE (T)	250	High corrosion
SS / Bronze C95500	<250	Water

More details and other materials under request

## PACKING TYPES

Material	Max.T (°C)	pH
PTFE impregn. synth. fibre (ST)	250	2-13
Braided PTFE (TH)	260	0-14

## SEAT CONFIGURATIONS/DESIGNS

Type	Features	
<b>Metal / Metal</b>	<ul style="list-style-type: none"> <li>- High temperature applications</li> <li>- High density media applications</li> <li>- When full tightness is not required</li> </ul>	
<b>B Ring Resilient</b>	<ul style="list-style-type: none"> <li>- Reinforced resilient seat design</li> <li>- See temperature chart for seat materials</li> <li>- Seat with replaceable retainer ring</li> <li>- Ring available in different materials: AISI 316, Ni Hard,...</li> </ul>	
<b>B Ring Metal / Metal</b>	<ul style="list-style-type: none"> <li>- High temperature applications</li> <li>- High density media applications</li> <li>- When full tightness is not required</li> <li>- Replaceable ring</li> </ul>	

Valve leakage rates according to EN 12666, ASME 16.34 AWWA C520 & MSS-SP 151

## CW KNIFE GATE VALVE SPECIFICATIONS

### SERVICE CONDITIONS

- Valve application:
- Maximum working pressure (mwt):
- Design pressure (mwt):

### FEATURES

- Material of construction:
  - Carbon Steel (S275JR)
  - Stainless Steel (AISI 304 / AISI 3016)
  - Other
- Seat:
  - Metal (SS - SS)
  - EPDM (SS - EPDM)
  - PTFE (SS - PTFE)
  - Bronze (SS - Bronze)
- Nominal pipe diameter (mm):
- Flange standard:
  - Flange standard PN6:
  - Flange standard PN10:
  - Flange standard PN16:
  - Other (AWWA C207 Class "D", ...):
- Actuator:
  - Hydraulic actuator:
    - » Hydraulic unit:
    - » Electrical Cabinet (\_\_\_V / \_\_\_Hz):
  - Electric (\_\_\_V / \_\_\_Hz):
  - Pneumatic:
    - » Fail safe system:
  - Manual:
  - Notes:

### TESTS

### OTHERS

- END
- Design Code:
  - EN 19704 (water):
  - AWWA C520 (water):
  - EN 13445 (industrial):
  - ASME IX (industrial):
- Valve testing and leakage rate according to EN 12666, ASME 16.34 & AWWA C520:

### REMARKS

