

Model WS

SPECIAL FABRICATED HIGH PRESSURE KNIFE GATE VALVE

The WS model knife gate valve is a special custom design fabricated high pressure knife gate valve for water and industrial applications such as:

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

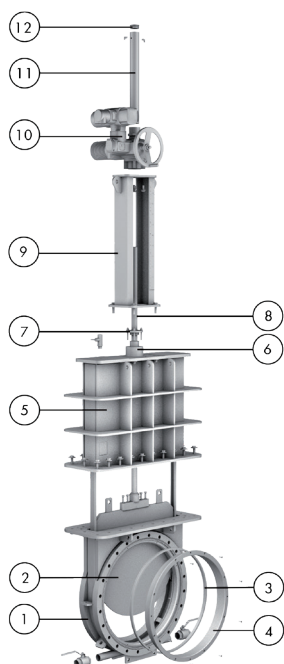
The WS knife gate valves are design as both isolation special valves and also service application

Product description

- Valve series up to DN3500. Larger sizes available upon request
- Valves designed for specific application working pressures and temperatures
- Uni- and bi-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 EN1092, 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	Carbon steel / 304L
2 Gate	Carbon steel / AISI 304L
3 Seat	Metal /metal or resilient
4 Ring	AISI 304L
5 Bonnet	Carbon steel / 304L
6 Packing	PTFE
7 Gland follower	C95500
8 Stem	AISI 304L
9 Yoke	Carbon steel / 304L
10 Actuator	-
11 Stem protector	PVC
12 Cap	Plastic

DESIGN FEATURES

Body

Flanged fabricated body designed and reinforced for large size valves and specific application working pressures and temperatures. With a full port design for minimal pressure drop, the body and gate includes wedges that provide the require pressure against the machined seat and assuring the application leakage rate. The body also includes side gate guides to avoid gate fluttering and vibrations in intermediate positions when opening and closing. Flushing system at the bottom of the body may also be added to remove any solid accumulation if solids are present in the media

Bonnet

WS model knife gate valves usually include bonnets to ensure complete tightness to the outside. Bonnets are fabricated, designed and reinforced for large size valves and specific application working pressures and temperatures. Both bonnets and bodies are designed to support application design pressures. Bonnet top plates can be of welded or bolted design to facilitate removal of gates without disassembling the bonnet (in case of a bolted design)

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

For unidirectional applications, both resilient seats 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 unidirectional water applications, metal-seated configurations may also include a bronze ring bolted to the gate for closing against the seat in the body. Resilient seats for bidirectional applications, with EPDM as standard, also available in other materials as Viton, PTFE, etc

Packing

Long-life PTFE packing with several layers of braided fibre, with an easy access packing gland ensuring a tight seal. Long-life braided packing is available in a wide range of materials. Bonnet housing of the packing system allows replacement at the packing whilst the valve is loaded in open position

Stem

The standard stainless steel with DIN103 / ACME trapezoidal thread stem offers a long corrosion resistant life. Stem protectors included for rising stem configurations

Yoke or actuator support

Designed for specific actuator configuration /extension, made of Epoxy coated carbon steel or stainless steel

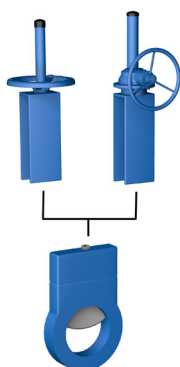
Epoxy coating

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

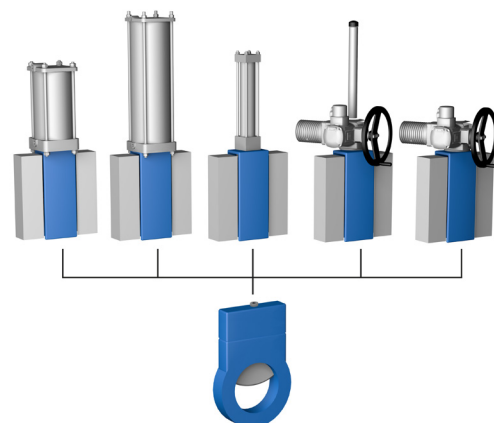
Actuators

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

Manual RS Bevel Gear



Pneumatic Double Acting Pneumatic Single Acting Hydraulic Electric RS Electric NRS



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.

Accessories for pneumatic valve automation

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

Alternatevely, 4-20mA linear trasducers 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

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

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

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

All types include an elastomere O-ring (same material as seat), excluding TH, GR and FC

SEAT CONFIGURATIONS/DESIGNS

Type	Features	
Metal / Metal	<ul style="list-style-type: none"> - Stainless steel-Stainless steel - High temperature applications - When full tightness is not required 	
Metal / Metal	<ul style="list-style-type: none"> - Bronze - Satainless steel - No maintenance applications - When full tightness is not required -Tightness 	
B Ring Resilient	<ul style="list-style-type: none"> - Reinforced resilient seat design - See temperature chart for seat materials - Seat with replaceable retainer ring - Ring available in different materials 	
Bidirectional B Ring Resilient	<ul style="list-style-type: none"> - Reinforced resilient seat design - See temperature chart for seat materials - Seat with replaceable retainer ring - Ring available in different materials and wear resistant solutions 	

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

WS 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

