



## Double-plate penstock

made of stainless steel

### PENSTOCK WITH RECTANGULAR OPENING, 3-SIDED SEALING

#### Opening size and pressure stage

Double plate penstocks are always individually designed according to the requirements of the application

#### Frame and plate

- Supplied as pre-assembled fitting which does not require assembly, setting and adjusting works up to 1200 mm\*
- Design as self-supporting frame construction made of stainless steel with integrated spindle bearing
- Welded frame and slide panel made of stainless steel, optimised for maximum safety and durability by means of FEM certification
- Bridge screwed on, thereby all wear parts (spindle, spindle nut, spindle bearing and seal) can be exchanged in the installed condition without dismantling the penstock from the structure
- Integrated sliding rails made of stainless steel, in the penstock plate
- Made of polyethylene (PE-UHMW)
- Penstock for embedding in concrete: Equipped with setting sleeve for aligning the penstock in the channel recess
- No offset in rear to front invert level on the embedded penstock
- Welding certificate in accordance with DIN EN 1090-2 EXC2

#### Material

- Stainless steel 1.4301 (304) / 1.4404 (316L) / 1.4410 (507) / 1.4462 (318LN) / 1.4539 (904L) / A36-hot-dip galvanized

#### Spindle

- Polyethylene or stainless steel spindle protection
- Spindle with rolled trapezoidal thread made of stainless steel from opening dimensions 150-1600 mm
- Spindle with whirled trapezoidal thread made of stainless steel from opening size 1700 mm
- Single spindle design
- Spindle nut made of seawater- and wastewater-resistant bronze  
Optional: Spindle outside the medium rising or non-rising

#### Sealing

- Assembled on the penstock plate, note profile seal with hot vulcanised (minimum temperature 180°C) BÜSCH UNO corner connections made from wastewater and UV resistant EPDM or oil-resistant NBR
- Easy replacement of the seal possible during operation, as the both penstock plates can be pulled upwards
- Factory pre-assembled seal to the wall made of solid, sewage-resistant cellular rubber on the penstock frame
- Seal line 50 mm larger than the masonry opening to prevent leaks on masonry openings

\* Multi-part frame from 1300 mm



Double-plate penstock with rack and pinion drive  
1000 x 1000 mm

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### YOUR ADVANTAGES

- **MANY APPLICATIONS**  
Plates can be driven separately from one another with two drives
- **FLOW GUARANTEE AT WEIRS**  
by installing two spindles per plate in the frame
- **PERFECT INSTALLATION**  
Equipped with adjustment sleeves for aligning the penstock in the recess
- **SEAL ON PENSTOCK PLATE**  
Can be replaced during operation by pulling out the penstock plates
- **PERFECT CORROSION PROTECTION**  
All welded stainless steel parts from our own pickling plant
- **OPTIONAL EX-PROTECTION**  
On request, the penstock can be proven to comply with the ATEX Directive 2014/34/EU

### Leak tightness class

- Leak rate better than DIN EN 19569, Part 4, Table 1:  
Pressure on front side: max. 1:‰ of 0,05 to 0,1 l·s<sup>-1</sup>·m<sup>-1</sup>  
(Leak tightness class 3)  
Pressure on rear side: max. 5% von 0,1 bis 0,3 l·s<sup>-1</sup>·m<sup>-1</sup>  
(Leak tightness class 2)

### Mounting

Fastening lateral:

- Concreted into recess
- Dowelling to the wall in front of the opening
- Dowelling laterally on the wall

Fastening in the bottom:

- Concreted into recess
- Dowelling to the wall in front of the opening
- Dowelling on the bottom

### Designs

- Rack and pinion drive
- Spindle:
  - from a width to height ratio of 2:1, the penstock is manufactured with 2 spindles
  - if the penstock is used as a weir, the spindles can be installed on the side of the frame to ensure the flow

### Actuation of the penstock

- Stainless steel handwheel on transverse yoke
- Lateral actuation with gearbox with BÜSCH stainless steel bevel gearbox with stainless steel handwheel or stainless steel crank handle
- BÜSCH all-in-one control key via square cap
- BÜSCH MOBITORQ mobile electric actuator via square cap
- BEA<sup>®</sup>servo stainless steel electric actuator assembled on transverse yoke, optional with BÜSCH weather protection roof
- Pneumatic actuator assembled on transverse yoke
- Hydraulic actuator assembled on transverse yoke
- E-Actuator

### Actuation options

One actuator:

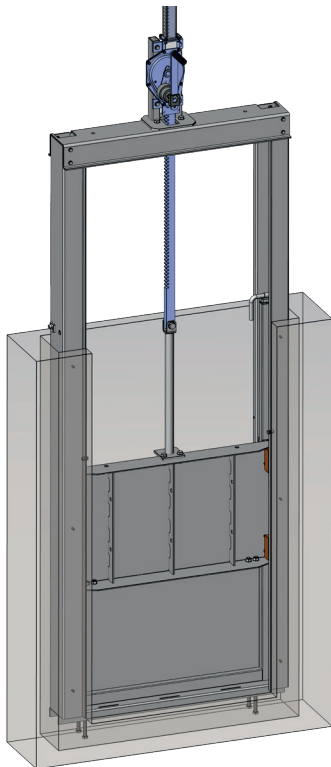
- upper plate can be lowered, lower plate fixed
- both plates liftable, full stroke

Two actuators:

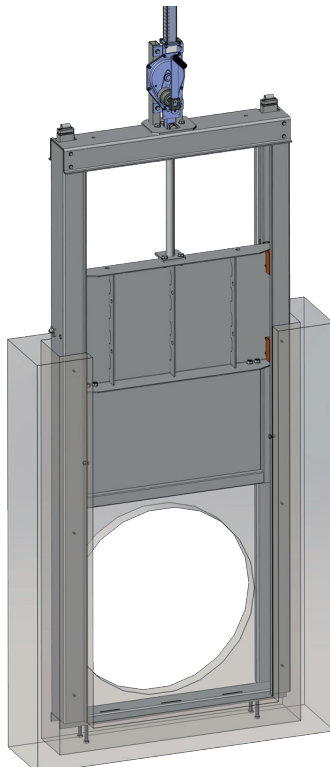
- each plate driven separately
- upper and lower plate can be moved independently of each other

### Schematic representations

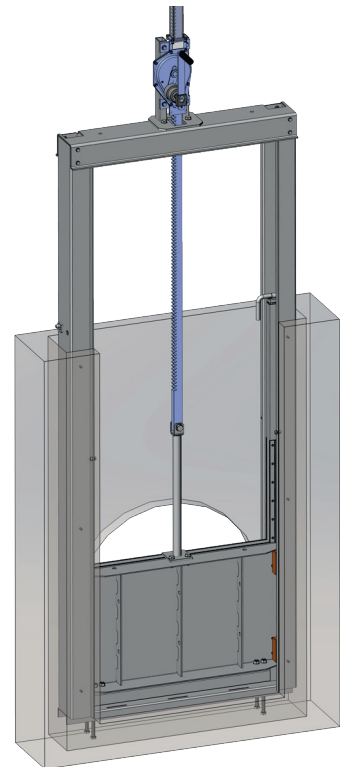
Example: double plate penstock with rack and pinion drive 1000 x 1300 mm, embedded in concrete at an installation depth of 2 m



Flow rate completely closed



Flow rate fully open



Flow rate controlled by lowered top plate