



XL4 penstock for grouting

made of stainless steel or steel

FOR ROUND OPENING, 4-SIDED SEALING

Opening dimensions and pressure level

Opening dimensions 150 x 150 mm to 1200 x 1200 mm
Selectable pressure level on both sides: 2-15 mwc

Standard pressure level for sizes 150 x 150 mm to 1200 x 1200 mm
on both sides: 6 mwc

Higher pressure levels 7-15 mwc: available on request

Frame and plate

- Supplied as pre-assembled penstock which does not require assembly, setting and adjusting works
- Design as self-supporting frame construction made of stainless steel with integrated spindle bearing
- Welded frame and penstock plate 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 closing wedges in the frame made of stainless steel, in the penstock plate made of polyethylene (PE-UHMW)
- Welding certificate in accordance with DIN EN 1090-2 EXC2

Material

- Stainless steel 1.4301 (304) / 1.4404 (316L) / 1.4410 (F53) / 1.4462 (316 LN) / Steel 1.0038 (S235JR) hot-dip galvanised or epoxy coated

Spindle

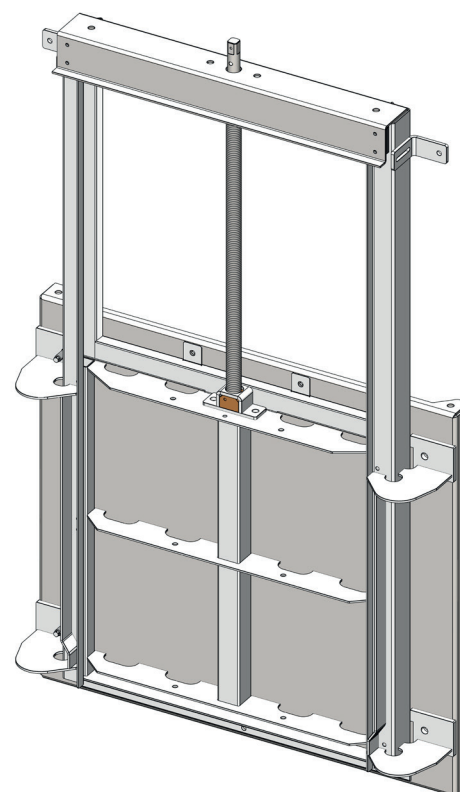
- Stainless steel spindle protection
- Spindle with rolled trapezoidal thread made of stainless steel
- Single spindle design or twin spindle design
Spindle nut made of seawater-resistant bronze
Optional: Spindle outside the medium rising or non-rising (easier to lubricate)

Seal

- Assembled on the sliding plate, note profile seal with hot vulcanised (minimum temperature: 180°C) UNO angle joints made of wastewater and UV-resistant EPDM or oil-resistant NBR
- Easy replacement of the seal during operation, as the penstock plate can be pulled out upwards
- Sealing to the structure by means of a welded backfill frame, grouted on site with shrinkage-free concrete. This makes it suitable for aged existing structures and new constructions with walls deviating from the requirements of DIN 18202
- The backfill frame can be separated from the rest of the penstock for installation/grouting (protecting the elastomer seals from contamination)

Leak tightness class

- Leak rate better than DIN EN 19569; Part 4 Table 1:
 - Pressure on front side max. 1 % of $0,02 \text{ l} \cdot \text{s}^{-1} \cdot \text{m}^{-1}$ (Leak tightness class 5)
 - Pressure on rear side max. 2 % of: $0,02$ to $0,05 \text{ l} \cdot \text{s}^{-1} \cdot \text{m}^{-1}$ (Leak tightness class 4)
- Alternativ:
 - Leak rate on both sides according to DIN EN 12266-2, Part 2, Table A.5: Leak rate C



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YOUR ADVANTAGES

- **NO REPAIR COSTS**
Guaranteed leak-tightness without complex or costly wall restoration
- **SEALING TO THE BUILDING BY GROUTING**
Full leak-tightness even on defective structural surfaces
- **READY FOR IMMEDIATE USE**
Penstock is delivered ready for assembly
- **SEAL ON PENSTOCK PLATE**
Can be replaced during operation by pulling out the entire slide plate
- **FOREVER DURABLE SEAL**
Through vulcanised UNO angle joints
- **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

Mounting

- Anchoring to the wall in front of the opening

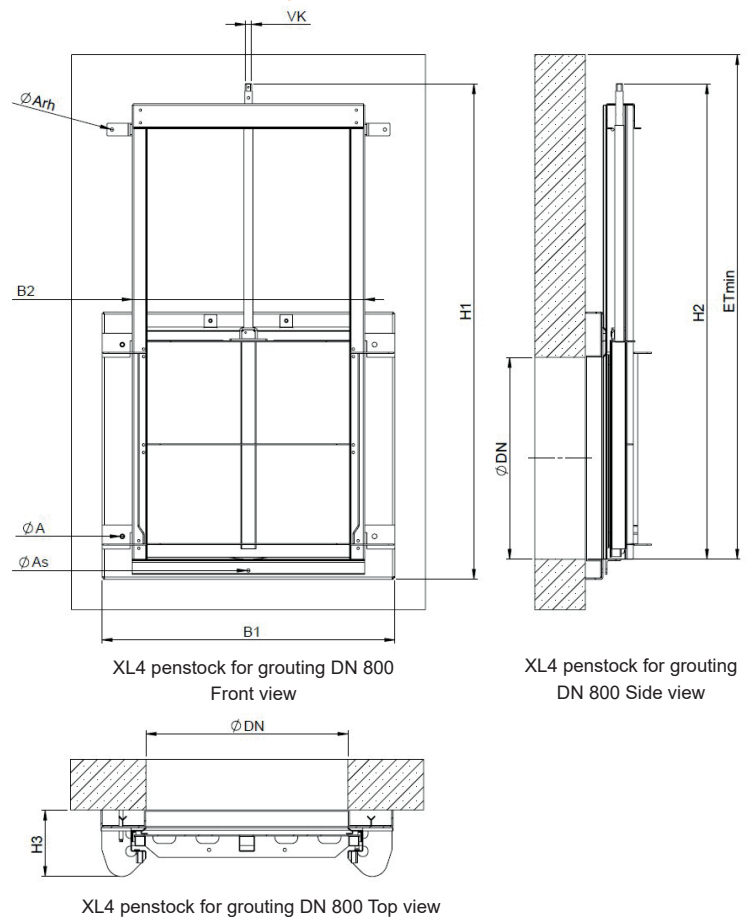
Variants

- Prepared for anchoring to curved shaft walls (inside/outside)
- Prepared for mounting in front of rectangular openings
- With rounded base for moulding a channel
- Adapted to customer-specific requirements (pipe sockets, projections, etc.)

Actuation options

- Stainless steel handwheel with direct mounting or with Modular Actuation System MAS
- Lateral actuation with stainless steel gearbox with stainless steel handwheel or stainless steel crank handle
- Stainless steel operating key All-in-one via square cap
- MOBITORQ mobile actuators (electric or battery-powered) via square cap with Modular Actuation System MAS
- BEAmax stainless steel electric rotary actuator for open-close & modulating duty with direct mounting or with Modular Actuation System MAS, optional with stainless steel weather protection roof
- Electric actuator with direct mounting or with Modular Actuation System MAS
- Pneumatic actuator/Hydraulic actuator with direct mounting or with Modular Actuation System MAS

Dimensional drawing

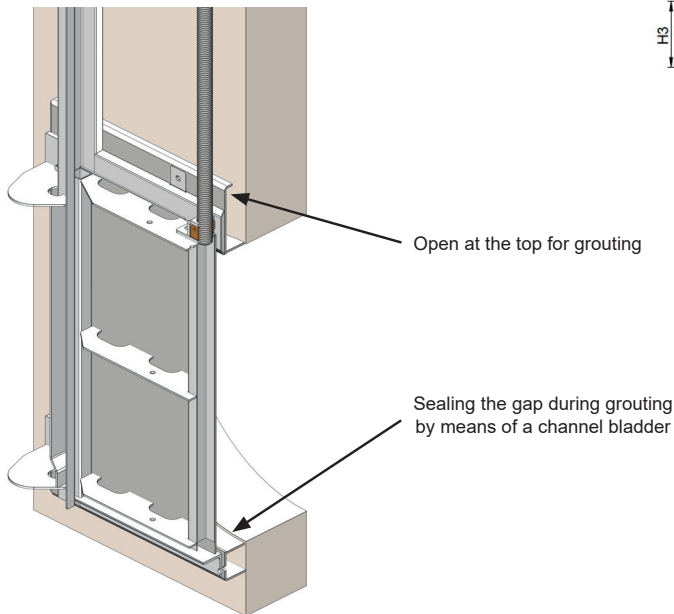


XL4 penstock for grouting DN 800
Front view

XL4 penstock for grouting DN 800 Side view

XL4 penstock for grouting DN 800 Top view

Details backfill frame



Open at the top for grouting

Sealing the gap during grouting by means of a channel bladder



XL4 penstock for grouting DN 200

Dimensions in mm

DN	150	200	250	300	400	500	600	700	800	900	1000	1200
B1	350	400	450	500	600	740	840	1058	1158	1258	1358	1558
B2	210	260	310	360	460	600	700	820	920	1020	1120	1320
H1	508	608	713	808	1008	1254	1454	1765	1965	2165	2365	2765
H2	448	548	648	748	948	1194	1394	1685	1885	2085	2285	2685
H3	ca. 160	ca. 160	ca. 160	ca. 160	ca. 160	ca. 200	ca. 200	ca. 270	ca. 270	ca. 280	ca. 280	ca. 300
ET min.	508	608	708	808	1008	1254	1454	1745	1945	2145	2345	2745
WA	120	120	120	120	120	120	120	137	137	147	147	157
Rev./stroke	31	41	51	61	81	101	121	141	161	181	201	241
VK	□16	□16	□16	□16	□16	□16	□16	□26	□26	□26	□26	□26
A	2x Ø13 M10x190				4x Ø13 M10x190			4x Ø19 M16x250		6x Ø19 M16x250		
As	-	-	-	-	-	-	-	-	-	1x Ø13 M10x190		
Arh	-	-	-	-	-	-	-	2x Ø13 M10x130				

Dimensions for other nominal sizes on request.