1. **XL4 penstock (seal on the plate)**
2. Penstock made of stainless steel with closing wedges
3. Opening dimensions 150 x 150 mm to 4000 x 4000 mm
4. Selectable pressure levels on both sides: 2-15 mwc

Optional ex-protection: On request, the penstock can be proven to comply with the ATEX Directive 2014/34/EU

A valid welding certificate of at least execution class EXC3 according to DIN EN 1090-2, from the manufacturer must be attached to the offer.

Penstock with rectangular opening, four-sided seal with the following design characteristics:

**Frame and panel**

* Supplied as pre-assembled penstock which does not require assembly, setting and adjusting works up to 1200 mm (multiple frame as of 1300 mm)
* 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
* Penstock plate with stiffening ribs according to structural requirements: The result of the FEM verification of the slide panel must be submitted
* 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, on the penstock plate made from polyethylene up to opening size 1200 mm, from opening size 1300 mm seawater- and wastewater-resistant bronze – wegdes in the frame on the pentock plate are made of stainless steel
* Penstock for embedding in concrete: Equipped with setting sleeve for aligning the penstock in the channel recess
* All welded parts with perfect corrosion protection from our own pickling plant
* No offset in rear to front invert level on the embedded penstock

**Material:** SS 304 / 316L / A 182 F51 / A 182 F53 / 904L (delete as applicable)

**Spindle**

* Spindle protection made of polyethylene
* 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 dimensions

1700 – 4000 mm

* Single spindle design or twin spindle design
* Spindle nut made of seawater- and wastewater-resistant bronze
* Optional: Spindle outside the medium rising or non-rising (easier to lubricate)

**Seal**

* 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 penstock plate can be pulled upwards
* Factory pre-assembled seal against the wall made of solid, wastewater-resistant cellular rubber on the seal support with maximum pressure stage 6 mwc on both sides
* Seal line 50 mm larger than the masonry opening to prevent leaks on masonry spalling

**Leak tightness class**

Leak rate better than DIN EN 19569, Part 4, Table 1:

 Pressure on front side: max. 1 % from 0.02 l · s-1 · m-1 (leak tightness class 5)

 Pressure on rear side: max. 5 % from 0.02 to 0.05 l · s-1 · m-1 (leak tightness class 4)

Alternatively:

 XL4 penstock tightness on both sides according to DIN EN 12266-2, part 2, table A.5, leakage rate C

Prerequisites for wall properties:

The concrete quality must at least correspond to strength class C25 according to DIN 1045 / DIN 1084. The dimensional tolerances according to DIN EN 18202 (table 3, line 7) must be observed.

**Penstock must be demonstrably tested on leak test bench at factory (unless frame is set in concrete or screwed into channel)**

**Type of assembly for Penstock**

Lateral fixing

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

Fastening in the base

* Concreted into recess
* Dowelling to the wall in front of the opening
* Dowelling onto the base

(Delete as applicable)

**Actuation of the penstock by:**

* Stainless steel handwheel on transverse yoke
* Lateral actuation with gearbox with BÜSCH stainless steel gearbox with stainless steel handwheel or stainless steel crank handle
* BÜSCH all-in-one control key via square cap
* BÜSCH MOBITORQ mobile electric drive unit via square cap
* BEAservo electric drive unit assembled on transverse yoke, optional with BÜSCH weather protection roof
* Pneumatic drive unit assembled on transverse yoke
* Hydraulic drive unit assembled on transverse yoke
* E-Actuator

 (Delete as applicable)

**Penstock designed for:**

Opening dimensions: \_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_ mm

Maximum operating pressure on the front side: \_\_\_\_\_\_\_\_\_\_\_\_\_ mwc

Maximum operating pressure on the rear side: \_\_\_\_\_\_\_\_\_\_\_\_\_ mwc

Installation depth: \_\_\_\_\_\_\_\_\_\_\_\_\_ mm (measured from gutter base to the upper edge of the operating corridor)

Can be used with BÜSCH drive unit package \_\_\_\_\_\_\_\_\_ (2 to 25), refer to Position: \_\_\_\_\_ LV-No.: \_\_\_\_\_\_

**Scope of supply**

Penstock complete with all necessary fastening elements (dowels (stainless steel A4) and sealing material).

* Including works certificate according to DIN EN 10204, 2.1, with indication of leakage rate according to DIN 19569, part 4
* Including acceptance test certificate according to DIN EN 10204, 3.1, with factory leak test in the design for dowelling in front of the wall
* Including acceptance test certificate according to DIN EN 10204, 3.2, with factory leak test in the presence of the customer in the design for dowelling in front of the wall.

(Delete as applicable)

**BÜSCH XL4 penstock**

or equivalent

**Manufacturer:**

BÜSCH Armaturen Geyer GmbH

Industriestraße 1

09468 Geyer

Germany

[**www.buesch.com**](http://www.buesch.com/)

 Quantity ........ EURO/Unit ............ EURO/Position .........