



PENSTOCK SPECIFICATION

DESIGN

Available in stainless steel to BS EN 10088 grades 1.4301 (304) and 1.4401 (316) as standard. Other grades are available upon request.

Frames and doors are designed and manufactured to withstand the stresses resulting from the application of the maximum head conditions. They are designed to limit deflection thus ensuring all round seal face contact.

The frame typically has a flat back for wall fixing, (using either a suitable sealant or grouting material), with fixing holes positioned and sized to secure it in position and prevent movement.

The door is suitably re-enforced and incorporates a nut pocket to accommodate the door nut.

SEALS

Manufactured in wastewater resistant EPDM, the seal between the frame and the door is a self-adjusting double wiper type seal, which is mechanically fixed with a retaining strip.



This material offers a combination of properties that make it an ideal seal material; it is hard wearing, resilient and with sufficient flexibility to accommodate the door surface profile.

It offers excellent abrasion and U.V resistance with low friction drag. It is also self-lubricating, which minimises operator effort and can ensure smaller actuator selection thereby offering ongoing cost savings on power consumption.

INVERT SEAL

Manufactured in wastewater resistant EPDM, the flush invert seal is facilitated by mechanically securing a sealing strip to the bottom of the door. The sealing strip is thus not exposed to the media flow path when the penstock door is in the fully open position.

The invert of the frame (where required) is positioned to align with the invert of the civil structure therefore eliminating any steps in the flow path and rendering it self-cleaning.





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DOOR GUIDES

Manufactured in POM (Polyoxymethylene), IBS door guides are secured to the penstock door to provide a 'running' surface for the range of travel. They are designed to restrict lateral door movement whilst the penstock is being operated or is in its open position.

POM has many advantages over other materials including –

- Inherent lubricity / low coefficient of friction
- Good toughness / impact resistance
- High strength and stiffness
- Excellent chemical resistance

SPINDLES

IBS penstocks are typically offered with rising spindles however non-rising spindles can be specified for applications with low headroom availability or where public access is a concern.

FASTENERS

All IBS penstocks are manufactured using only stainless steel fasteners, either grade A2 or A4.



LEAKAGE RATES

IBS' penstocks are designed to allow minimal leakage and will always be lower than the allowable leakage as detailed within BS 7775 (resilient sealing faces).

Maximum allowable leakage according to BS 7775: –

- For on- and off-seating heads up to and including 6 metres – 0.5 litres per minute per metre of seal perimeter.

INSTALLATION

The proper installation of penstocks is of paramount importance to their performance and sealing abilities, therefore the installation of every penstock should always be carried out in accordance with the instructions supplied with each unit.

Full operating and maintenance instructions are also provided and should be similarly observed.