SPECIFICATION FOR CAST IRON WALL MOUNTED TYPE PENSTOCKS

SPECIFICATION No 0001-CIP

Frames shall be formed from ductile iron with a fixed yoke section. The minimum grade for the iron will be BS1452-BSEN 1561 GJL 250. The frame will incorporate stainless steel grade 316 BSEN 10088-2 (1.4401/1.4404) integral guides and ductile iron ISO 1083 BSEN 1563 adjustable wedges.

The frames will be suitable for grouting and bolting to vertical walls.

The seating side of the frame will have a mechanically fixed phosphor bronze seal. The phosphor bronze will be to BS1400 PB2 and be secured with on to a bed of high build adhesive, finally secured with a sufficient amount of special taper breakneck phosphor bronze screws. The seal is then to be machined and finished to the non-acceptance of 0.0025" (0.06mm) feeler gauge

Doors shall be formed from close grained cast iron with a fixed nut pocket. The door nut pocket shall enable the connection of the operating stem nut. The design shall allow the removal of the nut without disturbing the door. The minimum grade for the iron will be BS1452-BSEN 1561 GJL 250. The door will incorporate cast iron integral guides and taper wedge surfaces.

The seating side of the door will have a mechanically fixed phosphor bronze seal. The phosphor bronze will be to BS1400 PB2 and be secured with on to a bed of high build adhesive, finally secured with a sufficient amount of special taper breakneck screws. The un-seating side of the door will have a ground and scraped taper wedge surface. The seal is then to be machined and finished to the non-acceptance of 0.0025" (0.06mm) feeler gauge.

Wedges will be from ductile iron ISO 1083 BSEN 1563 be fully adjustable and be of the taper wedge design. They will be secured by means of stainless steel grade 316 securing pins and incorporate stainless steel grade 316 BSEN 10088-2 (1.4401/1.4404) adjusting pins for final commissioning.

The Penstocks shall be capable of both operating and withstanding the working heads (refer to particular specification).

Where necessary additional top wedging shall be provided by means of door wedges and a frame cross beam to ensure water tightness meets the required limits.

A renewable rubber EPDM face to BS681-1 shall be fitted to a machined face at the base of the Penstock door. The Flush invert face shall be retained in place by means of a stainless steel retainer and stainless steel retaining pins. The grade of stainless will be 316 BSEN 10088-2 (1.4401/1.4404). It shall be renewable in situ.

The Penstock operating stem will be of the rising or non-rising type and be manufactured from stainless steel grade 316 BSEN 10088-2 (1.4401/1.4404). The extension spindle will be

mild steel grade 43A BSEN 10025:S275 JOH 1997/J2H 1994. The stem will work through a machine cut operating nut either housed in a thrust taking arrangement mounted direct to the top of the frame or remote on a pillar or housed in a nut located on a pocket at the top of the Penstock door. If actuated the stem will work through the drive sleeve of the actuator unit. (Actuator or gearbox operated Penstocks will utilise the drive sleeve supplied by the vendor)

For rising stems a cover tube shall be provided (indicating or non-indicating). Actuator cover tubes to be Manufacturers standard.

Headstocks shall be manufactured from heavy gauge mild steel and shall be heavy duty galvanised to BS729.

The Penstock will be clockwise closing at the hand wheel. This will be clearly marked on the hand wheel (integrally or mechanically fixed. the hand wheel will be no smaller than 300mm and geared that one operator can operate the Penstock using an effort of approximately 180N. This excluded electrically actuated Penstocks.

Installation of the Penstocks will be by electro zinc plated mild steel BS 7371-8:2011 or stainless steel grade A4 BSEN10088-2 (1.4401/1.4404) expanding/resin anchors. Following installation final adjustment and initial lubrication is to be undertaken and the door operated through one cycle (or as recommended by the manufacturer). If considered necessary by the client's representative a leakage test shall be undertaken at the maximum specified head.

The maximum allowed leakage will be as BS7775:2005.

BS Specification BS7775:2005, including normative specifications references therein.

Cast Iron parts will be coated in-accordance with the following

Blast clean SA2½.
Two pack epoxy paint with a min of 250 microns DFT.