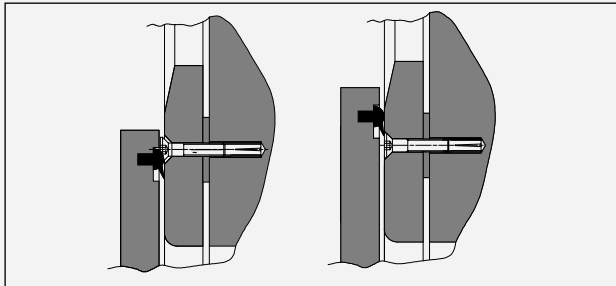


- Start with the anchors in the middle above the door and work your way equally from centre to left/right side of penstock in order to prevent deformations in the frame plate. Tighten the countersunk head bolts into the wedge anchors evenly so that a good seal to the wall is obtained without deforming the frame plate.
- Do the same for the anchors below the door.
- The countersunk head bolts must not protrude as they might damage the seal on the sliding movement of the door.



- Then tighten the anchors in the guides gradually one by one so that a good seal to the wall is obtained without deforming the penstock itself (frame plate and guides). Check the smoothness using a straightedge. Work your way from the bolts in the highest locations to the lowest; **after tightening the bolts repeat once again to check if the anchors are hand tight.**

INSTALLATION OF THE SPINDLE EXTENSION (OPTIONAL)

- Put the spindle extension with guide bracket on top of the threaded spindle of the penstock.
- Position the guide bracket approx. 250 mm below the deck or upper side of the spindle extension.
- Mark the anchor holes for the guide bracket onto the wall when the spindle extension is in position, vertical and straight, and temporarily remove the extension.
- Drill the holes and mount the anchors as instructed by the supplier of the chemical anchors. Note the time required for the hardening of the chemical substance.
- Mount the spindle extension again and fix the guide bracket.
- Afterwards adjust the location of the adjustable block on the guide bracket so that the adjustable block is positioned at right angles to the extension. Some space for moving the spindle extension will remain in the guide bracket.

COMMISSIONING

- Remove any dirt present on penstock. Especially clean the opening between the door and the frame plate as this is a place where dirt can easily accumulate.
- **Not removing small particles as grit could damage the seal when opening the door.**
- Penstocks until dia. 400mm or square 300 mm inclusive are equipped with polyacetal nutblock and for this reason never require grease on the spindle. Only grease the spindle when the penstock is supplied with a bronze nutblock.
- **Moisturize the sealant before operation / commissioning.**
- Check the functioning of the penstock by opening and closing the door.
- Do not over force the spindle. Increasing torque means that you have reached the end of the stroke. Do not continue operation. Over forcing the spindle can cause serious damage of the penstock

MAINTENANCE

- Check the penstock by opening and closing the door at least two times a year.
- Remove dirt on spindle and door.
- Grease the spindle if required.

INSTALLATION OF ELECTRIC ACTUATORS

- Installation of actuators must be effected by experienced staff following the exact guide lines of the supplier of the actuator.
- TBS supplies the actuators with pre-settings of the required operation torque for the specific penstock.

SPECIAL CARE ABOUT CHEMICAL ANCHORS

| | | |
|----|-----|---------|
| °C | +20 | 20 min. |
| | +10 | 30 min. |
| | 0 | 1 h |
| | -5 | 5 h |

Bear in mind the setting times!

Installation diagram

