

PENSTOCK TYPE PRA - G WALL MOUNTING

RECEIPT OF GOODS

On delivery the customer must check the goods supplied by TBS for completeness and damage or breakages. If the goods are not complete or are damaged the customer must respond by return, but at the latest within 1 week after receipt of goods.

The customer can not claim under guarantee if:

- these installation instructions are not strictly followed.
- on installation of the goods supplied the conditions for installation do not conform with our installation manual.
- a third party has modified the goods supplied by TBS. (The penstock forms a complete "self contained" unit that may not be disassembled or modified by any party other than personnel of TBS.)

Take good notice of the maximum pressure for which the products are designed.

PREPARING FOR INSTALLATION

- The penstock is designed for mounting against a smooth and clean wall.
Smoothness of wall is in accordance with DIN 18 202 table 3 item 7 with a maximum deformation of 2 mm over a distance of 2 meters.
- Check the door is completely closed. If not close the door. Before installation use a straightedge to check the smoothness of the wall at the location of the penstock.
- Also check the concrete wall for small local pits and lumps so that the neoprene tape (which will be fixed to the back plate) can function properly and seal well between the frame plate and the wall.
- Moving the penstock on site has to be done carefully. Lifting the penstock must be done vertically.

INSTALLATION

- Position the penstock in such manner that the passage of the penstock is exactly in front of the outlet in the civil structure.
- Mark the two upper frame plate anchor holes on the wall. Marking can be done by pre drilling of the holes (through the frame).
- Remove the penstock.
- Drill the two (marked) 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 penstock by hanging it on these two anchors, after they have been fixed in place.
- Check the penstock is positioned vertically and mark the positions of all the remaining mounting holes onto the wall.

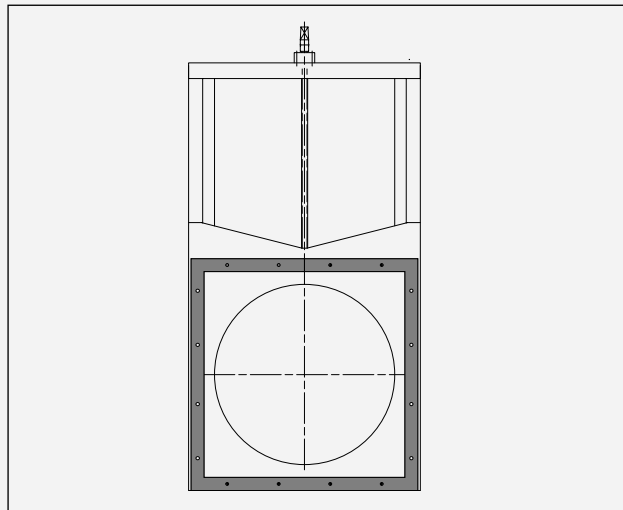
Marking can be done by pre drilling.

When pre drilling the holes in the horizontal position do not damage the HDPE frame plate, which is relatively soft and flexible.

- Remove the penstock.
- Drill all the remaining holes.
- Drill the holes for the wedge anchors 55 mm deep into the concrete wall (for the counter sunk head bolt M10x60).
- Place the chemical capsules in the holes and drill the anchor studs into the holes.
- Remove the resin of the chemical capsule that is coming out of the holes.

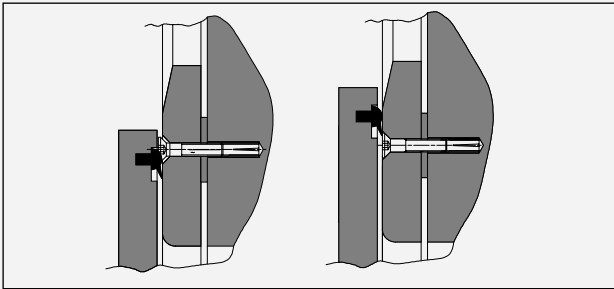
Strictly follow the instructions of the supplier of the chemical anchors. Note the time required for the hardening of the chemical substance.

- Fix the neoprene sealing tape all round the opening and over the anchor holes at the back of the frame plate. The neoprene tape may possibly overlap at the edges of the frame.



- Make the holes for the anchors in the neoprene tape.
- Position the penstock and put it over the anchor bars.
- **Only tighten the two upper anchor bars.**
- First mount the wedge anchors above and below the door as instructed by the wedge anchor supplier.

- 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

