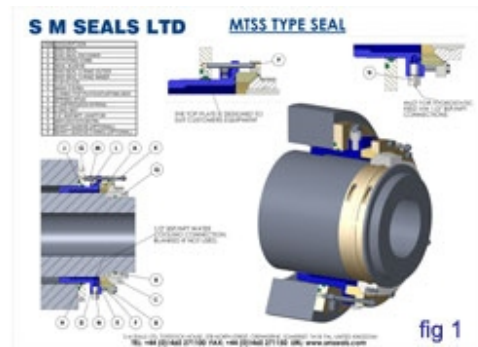


Type MTSS Shaft Seal

The MTSS Type Seal was primarily designed for the tube and S type turbines but are now largely used as an externally mounted seal, these are ideal for mini-turbines and cooling water pumps for the fossil and nuclear industries. They are particularly suited to retro-fit work.

All MTSS Type Seals are custom designed and are fully split for ease of installation and maintenance. The main wearing face is made from a special composite material that will regenerate mutually conforming seal faces if damaged by abrasive particles.

The design can be adapted to suit either horizontal or vertical shafts, and is capable of operating at circumferential velocities up to 10 m/sec (32 ft/sec), and pressures up to 5 bar (72 p.s.i.). With hydrostatic feed these parameters can be increased.



Referring to the sketch (fig 1): [\(click here for pdf of fig 1\)](#)

The Cone (C) is secured to the shaft, and rotates with the shaft.

The composite fibre End Seal (A) is located in the Sleeve (D) and is secured in position by the Retaining Ring (B).

The Main O-Ring (H) is located in Top Plate (G) but this can be the turbine/pump head cover.

Studs (K) pass through holes in the Retaining Ring (B) and channels in Sleeve (D), and screw into the Top Plate (G).

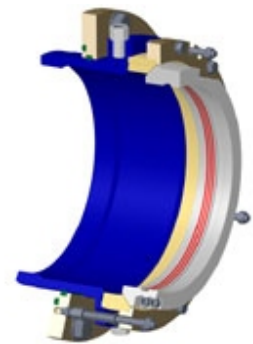
The load between the sealing faces is applied by Compression Spring (L) with Adjusting Nut (M). If installed on a turbine the water pressure will also add load.

As the Cone (C) wears the Sleeve (D) slides through the O-Ring (H) and the face load is maintained by the Adjusting Nut (M).

All components can be supplied in a choice of materials to suit individual applications.

Cooling water, which can be unfiltered penstock water, must be supplied to the seal under all working conditions (whenever the shaft is rotating) if hydrostatic feed is not utilised. If hydrostatic feed is incorporated into the seal, the water supply to this feed needs to be filtered to 25 microns (100 mils).

A wear indicator can be supplied to monitor the life of the seal. This can be fitted either to the seal itself or remotely.



Benefits

- Positive Sealing - Hydraulically balanced faces dimensioned to suit the application to give minimum leakage.
- Long Life - Seal life is built in and this combined with a wear indicator facilitates planned maintenance. Seal face life in excess of ten years has been achieved.
- Non-Clogging - Smooth contours and no springs in the water prevent clogging in silty conditions.
- Durable Materials - All wetted components are manufactured from corrosion resistant materials.
- Robust - The composite wearing face can be dropped without damage unlike carbon. It can also withstand vibration and abrasives without permanent damage.
- Space Saving - Custom designed seals can usually be engineered to fit into the available space allocated for the main shaft seal.
- Easy Maintenance - Simple robust components are easier to handle and fit than multi-segment carbon glands, thereby, reducing downtime and maintenance costs.
- Flexible Design - Can accommodate axial and radial shaft movements without special precautions.