

## HYDRAULIC BOLT TENSIONING

### Turbine Bolt Tensioning Equipment

Specifically designed to meet the harsh requirements of steam turbine maintenance environments and schedules, the Boltight turbine bolt tensioning tools provide fast, accurate and reliable bolt tightening. Using the principles of tensioning, the Boltight equipment develops exceptionally high loads to achieve the required residual bolt extension thus eliminating torsion and other friction concerns.

The system requires extra long bolts, together with customised washers and round nuts which can be included in the system supply. The washer locates in the spotface area under the round nut, and the bolt tensioner screws onto the bolt and locates on the washer.

During pressurization, the tensioner stretches the bolt to a pre calculated hydraulic operating pressure equivalent to the required bolt extension. When this pressure is achieved, the round nut is tightened to retain the bolt extension. The load is very accurate as it is a direct stretch on the bolt.

To achieve optimum speed and uniform bolt loading, a number of bolt tensioners are linked hydraulically and pressurised simultaneously. A significant benefit of this multi tensioner pressurisation is the uniformity of the bolt load, and the even closure and compression of the turbine casing.

The bolt tensioner is designed with multiple hydraulic cylinders to ensure that it does not exceed the diameter of the spotface, and features a long stroke capacity well in excess of that required to achieve the bolt elongation in one pressurisation.

The Boltight tool is designed to sit within the turbine spot face diameter and therefore no modifications to the casing geometries are required.

The heater hole down the centre of the bolt is no longer required such that the new extended bolts, including the washers and round nuts, are more economical than conventional bolts and cap nuts.

Boltight is a UK based specialist bolt tensioning company with many years of experience in all aspects of bolt tensioning, and where technology, quality and safety are paramount.

The company also provides exceptional customer support and a comprehensive health and safety operating instruction manual with each project.


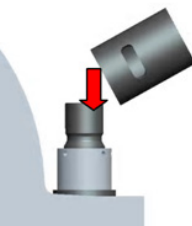
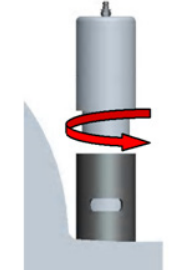
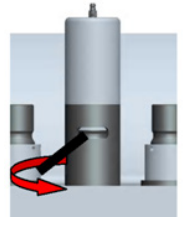
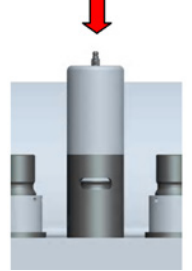


**BOLTIGHT®**  
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### Simplicity of the Boltight Turbine Tensioning System

|  |   |
|--|---|
|   | <p><b>Assemble stud, nut and washer</b></p> <p>Note: the reduced top thread which allows for quick assembly of the nut</p>  |
|   | <p><b>Position the bridge piece over the stud and nut</b></p> <p>Note: the bridge also acts as a handy gauge to check the correct stud protrusion</p>               |
|    | <p><b>Screw on the tensioner</b></p> <p>Note: the course pitch on the upper stud thread allows for quick tensioner assembly</p>                                     |
|   | <p><b>Attach the hydraulic hose and pressurise the system</b></p> <p>Several tools are linked together to even better time savings and uniform load application</p> |
|   | <p>When the target pressure has been reached the nut is simply turned down using a Tommy bar through the bridge access window</p>                                   |
| <p>The pressure is released. This is repeated again to ensure perfect embedment of the nut and washer. The process is now complete and the tensioner is simply removed</p> |   |



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