



# NUCLEAR REACTOR PRESSURE VESSEL TOOLING



### FAST DELIVERY

of special tools within a strict delivery window

### CUSTOM DESIGNED

to accommodate clients exact specification

### COMPREHENSIVE TESTING

Certification and operational specifications delivered

## THE CHALLENGE

**Boltight were challenged to design a hydraulic tensioning tool to achieve a predetermined bolt elongation to tighten nuclear reactor pressure vessel stud bolts.**

The required bolt load was critically high (14,500 kN), and the space envelope very small.

## THE SOLUTION

**A tensioning system was designed which could accommodate high preload capacity within the tight space available.**

Boltight incorporated a hydraulic piston retraction function into the design to enable the equipment to be reset quickly, reducing operator fatigue.

The tensioning tools had to compensate for dynamic joint behaviour. A spherical reaction nut and piston interface was integrated to accommodate any bending effects in the event of flange rotation.

Various safety mechanisms were incorporated to protect both the tools and the operators. Pressure relief valves were installed to prevent the hydraulic return system from over-pressurising and the body rotated independently of the bridge - this configuration reduced the tilt angle when the tool was lifted.

In addition, a floating gearbox design was engineered to avert drivetrain damage should misalignment occur. The gearbox directly interfaced the geared nut which negated the need for a costly, heavy socket, and provided the necessary torque to rotate the nut.



# NUCLEAR SUCCESS STORY



Quality Inspection



Testing

### LOCATION

South Korea

### APPLICATION

Nuclear Reactor

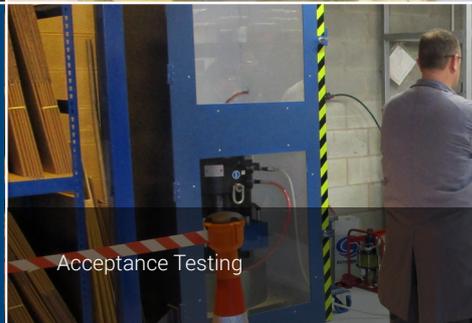
### CUSTOMER

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION

### PRODUCT

Bolt tensioners for 7-3/8" 8UN Bolts & Bespoke storage cases.

“ THE CUSTOMER REQUIRED REGULAR PROJECT UPDATES, AND THESE WERE PROVIDED THANKS TO THE DYNAMIC PROJECT PLANNING INITIATIVES ADOPTED BY THE BOLTIGHT ENGINEERING TEAM OVERSEEING MANUFACTURE OF THE SYSTEM.



Acceptance Testing

## THE OUTCOME

**CUSTOMER SATISFACTION** - Delivery of a cost effective, bespoke solution for a restrictive, highly loaded joint - where large bolt diameter, large number of bolts and high bolt loads required.



Boltight standard bolt tensioning tools

## FIND OUT MORE

Founded in the United Kingdom, in 2001, Boltight is the creator of the original hydraulic bolt tensioning technology that permanently eliminates the risk of loose or over tightened bolts. We have the largest standard range on the market as well as an unlimited capacity to create custom solutions to solve our customers' unique challenges. The result over an entire lifecycle is increased uptime, savings on maintenance costs and a safer work and public environment.

Boltight is part of the Nord-Lock Group, a world leader in secure bolting solutions that offers a range of innovative technologies including Nord-Lock wedge-locking, Superbolt multi-jackbolt tensioning, Boltight hydraulic tensioning and Expander System pivot pin technology.

Find out how Boltight can solve your bolted challenges at [Boltight.com](http://Boltight.com)

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