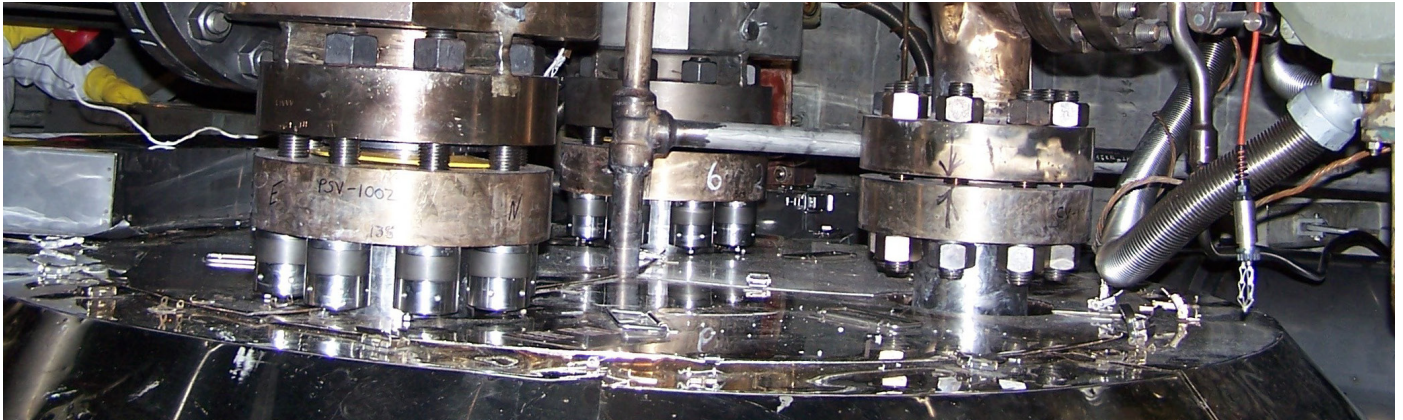


Nuclear Power Products and Services



The HydraNut® bolt tensioning system is designed to replace the existing hex nuts and is a direct retrofit for the current flange configuration. This system will save time and improve the accuracy, reliability and repeatability of bolting any critical flange. The risk of galling the stud, nut or flange is eliminated by using the HydraNut thus increasing the speed of disassembly and reassembly. Safety for workers also improves by eliminating pinch points, reducing dose, and eliminating the lifting of heavy cumbersome torquing or tensioning equipment.

| Key Features |
|---|
| • 100% simultaneous tensioning |
| • Eliminates star pattern torquing process |
| • Saves time and reduces amount of shifts required to complete the work |
| • Reduces dose exposure |
| • Eliminates heavy tensioning equipment |
| • Eliminates dangerous reactive forces by eliminating torque wrenches |
| • Increases worker safety |
| • Even loading of the gasket |
| • Eliminates risk of galling the stud, nut or flange |

| Application | Tensioning/ Detensioning Times |
|--------------------------|--------------------------------------|
| Steam Safety Valves | 5 mins per flange |
| Safety Relief Valves | 5 mins per flange |
| Turbine Valves | 10 mins per flange |
| Reactor Coolant Pumps | 30 mins per flange |
| Steam Generators | 20 mins per flange |

HydraNut®

Bolt Tensioning System

How it Works

- The Spherical Washer is placed and the HydraNuts are screwed down onto each stud.
- Each HydraNut on the flange is pressurized at the same time using manifolds and hydraulic hoses.
- As fluid enters the Hydraulic Area the pressure builds.
- As the pressure builds the Nut Body is forced upwards thus stretching / tensioning the studs to the required load.
- A small gap will appear between the Lock Ring and Piston. This is indication that the studs have been stretched / tensioned. The studs are now under hydraulic load.
- The Lock Ring is screwed down until it touches the Piston.
- The hydraulic pressure is released.
- The studs are now under mechanical load that is being retained mechanically by the Lock Ring.
- The hydraulic hoses are removed and the HydraNut remains on the flange during plant operation.

