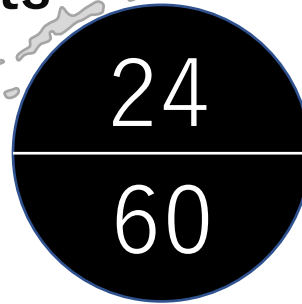




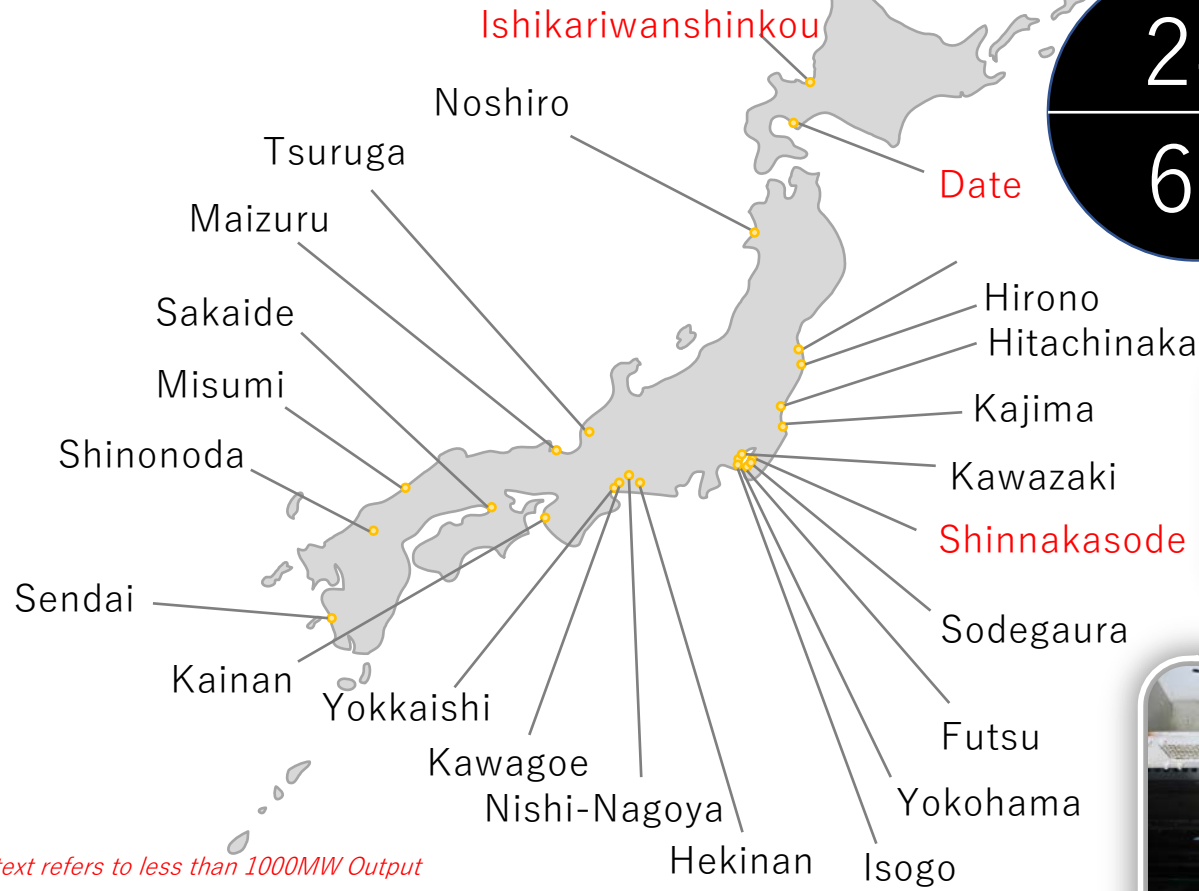
Emery Power LLC

HARDLOCK in Thermal Power Plants

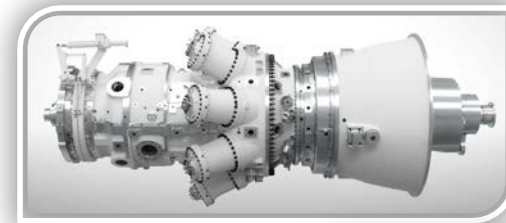


Power Plants

40% in Japan



Red text refers to less than 1000MW Output



Gas Turbines



Water Reclamation



Unloader



Distributed by **EMERY POWER**

4701 Patrick Henry Drive, Bldg 16, Suite 108,
Santa Clara, CA 95054

Email: info@emerypower.com



HARDLOCK Nut is used in many different applications for Turbines

For use in Turbines:

- Exhaust Diffuse Joints
- Exhaust Hood
- Exhaust Manifold
- Turbine Flange Joints
- Fuel Nozzles
- Combustion Housing Joints
- Air Inlet Piping
- Turbine Base Plate (Foundation Bolts)

Gas Turbine Monitoring Sensors :

- Displacement Sensors
- Valve Sensors
- Thrust Sensor (Pressure & Acceleration Sensor)
- Speed Sensor

Turbine Surrounding Equipment and Pipework:

- Pipework U Bolt Support (HRSG, Air, Fuel, etc.)
 - Pipework Flange (HRSG, Air, Fuel, etc.)
-



Emery Power LLC

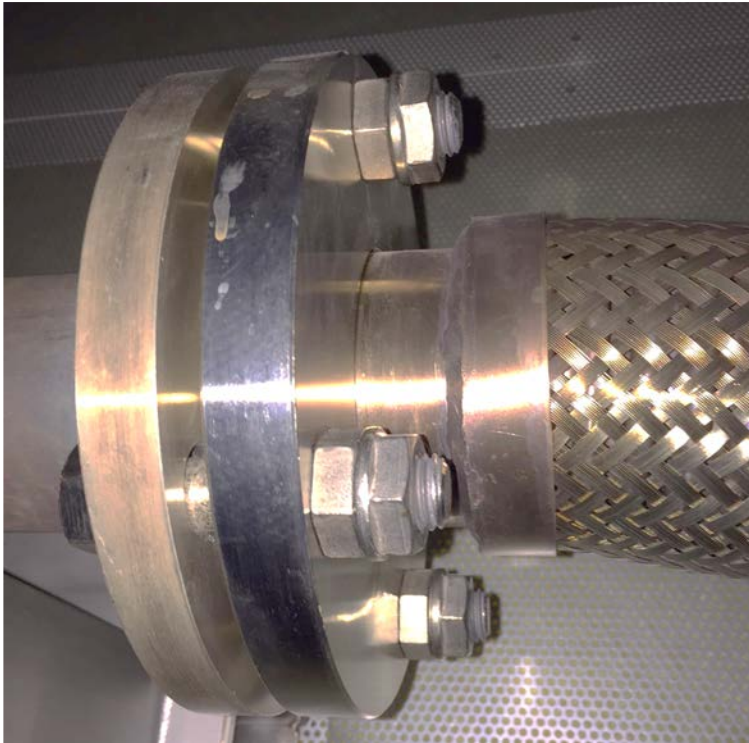
Benefits of using HARDLOCK Nut

Less time assembling and elimination of fastening related problems

- ✓ Self-lock capabilities same as “Double Nutting” solution.
 - ✓ Installation is very simple and robust unlike “Double Nutting” which moves after installation
 - ✓ Free running along thread unlike Nylon Insert Nuts
→ ***Reduced installation times***
 - ✓ Can be used with current thread specifications
 - ✓ No special tooling
 - ✓ Can be reused
→ ***Reduction in costs***
 - ✓ No difficult installation with Tongued Washers
→ ***Reduced Installation and Removal Times***
 - ✓ No damage to threads
→ ***Bolt does not have to be cut off to access equipment for maintenance***
 - ✓ No torque maintenance is required
 - ✓ Can be installed with little to no torque
 - ✓ Can be installed in Narrow places
-



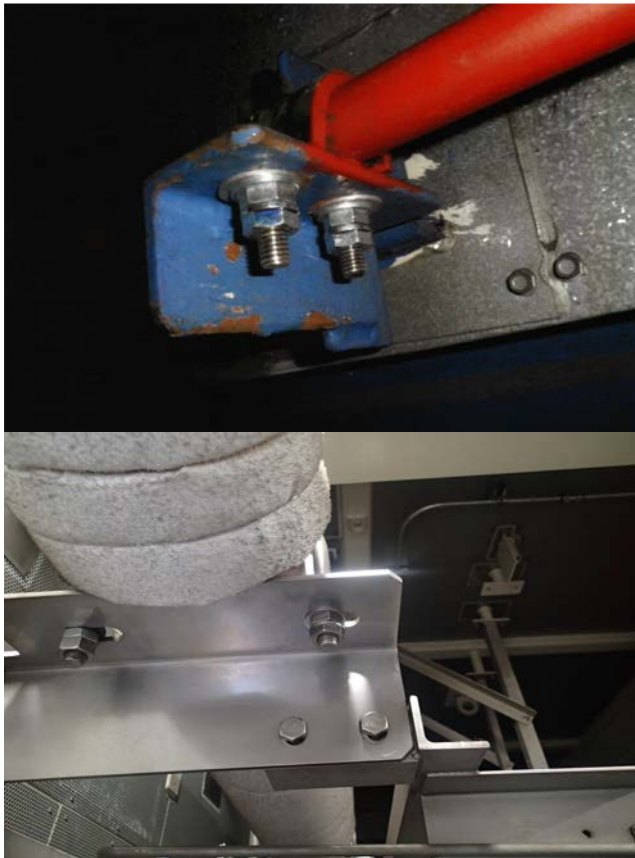
Use Case 1 – Pipe Flanges for Joints under High Temperatures and large vibrational forces



- ❑ Pipes which carry exhaust gas or hot steam are under extreme pressures and heats (Approx 600~900 ° F). These joints are exposed to Thermal Expansion which leads to loosening of nuts and bolts eventually leading to broken bolts and leakage.
- ❑ HARDLOCK Nut locks into the threads not the seating surface, resulting in no changes of nut positioning meaning no loosening from Thermal Expansion.
- ❑ Used for HRSG, Air, Fuel, Steam pipes to provide a solution that does not require constant maintenance.



Use Case 2 - U Bolt pipe supports for pipes experiencing Transient Vibrations



- ❑ Pipes which carry exhaust gas or hot steam are under extreme pressures and heats (Approx 600~900 ° F). These joints are exposed to Thermal Expansion which leads to loosening of nuts and bolts eventually leading to broken bolts and leakage.
- ❑ HARDLOCK Nut locks into the threads not the seating surface, resulting in no concerns with cyclic bolt lengths changes from Thermal Expansion.
- ❑ Result: No pipe damage and no inspections required. Can be used for all types of pipe support.