

## Media Release – Technofast – October 2014

(Attn media including mining and energy, infrastructure and ports, minerals processing, materials handling and process engineering and safety, Australia, Asia-Pacific and worldwide. Editors please note: an email of this story and the picture accompanying it can be obtained from [whyte@bigpond.com](mailto:whyte@bigpond.com))

# When bolting safety is too hot to handle, innovative Australian hydraulic nut systems provide a solution



*Technofast EziTite TR high temperature hydraulic nuts, being installed on a Heat Exchange in refinery, makes assembly and disassembly tasks faster and safer and avoids downtime. .*

**Some of the most potentially hazardous bolting tasks in the mining, energy and materials handling sectors involve mission-critical and high heat equipment. This can include high pressure mineral and materials processing equipment, generators, steam turbines, heat exchangers, autoclaves, boilers, pressure vessels and associated pipeline infrastructure including valve assemblies.**

All of these installations need rapid installation and efficient maintenance requiring fast disassembly and reassembly for work to be carried out with maximum speed and precision, reducing worker's exposure time to potential hazards and reducing downtime that no company can afford as it steps up production to combat falling commodity prices.

A solution to the problem is offered by Australian joint security innovator Technofast Industries, which produces the expanding globally successful EziTite<sup>®</sup> family of hydraulic nuts and bolts used on many high temperature applications worldwide where speed, safety and accuracy are critical. The Technofast product family includes the CamNut systems used on steam turbines and extreme temperature applications from – 40°C to 650°C and the EziTite<sup>®</sup> TR Hydraulic Nuts designed especially for high temperature applications up to 550°C and higher in some instances.

Technofast technologies such as the EziTite<sup>®</sup> and CamNut range are currently being taken up by some of the world's largest resources and engineering companies – Including BHP Billiton, Bechtel and Rio Tinto – with worldwide applications including Australasia, Asia and North America. Technofast will next year double the size of its plant in Brisbane to accommodate demand as it expands the product family.



*EziTite<sup>®</sup> Hydraulic Nuts, left, and CamNuts, right. EziTite<sup>®</sup> Hydraulic Nuts are rapidly applied by being placed installed on the bolt studs which they are hydraulically actuated, stretching the bolt to the precise tension required and then locking it in place mechanically with a locking device. The reverse procedure permits equally rapid disassembly when it is eventually required. CamNuts, right, have unique features which can allow the use of Tensioners on bolts without sufficient stud protrusion. Typical applications include steam turbines and associated valves, which are typically used to generate electricity and in marine and locomotive propulsion.*

Technofast's CamNut System is the only alternative to current methodology which can be effectively used to tighten the typically massive bolts used in large Steam Turbines without either replacing the entire set of bolts at huge cost or extensively modifying bolts, casings, or both.

The system is designed using specialised features such as stacked hydraulic load cells to reduce tool diameters and a tapered breakaway coupling with a unique thread for rapid engagement of the tensioning tool.

The EziTite<sup>®</sup> TR High Temperature Hydraulic Nut has a number of significant features which are also the subject of Patents and PCT Patent Applications. Technofast has developed a highly innovative metal seal with excellent durability which is unlike any other hydraulic sealing mechanism in existence.

The unique action of the seal mechanism permits the EziTite<sup>®</sup> TR fastener to be cycled many times without failure. Months of in-house testing has confirmed an operational life in excess of one hundred cycles, which far exceeds any projected usage.

“EziTite<sup>®</sup> TR Hydraulic Nuts and CamNuts have been introduced to the Australian market specifically to provide a solution to extreme situations and adverse conditions that could expose workers to hazards” said Technofast Founder and CEO Mr. John Bucknell.

They provide precision bolt tensioning in a fraction of time taken by other methods, such as heating or torque tightening. Whole groups of hydraulic tensioning devices can be tightened simultaneously on a flange, joint or cover, for example. This simultaneous loading of entire groups of fasteners helps to eliminate bolt load scatter and gives an extremely accurate and even load onto the flange/joint, enhancing its long-term security, safety and reliability and ensuring leak free start ups.

Current examples of the CamNut systems' effectiveness involved the closure of power generation turbines and steam turbine casings of the type employed in mining, energy, mineral processing and materials handling. Instead of using time-consuming bolt heating and shrinkage methods, bolts are hydraulically tensioned simultaneously. This drastically shortens assembly time, for example, with an alternate bolt system, a large High Pressure/Intermediate Pressure (HP/IP) casing can be closed in a matter of minutes, rather than days. A bonus is that any release and retensioning of fasteners can be carried out quickly and easily. In the case of breakdown, fastener removal can be effected even before the turbine is fully cooled from operating temperature.

## Gas Turbine Assembly Method Comparison

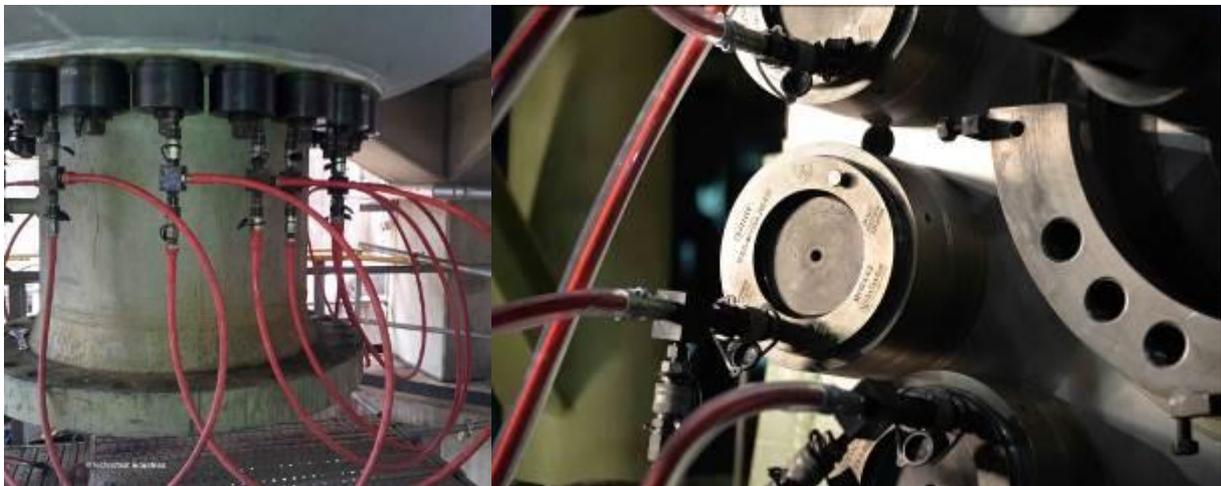
(1) Vertical Joint (2) Horizontal Joint	Hydraulic Torque Wrench	'Extended Bolt' Tensioner (Competitor product)	'Short Bolt' Tensioner (CamNut System)	High Temperature EziTite® Hydraulic Nut
(1) Removal	8	8	6	1.5
(1) Installation	10	8	6	1.5
(2) Removal	12	12	10	1.5
(2) Installation	14	12	10	1.5

The use of CamNuts in these applications permits the obvious benefits of using direct tension methods. Accuracy, efficiency, improved safety and vastly extended stud life noted.

The use of the EziTite® Hydraulic fasteners provides the ultimate means of turbine shell tensioning

## Tool Features, EziTite® TR Hydraulic Fasteners

- Patented metal seal design allows for applications up to 550°C and higher.
- Compact design for confined applications.
- Smart design to eliminate load losses.
- Secondary backup release mechanism (Sacrificial Ring)
- Multiple tensioning provides even bolt loads with massive assembly and disassembly down time.



### *Benefits of the EziTite® TR Hydraulic Nut*

- Reduces maintenance down time.

- Improves safety on the job.
- Gives reliable and precise tensioning.
- Is user-friendly.
- Fast to fit and remove.
- Requires little physical effort.
- Is ideal for difficult or confined spaces

*The EziTite® TR Hydraulic Nut is ideal for:*

- Pressure Vessel Closure (i.e.: Autoclaves, Boilers, etc).
- Flange Makeup.
- Gas Turbine Joints.
- Steam Turbine Joints.
- Boiler Feed Pumps
- High Temperature applications.

## **Tool Features, CamNut:**

- User friendly, fast to fit & remove.
- Requires little physical effort.
- Quick connection of tensioner tooling.
- Ideal for situations with short bolt grip length.
- Modular construction reduces overall tool weight.
- Operating temperatures from  $-40^{\circ}\text{C}$  deg to  $+650^{\circ}\text{C}$ .

*Benefits of using a CamNut:*

- No need to replace expensive studs to provide sufficient grip length.
- Easier handling with lesser tool weight.

- Designed for extreme situations/adverse conditions.
- Minimises cost and reduces downtime.
- Reliable and precise tensioning the first time.
- User friendly to improve safety.
- Requires little physical effort.
- Fast to fit and remove.
- Reduce breakdowns and damage.
- Removes risk of strike and pinch point injuries caused by other tightening methods.



***A CamNut is Ideal for:***

- Regular maintenance requires repeated adjustment or removal of nuts.
- Where Speed of operation is essential.
- Where bolts are of large diameter.
- Accurate and reliable loading is required on bolting.
- Space for tooling is restricted.
- Simultaneous tightening of bolts is required.
- Even joint/gasket compression is required.

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