

METAL STITCHING

LOCK AND STITCH

The Ultimate Solutions
to Broken & Cracked Castings

Metal stitching or metallocking as it is called in some parts of the world, have become generic phrases that describe methods of repairing cracks in cast metals **without welding**

Short cracks in the combustion cylinder head are good examples of the type of repair where stitching pins that develop spreading force when tightened are approximate. Cracks of one inch in length or shorter can most often be repaired this way.



Crack Repair Engine Su zer ZV12-43/48 PLTD Unit Kledang



TIRE KILN CRACK REPAIR
(PT SEMEN INDONESIA, TUBANI)

Why metal stitching?

Well, primarily because of the need for an alternative to the difficulties encountered in welding

Most electric welds with nickel rod on cast iron fail. Most cause more damage than was present before the attempted weld.

Proper cast iron welding techniques require complete disassembly and oven preheat at 900° F to 1500° F. And there is a lot of time and effort involved in the clean-up and machine work of any welded piece



Application and Industries Served

- Cylinder heads
- Compressor Cylinder
- Engine bases and Engine main frames
- Pump housings
- Compressor frames
- Industrial castings of all types

FULL TORQUE

THREAD REPAIR INSERT

The Ultimate Solutions To Stripped, Bored, Damaged, Cracked and Broken Bolt Hole

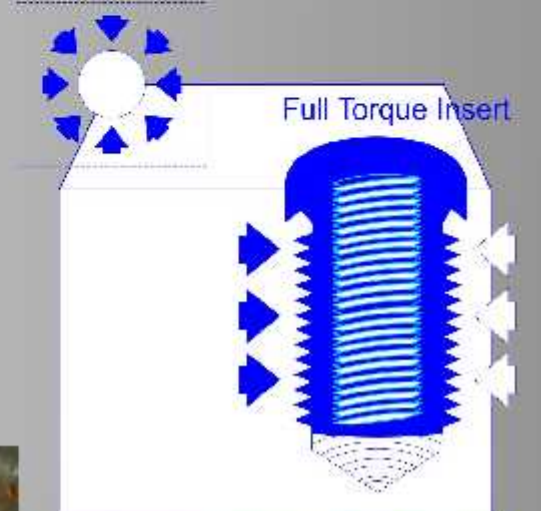


This is a totally new concept in threaded hole repair. Full-Torque thread inserts have a patented external thread style called Spiralhook™. This is a revolutionary new concept that makes our thread repair inserts the very best in the world.



FULL-TORQUE® thread repair inserts provide a completely new solution to stripped and cracked bolt holes. No other thread repair method even comes close to the strength and durability you will realize when you install our inserts.

The Drawing Force



Compare with directions and Distributions of Force

Full Torque on Turbine Casing, GTG

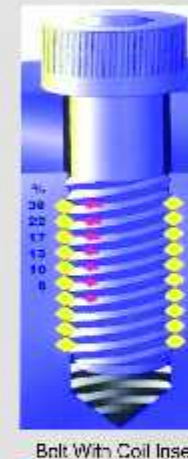


Radial Force



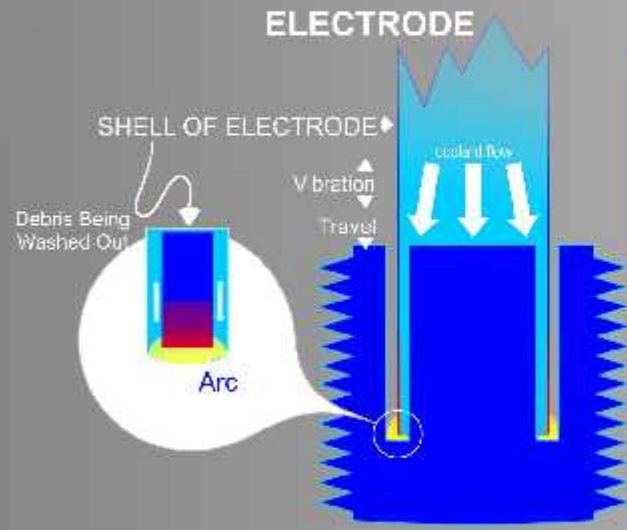
When a Full-Torque thread insert is installed into a cracked bolt hole in cast iron, the crack is automatically drawn

together and reinforced by the radial drawing ability of the Spiralhook threads on the outside of the insert. As the insert is tightened into the hole that is threaded with a special tap, the insert is pulled upward and engages the upper side of the threads with the negative hook angle on the insert with the matching bottom side of the threads in the threaded hole. As it is tightened the surrounding metal is drawn inward and deeper into to the Spiralhook threads.



Bolt With Coil Insert

SPARK EROSION METAL DISINTEGRATION



The cutting action of a metal disintegrator is accomplished by creating a series of intermittent electric arcs that breakdown the hardest metals into minute particles

A hollow electrode, held in the head of the disintegrator, vibrates as it's tip creates an arc that melts the material

Plain water is pumped through the electrode to wash away the disintegrated metal, while cooling the workpiece to 40-50 C

Metal Disintegration Process



More precise and faster than conventional boring, drilling and milling techniques, which will get your equipment up and running quicker.

Metal Disintegration Machine



Application and Industries served

Refineries and Process Plant

- removal of seized reactor studbolts (top or bottom flanges)
- removal of seized nuts without damage to the bolts
- removal of keys/ dowels

Power Generation

- removal of rotor coupling & stacking bolts, horizontal casing bolts, seized keys out of impeller/ shaft and removal of positioning bolts without damage to the bore

Marine/ Offshore

Technology can even be used under water

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