

Thermal Technologies Inc.



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The Xtreme Bolting Machine



After years of research and development, Xtreme Bolting Services, Inc., introduced the patent pending Xtreme Bolting Machine (XBM) at the Power-Gen show in November 2006. The XBM is the latest technology in the bolt heating industry, and has significant advantages over the induction heating method that had become the industry standard for bolt removal during the past several years. Our system is light weight, economical to use, simple to operate and robust in construction. Size and weight are just two small advantages of the system, but when one considers that a single, 185 lb machine can remove 6 bolts at a time, the money saved on reduced outage time quickly becomes the biggest advantage of all. The Xtreme Bolting Machine and the services from Xtreme Bolting Services offered in

conjunction with Thermal Technologies Inc. have continued to gain popularity since its introduction.

Both productive and efficient, we provide unparalleled expertise to the power industry.

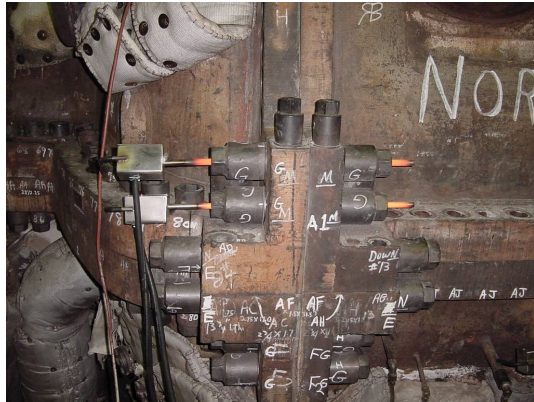
Development History

Though the idea had been around for years, the first prototype was not completed until early 2006. At this time testing began, and various utility companies reviewed and approved the results.

A later prototype of the XBM was tested at an American Electric Power plant in Texas. The unit was tested against a competitor's bolting unit. The competitor's unit can only do one bolt at a time and takes approximately seven minutes per bolt. The XBM can do six bolts at a time, and takes average of four minutes per bolt. This was tested with over 70 engineers and turbine maintenance managers.



The XBM was introduced to the market at Power-Gen in November 2006. Since that time, we have spent an extensive amount of time with the units in the field with our various customers and partners. During this time, we have learned a great deal about the needs of our clients, and have continued to receive recommendations and ideas to help make our clients' jobs easier. We have also continued to improve the system to increase the robustness of both the machine and wands, increase our speed and efficiency in removal or reassembly and reduce any rare downtime to mere minutes.



How the Xtreme Bolting Machine Works

The XBM operates by inserting the wands into the holes of the bolts in a turbine shell or valve. The XBM uses resistance instead of induction to heat the bolts, but unlike cal-rods, our wands operate on 480V and heat the bolts rapidly. Heating the bolts causes them to elongate, thus allowing for easier loosening or tightening of the bolts. Once the bolts are up to temperature, the nuts can be tightened or loosened, usually with ease. The process

repeats until all of the nuts are either tightened or loosened. The industry refers to this process as *stretching*.

What Is The Benefit?

The benefit of the XBM is that we are able to provide a bolting service to customers that need a reliable and cost effective heat treatment method. With up to 12 wands on the deck at one time, we are able to do a job much faster than the competition. The wands have a life cycle of 10,000 uses, which alleviates the need to swap wands the middle of a job. The benefit of the XBM is overall cost savings to our customers. This is accomplished with fast service, reliable equipment, and experienced technicians.



Advantages over Induction

Each machine is capable of heating six (6) bolts at one time anywhere within twenty-five (25) feet of the machine location.

Lightweight machine needs no crane or forklift to move.

Uses the 480V/60 amp service right on the turbine deck.

No water required.

No special wiring required.

Remove or tighten within one shift.

Can pull studs on stop valves and turbine shell at the same time.

Shell removal in 1/3 the time it takes for induction removal, thus reducing outage time by days.

Can save Millions of dollars in down time by shortening removal time or getting your outage back on schedule during reassembly.

Options available for basic heat treating applications such as PWHT and Pre-heating.



Cost Savings To Our Customers

The cost savings are provided by the robustness of the equipment used. We are able to provide faster service with less equipment failures, and this in turn passes cost savings on to our customers. Presently it takes about 4 men a total of 168 man hours to remove an outer turbine shell. With our units, we can have all of the bolts loosened with only 2 men in a matter of hours. This reduces man hours and outage times. Therefore, our customers realize cost savings in two ways: they will pay less for us to do the job, and the time for us to do a job will be much faster than our competition.

Knowledge and Experience Matter

When our technicians roll onto a job site, they bring with them more than a couple of machines, some cables and a stack of wands. Our technicians are professionals who bring knowledge, experience, and know-how that will greatly aid in expediting our customers' schedules. Using customer provided tooling; we work closely with the millwrights and plant personnel to ensure that the job is done both quickly and safely. Safety is of utmost concern when dealing with high temperatures, fall hazards and drop hazards around a turbine.



About The Nuts and Bolts of Xtreme Bolting Services, Inc.

Xtreme Bolting Services, Inc., is a privately held corporation headquartered in Claremore, OK. Established in 2006, the company was formed by industry veterans who were looking for a better way to provide bolt heating and nut removal options to power plants and petro-chemical plants. With years of experience with other companies and using other bolting techniques, Xtreme Bolting was started with the objectives of being the fastest, most knowledgeable, and most professional bolting company in the market.

However, we are not limited to just nuts and bolts. Xtreme Bolting also offers turbine warming systems for peaking units and hydraulic casing closures for performing alignments during outages. Working with Thermal Technologies, we can also provide post-weld heat treating on turbine shells and pipes.

For more information, please contact your local sales office or check out our website.