



NOW, HIGH FREQUENCY INDUCTION BOLT HEATING IS PART OF
INTEGRA'S COMPLETE TURBINE BOLTING SERVICE

HOW IT WORKS

INTEGRA IS THE ONLY SINGLE-SOURCE SUPPLIER THAT COMBINES BOTH INDUCTION BOLT HEATING AND HYDRAULIC TURBINE CLOSURE INTO ONE TOTAL SOLUTION. OUR TURBINE BOLTING SERVICE SETS NEW RECORDS FOR SPEED AND RELIABILITY FOR TURBINE OVERHAUL.



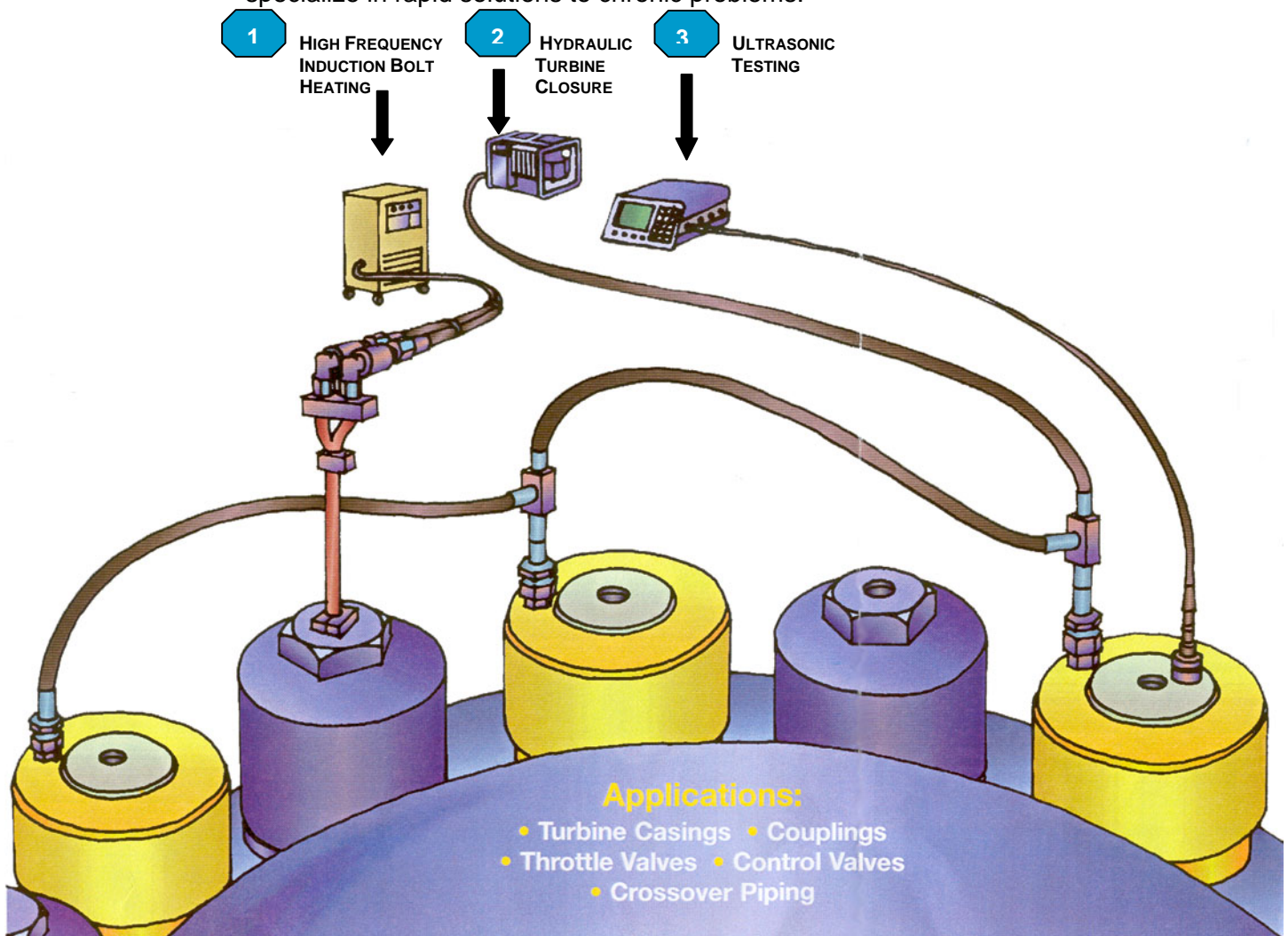
INDUCTION BOLT HEATING (IBH) COMBINES THREE LEADING TECHNOLOGIES

INTEGRA's IBH SERVICE
IS THE FASTEST, ALL-IN-ONE SOLUTION
TO RELIABLY AND SAFELY OPEN AND CLOSE TURBINE CASINGS

INTEGRA's IBH system opens and closes turbine casings with record-breaking speed. By integrating the most advanced induction bolt heating system with hydraulic turbine closure and ultrasonic measurement, INTEGRA slashes the outage time required for turbine overhauls.

BENEFITS OF INTEGRA'S IBH SYSTEM

- ✓ **FASTER** Open or Close Turbine Casing in one shift.
- ✓ **SAFER** No open flame or hot heater rods to worry about.
- ✓ **ACCURACY** Complete control of the heat applied to the studs.
- ✓ **DEPENDABLE** Repeatable results on each turbine.
- ✓ **COMPETENT** 20 plus years of turbine bolting experience.
- ✓ **SOLUTIONS** Seized nuts and bolts, warped turbine casings, etc.? We specialize in rapid solutions to chronic problems.

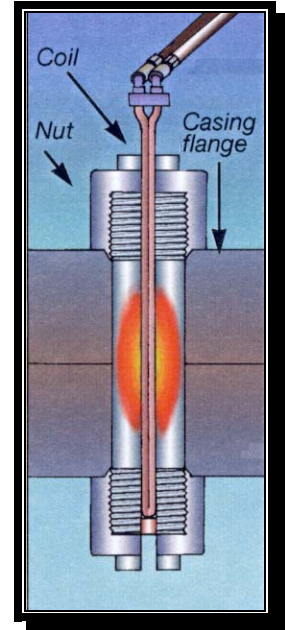


1

HIGH FREQUENCY INDUCTION BOLT HEATING:

A Revolutionary Breakthrough in Speed and Safety

Induction Bolt Heating is rapidly replacing traditional methods that are very slow and dangerous. INTEGRA's controlled heating technology is on the leading edge of this industry breakthrough. Turbine bolts can now be loosened or tightened in a matter of minutes – instead of hours! Because the lightweight heating coils are constantly water-cooled to room temperature, there is no danger of burn injuries. Heat transfer to bolt threads and turbine casing is negligible. INTEGRA's technology carefully controls heating to conform to engineered specifications. This prevents damage to metallurgy that shortens bolt life and can cause bolt failures.



*Heat is concentrated
Away from thread area*

2

HYDRAULIC TURBINE CLOSURE:

The Fastest Way to Clamp Down Casings

INTEGRA's unique hydraulic closure system clamps turbine shells together with unprecedented speed and power. Shell distortion is instantly eliminated as the two halves are quickly and uniformly clamped into a zero-clearance fit. An unbeatable solution for turbine casing alignment, as well as final closure (in combination with Induction Bolt Heating). Much faster and safer than all conventional bolting and torquing methods.



3

ULTRASONICS:

The Ultimate Way to Verify Bolt Clamping Load

The only way to be absolutely sure of proper turbine clamping load is to measure bolt stretch – and the easiest, fastest way to do that is with ultrasonic measurement. Every other method is guesswork by comparison. Digitized read-out of the true bolt stretch enables the technician to increase or decrease bolt loadings to achieve proper clamping loads. A hard copy printout documents compliance and accountability.





Buy or Rent?

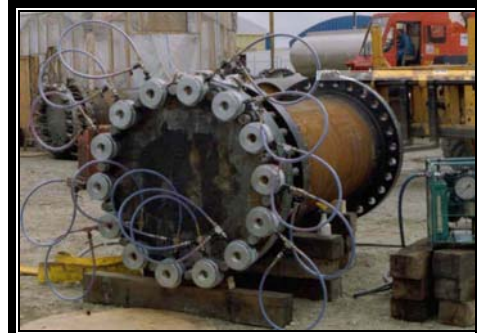
In addition to the many full service packages we provide, we also sell and rent specialized bolting tools to companies that prefer to arrange their own service work.

Our prices are competitive and delivery is prompt and reliable.



Equipment for Sale

- Flange Spreaders & Alignment Equipment
- Bolt Tensioners
- Sub-Sea Tensioners
- Nut Splitters
- Torque Wrenches
- Torque Multipliers
- Hydraulic Nuts
- Flange Pullers
- Flange Tensioners
- Studs & Nuts
- Flange Facing Machines
- ECHO™ Precision Bolt Load Monitors



Equipment for Rent

- Bolt Tensioners
- Sub-Sea Tensioners
- Nut Splitters
- Torque Wrenches & Multipliers
- Hydraulic Pump Units
- Turbine Closure Systems
- Flange Pulling Systems
- Flange Facing Machines
- Flange Spreaders
- Flange Alignment Systems



CUSTOM TOOLING MADE FOR SPECIAL APPLICATIONS

INTEGRA has long been involved in pioneering and developing high performance tools to expedite the servicing of bolted assemblies. We doubt that any other company has as much hands-on expertise as we do in executing specializing bolting work.

If your company ever has a need for custom made bolting tools, call on INTEGRA for superior results.



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