

# Seam Annealing Solutions for API<sup>®</sup> Pipe Producers



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Thermatool's innovative approach to post weld heat treat of HF welded tube and pipe

## Seam Annealing of API® Pipe

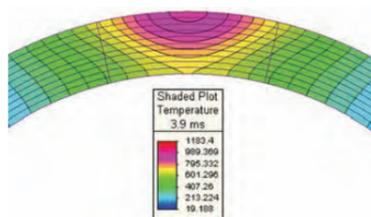
Thermatool has established itself as a leading solutions provider to producers of API® Oil and Gas Pipe throughout the world.

Thermatool seam annealing systems are designed to satisfy a wide range of pipe diameters, wall thickness and API® specifications 5L, 5CT and material grades P110, L80, N80, X80, X100 etc.

## API® specifications require the removal of untempered Martensite in the weld HAZ (Heat Affected Zone).

Thermatool seam annealing systems provide continuous closed loop temperature control. Required by all API® pipe producers, this assures that critical process temperatures have been maintained during each production run.

## Thermal Model of API® Pipe Section During Induction Heating



## Smart Anneal™ Control System

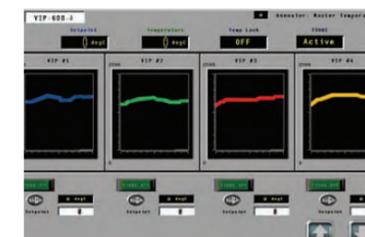
Designed to automate the induction seam annealing process, Smart Anneal™ provides precise temperature control and a simple operator interface. Benefits include:

- API® pipe producers can build a product set-up database by entering pipe parameters such as diameter, wall thickness and inductor position in addition to storing power and frequency settings for a given pipe size.
- Inductors can be positioned quickly and accurately by using stored database parameters.
- Simplified touch screen control allows for multi-stage annealing systems in both manual and automatic modes.
- Provides a single power control for multiple power supply applications.
- Precise control of the seam annealing process results in scrap reduction and higher quality product.
- Speed Power Control adjusts the output of each seam annealer stage with changes in mill speed. This ensures the power level is maintained and that multi-stage annealers engage automatically with the mill run signal.



Powered by rugged VIP® series power supplies, Thermatool seam annealers are highly efficient modular units with the following features and benefits:

- Output power from 200kW up to 3000kW.
- Operating frequency .5, 1, 3 or 6 kHz, as required.
- High 92% efficiency / 0.95 input PF for all conditions.
- Mill-mounted carriage assembly for precise positioning of the inductor.
- Quick-lift mechanism to rapidly raise the inductor from the pipe, away from any open seam conditions.
- Automated seam-tracking capability option.



## Smart Anneal™ Seam Temperature Data Logging Screen

## Spiral Seam Annealing

Thermatool designs and manufactures spiral seam annealing systems for producers of SAW (Submerged Arc Welded) spiral welded API® line pipe.

Offering all of the features and benefits of Thermatool seam annealing systems, the Thermatool spiral seam annealing system softens the boundary of the SAW weld with HAZ (Heat Affected Zone) technology.

## Tube & Pipe HF Welding

Thermatool provides innovative and cost-effective HF welding solutions for tube and pipe producers throughout the world. Best known for its CFI series solid-state HF induction welders, contact welders, dual welders and spiral fin welders, Thermatool has installed over 1400 solid-state HF welders... worldwide.

Offering the widest power range from 50kW to 2MW with welding frequencies from 120kHz to 800kHz, Thermatool welders are designed to satisfy the most demanding of tube and pipe welding applications.

- API® oil and gas pipe
- Structural/Mechanical tube
- Roll formed HF welded profiles
- Complex welded profiles
- Automotive tube
- Furniture tube
- Spiral fin tube
- Engineered structural sections

**For The Most Reliable Return on Your Investment,  
Turn to Thermatool.**

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