

High Frequency Solid State Welders

For the tube and pipe industry.





High Frequency Solid State Welders

Performance and reliability is a concern for you, so naturally you demand the highest quality of design and construction in the welder you choose. Thermatool® HF welders have been the number one choice for over 60 years.

Our standards are as high as your own, and we consciously strive at every stage of the design and construction process to create a superior product. We know you will appreciate what has gone into it and what you can get out of it.

Thermatool uses 3D modeling as part of the standard design process, which can extend to modeling the entire weld area and welding process. This unique ability means we can see many problems before they arise, any improvements we can make before we build, and any special configurations we can apply to make your welder work harder for you.

Thermatool has more specific tube and pipe welding experience than any other welder manufacturer. Because we maintain our machines in the field, we see how they function and where we can possibly improve performance and efficiency. We pass this knowledge back to our design engineers so that our products are constantly evolving and improving.

The engineers on our staff are highly qualified and experienced, and have worked a lifetime in the tube and pipe welding industry. Our sales team, many of whom are highly qualified engineers, will work closely with you to ensure the welder you get is the best for your process.



Proven Performance

Thermatool has many machines working at full capacity, decades after installation, including the serial#1 solid state Thermatool HF welder we commissioned in 1995 that is still in operation today!



High Reliability

All solid state HF welders are built with a modular design which means older parts can be replaced with new ones in hours, rather than days - keeping downtime to a minimum!



Energy Efficient

Thermatool HF welders feature innovative technology to minimize power loss, limit harmonics, maximize efficiency, cut down water requirements and reduce scrap - so you get the most for your money!



Safer Conditions

CFI technology is inherently safer because it utilizes lower voltages. It is also "short-circuit" proof, so no power supply damage will occur when the coil and tube touch!

INDUSTRY LEADERS IN WELDING

Thermatool® has spent almost 60 years developing and improving HF welding technology. We have more HF welders installed than all other HF welder manufacturers combined. Having positioned ourselves at the forefront of the development of solid-state welding, we have now sold thousands of solid-state welders worldwide. Our objective is to satisfy customers who see the advantage of not just buying a welder, but choosing the best welder.

Selecting Your Welder

As the only global induction heating and welding manufacturer specializing in tube and pipe welders, Thermatool provides the widest range of HF Welders available.

All of our welders are based on the High Frequency or “HF” welding process that we developed almost 60 years ago and have led the way ever since. With its Current-Fed Inverter (CFI) design, our welding equipment range gives you the capability to successfully weld almost any metal you want - efficiently and economically.

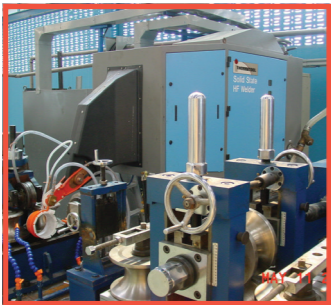
We supply equipment needed to weld carbon and stainless steel, brass, copper, and aluminum, as well as exotic alloys, such as boron steel and HSLA, AHSS, and Trip Steels.

Thermatool HF Welders provide output power levels from 50 kW to 2000 kW with the availability of the widest range of frequencies in the industry. Once you have decided on a Thermatool, we’ll discuss your welding requirements to make sure you get the model that matches your production needs.



Compact HF Welder

Perfect for low power applications and limited diameter range tube mills, the Thermatool Compact HF Welder is a good fit when capital expenditures are limited.



CFI HF Welder

With many CFI HF Welders installed worldwide at fixed frequencies between 150 and 800kHz, CFI Welders are field proven to work for every tube and pipe production.



HAZControl™ HF Welder

HAZControl™ Technology greatly simplifies the complex relationships of the key variables for HF Welding tube: Heat (Power), HAZ Width (Frequency), Vee Length, and Mill Speed.



High Power HF Welder

With power ranging from 1000 – 2000 kW, Thermatool High Power HF Welders are capable of welding from 200 – 400 kHz with fixed or variable frequency (HCT).

Side by Side Comparison

	Compact	CFI	HAZControl™	High Power
Power Range	Up to 300 kW	Up to 1200 kW	Up to 1000 kW	Up to 2000 kW
Output Frequency	300 kHz + 15%	400 kHz + 1% stabilized frequency per load requirements	150-400 kHz + 1% stabilized frequency per load requirements	200-400 kHz + 1% stabilized frequency per load requirements
Diameter Range	Limited (0.5-5") OD	Unlimited	Unlimited	Unlimited
Induction Coils	Standard	Standard	Standard	Standard
HF Contact Welding	Yes	Yes	Yes	Yes
Dual Induction Contact	No	Yes	Yes	Yes
Weld Tables	Single, 2, 3	Single, 2, 3, VeeAxis™	Single, 2, 3, VeeAxis™	Single, 2, 3, VeeAxis™
AutoMatch™	Electronic	Yes	Yes	Yes
PLC	Yes	Yes	Yes	Yes
Speed Power Control	Yes	Yes	Yes	Yes
Tachometer	Upon request	Yes	Yes	Yes
Efficiency	> 85%	> 85%	> 85%	> 85%
Power Factor	0.95	0.95	0.92	0.92
Ripple	~2	~1	~1	~1
WeldScan	No	Yes	Yes	Yes
ThermaView	No	Yes	Yes	Yes
ThermaSure	No	Yes	Yes	Yes



Compact HF Welders

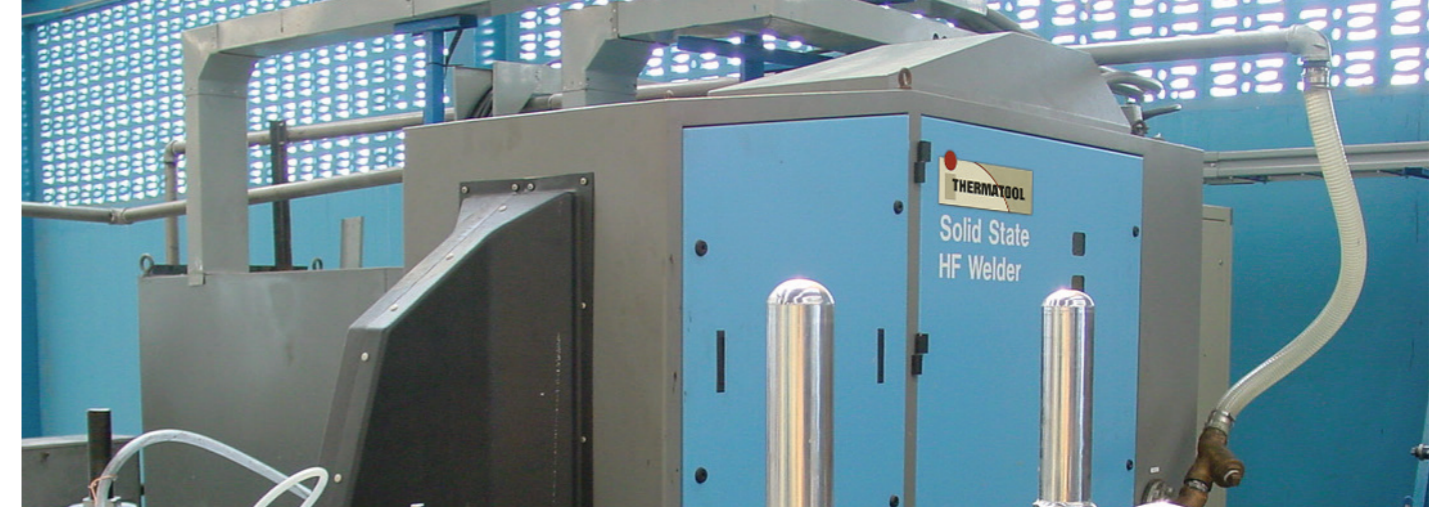
Overview

The Thermatool Compact Solid State Welder provides a great solution for those older tube mills with limited tube diameter ranges while benefiting the producer in terms of reliability, compact layout, safety and supportability. This simplified and compact design fits the traditional DC power supply into the RF Generator cabinet, making this welder the logical choice for a cost effective installation.

The Compact welder is ideal for quick retrofitting on existing mills when replacing obsolete vacuum tube welders. All the reliability of a standard Thermatool CFI Solid-State HF Welder, with a small footprint.

Features and Benefits

- Simple compact design with a small footprint. Ideal for quickly retrofitting or for existing mills when replacing older vacuum tube welders.
- High-frequency, high-power capacitor bank delivers stable power with safer low voltage to minimize arc-overs and enhance reliability.
- Fully equipped with a low ripple DC filter that produces a smoother output. This results in high quality welds with minimum ID and OD weld beads reducing wear on scarfing tools and downtime.
- Ideal for limited OD range tube with induction capability up to 300 kW.
- Short circuit proof CFI power supply technology ensures reliable operation through coil arc-overs and minimizes trip-outs and.
- Water-cooled, high frequency module pairs minimize total power loss and reduces time required for maintenance. Compact, efficient and rugged high output MOSFET power modules cleanly convert DC voltage to high frequency AC voltage.
- Utilizes nearly all of the same components as the industry standard CFI model. Parts are stocked and available immediately.
- Protective cover keeps weld leads clean of mill scale and welding debris. All doors are completely sealed with high quality gaskets, thus eliminating contamination.
- Doors are fitted with lift-off hinges for easy access.
- Available with Thermatool induction coils or contact assemblies providing the highest reliability, energy efficiency, highest yield and uptime.



CFI HF Welders

Overview

The Thermatool CFI HF Welder is the most reliable Solid State tube and pipe welder on the market. With thousands of CFI HF Welders installed worldwide at fixed frequencies between 150 and 800 kHz, CFI Welders are field proven to be the most successful choice for tube and pipe production.

Every Thermatool HF Welder is backed by world leading weld process and materials knowledge, providing each customer the best approach to meeting challenging, every day welding application needs.

Features and Benefits

- Patented full range Thermatool AutoMatch™ ensures full power output over a wide range of product sizes. The AutoMatch™ also provides stable welding frequency even with changes in weld area set up, tube OD and wall thickness, and impeder material.
- Power set-point maintained within 0.5%.
- Fixed frequency maintained within 1.0%.
- Excellent low weld power output stability (inherent to circuit fed inverters) and regulation for welding at mill jog speeds (as low as 1% power). This reduces scrap and sends less open seam to the cutoff reducing damage to the cutoff.
- Short-circuit tolerant CFI technology ensuring reliable operation through coil arc-overs.
- Available as a traditional contact welder output and with dual induction/contact output to meet your specialized application standard.
- DC Ripple less than 0.5%. Excellent ID weld bead. This is key to extended ID scarfing tool life.
- Low harmonic distortion rectifier. Interference with other mill electronic components and inspection equipment is eliminated.
- Has standard speed/power control which simplifies operation and significantly reduces scrap through accurate control of weld power in relation to mill speed at start-up and ramp down.
- Stabilized HF weld frequency HF weld frequency is a proven key process parameter that must be controlled. (Weld Process Parameter data logging is available using Thermaview.)
- Simple, modular design and packaging which reduces spare parts stocking requirements.
- Power supply is completely sealed with high quality gaskets, thus eliminating contamination from the mill environment.



HAZControl™ Technology HF Welders

Overview

HAZControl™ Technology Welder Technology greatly simplifies the complex relationships of the key variables for HF Welding tube: Heat (Power), HAZ Width (Frequency), Vee Length, and Mill Speed. HAZControl™ Technology (HCT) allows for the operator to enter the mill setup parameters and tube information into the software and the Variable Frequency HF Welder is set to weld the tube.

With independent control of weld power and frequency, the Thermatool Solid State HAZControl™ Welder Technology delivers state of the art precise heat input control on each and every mill run.

Features and Benefits

- A high efficiency rating of 85% to meet the ever increasing worldwide electrical energy standards.
- Patented full range Thermatool AutoMatch™ ensures full power output over wide range of product sizes.
- Uses predictive algorithm to calculate the initial recommended HF welding frequency and power settings, based on product geometry and material.
- Frequency can be independently adjusted by the operator or by the suggested settings from the HAZControl™ Technology screen during operation.
- Comes with an operator friendly control system that enables the user and production engineers to tailor weld parameters to their products and mill.
- Complete with VeeAxis™ Control for automated vee length setup.
- Optimal HF weld parameters can be stored for future runs. Recipe recall ensures quality product is produced, turn to turn.
- Table positioning servo can set the induction coil or weld contacts to the specific vee position when the desired vee length is entered in the HMI.
- Equipped with Speed Power Control giving the operator the tools that are needed to start, stop and jog the mill while welding - this keeps scrap to a minimum by reducing open seam.
- Allows for selecting both the precise power and frequency settings to successfully produce the best weld on any tube or pipe mill with virtually any material type.
- Power supply is completely sealed with high quality gaskets, thus eliminating contamination.
- Doors are fitted with lift-off hinges for easy access.



High Power HF Welders

Overview

With power ranging from 1000 – 2000 kW, Thermatool High Power HF Welders are capable of welding from 150 – 400 kHz with fixed or variable frequency. These welders perform in the most demanding applications. Thermatool High Power HF Welders are available with the innovative 221 coil or the patented QuadContact™ weld tooling for the highest quality HF Weld available on the market.

Thermatool welders over 1000 kW are installed in applications up to 610 mm (24 inch) diameter and up to 25 mm wall (1 inch) at speeds up to 40 mpm (130 fpm).

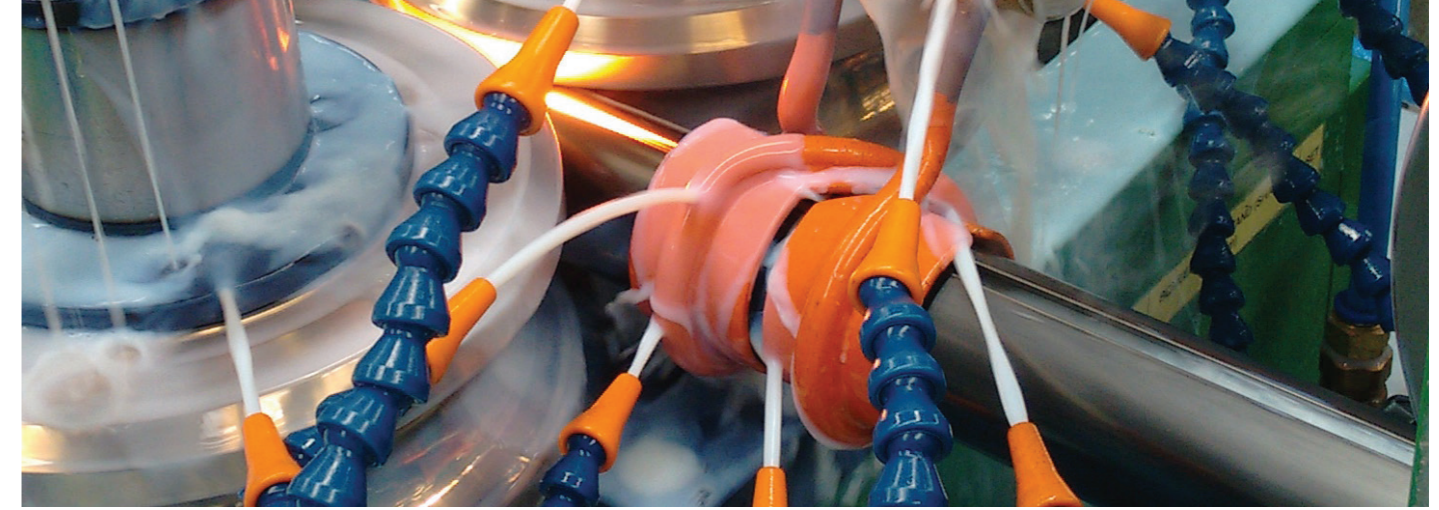
Features and Benefits

- A high efficiency rating of 85% to meet the ever increasing worldwide electrical energy standards.
- Patented full range Thermatool AutoMatch™ ensures full power output over wide range of product sizes.
- Quad contacts and variable geometry induction coil for big pipe coil and coil mills.
- Available with HAZControl™ Welder Technology variable frequency option.
- HAZControl™ Welder Technology Variable Frequency Bands available: 250 kHz – 300 kHz, 300 kHz – 350 kHz, 350 kHz to 400 kHz.
- Power set-point maintained within 0.5%.
- Frequency set-point maintained within 1.0%.
- Available with dual induction/contact output.
- Excellent low weld power output stability and regulation for welding at mill jog speeds (as low as 1% power).
- Power factor over 0.95. With power factor correction.
- DC Ripple less than 0.5%.
- Low harmonic distortion rectifier.
- Equipped with Speed Power Control giving the operator the tools that are needed to start, stop and jog the mill while welding - this keeps scrap to a minimum by reducing open seam.
- Primary isolated power supply DC rectifier.
- Power supply is completely sealed with high quality gaskets, thus eliminating contamination.
- Doors are fitted with lift-off hinges for easy access.

A large, detailed image of a spiral fin tube, showing the intricate, repeating spiral pattern of the fins around a central tube. The image is in grayscale, emphasizing the texture and geometry of the manufacturing process.

HF Welders for Spiral Fin Tube

Suppliers of HRS (Heat Recovery Steam) Generators can achieve significant cost savings and shorter shipment cycles through vertical integration - installing or expanding their existing fin tube production capacity. Companies select Thermatool, the world leader in welded spiral fin tube production technology and equipment, to attain these benefits. Contact us today to learn more!



Spare Parts

Induction Coils

Thermatool offers a comprehensive range of induction coils, designed specifically for use with Thermatool solid-state HF induction welders. Manufactured from high conductivity copper, quality inspected and coated for long life, there are numerous types and sizes available to satisfy every application. Many of these models are available for immediate delivery from stock.

Whether you are producing carbon steel, stainless steel, copper, brass, aluminum or galvanized tubing, Thermatool has the induction coil to meet your specific needs. Our comprehensive range of induction coils fully supports the entire range of Thermatool welders with power ratings from 50 kW to 2 MW and operating frequencies ranging from 150 kHz to 800 kHz and variable frequency.

For special coil requirements, Thermatool engineers are pleased to review the possibility of a custom coil design/build.

Impeders

Thermatool offers an extensive range of impeders to satisfy a very diverse range of tube and pipe welding applications. Whether your mill produces small diameter/thin wall tubing or large diameter/heavy wall API line pipe, Thermatool supplies a complete selection for you. The proper choice of impeder, correctly installed, will play a major part in achieving maximum welding efficiency. It should also be noted that as the performance of all ferromagnetic materials is a function of temperature, it is critically important that the ferrite core is kept as cool as possible during the tube welding process. Ideally, the temperature of the coolant flowing through an impeder should not exceed 25°C. Thermatool also supplies booster pumps for these demanding applications.

Ferrites

Modern tube mills that operate at higher line speeds have created demand for impeders that deliver superior performance. Such enhanced performance can only be achieved by using the very best ferrites available. A growing number of tube and pipe producers worldwide choose Thermatool ferrites in order to optimize the performance of their mills. Thermatool offers four different types of ferrites which can be cut to length, if required. Contact us today to learn more!



Service and Support

We operate the largest service operation in welding, heating, and cutting with over 40 direct service engineers strategically located around the world. This is how we uniquely provide support to the industry - 24 hours a day, 7 days a week, and 365 days a year.

It's why you can depend on our service as much as you can rely on our machines, year after year.

24-Hour Direct Service Hotline

North and South America, Asia, and Australia:

(USA) Phone 1.203.468.4100

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