AMERITHERM INC.™

Precision Induction Heating

Equipment Selection Guide

Solid State RF Power Supplies

MCX-1

HOTSHOT w/remote heat station

L-80

Nova Star 3

HOTSHOT w/built-in heat station

L-20

Nova Star 20

Solid State RF Power Supplies With...

Ultra-Compact 1 & 2 kW

Our HOTSHOT™ RF power supplies provide an exciting new alternative for small part manufacturing processes which require a quick, clean source of heat.

Two different models are available. The 2 kW HOTSHOT, ideal for quick heating of small and mid-size parts, is supplied with a convenient remote heat station (shown above) which may be located up to ten feet from the power supply. The 1 kW HOTSHOT is supplied with either a remote heat station or an integrated, front panel heat station.

For maximum flexibility in heating parts of different sizes and composition, both models operate over a wide 150 to 400 kHz frequency range.

The heating process is quick and clean; the part or material to be heated is placed inside a heating coil made with copper tubing. The design of the coil and size of the remote heat station are determined by the characteristics of the part being heated.

With a rack-mountable 17" x 13" (432 x 330 mm) footprint, 5.25" (3U) height and weight of just 25 lbs. (10.9 kg), the HOTSHOT is a truly portable heat source for soldering, brazing, bonding, curing, catheter tipping, melting precious metals and many other applications.

Once the part is placed in the coil, it generally requires only seconds to achieve the desired temperature without flame or gaseous exhaust. Power is controlled and monitored with the convenient front panel LCD and sealed touchpad.

The HOTSHOT is a remarkably small and lightweight source of heat for brazing, soldering, melting and many other applications. Both 1 and 2 kW models include a convenient, front panel digital timer.

Advanced 3 & 5 kW

Our Nova Star power supplies incorporate the most recent advances in modern induction research and technology. With output power of 3 or 5 kW over a frequency range of 50 to 485 kHz, these power supplies are precise and versatile heating tools for brazing, bonding, soldering, curing, material testing, melting, shrink fitting and heat treating.

To maximize uptime and reliability, the microprocessor-based digital tuning system and rugged solid state design combine to minimize stress on internal power components. Our Nova Star models are fully controllable from the front panel; start and stop push buttons control the heating while Ready, Heat On and Fault LEDs provide status indications.

The induction coil is mounted on a remote, water-cooled heat station connected to the power supply by a 10-foot flexible cable. The heat station may be located up to 200 ft. from the power supply (depending on the application) to free up additional operator work space. Different capacitor values are available to allow the adjustment of the operating resonant frequency and/or voltage for increased application flexibility.

The patented Nova Star digital synthesizer automatically tunes the system to the resonant frequency of the coil and workpiece in less than a second. To maximize energy transfer, tuning is continuous during both ramp up and heating. The synthesizer senses the remote heat station resonant frequency and tracks rapid frequency changes as the parts enter or leave the coil, or go through curie.

A large digital display on the front panel shows all critical operating parameters: DC voltage, current, and power, as well as operating frequency and fault status. The display works with the internal program timer for presetting the duration of the heating cycle, and displays the number of heat cycles as well as the time remaining during a cycle. The timer can be set for heat cycles from 20 milliseconds to 9,999 seconds (two hours, 47 minutes) with high accuracy and resolution. For applications which require rapid response times, voltage can be cycled between 1% and 100% as quickly as 8 times per second. Contact the factory for more information.

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Advanced Microprocessor Control

Rugged 7.5, 10 & 20 kW

Our water-cooled 7.5, 10 & 20 kW Nova Star power supplies deliver full power from 50 to 485 kHz. Suitable for heavy industrial use and larger part heating, they still offer the flexibility of a remote heat station with 100% solid state design. Copper brazing, bonding, hardening soft steel and shrink fitting are common processes at these power levels.

Like all Ameritherm power supplies, our 7.5, 10 and 20 kW Nova Stars are easy to integrate into your manufacturing operation. Convenient rear panel setup switches enable the user to operate from the front panel with one-button control, from the rear panel with a 4-20mA source, from a pendant station, or from a computer via the RS 422/485 serial port. An RS 232 interface is optionally available to transfer statistical process control data to your system. Nova Star power supplies are manufactured at our ISO 9001 quality certified facility in Scottsville NY.

Powerful 20 to 150 kW

Our L-Series line of RF power supplies includes fourteen different models with outputs ranging from 20 to 150 kW and operating frequencies from 5 to 150 kHz.

These water-cooled units are designed for heavy duty industrial use in applications such as hardening, forging, annealing and melting. 50, 100 and 150 kW models are available with operating ranges of 5-15 kHz or 15-45 kHz; 20, 40, 60, 80, 100 and 120 kW models are available for operation at 50-150 kHz. Each unit is equipped with a flexible remote heat station.

The patented L-Series automatic tuning and control system simultaneously tracks both load power and frequency variations to ensure maximum power delivery into the coil and workpiece. All L-Series models feature a touch-sensitive, liquid crystal display screen for setup and control of process variables such as power, frequency, RF voltage and current. By using a PLC for control, a sophisticated level of control is achieved without making the equipment complicated to operate. Power output and water connections are located on the left side.

Enabling Technology For Micro-Precision Heating

Our M-Series RF power supplies provide enabling technology for heating very small parts or surface areas. Three different models offer 1, 2 or 4 kW deliverable power at 13.56, 27.12 or 60 MHz.

These rugged, all-solid state units are ideal for applications such as flexible connector soldering, thin blade heating, brazing thin steel wires, heating thin copper wire, thermoplastic welding and edge hardening thin blades. Both the power supply and remote heat station are water-cooled.

Operating at frequencies up to 60 MHz, M-Series models are designed to heat parts as small as 25 microns in diameter – the thickness of a human hair – with precision and consistency.

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Solid State RF Power Supplies

For Small Parts

Model	Power	Frequency Range	VAC Line Input	AC kVA
HOTSHOT 1 kW	1 kW	150-400 kHz	1-phase, 110/208	1.5
HOTSHOT 2 kW	2 kW	150-400 kHz	1-phase, 200-250	3.6
MCX-1	1 kW*	13.56, 27.12 or 60 MHz (+/- 5%)	3-phase, 208/480	3.5
MCX-2	2 kW*	13.56, 27.12 or 60 MHz (+/- 5%)	3-phase, 208/480	6.0
MCX-4	4 kW*	13.56, 27.12 or 60 MHz (+/- 5%)	3-phase, 208/480	14.2

**At 13.56 MHz, MCX-1 delivers 1.25 kW, MCX-2 delivers 2.5 kW and MCX-4 delivers 5 kW*

For Mid-Size Parts

Model	Power	Frequency Range	VAC Line Input	AC kVA
Nova Star 3	3 kW	50-485 kHz	3-phase, 220/440	4.5
Nova Star 5	5 kW	50-485 kHz	3-phase, 342-528	7.3
Nova Star 7.5	7.5 kW	50-485 kHz	3-phase, 360-528	15
Nova Star 10	10 kW	50-485 kHz	3-phase, 360-528	15
Nova Star 20	20 kW	50-485 kHz	3-phase, 360-528	28

For Large Parts

Model	Power	Frequency Range	VAC Line Input	AC kVA
L-20	20 kW	50-150 kHz	All	27
L-40	40 kW	50-150 kHz	L-Series	54
L-50	50 kW	5-15 kHz or 15-45 kHz	models can	68
L-60	60 kW	50-150 kHz	be configured	81
L-80	80 kW	50-150 kHz	for	108
L-100	100 kW	5-15,15-45 or 50-150 kHz	3-phase, 360-458	135
L-120	120 kW	50-150 kHz	or	162
L-150	150 kW	5-15 kHz or 15-45 kHz	3-phase, 415-528	203

Key Product Benefits

- ✔ **Unsurpassed Reliability**
  with 100% solid state RF power & control circuitry
- ✔ **Process Repeatability**
  with advanced microprocessor control
- ✔ **Maximum Deliverable Power**
  with high frequency range & continuous tuning
- ✔ **Convenient Power Supply Placement**
  with our flexible remote heat stations
- ✔ **Easy System Integration**
  into manufacturing control with PLC and analog inputs
- ✔ **Quality Manufacturing**
  at our ISO 9001 Quality System Certified Facility

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