

Induction Heating Systems

Issued May 2004 • Index No. IN/8.0

Induction Heating System 

20, 25 kW Preheat and Post Weld Heat Treatment

Quick Specs	Applications	Input Power (3-Phase)	20 kW	25 kW
	Power Piping Petrochemical Shipbuilding Maintenance Construction	Rated Output	400 VAC, 50/60 Hz	20 kW at 100% DC
Process Induction Heating	Input Amps	41 A	45 A	
	Pipe Size*	2.5–30 in	2.5–30 in	
	Dimensions** (shipping)	H x W x L: 47 x 27 x 44-1/2 in (1194 x 688 x 1130 mm)		
	Weight**	Net: 355 lb (161.4 kg) Ship: 390 lb (177.3 kg)		

*Contact factory for other sizes.

**Power source, coolant system and cart.

The Power of Blue.®

Time to temperature performance is faster than conventional processes due to the method of applying the heat, reducing heat treat cycle time.

The **portable** induction system weighs less than 400 pounds and has a small footprint. The unit can be easily moved.

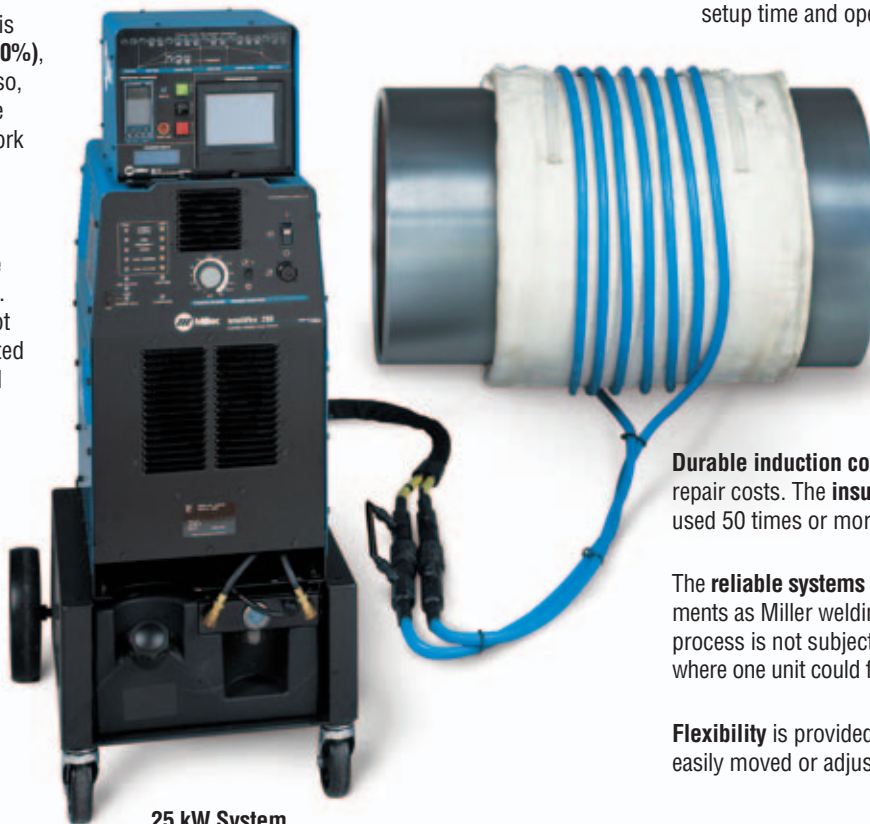
Easy installation of the induction process requires the wrapping of insulation over the pipe and thermocouples, followed by wrapping of the heating cable. This results in significantly less setup time and operator training.

The induction power source is **power efficient (more than 90%)**, reducing operating costs. Also, less heat is transferred to the outside air, improving the work environment.

Induction heating provides **uniform heating around the pipe and through thickness**. The surface of the pipe is not marred by localized conducted heat at higher than specified temperatures.

The induction system uses a **simple to operate control** with graphic guide to facilitate programming. Systems can be provided with or without recorder.

Low input power, requires less amperage.



25 kW System

The induction system is equipped with **ground fault protection** which automatically turns the power source off when ground current is detected. Induction heating produces less radiant heat and does not require hot conductors improving the work environment.

Durable induction coils reduce replacement and repair costs. The **insulation is reusable** and may be used 50 times or more, reducing cost of disposal.

The **reliable systems** are tested to the same requirements as Miller welding equipment. In addition, the process is not subject to multiple heating units, where one unit could fail aborting the heat treat cycle.

Flexibility is provided by induction coils that can be easily moved or adjusted.

TRUE BLUE
WARRANTY

MADE IN USA
APPLETON, WI



Miller Electric Mfg. Co.
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

International Headquarters
Phone: 920-735-4505
USA FAX: 920-735-4134
Canadian FAX: 920-735-4169
International FAX: 920-735-4125

Web Site
www.MillerWelds.com



System Components

IHTS Temperature Recorder and Controller

Intellifire™ 204 Power Source
See Lit. Index No. IN/6.0

Intellifire™ 250 Power Source
See Lit. Index No. IN/1.0

Coolant System
See Lit. Index No. AY/7.2



The Intellifire 20 and 25 kW Systems can be equipped with an **optional lifting eye** for moving the system at a construction site.

Intellifire™ 204 (20 kW)/250 (25 kW) Power Sources

The Miller Intellifire™ units are inverter-based, solid-state, high-frequency induction heating power sources that provide infinite output power control over a range of 0 to 25 kW (0 to 20 kW for Intellifire 204). They combine flexibility, precision and reliability into compact lightweight packages that provide all the features required for reliable, consistent and efficient heating using the induction process. The 100%-duty-cycle, air-cooled units are perfect for heating operations — especially large diameter pipe, heavy wall steel plate and critical time-to-temperature applications.

Coolant System and Portable Cart

The coolant system conveniently mounts under the power source.

- 12,000 BTU/hour cooling capacity
- 2-1/2 gallon coolant tank
- Transformer provides power for power source, coolant system and controls
- Rustproof, polyethylene molding serves as coolant tank and easy-to-fill coolant spout
- Efficient fin and tube heat exchanger
- “Paddle wheel” flow indicator
- External filter can be quickly accessed for cleaning
- On/off switch on transformer case

IHTS Controller – Recorder



Control without recorder

Dimensions

H: 10 in (254 mm)
W: 11-3/4 in (298 mm)
D: 14-1/2 in (368 mm)

Shipping Dimensions:

H: 15 in (381 mm)
W: 16-3/4 in (425 mm)
D: 20 in (508 mm)

The IHTS Controller provides for simple to advanced thermal cycle programs. The control comes programmed with a typical thermal cycle for stress relief. This includes a step in temperature from ambient to critical temperature, controlled temperature rise to the holding temperature, a soak or dwell at stress relief temperature, a controlled cooling rate to critical temperature and air cool. The programming of the unit is facilitated with a graphical presentation of the heat cycle and corresponding controller program screens. The IHTS is equipped with a large run, hold and stop button for ease of use. The control also includes the coolant flow switch. This switch insures that proper coolant flow is being provided to the liquid-cooled heating cable. A coolant fault is indicated with a light on the face of the control.



Control with digital recorder

The IHTS Control is available in two configurations to meet your application requirements.

1. The IHTS Control is available without a temperature recorder. In this way, you can use your existing recorders or purchase an alternative recorder of your choice. The unit is equipped with a blank panel, which can be modified to install a 100 mm recorder.
2. The IHTS Control is available with a digital recorder. The recorder is built into the IHTS to provide six thermocouple inputs. The recorder is equipped with a touch-screen for simple programming and use. The color display permits clear monitoring of the heat treat process and provides alarms for process control. Data is stored on a floppy disc for printing, storage, or further analysis. The operating temperature range of the IHTS Recorder is 41° F to 104° F.

Insulation



The insulation is designed for ease of use, durability, environmental friendliness and maximum temperature insulation to protect the induction heating cable.

- The insulation is designed to insulate the work for process efficiency and protect the liquid-cooled cable from high temperatures of stress relieving.
- The blankets are sized and stenciled for the pipe size to be treated.
- The insulation is sewn into a silica blanket, which provides high durability. 50 thermal cycles or more can be achieved with one blanket.
- The sewn blanket insulation does not create the dust and particulate associated with bulk insulation. This creates a friendlier environment for the heat-treaters and welders.

Liquid-Cooled Heating Cables



The liquid-cooled heating cable provides the power to the part to be heated. The silicone hose encloses a special copper conductor specifically designed for carrying high-frequency current to maximize efficiency. The hose also carries the coolant, which cools the conducting wire. The hose is reinforced for strength and durability. **Preheat cable covers** are available to protect the heating cable from slag and molten metal created during welding. The preheat covers are easy to install and can withstand temperatures up to 650° F.

Power Extension Cable



The cable is equipped with Twist-Lock quick disconnects for easy removal and attachment. Liquid-cooled extension cables are available to remote the power source up to 50 feet from the work. The cables are flexible for ease of use.

Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
20 kW Induction Base System	#907 097	(400 VAC, 3-phase) includes power source, cooler, and cart		
25 kW Induction Base System	#907 021	(460 VAC, 3-phase) includes power source, cooler, and cart		
IHTS Temperature Controller	#194 916	Includes temperature controller, parameter display and flow switch		
IHTS Temperature Controller and Digital Recorder	#194 916-01-1	Includes temperature controller, parameter display, flow switch and digital (6 channel) temperature recorder		
Lifting Eye Assembly	#204 231	For 20 kW and 25 kW systems		
<i>Note: Select a heating cable, an insulation blanket, and an extension cable from below to complete the system.</i>				
Liquid-Cooled Induction Heating Cables	#194 909 #194 910 #194 908	30 ft 50 ft 80 ft		
Preheat Covers	#204 611 #204 614 #204 620	30 ft 50 ft 80 ft		
PWHT Insulation Blankets (1 in thick)	#194 947 #194 948 #195 477 #194 949 #195 476 #194 950 #194 951 #194 952 #194 953 #194 954 #194 955 #194 956 #194 957 #194 958 #195 502 #194 998 #207 817	For 2.5 in pipe (12" x 15") For 4 in pipe (12" x 21") For 5 in pipe (12" x 26") For 6 in pipe (12" x 33") For 7 in pipe (18" x 34") For 8 in pipe (18" x 39") For 10 in pipe (18" x 45") For 12 in pipe (18" x 50") For 14 in pipe (18" x 54") For 16 in pipe (18" x 58") For 18 in pipe (24" x 67") For 20 in pipe (24" x 73") For 22 in pipe (24" x 79") For 24 in pipe (24" x 85") For 26 in pipe (24" x 91") For 28 in pipe (24" x 98") For 30 in pipe (24" x 105")		
Preheat Insulation and Accessories	#204 669 #211 474 #194 965	Preheat insulation, woven silica, 1/2 in x 6 in x 120 in Preheat insulation, 1/2 in x 12 in x 120 in Rope, high temperature, 1 in wide, 50 ft roll		
Extension Cables (Output Power)	#194 893 #194 894	25 ft, liquid-cooled 50 ft, liquid-cooled		
Accessories				
Thermocouple Attachment Unit	#194 959	Welder		
Thermocouple Cable (Type K)	#194 999	Type K thermocouple wire, 500 ft		
Thermocouple Connector (Type K)	#195 098	2-pin male, package of 10		
Thermocouple Extension (Type K)	#194 968	Cable, 6 pair, 50 ft		

Date:

Total Quoted Price:



Distributed by: