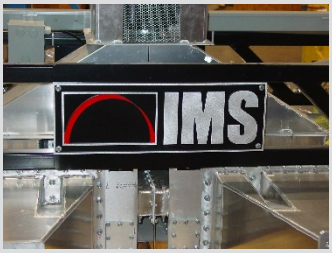
2450 MHz Liquid Heating Microwave System for Chemicals, Fluids, & Pumpable Foods



With its unique application of high-intensity electromagnetic energy to pumpable foods, beverages and biomaterials, Industrial Microwave Systems (IMS) has solved the problem of "hot spots" often associated with traditional surface heating technologies. For a pasteurization or sterilization process, the benefits of ultra-rapid in-line microwave heating include:

- Higher product quality resulting from greater retention of color, taste, texture and nutrients.
- Longer production runs due to the reduction of scale or burn-on from hot surface processes.
- Reduced costs of system sterilization and cleaning.
- Rapid deactivation of enzymes such as polyphenol oxidase (PPO) that reduce product shelf life.
- Due to the volumetric ionic heating process, the center of any particulates may reach a higher temperature than the surrounding fluid. As this is the exact opposite of what occurs when using conventional surface heaters, it enhances thermal processing and food safety.

Applications

The IMS In-Line Microwave heater is particularly effective for the thermal processing of high value, heat and/or shear sensitive, high viscosity, and multi-phase foods, including :

- **Fruit purees with/without particulates**
- **Meat and poultry emulsions**
- **Nutraceuticals**
- **Pasta and other high acid based sauces**
- **Salsa and tomato based products**
- **Surimi**
- **Vegetable purees with / without particulates**

IMS
A MICROWAVE TECHNIQUES COMPANY

Industrial Microwave Systems
A Microwave Techniques Company

ABOUT IMS

Industrial Microwave Systems, (IMS) is a wholly owned subsidiary of Microwave Techniques LLC, a private company based in Gorham, Maine with decades of success in the innovation, design, and construction of food processing equipment. IMS is also partnered with Ferrite and MEGA to provide additional access to microwave system and component technology across the globe.

IMS PRODUCTS

IMS offers a series of modularized benchtop and commercial in-line heaters, available with 915 or 2,450 MHz microwave generators or transmitters. These standardized equipment modules can be connected in series, parallel, or a combination as plant design and production needs change or expand. IMS single mode applicators insure a uniform field is focused and located at the exact position as the product flowing through the heating tube.

CONTACT

To request additional information, please contact:

Microwave Techniques, LLC
Systems Division

104 Perimeter Road
Nashua, NH 03060
Tel: (603) 881-5234

www.microwavetechniques.com

2450 MHz, 6 kW MICROWAVE SYSTEM OPERATING PARAMETERS PER MODULE:

Single Module Process Specification	Lab-Scale
Max. Throughput	1 GPM (250 kg/hour)
Max. Temperature	302°F (150°C)
Max. Pressure	150 psig (10.5 Barg)

Design Options	Lab-Scale
Generator Frequency	2,450 MHz
Applicator Material	Stainless Steel
Product Tube*	PTFE with Ceramic Pressure Sleeve
Tube Size	3/8" (10mm) to 1" (25mm)
Standard Tube Fitting	Stainless Tri-Clamp Ferrule

* Other FDA approved materials available.

Generator, Control Panel & Applicator Dimensions	Lab-Scale
Length	1'0" (0.30m), 1'7" (0.48m), 2'8" (0.83m)
Width	0'8" (0.20m), 0'11" (0.27m), 1'0" (0.30m)
Height	1'3" (0.37m), 1'7" (0.48m), 3'2" (0.97m)

Utilities	Lab-Scale
Power Output	2 – 15 kW
Electricity	3-20 kW
Magnetron Cooling Water+	0.9-5.4 GPM (3.5 – 20 LPM)

Actual Process Performance and Specifications will depend on the throughput, properties, and heating range of product.

+ To eliminate the need for once through cooling water, IMS strongly recommends the use of a closed circuit chiller package for commercial applications.

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