

W A T L O W

WATLOW'S HEATING SOLUTIONS FOR YOUR APPLICATIONS

BETTER THERMAL
SOLUTIONS
...FASTER



A Tradition of Engi



Wattlow Electric Manufacturing Company (Wattlow) designs and manufactures industrial heaters, temperature sensors and controllers – all of the components of a thermal system. Designing and manufacturing the complete thermal system allows Wattlow to recommend, develop and deliver the optimum thermal solution for our customers' equipment and process heat requirements.

Wattlow manufactures thermal systems for a broad range of industries including but not limited to: semiconductor processing, power generation, life sciences, packaging, foodservice equipment and plastics processing. Wattlow customers receive the highest level of technical engineering combined with exceptional customer service.

Since 1922, Wattlow has grown in product capability, market experience and global reach. Wattlow employs more than 2,400 employees working in 12 manufacturing facilities in the United States, Mexico, Europe and Asia. We also have sales offices in 17 countries around the world. Our company has grown at an exponential rate but our commitment remains the same – to provide our customers with superior products and services for their individual needs.

The Start of a New Tradition

In late 2006, Wattlow opened a brand new, 8000 square meters manufacturing facility in Shanghai, China, which increases Wattlow's ability to better serve the Asian market. The facility will use the same manufacturing processes as other Wattlow facilities in the United States, Asia and Europe and will be supported by an Asia Application and Design Center (ADC). The primary purpose of the facility is to respond to customers' needs in Asia in a timely manner. Wattlow will also use the facility to supply high volume products to customers in the United States.



Engineering Excellence



Tubular Heater Specifications

Products	Available Sheath Diameters		Sheath Materials	Maximum Sheath Temperature	Typical Maximum Watt Densities*
	mm	in.			
WATROD Tubular	8.0	0.315	Incoloy®	To 815°C (1600°F)	To 18.6 W/cm ² (120 W/in ²), dependent on the sheath material, watt density and heater application
	10.9	0.430	304SS	To 650°C (1200°F)	
			Copper Coated Steel	To 175°C (350°F)	
			Copper	To 175°C (350°F)	
FIREBAR® Flat Tubular	1 in.: 5.9 x 25.7	0.235 x 1.010	304SS	To 650°C (1200°F)	To 14 W/cm ² (90 W/in ²)

Why Watlow Tubular Heaters?

Performance capabilities

- Sheath temperatures up to 871°C (1600°F)
- Assembly wattages to 2.2 megawatts
- Watt densities up to 18.6 W/cm² (120 W/in²)

Features and Benefits

Over 30 standard bend formations

- Enables the designing of the heating element around available space to maximize heating efficiencies

FIREBAR flat surface technology

- Enhances heat transfer in immersion, air and surface heating applications
- Increases the surface area per linear inch
- Allows heaters to run cooler in viscous materials



Watlow's Commitment to Product Quality and Delivery

At Watlow, quality means producing a single component, or an entire thermal system, that matches or exceeds customer expectations. Watlow holds several international certifications and qualifications for manufacturing heating elements. Before the products are shipped, they are all tested in-house. In addition, many Watlow facilities have laboratories providing additional prototype testing and quality certification for a customer's specific application. Our certification processes can verify your finished product is built to specifications set forth by the world's leading standards agencies.

At Watlow, we recognize becoming your preferred source involves more than just recommending, designing and manufacturing the right product. It means having the right product at the right place at the right time. We also react quickly to custom orders and requests for product prototypes. Our business approach is to maintain flexible manufacturing capabilities to meet your unique needs.

Watlow's Committed to Best Business Practices

At Watlow, we aim to lead by example. We set high standards for our people at all levels and strive to consistently meet them. We are guided by our standards of corporate governance and ethics, and we review our systems to ensure we achieve international best practices. These practices and behaviors give us the tools to help our customers, our team members and surrounding communities to be their best.



Engineering Excellence



Asia ADC Offers Technical and Application Support

The ADC is located in Watlow's Singapore facility and will house technical experts that are available to customers. Capabilities include the following Watlow product lines: tubular heaters, cartridge heaters, flexible heaters, sensors and wire and cable. While they currently specialize only in these products, the ADC can help guide the correct product selection, assist in the capture of product requirements, share product specifications and performance data and offer other general technical support for almost all of Watlow's products. The ADC provides:

- Quicker quote times
- Detailed CAD drawings
- Faster prototypes
- Additional technical information

Which Watlow Products are Manufactured in China?

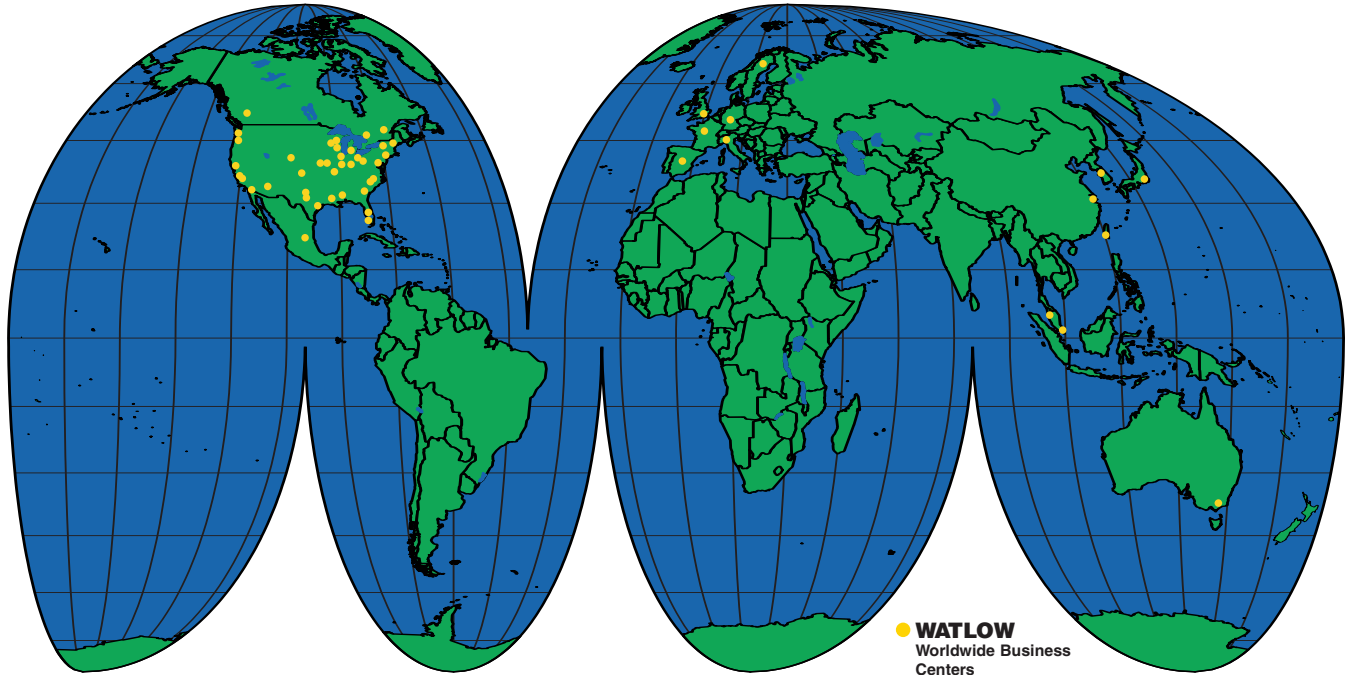
Watlow's WATROD round tubular heating elements and FIREBAR® flat tubular heating elements are currently being manufactured in China. These products are designed primarily for direct immersion in liquids such as water, oils, solvents and process solutions, molten materials, as well as air and gases. By generating all the heat within the liquid or process, these heaters are virtually 100 percent energy efficient. These versatile heaters can also be formed and shaped into various geometries for radiant heating and contact surface heating applications.



Tubular Heating Applications

- Foodservice equipment
- Plastics processing
- Telecommunication
- Medical equipment
- Analytical instrumentation
- Power generation
- Semiconductor processing

Watlow Products and Technical Support Delivered Worldwide



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Singapore	+65-6773-9469
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