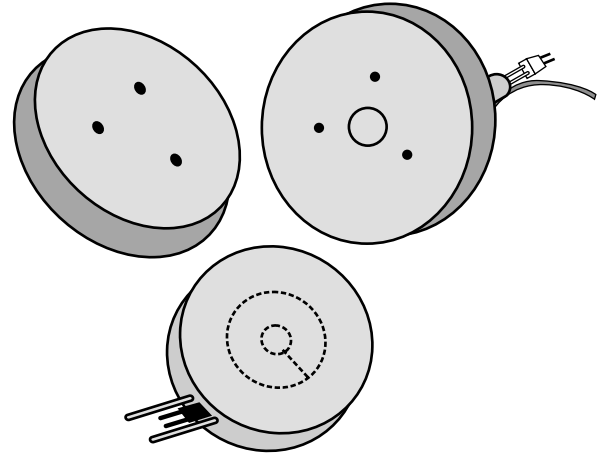


Functional Components Custom Designed For Your Application



Watlow's heated part concept can help simplify your complex heating problems.

The heated part is much more than a heater ... it is a functional component of equipment that can be designed in the exact shape and size needed. The heated part from Watlow is available two ways: as a one-piece cast-in aluminum heater assembly, or as an interference fit (IFC) design.

Utilizing Watlow's heated part can alleviate time consuming tasks such as purchasing, assembly or machining of parts. Customers can concentrate on meeting the other manufacturing challenges.

The heated part consists of a formed cable or tubular heater cast into aluminum. For high temperature applications, Watlow offers an interference fit into other material such as stainless steel. The part is then customized to meet specific application needs including machining, termination, coatings and assembly.

From state-of-the-art CNC machines to the high tech research lab, Watlow invested in the technology necessary to develop high quality custom heat solutions.

Performance Capabilities

- Operating temperatures:
 - Up to 752°F (400°C) with 319 or 356 aluminum
 - Up to 842°F (450°C) with 99.7 pure aluminum
 - Up to min. 1112°F (600°C) with stainless steel (IFC) designs

Features and Benefits

Watlow's complete foundry capabilities

- Assure precise and uniform placement of the element in the casting

UL® component recognition

- Available on cast-in heaters

ISO 9001 registration

- Assures quality management control from product design through production and servicing

Patented pressure-casting system

- Produces castings with low porosity for better heat transfer

Optional cast-in tubing

- Provides faster cooling

High thermal conductivity

- Provides extremely uniform surface temperatures

Reusable molds

- Give excellent part-to-part uniformity



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C A S T - I N H E A T E R S

Applications and Technical Data

Capabilities include:

- CAD/CAM design
- CNC equipment for precision machining and repeatable results from one order to the next
- Metallurgical expertise in foundry practice as well as machining technology
- Lapping machines for smooth finishes and extremely flat surfaces
- CMM (coordinate measuring machines) for in-process and final inspection with printed reports
- Assembly and termination options
- Services such as FEA (finite element analysis)
- Special coatings including Teflon® anodizing and electroless nickel plating
- X-ray techniques to check for porosity-free castings and proper heater location
- Additional treatment of the heated part such as chemical cleaning and packaging for cleanroom acceptance
- Specially-designed packaging
- MRP scheduling and planning of your deliveries to meet your needs in a timely manner

R&D Efforts

To remain at the forefront of technological advancements in the industry, Watlow's heated part facility features a full lab in which extensive product and process research is conducted. One recent example of our R&D efforts has been the development of casting methods and an alloy to match the stringent contamination requirements of the semiconductor industry. Watlow now offers a 99.7 percent pure aluminum alloy with the same porosity-free characteristics of the more typical casting alloys.

On-going laboratory tests at the heated part facility include:

- Temperature uniformity
- Heating and cooling ramp rates
- Structural characteristics
- Coating performance

Watlow has created heated parts for a variety of industries including:

- Semiconductor
- Medical
- Glue melt
- Foodservice

How to Order

All cast-in heaters, are **made-to-order**. Please have the following information available when you place an order or request a quote:

- Wattage (see Watlow Heaters Catalog)
- Voltage maximum is 550V~(ac)
- For part design, provide two drawings with all dimensions and critical tolerances
- Heater exit locations
- Electrical termination. Standard threaded studs will be supplied unless other hardware is specified
- Quantity

Availability

Consult Watlow for design and manufacturing time required.