

## Mightyband™ Coil Heaters



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**MIGHTYBAND™**

*The Superior Coil Heater Design  
with a Built-In Thermocouple*

U.S. Patents #4150281 and #4253011

### Design Features

- \* Temperatures up to 1800°F (982°C)
- \* Precise temperature control
- \* Choice of lead orientation
- \* Built-in type J or K Thermocouple
- \* Round, square and rectangular cable
- \* Rugged, durable construction
- \* Unheated straight section
- \* Fast response time
- \* Choice of lead protection
- \* Longer heater life
- \* Higher watt densities
- \* Made to customer specifications

### Applications

Tempco offers from stock a large selection of standard Mightyband coil heaters for plastic injection runnerless molding bushings and for internally heated injection machine nozzles. The inside diameter of a coiled heater is wound undersized for a screw-on fit. Therefore, hold-down straps are not usually required.

### Construction Characteristics

Tempco's dedication to quality and product improvement has led us to the development of a second generation of Mightyband heaters.

Manufactured for trouble-free performance in operations involving heating of cylindrical-shaped surfaces where precise temperature control is essential. Especially adapted as an alternate heat source for demanding and high temperature applications where other types of heaters have failed.

The design and manufacturing concept incorporates a built-in thermocouple, with a grounded junction terminating at the end of the cable opposite to the lead end. In some heaters, the thermocouple junction can be terminated anywhere within the coil section. Consult Tempco for the availability of this option on your specific heater.

The built-in thermocouple and the overall low mass construction provide quick response for positive temperature control. Incorporating the thermocouple into the heater construction eliminates the need for separate thermocouples, which have proven to be expensive, fragile and impractical.

Tempco Mightyband heaters have opened new frontiers and revolutionized the plastic injection runnerless molding industry since their introduction by Tempco in 1977. They provided the manufacturers of this type of equipment with a new and more effective heating element concept, thus allowing them to design and manufacture new, improved, and more efficient runnerless molding systems, with the capabilities required

to meet the ever-increasing demand for processing engineering resins and high production output requirements of today's industrial and consumer markets.

One specific way to improve the Mightyband heater design is to use a square or rectangular mineral insulated cable, which has a flat surface contact, allowing better heat conduction and a faster start-up time.

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REVOLUTIONARY  
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CONCEPT  
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IN  
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HEATER  
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DESIGN  
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Standard Type J thermocouple with 304 stainless steel heater sheath is recommended for temperatures up to 1500°F (815°C). An optional Type K thermocouple with Inconel® 600 heater sheath for temperatures up to 1800°F (982°C) is available upon request. In some applications, the built-in thermocouple may not be required. In this case, it can be omitted from the heater cable.

The heating source for the Mightyband heater is a resistance wire in straight form or wound into a miniature helical coil. Selecting the best-suited resistance wire configuration is predetermined by an engineering formula applied to the specific heater design.

On Mightyband heaters where wire wound resistance coils are used, the tail end of the heater cable is usually unheated. Optional unheated or cooler tail sections are available on straight resistance wire heater designs. Consult Tempco with your specific requirements.

The swaging and drawing process involved in manufacturing the heater cable for Mightyband heaters compacts the ceramic insulators that house the heating element and thermocouple wire into a solid mass, producing a rugged and durable heater cable, providing excellent thermal conductivity, dielectric strength and quick thermocouple response.