



**CUSTOM
DESIGNED
HEATING
JACKETS**

HEATING JACKETS

HTD Heat Trace, Inc is a long established designer, manufacturer and supplier of custom built heating jackets. Applications for this type of specialized heater range from industrial pump or valve heating to high vacuum bakeout systems used in the worldwide scientific community.

Heating jackets may be custom manufactured from drawings and photographs, molds or patterns or from the actual item being heated.

HTD offers several different material constructions based upon the environmental, temperature and power requirements of the application. Heating elements used within the jacket designs may be heating cable, Ni-chrome resistance foils or wires or flat, flexible heating blankets. HTD has the versatility, design experience and manufacturing capabilities to satisfy most application requirements up to 1,650°F (900°C)



TYPE LTJ HEATING JACKETS

The LTJ style of heating jackets are normally used for freeze protection and temperature maintenance applications up to 150°F (66°C). This low temperature type of jacket incorporates the heating element, from 1 to 3 inches of soft fiberglass insulation and an outer bag that is manufactured from industrial grade, silicone coated glass cloth. Type LTJ Heating Jackets can be designed and supplied for both indoor and outdoor applications.

The opposite photographs show a small pump which required temperature maintenance at 120°F (49°C). The pump was shipped to HTD and used as a pattern for the fabrication of the LTJ Heating Jacket.



This second photograph shows the final LTJ Heating Jacket fitted to the pump body. The jacket is simply wrapped from the underside of the pump until opposite faces meet. Straps and "D" rings are used to tie the mating edges together and seal up the jacket. Lacing eyelits, hooks or Velcro strips are also popular fastening methods offered with the LTJ Heating Jacket.

Temperature control of this type of heating jacket is normally handled by a bulb and capillary type thermostat or an electronic temperature controller with thermocouple or RTD type sensor.

HEATING JACKETS



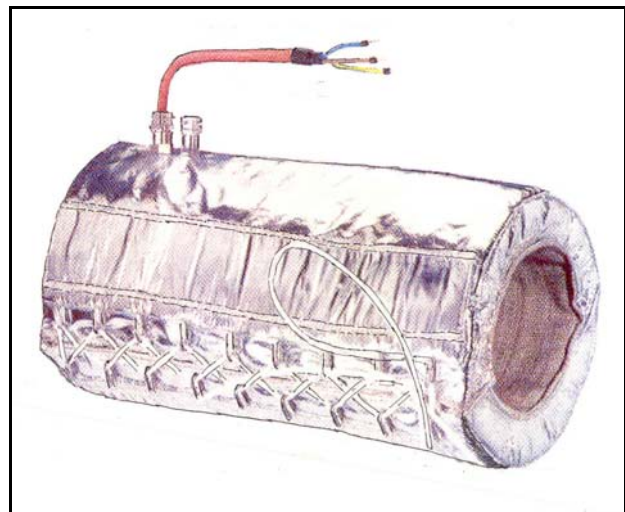
TYPE MTJ HEATING JACKETS

This is our medium temperature heating jacket that is suitable for indoor applications up to 450°F (232°C). As shown in the photographs, this style of heating jacket can be manufactured to fit all shapes and sizes of applications

Type MTJ Heating Jackets normally combine a Ni-chrome foil, ribbon or wire type element with high temperature insulation and an outer bag of aluminumized glass cloth.

Photographic examples are:

- (*top left*) A very complex Valve Heating Jacket.
- (*middle left*) A Flowmeter Jacket
- (*bottom left*) A vertical Pump Heating Jacket
- (*below*) A Tube Heating Jacket



HEATING JACKETS

TYPE *VBJ* HEATING JACKETS



For many years, HTD Heat Trace, Inc has specialized in the design and manufacture of high vacuum bakeout heating jackets. This unique style of heating jacket is suitable for operation up to 850°F (454°C) and is custom designed to heat metal structures and components in High Energy Physics research facilities and laboratories around the world

In 1997, HTD Heat Trace, Inc. was exclusively selected to design and supply all of the high vacuum bakeout jacket requirements on the Laser Interferometer Gravitational Observatories (LIGO) Projects in Hanford, WA and Livingstone, LA. This multi-million dollar project, funded by the National Science Foundation through collaborative agreements with California Institute of Technology (Caltech) and Massachusetts Institute of Technology (MIT), required HTD to design and supply over 1,300 individual, custom designed heating jackets. Each heating jacket was designed to heat raise a specific part or component within the LIGO system from ambient to over 300°C in 48 hours. System parts and components are maintained at this elevated temperature for many hours until the required bakeout cycle is completed. This bakeout process is required to create the 1×10^{-8} torr vacuum needed for the scientific experiments being conducted.

The opposite photographs show several sections of this massive project, which is believed to be the largest single high vacuum bakout installation and program ever completed in the world.

TYPE *VHTJ* HEATING JACKETS.



The design of the VHTJ Heating Jackets is very similar to that of the MTJ Heating Jackets, with the exception that Quartz Fabrics, and Ceramic Insulation are used throughout the construction. The use of these materials, combined with high temperature Ni-chrome resistance elements, offers the end user a flexible heating jacket construction that can be used on indoor heating applications up to 1,650°F (900°C).

Type VHTJ Heating Jackets are normally used in laboratory and research type environments to provide high temperature and / or high power heating solutions.

A pictorial impression of this uniquely qualified heating jacket is shown opposite.



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