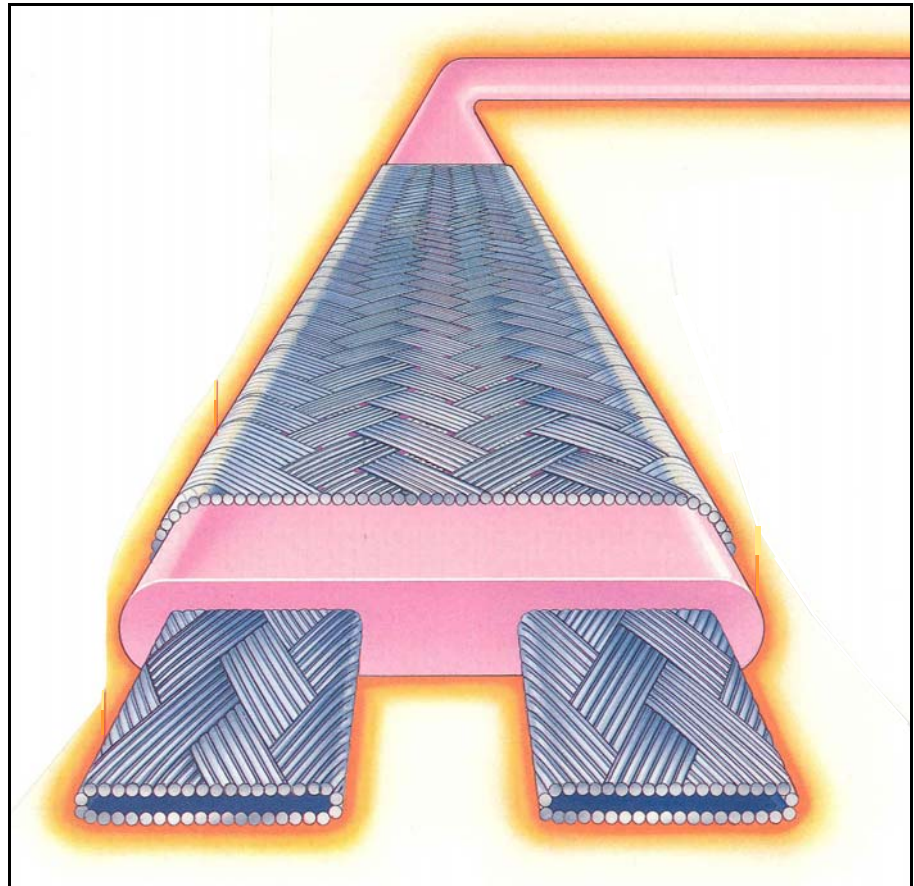




Long Pipeline Heating Systems



VTC
LPC-3C
LPC-1C

*INTRODUCTION**WHAT is a long pipeline ?*

In the context of heat tracing system designs, a long pipeline is essentially one single run of pipe that may be 500 ft (152 m) long to many thousands of feet long.

WHY is there a need to heat some long pipelines ?

Many types of pipelines must be heated to ensure that the fluid or product being carried within the pipeline is maintained at an optimum temperature and viscosity for pumping purposes. Occasionally, pipeline heating systems are needed to raise the temperature of the fluid or product being carried within the pipeline.

Thermal insulation alone cannot completely eliminate heat loss from the pipeline. Continuous levels of heat loss from the pipeline result in cooling of the fluid or product. When the level of cooling becomes sufficient to create viscosity and pumping problems, heat must be applied directly to the pipeline to address the problem. The most common design example of a long pipeline heating system is one that prevents the fluid being transported from freezing during winter operation.

WHEN is there a need to heat some pipelines ?

Several factors may influence the need to heat a pipeline. Some of the factors are:

The fluid or product being transported in the pipeline.

- Certain fluids and products cannot be transported if they cool.
- Certain products may crystalize or spoil if they are allowed to cool.

The pipe size and length of the pipeline.

- Small diameter pipes cool faster than larger pipes.
- The extent of cooling experienced by the fluid or product increases with length of the pipeline.

The actual usage of the pipeline.

- The flow rate of the fluid or product being transported may be low.
- Infrequent use of the pipeline may necessitate preheating before usage.

The need to heat a pipeline, as opposed to leaving the pipeline bare or just insulating the pipeline, is most commonly seen when two or more of the above factors must be considered.

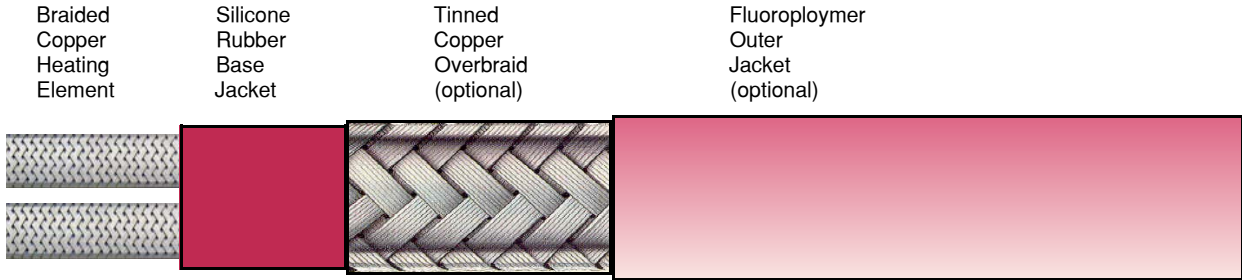
HTD Heat Trace, Inc specializes in the engineering and design of pipeline heating systems. We can offer you technical and commercially viable solutions for either buried or above-ground pipeline heating systems that can perform safely and reliably in climates ranging from the Arctic winter to Sahara summer. Please contact us to address the specific needs of your application.

Long Pipeline Heating Systems

VTC, LPC-3C, LPC-1C

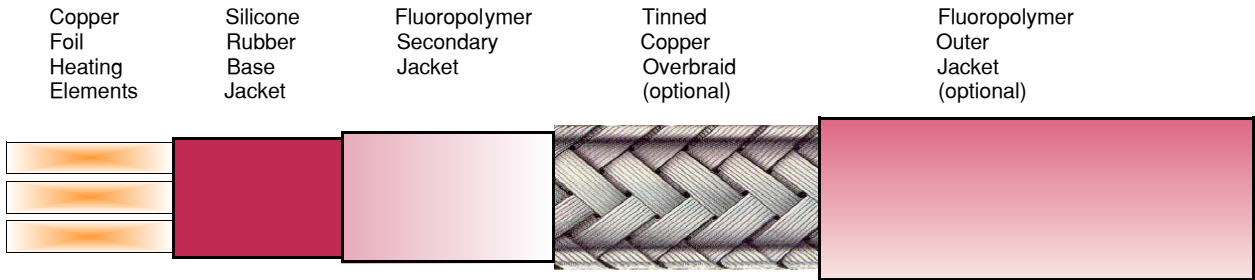
PRODUCTS AND USAGE

Three types of heating cable design and construction are used to meet the power, voltage, distance and environmental considerations associated with the design of a long pipeline heating system.



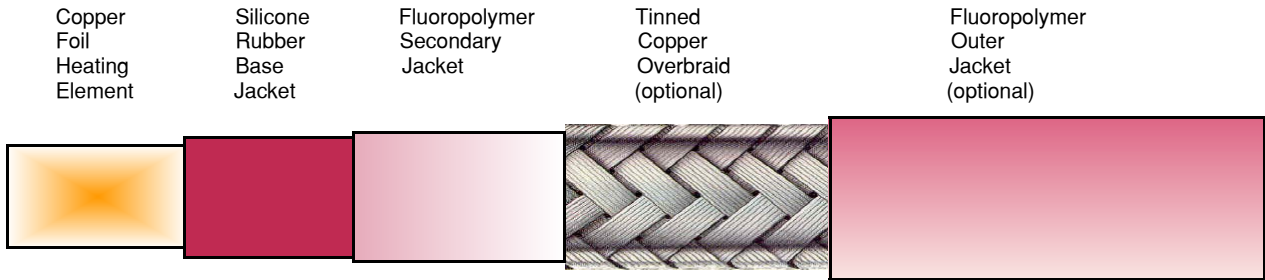
VTC

VTC heating cable is part of the patented VersaTrace family of products. This is a two conductor, single phase, fixed resistance heating cable with circuit lengths from 500 to 3,300 feet long (150 m to 1 km).



LPC-3C

LPC-3C is a three conductor, three phase, fixed resistance heating cable with circuit lengths up to 6,500 feet (2 km).



LPC-1C

LPC-1C is a single conductor, fixed resistance heating cable with circuit lengths up to 16,400 feet (5 km) when used as part of a three cable, three phase heating system.

SYSTEM CONFIGURATIONS

The three types of heating cable can be configured in several different designs to provide a wide range of power outputs on all conventional single phase and three phase power supplies.

The following table details the standard systems that can be engineered and supplied.

System Ref	# cables on Pipe	Heating Cable Ref	Voltage Range	Voltage type	Max Watts per ft of pipe	Circuit Range (ft)	Max Pipeline length *
1CSP	1	VTC	110-600	1ø	10	500 to 3,300	1.25 miles
2CSP	2	VTC	110-600	1ø	20	500 to 3,300	1.25 miles
3CSP	3	VTC	110-600	1ø	30	500 to 3,300	1.25 miles
1CTP	1	LPC-3C	208-600	3ø	20	700 to 6,500	2.5 miles
2CTP	2	LPC-3C	208-600	3ø	40	700 to 6,500	2.5 miles
3CTP	3	LPC-1C	208-1000	3ø	50	2,800 to 16,400	6.2 miles

* Maximum pipeline lengths are based upon one power supply at both ends of the pipeline or one power supply at the center of the pipeline.

MAJOR SYSTEM FEATURES

- Robust, completely waterproof, corrosion-resistant heating cables.
- Simple, low cost installation. Cables can be field installed directly onto the pipeline or pulled into channel troughs fitted onto factory pre-insulated pipes.
- Minimal electrical power supply points, power cabling and conduit required.
- Safe and reliable operation in all climatic conditions.
- Systems can be engineered for above-ground or buried pipelines.
- Custom control, monitoring and energy management systems available.



For further information on this unique, well proven method of electrically heating long, single runs of pipeline, please contact HTD at the following address.



HTD Heat Trace, Incorporated
 8 Bartles Corner Road
 Unit #104, Flemington, NJ
 USA 08822-5758

sales@htdheattrace.com
 Voice - +1.908.788.5210
 Fax - +1.908.788.5204
 www.htdheattrace.com