

## **Skin-Effect Heat Trace System**

**Heat Tracing for Long Pipe Runs (Up to 15 Miles/25 Kilometers) with Only One Power Supply Connection**



Chromalox skin-effect trace heating is ideal for the freeze protection, temperature maintenance, and heat-up of materials transported by long-distance pipelines (up to 15 miles/25 kilometers). Pipes can be above or below ground, submerged, and across all types of terrains. Applications include the movement of materials in tank farms and storage terminals as well as piping between distant processing facilities in the chemical, petrochemical, oil, and natural/refined gas industries.

Skin-effect trace heating employs a single circuit, eliminating the need for an extensive power distribution system. This makes it an extremely cost-effective alternative to conventional trace heating, particularly in remote areas where installation and maintenance can be costly.

## Advantages

- Easy to install.
- Low operating cost.
- Low maintenance, with the ability to replace cables without damaging the insulation.
- Available for explosive atmosphere.
- Heat tracing very long pipes (up to 15 mi/25 km ) with only one voltage supply connection.
- Pipe diameters from 3 in. to 30 in./76 mm to 760 mm.
- Temperature maintenance up to 300°F/150°C.
- Low temperature differential between heating tube and main pipe.
- Highly robust.
- No residual voltage on the surface of the tube.
- No effect on cathodic protection systems.
- Rapid heating.
- Suitable for above-ground, buried, or submerged pipe installations.

## The Principle Is Very Simple

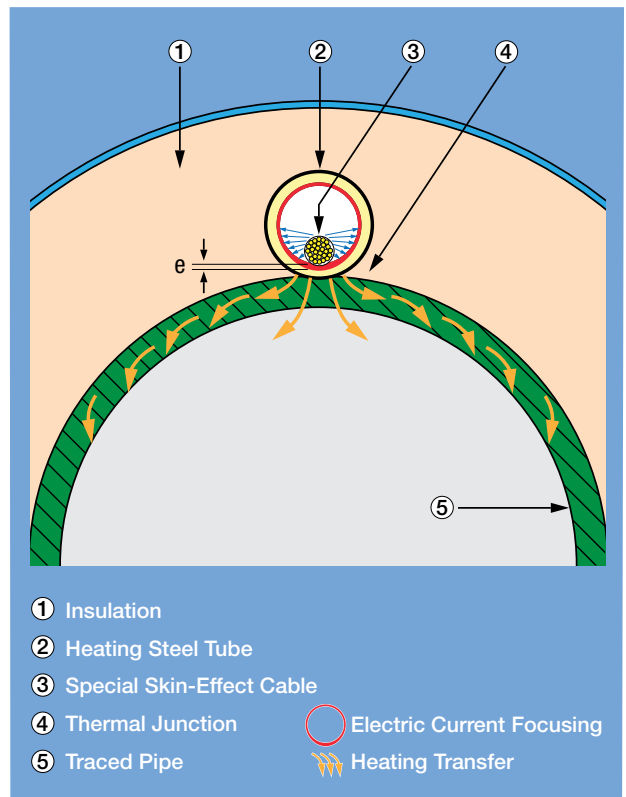
A small steel tube is banded on the pipe to be heated.

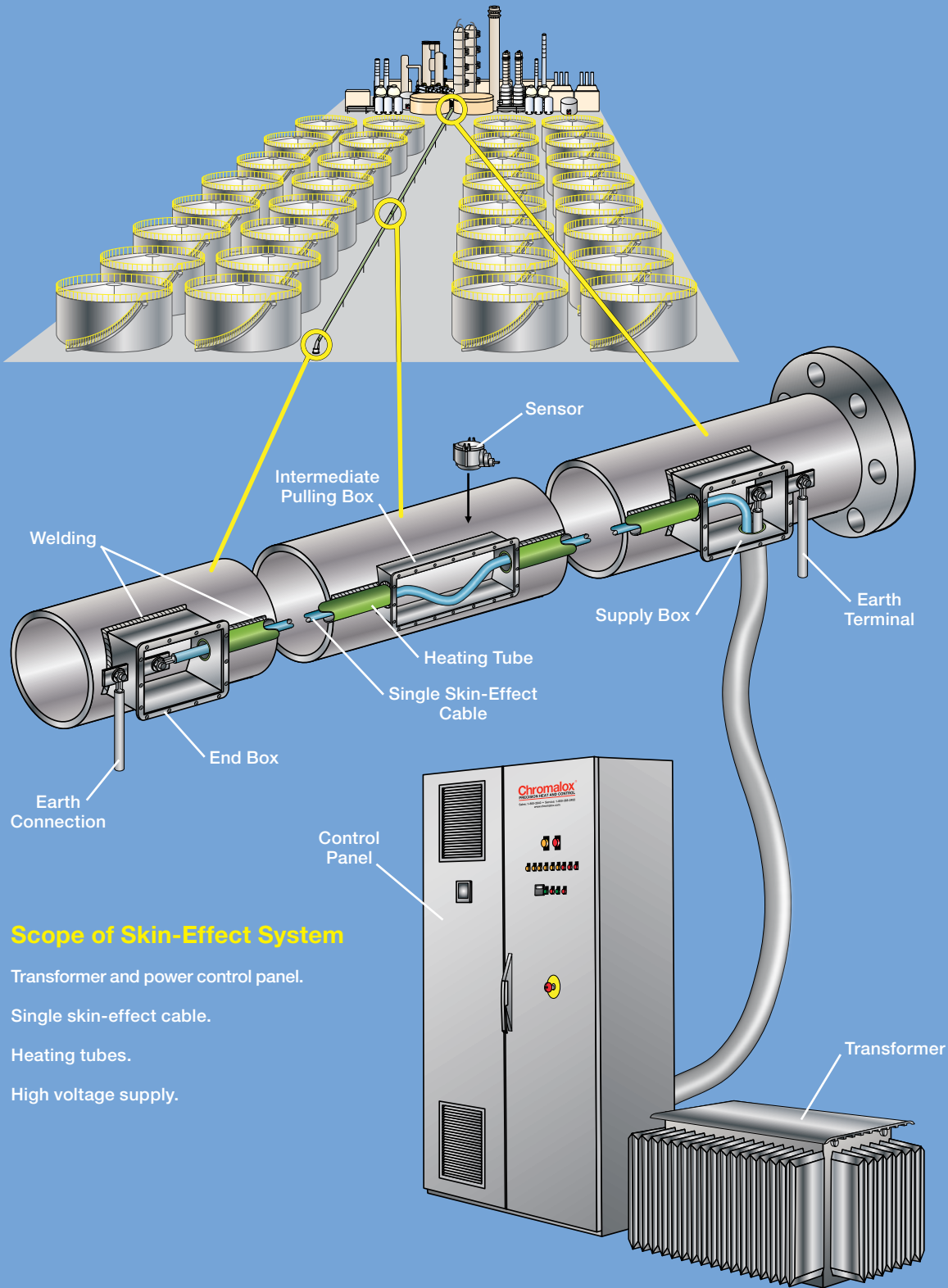
A skin-effect electric cable is placed inside the tube to conduct the voltage up to the end of the pipe.

The return current conducts through the internal thickness of the small tube, as defined by the laws of Kelvin and Maxwell.

Supply connections are made in special boxes.

The setup transfers conductive heating directly to the wall of the process pipe.





### Scope of Skin-Effect System

- Transformer and power control panel.
- Single skin-effect cable.
- Heating tubes.
- High voltage supply.

## Chromalox Is Your Complete Source for Heat Tracing Systems

Chromalox offers a variety of heat trace cable, controls, and installation accessories. We manufacture enough heating cable each year to stretch from Northern Italy to the tip of Sicily. Our modular heat trace control systems are complete control solutions, providing temperature control, monitoring, and power management in one package. Chromalox installation kits include all the components needed to complete the installation, including splices, power connection boxes, and water-resistant end-seal terminations.



## A Choice of Heat Trace Cable Technologies

- Self-regulating cable for ordinary and hazardous environments to prevent pipe freezing and maintain process temperatures up to 302°F/150°C, with maximum exposure temperature up to 420°F/215°C.
- Constant-wattage cable for freeze protection and process temperature maintenance up to 350°F/175°C, with maximum exposure temperature up to 392°F/200°C.
- Mineral-insulated cable for the most demanding heat trace applications, with temperature maintenance up to 900°F/480°C and maximum exposure temperature to 1,100°F/593°C.
- Impedance for highly corrosive processes or applications that require heat-up.
- Skin effect for extremely long runs of piping, up to 15 miles/25 kilometers from one voltage supply source.

Many Chromalox technologies cables and accessories are ATEX, IEC Ex, FM, CSA certified.

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