

FAQS

What is skin effect heating?

Skin Effect Heating is simply another way to use electricity to safely heat a process. Skin Effect Technology allows a single point connection to provide heat for up to 15 miles in length. This is an existing, proven technology that has been used for years in many applications.

How does it work?

Skin Effect heating uses the physical laws from the Kelvin and Maxwell theories to produce heat on the attached tube. The heat energy travels through conduction to the pipe. Electricity only flows on the inside of the tube, eliminating any residual voltage. This allows a single point power connection to be used.

How is it different from traditional Chromalox heating?

Resistance elements are typically immersed directly in the process being heated and requires alterations to the piping for heater installation. Traditional technology only allows for heating in a single point. Skin Effect heating allows the heat to be evenly dissipated over long distances for an even temperature profiles.

What are the components of a Skin Effect System?

There are (6) main components.

Control Panel - Monitors process temperature and adjust the power input.

Transformer - Regulates the voltage applied to the system.

Sensors - Monitors the process temperature(s).

Skin Effect Cabling - Carries the voltage over the length of the system

Tubing - Provides protection for the wire and dissipates the heat energy to the pipe.

Junction boxes - Allow for wire connection and wire pulling points.

How is it installed?

The tubing is attached to the pipe by welding or rings. The skin effect cable is pulled through the pipe. The cable is then attached for return current and to the voltage supply side. The final step is installing the temperature sensor to the panel.

What are the advantages over traditional-style heating?

Some of the major advantages include simple installation, no altered piping, distributed heating, little / no maintenance, long life, and no heating element corrosion concerns. There are many more, so please refer to the catalog page for complete details.

How does it differ from heating cable.

Heating cable & Skin Effect are similar in that they indirectly heat the process over a specified length. There are distinct advantages with each. Please refer to the comparison table for a list of varying specifications for each.

How much does it cost?

Like most Chromalox custom systems, the price can vary widely based on the kW needed, location, customer requirements, desired features, etc. To get a quotation, please contact Chromalox Application Engineering.

Who wants to buy a system?

Anyone who wants to maintain or heat-up a process in a pipeline. Typical markets for such a system include Refineries, Chemical Processing, Gas/Oil Production, Food Processing, and many more.

Is it safe?

Skin Effect heating systems are very safe & virtually maintenance free.

Hazardous locations?

Skin Effect systems can be rated & used for hazardous locations.

Comparison Table for Pipeline Heating

Product	Service	Pipe Material	Maximum Maintenance Temperature	Maximum Exposure Temperature (Power Off)	Length Limit	Equipment Cost	Installation Cost	Maintenance Cost
Heat Trace (SRL, HSRL)	Temp. Maintenance Only	Plastic / Metal	150 deg. F	185 deg. F	660 ft.	Low	Med	High
Heat Trace (SRM, HSRM)	Temp. Maintenance Only	Metal Only	302 deg. F	420 deg. F	780 ft.	Low	Med	High
Heat Trace (CWM)	Temp. Maintenance Only	Plastic / Metal	392 deg F *	392 deg. F	800 ft.	Low	Med	High
Heating Cable (MI)	Temperature Maintenance & Fluid Heat up	Metal Only	900 deg F	1,100 deg. F	1000 ft.	Med	High	High
Impedance	Temperature Maintenance & Fluid Heat up	Metal Only	1,800 deg. F	only limited by piping used	2500 ft	High	Med	Low
Skin Effect	Temperature Maintenance & Fluid Heat up	Metal Only	302 deg. F	482 deg. F	15 Miles	High	Low	Low
* Maximum Maintenance Temperature for CWM depends on Cable watt density - consult CWM catalog page for max temps for each watt density cable								