



## **APPLICATIONS** **Process Heating Solutions**



Just about everywhere you can imagine an application for process heating, you'll find a Electricfor. We have an answer for you: in high temperature gas heating for continuous catalytic reformers, amine and glycol reboilers used for refining oil, an assortment of hydrocarbon stream vaporization and superheating, silicon tetrachloride heating for polysilicon production, or super-critical water processing at extreme pressures and temperatures for the alternative energy sector. Take a look at some of these applications – and find out how we can help you improve operating costs, decrease installed costs, and enhance overall operations.



## **NATURAL GAS DEWPOINT / DRYOUT HEATING**

Process Heating Solutions



Our Natural Gas Dewpoint Heating solution is designed to help combined cycle power generation facilities that use fuel (natural) gas as the energy source for their turbines. A common problem is that natural gas as a fuel can contain moisture and contaminants, so the process needs some kind of conditioning system capable of delivering clean gas to the turbine as fuel.

A fuel gas conditioning system typically contains an electric process heater, pressure regulation, coalescing filters, and other instrumentation. The coalescing filters strip out the contaminants to deliver cleaned gas, while the pressure regulator ensures a constant supply pressures to the turbine. The electric process heater elevates the gas temperature to ensure two things: 1) to prevent the formation of hydrates and moisture from reaching the turbine, and 2) to ensure that the superheated gas reaches the turbine at the correct temperature.



## **MOLECULAR SIEVE REGENERATION HEATERS**

Process Heating Solutions



Molecular sieves are often used in Oil & Gas and Refining applications to purify gas streams, as well as to separate and dry materials. A molecular (or mol) sieve is essentially a filter that contain microscopic pores of precise size that adsorb specific gas or liquid molecules, but not larger molecules.

The biggest issue with these sieves is that there is a limit to how much material they can adsorb (around 20% by weight, for example). As a result, the molecular sieve will need to be “regenerated” to remove the adsorbed material and prepare the mol sieve for re-use. Electricfor process heaters are a reliable solution to regenerate Mol Sieves. Heating a carrier gas, such as nitrogen, to high enough temperatures to reverse the absorption process, these heaters keep gas streams pure.

## **STEAM SUPERHEATING**

Process Heating Solutions



Steam superheating is probably one of the most common applications for electric process circulation heaters because they keep the steam dry and at 100% quality – making it perfect for direct use in your processes.

Superheated steam can also be used to extend the range of a steam system and allow for greater flexibility. Or you could use inline circulation heaters, which are vital partners in systems that use heat trace and insulation, to also maintain the quality of large steam flows.

## **AMINE AND GLYCOL REBOILER / REGENERATION HEATERS**

Process Heating Solutions





These systems are designed to help industries, like petrochemicals, use secondary materials to purify process streams. Reprocessing these secondary materials can typically require the use of a regenerator, or stripper. The regenerator usually consists of a column, overhead condenser, and reboiler. The regenerator thermally removes excess water or contaminants and returns the used secondary material to a water-free, pure state, ready to be used again. Electricfor electric process heaters can be counted on to consistently thermally regenerate these purifying agents.

For example, amine gas treating, also known as amine scrubbing, gas sweetening and acid gas removal, refers to a group of processes that use aqueous solutions of alkylamines (e.g. amines) to remove hydrogen sulfide and carbon dioxide from process gas.

As another example, glycol is injected into wet natural gas streams to remove water and dry out the natural gas. In these purification processes, the chemical agent absorbing the contaminant from the process fluid is captured to be reprocessed back into a suitable purifying agent.

## **HIGH PRESSURE SEAL GAS HEATING**

Process Heating Solutions



High-pressure electric process heaters are often used to pre-heat the sealing gas that's used to remove moisture and prevent condensation from occurring inside of a dry gas seal during operation of a high-speed compressor – where operating pressures can reach into the thousands of pounds per square inch range.



Dry gas seals are non-contacting, dry-running face seals utilized for high speed compressors. A typical application would be the centrifugal compressors used to transfer and distribution natural gas. Unlike traditional wet mechanical seals, there is no contact between the faces of the primary and mating rings. This is accomplished through the use of spiral grooves in the rotary face that “catch” gas as it rotates, generating pressure and creating a dynamic lifting force that separates the faces. As such, frictional heat does not occur between the two surfaces. This sealing gas is injected into the seal to act as the working fluid for the lifting force, and also to provide a barrier between the outside atmosphere and the internal process gas being compressed.

When you’re dealing with pressure this great and with materials this volatile, you need to count on every component. That’s why customers count on Electricfor. Our Expertise, and our standards are ready to meet your most challenging applications.

#### **HIGH TEMPERATURE AIR HEATING** Process Heating Solutions



When you need a partner to help you heat fluids at very high temperatures, count on Electricfor. We specialize in precise thermal modeling of fluids using both theoretical models and real-world data – whether you are using standard materials or complex mixtures and compositions. Our proprietary system designs custom equipment to meet your needs and include features like variable element watt densities, various types of baffling, heat shields, terminal box standoffs, and insulation techniques.



Plus, our 100+ years of experience dealing with some truly challenging applications assures you that we can do the same for you. We've used a wide array of materials for both vessels and elements, allowing us to achieve process temperatures higher than our competitors. And our 100% vertical integration model means that all of the components in your Electricfor High-Temp Process Heating Solution will work together – because that's what they were designed to do.

## **HYDROCARBON VAPORIZATION AND SUPERHEATING**

Process Heating Solutions





Vaporizing and superheating of process fluids is an important part of a number of industrial applications – including NGL (Natural Gas Liquids) recovery of valuable hydrocarbons from wet natural gas.

Electricfor electric process vaporizers are designed to be an especially smart choice in this kind of hazardous production environments. Plus, high temperature electric process heaters can also be used to superheat hydrocarbon streams to flash entrained water into vapor for separation.



A wide array of construction materials, such as duplex stainless steel and nickel-based alloys, can be used depending on the nature of the fluid in your particular application.

## **DEFROST GAS AND TRIM HEATERS**

Process Heating Solutions



Defrost gas heating generally refers to the use of electric process heaters to superheat gas streams to eliminate moisture and condensation within the gas by boiling it off again.

Trim heating generally refers to the use of electric process heaters to add supplemental heat to a process gas to either maintain a high process temperature, or to keep a process gas above its dew point to prevent condensation of entrained moisture.

Both applications are used throughout the oil & gas, petrochemical, and power generation industries, and they can both benefit from Electricfor products and expertise. Our electric sheathed heating elements give you the flexibility and adaptability you need to create the right solution for your specific application, process design, or installation configuration.



## **KNOCK-OUT DRUM HEATERS**

### Process Heating Solutions



A Knock-out (KO) drum consists of a vertical vessel specially designed to separate vapor and liquid from a two-phase process flow. Inside you'll find an inlet diffuser and de-entrainment mesh pad designed to maximize the collection of liquid contained in the vapor as it travels to the top of the vessel.

Gravity draws the liquid down to the bottom of the vessel for withdrawal, while the vapor exits the top. Sometimes the process fluid is a pressurized liquid that is relieved into the vessel, causing the liquid to “flash” off a part, or all, of the liquid as vapor. In such case, the unit may be referred to as a ‘flash drum’.



Typically, Electricfor electric process heaters are used in a knock-out drum to increase vaporization of flashed liquid or to vaporize liquid collected in the bottom of the vessel. They can also be used to decrease viscosity of heavy fluids (e.g oils) to improve pump-

ability and to maintain a minimum temperature in the vessel for freeze protection.



**APPLICATIONS**  
Temperature Management Solutions



Our complete heat trace systems are designed to optimize each individual application and feature our extensive line of heat trace cable, control and monitoring products. Count on us for your most demanding applications including process temperature maintenance, long pipe line heating, foundation heating, snow/ice melting, and freeze protection of pipes, tanks, valves and instrumentation.

Our design services team works as an extension of your business from Front-End Engineering & Design (FEED) study throughout project completion. Our engineers assist your engineers and take responsibility for ensuring the most effective heat trace system is selected, designed and implemented on your project. Our system design philosophy ensures that the right products are integrated, and risk to plant operations, budget and schedule is held to a minimum.



Electricfor field service ensures optimum performance throughout the process. This includes installation, project management, quality control, start-up and commissioning, operator training, maintenance auditing, and system maintenance.

And you can always count on us for a complete inventory of heat trace cables, accessories, sensors and controls. In addition to the large inventory of stocked products, Electricfor operates the fastest delivery system in the business. We are capable of accepting orders for project quantity volume and shipping the same or next day the order is received.

## **PIPE AND TANK FREEZE PROTECTION** Temperature Management Solutions



Electricfor offers complete heat trace systems including heat trace cable, connections, temperature sensing and control and monitoring equipment for all of your pipe and tank freeze protection needs. Our complete solutions are designed for Industrial Hazardous and Non Hazardous areas and Commercial applications. Our products are third party certified by global



certification bodies to the most stringent global industrial standards.

Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.

Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control, start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Self-Regulating Heat Trace](#)
- [Mineral Insulated Heat Trace](#)
- [U Series Heat Trace Connection Kits](#)
- [DL Series Heat Trace Connection Kits](#)
- [MI Series Heat Trace Connection Kits](#)
- [Heat Trace Panels](#)
- [Heat Trace Control Software](#)
- [Heat Trace Thermostats](#)
- [Heat Trace Sensors](#)
- [Heat Trace Accessories](#)



**PIPE AND TANK PROCESS TEMPERATURE  
MAINTENANCE**

## Temperature Management Solutions



Electricfor offers complete heat trace systems including heat trace cable, connections, temperature sensing and control and monitoring equipment for all of your pipe and tank process temperature maintenance needs. Our complete solutions are designed for Industrial Hazardous and Non Hazardous areas and Commercial applications. Our products are third party certified by global certification bodies to the most stringent global industrial standards.

Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.

Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control,



start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Self-Regulating Heat Trace](#)
- [Mineral Insulated Heat Trace](#)
- [U Series Heat Trace Connection Kits](#)
- [DL Series Heat Trace Connection Kits](#)
- [MI Series Heat Trace Connection Kits](#)
- [Heat Trace Panels](#)
- [Heat Trace Control Software](#)
- [Heat Trace Thermostats](#)
- [Heat Trace Sensors](#)

## **LONG PIPE LINE HEATING** Temperature Management Solutions



Typical applications can include pipe freeze protection, pipe temperature maintenance or heat up / start-up heating for long pipelines in tank farms, loading and unloading stations, offshore to onshore pipelines, and transfers stations.



Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.

Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control, start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Series Resistance Long Line Heat Trace](#)
- [Mineral Insulated Heat Trace](#)
- [MI Series Heat Trace Connection Kits](#)
- [Heat Trace Panels](#)
- [Heat Trace Control Software](#)
- [Heat Trace Sensors](#)



## **FOUNDATION HEATING AND FROST HEAVE PREVENTION**

Temperature Management Solutions



Electricfor offers complete systems including series constant wattage cables, Mineral Insulated (MI) Cables, skin effect heating, impedance heating, connections, temperature sensing and control and monitoring equipment for all of your Foundation Heating and Frost Heave Prevention needs. Our complete solutions are designed for Industrial Hazardous and Non Hazardous areas and Commercial Building and Construction projects. Our products are third party certified by global certification bodies to the most stringent global industrial standards.

Typical applications can include Foundation Heating for LNG storage tank applications and frost heave prevention for commercial freezers and cold storage facilities.

Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.

Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control, start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Constant Wattage Heat Trace](#)
- [Mineral Insulated Heat Trace](#)
- [U Series Heat Trace Connection Kits](#)
- [MI Series Heat Trace Connection Kits](#)
- [Heat Trace Panels](#)
- [Heat Trace Control Software](#)
- [Heat Trace Sensors](#)

## **FROST AND ICE MELTING**

Temperature Management Solutions



Electricfor offers complete systems including self-regulating cables, Mineral Insulated (MI) Cables, connections, temperature sensing and control and monitoring equipment for all of your Snow and Ice Melting needs. Our complete solutions are designed



for Industrial Hazardous and Non Hazardous areas and Commercial Building and Construction projects. Our products are third party certified by global certification bodies to the most stringent global standards.

Typical applications can include Roof & Gutter De-Icing and Embedded Snow Melting in Industrial or commercial markets.

Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.

Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control, start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Self-Regulating Heat Trace](#)
- [Mineral Insulated Heat Trace](#)
- [EL Series Heat Trace Connection Kits](#)
- [MI Series Heat Trace Connection Kits](#)
- [DL Series Heat Trace Connection Kits](#)
- [Snow and Ice Melting Controls](#)



## **INDUSTRY SPECIFIC APPLICATIONS**

Temperature Management Solutions



Electricfor offers complete temperature management solutions including heat trace cables, tank heaters, process heaters and associated temperature sensing, control and monitoring equipment for the most demanding applications across energy, industrial and commercial markets. Our complete solutions are designed for Industrial Hazardous and Non Hazardous areas and Commercial Building and Construction projects. Our products are third party certified by global certification bodies to the most stringent global standards.

Typical applications are found in Building & Construction, Chemical, Oil/Gas, Mining, Petrochemical, and power generation markets. Click on the links below to learn how Electricfor can provide a temperature management solution to fit your industry.

Electricfor offers complete design services to complement each stage of your project. Our system design philosophy insures that the right products are applied, and risk to plant operations, budget and schedule is held to a minimum.



Electricfor offers a complete set of field services to insure your heat trace system is installed, operates and is maintained at optimum performance levels. Our field services include installation, project management, installation quality control, start-up & commissioning, operator training, maintenance auditing and system maintenance.

- [Oil and Gas](#)
- [Building and Construction](#)
- [Petrochemical](#)
- [Power Generation](#)