

Heating Process



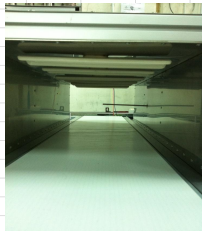
Industrial Heating Systems & Methods

EXTECH Smart Solutions builds custom heating systems that utilize any of a variety of heating methods in the market. The methods we use are convection air heating, induction, infrared, and resistance power, each of which has its own advantages and ideal.



Convection Air Heating Systems

Convection systems use either gas burners or electric elements to heat air in an internal recirculation system. With gas-fired systems, gas (natural or liquid) is fed into a burner, and the heat from that is distributed evenly throughout the unit with a circulation fan. With electric systems, heating elements are used. Convection air heating systems are the most common heating methods in the market since the level of heat they produce is easily controlled with accurate temperature results.



Infrared Heating Systems

Infrared (IR) heating uses various wavelength light emitter panels to radiate energy based on the intensity of the heating required for the parts being processed. IR panels used can be made from sheathed elements, quartz panels or lights to UV wavelength lamps. The use of IR heaters is ideal when the radiant light energy can reach the part surface.

An advantage of IR heating is it's often faster than convection heating if only surface heating of the part is required.

Infrared heating can be used in curing powder paint, epoxy, and polyester resin. In addition, it can also be used to pretreat other types of coatings.



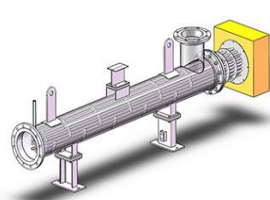
Induction Heating Systems

Induction heating uses electromagnetism to heat the conductive components of a part. Induction heating is accomplished by running an electric current through an induction coil which produces an electromagnetic field.

When steel or iron components are placed within that field, they resist the electrical flow, creating energy and heat in the process.

Induction heating can be a very effective and efficient use of energy and quickly heat up components, however, the products need to be shaped so that a coil can apply the power properly.

When used during a preheating or post heating process, it can dramatically cut down production times, allowing for greater efficiency and product throughput.



Resistance Power Heating Systems

Resistance heating is a direct heating of a part or product that can have power applied to it. Examples of resistance heating are electric motor and transformers that allow the part to act as a resistor.

Applying various amounts of power to the part based on its resistance will determine the amount of time it will take to heat a part by this method.

Resistance heating in electric motor applications is somewhat the opposite of induction heating where the conductive steel is heated.

In resistance heating, most often the copper winding is what is directly heated, which then conducts the heat to other parts of the product that are in contact with it.