

Radio Frequency heaters for the process preheating plastics

The plastics have became inseparable part human life, the use of plastic and products made by plastics are all around us, plastic has been chosen as alternative to metal post second world war, the popularity of plastic is due to its versatile nature of taking any shape and can be made hard enough for by selective chemical and heating process. Plastics are divided in to two categorizes 1) Thermoplastic 2) Thermosetting Plastic.

Thermoplastics are relatively soft in nature and can be heated, moulded in shapes various times. Mostly find application in household such as mug, toys etc. where strength and toughness of plastic product is not desired. On other hand Thermosetting plastics are generally strong and resistant to heat, but they melt the first time they are heated to a high enough temperature and harden (set) permanently when cooled. They can never be melted or reshaped again. Hence rapid heating is desired for melding the thermosetting plastics, which is difficult to achieve from the conventional heating system, it becomes an ideal application for RF heating systems because RF heaters quickly and uniformly heats the thermoset plastic resin to softening point for the for molding.

Issues with Conventional process of molding:

Heating certain plastic material in a press, even in powder structure, causes the grains by the hot die to "set" before alternate grains in the volume of the mold get to be delicate. That brings about poor filling of the mold which causes faulty completed parts. Preheating the powder in a stove or on a hot plate alleviates this issue sort of, yet, best case scenario the grains get to be sticky and are hard to handle rapidly without automation. In the event that they are heaped up the heating is not uniform.

To help the taking care of issue, plastic powder is regularly compacted under high weight to make performs. They have consistent shapes, frequently round barrels, and might be effectively moved about by hand. Beforehand the thickness of performs was constrained by worries about curing or setting the compound on the outside without heating the inside. This likewise causes poor filling of the mold holes and harms the presence of the last casting by creating uneven shine and voids.

Radio Frequency preheating for the molding

Radio Frequency heating provided an excellent solution to the problem of rapid uniform heating of performs because it heats the entire performs up to the molding temperature quite uniformly in 2 to 60 seconds. Time is subsequently available for manually or automatically transferring performs to the mold cavity and closing the press before the full curing takes place. The results are good fill and excellently finished parts. KERONE manufactures the customized RF heaters that will be best suited for the process need to preheating plastic for the molding purpose.

List of Plastic products that need RF heating

Plastics products manufacturing that typically uses Radio Frequency heating are for pot handles, circuit breaker cases, instrument cases, automotive distributor and other electrical parts, telephones, radio/TV cabinets, washing machine agitators, dinner ware, knobs, telephone parts, telephone central office equipment, blower impellers, lens mounts, encapsulations for microelectronic components, fabricated from polyester resins reinforced with fiberglass (FRP), molded disc brake cylinders, heat resistant handles, electrical plugs, switches, circuit boards and semiconductor encapsulation and a myriad of others.

Advantages of Radio Frequency Heating system

- 1) Speeding the process:** The shorter preheating time and uniform temperature results in free flow of soften resin to mold.
- 2) Increased part lifespan:** Differential curing allows for lower internal stresses while providing an even cure with no overheated or uncured areas.
- 3) Less mold wear:** Softened resin flows easily into mold and set down after compression only hence it increases the life of Mold.
- 4) Increase in Final Output:** RF preheating permits bigger product(s) to be created than might be delivered by different means.
- 5) Improved Output quality:** Rapid speed of softening result in the molding of plastics before they start setting.