

Steel Induction heat treatment

United Induction Heating Machine Limited

We are experienced in Induction Heating, induction heating machine, Induction Heating equipment. They are widely used in induction heating service, induction heat treatment, induction brazing, induction hardening, induction welding, induction forging, induction quenching, induction soldering, induction melting and induction surface treatment applications
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Overall heat treatment is heating the whole piece, then the appropriate speed cooling, to change its overall mechanical properties of the metal heat treatment process. Roughly the overall heat treatment of steel annealing, normalizing, quenching and tempering are four basic processes.

Annealing the workpiece is heated to a suitable temperature, according to the size of the workpiece material and different holding time, and then slowly cooled, the purpose is to make the internal organization of the metal at or near equilibrium, the process performance and get a good performance, or for further hardening for tissue preparation. Normalizing the workpiece is heated to the appropriate temperature in air cooling, annealing normalizing effect with similar, but the organization has been more detailed, often used to improve the material cutting, but also sometimes used for some of the less demanding parts as the final heat treatment.

Holding the workpiece is quenched after heating in water, oil or other inorganic salts, organic aqueous quenching medium such as rapid cooling. Quenched steel hardening, but brittle. In order to reduce the brittleness of steel, after quenching of steel will be higher than room temperature and at 710 lower than the temperature of a proper long heat, then cooling, this process is called tempering. Annealing, normalizing, quenching and tempering heat treatment in the whole "four-fire," one of the quenching and tempering are closely related, often with the use, indispensable.

"Four fire" as the Induction machine temperature and cooling of different ways, but it turns out different heat treatment process. In order to obtain a certain degree of strength and toughness, the combination of quenching and tempering process, known as quenching. Some alloys supersaturated solid solution hardening form, will be placed in the appropriate room temperature or slightly higher temperature to maintain a longer time to improve the hardness, strength or power of magnetism. This heat treatment process known as aging. The pressure deformation and heat treatment process effective and closely integrated to allow the workpiece to obtain good strength and toughness with a method called thermomechanical treatment; in vacuum atmosphere or a vacuum heat treatment known as vacuum heat treatment, which not only enables workpiece is not oxidized, no decarburization, maintaining smooth surface treatment to improve the performance of the workpiece, but also through the infiltration of agents for chemical heat treatment.

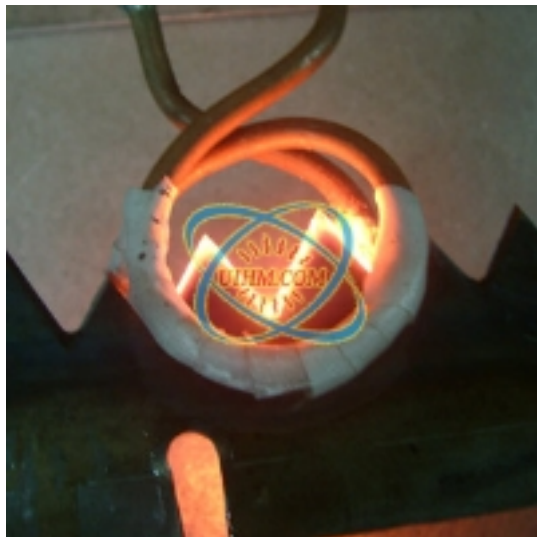
Surface heat treatment is only heating the workpiece surface to change its mechanical properties of the metal surface heat treatment process. In order to only heat the workpiece surface without too much heat to pass within the workpiece, the use of the heat source must have high energy density per unit area that is given a larger piece of heat, so that the workpiece surface can be short-term or transient or partial reach high temperatures. The main methods of surface heat treatment, a laser heat treatment, flame hardening and Induction welding equipment, commonly used heat source such as oxy-acetylene or oxy-propane flame, induced current, such as laser and electron beam.

Chemical heat treatment by changing the workpiece surface chemical composition, structure and properties of the metal heat treatment process. Chemical heat treatment and surface heat difference is that the latter changes the chemical composition of the workpiece surface. Chemical treatment is the piece on the carbon, nitrogen or other alloying elements of the media (gas, liquid, solid), heating, heat a long time, so that the workpiece surface into carbon, nitrogen, boron and chromium and other elements. After the infiltration of elements, sometimes for other heat treatment processes such as quenching and tempering. Chemical heat treatment of the main methods of carburizing, nitriding, surface alloying, composite and other seepage.

Heat treatment is the mechanical parts and tool and die manufacturing process one of the important processes. Broadly speaking, it can guarantee and improve the various properties of the workpiece, such as wear, corrosion and so on. Can also improve the rough state of the organization and stress, in order to facilitate a variety of cold and hot processing.

For example, after prolonged annealing of white cast iron can be malleable iron, increased plasticity; gear using the correct heat treatment process, life can be more than doubled without heat treatment of gear or a few times to improve; In addition, the inexpensive steel through infiltration Some alloying elements on the price of expensive alloy steel has some performance, you can replace some of the heat-resistant steel, stainless steel; tooling is almost all need to go through heat treatment before use.







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