

applications of HengXin induction heating machine

Hengxin Science and Technology Limited

Hengxin is experienced in Induction Heating Machine and Induction Heating Power Supply, induction heating equipments can be 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
<http://www.hengxinkeji.com>

Various applications of HengXin induction heating machine

"We try to give our customers a clear idea of what induction heating is, and how this non-contact method of heating works so fast. The alternating current in the work coil sets up an electromagnetic field that creates a circulating current in the work piece. This circulating current in the work piece flows against the resistivity of the material and generates heat. It's really that simple!" - Dr. Xiao

Induction heating is a method of providing fast, consistent heat for manufacturing applications which involve bonding or changing the properties of metals or other electrically-conductive materials. The process relies on induced electrical currents within the material to produce heat. Although the basic principles of induction are well known, modern advances in solid state technology have made induction heating a remarkably simple, cost-effective heating method for applications which involve joining, treating, heating and materials testing. For details about using induction heating with non-conductive materials, please visit email to us.

Components of a Typical Induction Heating System

The basic components of an induction heating system are an AC power supply, induction coil, and workpiece (material to be heated or treated). The power supply sends alternating current through the coil, generating a magnetic field. When the workpiece is placed in the coil, the magnetic field induces eddy currents in the workpiece, generating precise amounts of clean, localized heat without any physical contact between the coil and the workpiece.

Operating Frequency

There is a relationship between the frequency of the alternating current and the depth to which it penetrates in the workpiece; low frequencies of 5 to 30kHz are effective for thicker materials requiring deep heat penetration, while higher frequencies of 100 to 400kHz are effective for smaller parts or shallow penetration. For heating microscopic parts, Ameritherm offers power supplies which operate at up to 60 MHz. The higher the frequency, the higher the heat rate; a good analogy is the act of rubbing your hands together for warmth. The faster you rub your hands together, the more warmth you produce.

Magnetic Vs. Non-Magnetic Materials

Magnetic materials are easier to heat than non-magnetics, due to the effects of hysteresis heating. Magnetic materials naturally resist the rapidly changing magnetic fields within the induction coil. The resulting friction produces its own additional heat - hysteresis heating - in addition to eddy current heating. A metal which offers high resistance is said to have high magnetic "permeability". Permeability can vary on a scale of 100 to 500 for magnetic materials; non-magnetics have a permeability of 1. Hysteresis heating occurs at temperatures below the "Curie" point - the temperature at which a magnetic material loses its magnetic properties.

Depth of Penetration

The induced current flow within the part is most intense on the surface, and decays rapidly below the surface. So the outside will heat more quickly than the inside; 80% of the heat produced in the part is produced in the outer "skin". This is described as the "skin depth" of the part. The skin depth decreases when resistivity decreases, permeability increases or frequency increases.

Coupling Efficiency

Coupling refers to the proportional relationship between the amount of current flow in the workpiece and the distance between the workpiece and the coil. Close coupling generally increases the flow of current and therefore increases the amount of heat produced in the workpiece.

Heating Coil shape

Brazing

Metal smelting

Forging and rolling

Heat treatment

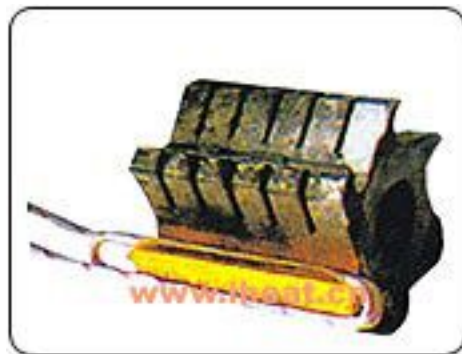
More Applications

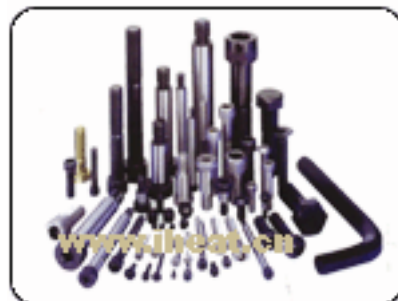
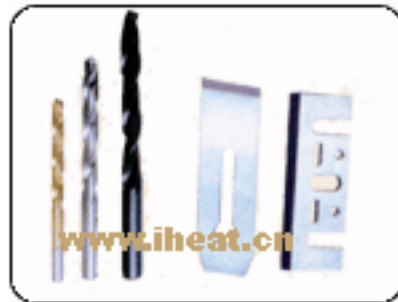








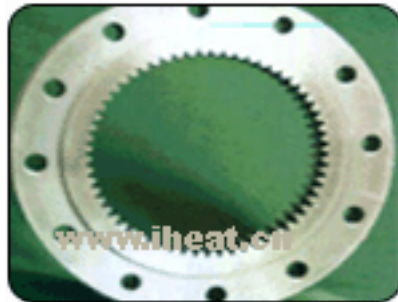




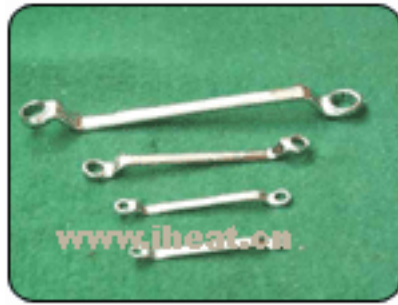


















铜连接器焊接



铜件焊接



刀具焊接



木工刀具焊接



车刀焊接



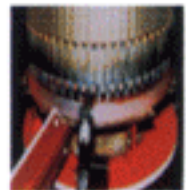
电机铜片焊接



冲压模具淬火



水龙头焊接



电机短路环焊接



不锈钢退火



钻探合金焊接



汽车配件焊接



门锁具焊接



卫浴配件焊接



铰轮焊接



手链焊接



鞋料刀焊接



马达定子入壳



铜管与铜板焊接



砂铜片冲压模焊接



铜端子焊接



电热管焊接



手工具焊接



松下焊枪焊接



油炸捞网焊接



水龙头焊接



水龙头焊接



铜管焊接



电热制品复合焊接



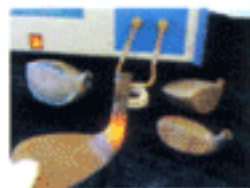
不锈钢铝板发热管三层钎焊



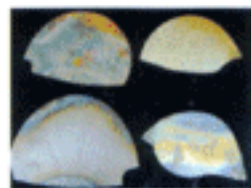
夹头热处理



离合器片热处理



高尔夫球头加热



高尔夫钛板热锻



汽车安全制品热处理



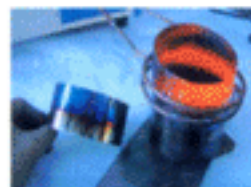
餐厨具退火



钢塑复合管加热



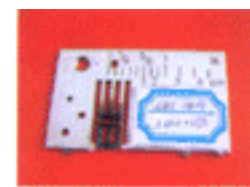
紫铜电极头焊接



汽车排气管发蓝



表壳热锻、焊接



工业缝纫机针板淬火



打蛋器焊接



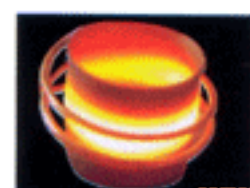
计算机散热器热配合



喇叭网埋植



钢板加热



钢制品退火



棒料热锻



贵金属熔炼



水龙头焊接



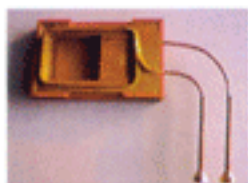
棒料热锻



机械零件淬火



电机转子热配合



特殊感应器设计(喇叭埋植)



电器配件焊接



五轴连动齿轮淬火



粉末冶金齿轮淬火



西餐汤匙、刀叉热锻



插入金属



硅胶管、钢丝粘连



特殊感应器



气门淬火



粉末冶金齿轮淬火



马达定子热配合



不锈钢焊接



特殊感应器设计(灯泡 filament 加热挥发)



特殊感应器设计(牙膏皮热封)



电热管焊接



汽车连杆退火



工艺品焊接



滑雪鞋钉焊接



相框架、地球仪架焊接



马达转子热配合



餐具刀叉热横延



复印机碳刷加热熔胶



金属银焊



擦入金属



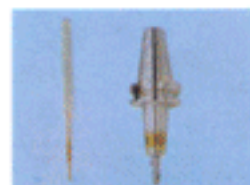
模具配件热处理



灯饰配件擦入金属



MP3 耳唛埋植熔接



刀杆热膨胀