

Induction Bin Brazing

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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Bin Brazing

Pin Brazing forms part of a technology developed in Sweden throughout the latter half of the 20th century by AGA. The purpose, for attaching current carrying cables to what were deemed "Sensitive Substrate Materials", or in this case Railroad Track for the purpose of Track Signal Bonding and Grounding or Earthing of Pylons. On railway lines the signal current was originally put through the rails and this requires special contact connections at the rail joints for continuity. Copper straps are normally used which become brittle after welding and brazing. For many years attaching these was a major headache for engineers. AGA's pin brazing equipment solved the problem. This method involved brazing the cable Lugs to the rail ends using an electro-mechanical pistol to create an Arc for a short time, about a second, and at such a low temperature, that neither the copper nor the rail steel was damaged. Pin brazing is still used by railways both within and outside Europe. In later years the Pin Brazing process and Products have been developed for use In the Oil Gas and Utilities Industries as a safe method of connecting cables to Pipelines. The most popular application being for Cathodic Protection purposes including the attachment of Cathodic Protection System Sacrificial Anode Cables, Test Post Cables, Continuity Bonding between Pipeline Sections, Connection of Monitoring Cables, Earthing and A.C. Mitigation Systems. Pin brazing is basically 'Drawn-arc Silver Brazing', considered a Brazing process and not, (as is sometimes and incorrectly stated by suppliers and even manufacturers) 'Electric-arc Silver Soldering', as the working temperature or melting point of the filler material is to be below that of the base metal or substrate but above 426.6 Degrees Celsius (800 Degrees F). The filler metal, in the case of Pin Brazing is a Silver alloy consisting Ag55% , Cu21%, Zn22% and Sn2% and when molten flows directly into the closely fitted surfaces between the desired Connection type and the substrate material by Capillary Action. Using a; specially designed Brazing Pin (the body of which is typically Brass or sometimes specialist Stainless Steel Threaded Studs can be produced, all of which are tipped with a specific portion of the above Silver alloy and a Flux material). An Automatic Pistol (similar in many ways to a Stud Welding Pistol, which acts as a means to complete a DC circuit via manual switch and provide "lift" via the use of a small electromagnet in order to facilitate generation of an Arc) and a Power supply, the Pin brazing process is renowned for being both Safe fast and reliable, requiring very little training or overall skill. As portability has been an essential factor in the development of Pin Brazing, power is supplied most commonly by a re-chargeable, portable battery

pack. These vary in size and weight relative to the number of connections required. However in cases where a fixed power supply can be practically provided i.e. welding generators on board a Pipe-laying Vessel, many continuous connections can be made. Timing is controlled either electronically (where an electronic device is fitted to a battery pack or generator) or via a fuse wire located on the Brazing Pin itself. Fuse wire controlled systems, which due to the nature of the process and the common locality of use, that is remote locations and extreme environments are proven to be more successful as they require less attention in the field and present the end user with easy to operate and maintain electromechanical equipment. Attachment types vary between Threaded Stud Connectors and Direct Connections. Threaded Studs are popular when a temporary connection is required, mechanically secure and requiring the specified cable to be attached to a crimp lug and then secured to stud with a locking nut, but are criticized due to bulk and low electrical integrity (Cable-Lug-Stud-Substrate). Direct Connections are more permanent fixtures, historically made via a Pin Brazing Compatible Cable lug, wherein the required cable is crimped into the lug and then the lug is directly 'Pin Brazed' to the Substrate (Cable-Cable Lug-Substrate). However the electrical integrity of these have been criticized more recently as the leading competitor for these types of connections which involve a Thermite process are able to make 'actual' direct connections (Cable-Substrate). Pin Brazing solutions which produce Cable-Substrate attachments for Railroads have been available for some time, but in the Pipeline Industry are sometimes impractical, requiring pre-manufactured cables with 'integral lug' attachments, complex and expensive electronics or direct systems which generate too much heat and could compromise the metallurgical integrity of the substrate. However two new systems now exist that allow Cable-Substrate connections which meet all of the criteria of previous products but improve on their shortcomings. The first is a product named Integra-Bond™ which combines the mechanical strength and versatility of a Cable lug attachment with Cable-Substrate electrical integrity and even reduced Heat Affected Zone (HAZ), the second is SABRE™ which is actually a Shielded-Arc adaptation of the Integra-Bond™ system, completely eliminating HAZ. Due to the Portability, Ease of Use and Versatility of a system that can be either Battery Powered or in Offshore and Workshop applications attached to a Welding Generator for continual use, the Pin Brazing System has become the ultimate solution for the Electrical Bonding of Sensitive Substrate Materials worldwide. For more information on the very latest in Pin Brazing technology visit our company website <http://www.uihm.com> for an overview of all available varieties of system and the latest connection methods.

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