



Ultrasonic – Welding - System

To seal off the copper filling tube at refrigeration systems

Range of application:

- Refrigerators
- Freezing units
- Heat Exchanger
- Air conditioning

Streamlining refrigerant charging

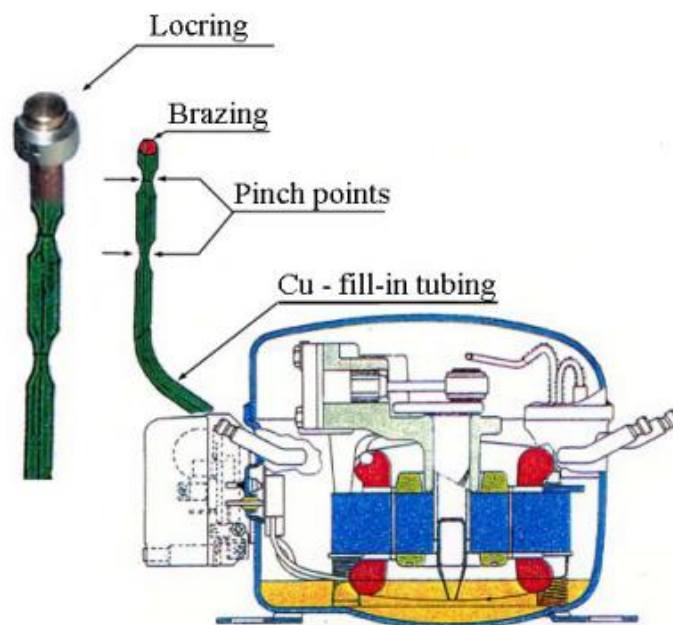
The proces of charging compresors with refrigerant is typically a labor intensive,unclean process that seems inconsistens with automated production lines typical of the appliance industry.

Many producers of appliances, have realized the benefits of ultrasonic welding systems.

The introduction of ultrasonic welder to the compressor line, streamlined the process and provided various production, ergonomic, and environmental benefit.

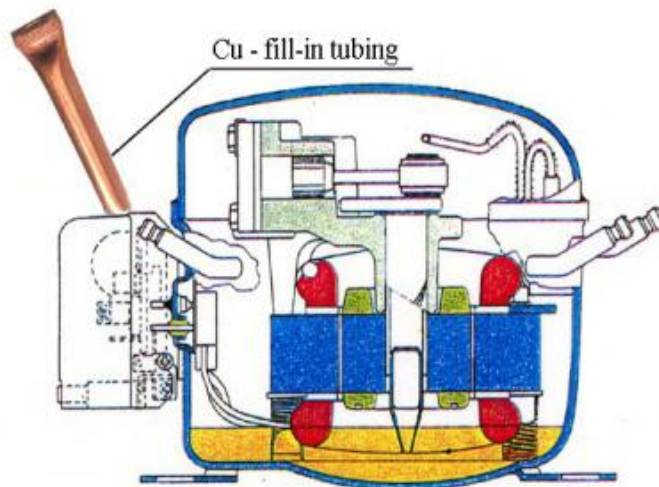
A typical refrigerant charging procedure involves installation of a Hansen valve, which allows air and moisture to be removed from the system and refrigerant to be installed.

Producers usually crimp the copper fill tubes, using a vise-grip or similar device, so the hansen can be removed after the refrigerant is installed. Subsequently, the copper tube is brazed or closed by lokring to permanently seal it

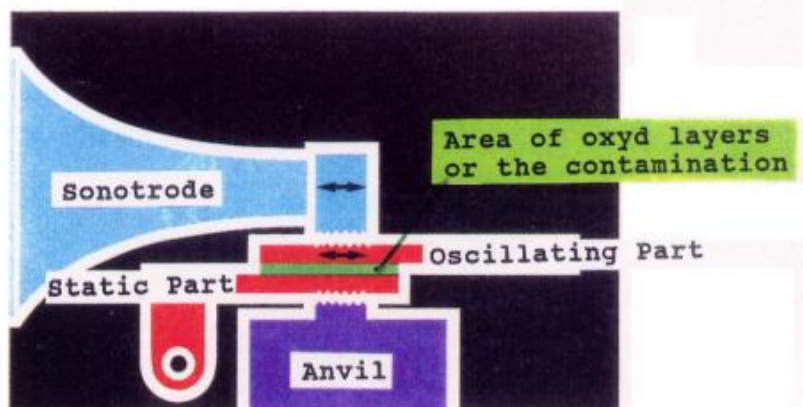


The ultrasonic tube sealer is designed to crimp, weld, and cut the copper tube in a single operation. enabling to reduce the direct labor cost nearly 50 percent.

Other improvements are realized in ergonomic and environmental areas, with the elimination of vise-grip, associated with the elimination of the brazing or locking process. Cost savings were also generated from reduced brazing material and natural gas use at the brazing station or locking and Loctite glue.



Ultrasonic welding is actually a cold phase, friction bonding technique. The process subjects the surface to be joined to high frequency mechanical oscillation while under controlled static force. As a result, molecules of both surfaces begin to intermingle and a lasting bond is achieved.



So complete is the metallurgical bond that a photo micrograph of the cross-section barely reveals the weld line.



Beginning of the welding

250x magnification

The ultrasonic generator monitors all of the process variables and ultimately, the weld quality.

As result the leak rate has been reduced to less than 0,3 percent.

Workers adapt quickly and support with effort to eliminate the other technology, in favor to ultrasonic welding.

Ultrasonic welding provides manufactures with a cost-effective process to sealing copper tubes on refrigerant systems.

The technology is proven and the productivity increase, combined with 100 percent quality.

Assurance and fast payback, provide significant incentives for change.