



Ultrasonic Tube Terminator crimps and seals without brazing



Hand-guided unit is ideal for spot welding

Tube Terminator

Portable, hand-guided ultrasonic tube closure unit that crimps and seals copper and aluminum tubing in one easy step. The Tube Terminator creates quick, airtight seals without consumables, and is also ideal for spot welding applications.

General Description

Sonobond's Tube Terminator pneumatically pinches off and ultrasonically seals tubes that are charged with coolants, fluids or gases. The one-step process is achieved in seconds. With the ability to crimp and seal copper tubing, *without brazing*, the Tube Terminator creates an airtight bond, which results in fewer defects, and decreases production time.

The Tube Terminator's ergonomic design allows the operator to make precise crimps and airtight seals. It is a portable, hand-guided unit, and weighs less than 30 pounds (14kg), making it ideal for spot welding on large parts that bench welders can't accommodate. It can be hung with a counterbalance for greater maneuverability, and is adaptable for robotics use.

The ultrasonic Tube Terminator seals tubing to a preset thickness (usually to single-wall thickness), which eliminates leakage problems that may occur with conventional sealing methods requiring heat, fluxes, solder or filler materials. Integrating the Tube Terminator into production lines provides a cost-effective assembly method that can help save money on labor and consumables.

Features and Benefits

- One-step crimping and sealing of copper and aluminum tubing.
- Handles tubing up to 3/8" O.D. with .032" wall (10mm with 0.8mm wall).
- Eliminates brazing and time-consuming crimping.
- Lightweight, under 30 lbs.(14 kg) and portable, with hand-guided efficiency.
- Long-lasting, hardened steel tips are easily removed and replaced, as opposed to replacing the entire horn.
- Seals to one-wall thickness, creating an airtight seal to eliminate leaks. Excellent for refrigeration and air-conditioning applications.
- Produces more units per hour with fewer defects than conventional crimping and sealing methods.
- Interchangeable anvil tips have raised ribs to provide pattern for excellent tube sealing. Additional patterns available.
- Minimal operator training required.

Continued on other side

Features and Benefits *(continued from other side)*

- Solid-state frequency converter – nominal 20 kHz operating frequency **self adjusts** for precise match with transducer frequency.
- Frequency Converter is housed in standard rack cabinet, and includes cooling fan for forced circulation of air through cabinet.
- Can also be used for spot welding applications.
- Optional weld monitoring system includes audible alarm and a fail light, alerting operator to any weld not accomplished within a selected time window.
- Adaptable to robotic control for assimilation into advanced workplaces.



Applications

The Tube Terminator is ideal for instrument tubing, and refrigeration and air-conditioning applications, because it can seal tubing charged with coolant, fluids and gases. It can also be used for spot welding similar and dissimilar non-ferrous materials.

Theory of Operation

Sonobond's Tube Terminator uses the patented Wedge-Reed coupling system that produces low amplitude vibrations combined with high clamp force to ensure precise, dependable welds. This system eliminates bending stresses and early fatigue failures found in other welding systems. The Tube Terminator directs high frequency, ultrasonic energy via a welding tip to the tubing to be sealed. The vibratory energy disperses the oxides and surface films creating an airtight seal without brazing.

Specifications

FREQUENCY CONVERTER

Electrical Service Requirement:	120/240 volts AC, 50-60 hertz, single-phase 20 amperes
Operating Frequency (nominal):	20 kHz, continuously adjustable
RF Power Output:	300-1500 watts in ten steps
Timer Range:	0.0 to 3.99 seconds in 0.01- second steps
Cooling:	Self-contained fan
Housing:	Modern industrial rack cabinet
Overall Size:	20" wide x 8" high x 22" deep (508mm x 203mm x 559mm)
Weight (approx.):	90 lbs. (41kg)

WELDING HEAD

Type:	Hand-guided welding head suitable for counter-balanced overhead mounting
Operating Frequency (nominal):	20 kHz
Clamping Force:	Pneumatic, continuously adjustable from 60 to 540 lbs. (27 to 245kg)
Pneumatic Air Requirement:	About 3 scfm at 80 psig (0.08 cubic meters/min. at 5.5 bars)
Welding Tip:	Hardened tool steel Taper-lock welding tip
Welding Tip Stroke:	1.0 inches (25mm)
Anvil Tip:	Replaceable hardened tool steel
Weight:	Head: 29 lbs. (14kg)

Ordering Information

HH2015

Specifications are provided for information only and are believed to be accurate. However, no responsibility is assumed by Sonobond Ultrasonics for their use. Ongoing product development and improvement may cause changes without notice.

PNEUMATIC CONTROL BOX

Control	Location	Function
Regulator		Regulates amount of input line pressure.
Pressure Gauge	Upper	Indicates input line pressure.
Pressure Gauge	Lower	Indicates pressure applied to tube.
Speed Controls	Internal	Allow selection of speeds for welder advance. Preset at factory.

Size: 12" wide x 8 fi" high x 15" deep (305mm x 216mm x 381mm)

Weight (approx.): 28 lbs. (13kg)

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