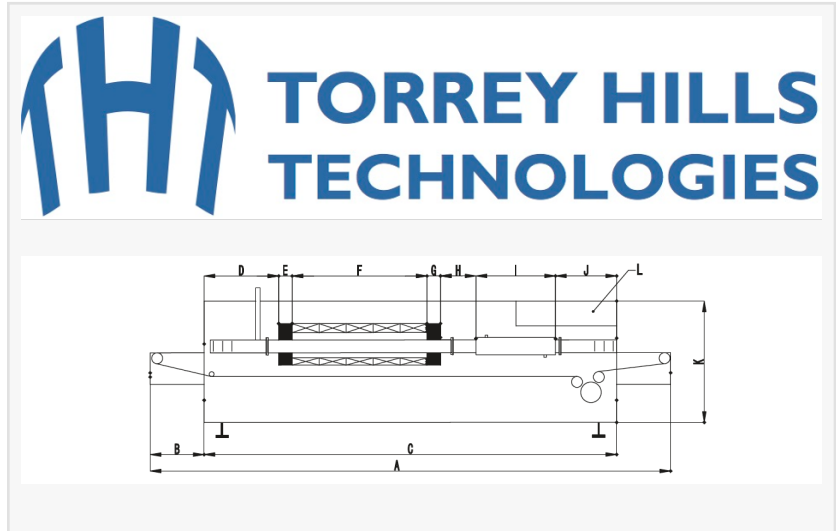


# Introduction for Furnace Brazing

*Parameters of Brazing Process and Selection of Furnace for Brazing*

SAN DIEGO, CALIFORNIA, U.S., January 7, 2022 /EINPresswire.com/ --

Although there are different techniques for brazing, furnace brazing specifically allows for high rates of commercial-scale production. Furnace brazing has many specific advantages. The metals being joined do not must be the same; dissimilar metals with varying thicknesses can also be united. This allows for complex arrangements of different parts, without distorting the original metals. Multiple joints can also be brazed at the same time. Moreover, superior products can be achieved by brazing in a furnace, as furnaces allow for premium reproduction. Furnace atmosphere can be precisely controlled, and this automation is significant. The consistency and quality that brazing in a [belt furnace](#) produces cannot be replaced.



Because brazing has certain requirements, brazing furnaces must be able to support these parameters. Components get heated, joined, and cooled inside of a furnace, and this entire process is heavily dependent on temperature. The determining factor for the brazing temperature is based on the melting point of the filler metal. For the CUSIL braze alloy (72% silver and 28% copper, a common copper brazing application), the temperature should fall around 780 °C. Temperature control has a strong influence on success. Usually, there are five steps to a typical brazing process cycle: (1) an optional preheat, including holding, (2) ramp to temperature, (3) brazing, (4) cool down, and (5) exit. During the thermal brazing cycle, the temperature needs to be precisely controlled by the furnace.

## Parameters of Brazing Process

The [parameters of the brazing process](#) can be various. To find all the variables, please visit: <https://www.beltfurnaces.com> -> Application -> Brazing

## Selecting a Furnace for Brazing

A high-quality furnace is essential to produce top-quality results from brazing. The type of products being brazed, characteristics of the materials, production volumes, and schedule can all influence the furnace that is best suited for the task. A continuous brazing furnace is best for production if a perpetual flow of parts is desired, regardless of whether the parts need to be placed in a tray or basket. A brazing furnace has a metallic muffle, which ensures precise control of the atmosphere while minimizing contamination. This guarantees reliable quality.

The HSA series belt furnace is designed to excel at the brazing process. This furnace uses ceramic heater boards to achieve elevated temperatures. The HSA series furnace comes with a refractory heating chamber that is equipped with a ceramic fiber FEC (fully enclosed coil) heating board. The heating works to give a fast thermal response. The furnace is equipped with a temperature profiling system and a computer monitoring system. Moreover, it can achieve precise atmosphere control for hydrogen, nitrogen, and oxygen by using a dew point and oxygen monitoring system.

Forced air or water cooling is used in the cooling section of the furnace. The muffle is located within the furnace and helps to control atmospheric conditions as well as to maintain a clean environment inside the furnace. As a standard feature, this furnace is equipped with a steel brush for cleaning the conveyor belt, and ultrasonic belt cleaning is available as an extra option.

The HSA series furnace has a microprocessor-based PID controller to control the furnace. Type K thermocouples are used in determining the zone temperatures and the controls are located on the right-hand side of the furnace which can be viewed from the entrance. The central processing unit (CPU) is located at the exit table and is primed with a Windows operating system for ease of use. The computer system is pre-installed with a program for controlling the furnace parameters, including the belt speed, zone temperatures, and atmospheric conditions. Temperature profiles can be stored and retrieved as well for future purposes. The furnace already has programs in the software for capturing/storing, displaying, and printing out the furnace profile. Thermocouple ports are located at the entrance table for connecting the profiling thermocouple directly into the microprocessor. This feature allows for the monitoring and recording of actual temperatures experienced by the part. Additionally, the furnace is equipped with a redundant overheat safety protection system which incorporates an additional type "K" thermocouple in the center of each controlled zone and the multi-loop alarm.

For more information about our Torrey Hills Tech belt furnace line, please see [contact](#) below.

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