



Mesh Belt Conveyor Furnaces

Continuous Copper Brazing, Silver Brazing and Annealing up to 2100°F/1150°C

If you produce light or medium weight parts where low cost, high volume production is required; a SECO/WARWICK mesh belt conveyor furnace will process your work efficiently and economically, typically free of oxidation and discoloration with less scale than other processes. The furnace is particularly well suited to continuous production line operations accepting parts ready for heat processing and discharging them ready for assembly or packaging.

Because the furnace can be utilized for many heat processes, it is widely applied for parts or assemblies used in volume production industries such as automotive, home appliance, electronics, aircraft and hardware.



Figure 1 - Mesh Belt Conveyor systems used for copper brazing in commercial heat treat facility

Copper Brazing

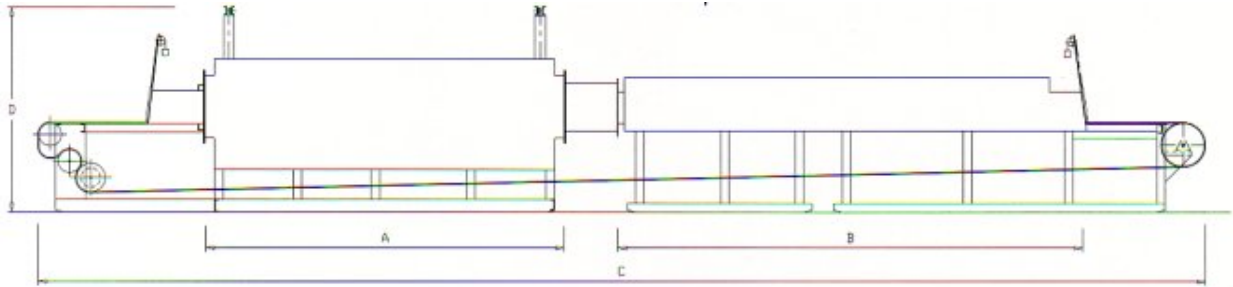
Strong leak tight inexpensive joints can be made in steel by copper brazing, when the joint is properly designed. In volume production, copper brazing of joints is generally much less expensive than silver brazing, soldering, arc welding, seam welding or spot welding. Brazing flux is not required because the furnace atmosphere cleans the work.

Silver Brazing

Silver brazing will produce strong, leak-tight joints with almost any metal or combination of metals. With silver brazing, an assembly can be built up in a series of brazes, using a lower temperature brazing material for each successive braze.

Annealing

Annealing in a protective atmosphere can cut cost and improve quality by eliminating or minimizing subsequent cleaning operations. The annealing process can be used as a cleaning operation before further processing. Parts or assemblies can be brought out of the furnace hot enough to form a light and tight protective bluing on the product.



MESH BELT FURNACE DIMENSIONS, DATA & RATINGS												
Furnace Model No.	Maximum Net Production (1)	Approx. Kw Rating (2)	Cooling Water Required (gph)	Atmosphere Required (3)	Dimensions							Approx. Shipping Weight (lbs.)
					Belt Width (ins.)	Maximum Charge Height (ins.)	Heating Chamber Length (ft.)	Cooling Chamber Length (ft.)	Overall (Approx.)			
									Length (ft.)	Width (ins.)	Height (ins.)	
*MBC-858	140	42	125	950	8	7	5	15	32	63	78	13,500
*MBC-12512	210	60	185	1500	12	11	5	15	32	67	78	14,000
*MBC-12612	280	90	296	1500	12	11	8	24	44	67	78	18,000
*MBC-18512	250	75	276	2100	18	11	5	15	32	73	85	21,000
*MBC-18812	420	125	442	2100	18	11	8	24	44	73	85	24,000
*MBC-181112	530	175	666	2100	18	11	11	33	56	73	85	24,000
*MBC-24612	560	160	705	3000	24	11	8	24	44	79	85	28,000
*MBC-241112	710	200	690	3000	24	11	11	33	56	79	85	30,000
MBC-30812	700	200	740	3500	30	11	8	24	44	80	85	35,000
MBC-301112	885	250	1100	3500	30	11	11	33	56	80	85	35,000
MBC-36812	840	230	890	4200	36	11	8	24	44	86	85	35,000
MBC-361112	1060	270	1330	4200	36	11	11	33	56	86	85	40,000

* Available In Ribbon Resistor Heating Elements
 (1.) Production based on 3.5 pounds per square foot of belt at 2050°F.
 (2.) Kw rating depends on zone arrangement and power supply.
 (3.) Cfh based on maximum door opening and curtains at both ends.

Heating Elements

Ceramic silicon carbide type heating elements mounted above and below the belt provide efficient, uniform heating. They can be easily changed while the furnace is at temperature. Furnaces may also be supplied with resistance heating ribbon elements.

Tap Changing Transformer

A tap changing transformer permits varying the voltage to the elements to compensate for any changes in resistance due to gradual element aging; not required when using ribbon elements.



Cooling Chamber

The gas-tight, water cooled chamber is of double wall construction with water circulating on all four sides. Thermostatic controls automatically adjust water flow for optimum cooling and minimum water consumption. Multiple zones of water temperature control are provided to adjust cooling rates for different loads. Removable covers simplify periodic cleaning.

Mesh Belt and Belt Drive

A 10:1 ratio variable speed drive unit with widely adjustable belt speeds allows the treatment of different thicknesses of materials with varying temperature requirements. The heat resistant nickel-chrome alloy belt is driven from the charge end of the furnace by a pinch roll, which presses the mesh belt tightly against a rubber covered drive drum. An idler drum at the discharge end of the furnace places tension on the belt to provide support throughout the return. Belt stretching is reduced since only a minimum tension is needed to pull the belt through the furnace. Belt take-up is made without manual adjustment.



Hearth Supports and Piers

Hearth supports are made of a series of silicon carbide tiles for uniform, low friction supports of the belt as it slides through the heating chamber. This design minimizes any stress and warpage due to temperature changes. Tiles are easily replaced. Brick support piers are utilized to support the silicon carbide hearth throughout the heating chamber.

Heating Chamber Assembly

The furnace casing, when using welded gas tight construction, is lined with high temperature resistant brick insulation in the side walls and floor. The removable roof lined with a lightweight insulation, allows for easy accessibility to the heating chamber for maintenance.

Doors

Entrance and exit doors are manual, adjustable to minimize atmosphere consumption and contamination. Throat-type refractory inner doors are standard on all models with door openings 18" or wider.

Flame & Atmosphere Curtains

An air-gas flame curtain at each end of the furnace ignites escaping atmosphere gases and minimizes air filtration. Removable, multiple heat resistant curtains inside the charge and discharge opening reduce atmosphere losses



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and minimize infiltration of outside air. Exhaust hoods at each end of the furnace carry away waste atmosphere and products of combustion.

Industrial Services

A wide range of services are available for our equipment. These include rebuild projects, field service, spare parts, equipment supply, control and combustion upgrades, and fabrication services. As a result of these services, we have provided our customers improved performance, lower emissions, better efficiency and enhanced product temperature uniformity.

About SECO/WARWICK

The SECO/WARWICK Group is one of the world's leading manufacturers of [heat treatment furnaces](#) and a technology leader. With our fully equipped research and development facility and cooperation with the leading academic centers in Europe, we are able to provide innovative solutions not offered anywhere else in the world.

The Group is made up of companies located in five countries on three continents, and we sell our products in 45 countries around the world. We supply furnaces to customers involved with steel, titanium and aluminum production as well as aluminum recycling, forging, automotive, aerospace, commercial heat treating, HVAC/R, electronics, wind energy, medical equipment and nuclear industries.

The latest design, materials, and equipment specifications should be obtained from the company before any reliance is placed on this standard bulletin since changes may occur due to product improvement.