



**INDUCTOHEAT**<sup>®</sup>

An Inductotherm Group Company



“ACR” COPPER TUBE ANNEALING SYSTEMS





# INDUCTOHEAT – A DIVISION OF THE INDUCTOTHERM GROUP

Inductoheat is a division of the worldwide Inductotherm Group of Companies.

The Inductotherm Group is comprised of over 40 companies strategically located around the world.

All group companies share a focus on serving the metals and materials industry and each individual company is a world leader in their respective area of expertise.

The Inductoheat facility based in Australia is the worldwide leader in the design and manufacture of continuous annealing systems for the copper tube industry.

Inductoheat has copper tube annealing systems installed throughout the world including:

- United States of America
- China
- South East Asia
- South America

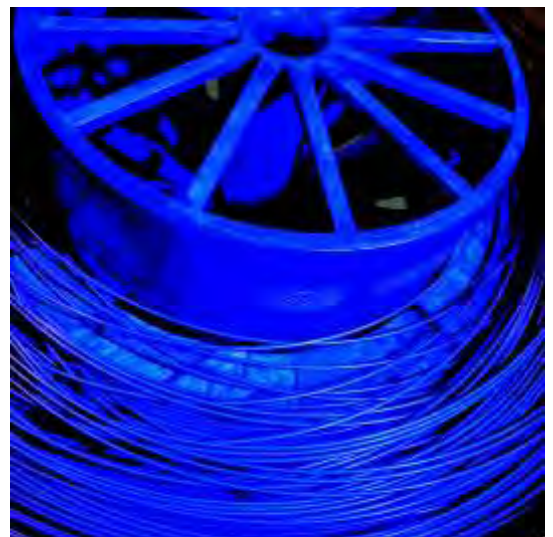
Being an integral part of a multi-national global organization offers many advantages:

- The sharing of technical advances through our global engineering network
- A single point of contact and a single source of project responsibility
- The support of a global network of manufacturing and servicing facilities
- Global commonality of major components means spare parts are readily available anywhere throughout the world

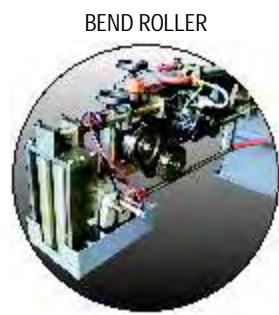
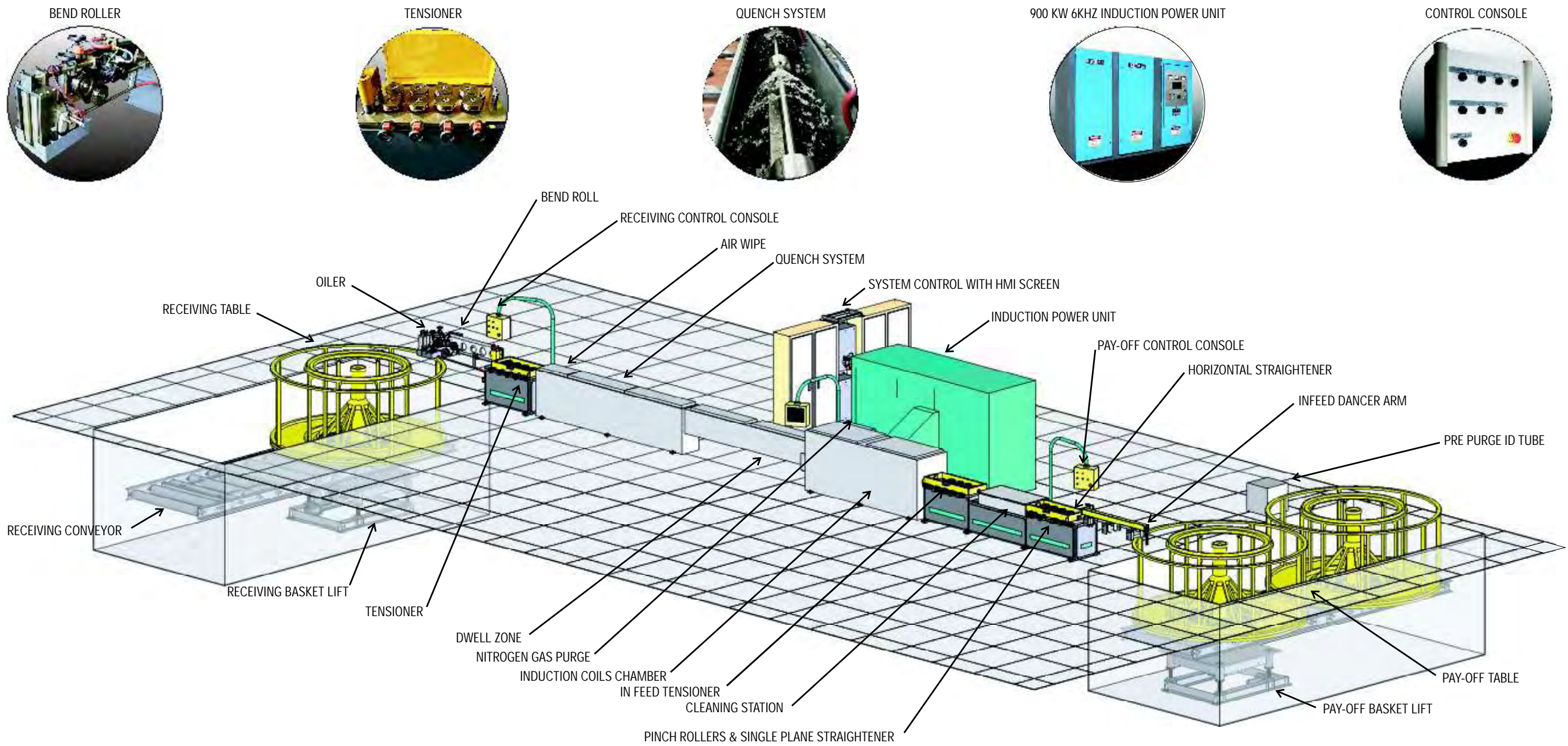
## INDUCTOHEAT ACR COPPER TUBE ANNEALING SYSTEMS

The Inductoheat 'ACR Copper Tube Annealing System' includes the following features:

- Complete systems with full line mechanics
- Mechanical systems are designed for ease of operation and maintenance
- Central electrical control system ensures power input is continually varied to suit the corresponding line speed
- Electrical control system features 'HMI' interface for ease of operation and allows programming of a multitude of tube sizes
- Solid state inverters operating in both medium and high frequencies
- Power supplies are water cooled by means of a closed loop recirculating system
- Inductor coil line designed to anneal copper tube under a reducing atmosphere to produce a bright annealed finish both inside and outside
- Dwell and quench zones are designed to ensure the copper tube is first held at the correct temperature to obtain full grain uniformity, before being rapidly cooled at full line speed for maximum productivity
- High speed annealing at line speeds of up to 600 metres per minute with minimal operator interface



AUSTRALIAN MADE



BEND ROLLER



TENSIONER



QUENCH SYSTEM



900 KW 6KHZ INDUCTION POWER UNIT



CONTROL CONSOLE



SYSTEM CONTROL WITH HMI SCREEN



INDUCTION COIL CHAMBER



IN FEED TENSIONER AND COIL ENCLOSURE



CLEANING STATION



PINCH ROLLERS AND SINGLE PLANE STRAIGHTENER



PAY-OFF BASKET LIFT



For more information, call +61 3 9786 8000 or visit [www.inductoheat.com.au](http://www.inductoheat.com.au)

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Leading Manufacturers of Melting, Thermal Processing & Production Systems for the Metals & Materials Industry Worldwide.

## SYSTEM CONTROLS

The Inductoheat 'ACR Copper Tube Annealer' is a fully integrated annealing system. The complete system is controlled by a PLC with 'HMI' interface and operator control consoles located at both the pay-off and receiving stations.

Customer satisfaction is determined by the quality and consistency of the end product. This is where the Inductoheat 'ACR Copper Tube Annealer' excels. Continuous high speed induction annealing requires the power input to be constantly and instantaneously varied depending on the line speed of the system.

Utilising a proprietary algorithm, which has been developed by Inductoheat over many years, speed curve calculations are performed 50 times every second. This information is relayed by the PLC to the inverter which ensures repeatable high quality end product.

Complex electrical control systems must be user friendly. The Inductoheat system allows the operator to configure the initial production set-up for up to fifty (50) different product profiles.

Product data such as tube diameter and wall thickness are entered onto the 'HMI' screen along with the expected current required.

Changing from one product size to another is as simple as pressing a button.

Other features provided include system status and fault finding.



## PRODUCT SELECTION SCREEN

- Allows selection of the Product by setting the desired Outside Diameter (OD) and Thickness (TH).
- Product data can be edited by going into Product Setup.
- Coil size is indicated by an S for small & L for large.
- Valid Product selected will display with a green square box around it. A red box indicates the Product selected is not valid.



## ENERGY EFFICIENCY

Induction heating is the most environmentally friendly and energy efficient means of annealing non ferrous tube. When comparing fossil fuel fired batch type annealing furnaces with induction systems, induction systems provide;

- Zero energy usage during stop in production.
- Lower energy consumption when in production.
- Less labour usage.
- High degree of automation.
- Smaller amount of factory floor space.
- Lower usage of protective gases.

Typical expected performance data is shown on adjacent table.

## Typical Performance Data

Dia x Wall mm	Speed M/Min	Production kg/hr @ 100% Utilisation	kg/M	Energy Consumption kWhr/Ton	kW
7.0 x 0.31	440	1548	0.059	510	789
7.0 x 0.38	420	1793	0.071	450	807
9.52 x 0.34	500	2648	0.086	248	656
9.52 x 0.36	500	2797	0.093	248	695
9.52 x 0.38	500	2946	0.098	248	732
12.7 x 0.36	500	3669	0.126	170	639
12.7 x 0.38	500	3972	0.132	170	673
12.7 x 0.42	500	4200	0.146	172	722
12.7 x 0.52	400	4298	0.179	178	767

