



**THE GLOBAL LEADER IN THERMAL TECHNOLOGY**



COST-EFFECTIVE

next generation

high-reliability

superior quality

HIGH VOLUME

high-tech

process control

thermal expertise

GLOBAL FOOTPRINT

1950

BTU founded,  
Cambridge, Mass.

1972

Relocates to  
World Headquarters,  
Billerica, Mass.

1985

Enters  
Photovoltaics  
Market

1989

Becomes Public  
Company, Traded  
on NASDAQ (BTUI)

1991

Enters Solder  
Reflow market



## PROCESS SYSTEMS FOR HIGH VOLUME MANUFACTURING IN ELECTRONICS AND SOLAR

BTU International is a leading global supplier of advanced thermal processing equipment and processes to the alternative energy and electronics assembly markets. BTU equipment and know-how are used in solar cell and nuclear fuel manufacturing as well as in the production of printed circuit board assemblies and semiconductor packaging.

BTU has operations in Billerica, MA, USA and Shanghai, China with a sales and service presence in over 30 countries. Roughly half the company's approximately 400 employees are located outside the US. In 2010, BTU celebrated its sixtieth anniversary. Since 1950, and with over 10,000 units shipped, BTU International has been the trusted name for high-tech customers with a need to solve high-volume thermal processing challenges. We have over 200 patents and patents pending. In the next decade, BTU's technologies will be used to enable a new era of cost competitive green energy.

**1995**

Opens  
BTU China  
in Beijing

**2004**

Opens Asia  
Manufacturing Facility,  
Shanghai, China

**2006**

Acquires: Radiant  
Technology Corp.  
and AtmoPlas

**2009**

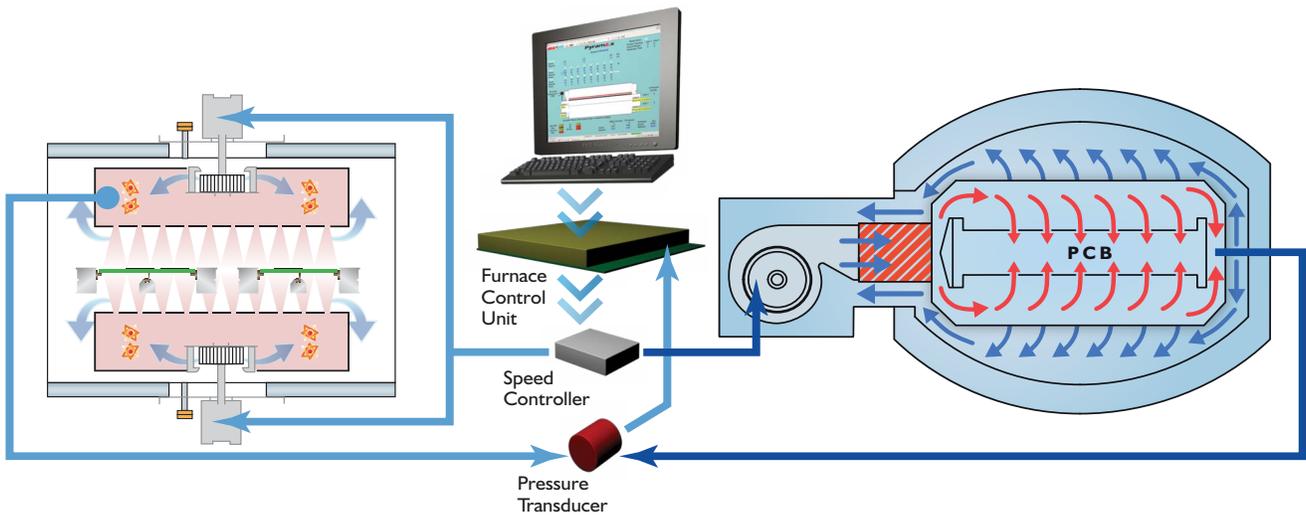
Meridian™ wins  
Industry Choice  
Cell Award

**2013**

Dynamo wins  
2013 EM Asia  
Innovation Award

# Thermal Processing Solutions for Electronics Assembly

## ELECTRONICS



### FOR SMT REFLOW, CURING AND SEMICONDUCTOR PACKAGING APPLICATIONS

The Pyramax™ series of reflow ovens sets the industry standard for thermal performance, providing electronics manufacturers with the highest throughput, and increased flexibility to compete successfully in today's challenging global marketplace.

- Patented flux management system
- Low Cost of Ownership
- Low nitrogen and power consumption
- Multiple track solution
- Multi-language WINCON™ control software
- Comprehensive warranty program

### SPECIFICALLY DESIGNED FOR CONSUMER ELECTRONICS APPLICATIONS

DYNAMO is BTU's latest reflow oven specifically designed for consumer electronics applications. DYNAMO's simplified configuration delivers 24/7, with unmatched process repeatability and reduced cost of ownership. With 8, 10, and 12 zone air or nitrogen models available, DYNAMO represents BTU quality and reliability. Backed by BTU's unparalleled worldwide service and applications team, DYNAMO is a value-driven workhorse.

- Unmatched thermal performance
- Value through innovation
- BTU quality and reliability

# Thermal Processing Solutions for Electronics Assembly

## ELECTRONICS

### Pyram<sup>x</sup>™

#### INNOVATIVE COOLING SYSTEM

BTU's unique clamshell air or water-cooling design moves the cooling media away from the process chamber, where it can be easily accessed for maintenance.

- Water cooling features a sliding heat exchanger assembly allowing easy access for maintenance
- Closed loop cooling control provides variable cooling rates and increased process control



### Dyn<sup>mo</sup>

#### NEW CONVECTION FLOW CONCEPT

As the worldwide leader of convection reflow ovens, BTU innovated the new convection flow dynamic to achieve excellent uniformity and minimize maintenance needs.

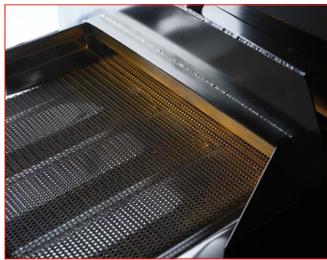
- High convection efficiency through unique convection flow concept
- Excellent temperature and gas flow uniformity across the chamber
- Quick response to loads
- Ease of maintenance



## CONTROLLED ATMOSPHERE FURNACE ADVANCED MATERIALS



Designed for today's most demanding materials applications, BTU's muffle furnaces meet the processing needs of glass to metal sealing, stainless steel brazing as well as many other processes requiring precise atmosphere and temperature control. The Controlled Atmosphere Furnace delivers superior performance in diverse atmospheres including air, nitrogen, hydrogen and forming gas. Unique features, including venturi exhaust and patented eductor technology, make this the essential furnace for advanced materials processing.



- Metal Brazing
- Glass to metal sealing
- Sintering
- Semiconductor packaging
- Advanced ceramics

## SILICON SOLAR CELLS IN-LINE DIFFUSION



**Meridian™** Existing batch processes cannot keep pace with the cost pressure facing PV manufacturers today. BTU's solution is the Meridian™ In-Line Diffusion System. The system can be configured to process up to 1,500 wafers per hour providing uniform and repeatable emitters. The Meridian™ in-line system offers reduced wafer handling and very low breakage rates. In the race



to lower cost per watt, the shift to in-line processing puts users in a winning position.

## Thermal Process Solutions for Advanced Materials

### SILICON SOLAR CELLS METALLIZATION



**SinTerra** SinTerra, the latest technology for metallization drying and firing from BTU, offers outstanding value by providing high-performance heating and cooling technologies. SinTerra delivers the lowest Cost of Ownership with industry-leading uptime, unmatched process repeatability and competitive pricing. BTU follows a simple design philosophy; focusing on reliability, process repeatability and thermal performance.



Ease of maintenance is a key focus for SinTerra. Uptime is maximized through exhaust management, easy access to the process chamber and a new brush belt cleaner design. The system features BTU's proprietary WINCON™ control system. WINCON features a simplified user interface and incredibly powerful analytical capabilities.

### NUCLEAR WALKING BEAM



BTU's Walking Beam is a high temperature thermal processing system that provides continuous temperatures up to 1800°C under precisely controlled temperature and atmospheric conditions, in a full range of oxidizing and reducing atmospheres. Typical applications include high temperature metal and ceramic sintering, and uranium and gadolinium processing for power generation. The patented beam transport system is



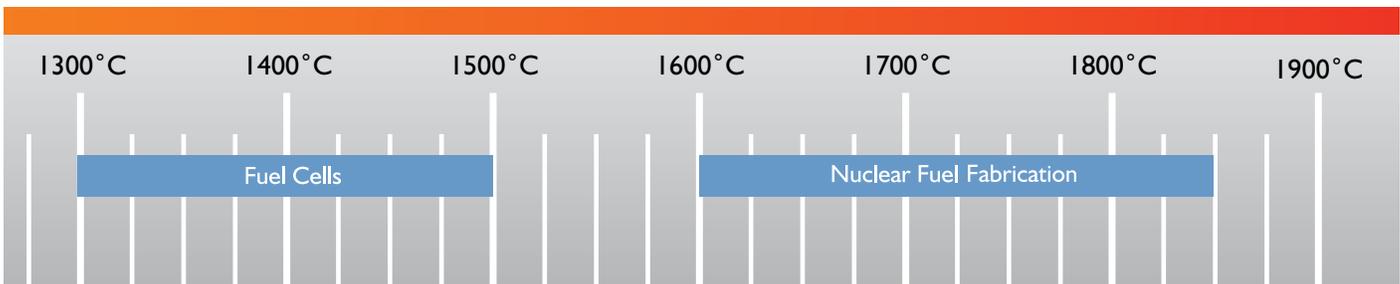
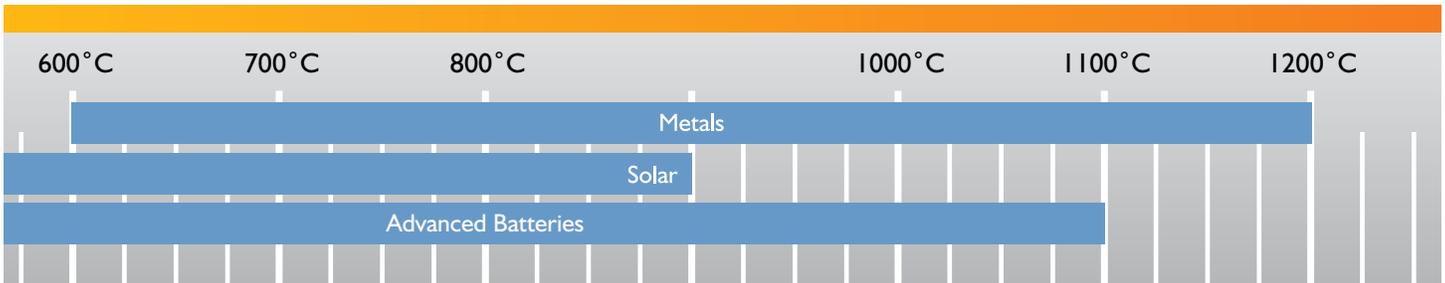
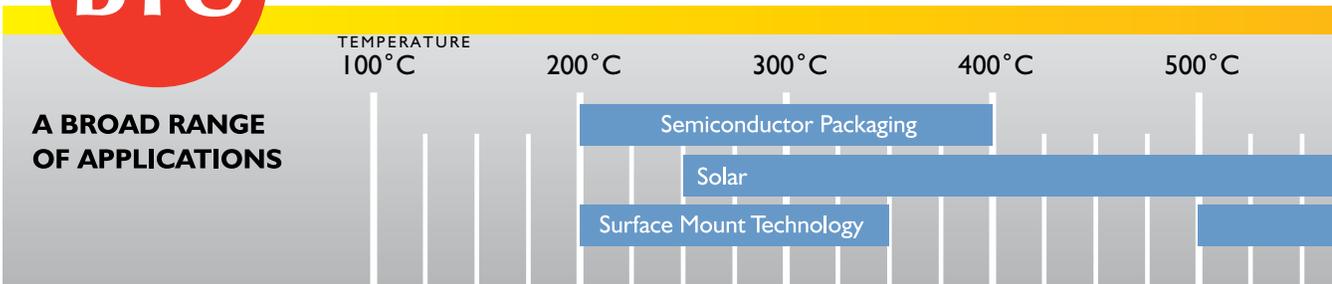
designed with high stacking capability for processing heavy loads. Product carriers are designed specifically to support individual stacks for greater thermal and payload efficiencies.

## Enhancing Productivity and Reliability

### UPGRADE PROGRAM

BTU furnaces and ovens are known worldwide for their long-term reliability and durability. Customers need to get the most out of their systems, both old and new. BTU has made a number of key upgrades available to our customers allowing them to bring their equipment up to today's standards. A number of the upgrades have a focus on reducing cost of ownership by reducing downtime, both planned and unplanned. The kits will provide a quick payback for most customers, in many cases less than 1 year. BTU aims to make upgrading as easy as possible by streamlining the purchasing process and by including process requalification wherever needed.

- Intellimax Upgrade
- Nitrogen Fast Purge
- Blower Fail Detection
- Flux Trap Lip Vents
- Flux Filter
- Closed Loop Convection



# Global Strength

BTU provides world-class service and customer support in over 30 countries around the globe.



- ★ BTU Production and Engineering Facilities
- BTU Regional Locations
- BTU Representatives

- 24/7 Worldwide Customer Support
- Manufacturing and Engineering in the US and China
- Process Applications Laboratories in the US and China
- Multiple Global Training Locations

To contact BTU please go to [www.btu.com/support-contact-sales.htm](http://www.btu.com/support-contact-sales.htm)



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