



CAAB<sup>®</sup>

Controlled Atmosphere Aluminum Brazing



# CAAB: Controlled Atmosphere Aluminum Brazing

Ultimate in flexibility and versatility for the brazing industry

## The AFC-Holcroft advantage

AFC-Holcroft Controlled Atmosphere Aluminum Brazing (CAAB®) gives you the most experienced, up-to-date technological advantages for processing aluminum heat exchangers such as radiators, heater cores, condensers, evaporators, charge air, and oil coolers. By taking advantage of repeatable, continuous operation and exacting atmosphere control, the AFC-Holcroft CAAB system increases productivity and lowers production cost per unit. The combined experience of AFC-Holcroft's Therm Alliance and Holcroft Divisions will bring you the benefit of commitment to supplying the latest non-corrosive flux brazing technology to the aluminum heat exchanger market.

## In step with technology

AFC-Holcroft CAAB system designs offer the complete solution to today's ever-increasing demands to produce high-quality parts with dependable throughput and minimal operating cost. AFC-Holcroft offers total CAAB system solutions: pretreatment (thermal degreasing and aqueous washing), flux application (spray, dip, or electrostatic), dehydration oven, brazing furnace, cooling under protective atmosphere, and cooling for final handling. Systems range from simple manual loaded and unloaded batch equipment to fully automated continuous mesh belt units with the latest in programmable controls and monitoring.

## Continuous conveyor systems

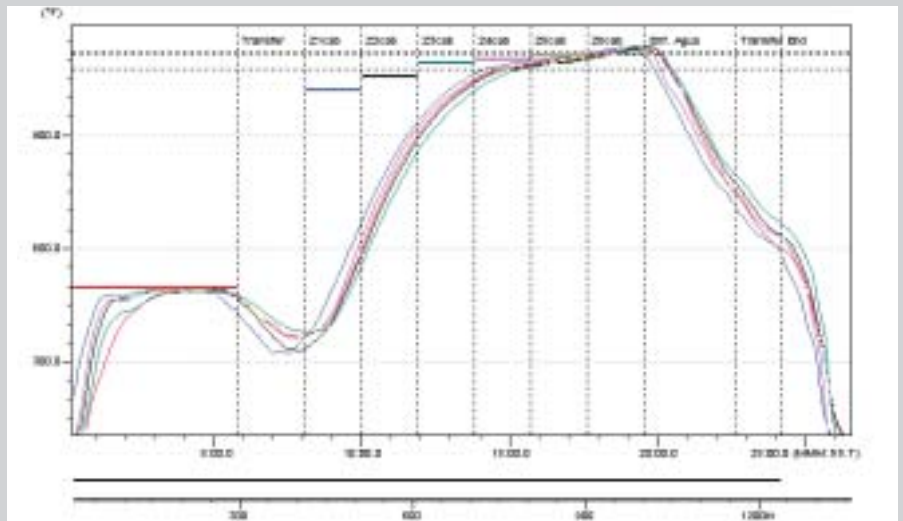
Through the years, AFC-Holcroft has created and built many innovative conveyor-type furnace designs for a wide range of heat treat applications. With over two decades of aluminum brazing design experience, AFC-Holcroft CAAB systems are engineered and manufactured to keep production control in your hands. Standardized and custom-engineered systems are available to meet your particular production needs. Each system includes a multitude of proven standard features our customers have come to rely upon.



Fully Automated CAAB System.

AFC-Holcroft aluminum brazing systems have been supplied throughout the world and have proven to be the most cost-efficient, flexible, low-maintenance processing units available.

AFC-Holcroft CAAB furnaces are designed to provide greater uptime, ease of maintenance, and trouble-free quality operation due to innovated simplicity.



Exacting temperature uniformity for unparalleled quality and consistency.





Innovative features make the AFC-Holcroft difference:

**Integral design structure**

- All main structural steelwork and casing are robust and formed into an environmentally acceptable clean design.

**Thermal insulation**

- From conventional refractory brick linings to low thermal mass fiber chamber construction, the insulation is carefully designed to achieve maximum energy savings and is tailored to our customers' production requirements.

**Heating elements**

- Nickel-chromium wire or tape is designed to be responsive and controlled accurately. Elements are engineered with conservative watt dissipation to promote longevity.

**Muffle construction**

- Features uniquely designed muffle, specially fabricated for maximum muffle strength, corrosion resistance, and long muffle service life.

**Thermocouple system**

- In-situ thermocouples improve response time and enhance temperature uniformity.

**Atmosphere conservation**

- Specially designed atmosphere distribution, gas barriers, and atmosphere retention systems provide for a minimum consumption of protective atmosphere gas.

**Precision processing**

- Total control through the use of thyristors, partitioned multiple zone control, and accurate temperature sensing. Precise temperature uniformity and quick response ensure unmatched quality performance.

**Conveyor drive**

- Fully controlled and variable with optimum output controllers to ensure maximum utilization of equipment. Systems can be fully programmed, synchronized with auxiliary equipment, and monitored electronically.

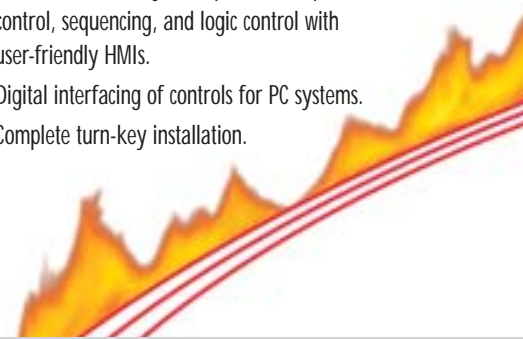
**Cooling**

- Accomplished with either water-jacketed cooling chambers divided into individually controlled zones or indirectly cooled atmosphere gas through external high-velocity coolers that eliminate the need for water cooling towers.
- Air cooled chamber for final cooling to handling temperature.

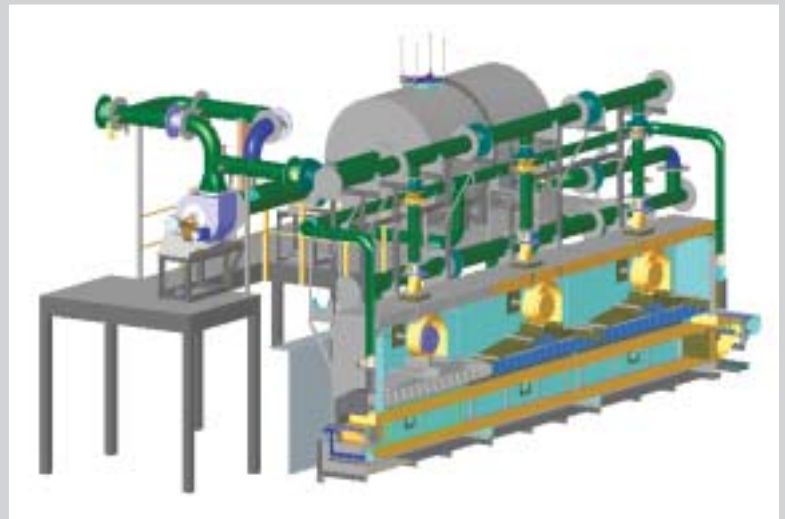
- Various multi-stage fluxing operation.
- Dual flux concentration systems.
- Interchangeable quick release flux reservoir tanks.
- Flux concentration monitoring.
- Automatic flux dosing systems.
- Dust-free flux drum handling.
- Automatic flux spray and blow-off positioning systems.
- Combination of gas and electric heated brazing furnace (convection or radiant).
- Air-blast cooling stations with or without the use of indirect cooling medium.
- Rapid cooling chamber for quenching heat-treatable alloys.
- Additional material handling systems for complete closed loop control, including automatic transport and conveyor systems.
- Exhaust scrubbers.
- Atmosphere analyzing and monitoring systems.
- PLC-based control systems provide temperature control, sequencing, and logic control with user-friendly HMI's.
- Digital interfacing of controls for PC systems.
- Complete turn-key installation.

**Optional equipment and features:**

- Pretreatment systems (thermal degreasing or aqueous washing).



Continuous Spray Fluxing System.



3D Engineered Thermal Degreasing System.

## CAAB Product Line Specifications

	Continuous	Indexing	Batch	
General	Applications	Radiators Condensers Heater Cores Evaporators Oil Coolers Charge Air Coolers	Radiators Condensers Heater Cores Evaporators Oil Coolers Charge Air Coolers	Radiators Condensers Heater Cores Evaporators Oil Coolers Charge Air Coolers
	Capacity	50–200 Pieces/Hour	4 Loads/Hour	1 Load/Hour
Fluxer	Type	Spray and/or Dip	Spray and/or Dip	Spray and/or Dip
	Flux Stages	1 or 2	1 or 2	1 or 2
	Blow-off Stages	1 or 2	1 or 2	1 or 2
	Casing	Stainless Steel	Stainless Steel	Stainless Steel
	Mixing Reservoirs	1 or 2	1 or 2	1 or 2
	Pumps	Pneumatic or Mechanical	Pneumatic or Mechanical	Pneumatic or Mechanical
Dry Off	Zones	Single or Multiple	1	1
	Heat Transfer Method	Convection	Convection	Convection
	Heat Source	Gas or Electric	Gas or Electric	Gas or Electric
	Conveyance	Conveyor	Conveyor	Conveyor
Braze Furnace	Zones	4–14	1	1
	Method of Zone Control	PID – Top and Bottom	PID – Top and Bottom	PID – Load
	Heat Transfer Method	Radiant or Convection/ Radiant	Radiant or Convection	Radiant or Convection
	Heat Source	Electric or Gas/Electric	Electric or Gas	Electric
	Muffle	Stainless	Stainless	Stainless
	Atmosphere	Nitrogen	Nitrogen	Nitrogen
	Conveyance	Conveyor	Conveyor	Tray
	Insulation	Brick/Fiber	Brick/Fiber	Fiber
	Water Cooling Chamber	Yes	Yes	No
	Air Cooling Chamber	Yes	Yes	No
	Sealing Curtains	Fiber (Stainless opt)	Fiber (Stainless opt)	Fiber (Stainless opt)
	Electrical	PLC (PC opt)	PLC (PC opt)	PLC (PC opt)
	Oxygen Analyzer	Yes	Yes	Yes
Dewpoint Analyzer	Optional	Optional	Optional	

### Optional equipment and services

■ Thermal Degreasing ■ Aqueous Washing ■ Scrubbers ■ Material Handling Systems ■ Turnkey Installation ■ Training



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