

Wall Colmonoy Aerobrazo OKC F-15 Heat Exchanger Capabilities



Presented by:

Brian J Martin



WALLCOLMONOY

A Global Materials Engineering Company

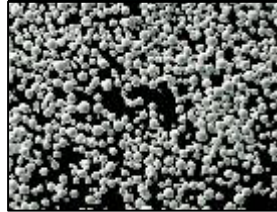
**SURFACING
ALLOYS**



**BRAZING
ALLOYS**



**ADDITIVE
WALLCOLMONOY**



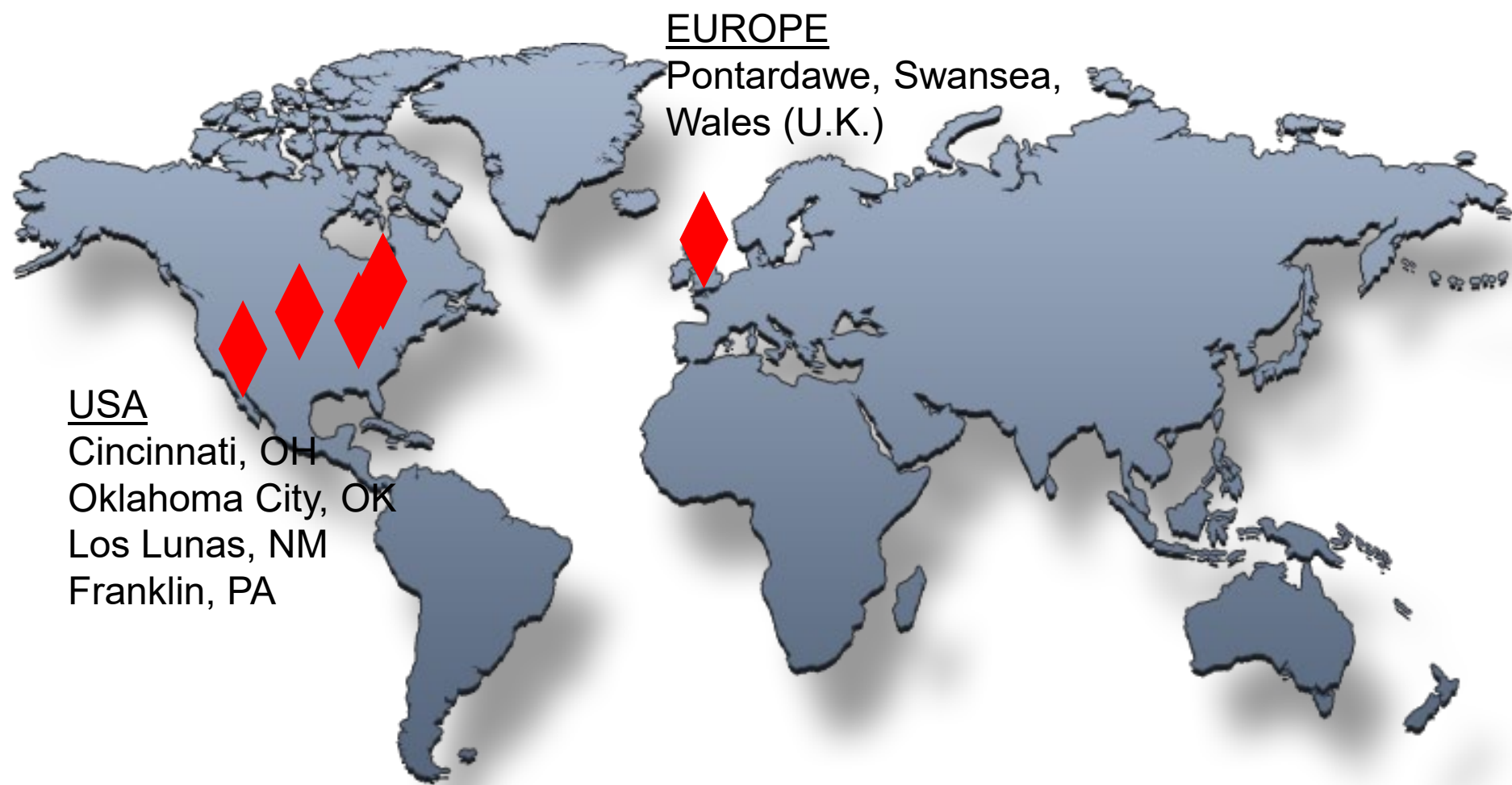
**PRECISION
COMPONENTS**



AEROBRAZE
ENGINEERED TECHNOLOGIES



We melt, coat, join, cast, print and engineer metals.



550 Employees Worldwide

Wall Colmonoy Corporation (USA)



WALLCOLMONOY

- Established in 1938
- 200+ Employees
- Business Areas:
 - Alloy Products
 - Aerobraz



Madison Heights, MI



Los Lunas, NM



Cincinnati, OH



Oklahoma City, OK

- Established in 1969
- 50 Years in Wales
- £30m Sales
- 200 Circa. Employees
- Business Areas:



Pontardawe, Wales (UK)

- Alloy Products
- Precision Components



Opening of 2,040m² Machine Shop in 2012 – Expands WCL to 9,520m².
Financed by Grants from the WAG.



Bill Clark, Wall Colmonoy, Chairman & CEO
First Minister, Rt. Hon. Carwyn Jones A.M.
Peter Hain, M.P., Neath

Wall Colmonoy Aerobrazed



WALLCOLMONOY

- Oklahoma City Location
Established in 1965
- 58 Years of Experience in
Steel, Inconel and Aluminium
Brazed Products
- \$14m Sales
- 95 Employees
- Business Areas:
 - Heat Exchangers
 - Heat Exchanger Cores
 - Exhaust Systems
 - Aircraft Components



Oklahoma City, OK, USA



A division of Wall Colmonoy that manufactures engineered components and provides technological solutions for aerospace, energy and defense industries. OKC designs, engineers, and manufactures complex assemblies:

Aircraft Exhaust Systems (45%)

NICROCRAFT™
AIRCRAFT EXHAUST PARTS
BUILT TO TAKE THE HEAT



Aircraft Components (5%)



Heat Exchangers (50%)



Our Aerobrazе Team



JOHN MARS
General Manager



BRIAN MARTIN
Director of
Business Development



BRIAN HUFFER
Chief Engineer /
FAA-DER



ROGER STAVNEM
Quality Manager /
FAA-DMIR



CMsgt (Ret) CHUCK CLARK
Operations
Manager



JIM LOCKBAUM
Business Development Manager
- Nicrocraft



JADE LITTLE
Mechanical Engineer



GABRIEL COSS
Mechanical Engineer



FAITH MOORE
Senior Customer Service Rep

Key Capabilities - OKC



Brazing and Heat Treatment

- High-temperature Vacuum Brazing and Heat Treatment
- Hydrogen and Argon Furnace Brazing (Controlled Atmosphere)
- Vacuum or Partial Pressure of Argon (2 Bar)
- Vacuum Aluminum Brazing (VAB)

Welding / Joining Capabilities

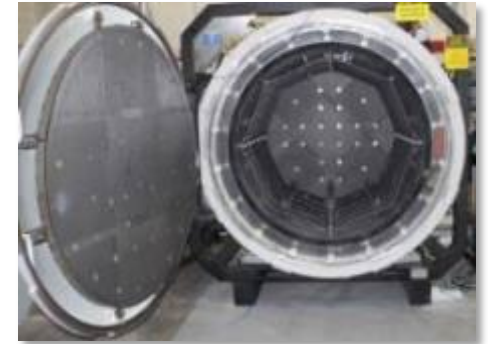
- Longitudinal TIG Welding
- Orbital Wire Feed GTAW (TIG) Welder

Fabrication Capabilities

- Shearing, Pressing, Bending and Forming
- Automatic Tube Cut-off, Water Jet Cutting (6' x 12', 3 heads)
- Heat Transfer Fin Manufacture

CNC Precision Machining

- Milling: CNC and Manual
- Turning: CNC and Manual
- EDM-CNC Wire & Multi Axis



Heat Exchangers

Capabilities

- New Manufacture
- Overhaul
- Core Manufacture
- Reverse Engineering

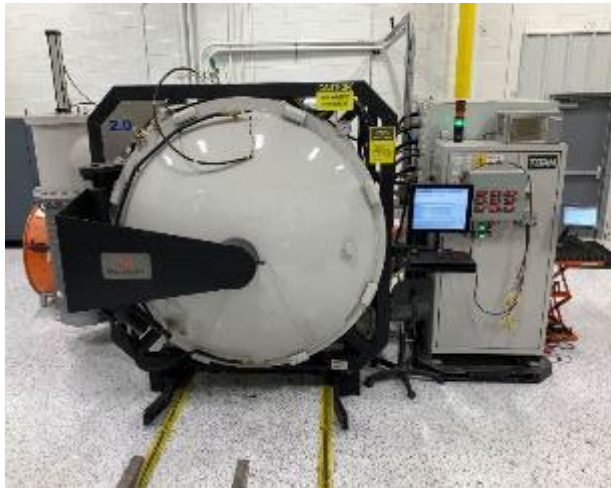
Types

- F-15 Primary – Fin & Plate, Tubular (USAF & FMS)
- F-15 Secondary (FMS)
- F-16 Primary/Secondary and Regenerative (USAF & FMS)
- E-3A Primary HX and Precooler
- F-5 Primary HX
- KC-135 Precooler
- Embraer ERJ-145, ERJ-170/190 – Core Mfg
- Bombardier CRJ-200, CRJ700/900 – Core Mfg
- B737, B757, B767, B777, A320 – Core Mfg



Commercial Aircraft Heat Exchangers / Oil Coolers

- \$2.5M investment in a new High Temp and Vacuum Aluminum Brazing (VAB) furnace and other equipment
- Expanding product development efforts to support other Heat Transfer MROs



High Temp Furnace



Aluminum Furnace



Fin Machine

Aerospace Programs – Heat Exchangers

Partial List



EMBRAER ERJ-190



EMBRAER ERJ-170



EMBRAER ERJ-145



BOEING 767



FOKKER F-100



BOEING F-15 EAGLE

LOCKHEED MARTIN F-16



NORTHROP F-5



BOEING E-3A



BOMBARDIER CRJ-200



BOEING 777



BOEING 757



CESSNA CITATION



BOEING 737

Only Facility to Offer Complete Support for:

F-15 Primary (Tubular)

Overhaul & New
Manufacture

P/N 189320-3-1
NSN 1660-00-273-8669



F-15 Primary (Fin & Plate)

Overhaul & New
Manufacture

Able to sell to any F-15
operator, worldwide

P/N 8140-1
NSN 1660-01-341-7295



F-15 Secondary

Overhaul / Re-Core

P/N 189340-4-3
NSN 1660-00-544-4334



F-15 Primary and Secondary Heat Exchangers



F-15 Primary Heat Exchangers

Capabilities

- US Air Force (USAF) Approved Contractor
- New Manufacture
- Overhaul / Re-Core



Tubular

P/N 189320-3-1

NSN 1660-00-273-8669



Fin & Plate

P/N 8140-1

NSN 1660-01-341-7295

F-15 Heat Exchanger Overhaul Experience

Over last 15 years, overhauled **2,000+** HXs for the
US Air Force (P/N 189320-3-1)

Overhaul process includes:

- 100% replacement of all tubes
- Replacement of any non-serviceable manifold component parts
- Inspection and performance testing in accordance with US Air Force Technical Order

Original heat exchanger serial number maintained
for part traceability

Yield Rate: 98.33% on all parts inducted for
overhaul



F-15 Fighter Jet

F-15 Primary (Fin & Plate) Production Experience

Wall Colmonoy has delivered **500+** New Mfg F-15 Fin & Plate HXs to DLA (USAF) & FMS customers since 2013

DLA (USAF)	373
US Pacific AF	94
JASDF	58
RSAF	15



36"x36"x48"
Vacuum Furnace



Fin Machine

F-15 Primary (Fin & Plate) Overhaul Experience



In 2019, Wall Colmonoy developed a Remanufacture of the F-15 Fin & Plate HX, to support the USAF & FMS customers

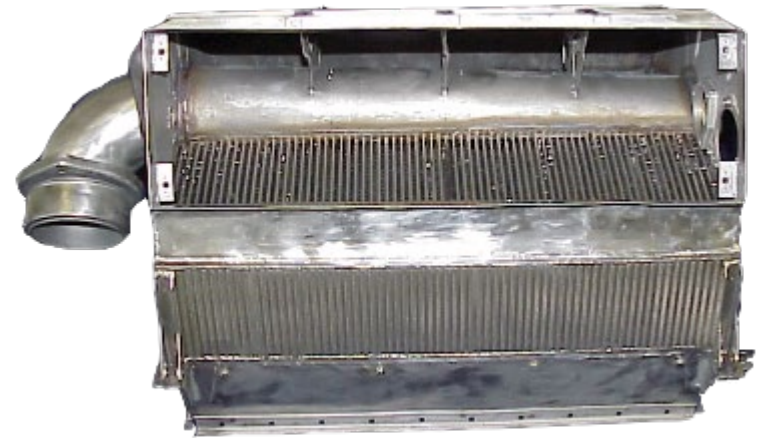
Customer	Qty
US Pacific AF	20
Mountain Home AFB	8
Boeing (RSAF)	2

F-15 Secondary Heat Exchanger



Capabilities

- US Air Force (USAF) Approved Contractor
- Overhaul / Re-Core
- 100% Yield
- Inspection and testing in accordance with US Air Force Technical Order
- Shelf stock inventory of ready-to-use replacement cores, to support quick turnaround times for FMS Community



Secondary

P/N 189340-4-3

NSN 1660-00-544-4334

Integrated Approach for Brazing / Heat Treatment

High-temperature Vacuum Brazing Furnaces Designed to Produce High Quality Brazed Joints for Aerospace and Defense Industries

Brazing Processes

- High-temperature Vacuum Brazing and Heat Treatment
- Hydrogen and Argon Furnace Brazing
(Controlled Atmosphere)
- Vacuum or Partial Pressure of Argon (2 Bar)
- Vacuum Aluminum Brazing (VAB)
- Full development of brazing alloy, furnace cycle, joint



Furnace	Diameter	Depth	Additional Information
#1	50"	44"	Controlled Atmosphere (Hydrogen or Argon)
#2	40"	44"	

Furnace	Width	Height	Depth	Additional Information
#V1 Ipsen TITAN 2.0	36"	36"	48"	Vacuum or Partial Pressure of Argon (2 Bar)
#VAB1 PVT	36"	41"	60"	Vacuum Aluminum Brazing (VAB)
#VAB2 PVT	36"	41"	60"	Vacuum Aluminum Brazing (VAB)

Certifications / Approvals



QMS Approval

- AS9100D
- ISO9001:2015

Welding Approval

- AWS D17.1:2010 (Welding)

FAA

- FAA Repair Station # BG2R715K
- FAA PMA Certificate #SW352 (Microcraft™ Product Line)
- FAA-DER - Exhaust Systems
- FAA DMIR On Staff





AEROBRAZE

ENGINEERED TECHNOLOGIES

OKLAHOMA CITY

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