



Abbott Furnace

The Leader in Furnace Technology

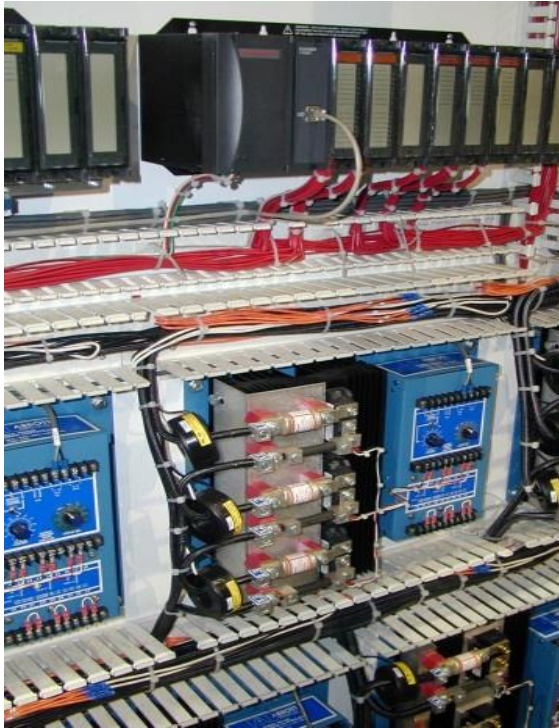
www.abbottfurnace.com

Abbott Furnace- History

- Located in St. Marys, PA USA
- Initially established in 1982 as Abbott Control Systems
 - Servicing furnaces
 - Building control panels
- Manufactured our 1st furnace in 1986
- Acquired **DREVER** Furnaces Intellectual property in 2016
- To date we have in excess of 900 furnaces in service in a variety of industries
- 75,000 ft² (6,970 m²) manufacturing facility
- 70+ Employees
- Privately owned and operated

Technical Skills

- In house engineering disciplines
 - Materials
 - Electrical
 - Mechanical
- In house skilled trades
 - Fabricators, AWS Certified Welders
 - Plumbers
 - Electricians



Abbott Technical Team

Dan Reardon
Sales Director

Dr. Stephen Feldbauer
Director, R & D

Jeff Chileski
Electrical
Engineering Director

Nanna Bush
Design Manager

Field Service Team

Tim Raffeinner
Sales Engineer

Scott Pierce
Development Engineer

Ron Glatt
Electrical Engineer

Sam Glatt
Senior Designer

Denny Rettger
Scott Lovenduski
Dustin Hunt
Glenn Schaut
Dave Bundy
Frank Detsch
Erick Pitchler
Brad Steinbach
Mike Cunningham

John Mohney
Tod Barnes
Chuck Aloï
Randy Johnson
Craig Kronenwetter
Dean McClain
Don Fabiano
Jeff Carlson
Mike Strathen

Jeff Danaher
Sales / Metallurgist

Brian Smith
Applications Engineer

Andy Benson
Electrical Engineer

Adam Cheatle
Designer

Ed Levanduski
Technical Sales

Dustin Yetzer
Applications Engineer

Tom McDevitt
Sales Engineer

Tim Mosebarger
Project Engineer

Additional Team Members

Carter Dippold
Spare Parts

Jerry Voyer
Applications Engineer

Amy McClain
Spare Parts

Don Schnars
Senior Electrician

Tom Jesberger
Carl Mohney
Mike Gelsick

Arnie Caretti
Mike Rupprecht
Matt Pavlock

Abbott Furnaces

- Abbott Furnaces ensure consistent results by offering superior temperature and atmosphere control.
- Ceramic or Alloy Muffles
- Continuous Belt, Pusher, Hybrid, Wire and Strip Annealing
- Electric or Gas Heating
- Up to 100% H₂, Low Dew Point
- Up to 3100°F (1700°C)



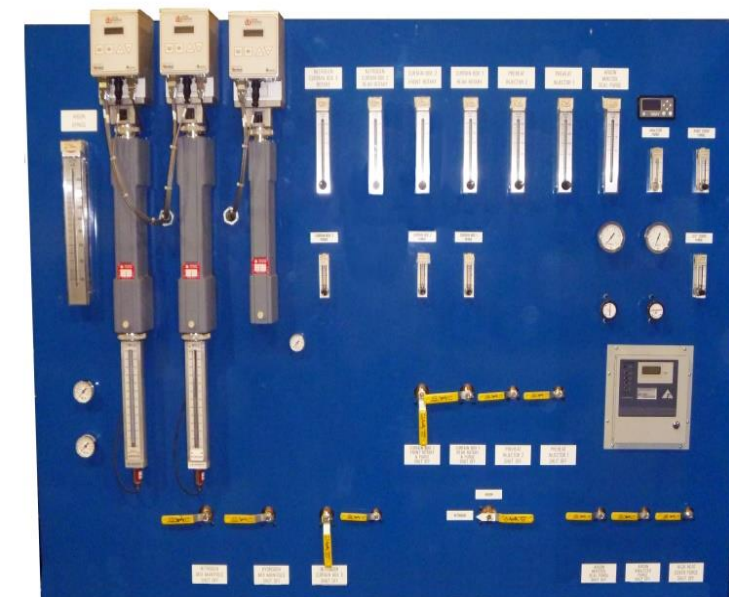
Abbott Control Systems



In house controls engineering team
Any PLC brand available
All systems are custom designed for your needs
Data Collection Systems
Remote Monitoring

Available Furnace Atmospheres

- Hydrogen
- Nitrogen
- Argon
- Endothermic Gas
- Exothermic Gas
- Dissociated Ammonia



Our Furnaces are designed to provide a custom blend of atmosphere compositions required to optimize your process

Furnace Muffle Technology

- **Stainless Steel Muffles**
 - Maximum Temperature of 1149°C (2100°F)
- **Ceramic Muffles**
 - Maximum Temperature of 1177°C (2150°F)
 - 5 Year Pro-Rated Warranty



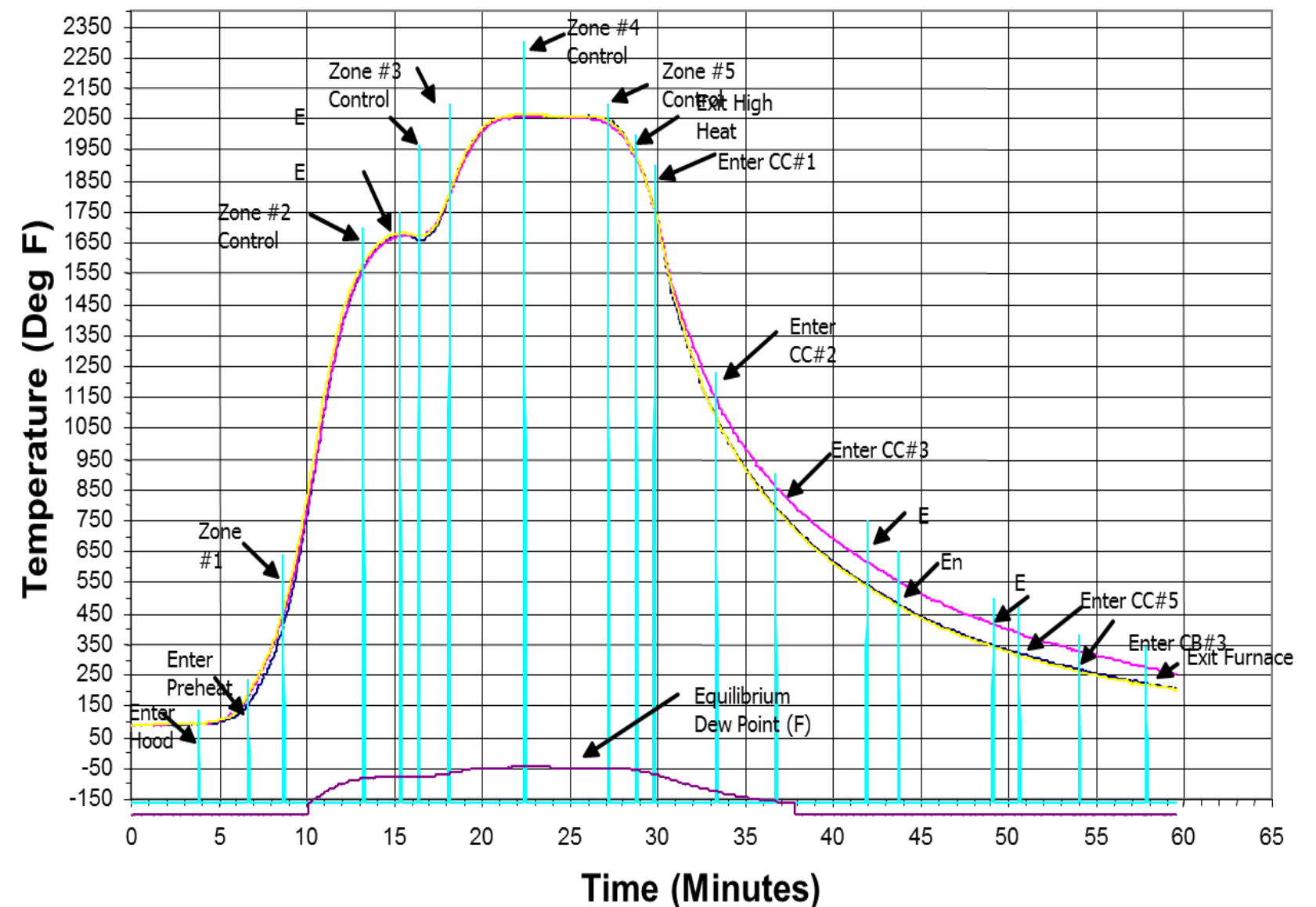
Customer Training

- On-Site Technical Training
- Customized Training Courses For
 - Operators
 - Engineers
 - Maintenance
 - Management
- Hands-On Furnace Practices
- Maintenance Training



Technical Service and Troubleshooting

- Temperature Profiling
- Atmosphere Analysis
- Electrical
- Mechanical
- Fabrication



Spare Parts

- **Complete Line of Spare Parts**
 - Electrical
 - Mechanical
 - Controls
 - Atmosphere
- **Responsive Team**
 - Same day ship on stocked parts



Expedited Fabricated Spares

- **24-48 Hour Ship**
 - Muffles
 - Coolers
 - Curtains
 - Wire Wound Elements



Technical Papers

Advances in Powder Metal Sintering Technology

Stephen L. Feldbauer, Ph.D.
Abbott Furnace Company
St. Marys, PA 15857

Introduction

The traditional powder metal process, often referred to as “press and sinter”, is constantly driven to change by an industry goal of entering new markets through substitution and the development of innovative products for new applications. Although much advancement has been made in the area of compaction, new materials and sintering technology continue to broaden the applications and improve the overall quality and competitiveness of powder metal components.

The goal of any sintering furnace is to provide a consistent, repeatable and economical relationship between the times that a part is in each location of the furnace, the temperature of the part as it travels through the furnace and the atmosphere seen by the part during each stage of the sintering process.

Figure 2. Powder Metal Compact Before and After Sintering

While the compact is in the high-heat section of the furnace, the alloys diffuse and the particles bond together to form a compact with reduced porosity that is more rounded in nature. In an inert atmosphere, the compact is finally cooled to a temperature below which no oxidation will occur.

Advancements

The areas of advancement in sintering technology and equipment can be grouped into five technological groupings.

- De-Lubrication
- High Temperature Sintering
- Sinter Hardening
- Sintering Atmosphere
- Furnace Connectivity and Control

Furnace Optimization; Meeting the Need to Reduce Cost

Stephen L. Feldbauer, Ph.D.
Abbott Furnace Company
St. Marys, PA 15857

the total cost of all utilities. Optimizing utility consumption is the key to controlling cost.

The definition of an optimized furnace is one that is operating at the lowest brazing temperature, with the lowest cost atmosphere composition, and the lowest atmosphere flow rate, at the fastest belt speed while producing acceptable quality parts. Once the optimal production conditions are determined for a brazed product, little can be changed that will not affect the quality of the part or the rate of production. This leaves only those times when the furnace is not in production as an opportunity for altering the operational characteristics of the furnace to reduce cost.

The question must then be asked; what are the true sources of the cost to maintain the furnace at normal operating conditions without production? To determine this, one must start by looking at the total daily cost of allowing the furnace to continue to run under normal operating conditions while not being loaded. A typical continuous



Figure 1. Parts Entering a Continuous Brazing Furnace.

Abstract

Troubleshooting Guides

Troubleshooting Guides



The four-page, full-color **Sinter Furnace Troubleshooting Guide** gives you a step-by-step structured approach for analyzing and deciphering furnace problems.



The **Furnace Brazing Troubleshooting Guide** includes photographs of typical furnace problems and also describe test methods which can be used to determine the source of oxidation.



The **Steam Treat Guide** includes a convenient volumetric conversion chart for steam.



The **Oxidation Color Chart Guide** shows the typical surface colors for steel when oxidized in air. The back of the double-sided card includes a test method to help you identify the source of the oxidation.

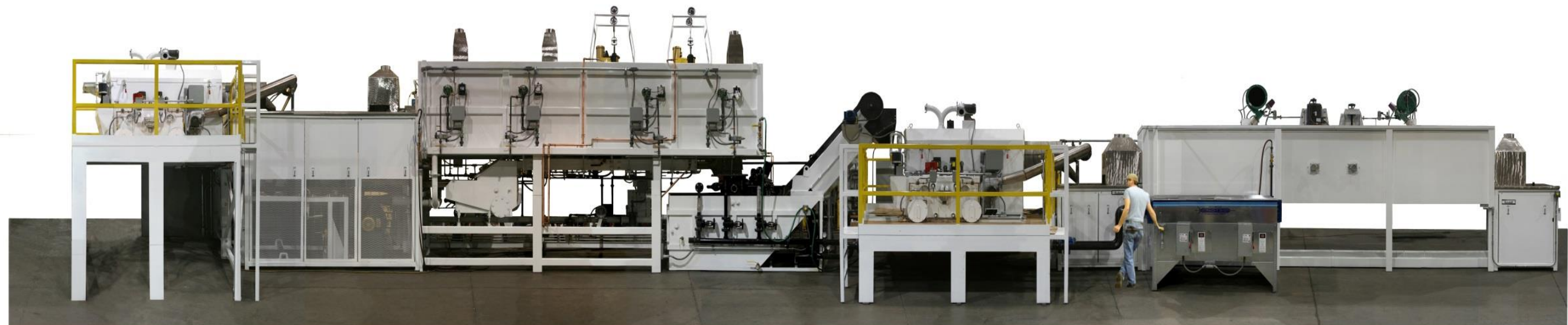
ISO/IEC 17025 Accredited

- Accredited Calibrations
 - Temperature Controls
 - Monitoring Devices
- Satisfies ISO/QS Requirements
- Traceable to NIST Standards



What Do We Do

Abbott engineers, manufactures and services the worlds best continuous furnaces



World Class Customers

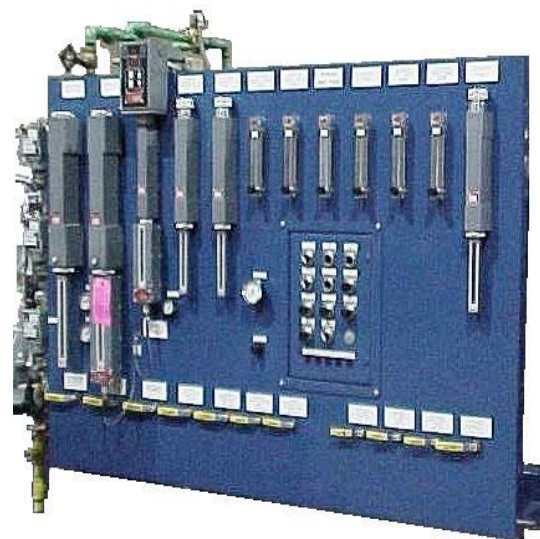
- Advanced Atomization
- ATK
- American Brazing
- Autoform
- Bechtel National (US Military)
- Borg Warner
- Burgess Norton
- Case Cutlery
- Cooper Standard
- Curtis-Maruyasu
- Cutco Cutlery
- Delphi Powertrain
- Eaton Corporation
- Emerson Climate Control
- American Axle & Manufacturing
- Federal Mogul
- General Electric
- GKN Sinter Metals
- GM Holdings - Rochester
- Hornady
- Magneti Marelli
- Metaldyne Sintered Components
- Millenium
- Moto Honda Brazil
- Senior Flexonics
- Sierra Bullets
- Stackpole International
- Stihl Corporation
- USUI International
- Zippo Manufacturing

Design/Manufacturing

- We work with our customers to identify the proper **time, temperature** and **atmosphere** required to effectively process their parts
- Abbott's goal is to provide our customers with **engineered solutions** to their thermal processing needs.

Types of Products We Offer

We do not just supply products, we provide solutions





Hopper Grinders

Hard faced anvil knives and replaceable powdered metal cutters deliver superior life and performance. [Read more....](#)



Biomass Furnaces

Built to your needs, tailored for your fuel sources. Complete systems from 1 mil to 10 mil BTU/Hr. [Discover more...](#)



Augers

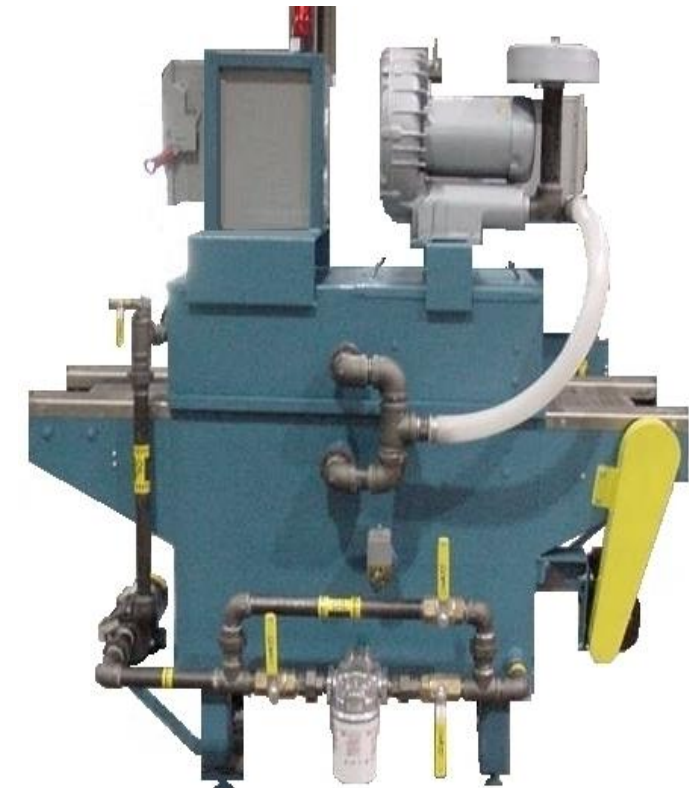
Built for your application. Multiple or mixed pitches, stainless or hot rolled steel. Fast response. [Learn more ...](#)



Specialty Products

Specialty Products

- Vacuum Oil Impregnator
- Rotary Parts Accumulator
- Parts Washer
- Laboratory Furnaces
- Box Furnaces
- Custom Fabrications
- Furnace Rebuilds



Why “It’s an Abbott”

- **Knowledge**
 - Understanding the time, temperature, atmosphere relationship
- **A Better Furnace**
 - Custom Designs
 - Process Development
- **Service and Support**
 - World Class Field Service Team
 - Electrical, Mechanical, Fabrication and Atmosphere
 - Spare Parts

Abbott Furnaces - because downtime should be something you plan Not compensate for!