

The Foundry Way Learning Center *“Passing on the Knowledge”*



About Us – The Foundry Way Learning Center grew from a simple question *“How can we pass on the knowledge of some of our best, but retired foundry engineers and metallurgists to an industry desperately in need of this knowledge?”* In search of the answer to this question, we found retired foundry engineers and metallurgists eager to share their knowledge gained from a life in the foundry industry. Our two instructors for the Aluminum Casting and Metallurgy Course have over 75 combined years of foundry experience in the industrial, automotive, and aerospace industries and are eager to share their knowledge with you.

Our Facility – Located near Cincinnati Ohio on The Foundry Way grounds, our classroom is in the same building as our metallurgy laboratory and inspection facility. This provides us the unique ability to integrate classroom instruction with hands-on learning.

ALUMINUM CASTING AND METALLURGY (2-Day Hands-on Course)

Course Overview

This course covers the aluminum casting process from material selection through processing, inspection, and controls with key areas are covered in detail. Hands-on casting, metallurgy, and inspection techniques are employed in many segments of the course to ensure participants leave with a lasting understanding of critical processes and terminology.

Who Does the Course Benefit? -

- Anyone who wishes to understand the process, process control, and terminology of the Aluminum Foundry.
- **Aluminum Foundries** – Critical for supervisors, quality personnel, and management. Beneficial for purchasing agents, accounting staff.
- **End Users of Castings** – This course is beneficial for purchasing agents, quality engineers and all personnel interacting with aluminum casting suppliers.

Course Outline

- **Aluminum Ingot and Alloys** – Differences, Reasons for selection
- **Foundry Terminology** - From Ingot through production and finished product
- **Foundry Processes** – Green Sand, Dry Sand, P-mold, Die Casting, Plaster Mold & Squeeze cast
- **In-Process Operations** – Molds, Cores, Chills, Gating & Pouring
- **Finish Operations** – Shake-out, core removal, trim, Heat Treat, Targeting
- **Casting Defects** – Types, Causes & Cures ****Hands-on****
- **In-Process Inspection and Quality Controls** – Hydrogen gas checks, Visual inspection, Chemical Analysis, Hardness Testing, Penetrant Inspection, X-ray, ****Hands-on****
- **Alloy Strength vs Physical Structure** – Grain size, Dendritic Cell Size, Si Modification, Alloying Elements ****Hands-on****
- **Mechanical Properties** – Tensile, Yield, Elongation, Hardness - ****Hands-on****
- **Understanding Heat Treatment** – Critical Variables, Effect on microstructure and mechanical properties, Heat Treat Controls
- **Hot Isostatic Press (HIP)** – Understanding the process, uses, and benefits
- **Weld Repair** – When to use, Requirements and Controls

Details

- **Length of Class** – 2 days. 10am to 5pm on day 1 and 8am to 3pm on day 2 . Working Lunch provided.
- **Number of Participants** – In order to ensure the maximum learning experience and meet the needs of each participant, class size is limited to 8. Note - Classes fill quick so register now.
- **Location** – Foundry Way, 5100 River Valley Rd, Milford, OH
- **Registration and Schedule** - For additional information, course dates, and registration, log on to www.porositysolutions.com
- **Questions;** Contact Diana at The Foundry Way - Diana@FoundryWay.Com 513-831-8777 or Brad Hohenstein at Porosity Solutions – blh@PorositySolutions.com 937-830-2061