



DY-KAST Supply & The Foundry Way Learning Center are proud to partner in offering;

ALUMINUM CASTING AND METALLURGY For Foundry Support Staff and End Users

Course Overview

This 1-day on-site course covers the aluminum casting process from material selection through the final casting. To ensure attendees leave the class with a lasting understanding of the key topics, critical items such as casting terminology and defect identification are covered in detail using example parts that are passed around the class. The class instructor is one of the most knowledgeable metallurgical engineers in the industry with over 35 years of experience in aerospace, automotive, and industrial castings. This down-to-Earth course provides real-world aluminum casting knowledge in ways which are easy for all to understand.

Who Does the Course Benefit?

- **Aluminum Foundries** – Sales Staff, Management, Supervisors, Purchasing Staff, Quality Staff, and anyone who interacts with the foundry or foundry customers.
- **End Users of Castings** – This course is beneficial for purchasing agents, quality engineers and all personnel interacting with aluminum casting suppliers.

Course Outline

We tailor to your organization. We will touch on each topic but take deep dives into the processes relevant to the castings you produce or purchase.

- **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 -
- **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** – 1 day (approximately 7 hours)
- **What You Need to Provide** – A room with seating for the class, such as a conference room. A lunch on-site would be appreciated.
- **Number of Participants** – The course includes materials for up to 8 participants. Additional participants are welcome and can either share materials or purchase additional books for 100 dollars each
- **Cost** – 5,500 dollars plus 0.50 per mile roundtrip from Sidney, Ohio.