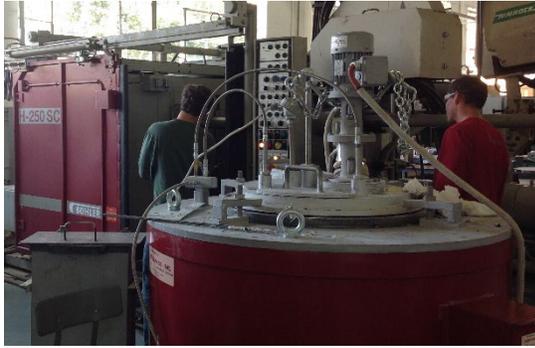


## The Ohio State University Light Metals Manufacturing Research Facilities

The Ohio State University (OSU) has a 2,000 square-foot high-bay experimental foundry (one of the few in the nation) and a 10,000 square-foot high-bay pilot manufacturing lab - Center for Design and Manufacturing Excellence (CDME), which are well equipped for manufacturing of light metals (aluminum, magnesium, titanium and metal matrix composites).

This facility has a full range of metals processing facilities and equipment to support: 1) melting, melt treatment and recycling; 2) gravity casting and high-pressure die casting; 3) mechanical alloying and powder metallurgy processing; 4) advanced forming processes; and 5) additive manufacturing (3D printing). This facility can support both the “manufacturing materials optimization” and “recycling & recovery” nodes at REMADE. The OSU facility is available for contract research with client access to the facilities including observations of their experiments. The facility can also provide controlled access for more restricted research.



### **250 Ton Buhler Die Casting Cell**

*Capable of melting and casting of aluminum, magnesium and metal matrix composites (500 lb melting capacity)*



### **OSU Experimental Foundry**

*2,000-s.f. experimental foundry capable of ferrous and non-ferrous melting and casting (40 lb melting capacity)*

## OSU Light Metals Manufacturing Facility Equipment List

The OSU experimental foundry has the following:

- A 60-kW electric induction generator with a lift-swing 40-lb aluminum furnace
- A 25-kW electric induction furnace with a vacuum/inert-gas melting chamber
- Two arc-melting furnaces for preparing special alloy compositions
- Two electric resistance furnaces for melting magnesium (20 lb. capacity)
- PVT vacuum induction furnace with a water-cooled copper crucible (1.5 lb. capability)
- Retsch Emax high energy ball mill with two 50 ml stainless steel jars
- A rolling mill (can roll down to 0.01 inch)
- A range of heat-treatment furnaces

The CDME facility at OSU has the following:

- Buhler H-250 SC (250-ton) die casting machine with 2-ft x 2-ft die holder
- An electric resistance furnace with 500-lb Al melt capacity
- Metamag electric resistance furnace with 500-lb Mg melt capacity
- Fondarex Highvac vacuum system for super vacuum die casting of Al and Mg alloys
- Pyrotek Star 2500 Rotary Degasser and Flux Injection system
- 300-Ton Interlaken hydroform & conventional press
- Two EOS M250 and M280 high resolution metal powderbed fusion 3D printers
- One Concept LaserCusing (GE) metal powderbed fusion 3D printer
- One ARCAM metal powderbed fusion 3D printer