ALLOY FABRICATION CAPABILITIES

Melt Processing Capabilities
- Air Induction Melting: up to 300 lbs.
- Vacuum Induction Melting: 10, 50, and 300 lbs.
- Vacuum Arc Remelting, Electro Slag Remelting: 3- to 8-inch diameter ingots, 50-500 lbs.
- Button Melting: 50-500 grams

Heat Treatment & Fabrication Capabilities
- Heat-treatment furnaces: 1650°C, inert atmospheres and controlled cooling
- Press Forge: 500 Tons
- Hot and Cold Roll mills: 2 and 4 high configurations

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Corrosion & Oxidation Laboratories

Capabilities include systems for steam exposures, supercritical CO2 exposures, and high pressure/high temperature immersion tests involving saturated CO2 or mixed gas involving Air, Ar, N2, CO2, O2, SO2, H2S, CH4, NH3.

- Ultra-super-critical (USC) Steam Autoclave: Dual rated to 4500 psig at 760°C and to 5000 psig at 746°C
- Supercritical CO2 Autoclave: Rated – 4000 psig at 800°C
- Autoclaves for immersion testing in saturated CO2 or mixed gas involving Air, Ar, N2, CO2, O2, SO2, H2S, CH4, NH3: Standing Stirred Autoclaves (5000 psig, 250°C), Flow-Through Unit (5000 psig, 500°C)
- Available static and cyclic oxidation testing for 24/7 exposures to: air, O2, N2, Ar, He, CO2, H2O, and N2/4% H2, at ambient and elevated temperatures
- Electronic potentiostats/galvanostats for conducting electrochemical experiments
- Capabilities to perform electrochemical experiments at high-pressures and temperatures (4500 psig, 250°C) in saturated CO2 or mixed gas involving Air, Ar, N2, CO2, O2, SO2, H2S, CH4, NH3

Fracture Mechanics & Creep Capabilities

- Mechanical Testing: tension, compression, low and high cycle fatigue, fatigue crack growth rate testing using electro-mechanical and servo-hydraulic Universal Testing Machines (5,500 to 220,000 lbs.) with high temperature capability and with fully instrumented computer control and data acquisition.
- Creep Testing: creep frames for stress-rupture and creep-rupture tests and stress relaxation tests. Testing can be done in Air, Ar, CO2, or N2. Maximum load capacity of 10,000 lbs. and a maximum temperature capability of 1200°C.