

CT-84 Development of the Hybrid Rapid Infrared Superheating Furnace for the Treatment of Aluminum Alloys

The goal of this project is to demonstrate improved quality, reduction of energy costs, and shortened lead times in the productions of a wide variety of heat treatable aluminum alloy forgings. The CT-84 project will extend and enhance the research and commercialization efforts brought to fruition by the DOE Supporting Industries Project, "Enhancement of Aluminum Alloy Forgings through Rapid Preheating of Billets." Initial testing results have indicated that applying Rapid IR Superheating to the solutionizing cycle of aluminum alloys can reduce heat treat cycles by as much as 75% with a resulting decrease in energy consumption and increase of process throughput in a direct relationship to cycle time reduction. Also, there has been an enhancement of metallurgical properties in Rapid IR prototype parts.

Further testing and commercialization of the Rapid IR solutionization process will be accomplished through Phase I through the construction of a prototype production furnace and the variety of aluminum alloy components produced and tested. Phase II of the project will involve more extensive work toward commercialization, and extending research to other grades of aluminum alloys as well as initial research into process applicability to titanium alloys.

The CT-84 project will utilize a combined effort of industry, academia, and government resources to develop a new manufacturing method advancing technologies and processes. Improvements in quality and efficiency will offer competitive advantages not only to the aluminum industry but also to those manufacturing sectors in aluminum products, particularly automotive and aerospace industries.

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