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Cryogenic Institute of New England, Inc. Introduces Uphill Quenching to Service Lineup

Worcester, MA – May 10, 2010 – The Cryogenic Institute of New England, Inc. is pleased to announce the introduction of its Nitrofreeze® Uphill Quenching Service to maximize stress relief in cast, heat treated and forged aluminum parts. The process enables critical components made from aluminum to achieve a superior level of material stabilization.

The procedure involves the utilization of a controlled cryogenic chamber where the parts are cooled to ultralow temperatures by utilizing liquid nitrogen or liquid helium. Once the components have reached the low temperature, they are subjected to a controlled warming cycle to a higher temperature appropriate for the alloy. The process is repeated up to six times, each following the same cool down and "uphill" quenching cycle. The process typically operates within a range of −450°F on the low side and up to +450°F at the high side.

"Aluminum alloys used in high-precision aerospace and optic components require maximum part stabilization so that they will hold the tolerances needed in their mission critical tasks," according to Robin Rhodes, President of the Cryogenic Institute of New England, Inc. "The Nitrofreeze® Uphill Quenching Process eliminates the resident residual stresses in the raw cast or forged aluminum block as well those that are created during CNC machining operations," he added.

Uphill quenching was first employed in the 1950s by Alcoa with the objective of artificially aging the aluminum to produce a more stable microstructure with less residual stress. The adopters of the technique enjoy benefits including reduced part deformation, elimination of machining distortion, and improved mechanical properties. Aerospace and optics firms use uphill quenching to reduce or eliminate "walk and creep" that can occur during the machining operations of critical tolerance parts.

Most uphill quenching treatments are used in aerospace, high precision optics and military applications. " Our experience with uphill quenching and other thermal cycling enables us to perform precise profiles as specified by MIL/DOD and U.S. governmental agencies," stated Ryan Taylor, Product Marketing Specialist at the Cryogenic Institute of New England, Inc. "We are able to cycle a wide range of parts to

temperatures approaching absolute zero at controlled ramps and extended dwells," he added. The company completes the uphill quenching processes with its own specially developed chambers and other vessels.

The Cryogenic Institute of New England, Inc., located at 90 Ellsworth St. Worcester, MA, is dedicated to the commercial application of cryogenic technologies to serve the needs of industry, government and scientists. The firm offers a full range of cryogenic services, including conventional cryogenic treatment, heat & freeze thermal cycling, cryogenic deflashing & deburring services, shrink fitting services, and dry ice (CO_2) blast cleaning. It also offers engineering services, cryogenic lab work in support of R & D, and custom equipment design for new and unique cryogenic applications. It is a corporate sustaining member of the Cryogenic Society of America. To learn more visit http://www.nitrofreeze.com.

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