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For Immediate Release

Mercury Marine Advances Heat Treating Processes with ECM Technologies Vacuum Furnace Systems with Advanced Automation



ECM Nano Vacuum Furnace System

Pleasant Prairie, WI – August 30, 2021 – Mercury Marine of Fond du Lac, Wisconsin, recently launched a plan to upgrade its heat-treating capabilities with a move to the low-pressure carburization and high-pressure gas quench system. Partnering with ECM Technologies, the new plan incorporates completely automated Nano vacuum heat treating systems. The innovative Nano system incorporates 20 bar nitrogen gas quenching along with Low Pressure Carburizing (aka vacuum carburizing). The Nano, with its versatile configuration, will operate several different carburizing, hardening, and spheroidizing processes simultaneously. This change marks a departure from Mercury's traditional atmospheric carburization and oil quench system while benefiting from advantages that come with vacuum processing:

- Innovative vacuum heat treating in lieu of traditional atmosphere (elimination of intergranular oxidation & highly repeatable process with consistent results)
- Employs preventive maintenance planning, remote system status access and facility information systems integration
- Relocates heat treat from a secondary location to the clean,

controlled environment of the machining centers

- Converts to Small Batch processing principles to maximize process efficiency
- State-of-the-art growth with ECM's advanced system automation and robot capability with load building and breakdown
- Controls downstream operations by matching incoming dunnage with exiting workpieces
- Takes advantage of vapor and vacuum-based pre-cleaning technology to remove multiple machining lubricants
- Incorporates cryogenic and tempering processes within the automated system

The system uses all CFC workload fixtures and ECM's advanced automation fixture tracking to maintain a precise cycle count to know fixture life. This improvement for Mercury significantly reduces energy consumption and process cost per piece. Additionally, the vacuum process takes their heat treatment to a near-zero emissions for drivetrain components processed within the system.

About Mercury Marine

Headquartered in Fond du Lac, Wisconsin, Mercury Marine is the world's leading manufacturer of recreational marine propulsion engines. A division of Brunswick Corporation (NYSE: BC), Mercury provides engines, boats, services, and parts for recreational, commercial and government marine applications. The company empowers boaters with products that are easy to use, extremely reliable and backed by the most dedicated customer support in the world. Mercury's industry-leading brand portfolio includes Mercury outboard engines, Mercury MerCruiser sterndrive and inboard packages, Mercury propellers, Mercury inflatable boats, Mercury SmartCraft electronics, Land 'N' Sea marine parts distribution and Mercury and Quicksilver parts and oils. More information is available at www.MercuryMarine.com.

About ECM Technologies

ECM Technologies is an innovative low pressure vacuum furnace manufacturer with headquarters in Grenoble, France. With subsidiaries and ventures around the world, including ECM USA located in Pleasant Prairie, Wisconsin USA. ECM's global presence is well known in the automotive, aerospace, nuclear, energy, electronic, induction and 3D additive industries. With such versatile product lines and service capabilities, ECM is the ideal furnace system supplier for heat treatment processes ranging from rapid thermal processing (RTP) to low pressure vacuum carburizing (LPC). Our service capabilities include advanced automation, robotics, after sales, spare parts, on-site training and more.

For more information, visit us online at www.ecm-usa.com or www.ecm-furnaces.com.