



ECM **USA**^{INC}
VACUUM FURNACES

Vacuum Furnace Systems

Automation & Robotics

R&D and Recipe Testing

Service & Spare Parts



VACUUM FURNACE SYSTEMS & Complete Service Provider

THE ECM GROUP provides the global heat treat community with high quality vacuum furnaces, advanced automation & robotics, aftersales and services for a diverse range of heat treat applications (industrial/commercial to lab/R&D). Our systems are specifically designed to provide high up-time to demanding heat treatment production environments all over the world.





APPLICATIONS

From industrial to R&D lab production, there's an ideal ECM vacuum furnace for all heat treat applications:

- Brazing, sintering, carburizing (LPC), tempering & carbonitriding (LPCN)
- Low pressure carburizing for EV (electric vehicle) Transmissions
- Vapor phase aluminization/aluminizing (VPA/VPC/FIC)
- Vacuum induction melting, vacuum arc remelting (VIM/VAR)
- Vacuum purged gas nitriding (VPGN) & ferritic nitrocarburizing (FNC)
- Deposition, photovoltaic & crystal growth
- Rapid thermal processing & annealing

SERVICES

Our team of experts are committed to support our customers and strive for the ultimate service satisfaction to prolong the life of your furnace

- Training, installation and start-up
- Remote maintenance
- On-site preventive and corrective maintenance
- Leak detection, calibration, TUS
- Motor repair
- System retrofits, from complete overhaul to refurbishment

ROBOTICS

Heat Treat Robotics by ECM was established to provide robotic solutions for heat treaters in need of upgrading their production line to increase efficiency, employee safety, and overall productivity.

- Part Handling
- Workload transport & fixture storage
- Dunnage management (ie - deep bins)
- Specialty processes (ie - welding)

TEAM ECM USA

is highly experienced to analyze heat treat distortion and metallurgical data to evaluate production & budget needs and provide economical and high quality solutions to your manufacturing and corporate requirements.

Our Pleasant Prairie, Wisconsin, office offers testing in our Synergy Center and on-site Nano vacuum furnace!

As a complete service provider from testing to installation to aftermarket, we also provide on-site solutions or remote assistance to accelerate quality service to meet your heat treatment production goals.



WHITEPAPER
Transitioning
to LPC



ECO eco-friendly

Eco-friendly sustainable alternative for sealed quench-batch IQ furnaces. No CO2 emissions & no open flames, quiet, and clean.



MONO single chamber

Ideal for smaller production facilities to bring heat treating in-house. The cooling phase is done with inert gas in the heating chamber.



FLEX modular

Oil (hot or cold), high pressure gas quenching, or reversible (up to 20 bar). Flexible for multiple processes and maximum capacity.



Bench-top or stand-alone furnaces built specifically for lab and R&D applications.



JUMBO high volume

Modular for high volume throughput of LPC or hardening – workloads up to 1000kg. HPGQ and hot/cold oil quenching.



NANO compact

3-6 vacuum heating cells integrated with HPGQ to 20 bar. Ideal for small batch processing and one-piece-flow for in-line production.



PFTH vertical oil quench

Vertical vacuum oil quenching furnace with LPC capability for the treatment of large size parts (gears, shafts, landing gear, etc).



RAPID THERMAL PROCESSING & ANNEALING FURNACE SYSTEMS (RTP/RTA)

Annealsys & Jipelec



FULGURA multi-flow

Multi-flow quenching furnace up to 12 bar produces low amplitude homogeneities and highly uniform results.



TURQUOISE horizontal

Primary or secondary vacuum heat treat for oxidation-prone alloys (nickel, titanium, cobalt, molybdenum, etc) & additive manufacturing.



LILLIPUT lab & testing

Compact furnace particularly adapted to laboratory use, university and R&D applications up to 3000°C.



CYBERSTAR CRYSTAL GROWTH FURNACES

Czochralski, Bridgman, floating zone, liquid phase epitaxy, and infrared or laser heating mirror furnaces



CRISTAL bell furnace

Insulated with specific metals resistors (molybdenum or tungsten) & perfect for clean treatments at high temperature up to 3000°C.



VESUVE nitriding

Hot wall forced convection furnace designed for nitriding applications to increase gaseous exchange in a tight heat-resistant steel muffle.



CVD/VPA deposition

Generally carried out between 1000-1160°C using an inert Argon-type gas. Operate in alternating cycles to optimize production cycles.



SYNERGY CENTER

ECM DEVELOPMENT LAB

What is the Synergy Center?

It is a fully functional process test lab showcasing ECM equipment and providing pre-production testing for thermal processes.

- ◆ Distortion control using CMM and 3D before & after thermal treatment
- ◆ Full metallurgical evaluation of all test pieces
- ◆ Digital microscope up to 5000X
- ◆ Microhardness evaluation and contouring evaluation
- ◆ Full production load fixture design
- ◆ 3D Solidworks fixture design based on real-time thermal data





**Multi-chamber vacuum furnace systems,
bench-top and stand-alone R&D lab furnaces
for all markets**

*Aerospace, Automotive, eMobility, 3D Additive,
Photovoltaic, Semiconductors, Crystal Growth*

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