

AddUp Partners with the ECM Group to Offer Post Additive Manufacturing Heat Treatment Solutions

AddUp, a major player in the field of metal additive manufacturing and the ECM Group, creator of innovative thermal solutions, have signed a partnership to develop high value-added solutions for the thermal treatment of 3D printed metal parts.

AddUp's expertise lies in two additive technologies: Powder Bed Fusion (PBF), ideal for the manufacture of metal parts with complex geometries and improved performance and Directed Energy Deposition (DED), which is ideal for the repair of parts and adding function. AddUp is not only a manufacturer of 3D printing machines, but also a producer of industrial metal additively manufactured parts.

To manufacture a part with PBF technology, it is not enough to design it in CAD and print it in a machine. The post-processing of the part is crucial. Therefore, AddUp looked to the ECM Group to combine experience and knowledge to develop a very high value-added solution for this essential step in the AM process.

The ECM Group is a French heat treatment equipment manufacturer and is globally recognized for innovative technologies, processes, and services. ECM vacuum furnaces have been developed for more than 50 years and constitute a reference base of several thousand units sold worldwide. The ECM Group provides vacuum furnace expertise to the heat treat production needs of advanced sectors such as: medical, aeronautics, e-mobility, and renewable energies. With exceptional experience in the control of atmospheres, gases, and thermal applications, the ECM Group is a leading partner for AddUp to meet the requirements of the aforementioned advanced sectors.

"At ECM, we are convinced of the potential of metal additive manufacturing, some applications of which will lead to mass production," says Yvan Trouillot, Sales Director for ECM. "Our alliance with the French company AddUp, a key player in this market, will allow us to bring our know-how for the development of innovative thermal solutions to this market, as we have been doing for more than 20 years in the international market of thermal treatment of conventional parts. Together, our ambition is to develop these technologies to help our customers progress by offering them the best solutions on the market."

About the ECM Group:

The ECM Group provides a global customer base with high quality vacuum furnace systems, advanced automation (including robotics), services, and R&D testing with experienced engineering, advanced manufacturing, and installation expertise for a diverse range of heat treat industries, including (but not limited to): aerospace, automotive, medical, e-mobility, renewable energies, semiconductors, and advanced crystal growth. Our dedicated product lines range from bench-top and stand-alone R&D lab furnaces to high production vacuum furnace systems for a wide scope of heat treat application processes:

- Brazing, Sintering, Carburizing & Carbonitriding
- LPC for automotive transmissions (ICE and EV)
- Additive Manufacturing (Debind, Sintering, Stress Relieving & Annealing)
- Vapor Phase Aluminization/Aluminizing (VPA/VPC/FIC)
- Vacuum Induction Melting/Vacuum Arc Remelting (VIM/VAR) & Tempering
- Vacuum Purged Gas Nitriding (VPGN) & Ferritic Nitrocarburizing (VP-FNC)
- Deposition, Photovoltaic & Crystal Growth
- Rapid Thermal Processing & Annealing

We welcome and encourage potential customers to visit our R&D Synergy Centers to discuss and/or develop your recipe(s) and maximize the potential of your heat treat process!

To learn more visit:

www.ecm-furnaces.com

Heat Treatment: a Crucial Step in Additive Manufacturing

During the 3D printing phase, metal parts are manufactured to the desired shape by successive layers of metal powders fused by one or more lasers. The speed at which the laser moves creates a rapid heating and cooling of the material which can cause expansion or shrinkage. This often times create constraints inside the parts produced.

To improve the homogeneity of the material and reduce its internal stresses to obtain the right mechanical properties, it is often necessary to apply one or more heat treatment cycles to the metal parts after they are printed.

"Heat treatment operations are just as important as the 3D printing phase itself, both to reduce the internal stresses generated during the "lasering" phase and to adapt the microstructure of the material and its properties," said Jean Rivoire, Parts Production Manager at AddUp. "This is why, within AddUp, we are seeking to strengthen this expertise with one of the market leaders; both to reinforce our internal production capacities and to offer a complete solution to our customers wishing to integrate the production of parts made in 3D metal."

Reduce Manufacturing Costs and Improve the Performance of 3D Manufactured Parts

The ECM Group and AddUp will create and develop solutions that will help current and prospective customers reduce their manufacturing costs and lead times, while improving the performance of their parts produced using additive technology.

The two groups will work jointly on a development program to define the appropriate specifications for a heat treatment solution adapted to additive manufacturing applications. Next, the ECM Group will design and industrialize a suitable vacuum furnace system according to the specifications defined during this joint development program.



3D Printed Parts



ECM's Turquoise and Vesuve furnaces



About AddUp:

AddUp, a joint venture created by Michelin and Fives, is a global metal additive manufacturing OEM offering multi-technology production systems, including the FormUp® range of robust and open-architecture Powder Bed Fusion (PBF) machines, as well as the BeAM Modulo and Magic lines of industrial Directed Energy Deposition (DED) machines. The combination of these processes allows AddUp customers the flexibility to choose the technology best suited for their specific application while also offering a unique ability to meet technical challenges, such as manufacturing parts combining these complementary technologies.

The AddUp's FormUp 350® PBF machine is modular and scalable to provide the highest productivity while ensuring user safety. The DED machines are designed for industrial production and equipped with in-house designed and developed nozzles to provide maximum precision and high productivity. To provide customers with a true Industry 4.0 solution, AddUp also provides a complete monitoring solution providing quality assurances after each and every build.

AddUp is headquartered in Cébazat, France, with its North American subsidiary based out of Cincinnati, Ohio. In addition to machine design and manufacturing, the AddUp group also offers part production, POC production and metal AM consulting services, AM training, and design for AM, making AddUp your one-stop for metal Additive Manufacturing.

To learn more visit:
<https://addupsolutions.com/>



AddUp's FormUp 350 PBF Machine

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