

Cumulative competency:

VACUUMSCHMELZE is advancing rapid solidification with a new Centre of Excellence

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Physicists, materials scientists, mechanics and automation experts form the team (c) VACUUMSCHMELZE GmbH & Co. KG

Hanau – VACUUMSCHMELZE (VAC), one of the pioneers and leading manufacturers in rapid solidification, is opening a new Centre of Excellence (“Centre” or “CoE”) focused on the advancement of casting technology. The Centre’s mission is to optimize and develop new alloys and process technologies in order to accelerate the introduction of new and high-performance products in growing markets. This new CoE will position VAC for technology-driven growth in the expanding electro-mobility, renewable energy, wireless charging and emission-reduction end markets.

VAC is a global leader in the development of rapid solidification technology for highly-demanding applications. The company’s technology makes it possible to produce amorphous metal strips with precise foil thickness requirements ranging from 0.02 to 0.05 mm. In this process, molten metal is pressed onto a fast-rotating copper wheel on which the alloy is transformed into a solidified strip. This method facilitates high cooling speeds of approximately one million degrees per second and forms a thin amorphous metal strip ranging in width from 0.5 to 125 mm.

VAC’s unique process transforms amorphous alloys into a nanocrystalline condition using a specialized thermal treatment process. Amorphous and nanocrystalline alloys play a pivotal role in a range of demanding, high-performance products including magnetic cores, inductive components, current transformers, electromagnetic compatibility (EMC) chokes, RCCBs (residual current circuit breakers), shielding foils, as well as brazing foils that are resistant to high temperatures and that are used in EGR (exhaust gas recirculation) coolers.

Through the implementation of new process technologies, as well as an optimized sensor technology for improved control of processes, VAC will introduce new products that will serve new and growing markets. For instance, through the new CoE, VAC plans to almost double the current foil width to more than 200 mm with significantly thinner foils for higher saturation inductions of up to 1.8 T. These capabilities will enhance VAC's position in new markets such as wireless data, energy transmission systems and EMC chokes that will reduce common-mode interferences in electric motors and photovoltaic or wind inverters.

"VAC's advances in the area of rapid solidification have led to the development of new solutions in our strategic growth markets. Additionally, this technology underpins much of our core and component development as we transform raw materials into a technologically-advanced solution to meet customer requirements. VAC's capabilities provide a great advantage to our customers as we are not limited by the availability of standard core materials in the market. As such, we are well-positioned with respect to innovative rapid solidification solutions and are very excited to expand our technology through our new Centre of Excellence", remarked Scott Pelhank, Vice President of Global Sales at VAC.

"Our team, which consists of physicists, materials scientists, mechanical engineers and automation experts, has identified the most important subject areas and has generated suitable work packages on the basis of extensive analyses of state-of-the-art casting technology. In addition, we are pursuing co-operations with industrial and university partners, with the objective of jointly developing the next generation of casting machines that conform to the requirements of our customers" says Thomas Hartmann, Head of the Centre of Excellence for Rapid Solidification at VAC.

About VACUUMSCHMELZE

VAC, a VECTRA company, develops, manufactures and distributes differentiated, highly-specialized magnetic alloys, materials and components with exceptional magnetic and/or physical properties for a wide array of end markets and applications, including automotive systems, electrical installation technology, energy conversion and distribution, industrial automation/robotics, retail and renewable energy. For more information, visit VAC's website at <http://www.vacuumschmelze.com/>

About Vectra Co.

VECTRA is a technology-driven diversified industrial company serving attractive global markets, including automotive systems, electronic devices, aerospace and defense, industrial and medical. Its business platforms use technology to address customers' complex applications and demanding requirements. For more information, visit VECTRA's website at www.vectraco.com

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