Press Information

E-mobility as a growth area:

VACUUMSCHMELZE demonstrates expertise and technology leadership at elektro:mobilia in Cologne

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Hanau / Frankfurt – The automotive industry is constantly searching for innovations and production-ready ideas for eco-friendly and future-proof drive systems. In 2012, ZVEI (German Electrical and Electronic Manufacturers' Association) will again provide an opportunity for industry experts to meet and exchange experience at its fourth conference of electric mobility experts and accompanying trade show. VACUUMSCHMELZE GmbH & Co. KG (Hanau) will again attend the event, held this year on 22 and 23 February in Cologne. At elektro:mobilia the Hanau-based company will present its advanced inductors and EMC components, once again demonstrating its ability to meet the most sophisticated requirements of the innovation-driven automotive industry. The company's inductors for DC/DC converters, for example, feature compact design, minimum weight and high performance. VAC's rare earth permanent magnets are also in demand for many automotive applications.

In attempts to boost the efficiency of electric vehicles, engineering design focuses on lightweight construction and advanced high-performance electronics.
Compared to conventional EMC ferrite chokes, common-mode chokes made from nanocrystalline VITROPERM® enable component dimensions to be reduced by up to a factor of three. High inductance and low winding capacity are critical parameters for chokes with broadband attenuation. VAC's VITROPERM® is a soft magnetic material with permeability levels up to 150,000 which can be used to optimise choke design. In ideal cases, copper windings around the tape-wound core can be omitted altogether and the current-carrying conductors or cables are simply routed through the core, offering an extremely compact, easily fitted, weight-optimised solution which reduces copper losses and thus improves the efficiency of the electronic system. With a Curie temperature of 600 °C, the nanocrystalline material can be used at operating temperatures above 150 °C.

At the Cologne conference, the Permanent Magnets division will present its rare-earth permanent magnets, which are also key components for automotive applications such as ABS, EPS sensors and double-clutch transmission systems. VAC magnets are also essential parts of auxiliary power units such as electric power steering systems.

Highly coercive magnetic materials from substances such as VACODYM® 688 or VACODYM® 890 are used in permanently excited synchronous motors for the drive trains of hybrid or electric vehicles. Special coatings such as VACCOAT® 20011 may be applied to ensure the magnets comply with strict requirements of corrosion resistance and salt spray atmosphere resistance. Electrically non-conductive coatings such as VACCOAT® 20011 or the new VACCOAT® 30033 are not only resistant to corrosion from aggressive media, but also serve to minimise eddy currents in the rotors. These eddy currents may generate extreme local heating in the magnets, not only resulting in eddy current losses, but potentially causing demagnetisation and thus destroying the magnets.

The Materials and Parts division will again present applications for CoFe alloys with high magnetic permeability and high flux density. By using these materials instead of silicon iron for rotor and stator cores in motors, engines and generators, devices can be designed to provide far higher power to weight or power to volume ratios. , thus saving energy and costs. For high-end electric drives in particular, bars and cores of VAC CoFe alloys open up possibilities of use in extreme applications.

VACUUMSCHMELZE GmbH & Co. KG

VACUUMSCHMELZE (VAC) with 1,500 employees in Hanau, designs, produces and markets advanced materials, particularly with magnetic, but also with other physical qualities as well as related products. In 1914, the first vacuum furnace laid the foundation for today's VACUUMSCHMELZE. Industrial vacuum melting techniques for alloys have been in operation since 1923.

VAC Group today achieves annual sales of more than 350 million Euros in over 40 countries and is the holder of more than 600 patents. The company is among the world’s most highly innovative developers of advanced industrial materials.

VAC’s range of products comprises a broad array of advanced semi-finished materials and parts, inductive components for electronics, magnets and magnet systems for use in

a wide variety of fields and industries spanning watch-making and medical technology, renewable energies, shipbuilding, automotive and aviation. VAC's custom solutions are developed in close collaboration with the customer, reflecting the company's expertise in materials, applications and state-of-the-art production technology.

Find out more at www.vacuumschmelze.com