

Quality, not quantity:

VACUUMSCHMELZE debuts its materials expertise at Düsseldorf trade show Tube & Wire

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Hanau / Frankfurt –VACUUMSCHMELZE GmbH & Co. KG (Hanau) will make a further trade show premiere when it debuts its materials expertise at Tube & Wire from 12 – 16 April 2010 in Düsseldorf. At Booth A40 in Hall 17, the Hanau-based company will present a selection of alloy materials that are anything but "off the shelf". VAC aligns the materials it produces to the needs of its customers, optimizing technological and price/performance aspects and supplying the finished products to the precise dimensions required. For the company's customers, this means outstanding flexibility in addition to the possibility to deliver high-grade, specialist materials even in batch sizes as low as 100kg.

Same basic elements - broad range of products

VAC uses iron, nickel and cobalt as the main elements to manufacture wire products with widely varying properties. For example, the company supplies a range of nickel-iron and cobalt-iron alloys in the sector of **soft magnetic applications**, in which requirements for high precision and miniaturization are increasingly advanced. MUMETALL[®], featuring maximum permeability of 250,000, is a vital element in power sensors. Cobalt-iron alloys such as VACOFLUX[®], on the other hand, offer ultra-high saturation polarization of up to 2.35 T and are thus ideal for electromagnetic actuators with high dynamic response or electro magnets

In addition to soft magnetic alloys, VAC also produces **ductile permanent magnets**. CROVAC[®], for example, is a highly ductile material that can be supplied as wire or trimmed pins, with properties that also enable it to be used for more complex geometries requiring bending or other processing. Unlike highly brittle rare earth magnets or expensive AlNiCo magnets, CROVAC[®] pins represent a high-quality yet affordable alternative for applications such as bi-stable relays.

Further technological highlights from VACUUMSCHMELZE will certainly include the company's ultra-high-strength **spring materials**. These VAC alloys offer unique combinations of attributes: for example, NIVAFLEX[®] is used for the mainspring in any high-quality mechanical clock or watch, as the only material offering hardness up to 3000 MPa plus residual ductility that ensures ultra-long life even for springs that are subject to high alternating loads.

The latest development by VAC is DURACON[®] 17A, a contact spring material with hardness of up to 1800 MPa plus electrical conductivity of 6 MS/m (10% IACS). This material is the first high-strength, eco-friendly alternative to copper/beryllium alloys.

While VAC spring materials are optimized for maximum strength, the key property of its **melt-in alloys** is defined thermal expansion, a vital factor in the interaction of glasses and ceramics. The range of VACOVIT[®] and VACON[®] alloys deliver precisely adjusted expansion coefficients in fine increments from near-zero to approx. $12 \cdot 10^{-6} \text{ K}^{-1}$.

VACUUMSCHMELZE also **develops completely new custom alloys** for specific applications, such as VACON[®] CF8 and VACON[®] CF25, both of which combine high conductivity and highly temperature-dependent resistance (0.1 to 1.1 $\mu\Omega\text{m}$). In addition, VACON[®] CF25 is a melt-in alloy which is effective in high conductivity glass sealed power entry points in vacuum chambers. This sophisticated high-performance material has replaced conventional copper core wires and delivers far superior electrical and thermal conductivity.

VACUUMSCHMELZE GmbH & Co. KG

VACUUMSCHMELZE (VAC), based in Hanau, designs, produces and markets advanced materials, primarily magnetic materials but also materials with other properties, and related products. The company has a staff of 1,400. 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 today operates in over 40 countries, has annual sales of approximately 300 million euros and is the holder of over 600 patents, making it 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 products, components, parts, modules and systems for use in a wide variety of fields and industries spanning watch-making and medical technology, regenerative energies, shipbuilding and telecommunications, and the automotive and aviation industries. VAC's custom solutions are developed in close collaboration with the customer, reflecting the company's expertise in materials and state-of-the-art production technology.

Find out more at www.vacuumschmelze.com