

Higher durability for moulding tools plus increased productivity:

VACUUMSCHMELZE presents new material DURACON® 45M

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Hanau / Frankfurt – VACUUMSCHMELZE GmbH & Co. KG (Hanau) introduces a new member of its DURACON® family of iron/cobalt/nickel alloys. New DURACON® 45M, now supplied as solid material, offers features including ultra-hardness plus outstanding heat conduction properties; because of this it is ideal for tool mould making, where high hardness has a favourable effect on the wear behaviour of the moulded parts. In addition, the thermal expansion behaviour of DURACON® 45M is identical to tool steels, significantly reducing the risk of stress cracking in tools.

In mould making, short cycle times and optimum tool lifespans are essential to ensure efficient manufacturing processes, particularly for plastic injection-moulded parts. In order to accelerate cooling and thus shorten cycle time, the materials used for the moulds must have high thermal conductivity. Beryllium copper (BeCu) has generally been added to moulds, usually produced of tool steel, to significantly increase conductivity at specific points. However, steel and BeCu exhibit widely varying thermal expansion behaviour, which causes thermal stresses within the mould and may often shorten its useful life.

In addition to showing considerably higher hardness than BeCu (tensile strength of DURACON® 45M: 1500 MPa, compared to approx. 1200 MPa for BeCu2), DURACON® 45M has a thermal expansion coefficient which is identical to tool steel. A composite tool of DURACON® 45M and steel is thus free from thermal stresses, resulting in moulds with an optimum useful life. In addition, DURACON® 45M is free from toxic alloy elements such as beryllium, which generate carcinogenic particles and vapours during both processing and use and are also viewed critically as scrap components. In mould making, DURACON® 45M thus not only increases productivity and extends the useful life of moulds, but also contributes to environmental protection.

VACUUMSCHMELZE GmbH & Co. KG

VACUUMSCHMELZE (VAC) with 1,400 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 around 325 million euros in over 40 countries and is 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 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 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