

GERMANY

OECHSLER AG: Driving Ideas into PIM Solutions – Creatively, Rapidly, Globally

The PIM Division (Powder Injection Moulding) at OECHSLER AG focuses on the manufacture of ceramic and metal components and assemblies (small- and large series) for the technical and decorative sectors, e.g. for the automotive, consumer, machine engineering and industrial technology sectors. This comprises the development, design and configuration of the geometry as well as tool development and, if required, surface treatment and finishing of the components.



Fig. 1
Decorative black zirconia for interior automotive design

Introduction

Founded by Matthias Oechler in the Franconian town of Ansbach in 1864, the company is regarded today as a high-tech company for forward-looking solutions in plastics technology – from individual precision parts to complex as-

semblies and systems. Together with its 3100 employees at eight sites located worldwide, the company drives innovation forward to open up new future markets.

CA: You have been a leading supplier in injection moulding of speciality plastics in large unit numbers for decades. When and why was CIM (Ceramic Injection Moulding) added?

OECHSLER: Owing to our various product portfolios, we are operating in diverse sectors, such as the automotive, medical and footwear industries, as well as other sectors. Here, we are an innovative partner and driving force for our customers.

Always intending to continue our success story, we aim to open up new business areas and further expand existing ones through innovations. These ambitions have triggered our vision of extending our product portfolio to powder injection moulded products, especially with emphasis on ceramic injection moulding. With 12 years of experience in this field, we have succeeded in establishing broad expertise and extensive know-how. Our precision and high-strength metal and ceramic components set standards in the automotive, consumer goods, mechanical engineering and industrial technology sectors. Individually developed according to the needs and requirements of our customers, we produce high-quality solutions in series.

Even though the complexity of the related production processes might be challenging sometimes, we have successfully managed to handle it and are very proud of our achievements and product developments: OECHSLER is currently manufacturing the 3rd generation of automotive interiors for BMW, which is further proof of us being a reliable and high-quality supplier.

CA: From which company-internal competences was CIM able to profit in the initial developments?

OECHSLER: Being an injection moulding specialist, we have hundreds of state-of-the-art, partially customized, injection moulding machines. The process for serial production of high volumes and quality standards has been fully developed by us internally. The production is equipped with fully and partial automatised handling systems, which enables OECHSLER to be a strategic partner for e.g. complex and specialised ceramic injection moulding parts.

Our know-how in specialised toolmaking as well as in multicomponent technology and automation forms the basis for high-quality precision products designed, and sometimes even developed jointly with our customers.

The recipe for success in CIM products relies mainly on the tools supported subsequently by debinding and sintering processes. The tools are customised to individual parts – therefore they have to be precise so that the manufacturing process justifies the economy of scale. One of the central advantages of this technology – fewer work steps – is the result of consolidating the creation of value in a single complex tool. In comparison with single-cavity tools or components, this not only reduces unit and assembly costs but also enables a high degree of process safety and stable cycles, which are indispensable to meet the highest quality standards.

CA: Which specific process developments were necessary for CIM?

OECHSLER: When we entered the ceramic market with ceramic automotive interior parts made of black designer zirconia (Fig. 1), we ensured that we have all the competences we needed in house: meaning from raw material to de-binding, sintering, grinding, polishing, etc. everything is developed by us, so that the highest precision and quality standards are met, especially for high-volume production. Another benefit that OECHSLER offers are the tailor-made and customised quality control systems. Several production steps are monitored and maintained in order to achieve the zero-failure strategy.

CA: With the injection moulding technology for polymers, ceramics and even metals, OECHSLER has a unique selling point. Do you manufacture hybrid components with injection moulding?

OECHSLER: We have broad know-how in injection moulding of several materials: be it polymers, metal or ceramic. On top of that, we can re-mould our ceramic parts in polymer housing or other materials, if needed (Fig. 2). The said unique feature can be combined with the high-volume of serial production. The process plant and equipment can be customised in order to meet the optimal quality standards.

CA: What barriers have you had to overcome to qualify as an automotive supplier of ceramic components?



Fig. 2
Hybride PIM parts (ceramic in polymer housings)

OECHSLER: We did not consider any barriers, we saw a chance to grow new businesses. Neither did we face serious challenges, since OECHSLER has always been a healthy company, offering many support possibilities. Thus, it was feasible to leverage comprehensive synergies, such as making use of the in-house tool shop or of the various test possibilities (e.g. performance test benches, environmental/climatic tests, shaker test, noise measurements, melt index, etc.).

We are IATF 16949 and ISO 13485 certified, meaning we maintain the documentation e.g. APQP, ISTR, as specified in line with the stringent requirements.

CA: What other user segments have you got your eye on?

OECHSLER: Now, being a CIM expert for more than 12 years, we should like to expand our horizons to other technical ceramic parts as well as to other materials such as metals. We are not limiting ourselves to the automotive industry but also entering other markets and industries. Necessity is the mother of invention, and we are ready to take off on the journey of further powder injection moulding applications.

CA: Thank you for talking to us.

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