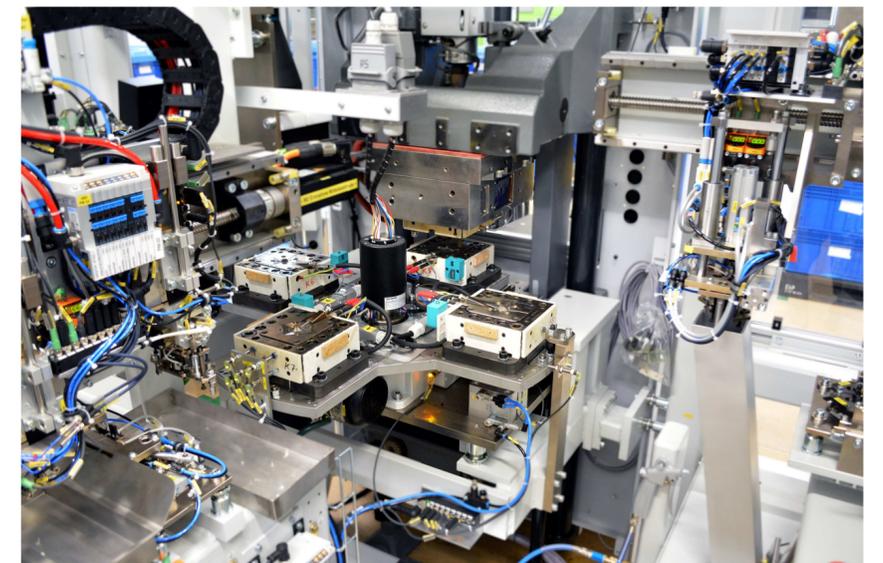


OECHSLER STRENGTHENS TECHNOLOGICAL ADVANTAGE WITH CERAMIC INJECTION MOLDING (CIM)



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PROJECT BREAKDOWN

Application:

Technical and functional product design, e.g., back covers for mobile devices

Why OECHSLER:

We offer a one-stop solution for metal or ceramic injection molded high-end components including development, prototyping, and the realization of scalable productions.

Material used:

High Impact Zirconia

The result:

High-quality products with maximum impact resistance



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Are you looking for an innovative, high-impact resistant materials with specific qualities for technical and decorative applications?

Using the unique properties of high-impact Zirconia, we produce parts that require elaborate characteristics such as thin wall thicknesses, hybrid material combinations, as well as high polished, matted or structured surface finishes.



PAVING THE WAY

OECHSLER revolutionized the injection molding process by using ceramics and polymers to achieve an even higher resistance against chemical and thermal exposure. In addition, the combination of these materials allow us to produce almost any shape, even 3D objects. High Impact Zirconia parts are well-suited for high-quality devices in harsh conditions.

While offering a range of different finishes with outstanding haptics, the surface remains highly impact and scratch resistant. Standard Zirconia has a fracture toughness (K1C) of 34 MPa*m^{0.5}. In comparison to that, our High Impact Zirconia provides a significantly higher fracture resistance. In fact, it can withstand up to four times the load.

A close-up photograph of a watch case back, showing a metallic surface with two white triangles. The watch is positioned on the left side of the page, with a red border framing the entire content area.

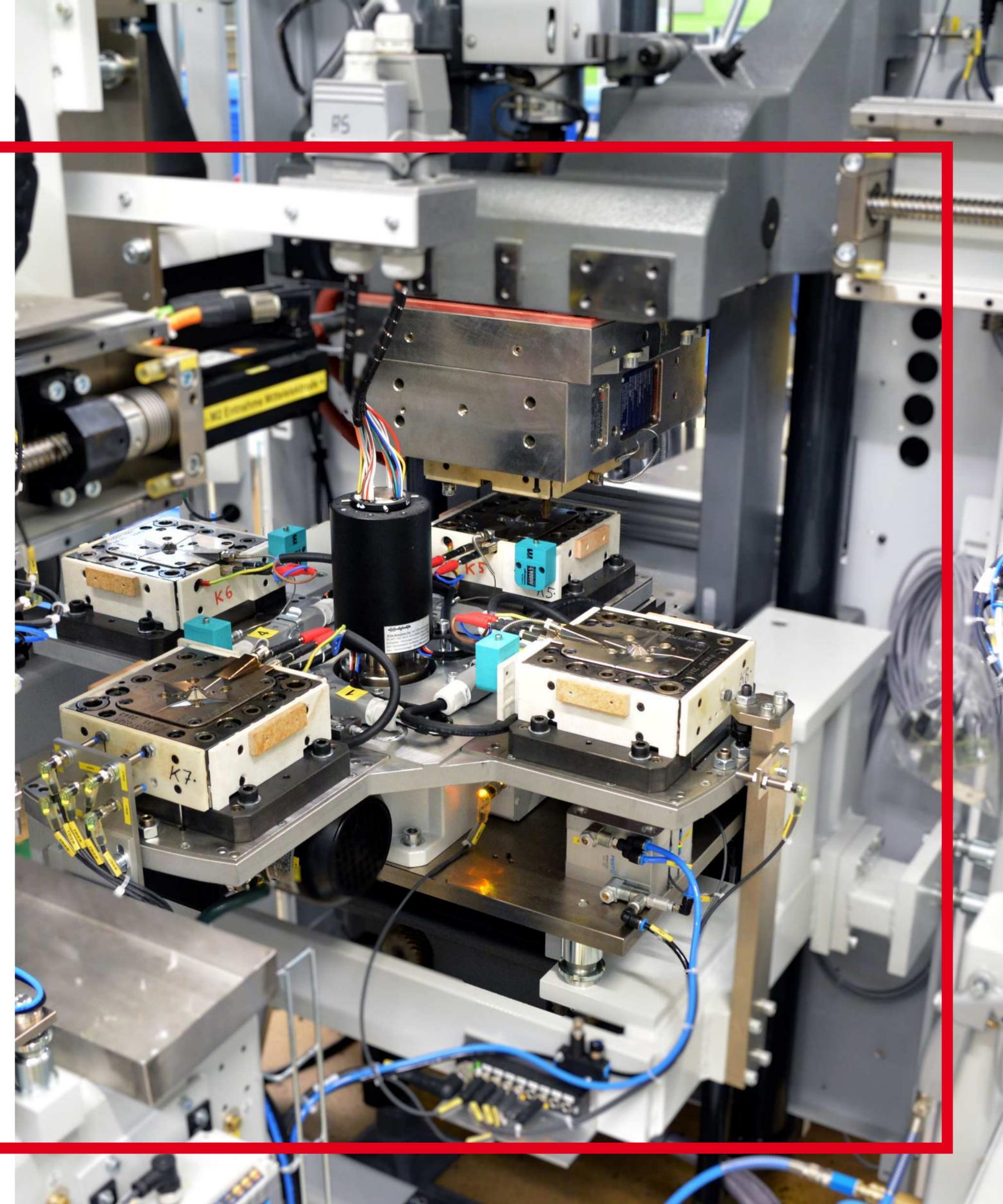
How are we able to process such a material? The secret to this extraordinary material lies in the small number of polymers. We combined the success of our previous work with the opportunities of a new material which led us to an even better performance of our products. At OECHSLER, we draw on many years of experience in the field of injection molding. Our believe and expertise in polymer-based solutions enables us to assure a highly efficient automated injection molding process. By harnessing the advantages of Zirconia OECHSLER strengthens its technological advantage.

HOW DO WE PRODUCE THESE SPECIAL PARTS?

Beside visual purposes we are able to fulfill high technical requirements, like submicron flatness, using scaleable grinding equipment.

In order to create complex shapes that require a high amount of accuracy, we use an innovative mold technology. Together with a precisely selected combination of materials, this fully automated process allows us to produce parts with

exceptional properties. After the injection molding, the debinding takes place to eliminate any excess polymers and waxes. The next step in the production is called sintering and causes the part to shrink by approximately 30 %. Whereas the shrinkage is necessary to agglomerate the ceramic components, we use our own unique approach to counteract any distortion or other disadvantages during this step.



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Following this, the product has its final shape and features all the properties specific for ceramic, i.e., hardness as well as mechanical and chemical strength. When the sintering is complete, the surface is ready to be treated. We offer a variety of options including different types of surface treatments such as fully automated flat grinding, tumble grinding or sand-blasting. Naturally, we do not want to produce high-performance parts without giving them an appealing design. Do you wish to have a matted, anti-fingerprint coating? No problem, we customize the surface finish according to your needs. To ensure our quality standards at all time, there are various quality controls in place, like measurements, thermal controls, material specific checks and visual monitoring, wether manually or automated.



OUTCOME

We dedicated our efforts to creating an innovative injection molding process for carefully composed feedstocks. As a result, we can manufacture complex parts that offer new kinds of production possibilities.

- The products can feature extremely thin wall thicknesses, hybrid material combinations, and customizable surface finishes.
- Product solutions that require specific material properties can be realized in serial production.
- The fully automated camera system allows for absolute quality control at all time.
- We offer customized solutions for sensors, mobile device back covers, automotive parts, medical parts, and many more.
- Various quality controls ensure best quality standards.





**ARE YOU INTERESTED IN OUR CIM-PRODUCTION?
DO NOT HESITATE TO CONTACT US AT
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