

Corporate Communications

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Press Information

Configure now with CeramCreator: Solid inserts made of PcBN and ceramics

New machining strategies for hard turning thanks to Solid PcBN and ceramic indexable inserts

***Southampton/Plochingen, 10 June 2021* – Optimum machining speed, high production reliability and reproducibility are key for high productivity in the machining of hardened components. Approaching the manufacturing process holistically enables CeramTec to adapt cutting materials and machining strategies to the conditions of the machining case and to optimise production costs. Customised products in the field of cutting tools can now also be configured digitally in just a few steps with the CeramCreator self-configuration tool.**

The turning of hardened steel has prevailed over other machining processes in many application areas of drive technology. Depending on the quality standards required by the customer, such as surface quality, shape and dimensional accuracy and component hardness, hard turning can be a substitute for grinding. With modern tools and cutting materials, such as PcBN and mixed ceramics, hardened

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workpieces are therefore increasingly being finished by hard turning in shorter process chains. Nevertheless, an optimisation of hard turning processes on a technical and economic level is indispensable.

Solid indexable inserts made of PcBN and ceramics

The basis for optimum machining of a workpiece is the performance of a cutting material. PcBN cutting materials score in the areas of hot hardness, toughness, and chemical stability. In combination with CeramTec inserts, such as the solid indexable inserts made of PcBN and ceramics, which are also suitable for hard-soft transitions, the respective hard turning process can be optimally designed, and new machining strategies can be realised.

New machining strategies with solid-PcBN indexable inserts

Compared to corner tipped PcBN inserts, solid indexable inserts made of PcBN have a significantly increased process reliability, as the desoldering of the cutting corner, which occurs at high thermal loads, can be avoided. This is particularly advantageous for components with large dimensions or cutting lengths. The now fully usable edge length of the cutting plate enables new machining strategies such as "drawing cut" or "braking", reducing the required number of machining cuts to a minimum. The "drawing cut" works with a very small setting angle at a larger feed rate. Up to 60%

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shorter machining times can be achieved under stable conditions. Using the “drawing cut” with grooving rotation, the wear is also distributed more evenly over the entire engagement edge, thus avoiding scour wear which is the main reason for micro-blowouts. This in turn has a positive effect on the quality of the surface finish.

The use of solid PcBN indexable inserts in combination with the "drawing cut" leads to a flexible design of the manufacturing processes and a significant increase in productivity in hard turning. The increased machining speed releases machine capacities that can be used for follow-up jobs. This in turn increases economic efficiency with longer service lives and higher process reliability. Consequently, the unit production costs per component are also reduced.

Get your perfect product faster and easier

With the new CeramCreator online configurator, CeramTec provides its entire product portfolio for cutting tools online. The configurator offering is structured according to features and specifications, making the search for the right product and the material easier, more intuitive, and faster. To get your specific cutting insert, product and material requirements such as cutting material, geometry, surface finish, tolerance, corner radius and machining properties can be entered manually.

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For more information on the new machining strategies for hard turning of solid PcBN inserts, please visit: <http://insights.ceramtec-group.com/pcbn-0>

CeramCreator is now available on the CeramTec homepage at <https://configure.ceramtec-group.com/>.

On YouTube: [spktools](#)

For further information on CeramCreator, please contact solutionteam@ceramtec.de

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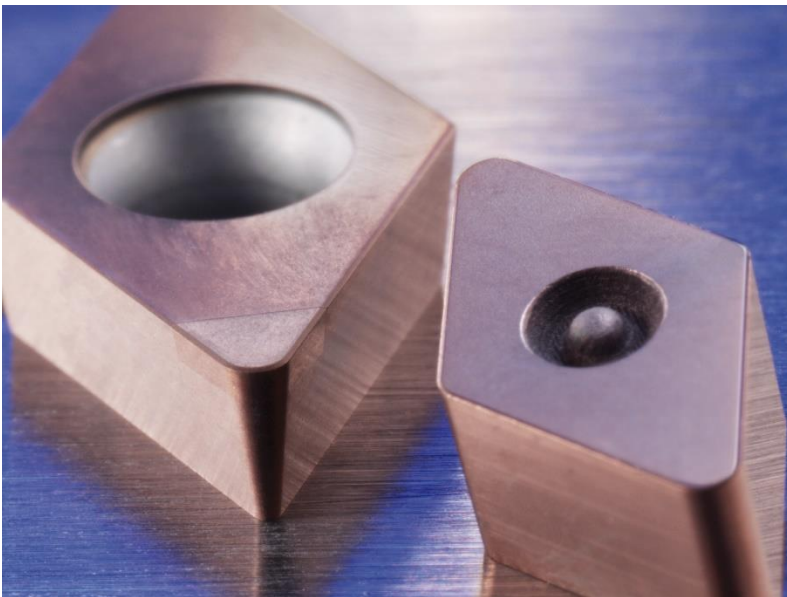
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Notes to the editor

Images



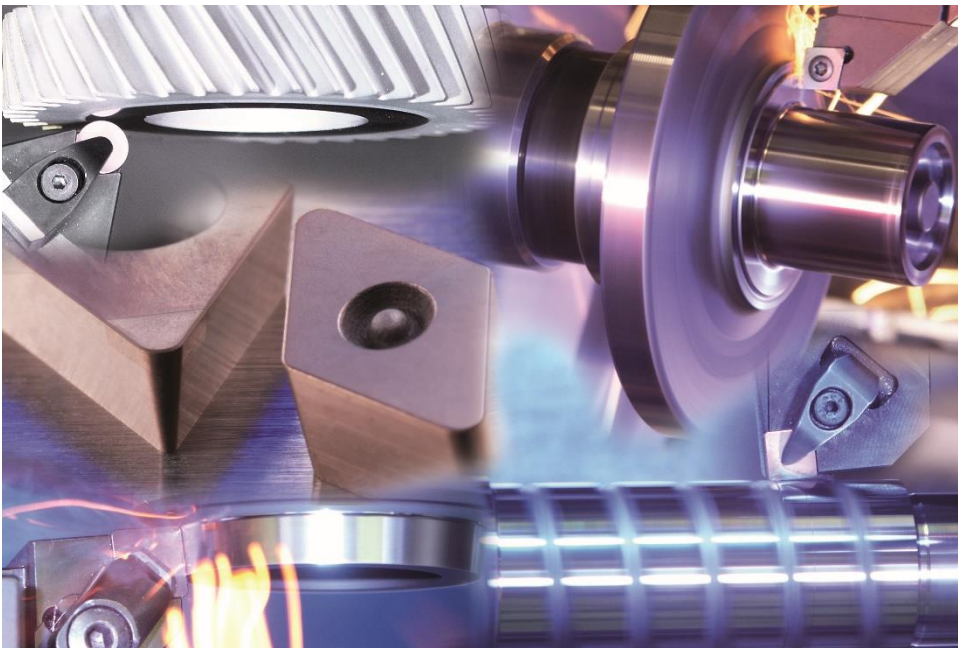
Caption: Corner tipped PcBN solid indexable inserts
Image Source: CeramTec GmbH

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Caption: New machining strategies for hard turning thanks to solid PcBN and ceramic indexable inserts
Image Source: CeramTec GmbH

About CeramTec GmbH

CeramTec is a world-leading manufacturer of technical ceramics and is specialised in the development, manufacturing and sale of parts, components and products made from ceramic materials. With over a century of developmental and production experience, CeramTec is a global leader in the manufacturing of advanced ceramics and engineers these materials for use in a wide variety of applications. Advanced ceramics from CeramTec are used in a range of industries, including medical engineering, the automotive industry, electronics, energy and environmental engineering, as well as equipment and mechanical engineering. The current portfolio comprises well

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over 10,000 products, components and parts made from technical ceramics, along with a wide variety of ceramic materials.

With production sites and subsidiaries in Europe, the UK, North and South America as well as Asia, CeramTec maintains its presence around the globe as a manufacturer and supplier. The company is headquartered in Plochingen, near Stuttgart. In 2020, CeramTec generated close to €553 million in revenues. CeramTec employs more than 3,500 staff worldwide, around 2,000 of which are in Germany.

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