
VEHICLES


AEROSPACE


GEARS & BEARINGS


ENGINEERING


WIND ENERGY

MACHINING SOLUTIONS FROM CERAMTEC

CeramTec
THE CERAMIC EXPERTS

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THE CERAMIC EXPERTS

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MACHINING SOLUTIONS FOR INDUSTRIAL SEGMENTS

AUTOMOTIVE INDUSTRY

For 60 years CeramTec precision tools have been an integral part of the automotive industry for high-performance machining solutions of automotive parts. Our focus is always on tangible cost and productivity advantages.

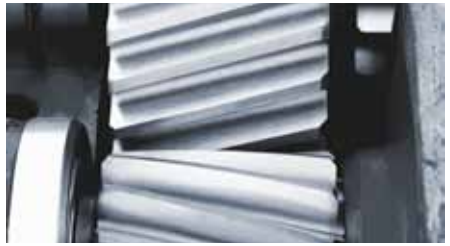
Example parts:

Brake discs, transmission components, flywheels, clutch pressure plates, brake components, drive shafts, hydraulic elements, engine components

AEROSPACE AND SUPER ALLOYS

Aerospace places the highest demands on machining. Process reliability and cutting performance are the defining parameters perfectly served by our tools.

Engine components



TRANSMISSION, DRIVE AND BEARING INDUSTRY

Surface quality and the ability to hold tight tolerances over the entire machined surface are the vital parameters for hard turning. Our CBN and ceramic cutting materials represent economical machining.

Gears, shafts, large gear components, bearing rings and rolling elements

MACHINERY AND EQUIPMENT

We can machine complex cast components made of different materials quickly, economically and to the required tolerances. The CeramTec Solution Team creates innovative and cost-effective machining solutions.

Gearbox housings, flanges, guides, shafts, rollers

WIND ENERGY

Large components require the tool to be engaged for long periods. Tight tolerances and high surface finish quality place high demands on cutting materials and tool carriers. Our cutting tools have been developed for use under such conditions.

Rotor flanges, rotor blade connections, planetary carriers, gearbox housings, gearbox components, rolling bearings

A MULTITUDE OF SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY

CeramTec machining solutions are used in a wide range of different segments in the automotive industry:

	Example parts:
Engine industry The high-performance materials in engine manufacturing require tools that guarantee the highest level of process reliability and a consistent level of quality. CeramTec tools meet these high standards of performance.	Connecting rods, pulleys, crank-case housings, cylinder heads, cylinder liners
Transport Components for the transport segment often require special machining solutions to enable economical machining operations. We ensure the best results by offering the right tools and cutting materials.	Wheel rims, shafts, bearings
Agricultural and construction machinery We offer a wide range of highly efficient machining solutions for agricultural and construction machine components. Our expertise is represented in the machining of steels, cast iron and hardened materials.	Brake components, drive shafts, hydraulic elements, engine components
Automotive For many decades precision tools from CeramTec have been an integral part of high production machining solutions for the automotive industry.	Brake discs, brake drums, flywheels, connecting rods, transmission components, crankcase housings

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SOLUTION TEAM CeramTec

PROCESS **SOLUTIONS**

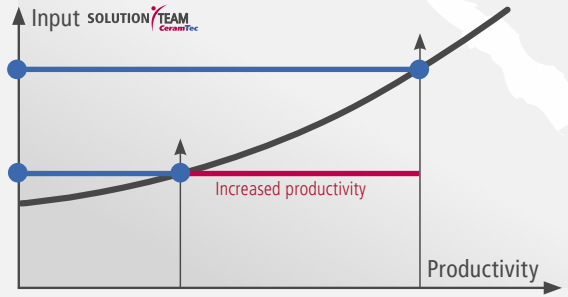
What is the best way to machine my part? Is my machining process economical? Is there any potential for improvement in my machining process?

These and other similar questions come up time and again with regard to machining. Our **CeramTec Solution Team** is at your side to provide the right answers – all over the world.
The art of the machining process is to match the cutting materials and tools to materials, parts and the machine condition. The CeramTec Solution Team not only makes sure that all of the tasks are performed successfully according to the targets set, but also ensure productivity, process reliability and efficiency.

CERAMTEC SOLUTION TEAM
SERVICES

- Redesign and optimisation of existing machining processes
- Machining plans for optimal machining results
- Machining support on site
- Cutting data optimisation
- Tool design

CeramTec Solution Team Services



Close the gaps in your productivity – send an email to: ***solutionteam@ceramtec.de***

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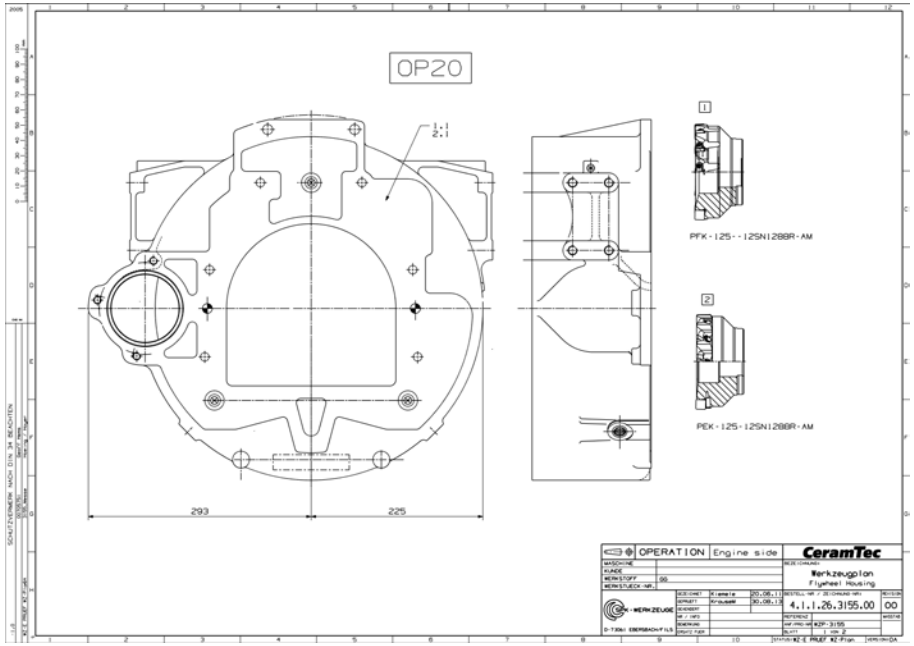
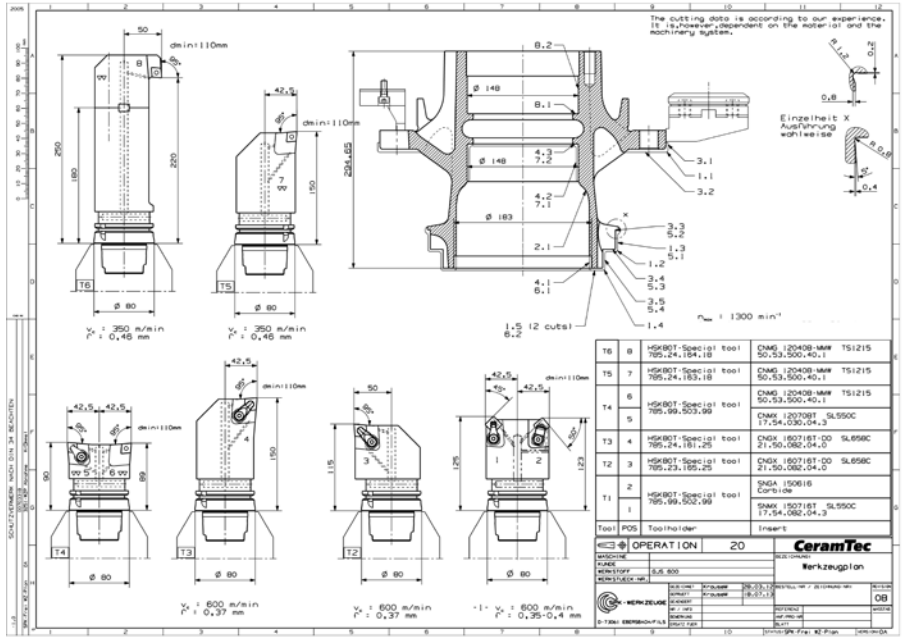
Machining plan for face milling
a gearbox housing made of GJL



Machining plan for turning
a wheel hob from GJS 600



CUTTING MATERIAL SOLUTIONS

K

α/β SiAlON ceramics

This cutting material makes the highest cutting speeds and feed rates possible when machining cast iron, even under the toughest operating conditions. When coated the inserts are ideally suited to machining fresh castings.

K

Silicon nitride ceramics

Do you need increased cutting data and high machining speeds? CeramTec inserts are ideally suited for machining cast iron parts. They are available for a wide range of applications and guarantee a reliable machining process.

K H

Mixed ceramics

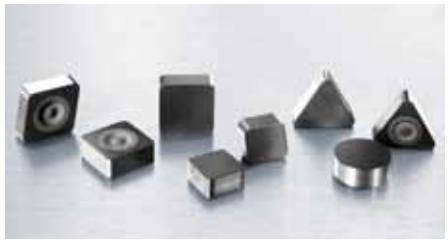
Our composite cutting materials have excellent wear resistance, edge stability and thermal hardness. Their fields of application are in the machining of hardened steels, the hard machining of rollers as well as fine and medium machining of cast iron workpieces.

K

Oxide ceramics

These classic cutting materials for turning and grooving are perfectly positioned for the machining of grey cast iron and spheroidal graphite cast iron. They are also suitable for the continuous machining of centrifugally cast workpieces.

CeramTec faces the challenges posed by different machining tasks, whether turning, hard turning, milling or boring. Our wide range of ceramic cutting materials, CBN, Cermets and many coatings is unique. This has enabled us to establish ourselves as a market leader and reliable partner worldwide.



K H

CBN cutting materials

CeramTec offers a wide range of high-strength CBN (polycrystalline cubic boron nitride) inserts in solid, laminate and tipped ideally suited for the roughing and finishing of grey cast iron workpieces. Hard cast materials and sintered metals are also well suited for machining with CBN.

K M N P

Cermets

This cutting material is extremely well suited for semi-finishing and finishing stainless steels, steels, sintered metal and cast iron both in continuous and slightly interrupted cuts. We offer a broad range of chip form geometries for optimum, consistent chip formation and a reliable chip breakage.

H

Cutting materials for hard turning

CeramTec offers a comprehensive range of coated CBN and ceramic cutting materials for turning and grooving components made from tempered steel up to 63 HRC. Our solid CBN variants offer particular advantages in the implementation of new process-shortening machining strategies.

S

Cutting materials for super alloys

The cutting materials CSL are excellently suited for turning, parting and grooving super alloys – for example, in the production of engine components for the aerospace industry.

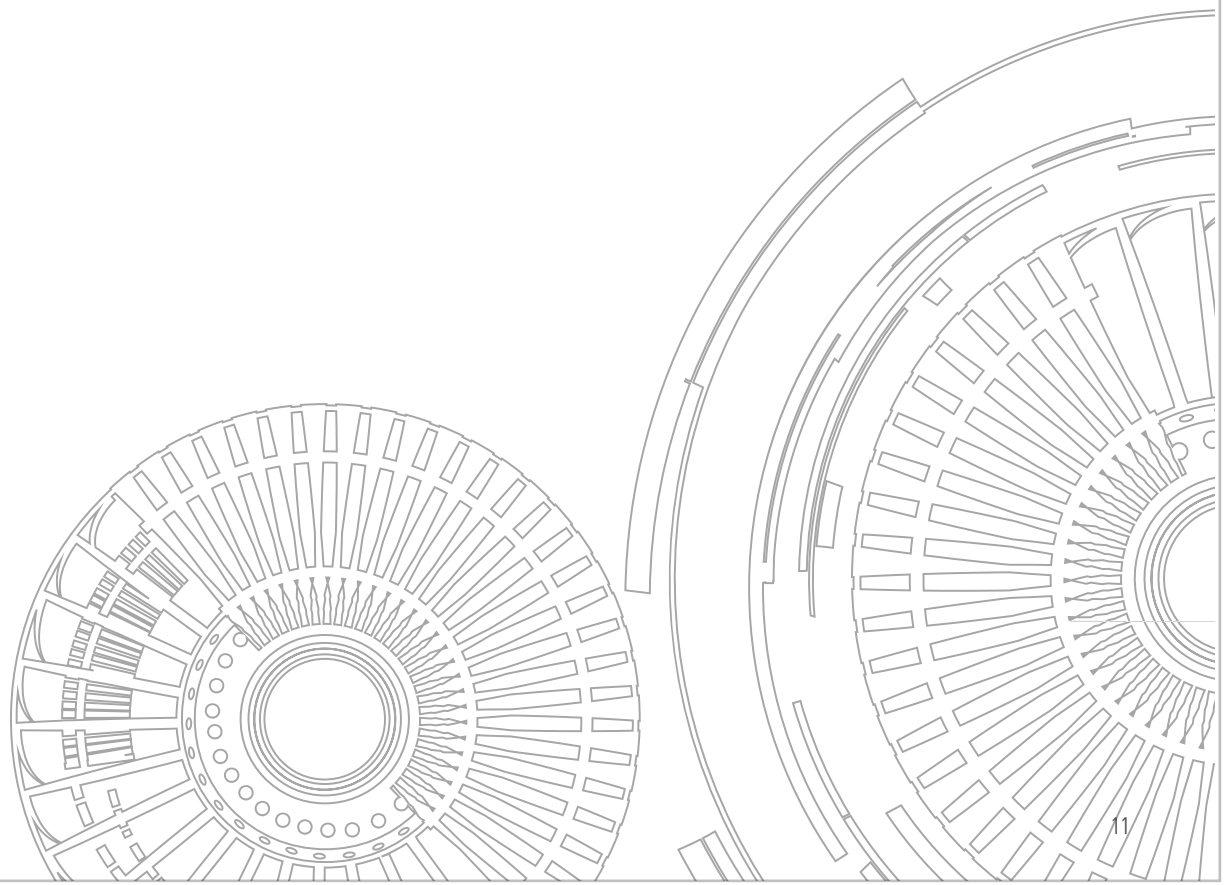
AEROSPACE
AND SUPER ALLOYS

We support the machining of super alloys with a total package of our CSL cutting materials for turning, grooving, and milling.

CSL125 CSL525 CSL725

CeramTec AEROSPACE

These cutting materials combine extremely high wear resistance with high reliability in use. This makes it possible to significantly reduce machining times for turning and grooving, even with difficult to machine alloys.



THE SYSTEM S3

*The **cartridge system S3** is your first choice if wear on the clamping fingers and pocket deformation impairs machining quality. For example, clamping fingers are available in hard metal and cartridge bodies are available in special materials. These substantially increase process reliability and the service life of the cartridge.*

TOOLS FOR **TUNING**

Our turning tools and cartridges for external and internal machining, combined with our modular tool changing systems enable a wide variety of machining tasks to be solved in a highly productive, process-optimised and cost-effective manner.

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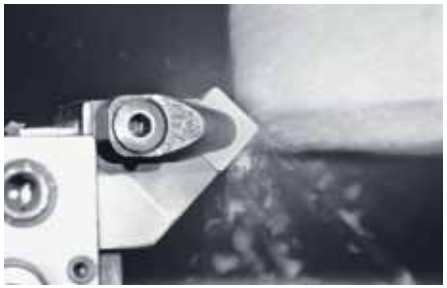

Cartridge

Our range of standard and special cartridges is designed specifically for reliable high-performance machining with ceramic cutting materials, CBN and Cermet. The range of application extends from heavy roughing, through medium-sized machining tasks to finishing and fine finishing. Our range offers a wide spectrum of cartridge shapes for different styles of cutting inserts.

Boring bars

Our boring bars are designed for high vibration stability and perfect chip removal. Different diameters, standard and special lengths, and a variety of cartridge styles enabe reliable high-performance machining of bores with our cutting materials.

Mounting cartridge

Our mounting cartridges are designed to ISO standards, and are adjustable both axially and radially. They can be used in a wide range of applications for external and internal machining.

Modular tool changing systems

The precise machining of a workpiece places high demands on the tool system, particularly when changing tools. Our tools are available in common interface systems and meet the requirements for interchangeability, handling and stability.

SPECIAL TOOLS

CeramTec offers a particularly cost-effective solution for optimising process times and increasing productivity for mass and batch production: the use of special tools.

From cutting bodies with special geometric shapes to custom tool holders: In a very short time we design and provide even complex special tools whilst remaining true to our promise of the highest quality.

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The easy and fast way to obtain your special tool – send us an e-mail: ***solutionteam@ceramtec.de***

TOOLS FOR **HARD TURNING**

We focus on gearbox, drive and bearing components for individual, series and mass production. We offer a variety of CBN cutting materials for hard turning and finishing. As a full-service provider we also offer matching tool holder systems in both standard and special versions. Our cutting program includes a comprehensive selection of coated and uncoated CBN high performance grades for continuous to highly interrupted cuts for hardened components up to approx. 63 HRC.

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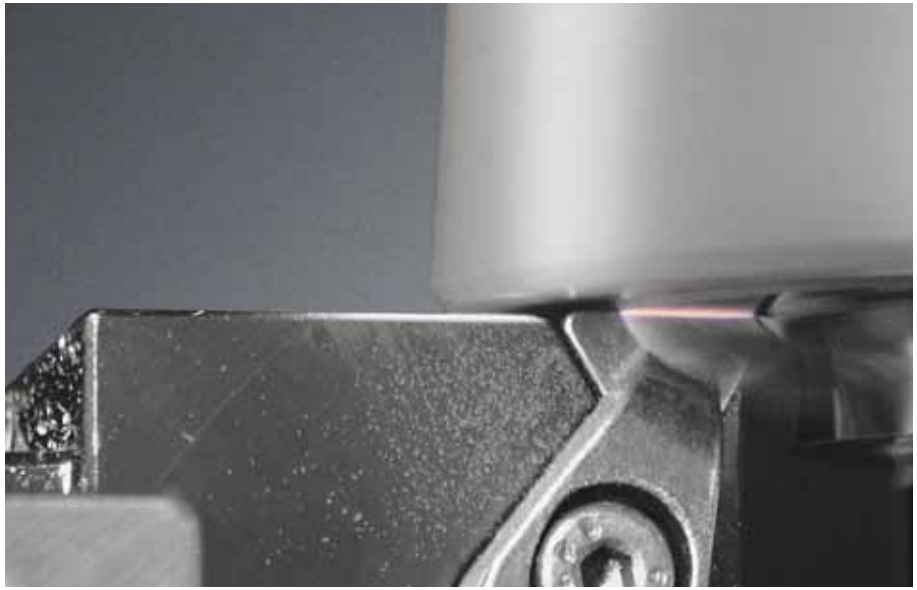
Solid CBN for hard turning

Solid CBN inserts offer a whole range of advantages for various machining tasks:

- No limitation by the cutting edge length, enabling optimum cut distribution and a significant reduction of the required number of cuts
- High cutting speeds possible, because there is no detaching of the CBN cutting edge
- Drawing cuts for excellent surfaces at simultaneously high feed rates
- Preturning machining technique: maximum removal rate and twist-free surfaces produced in one working step
- Hard-soft transitions



BENEFITS

Hard turning with CeramTec tools

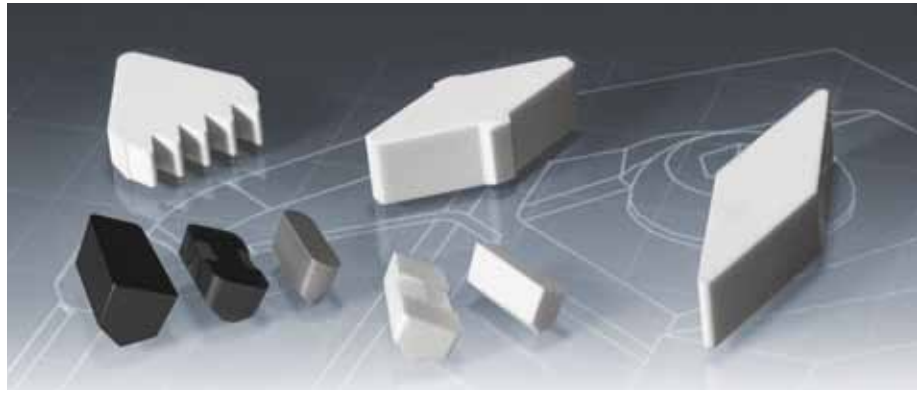
- Excellent surface quality
- Increased process reliability
- Shorter process cycles
- High dimensional and shape accuracies
- Highest process flexibility
- Cutting materials for hard-soft transitions
- Continuous and interrupted cuts
- New processing strategies for best cost benefits
- Tipped and solid CBN inserts

TOOLS FOR **GROOVING**

CeramTec's grooving systems allow grooving as well as radial and axial grooving with a lateral feed. A wide range of ceramics, CBN and Cermet cutting materials are available.

CeramTec offers a comprehensive range of standard and form profile cutting tools for standard and profile grooving, also for V-belt profiles and Poly-V profiles. Together with our CeramTec Solution Team, our engineering department develops the designs for special shaped grooving inserts and special holders. These are then manufactured in our own production department.

Our RAG grooving system shows its strengths when parting and grooving using a lateral feed: The patented double prism cartridge of the grooving inserts enable high cutting values with the best process reliability.



TOOLS FOR **MILLING**

Our portfolio includes milling systems that are adapted to the individual machining tasks and work piece situations. Our milling tools are designed with negative or positive insert geometries and with wedge or hole clamping for highly productive milling.

Face milling

Our milling systems are specially designed for high feed and cutting speeds. Depending on the type of milling cutter, roughing, semi-finishing, finishing and fine-finishing operations can be performed with excellent results. The wide range of ceramic, CBN and Cermet cutting materials offers economical solutions for many materials and milling tasks. High-precision milling systems are available for face milling with minimal axial forces.

Edge and slot milling

Our milling systems deliver excellent performance when edge and slot milling. High tooth feed rates and good chip removal combined with moderate cutting forces and varied cutting materials make a reliable and robust milling system – and this with a wide range of application possibilities.

High feed and helical milling

The BFL milling system allows maximum insert feed rates at high cutting speeds. It achieves high feed using its special inserts and cutting materials. The geometric design of the milling body also allows helical plunge milling into a workpiece.

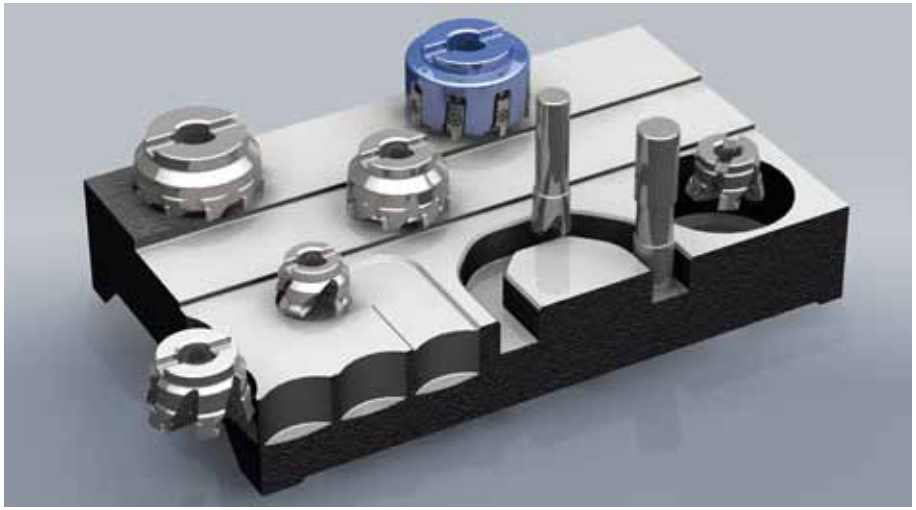
Cooperation with machine manufacturers and users

Our **CeramTec Solution Team** supports original equipment projects and provides a wealth of application knowledge. Whether at the machine manufacturer or the customer, development takes place directly on site.

Special tools and engineering

Special milling tasks demand special solutions. Our **CeramTec Solution Team** is at your disposal. Whether the milling task uses standard or special milling cutters, our experts will take care of the technical development and the economic implementation. The milling tools are produced exclusively in our own production.

To make contact quickly and easily send an email to:
solutionteam@ceramtec.de



TOOLS FOR **BORING**

We offer exceptional, powerful and flexible tool solutions for boring applications: We provide our boring tools with a fixed insert seat or cartridge depending on the application and requirements. The optimum number of insert seats ensures that our boring tools are extremely economical. We offer interfaces to all common tool holding systems.

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The boring of workpieces made of cast iron has been given a whole new performance dimension thanks to the use of our boring tools and cutting materials: it is possible to reliably achieve cutting speeds of up to 1000 m/min and feeds of > 0.14 mm/z and thus perform boring operations very economically. Other benefits lie in the tight dimensional and shape tolerances that our boring tools reliably achieve.

DISCOVER A **MULTITUDE OF SOLUTIONS**

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