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# CUTTING SOLUTIONS



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**INNOVATION & TECHNOLOGY**  
A DIALOGUE ON MaxiDrill 900

**A VISIT TO ...**  
CERATIZIT AUSTRIA

**INNOVATION & TECHNOLOGY**  
SHOULDER MILLING MADE EASY

**DIALOGUES & SOLUTIONS**  
THE TURBO IN  
TURBINE MACHINING



Andreas Schätzl,  
Head of Team Stationary Tools

# CERATIZIT 3x3

– AN INTELLIGENT COMBINATION



The complete package for the turning  
of steel with the most recent BLACKSTAR™  
and COLORSTAR™ grades

Welcome!



**Andreas Olthoff,**  
Managing Director of CERATIZIT Austria GmbH

**D**ear Readers,  
I am delighted to have this opportunity of presenting to you the first edition of our magazine **#CUTTINGSOLUTIONS**. Quite in keeping with the maxim of not hiding your light under a bushel, we are offering you here exciting reports and pictures illustrating the possibilities made available to you by our cutting tools. You can find out all about recent innovations in our product portfolio, join us in taking a look at solutions for a wide range of applications and industries, and learn more about our work and the people at CERATIZIT. The main focus of our interest is always on the ways in which you can enhance the productivity and efficiency of your production. **#CUTTINGSOLUTIONS** aims to be not just a customer magazine – we would like to offer you the possibility of an intensive dialogue about the challenges presented by a great many industries, for you and for us alike. Dialogue with you is an essential and established pillar of our strategy for success. Only thanks to your suggestions and your individual point of view can we apply our expertise in the most systematic and efficient way, with a view to creating new innovations which will make a real difference to your production processes in the long term. On this note, I wish you an exciting read, and particularly look forward to hearing your thoughts and opinions! Until the next solution!

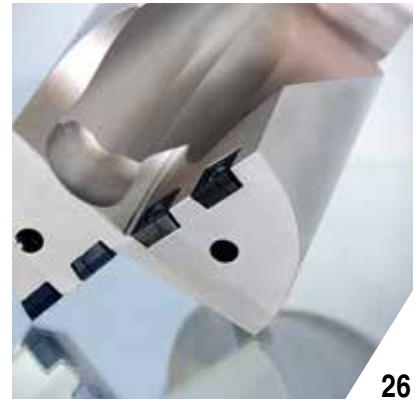
**Yours, Andreas Olthoff**



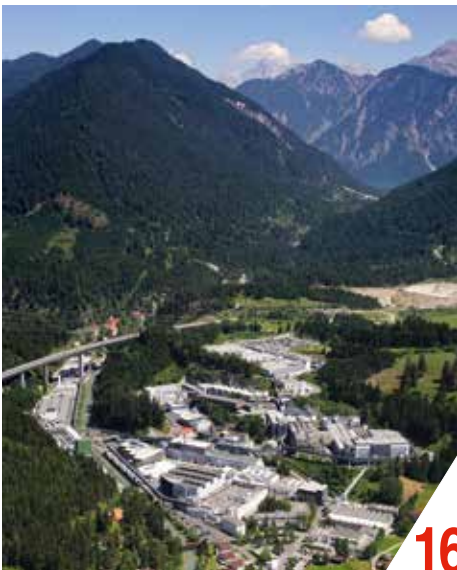
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# BRILLIANTLY TURNED

*Finish turning flywheels*

Maximum quantity per cutting edge and minimum non-conformity in the face turning of spheroidal cast iron flywheels is being achieved by Linamar Powertrain GmbH in Crimmitschau, since they switched to a combination of tool and cutting material from Cutting Solutions by CERATIZIT.

**A**s a reliable partner to the automotive industry, Linamar Powertrain GmbH has been producing up to 400,000 spheroidal cast iron (GGG 50) flywheels at its plant in Crimmitschau near Chemnitz every year. Because it is relatively cheap to produce and in view of its mechanical properties, this material is widely used in the automotive industry. The flywheels manufactured at Linamar are designed for high-power engines in the commercial vehicles sector. They are produced by the drilling, milling and turning of cast iron blanks. But the machining of the blanks is a tricky business. “The hardness grade of the spheroidal cast iron fluctuates enormously. Sometimes you get a harder cast, sometimes it is softer – partly down to the wide DIN classification tolerance of 60 HB. This was causing repeated problems in face turning operations, resulting in frequent insert breaks,” explains Holger Schubert, a production engineer at Linamar Powertrain GmbH. Broken indexable inserts then often scored

deep draglines in the flywheel that was just being machined, damaging it beyond repair. In a nutshell, unreliable processing was seriously affecting the economic viability of production. Schubert decided to look for an insert that would be highly effective for rough machining and intermediate processing, but at the same time would be very much less temperamental.

#### **Extreme toughness, low risk of breakage**

For the finish turning of the flywheels, Linamar tested inserts of the CTCK120 class (in the –M70 geometry) from the CERATIZIT range. This grade, which we first put on the market in 2014, is regarded as a highly durable all-rounder for cast iron processing, and adequately covers the key ISO application range K20.

Up to 400,000 spheroidal cast iron (GGG 50) flywheels are manufactured at the Crimmitschau plant of Linamar Powertrain GmbH every year.



Up to 400,000 spheroidal cast iron (GGG 50) flywheels are manufactured at the Crimmitschau plant of Linamar Powertrain GmbH for commercial vehicles every year.

#### Technical specifications at a glance

<b>Workpiece:</b>	flywheel in GGG 50 spheroidal cast iron
<b>Tool:</b>	DCLNR 2525 M12
<b>Insert:</b>	CNMG 120412EN-M70
<b>Grade:</b>	CTCK120
<b>Application data:</b>	
	$V_c = 280$ [m/min]
	$a_p = 2-3$ [mm]
	$f = 0.4$ [mm/rev]
<b>Benefits:</b>	15% higher quantities per cutting edge, practically no production rejects

*» Our CTCK120 grade really shines in the finish turning of flywheels. Insert breakages have become a rare occurrence in Crimmitschau. «*

Klaus Taubert, Account Manager, Cutting Solutions by CERATIZIT

The first tests proved successful. Just the replacement of the inserts resulted in improved tool life – insert breakages were considerably reduced. Klaus Taubert, Account Manager at Cutting Solutions by CERATIZIT, puts it down to the extreme toughness of the material, resulting in a lower risk of breakages. “Another crucial advantage is the wider range of feed rates which is possible thanks to use of the -M70 chip groove,” Tauber adds. “When CERATIZIT then coordinated the cutting tool with this cutting material, that was the key to producing an optimal result,” Holger Schubert reports. The DCLNR 2525 M12 Maxilock D tool holder constitutes a stable clamping system which holds the inserts against the contact face with maximum effectiveness.

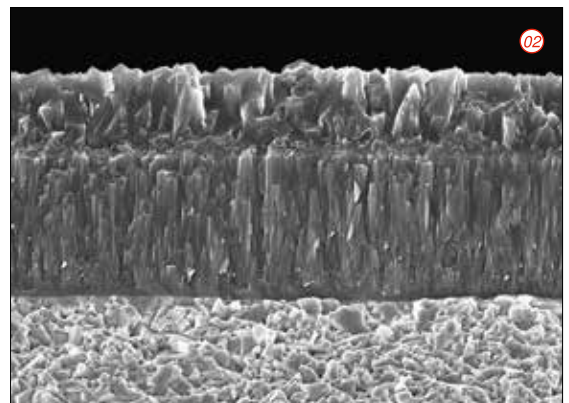
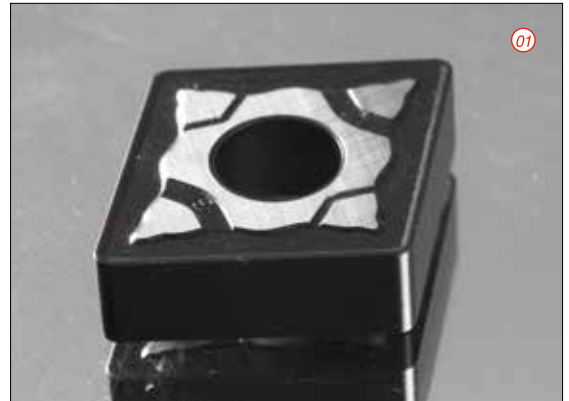
*» We have taken a giant step forward in the turning of spheroidal cast iron flywheels. «*

Holger Schubert, Production Engineer, Linamar Powertrain GmbH

#### Practically no rejects, improved tool life

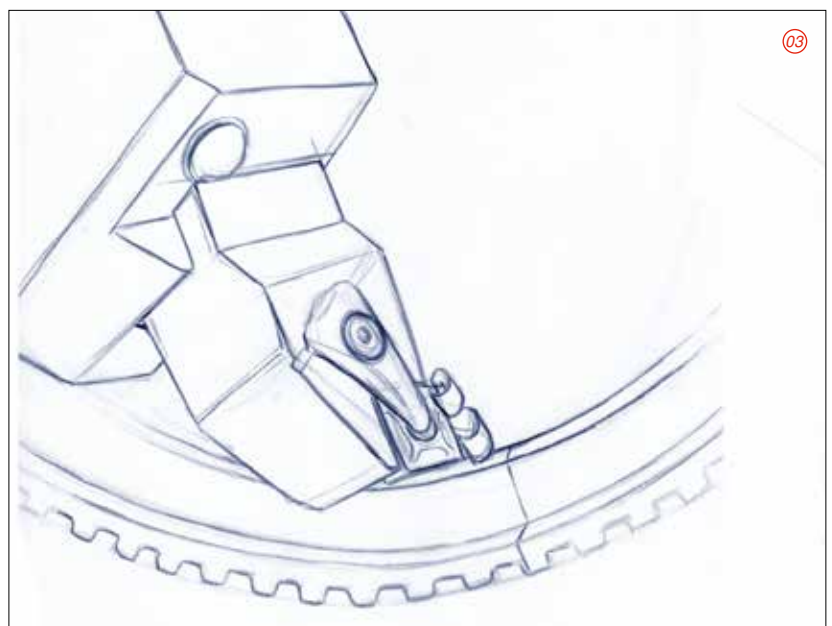
In the final outcome, Linamar Powertrain GmbH can congratulate itself on drastically reduced reject rates and 15 percent higher quantities per cutting edge. Depending on the machining grade, a single insert can now process something like 30 flywheels. In view of the high rate of material removal, and the use of a cast iron material which as well as the cast skin frequently contains inclusions, this can be viewed as an outstanding result. “We have taken a giant step forward in the turning of spheroidal cast iron flywheels. These inserts have a significantly longer tool life,” Schubert confirms. Improved process reliability has been achieved, in his view, along with permanent and consistent surface quality of the component.

This has led to significant cost savings. “Our CTCK120 grade really shines in the finish turning of flywheels,” comments Klaus Taubert. The outstanding suitability of this still relatively new grade for cast iron machining has been confirmed in practice. ▲



#### Shown in the pictures:

The Linamar flywheels in GGG 50 spheroidal cast iron are machined with **DCLNR 25 M12 tool** (03) and an insert of the **CTCK120 grade with -M70 geometry** (01). The **CVD-coated hard metal grade** (02) is regarded as a highly durable all-rounder for cast iron machining.





# CERATIZIT 3x3

## - AN INTELLIGENT COMBINATION

Turning of steel is an important machining process in your production? Then discover our new CERATIZIT 3x3! With a structured product portfolio for the turning of steel, you can find an intelligent combination of cutting materials and chip grooves quickly and easily. Always use the best suited tool and reach the highest possible productivity for roughing and finishing.

### 3 grades – 3 chip grooves

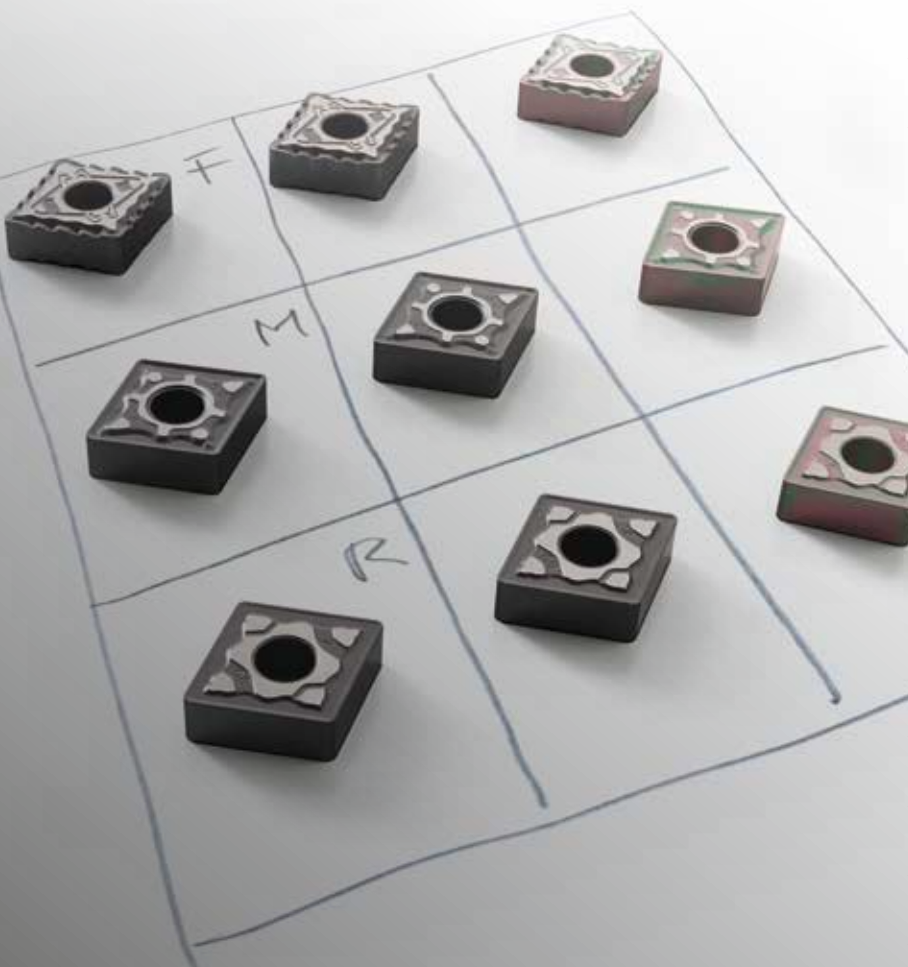
Cutting Solutions by CERATIZIT makes it clear: we have reworked our steel turning portfolio with the introduction of the new finishing geometry. With 3 grades and 3 chip grooves, we are covering all machining situations. With our 3x3, we are making it easier for you to find the most efficient solution.

With just three chip grooves, the CERATIZIT 3x3 is putting the spotlight on intelligent selection of the right insert. Choose from the geometries:

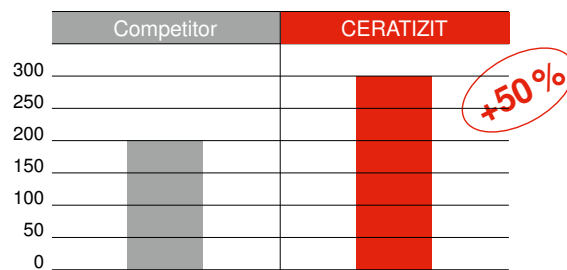
- ▲ -F50 – the fine cutting chip groove for finishing
- ▲ -M50 – the universal chip groove for medium machining
- ▲ -M70 – the stable chip groove for roughing

Depending on the requirements profile, combine with the grades:

- ▲ **BLACKSTAR™ CTCP115**: highly wear-resistant grade for high cutting parameters
- ▲ **BLACKSTAR™ CTCP125**: universal grade for all applications, even slightly interrupted cuts
- ▲ **COLORSTAR™ CTCP135**: tough grade for interrupted cut and difficult conditions



**Comparison:** amount of components produced when using the BLACKSTAR™ CTCP125 grade in the -F50 geometry



### YOUR BENEFITS

- ▲ Quick selection of the appropriate combination of grade and geometry
- ▲ Increased productivity thanks to higher cutting parameters and tool life
- ▲ Maximum process security even under difficult machining situations
- ▲ Low inventory costs due to lower inventory levels



Peter Uttenthaler (left) and Werner Pommer at the mpmc 2000S – 7000.

# THE TURBO IN TURBINE MACHINING

*The Weingärtner machining centre with tools from  
Cutting Solutions by CERATIZIT*

With Weingärtner Maschinenbau's mpmc 2000S machining centre, the complete machining of gigantic turbine shafts of up to 60 tonnes is possible – a strong achievement. Cutting Solutions by CERATIZIT delivered the machining concept and all important tools involved.

It was in September for the EMO 2013. An American power engineering group came across Weingärtner Maschinenbau in their search for a system for the complete machining of its turbine shafts which feature an innovative component geometry; a turn of luck for both parties. While this American customer had been on the search for a convincing concept for a good two years already, Weingärtner was already thinking about how it could scale up its mpmc 1200 machining centre to accommodate larger turning diameters and heavier work pieces. It wound up paying off: Weingärtner received the order to deliver the machine for processing the turbine shafts destined for use in gas turbine power plants. But time was of the essence: from the contract being awarded to the delivery of the machine, Weingärtner had only 20 months' time.



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**Peter Uttenthaler:** As Sales/Area Manager Americas with Cutting Solutions by CERATIZIT, he guided this project. Since April 2016, Peter Uttenthaler has been Head of Sales for the solid carbide manufacturer KLENK, which belongs to CERATIZIT GROUP.

The new Weingärtner mpmc 2000S – 7000 machining <sup>01</sup> for the complete machining of turbine shafts is fitted with important tools by CERATIZIT. Including an HX parting and grooving system with deep grooving blade <sup>02</sup> in the high-performance COLORSTAR™ CTCP125 grade and milling tools for creating dovetail grooves <sup>03</sup>, which are a joint development of Weingärtner and Cutting Solutions by CERATIZIT.



## AT A GLANCE

### mpmc 2000S – 7000 from Weingärtner Maschinenbau

Swing diameter over bed and carriage: 2 m  
 Max. turning length (incl. 1 m front machining) 7 m  
 Max. work piece weight between chuck and tailstock or fixed stays: 60 t  
 Turn-milling unit: 72 kW / holding torque moment B-axis clamping 20,000 Nm  
 Turn-milling head: 72 kW / 3,000 min<sup>-1</sup> / 1,950 Nm  
 High speed milling head: 25 kW / 6,000 min<sup>-1</sup> / 200 Nm

### Tooling concept from Cutting Solutions by CERATIZIT

- ▲ Highly productive high-feed milling cutters in grade SILVERSTAR™ CTPP235 and
- ▲ Finish milling with BLACKSTAR™ CTCP230 ensure very high productivity and thus short machining times,
- ▲ Finish milling with solid carbide profile milling cutters with SCPP240 (submicron carbide with a PVD coating and special surface treatment) distinguishes itself in excellent tool life and perfect dimensional accuracy,
- ▲ MaxiDrill 900 fitted with four SILVERSTAR™ CTPP430 inserts makes for particularly deep holes with diameters of up to 70 mm,
- ▲ Turning and grooving with COLORSTAR™ CTCP125, the HX parting and grooving system featuring very good chip control combined with relatively low cutting forces.

### Strong partners

All that is missing now is a partner to deliver the important necessary tools. The decision was not an easy one for Weingärtner: first of all, six potential suppliers were invited to carry out simple milling tests, the results of which were evaluated using a matrix with the most important criteria for selection. In the second phase of the evaluation process, two of the preselected suppliers produced special tools, which were tested in-house on the mpmc 1200, which has an identical machining concept.

The tools by Cutting Solutions by CERATIZIT impressed with their productivity, process security and dimensional accuracy. Weingärtner had thus found its partner for developing the tooling concept and delivering the tools. The most important tools are the high-feed milling cutters with the new SILVERSTAR™ CTPP235 grade as a cutting material, the extremely precise solid carbide form milling cutters with multiple cutting edges for the finish milling of the dovetail grooves, the MaxiDrill 900 insert drill for particularly deep holes with a diameter of up to 70 mm and the HX parting and grooving system for large parting and grooving widths with maximum stability.

Each of these tools contributes to the excellent economic efficiency of the overall process. The machining time for the giant turbine shafts is reduced by two thirds compared to the time previously required for this process. The solid carbide form milling cutter convinced thanks to its excellent tool life and perfect dimensional accuracy with the HX parting and grooving



# IN FOCUS

## WEINGÄRTNER MASCHINENBAU

Almost exactly 50 years ago, Friedrich Weingärtner founded Weingärtner Maschinenbau, a family-owned company which today operates on an international level. The company, based in the Austrian town of Kirchham, is particularly specialised in the production of machine tools for the energy sector. Aside from the mpmc turning and milling centres for complete machining, whirling and milling machines as well as grinding, polishing and measuring machines round off the portfolio. In example, products manufactured by Weingärtner machines are, aside from turbine shafts, large crankshafts and rolls for the paper industry.

[www.weingartner.com](http://www.weingartner.com)



### Exceeding expectations

In a great team achievement, Weingärtner and CERATIZIT have brought this project to a successful completion. Both sides are proud of the fact that the result has ultimately exceeded all expectations: the overall machining time including tool changes was only around 130 hours. Originally, the goal was to reduce the machining costs by half. In fact, they were reduced by two thirds. Meanwhile, it has emerged that from the prototype of the mpmc 2000S, even more complete machining centres for the machining of turbine shafts are to come – and perhaps in even larger assembly sizes. ▲

system distinguishing itself by its very good chip control combined with relatively low cutting forces.

### Individual logistics concept

Part of the project and an important criterion for the customer was the assurance that there be 100% availability of all tools at any time. A rolling forecast guarantees that the customer's tool requirements can be calculated in advance. Concerning delivery reliability, we benefit from having our own logistics centre in Kempten, Germany, and also from having a U.S. subsidiary, both important elements of the logistics concept. It was also considered a positive fact that we were able to organise the regrinding of the tools through the CERATIZIT affiliate Promax Tools, a Californian manufacturer of solid carbide tools, directly in the U.S.



From left to right: Klaus Geissler, Sales Manager for machine tools at Weingärtner Maschinenbau, Peter Uttenthaler, at the time Sales / Area Manager Americas at Cutting Solutions by CERATIZIT, Werner Pommer, Engineering and Sales at Weingärtner Maschinenbau and Dominik Weingärtner, Vice-president of Weingärtner Maschinenbau.

## A GREAT TEAM ACHIEVEMENT – CHECKING IN WITH: *Werner Pommer, Engineering and Sales Weingärtner Maschinenbau*



*Werner Pommer*

**Engineering and Sales**  
 Weingärtner Maschinenbau

**What was the big challenge with this assignment?**

**Pommer:** The component, which was completely machined in one set-up, is extremely large and also extremely heavy. That was the real challenge – also for the periphery. To scale up our machine concept to the required size was not easy, there is a lot of technical knowledge required there – and with the tools as well.

**How satisfied were you with this collaboration?**

**Pommer:** The time was tight and the task was demanding. We worked on developing solutions together gradually over six months. Cutting Solutions by CERATIZIT was available for us at any moment. Aside from Peter Uttenthaler as Sales / Area Manager Americas, Alfred Hofegger, Head of OEM Services, was also a key contact person for me throughout the whole project. His project management and technical consultation were excellent the whole time through.

**Do you have further joint projects on the radar?**

**Pommer:** We are both Austrian companies with a high share of exports. Of course we are proud to say to customers across the globe that we are strong together. There are more challenging projects that are in the need of solutions. We are indeed glad to discuss these with a partner with whom we have already made very good experiences. ▲



Andreas Olthoff

# 3 QUESTIONS

Andreas Olthoff has been Managing Director of CERATIZIT Austria GmbH since 2011 and is responsible for the competence brand Cutting Solutions by CERATIZIT.

1

## How do you define creativity?

In common parlance, people are creative when they are inventive – that is to say, when they develop ideas and realise them in an imaginative way. In relation to the world of cutting tools, this means in my view finding new solutions for the wide range of tasks in materials processing, or else creating them. We want our customers to increase their productivity and hold their own in global competition on the basis of their products.

2

## What skills are important for you, if a person wants to be professionally successful?

The essential professional skills, in my eyes, are intercultural competence, flexibility, persistence, the ability to communicate, conscientiousness, reliability, customer and service focus, curiosity and openness.

3

## What in your view constitutes a competent dialogue?

I find it important that discussion should always be based on collaboration between partners. In relation to the other person you should always be open, curious and respectful. A dialogue is competent when you can learn something from it. Ideally the exchange of knowledge is going to lead to a positive result.

A VISIT TO ...

# CERATIZIT AUSTRIA

*Innovation with panoramic views*

“Working where other people go on holiday” – that’s a good motto for the CERATIZIT base in Reutte, in the fabulously beautiful Austrian Tyrol. This is a favoured holiday destination for other people – but it is also a place where over 700 CERATIZIT employees are working to develop the tool solutions of tomorrow. What makes the location, the people and the region special?







# Reutte

**CERATIZIT Austria:** Just some 100 kilometres northwest of Innsbruck, close to the German border and situated on the most important trunk road, the Fernpassstrasse, is the picturesque market town of Reutte. Close to 6,000 residents live here, in the heart of the Reutte Nature Park. Known as the 'gateway to the Tyrol', the region is a popular tourist destination.

This is where CERATIZIT Austria is based – right at the foot of the Koflerjoch peak in Breitenwang, Reutte's the next village along from Reutte. Over 700 employees work here as well, for a company which has been producing innovative cutting tools and carbide rods for all of 95 years. But why has the second biggest production operation of the CERATIZIT GROUP taken up its quarters here, in this mountain idyll? The answer is closer than you might think – in the truest sense of the word.



Right at the foot of the Koflerjoch peak in Reutte's Breitenwang district – this is where CERATIZIT Austria is based.



## Bernd Gruber

*» It's impressive how the whole operation here has been upgraded in the last ten years, there's always something going on. «*

Bernd Gruber, Program Manager Cutting Solutions



### “Working where other people go on holiday”

“You can really say that we live and work in a place where other people like to spend their holidays,” says Bernd Gruber, Cutting Solutions Programme Manager. “The mountains, the lakes and the woods – that gives you a unique backdrop. And at the same time, here we have nature and industry in harmony. That creates a fabulous working atmosphere.”

“It's impressive how the whole operation here has been upgraded in the last ten years,” Gruber comments. With ongoing globalisation, the pace of change in the industry has risen significantly. “There's always something going on here. The site is growing on a continuous basis. And it isn't just the appearance of the buildings. In technological terms as well, our production is always state of the art.”

### In harmony

At CERATIZIT in Reutte, work and life outside the workplace harmonise ideally, and contribute – in an indirect and ongoing way – to the progress of the company. “A secret of CERATIZIT's success is the effective teamwork at the site – this is what leads to creative solutions and ultra-modern processes, and so results in innovative products,” Gruber says. Getting together with other people is an important factor outside the workplace as well, he adds. “Everybody knows everybody, you're bound to spend some of your leisure time together. It's just part of the culture.”

And in Reutte there is certainly no lack of leisure activities to bring people together. From skiing and hiking and swimming in mountain lakes, to cycling and jogging – the region constantly offers new adventures



### ENERGY from NATURE

In close proximity to the valley basin of Reutte, you will find Lake Plansee. As the surviving relic of a lake formed by Ice Age meltdown, this body of water is a significant source of energy. Since the start of the twentieth century, a hydropower plant belonging to Reutte Electricity Works has been generating power from the lake. This was the very reason why Dr Paul Schwarzkopf, founder of the Plansee business chose this site for his company in 1921. In 2002, Plansee Tizit and the Luxembourg company Cerametal merged – giving rise to the fourth biggest carbide manufacturing enterprise worldwide. Since then Reutte has been the home base of CERATIZIT Austria.

and surprises. And if you're planning a backup programme for training courses, an excursion to the nearest royal castle suggests itself – or a cable car jaunt to the top of Germany's highest mountain, the Zugspitze.

### Infectious enthusiasm

It isn't just CERATIZIT's employees who are enthusiastic about the location. According to Bernd Gruber, many customers are pleasantly impressed as well – few of them would have expected to find an industrial company in such exceptional surroundings. "Visitors take it all in much more intensively. Of course the amazing atmosphere is a positive factor for encouraging business relationships," Gruber says. In any case, he goes on, the region is notable for its hospitality and for the high standards of the accommodation and restaurants to be found here.

### A rural idyll with international flavour

Global player and rural idyll – can these things really be combined? Undoubtedly – in view of the fact that the CERATIZIT production base in Reutte has a strong international presence. Not least because of the central European Alpine location, you will find a colourfully mixed team working here, with employees from Germany, Austria, Turkey, Italy and many other countries. But the international orientation of the company is in no way more marked than its strong regional roots. "Both sides stand to benefit, since CERATIZIT is the biggest and most important employer in the region. And people in Reutte, in their turn, are heavily committed to the company," Gruber comments.

# TOOLING-ACADEMY

Reutte is also a base of one of CERATIZIT's two Tooling Academies worldwide. In an ultra-modern machine park, CERATIZIT inspects and tests the latest tooling solutions and trains customers in the efficient use of cutting tools.



Photos: Robert Eder / Naturparkregion Reutte (Nature Park)

Waterfall on left:  
Photo: Naturparkregion Reutte (Nature Park)





The new production building dates from 2013. It increased production facilities by an area of 7,800 square metres. In 2015, the building's energy-efficient timber structure earned CERATIZIT the Tyrolean Wood Construction Prize.

### Cooperative partnerships: a magnet for specialists

With a view to attracting highly skilled staff to the company, CERATIZIT fosters cooperative partnerships – with Kempten Technical College in the neighbouring German Allgäu, for example, with the Mining University of Leoben and with the Graz University of Technology. “Many of our employees joined us as graduates of one of our partner universities, having found their way to us following a work experience or doctoral thesis,” Gruber says.

On its own premises in Reutte, CERATIZIT also offers a plethora of training and further training opportunities. CERATIZIT’s vocational school is responsible for some 100 apprentices at any one time. At the end of their course, moreover, trainees can acquire the title of master craftsman. And all employees can enrol for further training courses and seminars, or opt for a work experience abroad at one of CERATIZIT’s numerous global locations. ▲

At the same time Reutte is the headquarters of the Plansee Group, which has a 50 percent stake in CERATIZIT. 01 CERATIZIT Austria has more than 700 employees on its payroll. This makes Reutte the second biggest site of the CERATIZIT GROUP. 02 Industry meets nature: on a site measuring more than 20,000 square metres, CERATIZIT Austria develops and produces cutting tools and carbide rods for tool manufacturers. 03 Technical experts and customer consultants are available at one of CERATIZIT’S worldwide Customer Service Centres (CSCs), to discuss possibilities and new solutions with the customer. 04



# LOOKING FORWARD TO **SEEING YOU AGAIN...**



**AMB 2016** – the international exhibition for metalworking

**13-17/09/2016** / Stuttgart Trade Fair Grounds, GERMANY

AMB is one of the top trade fairs for the cutting tools sector worldwide. Held in a two-year rhythm (always in the even-numbered years), it is an important meeting point for the industry. In 2014 more than 90,000 interested visitors attended the event in Stuttgart, to obtain and share information. Around 1,350 exhibitors from some 30 different countries will again be showing their latest developments this September, comprising machine tools, precision tools and accessories for cutting and machining metal. Of course CERATIZIT would not dream of missing this big industrial event. You can find us in hall 2, stand B06. We look forward to seeing you there and sharing constructive discussions.

<http://www.messe-stuttgart.de/amb/>

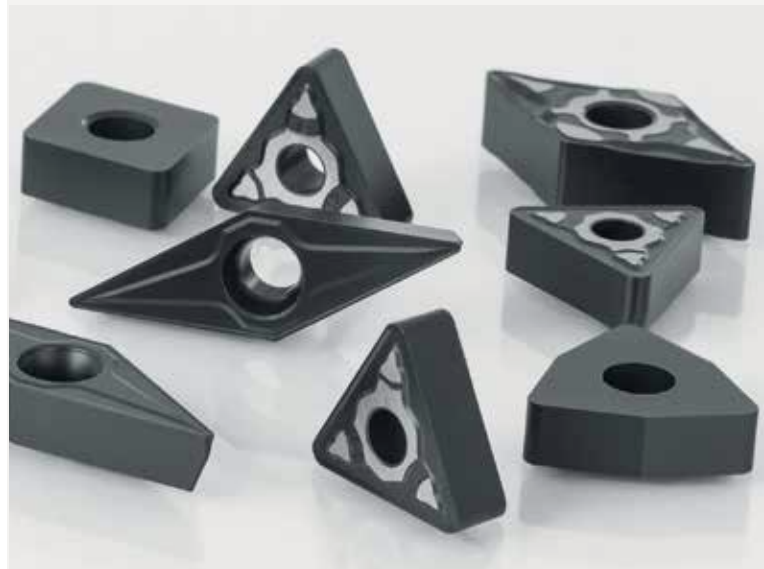


## See you in Istanbul!

From October, we will be personally available for our customers in Turkey as well – we are just opening a new branch in Istanbul. Cengiz Mustafa, Business Development Manager, and his team are looking forward to well-informed dialogue and constructive partnership with our Turkish customers.

## NEW BLACKSTAR™ CTCK110 GRADE **TOP PERFORMANCE FOR CAST IRON MACHINING**

Customers of Cutting Solutions by CERATIZIT can now choose from a comprehensive range of tools for turning cast iron materials.



The BLACKSTAR™ CTCK110 **high-performance grade** replaces its predecessor, the CTC3110. It is extremely durable in the K10 application range for the turning of all cast iron materials, making it the perfect supplement to the tried and tested **versatile all-rounder**, the BLACKSTAR™ CTCK120. The CTCK110 is suitable for use when cast iron materials are being machined with high cutting parameters. The essential basis for this is a continuous cut and a stable machining situation. In parallel to the introduction of the new grade, the possibilities for cast iron turning have been considerably extended. With the two grades and a consistent programme, it becomes an easy matter to machine all kinds of cast iron materials. ▲

NOW AVAILABLE TO GO WITH  
CERATIZIT TOOLS:

## SPINDLE NOSE TOOLS (ADAPTERS)

We are continuously improving our customer service – and as of now, Cutting Solutions by CERATIZIT offers you a comprehensive range of rotating and stationary tool adapters.

As a result, we can now provide both system solutions and adapters from a single source. This guarantees the **best possible performance** and a higher standard of service to our customers. In successive steps, the **complete range** of adapters will be incorporated in the CERATIZIT portfolio, and we will be adding to it in the future. At present it contains adapters like Weldon and Whistle Notch, collet chucks, shell mill adapters, shrink fit adapters, hydraulic expansion chucks and a starter range of Polygon adapters. In total the range includes more than 1,700 items. ▲

## WHAT'S NEW

The CERATIZIT brand has become better known – this has been confirmed by the results of the latest market survey of cutting tools in German-speaking countries by Vogel Business Media. We are delighted to hear it!

Many answers of respondents can be seen both as reassuring and as an incentive:

- ▲ Boosting productivity (first place) and cutting costs (second place) are currently seen by our customers as the most important business challenges facing them.
- ▲ Our customers credit us with the following strengths:
  - speedy response and delivery times,
  - a harmonious assortment,
  - high standards of professional expertise,
  - individual solutions and
  - comprehensive service.



**More information about new products, product changes and extended service capabilities can be found in the relevant newsletters. To request one, please contact [newsletter@ceratizit.com](mailto:newsletter@ceratizit.com).**

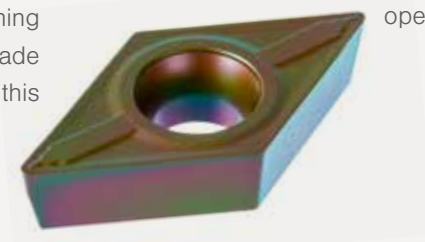
## COLORSTAR™ CTEP110 CERMET GRADE LOTS OF POTENTIAL FOR STEEL FINISHING

The new COLORSTAR™ CTEP110 cermet grade combines two things – the hardness and resistance to wear of a cermet substrate, and the toughness typical of a carbide grade. It reveals its full potential when used for the finishing of steel.

This cermet grade is extremely wear-resistant, thanks to state-of-the-art CVD coating technology. A multi-layer coating in the nano range prevents any cracks forming between the layers. Compared with the cermet grade TCC410, created with monolayer technology, this guarantees very much **longer tool life**.

### Cutting speed

As a result of the novel post-processing of the coating of this grade, the surface is significantly smoother than with previous variants. This makes **higher cutting speeds** possible. In combination with the -CF20, -TFQ, -CF05 and -CF55 chip grooves, the COLORSTAR™ CTEP110 cermet grade can put its effectiveness to the proof at any time. The wide application range possible with interrupted cut has been impressively demonstrated, with extremely positive results. Even with high cutting parameters, the CTEP110 proves to be supremely reliable for turning operations. ▲



# A COMPLETE HIT

## SHOULDER MILLING MADE EASY

*MaxiMill 491 – the new 90° shoulder milling system with  
BLACKSTAR™ and SILVERSTAR™ grades*

Easy handling, great economic efficiency and high performance combined with excellent quality characterise the new shoulder milling system MaxiMill 491. Its precision inserts with eight usable cutting edges produce profiles of exactly 90°.





### Eight cutting edges and easy handling

With MaxiMill 491, we have extended our range to include a 90° shoulder milling system with eight cutting edges, so exploring new avenues in technological terms. "Many shoulder milling systems on the market feature an extremely complex design. We have rethought the shoulder milling process and made it easy," says Dr Uwe Schleinkofer, Head of the Development Department at Cutting Solutions by CERATIZIT. The result is extremely gratifying. This solution is one of the leading products on the market in terms of both production and process. The technical details are hidden in a way that the customer does not notice them directly but nevertheless benefits from the extremely easy handling. The new insert seat design for example enables the insert to be changed quickly.

### Economical thanks to eight usable cutting edges

The eight cutting edges in the carbide grades BLACKSTAR™ and SILVERSTAR™ are a major reason why the MaxiMill 491 shoulder milling system is exceptionally economical. "Compared to competitors the MaxiMill 491 system has a very attractive price per cutting edge," explains Wolf, Milling Product Manager. In addition, tool changing times have been reduced because the MaxiMill 491 is suitable for both roughing and finishing. Additional machining operations are no longer necessary as the approach angle is exactly 90° and the surfaces produced are very good.

### High performance with excellent quality

"I don't know any other shoulder milling system with radial setting and eight usable cutting edges which is able to produce an approach angle of exactly 90°. The combination of all these features makes the MaxiMill 491 unique," says Wolf. Thanks to the latest manufacturing technology, the inserts produced with tolerance H guarantee outstanding



Mario Wolf

» Compared to competitors the MaxiMill 491 system has a very attractive price per cutting edge. «

Mario Wolf, Milling Product Manager



axial and radial run-out, long tool life and high-quality surfaces. The tools with irregular pitch and perfectly adapted approach angles ensure reduced vibration and a smooth cut combined with low power consumption.

### Start programme for a variety of applications

The milling system is suitable for universal application (e.g. face milling, shoulder milling, peripheral milling, slot milling and trochoidal slot milling). The MaxiMill 491 start programme includes tools with a nominal diameter from 32-160 mm and precision inserts in assembly size 12 mm and a corner radius of 0.8 mm. Tool holders in both metric and inch dimensions for shell milling cutters, end mills and milling cutters with threaded shank are available from stock. The F-R-M chip grooves, combined with the latest grade technologies, cover applications involving steel, cast iron, stainless steel and aluminium materials in the ISO ranges P-K-M-N. ▲

The start programme of the new shoulder milling cutter includes 01 tools with a nominal diameter from 32-160 mm with precision inserts 02 in assembly size 12 mm and with a corner radius of 0.8 mm. The milling system 03 can be used with a wide range of applications.



# PEAK PERFORMERS

## MaxiDrill 900 INSERT DRILL

*A conversation with Dr Uwe Schleinkofer, Head of Development and Stefan Bailom, Sales Manager Austria and Switzerland, both from Cutting Solutions by CERATIZIT*

For the AMB 2012 in Stuttgart, we – Cutting Solutions by CERATIZIT – initially presented our MaxiDrill 900 insert drill with a start programme. It was the beginning of a success story that we do not experience every day. Why was the new solid drilling system so positively accepted by the market? Dr Uwe Schleinkofer and Stefan Bailom can tell you the answer.

**Dr Schleinkofer, what factors led to the development of the MaxiDrill 900?**

**Dr Uwe Schleinkofer:** As of 2012, our old insert drilling system MaxiDrill Classic had already been on the market for some 25 years, and in our view it was no longer completely state-of-the-art. We had never taken this topic on earlier because we were following a segment strategy where insert drilling was not the focus. Today we are a provider of a complete range of premium standard products for cutting tools; in that respect we needed to have a modern tooling system in the field of insert drilling.

**Mr Bailom, at the time were you able to ascertain a need for a high-performance insert drill on the part of your customers?**

**Stefan Bailom:** Of course. It was clear to us that the market

was waiting for an economical drilling system like the MaxiDrill 900. We are a connecting point between customers on the one hand and with development as well as our product management on the other. As brokers, in this case we were able to formulate a clear requirements profile. The prerequisite was for the new drill to be easy in use, ideally with internal and peripheral inserts that were the same size and type. Additionally, it should be high-performance and suitable for all materials – steel, cast iron, stainless steel all the way up to aluminium.

**How did things progress after the requirements profile was clearly set?**

**Dr Schleinkofer:** We first examine how a prototype could look when actively starting such a project. In this case it took about half of a year for us to get a prototype on the

machine, with which we made the first drilling tests. We bring a lot of know-how in the cutting tools field and were able to immediately recognise where the key to success was: it is in the moment where the drill comes into contact with the work piece. The strength and geometric features of the drill are decisive factors – the insert positioning on one side and chip pockets on the other. We made multiple attempts in this 'prototype status'; ideas were reviewed, improvements were adapted and implemented. In the next stage of development, we stood before some new challenges. For example, we intensively considered how we could reasonably integrate the coolant holes. We also had to be completely clear as to how we form the insert seat, design the chip groove and at the same time how we could create an insert which could be used as both internal and peripheral insert. An achievement in development, which we have patented for ourselves, concerns the specific insert/cutting edge geometry. It sets the drilling action and guarantees that entering into the work piece takes place in a soft and gentle manner.

**The sales department always plays an important role in defining the performance profile. To what extent is it involved in the development phase of a new product?**

**Bailom:** We get very closely involved again when, at the latest, it goes into the market trials phase. Together, both sales and development look after select applications for which we machine defined materials and put the tool into challenging conditions. As all of us are technical engineers in machining, we are of course in competent dialogue with our customers and our development team.

*» With this tool, we are driving out to the customer with a really good feeling. «*

Stefan Bailom, Sales Manager Austria and Switzerland,  
Cutting Solutions by CERATIZIT



**MaxiDrill 900:** The first generation of the MaxiDrill 900 tooling system was designed with a diameter range from 14 to 63 mm and lengths up to 5xD. Now this solid drilling system is available in 2xD, 3xD, 4xD as well as with diameters of 12 to 13.5 mm and larger than 63 mm as special tools and available in inch dimensions. **01** Customised tools in diameter range of 63 to 100 mm are fitted with four inserts of the same size. **02**

### How does the market react to the MaxiDrill 900?

**Bailom:** Ecstatic – just as we reacted from the start. The drilling action in particular is constantly receiving praise. Reduced vibration, drill noises, surface quality; the MaxiDrill 900 has been winning in all points.

**Dr Schleinkofer:** We did internal testing in our Tooling Academy before the market tests. Even there it became clear: we have something here that can be incredibly good, and we have made use of our profound know-how in all things substrate and coating. This way we have achieved the development of cutting materials that best answer the demands of the requirements profile. I am since completely convinced that we can seriously put one of the best insert drills in the world on offer.

*» The synergy between sales and internal engineers is the key to success. «*

*Dr Uwe Schleinkofer, Head of Development,  
Cutting Solution by CERATIZIT*

### What do you or your customers say about this optimistic assessment, Mr Bailom?

**Bailom:** I agree with Mr Schleinkofer fully and entirely on this. The list of advantages that the MaxiDrill 900 offers is long: the drilling itself requires little force and results in less vibrations, damages to the machine spindle are therefore ruled out. Generally, we use the same inserts for both the interior and the periphery so that there is no chance of mixing up which is the correct insert and inventory costs sink to a low. In total, we are offering an all-round package with which customers are more than just satisfied, which at any rate is what is said to us again and again.

**Up until last year, you used to fit the MaxiDrill exclusively with inserts of the SILVERSTAR™ CTPP430 grade, in all available dimensions both inside and on the periphery. Now there are applications where you recommend the BLACKSTAR™ CTCP420 grade for the peripheral. Why?**

**Dr Schleinkofer:** That only concerns applications of high performance. Our SILVERSTAR™ CTPP430 grade works flawlessly in 85 per cent of all cases. If, however, extremely high cutting speeds come into play, then the peripheral

insert gets so much temperature that a PVD coating is physically out of the question. We now offer a high-performance grade for exactly this kind of application on the peripheral cutting edge. With the BLACKSTAR™ CTCP420 grade in the same geometry, according to my firm conviction, you can enter into extreme speeds and increase your productivity by factor of 2. This programme extension was necessary for the approx. 15 per cent of our customers for whom the usual grade was not enough, as we wish to make them even more successful and productive.





Equally excited by the MaxiDrill 900: Dr Uwe Schleinkofer, Head of Development and Stefan Bailom, Sales Manager Austria and Switzerland, both Cutting Solutions by CERATIZIT

**Mr Bailom, how are the sales developing?**

**Bailom:** We are reaching a stunning increase in sales with the MaxiDrill 900, and the charts would be running steeper yet if everyone who could make use of it were already aware of this tool. Here we have a bit more work to do... What motivates us is that we are really seeing praise from all sides; with this tool, we are driving out to the customer with a really good feeling. That is a success factor. Our solid drilling system is extremely economical and suitable for all materials. Because it can be applied practically everywhere where machining happens, we still see a lot of

potential. We are also happy that we are now able to offer the MaxiDrill 900 solid drilling system in diameters of 12-13.5 mm and, on request, even larger than 63 mm.

**Dr Schleinkofer, would you like to give a prognosis as to what market penetration you can achieve with the MaxiDrill 900?**

**Dr Schleinkofer:** Technically speaking, we are convinced that this tool sets the benchmark in the global market of insert drills. Whether or not it will also become the global leader, that we will have to see. ▲



# HOT FROM THE PRESS

## PROGRAMME EXTENSIONS CUTTING TOOLS 2016.2

*Always up to date with the Cutting Tools 2016 Complete Range plus the catalogues with programme extensions*

We are continually developing industry-specific machining solutions, and improving tried and tested products from Cutting Tools by CERATIZIT. In order to ensure that our business partners are up to date at all times, we supplement the complete range, which comes out every two years, with a six-monthly supplementary catalogue. Our Cutting Tools 2016.2 Programme Extensions catalogue has just come off the press and is available for order.

**W**hether you are interested in our tools for turning, drilling, milling, parting and grooving or in our multi-function and solid carbide tools, the supplementary catalogues give you information twice a year about innovations in all these different areas. You can consult the Programme Extensions Catalogue 2016.2 to get the very latest news about the following topics:

- ▲ Turning – CERATIZIT 3x3
- ▲ Additions to the range of spindle nose tools
- ▲ Additions to the Maximill 491 range
- ▲ Multi-function tools – ProfileMaster in a new guise
- ▲ HPC end mills W4420 – for universal application

### Ready to give it a try?

Just try it out for yourself – you will be impressed by the ease with which you can navigate the new catalogues from Cutting Solutions by CERATIZIT. At present you can download the Cutting Tools 2016 Complete Range, along with the Programme Extensions for Cutting Tools 2016.1 and 2016.2, from the website [www.ceratizit.com](http://www.ceratizit.com) on the Service/Downloads page in pdf format. The catalogues are available in German, English, French, Italian and Spanish. ▲



Mario Wolf,  
Milling Product Manager

# MILLING 8.0

**SIMPLE CONCEPT –  
UNPARALLELLED TECHNOLOGY**



MaxiMill 491 – the new 90° shoulder milling system  
featuring BLACKSTAR™ and SILVERSTAR™ grades

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