GÜHRING OUTLOOK 2020

SUCCESS STORIES
Technology partners and problem solvers: Gühring is more than just a tools supplier. The success stories of our customers speak for themselves.
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Thanks to Gühring's extraordinary consulting expertise, resourcefulness, and the ability to think outside the box our clients and users keep achieving **incredible success**.

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OUTLOOK 2020

Dear customers,

The economy, and especially the automotive industry and its suppliers, is currently facing great challenges. And even if these challenges are largely underpinned by politics, the current consolidation comes unexpectedly for all of us after ten good years.

We are positive about future economic development in the medium and long-term. We see growth in the coming years even for the automotive sector, albeit not as rapid as in the past. The other machining sectors such as aviation, mould-making, medical technology, as well as general mechanical engineering are and will remain growth sectors.

However, the time has come to increase productivity and efficiency, and optimise processes. Here, we see great potential in the field of digitisation and in innovative tools, examples of which are presented in this magazine. You will also find content on the topic of digitisation in this brochure.

We will continue to produce innovative, powerful tools and provide competent advice to you as our customers with our sales staff – online as well. But also in the future, we do not want to just be a tools supplier, but your full-service partner for machining. We already offer many services today: tool reconditioning, complete planning of components with cycle times and unit costs, retooling of components and machines, intelligent tool management, logistical or technological tool management, and most recently, the reading of machine data for tool and process optimisation.

We will only be successful if we make you, our customers, more competitive. Please contact us to schedule an appointment.

We wish you much success.
Oliver Gühring

Oliver Gühring
CEO,
Sales and Marketing

GÜHRING

8.000 Employees worldwide

3.500 Employees in Germany

600 Gühring patents

100,000 Articles in the standard programme

over **900** field staff worldwide

approx. **130** employees R&D worldwide

200 employees OEM worldwide

ABOUT US

€ **1.1 bn.** Total turnover

EVERYTHING FROM A SINGLE SOURCE

50 Service centres

48 Country subsidiaries

70 Production sites

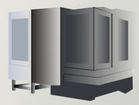
NEW BUILDINGS 2019

GERMANY: Thurnau, Albstadt Sigmaringer Straße
INTERNATIONAL: China, Indonesia, Slovakia

OUTLOOK 2020

INTERNATIONAL: France
Romania

OWN SYSTEMS AND MECHANICAL ENGINEERING



100 machines a year

OWN CARBIDE PRODUCTION

2,500 tonnes a year

MACHINING RECORD

HOW GÜHRING & CHIRON SET THE HPC RECORD TOGETHER

AT A GLANCE

Single-spindle FZ 16 S five axis
RF 100 Speed P, Ø 20 mm, HSK 63
Material 16MnCr5 1.7131
v_c = 450 m/min
n = 7162 U/min
a_e = 1.2 mm = 6%
a_p = 63 mm
f_z = 0.5 mm
v_f = 14324 mm/min

Chiron and Gühring, machine manufacturer and tools specialist. That means common development goals and the same aspiration: i.e. to deliver outstanding products and increase their respective efficiency even further through symbiosis. The Swabian champions have now set a a ground-breaking record together: Machining 1,000 cm³ of steel (16MnCr5) in 60 seconds. Eight kilograms of steel per minute.

COMMON DEVELOPMENT GOAL

Extreme material removal rate, phenomenal feed rate. Both companies pursued the same goal. I.e. bringing a product to the market that is outstanding in terms of dynamics and performance. The companies were in the development phase of their top products – the new FZ 16 S five axis for Chiron and a version of the ratio cutter for Gühring – at the same time and maintained an ongoing exchange due to the many years of collaboration on projects. Once both products were ready to be put on the market, the experts joined forces to demonstrate their efficiency.

> "Due to the ever higher efficiency requirements of our clients, we came up with the idea of trying to set a record together. And the result was the incredible 1,000 cm³ of steel per minute", said **Gühring milling specialist Rolf Ehrler**.

The interplay of machine dynamics and milling stability makes such a material removal rate possible and will make the hearts of those in mould-making, the aviation industry and the automotive industry beat faster.

TWO PRODUCTS, ONE ASPIRATION: TOP PERFORMANCE

The Gühring tool RF 100 Speed P is an end mill especially adapted for processing steel, high-strength steel, and cast iron. Its 48°-spiral angle with unequal cutting-edge spacing ensures a soft, quiet cut and very quiet operation. The optimised chip room, i.e. a deepened flute in the front cutting area, removes chips better during ramping and helical plunging. A stable cutting edge was achieved by means of a corner protection chamfer and correction of the front. Chip breakers and extreme cutting length at the cutter ensure a soft cut and very quiet operation. This reduces the machine load and increases volume output. Perfect conditions for Chiron's single-spindle FZ 16 S five axis. This processing centre is designed for special requirements as to the accuracy during 5-axis machining – with top dynamics and productivity at the same time. The right tool is essential.

> **Here is what Michael Eble, Head of Machine Development at Chiron** said about it: "We have clearly increased the input power and the dynamics and cutting capacity of series 16. But it becomes really fun when the tool manufacturer is obliged to deliver an even more powerful tool because the machine can do even more. Then we know we did everything right."

MILLING STRATEGY: HPC ROUGHING

Gühring specialists applied an HPC strategy. Control of the cutter path with low radial infeed enables a comparably gentle edging of the workpiece. HPC roughing is especially suitable for machining greater cutting depths, whereby the end mill processes the workpiece in its entire depth with the entire cutting length. The cutting forces are reduced and distributed equally along the entire cutting length. This enables high processing speeds and long tool life. High-performance cutting is the first choice in applications with massive cutting rates. The components to be processed are usually made of high-strength steels, which place increased demands on the processing. To achieve corresponding results, higher cutting speeds, more feeds per cutting edge, and greater cutting depths are used. The high cutting speeds can be realised with the help of high rotation frequencies, provided the cutting machine enables this.

Oliver Staiger, Application Engineer at Chiron and Rolf Ehler, Product Manager Cutting Tools at Gühring, discuss the cutting strategy.

The cutting method is not new, but HPC appears as a further development in machining when it comes to massive cutting rates only on the basis of the performance of today's processing centres such as the FZ 16 S five axis and geometry adjustments and wear resistance of cutting tools. The big goal was to set a benchmark for this. With absolute process reliability.

> **Here is what Rolf Ehrler** said about this: "We achieved an extremely gentle cut with the 48°-spiral angle. That means, the tool virtually peels the chip out. And the best thing about it is the incredibly smooth operation, which preserves the machine."

CUTTING PARAMETERS THAT HAD NEVER BEEN SEEN BEFORE

In HPC conditions, the entire cutting length is used with a low cutting width (5-15 percent a_e). Extremely high feeds can be achieved as a result. The feed per cutting edge was 0.5 mm in the record attempt. That means, 2 mm of feed per rotation for 4 cutting edges. This is of interest for all companies that have to machine great quantities of steel. Machine components, the classic tool and mould-making, where predominantly high-strength steels are found, but also aviation, where light components are generated from solid material with machining rates of up to 96 percent. Of course, the special cutting geometry can also be optimally used in the automotive and supplier industry, and is greatly popular due to the large cutting length.

> **Michael Eble** of Chiron appears to be satisfied: "We managed to clearly increase the cutting stability and dynamics of a new machine series. In conjunction with the new Gühring RF 100 Speed P cutters, completely new possibilities have opened up."

Chiron & Gühring: Here is a film about the common development work of the Swabian champions.

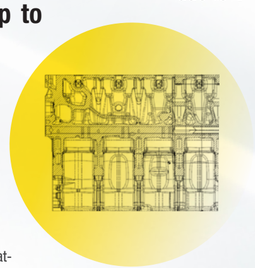
TIME SAVINGS

WITH TOP DRILLING QUALITIY

When processing engine blocks for lorries (GG26Cr), deep hole drills of up to Ø 28 mm are necessary. These drills with large diameters are time-consuming and expensive. The customer's goal for the project was: to significantly reduce drilling time by up to 50 percent.

patented
2+4-cutting edge distribution

optimal **heat and chip removal**
due to **Y cooling channel distribution**



Important parameters had to be observed: the machine's axial force limit of 10 kN had to be observed, with same drilling quality and same tool life. Together with the automotive manufacturer, the tool supplier Gühring developed a 4-fluted gun drill from a carbide of its own design and a 4-fluted pilot drill for perfect guiding of the gun drill. The tool geometry had to be adjusted so that the forces could be kept as low as possible. The design of the gun drill was 2+4 fluted to cope with the relatively large chip volume. In the first step, the two inner cutting edges machine and centre with a strongly elevated machining rate. In the second step, the high feed forces are then distributed among the four external cutting edges to minimise wear and to maximise quality. Shorter chips, higher cutting parameters, and more process reliability are the consequence. In the meantime, the central hole with the Y distribution ensures that all four cutting edges are equally supplied with coolant.

TOOL PERFORMANCE REPORT

COMPARISON OF SERIAL PROCESS – TEST Ø 28 mm

Tool **deep-hole drill**	*2-fluted gun drill*	**4-fluted gun drill**
Rotation speed	*n = 900 1/min*	**n = 900 1/min**
Feed per cutting edge	*f_z = 0.17 mm/rev*	**f_z = 0.15 mm/rev**
Feed	*f = 0.34 mm/rev*	**f = 0.60 mm/rev**
V speed	*v_f = 306 mm/min*	**v_f = 540 mm/min**
	t_h = 200.8 s	**t_h = 126.8 s**

Special tools available on request

Ø 13.5 mm – 28 mm | Length up to 750 mm | Material: GG25, GG26Cr, GGG40

The development in additional materials (GGG and GJV/GGV) and dimensions is constantly ongoing. Contact us!

MTMH3-Z

CIRCULAR THREAD MILLING OF SOLID MATERIAL UP TO

The new **circular thread cutter** for high-strength and hardened steels of up to 66 HRC combines core hole drilling and thread production in one tool, which significantly reduces the cycle and set-up time.The MTMH3-Z guarantees process reliability and true-to-gauge threads. Two lubrication grooves on the shaft ensure optimal cooling with emulsion or air. Due to the special geometry of the front with a high cut, reliable core hole and thread cutting is possible for nearly all steels. The left-cutting geometry stabilises the tool during thread cutting in synchronisation. Thanks to the temperature-resistant TiSiN coating, processing can be done dry and wet. The MTMH3-Z is made of a special fine-grain carbide characterised by its high level of hardness, and it is optimally suited for hard processing.

APPLICATION EXAMPLES

Component	Injection tool (60+2 HRC)	Support (VA 1.4301)
Thread dimension	M8x(1.25), depth 16 mm, blind hole	M6x(1), depth 13 mm, blind hole
Tool	MTMH3-Z M8 2.5xD SP	MTMH3-Z M6 2.5xD SP
Material	1,2379 / 60+2 HRC	1,4301
V speed	v_f = 30 m/min	v_f = 50 m/min
Feed per cutting edge	f_z = 0.02 mm (climb milling, left-sided M4)	f_z = 0.02 mm (climb milling, left-sided M4)
Cooling	dry (with air)	Emulsion 8%
	Tool life: 138 Thread incl. core drill holes	*Tool life: 618 Thread incl. core drill holes*

E-MOBILITY CENTRE STAGE

FUTURE NEEDS A PAST

The automotive industry in transformation: Alternative drive concepts such as the electric motor set completely new processing goals for suppliers. Machine builders and tool manufacturers have a duty to manufacture electric components with process reliability. The specialists in production and automation systems from GROB-WERKE Mindelheim and the tools manufacturer GÜHRING have a perfect and well-coordinated team in this context.

Manufacturers of electric components must stand up to the challenges posed by the topic in a global and competent way. Maximum efficiency and economic efficiency, as well as process reliability in component supply are of particular significance in serial production. One international automotive supplier has recognised this: Both GROB and GÜHRING faced the implementation of a large-scale serial production of electrical motor housings including gearbox covers for a well-known automotive manufacturer. Here, the challenges are to reliably manufacture to narrow diameter tolerances up to IT6 as well as to narrow form and position tolerances, for example,-coaxiality of up to 40 µm with a reference length of over 400 mm, which is processed with precision. These challenges are optimally overcome only if there is ideally coordinated interplay between the processing centre and the precision tools. GROB has been setting the pace in the construction of highly innovative production and automation systems for over 90 years. The Mindelheim company, in turn, trusts GÜHRING as a long-time partner in the area of original equipment and a leader in the manufacturing of rotating precision tools. A cooperation founded in tradition, expertise, and trust. To be able to provide even better support to GROB and its clients with daily requirements of machining, last year GÜHRING opened a new centre for original equipment in Mindelheim, right next to GROB-WERKE.

IDEAL PARTNERS FOR THE SERIAL PRODUCTION OF E-MOTOR COMPONENTS

GÜHRING is the traditional supplier of the automotive industry and has, just like GROB, outstanding manufacturing penetration and a complete and comprehensive product portfolio. GROB is the pioneer in plant engineering in serial production of e-machines and electric motors. Customers are guaranteed cost-efficient production in consideration of the costs per component and minimal cycle times for maximum output. For example, the stator bore requires high dimensional precision. The 6-cutting-edge GÜHRING PCD tool suitable for this has a diameter of 235 mm, a breakdown torque of 22 Nm, and weighs less than 20 kilogrammes. This is a so-called lightweight tool made of aluminium, which delivers maximum productivity along with a reduction in spindle load.

are thus able to process all the components of an electric vehicle that need to be machined. Processed in addition to electric motor housings and associated gearbox covers are auxiliary units such as battery trays for the storage of energy accumulators and compressors, which are used for thermal management in vehicles. Battery trays are particularly susceptible to vibration due to their size of up to 2x1m and their thin walls. Primarily when milling, this problem is mastered with the help of geometrical features, such as a strong unequal division of the cutting edges and a rigid tool interface, through interference-optimised retainers. With more than 20 successful battery housing projects, GÜHRING is the leader in this application. Processing with minimal lubrication also guarantees long-term sustainability in production. Here, too, the two companies can point out a large number of successfully implemented projects in the classic powertrain. Another challenge for electric vehicles is thermal management. Thus far, the internal combustion engine has driven the conventional air conditioning system. In future, the electric refrigerant compressor will be used as a heat and cold pump for electric vehicles. This consists of two spirals, the opposite movement of which compresses gas. The most efficient compression possible is achieved by tight tolerances of the spirals. The requirements for shape and position tolerance are, for example, an angularity of 20 µm and a line shape of 8 µm. Narrowest surface qualities below R_z 4 µm in combination with thin-walled surfaces with wall thicknesses of less than 3 mm and contact heights of up to 25 mm are representative of this machining task. The solutions are milling tools with minimal cutting pressures. Thanks to highly positive rake angles and increased rigidity, the tolerances are reliably observed.

THE CHALLENGES OF THE FUTURE ARE CLEARLY IDENTIFIED

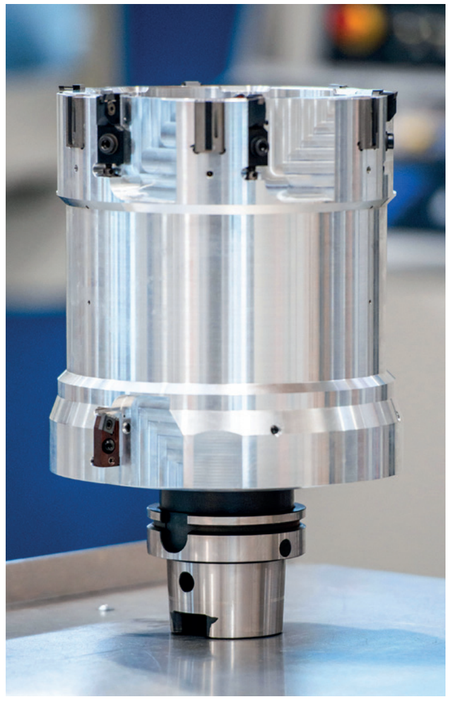
GROB and GÜHRING take great care to ensure for their customers that the topic of e-mobility is treated comprehensively, from a single source, and globally, and are therefore competent partners of the automotive industry worldwide in the serial production of electric drives. Thanks to the strategy of a diversified product portfolio and the ability to offer and supply all manufacturing processes for electric drives, the partners are well-prepared for the dynamic technological change in the automotive powertrain.

DESIGN OF COMPREHENSIVE TOOL AND MACHINE CONCEPTS

Depending on the specific needs of the customer, GROB and GÜHRING deliver customised turnkey solutions: Machines, processes, devices, tools, and automation guarantee the user a comprehensive machining and tool concept. As an expert in a wide variety of component variants, GROB determines the optimal machining process in consultation with the user and coordinates the design of the tools together with GÜHRING. The machining experts from both companies guarantee the user a quick implementation of customised solutions of the highest quality. The client receives personal support from the planning of the individual machining operations to the acceptance of the series production. GROB can map all scenarios from complete machining of the component in one operation to fully automated machining in several clamping positions. Turning operations can also be carried out reliably by using milling-turning centres or by using a feed-out motor spindle. Worldwide, and especially where the automotive industry and its suppliers are concentrated, GROB and GÜHRING have their own production sites and service centres on site – for fast response times and maximum customer proximity.

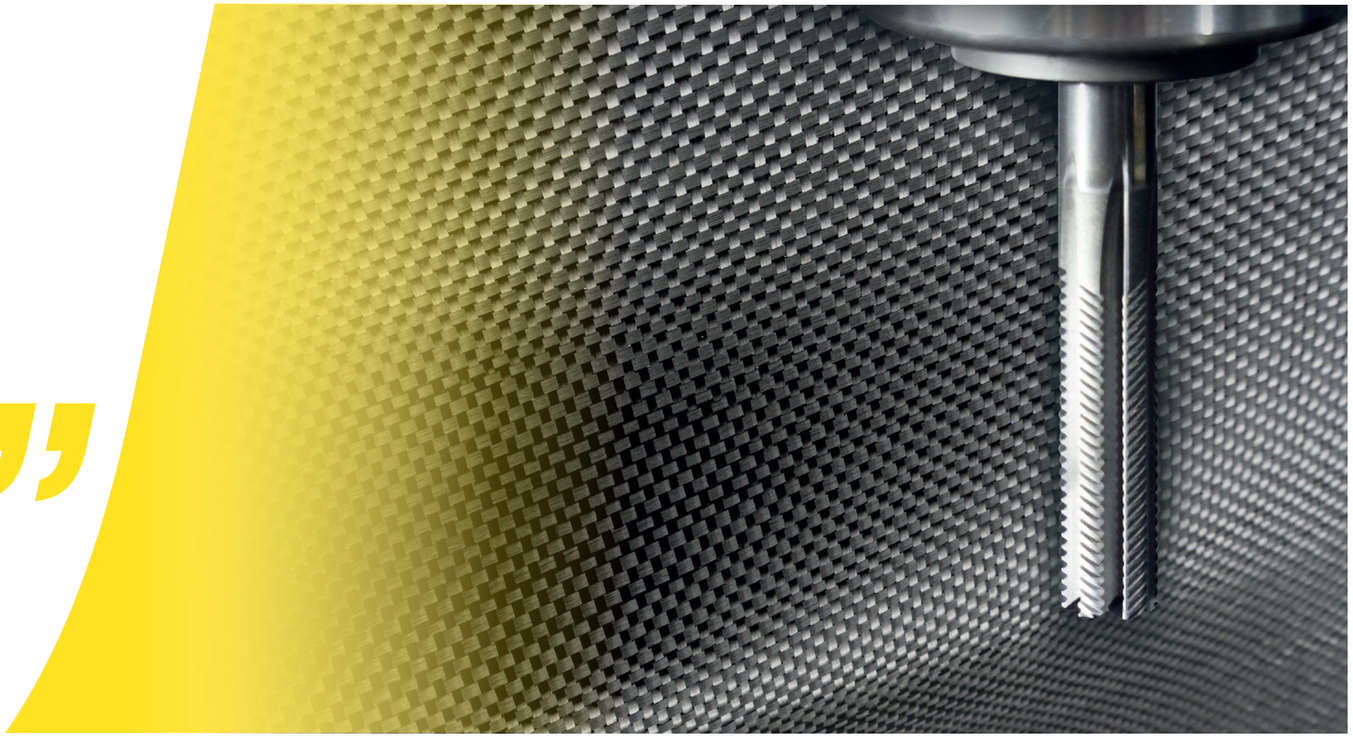
ALL COMPONENTS AT A GLANCE

Thanks to the strategic partnership between GROB and GÜHRING, reliable serial production of several tens of thousands of electric motor components is guaranteed for the reference customer today. For years, project groups and development teams at GROB and GÜHRING have been looking into e-mobility. In close exchange with the automotive industry, it was quickly determined that there is a high demand for production facilities for mass production in the automotive industry. The focus at GROB is on the core areas of electric motors and batteries. GROB already offers winding technology, hairpin technology, fan coil and feed technology, and needle winding. And thus encompasses the entire manufacturing process of an electric motor, which includes the various wire winding and forming processes, assembly and contacting. GROB and GÜHRING



Reduction of spindle load and maximum productivity: The 6-cutting-edge Gühring PCD tool for processing the stator bore has a diameter of 235 mm, a breakdown torque of 22 Nm, and weighs less than 20 kilogrammes.

“WE SPEAK THE SAME LANGUAGE”



UBC Composites stands for outstanding expertise in the key technology of lightweight construction. For a specialist in this area, strong partners who support technical progress make a difference. This partner for UBC Composites is Gühring.

Growing challenges in the manufacturing processes as well as ever increasing demands of customers, primarily from the motorsport, automotive, aviation and boat-building fields, are always associated with extraordinary cutting tasks that UBC tackles together with Gühring. Here UBC Composites relies especially on Gühring’s manufacturing expertise:

“The design of the milling tools sometimes goes as far as the specification of the carbide composition, to be able to achieve the best possible cutting speeds and long tool life with optimal milling results,” **says Flavio Budulig, Head of Operations at UBC.**

“This not only guarantees the best possible processing of the lightweight components, but also ensures and implements cutting speeds, tool life, and an enormous savings potential.”

Lightweight construction always goes hand in hand with technical progress. As both the materials and the construction, joining, and manufacturing processes are continuously being further developed, close accompaniment of the tools need for manufacturing is essential. Here, tool manufacturer Gühring supports manufacturer UBC Composites comprehensively, personally, and from a single source.

ubc
LEICHTBAU IN PERFEKTION
GÜHRING

“We had goals that required optimised manufacturing techniques in the CNC area. Gühring gave us the best feedback by tailoring the tool individually to the product,” said Flavio Budulig, Head of Operations at UBC Composites.

TOOL PERFORMANCE REPORT

TOOL COMPARISON MILLING / TRIMMING

COMPONENT WING OF A SPORTS CAR / MATERIAL: LAMINATE MADE OF CARBON FIBRE-REINFORCED PLASTIC

Tool type	GÜHRING FR 100	*Competitor* *Roughing-finishing geometry*
Machining type	**Trimming**	*Trimming*
Surface requirement	**R_a 3.2**	*R_a 3.2*
Coolant	**without**	*without*
Tool change criterion	**wear**	*tool breakage*
Milling width (mm) [a_e]	**6**	*6*
Cutting depth (mm) [a_p max.]	**10**	*10*
Milling length/component (mm) [L]	**2250**	*2250*
Cutting speed (m/min) [v_c]	**396**	*396*
Feed per cutting edge (mm) [f_z]	**0.06**	*0.036*
Tool life until change (component)	**62**	*16*
Total tool distance until change (m) [T]	**139.5**	*36*
Feed rate (mm/min) [v_f]	**5042**	*3025*
Main time per component (s) [t_h]	**26.77**	*44.62*
Number of components to be evaluated	**10,000**	*10,000*
Number of cutting bodies/tools	**161.29**	*625.00*
Required cutting bodies/tools	**162**	*625*

COST ADVANTAGE	**41%**
TIME ADVANTAGE [h]	**644.37**

UBC & Gühring: Here is a video with pictures from production, all interviews, and processing examples.

RT 100 XF

NEW. *EXTREME.* **POWERFUL.**

Ratio drill RT 100 XF

120 years of manufacturing expertise, innovative force, synergy: These are the pillars of our success that have allowed Gühring, a former drill pioneer, to grow into a full-service provider and market leader. This was possible thanks to our internal R&D areas in geometry, production and coating, and the manufacture of our own carbide as well as grinding and coating systems. This is what drives the performance of our products to continue setting new benchmarks for the sector.

The new ratio drill RT 100 XF crowns this advance in knowledge: Its extreme performance and qualitative advantage. With overwhelming power and as a guarantee for outstanding machining results in your processes.

NEW CARBIDE XF AND NANOFIRE COATING

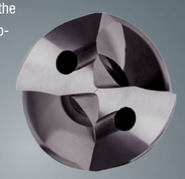
Extremely hard, absolutely unbreakable: The carbide especially developed for the RT 100 XF is a balancing act between hardness and toughness due to the unique combination of tungsten carbide and cobalt. The special structure of this composite cutting material has a resharpening effect. Big disruptions that accelerate tool wear no longer occur. The proven nanoFire coating system contains titanium and nitrogen as well as aluminium, and is characterised by a high level of hardness and good thermochemical resistance.

YOUR ADVANTAGES:

- Combined optimisation of all tool parameters enables **extreme feeds** and **incredible removal rates**
- In-house high-end finishing for **maximal utilisation of the performance**
- **Reduced cycle time** in hard-to-machine materials and special application cases in series production

OUTSTANDING AS STANDARD: GEOMETRY AND MICROGEOMETRY

The robust cone-shaped point and the concave main cutting edge make the RT 100 XF an extremely stable drill tool for use in steel processing and for stainless steels, cast iron, special alloys and hardened steels (≤45 HRC). Four guide chamfers grip extremely early, thus perfecting the coaxiality, ensuring perfect bore quality, improving straightness and surface finish – and are therefore standard on the RT 100 XF from 5xD upwards. The third and fourth support chamfers ensure outstandingly smooth operation. The chip flows through the polished flutes even faster, protecting the surface of the hole and at the same time significantly reducing the machining temperature.



RT 100 XF
NEW. EXTREME. POWERFUL.

TOOL PERFORMANCE REPORT

Tool type	RT 100 XF	*Solid carbide tool*
Material	1,0577 struct. steel	*1,0577 struct. steel*
Diameter (Ø in mm)	13.3	*13.3*
Cutting speed (m/mm)	200	*120*
Feed per cutting edge (mm)	0.31	*0.26*
Tool life until change (component)	120	*60*
Total tool distance until change (m)	15.6	*7.8*
Speed (1/min)	4787	*2872*
Feed rate (mm/min)	1484	*747*
Main time per component (s)	5.66	*11.25*

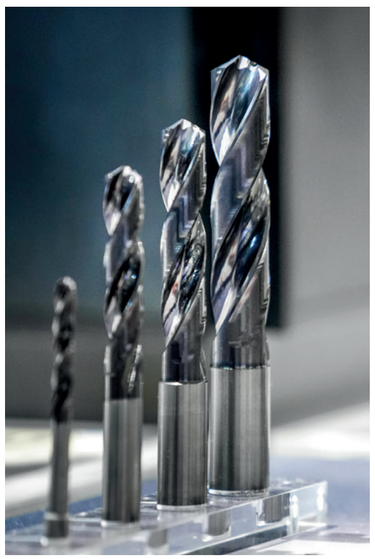
Triple tool life, shorter cycle times, happy users: the success story of the RT 100 XF as experienced by customers.

EMO 2019

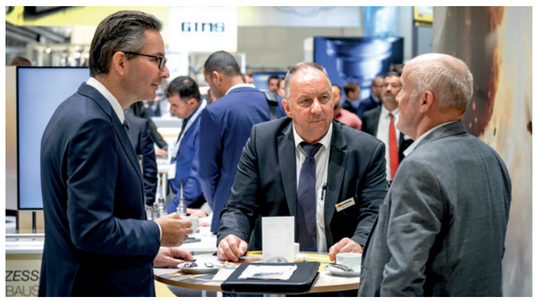
OUR HIGHLIGHTS

EMO 2019, the world's leading trade fair for metalworking took place in Hannover from September 16 to September 21. Under the motto "Smart technologies driving tomorrow's production!" the focus was on new developments and functions of Industry 4.0. Gühring is taking the decisive step towards the future and creating the optimal basis for future-oriented and digitised solutions.

More impressions from **EMO 2019** on our YouTube channel Gühring TV



The top highlight from Gühring was presented with an exclusive product launch: the solid carbide drill RT 100 XF. The drill, made of specially developed carbide, crowns over 120 years of manufacturing expertise and innovative strength. This results in extreme performance and incredible removal rates.



In the area of milling tools, the 5- and 7-cutting-edge versions of the successful RF 100 Speed series were presented: Due to the increased number of cutting edges of the 5-cutting-edge and 7-cutting-edge RF 100 Speed, high material removal rates can also be achieved in materials that are difficult to machine.

THANKS

GÜHRING HONOURS EMPLOYEES

WE EXPRESS OUR GRATITUDE

Image source: Fotostudio Lengerer

Each year, Gühring honours the company's numerous employees celebrating anniversaries in a personal celebration. Oliver Gühring and Bernd Schatz thanked 40 employees for their commitment and long-term loyalty.

THESE PEOPLE HAVE BEEN AT GÜHRING FOR 40 YEARS:

Winfried Blender, Ahmet Bursa, Bruno Demmer, Sahin Duru, Sonja Pendl, Wolfgang Rau, Harry Schachtschneider, Hasan Sen, Gabriele Schlawginski, Walter Single and Nusret Yalim.

THESE PEOPLE HAVE BEEN AT GÜHRING FOR 25 YEARS:

Edgar Fischer, Nicole Fischer, Maria Genz, Nicole Gilles, Frank Graffenberg, Michaela Hopp, Yvonne Joost, Roswitha Liehr, Ali Riza Okumus, Juri Reddich, Angelo Rizza, Wladislaw Rudi, Heidrun Schairer, Frank Scheck, Uwe Schlagenhauf, Constanze Schmid, Claudia Stotz and Bettina Wolfer.

"CEO Oliver Gühring wished everyone all the best: "Your marks are excellent. Therefore, congratulations on your completion and this great success." Looking into the future, he added: "The apprenticeship is one of our success factors and we will continue to invest in it."

GÜHRING APPRENTICES IN MAY 2019:

Dennis Bauer, Michael Kromer, Andreas Lehr, Moritz Koch, Tommy Schützle, Mara Zillhart, Tobias Steil, Robin Henes, Stefan Leiß, Emin Necetin, Timo Allgaier, Robel Alnisan, Marcel Glocker, Jonas Kieferle, Aurel Lüttin, Bekim Memedi, Pascal Müller and Jonas Wolany completed their training as industrial mechanics. Nico Dreher, Niklas Löffler, Marcel Stark, Maximilian Wingert, Mika Denzel, Andreas Frick, Nils Riffenach and Martin Weiß completed their training as mechatronic engineers. Tobias Beck and Friedrich Adrian are now trained cutting tool mechanics, and Lisa Pflumm and Alicia Straubinger are industrial management assistants. Martin Wieckhorst completed his studies in business informatics, Julia Rotenhagen in industrial engineering and management, and Nicole Mona Schiefer in industrial business administration.

GÜHRING APPRENTICES IN SEPTEMBER 2019:

Maik Adelhardt, Fabian Büttner, Bleron Fetaj, Daniel Grom, David Konzelmann, Andreas Krais, Lucas Löffler, Tamara Sauerbaum, Lukas Maier, Artem Schmalz and Jannik Huber completed their training as industrial mechanics. Max Bartschat, Gökhan Karakas and Edgar Billmann are now cutting tool mechanics. Raphael Haag and Johannes Unsöld are now trained mechatronics engineers. Jens Dreher and Manuel Göz are IT specialists for application development and system integration. Sascha May, Ossama Hajiko, Lisa Gulde, Jan Rehfuß and Oliver Schaible are now trained industrial management assistants.

OUR AWARD WINNERS 2019

Wir gratulieren!

Every year, over 50 young people in Albstadt and Laiz decide to start their careers at Gühring. The apprenticeship ended for 56 trainees in spring/summer 2019. We thank you for the trust you have placed in us and wish you success in your future careers. Gühring once again demonstrates its high quality of technical training and can be proud of a national winner, two chamber winners, and the regional winner of the IHK Reutlingen.

MAX BARTSCHAT 2ND NATIONAL WINNER (1ST STATE WINNER, 1ST CHAMBER WINNER)
Performance competition "Profis leisten was" | Cutting tool mechanic

ADRIAN FRIEDRICH 2ND CHAMBER WINNER
Performance competition "Profis leisten was" | Cutting tool mechanic

EDGAR BILLMANN 3RD CHAMBER WINNER
Performance competition "Profis leisten was" | Cutting tool mechanic

MARTIN WEIß 1ST STATE WINNER
IHK final exam winter 2018/19 | Mechatronics engineer

A GOOD RIDE IN EVERY WAY

AZUBI-CARS

The mobility and independence of our trainees is a matter close to our hearts. That is why we provide them with their own trainee fleet: Whether for the way to the test, to other plants, to training courses or much more – trainee cars ensure the required flexibility. We wish our trainees a safe journey and look forward to seeing the trainee cars on the road!

COMPETENCE CENTRE FOR MICRO-CUTTING

TREUEN IV

What started in Treuen in 2012 with the 1st threading tool plant is a special success story from Vogtland. Back in 2013 and 2015 Dr. Gühring grew further and built plants 2 and 3, where tools made of high-speed steel and highly specialised special tools are produced. Now, in 2018/19, there has been an expansion from a mere production site to a pool of competences.

With the competence centre for micro-machining, the production of different tool groups for an entire sector is represented in one plant, and is unique in this form. As micro-machining is becoming increasingly important in the metal industry, it is important to secure competitiveness, to pool competences, and to be able to act flexibly due to shorter routes.

Dr. Gühring

Treuener Höhe 4-7, 08233 Treuen
www.dr-guehring.de

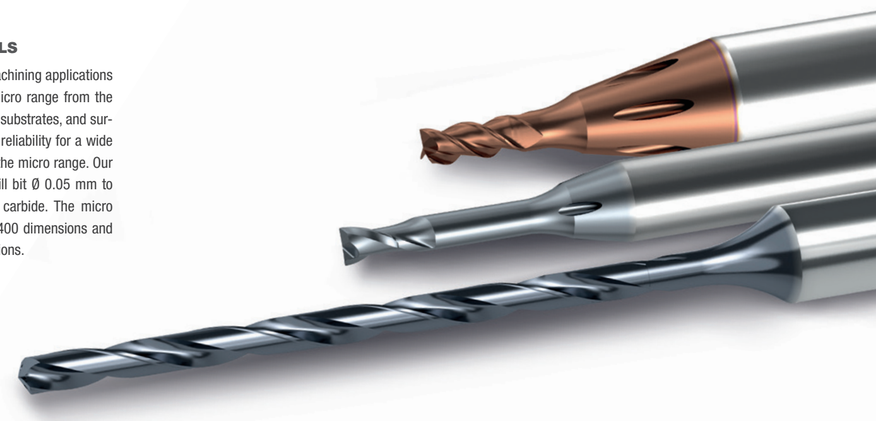
Manufacturing, design, product management, and a proprietary test field for the micro tool product area all converge in Treuen. The smallest machining requires a number of tool adjustments such as cutting edge geometry, hard metal and coating technology, which can be efficiently implemented through such pooling. Drilling, milling and reaming tools are now made from solid carbide in the micro range in Treuen. The tool range is used in aviation, precision engineering, jewellery, electrical engineering and tool-making industries. On over 4,000 square meters, the general conditions are adapted to the high-precision production. The storage and flow of parts are just as modern as a driverless transport system for the distribution of resources. Innovative measurement technology and a test field with high-performance complete machining centres ensure precise evaluation of the machining tests.

Blanks made from our own carbide: Manufacturing, construction, product management and our own test field converge in the competence centre for micro -machining.

Not only manufacturing and competence are pooled together in plant IV in Treuen. There is even an in-house IHK test facility: Proof of the high quality of the training on site.

THE DIVERSITY OF OUR MICRO TOOLS

Gühring provides a complete range for all micro-machining applications for the ever smaller parts and structures in the micro range from the most varied sectors. Specially adapted geometries, substrates, and surfaces guarantee optimal performance and process reliability for a wide variety of materials and machining applications in the micro range. Our variety of micro tools ranges from the smallest drill bit Ø 0.05 mm to special solutions made from specially developed carbide. The micro tool range includes over 75 types in more than 2,400 dimensions and thus offers tool solutions in stock for many applications.



GÜHRING TOOL MANAGEMENT SOFTWARE

SEE MORE WITH THE GTMS

The focus is on new developments and functions of Industry 4.0. Through intelligent networking and its further developed Gühring Tool Management Software (GTMS), Gühring creates the optimum basis for future-oriented digitised solutions. In particular, the areas of transparency and data assessment are continuously expanded for the purpose of permanent optimisation.

MACHINE CONNECTION GMCC

With the GMCC option, Gühring offers the option of a direct machine connection. This makes it possible to monitor machine conditions at any time. Through permanent life cycle analysis, optimisation potential is quickly uncovered. Stored emergency plans when the machine is at a standstill help resolve the problem quickly and efficiently. The failure analyses offer the possibility of recognising patterns to avoid future failures. The aim is to turn downtimes into productive service times.

TOOL LIFE AT A GLANCE

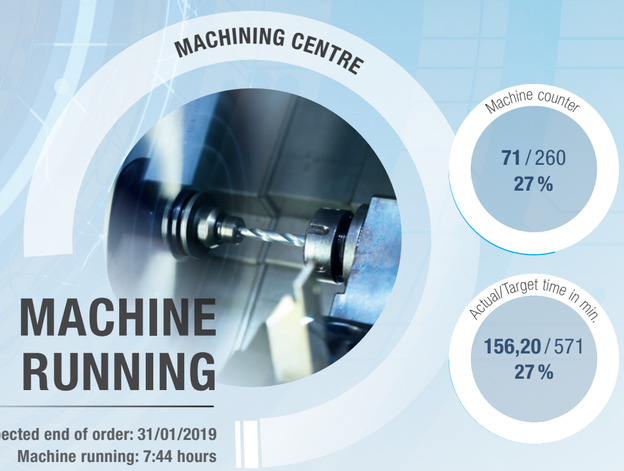
The magazine monitoring provides a permanent overview of the available tools including the corresponding remaining service life and automatically takes over wear detection. All information about the magazine contents can in turn be used for order planning. Users plan more efficiently, and productivity is significantly increased. A shorter reaction time in the event of tool breakages and the evaluation of the actual tool life are additional advantages to ensure that the machine is optimally equipped for the requirements.

THE GTMS SEES MORE

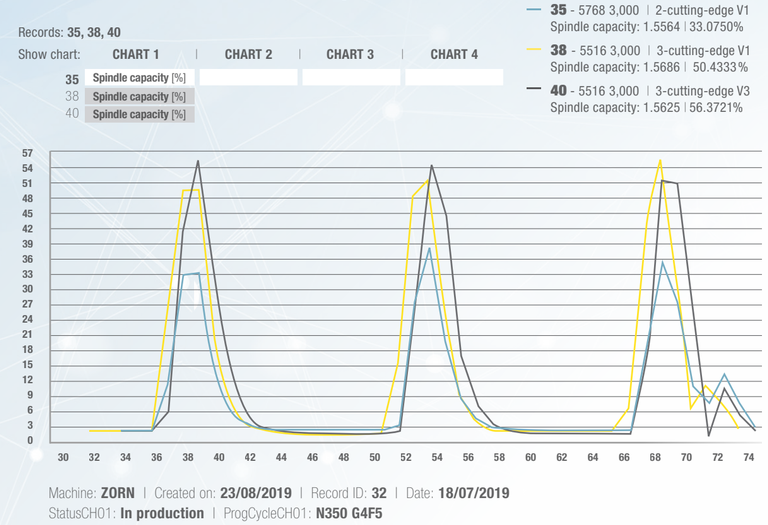
With process data monitoring, parameters such as machining times, an active NC program, parts counter, performance data and much more can be monitored, documented and evaluated. This way, processes are more stable because a faster root cause analysis is possible in the event of disruptions. Furthermore, cost drivers in the production process can be identified quickly and easily.

YOUR ADVANTAGES:

- *Perfect tools and processes*
- *Machine connection*
- *Networking & data assessment*
- *Reduced costs*
- *Real-time transparency*
- *Uncover improvement potential*



Technical data | Process optimisation



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