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E-PAPER



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High-feed drilling in stainless steel & titanium

RT 100 InoxPro



RT 100
INOXPRO

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50 % higher feed rates in stainless steel: The new RT 100 InoxPro

If you want to drill in stainless steels, you will have to contend with high tool wear. A new development from Gühring is changing this: The RT 100 InoxPro solid carbide drill delivers an exceptional performance thanks to its combination of carbide, geometry and coating specially tailored to this material group. This results in a longer tool life and reduced machining times.

Stainless steel materials are popular in many industries, but when it comes to machining, they have a few tricky properties: Unlike machining conventional steel, stainless steel machining produces very high temperatures that affect the tool life. In addition, the material tends to jam, which means that it contracts during drilling, often causing drills to get stuck and break in the hole. Another feature of stainless steel is that it promotes tool wear: The material often builds up on the cutting edges during drilling. If this built-up material breaks off during the drilling process, parts of the cutting edges can also break off.

For all these reasons, a material specialist should always be used for drilling in stainless steel materials. But the performance of traditional stainless steel drills is rarely at the highest level. Gühring is now closing this gap with a new special tool, which will be presented for the first time at EMO 2023: The new RT 100 InoxPro. The solid carbide drill has been specially designed for the production of precise holes in stainless steels and titanium materials, and promises the highest cutting values and a long tool life.

Smooth surfaces prevent built-up edges

To prevent material from sticking to the drill's cutting edges during drilling, Gühring has opted for particularly smooth tool surfaces on the RT 100 InoxPro. Polished flutes and top surface quality in the web thinning improve chip removal and minimise the formation of built-up edges. The tool is also coated with Gühring's own Perrox coating, which is particularly smooth and offers very high wear protection.

New geometry to prevent jamming

Gühring has also adapted its carbide substrate specifically for machining stainless steel materials: An improved combination of hardness and toughness in the cutting material means that the cutting edge does not break, even under high loads. A new drill geometry has been developed with the same aim in mind: The optimised sickle-shaped cutting edge and the stronger taper of the tool minimise the tendency to jam in stainless steel.

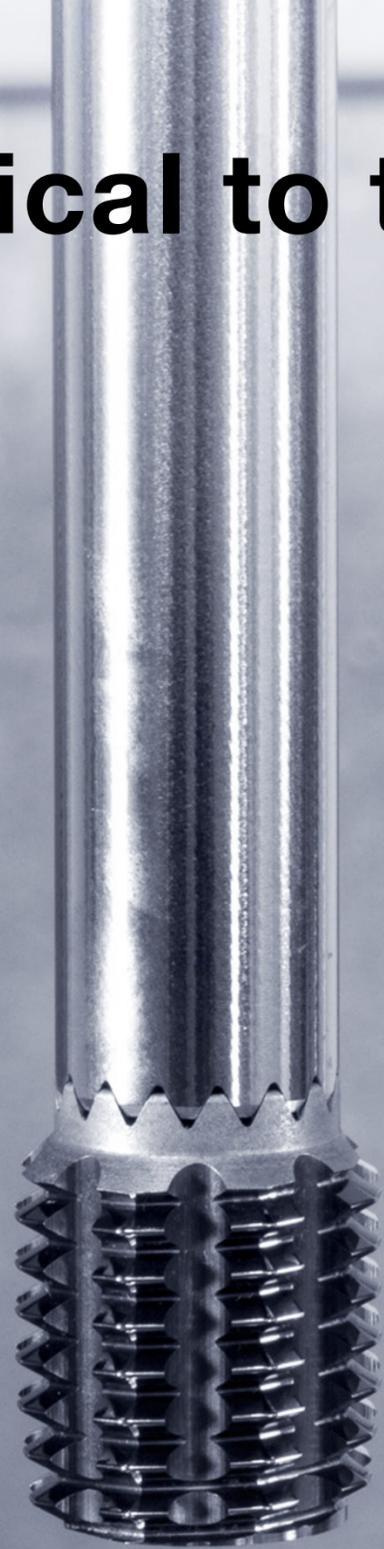
The premium quality of the cutting edges ensures greater wear resistance and consistency. Initial tests have shown that the wear rate of the RT 100 InoxPro is up to three times lower than that of comparable tools from competitors. "Altogether, this means that we have a high-performance tool for the stainless steel sector," explains Markus Kraus, Product Manager for Drilling Tools at Gühring.

25 percent time saving

The fact that significantly higher feed rates can be achieved in stainless steel materials with the RT 100 InoxPro is demonstrated by a practical example in which the new Gühring drill was tested against a competitor's high-performance stainless steel drill. The result: Thanks to the higher feed rate, the machining time per component was 25 percent shorter than with the competitor's drill, while the tool life stayed the same.

Flexible & economical to the thread

Modular threading tools



Maximum flexibility and economic efficiency: Modular threading tools

Carbide tools ensure high cycle times, but high speed steel is cheaper and the first choice on legacy machines or systems with a poor clamping setup. Gühring combines both advantages of these cutting materials in one tool by screwing a carbide head onto an HSS shank. The result? A modular system for new fluteless taps.

What do the rotor hub of a wind turbine, a truck's rear axle and the large roller bearing on a crane have in common? Internal threads with large diameters have to be incorporated into all of these components. However, especially when machining very large workpieces, the underlying conditions are often challenging. Because it is not possible to securely clamp large components, vibrations often occur that lead to tool breakage in solid carbide tools. However, tools made of high speed steel cannot provide the high cutting parameters required for cost-effective production of large threads.

Gühring presents the solution to this problem: fluteless taps that combine wear resistance with toughness. The concept consists of a steel shank (HSS-E) and an exchangeable thread head made of carbide with an AlCrN coating. Both components are connected via a screw. Compared to a threading tool made of HSS-E, the carbide thread head both reduces cycle time and increases tool life – even under less than ideal

conditions. And because the steel shank makes the tool cheaper than monolithic solid carbide tools, the customer benefits from a double cost advantage.

Can be combined for a wide range of machining operations

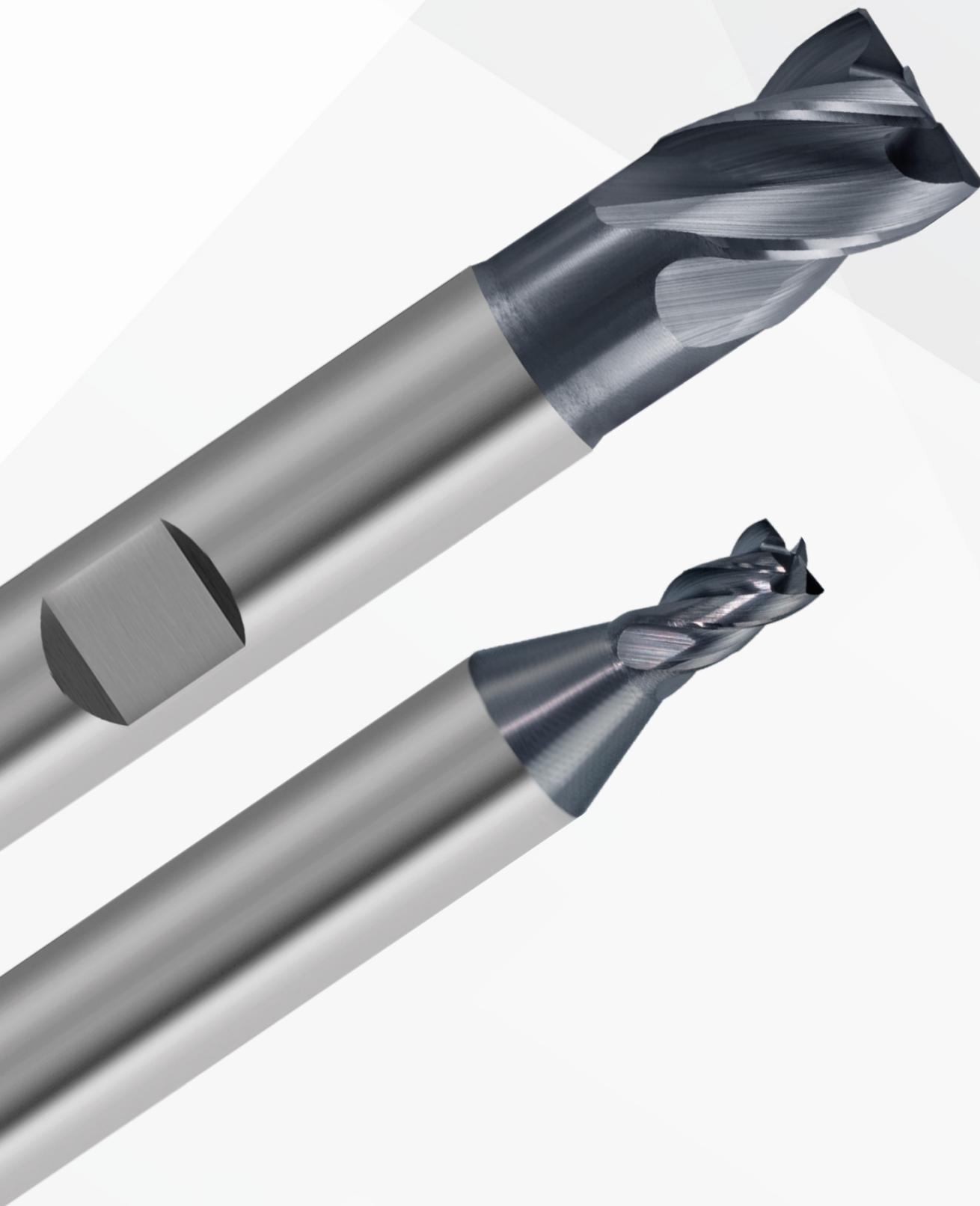
Another major advantage of this modular system is its high degree of flexibility: Depending on the component requirements, two different shank lengths can be combined with carbide heads for all thread sizes between M12 and M24. As a result, the tool is also suitable for the production of larger dimensions and longer designs. And if a thread head wears out, the tool shank can still be used up to eight times.

Hirth serrations act as an interface between the shank and the head, absorbing the torsional load and ensuring perfect concentricity and high torque transmission. The torque is also reduced by the tool's special polygon shape and the AlCrN coating.

With the modular fluteless tap, threads can be reliably produced in steel, stainless steel, cast materials and even special alloys.

High-performance milling cutter for soft, tough materials

RF 100 Sharp short



RF100 **SHARP**
EXTRA SHORT

GÜHRING

RF 100 Sharp short: 40 percent better milling performance thanks to more compact dimensions

The successful RF 100 Sharp product family has grown: The RF 100 Sharp short enhances the range with a particularly compact design. With its cutting edge length of 1xD and 2xD the reach, it is able to deliver a particularly strong milling performance. In this way, 40 percent higher feed rates can be achieved with the tool.

Short and to the point – a great way to describe the small powerhouse from Gühring. With the new short version of the RF 100 Sharp high-performance milling cutter, the tool manufacturer is pursuing one main goal: maximum performance during milling. With its cutting edge length of only 1xD, the Sharp short is the shortest high-performance milling cutter in the Gühring portfolio. And that's exactly the secret to its good cutting performance: Thanks to its short dimensions, the short version of the RF 100 Sharp is particularly sturdy, thereby ensuring running smoothness during milling. This in turn facilitates machining with feed rates that are up to 40 percent higher, resulting in a considerable time advantage for the customer.

By reducing vibrations and bending during milling, the Sharp short delivers a high level of precision and process reliability – even under unstable conditions. This stability advantage comes particularly to the fore in smaller diameters: With its diameter range of 1 to 16 mm, the Sharp short is therefore also ideal for use in the micro range.

The best in short

Despite its compact size, the Sharp short offers all the advantages of its product family: The innovative front end with corner chamfer and correction is perfect for ramping and slotting. The RF 100 Sharp is particularly easy cutting thanks to its rake angle of 12°, which reduces cutting pressure and cutting forces, thus ensuring a soft, smooth cut. The carbide used is characterised by its relatively high toughness, which prevents the milling cutter from breaking under suboptimal conditions or slow cutting speeds. In all of this, an AlCrN coating ensures very long tool lives, even with aggressive cutting parameters. The particularly submersible end of the tool enables ramping with a ramp angle of up to 30° and axial plunging during slot drilling.

The tool can be supplied in full size or undersize manufactured with roughing and finishing cuts. A neck clearance ensures greater flexibility and allows for universal use up to 2xD of reach. This makes the RF 100 Sharp short interesting for the production of dimensionally stable slots in drive shafts made of stainless materials, for example, or pockets and elongated holes in mounting plates or grooves in turned steel parts.

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**Do you have any questions, need further press material or
would you like to report exclusively? Get in touch.**

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