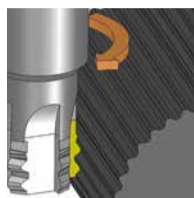


NEWS.

THE SCHWANOG NEWSPAPER FOR CUSTOMERS,
EMPLOYEES AND FRIENDS OF THE COMPANY.

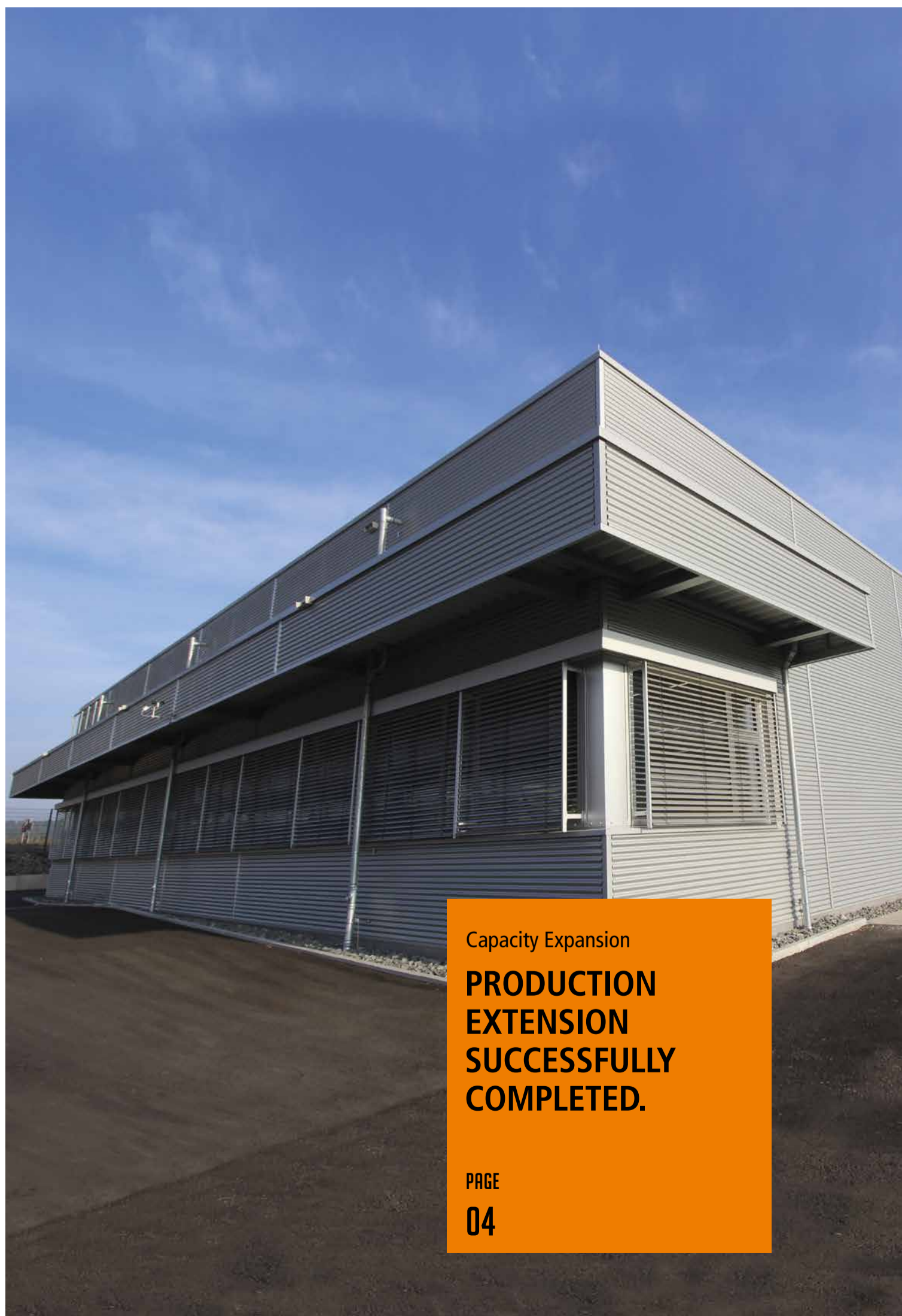
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Milling of serrations and grooves:
The Schwanog solid carbide milling cutter with up
to 5 Flutes...



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Schwanog has shares in UBR Italy:
With the signing of the contract on September 26
in Gussago/Brescia, participation in the...



Capacity Expansion

**PRODUCTION
EXTENSION
SUCCESSFULLY
COMPLETED.**

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04



EDITORIAL:

Dear Business Partners,

it's hard to believe, but it's true: We're approaching the end of the year again, and at a pretty fast pace. 2018 was once again a very successful year for our company, and I would like to thank you for your cooperation and loyalty.

A lot has happened at Schwanog, so the fourth annual edition of our newsletter is filled with reports about new investments and technical innovations from our subsidiaries.

I am always proud of our ability to find solutions, as shown in the example on page 2: The milling of serrations and grooves with up to 5 flutes, is another client-specific solution which offers huge cost benefits as well as the whirling of internal threads for medical and dental parts on page 3, where all our industry experience has been successfully applied.

Investments in capacities and customer care has continued with great momentum and shaped the current financial year. In this way, we could realize and extend the production area by an additional 400 square meters. We are also supplementing our activities in the foreign markets. Consequently, we hired Thomas Lund as Schwanog's sales representative in Sweden and in Italy we acquired shares in UBR, our long-standing partner company.

In 2019, we wish to continue the positive trend, and create further value for our customers.

In this spirit, I hereby wish to express my sincere thanks to you. We look forward to a mutually successful 2019!

Clemens Günter
Geschäftsführer

SCHWANOG

Schwanog solid carbide milling cutter for finish operation:

MILLING OF SERRATIONS AND GROOVES WITH UP TO 5 FLUTES!

Everyone knows about the challenge when broaching precision parts with high material tensile strength. Broaching of materials with low tensile strength is pretty simple. However, when it comes to materials such as alloy steel with tensile strengths from 1100 to 1300 MPa, you quickly hit your limits.

For precisely these applications, Schwanog has developed completely new milling cutters made from solid carbide.

But what makes the new Schwanog solid carbide milling cutter so unique?

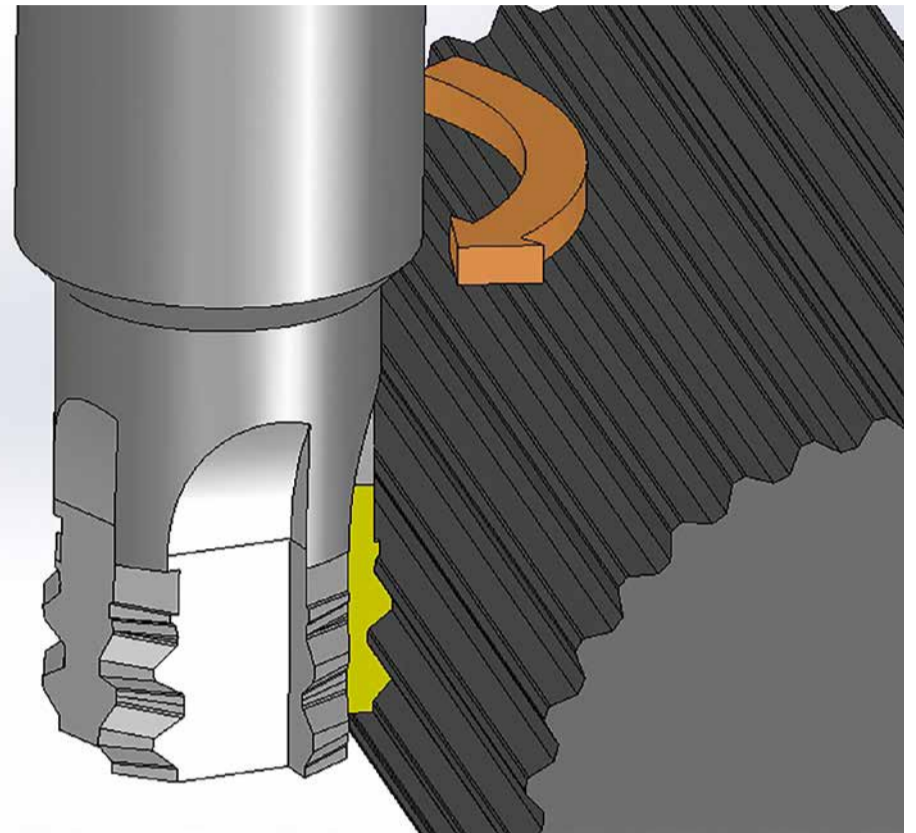
Well, the Schwanog engineering team designed the tool, dependent on the tool diameter that up to 5 flutes are available. Therefore the finishing process can be achieved directly on the machine, eliminating the otherwise required post-machining process.

The advantages:

- Complete machining directly on the machine
- Significant cost savings due to elimination of post-machining process

This application once again shows how much we appreciate the direct collaboration with our customers, and the dialogue regarding the daily manufacturing challenges.

Our team is always able to offer new, innovative solutions, thereby adding value to your business. Take advantage of our know-how and challenge us!



Schwanog breaks new ground in Sweden:

JONAS LUND HAS TAKEN ON THE DIRECT CUSTOMER CARE ROLE!

Sweden has developed into an interesting market for Schwanog tooling systems. Therefore we decided to take advantage of these market opportunities more intensively.

That's why we have decided to provide customer care of the Swedish market directly, moving forward.

We have acquired an excellent specialist in Jonas Lund, our sales representative for the Swedish market.

Jonas worked as a lathe operator for 12 years and 10 years in outside sales, offering tooling solutions.

We are pleased that we were able to convince Jonas to join Schwanog. We feel it's both a confirmation of his talents, as well as a challenge.

Jonas lives on an idyllic farm with his wife and 2 children in Smaland. His free time is spent in his forest, felling trees.

He likes playing football but mostly enjoys spending time with his family.

We wish Jonas Lund great success in his work. He can count on the support of all Schwanog employees in the sales and engineering department.



Quality management reorganized:

PETER ERZ TAKES ON RESPONSIBILITY FOR HIGHEST QUALITY!

The complexity of our product solutions continues to increase; and applications are becoming more versatile and demanding.

I.e., multi-tools and difficult to machine materials, are no longer a rarity in our daily business. This leads to more demanding requirements for the quality management team.

We recognized these developments at an early stage, and supplemented our quality management. Mr. Peter Erz has held the position of Quality Management Representative since January the 1st.

His first task was to check quality processes, and wherever possible, to optimize these further.

This, of course, includes the processes which involve our international subsidiaries, since we produce some of their orders at the Obereschach site as well.

After his apprenticeship as a carpenter, he obtained a degree in Engineering (MBA), where he successfully completed his course in production and logistics.

This was followed by 5 intensive years working in quality management, among other positions, also as a quality planner for development projects at Mahle.

Peter Erz is 40 years old - in his spare time he enjoys mountain-biking, cross-country skiing or hiking. Photography and travel are also hobbies he enjoys.

We wish Mr. Erz the best of luck for his demanding and exciting new position!



Investment in foreign market:

SCHWANOG HAS ACQUIRED SHARES IN UBR ITALY!

Italy is a very interesting market for Schwanog, since it's one of the largest markets for tooling solutions in Europe. We are convinced of the long-term potential for Italy and have therefore, within the framework of our strategy "Schwanog 2025", taken an essential step towards strengthening our position in Italy.

With the signing of the contract on September 26 in Gussago/Brescia, our share participation in UBR s.r.l. was sealed. UBR has been a partner and importer of Schwanog solutions for decades, and very familiar with the Italian market.

With this commitment, both partners believe that they will be able to react to market needs more effectively in the future and gain further market share.

In addition, a sales initiative furthers the broad customer support and potential acquisition of new customers in the classic regions of the turned-and-milled part production.



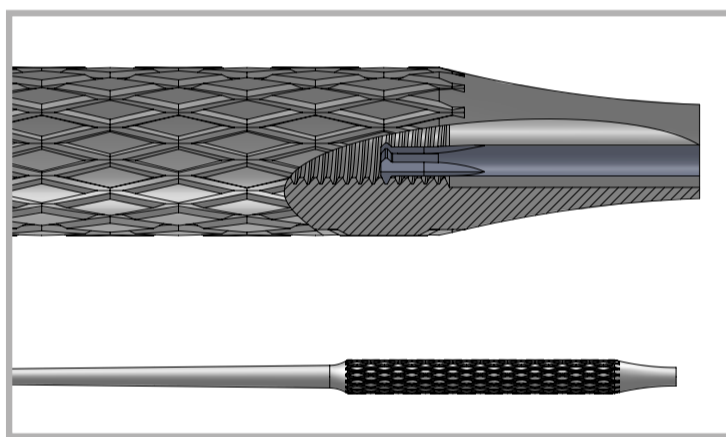
The perfect solution:

WHIRLING OF INTERNAL THREADS!

Maximum accuracy, vast resilience, and guaranteed tool life are essential requirements for precision parts in medical and dental applications. Given the constant increase in batch sizes worldwide, productivity plays a more important role in selecting cutting tools.

Thread whirling tools (thread mills) for producing ID threads for bone screws or bone plates are a proven specialty of Schwanog. Our ID whirling tools are suitable for thread depths up to 15mm and are manufactured with 1 to 3 flutes, depending on the thread size. Our standard tools are designed for thread sizes from M1 to M5, special solutions are available upon request as is always the case with Schwanog.

Productivity, quality, and precision are perfectly combined in our high-performance tools. Those customers who require applications for internal threads usually also need solutions and for external threads.



Schwanog has decades of experience in the area of OD whirling and offers solutions for all machine tools and precision parameters.

Advantages:

- Part cost reduction of up to 40 %
- Thread depths of up to 15mm
- Standard (stocked) thread sizes M1-M5 with 1-3 flutes
- Specials i.e. ANSI, ACME, buttress type threads available upon request

Make use of our know-how now!
Simply send us your part drawing and our tool recommendation will follow instantly!

Schwanog solutions for longer tool life and better handling:

INSERTABLE FORM TOOLS ON CIRCULAR TOOL HOLDERS!

Some older generations of machines may still have circular tool holder supports which generally use tools made from HSS. These tools can be re-sharpened often, but leave much to be desired in terms of tool life and handling. These tools contain no side clearances so that they can be re-sharpened. The part surfaces are rubbing against the circular tool, which leads to additional reduction of tool life.

The Schwanog technical team has addressed this challenge and developed a solution that enables the Schwanog insertable tooling system to be used on circular tool holders supports.

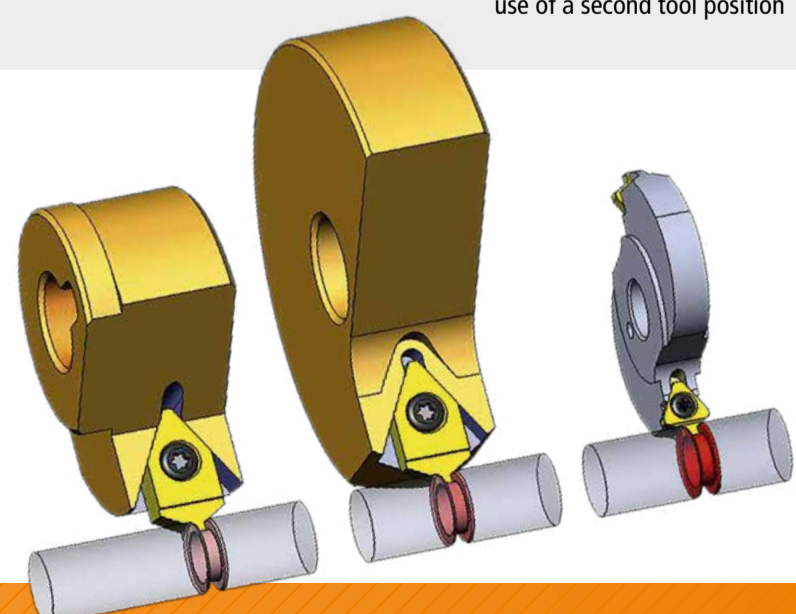
The form tool can be changed much more quickly. Machine downtime is reduced. By using the optimum carbide grade and, if necessary, a coating, much higher cutting speeds and feeds can be achieved, leading to a significant part cycle time reduction.

The use of carbide compared to HSS tools and the possible side clearances provide up to 20 times longer tool life. Depending on space availability, the holder costs are reduced by applying a second tool position that can be used after the first has worn out.

Talk to us about your requirements.

ADVANTAGES:

- Significantly faster changeover times of insertable tools compared to HSS tools
- Substantial higher speeds and feeds due to the use of carbide
- Significant part cycle time and unit cost reduction
- Up to 20 times longer tool life
- Reduction of tool holder costs through use of a second tool position



Expansion of production area in Obereschach:

EXTENSION AND REORGANIZATION SUCCESSFULLY COMPLETED!



As already announced in our issue 1 of the Schwanog News, we have created noticeably more capacity by extending our production by 400 square meters. With the relocation of the tool-holder production and apprentice workshop to the new extension, we were able to achieve two things with a single action.

First, there is now more space and optimal training conditions for the growing number of apprentices, and secondly better conditions for the tool-holder production.

The central beneficiary of the construction project is our grinding center,

which is now being significantly expanded. This was an urgent need, as the demand for Schwanog tool solutions, from Germany and abroad, continues to rise. With the more active development of markets such as Sweden and Italy, we are now pursuing holistic approaches to strategic planning, from sales to manufacturing.

The primary objective, however, is to reduce delivery times and accelerate order throughput times. For this reason, several additional grinding centers, with robot technology, have been ordered. The most important part for all our customers is the gratifying news that the first new grinding machines are up and running.

Time to chill and relax:

MERRY CHRISTMAS AND THE BEST OF LUCK AND SUCCESS IN 2019!



After a very active year full of social commitments and economical challenges, Christmas is the ideal time to take a breather and relax.

This is our wish to you and your families, together with happiness, health and success.

Thank you for your collaboration and cooperation, you are the reason for our success!

Yours faithfully, the Schwanog Team



Schwanog International!

PREVIEW TRADE SHOWS 2019

Germany



Intec in Leipzig
5 - 8 February 2019
Hall 3, Stand G40



"DST Dreh- und Spantage Südwest" in Villingen-Schwenningen
April 10 - 12, 2019
Hall B, Booth B. 132



EMO in Hannover
16 - 21 Sept. 2019

France



Eurexpo Lyon
5 - 8 March 2019

USA



PMTS, Cleveland
April 2 - 4, 2019
Booth: 4009



Wisconsin Manufacturing & Technology Show in Milwaukee
October 8 - 10, 2019

Poland



Mach Tool, Poznan
4 - 7 June 2019

CUSTOMER INFO: HOLIDAY SHUTDOWN

Find below the shutdown times for Schwanog Germany, France, USA and China.

Germany:

Monday, 24.12.2018 – Friday 4.01.2019

France:

Monday, 24.12.2018 – Tuesday, 1.01.2019

USA:

Monday, 24.12.2018 – Tuesday, 1.01.2019

China:

Monday, 31.12.2018 – Wednesday, 2.01.2019



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