

Technology Day China

The ultimate networking event of the HerkulesGroup

Industry 4.0

Performance and efficiency through intelligent learning processes

EDT Machines

For perfect surfaces in the automotive industry

New Machine Technology

The ProfiMill **evo** in bridge type design

Shaping the Future Together

Exchanging Ideas on the Technologies of Tomorrow



Shaping the Future Together –

HerkulesGroup Technology Day 2024

The Ultimate Networking Event in Shanghai

For the first time, the WaldrichSiegen and Herkules representative offices located in Beijing and Shanghai organized a joint event for more than 140 visitors which took place on July 2nd – the HerkulesGroup Technology Day 2024.



More than 140 participants gained valuable insights into the world of the HerkulesGroup products and services during the seminar

After the opening ceremony at the Pullman Hotel Shanghai Skyway, the one-day conference started with around 140 invited participants from a total of 67 different companies from all over China and an excellent selection of experts from sales and service. Specialist staff from Herkules and WaldrichSiegen gave presentations of the highest technical quality and captivating Q&A sessions were held as part of two parallel seminars on roll machining and heavy-duty machinery.

The theme of the event was “Shaping the Future Together”. Stefan Elze, General Manager of the WaldrichSiegen Beijing Office and the Maschinenfabrik Herkules Shanghai Office, explained the idea behind this in his opening speech. “In the course of this event, we are addressing the approach of collective efforts and joint commitment in creating a better future. It means that team spirit and continuous interaction can influence and shape a positive and progressive path into the future. The theme therefore emphasizes the importance of unity, partnership and a shared vision for achieving long-term goals and innovations – and this is exactly

what describes our declared mission: long-term cooperation with our partners that leads to win-win situations! Business is conducted between people and not between companies – therefore the purpose of this seminar is not only to let you participate in the latest developments, but also to create a solid basis for the continuation of our successful cooperation.”

“Such cooperation requires mutual trust, which can only be achieved if personal contact is maintained, and interaction is valued and supported.”

Stefan Elze



Our sales and project manager Emiljano Bibleka (left image) held an informative presentation about latest developments of the WaldrichSiegen EDT texturing machines

“The collaboration is not just about excellent business relationships with customers. The cooperation between the two big players Herkules and WaldrichSiegen also made it possible to organize this unique event.”

Stefan Elze

“Both during the preparations and during the event itself, the two locations in Beijing and Shanghai worked together in an exemplary manner,” explains Stefan Elze. “I would therefore like to take this opportunity to thank all the employees at both offices. Without them, the event would not have been nearly as successful.”

In direct discussions and during the Q&A sessions, the participants of the two seminars not only had the opportunity to learn about new technologies and gain a complete overview of the impressive product portfolio of both companies. Above all, the professional interaction with the experts and the top-class presentations and lectures, especially on the topics of automation and after-sales service, made a lasting impression on the visitors and were particularly important to many of the participants. “It was an exciting exchange of ideas about machine tool technologies and innovations, but also a demonstration of numerous cutting-edge technologies and their practical application,” summarized Mr. Zhang JinZhan from Hangzhou Steam Turbine Co., Ltd. “The information imparted at this seminar not only enriches our knowledge but also greatly promotes cooperation between manufacturers and customers,” continues Mr. Zhang JinZhan.

“Through the open and stimulating exchange of information, we, as users and application engineers, absolutely benefit from such events,” adds Mr. Wang Chaozong from the Nanyang Explosion Protection Group Co.,Ltd.

1. Customer service at its finest: Matthias Roth, Head of After Sales Service and **2.** Stefan Elze, General Manager of the WaldrichSiegen Beijing Office and the Maschinenfabrik Herkules Shanghai Office convinced with outstanding expertise



“Thanks to this seminar, our understanding of the numerous possibilities for equipping our production facilities has increased significantly, especially regarding new possibilities for more sustainable development of the plants, additional equipment options and new digital functions, which are becoming ever more important for the industry. At the same time, the interaction with the experts gives us a deep understanding of the operation and maintenance of machinery, which enables us to further optimize the production processes in our factory,” concludes Mr. Chen Yun from Fangda Heavy.

“In future, we will place more emphasis on such seminars and events,” explains Stefan Elze. “It has already been shown in the past that they leave a much deeper and more lasting impression than a trade fair stand. A seminar like the one we just held will certainly be remembered positively by all participants for a very long time.”



The highly professional team of service and sales employees was just as enthusiastic by the event as our customers were. From l. to r.: Marco Tannert, CTO, Matthias Roth, Head of After Sales Service, Dr. Thorsten Mehlhorn, President & CSO, Stefan Elze, General Manager China and Frank Pyrdok, Sales was just as enthusiastic by the event as our customers were

Increased Capacity Through Modernization

A retrofit is especially useful for machines that are getting on in years and where the mechanical system accounts for most of the costs. After many years, the control system of a machine is usually no longer up to date, while the mechanical equipment is still in perfect condition. In this case, a proven solution is to technically upgrade the machine while retaining the mechanical equipment.

The advantages: Employees do not have to get used to new machines and their processes, which saves time-consuming and costly training. In addition, the basic structure of the machinery remains the same, meaning that the shop floor does not have to be extensively remodeled.

Basically, even after decades of intensive machine use a complete revamp can be an effective and cost-efficient alternative to new investments. We carry out the revamp process either at your site or at our facilities. A revamp will update your machine to state-of-the-art performance – and provides you with considerable economic benefits due to optimum machine performance and machining results.



Tata BSL Counts on the extensive know-how of our Experts for Machine Overhauls in India and the Netherlands

Tata BSL Ltd., formerly Bushan Steel, is one of India's largest steel manufacturers and producing hot-dip galvanized steel products in its hot rolling mill. In order to guarantee the high quality and enormous output at all times, downtimes must be kept to a minimum. To ensure that the rolls can be used again quickly, the customer has been relying on a state-of-the-art roll shop with special loading equipment for decades.

To guarantee that the process continues to run smoothly for years to come, the customer decided to have the loader in the hot rolling mill completely overhauled electrically. "The roll loader transports rolls of a total weight of up to 20 t, a length of 16.5 m and travels at a speed of 60 m/min," explains the responsible Sales and Project Manager, Volker Witzleb. "The roll loader is used to load and unload our roll grinders with rolls and chocks, thus making it indispensable for the production process. Trouble-free operation of the roll shop is not possible without a perfectly functioning roll loader," continues Volker Witzleb. "One of the most important aspects in this regard is the positioning accuracy of the loader to ensure that neither the roll grinder nor the roll is damaged."

The very good business relationship that exists since 1996 has persuaded the customer to rely entirely on the expertise and reliability of WaldrichSiegen for repairs and modernization – and not only in India.

Perfect Modernization Without Downtimes

For its Dutch plant in IJmuiden, the steel manufacturer also relies on the specialists and know-how of WaldrichSiegen and is having the roll grinder type WS III PG 8000, which has been in operation there since 2006, modernized and the beds realigned by SBA, the HerkulesGroup's modernization specialist from Austria.

"Here, again, the aim is to keep downtimes to a minimum so that there are no delays in the production processes despite the modernization," explains Sales and Project Manager Jannik Schneider. "That is why we only carry out the measures while maintenance work is being carried out on the rolling mill. This requires detailed and precise coordination with the customer, but thanks to our long-standing and extremely good relationship, this does not pose any challenges for us."

Intensive technological consulting right from the start is the credo under which WaldrichSiegen has been supporting its customers worldwide – for decades. In close cooperation, our specialists develop the optimum process solution thus enabling the implementation of the latest technologies in our customers' production without impairing the manufacturing and production process.



Result of Modernization: China Steel Expands Roll Shop with ProfiGrind

China Steel Corporation (CSC) based in Taiwan, one of the largest internationally active steel and aluminum producers, has been one of our loyal customers since 1975. To date, three roll turning lathes, 17 roll grinders and one EDT machine from WaldrichSiegen are in use at CSC in Kaohsiung.

In 1991, CSC invested in two WS III and WS V series roll grinders from WaldrichSiegen for its roll shop and just recently decided to have both machines – a WS III C 40 x 6000 universal grinding machine and a WS V C 10 x 5500 for grinding work rolls – brought up to the latest technological standard. Following this extremely important step for the plant to remain prepared for the future, the customer decided to expand the existing roll shop

with an additional ProfiGrind 5000 – 50 x 6000 PGC10/CP-B-U (WS3) roll grinder from WaldrichSiegen. The machine reliably grinds work, intermediate and back-up rolls for the cold rolling mill with diameters of 290 mm to 1,600 mm and a distance between centers of up to 6,000 mm.

“The challenge is the perfect integration of the machine into the existing roll shop so that all work steps are optimally interlinked to ensure the perfect workflow,” explains Sales and Project Manager Jannik Schneider.

“The customer already knows our machines very well and is familiar with our control technology. Thanks to the existing, long-standing relationship with the customer and the modernizations carried out on the existing machines, the knowledge gained from the

past can be used again in this project to facilitate the integration of the new ProfiGrind machine,” explains Jannik Schneider.

The customer made the decision to purchase our machine based on our long-standing business relationship, which is valued by both parties, and in the knowledge that our machines give them an absolute competitive edge. “The integration and installation is not a challenge for us because we already know CSC’s requirements from the past and can apply them again to the new grinding machine. The trust and years of experience with our machines and technology supported the decision in our favor,” says Jannik Schneider.

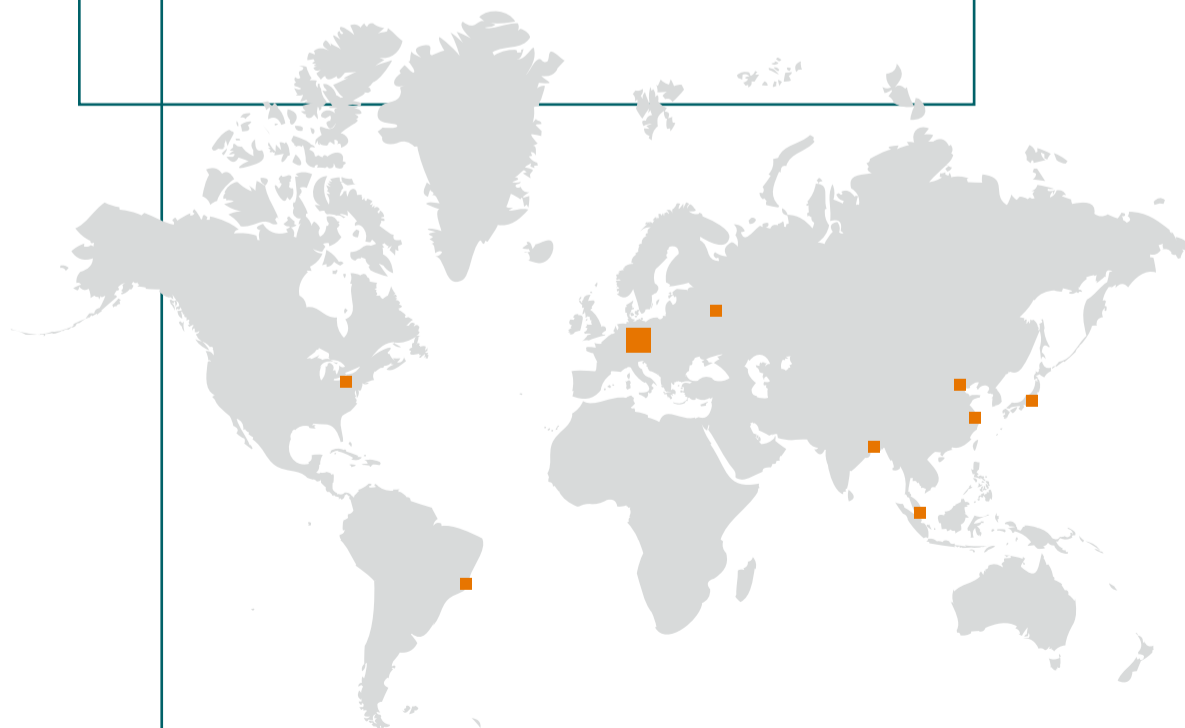
Thanks to our Global Network of Service and Production Sites, WaldrichSiegen is Able to Support and Fulfill our Customers’ Needs Promptly and Flexibly all Over the World.



SBA can look back on more than 20 years of experience in the field of roll grinding. The approximately 60 employees are specialists in the manufacture, modernization, maintenance and repair of custom machines and industrial plants – from electrical and mechanical engineering to software. Flexibility, fast problem solving, reliable aftercare and good trouble shooting are SBA’s recipe for success for the long-term and efficient after sales and general service.



As a sales representative, Lloyds Engineering Corporation Pvt. Ltd. is a long-standing and valued business partner of WaldrichSiegen in India and, in addition to many experienced employees, has extensive know-how when it comes to the Indian market and WaldrichSiegen’s complex and highly sophisticated product portfolio. In 2023, the trust-based cooperation and joint success story led to a joint venture between the two companies under the name Lloyds Waldrich India Pvt. Ltd. WaldrichSiegen, together with our Indian service and production facility Deutsche Maschinen India Pvt. Ltd. (DMI), is optimally situated to provide local service to our Asian customers in the field of roll machining and heavy machinery.



It's All About the Surface

China is by far the largest manufacturer of motor vehicles. In 2022, around 23.84 million passenger vehicles and 3.2 million commercial vehicles were produced. Overall, China is therefore responsible for almost a third of global motor vehicle production.

In the passenger car sector, the share was even higher – in 2022, 38.7 % of all passenger vehicles were manufactured in China.

The surface of car body parts in the automotive industry must be perfect. The EDT machine type ProfiTex from WaldrichSiegen uses electrical discharge texturing to process the surface of work rolls, which in turn are used to process flat products. The structure of the roll is transferred to the sheet metal, improving its properties during deep drawing and painting. The ProfiTex series is characterized by the highest level of performance, productivity and availability and meets the most challenging standards of accuracy.

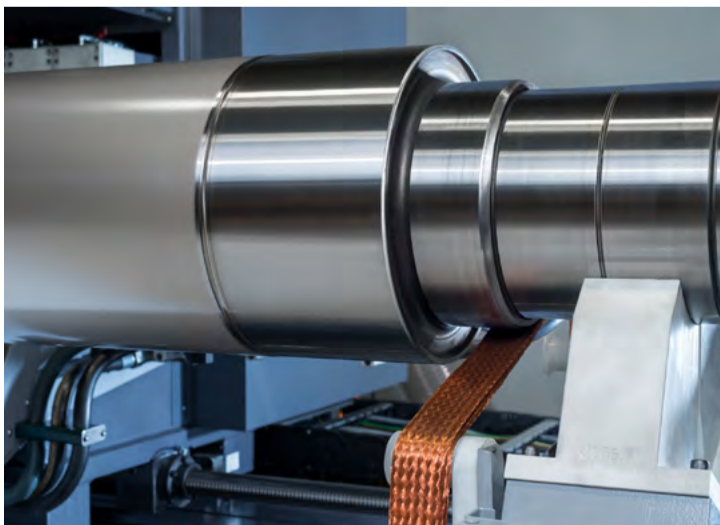


“In addition to the technological high-end equipment of the latest generation of generators and the optimal machine control system PCT 10 from our own company, another highlight is the enormous flexibility in the production of a wide variety of surface textures,” says Karl-Heinz Adamek, responsible Sales and Project Manager at WaldrichSiegen and specialist when it comes to EDT-technology. “The electrical discharge texturing process is indispensable for the high-quality surfaces with a programmed uniform roughness, “Ra” for the center roughness value and a defined peak number, “R_{Pc}”, of the cold rolling mills, sectors of the aluminum and stainless steel industry and in service centres.”

Quality Speaks for Itself – EDT Machines from WaldrichSiegen Increase Surface Uniformity of Cold-Rolled Steel Sheets

Sinosteel from Beijing has ordered two EDT machines from WaldrichSiegen for a greenfield project in Béthioua Wilaya d'Oran in Algeria. The two ProfiTex 60S texturing machines will be integrated into an automated roll shop and produce textured work rolls for the new cold rolling mill of Tosyali Iron Steel Industry Algeria SPA, which will primarily process rolls for the production of high-quality flat products.

“Tosyali has been relying on the quality and reliability of WaldrichSiegen since 2015 and operates an automated roll shop supplied by us, including an EDT machine,” says Karl-Heinz Adamek.

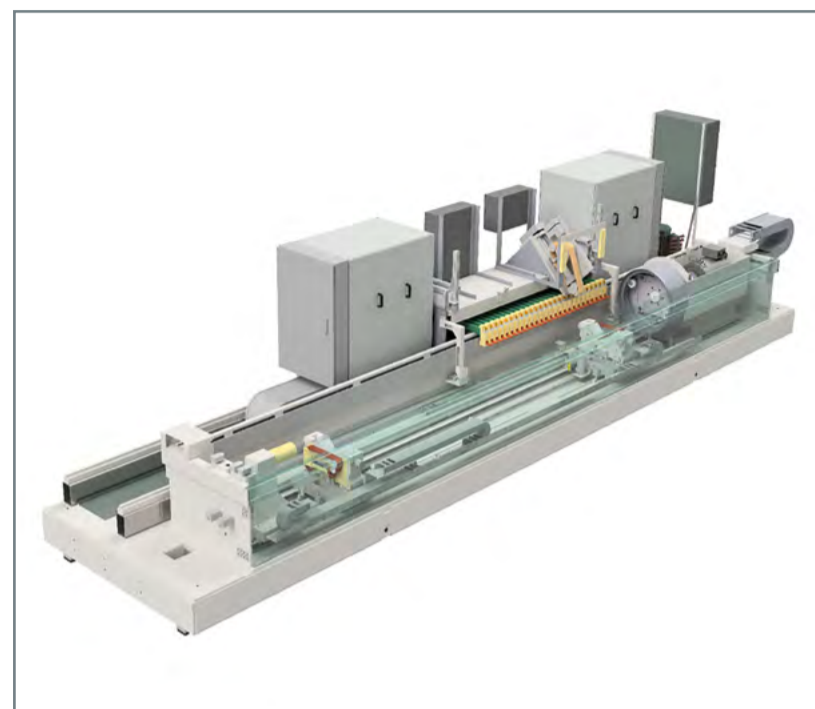


Both newly purchased ProfiTex 60S – 720 / 8 × 5000 are equipped with 22 electrodes and texture rolls of a length of 5,000 mm and a total weight of 8 t. The machinable barrel length is 1,916 mm. One machine is equipped with a superfinisher, which can extend the service life of the rolls by up to 300 %, depending on the application.

The electronics and generators that control the process flow are state-of-the-art. The PCT 10 EDT machine control and the mechanical basis guarantee roll textures of the highest quality. Our continuous further development of machine components is the guarantee for market leadership – and has already been for 50 years.”

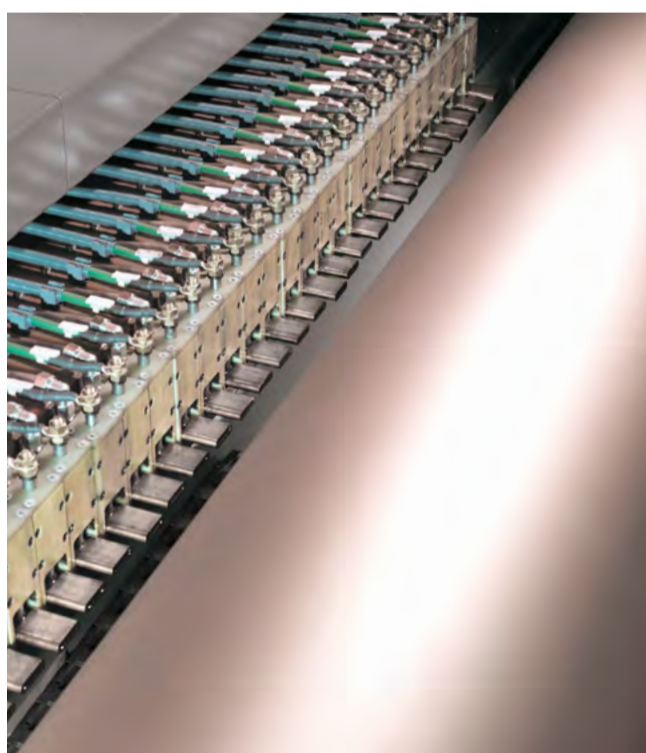
But the superfinisher is not the only advantage. “The customer made a conscious decision to purchase two ProfiTex 60S machines, although we would also have achieved the necessary capacity with one ProfiTex 60, the larger two-row model. However, the two-machine solution has the advantage that a second machine is available at all times, providing greater flexibility.”

The EDT machines from WaldrichSiegen are a key technology in the customer’s cold rolling mill and form the core of production. A large proportion of the flat material produced is manufactured with textured rolls and is supplied to the automotive industry. The quality demands of the automotive industry are extremely high, which is why the requirements for flawless roll surfaces are enormous. The ProfiTex series from WaldrichSiegen is consistently designed for maximum customer benefit. It meets the specific requirements for the production of sophisticated flat products for the automotive and household appliance industries. “100% of the textured surface, which is transferred from the roll to the rolled product, is the direct quality feature of the high-quality flat product,” concludes Karl-Heinz Adamek. As the world market leader for high-performance texturing machines, WaldrichSiegen is therefore a guarantee for the flawless production of textured rolls that in terms of quality are unrivaled on the market.



Designed for maximum productivity and availability, the ProfiTex machines are individually adapted to the application and customer-specific capacities to meet even the highest demands

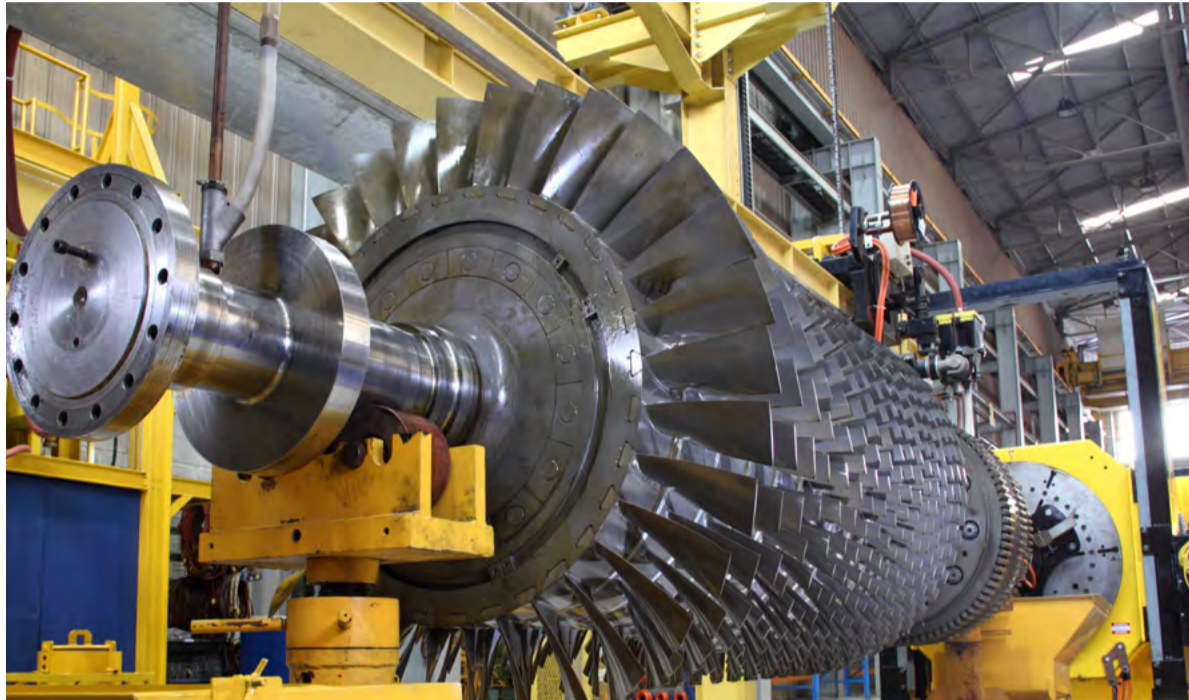
Orders From New Customers Thanks to Outstanding Quality



Thanks to WaldrichSiegen’s excellent reputation, another Chinese manufacturer of flat rolled products from Jiangsu Province, whose products are also used in the automotive industry, became aware of us. “The new customer Jiangyin Runyuan Mechanical Co. approached us via our Chinese subsidiary, the WaldrichSiegen Beijing Office, and was immediately impressed by the range of features offered by our EDT machine, which clearly sets it apart from the competition,” explains Karl-Heinz Adamek. “The service center, which offers the reconditioning of rolls for the steel sector, but also produces its own rolls, wants to use the machine to significantly improve its quality features.”

The EDT machine type ProfiTex 60S – 720 / 8 × 5000 was therefore the perfect solution here, too: The machine is equipped with 25 electrodes and can texture rolls of a total length of 5,000 mm, a barrel length of between 500 mm and 2,130 mm and a total weight of up to 8 t.

Another Important Order for WaldrichSiegen in the Chinese Machine Tool Industry



Shenyang Machine Tool Co., Ltd. Opts for a ProfiMill Gantry Milling Machine for Greater Performance in In-house Production

To be able to manufacture the high-quality machine components that are required for the construction of numerically controlled machine tools and milling machines, among other things, reliable, durable and highly accurate production machines are essential. Our customer Shenyang Machine Tool Co., Ltd. has therefore decided to purchase a ProfiMill 4000/80 G in gantry design from WaldrichSiegen, which in future will produce machine components that meet the customer's demanding requirements.

"The customer was looking for a gantry milling machine that could mainly machine long beds with high accuracy over the entire length of the workpiece in terms of dimensions as well as shape and position tolerances, while at the same time achieving a high surface quality," explains Sales and Project Manager Frank Pyrdok. "With travels of 18,000 mm in the X-axis, 5,200 mm in the Y-axis and 1,500 mm in the Z-axis, the customer could not find a manufacturer on the Chinese market that could guarantee the requirements for machining lengths of up to 16 m while maintaining the accuracies."

The competitive edge for our customer is immense. "By purchasing our high-precision gantry milling machine, the customer will be able to improve its products in terms of precision and accuracy in the future so that it can both increase its competitiveness in its traditional markets and open up new markets with discerning customers outside Asia," explains Frank Pyrdok.





In future, the ProfiMill portal milling machine will play a key role at Siemens Energy's Czech plant, where it will efficiently and economically produce and process workpieces for the generation, conversion and utilization of energy

Highest Technological Standard and Innovative Manufacturing Solutions for Pioneering Technologies

As a global leader in the energy technology sector, Siemens Energy is one of the big players and is represented in 90 countries. The company works together with its customers and partners on the energy systems of the future and thus supports the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from energy generation to energy transmission and storage. In the Czech plant in Brno, the wide range of mechanical components, such as gas and steam turbines, generators and transformers, will in future therefore be machined with high precision and reliability using a ProfiMill 3000/103 T.

With its high-performance design, it enables precise milling work on large components with travels of 8,250 mm in the X-axis, 6,250 mm in the Y-axis and 1,500 mm in the W-axis. Thanks to the powerful main drive, which optimally adapts to the different machining requirements with regard to speed, power and torque, and an additional 1,500 mm on the Z-axis, the machine easily meets all requirements. The machine is also available as a double table version with a maximum load bearing capacity of 90 t, whereby the individual tables can be moved alternately or can be coupled and synchronized, thus enabling extra-long parts to be machined.

The WaldrichSiegen ProfiMill 3000/103 T gantry milling machine is characterized by its robustness. Its particular strength lies in the efficient machining of large workpieces, which makes it an ideal solution for our customer's complex projects.

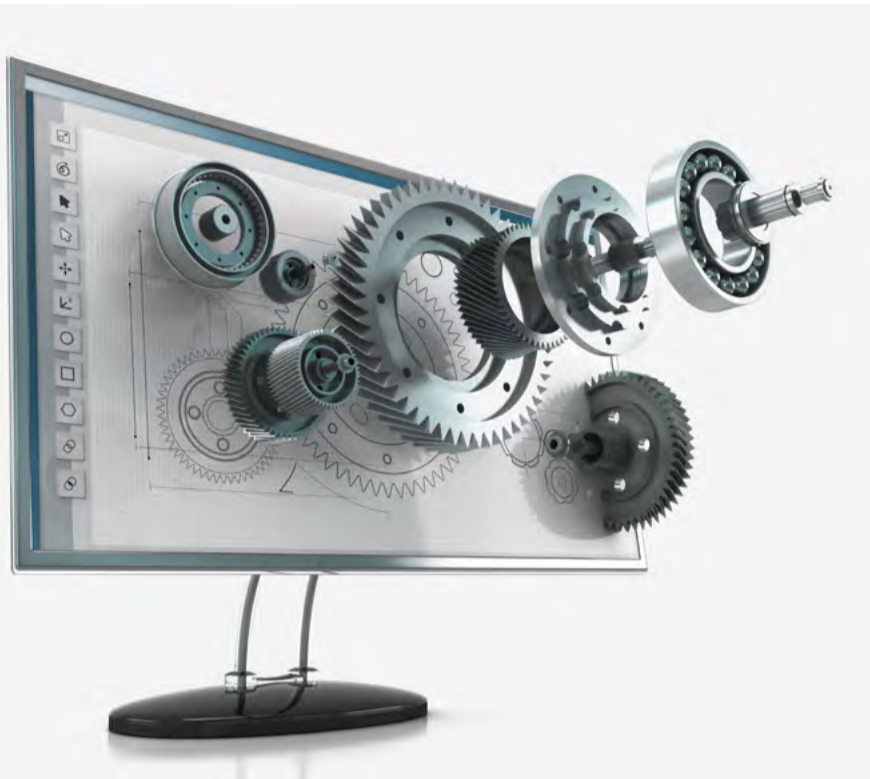
"The big challenge is to master the heavy-duty roughing of the cast steam turbine housings without damaging them and then to complete the finishing process within tight tolerances. In combination with the robust, vibration-damping design, the fully hydrostatic design of all axes of our machine guarantees an almost unlimited service life, zero backlash, dynamic rigidity and excellent damping," explains Martin Pilz, WaldrichSiegen Area Sales Manager for Austria & SEE countries. "This machine plays a key role in the overall context and its design is the only one in the entire range of machines at Siemens Energy in Brno."



From l. to r.: Ing. Eva Raskova, Finance Director of the Branch, Martin Pilz, Area Sales Manager Austria & SEE Countries, Jaroslav Pazucha, MBA, Head of Order Execution dept., Dr. Thorsten Mehlhorn, President & CSO, Ing. Erik Feith, MBA, Director of the Branch, Ing. Martin Pokorny, Head of Purchasing dept.

Performance and Efficiency Thanks to Intelligent Learning Processes

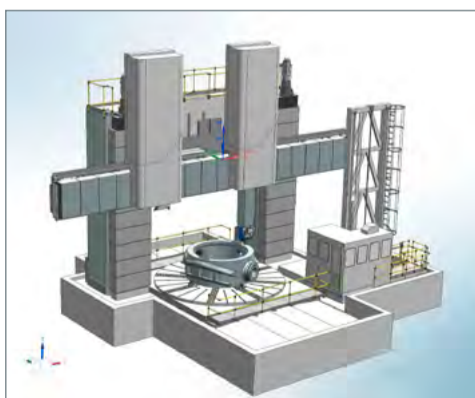
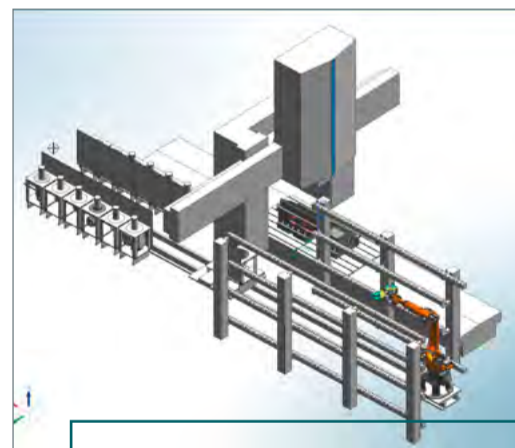
A Continuous Process Chain from Design to Machining



Thanks to artificial intelligence and machine learning, the work steps from design to machining in the digital environment have now become even more efficient and easier to plan. By using CAM software in combination with a digital twin of the machine, WaldrichSiegen customers are able to significantly improve coordination of upcoming production steps, identify errors more quickly and rectify them before they occur in the real machine environment, ultimately increasing productivity.

“By consistently using the software and collecting and evaluating machine data with higher-level PLM solutions, we are ahead of the competition on the heavy-duty machine market. Thanks to the consistency that we achieve through the use of Siemens products, we are able to implement the entire product development process, from the creation and simulation of machining processes for customers’ workpieces to time studies, collision monitoring and long-term service for our customers,” explains Stefan Tschersche, member of the executive board at WaldrichSiegen.

This is of particular importance for customers who work with highly complex workpieces and their geometries. “Programming all the data manually and individually in special cases is not feasible, especially for five-axis machining,” says Stefan Tschersche. In order to counter this complexity and generate the greatest possible benefit for our customers, we decided to solve this time-consuming and highly complex programming with the help of Siemens NX, as the majority of our customers also use it.

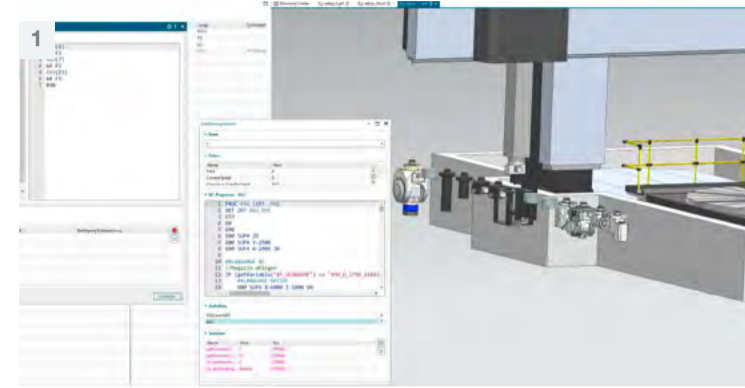


With Siemens NX, machine data can be simulated and mapped from planning through to long-term service

By simplifying data exchange and providing customer-specific data in the same programming environment, without the need for additional applications or complex conversions with subsequent corrections, we eliminate sources of error during transfer and make all processes significantly faster and more effective.

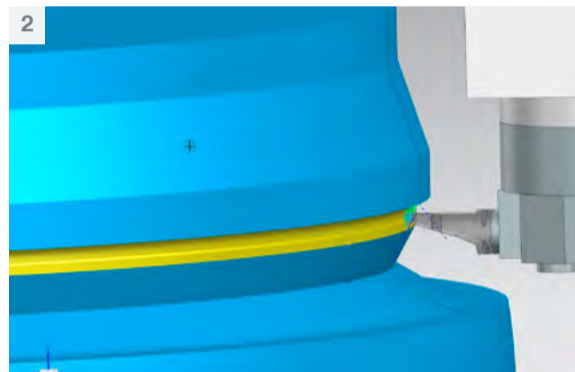
However, the software not only offers the right solution for programming complex workpieces and demanding machining tasks. "Using the NX CAM system with its additional modules, we can also support our customers in the design of tools and the selection of application-specific machining units and tools through visualizations and collision analyses. In the security industry and the energy sector in particular, for example, when re-manufacturing "old" generator shafts that have special geometries and which in the past were partly produced by hand, there is a need to use special tools that do not correspond to the standard and which we develop together with the tool manufacturers," explains Stefan Tschersche. "The digital pre-production and testing of these special tools before they are used by us enables us to work much more efficiently. This not only saves time, but also unnecessary costs. We have just completed such a project for a customer in the USA and the machine produces the workpieces in a fraction of the time that was previously required thanks to the powerful main drive, which provides more than 20,000 Nm, and the newly designed tool."

However, the digital pre-version can also be of great benefit when planning complex machining processes, such as in a highly automated production system in which several machines, cleaning systems for tools, workpieces and milling heads, autonomous industrial trucks, various robots, etc. are in use. "Thanks to the feasibility studies and calculations, we can identify and eliminate potential sources of error and problems before they happen," says Stefan Tschersche. "With this process, we map a complete product lifecycle management in order to accelerate and streamline product development processes. The run-in times of new NC programs are significantly reduced as a result of preliminary simulations. This enables us to increase profitability from the very first workpiece, free up the necessary resources and to drive innovation – both for us and, in particular, for our customers."



The software enables the user to display preliminary representations of tools and their processing paths. Here you can see:

1. The simulation of machine-specific manufacturer cycles with NC code, e.g. changing units
2. The Simulation of material removal from the workpiece and representation of the tool path



The ProfiMill evolution (**evo**) in Bridge Type Design

WaldrichSiegen Expands Portal Milling Machine Portfolio

The ProfiMill **evo** – an evolution of the ProfiMill gantry series – combines maximum cutting performance with lasting precision and dynamics for safe, clean and economical production, thanks to its compact design with reduced foundation requirements, construction and reduced maintenance efforts.

The ProfiMill portal milling machines from WaldrichSiegen have been market leaders for many years thanks to their highly flexible modular system, performance and precision. Depending on the machining task, the length, width and height of the machine's working area is adapted to the customer's requirements. There are basically two different machine concepts.

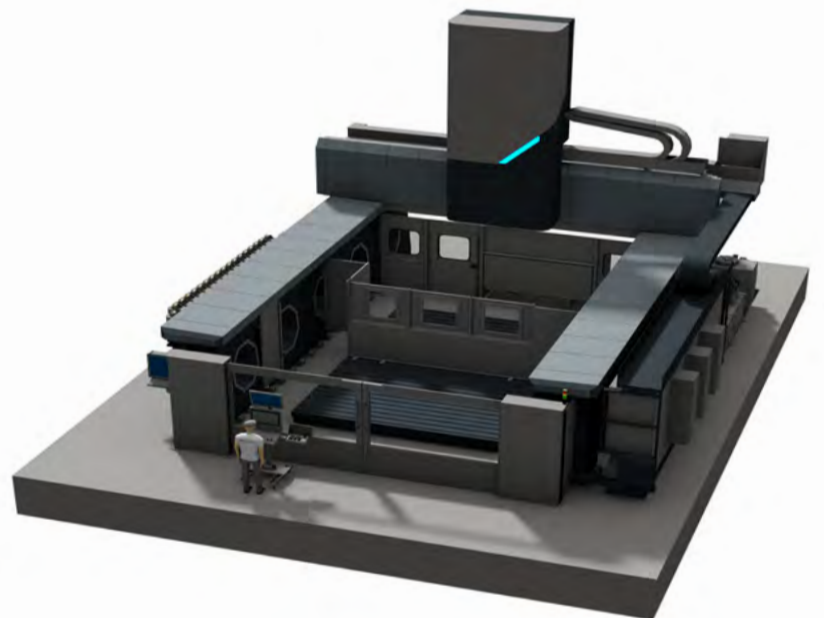
The first concept is the machine in table design, with a fixed portal and movable machine table on which the processed workpiece is positioned. The second concept is the machine in gantry design, in which the workpiece is clamped on a stationary plate field and all processing and feed move-

ments are carried out by the machine portal. Depending on the size of the workpieces to be processed, both machine concepts have their individual advantages, whereby the gantry design generally requires less space for the machine with the same work area size.

With the new ProfiMill **evo** in bridge type design, WaldrichSiegen combines the key advantages of both machine concepts for processing medium-sized workpieces in a working area of 6,000 mm × 4,000 mm × 2,000 mm (L × W × H). The machine concept with fully hydrostatic guideways on top of the side walls impresses with an excellent ratio of work area to machine space requirement.

Due to the optimized mass movement, the machine is characterized by high dynamics with axis speeds of up to 40,000 mm/min and accelerations of up to 3 m/s², with the high cutting performance of a fully hydrostatic machine that WaldrichSiegen is known for. WaldrichSiegen also relies on the proven Masterhead interface for the ProfiMill **evo**, with a high degree of flexibility for the attachment units and the spindle bearing in the milling head. The machines are equipped with the latest generation of Siemens or Heidenhain controls and offer the usual high level of performance and connectivity.

WaldrichSiegen also offers the full range of automation and digitalization solutions for the ProfiMill **evo** – automatic tool and aggregate changer, workspace division, workpiece and tool measurement, diagnostic system, digital twin, etc. The portfolio also includes the addition of a rotary table with a diameter of up to 4,000 mm for turning or turn-milling operations and a fully enclosed work area with coolant mist extraction.



Prototype in construction at the WaldrichSiegen production hall

Technical Data

Travel

X-axis 7,000 mm

Y-axis 5,000 mm

Z-axis 2,000 mm

NC-C-axis +/- 190°

Main Drive

Power 80 kW (S1)

Torque 2,750 Nm

Speed 6,000 1/min