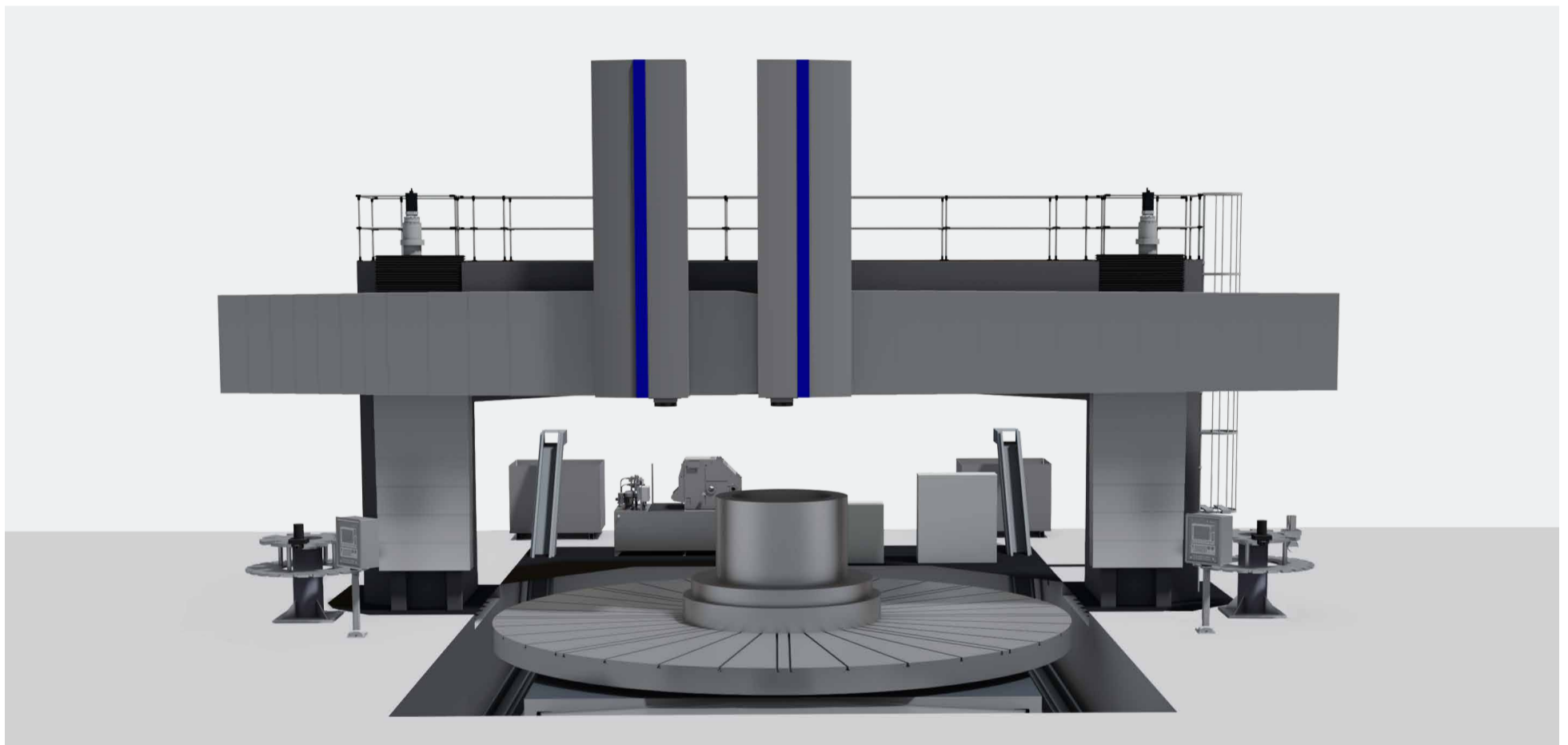


Topics: “Small” ProfiMill established in the market ▶ Production of machine tool components with the ProfiMill 4000 ▶ Efficiency increased in WaldrichSiegen’s production facility ▶ Second modernization order by Dongbu Steel ▶ Production capacity for milling heads doubled

Market success for the new vertical lathe

Three ProfiTurn V will take up operation in 2018



Successful product expansion: vertical lathe ProfiTurn V 6350 with two turning and milling rams

WaldrichSiegen has relaunched a tried-and-tested machine concept in an optimized version: the ProfiTurn V. It is the third expansion of WaldrichSiegen’s product range in the past few years, along with the mill-turning machine ProfiTurn M and the smaller size range of the successful ProfiMill series. WaldrichSiegen’s innovative solutions are going from strength to strength. This is the positive result of the poor order situation in the entire heavy-duty machine tool industry in the past years: WaldrichSiegen has taken advantage of the situation by investing in its company structure and its range of products. A successful strategy – the first three ProfiTurn V are going to take up operation at German and international customers’ plants in 2018.

SKET GmbH in Magdeburg, Germany ordered two machines. The company is a leading service provider for the European energy industry. Its core competence is machining components for wind energy converters. Two machines of the new ProfiTurn V series proved the ideal solution for the precise machining of its large, highly demanding, rotationally symmetric workpieces.

The two ProfiTurn V 6350 will be used in the production of support pins and blade adapters for ENERCON wind energy converters. The workpieces have diameters of up to 6,350 mm and weights of up to 50 t. “The machines feature two turning and milling rams with a power of 63 kW and a torque of 2,150 Nm each,” says WaldrichSiegen’s President and COO Marco Tannert. “The cast-iron main components have been machined in-house according to the highest quality standards. The rotary tables and the turning and milling

units are also custom-manufactured in-house.” The latter cover a broad range of turning and milling applications and can be changed automatically.

Universal application in the machining of large forged parts

The second customer, a USA-based manufacturer of forged parts, decided to invest in a ProfiTurn V not only because of its high accuracy, but in particular because of other advantages: its high performance and flexibility in a broad range of applications. The ProfiTurn V 6000-Y with a maximum turning diameter of 6,000 mm will be part of the production of a broad range of forged components. Since it has to cover different machining tasks, the machine can be used as a portal mill only, as a vertical lathe only, or as a combination of both.

The forged components are custom-manufactured for customers in different industries, such as the energy and shipbuilding industry. Machining workpieces of this size – with heights of up to 5,410 mm, weights up to 150 t and often consisting of difficult-to-machine materials – requires a high machining performance for sufficient material removal. The ProfiTurn V is therefore equipped with a turning and milling spindle unit that has a power of 91 kW and a torque of up to 7,000 Nm.

Heavy-duty and finish machining of forged parts also require a number of different manufacturing technologies. These are provided via the application of nine machining units at application, great power and the high accuracy WaldrichSiegen machines are known for, the ProfiTurn V proves a successful expansion of WaldrichSiegen’s portfolio of lathes.

Dear readers,

The continuously poor economic climate still dominates the worldwide market for heavy-duty machine tools, and the demand for milling machines, lathes and grinders in particular falls well short of the expectations. It is therefore particularly gratifying that our customers trust in the technological leadership of our new machine concepts, the milling machines ProfiMill and the vertical lathe PofiTurn V.

With these machines, we have occupied a stable position in the highly competitive market. With two vertical lathes for SKET GmbH in Magdeburg, Germany and one more for a US-American customer, we are further expanding our product range. After 2015, 2016 has been another successful year regarding orders for milling machines and lathes. Accordingly, our current order situation and utilization are good. However, this does not stop us from further investing in our own production facilities: the modernization of an-

other portal milling machine using a new spindle unit from our smaller size ProfiMill range has just been completed.

Our participation in the trade fairs IMTS in Chicago and AMB in Stuttgart together with our sister company UnionChemnitz in fall 2016 have further increased our brand awareness. This year, we are going to participate in trade fairs in Beijing (CIMT), Hanover (EMO) und Moscow (Metalloobrabotka). There, we will present our innovative new and further developments – above all else, our completely redesigned smallest ProfiMill milling machine range, which is stirring great interest in the market and is already at production stage for customers. With this extended product portfolio, we are able to offer our customers milling machine concepts and machining solutions with an excellent price-performance ratio and quality to the last detail, tailored even more closely to their specific requirements.

Marco Tannert
President and COO

ProfiMill size 1 wins tendering

Korean STX Engine Co., Ltd. orders “smallest ProfiMill”

In August 2017, the second machine of the new, smaller ProfiMill range size 1 is going into operation at STX Engine Co., Ltd. It is going to be used in the production of four-stroke diesel engines of the brand MTU at the South Korean market leader in motor manufacturing.

The ProfiMill with a passage width of 3 m, a passage height of 2.5 m and a double table with a set-up space of 2 x 4 m each has been perfectly designed for this purpose. Due to its superior technology, the product innovation by WaldrichSiegen, which has just recently been released, came out on top of strong competition during the tendering process.

Its advantages: the ProfiMill 1 offers extremely high machining quality in combination with high performance data – 71 kW power at a maximum torque of 2,750 Nm and speeds of up to 6,000 min⁻¹. This quality is guaranteed by the sophisticated design of the machine with cast-iron structural components and hydrostatic guides in all axes. The precision of the machine tool is of major importance when machining motor components. The up to twelve bearing shells of the crankshaft (depending on the number of cylinders) must be perfectly aligned to ensure that the crankshaft works flawlessly.

Last but not least, the customer was won over by the ProfiMill's flexibility: the scope of delivery includes machining units made by WaldrichSiegen that have been customized

► Technical highlights of the ProfiMill size 1

The new, smaller size range of the successful ProfiMill series with passage widths of 2,700 mm / 3,200 mm / 3,700 mm / 4,200 mm has been developed for five-side machining of small to medium-sized workpieces. The goal was to create a range of machines with an ideal price-performance ratio – an economical and flexible machine tool without compromise regarding quality.

Great performance

The ProfiMill size 1 combines great power and torques. The main spindle drive works with up to 71 kW, a torque of up to 2,750 Nm and a maximum speed of 6,000 min⁻¹.



The optional concrete column further enhances the machine's stiffness



ProfiMill size 1: compact machine tool for small and medium-sized workpieces

to the different motor types. They are changed automatically as required via the Masterhead interface. Moreover, additional machining units can be added anytime in order to tap into new application fields.

This order is a success on two counts for WaldrichSiegen: the company does not only establish the new size range of the ProfiMill in this cooperation with STX Engine, it also reinforces its strong market position with many auspicious business relationships in South Korea, in particular in the shipbuilding and motor industries.

Reliable precision thanks to

- High-quality design with cast-iron structural components
- Hydrostatic guides in the linear axes X, Y, Z and W
- Excellent damping qualities and great stiffness thanks to strong ribbing
- High thermal stability
- Optimal temperature control thanks to circulating hydrostatic oil: high thermostability ensures high long-term accuracy over the entire production day
- Mechanical compensation of the crossbar and readjustment via dressing plate (in contrast to scraping, this creates reproducible, high precision with minimum effort)

Individual equipment options

“Fixed” milling head or Masterhead interface – the latter allows attachment of vertical, horizontal or fork-type milling heads and motor spindles for even higher speeds. Optional equipment: single, double or integrated rotary tables of all types, gantry, bridge-type gantry, tool changer (chain or rack type), milling unit changer and software options.

Optional concrete columns

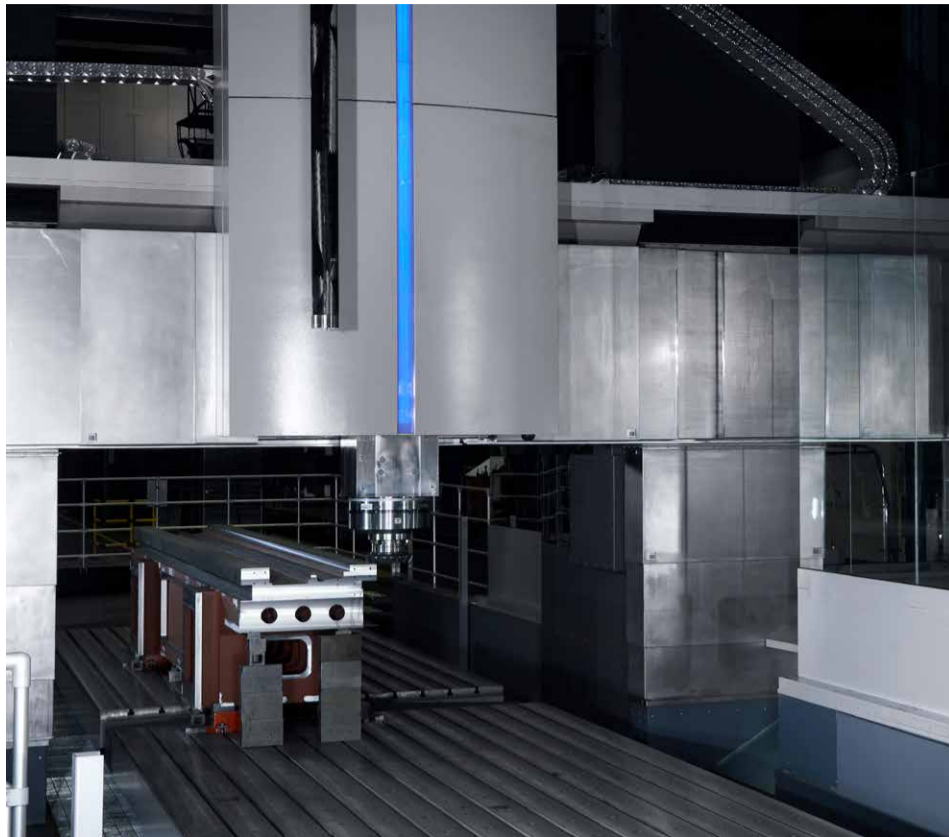
for table-type milling machines with a fixed crossbar

The advantages:

- Excellent damping qualities: the damping properties are higher by a factor of 2 in comparison to common cast iron – in comparison to steel, the factor is approximately 15
- The joints at the portal are reduced to a single one – the one between the concrete column and the crossbar. The result: higher stiffness of the machine portal and therefore the whole machine
- Readjustment is simplified

Heavy-duty machine tool manufacturer reinforces machine inventory with a ProfiMill 4000

Highly accurate machining of machine components



Reliable precision for demanding workpieces: ProfiMill 4000

Wuhan Heavy Duty Machine Tool Group Corporation is one of the three largest heavy-duty machine tool manufacturers in China. To ensure that its machine tool components are machined efficiently and to the highest precision standards, the company reinforces its production facility in Wuhan with a portal milling machine ProfiMill 4000 made by WaldrichSiegen.

The ProfiMill will be used in the precise machining of crossbars for portal mills and vertical lathes. Reliable quality of the machining results is of major importance in this application, since the crossbar will later play an important role in the whole machine's accuracy. In addition to this application, the machine covers a broad range of machining tasks in the manufacture of these components with absolutely reliable precision, even when performing the most demanding processes. As an example, one of the major challenges in machining heavy-duty machine tool components is the guidance system. Its plainness, parallelism and angular accuracy, as well as the surface quality, are essential. The highest demands in this regard can be fulfilled with the ProfiMill 4000 – it meets tolerances of 0.01 mm/m.

Wuhan Heavy Duty Machine Tool Group Corporation is one of the few Chinese heavy-duty machine tool manufacturers who can offer a comprehensive range of machine tools. The new ProfiMill with a passage width of 4 m, a passage height of 3.5 m and a table length of 14 m can be put to use in the machining of all components up to these measurements. In order to cover the different applications in the most efficient way, the machine has been equipped with seven customized WaldrichSiegen milling heads and a milling head serving device. One of these, a CNC-controlled universal angular milling head, also allows for five-axis machining of the workpieces in the future.

Hubert Schuhen

Major order of five ProfiMills takes shape

Gantry portal milling machine for CSSC nearing completion

An imposing view: five large gantry-type milling machines are currently being built in Burbach, Germany. At the end of 2015, WaldrichSiegen received the major order for these machines by China's largest shipbuilding company, China State Shipbuilding Corporation (CSSC). The first one is now almost ready for delivery.

New service cooperation in China: Hudong – WaldrichSiegen Repairing Maintenance Center

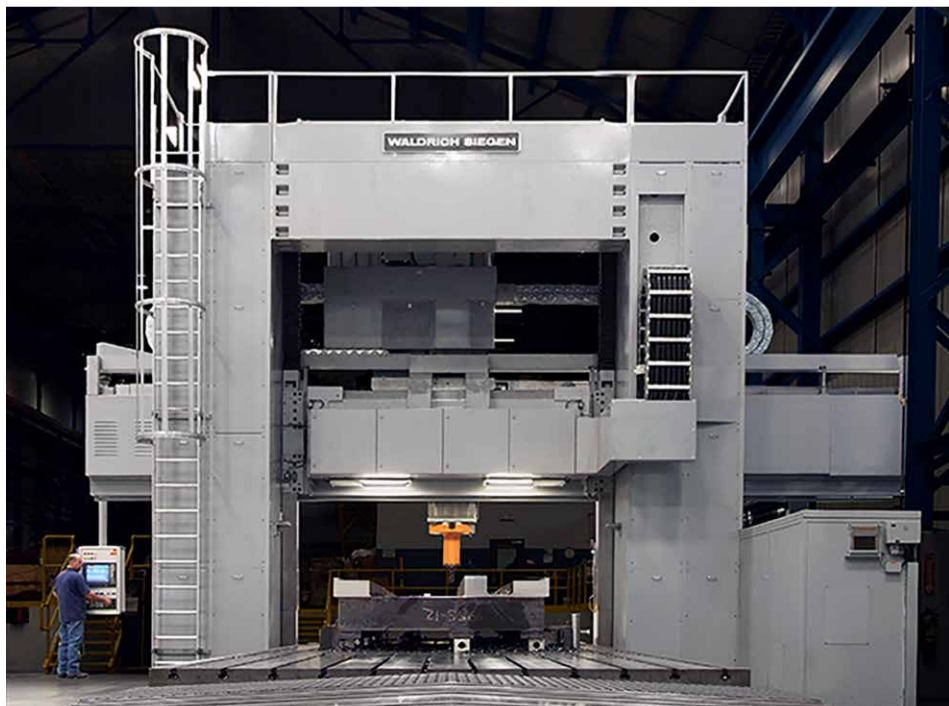
WaldrichSiegen and Hudong Heavy Machinery, a subsidiary of CSSC and recipient of three of the above-mentioned ProfiMills, are establishing a service team for the installation, maintenance, after-sales service, training and operation of WaldrichSiegen milling machines and lathes. It will be based in Lingang, Shanghai and offer fast, local service to Chinese customers.



Three of the five portal milling machines go to CSSC's subsidiary Hudong Heavy Machinery

Retrofit for portal mill: investment in own production facility

15% efficiency increase thanks to WaldrichSiegen technology



State-of-the-art technology: modernized portal milling machine

WaldrichSiegen has taken comprehensive modernization measures in its own production facility in the course of the past year. After the retrofit of the precision machining machine tool μ PM at the beginning of 2016, the modernization of a portal milling machine has now also been completed.

New machining units and structural components, a higher degree of automation and state-of-the-art measuring devices – the machining time of machine tool components on the portal milling machine has been reduced by approximately 10% thanks to the retrofit. Since its commissioning in 1986, it has been part of the production of vertical lathes, horizontal lathes and portal milling machines at the company's headquarters in Burbach. Now, the milling machine has been equipped with cutting-edge WaldrichSiegen technology – the result is an efficiency increase of 15%.

Three additional milling heads with an integrated B-axis can now be attached to the Masterhead interface of the new spindle unit with the help of a new milling head changer with a crossbeam. In addition, the machine has been equipped with a tool changer with a chain magazine. The table-bed assembly, the crossbar and the column assembly now have new drives and measuring systems; the latter has also been converted to a W axis in a gantry compound. After completion of the retrofit, the ProfiMill re-took its central role in WaldrichSiegen's production facility in February 2017 – with the accuracy of a new machine and significantly enhanced efficiency.

Ralf Tschersche

Modernization: as precise as a new machine

Pre-assembled components minimize downtime

A satisfied customer is the best business strategy – just after WaldrichSiegen had finished retrofitting a roll grinder WS III CP 10.101 x 5.000 built in 1997, the customer ordered another complete modernization. South Korean Dongbu Steel is a leading producer of cold-rolled products. In its roll shop, the machine that is to be refurbished, also built in 1997, machines working rolls and intermediate rolls with weights of up to 10 t and lengths of up to 5 m. The goal of the modernization is to re-establish the machining precision to a level comparable with a new machine and to guarantee future supply of spare parts for electrical and automation components.

In order to save time and reduce the machine's downtime, WaldrichSiegen developed a customized modernization schedule. Most of the components are pre-assembled in Germany. As an example, the hydrostatic supply system of the grinding spindle and the guidance lubrication of the Z- and X-axis with its pumps, distributors, valves and other individual parts are not tediously modernized on-site. Instead, WaldrichSiegen will supply a complete hydrostatic cabinet. Thanks to this time-saving strategy, the rolling mill's supply with ground rolls is interrupted for a very short time period only.

In addition to the mechanical retrofit, the order covers modernization of the electrical components, as well. The machine is equipped with a new switchgear cabinet, a cutting-edge CNC control PGC 10 made by WaldrichSiegen's sister company HCC/KPM and



As good as new: roll grinder after complete modernization

with new drives and motors. An additional upgrade is the new eddy current crack detection device that reliably identifies cracks on roll surfaces early on.

Dongbu Steel and WaldrichSiegen have maintained a successful cooperation since 1997; three more machines and roll shop equipment made by WaldrichSiegen can be found in the cold rolling mill. After the modernization of the roll grinder is finished according to schedule in 2018, the machine will maintain the smooth operation of rolls in the cold rolling mill with the precision of a new machine.

Mike Nitschke

Production capacity for milling heads in Burbach doubled

Customized milling heads for a broad range of applications

A larger production area, twice as many employees and the according equipment: the milling head production in WaldrichSiegen's headquarters is presentable. Customized machining units open up new fields of application for clients around the world using WaldrichSiegen machines, and thus make a vital contribution to their flexibility.

WaldrichSiegen started to design and build its own milling heads as far back as the 1960s. Milling heads for its sister company UnionChemnitz, too, have been designed here since 2012. Now, the production capacity has been doubled.

Part of the product range are milling heads with B- and C-axes. In correspondence with the expansion of WaldrichSiegen's machine portfolio, which now also includes vertical lathes (see page 1), turning tool holders are designed and manufactured on-site, as well. Production takes place with the help of state-of-the-art manipulators and special tools and measuring devices. A special test bench is used to test the milling heads with respect to thermal behavior, noise development and tightness, and to commission them. Producing milling heads in-house is part of the strategy that all HerkulesGroup companies have been implementing for years – using their great vertical range of manufacture to maintain and strengthen the leading edge of their technology to their customers' advantage.



Tailored precisely to customer requirement: milling heads, produced in-house



Award ceremony: Friederike Daub (Human Resources), Carsten Tillmann and Marco Tannert (President)

Vocational training company of the year

A company-owned training center, dedicated training managers and many opportunities for further vocational development – WaldrichSiegen constantly invests in its junior staff. This commitment has just been honored by the "Agentur für Arbeit" (employment agency) with the award "Ausbildungsunternehmen des Jahres" (vocational training company of the year).

Friederike Daub, member of the Human Resources team, is very pleased: "We are one of just three companies in the district to receive this award. The outstanding quality of our vocational training is renowned in the area and helps us win the best applicants for our company." On March 22, Carsten Tillmann, CEO of the Agentur für Arbeit in Siegen, presented Marco Tannert, President and COO of WaldrichSiegen, with the award.

Turning and Milling Days in Burbach

WaldrichSiegen's "Turning and Milling Days" will take place in Burbach, Germany on June 27-28. In addition to informative presentations, there will be a live demonstration of a ProfiMill of the new, "smaller" range size 1 and one of the large ProfiMills for CSSC (see page 3). Visitors can also inspect the vertical lathe ProfiTurn V (see page 1).

More information on waldrichsiegen.com/news

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