

# Press Report

Kienle Application, Altheim

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Kienle GmbH increases flexibility in production with UniForce 6 by SHW Werkzeugmaschinen  
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## Increased flexibility and autonomy with the new turning/milling centre

**(Altheim/Aalen) Autonomy, combined with high quality consciousness, is of utmost value to a metalworker living at the foot of the Swabian Jura. In order to complement substantial production depth with increased flexibility in the production of large-sized cable winches, Kienle GmbH has invested in a large turning/milling centre. This machining centre combines the two process steps which spares making multiple settings on different machines as well as laborious in-plant transport of the heavy work-pieces weighing up to ten tonnes. Besides the energy efficiency of the machine and the spatial proximity of the company, it was above all SHW's wealth of experience in turning that influenced the decision in favour of a machining centre by SHW Werkzeugmaschinen GmbH. An initial contact established at AMB 2010 set the ball rolling.**

"The sturdy cable winches, such as those used in heavy-duty cranes on offshore oil rigs, platform conveyors or in container ports, are becoming increasingly large-sized and complex" states Franz Xaver Kienle while describing a development to which the owner of Kienle GmbH has responded. This is because there is one thing the company founder, who started the company in 1982 with a blacksmith workshop for fabrication and sale of wrought iron, wishes to avoid at any cost: outsourcing of processing steps. "This would make me dependent on other companies, at times even on potential rivals, and I would no longer have full control over quality and deadline." This is a mindset that one often encounters in the Swabian workspace and it is one of the reasons why there are so many "hidden champions" here.

## Production depth promotes reliability in the eyes of regular customers

For the past 28 years, the medium-sized company in Altheim has been producing efficient and high-performance cable winches that withstand heavy duty cycles and unfavourable conditions for a regular customer from the neighbourhood, among others. For experts in thick steel plate machining, the main processes comprise milling, turning, drilling and welding, which the 55 highly qualified

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Kienle employees perform on roughly 5,000 square metres of the regularly expanded production hall complex. Since January 2012, a UniForce 6 by SHW Werkzeugmaschinen is part of our impressive machinery. This purchase became necessary because the orders had increased. The booming Asian market and increasing goods transport in containers call for greater loading capacity. Thus, the cable drums with flanges as well as the frame, among other things, are now being machined on the SHW machine. The quantities lie between 1 and 20, in the words of Kienle. "Each winch with its special dimensions and requirements is virtually a made-to-order piece. This makes a flexible machining centre absolutely necessary."

The pipe parts to be machined, from which the later cable drums are produced, measure up to five metres in length and two metres in diameter with up to 150 mm wall thickness. Extremely high requirements with a severalfold safety margin must be met while manufacturing heavy-duty cranes. "Good quality is a constant requirement here. Negligence or errors can ultimately cost human lives", emphasises Kienle. This becomes apparent, for example, during welding of the lateral flanges to the cable winches. The weld seams are subjected to an ultrasonic test to check their quality and detect any cracks. Thanks to the sophisticated automatic submerged arc welding process, the weld seams at Kienle are flawless. Thus, Kienle achieves spatter-free, long weld seams of very high quality.

### **UniForce 6 is designed for large-sized work-pieces**

The drums made of cast iron or steel can be machined in one or maximum two setting operations depending upon design. For the turning operations, the work-piece is clamped onto the CNC rotary table with 2,500 mm diameter. The large frames for the cable winches can be clamped onto a motor-driven, CNC rotary table with 2,500 x 2,000 mm bearing surface, supplied as an add-on table. Both tables can be moved by 1,500 mm in the direction of the W-axis. Thus, with dimensions of up to 3 x 3 x 3 m, even the largest frames can be machined at Kienle. Various round openings can be precision milled to custom-fit them for holding and supporting cable winches.

UniForce 6 by SHW Werkzeugmaschinen is a travelling column machine especially suited for large-sized work-pieces. Extremely flexible and precise over long travel distances, it is also suited to toolmaking and production of made-to-order parts and small batch series in mechanical engineering applications, as is being done at Kienle. The machine concept facilitates machining of bulky and complex parts in one setting. The operating range is up to 40,000 mm on the X-axis and 4,100 mm on the Y-axis. The headstock moves out up to 1,600 mm in the direction of the Z-axis.

Direct travel path measuring systems ensure that the ball screw drives with servo motors move quickly to the correct position. In the Kienle machine, the travel path on the X-axis is 8,000 mm. In their day-to-day operations, the Kienle employees especially appreciate the easy accessibility of the machine and of the working area, as underlined by the company boss: "For us, the great height and easy accessibility of the machine is important. After all, we must be able to insert and machine the large-sized frames. "

#### **Quick and precise with the compact orthogonal head**

The ToolRobot automatically performs the changeover to the currently required tool from the 66 places in the magazine within only 10 seconds. A SK 50 BIG PLUS, DIN 69871 interface serves as tool holder. The machine operator is always at the height at which work is being carried out, since he always rides along with the spindle in X-direction and in vertical direction in the work platform encapsulated with safety glass. The working area is equipped with an exhaust and filter system that has been optimised by Kienle to suit its needs.

The centrepiece of the SHW machines is the compact and powerful orthogonal head of the machining centre. With that, more than 64,800 calculated positions of the work-piece can be approached quickly and with exact positioning, as a result of the 180° rotation range of the A-axis and 360° of the C-axis. The compact head swivels fully automatically to any desired position.

#### **Arriving at the suitable machine through persuasion**

The installation of a UniForce 6 by SHW Werkzeugmaschinen in Altheim was possible thanks to the initial contact established between the two companies at AMB 2010. This happened at a time when Kienle had nearly decided in favour of another bidder. "However, the wealth of experience in turning that SHW could show for itself made a very strong impression on us", remembers the company owner. However, Joachim Blum still had a lot of persuading to do, since Kienle was actually not convinced by the linear guides they had seen in the machines offered by other bidders. "Mr. Blum was very persuasive and convinced us of the quality of the guides by SHW." Blum emphasises that he was able to present the advantages, primarily the flexibility of UniForce 6 during machining of large parts, in frank and constructive discussions. "For us, the energy-efficient functioning of the SHW machine and the spatial proximity between Altheim and Aalen were also decisive factors in the end. This decision has proved to be correct at the time of commissioning and to date", thus concluded Kienle.

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**((SHW Werkzeugmaschinen company information))**

### **A young company with an ancient tradition**

SHW Werkzeugmaschinen GmbH is one of the world's leading manufacturers of machine tools for machining of large-sized parts. The machining centres with their large travel distances are used for production of parts, which must have a high degree of precision in spite of their huge size, for machinery, mould and plant construction, turbine and tool manufacture, or for the aircraft industry. What started as a young and innovative company in Aalen-Wasseraffingen in 1999, can actually look back on a tradition in industrial technology which dates back to 1365. Consistent growth and a commitment to the Swabian location, with some 200 highly qualified and quality-conscious employees, have recently led to an annual turnover of around 60 million Euro. A presence in 45 countries ensures customer proximity worldwide.

**((Kienle GmbH company information))**

### **Swabian medium-sized company with substantial in-house production depth**

Kienle GmbH, founded by Franz Xaver in 1982, is a classic medium-sized family-owned business with substantial in-house production depth. From an originally small blacksmith workshop, it has developed into a modern CNC metalworking company under the direction of the brothers Franz Xaver and Gerhard Kienle. With a lot of passion and a high level of quality consciousness, around 55 employees produce products ready for assembly in offshore cranes, from the smallest screw up to the cable drum. The machining processes available on the modern machines range from flame cutting, bending, welding up to sand blasting and complete CNC machining.

**SHW Werkzeugmaschinen image directory, Kienle application, Altheim**  
**Photos by Ulrich Studios, Riedlingen, 03-06 SHW**  
**Access image with 2 clicks at [www.pressearbeit.org](http://www.pressearbeit.org)**



Image No. 03-01 SH\_KI-Seiltrommel.jpg.

On the turning/milling centre by SHW Werkzeugmaschinen, Kienle GmbH produces cable drums that are used in cranes, for example on offshore oil rigs, platform conveyors or in container ports.



Image No. 03-02 SH\_KI-Seiltrommel2.jpg.

The cable drums made of cast iron or steel weighing up to 10 tonnes, which can be machined in maximum two setting operations, measure up to five metres in length and two metres in diameter with up to 150 mm wall thickness.



Image No. 03-03 SH\_KI-Drehen.jpg.

Franz X. Kienle emphasises: "The wealth of experience in turning that SHW can show for itself has made a strong impression on us and has influenced the decision in favour of the Aalen-based firm."



Image No. 03-04 SH\_KI-Fraesen.jpg.

The centrepiece of the SHW machines is the compact and powerful orthogonal head, which can approach 64,800 positions quickly and accurately. The headstock of UniForce 6 moves out up to 1,600 mm in the direction of the Z-axis.



Image No. 03-05 SH\_KI-Zugaenglichkeit.jpg.

Kienle employees especially appreciate the easy accessibility of the machine and of the working area.



Image No. 03-06 SH\_KI-People.jpg.

Arriving at a flexible machine through persuasion: Joachim Blum, SHW, Franz X. Kienle, Herbert Klewenhagen, SHW.