Whirling machines with profiled guideways

Modular construction increases flexibility

Rotors used in progressive cavity pumps are subjected to high loads. In order to withstand these, they must be manufactured with high precision – a task accomplished by Burgsmüller's whirling machines. In order to produce the latest series in almost any length, the company uses the innovative profiled guideways of Schneeberger's Monorail series.

Progressive cavity pumps are often used in the food, chemical, oil and construction industries, as well as in agriculture, to convey aggressive, corrosive and abrasive substances. Rotors are at the heart of the pumping process based on the principle of positive displacement; they ensure that the various substances are transported with low pulsation, in a gentle and reliable manner. The application fields are as varied as the pump sizes and designs.

For the production of suitable rotors, complex machine tools are needed such as those produced by Burgsmüller GmbH, a company based in Kreiensen, in the German state of Lower Saxony. Technical Director Dirk Brucke explains: "Since 1946, we have been designing and building whirling machines for manufacturing workpieces with any thread form. In addition, our contract manufactures produce various components with spiral geometries on cylindrical workpieces, including threaded spindles and rotors snails of any type." One positive side effect: Experiences gathered in contract manufacturing flow directly into the development of new machines.

"Swirling" is a special production process which enables spiral geometries to be produced extremely efficiently. With regard to the tools and kinematics involved, the whirling method is a special form of peripheral milling. An eccentrically positioned ring with multiple blades directed inwards, which revolves with high speed around the slowly rotating workpiece, acts as a tool.

The whirling method has several advantages. For example, the particular distribution of stress enables high chip loads to be realized with low energy. Another advantage: Whirling is generally performed without the use of cooling agents, as the particular cutting path ensures most machining heat is discharged with the chips and does not penetrate into the workpiece.

Moreover, whirling machines achieve extremely high-quality surface finishes, which, according to Dirk Brucke, are almost comparable to grinding. All commercially available steel grades including ceramics, composite and sintered materials, but also plastics, can be machined on the Burgsmüller systems. Technical Manager Brucke adds: "Our whirling machines have an additional, very special benefit. They are modular in design, meaning all components used have the same design and differ only in dimensions and performance. This gives our customers high flexibility in choice, particularly with our new series WM 250"

The profiled guideways Monorail increases - flexibility of WM 250 whirling machines

In order to ensure the highest levels of quality and flexibility in machine construction, Burgsmüller selects its suppliers meticulously and makes no compromises when it comes to technology. Accordingly high demands are also placed on the linear guideways, which are crucial to ensure precision. For a long time, sliding guides were the first choice. But this has changed now in the new generation of Burgsmüller whirling machines, thanks to the modern profiled guideways Monorail MR by Schneeberger.

In the development of the WM series, Burgsmüller engineers focussed primarily on the modular design of the machine bed. Dirk Brucke explains: "Our new machine concept gives a whole new dimension to the concept of flexibility. We can now supply systems starting with a three meter bed length but which also can reach 20 meters or over. This is easily possible due to the use of Schneeberger's profiled guideways. The individual rail sections can be exactly adjoined, enabling virtually unlimited lengths to be realized." Even the replacement of individual tracks in the event of damage or wear, is feasible anytime.

In terms of achievable precision and surface quality, the innovative WM 250 achieves all values required by customers. This is also supported by the absolute length measurement system AMS, integrated in the Monorail MR, that always allows most accurate linear ways to be travelled and narrowest tolerances to be met. According to Schneeberger, the Monorail guideways achieve highest accuracy classes of ±5 µm/m. Since guiding and measuring systems are already optimally attuned to each other, Burgsmüller can also dispense with complex assembly and adjustment work. The position data are immediately available after switching on the system. Error monitoring and operating status display are tightly integrated.

In general, the roller guides of the Monorail MR series used in the WM 250 are distinguished by extreme rigidity, high dynamic and static load capacity, as well as perfect smoothness. The decisive factor is the use of high-quality hardened steel in the base structure of carriage and rail. Equally important are the rolling elements made of specially shaped rolls. The result of this is high rigidity in all directions and optimal vibration behaviour with smaller amplitudes in the whirling machines of Burgsmüller. In practice this means that perfect machining performance can be achieved with optimum dimensional accuracy and surface quality of the workpieces.

Visuals

B01_Schneeberger-Burgsmüller

Dirk Brucke, Technical Manager at Burgsmüller, is proud of his team and the latest whirling machine WM 250: "These machines are modular in design, giving our customers flexibility when choosing the required length. Thanks to Schneeberger's modern profiled guideways Monorail, we are now also able to supply plants that are longer than 20 meters."

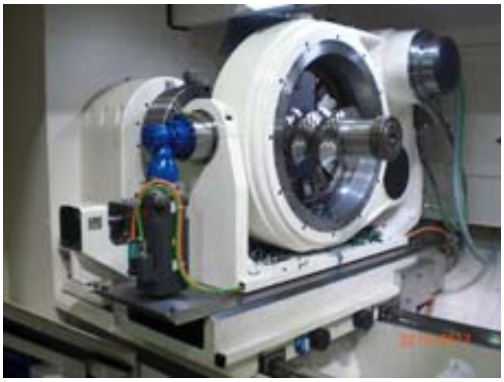


B02a_Schneeberger-Burgsmüller
B02b_Schneeberger-Burgsmüller
B02c_Schneeberger-Burgsmüller

The profiled guideways Monorail by Schneeberger increase the flexibility of whirling machines manufactured by Burgsmüller. For this reason, we have consistently equipped the latest W 250 series with these linear guideways.


B03_Schneeberger-Burgsmüller

The integrated length measurement systems AMS enables Schneeberger's profiled guideways Monorail AMS to adhere to highest accuracy classes of ±5 µm/m. In addition, Burgsmüller is relieved of complex assembly and adjustment work.



B04_Schneeberger-Burgsmüller

"Swirling" is a special production process which enables spiral geometries to be produced.

Die Burgsmüller GmbH, Kreiensen, …

... was founded in 1876. Today the company has 74 employees which develop and build complete whirling machines, but also successfully operate as subcontractors, across a production area of 2350 square meters. In particular, a wide range of parts with helical geometry are produced according to customer specifications as well as wear parts for the plastics processing industry. In addition, the company produces auxiliary units and components for machine tools. Burgsmüller machinery and components are distributed worldwide. The company has branch offices in Italy, the United Kingdom and China.

Company SCHNEEBERGER

Schneeberger stands for groundbreaking innovations in the field of linear technology. The product and manufacturing range includes linear and profiled guideways as well as measuring systems, gear racks, slides, positioning systems and mineral casting. The company supplies worldwide renowned OEMs from a wide range of industries - from machine tools to solar, semiconductor and electronics industry as well as medical technology. Distributors and sole agencies of Schneeberger can be found in all major industrialised countries world-wide, guaranteeing maximum proximity to customers across the globe.

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