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Press Release 6/2021

* **ROEMHELD will show innovative workpiece clamping technology with integrated sensors for the digitalisation and automation of production at EMO**
* **New: Sensor system STARK.intelligence, bore clamps with large clamping range   
  and flat lever clamps 120 bar**

*Laubach, August 26, 20*21. ROEMHELD will present an overview of innovative workpiece clamping technology with integrated sensors at EMO MILANO, 4 to 9 October 2021. The clamping elements, including two zero point clamping systems, offer different query options and are especially designed for the digitalisation and automation of manufacturing processes. A fair novelty is the modular system STARK.intelligence. This system can be applied to make zero point clamping systems fit for digital use.

There are also two other particularly compact trade fair premieres: a bore clamp for 5-sided machining with a large clamping range and a low-pressure flat lever clamp up to 120 bar for very narrow installation spaces. Another new product is a pneumatic swing clamp with force intensification and optional electrical or pneumatic monitoring.

The Hilma VarioLine and Hilma MC-P machine vices will also be on display at the stand. They are suitable for flexible use, including in 5-axis machining and for filigree workpieces. The workpiece clamping specialist will be exhibiting at EMO MILANO in Hall 3, Stand F27.

**For condition monitoring and predictive maintenance: Clamping with integrated sensor technology**

Given the increasing demand for clamping technology with integrated sensors that provide information on the manufacturing process, ROEMHELD expands its corresponding product range. Numerous products are already equipped with an integrated compact electrical stroke measurement. Thus the entire stroke range is monitored in steps of tenths of a millimetre. For example, a clamping element can detect different workpiece heights. At the same time, the sensor data can be used for preventive maintenance concepts. Swing clamps, positioning cylinders, bore clamps and flexible clamping claws with sensors will be on display.

**Fair novelty 1: STARK.intelligence makes zero point clamping systems fit for digital use**

The new development STARK.intelligence is a modular and bus-compatible system that digitalises zero point clamping systems and enables complete digital status recording. The data obtained can be directly integrated into the process, such as manual or automatic loading to support a continuous production process. The system also provides valuable information on the condition of the clamping means and thus allows condition-based maintenance.

The sensor system is installed in a machine table or a fast closing plate and allows a transparent and standardised condition mapping. For this purpose, each clamping fixture is equipped with its own sensor box. Their sensors measure paths in real-time and thus positions, temperatures and pressures. A master unit receives and bundles the data from several units. It then outputs the information to different end devices via an IO-Link. These can be the control display on the machine, the computers in maintenance and quality assurance or the service technician’s smartphone.

STARK.intelligence can be combined with various STARK zero point clamping systems and can be easily retrofitted in machine tables and fast closing plates. Due to the modular design, customers can choose between individual components and a complete solution, including visualisation. Optionally, there is an integrable RFID interface that automatically detects pallets and workpieces, for example.

**Fair novelty 2: New** **compact bore clamp for 5-side machining with a large clamping range**

For space-saving axial clamping and positioning, ROEMHELD will show a new series of compact bore clamps that can be positioned very close to the workpiece contour. They enable safe clamping of workpiece bores from 5.2 mm to 13.7 mm. Thus they can also be used for very small workpieces. The new models complement the model line of eccentric bore clamps presented at EMO 2019.

The bore size can be easily adjusted through interchangeable clamping bushings, while the clamping element remains in its fixture. Worn clamping bushings can be replaced within a few minutes. The height of the support is easily adjustable; if the bores are deeper than the rest of the support surface, different support heights are available.

A blast air connection, which keeps the clamping bushing clean, helps to ensure reliable operation. There are also several query options: it will be checked whether the workpiece is clamped or unclamped, whether the workpiece is correctly placed and whether the clamping bolt is intact. Therefore, the bore clamp can also be used in automated applications.

**Fair novelty 3: High force in a limited space: New flat lever clamp up to 120 bar**

The new compact flat lever clamp is designed for use on fixtures in machine tools with low-pressure hydraulics between 70 and 120 bar. It complements the successful ROEMHELD model series up to 250 bar.

The hydraulic double-acting element is suitable for any mounting position. There are built-in and block-type versions, versions with clamping lever and versions for the smallest installation spaces without housing. Due to the flat clamping levers, even surfaces only a few millimetres above the clamping point can be machined without any problems. Depending on the operating pressure and clamping lever length, clamping forces of up to 33 kN are possible. As with the 250 bar versions of the series, the clamping state and the position can be checked using a pneumatic query.

**Pneumatic swing clamp with monitoring maintains clamping force even when the pressure drops**

The pneumatic swing clamp with force intensification is suitable for clamping fixtures with automated loading and unloading, where clamping forces in the range of 400 N are sufficient. A mechanical locking system ensures that the clamping force is maintained in the case of a pressure drop.

The swing clamp is also available with the pneumatic or electrical position control "clamping/unclamping” for a wide variety of automation applications. An additional metallic wiper ring keeps small particles away from the wiper during dry machining or minimum quantity lubrication.

**Zero point clamping system STARK.connect and STARK.airtec with integrated sensor technology**

The STARK.connect and STARK.airtec models from the range of zero point clamping systems with integrated sensors will be on show at EMO. The two compact elements clamp and release pneumatically within a second. The different clamping states “clamped without retractable nipple”, “retractable nipple clamped” and “released” are indicated by LEDs on the elements. Furthermore, the information is forwarded to a PLC control via PNP outputs.

Both zero point clamping systems connect workpieces, fixtures, pallets and machine elements with machine tools, robots and manipulators safely, quickly, automatically and precisely reproducibly. They are characterised by high clamping forces and are extremely insensitive. Therefore, they can be used with welding robots even in challenging environments, such as car body construction.

**Clamping with active retraction and compensation**

STARK.connect excels by a floating holder with active retraction, which guarantees the workpiece’s optimum flat face contact. If the workpiece changes, for example due to a temperature change, the clamping mechanism can move sideways and compensate for position errors of up to 1.5 mm.

The STARK.airtec, on the other hand, is intended for applications where an active retraction is not required. It offers holding forces of 20 kN, very short clamping and release times from 0.2 s and can be operated maintenance-free for at least 2 million clamping cycles.

**Flexible machine vices: HILMA VarioLine**

ROEMHELD will show two models from its large range of machine vices at the EMO. Most flexible is the type HILMA VarioLine, which is used in vertical and horizontal applications. It can be quickly adapted to changing workpiece sizes. Thanks to the magnetically fixed quick-change jaws that can be exchanged with a single motion. They can be individually configured using various parameters and thus adapted to different machines and machining tasks.

**Versatile HILMA MC-P for distortion-free clamping**

The machine vices of the MC-P series are mainly used in 5-axis machining. Their compact design allows collision-free tool paths and the use of short standard tools.

Three different clamping types are possible: workpieces can be clamped concentrically, against fixed jaw or – in the model variant “balance” – position flexibly. This variant is recommended when complex or filigree components are to be clamped without distortion. Raw and finished parts can be machined without retrofitting in one system. The sturdy design of the machine vices with integrated swarf protection facilitates the use in pallet stations.

**About ROEMHELD:**

Whether for aircraft, automobiles, machine tools, or cases for smartphones: ROEMHELD technologies and products have been used to manufacture numerous industrial commodities and goods for end users for more than 60 years.

Innovative and smart clamping technology solutions for workpieces, as well as for dies in forming technology and plastics processing, form the core of our ever-increasing portfolio. This is supplemented with components and systems for assembly and handling technology, drive technology and automation, and locking mechanisms for rotors on wind energy systems.

In addition to a constantly growing range of more than 30,000 catalogue items, ROEMHELD also specialises in developing and realising customised solutions and is internationally regarded as one of the market and quality leaders.

Innovation through tradition: ROEMHELD was established in 1707 with a foundry in Friedrichshütte, which still belongs to the ROEMHELD Group today and counts as one of Germany’s oldest active industrial businesses.

The owner-managed group of companies employs approximately 470 workers at the three locations Laubach, Hilchenbach and Rankweil/Austria and is represented in over 50 countries by service and sales organisations. With customers from the mechanical engineering sector and the automobile, aviation, and agricultural industries, ROEMHELD generates an annual turnover of more than 90 million Euros.

**Photos:**

Ein Bild, das Feuerzeug enthält.

Automatisch generierte Beschreibung

Photo 1:

For space-saving axial clamping and positioning, ROEMHELD will show a new series of compact bore clamps that can be positioned very close to the workpiece contour (Photo: ROEMHELD).

Ein Bild, das Kamera enthält.

Automatisch generierte Beschreibung

Photo 2:

The new flat lever clamp is designed for use on fixtures in machine tools with low-pressure hydraulics between 70 and 120 bar (Photos: ROEMHELD).

![Ein Bild, das Mikroskop enthält.

Automatisch generierte Beschreibung]()

Photo 3:

The pneumatic swing clamp with force intensification is suitable for clamping fixtures with automated loading and unloading, where clamping forces in the range of 400 N are sufficient (Photos: ROEMHELD).

Ein Bild, das drinnen enthält.

Automatisch generierte Beschreibung

Photo 4:

The STARK.intelligence sensor system installed in a machine table or a fast closing plate allows a transparent and standardised condition mapping – for the process flow and maintenance. The clamping status can be directly integrated into the process as digital information. The system also provides valuable information on the condition of the clamping means and thus allows condition-based maintenance.

Sensor boxes mounted underneath the STARK.classic fast closing clamps collect data such as pressure, position or temperature. A master unit receives and bundles this information and outputs it to different end devices via an inductive interface with IO-Link standard (photo: STARK).



Photo 5:

The machine vice HILMA VarioLine can be quickly adapted to changing workpiece sizes – this is ensured by magnetically fixed quick-change jaws that can be exchanged with a single motion. (Photos: ROEMHELD).

**You can download the press release as a word document and the image material in print quality:**

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