Press release

Perfectly combined, highly versatile automation

⸺

**Liebherr systems expand complex manufacturing at Airbus Aerostructures**

**Liebherr-Verzahntechnik GmbH has expanded and increased the adaptability of its production of sophisticated machined parts for Airbus Aerostructures with an intelligent automation concept. At the Varel site in northern Germany, two pallet handling systems (PHS), a robot cell and a tool handling system (THS) work together seamlessly to supply three machining centers and other connected system components with the parts they need at all times.**

Easier, faster, more efficient: The aerospace industry places the highest demands on materials and manufacturing processes. Excellent quality and rapid responsiveness are also crucial competitive factors for Airbus Aerostructures. The Varel site manufactures highly sophisticated structural and integral components made from aluminum and titanium alloys, among other things.

In order to meet growing demand, the company decided to invest in expanding an existing automation system. This will enable 200 different components to be automatically distributed across three 5-axis simultaneous machining centers in batch sizes of up to 150 parts. Liebherr-Verzahntechnik GmbH demonstrated its expertise as an automation specialist with a perfect combination of products. The general contractor for the project was the machine manufacturer MAG IAS GmbH. The mechanical engineering company offers customised manufacturing and technology solutions and also supplied the machining centers, which are seamlessly integrated into the plant system.

**The flexible manufacturing system increases productivity**

The workpiece storage unit of the expanded system comprises two pallet handling systems: the linear, flexibly scalable PHS 750 Pro shelf magazin system and the modular PHS 1500 Allround linear storage system. Both pallet handling systems ensure significant productivity gains:

**Efficient material supply with the PHS 750 Pro**

The PHS 750 Pro is designed to fit the height of the hall and makes optimum use of the available space with 98 storage locations on seven shelf levels. It ensures the smooth management of raw and finished parts and supplies an automatic setup station with workpieces in a flexible and demand-oriented manner. For particularly complex parts, which are only suitable for automated workpiece clamping to a limited extent, a manual setup station is also available.

**Intelligent workpiece distribution with the PHS 1500 Allround**

On the other side of the setup station, the PHS 1500 Allround efficiently distributes the workpieces to the 5-axis machining centers or to the shelf magazine for further machining at a later time. A measuring machine and a cleaning system are also connected. The PHS 1500 Allround offers 35 shelf magazine spaces on three shelf levels, and fits perfectly into the existing system. Stefan Reiß, Area Sales Manager for Automation Systems at Liebherr-Verzahntechnik GmbH, explains: “The ability to use the front sides of the PHS Allround was actually a mandatory requirement for the existing layout – without this functionality, it would not have been possible to integrate the system.” A transfer station installed at the front seamlessly transports workpieces that are not being processed on the machines to an adjacent shelf magazine system. Of all the challenges, the biggest was considered to be the interface for connecting the existing pallet magazine system from another manufacturer; however, this works smoothly with the front transfer station.

A special double-loader lift module eliminates the need for a separate pallet changer, ensures rapid pallet throughput, and thereby further increases parts availability. The telescopic fork of the lift module can remove a machined workpiece from the machine and simultaneously load a new raw part during a single run, so that the machine can be reloaded without delay. A special movement sequence of the lift module, which combines rotary and swivel movements, also allows machines that are positioned at an angle to be loaded.

**Robot cell with precise bin picking**

The machine pallets are set up automatically in a robot cell. The raw parts are placed on pallets with attachment frames and removed from the containers by robots using bin picking technology – a complex interaction between image recognition systems, software, gripping technology, and robots. The image recognition system determines the position of the parts, while specially adapted suction and parallel grippers remove them from the containers provided and position them on the clamping fixtures. From there, the PHS 1500 Allround transports the parts to the respective machines, the shelf magazine system, or the transfer station for further machining.

**More than 1,000 tools, centrally provided**

In addition to the central tool storage for the system, which has a capacity of over 1,000 tools, a Liebherr tool handling system (THS) with a further 300 spaces provides the tools required for the machining centers via a gantry loader. In addition, each machine has its own tool magazine with 134 tools. This comprehensive system ensures a high degree of flexibility when machining complex and diverse workpieces. The entire system is controlled by a PROCAM master computer, which coordinates the optimal distribution of workpieces and tools.

Photos

Ein Bild, das Regal, Warenbestand, Im Haus, Stahl enthält.

KI-generierte Inhalte können fehlerhaft sein.

GOLZ8647-Print

Seamless management of raw and finished parts: The PHS 750 Pro

Ein Bild, das Im Haus, Stahl, Bautechnik, Industrie enthält.

KI-generierte Inhalte können fehlerhaft sein.

GOLZ8734-Print

Ein Bild, das Industrie, Maschine, Bautechnik, Stahl enthält.

KI-generierte Inhalte können fehlerhaft sein. The PHS 1500 Allround with double loader lift module efficiently supplies the machining centers with workpieces.

GOLZ8601-Print

Bin picking with parallel grippers in the robot cellEin Bild, das Bautechnik, Maschine, Stahl, Industrie enthält.

KI-generierte Inhalte können fehlerhaft sein.

GOLZ8885 (1)  
The Liebherr tool handling system provides the necessary tools.

Contact

Thomas Weber  
Head of Marketing  
Telefon: +49 831 / 786 - 3285  
E-Mail: thomas.weber@liebherr.com

Published by

Liebherr-Verzahntechnik GmbH   
Kempten / Germany  
[www.liebherr.com](http://www.liebherr.com)