5-axis machining with the latest automation technology

New Dimension

The new Pro-Master CNC machining center from HolzHer-Reich Spezialmaschinen enables perfect 5-axis machining of all types of wooden parts. In addition to its vibration-free operation, the modern Sinumerik 840D solution line control system also plays a key role in the machine’s performance, providing optimal results even for high-speed cutting.

The new HolzHer Spezialmaschinen Pro-Master CNC machining center sets new standards in terms of high machining speeds, good precision and simple operation. With its compact and robust base frame and the large-scale machining dimensions, it is ideally suited for cost-efficient production of pressboard furniture and interior fittings.

Efficient machining technology ...

The new Pro-Master machining center can also manufacture curved parts such as back rests for chairs, hand rails for staircases, wooden balls or mold parts. The machine is equipped with a cardan 5-axis head fitted with drilling, sawing, milling and groove units, capable of withstanding wear even under continuous operation. Powered by a precision drive featuring high-level dynamic response and acceleration as well as accurate positioning. An on-board tool changer with 6, 12 or 18 tool bays helps to achieve short setup times and a high level of productivity. In order to position workpieces with complex shapes quickly and easily, the workpieces are clamped onto flexibly moving consoles with the help of suction units and a single-circuit vacuum system. The machine stiffness together with the high-powered units enables extreme acceleration forces and a high level of dynamic machine performance.

... with open and flexible automation

True to its motto “always offering customers the best available solution,” HolzHer made the choice to rely on the latest control and drive technology from Siemens. The Sinumerik 840D solution line CNC controller is used together with Sinamics S120 drives, which fully unfold their advantages particularly during complex 5-axis machining tasks, and which ensure maximum precision and surface qual-
ity at minimum machining times. For this purpose, the Sinumerik 840D sl is equipped with an integrated 5-axis transformation, which is programmed in TRAORI (Transformation-Orientation) in the workpiece coordinate system. As a result, the correct traverse movements are created independently of the kinematics using only the position and orientation data of the CNC program, whereby the current workpiece length is taken into account.

In addition to its digital precision, HolzHer is also very pleased with the flexibility and simple operation of the new Sinumerik controller. Users have the option of providing data to the controller via parameter or macro-programming. Existing data can be transferred to the machining program and new machining programs created quickly directly on the machine per mouse click. The open architecture of the controller also allows for simple connection to the Campus user interface of the direkt cnc-systeme system provider used by HolzHer. Users need only position the workpieces at the desired stop of the machining area with the mouse pointer. The program then handles the stop placement and offers support with the positioning. The option of processing the workpieces in parallel mode with intra-table programs is also highly efficient, and minimizes retooling times.

The new machining center also features an efficient, intelligent drive system. HolzHer utilizes 1FK7 digital synchronous servo motors to handle the extreme acceleration forces and fast operating speeds. The Sinamics S120 drive system with DriveClq interface integrated into the controller enables fast component changes and easy commissioning. It features an electronic rating plate containing all of the relevant component data. All of the components can therefore be clearly identified during commissioning or replacement.

Wide range of services included

The cooperation with Siemens worked perfectly right from the very start. From configuration to hardware planning and finally commissioning, the technicians again provided their know-how and contributed to the success of the entire project.

HolzHer will also rely on switching cabinets from Siemens with its new Pro-Master machining center, which were entirely produced in series at the Engineering & Manufacturing Center (EMC) in Linz, and which are equipped with all of the elements needed for controlling and driving the machine. The pre-configured switching cabinet are equipped with all of the customer’s options, and will be delivered to the assembly line just in time. The individually equipped electrical cabinets will therefore arrive at the customer’s site on schedule – even if tight timelines were arranged. In design-to-cost analyses carried out by EMC together with the R&D department at HolzHer-Reich, equipment standards are defined and machine options determined. This allows for a lower cost design of the entire equipment and the process.

Global service support plays an important role for an international company such as HolzHer. By signing a Repair Service Contract, HolzHer can rely on worldwide service from Siemens Support at all its branch offices. With the help of regional spare parts stores and repair shops, the RSC ensures that defective machine parts are exchanged locally within 24 hours. Service technicians rely on EunaWeb to quickly determine which parts are needed. The password-protected database contains all of the information about a customer’s machines, and can be accessed worldwide over the Internet. The necessary data are entered into the EunaWeb by HolzHer technicians during installation. This extensive cooperation on all levels pays off both for the internationally active machine manufacturer as well as for the end customer.

More information:

www.siemens.com/sinumerik
E-mail: michael.bartel-prinz@siemens.com