SCHRÖDER GROUP

MODULARES AUTOMATION SYSTEM

ROBOTER HANDLING SYSTEM

More efficiency for your series production

A Schröder automation system with robot handling is your industrial solution for achieving high-volume and flexible series production with extreme repeat accuracy.

Front view of robot handling system with integrated motorized folding machine MAK 4 Evolution UD: Working length x sheet thickness 3,200 mm x 6.0 mm

Individual solutions

- 24/7 hours operation
- Large-volume series production
- Improved manufacturing process
- Utmost repeatable accuracy

The Schröder Group has teamed up with automation specialist Starmatik to offer customers a system that can be integrated into fully automated industrial production processes.
High-performance folding machines from the Evolution or PowerBend series from Hans Schröder Maschinenbau form the basis for this fully automatic and modular automation system. They are equipped with a Fanuc robot. It loads the machine with sheets up to 6 mm thick and 3000 mm x 1500 mm in size and places the finished bent product on a palletizing station.

Industrial sheet metal processing with a Schröder robotic handling system enables both large-volume and flexible series production with extreme repeat accuracy.

The entire automation solution is controlled via the POS 3000 software from Schröder.

Customized portal solutions

Based on our technology, our hardware and our control systems, we develop your individual automation solution with a robot loading system. This starts with various automation steps and extends to a production line that processes sheet metal fully automatically in 24/7 operation.

Let us show you what possibilities sheet metal processing automation opens up for you.

The basis of the robot handling system

The basis of the robot handling system is formed by the modern folding machines of our Evolution and PowerBend series, which are already extremely efficient in normal operation with manual feeding.

Automation system	Overview
Machines in operation	MAK 4 Evolution UD, SPB Evolution UD, EVO Center, EVO DuoBend, PowerBend Industrial, PowerBend Professional
Working length	up to 4,000 mm
Sheet thickness 400 N/mm²	up to 6.0 mm steel sheet
Sheet format, maximum	3,000 mm x 1,500 mm or rather 4,000 mm x 1,500 mm
Component weight, maximum	236 kg
Inlet and outlet	Portal solution with industrial robot (Fanuc), robot weight: 320 kg
Software control	POS 3000
Standard equipment	▪ 3 pallet stations with sheet separation ▪ Double sheet detection ▪ Pre-centering via deposit table ▪ Regripping station for turning the sheet ▪ Automatic tool changer for clamping beam and folding beam ▪ Loading station on the Advanced Handling System (AHS): Innovative rotating plate with suction cups for parallel loading and motorized reference axes at the rear incl. suction plate quick-change system ▪ Highly flexible manipulators for reliable workpiece positioning

With a click on the control, the fully automatic tool changer on the MAK 4 Evolution UD folding machine sets up the clamping and folding beam for the next job in a matter of seconds.

High-performance machines in a fully automatic loading and unloading system

Our modern folding machines from the Evolution and PowerBend series are already extremely fast and efficient in normal operation with manual feeding. In connection with a loading and unloading system, a fully automatic processing of complete folding programs becomes possible. Extremely robust and low-maintenance, the automation solution is therefore perfectly suited for continuous operation.

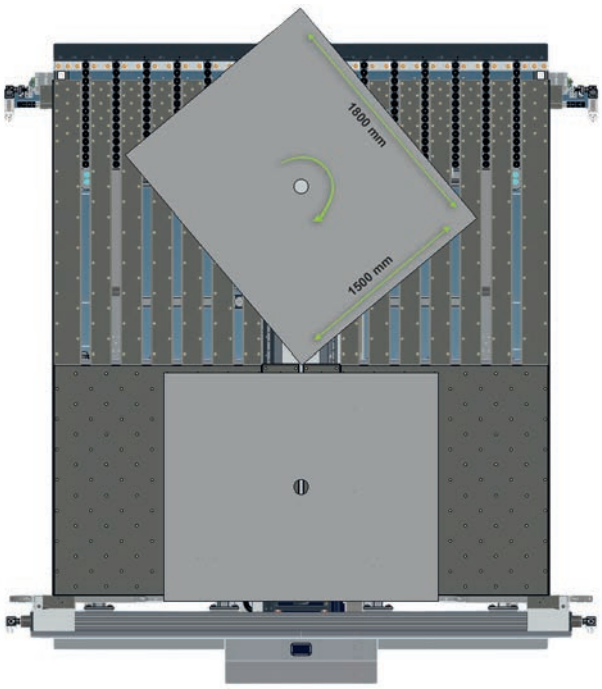
Flexibility through automatic tool change

Thanks to intelligent set-up technology, a fully automatic sheet metal processing center with a robust and surface-friendly folding machine from the Evolution or PowerBend class can be used efficiently not only for series production, but also for order-related production with rapidly changing small batches and individual pieces.

The fully automatic tool changer for machines of the Evolution series loads the clamping beam and folding beam with tools quickly and flawlessly. Two rotary units moved by high-precision linear drives remove tools from the magazine with their gripper arm and position them in the tool clamp or remove the existing tools. The fully automatic folding beam tool changer and clamping beam tool changer enable the folding machine to be set up completely parallel to the main time. This makes set-up by the operator superfluous and a small batch size economical.

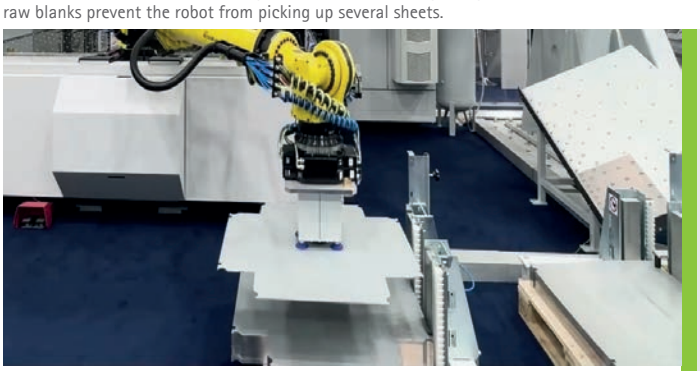
Customized portal solutions

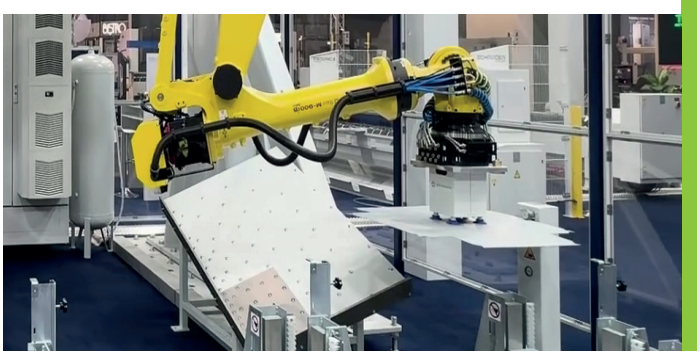
If required, our sheet metal folding specialists will design customized gantry solutions for you and thus achieve further increases in efficiency for your individual production processes.



Especially effective and unique: Sheets up to a size of 2500 mm x 1200 mm can be fully referenced by the robot at the bending machine, parallel to the main usage time.

Double sheet detection function: Spreader magnets in the pick-up stations of the raw blanks prevent the robot from picking up several sheets.





A simple measuring system can rule out the possibility that the robot has picked up two sheets.

Special systems for special requirements

Challenge us. Don't just order a machine, optimize your production process with our automation solutions. Fully automatic modular automation systems with robot connection are a supplementary offer from the Schröder Group. We work with you to develop a customized concept and can increase your automation steps with our special solution.

Our solutions for you:

- Portal solutions (320 kg Fanuk-Robot)
- Floor-standing solutions
- 3 pallet stations with sheet separation
- Sheet thicknesses up to 3 mm or 6 mm
- Working lengths up to 4000 mm
- Double sheet detection
- Pre-centering via deposit table
- Regripping station for turning the sheets
- Loading station on an Advanced Handling System (AHS)

Control panel with POS 3000 controller

Options:

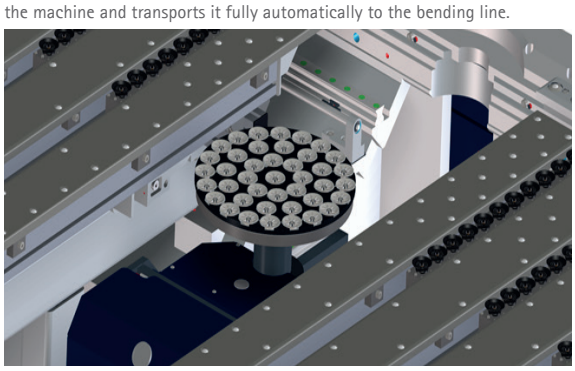
- Automatic gripper change
- Automatic rotary plate change by the robot
- Storage rack for grippers and suction plates
- Connection to automatic warehouses
- Connection to pallet station

Automation, robotics and sensor technology

To automate production processes, we rely on proven suppliers of reliable components.

Fanuc robot used: The sheet metal is pre-centered on the deposit table and sucked in by a vacuum unit

Turning unit with suction cups in the center of the machine (aisle): A turntable controlled by high-precision camera systems aligns the sheet in the machine and transports it fully automatically to the bending line.

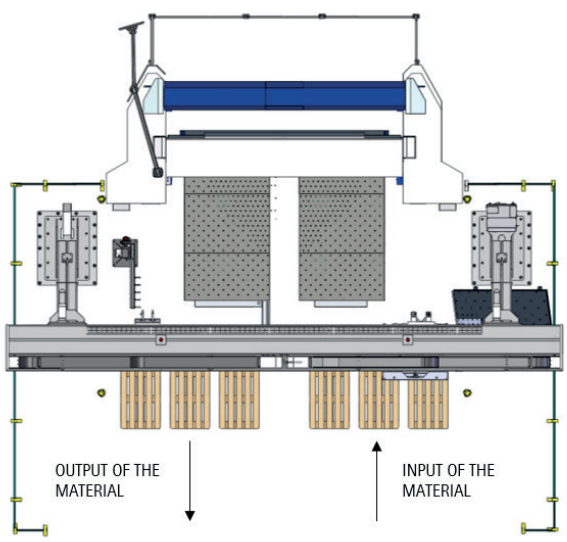


The motorized referencing axes are hardware pins that the robot uses to reference the sheet metal on the bending machine.

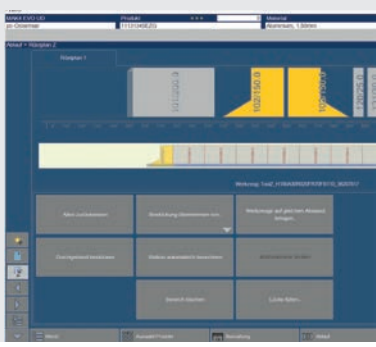
Fully automated infeed and outfeed in Schröder automation systems are based on industrial robots from leading manufacturers, such as Fanuc.

Tables, conveyors, stop technology and the highly flexible manipulators bring the workpieces into the correct position. The workpieces are precisely measured using modern camera systems - this guarantees top accuracy and reproducibility values for every bow.

Light barriers, motion and touch sensors ensure safe operation of the automation system.



A human-machine interface the way it should be:
Folding machines from Schröder receive their instructions via touch display panels.



Above: The control software becomes a convenient product catalog.
Below: Not only the work piece is displayed, the tools are also shown – in this case, in the mounting plan.

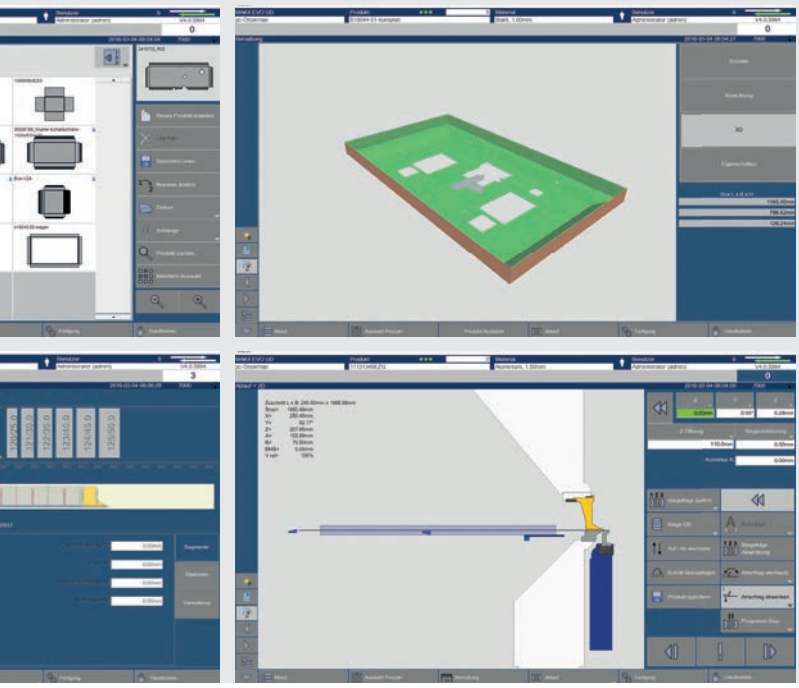
POS 3000 3D graphic control:

Interactive sheet design

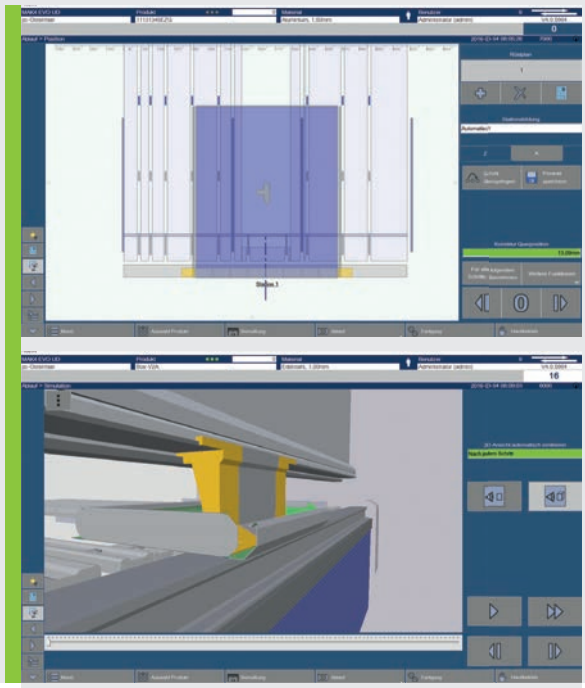
With the POS 3000 3D graphic control, our sheet metal working specialists are setting new standards in the control of industrial sheet metal processing.

The new, high-end POS 3000 control and the folding machines in the Evolution series from Schröder are a perfect match, including control over complex machine options like automatic tool changers and handling robots.

Special feature: Program graphically with the POS 3000. Since ultimately, we know that: Your operating staff and preparation employees have a better eye for products than they do for IT programming lines. The machine, tool, work piece, and type of bend are all clearly displayed. That's why your employees bend visually on the screen beforehand and check the result in the software's 3D bending simulator, making sure that the sheet metal will be processed perfectly from the first bend. Bending programs that have already been created can be called up again quickly, checked visually, and corrected according to material requirements.



Above: the 3D display simplifi es dimensioning.
Below: a 2D display of the bending position.



Above: the position of the sheet on the back stop is displayed in the programming plan.
Below: POS 3000 simulates production in 3D.

3D Interactive Software
POS 3000
SheetmetalDesigner

Highlights

- 3D graphic control including a schematic depiction of the machine, tool, and work pieces
- Intuitive, visual touchscreen programming
- 3D bending simulator for visual program inspection
- Mount programming and control of the automatic tool changer
- Cycle time calculato
- Highspeed data transmission to frequency inverters (Ethernet Power Link)
- CAM connection, ERP/PPS interfaces, and DXF converter available
- Remote maintenance from Schröder software service

Working with POS 3000 is extremely comfortable:

Clearly laid-out product selection including a search function and navigation in submenus enables the operator to select work steps and connect them in the production plan menu to create sequences.

Individual product profiles can be designed very quickly via the intuitive finger-activated drawing feature. The exact dimensions may be entered and changed in the dimensioning menu. In order to check and coordinate together with the customer, the drawing may be output on paper using a printer.

Using the program that is created, the software generates the optimal sequence of bends, including automatic collision and threshold value monitoring. The folding angle and cut are corrected automatically using interpolation from the database.

Schröder Group

The Schröder Group consists of Hans Schröder Maschinenbau GmbH, which is located in Wessobrunn, Germany, SCHRÖDER-FASTI Technologie GmbH, located in Wermelskirchen, Germany and the SMU GmbH, located in Leinburg-Weißenbrunn.

Founded in 1949, Hans Schröder Maschinenbau GmbH unifies traditional and modern approaches in machine building: Successfully managed as a quality and customer-oriented, family-owned company, Hans Schröder Maschinenbau is specialized in the development of modern machine concepts for bending and cutting sheet metal.

The successful integration of the Fasti Company in 2006 and its worldwide presence make the Schröder Group one of today's leading providers of machines for bending, cutting, beading, flanging, and circular bending all types of sheet metal. The company's precision machines range from proven solutions for craftsmen to innovative, high-performance machines for automatic industrial production processes. 2021 the Schröder Group was expanded by the tool manufacturer SMU GmbH. Overall, the Schröder Group currently employs more than 300 people at various locations at home and abroad.

HSM 250221EN

Hans Schröder Maschinenbau GmbH
Feuchten 2 | 82405 Wessobrunn-Forst | Germany
T +49 8809 9220-0 | F +49 8809 9220-700
E info@schroedergroup.eu
www.schroedergroup.eu

SCHRÖDER GROUP