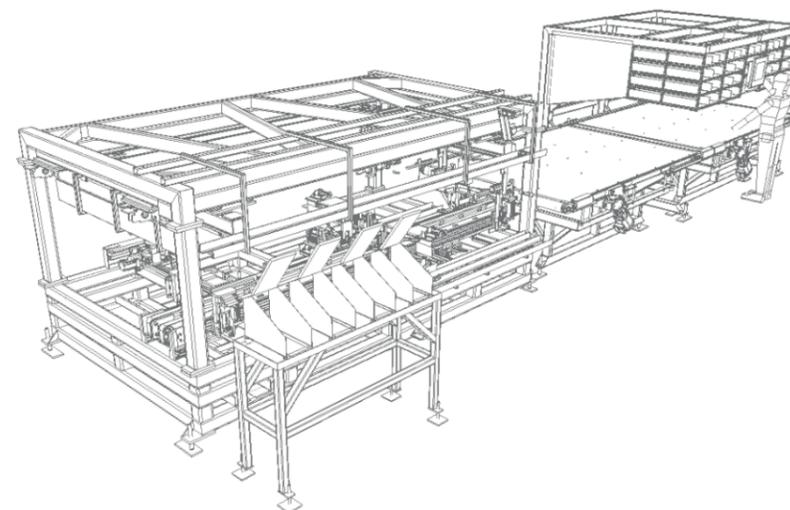


Special features

- Adjustable height of groove position
- All configuration stages can be expanded (mounting of fittings and clips, variable length of screws).
- Servo-controlled screwdriver motors for the optimum setting of bolts in accordance with the material used.
- Machining of sashes with a mounted glass pane is possible.
- Novel gentle clamping method for wooden units
- Mounting of concealed screws
- Automatic closing of the fitting scissors



For sashes made of:



PVC



Wood



Aluminum

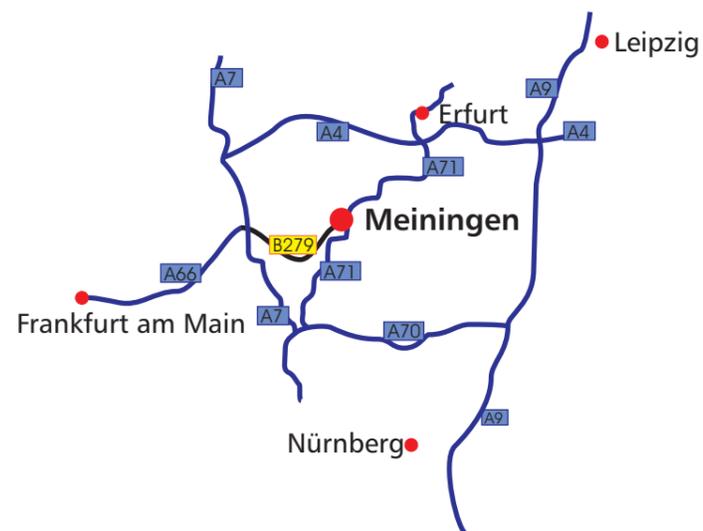
The all-round service from LEMUTH - guarantees security for your investment.

You will receive the following services from a single source and harmonised down to the last detail:

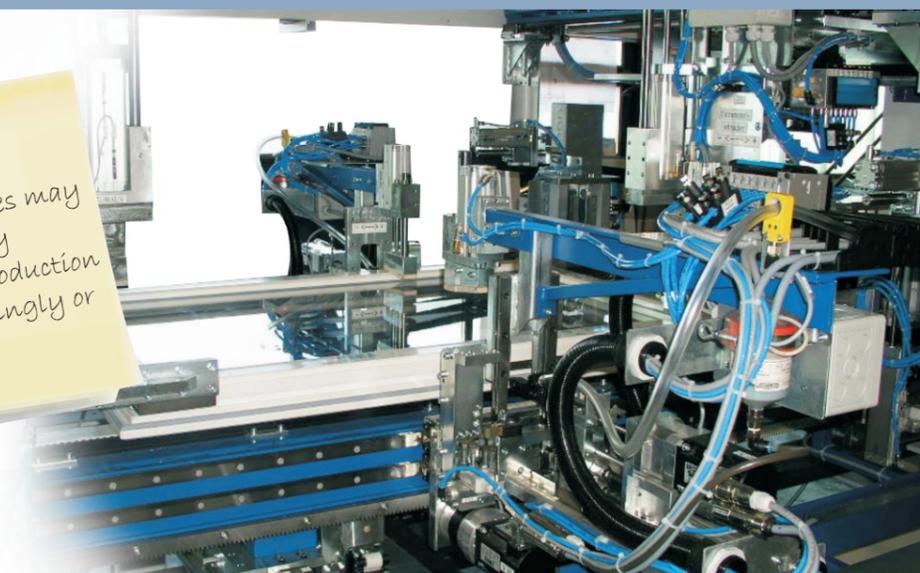
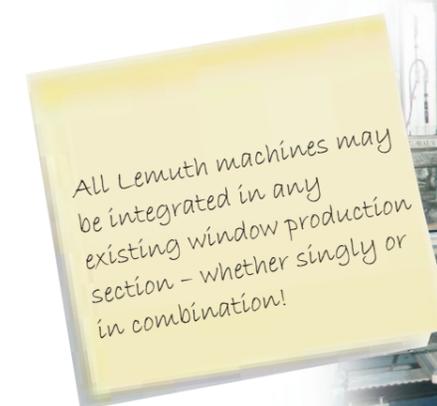
- Project management
- System planning
- Factory planning
- Construction
- Electrical project management
- Component production
- Installation
- Start-up
- Staff training
- Documentation
- Project management

And included in the software field:

- PLC programming of the system control
- Programming of the industrial PC interfaces
- Network connection to the company network
- Networking the window construction system



998_357 Prospekt FBS131+FBK135_englisch - Technische Änderungen vorbehalten



FBS131 / FBK135

Automatic 4-side bolting machine

Automatic bolting of the clamped fittings on the sash

FBS131 / FBS136

Automatic Sash Fittings Bolting Machine



Automatic bolting of the clamped fittings on the sash

Besides the already known Lemuth solutions for fully automatic sash fittings assembly, an appliance for semi-automatic sash fittings assembly has now been designed. Based on clampable fittings systems, this appliance bolts all pre-assembled fittings to the sash units. Sash hinges may also optionally be pre-drilled, set and bolted. The appliance, consisting of a preceding sash fitting clamping station **FBK135** and an automatic bolting machine **FBS131**, is the optimal entry device for automated fittings assembly.

Completely independent of fittings and profiles

The transport and clamping devices of the automatic machines have been designed in a way that is independent of profiles. All screwdrivers can be positioned at different groove position heights. Thus the fittings and profile systems are easy to change. In addition to the independence of fittings, it is also possible to use different screw lengths on one automatic machine. The sash units to be machined can be made of PVC, aluminium or painted wood.

Easy operation and optimum service

The large TFT display shows the respective tasks to be performed by the operator. The industrial PC, which comes with a Beckhoff control, is controlled via a highly intuitive LEMUTH user interface that has been specially designed for this application. Of course this system offers possibilities for remote maintenance to avoid as far as possible on-site service assignments and to help solve problems fast.



Choosing the right configuration

Various configurations enable every window manufacturer to find an automatic machine that best suits their needs. The material to be machined is decisive for the layout of the machining station. Especially for wooden units, the machining table is equipped with belt drives that ensure the gentle and damage-free transport of the window units. Every automatic machine can be optionally used as a single-station variant or as a pass-through variant. The variants differ in the transport of the finished parts. Whereas with the single-station variant the finished sashes are transported back to the preceding sash fittings clamping station **FBK135**, the automatic fittings bolting machine transfers the sashes to the following unit such as the stacker equipment **AS165** when the pass-through variant is used.

Possible extensions

All LEMUTH machines can be used as STAND-ALONE equipment or can be easily integrated into an existing production line. So it is possible that the automatic stacker equipment of series **AS165** will be joined after an automatic bolting machine. LEMUTH stackers are available in various configurations and designs.

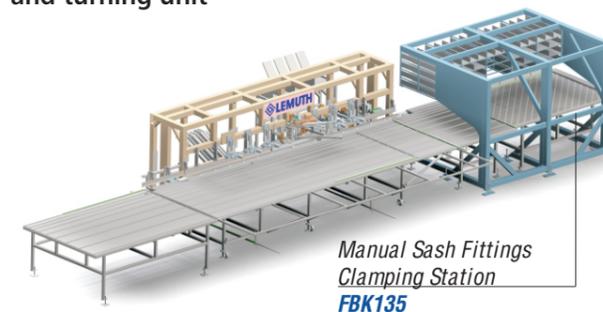
By adding further magazines and handling units the machine can be upgraded to the series **FBA136** automatic machine for the fully automatic fittings assembly, which permits the fully automatic mounting of corner guides, sash hinges and interlocking rods in one system.

When machining wooden units, an **automatic clip setting unit** can be integrated for the automatic mounting of the clips used for attaching the aluminium shells.

Automatic bolting machines for the 2-minute cycle

By adding magazines and handling units the automatic machines designed for the 2-minute cycle can be upgraded up to the fully automatic mounting of fittings. This offers the advantage that the machines can be later expanded to a complete mounting center for sash hinges, corner guides and interlocking rods by retrofitting the respective mounting units.

FBS136-BT
Automatic machine with brush table
and turning unit



FBS136-DT
Automatic machine with turntable



Manual Sash Fittings Clamping Station **FBK135**

The sash fittings clamping station **FBK135** is suitable for the manual mounting of all fitting systems that can be clamped. All fittings to be cut to length can be manually cut to length and punched.

The station can be made up of modules and thus best adapted to the requirements of the production system.

- **Fittings mounting table**

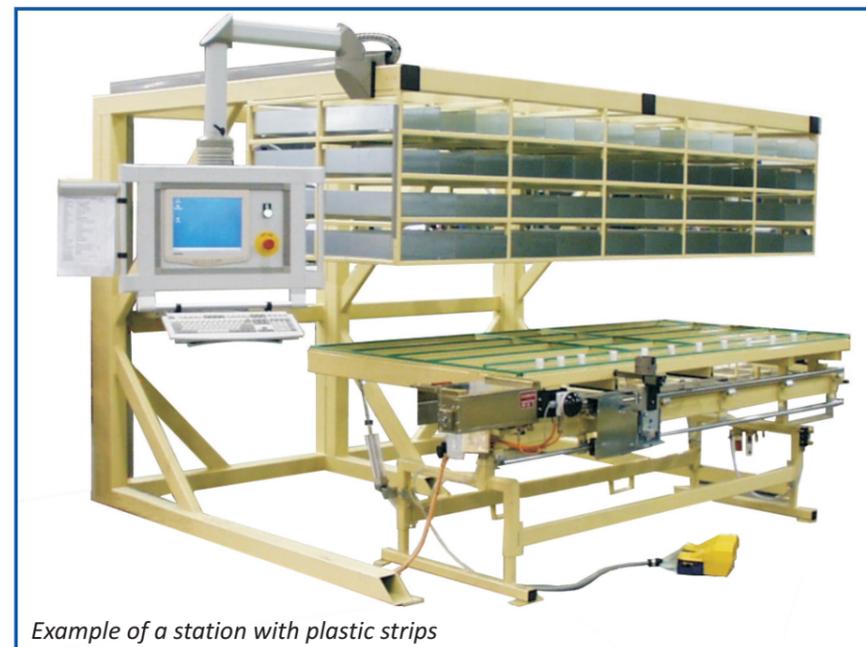
The supporting surface can be optionally equipped with:

- brush strips (for PVC sashes),
- plastic strips (for aluminium sashes) *or a*
- wide continuous belt (for wooden sashes),
- wide continuous belt with an air cushion (for sashes with a pre-assembled pane).

For machining **sashes with a glass pane**, the support used is a **wide continuous belt with openings to admit pressurized air** in order to generate an air cushion under the sash. This makes it easier to turn the sashes.

- **Fittings rack**
- **NC cutting-to-length shaft**
- **Bolting unit:** Optional, for the mounting of concealed screws
- **Monitoring station**
- **RFID reader**

The integration of existing components is possible after a technical test.



Example of a station with plastic strips

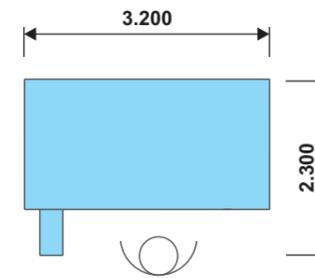


NC cutting-to-length shaft

Configuration stages

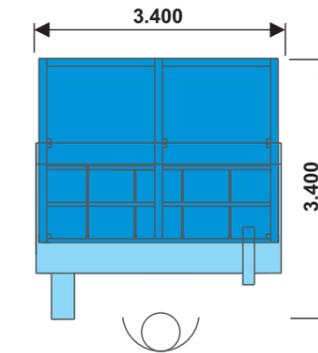
FBK135

Fittings mounting station / fittings clamping station without fittings racks

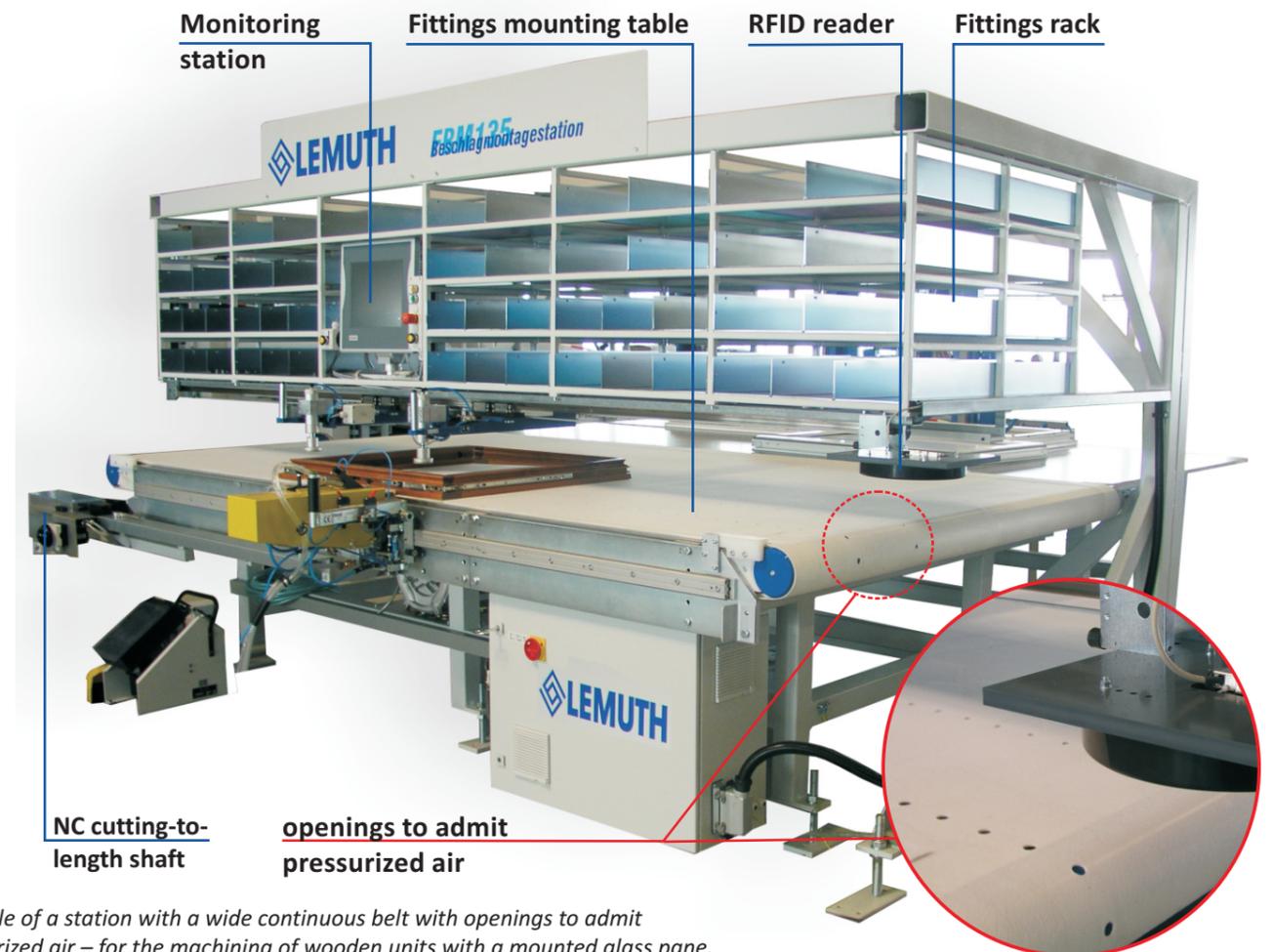


FBK135

Fittings mounting station / fittings clamping station with fittings racks



Assembly table with air cushion – belt support for sashes with a pre-assembled pane.



Example of a station with a wide continuous belt with openings to admit pressurized air – for the machining of wooden units with a mounted glass pane.

FBS131 Automatic Sash Fittings Bolting Machine

1-minute cycle

Automatic bolting of the clamped fittings on the sash, simultaneously to all 4 frame legs

Sequence of machining operations

All fittings are clamped by the operator on the preceding sash fittings clamping station **FBK135** into the fittings groove of the sash. After the operator has released the unit for machining, the sash will be gently transported by belt drives to the machining position. Wooden units as well as sashes made of PVC are clamped along the entire length of the frame leg against the locating edge. This novel clamping method prevents pressure marks on the sensitive wood sashes. For the machining of large units, additional counterpressure cylinders are provided for the bolting process to prevent any deformation of the frame legs. Then the four servo-controlled high-duty screwdrivers, which can be freely positioned, bolt all fittings simultaneously to all four frame legs. The servo-controlled motors provided at every screwdriver block permit the adjustment of the optimum torque depending on the type of wood and the type of screws used. Overtightened or projecting screws will thus be avoided.

Advantages of this concept:

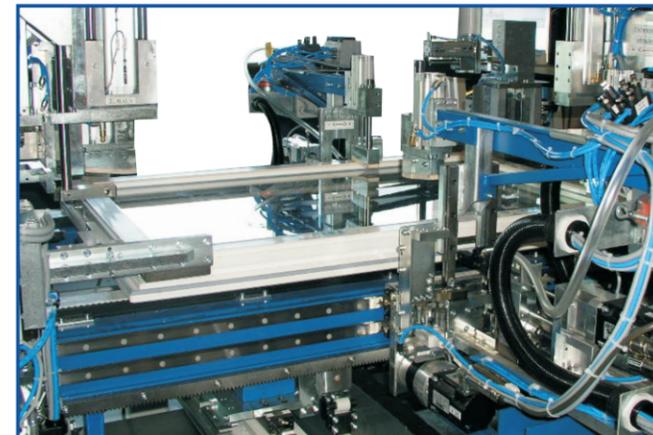
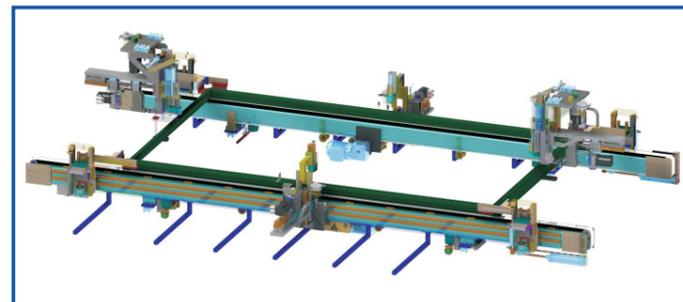
- Low space requirements, machine is only slightly bigger than the largest sash to be machined.
- A rugged base frame ensures absolute stiffness.
- Independence of profiles and fittings.
- The mounting of concealed screws is possible, which is followed by the closing of the fitting scissors.



Possible extensions

When windows made of wood are machined, the simultaneous mounting of the clips for the aluminium shells is also possible on this automatic machine. To do this, additional *clip setting units* are mounted to the screwdriver blocks.

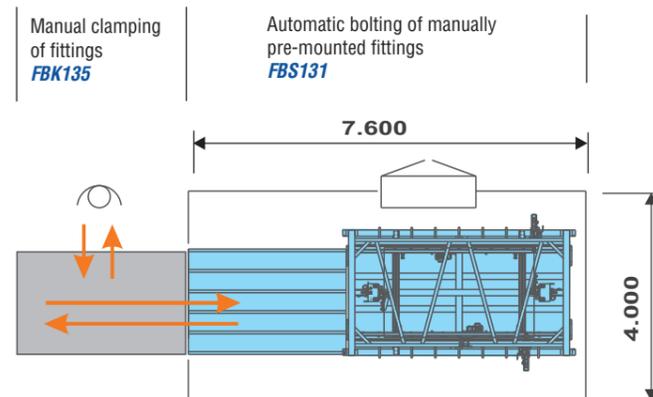
The detail photo shows that the sash is clamped in all four corners. Then the beams to which the machining modules are attached approach the sash.



Configuration stages

Single-Station Version

- Handling: 1 employee to load and manually clamp on the fittings, and remove the ready made sash
- Off-loading: With a return feed to the sash fittings clamping station operator.



Pass-Through Version

- Handling: 1 employee to load and manually clamp on the fittings
- Off-loading: with a forward feed to the downstream unit (e.g. automatic stacking unit)

