



Modern Methods of Construction



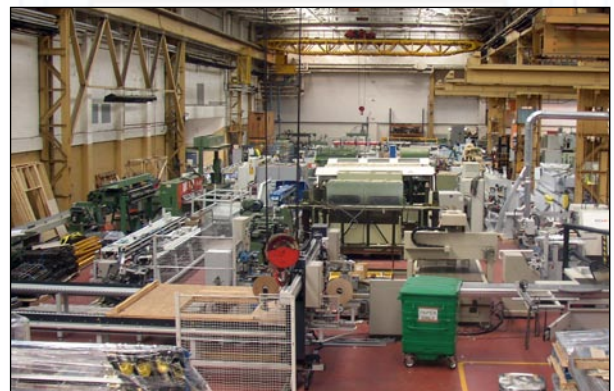
**Flexible Automation Solutions for
the Offsite Building Industry**



Modular Building Automation (MBA) is a joint venture between J J Smith Woodworking Machinery Ltd, based in Liverpool, England, and H&M Houtbewerkingsmachines BV, based in Sneek, Netherlands.

MBA offers a complete range of equipment for the manufacture of wooden panels used in the construction of buildings, including walls, floors, roofs and other elements.

The combination of the long established J J Smith with its extensive experience of the market and H&M with their leading edge manufacturing techniques means that the customer gains the benefit of the correct machine, efficiently designed and manufactured to a high standard.



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MOBI-ONE

The complete assembly machine for timber frame panel walls

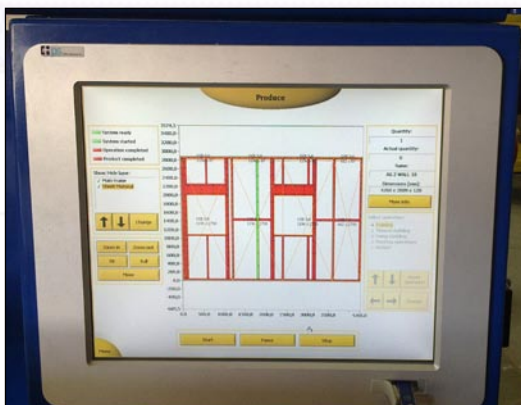
Which can perform the following:

- Download panel drawings from design packages.
- Accurately position for the placing of frame components.
- Nail the frame – up to 350mm standard (option to 500mm).
- Wall heights - 3.5m standard, options to 4.5m and specials up to 6m.
- Nail or staple the cladding.
- Trim the sheets and rout out the window openings.
- Pull over the breather paper.
- Position the batons and nail.
- Fix exterior weatherboard.

All the work is done on the station without moving the panel, thus meaning that the 12m panel can be made in approximately 15m of working space.

17" touch screen controller with interactive display of the panel – including zoom and pan options for reviewing complex panel details.

Ergonomic design of controls for ease of operator working when building the frame, complete with 2nd screen to enable working from inside of the machine (when building a frame) and outside of the machine (when cladding and routing openings).



Features Of The Machine

Operation 1 - Framing

Servo controlled rise and fall of framing tools allowing for full control of nailing quantities and positions. Space for tools that can take up to 160mm deep nails.

Independent top and side clamping to ensure the panel is retained exactly square.

End stops and first stud clamping ensure the panel remains fixed in position for the entire working operation.



Heavy duty positioning stops for accurate positioning of the framing components. 300mm wide tables allow for sub assembly and lintel details to be assembled on the station if required. Alternatively they can be pre assembled and inserted into the frame.

Ergonomic working height for the operator, with a stud magazine to enable these to be available as the panel is being assembled.

Heavy duty rack and pinion with electric motor and geared clutch mechanism for adjustable side pressure – again ensuring the panel is held square. Retractable side pressures pull the panel square at the top as well as the bottom.



Operation 2 – Boarding

After the frame is complete the operator will place on the first sheet and tack in place manually. Working from the outside the operator will then instruct the bridge to return fixing the cladding in accordance with the panel drawing.

One moveable carriage can have up to three tools mounted – for example stapling of the cladding and nailing of the battens. Optionally a 2nd fixed carriage can be fitted, enabling the bottom rail to be nailed at the same time as the top rail.

Heavy duty fixing tools can be used – ensuring consistent fixings in accordance with the nailing schedule.



Operation 3 – Routing

Sheets can be either be pre-cut or simply placed on the panel and trimmed to size using the (optional) router. The router is mounted on the moveable carriage and is connected to a portable dust unit that is attached the bridge.

Up to 90mm can be trimmed off the top of the panel and up to 100mm off the bottom. In addition openings for windows and services can be routed out. All instructions are taken direct from the design software.

High specification dust units available for heavy materials such as Fermacell or plasterboard



Operation 4 – Membrane Application

The machine has an integrated roll holder to enable any plastic or breathable membrane to be easily dispensed. The paper is manually fed around a roller on the bridge and drawn across the panel. This enables the operator to easily staple it to the panel and cut any openings and corners.



Operation 5 – Batten Fixing

The bridge positions itself in the first location for a batten and a specially designed stop drops into place. The operator then manually inserts the batten and starts the cycle. The moveable carriage then moves towards the operator guiding the position of the batten and nailing it as it cycles in accordance with the panel design.



Operation 6 – Outfeed

Once the panel is complete the operator releases the side clamping and the clamps on the idle rollers in the table and manually pushes the panel out of the machine. Swing gates allow for easy access across the line.



Mobi One Specification



Working height.....	850 mm
Squaring by rack and pinion	
Side pressure height.....	85 mm
Minimum panel thickness.....	90 mm
Maximum panel thickness.....	350 mm (option 500 mm)
Minimum panel length.....	550 mm (for automatic operation)
Maximum panel length – by specification.....	6,000 mm – 13,000 mm
Minimum panel height.....	1,300 mm
Maximum panel height – by specification.....	2,400 mm – 4,800 mm
Maximum panel weight – by specification.....	6,000 mm / 1 tonne - 12,000 mm / 3 tonnes.

Software interface – with all major design packages including:

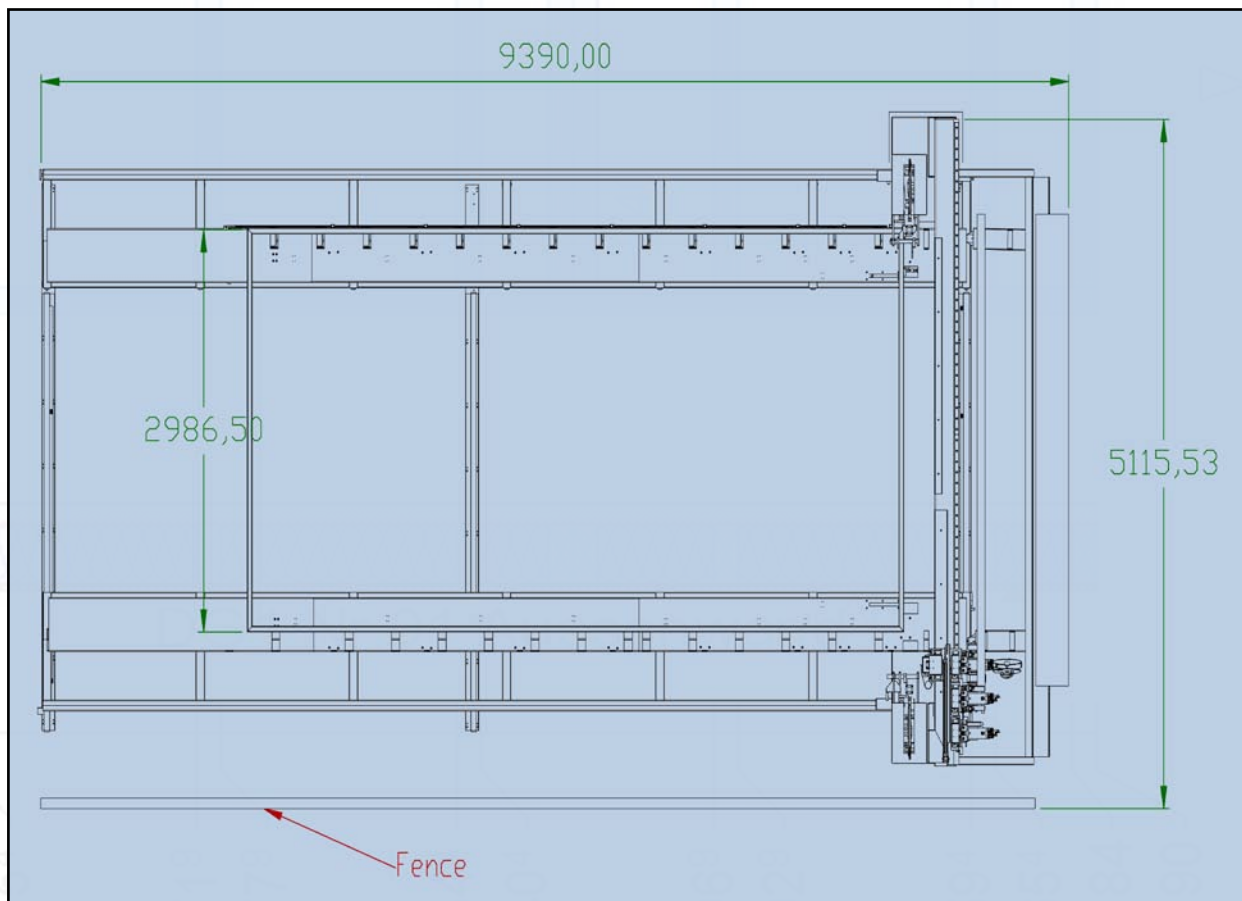
- Sema, Cadworks, Dietrich's, HSB, Coins, Eleco, Mitek etc.
- In addition, our software is completely compatible with the open source BTC and BTLW interfaces.

Safety features in accordance with CE:

- Side perimeter fence on the moveable side.
- Photocell barrier to prevent access to the nailing tools when cladding or routing operation in place.
- Emergency stops.

Overall dimensions of the machine:

- Max panel length + 3400 mm.
- Max panel height + 2120 mm.



Production Lines

Where high volumes are required, complete production lines can be specified. These need to be tailored to the wall construction to be manufactured, in order to optimise the throughput. The equipment will include items for our standard range of machinery including:

Framing Station

A high quality heavy duty automatic squaring and nailing station for timber frame panel wall manufacturing. The panel is held square and secure during the assembly and nailing of the studs and components. The operator is able to manually position the components for the panel at a safe and comfortable working position in the centre of the panel, enabling the machine to be used with a single operator.



The position of the studs and sub components are determined by the automatic positioning of the locating arms, the panel being assembled in a step by step process. The positioning of the nail guns, the number of nails to be fired in each stud and the locating arms are all controlled by the on board CNC control unit.

All the necessary processing information for the machine is taken from the drawing software via our interface. This interface can be used to schedule the required panel manufacturing sequence by the production controller, eliminating any operator input. The panel drawing is constantly displayed on the screen whilst the assembly of the panel is taking place, with the relevant component highlighted. Full control of the drawing, including zoom and pan functions available

Working Station

Working station for the manual fixing of paper membrane, insulation or other cladding.



Butterfly Table

Simple turnover device for the turning over of panels to enable the fitting of insulation, or the nailing on both faces of a panel.

A pair of hydraulically operated tables (also known as a butterfly table) that enable the panels to be brought to the vertical position, passed to the 2nd table, and safely lowered back down on the opposite side for fitting of insulation and closing of the panel. There is an option to have pneumatically operated pop up idle roller tracks fitted in the table, for easy loading and unloading the panels. The hydraulic lifting of the tables is controlled by push button operation, with fail safe locking cylinders 3,5kw motor 6m standard length (optional 12m) 4m maximum panel height A range of options to allow the tables to also be used as assembly bench for walls and floors and to integrate into a line.



Panels can be easily and safely turned over.



Wide range of options available, including cross transfers.

As an alternative we can offer a simple tilting table controlling the panel as it is taken to vertical by a crane. This can be incorporated into a complete line and can be used to support the panel if it is rotated and the 2nd side completed on either the same table or another one.



Automatic Nailing Bridge

A fully automatic nailing station for nailing or stapling sheet materials in accordance with the design specifications including the following functions:

1. Nailing or stapling of sheeting
2. Routing of openings or overhangs
3. Application of breather membrane
4. Nailing or stapling of battens

Bridges can be either mounted on a single table, or floor mounted to travel over a number of tables depending on the production requirement.



Options include

- Large capacity bridge to elements up to 500 mm thick.
- Saw for cutting of thick insulation materials.
- Drilling unit for small holes.
- Router for larger openings.

As with the whole range the nailing bridge is equipped with a full 17" touch screen with zoom and pan functions.



Floor Cassette Table

Floor and roof elements generally have the joists running along the length of the element so are not suitable for assembling on a framing station. We offer a range of manual assembly stations for maintaining the squareness of the floor as it is being assembled. Boarding can either be carried out on the same station or the unit rolled into a separate station for automation fixing.



Ancillary Items

In order to complete the line we offer a complete range of ancillary items including:

Timber Trollies

An efficient production facility is as much about good transfer of material around the workplace as it is about machinery. We offer a complete range of panel and timber storage items based on our experience of working in many factories.



Boarding Table

An efficient production facility is as much about good transfer of material around the workplace as it is about machinery. We offer a complete range of panel and timber storage items based on our experience of working in many factories.



Vacuum Lift

As boarding materials such as Fermacell and Gypsum get heavier and panel sizes larger, manual handling becomes more an issue. We offer a complete range of panel handling equipment including Vacuum lifts.



Service & Support

In order to ensure you get the maximum return from your investment, it is necessary to have confidence in the back up and support available.

Our equipment is installed by an extensive team of factory trained technicians who install, commission and service the machinery. In addition we offer a full range of technical support contracts, including remote access and diagnosis, telephone and email support, as well as a help desk.

Our own software integrates with all the industry standard interfaces and we are regular contact with their implementation teams to ensure complete compatibility.



www.modularbuildingautomation.eu

Sales & Technical Support

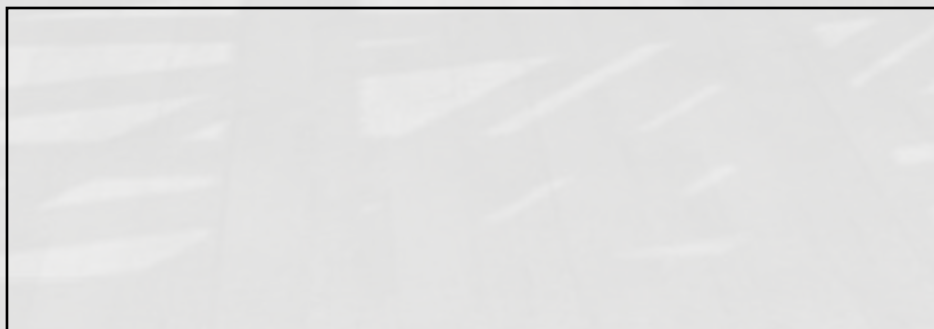
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MBA is a joint venture between **J J Smith & Co (Woodworking Machinery) Ltd** of Liverpool, England and **H&M Houtbewerkingsystemen BV** of Sneek, Netherlands.