The full range of machining operations, with a high level of precision

By: Jan Maurits Schouten

The machine for the rapid production of complete construction kits for log cabins and garden sheds.

In Flanders, there is a machine manufacturer that is highly renowned within small circles. Anyone making wooden furniture thirty years ago would have relied on AMD. And producers of log cabins and timber frame components already know where to find the company in Roeselare. Today, the company also builds machines that carry out complete machining operations on both very small workpieces and substantial beams.

'We have seen mechanisation going on among timber merchants', says Gabriël de Muynck. Together with son Francis, he runs AMD – Advanced Machine Devices – where the workforce also includes a number of mechanical engineers, draughtsmen and software developers. 'We are not the place to come to for planers or nailing machines. With all due respect, such machines are too simple for us.' Developing new machine tools – mainly for customer-specific applications – is what makes the hearts of the two De Muyncks beat faster. Father Gabriël has been doing it for around fifty years. They are rarely seen at trade fairs and do not have a dealer network either: business is conducted through direct contact with the customer and machines are developed through collaboration.

In addition to the Benelux countries, AMD machines can be found throughout Europe in countries such as Germany, the Baltic States and the United Kingdom as well as outside Europe in countries such as Canada. In particular, they include so-called 'notching machines' which are the mainstay of the company. These are digitally controlled machine tools for making components for 'stack construction' or 'log cabin construction' and the range also includes machines for timber frame construction. In the workshop, there is a complete set-up of the top model – PI – for when Houtwereld in Roeselare comes to visit. It is soon to be shipped to a customer in the United Kingdom.

With this machine, the process of passing the planks through is fully automated while milling and sawing is fully computer-controlled and takes just 2.5 seconds. Different sizes, different machining operations at the same time: they can all criss-cross each other. In a matter of minutes, the components of yet another complete log cabin or garden shed are ready. AMD records the speed at which everything goes. Customers who purchase machines of this type supply their products to chain stores and DIY stores. There are also simpler designs with less capacity which is reflected in the price. These customers usually supply timber construction kits to dealers or directly to private individuals. Francis de Muynck: 'We design, build and programme the machines until they are ready for use and test them thoroughly. In the process, the software is usually the part that takes the longest to develop as it has to communicate with the customer's CAD systems. This then speeds up installation and commissioning at the customer's site.'

Patent

The history of the company, which was big in CNC machines for furniture manufacturing for the first few decades, means that a dedicated method was developed for everything and that the machines operate with a high level of precision. The sharp decline in the furniture industry in Flanders led the company to focus on other markets.

'Around eight years ago, we received a grant from the Flemish government which we used to develop a complete machining station for a wide range of formats: the DA or Do-All', says Gabriël de Muynck. 'A number of these have now been made. We obtained a patent for them. The prototypes were sold, to both Belgian and Dutch timber merchants. They run

extremely well.' At its own expense, the company built a machine as a demonstration model that can be admired in the production hall. Francis: 'Naturally, we studied the comparable German and Italian machines and found that considerable improvements could be made. The Do-All machine is actually incomparable but it costs about the same in euros. Our machine is more accurate, faster and produces a lot less dust than usual.'

These are powerful claims but there is a reason for that: AMD applies a number of very different principles. For instance, the workpieces (which can be beams 10 metres long with a cross-section of 200 x 320 mm or even thin planks of 50 x 25 mm on the same machine) are secured in a clamping system and then sawn, milled or drilled close to those clamps. This results in fewer deviations and vibrations. When making deeper saw cuts or bore holes, the tools rotate from both sides, preventing splintering. This method also ensures that no dust is released outside the machining area. That dust is extracted. Francis: 'Other machine tools need to be cleared of dust and shavings that get everywhere and float around a couple of times a day. It is unhealthy for the workforce and makes the machine susceptible to faults.'

The clamping system can rotate 360 degrees and tilts the workpiece in all directions as required. So rather than going back and forth through the machine, the plank or beam being machined goes through in a single pass.

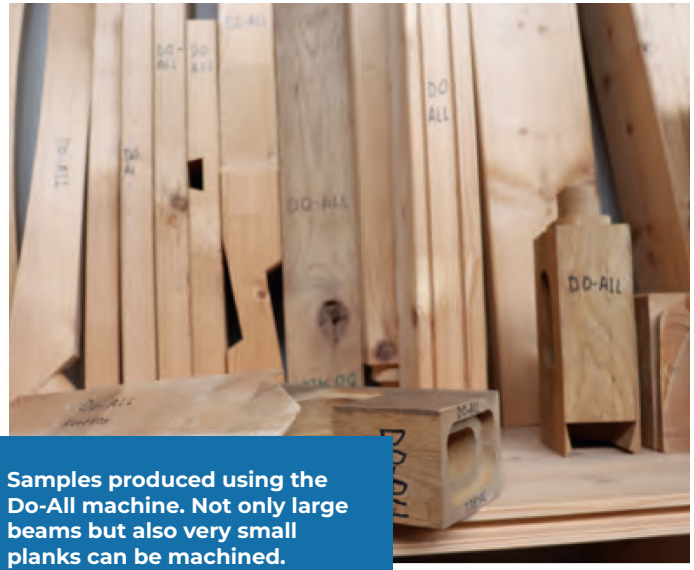
That is one of the reasons why the Do-All only needs to be 11.5 metres long to take 10-metre planks and beams. Gabriël: 'Timber merchants have recognised that they can add value to their business by supplying contractors or private individuals with wood for poolhouses or timber frame construction, for example. Or they decide to build them themselves. In that case, you want the construction kit you supply to fit together perfectly. And a dovetail to slide together flawlessly. That is only possible if a machine takes account of deviations in the dimensions or the straightness of a plank or beam. Our machine can do that.' The machine software translates CAD/CAM drawings into machining programs without human intervention so that what you produce is precisely what is shown on the drawing.'

Gabriël de Muynck is already looking forward to developing the next Do-All based on experience gained and newly acquired knowledge: 'The next one will be able to take even bigger formats, 240 x 360 mm. We are seeing the rise of timber construction using laminated columns and beams which you will want to get involved in as a timber merchant, as do we as a machine manufacturer. Those very high beams with splice plates and the like are not easy to make on our machines. Just leave that to the truss manufacturers so that you can focus on all the other construction timber.'

Photographs: Jan Maurits Schouten

Father (Gabriël, left) and son (Francis) de Muynck in front of the Do-All built by the company as a show model in the workshop.

Workpieces are secured in the Do-All for machining. This increases the level of precision and dust extraction can be maximised.



Samples produced using the Do-All machine. Not only large beams but also very small planks can be machined.