

The laser system for reading panel referencing.



Double Grippers

Drilling by numbers

The Brema Eko 2.2 is a vertical drilling machine that's been designed to impress and you only have to look at the numbers to see it does just that.

Six hundred panels drilled on five faces in an eight-hour shift from a single-operator machine with a footprint of just 17 square metres. You've got to admit, those are impressive numbers. But take a closer look at the Brema Eko 2.2 and you'll find there are more.

The Brema Eko 2.2 is a machine that was designed to impress and from the moment its new features were unveiled at Ligna 2019 it's continued to do just that. Designed with fitted furniture manufacturers in mind, the Brema Eko 2.2 – part of Biesse Group's woodworking portfolio – is a highly customisable

vertical drilling machine that will drill panels on all four edges as well as the face and it comes with sufficient routing capability to offer corner notching and grooving.

Talk to Paul Willsher, Biesse UK's Wood Commercial Director, and he will reel off a bunch of advantages that he says are unique to the Brema: he'll tell you about the class-beating 1250mm panel height it offers and how it will take boards of 8-60mm thickness and 3.2 metres long in its stride; he'll draw your attention to the zero-setup time it provides; explain the versatility that having a facility to unload from the left or the right brings to your operation; and introduce you to a list of impressive features – some

standard, others optional – that enable you to customise it to suit the way you want to work and put this machine in a class of its own.

One of the Brema Eko 2.2's key selling points is zero setup time, which makes it a good machine to look at more closely if you process numerous batches with relatively few panels in each batch. Using a laser, the machine detects the size of the panel and adjusts all the operations from that.

From an operator perspective, it couldn't be simpler to work with: a batch of barcoded panels from a panel saw or a beam saw is scanned by the operator using the optional barcode reader, which loads it into the work list automatically. All the operator has to do is place each panel on the machine one at a time and collect it when it's been processed.

"It will use the x-axis laser to detect the size of the panel, then it carries out the operation and returns the panel either on

the left or on the right, or through a panel return system," says Paul. "There's always a single panel going through but the machine can be loaded either manually – a one-man operation – or by robot. The loading area is on the left but unloading can be left or right. The grippers take the panel into the machine, it runs the program and it can be sent out to the right of the machine or brought back to the left."

But it's not just zero setup time the Brema Eko 2.2 offers. Using an encoder integrated into the gripper to read the thickness of each board as it passes, the machine is also able to provide zero reference: "Zero reference of the operating group is a big USP," says Paul. "If you put a panel in that should be 18mm and it's actually 18.5mm, it doesn't matter because you have the reference on the correct side. Many machines won't do that. The software will

adjust the program in real time without the operator even knowing it's happening. When you put your cabinet together, you get a nice flush carcass every time because everything is worked off the zero reference."

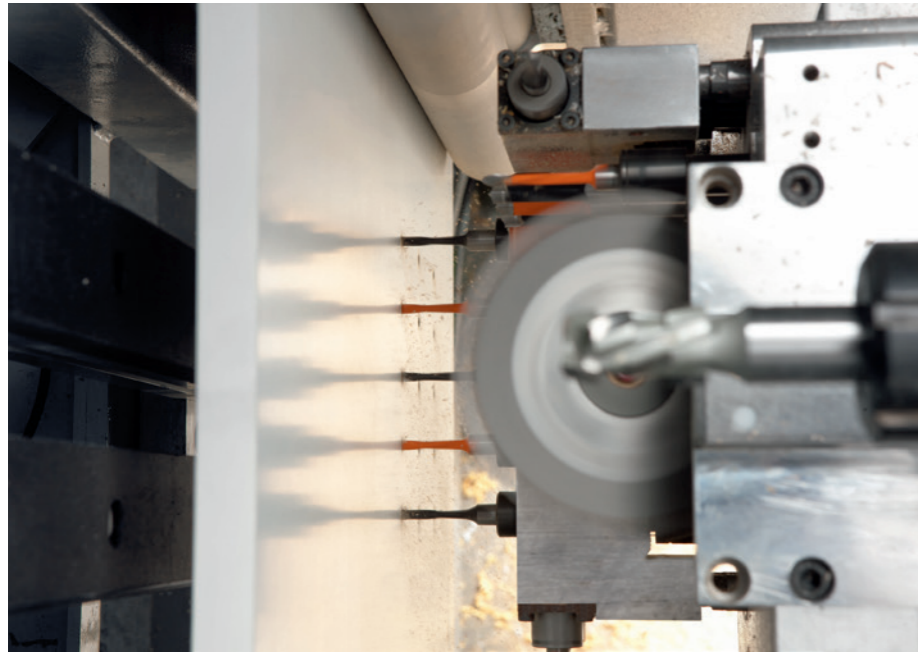
Where some vertical drilling machines have one gripper, Biesse has equipped its Eko 2.2 with two and both have independent brushless motors. The main driver behind this was the greater precision and rigidity required for zero referencing but it's also essential where panels that require a longer stroke than the maximum 1500mm in the x-axis have to be moved.

And that brings us to another interesting number:

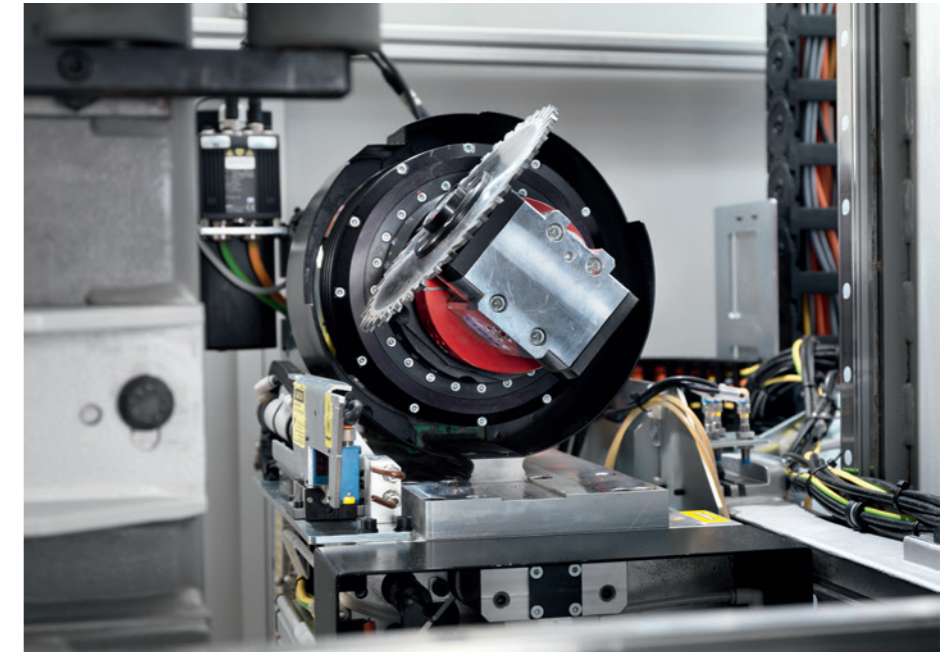
Equipped with the optional High Performance (HP) kit Biesse released last year, the grippers on the Eko 2.2 will move panels at a speed of 110m/min – more than four times faster than a non-HP-equipped



Paul Willsher



The eight-position toolchanger



"If you have a particular fitting such as a Clamex, you can use the saw blade for this."

Eko 2.2. And that, says Paul, increases the performance of the machine significantly:

"When the grippers are moving, typically they will move at 25m/min. With the HP kit, it will move them at 110m/min. The grippers reshuffle with one gripper staying connected while the other moves. It's all about how fast the panel moves in the x-axis. By adding an HP kit, we can reduce panel processing time significantly. Every time the panel moves it moves at 110m/min."

The greatest benefit is when processing larger panels. On a typical 400mm x 250mm drawer front the HP kit saves a couple of seconds while on a 3200 x 250mm bookshelf side, Biesse's demonstration shows a whopping 26 second time-saving.

Of course, having an HP kit fitted to an Eko 2.2 that moves panels at a rate of 110m/

min does mean adding guards to protect the operator – but that's where the machine's footprint becomes 17 square metres. Without the HP kit, only 10 square metres are needed and it is a retrofittable option if you don't need the speed to start with.

Inside the machine are yet more interesting numbers: the Eko 2.2 can be equipped with either a single drilling head, or two independently operating drilling heads and there is a choice of two different types of HSK electrospindle. The upper BH23 head can accommodate 7+7 vertical drills, 6+2 horizontal drills and a 120mm diameter saw while the lower BH21 head takes 7+6 vertical drills and 6+2 horizontals. As an alternative, you could specify one BH28 head, which would accommodate 7+10 verticals, 6+2 horizontals and a 120mm diameter saw.

As a further option, Biesse has provided the facility for an eight-position automatic toolchanger on one of the heads – an unusual feature for this type of machine. Being able to manage aggregates is a huge advantage because it basically means even a complex drilling pattern can be achieved using one program and there's no need for the operator to stop midway through to change aggregates.

"The eight-position toolchanger is a big USP," confirms Paul. "We can actually manage aggregates within the toolchanger so if you did want to use a sawblade, for example, you can manage it with the toolchanger. Some machines on the market have a toolchanger but can't manage aggregates. The Brema 2.2 will. If you have a program that needs two aggregates, you have to have two programs with some machines and physically put the

aggregate into the head. Having to put the aggregate into the head slows down the process. You don't get that with the Eko 2.2."

Combined with the macros in the bSolid software used to run the machine, the flexibility in the heads and the toolchanger of the Brema Eko 2.2 make it possible (as an option) to cut pockets for panel fixings and Biesse has macros covering all the major fixings from Lamello, IF and Ovvo as well as cam and dowel systems. "If you have a particular fitting such as a Clamex, you can use the saw blade for this," confirms Paul. "It won't insert the hardware but it will machine the panel to take the hardware. The macro is already in the program and there is an option available for gluing and inserting dowels."

The number of options available for the Eko 2.2 is quite broad and, in addition to

those already mentioned, includes a kit to detect the real height of the panel, a kit for processing of 2.5mm thick panels and, for anyone processing painted panels or high gloss, a kit for processing panels with delicate surfaces.

"The Brema 2.2 was invented for the end of the process so if you have a high gloss door, you would want to drill after spraying so you don't see spray overspill in the hinge holes," explains Paul. "We have a delicate panels kit that reduces the risk of scratching. All the rollers have a special finish like a felt cover rather than being hard and there are rubberised rollers for the panel to run on."

There are surprisingly few limitations to the Brema Eko 2.2. It will route but you wouldn't want to attempt serious routing of shapes on it because there is nowhere for

the offcuts to fall and if the range of profiles you wanted to machine extended beyond 25mm, the grippers wouldn't be able to grip the panel. But bar these, it's a very versatile, very fast, easy-to-use, compact drilling machine – probably one of the most productive in its class. It's certainly a machine worthy of a closer look if you're in need of a compact drilling solution and by the end of the year, Biesse Group UK should have one to demonstrate with a panel return system in their Daventry showroom.

For more information, call Biesse Group UK on 01327 300366 or visit www.biesse.com/uk/wood/ or if you are reading this article with the free Furniture Journal app, touch the image marked with a link sign to watch the Brema Eko 2.2 in action.