

Machining microns



David Gordon

Machining to tolerances within 0.025mm isn't typical for panel processing but that's exactly what Grant Westfield needed for its latest Multipanel Collection.

Take a close look at the photograph in the background of this article and from a machining perspective, at first glance you'd probably think there was nothing very remarkable about it. Now take a closer look – not at the joint that runs along the leading edge but at the dark grey line that runs across the surface of the panel and the very edge of it. It's a decorative grout line, cut with remarkable precision in the laminate surface of a fully waterproof bathroom wall panel one of the latest designs in Grant Westfield's market-leading Multipanel Collection, and its production has been made possible by Biesse technology.

Since Edinburgh-based Grant Westfield started manufacturing Multipanel products at the turn of the new millennium, its reputation has become second to none for delivering high performance products on time and to a quality standard that enables the company to offer a 30-year guarantee with confidence on every wall panel that leaves the factory. "We're now market leaders," David Gordon, Operations Director at Grant Westfield Ltd told Furniture Journal. "We are proud of our products, our manufacturing processes and our quality and we have long-standing relationships with the suppliers we use, so everything we produce is well tried and tested. We're also super

proud of our staff and that shows in the end product."

There is no doubt that wall panels are a faster and more efficient solution than tiles for cladding bathroom walls and the absence of grout lines makes them mould and maintenance free, even inside shower cubicles. Finished with laminate, the choice of patterns, finishes and colours in Grant Westfield's Multipanel range includes both high gloss and textured finishes. "We tend to find customers like a combination of panels," explained David. "We offer a lot of décors and our Linda Barker Collection has become one of our best sellers. We launched a Neutrals Collection just as the pandemic started – tones that would support marble and wood effect panels – and at kbb we launched our new Tile Collection."

Moving into tiles was a shrewd move when you consider the UK tile market is



worth close to £700m compared with £80-100m for the panel market. But creating an authentic tile look that was almost indiscernible from grouted tiles on a wall panel worthy of a place among the Multipanel Collection was far from simple. It would have been relatively easy to create the look within the laminate during the printing stage but David and his team didn't just want a product that looked like tiles, they wanted one that felt like tiles as well. "We investigated sawing and laser-cutting the grout lines but based on our experience, we knew a CNC would be the better option.

"Historically, when we were in the contract side of the business, we had Biesse equipment on site and a good relationship with Paul Willsher [Biesse's UK Commercial Director]. Paul contacted me regularly and it just happened that a couple of days after we'd decided to branch out into tiles, he

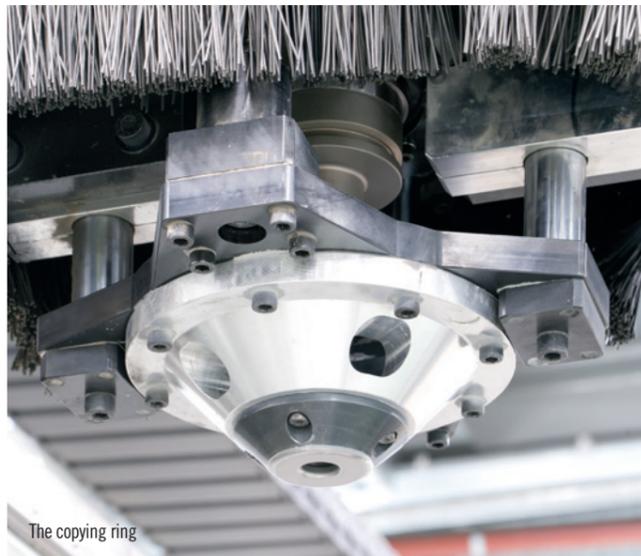
called. Shortly after, he came up to talk us through various options.

"What we wanted to do was take a laminate sheet that had additional layers of material in it and cut through the top layer to create a grout line. We needed precision and consistency to machine accurately through a couple of microns of surface material. The problem is, no matter how good it is, no board is ever completely flat – and to complicate things further, we also wanted to cut grout lines into boards with a textured surface."

The machine David and his team decided on was a flatbed version of Biesse's Rover B, a gantry machine with double independent Y-Axis spindles that's designed to be solid, balanced and, crucially, very precise. A super-high specification wasn't important as the machine would only need to carry a single tool in each of its two three-axis heads.



Biesse Rover B with Synchro



The copying ring



A single tool protrudes through the centre of the copying ring during the cutting operation

"One of the things we really liked about the Biesse is it has a copying ring. What this does is as the tool moves along, it moves up and down over the static panel. It is constantly measuring how far the laminate is from its reference point so the depth of cut always remains consistent.

"When we first got the machine, that's one of the things we really had to get right so we created a library of programs we could call up easily. Different panels require different machining speeds, so when we are doing a flat panel, we can machine quicker; when the surface is textured, we need to cut slower because the tool needs to take its time to read the surface and adjust the speed to maintain the depth perfectly.

"We know the thickness of the panel we know the thickness of our laminates and

we know the thickness of the glue we apply but we also know the surface of the panel is not perfectly flat to the micron. The copying tool adjusts as it runs along the length and width of the panel so we get a perfect grout line every time. That's absolutely essential. The cutting is just two or three microns deep into the texture and if it's not absolutely perfect the lighting people want in modern bathrooms will show any inconsistency, especially on a textured laminate. In addition, if it were to cut a fraction too deep, the tool would penetrate the next layer in the laminate. It would show as a different colour. That's how accurate it has to be."

Aside from accuracy, David also wanted to automate the process so the machine could be operated by just one operator. The

solution Paul Willsher proposed was to add a Biesse Synchro, a loading and unloading device that transforms the Rover machining centre into an automatic cell and enables it to machine a stack of panels autonomously without the need for an operator.

The Synchro is a very easy-to-use add-on that, because the machining centre program also contains the Synchro command instructions, requires no additional input from the operator: "It's a very easy machine to operate. We place a pack of raw material on an empty pallet, the operator hits start and it does everything else.

"Because we can work two panels simultaneously on the Rover B, the Synchro picks up the panels two at a time and carries them over to the bed. There are metal stops on the bed of the Rover B that are used to



Twin heads



Board aligners



The Synchro operates along a track, loading and unloading two panels at a time.



Boards are separated from a 40-panel stack and aligned against a moving fence.

align the panel perfectly. The Synchro places the panels, aligns them, adjusts them and taps them down gently. Suction from the bed of the CNC pulls the panel down at the same time as the Synchro is returning. The CNC does its job then the Synchro removes the two panels and places them on the finished product pallet. We hold 40 panels in each pallet and the two machines work in tandem until the whole pallet has been machined."

David can't speak highly enough of the service and the training his team has received from Biesse and he effervesces over the engineers who installed it and even stayed an extra couple of days to help them prepare their new launch for kbb.

"The machine was bought during Covid so we couldn't do the factory acceptance test but Biesse was fantastic. We had a full

eight-hour shift with Biesse over Teams so we could run through everything. There were a number of tests we needed them to complete. Biesse were aligned completely to the process, even when we asked them to demonstrate the Synchro working with 40 panels. We also wanted to see specific measurements, so we asked them to machine a specific depth and run along it with a calliper, measuring different points to ensure quality and consistency. Then they went through all the mechanical and electrical aspects of the machine, opening it up and talking us through every aspect. It was a really good process.

"The machines were delivered in February and kbb, where we wanted to launch our new product, was early March. Two guys came over to install it and they

were fantastic; really, really good engineers. They installed it in two weeks. They were super friendly, super helpful and extremely knowledgeable about the machine. I think they were part of the team that built the machine so their knowledge was second to none. During the operator training, we created the product for kbb. The engineers stayed back to help us produce it. They were phenomenal. In fact, Biesse was spot on from start to finish. Everything they said they were going to do they have done. We couldn't be more pleased."

To find out what Biesse could do for you and your company, call 01327 300366, visit www.biesse.com/uk/ or for more information on the Rover B, touch the image marked with a link sign in Furniture Journal's free app edition.