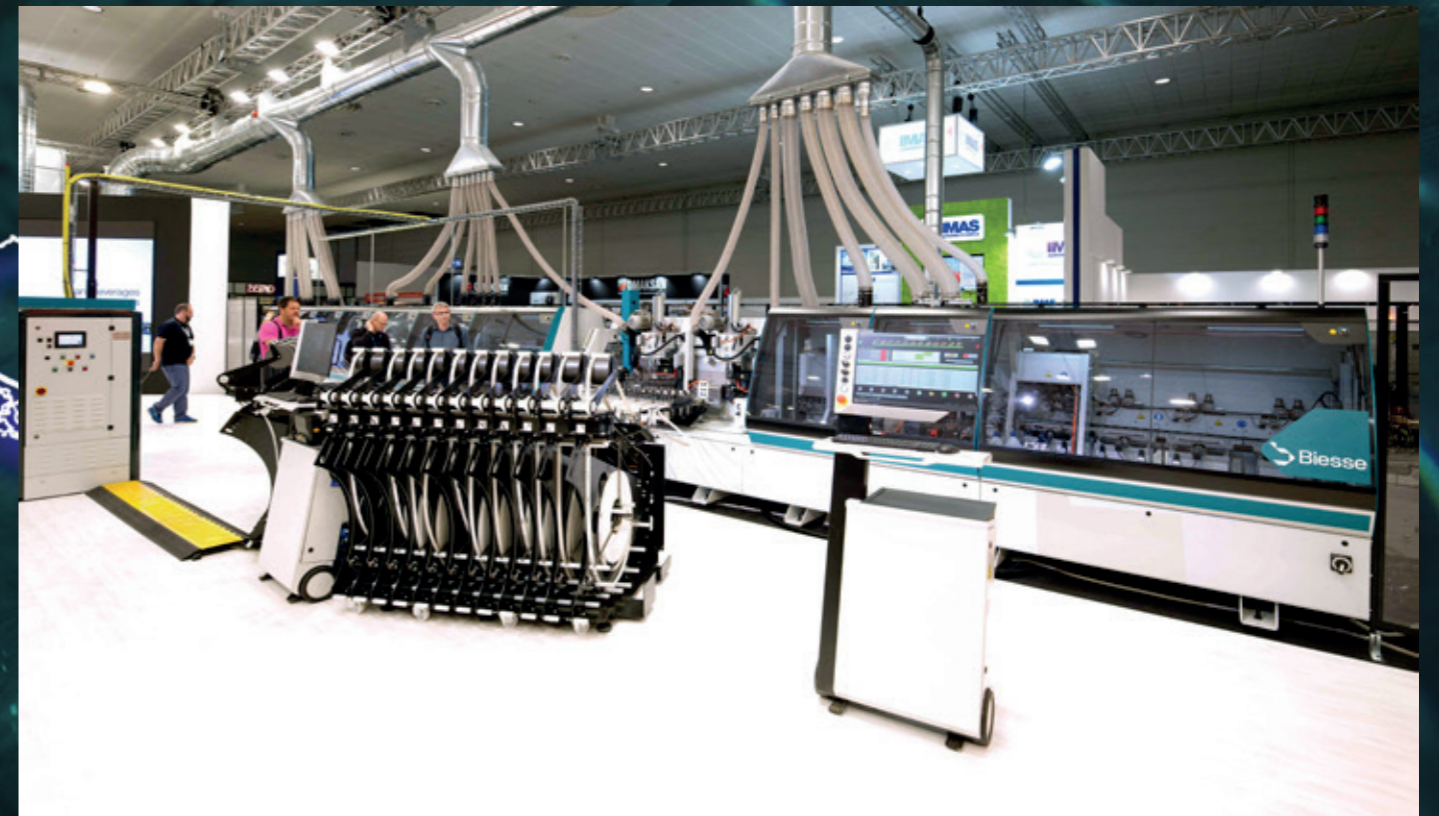


# Hydrogen Force is here



Malcolm Storey

## Malcolm Storey explains the benefits of Biesse's Hydrogen Force System and why it is revolutionising the application of edgebandings.

It was Ligna 2023 when the world saw the first public presentation of Biesse's Hydrogen Force System. In a blaze of lights, centre stage on a newly-liveried stand was a giant Stream MDS edgebander with a dozen-roll tape magazine. To one side, an LED screen flashed messages about an innovative system for perfect bonding and printed on a refrigerator-size

box surrounding the HFS system in the middle of the stand was the explanation: *HFS Hydrogen Force System is a Biesse Technology that begins with H<sub>2</sub>O and leverages the hydrolysis process to create hydrogen used as a sustainable energy source to power the edge application process, thus reducing energy consumption and related CO<sub>2</sub> emission.*

I understood all the words but the explanation shot straight over my head.

In fact, it wasn't until I had the opportunity to interview Malcolm Storey, Biesse UK's Technical Applications Engineer for Edgebanders, that it became clear how a machine could apply one-and-a-half kilometres of edging using a litre of water. Only a week before, he'd been in Pesaro, where he'd had a thorough briefing on HFS and had seen it in action. Malcolm takes up the story:

"We're using H<sub>2</sub>O – water – to apply the edgeband. We extract hydrogen from the

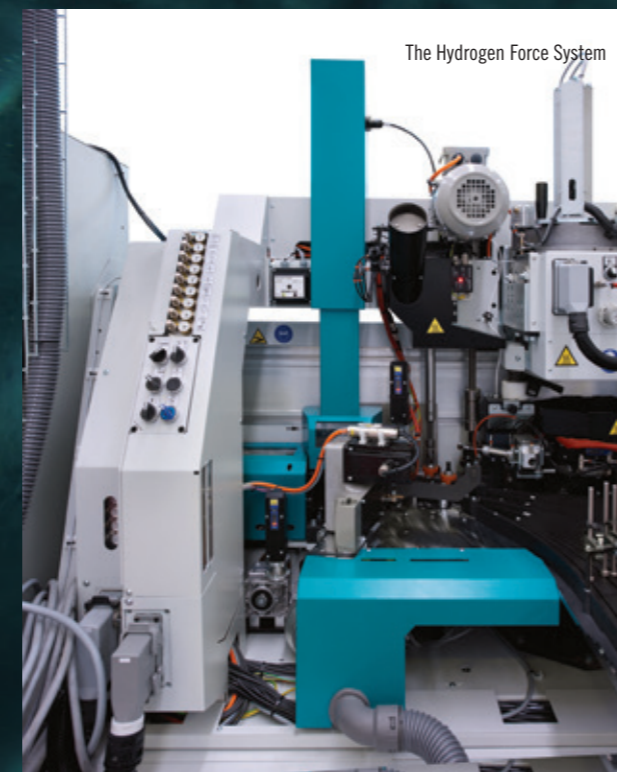
water, then we ignite the hydrogen with a flame at the nozzle to melt the functional layer on the back of a laser-type edgebanding material. Immediately the system detects the panel's presence, the nozzles are ignited, the functional layer melts and the edgebander applies the tape. Ignition is instant so when the panel's passed, the nozzle switches off, then on again as the next panel approaches. It's on, off, on, off, in an instant and because it's a cold flame, when the unit is running you just see a pulse, almost like a light.

"Until the introduction of HFS for edgebanding, we had standard systems for

the application of either EVA adhesive, or PU adhesive. Then we brought out the AirForce system to apply laser edging materials and achieve zero glue-line edges. Other manufacturers have different names for it but basically they all use hot air to activate the functional layer on the tape. Then there's laser application where you're using the laser to melt the functional layer.

"Biesse has looked at the market for the higher end product where the glue line is really important and concluded that if you want a zero glue line, the choices are either AirForce technology, or a laser, which has a





higher cost. AirForce is our alternative to laser and it's more cost effective. The market is demanding machines with lower running costs so it was always in the back of the mind that we should have a look at a technology that could replace the currently available solutions in the market and provide similar, or better performance. The solution we found was the Hydrogen Force System.

"The first noticeable difference when you are using an HFS machine is the noise

level. With traditional technology, there's a noise associated with it. We had somewhere in the region of 35 UK customers from different market sectors at the Inside Biesse event when it was introduced in November. HFS is so quiet that even when the machine was working they were asking if it was actually on."

One of the main drivers behind the development of the Hydrogen Force System was to increase the performance and energy

efficiency of the Stream B range (of which the MDS is one) while making them accessible for smaller batch manufacturing operations. Because HFS technology provides instant ignition, there's none of the regeneration time associated with a hot air system so the machine can keep going without pause. Hydrogen ignites instantly, facilitating a reduced panel gap, which combined with the track speed means significantly higher productivity – but there's

also an interesting side benefit to a laser edgeband applied with HFS: "There are pull tests ongoing with edge tape suppliers," Malcolm told me. "The initial results show HFS technology creates a much stronger bond – in the region of twice as strong."

"Another advantage is that you can have the HFS system running alongside another gluing system, so you can run a standard EVA or a PU system as well as applying laser edgebandings on an HFS-equipped machine. The beauty of HFS is that you're not waiting for the unit to heat up. It's there, it's switched on and it's ready to go, so you get instant changeover. You could send a panel down the machine that's to be glued with EVA, for example, and the next panel going down could have a laser edging. It's really flexible. Faster changeover means you can

still manufacture cabinets with a standard application of EVA or PUR but use HFS for the fascias where you need a zero glue line. On top of that you've got a substantial reduction in energy costs. The electrical consumption of an HFS-equipped machine is 70 percent below that of hot air systems.

"If you know what you're paying for your kilowatt hours, there's a calculation we can do that shows the savings you can make with the HFS system. Of course, we have to add in other units you've got on the machine – pre milling, end-trim saws, top and bottom trimming, fine trimming, corner rounding and all the rest of the units on there – to get an accurate calculation. There's a kilowatt rating for them, too but we have some software that we can use to provide a final figure."

The first Hydrogen Force System-equipped edgebanders are likely to be arriving towards summer 2024. Initially, Biesse is launching HFS on the Stream Edge Pro ranges and you can expect the extra cost for the system will add around 50 percent to the cost of a standard hot air unit.

"Biesse is having a big global push on HFS technology. It uses a sustainable resource, it is more productive, it gives the absolute best zero glue line edge and it offers reduced power consumption, so it's being promoted to every country where we are in the market."

To be first in the queue for an edgebander equipped with HFS, call Biesse UK on 01327 300366 or visit [www.biesse.com/uk/](http://www.biesse.com/uk/)

