

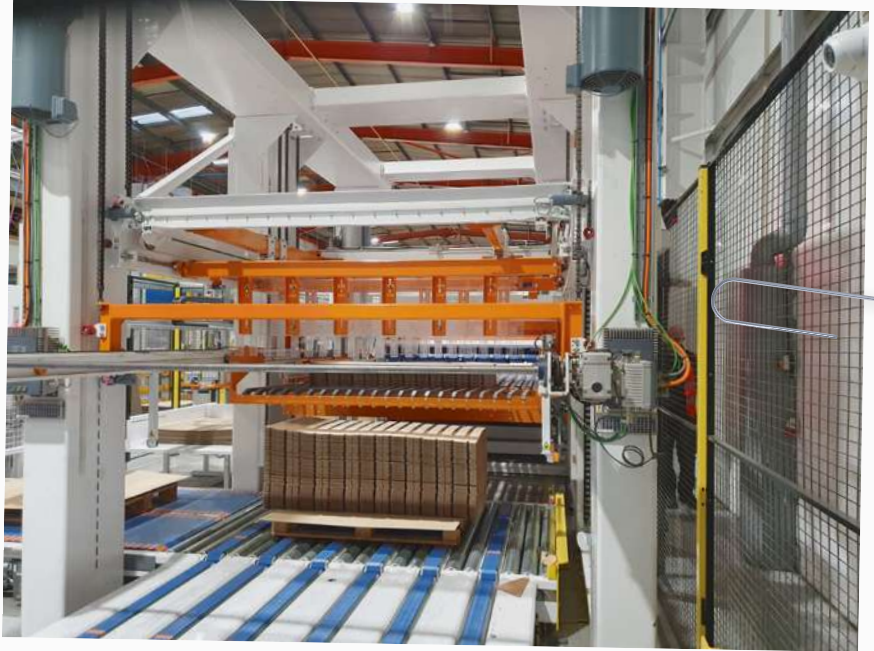
## Decades of Experience 'Made in Britain'

Avanti Conveyors have been established since 1988 and, though primarily based in Derbyshire, UK, they serve customers across Europe, America and further afield. They design, sell, install and support materials handling systems for customers across the globe. "Our experience of working in materials handling in the corrugated industry over the last 35 years has given us a detailed understanding and insight into the common problems experienced by both integrated and sheet plants within our industry," explains Simon Mander, Managing Director. These include:

- Bottlenecks in production;
- Difficulty in handling different sizes of product without loss of quality;
- High energy consumption;
- Safety concerns;
- Lack of predictability of machine output.

Mander continues, "Imagine if you could eliminate all of these production problems and get a fast payback on your investment. Avanti Conveyors offers a variety of solutions to improve efficiencies in your plant and deliver great value."

Avanti Conveyor's Pegasus separator palletiser system is a state-of-the-art system designed to be installed behind die-cutters, performing all key separation functions as well as providing fast layer formation by simultaneously handling several bundles. How does Pegasus overcome constraints?



Bottlenecks in production - often converting machines are not run at full capacity due to barriers in materials handling. Die-cutters are being slowed down to keep pace with existing separators or palletisers. These constraints can be overcome by Pegasus with these features:

- High speed machine to maximise production;
- Fast separators with optimised loading;

- Optimised loading of 90 degree transfers for capacity;
- Highly innovative layer formation;
- Fast and accurate layer loading - double pallet capability using twin forks for great stack quality;
- Easy to use by operators and reduced requirement for manual handling;
- Efficient system uses iMPRESS Scada Control system to monitor the process and run remote diagnostics.



- Small and multiple bundle blank handling, even at high speed;
- Improved quality of stack;
- Tight transitions;
- Lidar measuring and positioning;
- Reduced board marking with all plastic belts for all conveyors;
- Clean and precise stack presentation for your customers.

Handling different sizes of product – certain work mixes or certain patterns can be difficult to handle, particularly whilst maintaining high speeds. Pegasus is designed to work using pre-programmed

patterns, which gives higher capacity by handling multiple bundles at each stage. These features of Pegasus support consistent handling without any loss in quality or speed:

High energy consumption – considering the future of the planet, whilst keeping costs down, was a key factor during the design of Pegasus. This has resulted in a running power consumption of

<b>ALL ELECTRIC</b>	<b>Saves on energy consumption, reducing running and maintenance costs</b>
<b>FAST</b>	<b>Achieves badge speeds of your conversion machines</b>
<b>FLEXIBLE</b>	<b>Handles complex layer formations quickly, even small bundles down to 120x120mm</b>
<b>PROVEN</b>	<b>Simulation software proves product handling prior to implementation</b>



The Pegasus separator palletiser system is designed to be installed behind your die cutters, and performs all separation functions and layer formation by simultaneously handling several bundles.

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3.7kW per hour and an efficient machine design:

- All electric;
- No air;
- No hydraulics;
- Volume vacuum tie sheet/top sheet placement;
- Auto adjusting clamping pressure to reduce energy consumption.

Safety concerns – safety is paramount on any machine and Pegasus has built-in protection to ensure safety of machine users and visitors. Hand-crafted in the UK, each part is robust and of the highest quality. Safety features include:

- Castell locks;
- Zoning;
- Guarding;
- Light guards.

Lack of predictability of machine output – the ability to predict and test your workflow before starting the job is now available.

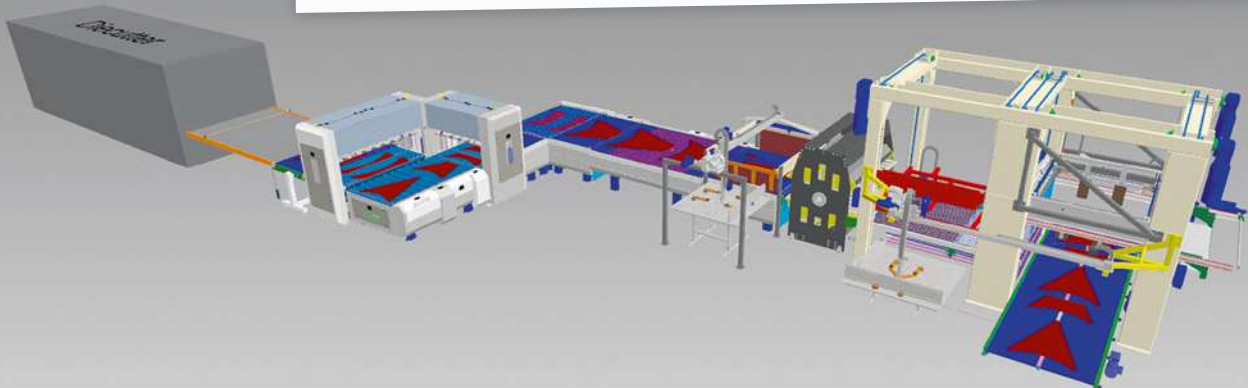
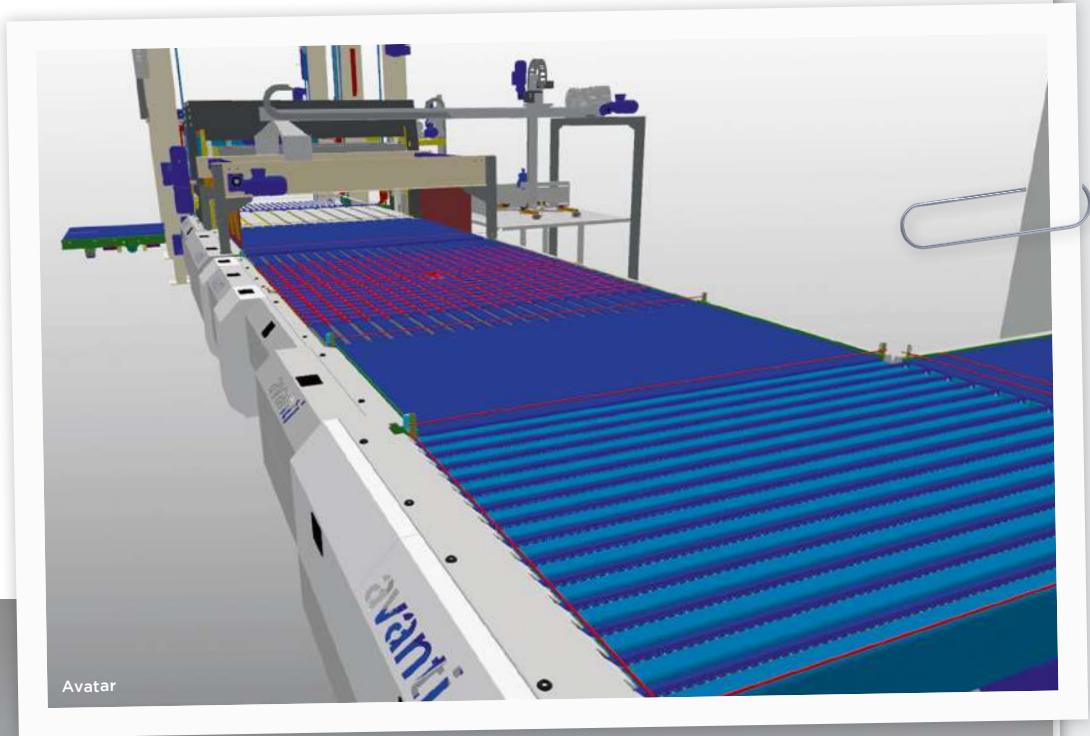
Pegasus now has a digital twin, Avatar.

A digital twin is a virtual representation of a physical object or process. The concept of digital twins is attributed to Michael Grieves, then of the University of Michigan, in 2002, but the first practical digital twin originated from NASA to try to improve their spacecraft simulation in 2010.

Palletising and separating is a complex process to optimise the configuration of the die with

the configuration of the load on the pallet, which affects the die-cutter's performance. Historically this has been addressed by using tables or operator experience. This approach can be a bit erratic in understanding a palletiser's performance. Estimated job run times can therefore be widely off the mark and scheduling workload is unpredictable.

Avatar provides a single modelling platform to demonstrate solutions, validate designs,



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SIMON MANDER, MANAGING DIRECTOR

and virtually commission PLC code and plant management software. Line performance can also be emulated prior to installation, which results in faster start-up times.

Avanti Conveyors are able to use this 3D virtual environment to demonstrate that Pegasus is one of the fastest separator palletisers in the market. Customers can see how product flows through the machine and where time can be saved and manual handling can be avoided. A complete walk-through of the machine allows for our customers to see the full functionality of Pegasus and to see how it could cope with their product mix. Outputs, speeds, configurations and any other variables can all be tested and proven within the model and clients can watch it working in real-time in state-of-the-art 3D graphics. By initialising the digital twin with actual customer orders, Avanti Conveyors can validate beyond doubt the machine capability.

Much like learning to fly a spacecraft before going into space, Pegasus operators will be able to learn how to run Pegasus before the physical machine is on site. Emulators are a proven tool in training as changes can be made to stock, sizes and environment. The real-time responses of the trainees can

then be monitored and training requirements modified. This process avoids the costly, time-heavy use of stock and machine, which is often running 24/7 and an interruption to production is not possible. This digital twin also allows operators to repeat tasks until they are comfortable knowing that they have fully understood the functionality of Pegasus. Individuals learn in different ways and having a virtual 3D environment will be another element in the trainer's toolkit. Testing can also be integrated as a part of a continuous development training programme or as part of the interview process.

Avanti Conveyors provide a wide range of solutions designed to deliver long-term improvements to your company's efficiency. Mander adds, “We are an experienced partner who understands your business and have a knowledgeable service team at the end of the phone (or on-site, rapidly). You will be investing in low maintenance, high quality equipment that doesn't require constant investment in expensive spare parts. We have an excellent track-record of working with customers in the corrugated packaging industry for over 35 years and are valued as a trusted, reliable partner by multiple companies across the globe.”

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