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### **BRITISH ENGINEERS SOLVE CARBON FIBRE CONUNDRUM IN MOVE THAT COULD TRANSFORM HOME DELIVERY SECTOR**

A Midlands engineering firm that works with some of the biggest brands in the aerospace and automotive sectors has developed an ultra-lightweight carbon fibre pod which significantly increases the volume of goods that can be home-delivered.

Coventry-based Penso has invested £16.3 million in producing its range of Blue Ocean Home Delivery Pods – the first of which go into operation with a major retailer later this month.

The lightweight nature of carbon fibre means goods weighing nearly 50% more can be carried per van while still meeting legal weight requirements for a 3.5-tonne vehicle. In essence, two vehicles equipped with Penso Home Delivery Pods can do the same work as three standard delivery vehicles – a result that could mean thousands more deliveries can be made across the UK every day.

In addition, Penso engineers' understanding of aerodynamics and ergonomics mean the pods – which can be tailored for a combination of ambient, chilled and frozen foods, as well as deliveries of parcels, white goods and furniture – are significantly more fuel efficient than current vehicles, a factor that could save large delivery fleets millions of pounds in fuel costs every year.

Before now, using carbon fibre has proved too costly for high volume road transport because the traditional process of manufacturing each part takes hours. Penso's solution, which has taken more than 10 years to develop, involves press-forming carbon fibre panels in a matter of minutes.

Today, Penso's purpose-built automated robot assembly line, housed in a new 50,000 sq ft facility at its Coventry headquarters, can produce a finished pod every 42 minutes.

Daniel Hurcombe, Managing Director of Penso says: “By introducing new materials and processes to the commercial vehicle sector, we can offer home delivery fleets the potential to carry a lot more goods in fewer journeys which is something they have wanted to achieve for a very long time.

“Following extensive prototype testing, we have started volume production this month and we already have an order book with household-name fleets for several hundred pods.

“Our new facility is designed to build up to 10,000 each year, and the plan is to ramp up production steadily over the next five years.”

The Blue Ocean Home Delivery Pods, which come with a 10-year structural warranty, have been designed to fit a Mercedes-Benz Sprinter but can be engineered to fit other diesel, electric or hybrid chassis.

Each pod also includes 5,000 recycled plastic bottles in its build and can be fully recycled at its end of life, reducing landfill waste.

Investment in the project has been split equally between Penso and government matched-funding via the Advanced Propulsion Centre (APC) and Innovate UK.

#### **Comparison chart:**

	<b>Benchmark supermarket home delivery vehicle</b>	<b>Blue Ocean e-Grocery Pod</b>
<b>Number of totes</b>	<b>110-120</b>	<b>140</b>
<b>Payload</b>	<b>850kg</b>	<b>1,250kg</b>
<b>MPG</b>	<b>24mpg</b>	<b>34.05mpg</b>
<b>Length of service</b>	<b>5 years</b>	<b>10 years</b>

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#### **About Penso**

Established in 2000, Penso is a world-leading engineering and manufacturing specialist based in Coventry, providing complete turnkey services to customers across the globe. Its team of more than 200 represents the very best in British design and engineering and the business has heavily invested in developing new and lightweight solutions for the automotive, aerospace, defence and rail sectors. Its full list of capabilities include composites, consulting, concept design and vehicle

build, design and engineering, electronics, finite element analysis, interior systems development and supply and niche vehicle build.

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