



# From road to sky: supporting the design and production of a roadable aircraft

## A Boeing Distribution Services and PAL-V Case Study

### Company Overview

PAL-V started in 2008 to design a roadable aircraft. Having designed and patented their findings and concepts, the PAL-V team started the engineering of its proof-of-concept prototypes. World-class partners were selected and contracted for several system elements. This led to the first flight of PAL-V's proof-of-concept prototype in 2012.

Since then the company entered the next phase of development, engineering the first commercial version, optimizing the design, and starting up production. This will result in the market launch of the world's first commercial flying car: the PAL-V Liberty. The Liberty already received the official road approval in 2020.

Different to other vehicles in the Advanced Air Mobility market the PAL-V Liberty can be used to go from any door to any door by using air mobility. This market segment is called the FlyDrive market and doesn't require changes in regulations and infrastructures unlike the Urban Air Mobility market.

The PAL-V Liberty is not a helicopter. In flying mode the PAL-V Liberty is a gyroplane. This means that the rotors of the PAL-V Liberty are not powered. The rotors are powered by the wind. As long there is airflow they rotate, and even when there is no forward speed, they act like a continuously open parachute.

### The Challenge

PAL-V was the first in the world to develop a pre-production vehicle around a roadable aircraft. As this was combined to industry sectors (automotive and aviation) the company had to liaise with both authorities. As such from a compliance perspective aircraft related parts had to be used in the development of this flying car.

### Our Solution

Boeing Distribution Services approached PAL-V to support them in their efforts to build a pre-production vehicles. Our Engineering and Technical Services combined with our comprehensive portfolio of parts and chemicals enable us to provide the best solution for the company. Our technical expertise enables Boeing Distribution Services to collaborate effectively through the design process and ensuring that PAL-V were adhering to the regulatory requirement outlined by the European Aviation Safety Agency (EASA) and the automotive authority (RDW).

We have been providing hardware and chemicals to their research and development and production facility in Raamsdonkveer, The Netherlands.

## How we helped

Boeing Distribution Service has been working with PAL-V since 2009 as they shaped their design of the PAL-V Liberty. We have delivered parts for four test vehicles throughout this time and continue to support their efforts in development and production.

The company had some fastener procurement challenges for their new aircraft, from long lead time and cost, due to these being niche products. Our Engineering and Technical Services team was able to define alternate, standard parts, which were easier to procure, and more importantly, ensured these parts technically and mechanically matched PAL-V's requirements, for their specific usage.

Enabled vendor  
reduction by

60%

## Benefits

- Supply chain optimization
- Engineering and technical expertise
- On-time delivery
- Localized support
- Enabled vendor reduction by 60%

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Boeing Distribution Services was instrumental in supporting our design process through their knowledge and expertise in aviation and inventory management. We continue to work with them as our company innovates into the future.”

**Robert Dingemane**  
Chief Executive Officer,  
PAL-V

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