ULEMCo

ULTRA LOW EMISSION MILEAGE COMPANY LIMITED

HYDROGEN POWER HELPS DRIVE DOWN CARBON EMISSIONS FROM COMMERCIAL VEHICLES

The use of Parker EC-79 rated fittings for hydrogen applications, alongside close collaboration with OEM ULEMCo and a local Partner is helping to pioneer technology that allows commercial vehicle fleet owners to include hydrogen among their running fuels. Taking advantage of zero-emission hydrogen fuel supports wider strategies to reduce transport-related carbon footprint.

> "We had to find a supplier that could offer EC-79 certified tube fittings, ensuring their suitability for use on hydrogen-powered vehicles. In addition, we sought a cost-competitive yet high-quality solution. After all, we had to develop a product that was not only high in performance, but one that was sufficiently affordable for our customers."
>
> Amanda Lyne, Managing Director and co-founder of ULEMCo Ltd

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CHALLENGE: REDUCE CARBON EMISSIONS OF COMMERCIAL VEHICLES

Supply an ambitious and growing company with EC-79 approved tube fittings as part of a pioneering dual-fuel hydrogen retrofit solution for commercial vehicles.

SOLUTION: : EC-79 CERTIFIED PARKER A-LOK® TUBE FITTINGS

Offer local stock via a Parker Partner. Ensure availability of fittings in various sizes.

BENEFITS: CUSTOMER CONFIDENCE, QUICK ACCESS TO STOCK

ULEMCo can feel confident that the tube fittings will function as expected without leaks. Fast access to local stock ensures flexibility and no impingement on lead times. Single-source supply for both tube fittings and pressure relief valves. Access to Parker's comprehensive engineering support.

PIONEERING A DUAL-FUEL HYDROGEN SOLUTION

Liverpool, UK-based ULEMCo was born in 2014 to commercialise intellectual property and capability in hydrogen combustion engine technology. ULEMCo solutions allow commercial vehicle fleet managers to reduce their carbon emissions to ultra-low levels. The vehicles benefit from a reduced carbon footprint while still achieving the full range capability of standard diesel vehicles.

"Having worked in hydrogen and fuel cells for some time, I'm passionate about delivering solutions for customers that will actually make a significant difference to carbon emissions now, not sometime in the future," states Amanda Lyne, Managing Director and co-founder of ULEMCo. "Council vehicles such as road sweepers, refuse trucks and road gritters are ideal for our dual-fuel hydrogen technology as they return to base for refuelling as part of their duty cycle."

A CAPABLE AND WILLING PARTNER

"At the start of our journey, we needed to source EC-79 tube fittings at a time when there were limited options available," explains Amanda Lyne, who is also Chair of the UK Hydrogen and Fuel Cell Association.

Prior to Parker's involvement with ULEMCo, the company had commenced the process of submitting its A-LOK® tube fittings to the EC-79 certification process.

This development was of obvious interest to ULEMCo, putting Parker in prime position to become the preferred supplier.

ULEMCo also makes use of Parker tools to ensure the correct pre-assembly of A-LOK® two ferrule fittings on the tubing. This requirement stemmed from the participation of ULEMCo in Parker's New Product Blueprinting discovery session on alternative fuels, which indicated the benefits available from using a pre-assembly tool. The tools clamp into bench-mounted vices at the company's facility, where they offer a **20% time saving** in comparison with manual installation.

ULEMCo has completed over 100 vehicle conversions to date. A three-cylinder system conversion, for instance, will feature up to 30 Parker A-LOK® EC-79 certified two ferrule tube fittings, plus a Parker HPRV proportional relief valve.

"Everything we do here at ULEMCo is based on an established safe process," says Amanda Lyne. "Parker HPRV series relief valves are a safety-critical component. Together with the tube fittings, Parker has become a vital part of our hydrogen safety story.

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TECHNOLOGY THAT MAKES A DIFFERENCE

ULEMCo's dual-fuel solutions displace **30-70%** of the energy that would normally come from diesel, with hydrogen. Almost any type of HGV (heavy goods vehicle) is suitable for conversion and decarbonisation. The company has more than trebled in size over the past two years and is already generating annual turnover of over £1 million in genuine sales. A fundraising process is currently underway seeking £15 million to help 6000 vehicles start taking advantage of ULEMCo's dual-fuel hydrogen technology by 2030.

To highlight the savings available, major customer Aberdeen City Council has been using a dual-fuel converted road sweeper since the start of 2022:

- One road sweeper is saving the annual equivalent of approximately 3 tonnes of carbon emissions;
- Applying this to the council's whole fleet of sweepers would eliminate almost 30 tonnes of CO2 from the operation;
- Extrapolating that to all the 333 UK councils would suggest that a saving of 10,000 tonnes is possible if an average of just 10 vehicles underwent conversion at each.

"We don't change the base engine, so both the performance and operational reliability of a converted vehicle is assured; it will continue to run on diesel if no hydrogen is available," says Amanda Lyne. "By using existing engine technology, the cost of becoming hydrogen-enabled is minimal in comparison to other low-emission options, providing a great first step in achieving substantial emissions reduction, today."