



Accelerating the electric vehicle journey

~ Adapting metrology processes for the electric vehicles industry ~

In 2020, the UK Government announced that the sale of new petrol and diesel cars will end in 2030 and invested over £1.8 billion to improve electric vehicle infrastructure. The automotive sector is now transitioning towards manufacturing a large volume of zero emission vehicles. Here Mike John, director of industrial metrology specialist The Sempre Group, explores how the [automotive industry](#) will transition and how it will impact metrology.

The Government's decision to ban petrol and diesel vehicles will help to reduce the UK's contribution to climate change. The change can also support the sector itself with the Government pledging funding to the automotive industry and establishing a Zero Emission Transition Council to make the switch easier.

“(The) £500 million pledge will help our automotive industry transition towards electric vehicle production, open up new opportunities to build zero-carbon vehicles right here in the UK, while strengthening regional supply chains with new Gigafactories — creating

thousands of new highly skilled jobs,” explained Alok Sharma, business secretary and COP26 president.

Many automotive original equipment manufacturers (OEMs) are now considering how they can introduce or increase production of electric vehicles to align with Government changes.

Engine to motor

Most automotive components will remain the same, so many assembly processes will require only minor changes. The biggest metrology challenge for automotive manufacturers will be measuring components of the electric motor and recording and communicating them throughout the new supply chain.

Precision is vital when manufacturing intricate parts, like the rotor, stator and housing, to ensure the motor is energy efficient and reliable. The rotor, for example, must be accurate in form and dimension to achieve the high rotational speeds and strong torque required to run the motor. Automotive parts manufacturers must ensure that their measurement equipment will produce highly precise results — and that they can prove it. An optical shaft measuring system, such as the [Jenoptik Opticline T3D](#), can offer fast, optical shaft measurement for cylindrical components. It also has an in-built touch probe that provides important dimensional, form and position measurement. Simple, intuitive software will then collate the data and auto-generate a concise report.

Controlling production

The higher volumes of parts required to meet the growing demand for electric vehicles means that many manufacturers may have to upscale or increase the speed of production.

When adapting the supply chain and production line, manufacturers must consider how they can increase production speed without compromising on quality and accuracy. While many manufacturers automate production to help develop smarter processes with increased capability, [digitalising quality management](#) can also drive real value across the supply chain.

Investing in automated software and digital metrology technologies can give manufacturers full control over their measurement data at every point of production. Integrating all quality management data into an electronic system removes the challenge of collating data from fragmented sources, reduces room for error and gives manufacturers instant access to the information they need.

Automotive manufacturers can then use this data to make better decisions, improve traceability as parts move through supply chain tiers and improve overall productivity. A Quality 4.0 approach to metrology means reporting can be done automatically and documents like production part approval process (PPAPs) forms can be completed much more easily, making compliance more straightforward.

In June 2020, there were 38.4 million licensed vehicles in the UK, of which only around 164,100 were pure-electric cars. The automotive industry must quickly adapt its operations to ensure that it can meet demand as the UK transitions from petrol and diesel, to hybrid and electric vehicles. Improving quality management can help manufacturers to ensure any new parts produced are accurate and efficient.

Are you looking for a metrology solution for your automotive application? Get in contact with The Sempre Group by visiting www.TheSempreGroup.com or calling 01452 632712.

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