

# Hardness testing combustion engine driven cars and EVs

## Hardness testing system integration in the automotive industry

Hardness tests are most commonly carried out on aluminum components and determine whether or not they meet the required parameters. Wrong hardness values not only compromise the lifetime, but can also damage tools during the next steps in the manufacturing process. The Equotip 550 can be integrated into production lines and various quality management systems used by the automotive industry.

### Combustion engines

An important quality check in the manufacturing process of automotive parts, for example, is the cylinder head of the car. Engine cylinder blocks and cylinder heads are heat treated to optimize their resistance to excessive wear and tear – and to ensure a long lifetime for the whole engine.

Before and after the heat treatment process, the hardness needs to be checked because it will operate under a heavy workload with high temperatures around. On-site testing and recording of values is necessary.

It is also common practice to conduct hardness testing on used engine parts, after repairs for example, to check whether long-term exposure to heat has caused any change in the hardness or materials integrity.

The hardness data is directly accessed by the customer's quality management system and monitored together with other test results. Proceq's Equotip 550 platform includes a Remote Control Package supporting the user's needs to complete the hardness check far away from the high temperature and to upload the results quickly.

### Electric Vehicles (EVs)

As the industry is steering away from traditional combustion engines and towards electric vehicles, we are seeing a rise in hardness testing for these engines.

All-electric vehicles, known as battery electric vehicles (BEVs), are equipped with an electric motor in place of an internal combustion engine.

The Equotip products also come with ISO 17025 accredited calibration by default, which fosters the implementation of the IATF 16949 standard. This ensures that the hardness testing processes meet international quality requirements and can be seamlessly integrated into the stringent quality management systems employed by the automotive industry.



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