Battery performance test 160 kWh

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Mahindra has finally unveiled its much-awaited pair of battery electric EVs based on the brand"s in-house, born-electric INGLO platform. The two EVs in question - the BE.6e and the larger, more utilitarian XEV.9e - both are based on the same modular architecture which can accommodate SUVs of various sizes.

While Mahindra has sourced its battery cells from BYD, utilising the brand"s cutting-edge Blade battery technology (also found in the MG Windsor) the battery packs are developed and assembled under at the brand"s state-of-the-art facility for testing batteries at the Mahindra Research Valley in Chennai, under the watchful eye of the brand"s Chief of Global PRoduct Development, Auto Sector, R Velusamy.

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The battery packs, which feature LFP chemistry (Lithium iron phosphate) have the highest energy density (141.55 wh/kg) currently available in the market, for any LFP battery. LFP has proven to be far more resilient than NMC chemistry, with the latter being more prone to thermal runways. It is also preferable due to the advantages it offers in cell packaging - an advantage Mahindra appears to have maximised. Because even though cells continue to be imported, primarily from China (Until Mahindra"s agreement with VW to source "unified" cells comes into play in 2026), the packaging and more importantly the extensive testing procedures are what determine their efficacy in a climatically extreme environment like India.

The facility is Velusamy"s brainchild, with a lot of advanced equipment hand-picked by the man himself. This includes Field Emission Scanning Electron Microscopes designed to analyse microstructure and morphology of electrodes, an X-Ray Diffractometer, a CT scanner (for non-destructive analysis of cells) an accelerating rate calorimeter (for thermal safety and abuse tests) and much more. The battery packs are placed within lightweight aluminium brackets with extrusions that are compliant with a 200 kilo newton side pole crash test.

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These measures have undoubtedly been applied by many EV makers, but while several manufacturers have sought expertise and equipment based in foreign locations, Mahindra has over the years, developed a facility that does everything in-house. This includes a series of rapid discharge cycles under high temperatures. Each rapid discharge cycle takes up to 30 minutes. Mahindra subjects the battery to up to 686 such cycles. "It takes about 10 months of testing. We have tested two battery packs in Germany as we did not have the facility available here. Now we do" said the tech executive demonstrating the testing procedures."

Mahindra has also ensured that the battery packs are as fireproof as possible. A wiring harness runs through the entire battery pack, and in the event of a short circuit it immediately disconnects. Even if the battery

detects conditions similar to a crash, it immediately disconnects from the entire system. Having attained kilowattage of 79 kWh from an LFP battery is an achievement unto itself, claims the brand. But ensuring that every possible stringent testing procedure is in place to offer consistent range and performance is key. It remains to be seen just how well Mahindra"s new battery packs fare in the real world, but given the extensive testing measures on display at the brand"s R& D facility, the Indian EV ecosystem just got a big boost.

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The performance is lively, though you"ve got to push through a detent in the accelerator travel to get the full beans. Overall the urban and B-road poke is satisfying and progressive and sharp-witted. The stiffer springs do make for a fair bit of jiggle in the ride though.

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