

# Spinning E-Axles

A quick and lean solution to help TEXA on its way to e-axle industrialization

SUCCESS STORY





TEXA headquarter in Monastier, Treviso, IT

## THE CHALLENGE

TEXA, the worldwide leader in electronic diagnostics for vehicles, launched an ambitious project on electric propulsion four years ago, inaugurating the specific TEXA E-Powertrain division.

Thanks to its team of specialists with important experience in the automotive industry, and by implementing substantial investments, the Italian company designed and built an e-axle system characterized by the integration of two axial flux motors, each connected to a wheel, liquid-cooled, with related inverters, controlled by an electronic-only differential function.

It is an extremely sophisticated project that is currently unparalleled in the world's production. In fact, the axial flux architecture guarantees excellent features of power (125 kW per unit), torque (340 Nm per unit), and weight reduction (26 kg per unit). Thanks to its compactness and extraordinary power density, TEXA's solution is particularly suitable to equip high-end vehicles, especially sports cars.

In order to insource the quality assessment capability of this product, TEXA found a reliable partner in AVL who is able to support them with a holistic approach, from the

definition of needs, to the key-on of an e-axle design validation oriented testbed.



**AVL BROUGHT THE MOST SUITABLE SOLUTION TO HELP US MAKE THE FINAL STEP INTO THE DEVELOPMENT PROCESS OF OUR INNOVATIVE PRODUCT. THE RELIABILITY OF THE TESTBED ALLOWS TEXA TO PUSH FURTHER THE MATURITY OF THIS CUTTING-EDGE SOLUTION FOR HIGH-PERFORMANCE E-MOBILITY.**

Giovanni Gaviani, E-Powertrain Business  
Development Manager

## THE SOLUTION

AVL and TEXA jointly identified the need of a simple and quick solution which would have allowed to test high-power e-axles for luxury sports cars with a low impact on the existing area, formerly dedicated to part production.

The e-axle back-to-back testbed revealed to be the best trade-off between the different customer needs.

A light baseframe, suspended on vibration absorbing pads, and a compact mechanical assembly, which allow to run two unit under tests contemporarily without the need of dynos, are the backbone of this smart and cost-effective solution. In addition, a battery emulator and a coolant conditioning system supply all the needed media to the units under test. AVL PUMA 2™ manages the unit control via vehicle CAN simulation and all the auxiliary devices.

## THE RESULT

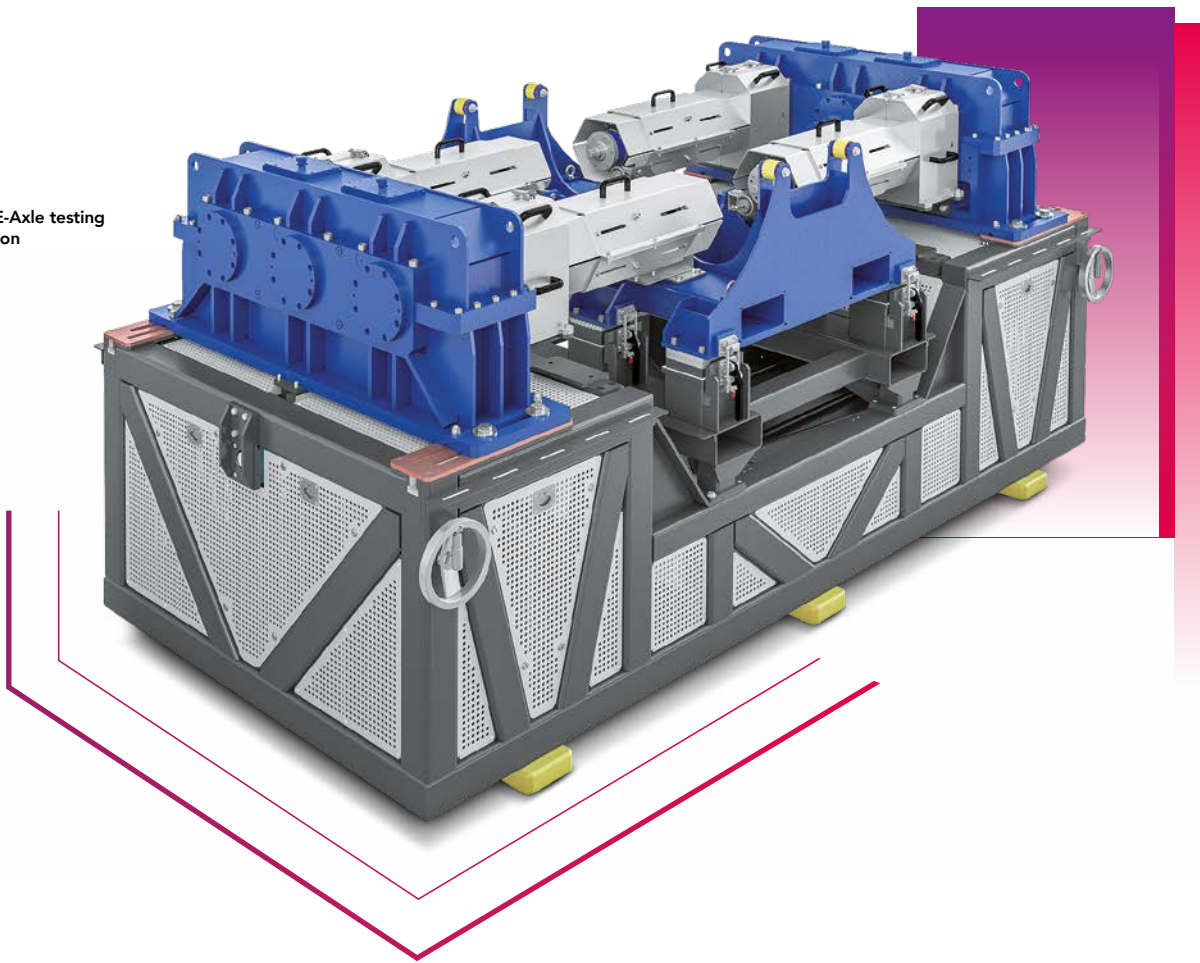
TEXA is now able to perform both validation and light R&D tests, thanks to their ability in openly programming the brain of their e-axle: the dual inverter.

Thanks to the openness of the automation system PUMA 2, the customer is able to autonomously describe both long-running validation cycles and shorter performance investigations. All this without the need of installing a heavy baseplate, nor bulky dynos and related converters.

In addition, running costs are very low because of the common DC bus of the two e-axles, which minimize the power requirement to the grid down to the simple efficiency recovery and power peak covering under extremely dynamic conditions.



AVL E-Axle testing solution



## THE ADDED VALUE OF AVL E-AXLE BACK-TO-BACK TESTING SOLUTION

When OEMs and Tier1s need to be quickly able to validate their e-axle designs, nothing fits better than a back-to-back solution. AVL approach can grant:

- High-quality unit control and data logging thanks to PUMA 2
- Very limited impact on existing areas (no dynos, no heavy baseplates)
- Extremely low power consumption from the grid due to back-to-back concept
- Adjustable gearbox distance for an easy installation of different units under test
- Optional integration of a climatic/environmental chamber

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### FIND OUT MORE

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