

The envisaged European CO<sub>2</sub> fleet emission limits for 2025-2030 already require a massive market introduction of EVs. For customers, important reasons to buy EVs include fast charging and range.

## Abstract

i-HeCoBatt stands for Intelligent Heating and Cooling solution for enhanced range EV Battery packs. i-HeCoBatt project industrialization enhances the heating and cooling system's efficiency through its design and development cost reduction. To achieve so, i-HeCoBatt integrates an innovative heat exchanger that removes the currently used gap filler between the heat exchanger and the battery. This design reduces weight and enhances the efficiency of the heating and cooling system.

## Goal and results

### Goal

i-HeCoBatt answers to the "Integrated, brand-independent architectures, components and systems for next generation electrified vehicles optimised for the infrastructure request» of the LC-GV-01-2018 topic under Horizon 2020 .



### Results

i-HeCoBatt Project has achieved a smart, cost bursting industrial battery heat exchanger to minimize the impact on full electric vehicle range in extreme conditions.

**Smart**, because new sensing functionalities are implemented in the thermal system in order to monitor the behavior of the whole battery pack thermal system.

**Cost bursting**, because expensive components of current state-of-the-art (SoA) products are replaced by cost efficient components as well as the number of parts minimized.

**Industrial**, in two different senses: (i) it has been tested in a relevant industrial environment (simulated), and (ii) it has been produced through high-throughput manufacturing routes, applying the eco-design methodology to optimise its environmental and economic performance.

## Key features and gains



### Efficiency

Increase of the e-powertrain overall efficiency up to 5%.



### Automotive quality

Achievement of automotive class quality.



### Virtual on-board validation

Demonstration of the developed solutions in AUDI electric vehicles.



### Cost reduction

Proof of a minimum of 20% cost reduction in mass production of the thermal system by the introduction of an innovative heat exchanger.



### User friendliness

Integration of new components and functionalities leading to higher user friendliness, reduction of range anxiety and temperature impact on degradation of the battery packs.

## Consortium

i-HeCoBatt is carried out by a highly focused consortium covering the whole relevant value chain of the EV batteries industry: A top automobile manufacturer (AUDI), a leading automotive components manufacturer (MIBA), an automotive data management software developer (DATIK) and an eco-design expert (LOMARTOV), supported by first order two European research centres (CEA, CIDETEC).



LOMARTOV  
[Applied Innovation Engineering]



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