

# Rear Axle Temperature Insulation

## Challenges and solutions:

Reducing friction losses in the rear axle was envisioned by actively changing its oil-level in the rear axle. The DAF-demonstrator as result from the Convenient project (= starting point for Imperium) had a passive system for variable oil level from Meritor. The idea for Imperium was to create a faster, active system for higher benefits and apply this on a DAF rear axle.

## IMPERIUM's contributions:

It was shown that further reducing the oil level in the rear axle will yield only minor efficiency benefits for the latest generation high efficient DAF axles.

However, higher efficiency gains were seen by increasing the (average) oil temperature.

As such, it was decided to change the research scope from actively controlling the oil level in the axle, to thermal management of the rear axle. Thermal management of the rear axle is achieved by means of thermal isolation. A concept was developed in a DAF-project by applying covers around the differential of the rear axle and applied to the IMPERIUM Demonstrator.

## Impact / what's next:

The simulated effect, supported by DAF internal testing showed a small positive contribution in further increase of the rear axle efficiency. Further testing is needed under extreme conditions if insulation can be applied. The results will be used in the further development of DAF axles.

