Rail

MAKE FASTER, CLEANER PROGRESS. WITH THE MTU HYBRID POWERPACK.

A Rolls-Royce solution

Hybrid PowerPack

MAKE FASTER, CLEANER PROGRESS. WITH THE HYBRID POWERPACK.

Saving fuel through braking energy recovery
With hybrid drives, braking energy is converted into electrical energy and stored in the battery. This energy can then be reused later as a boost on gradients or to accelerate.
As a result, up to 25 percent of the diesel fuel can be saved. Hybrid technology is especially efficient for use on local lines where braking and acceleration in stop-go mode is frequent, and much of the braking energy can be recovered. In this case, the hybrid drive is amortised after just a few years.

Significantly reduced emissions through load point optimization
If during periods of low load factors the diesel engine is operated at a more favorable energetic operating point or switched off entirely, emissions can be reduced substantially: per kilometer, up to 230 grams less CO_2 and up to 0.92 grams less NOx compared with conventional systems.

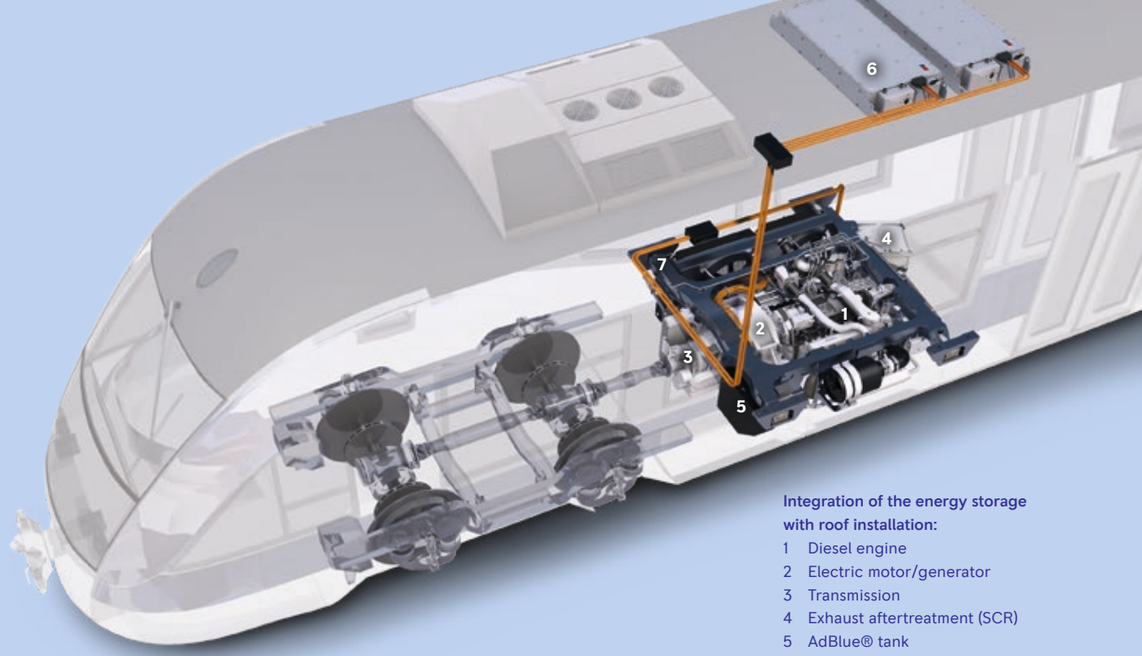
Optimizing travel times with the Boost Mode
With a combined diesel and electric drive, the train accelerates even better. When it comes to keeping tightly calculated schedules or catching up on delays, the electric motor provides additional torque. This means that the railcar can travel uphill faster or reach the target speed quicker. For example, the time for a 72-kilometer-long route can be shortened by more than five minutes.

Significant noise reduction
The electric motor can be used as the main drive when rail vehicles need to be operated as quietly as possible: For example, during travel through residential areas and tunnels or while stopped at a railway station. The noise level when stationary can be reduced by up to 21 decibels.

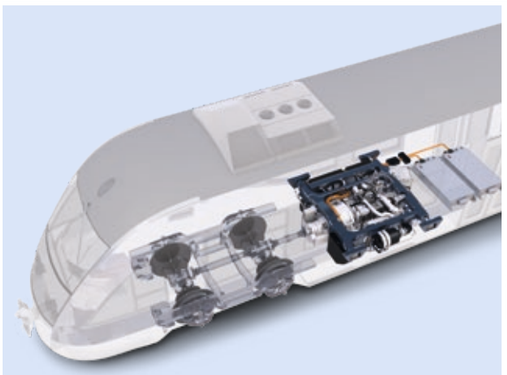
Flexible vehicle deployment and simple retrofitting
Naturally, rail vehicles with hybrid drive can also be powered exclusively by the diesel engine. This also means great flexibility for the operator: The trains can be deployed on both electrified and non-electrified rail routes. In addition, upgrading to a trimodal* power system – with an additional pantograph – is easy because the system is already equipped with an electric motor. This gives the operator considerable freedom with regard to deployment of the vehicles – it's a big plus when they can respond flexibly in the future to every route requirement or tender invitation.

* diesel + battery + catenary

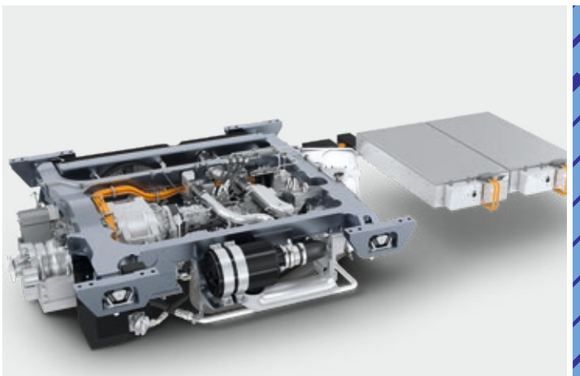
Marketable technology – tailored solutions
Extensive test runs in a Siemens Desiro Classic Railcar (DB Series 642) have proven the reliability of the MTU Hybrid PowerPack. The projections of the simulation have also been confirmed. As a result, MTU can make reliable statements to customers with regard to efficiency as well as the reduction of noise pollution and exhaust emissions, and offer them tailored hybrid solutions that in every case will generate the greatest possible benefits for the application.



Integration of the energy storage with roof installation:
1 Diesel engine
2 Electric motor/generator
3 Transmission
4 Exhaust aftertreatment (SCR)
5 AdBlue® tank
6 EnergyPack
7 System control



Underfloor mounting



Rolls-Royce Group
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Subject to change. | 16120652 | Edition 01/19 | ESM 2019-10 | Printed in Germany on chlorine-free bleached paper.