



DE 18 Smart Hybrid

Technical Data

**Diesel-electric
hybrid locomotive for
heavy-duty shunting
and mainline service**

At a glance

Benefits

- Existing locomotive enhanced by additional battery system
- No limitation of the 1,800 kW diesel engine power
- Up to one hour of shunting without emissions
- Drive through zero-emission areas in tunnels or indoor operations
- Extended start-stop support for the diesel engine, hence associated savings on fuel costs, maintenance costs and pollutants
- Simple integration of the batteries without complex interconnection of diesel engine and batteries – and therefore safe for innovations

Implementation

- Plug and play solution, replacement of the 1,000-litre additional tank with rechargeable battery module
- Integration of a lithium-ion battery with the latest lithium-ion technology
- Plug-in hybrid, ecologically sound with affordable charging overnight from external electricity supply
- Fast charging via the diesel engine

Performance

- Nominal capacity of the traction battery of 73.6 kWh
- Depending on use of the battery up to 7,000 charging cycles, Lifetime 8-10 years
- Total weight of the locomotive <84 t
- Homologation in Germany, France, Belgium, the Netherlands and Luxemburg
- 100% takeover of the electrical auxiliary operations
- Reduction of the high idle energy consumption in shunting operations, which makes up on average 60% of a shunting locomotive's operational performance
- 184 kW continuous power (charge/discharge)
- Up to 592 kW short time discharge power

SmartHybrid battery system

integrated into the installation space
of the additional tank



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