Wabtec CORPORATION

FLXdrive™

BATTERY-ELECTRIC LOCOMOTIVE TECHNOLOGY

Wabtec is leading the transition to low-carbon rail operations with FLXdrive — the world's first 100% battery-electric, heavy-haul locomotive.

The FLXdrive battery-electric locomotive can deliver battery capacities to meet various rail application needs. With haulage capabilities comparable to its diesel equivalent, the FLXdrive heavy-haul locomotive is designed to replace a diesel locomotive within a consist, unlocking new levels of operational flexibility.

The heart of the FLXdrive system is the liquid-cooled battery technology and proprietary thermal management system developed to optimize energy output and battery life. Wabtec's rail-specific battery architecture is designed to maximize safety, reliability, and performance.

In addition to the in-mission regenerative brake charging, FLXdrive locomotives feature a DC fast-charging option utilizing a stationary pantograph. Planned future options will include moving-charge capabilities for increased range and uninterrupted operations.

The FLXdrive's modular and scalable battery architecture is designed to integrate across multiple rail vehicles and environments, including heavy-haul, yard, regional, commuter, hybrid, and specialty locomotives.

FLXdrive Locomotive Specifications	FLXdrive Heavy-Haul	FLXdrive Switcher	FLXdrive Shunter	FLXdrive Dual Mode
Applicable Regions	North America, South America, Australia	North America, South America	Central Asia	Europe
# of Axles	6	6	4	6
Wheel Arrangement	CoCo	CoCo	BoBo	CoCo
# of Operator Cabs	1	1	1	2
Max Battery Capacity (MWh)	7.0	2.7	1.2	1.5 or 2.0
Max Traction Power (MW)	3.2	1.7	0.7	0.8 to 1.5 (battery only) 3.8 to 5.5 (electric + batt mode)
STE (klbf / kN)	200 / 890	200 / 890	83 / 370	117 / 520
Weight (klbs / tons)	461 / 209	417 / 189	212 / 96	278 / 126
Electric Supply	–	–	–	25 kV AC / 15 kV AC

FLXdrive Locomotive Products Feature

Safe and easy equipment access for maintenance – enhanced LOTO provisions

Battery safety design - mitigate cell failure impact & propagation

Robust battery capacity and power

High reliability, efficiency, and tractive effort

Dependable single axle control propulsion

Rail-purpose Wabtec battery and charging technology

Service-proven traction components

Industry-leading manufacturing expertise

Best-in-class energy management technology

Wabtec offers a wide portfolio of FLXdrive products to serve the requirements of global customers.

For customers in North America, South America, Central Asia, and Australia – Wabtec has a suite of battery-powered, heavy-haul mainline and switcher locomotives. These products are suitable for operation in multi- or single-unit consists providing reliable and safe zero-emission rail solutions.

Wabtec offers a battery and electric dual-mode locomotive for European customers that have overhead electric catenary systems, which can provide zero-emission, high-tractive effort operation on electrified and non-electrified networks allowing long-range operation over routes with mixed overhead voltages (25 kV AC / 15 kV AC).

CONTACT

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