Case note
Compact traction generator puts the Eurolight locomotive on track

Vossloh's new lightweight diesel locomotive helps train operators get more out of Europe's existing railway systems – without compromising on performance.

Vossloh is one of Europe's leading manufacturers of diesel locomotives. Since its foundation in 1897, several thousands of locomotives of all types have been sent to various parts of the world.

Targeting low-weight niche markets

Based on its successful Euro family of diesel-electric locomotives, Vossloh Rail Vehicles in Valencia, Spain, now launches its new Eurolight locomotive. The new concept targets those markets where there is demand of high power and low axle weight – under 20 tons per axle.

Thanks to its lightweight design, the Eurolight is able to circulate on secondary lines which have less traffic than the primary ones, allowing operators to save time and money due to less constraining circulation slot requirements.

Compliant with regulations in Europe, the Middle East and North Africa

The purpose of Eurolight was to create a high-performance smart transport system, fully compliant with all European standards, making it suitable for operation in any country in Europe, the Middle East and North Africa (MENA).

Generators that perfectly matches diesel engine specification

ABB delivers WGX560 synchronous traction generators to the Eurolight range. These generators are powered by a diesel engine and generate the electricity that drives the locomotive's electric traction motors.

Working in close cooperation with Vossloh and diesel engine manufacturer Caterpillar, ABB has been able to develop a traction generator that perfectly meet the specification of the Eurolight diesel engine.

Light, small and efficient

The WGX560 generator meets the stringent demands placed by Vossloh on the Eurolight traction generator. Its low weight, small outer dimensions and high efficiency combine to make Eurolight significantly lighter than any other locomotive with a similar capacity.

Simple design ensures reliability

The generator features a simple and robust design that has been proven in numerous installations. The generator is brushless and has no slip rings, improving reliability while simplifying maintenance. The electrical design is based on the relevant IEC or NEMA standards, and the mechanical design on the relevant ISO standards.

Single bearing arrangement

In a single bearing arrangement, the generator end has only one bearing at the back of the housing. The generator end is direct driven and bolted directly to the engine. Since there is no need for a coupling, the outer dimensions are smaller than for a double bearing generator. In addition, the simple design makes it easier to service the generator.

Extensive support coverage

ABB's service organization offers Vossloh extensive support coverage. The service organization has broad experience of electric motors, generators and their applications and can thus provide improved operational availability and life cycle profitability.

Summary

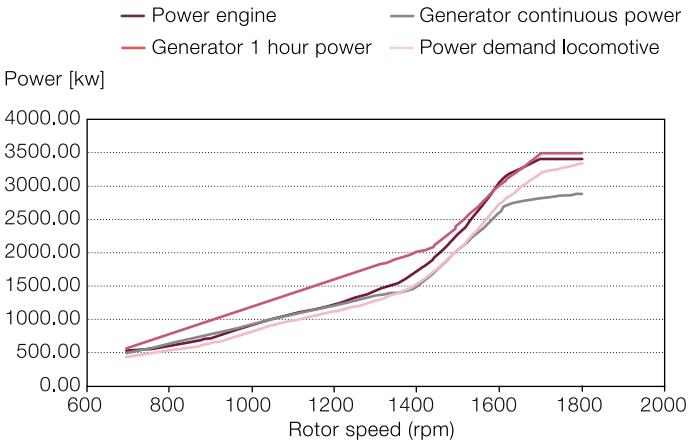
- Problem
  Vossloh needed to fit a generator in the confined space of its Eurolight locomotive while keeping the total weight lower 20 tons per axle.

- Solution
  ABB's WGX560 synchronous traction generator meets the requirements through a combination of small outer dimensions, low weight and high efficiency.

- Benefits
  – Low weight
  – Small dimensions
  – High efficiency
  – Simple design
  – Ease of maintenance

In addition to generator ABB supply to Vossloh for the Euro Light Locomotive the complete traction chain including traction converters and traction motors.

Power demand locomotive



Technical data

Type of excitation	Brushless		
Bearing arrangement	Single		
Number of poles	6		
Cooling	Force ventilated		
IC	01		
IP	23		
Insulation class	H/H		
Max. ambient temperature	40˚C		
Max. cooling air temperature	43˚C		
Service factor	S1	S1	S1
	Maximum	FWP	Minimum
Nominal motor V	1,200	1,200	500
Current (A rms)	1,328	1,256	546
Nominal rotor speed (rpm)	1,800	1,620	750
Generator power (kVA)	2,760	2,610	520
Generator power input (kW)	2,724	2,577	521
Generator power output (kW)	2,650	2,505	498

For more information please contact:
www.abb.com/motors&generators

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