

SBB Swiss federal railway Aem 940

PRIMA H4 Shunting and Works

Swiss leading operator SBB is in need of universally usable trains to meet its specific requirements. High performance and operational flexibility along with low operating costs are demanded. With the PRIMA H4 shunting and works locomotive, Alstom provides an answer to these technical and economical challenges.



Country..... Switzerland

Context..... Alstom has been awarded in 2015 a contract to supply 47 bi-mode locomotives to SBB Infrastructure. The locomotives, to be used for track works on SBB's rail network and for shunting in the shunting yards of Lausanne Triage and Limmattal, were requested to enter commercial service in 2018.

Solution..... The locomotive for SBB Infra belongs to Alstom's new PRIMA platform for shunting and track works. The locomotive runs at speeds of up to 120 km/h which allows easy integration into mainline traffic flow. The PRIMA H4 bi-mode locomotive is powered by an electric traction system and diesel generators. The two power generators, coupled with an automatic start-stop system, enable a 5% reduction in fuel consumption compared with a single engine diesel locomotive. The locomotive has been designed to optimize maintenance cycles, thus reducing life cycle costs. It is fitted with ETCS.

Particular attention has been paid to the design of the driver cab. The large cabin (up to 4 people) has been conceived as a "working and waiting space" as track workers will not only be travelling aboard the train, but also spend time in the cabin while working on construction sites. The cabin is equipped with an HVAC system and storage space for the personal belongings of the train crew. It is also protected against vibrations and air pressure when entering tunnels.

In the electric mode the locomotive has a power of 1,600kW and in the combustion engine mode it reaches 895kW under the most unfavorable temperature conditions as well as in all auxiliary operations in service at full power (compressor, air conditioning, ventilation of the traction chain and the traction motors).

KEY BENEFITS

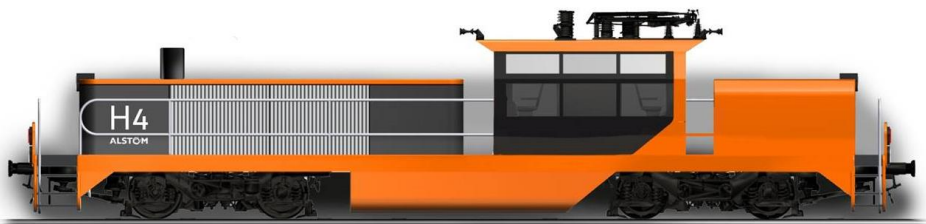
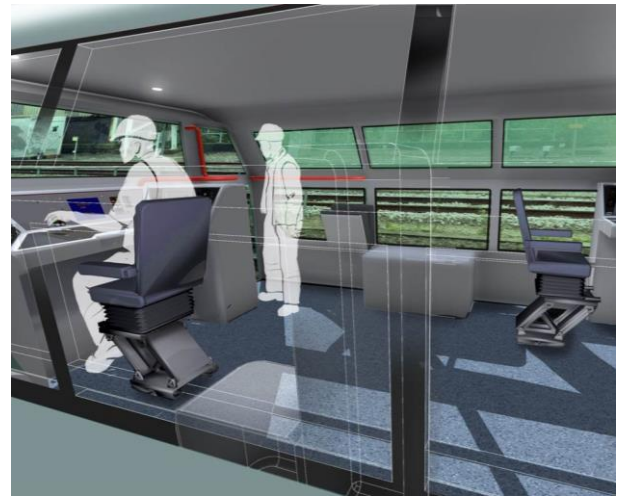
Enhanced Flexibility - The possibility to operate with or without catenary make this locomotive one of the most versatile in the high power segment.

Higher speed and traction effort - This locomotive can operate safely at 120 km/h whereas most shunter in this class are designed to run at 80 km/h maximum. The high traction effort, up to 300 kN, brings the possibility to tow more wagons.

Continuous improvement – Being part of the PRIMA range, the Prima H4 Locomotive takes advantage of the return of experience from more than 2.400 Locomotives sold all over the world.

KEY FEATURES

Architecture	BoBo
Class of service	Shunting
Gauge	1.435 mm
Overall dimensions	According to UIC
Weight	80 t
Temperature range	-25°C to +45°C
Nominal power	895 kW diesel / 1600 kW electric
Overhead system	15 kV
Maximum speed	120 km/h
Tractive effort	300 kN



CUSTOMER'S VOICE

"Alstom has been the best to fulfil the award criteria of our public invitation to tender. The new and more powerful vehicles will allow us to cope with the increasing construction and maintenance volume with less vehicles and in a more efficient way. Thanks to its improved energy efficiency, Alstom's PRIMA H4 will allow SBB Infra to reduce its CO2 emissions by up to 6,000 tons per year"

Désirée Baer

Member of the Managing Board of SBB Infrastruktur.

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