

# HYDROGEN CORADIA STREAM

PRODUCT SHEET



A high performance train capable of meeting the Europe's aim of zero CO<sub>2</sub> emissions by 2050. With traction silently powered by a hydrogen fuel cell, this train's only emission is pure steam.

## KEY BENEFITS / KEY FIGURES

- No CO<sub>2</sub> or other pollutant emissions
- No internal combustion engines
- High performance lithium ion batteries
- Powercar in steel
- 350 bar nominal pressure hydrogen tanks
- Refueling times unchanged compared to Diesel
- Based on EBA authorized iLint technology in service in Germany since July 2018
- Advanced Italian technology throughout the production chain

## GENERAL DESCRIPTION

Designed and built to the highest safety standards, the new hydrogen powered Coradia Stream train has 4 passenger cars and a central passenger-transitable power car containing all the hydrogen power generating technology: the fuel tanks and fuel cells.



## CUSTOMER BENEFITS

### A Made in Italy product

All Coradia Stream trains are designed and built at the Italian Alstom facilities in:

- Savigliano
- Sesto San Giovanni
- Bologna.

### A complete system

Trains and full life-cycle maintenance provided by Alstom. Design and production, storage and refuelling plant realised by trusted partners.

### No interruption to service

With no need for new infrastructure, introducing a fleet of hydrogen-powered trains on a non-electrified line means no interruption to service.

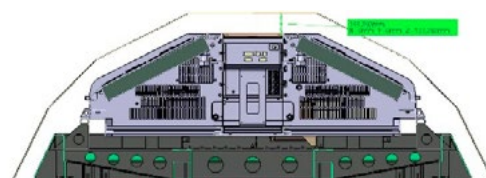
### A great opportunity

The railway is essential, localised and regular, making for precise long term fuel estimates. By oversizing our H<sub>2</sub> production plant, we can supply other users too (buses, cars...).

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## TECHNICAL DATA

Trainset length	96,7 mt.
Weight max for axle, considering 280 kg/m <sup>2</sup>	≤ 18 T/axle
Signalling	SCMT + SSC
Lighting	LED
Bicycle/ski rack	4-8
Toilet	1 PRM
	1 standard
Max traction power in H <sub>2</sub> mode	1170 kW
Nr. of doors per side	4
Max speed	140 km/h
Doors freewidth/height	1300 x 1900 mm
Motorized bogies	2
Trailer Bogies	4
Autonomy	600 km
Seated passengers	240-260
Standing room, considering 4 pers/m <sup>2</sup>	256
Total passengers	496-516



## HOW THE TRAIN WORKS

The hydrogen fuel cell is the heart of the system, the train's main source of energy. This generates the necessary electric traction power by catalysing hydrogen (stored in the tanks) and oxygen from the outside air. The only waste product of the process is a mixture of condensation and steam; no particulate matter, carbon dioxide or any other greenhouse gas. High-performance lithium-ion batteries are another essential component of the train, needed for storing any power generated and not immediately spent, fundamental for fuel-economy.

The battery charges in two distinct ways: when more energy than needed for traction is produced, or when braking, thanks to the train's regenerative braking system. The energy stored in the battery is used in acceleration to support the hydrogen fuel cells, ensuring optimal performance.

In short, passing through the fuel cell, the hydrogen from the fuel tanks is transformed into the energy that powers the traction system.



### FOR MORE INFORMATION:

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