



# Ônibus Brasileiro Movido a HIDROGÊNIO

Uma nova tecnologia para o mundo.

## The Vehicle



## How does it work

The bus has the capacity to carry 45 Kg of hydrogen in nine tanks, and in addition has three high performance batteries. The average hydrogen consumption is 15 kg/100 km.

Powered by a hybrid electric traction system (fuel cell + batteries), the vehicle has 300 km range with hydrogen and if necessary can drive more than 40 km using only the batteries.

A fuel cell bus has an electric motor. The energy conversion process in the vehicle is the following: the hydrogen contained in the tanks is introduced in the fuel cells, where electric energy is produced by an electrical-chemical process, which combines hydrogen and the oxygen from the air, producing water as a sub-product. The electric energy after being conditioned will power the electric traction motor (similar to the trolleybus). The electric motor is installed on the rear axle, generates mechanical energy, powering the vehicle.

The fuel cell system doesn't produce any kind of pollutant. It is different than the diesel buses, where the thermal energy is transformed in mechanical energy at the same time that the burned fuel generates pollutants.

## **Advantages**

The hybrid system combining fuel cell systems with batteries used in the Brazilian Fuel Cell Bus project, enables an improvement of fuel economy, and optimization of the generated energy. This is because the possibility to charge the batteries with the energy produced by the fuel cells is used during the time when the vehicle stops (for example for getting or dropping passengers or in traffic lights), in addition to the break energy regeneration.



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In the Brazilian Fuel Cell Bus project the fuel cell stacks and systems are for automotive application, therefore are low-costs and allow the use of two systems in parallel. This reduces sensibly the bus production costs. Each fuel cell system used on the bus produces 68 kW.

Due to the electronic vehicle control and diagnostic system, the safety is high with several redundancy forms. The vehicle control system connected with each subsystem control enables the continuous verification of the vehicle performance and safety conditions generating alerts and information form diagnostic. The vehicle safety system reacts in an appropriated way starting automatically a sequence of events, which allows the stabilization of undesirable situations performing a total monitoring of all systems in each second.



## Characteristics

- Type: Padron (12,6 m long)
- Capacity: 40 passengers (1 driver / 29 seated / 9 stand up / 1 for wheel-chair)
- Three doors on the right side
- Low Floor for a better comfort and easier access for passengers
- Accessibility (space destined to wheelchair users, ramp for wheelchair access, knee system, special seats for disables passengers)
- Air-conditioning
- Low noise level
- Power: 230 kW
- Range: 300 km
- Hydrogen consumption: 15 kg / 100 km
- Zero pollutants emission
- Electronic control and diagnostic system

## Press Office

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