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Electric Bus for Airports

Solution for sustainable passenger transport

The first fully-electric airport bus worldwide

So far, only prototypes of electric buses have been in service at airports all over the world. Siemens, in cooperation with Caetanobus Portugal, developed for COBUS INDUSTRIES a solution to upgrade diesel buses with a complete e-drive and to operate these trend-setting vehicles at the airport. This innovative concept of the COBUS 2700/3000 and the drive technology from Siemens guarantee high availability, 75% reduction of energy costs compared to diesel or gas-driven buses, minimum maintenance, emission-free operation and attractive design of the interior for perfect passenger comfort.

All in all, the financial benefits of energy savings and retrofitting existing diesel buses with a complete e-drive offering a lifetime of more than 12 years, supported by the service concepts of COBUS INDUSTRIES and Siemens, result in a perfect solution for airport operators.

Technical data

Total weight	20,400 kg
Tare weight	12,000 kg
Length / height	13,900 mm / 3,100 mm
Width	2,700 or 3,000 mm
Passenger capacity	max. 112
Batteries	LFP (lithium ferrophosphate), min. 85 kWh capacity
Engine	Permanent magnet synchronous motor, rated power 160 kW
Inverter	DC-AC IGBT Inverter
Charger (on-board)	AC 3 phase 400 V to DC 700 V, output power 14 kW
Charger (off-board)	DC 700 V, output power 30 kW or 60 kW
Charging times	2–3 hours (off-board charger)
Performance	up to 50 km/h
Brakes	Regenerative braking system



The concept:

Emission-free electric bus

Using the latest energy storage technologies, it is now possible to accumulate electricity so efficiently that it can be used in vehicles for transportation on airports.

The combination of efficient energy storage, proven powertrain and powerful charger allowed Siemens to develop, together with Caetanobus, a bus concept that will be the future at airports, combining essential features such as: high passenger comfort, based on the proven COBUS 2700/3000 airport buses, low-noise, zero-emission and odourless.

The design:

Low-floor bus with kneeling system

The electric bus is a low-floor airport bus with a floor height of approx. 280–290 mm so that the bus can be entered from the ground easily. The pneumatic “kneeling system” assures that passengers of any age group are guaranteed a safe and comfortable step height making both entering and exiting a short time process. The bus offers three extra wide passenger doors on each side, equipped with safety devices that guarantee protection of the passengers. The chassis is the proven COBUS 2700/3000 design, already built for more than 3,000 buses in 30 years. Highly corrosion resistant materials are used for the exterior bodywork.

The interior:

Accessible without steps

The interior of the electric bus meets the high standard of an airport bus and offers space for max. 112 PAX incl. up to 14 seats.

The drive technology: Electric engine with energy recuperation

Siemens is responsible for the supply of the modern drive technology. The core of the system is the water-cooled electric drive engine. Whereas conventional diesel engines have an efficiency of approx. 25%, this three-phase engine achieves approx. 90%.

The engine with a rating of 160 kW is equipped with a Siemens IGBT Inverter. All components are monitored by a flexible interface management that communicates with the on-board control unit.

The energy storage system:

Reliable and safe

The most suitable batteries at present are batteries with LFP (lithium ferrophosphate) cells. The electric bus is equipped with 4 battery packs located on the roof top for which two capacities can be chosen, and a minimum capacity of 85 kWh is recommended. A reliable battery management system is provided to control the batteries and to monitor battery temperature and voltage.



The charging system:

Charging with high and low power

The batteries can be charged with the on-board charger in which a wallbox provides the connection to the grid. The DC off-board charger allows loading the batteries by 100% within 2–3 hours, depending on the battery capacity and the charger power chosen. The HMI (display) of the charger can be configured according to the needs of the operator.

The brake system:

Energy recovery when braking

The brake system is controlled by two separate, independent circuits. Moreover, the brake system is designed as a regenerative system – as soon as the driver slows down, the first stage of energy recuperation is activated and the engine acts as a generator.

The service concept:

Minimum costs and high availability

The combination of proven bus components already applied to in thousands of other systems and high quality technology assures a minimum of costs for maintenance and a high availability of the fleet. During design process, particular attention was paid to ensuring easy access to all relevant parts. Cleaning work can also be done in the usual manner.

Electric bus based on proven technology

- Fully electric design
- Highly efficient power train
- Latest battery technology
- Local Emission-free (CO₂)
- Low-noise – odourless
- Reduced maintenance costs
- Low-floor bus with kneeling function
- Comfortable interior
- Easy and fast access for passengers
- Financial benefits through energy savings
- Worldwide partners COBUS INDUSTRIES and Siemens
- Life time of 12 years minimum
- Financing options on request

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.