



Reference report: Fully electric public transport bus Sileo

The Sileo ebus drive convinces with a range of over 200km and more than 100 000 test kilometres. VECTOPOWER in Sileo means that electric mobility in ebusses is **now in mass production!**

The challenge

The Sileo bus conveys up to 90 passengers and even so consumes just four times the energy as the much smaller BMW i3 passenger car. The Sileo is a fully electric 10.7m or 12m public transport bus with amazing technical features from Bozankaya. Five huge hurdles stand in the way of fully electric busses. Each one is a completely valid argument against large scale use of electric busses in normal passenger transport

1. The technology is too temperamental and too complex
2. The costs for the drive components and infrastructure are too high with no chance of amortization
3. The batteries take up too much space and weigh too much
4. Energy consumption is too high and driving performance is poor
5. Insufficient range

The solution

The Sileo drive comprises two redundant trains that can be operated completely independently of one another. The inverters are VECTOPOWER VP600 inverters from ARADEx that coax maximum performance from the two asynchronous motors. The complete Sileo drive has a peak performance of 2 x 120 kW and can therefore easily cope with any driving situation.

However, it is the interaction of all units, from traction inverter to power steering to air conditioning that enables the absolutely convincing energy consumption of 0.67 kWh/km. VECTOPOWER has been consistently developed further and as a consequence even asynchronous motors with high field-weakening can be used with a similar efficiency as more expensive PM synchronous motors. The ingenious VECTOPOWER control technology has a total efficiency of motor and inverter of over 90 % even in partial load.

The project

The greatest misgivings with electric vehicles concern the range. The driver stares constantly at the energy consumption and always has the phone number of the breakdown service in his pocket. Sileo drivers are more relaxed. The bus travels in regular service nearly 300km before charging - more than enough for a 16 hour day. Charging takes place at night in the depot with up to 200kW. This saves on separate charging stations and especially on expensive down times during the regular scheduled service. Hill starts on 22 % inclines are an absolute horror for electric busses. With the drive combination used in the Sileo this is no longer a problem.

A glance into the "engine bay" at the back of the bus is also interesting - there is almost nothing to see. Only small low-voltage auxiliary units in three-phase a. c. technology for the power steering and compressed air are located here. The Sileo batteries are located on the roof of the bus. Any concerns that the bus might keel over due to the high centre of gravity are dispersed during the first test run. This design means that even low-floor electric busses are possible - a prerequisite for city busses. Also, most of the electronics such as VECTOPOWER and air conditioning are also located on the roof and help protect the passengers from excessive solar radiation.

Highlights

- + 0.67 kWh average consumption
- + guaranteed range of more than 200km
- + 100 000 test kilometres successfully completed
- + up to 90 passengers
- + total efficiency of over 90%
- + hill starts on 22% inclines are no problem
- + compact and modular devices

Interested? Give us a call:

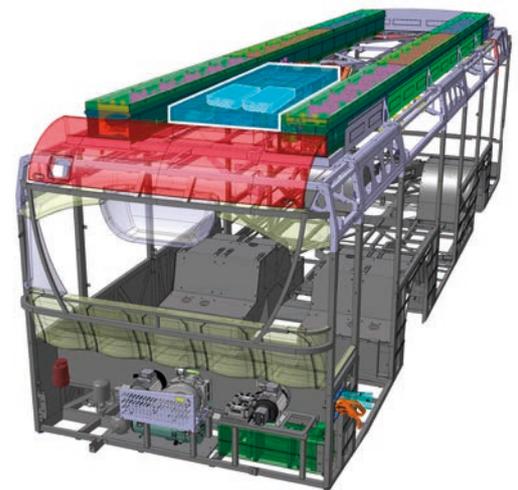
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„That our drive concept is so efficient is due exclusively to VECTOPOWER.“

Stephan Rudolf
director R&D at Bozankaya



2 VECTOPOWER on the roof for worldwide most efficient eBus drive.

