

# E-Bus

## Urbino electric

### Characteristic

Clean electromobility for sustainable local traffic – that is the recipe of the Solaris Urbino electric. The nimble electric bus is built on the basis of the 8.9 m long midibus of the Urbino family, but differs from its combustion-engined siblings not only regarding drive technology: The dynamic exterior and attractive interior styling also characterize the Urbino electric.

Exceptionally quiet, emission-free and distinguished by a modern design – this perfectly describes the new electric bus Solaris Urbino electric.

At the heart of the Solaris Urbino electric is a fourpole asynchronous traction engine manufactured by Vossloh Kiepe with an engine power of 120 kW. The energy to drive the traction engine is stored in two batteries, with a weight of 700 kg each. The lithium-ion batteries have a rated voltage of 600 V and store 120 kWh. The energy storages are liquid-cooled.

With the energy stored in the batteries the Solaris Urbino electric can cover a distance up to 100 km. The vehicle has a top speed of 50 km/h. The batteries are not only the source of “fuel” for the electric drive, but they also feed all auxiliary systems in the bus, including the steering pump, heating and air-conditioning as well as the electrically-powered doors. All systems conventionally fed by compressors powered by the combustion engine have been replaced with electric counterparts.

The batteries are charged via a plug-in connector manufactured by Walter. A full charging from the 3x400 V at 63 A providing terminal takes 4 hours at the maximum.

One of the greatest challenges for Solaris designers was to reduce the vehicle’s weight. This reduction was required mainly due to the relatively high weight of the batteries.

The metal panels on the sides of the bus were replaced by extremely light and durable carbon fiber panels. The rear hatch of the engine compartment that houses the power transmission system and the traction batteries was also made from carbon fiber. In addition, a significant reduction in weight was achieved by installing thinner window panes and the usage of mahogany instead of plywood for the vehicle floor.

A new material – Foamed ACM – was used for the air duct vents. Additionally, the bus has been equipped with lighter passenger seats. Alloy rims instead of steel rims contributed a further weight reduction of several kilograms. Finally, the bus does not consume any fluids and there are no fuel tanks, which further reduces its weight by 300 kg.

The result is a lean bus structure, which after adding batteries of 1400 kg is only slightly heavier than the standard vehicle of the same type equipped with a combustion engine.

The use of an electric drive has reduced the size of the engine compartment. This allowed the rear axle to be shifted backwards by 310 mm. Thus a bigger space inside the bus was obtained, where additional passenger seats were mounted and the low floor area was extended.

Energy-efficient LED light sources are exclusively used for all external and internal lighting.