

Traffic lights turn green: paving the way for the future

Europe's most modern bus depot Hochbahn Hamburg, equips its facility with 32 EFAFLEX high-speed doors

Greenery is growing on the roofs of the huge steel carport of the Alsterdorf bus depot in Hamburg, thick electrical cables with plugs, reminiscent of filling station nozzles, are hanging from the ceiling structures. Through these cables and plugs, 20,000 volts of operating voltage are flowing into the batteries of the electric buses which are parked on many spaces. Germany's first bus depot which is completely designed for e-mobility has been in operation since 1st April 2019. Since then, the buses have been rolling through EFAFLEX EFA-SST Premium high-speed spiral doors for cleaning, maintenance, and repairs in the halls on the 45,000 square metre area in the Alsterdorf "triangular junction" between U1, urban railway and freight bypass line.

The premium doors of the high-speed door specialist EFAFLEX are part of an overall concept for an emission-free site. Thanks to their rapid opening and closing speeds, they ensure that the least amount of energy is lost when the buses enter and leave the maintenance and repair hall. Furthermore, they provide safety in the XXL workshop: These areas can only be accessed by employees who are familiar with the special drive-related features of the ultra-modern e-buses. The personnel and escape doors next to the doors cannot be accessed from outside by unauthorised persons either.

As the first industrial door manufacturer in the world, EFAFLEX offers thermally separated EFA-THERM® insulation laths as standard for the EFA-SST®. This allows for outstanding thermal insulation values of between 0.66 and 1.52 W/m² K to be achieved depending on the door size. The new door leaf for the EFAFLEX industrial doors is extraordinarily robust, durable, sealed and sound insulating. As the new Alsterdorf bus depot is located in the city district, noise protection for nearby residential areas plays a significant role, while the EFACLEAR® transparent laths allow natural daylight to flood

the halls. The quantity of transparent laths can be customised, with the Hochbahn bus workshop chooses to feature them in the upper sections only in order to avoid the dazzling effects when the sun is low.

The spiral track of the door's mechanism is designed to guide the laths entirely without contact, without wear, and with minimal noise. Under even the heaviest industrial loads, the EFA-SST®-Premium doors can effortlessly manage up to 250,000 opening cycles per year.

One EFA-STR-L and one EFA- SRT-FR respectively were mounted to separate the warehouse and workshop as well as emergency escape route door. All doors are equipped with the patented EFA-SCAN® laser scanner; a safety device which detects movement better than any other technology on the market. The laser scanner covers the entire area in front of the door and using a complex software algorithm prevents triggering during rain, snow, and extraneous light. Therefore, EFA- SCAN® is one of the few laser scanners which are also suitable for outdoor installation.

Should a laser scanner gives the command to open one of the 30 doors, it makes way into the workshop with 14 tracks and the most modern rooftop workplaces for the Hochbahn ebus fleet within seconds. Up to 60 employees work in the maintenance and repair hall as well as in the paint shop and the environmentally friendly carwash which uses treated rainwater.

Approximately 600 bus drivers have found their new professional home in the bus depot where their e-buses are charged overnight. This is ensured by the first Hochbahn-owned transformer station connected to the Hamburg power grid. It converts the voltage from 110 kV to the required 20 kV. The total connected load is 25 megawatts which corresponds to the requirements of a small town with 40,000 inhabitants. By their own account, Hochbahn has invested 73 million euro in the facility, part of which has been taken over by the German federal government.

The facility has been designed for the maintenance and charging of 240 vehicles, with 26 additional vehicles to be added to the electric fleet, and another 30 due to follow. They may cost roughly twice as much as diesel engine buses, but by 2030, Hochbahn aims to have replaced the last diesel bus with the environmentally friendly emission-free vehicle.