Volkswagen Gläserne Manufaktur (Transparent factory)

Lennéstraße 1
01069 Dresden, Deutschland

To position this luxury car differently from all others,
the company has set up a €186,000,000 factory, unique in all the world.


The building sits in the heart of Dresden, Germany,
an 800-year-old city known for arts and craftsmanship.

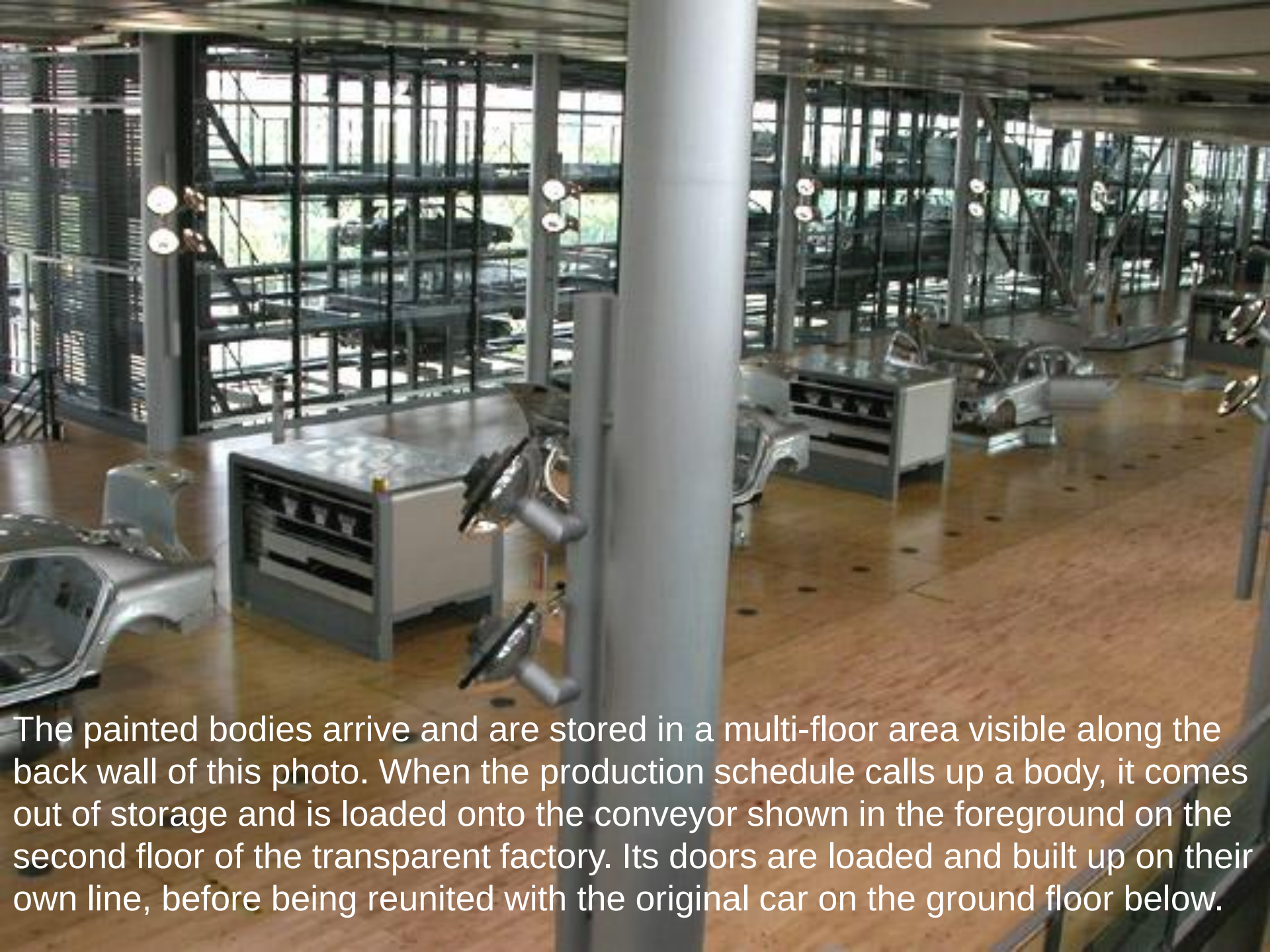
The factory’s walls are made almost entirely of over 290,000 square feet of glass. Its floors are covered entirely in Canadian maple. There are no smokestacks, no loud noises, and no toxic byproducts. Parts arrive, and luxury cars depart.

The transparent factory handles final assembly only. All the smelly, noisy operations, such as stamping, welding and then painting the steel body, take place in Zwickau.

Painted bodies arrive at the factory by truck. The other 1,200 parts and 34 preassembled components are shipped to a remote logistics center some three miles away. Trams running on Dresden’s public transport tracks transfer them from there to the factory.

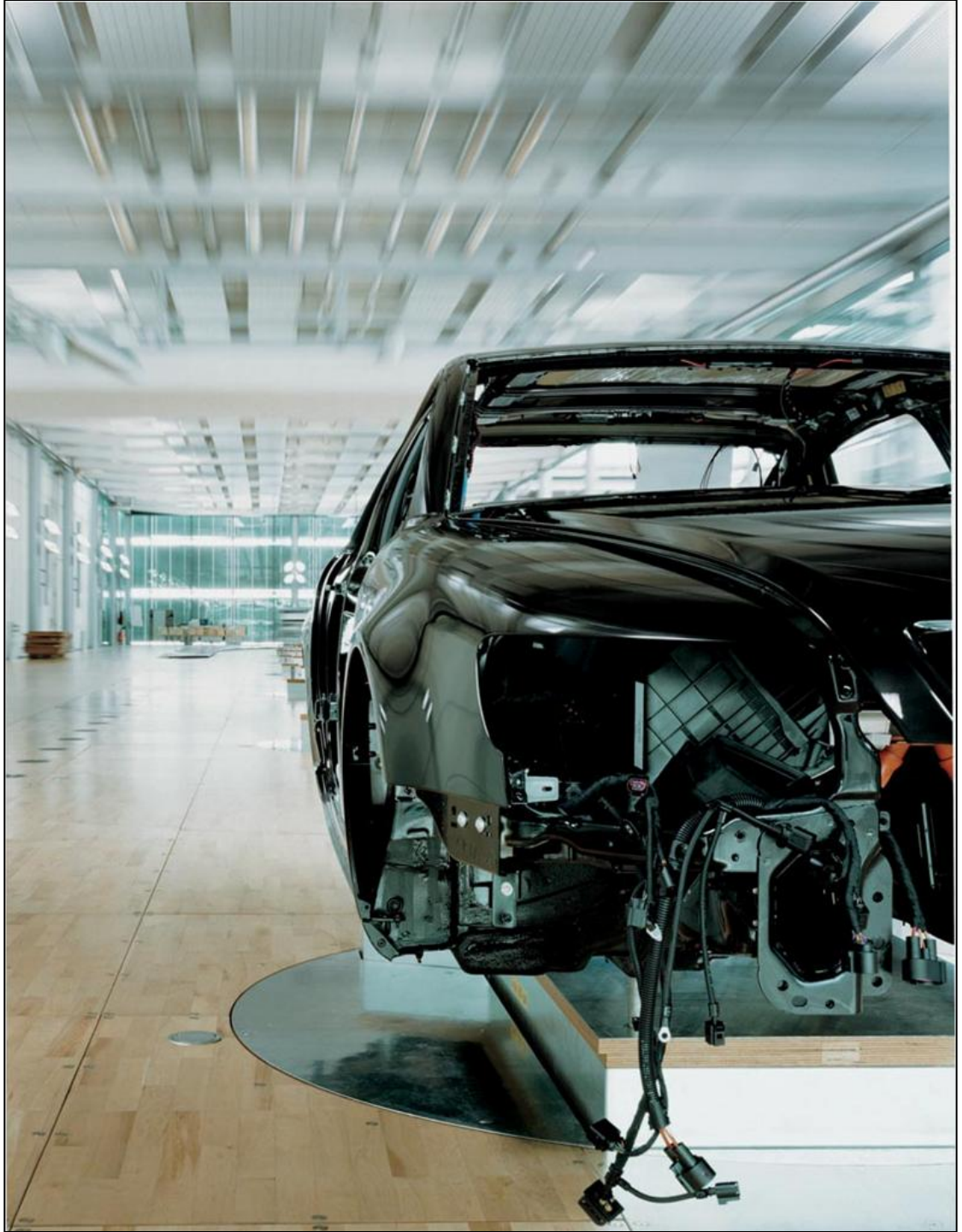

CarGoTram
DVB

The trams arrive on the lowest level (shown on the far left), where parts are unloaded and stocked in sequence for JIT delivery to the cars they’re intended for.

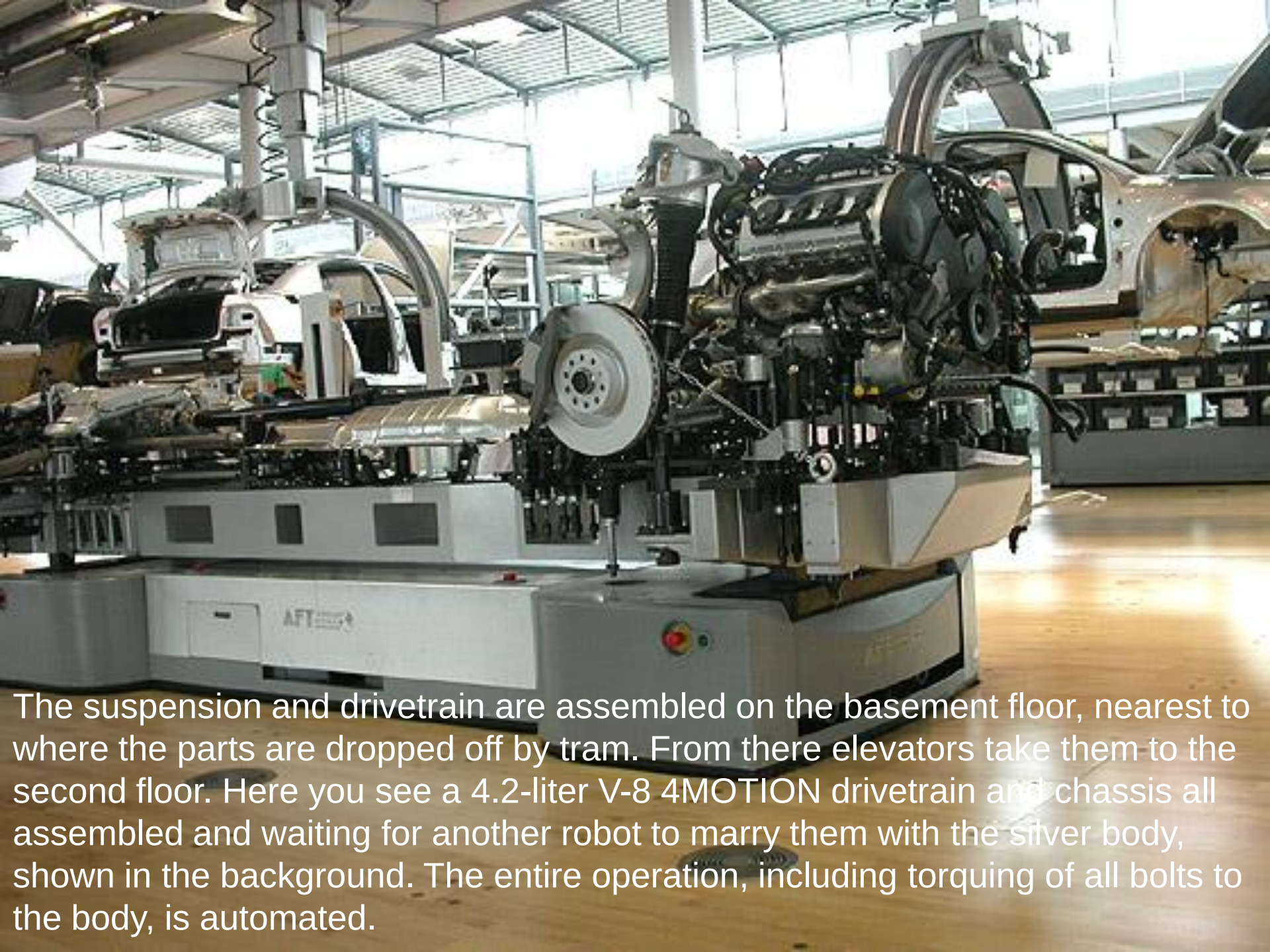


The painted bodies arrive and are stored in a multi-floor area visible along the back wall of this photo. When the production schedule calls up a body, it comes out of storage and is loaded onto the conveyor shown in the foreground on the second floor of the transparent factory. Its doors are loaded and built up on their own line, before being reunited with the original car on the ground floor below.

Material Handling By Trams



Two dashboards have just arrived on a carrier, delivered by an autonomous robot, seen pulling out from the front of the IP carrier. These little robots run around the factory, guided by some 6000 magnets embedded in the floor, delivering the boxes of parts and other components just in time.



The suspension and drivetrain are assembled on the basement floor, nearest to where the parts are dropped off by tram. From there elevators take them to the second floor. Here you see a 4.2-liter V-8 4MOTION drivetrain and chassis all assembled and waiting for another robot to marry them with the silver body, shown in the background. The entire operation, including torquing of all bolts to the body, is automated.

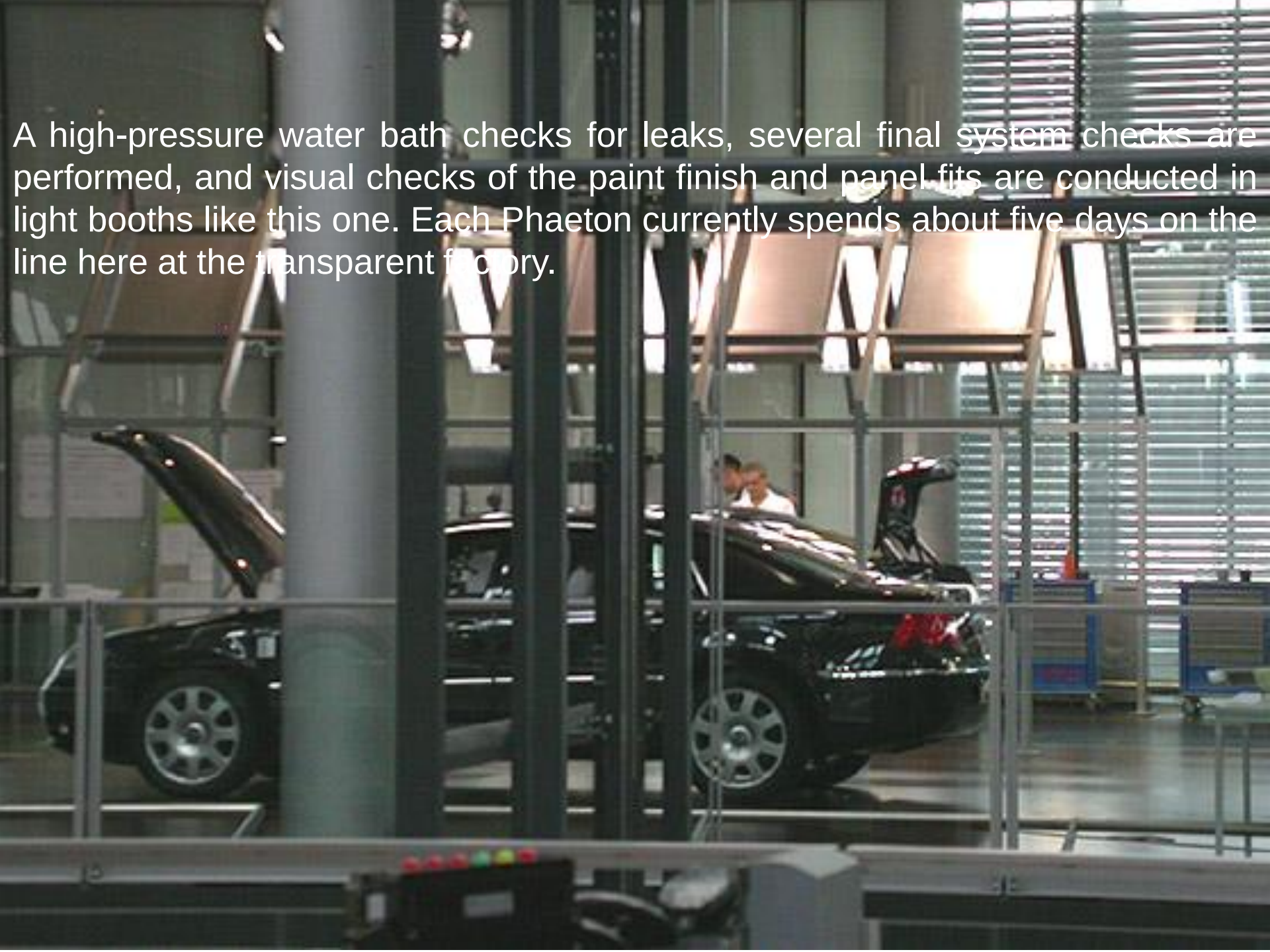
Phaetons start out on a 20 feet wide conveyor that includes a box tpreloaded with all the parts required for this car during this assembly phase. (These boxes are restocked five times during the vehicle's assembly process.) The circles along the sides of the conveyor are air-conditioning vents,. Each car rides on a platform that the worker can elevate to a level comfortable for him. Inductive chargers beneath the maple flooring, recharge the electric screwdrivers and torque wrenches. The conveyor moves at a very slow pace, and there is no official time limit to get each job done. If a worker can take as much time as he is comfy with, to ensure quality. The current production rate is a leisurely 40 cars per day over two shifts. A theoretical max. speed could have been 150 cars per day with three shifts.

After one lap on the floor-mounted conveyor belt, the body is placed on one of 31 overhead carriers, each of which can rotate the body to a comfortable angle for the employee to fasten underbody components. Most work at the transparent factory is by hand, but robots handle five operations. This one is pressing the adhesive-bonded composite-plastic spare-tire well into the steel chassis. The spare-tire well arrives in the plant with the pneumatic suspension’s air compressor already installed.

At this stop, various hoses are connected to the front of the car, and coolant, brake fluid, and gasoline are added to the car. You won’t see a single drop of spilled fluid, nor could we sniff a whiff of vapor.

After one lap of both the upstairs conveyor and the suspension and drivetrain loop, the Phaeton moves down to the ground floor. The two robots we see here are installing the road wheels (farther away) and the windshield and the rear-window glass. Basically, the robots handle the work that is too heavy or uncomfortable for the 227 line workers to perform.

Shortly after the wheels go on the car, it is lowered to the ground and started for the first time. It then gets its headlamps aimed and its suspension alignment checked. It is also run on a dynamometer with numerous rough surfaces to reveal rattles — and some cars are even driven on the cobbled streets of Dresden.



A high-pressure water bath checks for leaks, several final system checks are performed, and visual checks of the paint finish and panel fits are conducted in light booths like this one. Each Phaeton currently spends about five days on the line here at the transparent factory.

Once all tests have been satisfactorily passed, the Phaeton is either wrapped for shipment by truck or placed in this glass tower for eventual factory delivery. All cars in this tower and on the assembly line are already sold. Factory delivery customers are treated to lunch and a tour. Then their cars are parked in the lobby where an employee familiarizes the customer with all functional aspects of the car before they drive the Phaeton out of the glass factory.