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*AGV for the assembly of E-cars are suitable, amongst other things, for pure flow manufacturing. Some types even allow workers to hitch a lift on the vehicle during assembly.*

## Wireless flexibility

»Vision E« is a system developed by dpm Daum & Partner especially with electric car manufacturing in mind. Details include not only special safety technology, but also the use of a steute wireless network which can »wake up« individual AGV as required.

**E**lectromobility is a growing trend, and many new E-cars will be seen in car showrooms and on the streets in the months to come. Their manufacture in turn requires new technologies: automated guided vehicles (AGV) developed specifically for production plants making electric cars. dpm Daum & Partner Maschinenbau GmbH launched its first »Vision E« vehicle several years ago – at the time only as a concept. Today, complete »Vision E fleets« are in use for the first time.

### Assembly on the move

With this new AGV generation, car manufacturers have realised a whole new assembly concept. The AGV no longer drive, as in the past, from one station to the next,

stopping there until the next steps have been completed. Instead, the complete car body is assembled at the factory according to the continuous flow principle. According to company information, the Vision E and other AGV developed by dpm are the first systems facilitating car assembly with constantly moving AGV – without any interruption to the flow. Intermittent flow, combining the flow principle with work-station assembly, is also possible.

In order to realise this new »assembly on the move«, the dpm engineers had to devise a new system of safety and personal protection. All safety-relevant information is sent and monitored by a master control system – in contrast to the previous exclusive detection of hazards by safety

laser scanners. Various drive functions are also constantly monitored.

An additional special feature is an energy-efficient battery management system. According to the company, this system consumes hardly any energy during downtimes and yet springs back to life at the push of a button. This is possible because Vision E vehicles communicate via »nexy«, the wireless network developed especially by steute for such applications. This wireless technology uses the wireless protocol »sWave.NET®«, also developed by steute and, as the company states, featuring an extremely low-energy signal in combination with highly reliable signal transmission.

### **AGV are woken up by remote control**

The AGV can be put into »sleep mode« as required: a further design feature. In this state they need next to no power and thus do not have to be near a charging station. This considerably increases the flexibility of the fleet from the point of view of the car manufacturer. A specific function of nexy, unlike other industrial wireless systems, is transmission of a »wake up« signal at any time.



*A wireless network can assume several tasks at once – for example, communication with an AGV fleet and replenishment of workstations via eKanban.*

Vision E is a standardised AGV which can be adapted for the building of different car models with few technical modifications. The wireless system is equally flexible. Simple configuration of individual or multiple players is possible via a central dashboard. In addition, different wireless switching devices and sensors can be integrated in the network – including ones not from the steute range.

According to steute, an additional benefit of nexy with regard to efficiency and flexibility consists in the fact that the network (with wireless communication, Access Points and Sensor Bridge) can also be used for other wireless applications. For example, steute has developed a nexy solution for the replenishment of factory workstations using eKanban.

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