

Industry 4.0 at SEAT

The daily routine of autonomous robots: more than 1,600 km and 23,800 parts

- / **125 automated guided vehicles (AGV) share the workspace every day with 7,000 employees at the SEAT factory in Martorell**
- / **These intelligent robots transport 23,800 parts daily and cover a distance of 436,000 km every year, equivalent to the distance between Earth and the Moon**
- / **Robot-based transport eases and optimises factory workers' jobs and reduces production time by 25%**

Martorell, 10/01/2018.– A blue light goes on at 5 o'clock in the morning in the engines warehouse. It belongs to one of the 125 robots that begins its route in one of the workshops at the SEAT factory in Martorell, where it makes up to 2,800 rounds every day. This is how these mobile robots work:

- **125 robots and 7,000 factory workers:** They scan a barcode to make sure they transport the right part, and a sensor then opens the warehouse door so they can follow their circuit. This is how some of the 125 AGVs begin their day, routinely crossing paths with each other and with the 7,000 factory workers in what appears to be a fully synchronised dance performance. The automatic robots transport engines, gearboxes, shock absorbers or door windows, and their individual payload is up to 1,500 kg in weight.

- **A trip to the Moon with traffic lights and pedestrians:** Every year, the AGVs travel over 436,000 km, which is more than the distance between Earth and the Moon. When following their pre-set paths they know when to stop at a red light or when a worker crosses their path thanks to their 360° perimeter vision. They coordinate with 'pedestrians' and guarantee their safety by alerting of their presence with laser scanning lights.

- **Navigating within the 'Robot Galaxy':** The AGVs at the Martorell factory follow 40 guide paths set out with magnetic tracks embedded in the floor. Each route lasts between 1 and 7 minutes. During this time, the robots follow the steering circuits and automatically reduce their speed in curves so they do not lose stability when carrying heavy loads and are able to maintain a safety distance. In the future, these guide paths will give way to GPS navigation systems.

- **Remote control:** Five employees configure, and if necessary, remotely modify the path settings of all the AGVs from a control room. A centralised server gathers information from the software installed in each robot, and their exact position is displayed with a numerical symbol on the screens in the room. A green light indicates their full power performance; if it turns amber it means they have stopped due to an obstacle or because they are recharging



their batteries. The system also detects possible technical problems and is able to solve them immediately.

- Intelligence sharing in Industry 4.0: The 4th industrial revolution enables workers to control processes to optimise decision-making and let these collaborative robots perform the most physical and repetitive tasks. As an industry benchmark in digitisation and automation, SEAT also foresees other measures such as integrating software and hardware in production and logistics.

SEAT is the only company that designs, develops, manufactures and markets cars in Spain. A member of the Volkswagen Group, the multinational has its headquarters in Martorell (Barcelona), exporting 81% of its vehicles, and is present in over 80 countries through a network of 1,700 dealerships. In 2016, SEAT obtained an operating profit of 143 million euros, the highest in the history of the brand, and achieved worldwide sales of nearly 410,000 vehicles.

SEAT Group employs more than 14,500 professionals at its three production centres – Barcelona, El Prat de Llobregat and Martorell, where it manufactures the highly successful Ibiza, Leon and Arona. Additionally, the company produces the Ateca and the Toledo in the Czech Republic, the Alhambra in Portugal and the Mii in Slovakia.

The multinational has a Technical Centre, which operates as a knowledge hub that brings together 1,000 engineers who are focussed on developing innovation for Spain's largest industrial investor in R&D. SEAT already features the latest connectivity technology in its vehicle range and is currently engaged in the company's global digitalisation process to promote the mobility of the future.

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