Shared intelligence

A choreography with 2,000 robots

/ 2,000 robots move in perfect unison for 24 hours on end in the sheet metal workshop in Martorell
/ Welding, bolting, coating parts with adhesives or detecting deviations of up to 2 tenths of a millimetre are a few of their functions
/ Some stand up to six metres tall and can handle 700 kg of weight
/ They coordinate with 1,700 employees to build one car body every 68 seconds

Martorell, 10/05/2018.-- A lot goes into making a SEAT vehicle, including an intricate dance routine. The show starts at five in the morning in the sheet metal workshop in Martorell, when 2,000 robots and 1,700 factory workers begin moving in unison to build a car body in just over one minute. This is how the Industry 4.0 choreography is performed:

-2,000 robots dancing endlessly: Thousands of articulated mechanical arms weave in and out in sync to handle up to 2,300 parts daily. They work in harmony and in continuous movement for 24 hours on end. Their abilities include welding different body parts, assembling car doors and verifying the geometry of the chassis with precision measuring instruments.

-Mechanical dancers of different builds: This dance troupe comprises several different types of mechanical dancers. The smallest robots stand just over a metre tall while the largest ones reach up to six metres. Some are orange; others are yellow. Some are equipped with grippers and others with sensors. Their main common feature is that they are lightweight and versatile, and they can handle up to 700 kg of weight with a firm grip as well.

-720° pirouettes to perform up to 16,000 spot welds: Most of the robots have six axes, a characteristic that enables them to perform countless combinations of movements, including vertically, horizontally on rails and rotating up to 720°. When they start to dance, each robot can make up to 16,000 spot welds every day on the bodies of future cars.

-The orchestra conductors coordinate their moves: A team of 390 people keeps an eye on the needs of the facilities and ensures the correct operation of the robots. From the control room they monitor in real-time the conditions of the installations and their coordination with the rest of the workers.

-Precise down to two-tenths of a millimetre: Guided by this choreographed routine of the fourth industrial revolution, the robots not only relieve their flesh and blood colleagues of all the repetitive work and heavy lifting, but they perform increasingly more sophisticated functions as well. They transfer parts from one location to another during production and are also able to weld them, bolt them, apply adhesives or measure possible deviations of up to two-tenths of a millimetre with their measuring sensors before the models reach the trim line.
In unison with the factory workers: To complete the Industry 4.0 choreography, the dancing robots join the efforts of the employees, and final verifications are always carried out by the factory workers. People and machines together are able to put together one car body every 68 seconds.

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 80% of its vehicles, and is present in over 80 countries through a network of 1,700 dealerships. In 2017, SEAT achieved worldwide sales of nearly 470,000 vehicles.

The SEAT Group employs close to 14,700 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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