

We are in the age of digitisation and automation: we have become acutely aware of it at all levels. We thought that telephone booths were going to be scrapped, but now digital ones are being created; we go to some cosmetics shops to buy make-up and the make-up bag is made to our specifications by a collaborative robot; we drive machines that are so complex and advanced that they almost replace us when we drive... Everywhere, robots replace us in industrial processes where speed and precision are required, in those that have a greater impact on health due to the gravity of weights or environments, on the one hand, and on the other hand, we work hand in hand with collaborative robots that flank us and/or replace us in the most alienating operations; artificial intelligence now seems to replace us even in writ-

ing, drawing and architectural design... all in the name of greater efficiency and quality of production, work and society. Or at least that is the intention.

In such a landscape, therefore, industrial robots play a crucial role in improving the efficiency and quality of production processes. Sinta also plays a role in this game.

Sinta has been involved in industrial automation for over 25 years, distributing automation components and more on the market. Over time, Sinta has acquired a range of products to cover all production requirements and has developed the experience and skills to be able to assess which product is best for the specific application. Electric axes and cylin-



Epson's integrated linear feeder

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ECOSYSTEM for total automation solutions

Integration is the key that Sinta proposes to maximise the potential of robots in industrial automation by improving efficiency, precision, and competitiveness



The integrated Epson vision accurately detects position and orientation

Epson has developed a perfectly integrated proprietary force sensor to realise complex tasks

PROPRIETARY FORCE SENSOR

To make even extremely complex tasks automatable, Epson has developed a special tool: a proprietary force sensor. Characterised by high precision and rigidity, this sensor is capable of precisely and consistently measuring even minute amounts of force in all six directions and is perfectly integrated into the robot's programming environment. Controls are simple and intuitive. 5 elementary operations (contact - alignment - tracking - thrust), exploiting force and torque measurements in the 3 directions, suitably combined realise a very wide range of complex operations.

The 2D vision allows the robot to precisely detect the position and orientation of the parts, ensuring accurate and safe handling. A stroboscopic camera was also developed by Epson, which is therefore high-speed and capable of a very high number of frames per second for information. Whatever the type of camera, no time is wasted in the connection between robot and vision system: with simple commands and an intuitive graphic interface, complex operations are reduced to simple parametrisation. This is thanks to a powerful image processing system and the joint programming environment within Epson's RC+ development interface.

ders and Cartesian robots with IAI, scara and anthropomorphic robots with Epson, anthropomorphic robots of all sizes with Nachi, collaborative with TM and flexible feeders with ARS Automation: the products on offer are of undoubted quality and from prestigious brands, and Sinta's service is qualitatively significant for customers and appreciated by them.

Industrial processes increasingly integrated

The production field needs increasingly integrated processes to be able to simplify all integration, monitoring, control, and maintenance procedures: a sort of ecosystem is created, a set of elements that are somehow 'related' in an organic and functional complex.

Epson, a global leader in the field of precision robotics, for

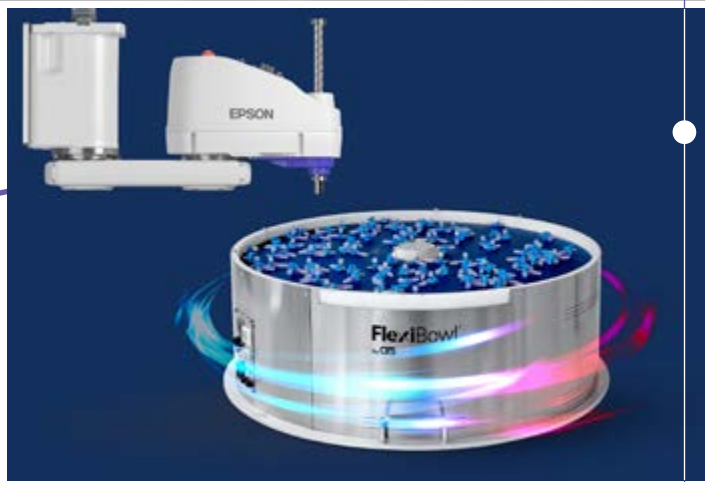
which Sinta is the sole representative in Italy, offers a complete range of tools and technologies: an ecosystem consisting of an interconnected set of hardware, software and services that work together to provide complete and advanced solutions for industrial automation.

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These components work together to ensure that Epson robots can be easily integrated into different manufacturing applications: RMS (Robot Management System), OPC-UA (Open Platform Communications Unified Architec-

ture), RC+ Express, Force Sensor, Epson Feeder. 2D Vision and Strobe Camera. Let's look at them in some detail below.

The Robot Management System (RMS) is an Epson robot management platform designed to simplify the configuration, monitoring and maintenance of industrial robots: through PCs and tablets connected to an intranet, it is possible to have a complete view of the robots' operational status, enabling more effective control, with backup status information, simul-



taneous updating of firmware and operating programs, and, therefore, preventive maintenance. With a view to providing smarter production and supporting plant management in addition to RMS Epson adopts systems compliant with OPC-UA, a standard communication protocol for the Internet of Things: this makes possible real-time data exchange between robots and other industrial devices and their control systems. RC+ Express is a software de-

Above: Example of Robot Management System configuration

Below: The Flexibowl circular feeder from Ars Automation integrates with Epson robots thanks to the development of a software plug-in

velopment environment with a simple and intuitive interface that allows you to create an object-oriented programme in a short time. It is a simplified version of Epson's software that allows robots to be programmed without having to learn complex languages. Companies inexperienced in the use of robots can thus speed up their robotic application development process, resulting in shorter production and implementation times.

Feeding parts

The feeding of parts to the robot therefore also gains in importance: the need to vibrate parts to carry out pick-and-place operations involves the use of in-line or circular vibrators. Epson has fully integrated a linear feeder, the Epson Feeder, into its software, designed to accommodate parts

of various sizes with easy installation and configuration, as well as a wide variety of options.

Sinta has done the same by developing a software plug-in that integrates Ars automation's Flexibowl circular feeder, marketed in Italy, within the Epson software. The parts released from a hopper fall onto the surface of the FlexiBowl and are appropriately separated by the combined action of bi-directional rotation.

Once the parts have been singled out, they can be recognised by the camera, which sends the coordinates to the robot for picking them up in the correct orientation. Thanks to a single programming environment that manages the whole system, no time is wasted in the connection between robot, vision system and feeder. By means of a simple and comprehensive language, one can write the program that separates, finds, picks up and deposits the parts with centesimal precision or assembles them with other components.

The servicing of machines and tools, assembly, pick and place, screwing, palletising, packaging, quality control and most production processes are operations that require not only the robot, but also its integration with reference tools.