

ABB robots get smart with real-time tactile feedback

ABB's Integrated Force Control handles process variations with the sensitivity of the human hand while shortening programming time up to 70 percent.

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- **Tactile sensing:** Robot reacts to surroundings in real-time, can adjust path and speed based on sensor input
- **Search patterns:** Can mimic motions of a human arm to find the correct position to assemble a part
- **Reduced failures:** Edges and contours are followed precisely regardless of work piece orientation
- **Easy to program:** Tactile sensing reduces programming time and can eliminate advanced fixtures
- **Quick installation:** Short programming time and less complex tooling results in quicker installation

From machining to small parts assembly, dexterous handling of work piece and tools is of the utmost concern. Small variations in the manufacturing phase can mean the difference between success and failure. To help deal with these issues, ABB force control technology makes robots more intelligent and able to handle variations in the process with real-time external inputs—much like a human would when handling a delicate item or precise dimensions.

Conventional robotic solutions are controlled by predefined paths and speeds. However, with ABB **Integrated Force Control**, the robot reacts to its surrounding and can deviate from its programmed path or speed based on feedback from the force sensor. It is possible to automate complex tasks which previously required skilled personnel and advanced fixed automation.

“Integrated Force Control opens up the possibility to automate tasks that have not been possible using traditional robot automation,” says ABB Product Manager Andreas Eriksson. “Compared with expensive, hard automation, robotic solutions are less expensive and require a greater degree of flexibility.”

Robotic assembly can be very demanding with small tolerances and small parts that must fit together. With ABB's Integrated Force Control technology it is possible to assemble parts with tolerances that are within the range of the robot's incredibly precise repeatability without requiring highly accurate and expensive fixtures. In addition, a force-controlled robot can be programmed to mimic the movements of a human arm, applying search patterns to find the correct position to assemble a given part. In this way, Integrated Force Control also significantly reduces the risk of assembly failures which can result in production problems or damaged parts.

ABB's Integrated Force Control also can be used to improve robotic machining applications such as grinding, polishing, deburring and deflashing. One of the packages' features allows a robot to grind, polish or buff parts while maintaining a constant force between the tool and the work piece. Another feature enables a robot to deburr or deflash partlines and surfaces of parts at a controlled speed, thereby slowing down when encountering excessive burrs or casting flash.

The force sensor is fully integrated into ABB's hardware and software, protected against overload and EMC, certified to IP65 and suitable for high precision robotic applications with a compact and lightweight design. When combined with vision sensors, ABB Integrated Force Control also allows for new ways of thinking about a myriad of other robotic automated functions that previously required skilled personnel.

All ABB Robotics' products are fully supported by the ABB Robotics' global sales and service organization in 53 countries and over 100 locations.

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Press Release



Further information for editors:

ABB (www.abb.com) is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 145,000 people.

ABB Robotics is a leading supplier of industrial robots - also providing robot software, peripheral equipment, modular manufacturing cells and service for tasks such as welding, handling, assembly, painting and finishing, picking, packing, palletizing and machine tending. Key markets include automotive, plastics, metal fabrication, foundry, electronics, machine tools, pharmaceutical and food and beverage industries. A strong solutions focus helps manufacturers improve productivity, product quality and worker safety. ABB has installed more than 200,000 robots worldwide.

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