

# Sawyer is a new face in collaborative robots

March 23 2015, by Nancy Owano

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Sawyer is a new collaborative robot (robots that work with employees) from Boston, Massachusetts-based Rethink Robotics. In human terms, the salient feature about this robot is its friendly eyes on its "face" screen. On the technical side, the salient feature is its single arm designed to execute machine-tending, circuit-board testing and other

[precise](#) tasks, "specifically those that take place in the middle of a long assembly line of electronics products," said *IEEE Spectrum*.

"There's a huge need for a [robot](#) that can do tasks like these," said the report, which quoted company founder Rodney Brooks: "We're moving into mass electronics manufacturing." Rethink Robotics president and CEO Scott Eckert said, "With Sawyer, we have taken that relationship to the next level, with a high performance robot that opens the door for many new applications that have never been good candidates for automation." It has 7 degrees of freedom and a 1-meter (1026 mm) reach. As such Sawyer is capable of maneuvering in tight spaces. Its "compliant motion control" is potentially a key selling point; the company also talks about its "adaptive precision." The control allows Sawyer to feel its way into fixtures or machines even when the part position changes.

The company noted its "train-by-demonstration" user interface, smaller footprint and precision performance, needed for tasks requiring flexibility. The robot uses a software system called Intera which can adapt to conditions on the plant floor. The platform allows Sawyer to be trained by demonstration, "using [context](#) instead of coordinates to enable non-technical personnel to create and modify programs as needed," according to the company site.

Sawyer weighs 19 kg (42 lbs), and features a 4kg (8.8 lb) payload. Its vision system includes a camera in its head to perform applications requiring a wide field of view and a Cognex camera with built-in light source in its wrist for precision vision applications. The company launched a robot called Baxter in 2002. Just as Baxter brought capabilities to manufacturing, Sawyer is aimed at bringing them to electronics assembly and testing.

The [actuators](#) were redesigned in Spencer: Baxter uses springs made out

of "C"-shaped pieces of steel, whereas Sawyer uses springs made out of titanium in the shape of a symmetrical, curvaceous "S." The redesign and running cables through the joints allowed Sawyer's arm to be made considerably smaller, said *IEEE Spectrum*. What's more, said the report, "Rethink has integrated a hockey puck-style Harmonic Drive into each of Sawyer's joints to help eliminate backlash."

The robot will retail for a base price of \$29,000. Sawyer will be released with limited availability in the summer, and general customer availability is targeted for later this year. The robot initially will be available in North America, Europe, China and Japan. It is being field-tested by several manufacturing companies in those regions.

**More information:** — [www.rethinkrobotics.com/news-i ...  
collaborative-robot/](http://www.rethinkrobotics.com/news-i...collaborative-robot/)  
— [www.rethinkrobotics.com/sawyer-intera-3/](http://www.rethinkrobotics.com/sawyer-intera-3/)

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