rethink robotics

rethink manufacturing.
rethink offshoring.
rethink robotics.

Robots with Common Sense™

Meet baxter™

Adaptive Robot for Manufacturing Applications.

Baxter is a revolutionary new category of robot that is redefining the way robots can be used in manufacturing environments. It performs a variety of simple, yet critical production tasks while safely and intelligently working next to people. How? Unlike traditional industrial robots, Baxter exhibits behavior-based 'common sense,' capable of sensing and adapting to its task and its environment. It requires no complex programming or costly integration. And with its uniquely low price point, Baxter provides a compelling alternative to low-cost offshoring for manufacturers of all sizes. As a result, Baxter is being introduced into a wide range of plants that could never previously consider a robotic automation solution.

Performs a Broad Range of Simple Production Tasks.

Baxter can handle many repetitive production tasks that are typically difficult or expensive to automate, freeing human operators to focus on more value-added jobs. Baxter's initial release software includes functionality for basic discrete part handling, simple line loading/unloading, and basic packing and unpacking tasks, with more complex features and enhanced performance to follow. And with a steady stream of regular software upgrades, Baxter will continue to evolve its capabilities to an even broader range of tasks, including:

- Material Handling
- Machine Tending
- Testing & Sorting
- Light Assembly
- Finishing Operations

Behavior-based intelligence
for 'common sense' operation

Fully integrated system for a
streamlined integration process

Intuitive UI on screen
display and navigator on arm

Compliant joints with force sensing
and force control for increased safety

Easy training for tasks and object
detection by moving arms

A New Opportunity to *In*-Source.

As rising costs and increasing demand continue to push manufacturing overseas, Baxter provides a low-cost, high-return alternative to offshoring. By using it to keep those processes in-house with Baxter, manufacturers can ramp up production more cost effectively, protect intellectual property, streamline supply chains and enable a more productive, satisfied and well-trained workforce.

What Makes Baxter Different?

Baxter is a groundbreaking solution for manufacturers of all sizes. In addition to its uniquely low price point, Baxter offers six fundamental differences that distinguish it from traditional industrial robots.

❶ **No programming.** Line workers can train Baxter in minutes, with no expertise in software, robotics or engineering required. In addition, Baxter retrains quickly for fast line changeovers.

❷ **No safety cages.** Baxter is designed with a comprehensive safety system which makes it feasible for working without barriers and in close proximity to people in a production environment.

❸ **Streamlined integration.** Baxter is a complete system (hardware, software, controls, UI, safety, sensors) that can quickly and easily be set up, integrated and trained to do its first task.

❹ **Works intelligently.** Baxter can easily be trained to perform a wide range of manufacturing and production tasks; it is aware of its environment, and automatically adjusts to changes.

❺ **Versatile and capable.** Baxter performs simple, repetitive tasks quickly and efficiently, freeing people to focus on higher-level, more value-added activities.

❻ **Extensible platform.** Baxter is a complete, yet fully extensible platform which includes all necessary software, with updates provided regularly to enhance capabilities and performance.

baxter™ By Rethink Robotics.

Features	Capabilities and Benefits
Fully integrated system	• No separate controller, pendant, safety cages or other devices required • Ready to use out of the box, with a streamlined integration advantage over traditional industrial robots
Behavior-based intelligence	• Inherently capable of responding to real-world inputs in a 'common sense' manner (e.g., recognizing it must have an object in its hand before moving and releasing it) • Adaptable to varied conditions and tasks
Trainable by demonstration	• Quick and easy 'training' by moving arms and joints as needed, with no programming required • 'Face' screen guides user through the process and indicates the robot's status and understanding of the task
Vision-guided and direct transfer capabilities	• Supports a wide range of part types and locations • Vision guided detection adapts to variations in part size, placement, conveyor speed, etc. for increased versatility • Trainable to pick up objects from pre-set locations for faster performance on simple part transfer tasks
Comprehensive, easy-to-use software	• Intuitive, user-friendly interface guides interaction and training • Designed for common manufacturing tasks, with frequent software upgrades provided to increase performance and expand capabilities
Human form and proportions	• Two, 7-degree-of-freedom arms provide excellent dexterity and range • Each arm can run separate tasks or the same task to double capacity • Optional pedestal provides easy mobility between workstations
Comprehensive safety design	• Inherently safe design, with compliant joints, back-drivable motors, protective covers and no pinch points • Human collision detection to minimize contact force • Emergency stop mechanisms and connectivity to external systems provide additional safeguards as needed
Complex sensing of people, parts and environment	• 360° sonar-based detection of people and environment • 3 cameras for detecting and recognizing objects, parts and workspace • Through force detection, can 'feel' contact with objects and work surfaces
Interchangeable end-effectors	• Electric parallel grippers and vacuum cups available • Custom end-effectors will be available via third-party providers for additional specialization and flexibility

Technical Specifications

Performance
• Rated payload: 5 lbs (2.3 kg) — higher payloads possible in limited workspace
• Maximum speed with no payload: 3.3 ft/s (1 m/s)
• Maximum speed with rated payload: 2 ft/s (0.6 m/s)

Electrical Connections
• Supply voltage: 120 Volts Alternating Current
• Rated current: 6 Amps
• I/O connections: 1 Ethernet jack, 1 USB type A jack, 1 15 pin D-sub with PLC-compliant connections

Environmental
• Protection classification: IP50
• Operating temperature range: 32-104 °F (0-40 °C)

Physical
• Robot height: 3'1" (93.98cm) (without optional pedestal)
• Robot height (with optional pedestal): 5'10"–6'3" (1.78m–1.9m) depending on adjustable pedestal settings
• Arm length to end-effector plate: 41" (104cm)
• Torso mounting plate diameter: 13.3" (33.85cm) — for mounting on table
• Body weight, without pedestal: 165 lbs (75 kg)
• Degrees of freedom: 14 (7 per arm)

End-Effectors
• Vacuum cup with interchangeable cups
• Electric parallel gripper with interchangeable 'fingers' and user-adjustable 'fingertips'

Optional Pedestal
• Pedestal footprint: 36"x32" (92x81cm)
• Pedestal weight: 141 lbs (64 kg)

Warranty
• One year (2,100 hour) warranty & software subscription included
• Extended warranty (3-year, 6,300 hour) coverage available

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MADE IN U.S.A.

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