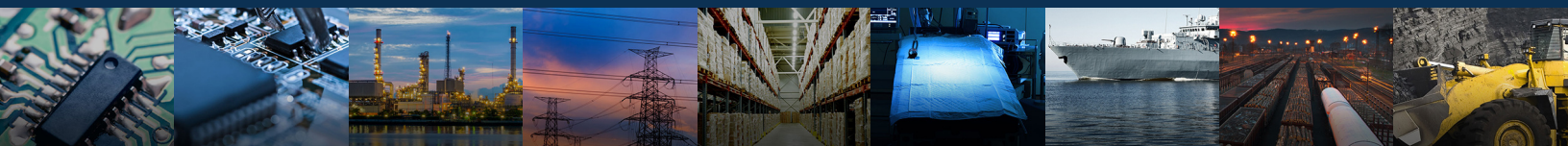




Wall Industries, Inc.



Powering: Industrial Robotics

How power supplies help industrial robotics function and why choosing the right one is so important

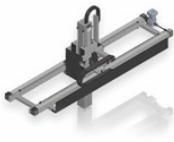



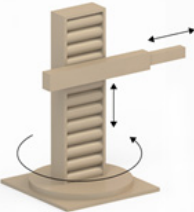

What are industrial robotics and what do they do?

Industrial robotics are versatile autonomous tools in the world of manufacturing making different industrial processes fast, efficient, and precise. They are most commonly a moveable arm with multiple axes or small mobilized robotic vehicles. This robotic hardware is accompanied by automation software that allows the industrial robot to perform a variety of different tasks in place of a manually operated machine or human. Industrial robots assist manufacturers in improving safety, efficiency, ease of use, and precision across various complicated operations.

Industrial robots are typically installed to accomplish a specific process or application that helps the manufacturing process. Some of the most common processes include material handling, automated guided vehicles, sorting systems, palletizing robots, among other developing manufacturing technologies. As technology continues to advance and change, industrial robotics evolve as well and adapt to new processes and applications.

Based on their mechanical structure, “arm type” industrial robotics can be classified as a linear robot, SCARA robot, articulated robot, parallel robot (delta), or cylindrical robot. There are also automated guided vehicles which are “wheel-based load carriers” that use markers on the factory floor or lasers in order to move around without the need of a human operator.

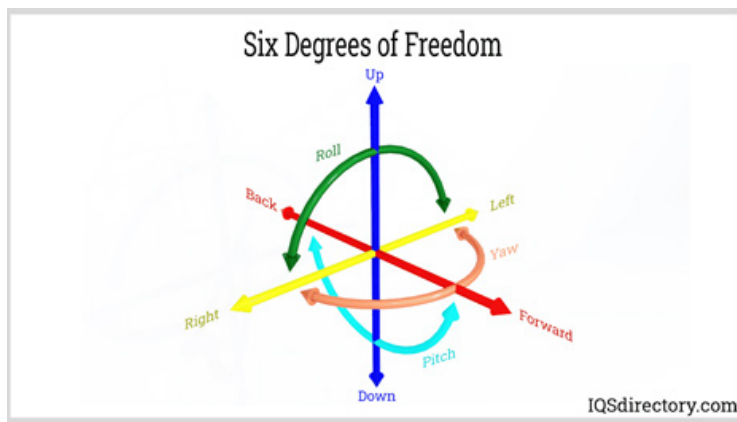
Types of Industrial Robotics

Type of Industrial Robot	Typical Applications	Photo	Description	Benefits
Linear Robot	<ul style="list-style-type: none"> • Sorting • Palletizing • Assembly • Pick and Place • Packaging 	 <p><small>Image source: www.macrodynamics.com</small></p>	Moves in a straight line and features two to three axes	<ul style="list-style-type: none"> • Accuracy • Quick
SCARA Robot	<ul style="list-style-type: none"> • Pick and Place • Assembly • 3D Printing • Dispensing • Engraving • Handling • Screw Driving/Tightening 	 <p><small>Image source: shutterstock.com</small></p>	Selective Compliance Assembly Robot Arm (SCARA) that can extend and retract like a human arm	<ul style="list-style-type: none"> • Accuracy • Speed • Compact
Articulated Robot	<ul style="list-style-type: none"> • Welding • Assembly • Part Transfer • Packaging • Machine Loading • Palletizing • Pick and Place • Material Handling 	 <p><small>Image source: shutterstock.com</small></p>	Features four to six axes which provides a wide range of movement	<ul style="list-style-type: none"> • Accuracy • Speed • Wide range of movement
Parallel Robot	<ul style="list-style-type: none"> • Flight Simulation • Automobile Simulation • Milling Machine • Picking and Placement 	 <p><small>Image source: lfr.org</small></p>	Features a single base with multiple linear actuators	<ul style="list-style-type: none"> • Accuracy • Reliability • Multiple Applications
Cylindrical Robot	<ul style="list-style-type: none"> • Welding • Assembly • Palletizing • Packaging • Injection Molding • Machine Handling 	 <p><small>Image source: shutterstock.com</small></p>	Features a rotary joint and a prismatic joint for angular motion around a joint axis	<ul style="list-style-type: none"> • Speed
Automated Guided Vehicles	<ul style="list-style-type: none"> • Raw Material Handling • Part Delivery • Finished Goods Movement • Warehouse Distribution 	 <p><small>Image source: shutterstock.com</small></p>	Warehouse vehicle that can move materials and is controlled by a computer	<ul style="list-style-type: none"> • Speed • Safety • Efficiency • Cost Effective

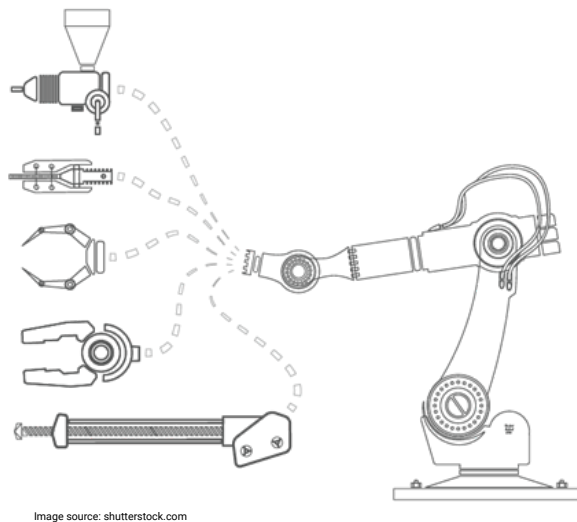
How do industrial robotics work?

Industrial robots operate in order to perform specific tasks or functions based on their structure and software program. Depending on the type of robot, an industrial robot will perform its functions by using arms, actuators, or wheels. The software program of the robot will determine the action it performs and can be changed between programs if the robot is designed to perform many tasks.

The most common type of industrial robot will feature an arm that rotates around one or multiple joints or links in order to move. The arms can typically move along six axes: left/right, up/down, backward/forward, yaw, pitch, and roll. The more arms and joints the robot has, the greater flexibility it will have along these axes.



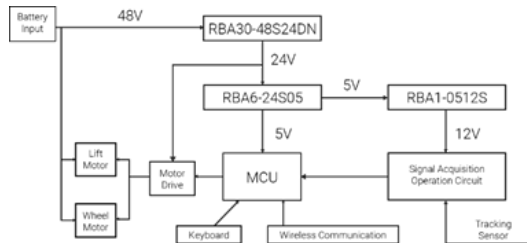
The End of Arm Tool (EOAT) or end effector is what actually completes the task that the robot is designed for. The EOAT can vary from task to task and there are even some robots that have interchangeable EOATs for different functions.



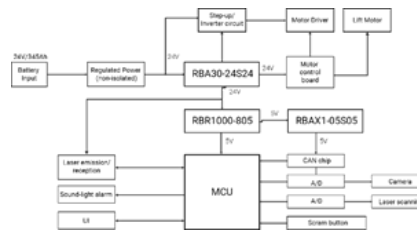
Multifunctional Robot Arm

How do power supplies work within industrial robots?

Power supplies play an important role in the proper operation of industrial robotics. Most will be powered by a battery source, either chargeable or non-rechargeable. The power supply will help deliver power to different components, like a motor drive or inverter circuit within the robotic circuit. Power supplies may even need to be paired with a specialized component, such as a transceiver, in order to function correctly.



Sorting Robot Solution



Forklift AGVs Solution

The power supply chosen for your industrial robotic not only needs to be compact and isolated, but also needs high efficiency, fast start-up, and low standby power consumption. This will ensure that the power supply does not take up too much space and can handle the fast and continuous work load of the robot.

It is important to select the proper power supply for your industrial robot to avoid production slow down, additional expenses, and safety problems. For assistance in finding the right supply for your robotics project, get in contact with our team today, or visit our industrial robotics product page or our robotics brief.

Sources:

https://ifr.org/img/office/Industrial_Robots_2016_Chapter_1_2.pdf

<https://www.iqsdirectory.com/articles/assembly-machinery/industrial-robots.html>

How can we help you?

To speak with our power supply and conversion specialists, contact us any time at 888-597-9255 or sales@wallindustries.com. We can't wait to power your success.

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