



INDUSTRIAL MANIPULATORS GLOSSARY

If you're new to industrial manipulators, you may feel confused or overwhelmed by the industry's vocabulary and the various terms used to describe the different types of machines and accessories on the market.

To help ease some confusion and make your purchasing process easier, we've compiled a list of definitions for common terms used in the industrial manipulator industry.

ARM

An interconnected set of links and powered joints comprising a manipulator that supports and/or moves a wrist and hand or end-effector through space. The arm itself does not include the end-effector. ([source](#))

ARTICULATED ARM

An adjustable manipulator which emulates the characteristics of a human arm. ([source](#))

ARTICULATED MANIPULATOR

A manipulator with an arm that is broken into sections (links) by one or more joints. Each of the joints represents a degree of freedom in the manipulator system and allows translation and rotary motion. ([source](#))

BALANCER

A mechanism used to support and control loads so that an operator need only guide a balanced (“weightless”) load, thus providing precision positioning. Can also be attached to hoists and manipulators. ([source](#))

CABLE BALANCER

Also called hoists and cable units, these are best for moving lighter objects that are in standard shapes. ([source](#))

HYDRAULIC ARM

With the same characteristics of the human arm, this machine is driven by fluid and pressure.

INDUSTRIAL MANIPULATOR

An industrial manipulator is a machine with a rigid steel manipulator arm that allows complex pneumatic tilts and rotations — even when the product being moved is handled outside its center of mass. ([source](#))

JIB CRANE

A type of crane where a hoist is attached to the arm for lifting, where it can function as a manipulator for positioning tasks. ([source](#))

LIFT/LIFT ASSIST

These are used when positioning involves the lifting, tilting or turning of a load. Also known as tilt or turntable. ([source](#))

MANIPULATOR

These are used for vertical and horizontal translation and rotation of loads. Can be powered manually, electrically or pneumatically.

MATERIAL HANDLING EQUIPMENT

A tool used throughout the movement and storage of materials and products throughout the process of their manufacture and distribution. ([source](#))

PNEUMATIC CYLINDER

A component which carries out a movement using compressed air as the medium. ([source](#))

PNEUMATIC MANIPULATORS

A material handling machine powered by pneumatic force, or compressed air. ([source](#))

VACUUM LIFT

A type of lifting equipment that incorporates a vacuum as or as part of the lifting mechanism. They consist of a below-the-hook frame with a large vacuum pad or several smaller suction cups for grabbing large sheets, rolls, plates or other smooth-surfaced products. They are driven by pneumatic, hydraulic, electric or mechanical power. ([source](#))

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