



FIRST TIME BUYER'S GUIDE FOR INDUSTRIAL MANIPULATORS

For many of our customers, buying an industrial manipulator for the first time can be an overwhelming experience. We often hear several of the same questions from these clients, such as:

- **What are the signs I need an industrial manipulator, and which one should I pick?**
- **What should I know about the different parts and assets of an industrial manipulator?**
- **What ROI can I expect for my business?**
- **Are there unique solutions for my lifting needs?**

In this First Time Buyer's Guide, we're addressing all of these questions in order to help you feel confident and informed as you move forward with your purchase.

WHAT ARE THE SIGNS I NEED AN INDUSTRIAL MANIPULATOR, AND WHICH ONE SHOULD I PICK?

Before investing in an industrial manipulator, it's important to assess if your business is ready for one.

There are [five telltale signs](#) that point to a warehouse needing an industrial manipulator:

YOU WANT TO INCREASE WAREHOUSE SAFETY

Industrial manipulators don't just save you money, they also decrease the likelihood of workplace injuries for your employees. For example, Ford saw a [70% reduction in assembly line injury rates](#) when they incorporated lift-assist technology into their production line safety plans.

YOUR PRODUCTIVITY IS DOWN

Is your team getting less done lately? Are your warehouse's systems hindering forward momentum among your employees? Industrial manipulators allow you to get more done with less manpower. If you're wondering where to start on assessing your warehouse productivity, try these [operational audits](#).

YOU'RE LOOKING TO SAVE MONEY

On average, a high-quality industrial manipulator will last at least 15 years and won't leave you stuck constantly replacing them due to faulty parts. A good manipulator will save you money by lowering the amount of downtime that broken machines or processes fueled by manpower alone necessitate.

YOU HAVE HIGH HYGIENIC STANDARDS

[Stainless steel industrial manipulators](#) are the right choice for sensitive facilities, such as food and chemicals. Stainless steel is resistant to corrosion and can stand up to very high and low temperatures. Plus, the finish of the steel is so microscopically smooth that bacteria can't find anywhere to hide.

YOU HAVE UNIQUE LIFTING NEEDS

Did you know it's possible to create a custom machine that is designed specifically for your business? Accommodating everything from ceiling height restrictions or weight requirements, a [custom-designed manipulator](#) can help make your employees' jobs easier and safer while helping your production move at a quicker rate.

When it comes to deciding exactly what type of manipulator is right for your business, know that the question is bigger than just asking what style will work best.

For example, here are the top things we discuss with our customers when they're considering a new industrial manipulator:

MATERIALS

Narrow down your search by noting what type of materials you're moving, how they are packaged, the weight and dimensions of your products and the trajectory of their movement.

FACILITY AND SPACE CONSIDERATIONS

Note your ceiling height, aisle, width and rack type, along with any special warehouse safety, environmental or regulatory standards your space must meet.

COST CONSIDERATIONS

Be clear on the budget you have for your new investment. Keep in mind not only the price of the machine but any initial upfront investments needed to get the equipment up and running, as well as projected operating and maintenance costs.

When considering what appropriate style of manipulator is right for you, here are the general systems you should look into, depending on the type and number of products you're planning on moving.

BULK MATERIALS

These handlers are built to store, transport and control materials in loose bulk forms, such as liquid, food and minerals.

Examples include:

- Stackers
- Reclaimers
- Bucket elevators
- Conveyor belts
- Grain elevators

LONG TERM STORAGE AND STOCK

This category includes pallets, racks and shelves – on which products can be stacked and stored.

Other common examples of storage and handling equipment include:

- Pallet racks, drive-in and drive-through racks, sliding racks and push-back racks
- Drawers, bins and shelves
- Mezzanines
- Stacking frames

MATERIALS REQUIRING FREQUENT TRANSPORTATION

This category encompasses a number of different solutions that range from manual to powered and flat surfaced to forklift – but they all provide transportation.

Examples of industrial trucks include:

- Pallet jacks
- Platform trucks
- Walkie stackers
- Hand trucks
- Pallet trucks

At Dalmecc, we specialize in industrial double articulated rigid arm manipulators and articulated cable balancers.

Industrial manipulators are frequently used when:

- A product needs to be inclined and/or rotated during the handling process.
- A product is too heavy for a person to move manually.
- A person will quickly fatigue from moving products manually.
- A person will be put at risk for injury if they move a product manually.
- A high volume of product must be moved quickly.

Cable balancers are best suited for moving lighter objects that are in standard shapes. Rather than relying solely on a rigid, arm-like machine without cables, cable balancers use steel or nylon cables to transport products up or down.

Here's a helpful chart for determining if a manipulator or a balancer might be a better fit for your products:

	Manipulator	Balancer
Weight of product to be moved	Up to 2,000 lbs	Less than 200 lbs
How you need to move your product	Up, down, tilt, rotate, etc.	Up and down only
Shape of product to be moved	Odd shape	Standard shape
Location of center of mass of product to be moved	Offset from center (weight is located on one end of the product)	Located roughly in the center of the product to be moved
Examples of products moved by the machine type	Drums, wheels, tanks, etc.	Boxes, pails, small rolls, etc.

WHAT SHOULD I KNOW ABOUT THE DIFFERENT PARTS AND ASSETS OF AN INDUSTRIAL MANIPULATOR?

If you're new to industrial manipulators, [you may not have a handle yet on the industry's vocabulary](#) and the various terms used to describe the different machines and accessories on the market.

To help ease some confusion, here's a roundup of definitions of the most 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.

ARTICULATED ARM

An adjustable manipulator which emulates the characteristics of a human arm.

BALANCER

A mechanism used to support and control loads so that an operator need only guide a balanced ("weightless") load, thus providing precision positioning. It can also be attached to hoists and manipulators.

CABLE BALANCER

Also called hoists and cable units, these are best for moving lighter objects that are in standard shapes.

END-OF-ARM TOOLING

The area of the manipulator specially designed to handle and "manipulate" products through rotation, tilt or other such movements.

HYDRAULIC ARM

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

LIFT/LIFT ASSIST

These are used when positioning involves the lifting, tilting or turning of a load. Also known as tilt or turntable.

MANIPULATOR

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

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.

WHAT ROI CAN I EXPECT FOR MY BUSINESS?

Before jumping in with both feet into an expensive investment like an industrial manipulator, we encourage our future clients to explore [the costs and potential ROI](#) for their business to determine if it's the right choice for them.

These questions include:

DO THE BENEFITS VALIDATE THE COSTS?

[Investing in material handling equipment](#) certainly makes work easier for your employees and increases productivity, but how can you predict what the exact benefit will be compared to the initial cost? You can start with a [cost-benefit analysis](#), which helps calculate your return on investment and create a visual of what your financial path towards material handling updating looks like.

CAN YOUR CURRENT WORKFLOW MAINTAIN EFFICIENCY?

To determine the efficiency and lifespan of your current processes, look at what you are currently doing with open eyes, and ask for feedback from employees. Once you have collected data from your assessment, you can continue to evaluate your work processes and get an idea of the potential benefits of investing in manipulators.

HAVE YOU DONE ENOUGH RESEARCH TO MAKE A DECISION?

This, of course, is not an easy question to answer. Given the huge variety of techniques and equipment that exist in today's marketplace, it's important to invest time in researching what styles, functions and capabilities are going to provide an optimal solution.

By continuing to consult online resources and documents like this buyer's guide, and reaching out for advice from [high-quality industrial manipulator manufacturers](#) like Dalmecc, you can rest assured that you'll be making an informed decision on your investment.

IS A CUSTOM SOLUTION RIGHT FOR ME?

While pre-made industrial manipulators may have a lower initial purchase price than custom-made machines, the cost is just that: initial.

Unfortunately, many manufacturers who need unique solutions are frustrated with their one-size-fits-all lift assist devices. When a machine isn't built to meet the exact needs of the manufacturing plant, there may be a gap between what an employee needs the machine to do and what it actually can do.

A custom-designed machine helps make your employees' jobs easier and safer while improving productivity and efficiency in your warehouse.

A custom manipulator can take the following adaptations into mind, including:

- **Articulations and rotations from point of pick to point of placement**
- **Size and breadth of components to be handled**
- **Weight of components to be handled**
- **Type of tooling needed** (ex. Grippers, vacuum or magnets)
- **Reach and trajectory requirements**
- **Ceiling height restrictions**
- **Access point to component (where it will be gripped or handled) at time of pick and placement**
- **Sequence of operations** (ex. What is the end user's process for handling the component?)

If the limitations of ready-made manipulators are holding you back, a custom-made option could be the solution to your warehouse needs.



NEED SOMETHING ELSE?

We hope this buyer's guide has helped you get specific about the questions you need to answer before investing in your manipulator and feel confident as you do so.

If you have any additional questions about whether an industrial manipulator would help your warehouse stay safe, stay productive and save money, [contact Dalmeccan today](#) – we're happy to help!

ABOUT DALMECCAN

Dalmeccan is proud to produce the highest-quality industrial manipulators and lifting equipment for a wide range of manufacturing environments across the globe. We are committed to providing our customers with high-quality, safe and long-lasting machines that are customized to meet their unique needs.