



JR AUTOMATION TECHNOLOGIES, LLC

Planning a Safe & Successful Robot Integration

INTELLIGENT DESIGNS

FAST FACTS:

- In business since 1980
- 120,000 sq. foot facility
- 210 employees
- North of Holland, MI

JR Automation Technologies, LLC staffs ingenious, qualified professionals who design and build solutions for efficiency and speed, customized for your specific needs. Whether that means machines or process development, the JR team has a smart, lean solution to your challenging project.

13365 Tyler Street
Holland, MI 49424
P: 616-399-2168
Website: www.jrauto.com

You've got a lot on your plate when implementing robots into a production process. The choices you make when it comes to process logistics, safety, and robot selection directly impact production planning, inventory, scheduling, quality, and efficiency.

This holds true whether you are designing your own system or hiring a system integrator; either way, your decisions will have consequences for all personnel from plant floor workers to management.

Of course, in today's manufacturing environment, a full plate is a good sign; so rejoice, roll up your sleeves and dig in—with these tips on robotic palletizing, you'll be granted seconds in no time.

DETERMINE PROCESS LOGISTICS

One of the first things you'll be considering as you plan your palletizing process is the logistics of your process. A robotic process allows for 24/7 packaging/palletizing without many failures, so you need to ensure your production rate will equal that of the packaging/palletizing rate in order to optimize your robotic capital.

Consider the following questions:

- Where is the product coming from?
- What is the production rate?
- What is my robot doing with the product? (I.e. Palletizing? Packaging? Labeling? Sorting?)
- How is the packaging/empty pallet being presented to the robot? Or is the robot retrieving it?
- How is the packaging/full pallet being removed from the cell?

The answers to these questions, and others like them, effect the coordination of the production outfeed system with the packaging/palletizing infeed system. A benefit of a robot packaging/palletizing system is that it can handle multiple production and product lines, and can automate and possibly synchronize packaging and pallet feeding. If you consider every detail of your process, you'll be able to maximize these strengths.



JR AUTOMATION TECHNOLOGIES, LLC

Planning a Safe & Successful Robot Integration

INTELLIGENT DESIGNS

FAST FACTS:

- In business since 1980
- 120,000 sq. foot facility
- 210 employees
- North of Holland, MI

JR Automation Technologies, LLC staffs ingenious, qualified professionals who design and build solutions for efficiency and speed, customized for your specific needs. Whether that means machines or process development, the JR team has a smart, lean solution to your challenging project.

13365 Tyler Street
Holland, MI 49424
P: 616-399-2168
Website: www.jrauto.com

THINK SAFETY

When it comes to robot safety, first familiarize yourself with the ANSI/RIA 15.06-1999 American National Standard for Industrial Robots and Robot Systems - Safety Requirements. This safety standard provides you with guidelines for robot installations, as well as methods to keep personnel safe when working around robots.

Then, conduct your own risk assessment to determine what risks and hazards the system may present. Look for ways you can eliminate accidents, which in turn reduces costs and increases productivity. This also helps you to prioritize your design plan—as is often said; safety first!

There are many tools available for robot safety; do some research into items like locking gate switches, light curtains, safety scanners, safety mats, and even the safety provisions built in to various robot software, to determine which meets your critical safety requirements.

SELECT A ROBOT

You've got your process plotted with all safety considerations accounted for—now it's time to select your robot. Add the following questions to your list of "need to know" items:

- What size and layout of work space do I have available?
- How many different part types will run on the cell?
- What are the sizes, shapes, and weights of the parts?

When it comes to workspace, the work envelope of the robot is a big consideration. The bigger the robot, the bigger the work area. Think about the travel path as the robot moves between the infeed, packaging/palletizing, and outfeed work areas. The robot size you choose will need to be able to move efficiently in the space allowed and still allow for safe accessibility.

If more than one part type is being processed, you'll need to be planning for easy adaptability. Some end of arm tools (EOAT) can be designed to manipulate more than one part type, but if the part types are too dissimilar, you may need multiple EOAT with quick changeover features.



JR AUTOMATION TECHNOLOGIES, LLC

Planning a Safe & Successful Robot Integration

INTELLIGENT DESIGNS

FAST FACTS:

- In business since 1980
- 120,000 sq. foot facility
- 210 employees
- North of Holland, MI

JR Automation Technologies, LLC staffs ingenious, qualified professionals who design and build solutions for efficiency and speed, customized for your specific needs. Whether that means machines or process development, the JR team has a smart, lean solution to your challenging project.



13365 Tyler Street
Holland, MI 49424
P: 616-399-2168
Website: www.jrauto.com

Robot payload is an important issue. If your part is heavy, you'll need a heavy duty EOAT. For that you need a heavy duty robot that can handle the weight of the EOAT and the weight of the part combined. But keep in mind, a longer reach often limits payload. The reverse can be said as well.

Selecting your robot is intricately tied into your process logistics and safety considerations—you may discover you have to go back to process planning stage before you're done. However, the more thorough you are from the beginning the easier this task is.

SUMMARY

Just like with meals, the prep work takes the most time. But when you know the logistics of the process, work with safety in mind, and choose your ingredients well, you're output is likely to be a success. There is no easy recipe to follow, but planning, forethought, and creative solutions will help keep your plate full, and ensure a demand for seconds.