This document captures ideas, experiences, and informal recommendations from the Yaskawa Partner Support team. It is meant to augment – not supersede manuals or documentation from motoman.com. Please contact the Partner Support team at partnersupport@motoman.com for updates or clarification.

Data Needed for Palletizing Reach & Cycle-Time Studies

Introduction

For a simulation to produce accurate results, specific kinds of data are needed from the customer, or the simulation results will fail. Below are lists of common and unique data types required for a successful simulation.

List of Data Needed for Generic Palletizing Simulations:

Palletizing simulations require a common set of data needed for accurate results.

1. **3D Model of the Cell Layout**
   a. If a 3D model is not available, then a 2D drawing can be used, but there is less accuracy, and it may take longer to construct a 3D sim from it.
   b. 2D drawings need to include a plan view and elevation view.
2. **3D Model of the Tool**
   a. If cycle-time results are needed, then the tool mass and Cg will be required.
3. **3D model of the product to be stacked**
   a. If cycle-time results are needed, then the product mass will be required.
   b. This needs to be the largest/heaviest product the robot will pick.
4. **Process flow of the Cell layout**
   a. A visual order of operations. Where is the robot picking and placing?
5. **Pallet size**
   a. Length, height, and width
6. **Layer pattern data**
   a. Product orientation
   b. Number of layers
   c. Slip sheet locations if any
7. **Tool Actuation Time**
   a. The time it takes the tool to activate
   b. Can the tool blow off the product?
8. **Customer requested Cycle-Time***…if needed*

About CAD model formats

When importing 3D models into MotoSim, the best CAD formats are in this order:

1. Original CAD format (Solidworks, Inventor, CATIA, CREO, etc.)
2. Parasolid (x_t)
3. STEP file
4. IGES

Bonus Information:

1. If the robot will be on a track or vertical elevator, then the customer will need to provide all the necessary data.

   a. Track direction (X, Y, or Z... or combination of the three)
   b. Rack & Pinion or Ball Screw drive
   c. Motion Range (+/-)
   d. Reduction Ratio (numerator and denominator)
   e. Pinion diameter
   f. Yaskawa Motor model number
   g. Yaskawa Servo amp model number
   h. Converter model number
   i. Rotation direction
   j. Max RPM
   k. Accel Time
   l. Inertia Ratio