

# CHAD TRAY FEEDER

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## OVERVIEW

Chad's Tray Feeder has been designed to address the flexibility and thru-put requirements for today's Odd Form Assembly demands. With years of experience designing Odd Form Assembly equipment and working with our customers to understand their ever-changing needs, CHAD has added a new Tray Feeder to its family of standard Odd Form Insertion feeders.

In today's manufacturing environment, the cycle times per board have greatly reduced and any down time on the system for loading and unloading feeders become a very costly cell stoppage. The need for a Tray feeder that can be loaded and unloaded with out interruption of the system is crucial.

The CHAD Tray Feeder allows the operator to load trays on the upper area of the feeder and unload from the lower area while maintaining a tray of inventory available for the system. The typical method of tray feeding is to pick directly from the tray, which not only uses up valuable robot workspace but also requires the robot to do long moves to reach the entire area of the tray.



## KEY FEATURES

- Load and unload boards without stopping production
- Ten-tray inventory minimum
- Direct pick and inline options
  - Multiple inline option
- PLC controlled
- Operator control panel
- Handles stackable and non-stackable trays
- Adaptable to Chad's flexible tray designs
- Random Tray access capability

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## FOR MORE INFORMATION:

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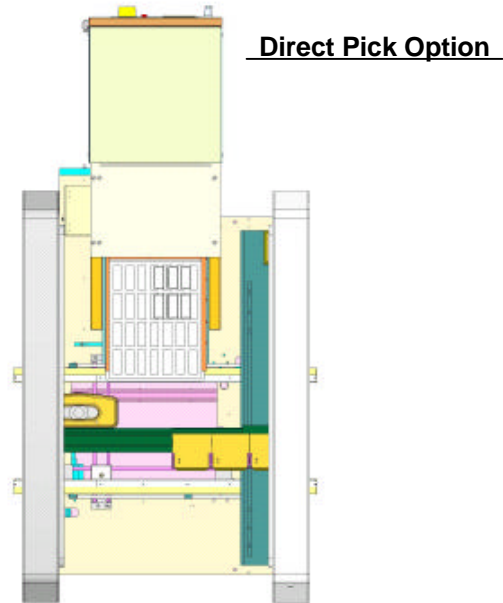


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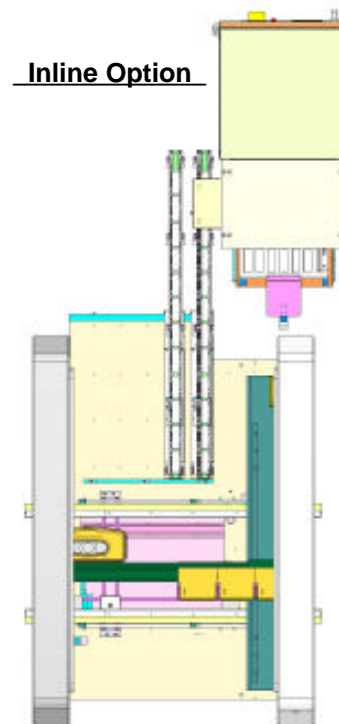
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To address this issue, CHAD has designed the Tray Feeder to allow the base unit to be configured in two ways:

1. **Direct Pick** - The entire tray is fed into the robot work area and the components in the tray will be picked directly by the robot gripper. This is a low-cost solution to tray feeding; it constrains the robotic system to have enough pick area for the entire tray, and the robot area takes up a large portion of the available area, reducing cycle times. This design also allows for more than one component to be fed on the tray feeder and/or in the tray. (See Right)



2. **Inline** – For applications that require larger feeder counts and higher thru-put, an inline has been adapted to the standard direct pick tray feeder. The tray is fed into an area outside the work cell, and an X-Z axis picks the parts and places them on an inline track, which feeds them into the workcell. This allows large tray feeders to take up a single feeder location. The single pick point also allows for less robot motion, decreasing the average cycle time of part placement. For applications that require two different part numbers, a dual-inline option is also available. (See Right)



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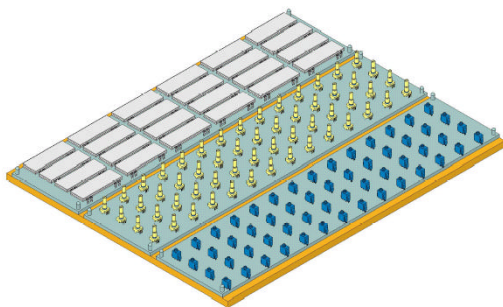
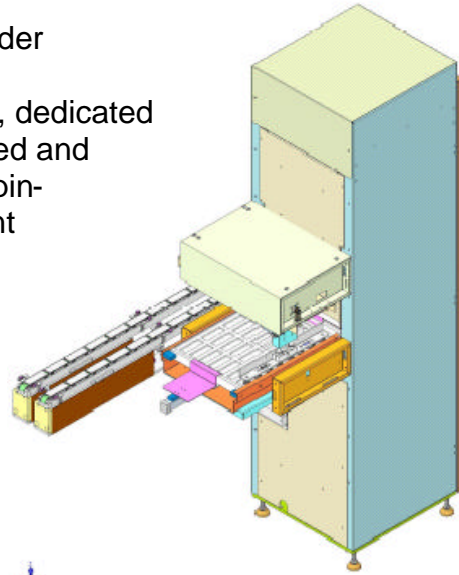
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## ADAPTABLE TRAY DESIGNS

For low-production or reproduction runs of components, a custom set of trays can be designed to handle a number of different components or smaller trays. The illustration to the right shows two different tray configurations.

With the push for factories to remove the wave solder process, companies are looking to place thru-hole components in paste. In high-volume applications, dedicated feeders are used for each component, which are fed and located automatically for the robot to insert. With pin-thru-paste application, the insertion of a component must be done accurately without adversely disturbing the paste on the board.

This makes pin-thru-paste lines require 100% automation of the component insertion. For new lines where the parts cannot be package affordably, or low-production lines where volume is too low to justify a dedicated feeder, a custom tray can be designed. Operators can place the parts in the trays by hand and then place the tray on the tray feeder. The parts can now be fed via the tray into the robot envelope and reliably picked and placed by the robot. The illustration below shows one tray with three rows of different parts on a single tray that would represent one board.



This allows a flexible insertion system to run a number of lower-volume boards with a single feeder. For small runs or prototype runs, this is a great cost-effective way to automatically build boards. With the addition of bar codes on the trays, a line system can be configured to run a number of boards without operator intervention for change out.

## CUSTOM OPTIONS

CHAD Industries is ready to work with our customers to adapt our standard design to meet their specific needs. Lead cutting, lead forming, lead splaying, vision inspection, orientation verification, barcode tracking and a host of other options can be included in the Tray Feeder design.

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