

THE EXPERT IN "PARTS MANAGEMENT SYSTEMS" Automatic Fill Systems

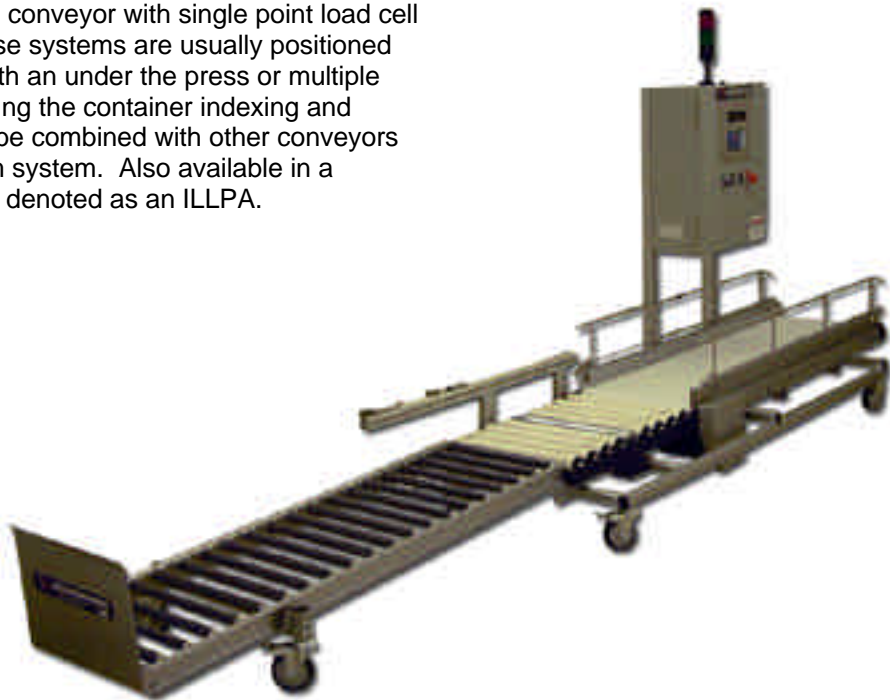
MAC Automation currently offers 5 standardized types of automatic container indexing and loading systems. The styles include: In-line, Parallel, MAC-Stack (over/under), L-shaped, and Rotary Indexing table. Three of the four listed systems are manufactured from either mild steel or extruded aluminum construction. These are the most common system used in the Injection Molding industry. There are other styles available that are application or requirement dependent and are available upon request. All of the above mentioned systems can be filled or controlled by either machine cycle count or by a counting scale system independent of the IMM or by weight.

Sizing an Automatic Fill System

First, determine how long you want the system to be unattended. An hour, a half shift, a full shift or over the weekend. Calculate how many boxes this will require. Your fill system will need enough capacity for both the empties and full boxes. Use the BoxFill RFQ form, these can be obtained from the factory by e-mail or via fax.

ILSS or ILSA - "In-Line System Steel or Aluminum

The first is the most common and most economical type of system found on the market. The system size is determined by the size and number of containers required for a certain amount of unattended run time. Systems for cycle count controls consist of an indexing conveyor, a gravity type accumulation conveyor, a control panel and leg supports with an end stop at end of gravity conveyor. Systems by weight scale control also include a powered roller style weigh scale conveyor with single point load cell with weigh scale controls. These systems are usually positioned along either side of the press with an under the press or multiple under the press conveyors feeding the container indexing and loading system. This may also be combined with other conveyors or equipment to create a custom system. Also available in a "Low Profile Aluminum" version, denoted as an ILLPA.



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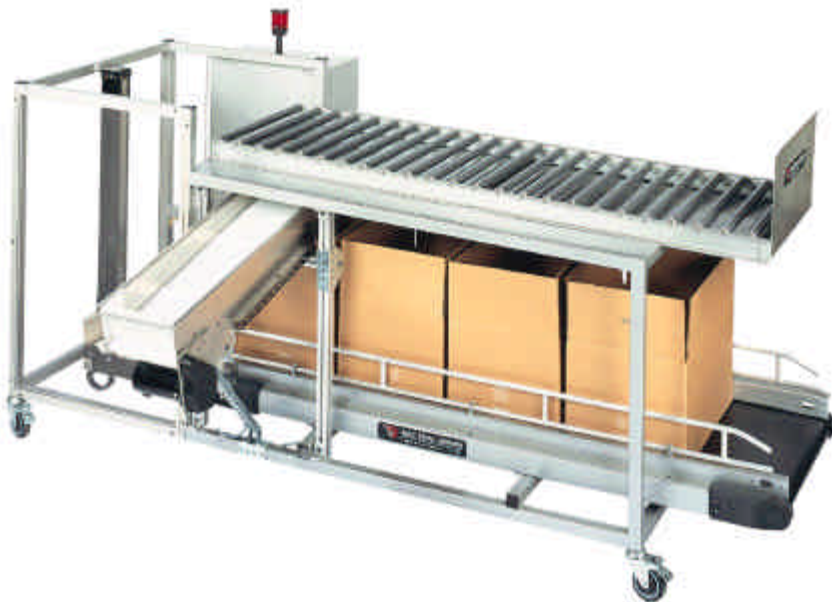
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PBSS or PBSA - “Parallel Box Fill Systems Steel or Aluminum”

The second most common and second most economical type of system found on the market. The system size is determined by the size and number of containers required for a certain amount of unattended run time. Systems for cycle count controls consist of an indexing conveyor, a gravity type accumulation conveyor, a equipment sub-frame, a pneumatic sweep arm, a control panel and leg supports with an end stop at end of gravity conveyor. Systems by weight scale control also include a powered roller style weigh scale conveyor with single point load cell with weigh scale controls. These systems are usually positioned along either side of the press with an under the press or multiple under the press conveyors feeding the container indexing and loading system. This may also be combined with other conveyors or equipment to create a custom system.



HSS or HSSA - “Horizontal Stack System Steel or Aluminum” MAC Stack Series



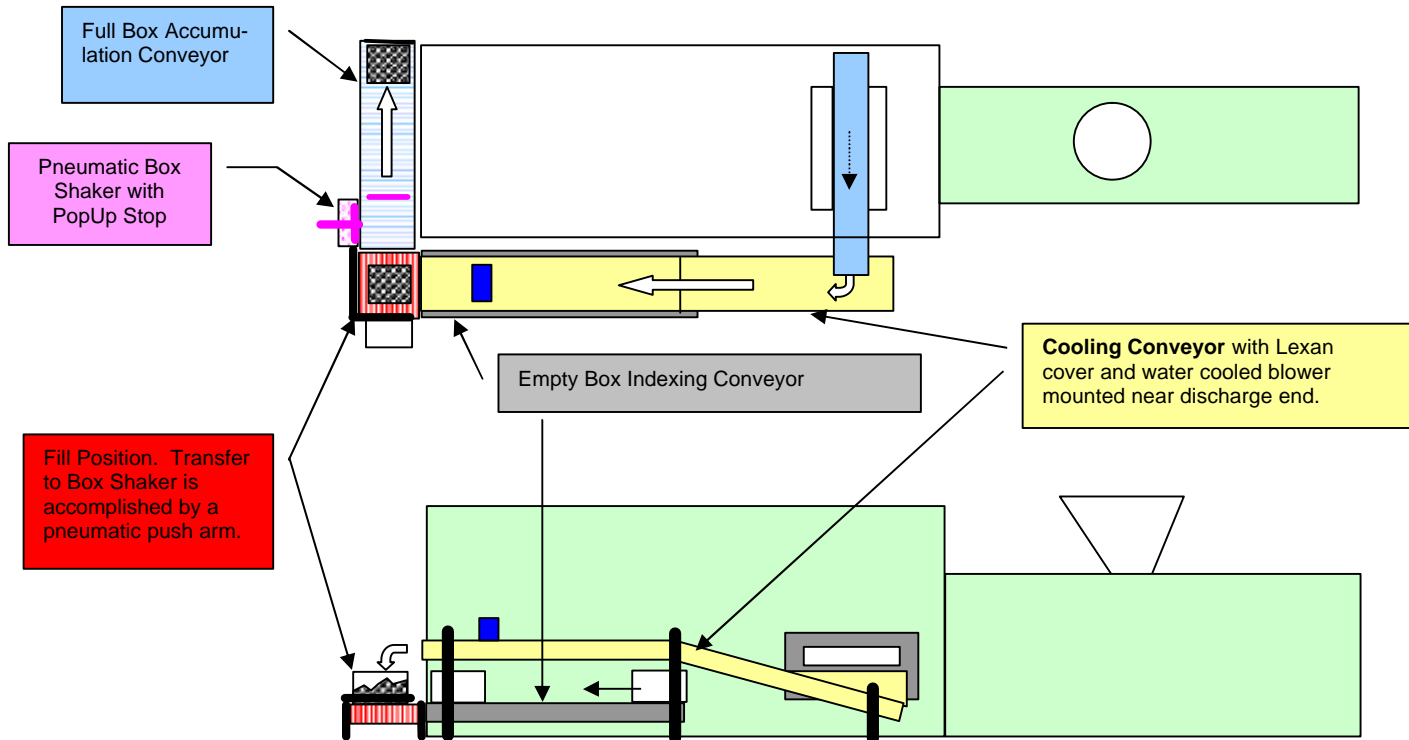
The third most common and third most economical type of system found on the market. This type of system provides the most efficient use of space both in the linear direction as well as a usable width dimension. The system size is determined by the size and number of containers required for a certain amount of unattended run time. Systems for cycle count controls consist of an indexing conveyor, a gravity type accumulation conveyor, an equipment sub-frame, a pneumatic or electric belt elevator type of lift, a control panel and leg supports with an end stop at the end of the gravity conveyor. Systems by weight scale control also include a powered roller style weigh scale conveyor with a single point load cell with weigh scale controls, which can be

positioned either before the elevator or on the elevator, depending on space requirements. The orientation of the conveyor is normally belt conveyor on bottom and gravity on top, but may be reversed depending upon application. These systems are usually positioned along either side or the end of the press with an under the press or multiple under the press conveyors feeding the container indexing and loading system. This may also be combined with other conveyors or equipment to create a custom system.

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RABSS or RABSA - "Right Angle Box System Steel or Aluminum"

The fourth most common type of system found on the market. System size is determined by the size and number of containers required for a certain amount of unattended run time. Systems for cycle count controls consist of an indexing conveyor, a gravity type accumulation conveyor, a equipment sub-frame, a pneumatic sweep arm, a control panel and leg supports with an end stop at end of gravity conveyor. The gravity conveyor connects perpendicular to the indexing conveyor or with the weigh scale conveyor. Systems by weight scale control also include a powered roller style weigh scale conveyor with single point load cell with weigh scale controls. These systems are usually positioned along either side of the press with an under the press or multiple under the press conveyors feeding the container indexing and loading system. This may also be combined with other conveyors or equipment to create a custom system.



RIT - "Rotary Index Table"

The fifth most common type of system found on the market. Systems for cycle count controls consist of an indexing table, available in diameters of 3', 4', 5, 6', to be used either to hold containers or plastic type bags. Included is a cycle count control package. Table diameter is determined by the size and number of containers or bags for required unattended run time. A part feed conveyor belt type or other is used to deliver parts to the containers or bags. Systems by weight scale control also include a weigh scale pneumatic operated hopper with single point load cell(s) with weigh scale controls. These systems are usually positioned along either side of the press with an under the press or multiple under the press conveyors feeding the container indexing and loading system. This may also be combined with other conveyors or equipment to create a custom system.



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Carousel Style Fill System

This design resembles an oval racetrack, supports carts with either a single caster or four casters per cart. Cart support a container or a bag frame holder. Systems are designed to work with cycle count or batch weigh scale hoppers. All controls are sequenced by a PLC internal to the control panel.

Automatic “Shuttle” Fill System

The Shuttle System design utilizes a support structure for approx. 4-6 containers, containers are located close to floor, a shuttling belt conveyor uses a two position air cylinder on a track system. The conveyor belt is cleted and has a forward and reversing motion. The sequence of the PLC controller allows all boxes to be filled by cycle count only. The alarm is activated when the last container is filling. An operator manually resets the system when completed and removes full containers, while replenishing with new empties and activates a reset button.



Multi-Level HSS or HSSA System MAC Stack Series

Multi-Level HSS or HSSA Systems (MAC Stacks) – same as previous description, but either a 3rd or 4th level is added to the stack system. The added conveyors are belt drive types with forward and reversing motor starters. An electric vertical elevator, belt drive, is utilized to sequence to the correct elevation as determined by sensors. Three level systems consist of two belt conveyors and a single gravity conveyor. The four level systems consist of 3 belt and 1 gravity roller conveyor. Systems can have even more levels. The number of levels required is based upon the necessary number of containers required for a given machine foot print.



Two Level Rotary Index Table

Similar to the rotary index table, but a 2nd or upper level tier is added with the addition of a diverting chute controlled by an air cylinder connected to the control panel. The sequence is the top level bag or box is filled first, then the diverting mechanism is activated to divert product to the first level. After the 2nd bag or box is filled, then the two table levels index 1 position and the sequence repeats. Alarm is activated as the last container or second to last container is being filled. System sizing is determined by same parameters as standard indexing table.



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Other Fill System

Belt Conveyor with two position part diverter mounted on end- A flat belt conveyor, cleated belt incline conveyor, or a horizontal to incline type conveyor can be set up with a perpendicular positioned PD type diverter with cycle count controls to fill two side by side containers.

Quick Change Rail System with conveyor and specified control package and/or required pneumatic air cylinder kit - A series 100 LPA type conveyor outfitted with an optional control package with or without a QCP air cylinder kit can be grouped to fill between 2-4 containers around a press.

Custom Systems – We are confident that we can engineer a custom system for your requirements. Examples

