

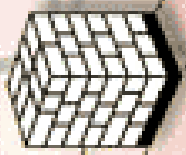


**PRODUCTION
AUTOMATION
INC.** MONTGOMERY, AL

**P
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I**

**Your
Product
Here**

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PRODUCTION
AUTOMATION
INC.

2075 Exchange Street, Montgomery, AL 36116
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Production Automation Inc.

www.palletizers.com

Palletizers

Automatic Material
Handling Systems

P.A.I. Contact

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P.A.I. Guarantees

- 24 hours a day Service and Support
- 1 year warranty
- 1 year full money back guarantee: If you are not satisfied then PAI will give 100% of the purchase order back and allow you to keep the machine up to 3 months until a replacement can be installed. The customer is responsible for shipping the machine back.

P.A.I. Equipment

- **Palletizers High Level Electric or Hydraulic Power**
 - 3100 (Right Hand) –Up to 35 CPM
 - 4500 (Right Hand) -Up to 60 CPM
 - 5200 (In-Line)- 50 CPM Up to 130 CPM
 - 6300 (In-Line)- 65 CPM Up to 150 CPM
 - 6400 (In Line)- 70 CPM Up to 180 CPM
 - 9200 (In Line)- 50 CPM Up to 165 CPM (Frig-Pak)
 - 9300 (In-Line)- 65 CPM Up to 200 CPM (Frig-Pak)
 - 9400 (In Line)- 75 CPM Up to 200 CPM (Frig-Pak)

Note: Speed is dependent on case size, pallet size, product per layer, and how many layers per pallet.

- **Pallet Handling**
 - Double Stacker
 - Turn Table & 90 Degree Transfer
 - Pallet Stacker & De-stacker
 - T-car & Trunk Line Conveyor
 - Pallet handling outfeed thru the Stretch Wrapper
- **Product Conveying**
 - Combiner/Diverter & Line Divider
 - Case Turning Conveyor

P.A.I. Standard Mechanical

Vendor Components

- Air Valves- Mac 92 Series (EtherNet valves available)
- Parallel Gear Reducer- Ultramite (Falk)
- Double Enveloping Worm Gear (Cone Drive)
- Right Angle Gear Reducer- Tigear 2 (Dodge)
- Bearing – (Dodge)
- Bearing Lube For Life – (IPTCI)
- Coupling – (Rex Omega Coupling and Lovejoy)
- Chain- Hitachi & Diamond(40 chain)
- Air & Hydraulic cylinders- (Parker)
- Air Dump & FRL Unit- (Parker)
- Motors- (Baldor) Super E
- Brake Motors- (Reliance) Inverter Duty
- Air Brakes- (Horton) Spring Set
- Hydraulic valves – (Parker)
- Chain Oiler- (Parker) Pneumatic Oiler
- Bearing Lube-(Lincoln) Manual Cluster Standard
- Sprockets & Bushings- (Browning, Martin, Jointway)
- Mattop Conveyor Belt – KVP
- UHMW Bushing – (Nolu, Pobco)
- Snap Rings- (Roto Clip)
- Vacuum Components- (Piab and Norgren)
- Linear Motion Rail & Bearings –(SKF)
- Hydraulic Pump- (Parker Load Sense)
- Hydraulic Motor- (Char-lynn)
- Strap- Standard Webbing

Note: PAI can use other components at customers requests for an agreed upon up charge, as long as it does not interfere with machine design.

P.A.I. Standard Electrical

Vendor Components

- Panels & Junction Boxes- Hoffman Nema 12
- Ac Drives & Flux Vector- AB Power Flex
- Push Buttons- AB
- Compact Logix Processor, Control Logix
- Touch Screen AB 6” and 10”
- Motor Contactor,Overloads, Soft start- AB
- Brake Resistor- Post Glover, IPC
- Cables- AB or Brad Harrison
- 24 VDC power supply- Omron
- Photo Eye – AB 9000 series
- Limits Switch – Omron D4A-1101N
- Main Transformer & PLC Isolation Transformer–Micron
- Terminal Blocks – Phoenix
- Prox- AB 24 v 18 mm or Cutler Hammer 24vdc 18 mm
- Fuses- Littel Fuse or Bussman
- Relays – AB
- Fuse Block- Bussman
- Encoder- BEI
- Light Fixture- GE x 48”
- Flexible Conduit- Liquid Tight 3/8” and Up
- Flexible Conduit Fittings- T&B
- Conduit Fittings- Crouse-Hinds
- Festoon – Igus
- Panduit- Panduit
- Control Cable- Belding Cable
- Wire Marker- Brady Printed Wrap Around
- Legend Plates- Engraved White Background w/ Black Lettering
- Conduit- Wheatlend

Note: PAI can use other components at customers requests for an agreed upon up charge, as long as it does not interfere with machine design.

P.A.I. Manual & Training

- One hard copy and one copy on CD Provided with every machine.
- Manual includes actual Vendor part numbers. Customer can order from PAI or local supply store.
- On site class room training is available as an option.

P.A.I. Manual

- **Section 1: Safety**
 - General Safety Practices
 - Mechanical Safety
 - Electrical Safety
 - Control Safety
 - Guards & Guarding
 - Safety Stickers
- **Section 2: Preventive Maintenance**
 - Maintenance Schedule
- **Section 3: Palletizer Operation**
 - Remote Operators Console
 - Remote Jog Station
 - Shut Down
 - Start/Stop Belt Infeed
 - Elevator Jog
 - Pattern Change Over
- **Section 4: Mechanical Parts and Assemblies**
 - Table of Contents
- **Section 5: Electrical Section**
 - Electrical Bill of Materials
 - Electrical Schematics
 - Machine Program
- **Section 6: Lube Section**
 - Lube Schematic
- **Section 7: Pneumatic Section**
 - Pneumatic Schematics
- **Section 8: Recommended Spare Parts**
 - Electrical Spare Parts
 - Mechanical Spare Parts
- **Appendix A: Production Data**
 - Production Data
 - Pallet Patterns
 - Pallet Information
 - Machine Layout
- **Troubleshooting Guide**
- **Contact Information**
- **Appendix B: Vendor Literature**

P.A.I.

Utility Requirements

- **Electrical:**
 - 460 VAC Machine Voltage
 - 120 VAC Control Voltage
(24 VDC Control Also Available)
- **Pneumatic:**
 - 20 CFM @ 65 PSI (3100-6000)
 - 25 CFM @ 65 PSI (9000) Series

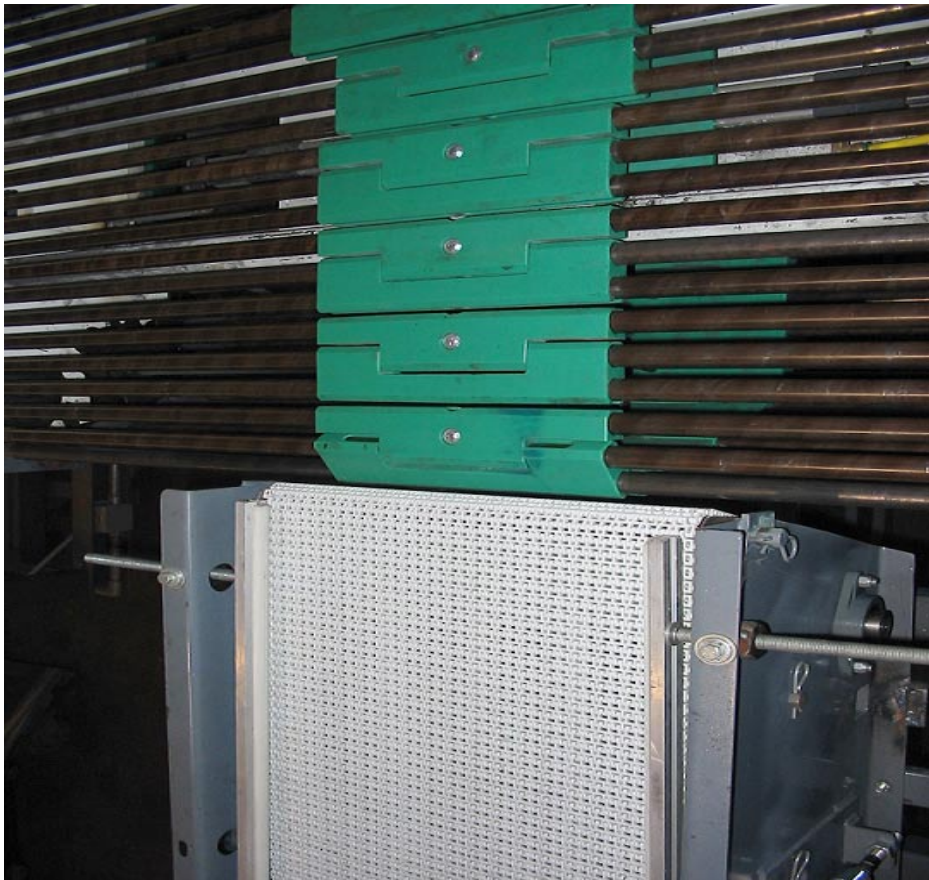
Line Divider



Line Divider

The divider is made up of a heavy-duty frame with UHMW and hardened steel guides. The chain has a 1 ½” pitch with large carrier rollers on UHMW guides. The slats are UHMW made into a door hinge type arrangement for close centers. This enables the slats to carry small cases and transfer small cases onto close center conveyors. All valves are mounted outside the divider.

NO TIMING WHEEL!



Diverter Assembly

- PAI uses a two position diverter assembly in lieu of a three position.
- The two position guides the cam where the three position relies on dynamic impact of the cam to move the slat.
- The two position diverter assembly has no exposed cylinders.
- The three position takes twice as long to switch from the left lane to the right lane.

Slip Roller Forming Conveyor Drive



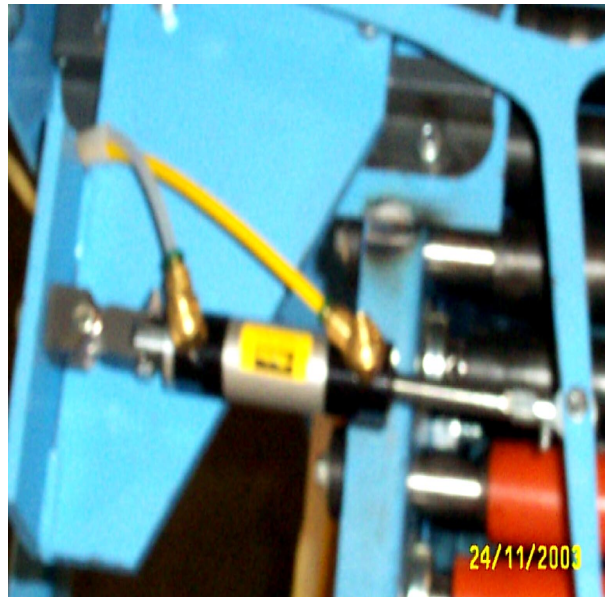
- Available with one continuous #40 chain or Nitta belt drive instead of individual chain per roller
- Drives the axle instead of the roller allowing the case to stop when the roller stops
- Easy to maintain with just one chain or belt per conveyor bed to replace
- Drive located outside pan for easy access

Slip Roller Forming Conveyor Roller



- Two inch roller centered distance for small case handling and stability
- Outer roller slips on inner axle for case integrity and prevent product walking
- Can be covered with rubber to control plastic cases at higher speeds
- Lube for life 1” diameter bearings design

Cushion Case Turner



- Case turner automatically adjusts to different case sizes and weights
- Allows for a gentle turn of product
- Made with Repairable cylinder with a cushioned rod end
- Made to rotate in and out of machine depending on product demands

Cushion Pin Turner



- Allows cushion turn from one to three cases at a time
- Located for easy adjustments and maintenance

Mat-top in CTA Zone



- Mat-top available in the turning zone

Mat Top Full Layer Conveyor



- Made with Mat-top belting
- Product Friendly
- Maintenance Friendly
- Easy to clean
- Available on all 6000 & 9000 series machines
- Use is dependent on product type

Product Guide

Compression

- Auto guide in forming zone to prevent damage to cases caused by hanging corners.



Apron



- Heavy Duty UHMW interlocked design
- No Apron Slat Shingling to damage product
- UHMW drop plate for consistent product stacking and durability
- Low coefficient of friction making it more product friendly
- Great for stretch wrapped product
- The apron doubles back around the apron drive sprocket to reduce inertia and to reduce the starting load.
- The end result is a stronger, faster, and more versatile apron that works well with today's wide variety of products.

End Compression And Apron Drive



- 4 sides compression to center layer on different pallets without adjustments
- No sweep bars or bi parting plates to maintain
- Side compression can be removed as a complete assembly
- Side Compression has 6 bearings that allow for 2 degrees of misalignment freedom.
- Cone Drive Gear Reducers
- Horton air spring brake for e-stop conditions

Hoist Lift Drive



- Direct drive - no belt drive to break
- Mechanical brake used only in e-stop situation- not used to stop load.
- Thus no varying positioning due to brake wear
- 4 point double capacity 80 chain lift
- 50% energy saving over competition- Competitors use 20-25 HP on hoist where PAI uses 10 HP.
- PAI uses two motors to drive the hoist. If one motor fails the hoist will still operate.
- The hoist motors are 5 HP Baldor Super E. These motors are stocked locally and not a long lead time item.
- The hoist is controlled by a Rockwell Automation PowerFlex 700 drive that is also locally stocked.

Hoist Base Chain



- Multi chain to handle varies pallets
- Center tube offset for better pallet and product transfer onto the outfeed
- Base chains are onboard the hoist for better pallet handling and speed
- Center drive configuration with spring chain take up
- Hollow bore direct drive

Direct Drive Gear Reducer

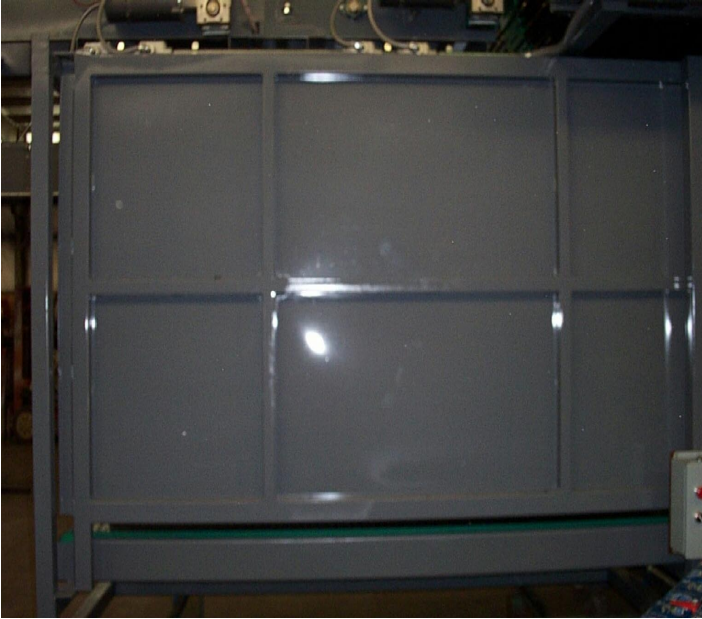


Forkcar



- Picks up pallets just like a standard fork truck
- Less pallet jams
- Non adjustable slip clutch
- Automatic mode and Manual Mode jog function
- Solid steel construction

Pallet Load Station



- Works with multiple pallet sizes
- 2 stacks of pallet
- Solid steel construction to handle harsh environment

Typical Outfeed Stations



- Heavy duty Steel construction
- Can be configured for multiple stations
- Dual strand 80 chain, Drag chain, and CDLR are available

Electrical Panel



- The standard processor is an AB Compact Logic. AB Control Logic, Modicon, Siemens, and other processors available.
- Panel components consist of Allen Bradley drives, motors contactors, and relays.
- AB PowerFlex Drives controlled via EtherNet IP
- PLC power is isolated via power conditioning module.
- Output cards are fused in groups of eight.
- Remote access port in panel allows PAI to assist in troubleshooting when connected to plant network.

Touch Screen



- AB PanelView or PanelView Plus with 6” or 10” display.
- Case Display- Shows case orientation and highlights case as they enter the palletizer.
- Machine status display and alarm history
- Machine layout to show location of devices
- Help Screens for operator interface
- Troubleshooting Screen includes suggestions on clearing each specific fault.
- PowerFlex Drive troubleshooting includes descriptions of fault codes and common corrective measures.
- Maintenance Screen allows authorized personnel to toggle outputs for troubleshooting purposes.

Additional Features

- All shafting is turned down on both ends to eliminate walking.
- PAI uses standard components off the shelf for ease of maintenance. PAI supplies the customer with actual part numbers.
- Speed Management, available on 9000 series palletizers, cuts down on the wear of the palletizer at a minimum of 20% which in return increases the life of the palletizer.

Guarding

- P.A.I. works hard to make sure our equipment meets safety standards. Each company and plant can add to our standard guarding package to accommodate your needs. P.A.I. offers hoist lockouts (as standard), light curtains, source receive photo eyes, and other physical guards to help meet your specification.