Operation Manual

Semi-Automatic Depalletizer

In-Line Packaging Systems, Inc.
7282 Spa Road, North Charleston, SC 29418
Phone: 843.569.2530 Fax: 843.576.0798
www.inlinepack.com

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CAUTION!

Persons operating this machinery are reminded to observe their own company safety policies. In addition, the following safety rules should be observed:

DO NOT REACH INTO THE MACHINE WHILE IT IS IN OPERATION.

USE ONLY THE CORRECT TOOL FOR THE JOB BEING DONE.

STAY ALERT, REMEMBER LOCATION OF CONTROL SWITCHES.

MAINTENANCE

The main electric switch supplying power to the machinery should be locked out or disconnected when repairs are performed on this equipment.

Machine should be cleaned and inspected regularly. All safety switches must be operable, attachments secure and machine free of broken glass and paper.

Do not hand lubricate when the machine is in operation.
Work area should be kept clean and as dry as is practical.

The repair or adjustment of this equipment should be performed only by persons qualified through technical training and ability, as assigned by your company.

OPERATION

All guards should be securely in place before operating the machine.

Company rules on eye protection should be followed.

Loose clothing or jewelry such as neckties, rolled sleeves, over blouses, bracelets, watches and rings should not be worn when operating the machine.

Report all malfunctions, unusual operation and defects immediately.

Please exercise caution with any moving parts, including the conveyor and any pinch or drive rolls.

Stop the machine before placing hand or arms near or into any area where moving parts are located.

IN-LINE
Packaging Systems, Inc.

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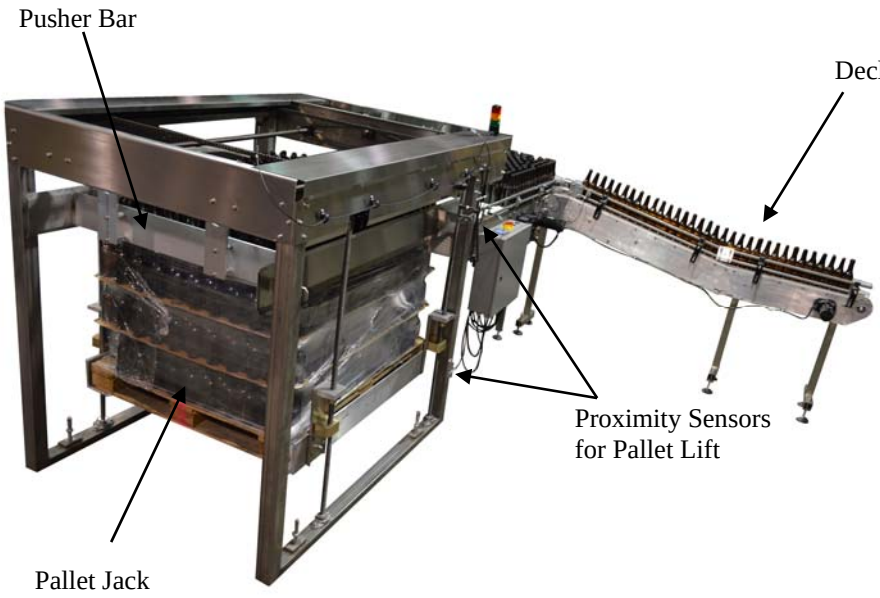
Section One - General Information

The Semi-Automatic Depalletizer offers an inexpensive way to feed a packaging line with bulk glass delivered in layers on a pallet. The system consists of an automated pallet lift, a 48” by 60” powered rectangular feed table with dead plates, a 10’ powered conveyor with adjustable decline angle, a powered pusher/separator belt, and photoeyes and controls to automate the feeding of the line.

1.1 Terminology of a Depalletizer



1.2 Functional Description of Depalletizer Machine

Operational Summary:

Full pallets are picked up using a pallet jack and loaded into the machine. The shrink wrap is then removed from the top layer, or optionally all layers based on the stability of the pallet. Please note that we recommend removing one layer of plastic at a time to maintain stability. Using the screen, the operator indicates to the machine that a new pallet is present using a button. The pallet lift then raises the pallet until the pallet height photoeye is blocked. This should be set so that the base of the bottles is at the height of the dead plate for transfer onto the table. Once the pallet stops, then the pusher bar in the rear begins to move forward, pushing the bottles from the pallet onto the transfer table. A photoeye on the table (nearest the pallet lift) controls the pusher bar. As bottles are needed (the photoeye is open) the pusher bar moves, and as the photoeye is blocked the pusher bar stops and waits.

Bottles on the transfer table are transported over the dead plate onto the right angle conveyor in a single file. The photoeye on the conveyor controls when the table moves. When the eye is open the table pushes bottles over onto the conveyor and when the photoeye is blocked the table stops and waits. At the corner of the table and conveyor is a powered belt mounted to a linear slide for breaking up corner jams between the table and the conveyor. This mechanism slides in and out on a timed cycle that is set using a timer in the Timers screen.

When the pusher bar reaches the inside of the pallet a proximity sensor tells the PLC that the level is complete. The pusher bar will automatically retract and the stack light will flash yellow to tell the operator that the level is done. The operator will then come over to the machine, remove the next layer of plastic if it is not already removed and then press the “Advance to Next Level” button in the screen. The pallet then lifts and the cycle begins again.

When the pallet is on the last level another proximity sensor (pallet high) tells the PLC that this is the last level, so when the pusher bar in prox comes on the machine knows that the entire pallet is done. The pusher bar then retracts and the pallet lift goes down and the stack light flashes red to indicate the entire pallet is done.

Remove the empty pallet, and then start the process over.

1.3 Installation of Machine

1. Uncrate the machine, remove the machines from each pallet by removing the mounting bolts from the bottom of the pallets. Take care when lifting the machines with a forklift so as to not stress the wiring, conveyor chain, or frame supports.

2. Level the collection table and set dead plate (top arrow) height to 48’ from the floor.
   Drill a hole and secure the angle support (bottom arrow) to the table after leveling both the depalletizer frame and table.

3. Attach the decline conveyor to the end of the collection table using the two supplied brackets. And level the conveyor to the discharge dead plate.

4. Using the 4 bolt bracket connect the decline conveyor rails and neck guides (if purchased).

5. Connect the air supply at the quick disconnect as shown.

6. Connect the jogging belt motor connector.

7. Connect the decline conveyor backup eye using the labeled cable.

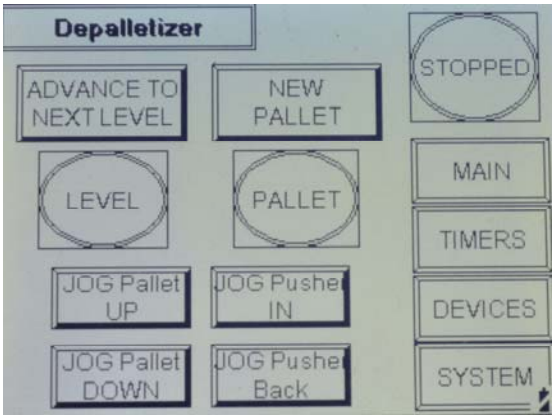
8. Secure the decline pieces to the proper elevation then lock them in place using the bolts provided.

9. Connect the stack light cable, pusher and lift motor twist lock connectors.

10. The assembled unit should look as pictured.

11. Below are reference photos for the height of the bottle stacks from several views.

1.4 PLC Screens



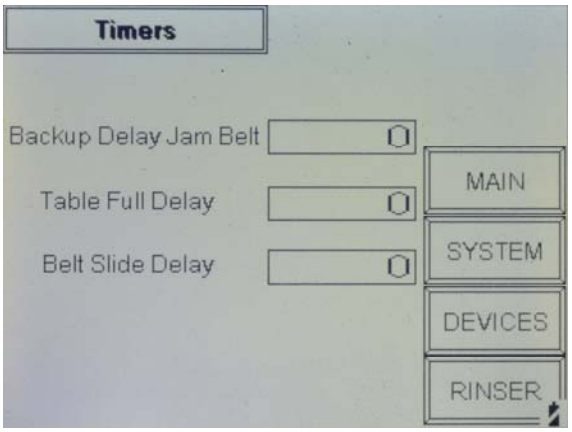
Main Screen:
The indicator button displays whether the machine is stopped or enabled. Other screen access buttons are on the right side.

The "New Pallet" button allows you to start a new pallet automatically.

The "Advance to Next Level" button is used between levels.

The "Level" and "Pallet" indicators display the current status of the cycle.

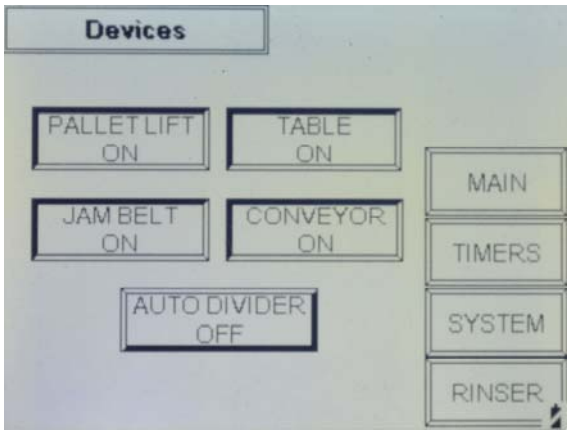
Jog buttons allow you to move the pallet and pusher bar while the machine is running or stopped.



Timers:
Backup Delay Jam Belt – This is the delay after the downstream eye is blocked to stop both the jam belt and the table chain from pushing.

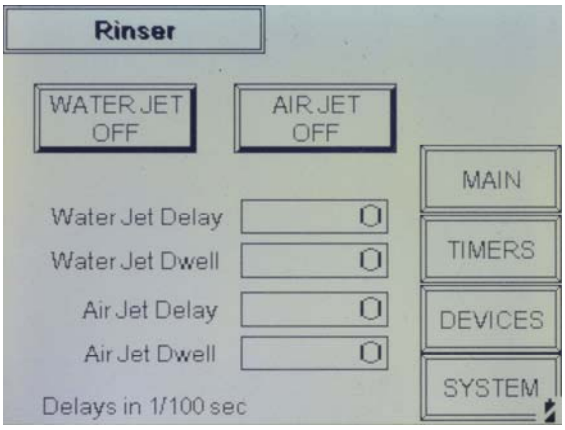
Table Full Delay – The time after the eye is blocked for the pusher bar to pause. Pusher bar resumes when eye is clear.

Belt Slide Delay – The time between cycles of the jam belt indexing in and out.



Devices:
You can turn on/off various devices should the situation arise when you need the control.

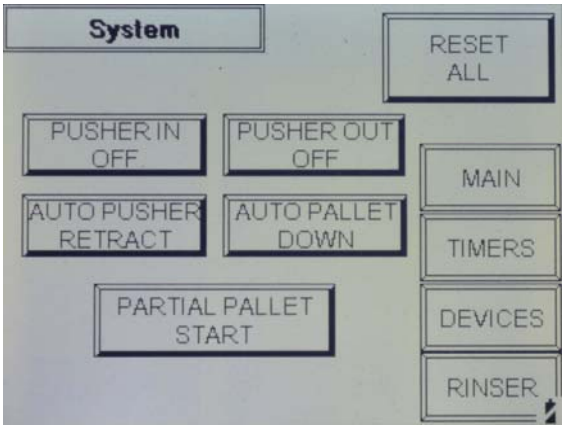
Auto Divider is an option when the cardboard divider is automatically removed by the machine. If that option is present, turn this button on.



Rinser:
If air or water rinse is included in the machine:

Delays are from detection of the bottle to the opening of the solenoid.

Dwells are for the length of time for the solenoid to remain open.



System:
These buttons allow you to speed up the manual control of the machine.

"Reset All" resets all automated parameters and allows allows you to start over if the machine seems confused.

"Pusher In" starts the automated process of the pusher pushing in that level.

"Pusher Out" starts the automated process of the pusher going back out at the end of a level.

"Auto Pusher Retract" will send the pusher bar back to home position.

"Auto Pallet Down" will send the pallet down to home.

"Partial Pallet Start" allows you to start the automated process from wherever the pallet is (not at the bottom).