

Automatic tote de-stacking solution

- ü Bespoke engineering solution
- ü Restricted installation space, unique design
- ü Complex handling solution
- ü Innovative R/FID tag reading system for product orientation
- ü High throughput for an application of this type
- ü Turnkey solution
- ü Siemens S7 PLC software



Palmers needed a solution for automatically de-stacking returned totes onto a sorting system at one every three seconds. The totes had to be rotated as necessary to ensure that an imbedded RF tag was always presented in the correct manner to the filling machines.

The allotted space was very restricted to enable fork lift traffic to gain access past the machine making design of the machine critical.

The machine is loaded with a pallet of totes consisting of 3 rows of 3 columns up to 15 high. Once clear the machine is started and the complete stack of totes is pushed towards the lift area where the first row of three columns is positioned to a datum ready for de-stacking. The remaining columns are automatically retracted clear of the de-stacking area.

Two individual yoke assemblies rise from below the conveyor level around the three columns. The lower yoke grips the bottom layer of totes to prevent them from lifting whilst the upper yoke grips the next layer. The upper yoke is raised to lift the stacks clear of the bottom layer which then is free to exit the machine on the discharge conveyor once the lower yoke retracts below the conveyor level. The remaining stacks are lowered back onto the conveyor where the process is repeated until completing all layers. Both yoke assemblies then retract below conveyor level allowing the next row of three columns to be pushed into position.

As the individual totes leave the machine they enter an inspect/rotate station where the position of the RF tag is checked and the tote rotated if required. Totes needing rotation are arrested by an overhead spider which lowers into the open tote. Once engaged the spider is rotated 180 degrees spinning the tote; the spider is then lifted clear and the tote continues.

The plant operates on a 24 hour basis Monday – Friday and support response is therefore important. The PLC control is provided with a modem which enables engineers to quickly dial in and provide problem solving, diagnostics and breakdown help.