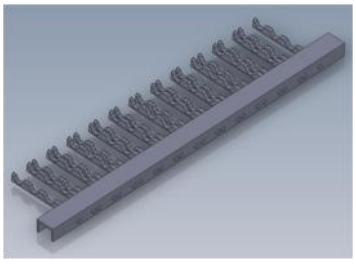
High Speed Linear Palletisers

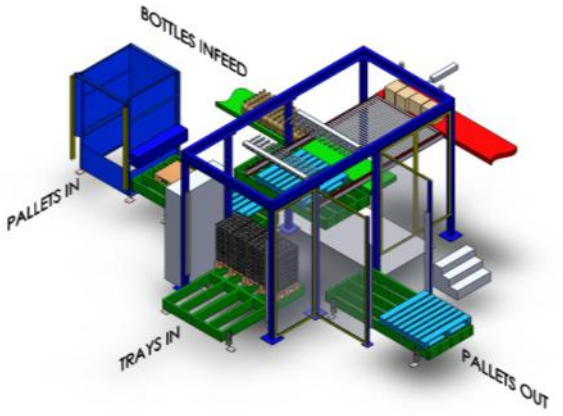


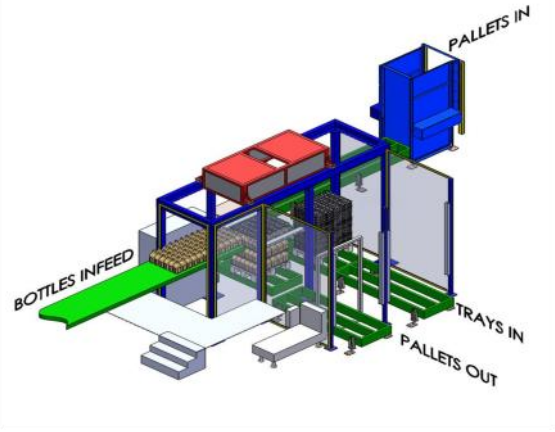
The Project

P&N Beverages is a major producer of bottled and canned soft drinks and fruit juices including the provision of contracted services for the major supermarket chain, Aldi. Upon securing a long-term Aldi suppliers contract, P&N have engaged Australis Engineering to provide engineering design, manufacture and installation of the following:

- Three (3), special purpose and custom designed High Speed Linear Robotic Palletisers (HSLPs), one each for P&N's manufacturing facilities in Condell Park (western Sydney), Moorebank (south-western Sydney) and Goodna (South-western Brisbane), comprising:
  - ⇒ Quad Head Linear Palletiser for the Moorebank Aldi Juice Line;
  - ⇒ Dual Head Linear Palletiser for the Goodna Aldi Juice Line; and
  - ⇒ Quad Head Linear Palletiser for Condell Park 1.25L PET soft drink Line S3.
- Upgrade of Lines S3 and S4 to accommodate the installation of a new Ocme Packer

Automation ***High Speed Linear Palletisers*** ***Pallet Conveyors***





Our Design

Australis' Quad Head HSLP has been designed as a high speed 200 bottles/ minute, pick and place tray palletiser for PET bottles. The quad head allows simultaneous pick/place of bottles and trays onto 2 pallets, permitting:

- A juice bottle pick/place cycle of 72 bottles, placed into 4 trays sitting on 2 pallets, or
- A 1.25L bottle pick/place cycle 96 bottles, placed into 4 trays on 2 pallets, or
- For trays, four are picked/ placed on each cycle.

By utilising a quad head, the Australis HSLP allows maximum bottle per minute throughput while minimising required machine velocities giving the added advantage of less stress on fast moving components. The Dual Head HSLP is fitted with a dual pick up head for both trays and bottles, that allows the palletiser to pick up 36 bottles and 2 trays, palletising a single Aldi pallet at a time.

The bottle head features a vacuum or mechanical pickup with each bottle position checked for bottle presence. The head automatically spaces bottles into the necessary alignment for tray placement and the tray head features a mechanical grip mechanism allowing 4 individual trays to be picked off 2 separate pallets.

At both the tray pick and bottle place locations, the pallet conveyor's servo driven lift mechanism raises the conveyor to minimise head travel, meaning the majority of up/ down travel occurs while the heads are moving back and forth horizontally, thereby improving cycle time.

Tray & Bottle Stability

Tray stability has the potential to be an issue with 'hot filled' 2L bottles. Australis overcame this issue with the use of retracting fingers which lock the bottles in place immediately after placement by the palletiser

Client:
Tru Blu Beverages
(P&N Beverages)

Locations:
Sydney and Brisbane

To design, manufacture & install special purpose, High Speed Linear Palletisers and associated infeed and outfeed conveyors for Aldi juice and soft drink lines.

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head. The profile fingers rotate and lock the bottle into place in X, Y and Z planes. These fingers remain in place until the bottle tray is placed. At this point the fingers retract and a pneumatic clamp system securely holds the tray in place ready for the next placement of bottles. By holding the tray this also ensures the entire stack remains in position and fully vertical. Even if the line stops, the tray will not 'pop off' the bottle caps.

Bottle Infeed

Bottles are fed from a single line into 6 lanes using a multi-lane diverter that allows the bottles to be fed in groups down the 6 lanes to the pick point of the palletiser. The diverter operates by indexing to each lane in sequence and by moving the infeed conveyor perpendicular to the lane direction. This allows for distribution to the 6 lanes easily and effectively with minimum complexity. The pick point has a small section of separate conveyor to feed the bottles to the final pick point location.

Pallet Conveyors

All pallet conveyors include triple 1” pitch chains to ensure the Aldi pallets are fully supported. The pallet conveyors under the tray pick and bottle place zones are fitted with servo driven lifts to raise and lower the conveyor to the required heights throughout the cycle. Pallet conveyors are Australis Engineering’s standard design and are constructed in powder coated mild steel.

Pallet Testing

An automated Pallet Testing jig is fitted following the pallet de-stacker that test each pallet for broken or cracked legs.

Pallets from the tray stacks are automatically cycled onto the main infeed pallet conveyor and tested. This ensures all pallets through the system are tested.

Innovation

The Australis Engineering tray-bottle style High Speed Linear Palletiser is believed to be the first of its type designed in Australia. Our original HSLP was initially installed at the P&N Beverages Condell Park manufacturing facility in late 2001. Since this time, the HSLP has been one of the most reliable pieces of equipment operated in the P&N plant. Even after 10 years of 24/7 shifts, the HSLP is running at over 95% efficiency and is, according to P&N’s plant manager, the most efficient piece of equipment in operation. The first HSLP was relocated to Brisbane and the new HSLP installed at Condell Park has twice the capacity of the original via the implementation of a dual pallet system.

Watch the Video

Watch the video of the HSLP in operation on our YouTube channel: www.youtube.com/user/AustralisEngineering