

Automated carton transfer conveying system



Client:
Colorpak Ltd

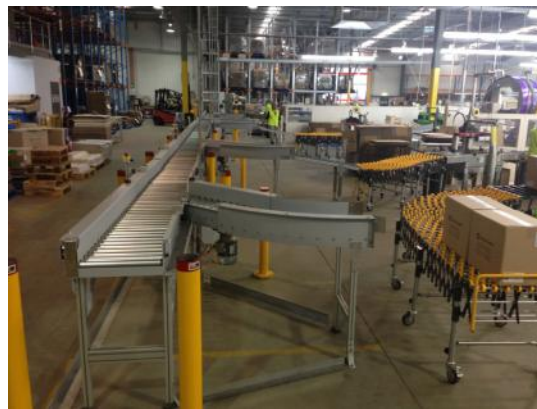
Location:
Sydney, NSW
Australia

The Project

Colorpak are a leading Australian company offering product packaging solutions and who specialise in pharmaceutical packaging, cardboard boxes and point of sale displays. With a need to improve their production efficiency and maximise the use of floor space in an existing facility, Colorpak engaged Australis to design and manufacture a fully automated carton transfer conveying system for their Regents Park plant. The project including the design and manufacture of the following equipment:

- Continuous Carton Elevator (CCE)
- Infeed belt conveyors
- Powered roller conveyor transfer system
- Elevated powered roller conveyors
- Decline conveyor
- Tight radius modular belt conveyor
- Ergonomic packing conveyors
- Electrical programming and automation for automated control of the entire system

Overhead Conveyor System | Continuous Carton Elevator | Ergonomic Design



Continuous Carton
Elevator

Powered Roller
Conveyors

Belt Conveyors

Modular Belt
conveyor

Customised
Conveyors

Fully automated

The Result

Australis installed a fully automated carton transfer system at Colorpak's Regents Park plant, that allowed for palletising to occur in a dedicated warehouse zone that is over 130m away from the main production area. This has significantly improved process flow and space around the main production area while also allowing for easier palletising in a central location and with a dedicated space.

The system integrates 5 separate production lines into a single transfer system. Cartons enter onto the main conveyor from side spur conveyors that lead from the production lines. Carton entry into the main line is fully sensor controlled to allow for easy traffic management as cartons enter the main conveyor line and feed cartons into spaces between other cartons already on the main conveyor. Following from the 5th infeed line, the cartons are raised 4m using a Continuous Carton Elevator. Cartons are discharged from the elevator onto the overhead transfer conveyor which then transports the cartons 130m to the warehouse. This transfer is inter-building which includes the conveyor running through a specially built bridge between the production building and warehouse building.

Once in the warehouse, a long declining belt conveyor brings the cartons back to ground level for palletising. To maximise palletising space, a tight radius modular belt conveyor allows the cartons to turn 180 degrees and enter the palletising lane conveyors. Here all cartons are barcode scanned and are then tracked to their designated lane, where a transfer arm moves the cartons off the conveyor onto chutes for palletising. There are 6 individual chutes allowing for 6 different products to be tracked and laned at any time. The entire line is fully PLC controlled and features two HMI touch screens, one in the production area and one in the palletising area, to allow the operators full control and overview of the system.

(see over page for more information).

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Innovation

A key element of the Australis solution has been the design, manufacture and installation of the Continuous Carton Elevator (CCE) that efficiently and safely transports cartons to an overhead, powered roller conveyor and helps facilitate the space saving benefits of the overhead conveying system to transfer cartons from the production area to the palletising area.

Featured Equipment

SCCR Roller Conveyors

Our standard powered roller conveyors are fully modular including straight, curved, merge and transfer modules. The system includes zoned drive capability, with each 3m straight section featuring up to 3 drive positions. Modules can also be easily linked to form longer driven sections. Drives can also be added at any time for future expansion of a system or to allow for Zero Pressure accumulation.

Conveyor bodies feature an integrated cable tray for motor and sensor cables that allow for quick, easy and neat wiring of the system without the need to install separate cable tray. This is a key benefit for long overhead installations where cable tray can add significant cost. The system is also available with high sides to act as integrated guide rails or with low sides for areas where operators may interact with the product on the conveyor and require easier access. The rollers feature a chain to chain drive mechanism meaning fully positive drive and very low maintenance; this system also eliminates the rubber band and drive shaft seen in typical Line Shaft conveyors, which means greatly reduced maintenance, no need to replace rubber bands and no danger from an exposed drive shaft. All drive chains on the SCCR are fully guarded, and the precision bearings used in the rollers means very little maintenance is required on the system as a whole.

Continuous Carton Elevator

The CCE is a fully continuous and automatic carton elevator capable of carrying cartons from low level to high level or in reverse, from high level to low level. The system features a modular aluminium profile frame construction which allows for easy customising of the size and height of the elevator. Heights up to 6m are standard, while extended elevators up to 12m in height can also be supplied. Carton sizes can range from small to large and up to 20kg in weight for the standard unit (a heavy duty unit is also available for heavier cartons). The CCE is enclosed with polycarbonate panels to ensure safety while still maintaining visibility.

The CCE is available in 2 configurations – Z shape or C shape. The Z shape configuration has cartons entering on the bottom on one side and exiting at the top on the other side, while the C shape allow for cartons to enter and exit on the same side of the elevator.

Watch the Videos

Watch the videos of the Automated Carton Transfer Conveying System in operation on our very own YouTube channel. Go to www.youtube.com/user/AustralisEngineering to see the separate videos of the Carton Conveying System and the Continuous Carton Elevator in operation.

