

Elevating Transfer Vehicle (ETV)

Features:

- An independent rail-mounted unit with elevating roller deck platform to raise and lower ULD containers between interfacing equipment items at all system levels.
- A wire rope hoist system is used for raising and lowering the platform.
- Hoist motor/gearbox arrangement has an electromechanical brake system to support the load when not at base level.
- Semi-automatic controls inside cab.
- Automatic positioning and docking.
- Absolute horizontal and vertical positioning to +/- 1mm
- Fully automatic or semi-automatic operation



Description:

This is an all-electric vehicle designed and constructed to store/retrieve, hold and transfer pallets and containers up to 14,000 kgs along the length of track. The ETV interfaces with powered interface lanes, friction driven storage decks as required within the Client's operation.

Technical Data:

Load Capacity	<14,000kgs
Horizontal Track Speed	> 120 meters per minute
Elevation Speed	> 15 meters per minute
Roller Deck Transfer Speed	18 meters per minute
Safety Sensors	End of Aisle Automatic Slow Down (encoder system). Platform Grab (snatch gear), over-speed governor Emergency Stop buttons Overhanging containers from ETV deck Over height control Track obstruction detection Cab door closed Deck props engaged Pallet stops up

Safety Systems	End of Aisle Automatic Slow Down (encoder system). Platform Grab (snatch gear), over-speed governor Emergency Stop buttons
Emergency Fall Back	Traction drive brake releases Platform lowering Deck drive Manual pallet stop activation Auxiliary towing bars

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Specifications:

The position measuring is achieved using linear encoding systems. The BDP designed control system therefore has absolute positional information in both the vertical and horizontal planes.

The vehicle runs on and is guided by floor-mounted double crane rails running the full length of its track.

The ETV comprises of a heavy-duty shop-welded base frame and superstructure supported on wheels with heavy duty bearings and split casings.

All wheels are adjustable on site for vehicle alignment and tracking purpose. Adjustable horizontal (rail) guide wheels are installed at the front and rear of the vehicle.

The elevating roller deck comprises of a heavy-duty steel shop welded frame suspended from lifting wire ropes used, via the hoisting system, to raise and lower the platform to various interface levels with the system.

Non-slip operator walkways are installed between rollers.

Full width guides are installed on both sides of the roller deck with operator non-slip walkways, sufficient to allow operator to pass with a full size ULD or Main Deck pallet on the deck.

To control safe movements of air freight, photoelectric pallet sensors are installed at each end of the deck platform.

Hard wired travel limit systems are provided at each end of each axis to prevent vehicle overrun.

Emergency stop buttons are located on all 4 corners of the vehicle, at principal maintenance points and at each of the operators control consoles.

2 stage laser sensors are fitted on at the front and the back of the ETV. These are used to detect obstructions within the aisle.

Automatic safety grab systems are integrated into the lifting system to prevent fall of roller deck and operator cab in the event of hoist systems failure.

Maintenance props are integrated in to the vehicle's superstructure.

An escape ladder is provided for means of emergency escape from operator's cab should the equipment malfunction in raised position.

The vehicle is controllable by a single operator.

A "key" controlled override system is made available to override normal safety systems. These must only be used in extreme conditions and by a specially trained supervisor.

Traction drives are fitted with manual brake releases to enable ETV to be pushed along the rails. It is an integral feature of hoist system that it could be manually lowered in order to remove freight.