

Improving Pick Cycle Times

Turbo-Charging a Manual Piece-Picking Line

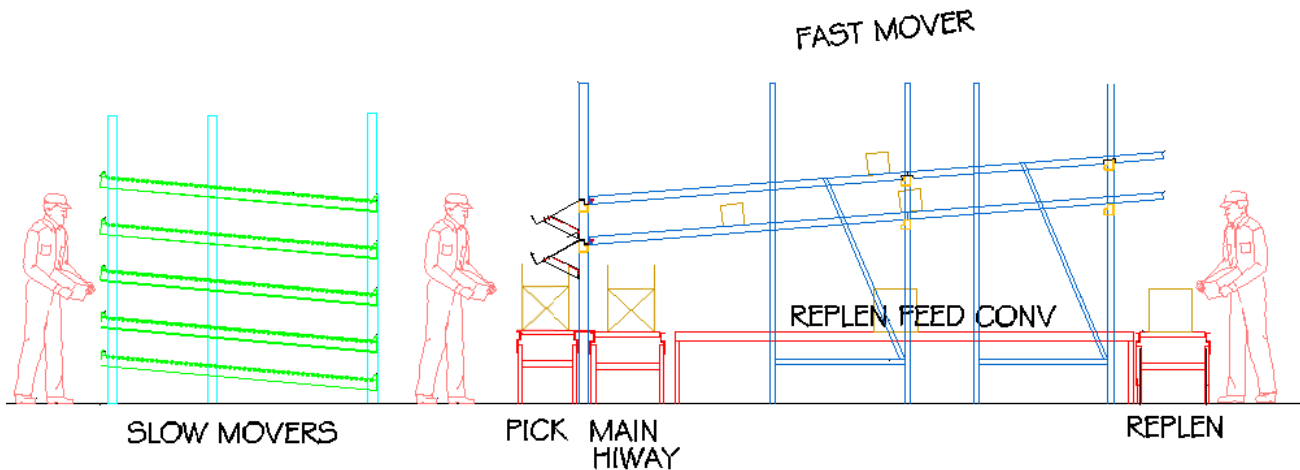
Problem: The bucket brigade pick line system is no longer able to keep up; it's time to optimize the pick line to satisfy increased business demands.

- There's a need to increase the number of lines picked per operator with emphasis on optimizing the picking of the fastest moving products.
- Flexibility is needed to move more multi-function operators to the pick line during peak periods and back to other tasks during slower periods.
- Too many errors are occurring during rush periods with product being picked and placed in the wrong tote/carton.
- There is a high turnover in warehouse pick operators and the pick functions need to be performed efficiently and accurately with minimal training.



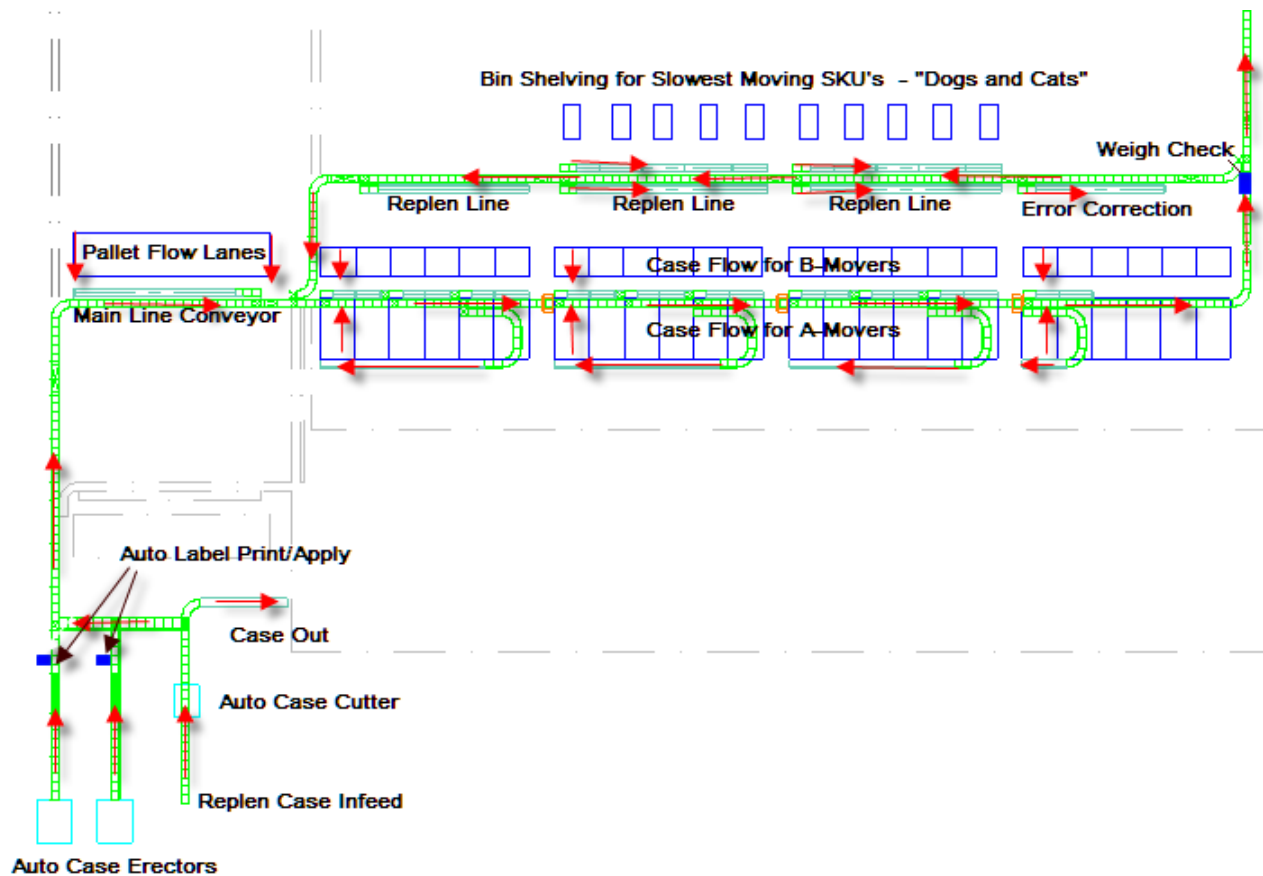
Solution: Rebuild the pick line to a hybrid Pick-and-Push configuration.

- Pick-and-Push Pick Aisle Concept:
 - The Mainline Conveyor runs next to the Pick lines – 24VDC Motorized Drive Roller conveyor recommended.
 - Pick faces for the highest volume “Fast Mover” SKUs are configured directly in front of the pick operator – Pick-to-Light displays recommended.
 - Pick faces for the mid-volume “Slow Mover” SKUs are configured behind the operator – Pick-to-Light displays recommended.
 - Slide plates provide the ability to push the Pick-To carton/tote from the gravity Pick Line Conveyor directly to the Mainline when the pick operation is complete.
 - Bi-directional Transfers on the Mainline Conveyor provides scan-and-divert motion for Pick-To cartons/totes into the Pick-Line Zones on Front Side of the case flow rack and Replenishment Cases to Replen Lines under and to the Back Side of the case flow rack.
 - A recirculation loop is typically configured that services bin shelving for the “Slowest Mover” SKUs, an Error Correction Station, VAP stations, and “Slow Mover” Replenishment Lines.
 - WCS software functions include: Host and equipment control integration, container management, pick zone management, order selection/release, auto-label print and apply, pack list auto print and insert, weigh check, quality inspection control and pack station diverts.



Pick-and-Push Case Pick Line Concept

- Benefits
 - Productive for both peak and slow periods of operation
 - Expand and contract number of pickers
 - Expand and contract size and number of pick zones
 - Continuous or off-shift replenishment of case flow lanes
 - Operators push picked carton directly onto the mainline conveyor; zone-to-zone pass option
 - Strict and opportunistic routing of cartons for picking
 - Pick Zone balancing through order release management
 - Bin shelf expansion for slow/obsolete products
 - Configurable for mirrored pick zones
 - Pick line(s) can readily extend in length and number of pick lines
- Performance Measures:
 - Operators pick rates range from 300-500+ lines per hour.
 - Carton motion for mainlines is approximately 1200 cartons/totes per hour
- Misc:
 - Automatic carton erectors may be provided at the start of the pick line with automatic label print/apply stations.
 - Pallet flow lines may be added before the line or at the front of the line for highest volume SKUs and heavy products.
 - Elevations of pick faces and replenishment lanes are configurable for size of cartons and best ergonomics.
 - Aisle access is provided at intervals along the pick line to allow operator to enter/exit and get to the back of the case flow racks to perform replenishments.
 - Check weigh scales are provided prior to leaving the pick loop to ensure mispicks are corrected prior to the packing operation.
 - Gravity replenishment conveyor on the backside of the case flow is on wheels so that it can be easily pulled out for cleaning under the racks.
 - Totes are used for the take-away of corrugated and other trash at the pick line. Use simulations to establish rates and initial product distribution



Pick-and-Push Case Pick Line Layout

Links: More Supporting Information

- [HK Case Conveyor Options](#)
- [HK 24VDC MDR Case Conveyor](#)
- [HK CHEC Carton Handling and Routing Control Software](#)
- [HK Simulation Engineering Services](#)
- [HK Analysis of Each Picking Efficiencies](#)
- [Lightning Pick Pick-to-Light](#)
- [Span Track Case Flow Rails](#)
- [Pearson Automatic Carton Erectors](#)
- [ID Technology Automatic Printer/Applicators](#)