CONVEYORS DIRECT
Engineered Conveyor Solutions

Case Study: #121

Automotive Industry

COMPANY

Tier 2 Automotive Supplier

OBJECTIVE

To automate the transport, accumulation and positioning of airbag canisters between two automated assembly machines.

SITUATION

The customer had received proposed layouts using right angle turns and transfers. These designs consumed several times the floor space allocated for the project. The customer required a conveyor solution that would yield a large quantity of accumulation in the company's limited floor space.

SOLUTION

Instead of orientating the product on its side, **Conveyors Direct's** innovative design team re-engineered the part carrier to allow the product to be transported upright on our GP450 series conveyor.

This resulted in several key benefits:

1. The part carrier footprint was reduced from 12″ x 12″ to 4.5″ x 4.5″, while accommodating nearly three times as much product in the area allotted.
2. Continuous, tight radius turns further reduced floor space consumption.
3. The new part orientation made it easier to load into the assembly machine.

BOTTOM LINE

The system far exceeded the original requirements specified by the customer. Meaningful cost savings and maximum productivity were achieved by reducing the use of valuable production floor space by 66% and through the elimination of costly transfers, control sensors and programming. Also, quality was significantly improved by eliminating one handling operation at each pick point. Finally, the use of **Conveyors Direct** non-proprietary industry standard fasteners and slot nuts assisted in lowering mechanical and electrical installation costs.

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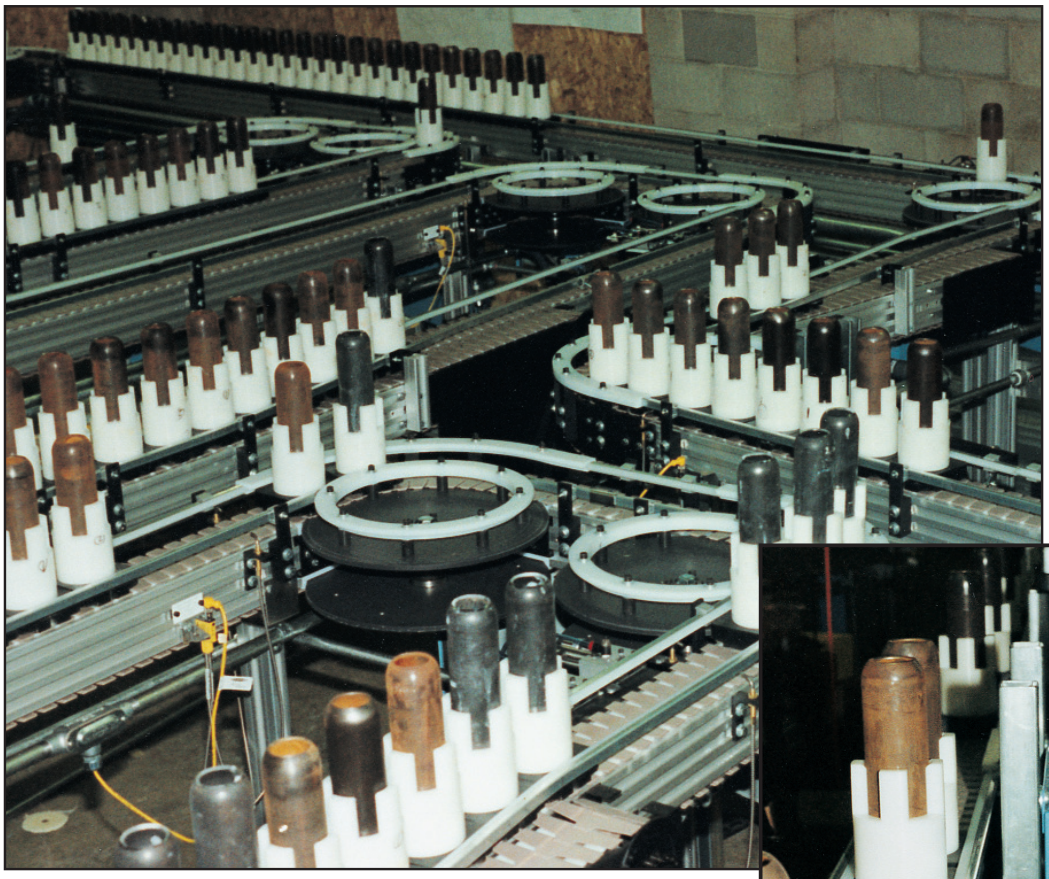
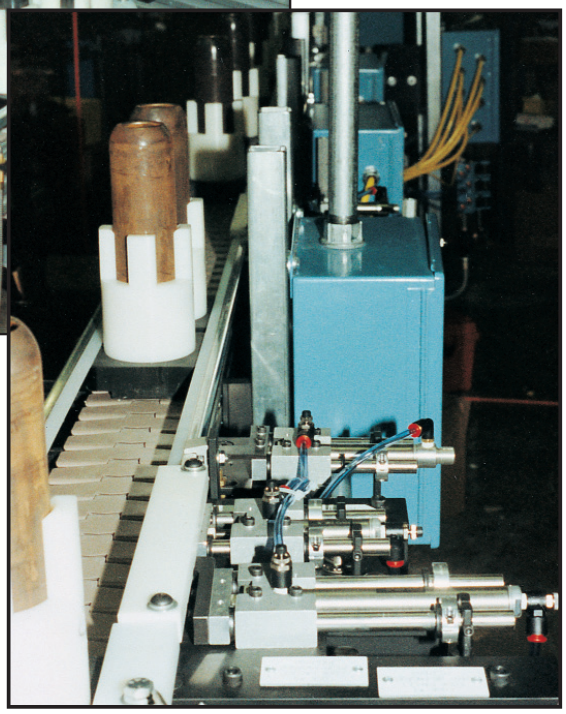


Re-orienting the product to an upright position allowed tight radius turns and conserved floor space.



Automated lock and escapement stations.
(Safety covers removed for clarity.)

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Case Study: #122
Defense Industry

COMPANY

Small Arms Ammunition Manufacturer

OBJECTIVE

Develop a system that will move shell casings through the manufacturing process, eliminate manual handling and reduce casing damage.

SITUATION

The customer was using a combination of product accumulation into hoppers with manual transfer to the next machine and pneumatic tube conveying with oiled, compressed air.

Hopper accumulation dictated multiple operators per line to monitor the hopper filling and effect manual transfer. Overflow product had to be scrapped. Pneumatic conveying required an oil mist additive that was released into plant air, creating serious air quality issues. Further, air propelled casings would tap into each other during transit, causing product damage. Previous attempts to resolve these problems through the use of angled conveyors wasted an excessive amount of floor space and resulted in frequent product jams.

SOLUTION

Conveyors Direct developed a unique vertical conveyor system to carefully transport casings between operations, eliminating manual intervention while greatly improving quality. By vertically lifting the product, required floor space was reduced to a minimum. Custom-formed lifting cleats cradle products, enabling them to travel from operation to operation, without transfers, in one fluid motion. The stainless steel guides used are only 1/8″ wider than the closed-top modular plastic belting, providing a precise, jam free path for product transport.

BOTTOM LINE

The new system not only greatly improved product quality, it also enhanced the plant work environment by eliminating oil mist. The system utilized minimal floor space, providing the customer with the flexibility and cost-efficiency of installing multiple lines that can be monitored by a single operator in the original amount of space.

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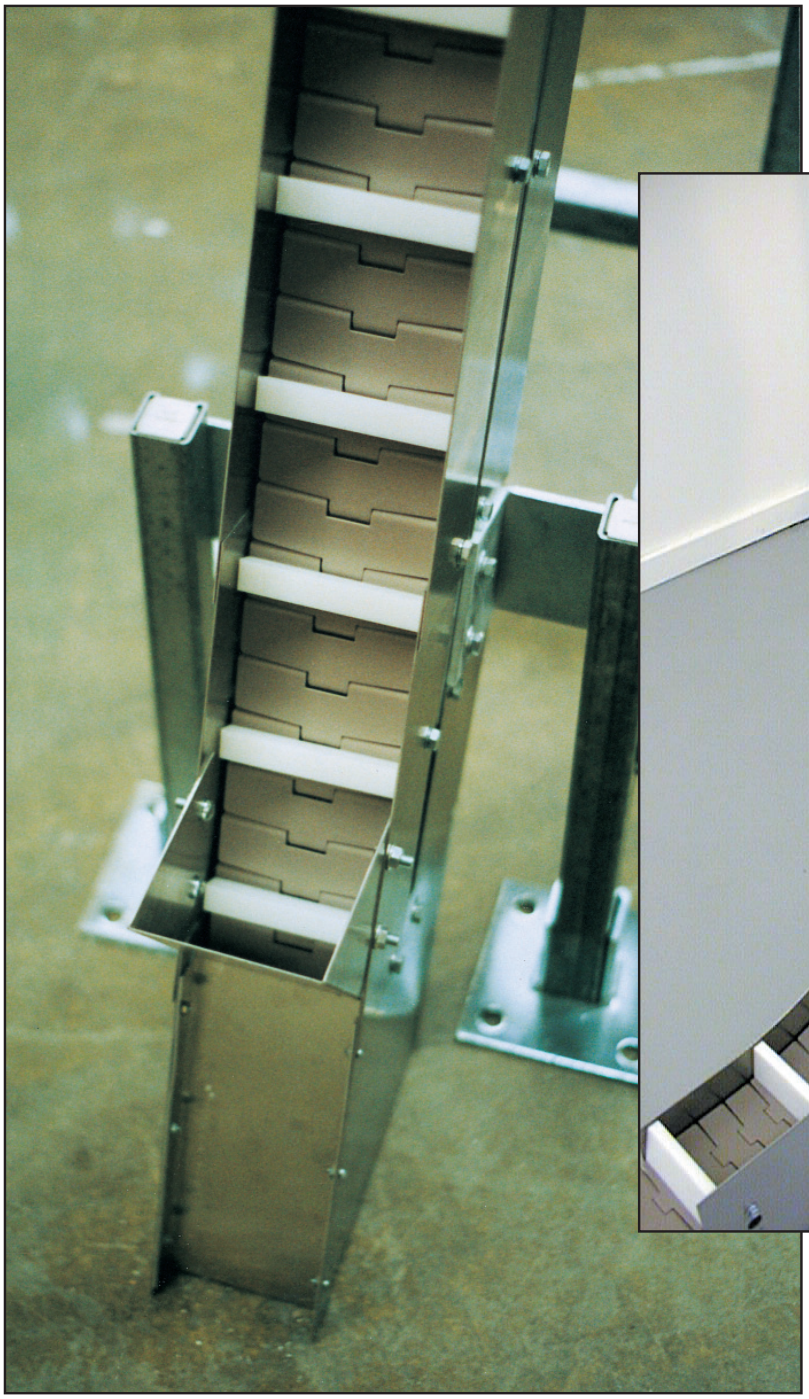
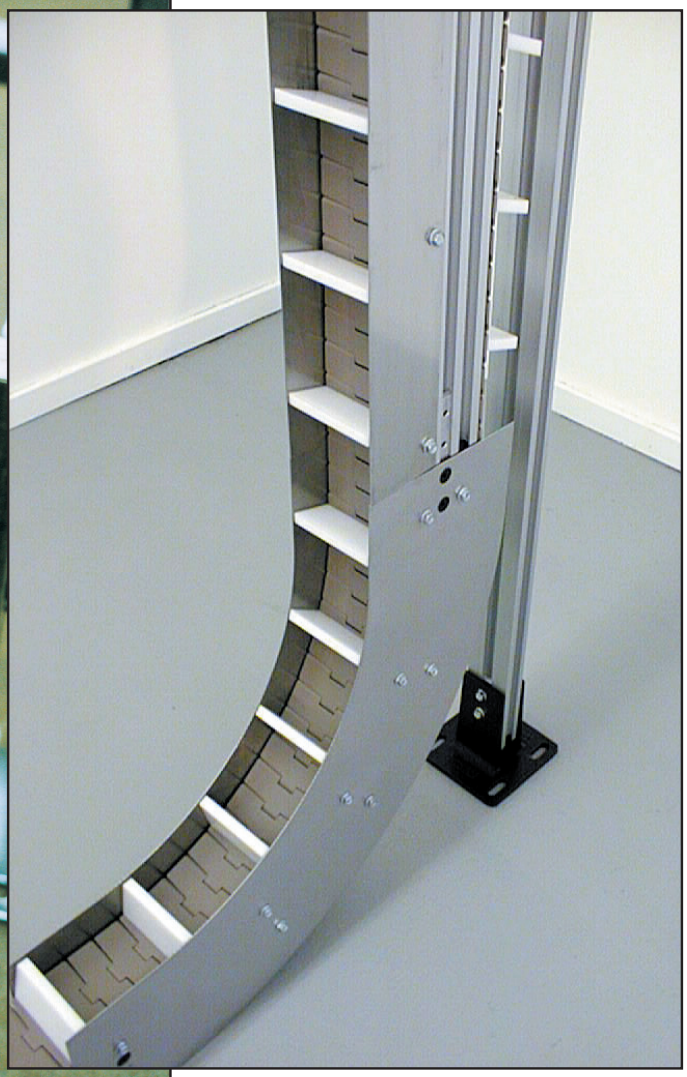


90-degree vertical lift “L” shaped cleated conveyor saves valuable floor space.



Jam free transfer from horizontal to vertical with 90-degree precision bends.

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Case Study: #123

Electronics Industry

COMPANY

Manufacturer of Electronic Consumables

OBJECTIVE

To develop an automated transportation system to join two high speed process machines together with high density accumulation, automated positioning and product re-orientation.

SITUATION

The customer's existing assembly line equipment was too slow, very costly to operate, caused significant downtime and inaccurately placed product at the pick points. Further, floor space restrictions required the assembly stations to be offset by 180-degrees, necessitating a matching re-orientation of the product between stations.

Due to machine changeover, the system had to absorb machine outputs on-the-fly and redirect them to high capacity accumulation towers.

SOLUTION

Conveyors Direct constructed a modular conveyor system with high strength conveyor chains to allow a fluid transport path with a minimum of transfer points. "Alpine" style accumulators were designed to both lift and lower product within the same compact footprint.

A specially designed product carrier and orientation device quickly reoriented product as it passed along the conveyor.

High speed, high accuracy automated stops and escapements positioned product at each pick point. Automated divert gates routed moving products to either accumulation or production points.

BOTTOM LINE

System uptime and accuracy surpassed previous assembly line configurations and valuable floor space was conserved by the **Conveyors Direct** innovative UP/DOWN accumulator arrangement. The unique carrier design reoriented the product between operations without increasing cycle times, thereby increasing throughput capacity by a dramatic 20%.

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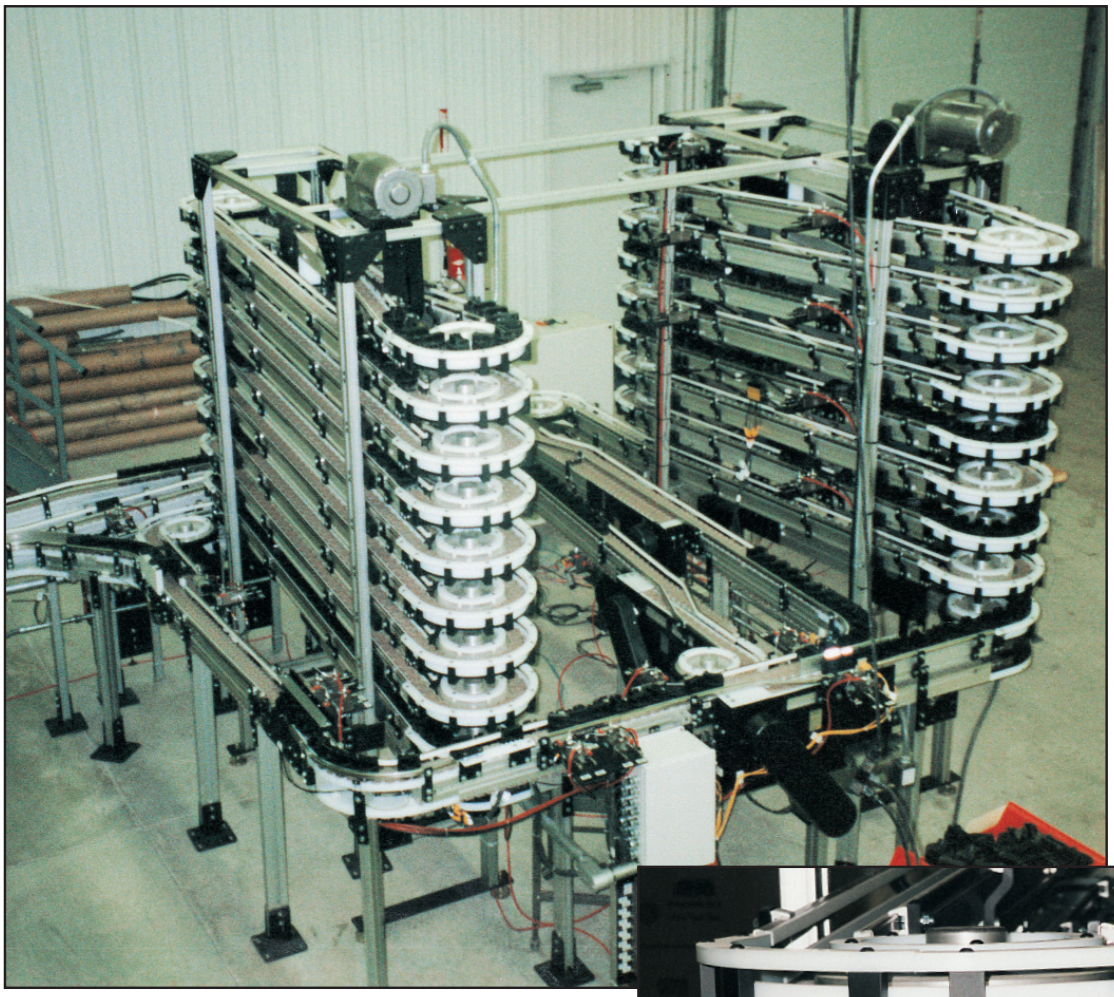
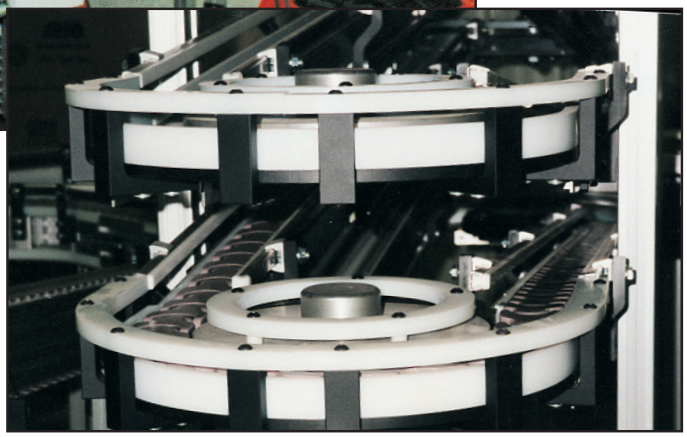


Our innovative accumulator design saves floor space. The system was fully assembled and tested in our facility prior to shipment.



The accumulation towers were designed with high strength frameworks, allowing them to be shipped fully assembled.

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