



**SYSTEMS**

the transport system for furniture manufacturing and finishing

**SWITCH-CART®**



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**S Y S T E M S**



SI Handling Systems, Inc., of Easton, PA, has been a pioneer in the development of innovative automated transport systems for over 25 years. These systems continue to serve the special needs of manufacturing and warehousing operations worldwide, by providing increased efficiency and overall productivity improvements.

Many U.S. furniture manufacturers are now realizing the significant benefits offered by the SI Switch-Cart in-floor towline system. Each of these systems is as unique as the facility it serves. But all of the Switch-Cart furniture systems have one common advantage—they have dramatically reduced the amount of handling damages and rejects while significantly increasing the productivity of the facility. This reduction in direct labor ultimately lowers the end cost of the finished product.

## Unique Furniture Handling Features

Switch-Cart furniture systems organize the work flow through a facility by tying together one or more operations. From machining white stock through production, to storage and shipping finished goods, Switch-Cart is the only product transport system to offer these outstanding features for furniture operations.

- Reduced manual handling means less damages and fewer rejects
- Total workpiece accessibility enables one person to service all sides of the piece from one location
- Automatic turn-arounds position carts for close pack operations
- Slow and variable speeds pace the work flow through the manufacturing process
- Specially designed carts handle a wide variety of furniture sizes and designs
- Downtime due to mechanical failure is practically non-existent
- System expansion and modification capabilities facilitate company growth

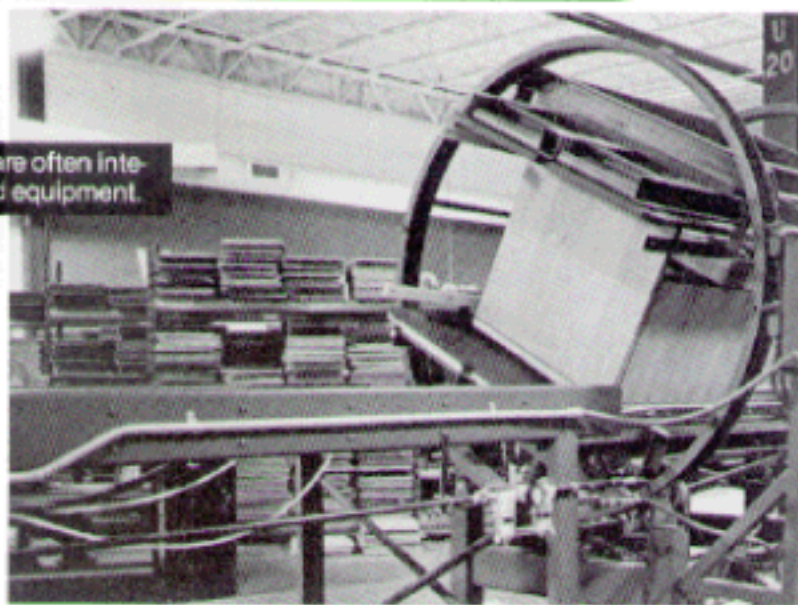


Rotating cart decks facilitate spraying.

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2

Switch-Cart systems are often integrated with automated equipment.



# Basic Operational Characteristics

## Operation

The SI Switch-Cart system utilizes a specially designed chain developed for the furniture industry which is recessed in an in-floor mounted track. Energy efficient, variable speed motors, also located in the floor, drive the chain. Carts are engaged to the chain by a towpin and moved forward by a pusher dog link. In-process or finished furniture rests on the top of each cart and is transported through the various departments. Carts are close packed through finishing areas, enabling more work to be processed at one time. Close packing also significantly reduces the conveyor length necessary for drying between spraying operations and permits the use of shorter oven lengths.

## Layout

The system can be designed in one continuous loop or in any number of smaller loops to service the desired production and/or storage areas. Smaller loops may be

connected by transfer lines during initial installation or at a later date during an expansion project. For example, many facilities choose to automate their finishing lines first and then, when additional capital is available, they automate the remaining sections of their plants. This expandability feature enables a company to realize the benefits of a Switch-Cart system without the need for a large initial investment.

Non-powered spurs are off-shoots of the main transport line which permit time-consuming manual work to be done without removing the workpiece from the cart. Spurs can also serve as work-in-process storage areas.

## Example

One particular furniture manufacturing facility employs four individual loops linked by transfer lines to connect its entire operation. White stock is machined and then placed on carts which carry it to assembly and finishing areas.

On the assembly loop, furniture frames are assembled on pallets located atop specially designed carts. Once a workpiece is placed on the pallet, it stays there until it is packed



Cam-operated turn-arounds allow close packing.

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Final finishing is performed while furniture is in motion.

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and shipped or placed into storage. From the assembly area, the piece is automatically transferred to carts of a different height and transported through sanding, white bank, finishing, finish bank, rub, trim and pack areas. This in-process production is made possible by the use of carts with different deck heights.

After final inspection, carts take completed furniture by way of a transfer line to the warehouse for storage or to waiting trucks for immediate shipment.

## Functional Systems Integration

The SI Switch-Cart furniture system is easily integrated with any function required for your specific manufacturing operation including assembly, sanding, finishing, upholstery and warehousing. In storage areas, Switch-Cart can interface with high bay storage systems and AS/RS. In plants with higher degrees of automation, a Switch-Cart furniture system can also interface with assembly operations or automatic loading and unloading devices.

Control systems may be basic or sophisticated with tracking and addressing capabilities. Switch-Cart controls can also be tied-in to a corporate host computer to assist management in inventory control and records-keeping functions.

Upholstered furniture is assembled on carts.

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Variable deck heights provide manufacturing versatility.

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## Special Equipment and Services

SI can design, procure, install and test any Switch-Cart furniture system and interface with related process equipment. This process equipment may include ovens, spray booths and miscellaneous automated machinery.

Carts for a Switch-Cart furniture system may be standard or specially designed to accommodate your specific needs. Carts have been provided featuring rotating decks, variable height decks (for assembly, finishing, or shipping) and expandable tops (for chairs, loveseats and sofas).

Technical support is provided for all SI equipment and installations including personnel training, equipment instruction manuals and after-the-sale support.

No furniture operation is too large or too small to benefit from an SI Switch-Cart system. So, call SI today for a more detailed discussion on how Switch-Cart can work for you.

