

Paint Line Automation for the Small Wood Shop

Small shop owners don't realize the tremendous payback they can enjoy by adding a paint line conveyor to their operation.

I recently attended the AWFS show in Las Vegas, where I met over 200 wood industry professionals, many of whom were the owners of small shops. Many visitors seemed to approach me with caution, saying, "I'm only a small shop, I don't have the type of cash needed for automating".

This intrigued me. Many small shop owners were clearly unaware of the cost of our conveyor systems and were quick to jump to the conclusion that any conveyor equipment was prohibitively expensive.

I changed my approach on the second day of the show, immediately discussing with visitors the cost of a 100 foot and 200 foot system. That changed everything. They stayed longer and they came back later in the show for a second look.

PACLINE has worked with many small wood shops over the years. To show you how automation might benefit your operation I would like to share with you the recent experience of one of our customers - Contract Supply Inc.

Contract Supply (CS) manufactures chairs and tables primarily for the restaurant and hotel industry. They also handle large volume refurbishing and refinishing of chairs and tables.

This company was at a stage where they needed to take on larger orders with inherently lower margins. Because of the low margins, CS needed to be highly efficient with production costs, and with the larger size orders they could not afford any rework. One problem, and they would be 'in the red'.



Contract Supply produces an extensive line of chairs and stools.

CS normally processed chairs in batches, and they needed to maintain this ability. The paint room floor was already filled to capacity with carts so, potentially, CS would need to expand their space to accommodate the higher volume. They considered a floor towline with ovens for shorter cure times, but the cost was in the \$400,000 range. In addition, there would be the added expense of natural gas to fire the oven, and various permits would have to be secured to carry out the work.

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PACLINE came forward with a very different approach. Our goal was to use the existing space and equipment at CS but connect the processes into an "assembly line". This was all made possible by developing a conveyor system that utilized the unused ceiling area of the existing facility. Using this overhead space where it was naturally warmer also aided in the drying process.



Conveyor loops at ceiling elevation and takes advantage of the warmer air space to speed up dry time.

An overhead chain conveyor is absolutely the most flexible conveyor available. With only one drive, it can snake around obstacles and incline and decline in very short distances. Our conveyor was able to move items at Contract Supply through the paint spray booth, incline to the ceiling where it wound back and forth to allow the precise drying time required, and then moved down to the floor for approximately 20 feet of sanding. The conveyor was set approximately 7 feet from the floor to allow workers and batch carts to pass beneath, and the hooks were made to a length that would allow for good operator ergonomics.



Steep inclines convey product up off the floor.

The conveyor was designed to route through the three existing booths: stain, lacquer and sealer. Within each booth, the conveyor made an elevation change to allow the operator to reach both the top and bottom of the chair parts. PACLINE supplied a rotator for each hook and the operator turned the parts as he desired without physically touching the parts.



A convenient clip is attached to the wood part to allow handling.

The PACLINE system was able to satisfy all of the Contract Supply's criteria;

- 1) increase production within the existing space,
- 2) clear the floor of all parts while they are drying,
- 3) allow the customer to continue to process their low volume special items in batches using push carts, and
- 4) produce a predictable quality product by creating an "assembly line".



Sanding is done while parts are hanging.

But that was not all. CS management was pleasantly surprised to discover that the new assembly line helped ensure that their people worked at a much more consistent and sustained speed. Workers no longer had to walk to get

“Overall productivity increased substantially.”

carts. The product now came to the workers and at a rate of production set by the manager. When product entered the spray booth, the worker had to be there and ready.



Conveyors are added without moving existing equipment.

Overall productivity increased substantially. Despite some initial reluctance to operate on an 'assembly line', workers at CS soon realized how the automated finishing line made their job easier.



Part rotators and “in-booth” elevation changes allow operators convenient access to all sides of parts.

The overall cost of the 700 foot plus PACLINE system was \$60,000 completely installed, and the system was installed 5 weeks after the order was placed.

Karl Scholz
General Manager

PACLINE CONVEYORS for Woodworking Operations

Application:

Spray paint line for kitchen cabinet doors at floor level. Conveyor elevates painted product to ceiling level for appropriate dry time.



Conveyor choice:

C-250 enclosed track overhead is ideal for moving products between levels conserving valuable floor space. This is not possible with cart systems or flat lines.

Application:

Accumulation of heavy wooden bed frames prior to unloading.



Conveyor choice:

S-310 overhead power and free conveyor allows the product carrier to accumulate and be released on demand. Switches can allow parallel processing to take place. For example, two unload stations, or two spray booths, or two ovens can be utilized.

Application:

Handling of finished chairs between floors of production facility.



Conveyor choice:

The lightweight and compact C-250 overhead conveyor can be designed to fit into congested areas, negotiate 60° incline angles or snake through existing production areas.

Application:

Assembly and finishing of wooden furniture.



Conveyor choice:

Pacline's towline floor conveyor has rotating top platens to allow the operator easy access to all sides for assembly or finishing.

Application:

Paint finishing of heavy wooden furniture.

Conveyor choice:

The towline floor conveyor easily handles heavier products such as these large tables that cannot be lifted and carried efficiently on an overhead conveyor. Top platens on this towline system rotate automatically at specific points along the finishing line.

