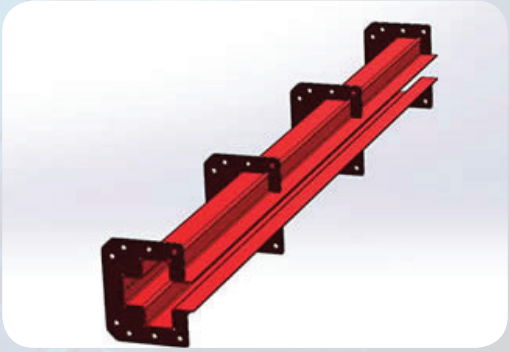
Conveyor Case Study #3

Automotive Supplier uses Side Slot Conveyor for Plastic Parts Finishing System

PAC-MAX™ Conveyor System replaces the typical chain on edge spindle conveyor

Choosing the right conveyor to move automotive parts or any other part through paint finishing operations requires careful consideration and must take into account a host of issues such as:

- **Weight and size of the product**
- **Type of carrier or holder for the part**
- **Type of paint finishing**
- **Temperature of the drying or curing oven**
- **Physical dimensions of the space**



The Old System - Chain-on-edge Spindle Conveyor

When this paint and finishing company approached Pacline they had been using a floor mounted conveyor with spindle trolley carts to transport auto parts. This system required external guide rails to support the moving carts and help stabilize the carrier and part. Their system (shown below) posed several potential problems:

- The external bearings are exposed making them susceptible to dust, paint and other debris
- The heavy cart and exposed bearing on the side tracks can create increased friction, especially around curves.
- This friction and the increased power required to move the carts can make it especially difficult to operate if there is an incline in the track
- And, around tight curves there is an increased possibility of the trolley cart jamming in the guide track.

The Challenge

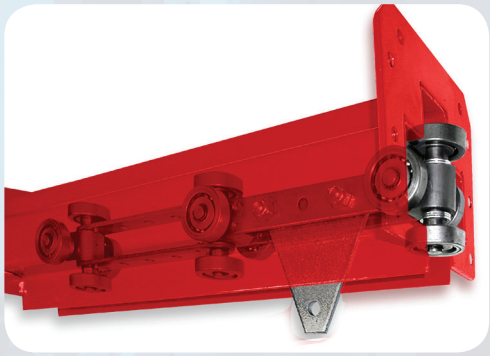
When building their new paint finishing operation, this customer came to PACLINE looking for a conveyor that would eliminate the need for external support rails and one that had the chain and bearings protected from paint and debris.

The system required would be approximately 1000 feet in length with an incline section to transport the plastic automotive parts from the loading area at floor level into the robotic spray booth and ovens. Custom carriers that could be manually or automatically rotated would be designed to hold the plastic parts and transport them from the wet spray operation through to the drying and curing oven. The conveyor needed to withstand the oven temperatures of up to 200 degrees Celsius.

The Solution

The PAC-MAX™ Enclosed Track Conveyor

The PAC-MAX™ enclosed track conveyor was selected for this operation. This heavy duty conveyor has a unique cross shaped enclosed track that can operate slot up, down or sideways with a high degree of stability, even when handling tall carriers or parts.



For this job, the PAC-MAX™ was installed in the slot sideways orientation. Along with providing excellent stabiity, this also ensured that the chain bearings had protection from paint overspray and debris.

The PAC-MAX™ conveyor offered numerous efficiencies for this paint finishing

The final conveyor system was 930 feet in length with a total of 40 curves and required elevation changes from the floor level load area to the spray booth and oven. Even at this length, the entire PAC-MAX™ system was powered by only one ¾ horse power motor.

Initially the customer was concerned that this would not be sufficient to drive the system which included 5000 lbs of chain and carrier attachments plus 6000 lbs for the rotating top fixtures and plastic parts.

However, the PAC-MAX™ chain is designed for very low friction resulting in uniform chain pull throughout and reduced power requirements.

In addition, the take-up unit for this system was a gravity powered counterbalance design. This take-up provided uniform tension with NO power requirements and the capabilities to add or reduce weight to suit the application.

Finally, another unique feature of the PAC-MAX™ conveyor system is the rolled curved corners of the track. Unlike the typical spindle conveyor or chain on edge conveyor systems, there are no traction wheels in the PAC-MAX™ which helps eliminate surging especially in paint ovens.

The roller turns or traction wheels in the typical spindle conveyor system are more costly and definitely require more maintenance than the PAC-MAX™ curves.

The Results

The PAC-MAX™ system exceeded the customer's expectations for this Tier 1 auto parts finishing operation – **a consistently smooth running, stable system that handled curves and elevation changes with extremely efficient power requirements.**

The PAC-MAX™ has been proven time and again to deliver a high degree of stability even when carrying heavy parts above the track for clean paint lines such as this auto parts finishing operation.