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systems

Foam Panel Assembly Line Trane, Lexington KY

References

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References

Consumer Goods
Modernization



Ergonomic Panel Assembly

Initial Situation

Trane, a manufacturer of commercial air conditioning units, was looking for a fast and ergonomic way to assemble foam panels before they were fed to a laminating machine and oven conveyor.

This was particularly challenging because the panels varied widely in size: 7" x 22" to 54" x 114", and the system's PLC would have to interface with the laminating machine and oven conveyor PLC (the laminating machine and oven conveyor was installed by others).



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System Solution

viastore systems designed and manufactured sixty six (66) powered roller conveyor zones that contained twelve (12) operator stations. Before each operator station, a camera would scan 2D bar codes on the panel so that operators could track foam panels as they traveled through the system.

To save floor space, nineteen (19) of the zones were layered on top of each other. Using a horseshoe layout, three (3) double decked turntables rotated panels around the corners of the conveyor system. A pair of inner and outer panels traveled together along the conveyor system, and at the end of assembly, custom designed equipment flipped the inner panel so that it was in the right orientation to fit with the outer panel.

At the exit of the operator stations, the assembled panels were fed into the oven conveyor and laminating machines system. After the laminating machine and oven conveyor, the completely assembled panels were sorted with a three (3) way sortation system designed by viastore.

The control system utilized in this system completely controls the entire system and interfaces with the equipment installed by others.

The HMI has a database look up that allows the user to enter a barcode to see the full history of that panel throughout the system.

The Result

The system allows for operators to have a continual flow of panels, and creates an ergonomically effective way for the large panels to be flipped and oriented into position. The system also successfully integrates with the laminating machine and oven conveyor system, for a successful turnkey project that utilizes several custom designed components.

Scope of Supply:

- (66) powered roller beds
- (2) scissor lifts
- (3) turntables
- (11) barcode readers
- (12) tilt stations
- Transfer conveyor

Essential Features:

- Flipping inner panel product orientation was an ergonomic alternative to having operators flip large panels manually
- 90° turns conserved space
- Powered roller conveyor adds safety
- Tilt stations oriented product ergonomically for operators
- Transfer conveyors for feeding panels into equipment installed by others