

Vertical Cabinet Finishing System



The Vertical Cabinet Finishing System is designed to automatically finish random shaped parts conveyed on an overhead monorail conveyor through a vertical finishing line. The system will automatically finish parts with a back-to-back finishing system for stains and glazes, sealers and top coats.



- The face and edges of the doors and frames will be uniformly coated.
- The system will be easy to control.
- The system can be designed to run at speeds up to 20 fpm conveyor speeds. (Speeds in excess of 20 fpm need to be tested)
- The sealer/top coat will be uniformly applied with little, if any, manual touch up, even with shaker profile area doors.
- The incoming doors and face frames can be any length; however, are limited to a 48" vertical window. They can be hung in any elevation within the 48" window.
- The Parts ID system will automatically identify the incoming parts and only spray the parts.

This system will provide a uniform controlled film build while at the same time generate an A.T.E. (Application Transfer Efficiency) in the range of 65%. The system is operator friendly. The uniformity of the film build will be controlled by the system, and not the operators ability.

The guns will only trigger when the parts are present. Vertical systems are designed to apply a controlled film build on the door, drawer fronts and face frames, and all edges. The system is designed to avoid coating the backs of face frames which will improve the glue areas.

The system provides a RFV2000 two-meter reciprocator at each of the two sealer/top coat spray booths. The RFV2000 has an overall height of 3.1 meters. Each RFV2000 has five or six AVX Airmix[®] guns mounted on one gun positioning flight bar. The parts, both doors and face frames, will be automatically detected as they pass through the part ID identification system. When the parts enter in the finishing area, the AVX Airmix[®] guns will trigger. The AVX Airmix[®] guns in the first booth will coat the back side of the part, and two sets of edges; one vertical and one horizontal. The second booth, with an RFV2000 and six AVX Airmix[®] guns, will coat the front face of the part, and the two remaining edges. This combination will provide uniform coverage. Because the coatings tend to dry too fast for wet-on-wet edge coverage, each of the four edges must be finished completely in one booth.

Control System

The Control System will be controlled by our PLC driven System Controller. The System Controller will control the two RFV2000 reciprocators and all 10 or 12 Airmix® spray guns. The controller will monitor the conveyor speed and part movement. When the conveyor is on and parts are entering the booth, the System Controller will trigger the guns as required to uniformly coat the parts. When the conveyor is shut off, the controls will automatically turn the spray guns off. When the conveyor is restarted, the guns will resume their programmed finishing.

The system will read in the part profile as the part travels through a light curtain. This profile will be stored in the PLC and transferred down line to the two opposing reciprocators. One reciprocator will be used to paint the front of the part and the other will paint the back of the part. The gun positions will be preset and each gun will have a specific task. An encoder will be used to track the conveyor movement. The reciprocator will be a continuous chain type and will be capable of running at speeds up to 350fpm. The system will setup to track this high speed reciprocator. Two intrinsically safe sensors will be supplied for each reciprocator. One sensor will be used to determine the home position of the reciprocator. The other sensor will be used to track the incremental pulses of the reciprocator as it travels back and forth.

AVX Airmix®

The heart of the system is the Airmix® application system. Airmix® provides paint application controls that are unmatched. These include:

Forward Velocity Controlled to 2 fps

Other systems are four to five fps and higher. The more controlled the forward velocity is the less paint bounces off the substrate which results in higher transfer efficiency rates.

Controlled Paint Distribution in the Fan Pattern

Airmix® provides uniform paint distribution from the edge of the pattern to its middle. Other systems provide a heavy center, which leads to overlap problems.

Controlled Particle Size Distribution

Airmix® produces a uniform atomized particle size. Other systems have a large size particle range which makes high transfer rates very difficult. Additionally, the controlled range helps minimize color contamination problems when striping or with different colored heads.

Excellent Equipment UpTime

With the field-replaceable Delrin seat insert and the self-wear adjusting Rulon fluid cartridge, equipment up time is “**second to none**” in the industry.



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