Laser Fan Width Options

Improved Repeatability for Conformal Coating Applications

Features and Benefits

- Automatically verifies fan width using a laser beam to achieve repeatable coating performance
- Compensates for viscosity variations during the coating process
- Offers programmable width verification and correction frequency
- The Prime configuration offers multiple, programmable fan widths that are available through Easy Coat® software for flexible fluid delivery
- Provides statistical process control by logging production data

The unmatched performance of Nordson ASYMTEK's unique film coater technology is further elevated through the addition of process control that ensures coating width – independent of viscosity. Coating materials can have different viscosities across batches and material viscosities might also change over time. Variation in fluid viscosity can also occur as a result of ambient temperature changes in the surrounding environment. These differences can lead to variations in the fluid pattern during production.

Laser Fan Width Verification checks to ensure that the proper fluid pattern width is being used during production. Programmers can define process limits for the respective fan width, and specify a required response that will occur if the fan width is outside those limits. For example, an operator can be directly prompted to complete a manual width adjustment.

Laser Fan Width Control eliminates manual width adjustment – resulting in increased quality and yield. Laser Fan Width Control provides a closed-loop process control that automatically verifies and adjusts fan width to keep it within the defined process limits. Laser Fan Width Control is contingent on the optional Prime process controls and Prime fluid system.

To allow for optimized usage, Laser Fan Width Verification and Laser Fan Width Control can be used in multiple modes of process verification and control. The first level is to verify that the current fan width is within the specified process limits using a one-sided test. The next level of the usage mode is a double-sided test which verifies symmetry. These are done very quickly, and do not impact production rates.

Programmers can define intervals and also conditions that trigger the execution of either verification or control level. For example, this can be required at the beginning of production based on a timer or a specific count of coated products.

Both Laser Fan Width Verification and Laser Fan Width Control incorporate design principles that minimize the chance of contamination and increase the ease of cleaning.

Nordson ASYMTEK

Laser Fan Width Options Specifications

How it Works

- During setup, the position of the nozzle with respect to the laser beam is detected while it is centered over the drain pan. Then the user specifies a desired fan pattern width.
- Fan Width Controls are typically executed at the beginning of a shift, after normal maintenance, or as an error procedure related to a verification routine. During a Fan Width Control, the applicator is moved into position into the laser beam, and the center and tip of the coater nozzle are found. The laser sensor monitors the coating spray pattern width as fluid is dispensed into the drain pan.
- The software then sends a signal to the pressure controller, requesting a change of pressure to the fluid regulator until the sensor light beam is broken by the spray pattern.
- As the fan pattern breaks the beam, the laser sensor sends a signal to the controller, indicating that the fan spray pattern has reached the required width. Fluid pressure is set and saved.
- Next, the applicator is moved as it dispenses to either side of the laser beam to confirm the symmetry of the pattern with respect to the centerline of the applicator. If the pattern fits within the software-configurable tolerance, the board is then coated.
- During production, the fan width is monitored and if the width moves outside the set limits it is adjusted manually or automatically.

Supporting Systems

Select Coat® SL-940 Conformal Coating System

Fluid Delivery Method

SC-104/105 Heated, Circulating Film Coaters

SC-204/205 Non-Circulating Film Coaters

SC-280 Circulating and Non-Circulating Film Coaters

Software

Easy Coat® software

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