Solar Photovoltaic Thin Film Drying Oven Equipment

9724 Cross-Convection IR Drying Oven

Argus International spray technology has been proven superior to other methods. Our primary goal was to produce a spray system and a drying oven which could be linked through compatible conveyor systems to form a time and labor-efficient unit and to **eliminate the handling of wet panels**. A single, traversing spray head also increases efficiency by reducing setup time, and decreasing both machine cost and maintenance. HVLP-Heated Gun Technology allows use of high-solids for spraying for increased efficiency and minimized environmental impact.

Argus drying technology provides a major breakthrough in reduction of drying time. Typical convection systems require 35 to 45 minutes to dry coatings; the 9724 3 Zone Drying Oven reduces it to 3 or 4 minutes, and 9724 5 Zone Drying Oven reduces it to 6 or 7 minutes.

Argus 9724 Cross-Convection IR Drying Oven		
Function	3 Zone IR Drying Oven	5 Zone IR Drying Oven
Major Feature	Under 4 Minutes Drying Time	Under 7 Minutes Drying Time
Panel Size	6" to 24” Wide by any Supported Length	

The 9724 IR Drying Oven is designed to quickly and efficiently dry thin-coated solar panels. The unit consists of three individually controlled long-wave infrared heater zones, a forced-air circulation system, and a conveyor to move the boards through the oven. This highly innovative technology, developed by Argus International, provides a breakthrough in significantly reducing the drying time of coated solar panels. While convection-only ovens rely on air to transfer heat, the 9724 directly heats the panel with IR radiation and provides forced air circulation. This technique lowers the normal drying time from 35-45 minutes to 3-4 minutes, which represents about a 1200% improvement in drying efficiency!

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Key Benefits:

- Traditional convection ovens use electric coils to heat the air; the air moves around and heats the coating; eventually the coating heats the substrate. Once the substrate gets hot enough to not heat-sink the coating, the coating dries from the outside.

- The Argus IR Drying Oven employs 5 to 8 micron IR emitters that directly transmit energy to the densest material, in this case the solar panel. Some residual heating occurs because the air and coating are between the emitter and the solar panel, but the bulk of the energy is absorbed by the panel. This means that the coating predominantly dries from the inside; that is, the junction between the solar panel and the coating, thus increasing the drying rate while reducing skin formation and solvent retention. Forced air circulation in the 9724 then rapidly removes the evaporated solvent from the solar panel surface.

- The real benefit to acquiring the complete 9000 Thin Film Coating System is that it allows the machines to be linked together so that application becomes a load-unload operation, **without handling of wet panels**. By placing equipment end to end, boards may be loaded at the entrance of the 9524S Spray Unit and removed at the exit of the 9724 Drying Oven just minutes later, fully coated and dried.

- With the PC9000 System, conveyor speeds of 4 feet per minute gives excellent production rates and provides economic benefits.

- Optional additional set of two heater zones to form a 5 Zone Drying Oven.

Please contact Argus International to confidentially discuss your production plans.