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Infrared Furnaces

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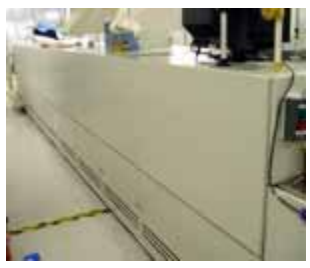
Production IR Furnace Models and Applications

SERIES	DESCRIPTION	APPLICATIONS
D-Series Ovens & Dryers 	IR drying and/or curing from 90-400C, with excellent uniformity across the belt and precise, repeatable zone temperature control. Choice of 24, 37, 61 or 91 cm wide belts for increased throughput while maintaining acceptable residence time. Ultrasonic belt cleaning and production line signaling/product transfer options available.	Used for precision thick film drying and baking and curing of polyimide coatings or embedded components. The D-series uniform heating is ideal for production heat processing applications, surface heating, drying and curing speciality coatings and finishing operations. An available closed atmosphere option allows thermal processing without oxidation.
LA-Series Laboratory Furnaces 	Our most compact furnace, 3.12 m long x 0.79 m wide, with separate 76 cm IR heating and cooling sections. Top temperature is 500C (option to 1000C) with 3 independent controlled heat zones (option for a 4th zone). Requires only minutes to reach temperature and stabilize. Outside of furnace remains at ambient. 24 cm belt width, speed 25-500 mm/min. Process gasses may be CDA, nitrogen or forming gas (up to 5% hydrogen). Many performance or ease of use options are available.	LA-309 is used for experimental, prototype or low volume processing and specialty production applications where rapid heat rise in a controlled process atmosphere in a small footprint is of particular interest. Its flexibility, process precision, temperature range, and controlled atmosphere capabilities is similar to many of our larger models. Clean air compatible to Class 1000, the LA-309 can process substrates, wafers, PCBs, metal, ceramic, or glass parts for VOC burnout, thick film sintering -- including solar cell firing, semiconductor package sealing, epoxy die attach, polymer curing, reflow soldering, brazing or annealing.
SMD-Series Semiconductor Packaging 	SMD-series infrared furnaces for higher production yield and throughput and feature start-up often in less than 30 minutes for temperature profiles up to 1000°C. Tested against convention furnace technology, the SMD-series furnaces offer faster setup and stabilization time; repeatable profiles; no degrade of seal process; lower internal cavity moisture content and comparable hermetic performance; lowest ppm defect rates; and superior temperature uniformity. Also 90% belt edge conveyor load efficiency. Inert atmosphere for fine pitch solder pastes. Diffuse near and medium IR heating efficiency without color selectivity.	Electronic industry semiconductor packaging, frame attach, die attach and sealing applications. Choose Air for low cost; Nitrogen (max 500 ppm oxygen) reduces board browning and flux charring for easier cleaning; or Nitorgen (max 5 ppm Oxygen) for 40-60% faster processing speeds, lower defect rates, and improved secondary soldering yields, ideal for high volume critical applications. Also used for ceramic and glass epoxy applications and a variety of production processes including ▪ Curing polymer thick film materials ▪ Epoxy potting compounds ▪ Nonmenclature and legend inks ▪ Conformal coatings ▪ Bonding epoxys or encapsulating epoxys on ICs ▪ Process heat shrink tubing ▪ Bake photo resist on silicon wafers ▪ Drying thick film pastes.
TF-Series Thick Film Firing Furnace 	Fast eficient production furnace. Capable of 1000°C, these units utilize high level near infrared radiation to rapidly and accurately fire resistors, conductors and dielectrics in a clean, dry air atmosphere. The furnaces are designed to cycle on a daily or more frequent basis. They will stabilize at 1000°C from a cold start in under 20 minutes. Major profile changes can be accomplished in minutes, allowing the furnace to be regularly used for a variety of processes.	Designed for volume production of noble metal thick film products. Production rates of up to 23,000 square inches per hour (16 ipm) can be achieved, with still higher rates for some conductors and dielectrics. The enegy-rich, radiant environment allows all thick film materials to be processed very rapidly. Resistors are processed at total profile times of 12-15 minutes while conductors and dielectrics can be fired in as little as 10 minutes. This environment affords tighter distribution of process parts and also gives the processor the ability to cofire multilayers up to 300μm thick.

S-Series Seal Production Furnaces 	Fast eficient production furnace, the S-series furnaces offer high production yield and throughput and feature start-up often in less than 30 minutes, precise and repeatable zone temperature control, temperature profiles up to 1000°C, and controlled-atmosphere capability of 1-5 ppm above incoming gas purity. The S-Series Infrared Furnaces utilize high intensity heat to achieve exacting temperature profiles, with rapid heat rise and no overshoot.	Ideal for many high-temperature semiconductor and thick-film processing. The rapid heat rise of these furnaces is of particular advantage in the final lid sealing or die attach process since the semi-conductor is not exposed to prolonged high temperature. In lead frame attachment, there is no contact with the part to cause distortion in the frame. All leads remain planar which greatly facilitates subsequent automatic wire bonding steps.
AG-Series 	Temperature up to 1000°C, multistage temperature profiles, rapid removal of volatiles with multiple intermediate exhausts, inline drying and firing, multiple atmospheres with gas barriers, clean room compatible.	Silver-glass die attach and similar processes requiring multi-stage temperature profiles and rapid removal of volatiles. These capabilities are facilitated by the use of multiple intermediate exhaust stacks. Ideal for single and two stage silver-glass die attach profiles, as well as solar-cell and green tape drying and firing sequences.
SC-Series Solar Cell Furnaces 	Fast eficient production furnace. SC-series furnaces offer high production yield and throughput, feature start-up often in less than 30 minutes, precise and repeatable zone temperature control, temperature profiles up to 1000°C, and controlled-atmosphere capability of 1-5 ppm above incoming gas purity. The SC-Series Solar Cell furnace can be combined with an integral dryer in the SCD-Series Solar Cell system.	High-temperature photovoltaic applications. The rapid heat rise of these furnaces is of particular advantage in the final process. Order with a dryer as an option.

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