PVD-600 Series

Integrated Solar Cell Dryer/FiringFurnaces

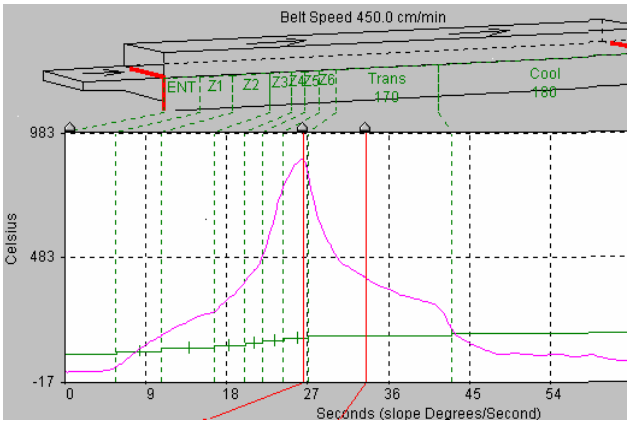
The PVD-600 Series furnaces combines the Rapid Thermal Processing of a PV-600 Series Solar Cell Firing Furnace with a D-900 Series Dryer on the same belt. Combining drying and firing in one unit saves factory floor space and automation costs as solar cells go directly from the dryer into the furnace.

Lower cost solar cells are produced with faster processing speeds and improved equipment efficiency. With shorter processing time and faster belt speeds, one PVD-600 Series integrated dryer/furnace processing a single lane of parts can produce up to 30 MW of solar cells per manufacturing line. Costs for equipment, factory space and utilities are all lower.

Technology Benefits

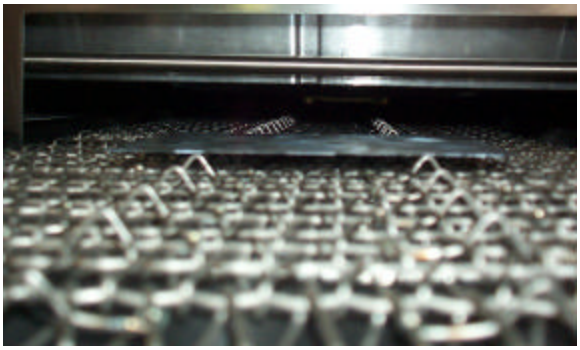
Fast heating is achieved with a higher density of IR lamps in shorter temperature zones. Heat up rates can exceed 75°C per second between 400°C and 875°C.

Fast cooling is achieved with water-cooled cold walls above and below the conveyor belt. The cold walls are separated from the last heated zone by a 13cm transition tunnel with CDA-fed curtain and baffles. Cool down rates can exceed 65°C per second between 875°C and 400°C. Solar cells exit the furnace at 40°C or less.



130mm polycrystalline solar cell, 250µm thick, 450cm/min

Fast belt speeds transport lightweight solar cells smoothly. Belt vibration is minimized with a friction drive roller. Optional dimpled belts enable faster heating and cooling by reducing solar cell contact with the conveyor belt.



Dimpled belt holds solar cells above the belt

Uniform atmosphere with a laminar flow of pre-heated clean dry air (CDA) produces a broad process window. CDA is fed into the heating chamber through the top and bottom porous ceramic chamber walls (RTC patent). A controlled atmosphere of specialized gas can be maintained in selected furnace zones.

PVD-600 Series Integrated Solar Cell Dryer/Firing Furnaces

SPECIFICATIONS	PVD-609	PVD-614	PVD-624	PVD-636
Parts Clearance (in, cm)	0.75, 1.9 (customer may specify other clearance height)			
Belt Width (in, cm)	9, 23	14, 36	24, 61	36, 91
Conveyor Speed (ipm, cm/min)	18-180, 46-460			
Load and Unload Stations, each (in, cm)	15, 38			
Dryer Entrance Baffle, Exhaust (in, cm)	15, 38			
Dryer Heated Length (in, cm)	90, 229			
Number of Dryer Heated Zones	3			
Dryer Exit Baffle, Exhaust (in, cm)	15, 38			
Open Inspection Area (in, cm)	11, 28			
Furnace Entrance Baffle, Exhaust (in, cm)	15, 38			
Furnace Heated Length (in, cm)	60, 152			
Number of Furnace Heated Zones	6			
Heat Up Time (minutes)	15	15	15	20
Max. Operating Temp (Dryer, Furnace)	400°C, 1000°C			
Transition Tunnel (in, cm)	5, 13			
Water Cooling Length (in, cm)	20, 51			
Forced Air Cooling Length (in, cm)	90, 229			
Product Temperature at Exit	40°C			
Atmosphere, CDA, typical (scfh, lpm)	900, 423	1700, 799	2400, 1128	4200, 1974
Process Exhaust, Venturi Assist	4	4	4	4
Electrical	208-480VAC, 3 phase, 50/60Hz 4-wire (safety ground) or 5-wire (safety ground, separate neutral)			
Power (KW) Peak, Typical	90, 36	136, 54	229, 91	245, 122
Water (gpm-psi, lpm-Kg/sq.cm)	5-50, 19-3.5	5-50, 19-3.5	10-50, 38-3.5	15-50, 57-3.5
Overall Length (in, cm)	353, 897	353, 897	353, 897	353, 897
Overall Width (in, cm)	43, 109	43, 109	51, 130	63, 160
Overall Height (in, cm)	68, 172	68, 172	68, 172	68, 172
Weight Net (lb, Kg)	4000, 1820	4550, 2060	5400, 2460	6650,3020
Weight Crated (lb, Kg)	6300, 2860	6850, 3120	6700, 3015	10000, 4540

Options

- **Air Purification System**
- **Dimpled Mesh Belt**
- **Lamp Element Monitor**
- **On-Screen Profiling System**
- **Over Temperature Shutdown**
- **Process Ready/Alarm Light Tower**
- **Ultrasonic Belt Cleaner with Dryer**
- **Uninterruptible Power Supply**
- **Exit Backlight for Solar Cell Pickup**
- **Controlled Atmosphere Firing**

Please visit our web site or call to discuss your specific requirements

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