Mo	del	MILA-500	DO-P-N	MILA-5000-UHV		MILA-5000-P-F	
Туре		Near-infrared lamp Hig	h temperature type	Near-infrared lamp High temperature High va	cuum type	Far-infrared lamp Uniform heat	
Temperature	e range	RT to 1200°C (MAX)		RT to 1200°C(MAX)		RT to 800°C (MAX)	
Maximum he	eating rate 💥	50°C/s(50°C~1200°C)in	vacuum atmosphere	50°C/s(50°C~1200°C) in vacuum atn	nosphere	4°C/s(50°C∼800°C)in vacuum atr	
		45℃/s(50℃~1200℃)in	nitrogen gas	45°C/s(50°C~1200°C) in nitrogen ga	S	4°C/s(50°C∼800°C)in nitrogen ga	
Temperature	e uniformity 💥	±2.0°C(ΔT=4°C)at 1200°C	in vacuum atmoshere	±2.0°C (ΔT=4°C)at 1200°C in vacuum a	tmoshere	±1.8°C(ΔT=3.6°C)at 500°C in vacuum	
		±4.5°C(ΔT=9°C)at 1200°C in nitrogen gas		±4.5°C(ΔT=9°C)at 1200°C in nitrogen g	as	±1.2°C (ΔT=2.4°C) at 500°C in nitrogen	
Heating atm	loshere	Air, vacuum or inert g	as	Air, vacuum or inert gas	·····	Air, vacuum or inert gas	
Sample size		MAX W20×L20×t2.0((mm)	MAX W20×L20×t2.0(mm)		MAX W20×L20×t2.0(mm)	
Temperature control sensor Compatible with JIS th		ermocouple K fixed	Compatible with JIS thermocouple	K fixed	Compatible with JIS thermocoupl		
Lamp rating	Lamp rating 1kW-4-100V/lamp			1kW-4-100V/lamp		250W-4-100V/lamp	
The heating r	rate and tempera	ature uniformity above are	the measured values	of a 20mm deep × 20mm wide × 0.5m	nm thick 1	nickel plate.	
Subject to ch	ange depending	on material and size.				•	
Specification of	f temp, program	MILA-500) 0-p-n	MILA-5000-UHV		MILA-5000-P-F	
Program mo	de	Temperature vs. time	setting Step numb	per 256 Total program 32 MAX			
TIOBICITITIO	uc	Cyclic hold advance and other function					
		PID+fuzzy logic contr	ol Auto tuning LIS	SB communication ALITO/MANIL	Al avail	able	
Input sensor		Compatible with K-tw	ne thermocourde				
input school							
Utility rea	nuirements	MILA-500	NO-P-N	MILA-5000-UHV		MILA-5000-P-F	
Power requir	rement	AC200V single phas	e 4kW	AC200V single phase 4kW		AC200V single phase 1kW	
Cooling wate	or	Flow rate $\cdot 4\ell$ /min P	ressure · 0.3MPa	Flow rate : 4ℓ /min Pressure : 0	3MPa	Flow rate : 20/min Pressure : 0	
Cos inlot po	ci rt	1 // inch Swagelok ic	int	1/4-inch Swagelok joint		1/A-inch Swagelok joint	
Clas iniet poi	it.	1/4 inch Swagolok joint		Expanse from Vacuum port		1/4-inch Swagelok joint	
Coo dioobor	ao port						
Gas discharg	ge port +	NW25-KE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			NW25-KE	
Gas discharg	ge port t	NW25-KF		ICF-70	rotrusion)	NW25-KF	
Gas discharg Vacuum port Outside dime Weight	ge port t ensions	NW25-KF W360xD355xH179(mm), Approx.15kg	(excluding protrusion)	ICF-70 W360×D365×H179(mm), (excluding pr Approx.15.5kg	rotrusion)	NW25-KF W360xD355xH179(mm), (excluding r Approx.15kg	
Gas discharg Vacuum port Outside dime Weight Standard sat Included items Attention	ge port t ensions fety features Instruction 1 ※Mains powe	NW25-KF W360xD355xH179(mm), Approx.15kg Thermocouple burnou Manual ●Programming i r cable is not including. St	(excluding protrusion) ut, Overtemperature nput support software elect one from the op	ICF-70 W360xD365xH179(mm), (excluding pr Approx.15.5kg e setting, Furnace body temperatu e (compatible with Windows2000/XP, tions list below.	rotrusion) Ire senso including	NW25-KF W360xD355xH179(mm), (excluding j Approx.15kg or.	
Gas discharg Vacuum port Outside dime Weight Standard sat Included items Attention	ge port t ensions fety features Mains powe *Cooling hos *Please prepa *Please make	MW25-KF W360xD355xH179(mm), Approx.15kg Thermocouple burnou Manual ●Programming i er cable is not including. So is not including. are for the cooling hose of e sure of using City water of	(excluding protrusion) ut, Overtemperature nput support software elect one from the op outside dia. 11× insic or cooling water unit.	ICF-70 W360xD365xH179(mm), (excluding pr Approx.15.5kg e setting, Furnace body temperatu e (compatible with Windows2000/XP, tions list below. le dia. 6	rotrusion) Ire senso including	NW25-KF W360xD355xH179(mm), (excluding j Approx.15kg or.	
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ULVAC

MINI LAMP ANNEALER MILA-5000



HEAD OFFICE

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ULVAC-RIKO, Inc.

ULVAC-RIKO, Inc.





Mini Lamp Annealing System

Rapid Thermal Processing (RTP) has become an important heating technique for annealing semiconductors, ferroelectrics and other thin film devices. But until recently, only large and expensive production systems were available for this rapid heating/cooling technique, making R&D work difficult to accomplish, especially on small samples. To address this need, ULVAC-RIKO has developed the MILA-5000 Mini Lamp Annealer. This compact table top RTP system is built around gold reflector IR furnace and contains a high precision temperature controller. When equipped with optional pumping and gas inlet equipment the MILA-5000 is able to provide the same performance as larger production scale RTP units on small samples at a fraction of the size and cost.





MILA-5000 MILA-5000-P-N MILA-5000-P-F

Features

Application

Capability of rapid heating and cooling

The maximum heating rate is 50°C/s. This non-insulated cold wall water-cooled optical IR reflector furnace has very little thermal inertia so it also cools rapidly.

Capability of heating in any atmosphere

Vacuum, gas, gas flow or air can be selected as the heating atmosphere during heating and cooling. The sample is housed inside an o-ring sealed transparent quartz protective tube that maintains sample cleanliness.

Capability of observing sample during heating

The sample can be observed through the optional top view port window during heating. Changes in the

sample during the heating cycle can be recorded on video by using the optional PC based video camera.

(Uniform heating type)

Accurate temperature control

(High temperature type)

The built-in programmable temperature controller simultaneously displays the actual and the programmed set temperature as the program steps are executed automatically. Programming is straightforward by keystroke entry via the front panel, or via the USB interface to a PC with included software. PID parameter control of temperature ramps permit tight temperature control with little overshoot/undershoot over the wide temperature range from Room Temperature to 1200°C.

Electric materials	Ceramics and inorganic materials	Metal materials	Compound materials
 RTA of silicon wafer Crystallization of annealing of thin ferroelectrics Rapid thermal annealing(RTA) of compound wafer Sintering of ohmic electodes Heating furnace for thin film deposition Substrate heating furnace in optical CVD 	 Thermal impact test and thermal cycle test of ceramics Thermal fatigue test of ceramics Heat resistance evaluation test of coated film Annealing of glass substrates in vacuum 	 Atmospheric annealing furnace Heat treatment in ultrahigh vacuum Heat resistance evaluation of surface coated film Thermal cycle test of heat resistant steels Characteristic evaluation of composite materials 	 Heat resistance evaluation of composite materials Heat resistance evaluation of composite materials of carbon and metals



