

Model RTP-150

Rapid Thermal Process Oven with Vacuum
up to 150 mm dia. or 156 mm x 156 mm substrate size



Technical and design changes reserved

- Touch Panel for easy program control
- Easy loading/unloading of samples
- Max. Temperature: 1000 °C
- Ramp up rate up to 75 K/sec
- Mass Flow Controller
- Vacuum up to 10^{-3} hPa
(for high vacuum see RTP-150-HV)

FEATURES

- Precise ramp up and fast ramp down rates
- Up to 4 gas lines
- Heated by IR Lamps (21 kW)
- SPS controller, Simatic
- Integrated data logging
- High temperature uniformity

APPLICATIONS

- Implantation/Contact Annealing
- RTP, RTA, RTO, RTN
- Operation with inert gases, Oxygen, Hydrogen, Forming gas
- SiAu, SiAl, SiMo Alloying
- Low k dielectrics
- Crystallization & densification
- Si-Solar Wafer Cells on glass by Si-Wafer bonding

Model RTP-150

- **Rapid Thermal Annealing Process Oven with vacuum**
- **Touch Panel Svivel**
- **Programmable temperature profiles**
- **Record of process data**
- **Process in different gas atmospheres**

APPLICATION

The **RTP-150** Rapid Thermal Annealing Vacuum oven is an excellent tool for various semiconductor up to 150 mm diameter wafer or 156 mm x 156 mm substrate size.

Some examples for applications: Laboratory furnace for all kind of developers implementing and researching new processes, prototype research, environmental research purposes and for small pre-series or series.

PROCESS GASES

The RTP-150 can be used with standard process gases, like Nitrogen, Oxygen, Forming Gas. The chamber is sealed and can easily be cleaned.

FLOW METER

One gas line with Mass Flow Controller (MFC) for Nitrogen (5 nlm = norm liter per minute) is default, three more gas lines (**Option: MFC**) are possible.

VACUUM

The system is vacuum capable of up to 10^{-3} hPa. For higher vacuum we offer the model **RTP-150-HV** (see separate data sheet).

The maximal achievable temperature is 1000 °C. Key features are precisely controlled fast ramp-up 75 K/sec) and excellent ramp-down rates (depends on temperature and loading).

TEMPERATURE DISTRIBUTION

The RTP-150 allows an excellent temperature distribution and homogeneity. Optionally a graphite susceptor can be inserted into the quartz chamber (**Option: GP Graphite Plate or Susceptor**).

PROGRAMMING

The RTP-150 is equipped with a 7" touch panel which allows easy and comfortable programming directly on the unit.

COOLING

The cooling of the parts in the quartz chamber is realized by Nitrogen gas which will be led through the chamber. For chamber cooling we recommend a closed loop water cooling system.

(**Accessories: WC-III or WC-IV**)

OTHERS

An interlock function as well as an Emergency-OFF-Button (EMO) are default.

SPECIAL

This oven can also be ordered as „**double chamber oven**“. By adding a second process chamber (**Option: PC-150**) the oven does have 2 process chambers and one controller unit. This saves money when 2 different processes are needed and the chambers shall not be cleaned due to contamination or other reasons.

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SPECIFICATION

Max. part size	150 mm dia. or 156 mm x 156 mm
Chamber material	Quartz glass
Part holder	quartz plate for 156 mm solar wafer (optional with adapter for 100 mm or 150 mm wafer)
Chamber height	40 mm
Vacuum capability	Up to 10^{-3} hPa
Process chamber size	325 mm x 214 mm x 40 mm (W x D x H)
Temperature max.	1000 °C (higher on request)
Temp. unifomity	$\leq 1,5\%$ of set temperature
Heating	Top and bottom heating with 24 IR Lamps (21 kW)
Ramp up rate	Up to 75 K/sec
Ramp down rate	T= 1000°C > 400°C: 200 K/min, T= 400°C > 100°C: 30 K/min
Flow Controller	Mass Flow Controller (Nitrogen 5 nlm = norm liter per minute)
Controller	SPS Controller, Simatic
Chamber cooling	Water cooled
Substrate Cooling	By Nitrogen Gas

TECHNICAL DATA

Dimension oven	503 mm x 525 mm x 570 mm (W x D x H)
Weight	70 kg
Electrical connection	CEE 3x32 A, 230 V, 3 ~ + N + PE

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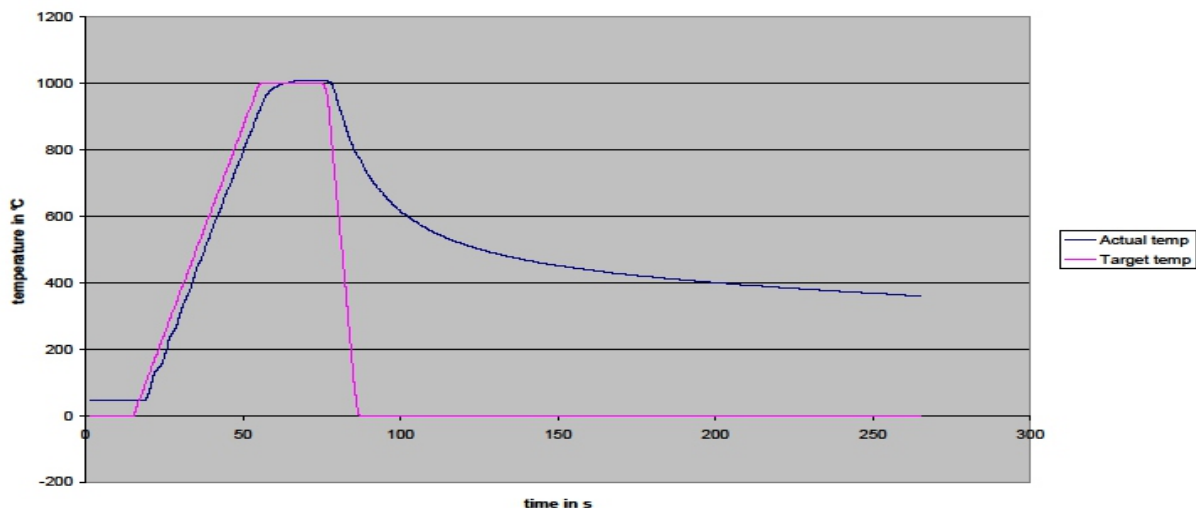
OPTIONS

RTP-GP-150	Graphite Plate or susceptor for RTP-150 (optional SiC coated on request)
RTP-PC-150	add. 150 mm Oven chamber ("double-chamber") for usage of 2 chambers
RTP-IR-150	IR lamps for RTP-150, price per pice (one set 24 lamps)
RTP-QT-150	Quartz tubes for RTP-IR-150, price per piece (one set 24 lamps)
RTP-QC-150	Spare quartz chamber for RTP-150
RTP-QH-150	Spare quartz holder for RTP-150
RTP-QP	Quartz plate for RTP-150
RTP-QR-150	Adapter (quartz ring) for 150 mm wafer
RTP-QR-100	Adapter (quartz ring) for 100 mm wafer
RTP-QU-150	Universal Quartz tray for 156 mm solar wafer

ACCESSORIES

MP	Membrane Pump for vacuum up to 10 hPa with vacuum sensor
RVP	Rotary Vane pump for vacuum up to 10^{-3} hPa with oil filter and manometer
WC-III or	Closed loop water cooling system (stand alone)
WC-IV	

Anneal 1000°C 15 s



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