

## Model RTP-150-EP

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



Technical and design changes reserved

- For wafer size up to 150 mm dia.
- Ramp up rate up to 150 K/sec
- Control **SIMATIC®** with 7" touch panel
- Vacuum up to  $10^{-3}$  hPa
- Process gas line with MFC for N<sub>2</sub>

## FEATURES

- Precise fast ramp up and fast ramp down rates
- Excellent temperature uniformity
- Up to 4 gas lines (MFC)
- Integrated data logging
- Heated by Infrared Lamps
- 50 programs with 50 steps each
- Small foot print

## APPLICATION

- 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

## Model RTP-150

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



### APPLICATION

The **RTP-150-EP** Rapid Thermal Annealing Vacuum oven is an excellent tool for various semiconductor up to 150 mm diameter wafer or 156mmx156mm 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-EP can be used with standard process gases, like Nitrogen, Oxygen, Forming Gas. The chamber is sealed and can easily be cleaned.

### GAS FLOW CONTROL

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).

### HEATING

The maximal achievable temperature is 1000 °C. Key features are precisely controlled fast ramp-up 150 K/sec) and excellent ramp-down rates (depends on temperature and loading).

### TEMPERATURE

The RTP-150-EP 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. 50 programs with 50 steps each can be stored.

Unlimited programs can be up- and downloaded from external storage medium.

### PROCESS CONTROL

The software allows the permanent monitoring, read-out and analysis of

- >temperature
- >process gas flow
- >cooling water level status
- >pressure value and status

### COOLING

the parts in the quartz chamber is realized by Nitrogen gas which will be led through the chamber.

### 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.

## Model RTP-150

### SPECIFICATION

Max. part size	150 mm dia. or 156 mm x 156 mm
Chamber material	Quartz glass chamber
Part holder	Quartz universal holder for either 156 x 156 mm solar wafer or 150 mm wafer dia.
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. uniformity	$\leq 1,5\%$ of set temperature
Heating	Top and bottom heating with 2x24 IR Lamps (2x21 kW)
Ramp up rate	Up to 150 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)
Controller	SIMACTIC® 50 programs with 50 steps each
Chamber cooling	Water cooled
Substrate Cooling	by Nitrogen Gas

Dimension oven	505 mm x 525 mm x 570 mm (W x D x H)
Weight	56 kg (estimated)
Electrical connection	2x[400/230V, 21kW]

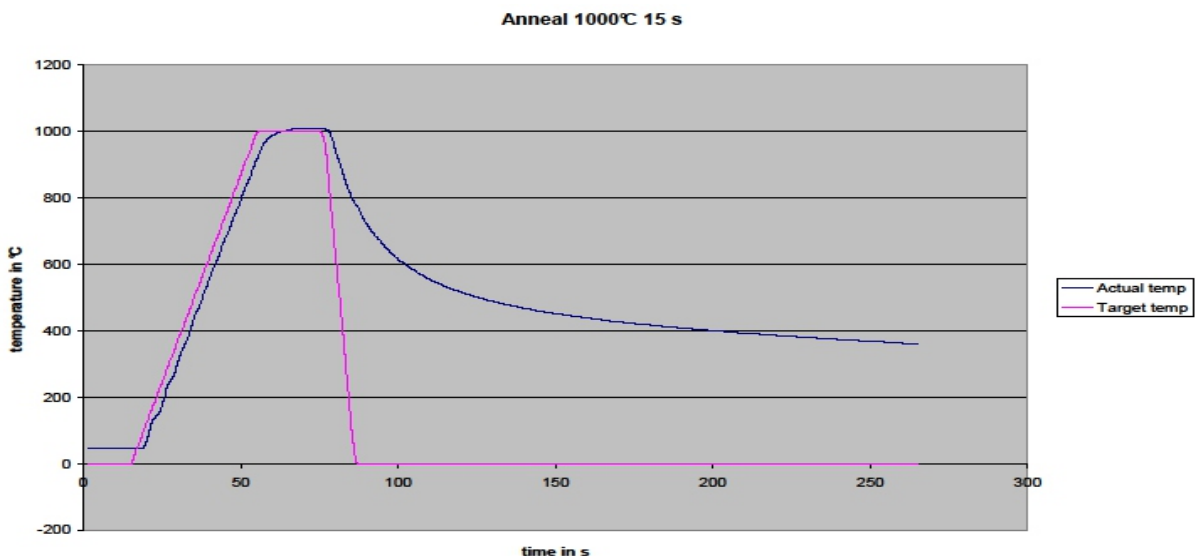
## Model RTP-150

### OPTIONS

<b>RTP-H2</b>	Hydrogen option with Safety device (Sensor and Hydrogen monitoring)
<b>RTP-H2S</b>	Safety device for Hydrogen option (with cover and sensor)
<b>RTP-MFC</b>	Additional process gas line with Mass Flow Controller (max. 3 add) *
	* = all in all max. 4 process gas lines
<b>RTP-Ox</b>	Oxygen Analyser to measure Oxygen residues (not in combination with Hydrogen Option)
<b>RTP-MM</b>	Moisture Analyzer to measure moisture residues in the chamber
<b>RTP-SW</b>	Switchbox for chiller and vacuum pump
<b>RTP-TC</b>	add. Thermocouple to measure on device (plugged in chamber, max. 1)
<b>VAC I</b>	Basic Vacuum up to 3 hPa, Vacuum sensor, vacuum valve excl. pump
<b>VAC II</b>	Comfort Vacuum up to $10^{-3}$ hPa, Pirani Sensor, vacuum valve, excl. pump
<b>VCR</b>	Tubing made of VCR (welded)

### ACCESSORIES

<b>RTP-GP-150</b>	Graphite Plate or susceptor (optional SiC coated)
<b>RTP-PC-150</b>	add. 100 mm oven chamber ("double chamber( for usage of 2 chambers)
<b>RTP-QR-75</b>	Adapter (quartz ring) for 75 mm wafer
<b>RTP-QR-100</b>	Adapter (quartz ring) for 100 mm wafer
<b>MP</b>	Membrane/diaphragm pump for vacuum up to 3 hPa



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