

Rapid Thermal Vacuum Process Oven



Picture similar to RTP-200 with closed front view

RTP-200, RTP-200-HV

- For wafer size up to 200 mm dia. (8") wafer size or M10 solarwafer 182 x 182 mm
- Ramp up rate up to 50 K/sec (optional: -EP 100 K/sec)
- SIMATIC® controller with 7" touch panel
- Vacuum up to 10^{-3} hPa (RTP-200-HV up to 10^{-6} hPa) within 30 minutes
- Process gas line with Mass Flow Controller for Nitrogen

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

Features

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

RTP-200, RTP-200-HV

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

Application

The RTP-200 Rapid Thermal Annealing Vacuum oven is an excellent tool for various semiconductor processes up to 200 mm diameter wafer or 200 x 200 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-200 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: Mass Flow Controller) are possible.

Vacuum

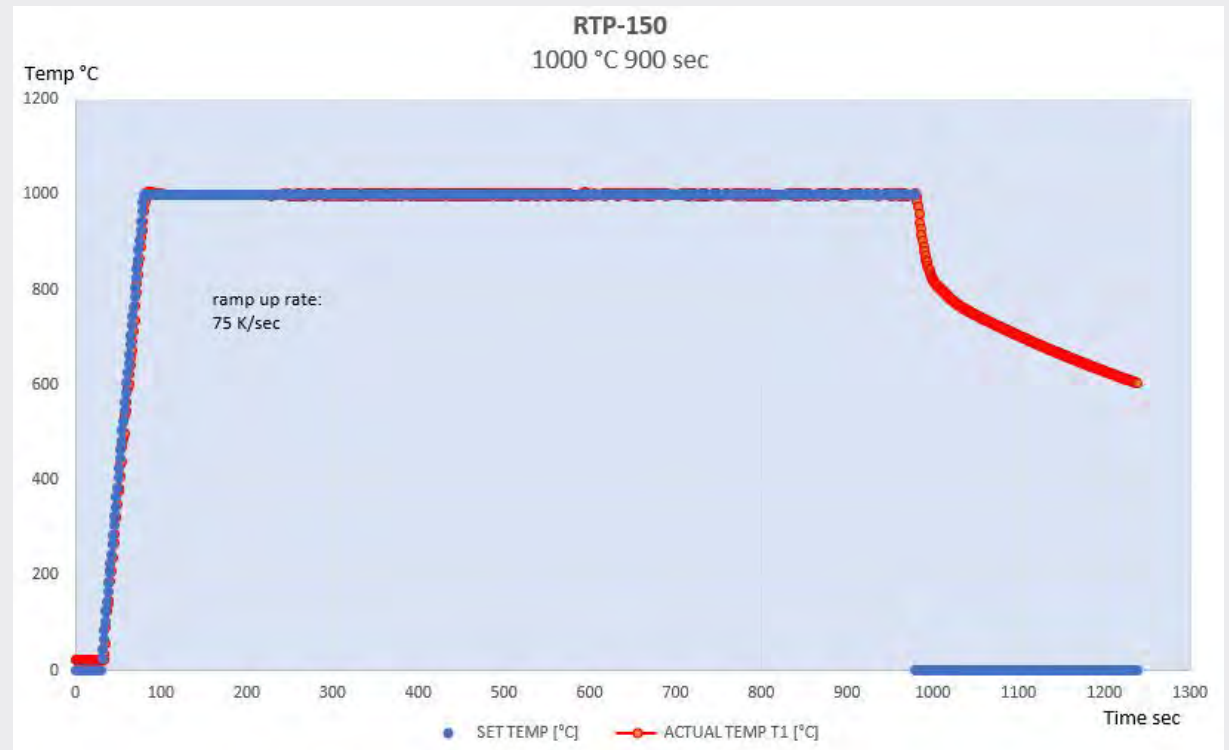
The system is vacuum capable of up to 10^{-3} hPa. For higher vacuum we offer the model RTP-200-HV (up to 10^{-6} hPa), within 30 minutes.

Heating

The maximal achievable temperature is 1000 °C. Key features are precisely controlled fast ramp-up 50 K/sec (optional: 100 K/sec) and excellent ramp-down rates (depends on temperature and loading).

Temperature

The RTP-200 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-200 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-200) the oven does have 2 process chambers and one controller unit.

The Process chamber is separated from the lamp area. This allows a very short time for getting vacuum. And it is perfect for use of 100 % Hydrogen (optional).

RTP-200, RTP-200-HV



RTP-200 UHE_closed

Specification

Max. part size	200 mm dia. or 182 mm x 182 mm
Chamber material	Aluminium
Process chamber	Quartz glass chamber (optional)
Process chamber size	230 x 400 x 40 mm (W x D x H)
Part holder	Quartz universal holder for either 200 x 200 mm substrate or 200 mm wafer dia.
Chamber height	40 mm
Vacuum capability	Up to 10^{-3} hPa (RTP-200-HV up to 6×10^{-6} hPa)
Temperature max.	1000 °C (higher on request)
Temp. uniformity	$\leq 1,0$ % of set temperature
Heating	Top and bottom heating
Ramp up rate	Up to 50 K/sec. optional up to 100 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	SIMATIC® controller, 50 programs with 50 steps each
Chamber cooling	Water cooled
Substrate Cooling	By Nitrogen Gas

Technical Data

Dimension oven	approx. 505 mm x 525 mm x 570 mm (W x D x H)
Weight	70 kg (estimated)
Electrical connection	3 x 400/230V, 21kW

Options

RTP-EP	Extended power with ramp rate better 100K/sec (power x 2)
RTP-MFC	Additional process gas line with Mass Flow Controller (max. 3 add)* * = all in all max. 4 process gas lines
RTP-Ox	Various oxygen analyser with different tolerances against H traces
RTP-MM	Moisture Analyzer to measure moisture residues in the chamber
RTP-SW-VP / CH	Switchbox for chiller and/ or vacuum pump
TC I / TC II	add. Thermocouple to measure on device (plugged in chamber, max. 1)
VAC I	Basic Vacuum up to 3 hPa, Vacuum sensor, vacuum valve excl. pump (not for -HV)
VAC II	Comfort Vacuum up to 10^{-3} hPa, Pirani Sensor, vacuum valve, excl. pump (not for -HV)
VCR	Tubing made of VCR (welded)

Accessories

RTP-GP-200	Graphite Plate or susceptor (optional SiC coated)
RTP-PC-200	add. 200 mm oven chamber = double chamber (for usage of 2 chambers)
RTP-QF-200-200 mm	Quartz frame for 200 mm wafer
RTP-QF-200-150 mm	Quartz frame for 150 mm wafer
RTP-QF-200-100 mm	Quartz frame for 100 mm wafer

Process Gases	Nitrogen, Argon, Forming Gas, Oxygen, Hydrogen
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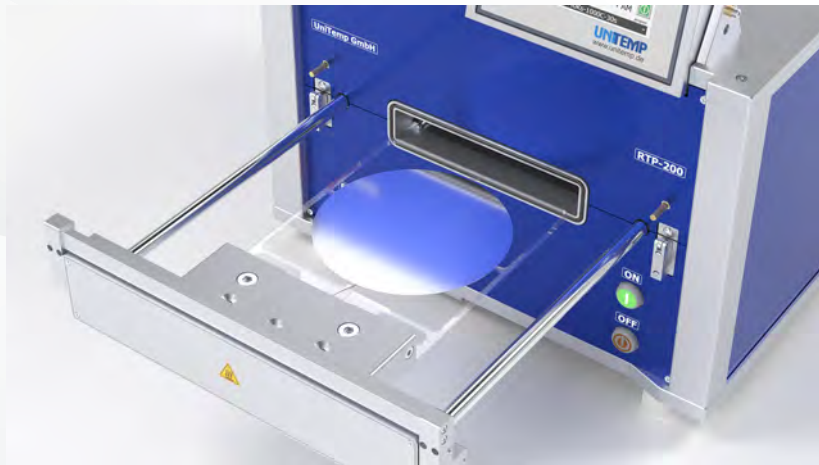
Accessories



RTP-200 with quartz tray for 100 mm wafer



RTP-200 with quartz tray for 150 mm wafer



RTP-200 with quartz tray for 200 mm wafer



RTP-200 with graphite susceptor