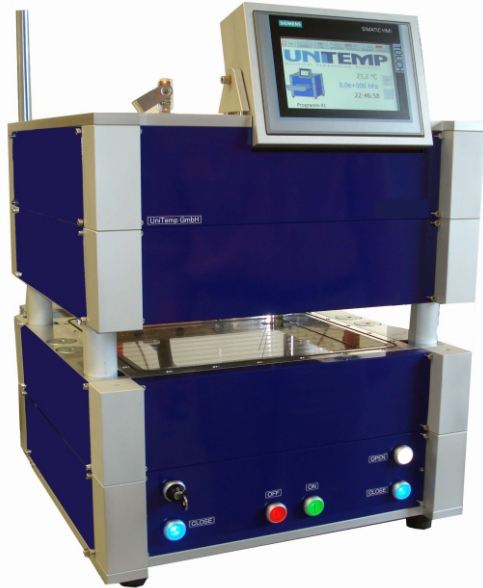


Model VPO-1000-300

Vacuum Process Oven
up to 300 mm dia. or 300 mm x 300 mm substrate size



Technical and design changes reserved

- RTP oven with Temperature max. up to 1000 °C
- Vertically automatical open/close
- Max. Temperature: 1000 °C
- Ramp up rate up to 40 K/sec
Ramp down rate up to 200 K/min
- Vacuum up to 10⁻³ hPa

FEATURES

- Precise ramp up and fast ramp down rates
- Up to 4 gas lines
- Heated by 48 IR Lamps (42 kW)
- PID Controller
- Integrated data logging
- Top and bottom heating (selection by Software)

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 VPO-1000-300

- **Vacuum Process Oven**
- **Programmable temperature profiles**
- **Record of process data**
- **Process in different gas atmospheres**
- **Perfect lab tool due to small dimensions and weight**

APPLICATION

The **VPO-1000-300** Reflow Solder System is an excellent tool for various semiconductor up to 300 mm diameter wafer or 300 mm x 300 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 VPO-1000-300 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 for Nitrogen (5 nlm = norm liter per minute) is default, three more gas lines are possible (as option).

VACUUM

The system is vacuum capable of up to 10^{-3} hPa.

The maximal achievable temperature is 1000 °C. Key features are precisely controlled fast ramp-up 40 K/sec) and excellent ramp-down rates (depend on temperature and loading).

TEMPERATURE DISTRIBUTION

The VPO-1000-300 allows an excellent temperature distribution and homogeneity. Optionally a graphite susceptor can be inserted into the quartz chamber.

PROGRAMMING

The VPO-1000-300 is controlled by SIMATIC SPS controller. A 7" touch panel allows a very comfortable programming and control of the process.

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 integrated into a production line. The chamber open/close is realized by push button operation. Optionally the adaption into a fully automatic open/close system is possible.

Model VPO-1000-300

SPECIFICATION

Max. part size	300 mm dia. or 300 mm x 300 mm
Chamber material	Aluminium chamber (chamber area: 350 mm x 350 mm) inclusive quartz glass bottom plate
Chamber height	50 mm (optional: 120mm)
Vacuum capability	Up to 10^{-3} hPa
Temperature max.	1000 °C (for max. 10 sec)
Temp. uniformity	$\leq 1\%$ of set temperature (on a 200 mm wafer) (e.g. +/- 3K @ 300 °C)
Heating	Bottom Heating: 2 x 12 IR lamps cross aligned (21 kW) Top Heating: 2 x 12 IR lamps cross aligned (21 kW)
Ramp up rate	Better than 180 K/min
Ramp down rate	T= 1000°C > 400°C: 200 K/min, T= 400°C > 100°C: 30 /min
Flow Controller	One Mass Flow Controller for 5 nlm (=norm liter per minute) as default, up to 3 more MFCs are available as option
Controller	SIMATIC SPS
Chamber cooling	By external water cooling system
Substrate Cooling	By Nitrogen Gas

TECHNICAL DATA

Dimension oven	505 mm x 504 mm x 830 mm (W x D x H)
Weight	100 kg (estimated)
Electrical connection	2 x [CEE 3x32 A, 230 V, 3 ~ + N + PE, 21 kW]

Model VPO-1000-300

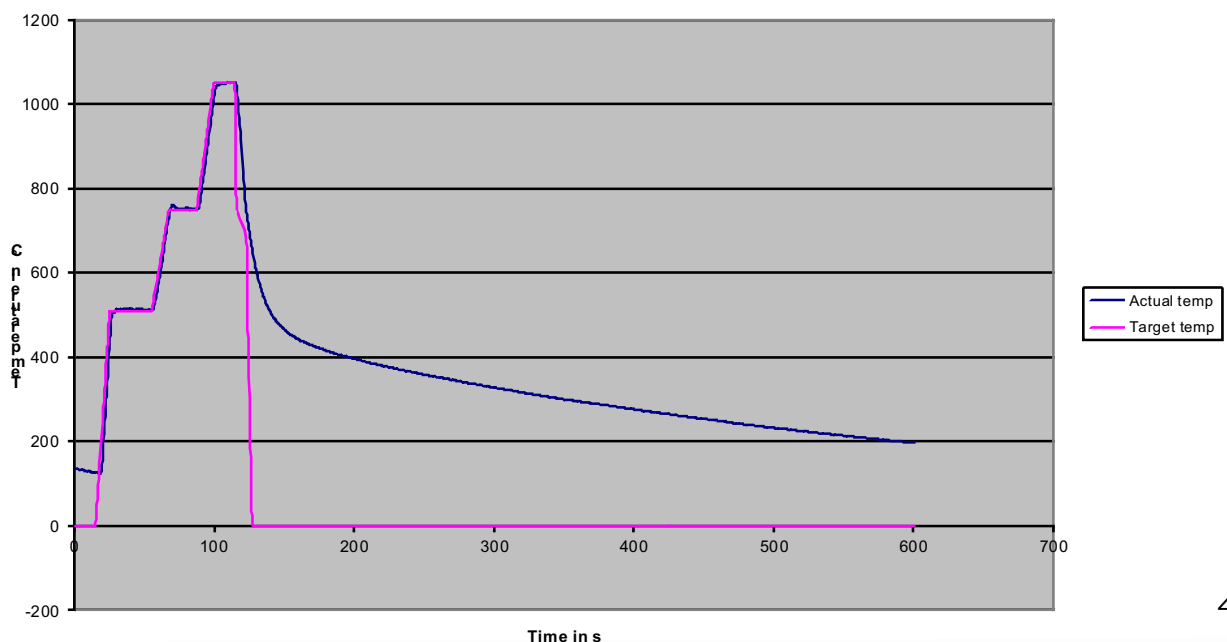
OPTIONS

VPO-MFC	Additional gas line with Mass Flow controller (total: max 4 gas lines)
VPO-EH	Chamber height 120mm (instead of 50mm) with viewing window (60mm diameter)
VPO-SS	Chamber made of stainless steel (VA 1.4305) polished, instead of aluminium 50mm
VPO-GP	Graphite Plate or Susceptor
VPO-TC	Additional thermocouple to measure on device (plugged in chamber) (max. 4 pcs)
VPO-QP	Quartz glass plate (5 mm thickness) for sealing the top lamp field
VPO-VM	Vacuum measurement with vacuum sensor (when no pump is ordered)

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 WC-IV	Closed loop water cooling system (stand alone)

VPO-1000-300 with 200 mm Si-Wafer Heating-Cooling profile



4.2014