

## Model VSS-300

### Vacuum Soldering System for processing of 300mmx300mm substrates - also for contaminating processes



Technical and design changes reserved

- For substrate size up to 300mm x 300mm
- Ramp up rate up to 150 K/min
- Control **SIMATIC®** with 7" touch panel
- Vacuum up to  $10^{-3}$  hPa (opt.  $10^{-6}$  hPa)
- Process gas line with MFC for  $N_2$
- Temperature up to 450 °C (opt. up to 650 °C)

## FEATURES

- Precise ramp up and fast ramp down rates
- Up to 4 gas lines (MFC)
- Heated by Infrared lamps
- 50 programs with 50 steps each
- Top and bottom heating (selection by Software)
- Small foot print
- 3 heating zones programmable

## APPLICATION

Reflow Solder Processes with or without vacuum up to  $10^{-6}$  hPa. Easy profiling by using a SIMATIC controller with WIN based software. Perfect lab tool and also for production on a low cost base. High production output. A remote control can be adjusted and the system can easily integrated into a production line.

- Reflow Solder Processes with flux
- Operation with inert gas, Oxygen, Forming gas, Formic Acid
- Lead and Lead-free SMT reflow
- Resistor paste firing

## Model VSS-300

- **Vacuum Solder System**
- **Programmable temperature profiles**
- **Record of process data**
- **Process in different gas atmospheres**

### The VSS-300

#### Vacuum Process Oven

The **VSS-300** Reflow Solder System is an excellent tool for various solder processes up to 300 mm diameter wafer or 300 mm x 300 mm substrate size and 50 mm height (**Option: EH with 120 mm height.**)

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 VSS-300 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 (optionally up to  $10^{-6}$  hPa).

#### HEATING

The maximal achievable temperature is 400°C (opt. 650°C). Key features are precisely controlled fast ramp-up (150K/min) and excellent ramp-down rates (depend on temperature and loading).

#### TEMPERATURE DISTRIBUTION

The VSS-300 allows an excellent temperature distribution and homogeneity. Optionally a graphite susceptor can be inserted on the quartz bottom plate.

#### PROGRAMMING

The VSS-300 is controlled by SIMATIC SPS controller. A 7" touch panel allows a very comfortable programming and control of the process. There can be saved up to 50 programs with 50 steps each



(unlimited programs can be down- and uploaded from an external data storage).

#### 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 PROCESS

The hot plate is active cooled with homogenous cooling from both sides.

#### 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.

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### 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: 120 mm)
Vacuum capability	Up to $10^{-3}$ hPa (optional up to $10^{-6}$ hPa)
Temperature max.	450 °C (higher temp. on request)
Temp. uniformity	$\leq 1\%$ of set temperature (on a 200 mm wafer) (e.g. +/- 3K @ 300 °C)
Heating	Bottom Heating: Infrared lamps cross aligned (18 kW)
Ramp up rate	<b>150K/min</b>
Ramp down rate	T= 450°C > 200°C: 90 K/min, T= 200°C > 100°C: 60K /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® 50 programs with 50 steps each
Chamber cooling	By external water cooling system
Substrate Cooling	By Nitrogen Gas

### TECHNICAL DATA

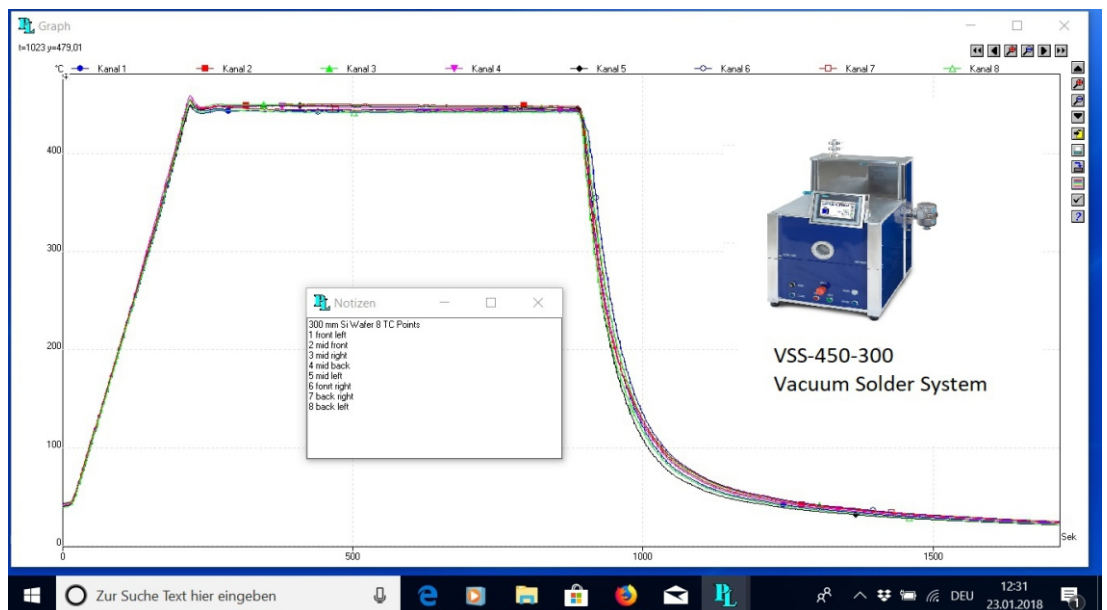
Dimension oven	550 mm x 690 mm x 830 mm (W x D x H)
Weight	105 kg (estimated)
Electrical connection	400/230V, 18 kW

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### OPTIONS

VSS-FA	Formic Acid module (Module with Vessel for using Formic acid) with gas line
VSS-FT	Flux trap
VSS-MFC	Additional gas line with Mass Flow controller (total: max 4 gas lines)
VSS-LP	Lift Pins (on request)
VSS-EH	Chamber height 120mm with viewing window (60mm diameter)
VSS-TC	Additional thermocouple to measure on device (plugged in chamber) for external measurement tool (max. 4)
VSS-TH	Top Heat in cover
VAC I	Vacuum basic for vacuum up to 3 hPa incl. vacuum sensor and valve (excl. pump)
VAC II	Vacuum comfort for vacuum up to $10^{-3}$ hPa incl. vacuum sensor and valve (excl. p.)
VCR	Tubing made of VCR
VSS-SI	Serial interface between VSS system and external PC
VSS-RC	Remote control of top cover opening and closing
VSS-CAB	Floor model with cabinet and integrated Universal Heat Exchanger (UHE)

We offer a lot of different kind of closed loop water coolers and different pumps from e.g. Pfeiffer, Edwards, Leybold, Agilent. We recommend the correct configuration for your system.



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