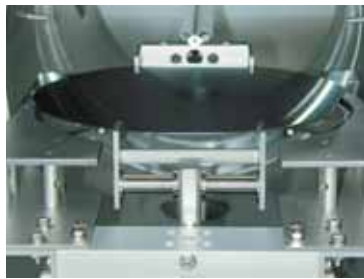
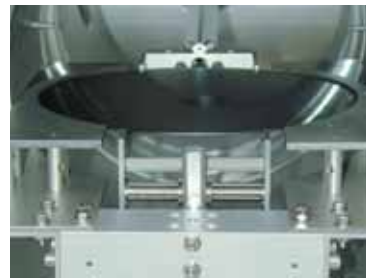




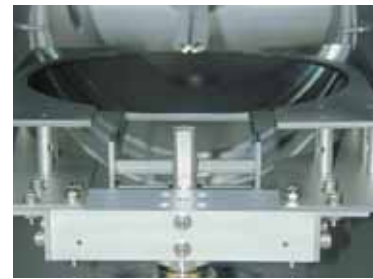
View into the reaction chamber (heater not mounted).



Transferring a wafer from load-lock chamber.



Lowering the wafer from the transfer fork unto the wafer holder.



The wafer is in the processing position. The transfer rod retracts into the load-lock chamber.

## RTA SYSTEM

The RTA System is used for rapid thermal annealing of wafers either in ultra-high vacuum (UHV) or other atmospheres like oxygen or nitrogen with a variable pressure range up to atmospheric pressure. The wafer is heated by an array of high-power quartz lamps.

The complete system consists of two UHV chambers, the load-lock chamber and the process chamber. Both chambers are pumped by turbomolecular pumps and are equipped with a pressure measurement system that spans the range from 1000 mbar down to  $10^{-9}$  mbar.

With a magnetically coupled transfer system the wafer is transferred into the reaction chamber. Viewports allow the direct observation of the RTA process.

A gas handling system can be installed to provide an exactly defined gas pressure level in the reaction chamber. During the RTA process, this atmosphere can be analyzed with a quadrupole mass spectrometer.



Quartz heater lamps array, adapted in size to the wafer to be processed. Several quartz lamps are regularly spaced within a cooling system.

To measure the wafer temperature, thermocouple and pyrometer are used. Optionally, the

system can be automatically operated using our process control software EMERALT, including vacuum control and process documentation. As a second option, other instruments like a custom designed magnet can be fitted to modify the process conditions or analyze the response of the sample wafer during the RTA process.

### Technical Data

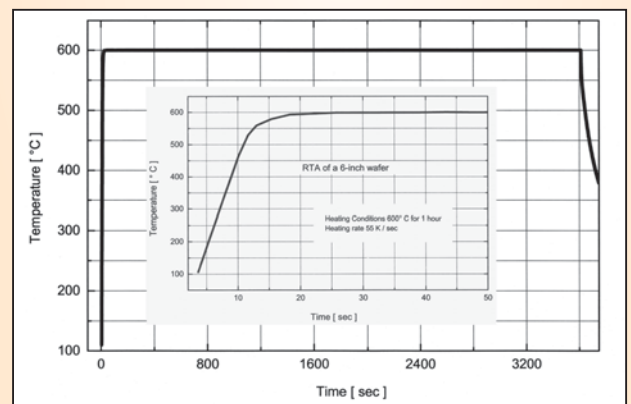
#### Standard:

Heating rate	1 - 100 K/sec
Temperature range	100 °C - 800 °C (optional 1000 °C)
Temperature uniformity	$\pm 5\%$ edge excluded
Max. wafer size	Up to common size
Heating station	
Size	Up to the wafer size
Cooling	Water
Heating elements	Quartz lamps
Temp. sensor	Thermocouple/ Pyrometer
Pressure-range	1000 mbar - $10^{-9}$ mbar
Sample rotation	Optional

#### Optionals:

##### Magnet (RTA-6M)

Magnetic field	0,2 T (adjustable)
Gap	210 mm
Others:	Please ask



Data courtesy of Dr. Bernhard Winzek, cae s ar, Bonn, Germany



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