

Compound Semiconductor Processing

centrotherm

equipment
process
solutions

Oxidator 150

High Temperature Furnace

For Si and SiC Oxidation

The centrotherm Oxidator 150 high temperature oxidation furnace has been developed for the special needs of SiC oxidation but can also be used for Si oxidation.

Due to the design of the tube and heating element inside a vacuum tight reactor chamber and an Ar or N₂ purged load lock the secure use of toxic gases like NO, N₂O, H₂ or NO₂ is possible.

The oxidation process at N₂O atmosphere leads to improved SiO₂ / SiC interface surface, hence to higher channel mobility as well as improved stability and longevity of the oxide on SiC.

centrotherm Oxidator 150 supports wet oxidation processes with the centrotherm Hydrox system, or a modern Di water evaporator.

Temperatures up to 1400 °C and all other supported features open up new possibilities to the SiC oxidation process and the development of an oxide layer with low interface trap density (Dit) and high channel mobility.

The outstanding reactor of the new centrotherm Oxidator 150 was designed for high performance, small footprint and low cost of ownership while offering the highest process flexibility even with toxic gases in a secure way.

- ▶ process temperature from 900 °C to 1400 °C
- ▶ small footprint [1.8 m²]
- ▶ heating ramp up to 10 K/min
- ▶ batch processing of 2", 3", 100 mm, 150 mm or any combination
- ▶ batch size up to 40 wafers [2"], 50 wafers [150 mm]
- ▶ vacuum < 1 x 10⁻³ mbar
- ▶ side-by-side installation possible
- ▶ process pressure range from 800 mbar to atmospheric pressure

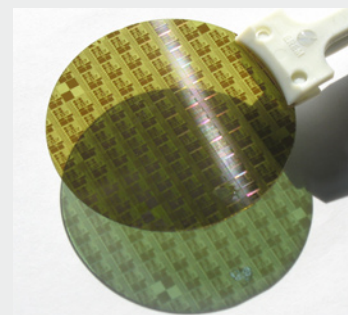
Features and Benefits



centrotherm Oxidator 150



Using SiC-based devices will contribute to reduce greenhouse gases



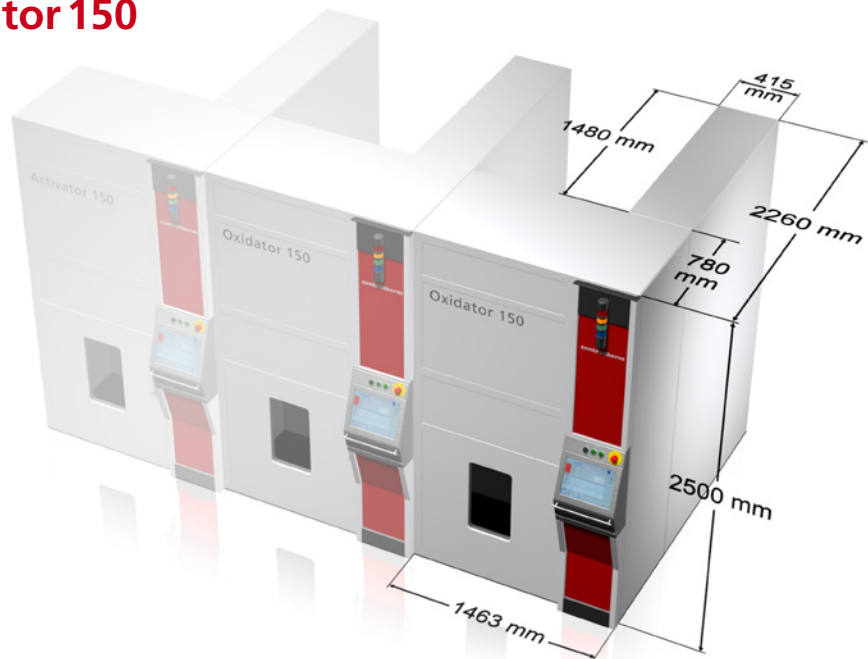
The centrotherm Oxidator 150 is designed for processing of SiC or Si wafers up to 150 mm

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Dimensions

Oxidator 150



Technical
Data

centrotherm Oxidator 150 High Temperature Furnace

	Oxidator 150-5	Oxidator 150-50
Wafer and batch size	5 x 2", 5 x 3", 5 x 100 mm, or 5 x 150 mm wafers	40 x 2", 50 x 3", 50 x 100 mm, or 50 x 150 mm wafers
Heating system	resistive heating	resistive heating
Possible gases	NO, N ₂ O, NO ₂ , O ₂ , H ₂ , N ₂ , Ar	NO, N ₂ O, NO ₂ , O ₂ , H ₂ , N ₂ , Ar
Dimensions [L x W x H]	2260 x 1463 x 2500 mm	2260 x 1463 x 2500 mm
Power consumption	max. 25 kW	max. 45 kW
Power supply	400 V, 40 A [3 ph] 50 Hz*	400 V, 70 A [3 ph] 50 Hz*
Dry air	6000 – 10000 Pa	6000 – 10000 Pa
Cooling water	25 LPM	25 LPM
Exhaust	400 m ³ /h	400 m ³ /h

* system will be modified to country-specific power supply

Options

- | hydrox for wet oxidation
- | robot handling
- | profiling thermocouple
- | vacuum load lock
- | Di water evaporator

Typical Applications

- | high temperature oxidation of SiC or Si
- | post oxidation annealing [POA] in a hydrogen environment

centrotherm
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