

MC025

Low cost MOCVD reactor for Research and Development



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APPLICATIONS:

Metal and alloys, oxides, transition metal nitrides

- Semiconductor: SiO_2 , HfO_2 , Ta_2O_5 , Cu, TiN, TaN, ...
- High k Dielectric: SrTiO_3 , BaTiO_3 , $\text{Ba}_{(1-x)}\text{Sr}_x\text{TiO}_3$ (BST)
- Ferroelectric: SBT, SBTN, PLZT, PZT, ...
- Superconductor: YBCO, Bi-2223, Bi-2212, TI-1223, ...
- Piezoelectric: $(\text{Pb}, \text{Sr})(\text{Zr}, \text{Ti})\text{O}_3$, Modified Lead Titanate
- Colossal Magneto Resistance
- Thermal coatings
- Buffer layers
- Mechanical coatings
- Optics
- Etc...

SPECIFICATIONS

The Annealsys MC025 is a 1-inch CVD (MOCVD and Spray CVD) reactor especially developed to meet the requirements of research and development units.

The MC025 allows doing heteroepitaxy of oxides on single crystals wafers (such as YBCO/LAO, STO/MgO, MxOy/LAO ...) by MOCVD using a wide range of solid and liquid organometallic volatile precursors.

The MC025 systems can be provided with various vaporization systems and vacuum equipment depending on the application. The direct injection vaporizer allows the widest range of utilization of precursor to develop new materials

PERFORMANCE CHARACTERISTICS

- Temperature range: RT to 1000°C
- Gas mixing capability with mass flow controllers
- Vacuum range: Atmosphere to 10^{-3} Torr

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**Spray CVD
MOCVD**

MC025

General features

Maximum substrate diameter	1-inch
Process chamber	Quartz and stainless steel Shower head
Heating	Vertical furnace with resistor heating
Temperature control	Thermocouple temperature control Digital PID temperature controllers
Vacuum, gas and liquid	Purge gas line with needle valve Up to 6 process gas lines with mass flow controllers Up to 4 vaporizer units selected function of liquid precursors Custom liquid panel depending on the application Vacuum valve and vacuum gauge Optional vacuum rotary pump Optional pressure control with throttle valve
Control	Full PC control
Facilities	Electricity: 3x400V+N+Gr or 3x220V+Gr, 50/60 Hz Power: 10 kW Water: 2 to 6 bars, pressure drop 1 bar, 10 l/mn Compressed air: 6 bars (valve actuation) Process gas fittings: Swagelok ¼
Dimensions and weight	Width: 1000 mm Depth: 1000 mm Height: 1500 mm Weight: 300 kg

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