

## MC-100

### Low cost MOCVD reactor for Research and Development

#### APPLICATIONS

**Metal and Alloys, Transition Metal Nitrides, Oxides, Carbon Nanotubes, ...**

- Semiconductor:  $\text{SiO}_2$ ,  $\text{HfO}_2$ ,  $\text{Ta}_2\text{O}_5$ , Cu, TiN, TaN
- High k Dielectric:  $\text{SrTiO}_3$ ,  $\text{BaTiO}_3$ ,  $\text{Ba}_{(1-x)}\text{Sr}_x\text{TiO}_3$  (BST)
- Ferroelectric: SBT, SBTN, PLZT, PZT,...
- Superconductor: YBCO, Bi-2223, Bi-2212, Tl-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...



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#### SPECIFICATIONS

The Annealsys MC100 is a 4-inch thermally controlled wall CVD reactor especially developed to meet the requirements of research and development units for MOCVD and Spray CVD processes.

The MC100 allows doing heteroepitaxy of oxides on single crystals wafers (such as YBCO/LAO, STO/MgO,  $\text{MxOy/LAO}$ ...) by MOCVD using a wide range of solid and liquid organometallic volatile precursors.

The MC100 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

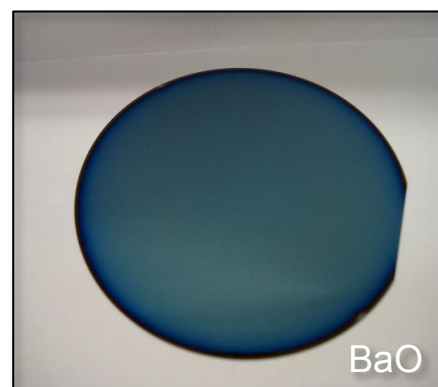
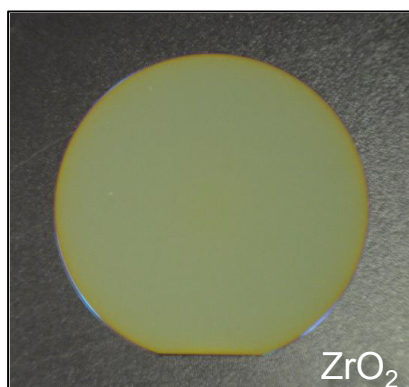
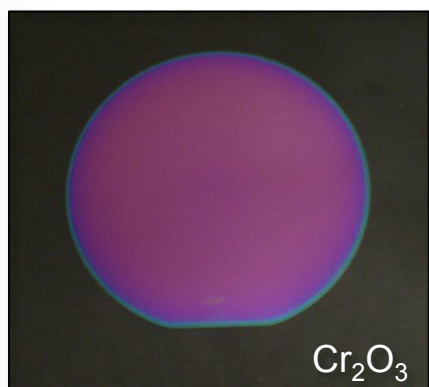
#### PERFORMANCE CHARACTERISTICS

- Temperature range: RT to 850 C
- Up to 4 vaporizers
- Vacuum range: Atmosphere to  $10^{-3}$  Torr

## MC-100

### General features

Maximum substrate diameter	4-inch
Process chamber	Stainless steel with thermally controlled walls Rotating substrate holder
Heating	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 of dry pump Optional pressure control with throttle valve
Control	Full PC control
Facilities	Electricity: 3x400V+N+Gr or 3x220V+Gr, 50/60 Hz Power: 12 kW Water: 2 to 6 bars, pressure drop 1 bar, 4 l/mn Compressed air: 6 bars (valve actuation) Process gas fittings: Swagelok ¼ (VCR ¼ optional)
Dimensions and weight	Width: 1100 mm Depth: 1450 mm Height: 2000 mm Weight: 800 kg



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**SIVALEY, INC.**

3652 Edison Way  
Fremont, CA94538, USA  
TEL: +1-408-887-7391  
FAX: +1-510-353-1809  
EMAIL: [sales@sivaley.com](mailto:sales@sivaley.com)