

MC-025 and MC100

Low cost MOCVD reactors for Research and Development applications

WIDE RANGE OF APPLICATIONS

- Semiconductor: SiO₂, HfO₂, Ta₂O₅, Cu (interconnect), TiN, TaN, NbN, Ta₂O₅, ...
- High k Dielectric: SrTiO₃, BaTiO₃, Ba_(1-x)Sr_xTiO₃ (BST)
- Ferroelectric: SrBi₂Ta₂O₉ (SBT), SBTN, PLZT, PZT
- Piezoelectric: (Pb, Sr)(Zr,Ti)O₃, MPT (Modified Lead Titanate)
- Pyroelectric: (Pb, Ca)(Zr,Ti)O₃
- Superconductor: YBCO, Bi-2223, Bi-2212, Tl-1223, ...
- CMR Colossal Magneto Resistance: BaFe₁₂O₁₉, La_{1-x}MnO_{3-y}, ...
- Thermal coating: ZrO₂, YSZ, ...
- Buffer layers: CeO₂, SrTiO₃, ...
- Mechanical coating: deposition of ZrN, TiN, Si₃N₄, ...
- Optics: oxides and anti reflecting layers, super mirrors (Ta₂O₅/SiO₂)_n, multilayer devices, ...
- Electro luminescent devices: ZnS:Mn, ZnS:Tb, SrS:Ce...
- Display devices: MgO
- Optical fibers...

The AnnealSys MC025 and MC100 systems are respectively one-inch and 4-inch MOCVD reactors especially developed to meet the requirements of research and development units. It 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 and MC100 systems can be provided with various vaporization systems and vacuum equipment depending on the application.

Features:	One-inch or 4-inch substrate capability
	Digital temperature control
	Atmospheric and vacuum process capability
	One purge gas line and up to 4 gas lines with mass flow controllers
Performance:	Temperature range: Ambient to 800°C
	Temperature control reproducibility: ± 1°C
	Base pressure: 10 ⁻³ Torr
	Typical process pressure: 1 to 20 Torr

Features	MC-025	MC-100
Maximum substrate diameter	One-inch	4-inch
Chamber materials	Stainless steel	Stainless steel / quartz
Substrate rotation	Optional	Optional
Temperature range	Up to 800°C	Up to 800°C
Thermocouple control	Yes	Yes
Thermocouple type	K	K
Vapor precursor injection	Top flange	Top flange
Number of liquid lines	1 or 2	1 to 4
Liquid line fittings	VCR 1/8	VCR 1/8
Gas injection	Loading flange	Loading flange
Purge gas line with needle valve	1	1
Process gas lines with mass flow controller	Up to 4	Up to 6
Gas line fittings	Swagelok	Swagelok
Vacuum and exhaust fitting	Bottom flange	Bottom flange
Vacuum valve	Yes	Yes
Capacitance manometer	Yes	Yes
Vacuum pump	Optional	Optional
Manual pressure control	Throttle valve	Throttle valve
Automatic pressure control	Optional	Optional
Maximum power	6 kW	20 kW
Width	1000 mm	800 mm
Depth	1000 mm	1200 mm
Height	2000 mm	2000 mm
Weight	150 kg	400 kg

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