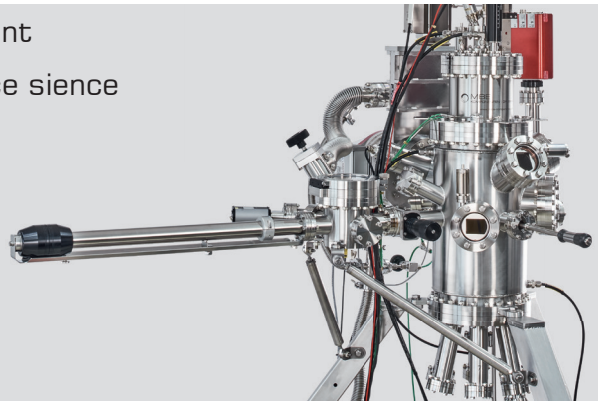
MBE
KOMPONENTEN | DR. EBERL

OCTOPLUS 200 / MBE SYSTEM

- Research MBE system with ultra-small footprint
- Heat novel materials research and UHV surface sience
- 6 source ports DN40CF (O.D. 2.75'')
- Flag style scientific sample plate 10x10 mm^2
- Base pressure < $2x10^{-10}$ mbar
- Water cooled chamber body
- In-situ monitoring



OCTOPLUS 200 MBE System

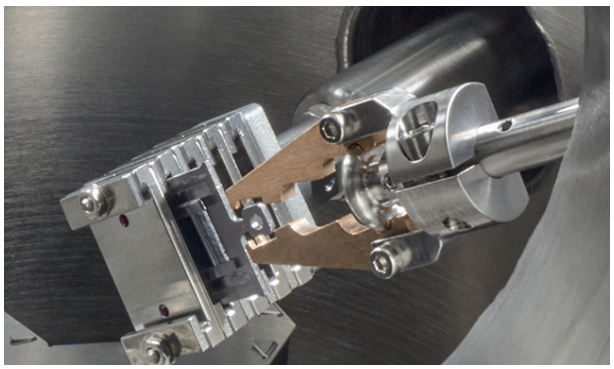
The OCTOPLUS 200 system is ideally suited for material deposition on small samples. It provides good access and easy operation and maintenance.

The chamber design of the OCTOPLUS 200 plus various state-of-the-art components allow layer by layer precise MBE growth.

Outstanding features of the OCTOPLUS 200 are the high reliability and versatility of the system and its small footprint.

These features make the OCTOPLUS 200 system particularly suited for applications in research and development.

The ultra compact footprint allow it to be integrated in tight laboratory spaces with other existing in-situ UHV surface analysis equipment.



View into magazine chamber: pincer reaching for flag-style scientific sample plate.

The standard version of the OCTOPLUS 200 comprises six ports with 2.75 inch (DN40CF) flange size.

By using Source Clusters many more source materials can be integrated into the system.

A rapid pump-down load lock chamber with a horizontally working transfer-rod system allows the user an easy substrate introduction without breaking the vacuum of the MBE chamber.

The transfer system can be easily adapted to integrate with other existing surface analysis equipment for fundamental research, e.g. at Synchrotron facilities.

We provide different kinds of effusion cells, valved cracker sources, gas sources and substrate manipulators according to all our customers' requirements.

A well-manageable in-situ characterization is obtained by using beam-flux-gauges, pyrometers, RHEED systems or quadrupole mass analyzers (QMA).

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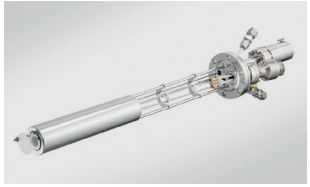
Technical Data

Size of deposition chamber	200 mm I.D.
Base pressure	< $2x10^{-10}$ mbar
Pumping	turbopump, ion getter pump and TSP
Cooling shroud	water cooling
Substrate heater temperature	up to 1200°C, continuous substrate rotation
Substrate size	scientific sample plates (10x10 mm^2)
Bakeout temperature	up to 150
Source ports	6 ports DN40CF
Source types	effusion cells, e-beam evaporators, sublimation sources,
	valved cracker sources, gas sources, source clusters
Shutters	soft-acting rotary shutters
In-situ monitoring	ion gauge, QCM, pyrometer, RHEED, QMA
Sample transfer	linear transfer rod (manual)
Load lock	magazine with 10 flag-shaped scientific substrates
	turbo-pumped
MBE control software	Tusker
Service	system installation and acceptance testing
MBE training	by PhD MBE experts

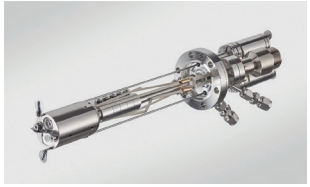
Examples for applications and corresponding sources

Application	Effusion Cells	Sublimation Sources	Valved / Cracker Sources	Plasma Sources
Source type	WEZ, NTEZ	SUKO, SUSI	VTCC, TCC	FMP
	OME, HTEZ	HTS, DECO	VSS	
III/V	Ga, In, Al	C, Si doping	As, P, Sb	
II/VI	Zn, Cd, Be		S, Se, Te	N-doping
IV	Ge, Sn, Pb	B, P, Sb doping		
GaN	Ga, In, Al			N
Metals	Cu,Au,Ag,Al,Ni,Co,...			
Topological Insulators	Ge, Sb, Te,		Se, Te, Sb,	
Thermoelectrics	Bi, GeSb		alkali metals	
Graphene / Silicene				
Oxides	Fe, Ni, Mn, Bi,			O
	Eu, Ga,...			
Thin Film Solar Cells	Cu, Ga, In, Zn,		S, Se	

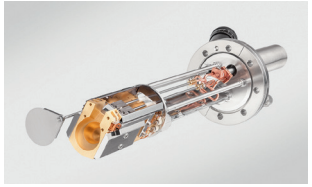
MBE components typically used in OCTOPLUS 200:



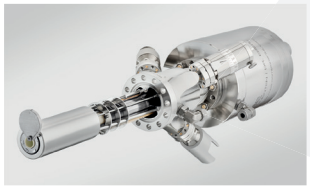
Effusion cell 2 to 10 cm^3,
e.g., High Temperature Cell



Source Cluster,
e.g., Dual Cluster Source



EBVV E-Beam Evaporator,
EFM3 or rod type e-beam



Thermal Cracker Cell TCC
or Gas Injector Source

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