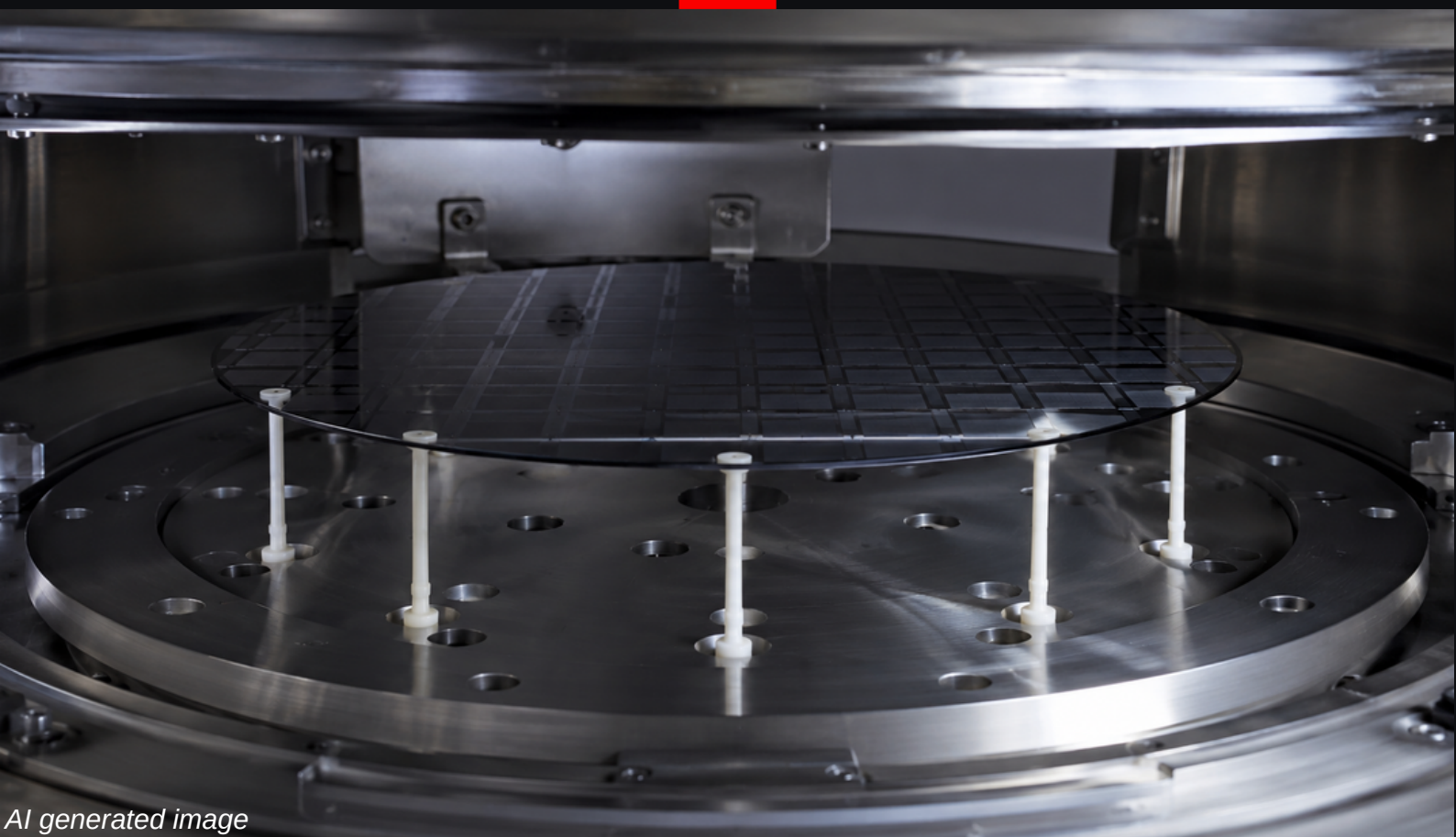




CERAMIC AM FOR PRODUCTION- QUALIFIED SEMICONDUCTOR PARTS



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THE FUTURE OF
CERAMIC AM
TOGETHER



25 YEARS
OF EXPERIENCE IN
TECHNICAL CERAMIC AM



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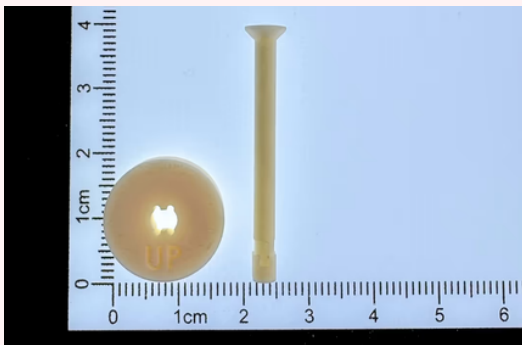
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3DCERAM & CREATZ3D: CERAMIC AM EXPERTISE

Since 2016, 3DCERAM and Creatz3D have built a long-standing collaboration to produce ceramic additive manufacturing in Singapore. As a specialist in additive manufacturing, Creatz3D supports industrial customers in the production of functional technical ceramic components. Its expertise extends to the semiconductor industry, where advanced ceramics are used for demanding equipment applications, including etching and Chemical Vapor Deposition (CVD) environments. This expertise led Creatz3D to collaborate with a leading global semiconductor foundry on the development and production of critical ceramic components for semiconductor equipment.



CERAMIC 3D PRINTED LIFTING PINS FOR CVD CHAMBERS



Lift pins are critical components used to support and precisely position silicon wafers within semiconductor process chambers during CVD, PVD and ALD operations. Operating in demanding high-temperature, plasma and vacuum environments, these components require excellent dimensional stability, wear resistance and minimal particle generation.

Alumina is well suited for this application due to its high mechanical strength, fracture toughness, wear resistance and electrical insulation properties. Using ceramic additive manufacturing, Creatz3D locally produced customized alumina lift pins to tight dimensional tolerances and successfully achieved full production qualification.

Following validation, 600 sets were delivered within weeks instead of months, enabling uninterrupted qualified production while significantly reducing supply lead times and dependence on overseas sourcing.

Material	Alumina (Al ₂ O ₃)
Parts dimensions (estimated)	Pin: Ø 6.5mm*40mm (h) Base: Ø 20mm*4mm (h)
Production time (printing, debinding, sintering & post-processing)	600 parts in 6 weeks

WHY SLA TOP-DOWN MAKES THE DIFFERENCE

TRADITIONAL BOTTOM-UP SLA LIMITATIONS



- ⊗ Pulling forces on the parts
- ⊗ Limited for large / heavy parts
- ⊗ Less stable for complex internal geometries

3DCERAM SINTO TOP-DOWN ADVANTAGES

- ✓ No printing support
- ✓ No peeling forces - higher process stability
- ✓ Capable of producing large & dense parts
- ✓ Freedom to create complex internal geometries
- ✓ Excellent repeatability and reliability
- ✓ Homogeneous material properties after sintering

BENEFITS FOR THE APPLICATION

-  **SUPPLY CHAIN RESILIENCE**
Local production, reduced overseas dependency
-  **REDUCED LEAD TIME**
From design to qualified production in weeks
-  **COST EFFICIENCY**
Lower total cost for complex parts
-  **REPEATABLE PRODUCTION**
600 validated sets delivered



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