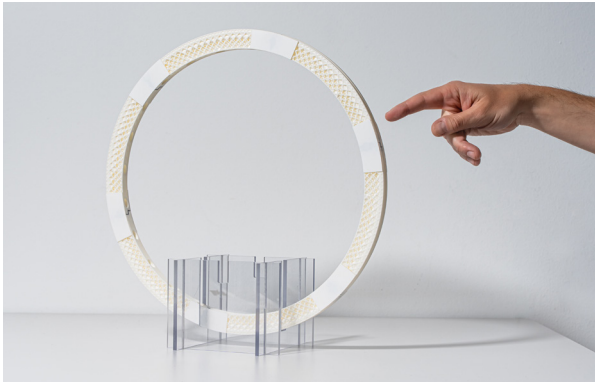


15" LCM-Printed Gas Distribution Ring for the Semiconductor Industry



Printed by





15" (380 mm) ALD ring from alumina - printed using Lithoz LCM technology and alumina ceramic material

Key Breakthroughs

Thanks to the combination of the ultra-precise LCM 3D printing technology and ceramics, the **ring achieved some significant improvements** when installed in manufacturing equipment:

- **Uptime increase from 1 → 9 months** compared to conventionally manufactured metal rings
- **3x higher production output than conventional ceramic rings** thanks to optimized flow paths
- **Streamlined stock management through identical small segments** instead of the entire ring.

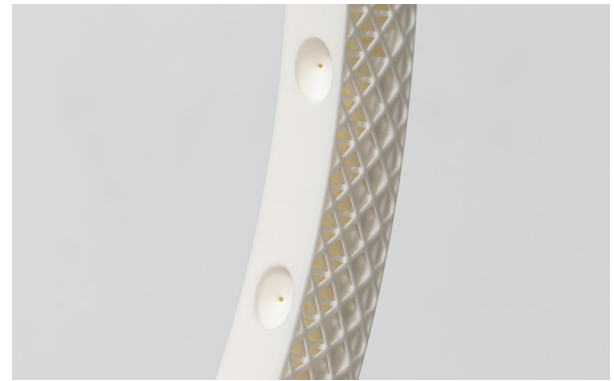
The ring's significantly extended lifespan demonstrates how Lithoz LCM technology cuts down on production and warehouse cost. Up to 100 CeraFab System printers can be synchronized, independent of their location, qualifying this rapidly scalable technology as a valuable factor in the reshoring of semiconductor production.



ALD ring with Ø 380 mm / 15"

Next-Generation Part Design for the Semiconductor Industry

This **15" / 380 mm diameter alumina gas distribution ring** was created by **Alumina Systems** using Lithoz LCM technology. Six identical segments were first printed and then brazed after sintering. It **replaced a metal ring** whose channels were too simple to deliver the targeted higher production output. Capitalizing on the design freedom of Lithoz LCM technology, the lightweight part performed more effectively than legacy rings thanks to a more complex design, allowing for an exceptionally **thinwalled** structure with significantly optimized flow paths.



Optimized flow paths for tripled production output



"Working on this atomic layer deposition ring together with Lithoz, we could create new generations of ring structures to enable higher geometric stability and accuracy."

DR.-ING. HOLGER WAMPERS
MANAGING DIRECTOR
ALUMINA SYSTEMS GMBH

Lithoz materials are produced in a cleanroom environment

Printed by



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