

Semicon Gas Injector with 3 Channels into 62 Openings and 0.2 mm Wall Thickness



Printed by Sinto Advanced Ceramics Europe



sinto





6 Injectors per printjob (Courtesy Sinto Advanced Ceramics Europe)

LCM Precision for Semicon Innovation

Sinto Advanced Ceramics Europe (formerly **Bosch Advanced Ceramics**) transformed a previously two-part injector design into a fully integrated single ceramic component using Lithography-based Ceramic Manufacturing (LCM) technology.

The final design incorporates **three internal channels** and **62 flow-optimised outlets** within a **single monolithic ceramic component**. It has to ensure absolute gas tightness throughout its entire operating life, offer long-lasting resistance to extremely aggressive process gases and achieve compliance with strict tolerances of ± 0.1 mm at the flange for flawless integration into the system.

Key Breakthroughs of this single, functionally integrated part:

- **Minimized variance** in the etching process thanks to the improved precision of gas flow
- **Significant reduction of assembly complexity**
- **Simplified logistic chain** including procurement and spare part storage
- **Stretched maintenance intervals** thanks to significantly reduced downtime under extremely corrosive conditions
- **Easier replacement** in case of wear, resulting in faster service times
- **Particle-free operation**



Completed printjob on CeraFab S65 (Courtesy Sinto Advanced Ceramics Europe)



62 openings with wall thickness of 0.2 mm

PARAMETER	DETAILS
Application	Gas injector for etching processes in the semiconductor industry
Material	Aluminium oxide (99.8%), LithaLox 350
Weight / Unit	20 g
Dimensions	Ø 20 mm (flange), Ø 9 mm (outlet), height 42 mm
Special features	Three 6 mm channels; 62 openings with 0.2 mm wall thickness; flow-optimised internal honeycomb structure
Tolerance	± 0.1 mm
Production per build	6 parts
Annual production	1,000 parts



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