

International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI)

Balapur P.O., Hyderabad – 500005, Telangana, India



Sintered silicon carbide (SiC) components

Overview

Silicon carbide (SiC) is one of the most attractive ceramic materials because of its excellent mechanical properties such as high strength, moderate toughness, and high wear and oxidation resistance, and strength retention at elevated temperature. ARCI has the expertise to manufacture SiC parts with various size and shapes by pressureless sintering using solid-state or liquid phase sintering additives and also by hot pressing technique. SiC parts of complex geometry can also be manufactured through machining at the green stage using 5-axis CNC machine. Dimensional accuracy can also be achieved on sintered SiC parts by final shaping with the help of sophisticated ultrasonic machining.

Key Features

- Tuneable density and other thermo-mechanical properties.
- Flexibility in producing SiC parts incorporating solid-state or liquid phase sintering additives.
- Capable to produce SiC components up to 750 mm diameter.
- SiC parts with critical can be manufactured.



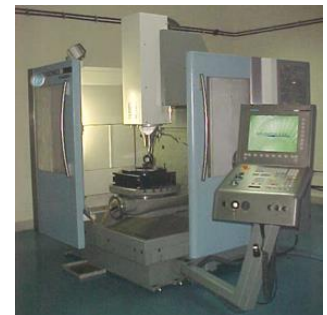
Potential Applications

- Mechanical seals particularly for corrosive environment.
- Impact and abrasion resistance parts.
- Light-weight structural parts for aerospace applications.
- Impact and wear resistant parts.

Complex shaped sintered SiC parts for aerospace applications

Intellectual Property Development Indices (IPDI)

- The technology has been validated for production of SiC parts by pressureless sintering and available for technology transfer.



3-axis ultrasonic machining facility

Status	1	2	3	4	5	6	7	8	9	10
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Centre for Non-Oxide Ceramics (CNOc)

ARCI, Balapur PO., Hyderabad 500005, Telangana, India
Tel: +91 40 2445 2390 / 2445 2324; Fax: +91 40 2444 2699

Email: janad [at] arci [dot] res [dot] in / bpsaha [at] arci [dot] res [dot] in / royjohnson [at] arci [dot] res [dot] in