

SUNTECH ADVANCE CERAMICS (SHENZHEN) CO., LTD

SUNTECH APPLIED MATERIALS(HEFEI) CO.LTD

**China Leading Advanced Ceramic Material
R&D and Solution Provider**

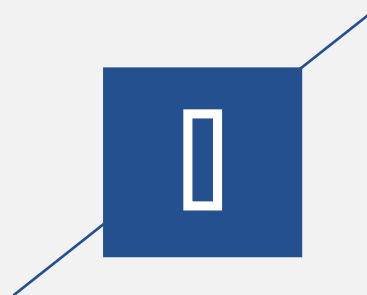
Semiconductor consumables+ Electronic ceramic component+precision equipment/High-end cosmetic packaging materials/medical apparatus and instrument/Ceramic structural parts for food equipment

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- 1 Company Info
- 2 Factory
- 3 Main Products
- 4 Core Competence

Suntech Advanced Ceramics (ShenZhen) Co.,Ltd.

Company Info



1.1 About Us



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Advanced Ceramics

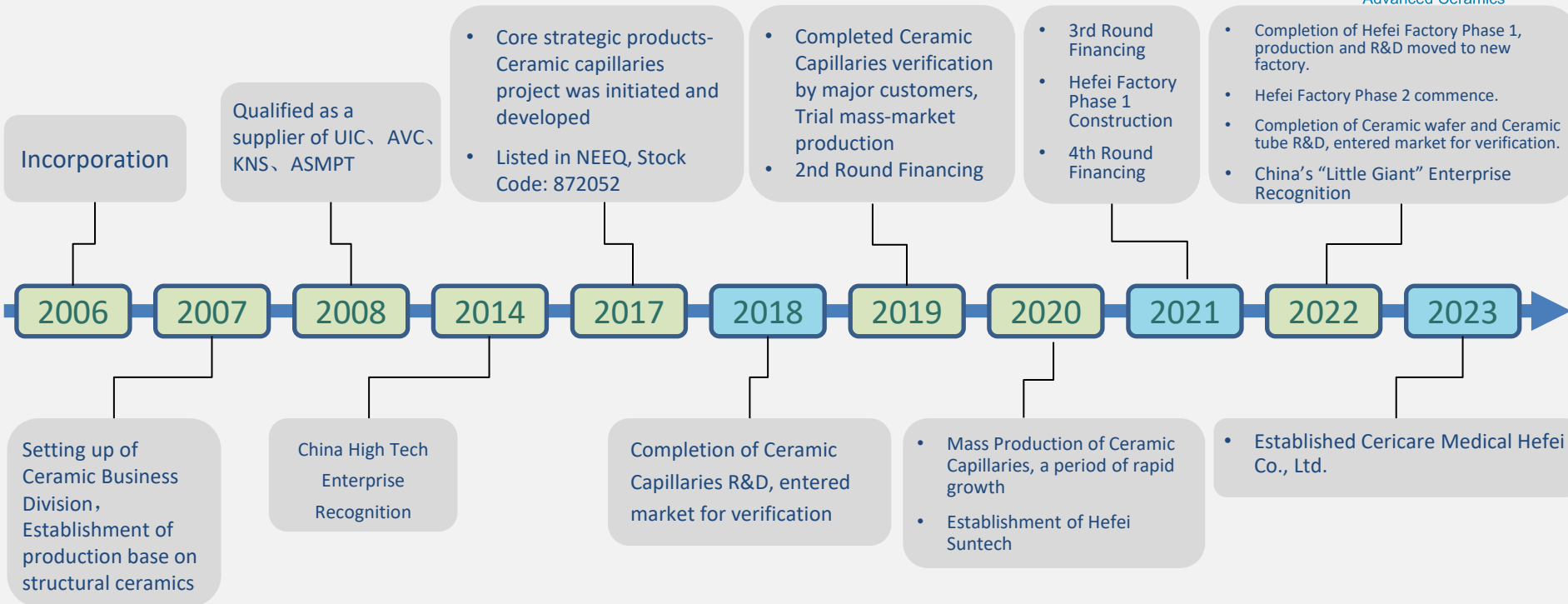
- Founded in April 2006 in Shenzhen China. Established Department of Ceramics in December 2006.;
- Hefei Production and R&D Research Centre completed in 2022;
- Main Business: Research, development, and production of advance precision ceramic products & materials
- Preparation of ceramic powders => feed stock => molding => sintering => Ultraprecision machining.
- Vertical Integrated Manufacturing



1.2 Development History



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2006~

Advance precision ceramic products & materials

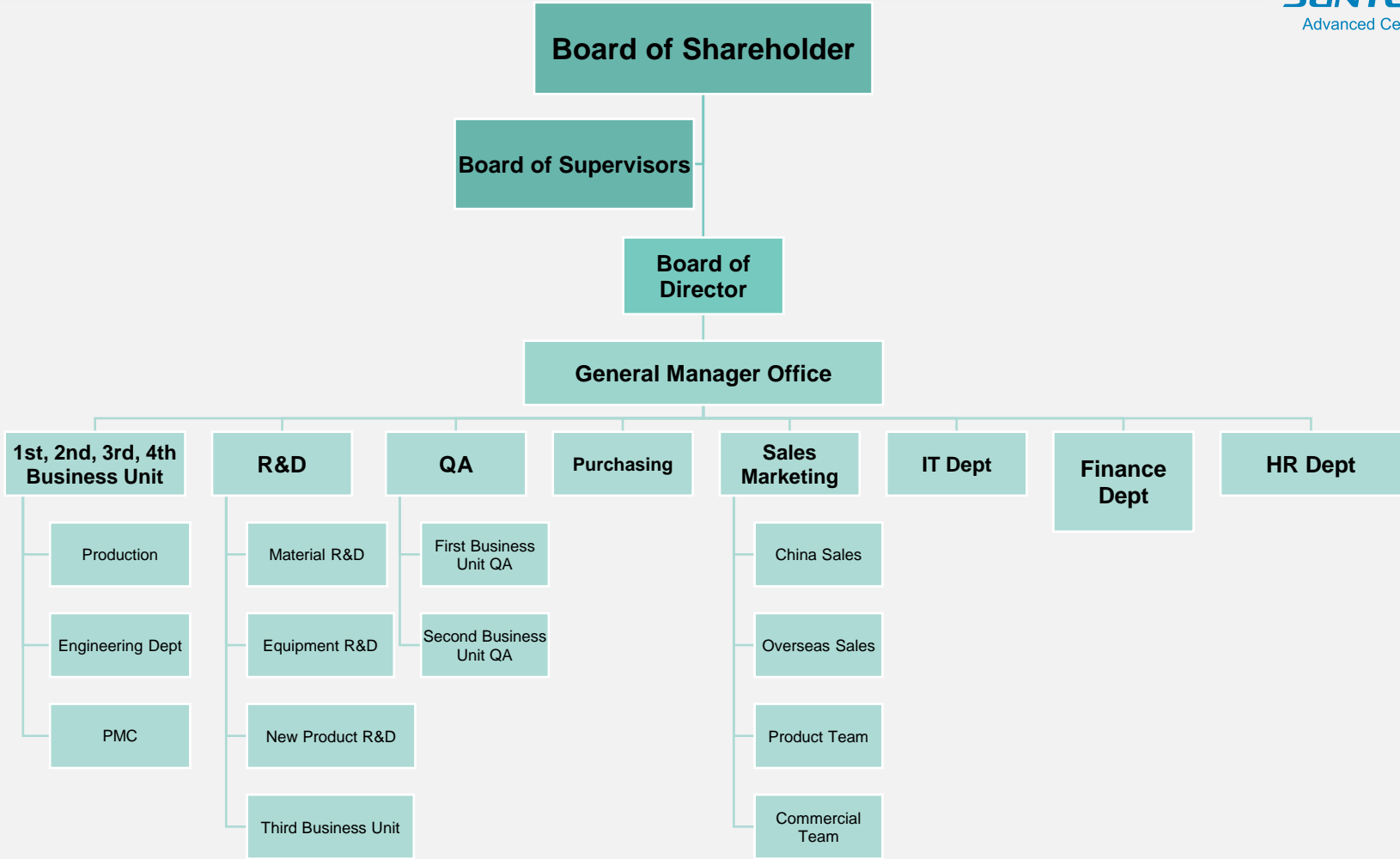
2017~

Semiconductor Consumables R&D

2020~

Research and development of multi-layer co-fired ceramics

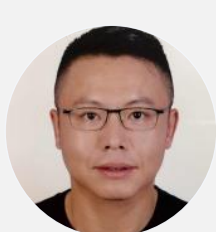
1.3 Organization Chart



1.4 Management team



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Kevin

**Chairman, General
Manager**

- International Business Administration, Shanghai Institute of Foreign Trade

Work Experience

- International Sales Manager
- Mitsui (Shenzhen), Sales Manager, South China
- UIC, Asia Pacific Business Development Manager



William

Deputy Chairman

- University of Surrey MBA

Work Experience

- FORD MOTOR COMPANY, R&D Engineer
- National Semiconductor, Marketing Engineer
- HongKong Memec, Regional manager
- UIC, Asia Pacific Sales Director



YC

**Director, Deputy General
Manager**

- Doctor of Materials, Guangdong University of Technology
- Master of Mechanical Engineering, University of Science and Technology of China
- Bachelor of Mechanical Design, Hunan University

Work Experience

- R&D Engineer
- UIC, R&D Engineer



Prof Fu

R&D Director

- PhD in Mechanical Engineering, Hong Kong University of Science and Technology
- Master of Materials, Institute of Metal Research, Chinese Academy of Sciences
- Jilin University, Bachelor of Science in Physics

Work Experience

- ASM Technology Hong Kong Ltd, Material Technology R&D Department Manager (Rich experience in material research and development)



马世同

**Director, Deputy General
Manager**

- Xi An Telecommunication College, Computer Application Major

Work Experience

- Foxconn Group CMMG Business Division, SMT section manager (Having 10 Years and above production experience in Precision Ceramics)

1.5 Company honor and qualifications



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China High Tech
Enterprise
Recognition in
2014,2017,2020



China "Little Giant"
Enterprise
Recognition



Shenzhen Specialty Small
Medium Enterprise
Recognition



Suntech Capillaries
Product Categorized as
Anhui Province 2022
First New Material



**80+ Patents in Advanced
Ceramic R&D. 46 item as
Authorized invention,** 10 utility
model patents, 4 PCT international
patents, 2 US Patents, 1 scientific and
technological achievement
recognition



The only China Ceramic
Industry recognized by
NSF USA



**Joint Advanced Ceramic
Lab with** Guangdong
University of Technology

Suntech Advanced Ceramics (ShenZhen) Co.,Ltd.

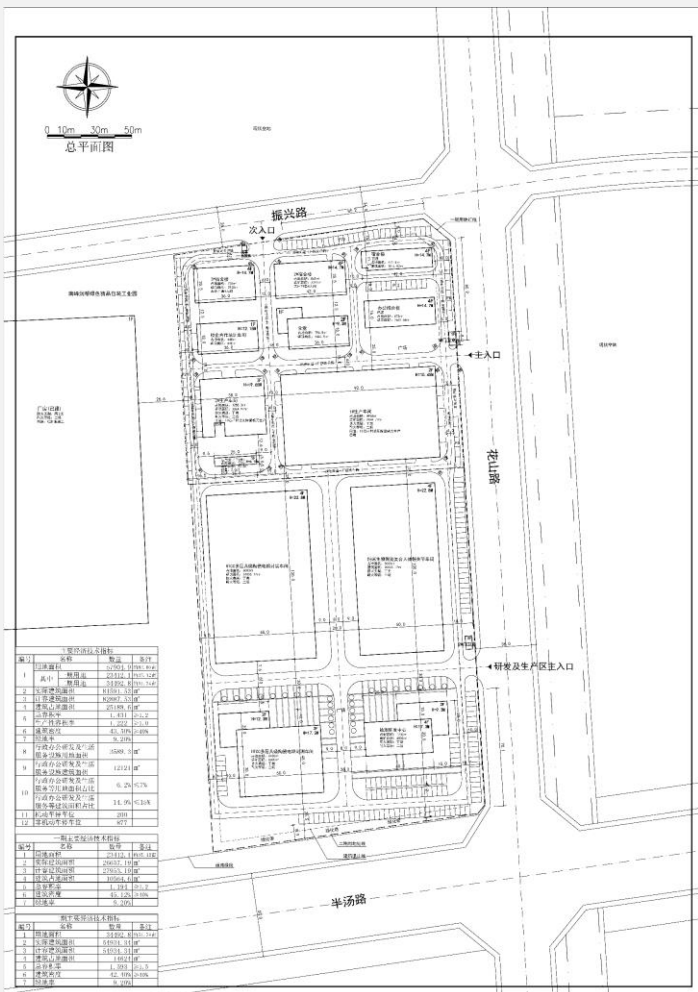
Factory



2.1 Anhui Province, Hefei Factory



SUNTECH



Phase 1 Key indicators			
No	Description	Quantity	Remarks
1	Site Area	23,412.1m ²	5.78 Acre
2	Actual floor area	26,657.2	m ²
3	Capacity building area	27,953.2	m ²
4	Building area	10,564.6	m ²
5	Gross plot ratio	1.194	>1.2
6	Building density	45.12%	>40%
7	Greenery Ratio	9.20%	

Phase 2 Key indicators			
No	Description	Quantity	Remarks
1	Site Area	34,492.8	8.52 Acre
2	Actual floor area	54,934.3	m ²
3	Capacity building area	54,934.3	m ²
4	Building area	14,624.0	m ²
5	Gross plot ratio	1.593	>1.5
6	Building density	42.40%	>40%
7	Greenery Ratio	9.20%	

Ceramic Materials Research and Development



SUNTECH APPLIED MATERIALS(HEFEI) CO.LTD

In Operation Since: 2022

Staff count: 400-500

Address: No 11, Huashan
Road,Chaohu,Heifei,Anhui,
China



Ceramic Materials Research and Development



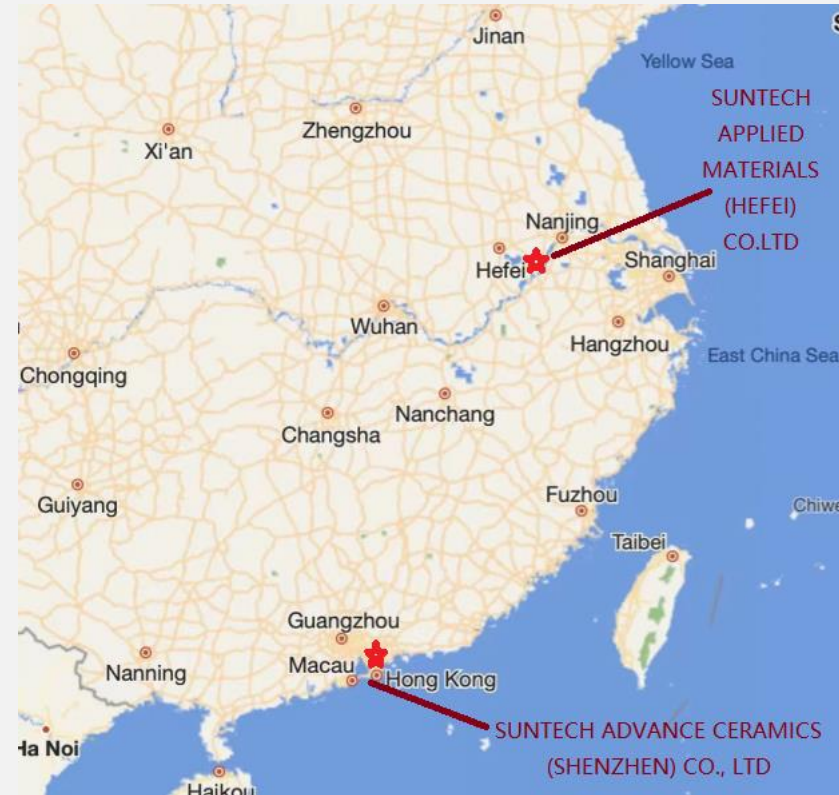
1. Hefei Xinqiao international Airport - 120 km
2. Nanjing International Airport - 110km



HSR to Shanghai: 2 hours 50 mins



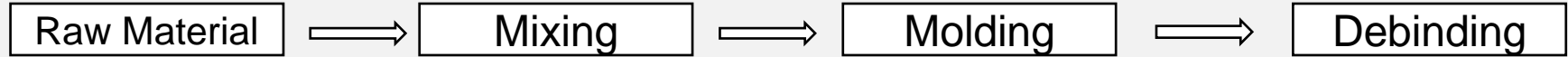
BYD, Cherry, Renewable-energy related industry



2.2 Manufacturing Process



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Raw material 1 :

- Made in Germany or Japan
- High purity
- High hard-wearing
- Heat resistant



Raw material 2 :

- Self-developed binder and lubricant



Equipment:

- Suntech-improved mixing machine and crushing machine



Conditions(mixing):

- Sealed or semi-tight
- Cycle is approximately 8 hours
- Temperature of approx. 200 degrees Celsius

Equipment:

- Modified molding machine
- Horizontal High Pressure Injection Molding



Conditions:

- Appropriate injection speed and pressure
- Barrel temperature of approx. 160 degrees C
- Mold temperature of approx 60 degrees C

Equipment:

- Customized de-binding machine



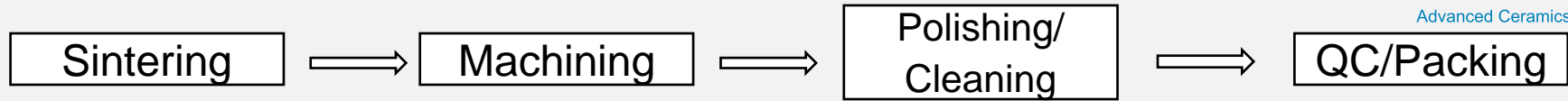
Conditions:

- Cycle is approximately 72 hours
- Temperature of about 1000 degrees C.

2.2 Manufacturing Process



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Equipment:

- Continuous Belt and Batch Furnace



Conditions:

- Cycle of approximately 60 hours
- Temperature of about 1400-1600 degrees C

Equipment:

- Surface Grinding, Centerless Grinding, Internal Grinding Machine, Precision Carving Machine.



Conditions:

- Machining accuracy of 8 microns, surface roughness reaching Ra0.02μm, with 0.005MM flatness
- 19 Micron micro-hole machining diameter.

Equipment:

- Centrifugal polishing machine, Vibratory Thumbling Machine
- Ultrasonic cleaner and dryer



Conditions

- Depending on the surface requirements, polishing media such as SiC, Al₂O₃, ZrO₂ are used.
- Cleaning of approx. 1 hour and drying of approx. 30 minutes

Equipment:

- Coordinate Measuring Machine (CMM), Two Dimension Tester, Surface Roughness Tester, Etc
- Recyclable cushioning packages



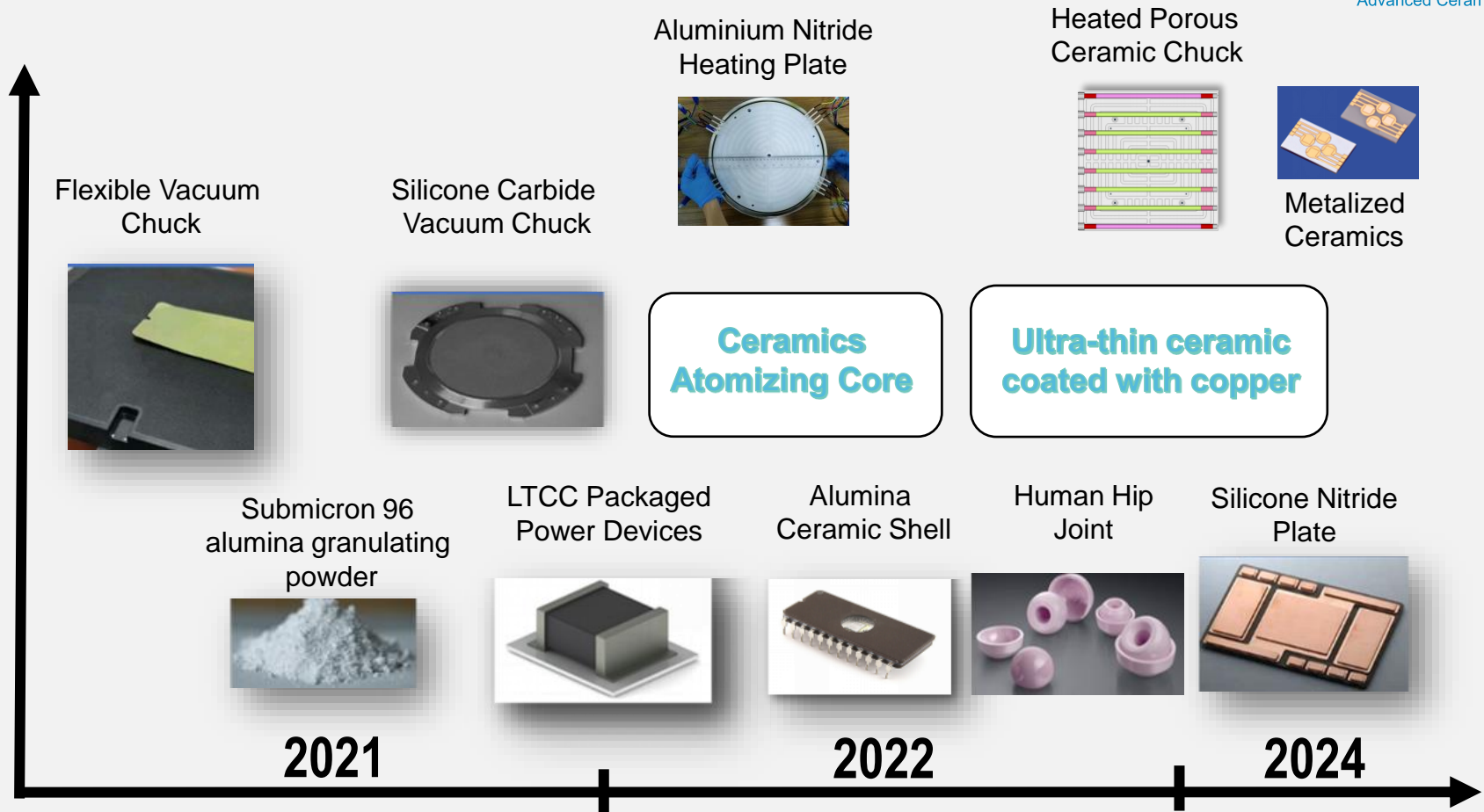
Conditions:

- Temperature and humidity controlled, ISO Class Cleanroom for specialty products

2.3 2021~2024 New product development roadmap



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Main Products



3.1 Main Products



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Semiconductor Consumables



Capillary, Spring
Nozzle, EFO
Wand

Semiconductor Equipment Parts & Component



Tube, Ceramic
Plates, Ceramic
Cap, Ceramic
Ring, vacuum chuck

Precision Equipment Parts



Mechanical Bearing,
Ceramic SMT Nozzle Tip,
Laser Equipment Parts,
Ceramic Shaft, Renewal
Energy Equipment Parts

Design Parts



High-end
cosmetic
packaging
materials, Smart
Wearables



Medical Instruments Parts



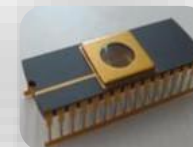
Piston,
Shear Valve,
Syringe

Others Component



Beverage
Processing
Machinery Parts,
Coffee Machine
Ceramic Blade

Electronic Ceramic Parts



Aluminium Nitride Base
Plate,
Ceramic Heating Plate,
Ceramic Encapsulation
Tube



3.2 Customer Base



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Suntech Advanced Ceramics (ShenZhen) Co.,Ltd.

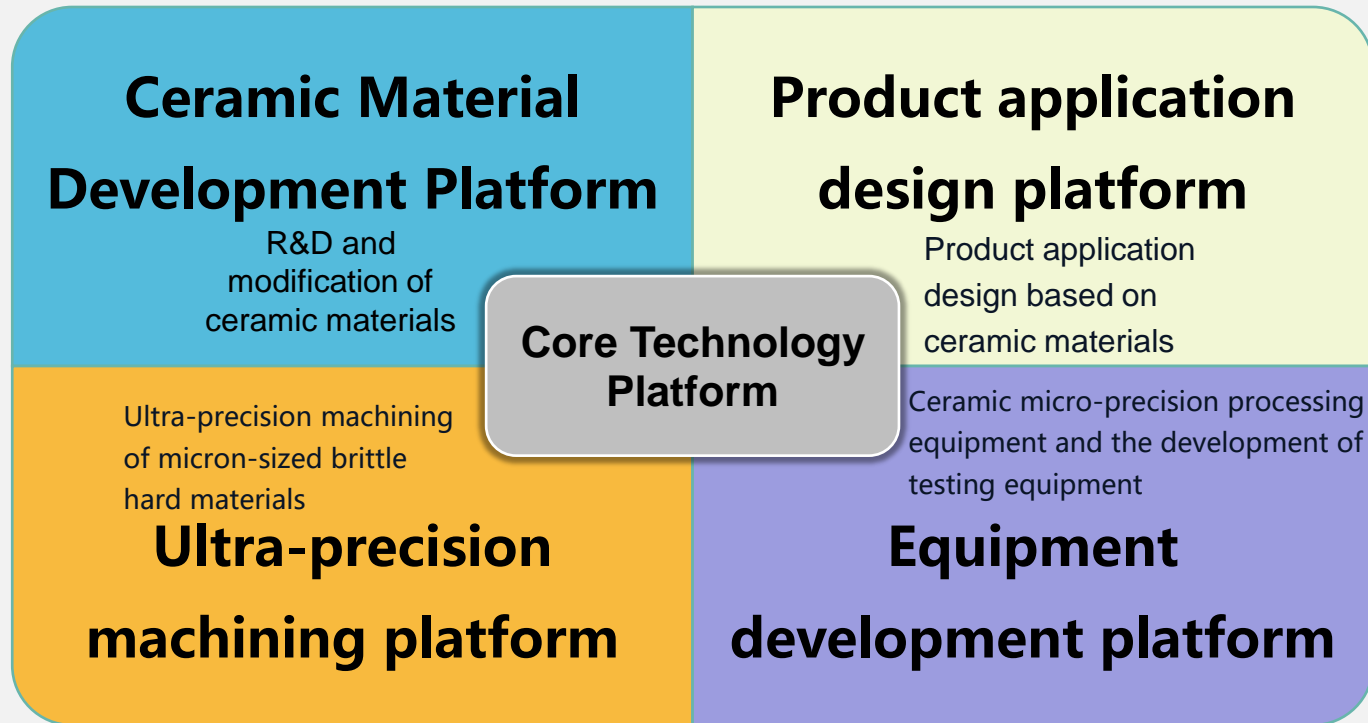


Core Competence



4.1 Core Platform

- Establishment of four core technology platforms from 17 years of Advanced Ceramic Materials and Application Technology Research



4.2 Material research and development capabilities



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Field of Material Research

Porous Ceramic Material

Anti-static Ceramic Material

Conductor Ceramic Materials

Precision silicon carbide ceramic material

Processable Ceramic materials

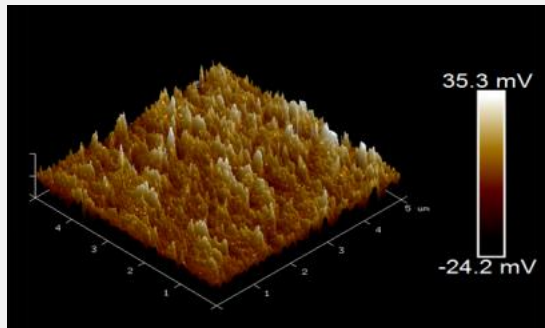
Colored Ceramic Material

Ceramic metallization
(molybdenum manganese method)

Ultra-thin Transparent ceramic material
(0.04mm thickness)

Special application materials for zirconia ceramics and alumina ceramics

Surface feature and roughness detection test



State-of-the-art characterization equipment to accurately detect surface roughness of products down to nanometer accuracy.

Comparison of material properties by manufacturer

Manufacturer	Color	Average grain size (μm)	Density (g/cm^3)	Hardness (HV)
Suntech	White	<0.6	>4.3	>2100
A	White/Pink	<0.9	4.25	<1900
B	White/Pink	<0.9	4.25	<2100
C	White	<1.2	4.3	<1920
D	White	<1.2	4.3	<1850

4.3 Ability in Basic Material Modification and Forming Process



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- ❑ Development of **modification process** of raw materials specific to application requirements
 - Alumina, Zirconia
 - Aluminium Nitride, Silicon Carbide
 - Alumina Toughened Zirconia (ATZ)
 - Porous ceramics(Multi-Material)

- ❑ Develop **molding process** for materials specific to application requirements
 - Dry Pressing
 - Injection Molding
 - Cold Isostatic Pressing
 - Hot Isostatic Pressing
 - Tape Casting
 - Gel Casting

4.4 Professional ceramic product design and development ability

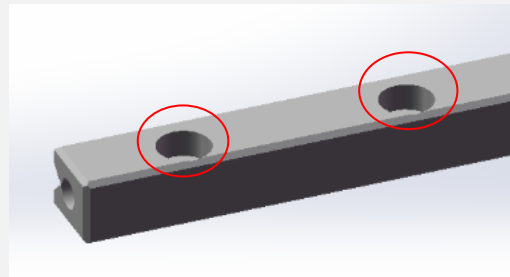


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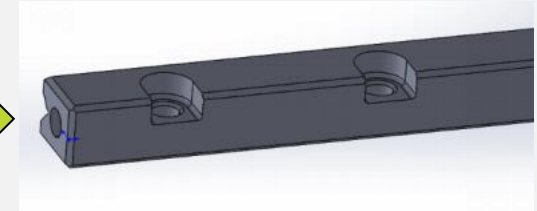
• SUNTECH customer design suggestion case

Client A: World leading direct drive motor equipment factory

Client original design scheme



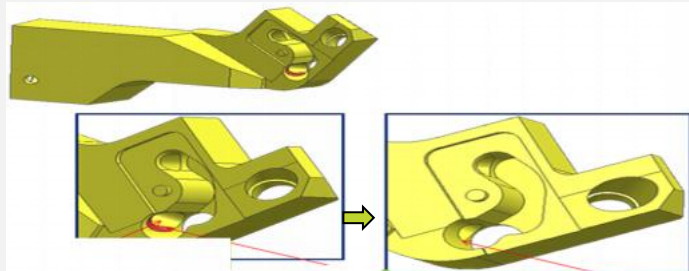
SUNTECH suggested solution



Based on our experience of ceramic machining, in order to facilitate processing and control costs, it is recommended that customers change the design structure.

- **Technical support of sales department:** to provide customers with professional ceramic product design services
- **Engineering technology:** responsible for new product development
- **Molding technology:** according to different needs, design different molding processes
- **Machining technology:** responsible for the machining technology of brittle hard materials

Client B: Top manufacturer of Semiconductor packaging equipment



The red shows the chamfer, the mold cannot be demolded

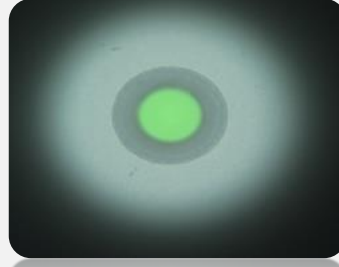
Suggested the solution to remove the chamfer, to facilitate production and processing

4.5 Ultra-precision machining capability of ultra-brittle hard materials



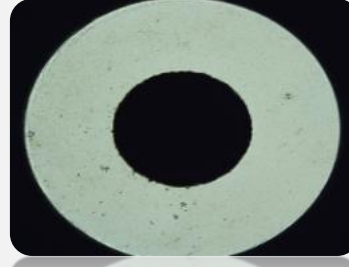
Flexible processing of ceramics

For products with complex structures, the program is set for automatic processing, which can well control the processing accuracy and position. The machining accuracy can reach 0.008mm, and surface roughness reaching RA0.4 μ m



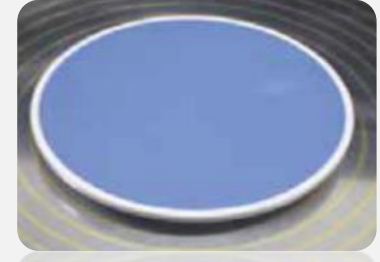
Ceramic micro-hole machining

For specialty ceramic with ultra-high precision and tiny holes, we automatically process small holes and precisely control the size and roundness. The processing diameter is 0.021 --0.06mm, the diameter accuracy is 0.002mm, the concentricity is 0.005mm, and the surface roughness can reach 0.2 μ m



Mirror polished alloy surface

Precision polishing of small size alloy plane, surface roughness reaching Ra0.02 μ m, with 0.005MM flatness



High Precision Machining

Planes

- 4 inch diameter processing flatness reaching 0.003mm,
- 6 inch diameter processing flatness reaching 0.003mm,
- 8 inch diameter processing flatness reaching 0.005mm,
- 12-inch diameter processing flatness reaching 0.005~0.010mm

4.6 Independent design and manufacturing capability of Special Precision Ceramic Equipment



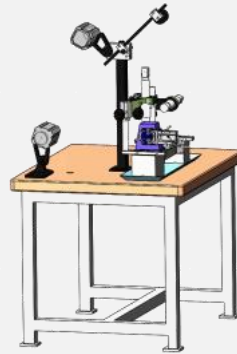
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■ Self Developed Equipment



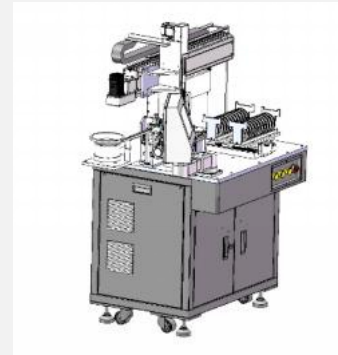
**Automated Holes
Inspection Machine**

Used for hole detection of shaft sleeve, precision of 0.005mm, Auto Baiting, Auto defects detection and segregation.



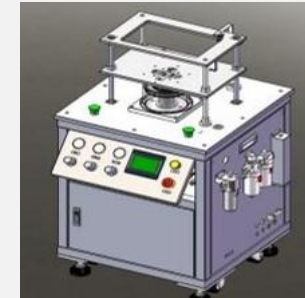
**Mini Grinding
Machine**

It is used for precision grinding of the outer cone surface of the conical tube.



**Automated Loading
Machine**

For automatic loading of cone tube products, using servo control, full self-loading and automatic plating, saving manpower and high efficiency.



Process cleaning machine

It is used in high-pressure water cleaning and air drying processes, and is suitable for splitting semi-finished products. The cleaning and drying of parts is automatically completed through manual loading and unloading of a single set of fixtures, and the system water is recycled through an automatic filtration system.

4.7 All-Rounded Quality Control ability



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	Incoming Inspection (IQC)	In process quality control (IPQC)	Final Quality Control (FQC)	Open-box inspection (OQC)
Supplier Quality Engineer (SQE)	Incoming quality management	Incoming quality management		
Process Quality Engineer (PQE)		Process quality management	Process quality management	Process quality management
Customer Service (CS)	Understanding customer's needs	Understanding customer's needs	Understanding customer's needs	Customer service and complaints handling
Design Quality Engineer (DQE)	New product quality management	New product quality management	New product quality management	New product quality management

The QA department consists of process quality engineer, incoming inspection, process inspection, product final inspection, unpacking inspection, design engineer, and customer service module.

Their respective responsibilities are as follows:

- 1、**Process Quality Engineer:** Responsible for the analysis and improvement of non-conforming products, including quality projects, customer complaint handling, new product introduction quality control, product quality maintenance, product certification, etc.
- 2、**Incoming Inspection & Supplier Quality Engineer:** Responsible for the incoming inspection of all purchased production materials of the company and the management of the company's suppliers.
- 3、**Process inspection:** Responsible for the process inspection and control of the company's production workshops, including process first inspection, patrol inspection, testing and audit.
- 4、**Final inspection of finished products:** Responsible for the final inspection of all products and CSL-1 inspection of products;
- 5、**Open-box Inspection:** Responsible for all product shipment inspection and customer return inspection, assist customer service in related enquiries;

4.8 Comprehensive information operation guarantee ability

- Suntech introduces one of the world's most advanced ERP solutions, including predictive analytics, collaboration, lean manufacturing tools, and integration options. Continuously improve customer service, improve production and quality, better coordinate after-sales service and maintenance, and collaborate more effectively.
- Infor Factory Track™ is an end-to-end manufacturing automation solution that helps companies streamline production, properly control material inventory, accelerate inventory operations, effectively control labor costs, and ERP integration to provide visibility and insight to understand true costs, improve turnaround times and meet customer expectations for on-time delivery.



Infor Factory Track™

Highlights

- Bar code processing
- Real time Production Monitoring
- Job item transactions
- Real-time exception information feedback
- Workforce data collection



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- Tel: +86 189 2306 6838 (wechat) +60168490600 (whatsapp)
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