

Precision Alumina Substrates & Thermal Plates

for Electronic, Electrical & Thermal Applications

94.4% · 96% · 99.6% Alumina
Standard & Custom Sizes



Custom Dimensions & Features



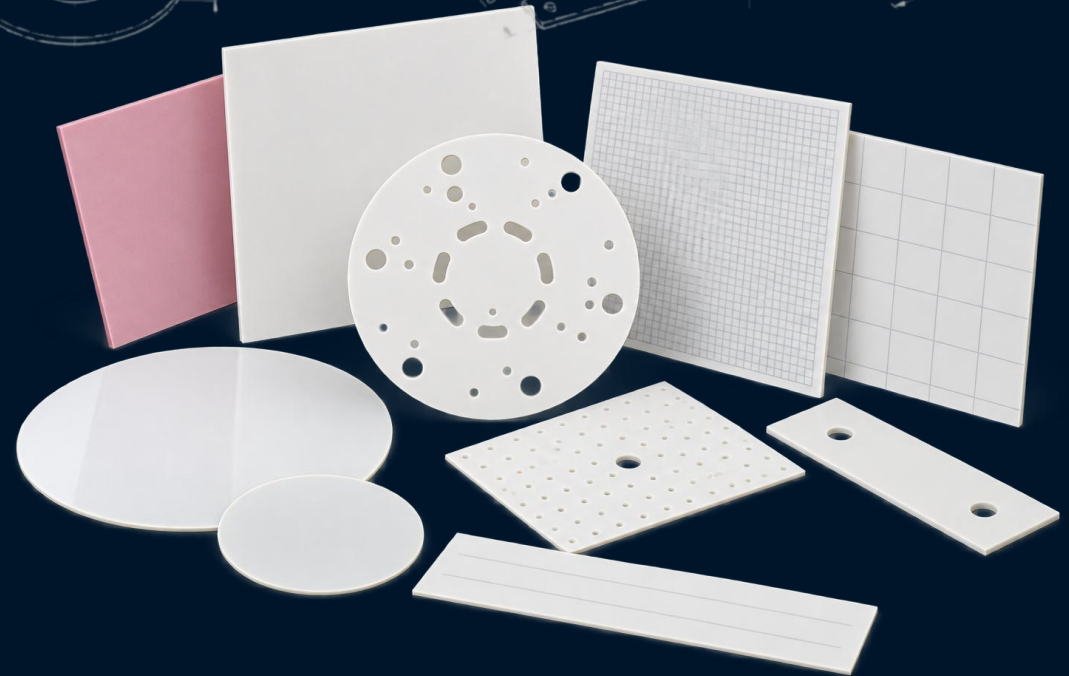
Precision Thickness & Flatness Control



Laser Cutting & Machining



Consistent Quality Assurance



ISO 9001
Certified



Advanced
Manufacturing



Custom
Solutions



Trusted OEM
Partner

About Us & Applications

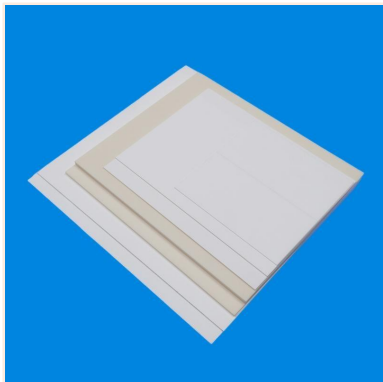
About Jinghui

Jinghui is a custom manufacturer of advanced ceramic components, specializing in 94.4%, 96% and 99.6% alumina ceramics.

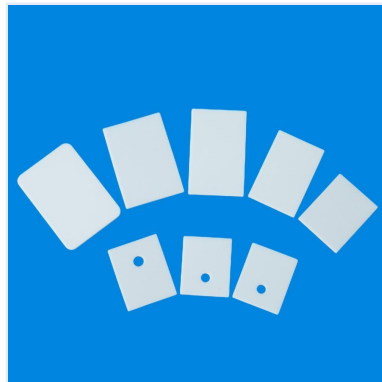
We manufacture thin alumina substrates and thermal plates in standard and custom sizes, with integrated forming, sintering, machining, and surface finishing capabilities.

Our Focus

- 94.4%, 96% & 99.6% Alumina
- Alumina Substrates & Thermal Plates
- Standard & Custom Sizes
- ISO 9001 Quality Management



Alumina Substrates



Alumina Thermal Plates

Typical Applications

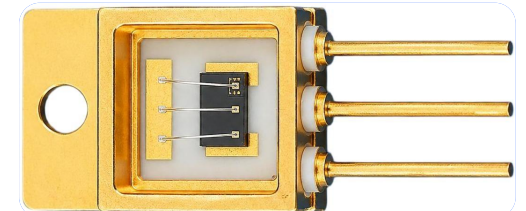
Our alumina substrates and thermal plates support a wide range of electronic, electrical, sensing, and thermal applications.



Electronic Circuits

Thick-Film + Thin-Film + Hybrid Circuits

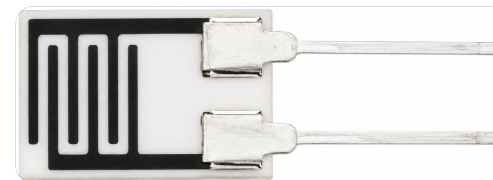
Alumina substrates for printed circuits, resistive elements, conductive patterns, and hybrid circuit assemblies.



Electronic Packaging

Component Mounting + Electrical Isolation

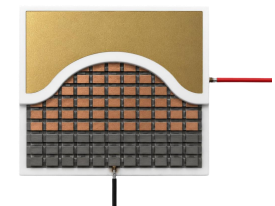
Alumina substrates for component mounting, electrical insulation, and structural support in electronic packages.



Sensors & Instrumentation

Precision + Stability + Reliability

Alumina substrates for sensor and instrumentation assemblies requiring dimensional stability, electrical insulation, and reliable performance.



Thermal Management

Heat Spreading + Thermal Stability

Alumina thermal plates for heat spreading, thermal control, and electrical insulation in electronic and thermal applications.

Designed Around Your Substrate Challenges



Material Selection

Challenge

Balancing performance, application requirements, and cost when selecting the right alumina grade.

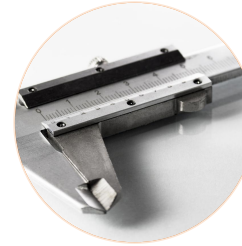
Our Approach

We offer three alumina options for different application requirements:

94.4% | 96% | 99.6% Alumina

Advantage

The right material for the right application.



Size & Thickness

Challenge

Thin ceramic substrates often have limited size and thickness combinations.

Our Approach

We provide a range of thin and large-format options, with capabilities varying by material and finishing condition.

Advantage

More size & thickness flexibility.



Precision & Quality

Challenge

Dimensional variation and inconsistent surface quality can affect assembly and performance.

Our Approach

Controlled production and precision inspection from raw material to finished substrate.

Advantage

Consistent thickness, flatness, roughness & dimensions.



One-Stop Processing

Challenge

Working with multiple suppliers can increase coordination and quality risks.

Our Approach

Integrated ceramic processing under one manufacturing partner.

Advantage

One Supplier. Multiple Processes.

Substrate Material Properties

Item	Unit	94.4% Alumina	96% Alumina	99.6% Alumina
Mechanical Properties				
Color	—	Pink	White	Ivory
Density	g/cm ³	≥ 3.65	≥ 3.70	≥ 3.88
Flexural Strength (25°C)	MPa	≥ 300	≥ 300	≥ 400
As-fired Camber / Warpage	Length%	≤ 0.3–0.8%	≤ 0.3%	≤ 0.3%
Thermal Properties				
Maximum Service Temperature (Without Mechanical Load)	°C	1400	1400	1400
CTE (Coefficient of Thermal Expansion) (25–800°C)	1×10 ⁻⁶ /°C	5.0–8.0	6.2–8.0	6.5–8.2
Thermal Conductivity (25°C)	W/m·K	≥ 20	≥ 21	≥ 27
Electrical Properties				
Dielectric Constant	—	9.0–9.6	9.0–10.0	9.7–10.1
Dielectric Loss Angle	× 10 ⁻⁴	≤ 3	≤ 3	≤ 2
Volume Resistivity (25°C)	Ω·cm	> 10 ¹⁴	≥ 10 ¹⁴	≥ 10 ¹⁴
Dielectric Strength	KV/mm	12–15	≥ 15	≥ 18

94.4% Alumina

Specialty material, available in the common 60 × 48 mm size, with thicknesses of 0.5–1.0 mm.



96% Alumina

A primary material, suitable for general electronic, electrical, and thermal management applications.



99.6% Alumina

For applications with higher requirements for thermal performance, electrical performance, and high-temperature stability.



Alumina Substrates — Standard Dimensions

Standard substrate sizes vary depending on material, thickness, and finishing condition. Selected standard dimensions are shown below.

A. 96% Alumina

Available sizes vary with substrate thickness and finishing condition.

Thickness (mm)	Length × Width (mm)		
0.385	114 × 114		
0.5	122 × 120	138 × 190	
0.635	109 × 109	109 × 120	109 × 130
	114 × 114	127 × 127	132 × 142
	138 × 190	280 × 87	280 × 240*
0.76	138 × 190		
0.8	109 × 109	109 × 120	109 × 130
	114 × 114	122 × 120	122 × 120
1.0	109 × 109	109 × 120	109 × 130
	114 × 114	122 × 120	127 × 127
	132 × 142	138 × 190	280 × 240*
	395 × 83*		

Note: Red-highlighted sizes indicate selected large-format capabilities available upon request.

B. 94.4% Alumina

Thickness (mm)	Length × Width (mm)
0.5–1.0	60 × 48

C. 99.6% Alumina

Thickness (mm)	Length × Width (mm)	
0.25	50.8 × 50.8 (2")	101.6 × 101.6 (4")
0.38	50.8 × 50.8 (2")	101.6 × 101.6 (4")
0.5	50.8 × 50.8 (2")	101.6 × 101.6 (4")
0.635	50.8 × 50.8 (2")	101.6 × 101.6 (4")
1.0	50.8 × 50.8 (2")	101.6 × 101.6 (4")

Dimensional Tolerances

Item		Standard Tolerance (mm)	Best Tolerance (mm)
Length and Width		± 2 (as-fired)	± 0.15 (laser cutting)
Thickness	<0.3 mm	± 0.03	± 0.01
	0.3–1.0	± 0.05	± 0.01
	>1.0	± 10%	± 0.01

Alumina Thermal Plates — Representative Sizes

96% Alumina · Dry Pressing / Tape Casting · Typically ≤2.0 mm

Selected from our production experience. Custom dimensions, hole patterns, and tooling are available upon request.

Representative Configurations

A. Rectangular Plates

Length × Width (mm)	Thickness (mm)
17.2 × 17.2	0.5
21.8 × 12.8	0.45
23 × 14.6	0.5
25 × 18	0.5
30.5 × 15.5	0.8
33.5 × 11	0.75
35.66 × 24.05	1.26
40 × 33.6	0.8
42 × 35	1.0
44.5 × 44.5	0.8
60 × 29	1.0
75 × 58	1.3

B. Plates with Holes

Dimensions (mm)	Thickness (mm)
21 × 13 × Ø7	0.7
23.6 × 14.6 × Ø8	0.4
35 × 23.4 × Ø4.2	1.0
38 × 26.5 × Ø9.9	1.2
45 × 20 × Ø8	1.2

C. Round & Ring Plates

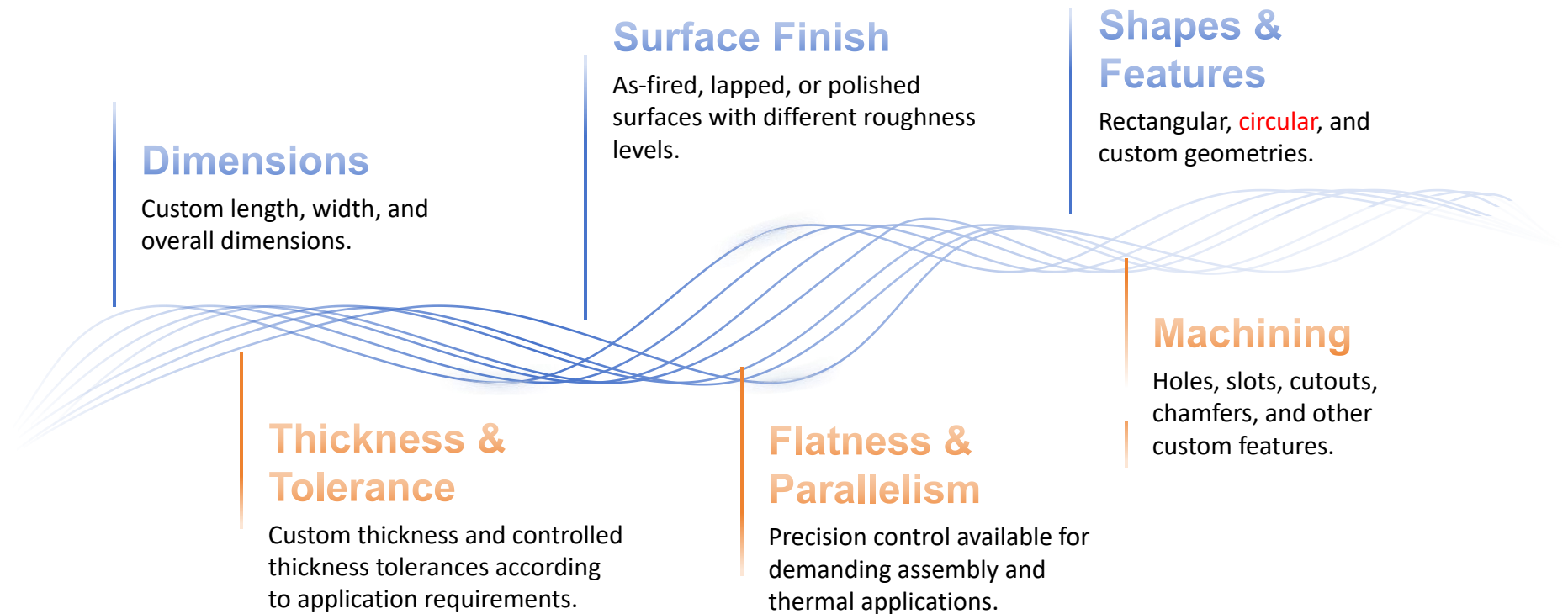
OD × ID (mm)	Thickness (mm)
Ø17 × Ø4	0.6
Ø23 × Ø12	0.48
Ø37.2 × Ø18.2	1.8

Custom Dimensions, Hole Patterns & Tooling Available
From small precision plates to larger application-specific designs.

Custom Options & Manufacturing Flexibility

Custom dimensions, tolerances, surface finishes, and precision features are available based on application requirements.

Custom Options



Drawing-Based Customization

Manufacturing according to customer drawings and specifications.

Thin & Large-Format Capability

Thickness from 0.1–2.0 mm, with larger dimensions available depending on material and finishing condition.

Surface Finish

Different surface conditions and typical roughness (Ra) values



As-fired

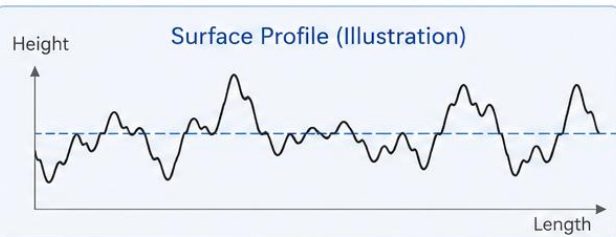
Surface after
sintering

Typical Ra

94.4% Alumina: $\leq 1.6 \mu\text{m}$

96% Alumina: $0.3\text{--}0.75 \mu\text{m}$

99.6% Alumina: $\leq 0.15 \mu\text{m}$



Lapped

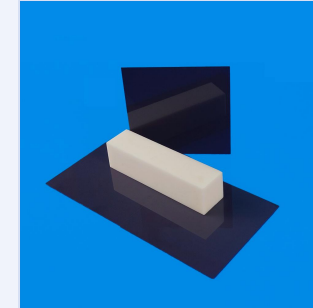
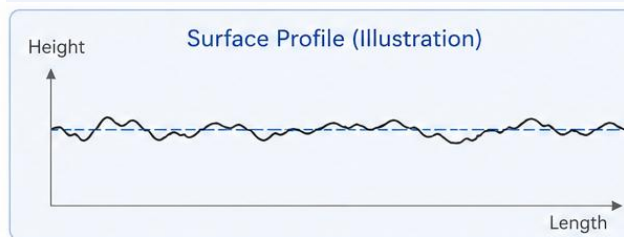
Surface after
lapping

Typical Ra

94.4% Alumina: $\leq 0.8 \mu\text{m}$

96% Alumina: $0.2\text{--}0.7 \mu\text{m}$

99.6% Alumina: $0.05\text{--}0.15 \mu\text{m}$



Polished

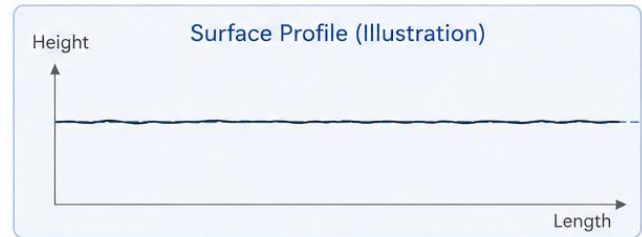
Surface after
polishing

Typical Ra

94.4% Alumina: $\leq 0.2 \mu\text{m}$

96% Alumina: $\leq 0.1 \mu\text{m}$

99.6% Alumina: $\leq 0.05 \mu\text{m}$



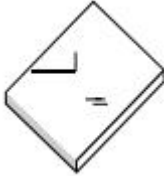
Note: Illustration only. Surface profiles are shown for visual comparison and are not to scale.

Lower Ra = Smoother Surface

Smoother surfaces provide better contact, improved bonding and more consistent performance.

Appearance Inspection

Visual inspection is performed according to customer specifications and agreed quality standards.

Item	Description	Illustration	Inspection Classification Standard	Inspection Method
Cracks	A fracture that did not completely break the substrate, with a width much smaller than its length.		No visible cracks	Visual inspection under suitable lighting, or after soaking in magenta.
Chips	A defect left behind after a portion of the edge or corner has detached from the substrate.		$\leq X$ mm	Visually compare with the reference sample, or measure using a calibrated microscope.
Black Spots / Foreign Matter	Black spots, foreign particles, embedded contaminants.		$\leq X$ mm / X pcs	Visually compare with the reference sample, measure using a calibrated microscope, and a thickness gauge.
Scratches	Long, narrow grooves, scratches, or cut marks on the surface of the substrate.		$\leq X$ mm	Visually compare with the reference sample, or measure using a calibrated microscope.

Inspection Focus

Surface

Cleanliness & surface defects

Edges

Chipping & edge damage

Corners

Corner integrity

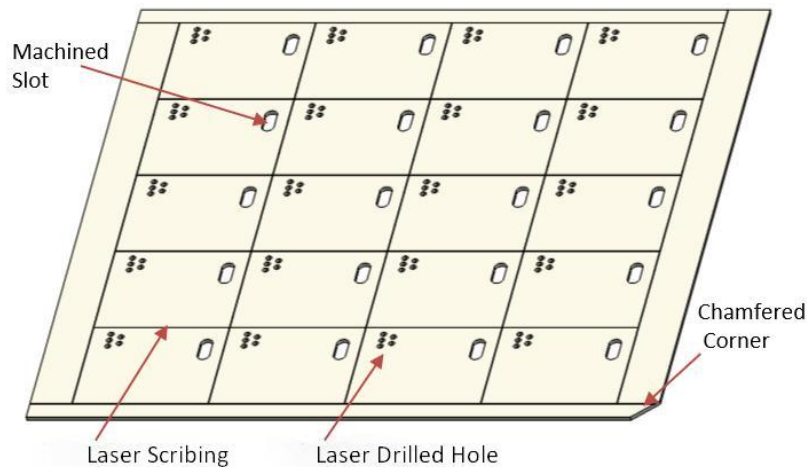
Overall Appearance

Consistency & visible defects

Laser Processing

Precision laser processing for holes, scribing, and custom features on thin alumina substrates.

Custom Laser Features



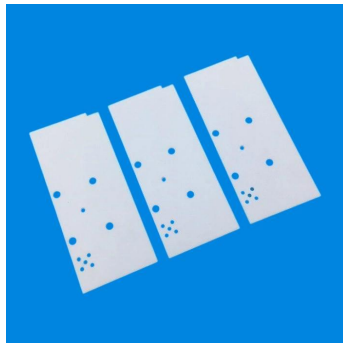
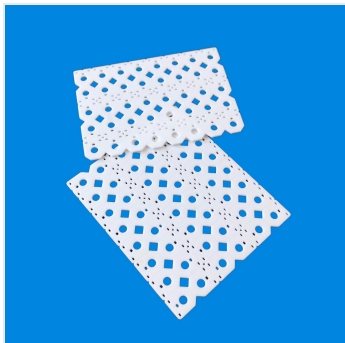
Hole Diameter (mm)	Typical Tolerance (mm)
$\leq 1^*$	± 0.1
> 1	± 0.2

Note: Small-diameter holes are available for thin alumina substrates.

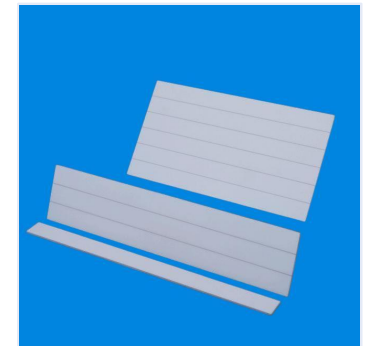
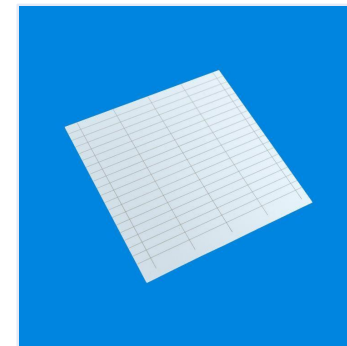
A. Laser Cutting

Laser cutting of large alumina sheets into custom-sized substrates.

B. Laser Drilled Holes



C. Laser Scribing



Substrate Thickness (mm)	Laser Scribe Depth (% of Substrate Thickness)
≤ 2	45%–55%*

Note: Scribe depth is controlled according to substrate thickness and processing requirements.

- Precision Alumina Substrates & Thermal Plates Supplier

We support OEM projects from prototype development to mass production, delivering precision alumina substrates and thermal plates for electronic and thermal applications worldwide.

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