




Alumina Ceramic Solid Rods

High-Quality Alumina Ceramic Rods Solutions Expert

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About ADCERAX

Powered by **HUNAN ATCERA CO.,LTD** – A Trusted Innovator in Advanced Ceramics Since 2010 ,**HUNAN ATCERA CO. Ltd** has been deeply engaged in the field of advanced ceramics for 20 years, and has production experience of more than 2000 precision ceramic products. We focus on the material of alumina ceramics, zirconia ceramics, silicon carbide ceramics, silicon nitride ceramics, aluminum nitride ceramics and quartz, etc., and aim to provide you with advanced ceramics one-stop service.

Adcerax delivering bespoke advanced ceramic solutions for industries where precision and durability matter. And has become a leading global China supplier of alumina ceramic tubes, with products exported to the United States, Germany, Japan, South Korea, and many other countries.

Our Expertise



Engineering Support: Professional product engineers providing timely technical assistance from design to production.



Customization Capability: Accepting small-batch custom orders based on customer drawings or samples.



Rapid Delivery: Quick shipping for custom orders and 24-hour dispatch for in-stock standard products.







Supply Chain Integration: One-stop customization and procurement services leveraging China's supply chain advantages.



ADCERAX Promise

Your ROI Starts from Day One

-  37% Lifespan: Industry Standards Verified by SGS Third-Party Testing in Extreme Thermal Shock Environments
-  22% Downtime: Reduce unplanned downtime with ceramic component life enhancement
-  15 days fast response: From drawing confirmation to functional prototype delivery
-  12 months warranty: Unconditional return of quality problems to factory for remanufacturing + process optimization report



Our Certifications



What is alumina ceramic solid rods?

Alumina ceramic solid rods are cylindrical components fabricated from high-purity aluminum oxide (Al_2O_3), an advanced engineering ceramic. Owing to their exceptional combination of properties, they play an indispensable role in numerous demanding industrial fields.

Typical Applications:

- ◆ High-Temperature Equipment: Used as support rods, spacers, and fixtures in industrial furnaces and kilns.
- ◆ Electrical Engineering: Serve as insulators in high-voltage equipment and electronic components.
- ◆ Chemical Industry: Used to manufacture wear-resistant parts for pumps, valves, and pipelines that handle corrosive chemicals.
- ◆ Mechanical Engineering: Employed as shafts, bearings, seals, and plungers in pumps and valves.



Alumina Ceramic Solid Rods Process



Raw Material Preparation

Alumina powder is selected and mixed with binders and plasticizers to form a uniform slurry or paste.



Forming

Extrusion: Alumina slurry is extruded through a die into continuous tubular shapes.

Isostatic Pressing: Powder is molded under high pressure to form high-density, uniform tubes.

Slip Casting: Liquid slurry is cast into a mold and solidified.



Drying

The formed tubes are dried slowly to remove moisture and prevent cracking or deformation.



Sintering

The dried tubes are fired in a high-temperature kiln (typically 1600–1700°C) to achieve full densification and develop the final ceramic properties.




Machining

After sintering, the tubes may be ground or machined to achieve precise dimensions, surface finish, or special features such as chamfered ends or holes.


Square Alumina Rods Properties:


Property	Unit	99.7% Al ₂ O ₃	99.5% Al ₂ O ₃	99% Al ₂ O ₃	96% Al ₂ O ₃
Color		Ivory White	Ivory White	Ivory White	Ivory White
Density	g/cm ³	3.94	3.9	3.83	3.6-3.75
Water Absorption	%	0	0	0	0
Hardness	Mohs Hardness	9.1	9	9	8.8
Flexural Strength (20°C)	Mpa	330	320	300	260
Compressive Strength (20°C)	Mpa	2300	2300	2210	1910
Maximum Operating Temperature	°C	1730	1700	1680	1450
Thermal Expansion Coefficient (25°C to 800°C)	10 ⁻⁶ /°C	7.6	7.6	7.6	7.6
Thermal Conductivity (25°C)	W/(m·K)	29	27	24	22
Dielectric Strength (5mm thickness)	AC-kv/mm	22	21	19	15
Dielectric Loss at 25°C@1MHz	---	< 0.0001	< 0.0001	0.0003	0.0004
Dielectric Constant at 25°C@1MHz	---	9.8	9.7	9.5	9.2
Volume Resistivity (20°C)	Ω·cm ³	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴
Volume Resistivity (300°C)	Ω·cm ³	2*10 ¹²	2*10 ¹²	4*10 ¹¹	2*10 ¹¹


Technical Advantages

 **Excellent High-Temperature Resistance**
Maximum operating temperature up to 1730° C (99.7% Al₂O₃), meeting extreme high-temperature environment demands.

 **Superior Electrical Insulation**
Volume resistivity >10¹⁴ Ω·cm³, dielectric strength up to 22 AC-kv/mm (5mm thickness).

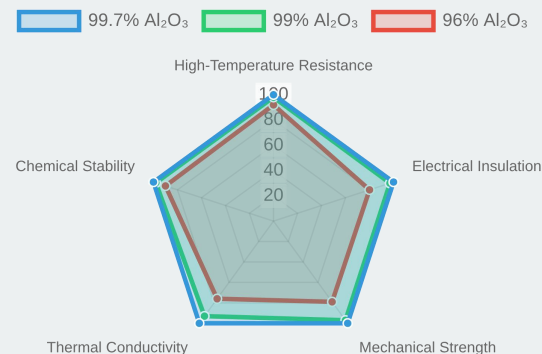
 **High Dimensional Accuracy**
Tolerance up to ±0.1mm, ensuring precise installation and use.

 **Chemical Stability**
Resistant to acids, alkalis, and corrosive gases, suitable for various harsh environments.

 **Structural Integrity**
Flexural strength 330 Mpa, compressive strength 2300 Mpa, with excellent mechanical properties.



Performance Comparison of Alumina Ceramics with Different Purity



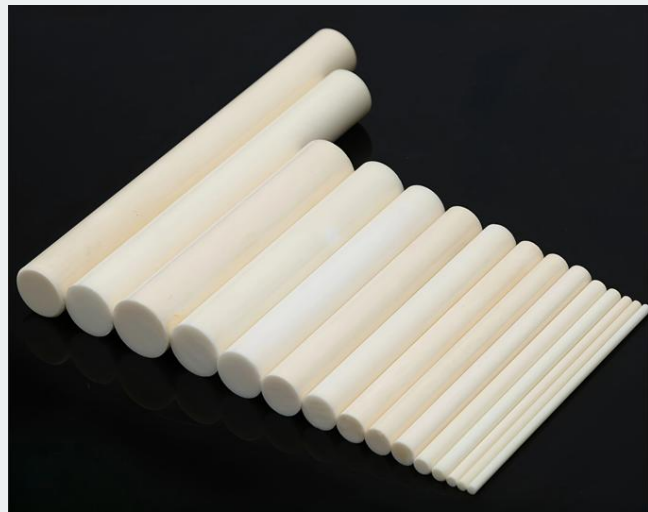
Alumina Ceramic Solid Rods Specifications

ADCERAX supply alumina ceramic solid rods are improving space efficiency and system integration. These rods are available in standard sizes or can be customized in terms of diameter, length, and end configuration.

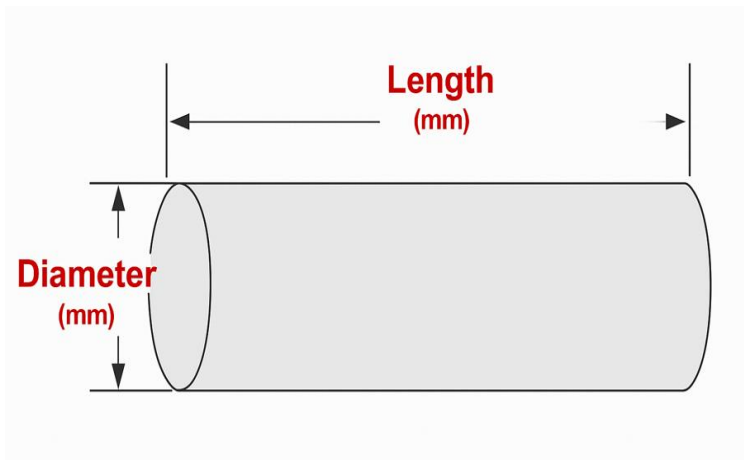
Specification Parameter	Details
Product No.	TE-AT-30001
Material	Al ₂ O ₃ (Alumina)
Purity Options	96% / 99% / 99.5% / 99.7%
Max. Working Temp.	1450° C (95%) - 1730° C (99.7%)
Tolerance	±0.05mm to ±2mm (depending on dimensions)
Surface Finish	Raw, Polished, or Glazed
Processing type	CNC, plane grinding, drilling, cutting
Diameter	0.5-50mm
Standard Length	≤2500mm

Alumina Ceramic Solid Rods Features

- ✓ High Temperature Stability
- ✓ Excellent Electrical Insulation
- ✓ High Dimensional Accuracy
- ✓ Good Chemical Stability



Alumina Ceramic Solid Rods Size:



Item No.	Width (mm)	Length (mm)
TE-AT-30001	0.5	15-1500
TE-AT-30002	1.2	15-1500
TE-AT-30003	1.3	15-1500
TE-AT-30004	1.4	15-1500
TE-AT-30005	1.5	15-1500
TE-AT-30006	1.6	15-1500
TE-AT-30007	2.2	15-2500
TE-AT-30008	2.4	15-2500
TE-AT-30009	3.5	15-2500
TE-AT-30010	3.8	15-2500
TE-AT-30011	4.5	15-2500
TE-AT-30012	5.5	15-2500
TE-AT-30013	6.3	15-2500
TE-AT-30014	6.5	15-2500
TE-AT-30015	6.8	15-2500

Alumina Ceramic Solid Rods Size:

Item No.	Width (mm)	Length (mm)
TE-AT-30016	8.3	15-2500
TE-AT-30017	8.5	15-2500
TE-AT-30018	9.5	15-2500
TE-AT-30019	10.5	15-2500
TE-AT-30020	11	15-2500
TE-AT-30021	11.5	15-2500
TE-AT-30022	12.5	15-2500
TE-AT-30023	13	15-2500
TE-AT-30024	13.5	15-2500
TE-AT-30025	14	15-2500
TE-AT-30026	16	15-2500
TE-AT-30027	16.5	15-2500

Item No.	Width (mm)	Length (mm)
TE-AT-30028	17	15-2500
TE-AT-30029	19	15-2500
TE-AT-30030	21	15-2500
TE-AT-30031	22	15-2500
TE-AT-30032	23	15-2500
TE-AT-30033	24	15-2500
TE-AT-30034	24.5	15-2500
TE-AT-30035	42	15-2500

*Note: The table above shows only some standard specifications. For more specifications, please refer to the complete product catalogue or contact us for customization.

Alumina Ceramic Solid Rods Applications:

Industrial Furnaces & Kilns



Alumina ceramic solid rods serve as crucial support components and thermal insulation spacers in high-temperature industrial furnaces and kilns, withstanding extreme temperatures up to 1730° C.

Pain Point: Frequent failure of traditional metal support rods due to high temperatures, leading to production downtime and increased maintenance costs.

Solution: Switching to ADCERAX alumina ceramic rods significantly extends component lifespan and reduces maintenance frequency, ensuring stable operation.

Electrical Insulation



Alumina ceramic solid rods are utilized as high-voltage insulators, electrical isolation components, and circuit board supports in various electronic and electrical devices, leveraging their superior electrical insulation properties.

Pain Point: Need for reliable, high-performance insulators that can withstand both electrical stress and mechanical vibration in sensitive electronic applications.

Solution: Custom-designed alumina ceramic rods provide precise insulation and mechanical stability, leading to improved product reliability and enhanced safety ratings.

Precision Machinery & Manufacturing



In precision machinery, alumina ceramic solid rods are employed as wear-resistant components, precision shafts, and pump plungers, offering exceptional hardness and dimensional stability in abrasive environments.

Pain Point: Rapid wear and tear of metal components in abrasive or corrosive mechanical systems, resulting in frequent replacements and high maintenance.

Solution: Implementing alumina ceramic rods extends component life significantly, reduces maintenance costs, and ensures long-term operational stability in demanding mechanical applications.

Customized Alumina Ceramic Solid Rods

ADCERAX offers comprehensive customization services based on your technical drawings or specifications to meet your specific needs. These rods are available in standard sizes or can be customized in terms of length, diameter, and end geometry.

Customizable Parameters

Dimensional Accuracy

Diameter: 0.5-50mm (± 0.05 -2mm tolerance)
contact us for other sizes.

Length

Up to 3500mm

End Types

Threaded

Processing type

CNC, plane grinding, drilling, cutting

Surface Finish

raw, polished, or glazed

Material Purity

96%, 99%, 99.5%, or 99.7%

Customization Process



Special Processing Options



Cutting



Drilling



Threading



Slotting



Custom Shapes



Grinding




Fast Response Commitment

From drawing confirmation to functional
prototype delivery






15 Days

Alumina Ceramic Solid Rods Usage Guide:

Handling & Installation

-  Check for any surface cracks or visible damage before installation.
-  Ensure gradual temperature ramp-up to prevent thermal shock.
-  Mount rods with matching holders to avoid excessive mechanical stress.

Maintenance & Longevity

-  **Regular Inspection:** Check for cracks or damage during scheduled maintenance
-  **Cleaning:** Can be soaked in an acid bath (HNO₃) for residual removal
-  **Protection:** Shield from mechanical impact during handling and transport
-  **Temperature Control:** Follow recommended heating/cooling rates to prevent thermal shock
-  **Storage:** Store in a dry, room-temperature warehouse

Important Note

While alumina ceramic solid rods is extremely durable, it is brittle compared to metals. Always handle with care and follow proper installation procedures to maximize product lifespan.

✓ Do's

- ✓ Inspect for cracks before use
- ✓ Clean with alcohol or acetone
- ✓ Heat/cool gradually (3-5° C/min)
- ✓ Store in dry environment

✗ Don'ts

- ✗ Drop or impact
- ✗ Expose to thermal shock
- ✗ Apply uneven pressure
- ✗ Use with incompatible materials

Technical Support

✉ Technical Inquiry: info@adcerax.com

📞 Service Hotline: +86-0731-84428843

💬 Whatsapp: +86-19311583352

Alumina Ceramic Solid Rods FAQ:

✓ **Q: What is the maximum continuous operating temperature?**

A: These alumina rods can withstand up to 1730° C (99.7% Purity) , depending on load and thermal cycling conditions.

✓ **Q: Can you produce custom rods with holes or grooves?**

A:Yes. We support drilled, slotted, and threaded features with a tolerance down to $\pm 0.01\text{mm}$.

✓ **Q: Are your Al₂O₃ solid rods resistant to chemicals?**

A: Yes. We support polished, glazed, and raw sintered options depending on the application.

✓ **Q: Do you offer wholesale pricing for alumina ceramic solid rods?**

A: Yes, we offer wholesale pricing for alumina ceramic solid rods. All orders are supplied directly from our factory, with no distributors involved. Please contact us for bulk pricing and custom order details.

✓ **Q: Are you a manufacturer or a trading company?**

A: We are an alumina ceramic solid rods manufacturer and factory based in China, supporting both OEM and custom orders.

✓ **Q: Can I get customized alumina ceramic solid rods for my project?**

A: Absolutely. We specialize in custom Alumina rods. You can specify diameter, length, tolerances, and even special features like polish for your Alumina ceramic solid rods.



Service Support

ADCERAX is committed to providing comprehensive service support to customers, from product selection to after-sales maintenance.

Pre-Sales Support

- ✓ Expert technical team provides custom design advice
- ✓ Sample testing and performance verification
- ✓ Technical parameter consultation

Sales Support

- ✓ Order tracking and production progress updates
- ✓ Professional packaging and logistics solutions

After-Sales Service

- ✓ Product quality assurance and problem resolution
- ✓ Technical consultation and application support
- ✓ 24-hour response commitment

Quality Assurance

- ✓ Strict quality control system
- ✓ Product performance testing and verification



Contact Our Specialist Team

✉ Customer Service: info@adcerax.com

📞 Service Hotline: +86-0731-84428843

🌐 Online Support: adcerax.com/support

Contact Us

ADCERAX looks forward to cooperating with you and providing china alumina ceramic solid rods solutions. Our team is dedicated to serving you with any questions or needs you may have.

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Inquiry Process

1

Submit Inquiry

Submit your requirements via email, phone, or website form.

2

Technical Evaluation

Our expert team evaluates your needs and provides solutions.

3

Quotation Confirmation

Provide detailed quotation and delivery time based on your requirements.

4

Order Confirmation

Confirm order and arrange production and delivery.



Get a Quote Now

We promise to respond to your inquiry within 24 hours.

Ready to enhance your product performance with alumina ceramic solid rods? Contact our team for personalized consultation, technical support, and competitive quotations.

[Get A Quote](#)