



Alumina Threaded Rod


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 threaded rods?

Alumina threaded rods are precision-engineered components made from high-purity aluminum oxide (Al_2O_3), a hard and durable ceramic material. They are designed with helical threading and serve as a high-performance alternative to metal fasteners in demanding environments where traditional materials would fail.

Typical Applications:

- ◆ Semiconductor Manufacturing: Used in wafer handling, furnace fixtures, and plasma etch tools to prevent metal contamination.
- ◆ High-Temperature Furnaces: They serve as support rods, thermocouple sheaths, and kiln furniture.
- ◆ Chemical Processing: Found in valves, pumps, and mixers that handle corrosive fluids.
- ◆ Medical and Analytical Equipment: Components in MRI machines and lab instruments benefit from their non-magnetic and non-contaminating
- ◆ Electronics: They act as insulating spacers and components in high-frequency equipment.



Alumina Threaded 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.


Threaded Alumina Rod 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% Al_2O_3), meeting extreme high-temperature environment demands.

 **Superior Electrical Insulation**
Volume resistivity $>10^{14}\ \Omega\cdot\text{cm}^3$, dielectric strength up to 22 AC-kv/mm (5mm thickness).

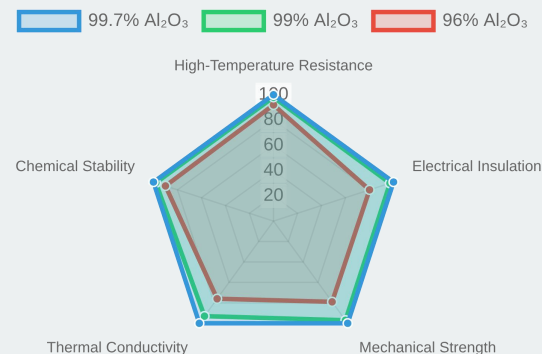
 **High Dimensional Accuracy**
Tolerance up to $\pm 0.1\text{mm}$, ensuring precise installation and use.

 **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



Threaded Alumina Rod Specifications

ADCERAX wholesale alumina threaded 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.	AT-YHL-LWB1001
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 ±5mm (depending on dimensions)
Surface Finish	Raw, Polished, or Glazed
Thread pitch	standard or coarse/fine metric
Width /Height	2-23mm/ 1-18mm
Standard Length	≤2500mm

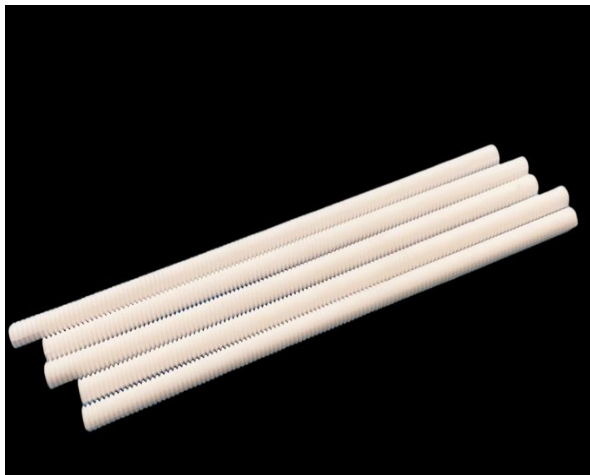


Alumina Threaded Rod Benefits

- ✓ Secure Mechanical Fastening at High Temperatures
- ✓ Reduced Particle Contamination
- ✓ Precise Alignment and Assembly Compatibility
- ✓ Longer Service Life in Aggressive Environments

Alumina Threaded Rod Size:

Type1: Alumina wire-wound rod



Item No.	Width (mm)	Slot width (mm)	Length (mm)	Purity
AT-YHL-LWB1001	6	0.8	100-500	95%
AT-YHL-LWB1002	8	1	100-500	95%
AT-YHL-LWB1003	10	1.5	100-500	95%
AT-YHL-LWB1004	10	5	100-500	95%
AT-YHL-LWB1005	12	2	100-500	95%
AT-YHL-LWB1006	14	2.5	100-500	95%
AT-YHL-LWB1007	16	5	100-500	95%
AT-YHL-LWB1008	18	5	100-500	95%

*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 Threaded Rod Size:

Type 2: Alumina single-head/double-head threaded rod



Item No.	Thread Diameter (mm)	Thread Length (mm)	Total Length (mm)	Purity %
AT-YHL-LWB2001	M2	Customize	100-800	99%
AT-YHL-LWB2002	M2.5	Customize	100-800	99%
AT-YHL-LWB2003	M3	Customize	100-800	99%
AT-YHL-LWB2004	M3.5	Customize	100-800	99%
AT-YHL-LWB2005	M4	30	100-800	99%
AT-YHL-LWB2006	M5	30	100-800	99%
AT-YHL-LWB2007	M6	30	100-800	99%
AT-YHL-LWB2008	M8	30	100-800	99%
AT-YHL-LWB2009	M10	30	100-800	99%
AT-YHL-LWB2010	M12	Customize	100-800	99%
AT-YHL-LWB2011	M14	Customize	100-800	99%
AT-YHL-LWB2012	M16	Customize	100-800	99%
AT-YHL-LWB2013	M18	Customize	100-800	99%

*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 Threaded Rod Size:

Type 3: Alumina Threaded Rod with Groove



Item No.	Diameter (mm)	Thread Diameter (mm)	Total Length (mm)	Purity %
AT-YHL-LWB3001	6	M4	200	99
AT-YHL-LWB3002	10	M8	450	99
AT-YHL-LWB3003	12	M8	400	99
AT-YHL-LWB3004	20	M12	450	99
AT-YHL-LWB3005	30	M18	360	99

*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 Threaded Rod Applications

High-Temperature Equipment



Our alumina ceramic square rods are used as structural supports in industrial kilns and furnaces, withstanding temperatures up to 1730° C.

Pain Point: Frequent failure of metal supports in high-temperature testing equipment, leading to significant downtime and financial losses.

Solution:

A German research lab eliminated 7 days of quarterly downtime by switching to our 99.7% alumina rods, extending component lifespan by 3x and saving €9,000 annually.

Electrical Insulation



Providing reliable high-voltage insulation in power generation and distribution equipment.

Pain Point: Existing insulation materials failed under high temperatures, causing production delays and safety concerns.

Solution: A North American electronics manufacturer reduced equipment failures by 40% and improved operational safety by using our high-purity alumina rods for stable insulation.

Chemical Processing



Serving as support components in corrosive chemical environments where metal alternatives would rapidly deteriorate.

Pain Point: Metal components in chemical reactors corroded quickly, requiring frequent replacements and increasing maintenance costs.

Solution:

An Asian chemical plant extended costs and reducing downtime by implementing our chemical-resistant alumina rods.

China Alumina Threaded Rod Customized

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, thread diameter, and end geometry.

Customizable Parameters

Dimensional Accuracy

M3 to M16 / UNC/UNF. (± 0.01 tolerance)
contact us for other sizes.

Length

Up to 500mm

Thread ends

single/double thread ends / wire-wound

Body geometry

cylinder / stepped / necked area for mounting

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

Threaded Alumina Rod Usage Guide:

Handling & Installation

- ✎ Handle with clean gloves to avoid contamination from skin oils.
- 🌡️ Verify thread compatibility with alumina or ceramic nuts and washers.
- 🔧 Tighten gradually by hand before applying torque; avoid sudden force.
- 🔧 Use matching alumina nuts to prevent uneven stress on the threads.

Maintenance & Longevity

- 📅 **Regular Inspection:** Inspect each rod for visible cracks or defects before installation.
- 🧼 **Cleaning:** Clean with ethanol or isopropanol to remove surface residues.
- 🛡️ **Protection:** Shield from mechanical impact during handling and transport
- 🌡️ **Temperature Control:** Follow recommended heating/cooling rates to prevent thermal shock
- 💧 **Storage:** Keep in dry environment to prevent moisture absorption

Important Note

While alumina ceramic 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

Threaded Alumina Rod FAQ:

✓ **Q: Can I request customized lengths or double-threaded rods?**

A: Yes, we offer made-to-spec rods up to 1000mm with thread on one or both ends.

✓ **Q: Are your ceramic threads compatible with standard metric nuts?**

A: Yes, M2–M18 thread profiles match standard dimensioned alumina or compatible nuts.

✓ **Q: Are these rods suitable for high-voltage insulator mounting?**

A: Yes, alumina rods offer high dielectric strength and low loss factor, suitable for insulating structures under high voltage.

✓ **Q: How do these rods perform in acidic or corrosive atmospheres?**

A: 99.5% alumina is chemically stable against most acids and alkalis, even at elevated temperatures.

✓ **Q: What is the advantage of buying wholesale alumina threaded rods from your factory?**

A: As a wholesale alumina threaded rod supplier, we provide consistent quality control, competitive pricing, and fast international logistics.

✓ **Q: Can alumina threaded rods replace stainless steel rods?**

A: Yes, especially in extreme conditions. Stainless steel weakens above ~600 °C and conducts electricity, while alumina threaded rods remain stable up to 1700 °C(99.5%), provide full electrical insulation, and resist chemical corrosion—making them the better choice for furnaces, lab instruments, and chemical systems.



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 high-quality threaded alumina rod 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 threaded alumina rod? Contact our team for personalized consultation, technical support, and competitive quotations.

[Get A Quote](#)