




Alumina Single Bore Tubes Customized


High-Quality Alumina Ceramic Tube 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 customized alumina single bore tubes?

Customized alumina single bore tubes are precision-engineered ceramic components made from high-purity aluminum oxide (Al_2O_3), featuring a single central channel (bore). These tubes are specifically tailored to meet individual application requirements in terms of dimensions, geometry, and end configurations.

Customization options include:

- ◆ Flanged ends for secure mounting
- ◆ Stepped designs for multi-diameter transitions
- ◆ Threaded ends for mechanical fastening
- ◆ Slotted openings for controlled flow or sensor integration



Alumina Single Bore Tubes Customized 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.


Alumina Single Bore Tubes Customized 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).

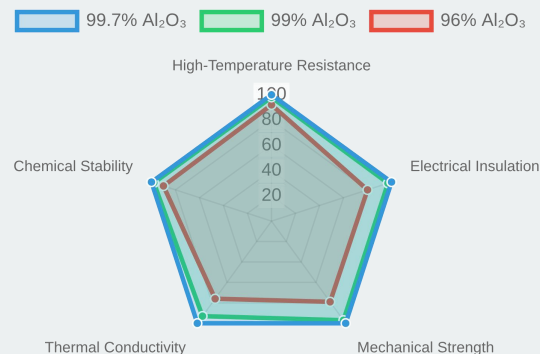
 **High Dimensional Accuracy**
Tolerance up to ±0.1mm, ensuring precise installation and use.

 **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



Customized Alumina Single Bore Tubes Specifications

ADCERAX's alumina single bore tubes customized are improving space efficiency and system integration. These tubes are available in standard sizes or can be customized in terms of outer diameter, hole diameter, length, and end configuration.

Specification Parameter	Details
Product No.	TE-AT-20001-1
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	±0.1mm to ±5mm (depending on dimensions)
Surface Finish	Raw, Polished, or Glazed
End Types	Open Both Ends (standard), Closed One End (optional)
Standard Length	≤3000mm



Alumina Single Bore Tubes Customized Size

Item No.	Outer Diameter (mm)	Bore Dia.(mm)	Length Available	Purity Available
TE-AT-20001-1	Customize			

Note: The table above shows only some standard specifications. For more specifications, please contact us for customization.

Alumina Single Bore Tubes Applications



Laboratory Equipment

Challenge:

German laboratory equipment manufacturer needed tubes with $\pm 0.1\text{mm}$ precision for high-temperature gas analysis equipment.

Solution:

Custom 99.7% alumina tubes with precision grinding and polished inner surface.

Result:

Reduced assembly failure rate from 12% to <1%, improved equipment accuracy by 15%.

Analytical Instruments

Challenge:

Japanese manufacturer needed ultra-clean tubes for mass spectrometry sample introduction system.

Solution:

High-purity 99.7% alumina tubes with specialized cleaning and packaging protocol.

Result:

Eliminated contamination issues, improved detection limits by 22%, enhanced instrument reliability.

Industrial Heating

Challenge:

US manufacturer needed durable tubes for 1600°C furnace with frequent thermal cycling.

Solution:

99.5% alumina tubes with optimized wall thickness and special end treatment.

Result:

Extended component life by 37%, eliminated mid-cycle failures, reduced annual replacement costs by \$12,000.

Temperature Sensors

Challenge:

UK manufacturer needed reliable thermocouple protection tubes for steel industry application.

Solution:

Custom-designed 96% alumina tubes with specialized closed-end configuration.

Result:

Prevented sensor failures in harsh environment, extended sensor life by 3x, saved £8,000 in downtime costs.

Customized Alumina Single Bore Tubes

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

Customizable Parameters

Dimensional Accuracy

OD: 3-220mm ID: 1-200mm (± 0.05 -5mm tolerance)
contact us for other sizes.

Length

Up to 3000mm

Colour

Red, Black, Blue and more colours

Processing type

CNC, plane grinding, internal 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 Single Bore Tubes Usage Guide:

Installation & Operation Tips

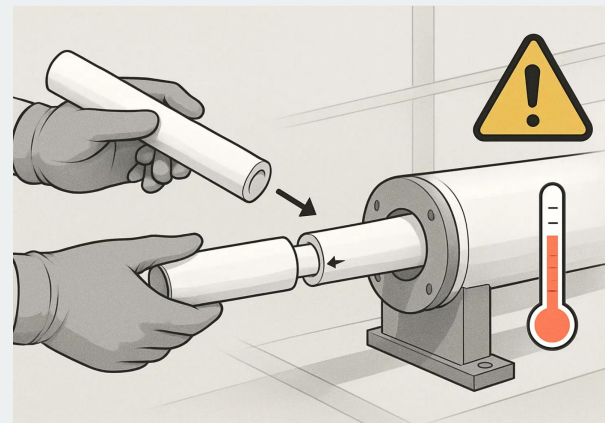
- ✓ Ensure ceramic tubes and connecting parts are clean before installation.
- ✓ Use appropriate support devices to fix the ceramic tube.
- ✓ Control heating and cooling rates at 3-5° C/minute.
- ✓ Use specialized ceramic flanges or sealing rings for connections.

Maintenance & Care

- ✓ Regularly check ceramic tube surfaces for cracks or damage.
- ✓ Clean with a soft cloth and neutral detergent.
- ✓ Store in a dry environment when not in use for long periods.

Common Mistakes

- ✓ Over-tightening clamps can cause cracking
- ✓ Rapid heating without preheating may lead to thermal stress



Technical Support

✉ Technical Inquiry: info@adcerax.com

📞 Service Hotline: +86-0731-84428843

💬 Whatsapp: +86-19311583352

Alumina Single Bore Tubes Customized FAQ:

✓ **Q: What are alumina single bore tubes used for?**

A: Alumina single bore tubes are commonly used in high-temperature furnaces, thermocouple protection, and gas flow systems due to their excellent thermal and electrical insulation properties.

✓ **Q: Are you a direct alumina single bore tubes factory or a trading company?**

A: We are a China-based alumina single bore tubes factory with in-house production and engineering support for custom orders.

✓ **Q: Do you provide alumina single bore tubes customized for OEM applications?**

A: Absolutely. We specialize in alumina single bore tubes customized to meet specific technical drawings or performance requirements.

✓ **Q: Do you offer wholesale alumina single bore tubes for distributors?**

A: Yes, we support wholesale alumina single bore tubes orders with tiered pricing and fast delivery for global distributors.

✓ **Q: Can I get a sample before placing a bulk order?**

A: Yes, sample orders are available for testing and evaluation.

✓ **Q: What is the lead time for customized tubes?**

A: Typically 3-5 weeks for samples, 4-6weeks for bulk production.(Detailed lead time depends on the complexity and specifications of the product)



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

Supporting Products

● Ceramic Flanges

● Ceramic Brackets

● Ceramic Plugs

● Thermocouple Protection Tubes



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 alumina single bore tubes customized 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 our alumina single bore tubes customized? Contact our team for personalized consultation, technical support, and competitive quotations.

[Get A Quote](#)