ADCERAX
ADVANCED CERAMICS

ALUMINA TUBES

—— Double Bore/2-hole Alumina Tube

Precision 2 Hole Alumina Tube Solutions for High-Temperature Applications

Contact Information

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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 2-Hole Alumina Tube?

A 2-hole alumina ceramic tube is a high-purity ceramic component made from aluminum oxide (Al2O3), featuring two parallel bores (holes) running along its length. It is designed for use in high-temperature, chemically aggressive, and electrically insulating environments.They are commonly used in:

- Thermocouple protection tubes (each hole houses a thermocouple wire)
- Gas flow separation in high-temperature reactors
- Electrical insulation in industrial furnaces
- Sample containment in laboratory heating systems

2-Hole Alumina Tubes Process

Raw Material Preparation

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

Forming

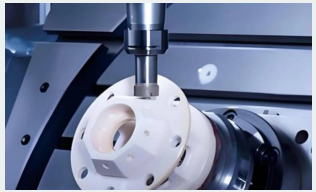
Extrusion: Alumina slurry is extruded through a die into continuous tubular shapes.
Isostatic Pressing: Powder is molded under high pressure to form high-density, uniform tubes.
Slip Casting: Liquid slurry is cast into a mold and solidified.

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.

2-Hole Alumina Tube Properties:

Property	Unit	99.7% Al2O3	99.5% Al2O3	99% Al2O3	96% Al2O3
Color		Ivory White	Ivory White	Ivory White	Ivory White
Density	g/cm³	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·cm³	$>10^{14}$	$>10^{14}$	$>10^{14}$	$>10^{14}$
Volume Resistivity (300°C)	Ω·cm³	$2*10^{12}$	$2*10^{12}$	$4*10^{11}$	$2*10^{11}$

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 >10^{14} Ω·cm^3, dielectric strength up to 22 AC-kv/mm (5mm thickness).

High Dimensional Accuracy

Tolerance up to ±0.1mm, ensuring precise installation and use.

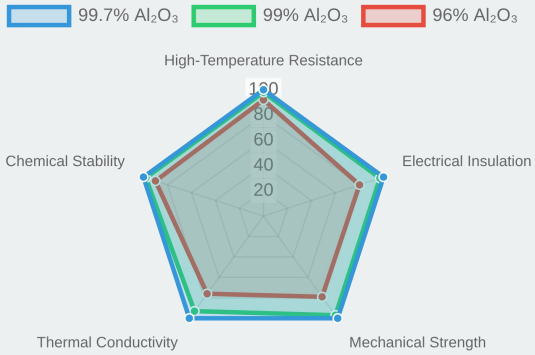
Chemical Stability

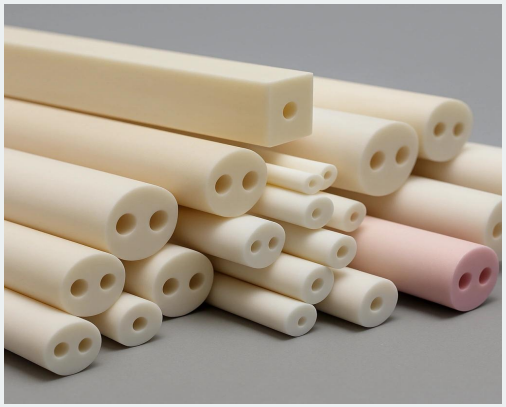
Resistant to acids, alkalis, and corrosive gases, suitable for various harsh environments.

Structural Integrity

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

Performance Comparison of Alumina Ceramics with Different Purity





Various specifications of 2-hole alumina ceramic tubes meeting diverse application needs

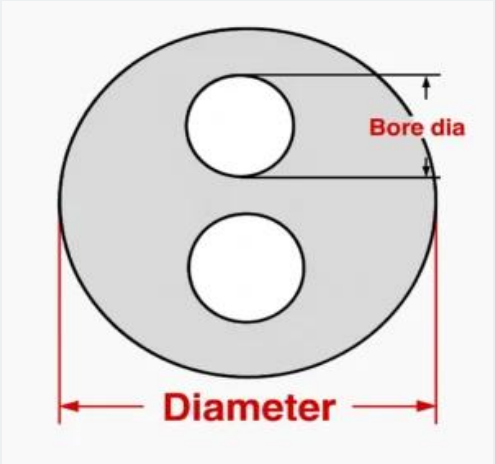
2-Hole Alumina Tube Specifications

2-hole alumina ceramic tubes are precision engineered ceramic products designed for high-temperature industrial applications. Primarily used for thermocouple protection, gas flow control, and sensor insulation.

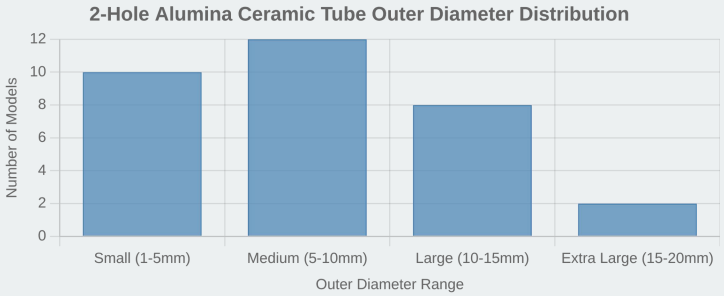
Specification Parameter	Details
Product No.	TE-AT-112
Material	Al2O3(Alumina)
Purity Options	95% / 99% / 99.5% / 99.7%
Max. Working Temp.	1450° C (95%) - 1730° C (99.7%)
Standard OD Range	1.0mm - 16.0mm
Standard ID Range	0.3mm - 4.9mm

Key Features of 2-Hole Alumina Ceramic Tubes

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



2-Hole Alumina Ceramic Tube Product Size



2-Hole Alumina Tube Size

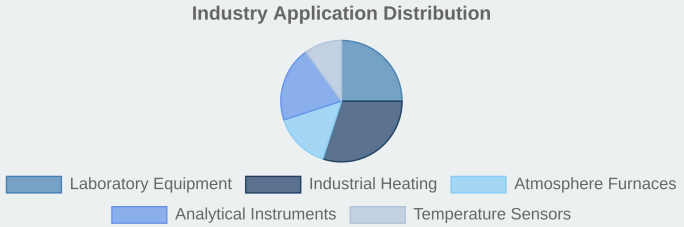
Item No.	Diameter (mm)	Bore Dia.(mm)	Length Available	Purity Available
TE-AT-112	1.0	0.3	≤2500mm	95%,99%,99.5%
TE-AT-113	1.2	0.3		
TE-AT-114	1.4	0.4		
TE-AT-115	1.5	0.4		
TE-AT-116	2.0	0.3		
TE-AT-117	2.0	0.5		
TE-AT-118	2.0	0.6		
TE-AT-119	2.5	0.7		
TE-AT-120	3.0	0.7		
TE-AT-121	3.5	0.8		
TE-AT-122	3.5	1.0		
TE-AT-123	4.0	1.2		
TE-AT-124	4.0	1.5		
TE-AT-125	4.5	1.2		
TE-AT-126	5.0	1.2		

Item No.	Diameter (mm)	Bore Dia.(mm)	Length Available	Purity Available
TE-AT-127	5.0	1.5	≤2500mm	95%,99%,99.5%
TE-AT-128	5.5	1.5		
TE-AT-129	5.5	1.8		
TE-AT-130	6.0	1.8		
TE-AT-131	6.5	1.8		
TE-AT-132	6.5	2.0		
TE-AT-133	8.0	2.0		
TE-AT-134	8.0	2.4		
TE-AT-135	8.5	2.6		
TE-AT-136	10.0	2.7		
TE-AT-137	16.0	4.9		

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

Application Cases

2-hole alumina ceramic tubes are widely used in various demanding industrial fields due to their excellent high-temperature performance, electrical insulation, and chemical stability.



Thermocouple Protection

Protecting thermocouple elements in high-temperature furnaces to ensure measurement accuracy.

Analytical Instruments

Sample transfer channels in gas analyzers and mass spectrometers.

Controlled Atmosphere Furnaces

Reaction tubes or support structures ensuring airtightness and corrosion resistance.

Gas Transfer Systems

Used for gas separation and transfer, ensuring different gases do not mix.

Customer Success Stories

German Precision Instrument Manufacturer

Challenge: ±0.2mm tolerance tubes led to 12% return rate.

Solution: ADCERAX provided ±0.1mm tolerance tubes.

Result: Return rate reduced to below 1%, efficiency increased by 15%.

US Analytical Instrument Manufacturer

Challenge: Supplier discontinuation caused $20,000 loss.

Solution: ADCERAX urgently supplied tubes and established stable supply.

Result: Customer resumed production, ADCERAX became preferred supplier.

Customization Services

ADCERAX offers fully customized 2-hole alumina ceramic tube services based on your technical drawings or specifications. Our engineering team will assist you throughout the entire process from design to production, ensuring the product perfectly meets your application needs.

Customizable Parameters

Outer/Bore Diameter
OD 3–220mm(±0.05-5mm), Bore Dia 0.25–10.0 mm (Tolerance ±0.05-2mm)consult for other sizes

Length
Up to 3000 mm, can be cut to desired lengths

Processing type
CNC, plane grinding, internal grinding, drilling, cutting

Hole Spacing
Customizable center-to-center distance to meet specific thermocouple structure requirements.

Surface Finish
Polished, raw, or glazed

Cross-Sectional Shape
Round, square, or custom cavity shapes to adapt to various installation environments

Customization Process

1. **Inquiry & Design** — Submit your **detailed** requirements
2. **Mold & Samples** — Proceed with mold/sample creation
3. **Confirmation** — Confirm specifications and contract
4. **Delivery** — Safe and efficient shipping

Fast Response Commitment

From drawing confirmation to functional prototype delivery

15 Days

Product Usage Guide

Installation & Operation Tips

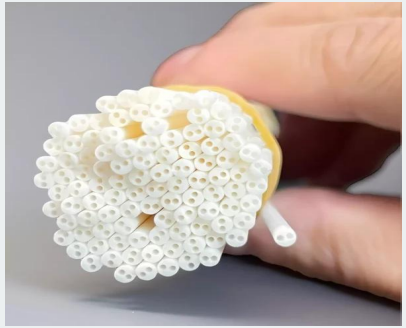
- Clean Handling- Ensure ceramic tube surface and installation area are clean before installation.
- Avoid Excessive Stress- Avoid over-bending or twisting, use appropriate supports.
- Thermal Expansion- Consider thermal expansion at high temperatures,allow appropriate clearance.
- Sealing Connection- Use ceramic adhesive suitable for high-temperature environments.

Maintenance & Care

- Regular Inspection- Check for cracks, discoloration, or damage signs.
- Cleaning Method - Use anhydrous ethanol or acetone, avoid strong acids.
- Temperature Control- Follow recommended heating/cooling rates (⩽5° C/min).
- Storage- Store in dry, clean environment, avoid mechanical impact.

Common Mistakes

- Forcing oversized wires into the bore may cause cracking.
- Using in reducing atmosphere beyond 1600°C may degrade the material.



⚠ Safety Precautions

- High-Temperature Protection: - Use insulated gloves and tools, avoid direct contact.
- Fracture Risk- Avoid mechanical impact and excessive stress to prevent injuries.
- Dust Protection- Wear respiratory protection when machining or cutting.

Technical Support

Technical Inquiry: info@adcerax.com

Service Hotline: +86-0731-84428843

Whatsapp: +86-19311583352

Frequently Asked Questions (FAQ)

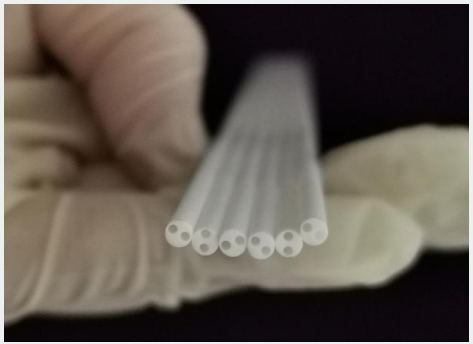
- **Q: What is the maximum temperature this tube can withstand?**
  A: The 2-hole alumina tube can operate continuously at up to 1600° C in oxidizing or inert atmospheres.

- **Q: Can I request a custom bore spacing or wall thickness?**
  A: Yes, we support full customization, including bore spacing, wall thickness, and length.

- **Q: Is this tube suitable for vacuum applications?**
  A: Yes, the material is gas-tight and suitable for vacuum or controlled atmosphere systems.

- **Q: What is the lead time for custom orders?**
  A: Standard sizes ship within 24h–5 days. Typically 3-5 weeks for samples, 4-6weeks for bulk production.
  (Detailed lead time depends on the complexity and specifications of the product)

- **Q: Do you offer technical drawing support?**
  A: Yes, our engineers can assist with CAD drawings and design optimization.



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 End Caps
- Ceramic Plugs
- Ceramic Brackets
- Thermocouple Wires

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 2-hole alumina tube solutions. Our team is dedicated to serving you with any questions or needs you may have.

Contact Information

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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 in touch with us

We promise to respond to your inquiry within 24 hours.

Ready to enhance your product performance with our high quality alumina ceramic 2-hole tube? Contact our team for personalized consultation, technical support, and competitive quotations.

Get A Quote