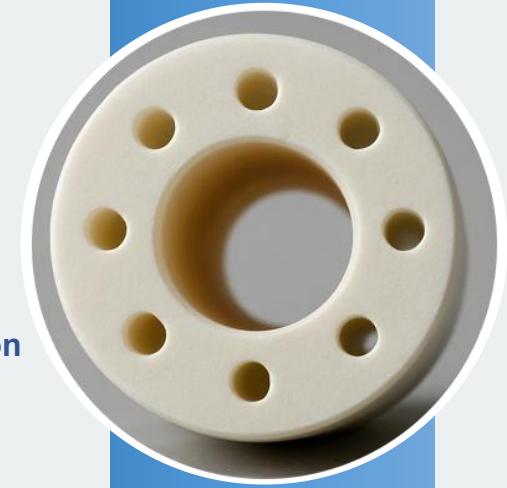
ADCERAX
ADVANCED CERAMICS

ALUMINA TUBES

—— Alumina Ceramic 9-hole Tube



Industrial Alumina Ceramic 9-Hole Tube for Gas Distribution and Thermal Insulation

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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

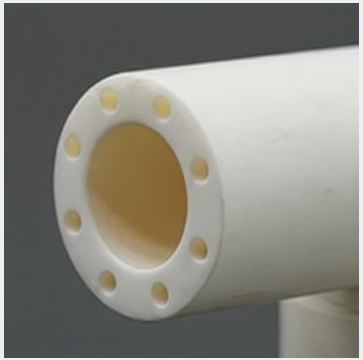
- ↑ 37% Lifespan: Industry Standards Verified by SGS Third-Party Testing in Extreme Thermal Shock Environments
- ↓ 22% Downtime: Reduce unplanned downtime with ceramic component life enhancement
- ⚡15 days fast response: From drawing confirmation to functional prototype delivery
- 🛡️12 months warranty: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

Our Certifications

What is Alumina Ceramic 9-Hole Tube?

A 9-hole alumina tube is a type of multi-bore ceramic tube made from high-purity aluminum oxide (Al2O3), featuring nine evenly spaced internal channels (holes) that run parallel along the length of the tube. It is designed for use in high-temperature, chemically resistant, and electrically insulating applications., such as:

- Gas distribution in PSA (Pressure Swing Adsorption) systems
- Multi-channel insulation for electric heating elements
- Thermocouple protection in high-temperature furnaces
- Sample flow control in laboratory analysis equipment
- Electrical isolation in vacuum or high-voltage systems



Alumina 9-Hole Tubes Process

Raw Material Preparation

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

Forming

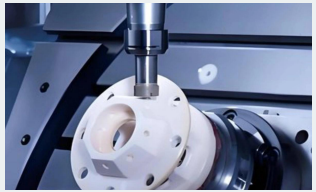
Extrusion: Alumina slurry is extruded through a die into continuous tubular shapes.
Isostatic Pressing: Powder is molded under high pressure to form high-density, uniform tubes.
Slip Casting: Liquid slurry is cast into a mold and solidified.

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.

Alumina Ceramic 9-Hole 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 ±0.2mm, ensuring precise installation and use.

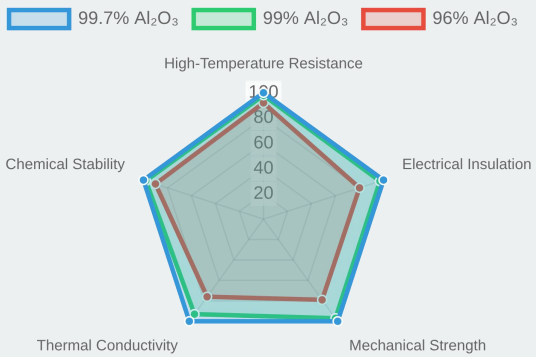
Chemical Stability

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.

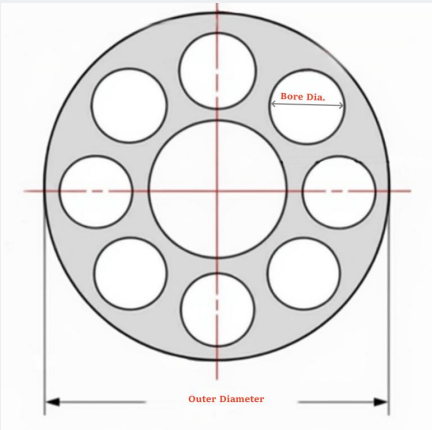
Performance Comparison of Alumina Ceramics with Different Purity



Alumina Ceramic 9-Hole Tube Specifications

ADCERAX's alumina ceramic 9-hole tubes 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-90001
Material	Al2O3(Alumina)
Purity Options	95% / 99% / 99.5% / 99.7%
Max. Working Temp.	1450° C (96%) - 1730° C (99.7%)
Bore Options	2/4/ 6 / 8 / 9 / 10 / more (Customizable Layout)
Standard Outer Diameter	1.5mm - 30mm
Standard Holes	1mm - 3mm (9 holes)
Standard Length	≤3000mm



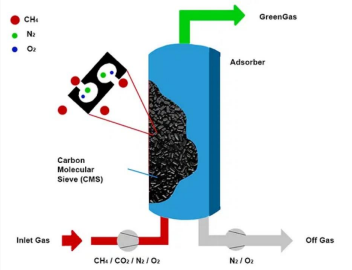
Alumina Ceramic 9-Hole Tube Size

Item No.	Outer Diameter (mm)	Bore Dia.(mm)	Length Available	Purity Available
TE-AT-90001	13	0.6	≤3000mm	95%,99%, 99.5%
TE-AT-90002	16	0.6		

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

Alumina Ceramic 9-Hole Tube Applications

PSA Gas Separation Application



Challenge

Customer needed uniform gas distribution with high chemical resistance in a pressure swing adsorption system for nitrogen generation.

Solution

9-hole alumina tube with precise hole diameter control (±0.1mm) and 99.5% purity for optimal chemical stability.

Result

30% improved flow uniformity and extended system life by 40% compared to previous single-bore solution.

Laboratory Equipment Application

Challenge

Research laboratory required precise sample channeling in high-temperature environment (1400° C) for material analysis.

Solution

High-purity 9-hole tube with tight dimensional tolerances and excellent thermal stability.

Result

Enhanced experimental repeatability with less than 0.5% variation across multiple test runs and extended equipment lifetime.

Electric Heating System Application

Challenge

Industrial furnace manufacturer needed multiple heating element protection in compact space with superior electrical insulation.

Solution

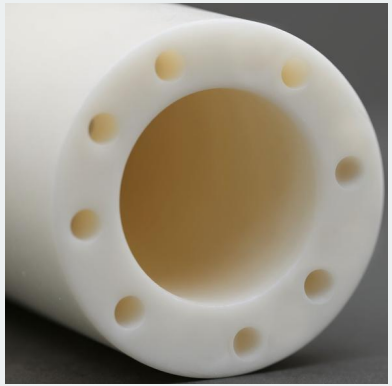
Multi-bore design allowing efficient element housing with dielectric strength >15 kV/mm and operating temperature up to 1600° C.

Result

Improved thermal efficiency by 25% and extended heating element life by up to 3x compared to conventional solutions.

Customization Services

4 bore alumina tube is designed for high-temperature applications requiring electrical insulation and gas or wire separation. It is available in standard sizes and can also be customized in terms of length, bore configuration, and end structure



Customizable Parameters

Outer Diameter
OD 3–220 mm(±0.05-5mm), contact us for other sizes.

Inner Bore Diameter
0.25mm to 10mm (±0.05-2mm), contact us for other sizes

Length
Up to 3000mm, meeting various application needs.

Bore Count
Standard 9-bore, customizable to 2/4/6/8/10/more bores or other configurations.

End Detail
Open, closed and other end treatments.

Cross-Sectional Shape
Round, square, rectangular, triangle or custom cavity

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

How To Use

- Insert thermocouple wires or gas lines into each bore.
- Ensure proper sealing at both ends using ceramic caps or high-temperature sealants.
- Avoid mechanical stress during installation to prevent cracking.

Maintenance & Care

- Store in a dry, vibration-free environment.
- Avoid stacking heavy items on top of the tubes.

Cleaning

- Clean with isopropyl alcohol or deionized water.
- Avoid using metal brushes or abrasive tools.

Common Mistakes

- Over-tightening clamps may cause microcracks.
- Rapid thermal shock (>300°C/min) may lead to fracture.
- Using in reducing atmospheres may degrade alumina over time.

Don'ts

- Expose to sudden temperature changes
- Apply uneven mechanical stress
- Use with incompatible chemicals
- Exceed maximum temperature rating

Do's

- Inspect for cracks before each use
- Use proper sealing materials compatible with alumina
- Allow gradual heating and cooling cycles
- Store in clean, dry environment

Technical Support

Technical Inquiry: info@adcerax.com
Service Hotline: +86-0731-84428843
Whatsapp: +86-19311583352

Alumina Ceramic 9-hole Tube FAQ

- **Q: What is the maximum operating temperature?**
  A: Up to 1600° C in air or inert atmosphere.
- **Q: Can I request a different number of holes?**
  A: Yes, we support custom multi-bore configurations (3, 5, 7, 9, etc.)..
- **Q: What is the typical lead time for custom orders?**
  A:Standard: 3–5 days; Custom: 10–15 days depending on complexity.
- **Q: Can I use this tube for corrosive gas flow?**
  A: Yes, alumina is resistant to most acids and alkalis at high temperatures.
- **Q: Is there a risk of thermal shock?**
  A: Alumina has moderate thermal shock resistance. Preheat gradually to avoid cracking.
- **Q: What is the typical lifespan of the tube?**
  A: Depends on usage, but typically >1000 hours under standard conditions.

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

Related Products

- Ceramic End Caps
- Ceramic Heating Rods
- Ceramic Insulators
- Thermocouple Assemblies

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 ceramic 9-hole tube solutions. Our team is dedicated to serving you with any questions or needs you may have.

Contact Information

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Building 108, Industrial Park, Liling city Hunan Province, China

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 alumina ceramic 9-hole tube? Contact our team for personalized consultation, technical support, and competitive quotations.

Get A Quote