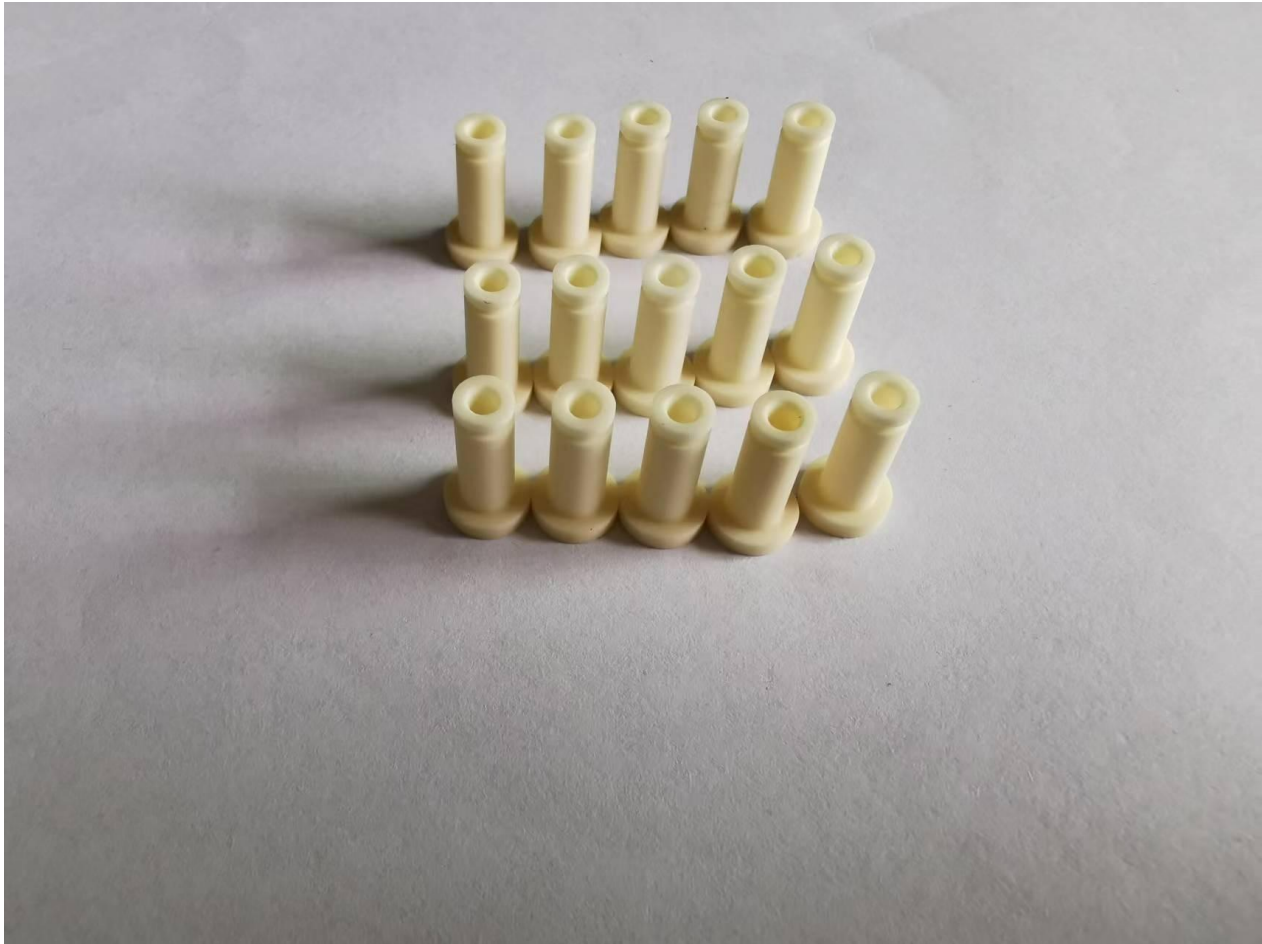


Alumina Ceramic Insulator Parts

For industrial heaters and power equipment

Round disc references and drawing-defined insulation components for engineering selection and quotation.



Flanged alumina sleeve forms. The photograph shows visible bores and shoulders; dimensions, grade and electrical acceptance are defined for the ordered part.

8 disc references | 6 material grades | Drawing-based RFQ

ADCERAX is a China-based advanced ceramics manufacturer for custom precision ceramic components.

ADC-CAT-ALI-001 | Revision 01 | HUNAN ATCERA CO.,LTD

01 CHOOSE THE PROCUREMENT ROUTE

Start with the insulation task

Use a disc reference for a known round part, or start with a drawing, sketch or clear photographs of the existing component. Identify the conductor and the surrounding metalwork before selecting the ceramic.



Representative forms: double-hole wire guides and cylindrical sleeves or rings. These are family-level photographs, not AT-AM1 item photographs or evidence of equipment compatibility.

Your part or task	Define first	Go to
Round disc / flat spacer	AT-AM1 reference, D and T, material requirement	3
Straight sleeve / bushing	D, d, L and conductor-to-housing fit	4
Double-hole wire guide	Cross-section, hole pattern and wire size	5
Standoff / terminal or heater support	Drawing, fastening, load path and live conductor position	4, 8
Material selection	One grade, temperature and electrical test conditions	6-7
Inspection and purchasing	Acceptance, identification, packing and quantity	9-10

Define the supply unit

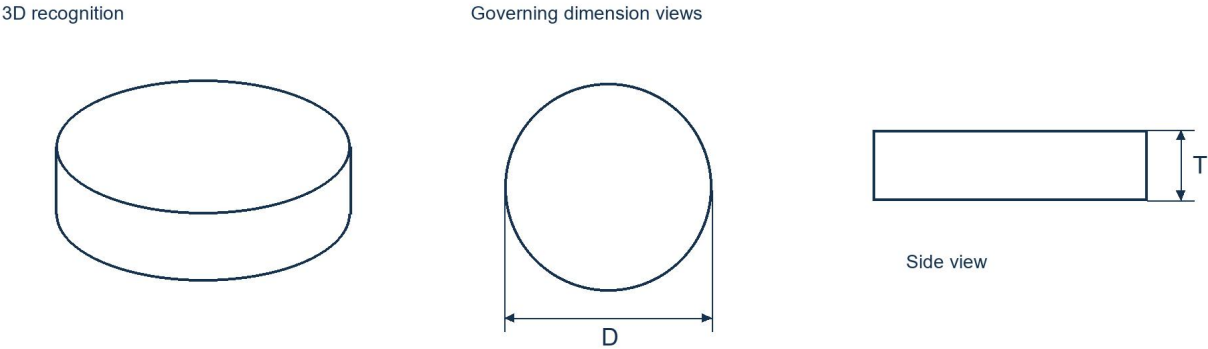
This catalog concerns ceramic parts. State separately if you need metal inserts, terminals, a heater assembly or a hermetic joint. A ceramic body and a complete electrically qualified assembly have different acceptance requirements.

Disc references are listed on page 3. Other geometries are defined by the drawing and quotation. Availability, MOQ, price and lead time are confirmed in the quotation.

02 ROUND DISC REFERENCES

Eight round alumina disc options

Use the item number to identify the published disc reference. D is diameter and T is thickness. Dimensions below are in millimetres; the listed purity range applies to these discs only.



Dimension key | Not to scale | The approved drawing governs

Round disc dimension key. Left: 3D form recognition. Right: end view for D and side view for T. Not to scale; agreed drawing and quotation govern acceptance.

Item number	D diameter (mm)	T thickness (mm)	Listed purity
AT-AM1-001	100	20	96%-99%
AT-AM1-002	90	5.5	96%-99%
AT-AM1-003	80	14.5	96%-99%
AT-AM1-004	70	7.5	96%-99%
AT-AM1-005	60	4.5	96%-99%
AT-AM1-006	50	6	96%-99%
AT-AM1-007	40	5	96%-99%
AT-AM1-008	30	4	96%-99%

Published catalog reference dimensions and purity range; dimensions retain the original source precision. These values do not specify tolerances or a guaranteed finished-part voltage rating. Stock is not implied.

Complete the order definition

Specify the required material within the listed 96%-99% range, dimensional tolerances, flatness and parallelism, edge condition, surface requirements and quantity. Define conductor location, clamping faces and the intended insulation path.

For a different disc or ring

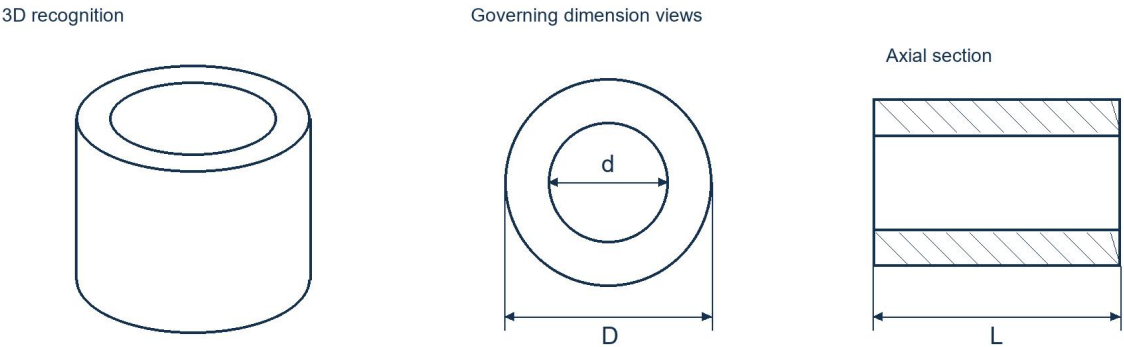
Send a dimensioned drawing for a different diameter, thickness, central hole or feature. Keep the new geometry separate from the AT-AM1 reference. Custom grade choices on pages 6-7 do not extend the purity range of the eight listed items.

RFQ shortcut: AT-AM1 item + required material + quantity + application + destination. Add deviations and acceptance needs; see page 10.

03 DRAWING DEFINITION

Sleeves and mounting interfaces

For a straight cylindrical sleeve, define both the conductor fit and the housing fit. The figure describes a plain sleeve only; flanges, shoulders, slots and fastening details require their own dimensioned drawing.



Dimension key | Not to scale | The approved drawing governs

Straight sleeve dimension key. Left: 3D recognition. Right: end view for D and d, axial section for L. Not to scale; no numerical dimensions are implied.

Drawing field	Required definition
D outer diameter (mm)	Nominal value, tolerance and housing or mounting-hole fit.
d bore diameter (mm)	Nominal value, tolerance and conductor or stud clearance.
L overall length (mm)	Nominal value, tolerance and axial seating or projection.
Wall and alignment	Minimum wall requirement, coaxiality, straightness and end-face relationship; identify datums.
Surface and edges	Functional faces, roughness and measurement basis; chamfers, radii and permissible edge defects.
Added interfaces	For a flange: flange diameter and thickness, shoulder position and seating face. Locate every hole, recess, slot or thread on the drawing.

Standoffs and terminal supports

Submit the complete profile and mounting arrangement for posts, support blocks and shaped heater supports. Include mounting datums, conductor positions, hole or slot pattern, minimum wall or bridge requirements, fasteners and assembly direction. Request thread or insert details explicitly.

Check the constrained assembly

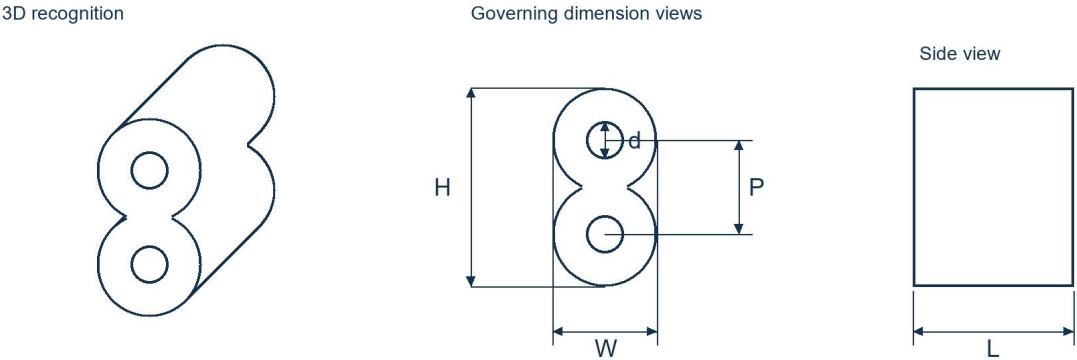
Provide mating-metal dimensions and tolerances, ceramic and metal temperature profiles, fastening or clamping method, and mechanical loading. Define thermal-expansion clearance and the acceptance state: free part or installed assembly.

Drawing inputs are requirements for quotation review, not published manufacturing limits. Material grade, feasibility, tolerances and acceptance are agreed for the specific part.

04 WIRE GUIDANCE

Double-hole and multi-bore parts

Identify the cross-section as well as the hole count. The double-lobed illustration below follows the visible family form; it does not establish the dimensions or internal profile of any photographed part.



Dimension key | Not to scale | The approved drawing governs

Double-lobed two-hole dimension key. Left: 3D recognition. Right: end view for W, H, d and P; side view for L. Equal bores are illustrated only; use a drawing for unequal bores. Not to scale.

Symbol or input	Define on the drawing
W and H (mm)	Overall cross-section width and height, profile and tolerances.
L (mm)	Overall length and tolerance; end condition and orientation.
d (mm)	Each bore diameter and tolerance; distinguish unequal bores by individual identifiers.
P (mm)	Centre-to-centre bore spacing and position relative to the external profile.
Wall and bridge	Minimum external wall and ceramic bridge between bores; acceptance at the critical section.
Wire and assembly	Conductor diameter, clearance, wire count, threading direction, bends, vibration and whether parts are strung in a series.

For another hole pattern

Provide an end-section drawing showing every bore, slot and conductor position. Add overall length, datum system, minimum wall and bridge requirements, and tolerances. A circular multi-bore tube and a double-lobed bead require different profile definitions.

Qualify the insulation route

Describe conductor-to-conductor and conductor-to-ground voltage, frequency and waveform; ceramic temperature, atmosphere and contamination; and any post-assembly electrical or thermal-cycle acceptance. Bore count alone does not establish an electrical rating.

All dimensions on this page are RFQ inputs. The approved drawing controls the actual profile; grade, size, tolerances and supply are quotation-specific.

05 MATERIAL SELECTION

Electrical properties by grade

Select one material grade for each part. The following are material-selection data from ADCERAX Alumina Ceramic Grade Comparison Rev16. They are not finished-part working-voltage ratings.

Property / basis	AD-ALU-999	AD-ALU-997	AD-ALU-995	AD-ALU-990	AD-ALU-960	AD-ALU-950
Nominal Al ₂ O ₃ (wt%)	99.90	99.70	99.50	99.00	96	95
IEC composition class	C799	C799	C799	C795	C795	C795
Dielectric strength (kV/mm) [1]	10	10	10	10	8.3 AC	10
Relative permittivity [2]	9.8	9.8	9.7	9.6	9.0	9.4
Dissipation factor tan delta [3]	<0.0001	<0.0001	<0.0001	0.0006	0.0002	0.0004
Volume resistivity (Ω·cm) [4]	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	10 ¹⁴	>10 ¹²

[1] Typical coupon data: 5 mm specimens for 999/997/995/990/950; AD-ALU-960 uses AC and 6.35 mm thickness. Do not multiply these values by part wall thickness to assign a finished-part voltage rating.

[2] Typical, 1 MHz: 25 °C for 999/997/995/990/950; room temperature for 960. [3] 1 MHz: 25 °C except 960 at 20 °C. [4] 20 °C; 960 is typical. Inequalities retain the source bound; acceptance limits require agreement. IEC class is a composition grouping, not a product conformity certificate.

Define electrical acceptance at the correct level

Level	Provide or agree
Material selection	Required grade; temperature and frequency relevant to resistivity, permittivity or loss.
Finished ceramic	Insulation path, critical thickness, surface and edge condition; electrodes and test configuration if electrical acceptance is required.
Installed assembly	Working, peak and test voltage; AC/DC, frequency, waveform and duration; creepage, clearance, humidity, contamination and pressure.
Partial discharge or withstand	Electrode geometry, test medium, ramp, dwell, leakage or discharge criterion and the assembly state.

Material options for drawing-defined parts are separate from the 96%-99% listed disc range. Grade choice does not establish stock, compatibility or an assembly certification.

06 MATERIAL SELECTION

Thermal and mechanical comparison

Compare the actual operating conditions with the chosen grade and geometry. Typical material values support selection; drawing tolerances and purchase acceptance are defined separately.

Property / basis	AD-ALU-999	AD-ALU-997	AD-ALU-995	AD-ALU-990	AD-ALU-960	AD-ALU-950
Bulk density (g/cm ³), typical	3.94	3.94	3.90-3.92	3.80-3.91	3.70	3.75
Water absorption (%) [1]	<=0.01	<=0.05	<=0.10	<=0.10	~0	<=0.20
Flexural strength (MPa), 20 °C typical	315-340	330	320-350	300-320	300	280
Compressive strength (MPa), 20 °C typical	2558-2900	2500	2400	2400	2000	2000
Young modulus (GPa), typical	359-375	370	365	355	275	340
Thermal conductivity (W/(m·K)) [2]	35-42	35-40	30-38	24	25	18-25
Mean CTE (10 ⁻⁶ /K) [3]	7.6	7.6	7.6	7.2	8.2	7.6
Service temperature guide (°C) [4]	1750	1700	1650	1600	1600	1400

[1] Selection bounds except AD-ALU-960: approximately zero, typical and rounded; not proof of hermeticity. [2] Typical at 25 °C except AD-ALU-960 at 20 °C. [3] Mean over 25-800 °C except 960 over 25-1000 °C, as stated in Rev16; request the relevant expansion curve for joint design. [4] Application-dependent selection guide; 960 is maximum in air. These are not continuous-duty, loaded-life or finished-assembly temperature ratings.

For heater and terminal assemblies

Give the ceramic, conductor, terminal and surrounding-metal temperatures separately, including peaks, gradients, dwell time and heating or cooling cycles. Add atmosphere, pressure or vacuum, contact conditions and mechanical restraint.

For mounting and repeated loading

Define clamping or fastening, unsupported span, eccentric loading, vibration and shock. Material strength does not establish an allowable tightening torque, clamp force or service life for the ordered geometry.

Source: ADCERAX Alumina Ceramic Grade Comparison Rev16, pages 1-3. Do not combine values from different grades into a single material specification.

07 APPLICATION REVIEW

Specify the operating assembly

Choose the part geometry from the insulation task, then define the operating and test conditions. The items below are review inputs rather than prequalified equipment ratings.

Application route	Information that changes selection
Industrial heater or furnace terminal	Ceramic and wire temperature; hot-zone location; atmosphere; conductor size and current; support and thermal-expansion clearance; start/stop cycle.
Power equipment or busbar support	AC/DC, working and test voltage, frequency and waveform; conductor-to-ground layout; creepage and clearance; contamination, humidity and altitude.
Sensor or instrument wire guide	Wire count and diameter; bore pattern and clearance; bending or vibration; sheath geometry; temperature gradient and threading arrangement.
Replacement or MRO component	Drawing or several clear views of the old part; measured interfaces; equipment and revision; failure location; operating changes and replacement quantity.

Keep the electrical paths separate

Identify solid insulation thickness through the ceramic, creepage along its surface, and clearance through air or the surrounding medium. Show the live conductor, grounded metal and any joints on the assembly drawing. These paths cannot be defined by alumina purity alone.

Review the joint and the ceramic together

Mark seating and locating surfaces. Provide mating-part tolerance stacks, contact bands, fastener arrangement and installation sequence. Define tightening or preload through the assembly design and qualification, including the effects of temperature and misalignment.

Make a replacement inquiry identifiable

A clear old-part photograph or sketch can start the discussion. Include a scale and all visible faces, identify whether the part is broken or worn, and separate measured dimensions from estimates. Equipment names and OEM references help identification; fit requires a matching drawing or validation.

Typical review outcomes: quote against a defined specification; request a small set of missing dimensions or conditions; or plan sample and assembly qualification before repeat supply.

08 ACCEPTANCE AND SUPPLY

Agree what will be inspected and delivered

The following controls are order-definition inputs. Inspection scope, test documents, packing and commercial commitments must be stated in the quotation or approved purchase specification.

Control	Definition for this insulation part
Part and revision	Item or drawing number, revision, ceramic-only or assembly supply, units and configuration; one material grade per part.
Dimensional acceptance	D, d, L or D/T as applicable; complete profile and hole pattern; datums, form/position tolerances and free or mounted measurement state.
Surface and edge acceptance	Functional faces and roughness basis; bore mouths, slot roots and flange shoulders; crack, chip, scratch and cleanliness limits by zone.
Material evidence	Required grade identity, composition or property report; method, specimen condition, sampling and acceptance limits.
Electrical acceptance	Part or assembly test basis, electrodes, voltage waveform, ramp, dwell, humidity and temperature; leakage or discharge criterion.
Thermal or mechanical qualification	Actual geometry and restraint, heating/cooling cycle and atmosphere; required checks after cycling, loading or vibration.
Identification and traceability	Part/drawing revision, grade and lot information required on labels and reports; mark location that preserves insulation and fit.
Packing	Individual separation or matched-set arrangement; protection for bore mouths, edges and flanges; cleanliness, inner-pack quantity and handling labels.
Repeat order and supply	Approved sample or specification reference, permitted changes, quantity by part, destination, target schedule and required documents.

Separate material reports from assembly evidence

A material report does not establish finished-part withstand, partial discharge, hermeticity or heater performance. Request each necessary test at the level where the function is defined, with its method, sampling and acceptance limit.

Do not derive a finished-part tolerance, electrical rating, leak rate, torque limit or service life from the material-selection tables. Confirm the agreed specification before production or repeat order.

09 ENGINEERING RFQ

Send the reference or drawing

Start with the information you have. An item number, drawing, sketch or clear old-part photograph plus quantity is enough to open a discussion; add the fields below where they affect selection and acceptance.

Path A Existing disc reference

Cite ADC-CAT-ALI-001, Rev 01 and the AT-AM1 item. State material within the listed 96%-99% range, quantity, required tolerances or deviations, application, inspection or report needs, destination and target schedule.

Path B New or drawing-defined component

Attach the drawing or model and revision, or old-part photographs with measured dimensions. State form, grade, all dimensions and units, critical tolerances, bore or hole pattern, surface and edge requirements, and mating or mounting details.

Include where relevant	Your technical brief
Electrical duty	AC/DC; working, peak and test voltage; frequency/waveform; conductor layout; creepage, clearance and electrical acceptance.
Thermal and mechanical duty	Ceramic and conductor temperatures, atmosphere, cycles, restraint, fastening, load and vibration.
Acceptance and supply	Inspection methods and documents, sample/repeat quantity, packing or set sequence, traceability, destination and schedule.

Send your technical brief for engineering review and quotation

info@adcerax.com

adcerax.com/product/alumina-ceramic-insulator-parts/

Online inquiry adcerax.com/contact/

HUNAN ATCERA CO.,LTD | ADCERAX

ADCERAX reviews the supplied requirements and identifies the technical and commercial basis for quotation. Final specification, feasibility, acceptance, availability and delivery are confirmed for the specific order.