ADCERAX
ADVANCED CERAMICS

ENGINEERING PRODUCT CATALOG

Custom Machinable Glass Ceramic Parts

AD-MGC drawing-based components for insulation and equipment fixtures



Representative machined block forms with visible bores. Photograph supports form recognition; dimensions and acceptance are drawing-defined.

ADCERAX manufactures custom precision ceramic components. This catalog covers AD-MGC mica glass-ceramic parts machined from blanks with conventional tools and no post-machining firing.

Product reference AT-KJG-TC9001 | Custom by drawing

Define the part and service conditions first. Material selection values do not establish finished-part performance or current stock.

adcerax.com/product/machinable-glass-ceramic-parts/

01 / PRODUCT ROUTE

Choose the engineering route

AD-MGC supports drawing-based part definitions. Start with the function and delivery state: a machining blank, a finished component or an assembly requiring separate qualification.

Your part or task	Information that guides review	Go to
Block, plate or fixture	Envelope, datums, bores, slots, interfaces and critical surfaces	4
Ring, spacer or round component	Outer and inner diameters, thickness and feature pattern	5
Electrical or vacuum component	Voltage or vacuum conditions plus component acceptance	6
Heated fixture or thermal support	Temperature cycle, load, support and adjacent materials	6
New design or repeat order	Drawing revision, acceptance, quantity and delivery needs	7–8

Representative forms



Curved and cutout forms



Featured ring



Round components

Images show representative visible geometry only. They do not establish material properties, a standard size series, vacuum qualification or availability.

Order definition

AT-KJG-TC9001 identifies the custom-parts inquiry route. There is no fixed diameter or thickness attached to this reference. Use a dimensioned drawing for production; a photograph or sample description can start the discussion.

AD-MGC material reference

White, dense mica glass-ceramic composite. The values below describe the material body and preserve the basis stated in the AD-MGC technical data sheet Rev 05.

Property	Reference value	Basis and interpretation
Bulk density	2.60 g/cm³	Typical material value
Water absorption	0.00%	Reported resolution; not proof of zero porosity or hermeticity
Rockwell hardness	40	45N scale; typical
Flexural strength	108 MPa	20°C; typical
Compressive strength	488 MPa	20°C; typical; not a bending allowable
Young’s modulus	65 GPa	25°C; typical
Thermal conductivity	1.71 W/(m·K)	25°C; one temperature point
Maximum-use selection value	800°C	Application-qualified; see conditions below
Volume resistivity	>10^{16} Ω·cm	20°C; material value, not component withstand

Use the conditions with the values

The 800°C selection value requires confirmation of load, support, dwell, heating and cooling rates, atmosphere and retained dimensions. It is not a universal continuous-duty or unloaded-peak guarantee.

Use a measured expansion curve over the actual design interval for thermal fit. The room-temperature resistivity does not define high-temperature insulation, dielectric strength or an assembly voltage rating.

Separate material reference from part acceptance

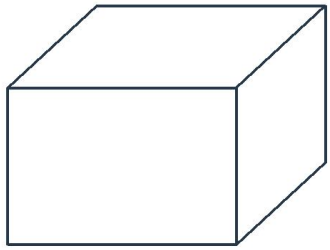
Surface finish, edges and machining damage affect component strength. Specify the test method, specimen state, sampling and acceptance limits in the purchase specification. Material data alone do not qualify a machined, sealed or energized assembly.

Material basis: ADCERAX Machinable Glass Ceramic Technical Data, AD-MGC, Rev 05, pages 1–4. No trade-name equivalence or interchangeability is implied.

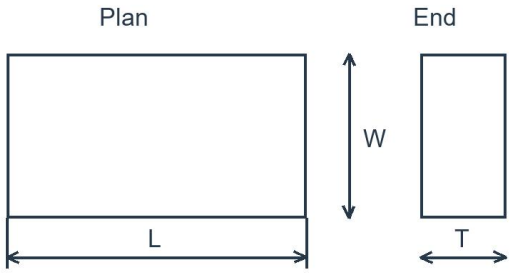
Block and plate definitions

Use the envelope key to define overall size. It is not a manufacturing drawing or a complete model of the photographed custom parts; all bores, slots, pockets and interfaces need separate drawing details.

3D envelope reference



Governing envelope views



Not to scale | Envelope key only | Features and tolerances require a part drawing

Dimension or feature	Required drawing input
L / W / T	Overall length / width / thickness; state units and tolerances
Datums and mating faces	Identify assembly datums; specify flatness, parallelism and perpendicularity as needed
Bores and hole patterns	Diameter, depth, through or blind, datum locations and positional tolerance
Slots, pockets and steps	Width, depth, position, corner treatment and remaining wall thickness
Threads	Thread designation, pitch, effective depth and entry/exit treatment
Edges and weak regions	Chamfer or radius; minimum walls and hole-edge distances; allowable chipping
Functional surfaces	Ra/Rz, texture direction, cleanliness and measurement method

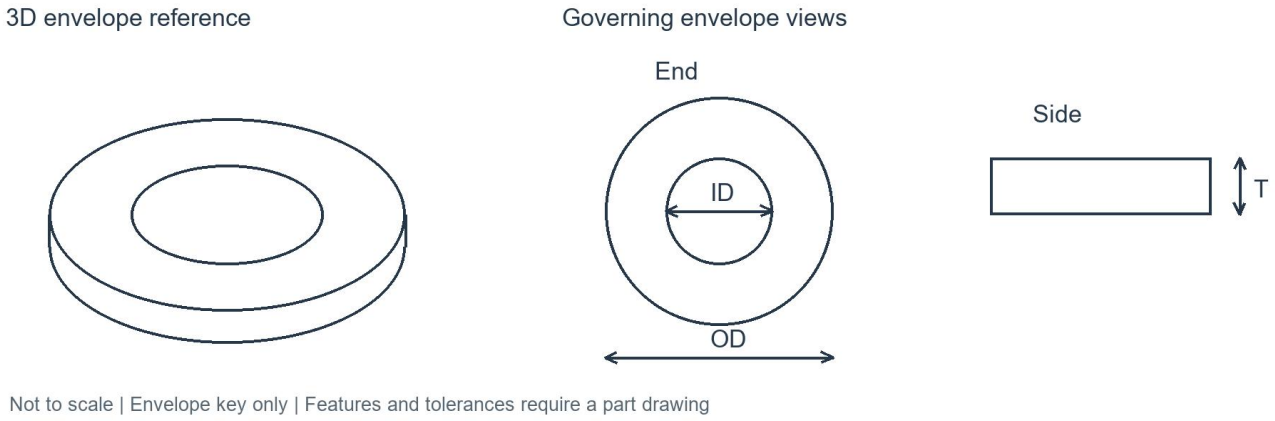
Design for the machined state

Conventional-tool machinability does not guarantee every geometry. Thin walls, deep bores, fine threads, sharp corners and clamp areas require individual review for support, breakout and stress concentration.

For a blank, define machining allowance and delivery state. For a finished part, identify the final dimensions, critical interfaces and acceptance basis. No general size range or tolerance is implied by this envelope key.

Round and annular definitions

For a ring or spacer, define the governing envelope and then add the actual feature pattern. Recesses, notches, radial holes and stepped profiles are controlled by the customer drawing, not by this simplified envelope.



Not to scale | Envelope key only | Features and tolerances require a part drawing

Dimension or feature	Required drawing input
OD	Outer diameter with tolerance and any roundness requirement
ID	Inner diameter with tolerance; omit only for a solid part
T	Axial thickness and tolerance; identify reference faces
Concentric relationships	Datums and coaxiality or runout requirement where functional
Radial or axial features	Hole, groove, slot, recess or notch geometry; angular positions and depths
Stepped or tapered regions	Section views with every diameter, axial level and transition defined
Edges and assembly	Edge treatment, contact surfaces, fastener arrangement and permitted chipping

Define installation loads

Identify the contact and support areas, assembly clearances and any bending or tensile load. Avoid using material compressive strength as an allowable for a ring with notches, threads or concentrated contact loads.

OD, ID and T are RFQ inputs, not catalog sizes. Dimensional limits, surface requirements and manufacturability are confirmed for the actual drawing and quoted specification.

05 / SERVICE CONDITIONS

Qualify the finished component

Select the review fields that apply to the part. Electrical insulation, thermal service and vacuum performance each depend on the component geometry and its actual operating conditions.

Thermal fixtures and heated supports

Provide ambient, steady and peak temperatures; dwell times; cycle count; ramp and cooling rates; load; support; atmosphere; and permitted dimensional change. Use expansion curves for AD-MGC and the adjoining metal, glass, adhesive or ceramic over the actual temperature interval.

Electrical standoffs and insulating mounts

Provide AC/DC working and peak voltage, frequency, waveform, temperature, humidity and pressure. Define minimum walls, creepage, clearance, electrode geometry and surface condition. Specify withstand voltage, ramp, duration, leakage and failure criteria for the actual component.

Vacuum fixtures and sealed assemblies

Distinguish an individual ceramic component from a sealed assembly. Define cleaning agents, drying, bake temperature and time, base pressure, exposed area and outgassing method. For helium leak acceptance, define the test object, pressure differential, dwell, fixture background and calibrated units.

Chemical contact and cleaning

Identify the medium, concentration, temperature, exposure time and surface state. Qualify aggressive media such as HF and alkali with an agreed coupon exposure and relevant post-cleaning checks. A general acid-resistance or cleaning-compatibility claim is not an acceptance basis.

When to reconsider the design brief

If the primary need is heat removal, impact or wear duty, or a specified proprietary material, state it at inquiry. AD-MGC selection should follow the actual functional requirement. A familiar trade name or similar appearance does not establish equivalence or direct substitution.

Application routes above are review paths, not evidence of a completed installation or a qualified duty rating.

Make the order repeatable

Define what will be measured and accepted before ordering. The following items are specification inputs; test availability, sampling and documentation must be agreed for the particular order.

Control	Include in the order specification
Identity and revision	AD-MGC; blank or finished part; part number and drawing revision; agreed deviations
Dimensions and geometry	Critical dimensions, datums, tolerances, measuring support and inspection method
AD-MGC machined features	Define permitted chipping at hole exits, thin walls and thread edges by drawing region; control machining damage
Surface and edges	Ra/Rz where functional; allowable cracks, scratches and contamination by region
Material verification	Requested properties, specimen condition, method, sample count and acceptance limits
Component qualification	Applicable thermal-cycle, electrical, chemical, outgassing or leak tests and criteria
Records and traceability	Requested certificate or inspection report, lot linkage and identification method
Packing and matched sets	Separate fragile features; specify part separation, cleanliness, labels and set sequence
Repeat supply	Retain drawing revision, inspection basis, approved deviations and packing requirements

Agree methods and reporting

For material checks, agree methods suitable for the property and specimen. Retain temperature, specimen geometry, preparation, instrument basis, sample size and units in the report. A list of recommended methods does not mean every supplied part has undergone every test.

Protect brittle features through handling

Specify permitted contact regions, support, edge protection and separation between parts. Where cleanliness matters, include the packaging environment and unpacking requirements. Identify matched components without disclosing customer project information in public images.

Commercial definition

Quantity, repeat demand, MOQ, price, lead time, inspection documents and delivery terms are quotation-controlled. This catalog makes no stock or fixed lead-time commitment.

07 / REQUEST FOR QUOTATION

Send the drawing for review

Start with the information you already have. Send the part use, blank or finished state, drawing or photographs, quantity, destination and target schedule. Mark unknowns for follow-up.

Existing part or repeat order

Cite AT-KJG-TC9001 and this catalog revision, then include your own part number, drawing revision, previous order reference if relevant, quantity and any change in dimensions, service or acceptance. The catalog reference alone does not define a repeat-order specification.

New drawing-defined part

Your technical brief	Information to send
Material and delivery state	AD-MGC; blank, finished part or assembly scope; any required material restriction
Geometry	Drawing/model revision and units; envelope; datums; bores, slots, threads and critical tolerances
Surfaces and edges	Ra/Rz, functional faces, edge treatment, allowed defects and cleanliness
Service	Applicable temperature cycle, load, support, atmosphere, electrical and vacuum conditions
Acceptance	Measurement and test requirements, sampling, reports and acceptance limits
Supply	Quantity and repeat demand; packing/matched sets; destination and target schedule

One next step

Email your drawing or technical brief for engineering review and quotation. Final feasibility, specification, acceptance, price and delivery are agreed for the actual order.

info@adcerax.com

Product page and inquiry route

HUNAN ATCERA CO.,LTD
China-based advanced ceramics manufacturer for custom precision ceramic components.
Telephone +86-0731-84428843

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