

Alumina Ceramic Dispersion Rotors

Selection and replacement for sand and bead mills

Compare paired rotor dimensions, define the working form and shaft interface, and prepare a drawing-based quotation.



Product-form image: projecting teeth and longitudinal openings. Representative forms; no photograph-to-item size mapping is implied.

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

HUNAN ATCERA CO.,LTD

adcerax.com | [Product information](#)

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Identify the rotor and supply scope

For an OEM design or a worn-part replacement, identify the ceramic body and the complete installed assembly separately.



Product photograph: pin-style rotor with a visible metallic hub insert. This view identifies visible form only; it does not establish grade, dimensions, compatibility or an included assembly scope.

Route	Start with	Continue
Existing catalog reference	AT-SM-Z001 to Z008 and its paired dimensions; attach the mill or part drawing.	Sizes 3 Grade 4
Drawing-defined rotor	Drawing/model or existing-part views; define teeth, pins, slots, bore and hub.	Geometry 5 Duty 6
Acceptance and reorder	Inspection object, ordered components, packaging and drawing revision.	Supply 7 RFQ 8

Recognise the working configuration

Visible form	Selection boundary
Toothed and slotted	Projecting teeth or longitudinal openings are working features. Counts, roots and working profiles follow the drawing.
Pin-style with hub insert	Pins and a metallic centre insert are visible in the photograph. Define insert material, wetted contact and shaft engagement.
Other drawing-defined forms	Disc, hub and other configurations require their own geometry definition; the product name alone does not define them.

Supply definition: ceramic body, body with specified insert, or specified assembly. Shafts, spacers, fasteners, separators, chamber parts and grinding media are included only when identified in the quotation.

The same outer diameter or mill model does not establish interchangeability. Confirm bore/shaft features, installed envelope, rotation, axial position, neighbouring clearances and assembly order.

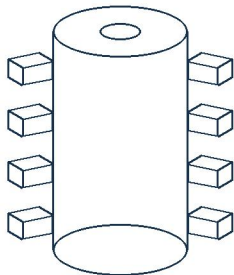
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Paired rotor dimensions

Choose one complete row. The published minimum and maximum values do not define arbitrary OD, ID and height combinations.

3D RECOGNITION

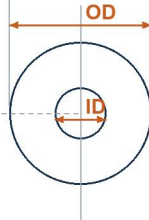
Representative toothed form



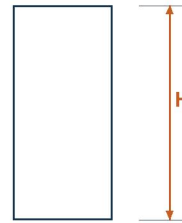
Tooth and bore details are drawing-defined

GOVERNING ENVELOPE VIEWS

END ENVELOPE



SIDE ENVELOPE



OD Listed outer diameter
ID Listed inner diameter

H Listed height
NOT TO SCALE

Envelope notation only. Working features omitted on the right; OD/ID measurement features follow the item drawing.

Dimension envelope key - not to scale. Representative form only; each selected item drawing defines the working profile, diameter datum and bore or insert interpretation.

Item number	OD (mm)	ID (mm)	H (mm)	Listed Al ₂ O ₃
AT-SM-Z001	45	28	400	95-99%
AT-SM-Z002	60	40	400	95-99%
AT-SM-Z003	84	64	400	95-99%
AT-SM-Z004	95	75	500	95-99%
AT-SM-Z005	125	100	630	95-99%
AT-SM-Z006	155	130	700	95-99%
AT-SM-Z007	160	140	750	95-99%
AT-SM-Z008	180	150	800	95-99%

Dimensions are paired catalog references. OD = listed outer diameter; ID = listed inner diameter; H = listed height. Units remain millimetres. Grade, final tolerances, working geometry and supplied components are defined in the selected item drawing and quotation.

The 95-99% entry is the published material-selection range, not a guaranteed assay or a finished-part property rating. Select one exact material grade for the order.

Tolerance and order control

AT-SM-Z001 has a published outer-diameter tolerance of plus or minus 0.05 mm. This statement applies to that OD field only. Other critical tolerances, runout and surface requirements follow the agreed item drawing.

Current stock, quantity, price, lead time and repeat-supply terms are quotation-controlled. A catalog reference does not establish inventory or compatibility.

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Select the alumina grade

Map the ordered ceramic component to an exact grade. Material properties support selection; they do not determine allowable rotor speed, torque, wear life or contamination.

Property and basis	99.9%	99.7%	99.5%	99%	96%	95%
Al ₂ O ₃ , wt%; nominal	99.90	99.70	99.50	99.00	96	95
Density, g/cm ³ ; typical	3.94	3.94	3.90-3.92	3.80-3.91	3.70	3.75
Flexural strength, MPa; 20°C; typical	315-340	330	320-350	300-320	300	280
Young's modulus, GPa; typical	359-375	370	365	355	275 at 20°C	340
Thermal conductivity, W/(m·K); typical	35-42 at 25°C	35-40 at 25°C	30-38 at 25°C	24 at 25°C	25 at 20°C	18-25 at 25°C
Mean CTE, 10 ⁻⁶ /K; interval	7.6 25-800°C	7.6 25-800°C	7.6 25-800°C	7.2 25-800°C	8.2 25-1000°C	7.6 25-800°C

Material references: dense sintered alumina, company grade-comparison data Rev 16. Values are nominal composition or typical material references under the stated conditions. CTE = mean coefficient of thermal expansion. These are not acceptance limits or finished-rotor guarantees.

Keep material selection separate from a rotor rating

Decision	What the selected duty must define
Slurry chemistry	Liquid and additives, pH, temperature, contact time and cleaning chemistry.
Wear and contamination	Bead grade/size, abrasiveness, rotor contact zones, sensitive elements and measured limits. Alumina wear can introduce material-derived species.
Thermal fit	Shaft/insert materials, differential expansion, contact geometry, temperature gradients and start/stop cycles.
Dynamic duty	Actual geometry, defects, connection, assembled state, speed, torque, vibration and qualification basis.

The listed models show 95-99% Al₂O₃. Higher nominal-purity grades above 99% are material references for drawing-based evaluation; this table does not add them as confirmed options for every listed item.

Material service-temperature guides, electrical properties and tube straightness are outside this rotor catalog's selection table. Set actual rotor temperature and dynamic acceptance for the mill, assembly and formulation.

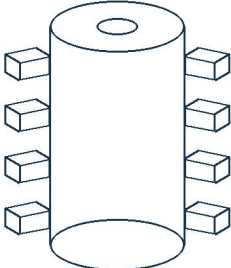
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Define the geometry and shaft interface

For a new or replacement part, use the complete drawing and assembly definition. The envelope dimensions alone do not define a manufacturable rotor.

3D RECOGNITION

Representative toothed form



Tooth and bore details are drawing-defined

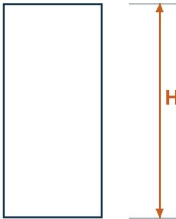
GOVERNING ENVELOPE VIEWS

END ENVELOPE



OD Listed outer diameter
ID Listed inner diameter

SIDE ENVELOPE



H Listed height
NOT TO SCALE

Envelope notation only. Working features omitted on the right; OD/ID measurement features follow the item drawing.

Dimension envelope key - not to scale. OD, ID and H locate the principal envelope inputs; detailed features and datum assignments require the drawing.

Drawing input	Definition required for quotation
OD, ID and H in mm	Outer envelope, inner-opening definition and overall axial height, with dimension datums and tolerances.
Body and working profile	Body/working thickness; hub or boss diameter/height; tooth, pin, disc or slot arrangement and rotation direction.
Bore and shaft connection	Straight, tapered or stepped bore as applicable; key, spline, pin, thread or clamping features; engagement length, fillets and mating-part definition.
Tooth, pin and slot features	Quantity, pitch/position, width/length/depth, edge form, root radii and profile tolerances on the detailed drawing.
Geometric control	Bore-to-working-profile alignment; radial/axial runout, flatness, parallelism or perpendicularity, with support and measurement datums.
Surface and defects	Working versus mating surfaces; finishing state, roughness and direction; crack, chip, pore and edge acceptance.
Assembly identity	Ordered component list, insert materials, rotor position, spacers, axial clearances, fastening and assembly sequence.

Attach the matching 2D/3D drawing and revision. A worn sample or photographs can support identification, but worn dimensions must be distinguished from the intended new-part specification.

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Match the rotor to the process

Rotor surfaces transfer motion to grinding media and slurry. The rotor, media, formulation and equipment together define the dispersion process.

Buyer duty	Comparison that matters
Coatings and pigment dispersions	Slurry abrasiveness, solids, viscosity, working-profile wear and colour-sensitive contamination limits.
Printing and inkjet inks	Target particle distribution, filtration/nozzle sensitivity, media condition and released-particle acceptance.
Battery and functional-material slurries	Formulation and solvent/additives, sensitive elements, process blanks and allowable contamination increment.

Operating inputs for engineering review

Input group	Define the actual combination
Grinding media	Material/grade, bead diameter and distribution, condition, density and fill quantity.
Slurry and liquid	Chemistry, pH, solids, viscosity, temperature, starting particle size and liquid/additives.
Rotation and load	Continuous/peak rpm and torque, shaft power, rotation, acceleration, starts/stops and overload protection.
Flow and cooling	Feed/recirculation flow, pressure, cooling conditions, temperature measurement and allowed rise.
Process outcome	Particle-size distribution, dispersibility, rotor/media wear, contamination and representative test conditions.

There is no universal rotor rpm, bead loading, grinding time or service life. A validated result from one rotor/media/slurry combination does not qualify another.

Installation cleaning and reuse

Use the mill's approved installation and operating procedures. Inspect chips/cracks, verify shaft fit, axial position and clearances, and define fastener/preload, runout and balance in the assembled state. Avoid impact on ceramic working features.

Specify the cleaning fluid, concentration, temperature, time and tool contact. Set reuse or rejection criteria for working-profile wear, bore looseness, cracks/chips, vibration, contamination and process performance.

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Agree manufacturing and acceptance

ADCERAX reviews material, drawing and application requirements before quotation. Production and inspection are arranged against the agreed part definition through qualified manufacturing resources.

Manufacturing review tied to the rotor drawing

Review stage	Rotor-specific output
Material and forming	Grade/BOM mapping, body and working-feature geometry, sintering shrinkage and machining allowance.
Sintering and finishing	Required finished geometry, bore/shaft contact, tooth or slot roots, edge condition and surface state.
Inspection planning	Critical features, datums, measurement support, sampling and reporting agreed before production.
First article and repeat orders	Agreed sample/qualification scope, approved drawing revision and changes tracked for reorder.

Specify the acceptance object

Object	Acceptance requirements to agree
Ceramic body	Material identity; OD/ID/H and feature dimensions; geometric/surface checks; crack/chip limits and lot identification.
Installed rotor assembly	Insert/shaft/spacer/fastener definition; engagement and axial location; assembled runout, balance, vibration and temperature.
Mill and process	Representative media/slurry test; speed/load/flow conditions; particle distribution, wear, contamination and end-of-life limits.

Methods, reports, sampling and limits are order-defined. A list of requested checks does not mean every rotor has undergone all tests or that the assembled mill is qualified.

Packing identification and repeat supply

Agree protection for projecting teeth/pins, thin edges and machined bore/shaft-contact surfaces. Define individual separation, insert/assembly protection, handling orientation and any lifting needs for the ordered size.

Identify part number, drawing revision, grade, batch and assembly sequence on the agreed packing record. Repeat orders should cite the accepted part definition and any changes to media, slurry, equipment or operating conditions.

Confirm supplied components, inspection documents, packing, quantity, destination and target schedule in the quotation. No stock or delivery promise is created by this catalog.

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Send a rotor quotation request

Send the information you already have. An item reference or an existing-part drawing is enough to start classification of the inquiry; detailed qualification inputs can follow engineering review.

Choose the inquiry path

Existing catalog reference	New or drawing-defined rotor
Cite ADC-CAT-ALU-DR-001 Rev 01 and one AT-SM-Z item. Attach the current item/mill drawing and state deviations.	Attach a drawing/model and revision, or clear existing-part photographs with known dimensions and intended new-part requirements.
Select the exact grade, quantity, ordered supply scope and required inspection documents.	Define grade, body/hub and working form, bore/shaft interface, critical dimensions, tolerances and surface requirements.

First inquiry checklist

Send now	Include when known
Equipment and component	Mill manufacturer/model; rotor location and rotation; item/drawing reference or part photographs.
Size and supply	Paired OD/ID/H or drawing dimensions; ceramic body versus insert/assembly; quantity and repeat demand.
Material and problem	Requested grade; previous wear/failure; slurry and bead type; any sensitive contamination limits.
Commercial requirements	Destination, target schedule, inspection/documentation and packing needs.

Complete the engineering review

Provide mating-part geometry, detailed working features and datums; continuous/peak rpm, torque and temperature; bead size/fill and slurry properties; runout/balance and representative process acceptance. Agree any gaps before the final part specification and quotation.

Request engineering review and quotation

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ADCERAX reviews the part definition, material and operating inputs and confirms the next information or quotation step.