ADCERAX
ADVANCED CERAMICS

ENGINEERING PRODUCT CATALOG

Silicon Nitride Seal Rings

Catalog dimensions and drawing based selection

Ceramic ring components for mechanical seal and vacuum assembly review. Identify the ring duty, choose a size reference, and define the face and mating interfaces before quotation.



Representative ring profile with a step and notches. Appearance does not specify material grade, face finish or a catalog item. The approved drawing defines the supplied part.

ADCERAX | Custom precision ceramic components

Size references 03 / Custom dimensions 04 / Material 05 / RFQ 08

adcerax.com/product/silicon-nitride-seal-ring/

01 PRODUCT AND SELECTION

Identify the ring in your assembly

This catalog covers silicon nitride ceramic ring components. A rotating face, stationary face, mating ring and complete mechanical seal are different purchasing units. Specify the component and its position in the assembly.



Visible holes and ring profiles are form references. Hole positions, steps, drive features and working-face geometry must be defined on the part drawing.

Your starting point	Selection route	Page
Known catalog item	Check OD, ID and thickness, then confirm the working face and interfaces.	3
Drawing or new dimensions	Use the custom range and submit the complete geometry for review.	4
Worn ring or unidentified part	Send face, side and feature photos with key dimensions and the ring duty.	8
Material or operating question	Confirm the grade and use the duty-specific review inputs.	5-6
Quality and repeat order	Define the acceptance checks, identification and packaging.	7

Check function before fit

For a dynamic mechanical seal, identify which face rotates and what it runs against. For a static or vacuum assembly, identify the actual sealing interface and the auxiliary seals. A ring may also be a spacer or support; its location alone does not establish a sealing function.

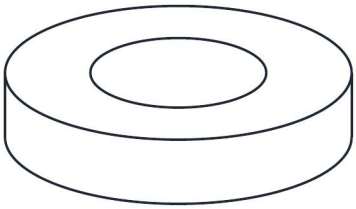
Matching OD, ID and thickness provides an initial size match. Interchangeability also depends on face geometry, datums, mounting, counterpart and duty. Equipment and original part numbers are helpful when available.

02 CATALOG SIZE REFERENCES

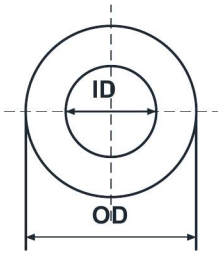
Select a catalog size

AT-DHG-MF001 through MF020 are listed size references. All dimensions are in millimeters. Use the full item number when requesting a quotation.

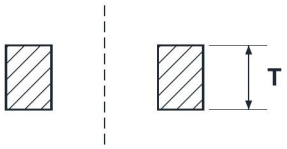
3D ENVELOPE



END VIEW



AXIAL SECTION



Not to scale. Envelope only; working face and interfaces follow the approved drawing.

Catalog item	OD (mm)	ID (mm)	T (mm)
AT-DHG-MF001	10.0	5.0	2.5
AT-DHG-MF002	15.0	9.0	3.0
AT-DHG-MF003	20.0	12.9	3.5
AT-DHG-MF004	25.0	15.0	2.0
AT-DHG-MF005	28.0	20.0	2.5
AT-DHG-MF006	31.0	25.0	3.0
AT-DHG-MF007	36.5	27.0	4.5
AT-DHG-MF008	48.0	38.0	4.8
AT-DHG-MF009	50.0	39.0	5.0
AT-DHG-MF010	50.0	40.0	5.0
AT-DHG-MF011	50.0	38.5	5.5
AT-DHG-MF012	50.0	30.0	10.0
AT-DHG-MF013	51.0	40.5	5.1
AT-DHG-MF014	55.5	51.5	2.0
AT-DHG-MF015	62.0	51.0	5.5
AT-DHG-MF016	65.0	53.8	5.5
AT-DHG-MF017	68.0	57.0	5.5
AT-DHG-MF018	90.0	18.0	6.0
AT-DHG-MF019	102.0	63.0	19.4
AT-DHG-MF020	120.0	112.8	8.5

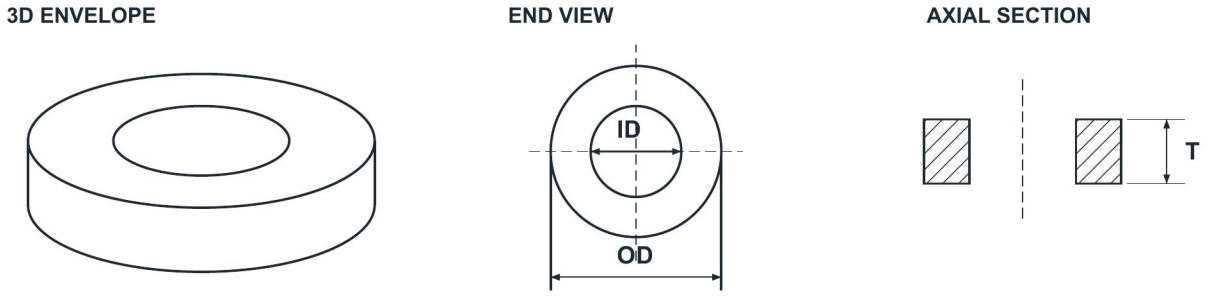
OD = outer diameter; ID = inner diameter; T = axial thickness. These values define the listed envelope, not a complete manufacturing drawing. Face width, steps, grooves, slots, tolerances and grade are confirmed for the quoted part.

MF021 is the separate custom range on page 4. Listed dimensions do not confirm stock, price or delivery time; these are stated in the quotation.

03 CUSTOM DIMENSIONS

Define a ring to your drawing

AT-DHG-MF021 identifies the made-to-order range below. It is a range reference, not one fixed-size part. Selected dimensions must form a feasible ring, with ID smaller than OD and adequate material for the working face and interfaces.



Not to scale. Envelope only; working face and interfaces follow the approved drawing.

Custom reference	OD (mm)	ID (mm)	T (mm)
AT-DHG-MF021	1-150	0.5-140	0.25-50

The ranges cannot be combined arbitrarily. Geometry, wall section, features and tolerances are reviewed together. Include a drawing for dimensions outside the published range.

Complete the drawing definition

Drawing input	What to provide
Envelope and datums	Exact OD, ID and T with units, tolerances, datum faces and fit requirements.
Working face	Mark the active face and dimension the inner and outer boundaries of its contact band. State flatness, parallelism, runout and surface finish requirements.
Mounting and drive features	Dimension every step, groove, notch, slot, hole, chamfer and radius, including its position relative to the datums. Add sections or detail views as needed.
Mating parts	Counterpart drawing or material; housing, sleeve and auxiliary seal interfaces; clearance or interference requirements.
Acceptance	Critical characteristics, inspection method, sampling, edge and surface defect criteria, cleanliness and documentation.

A sketch, sample or clear photos with key dimensions can start the discussion. The agreed drawing and quotation establish the final part definition.

04 MATERIAL SELECTION

Structural silicon nitride

AD-SIN-ST is a structural silicon nitride grade for sintered components. Use this table only when AD-SIN-ST is specified and confirmed for the quoted ring. A catalog item number alone does not establish the grade or batch.

Property	Unit and basis	Reference
Bulk density	g/cm³ | typical material selection	3.2
Thermal conductivity	W/(m·K) | typical material selection	20
Apparent porosity	vol% | structural body reference	<0.3
Poisson's ratio	Dimensionless | typical	0.25
Rockwell hardness	HRA | typical	92-94

AD-SIN-ST selection references from ADCERAX Silicon Nitride Ceramic Product Comparison, Rev 06. All entries, including the porosity reference, are for material selection; they are not acceptance limits or component design allowables. Conductivity supports preliminary ambient selection, not a temperature-dependent design curve.

Define mechanical test requirements

For strength or fracture-toughness requirements, agree the test method, specimen geometry and surface condition, loading or crack method, temperature and acceptance statistic. Request the applicable test basis before numerical comparison.

Keep material and seal acceptance separate

Purchase limits, test conditions and sampling belong on the drawing or purchase order. Strength and hardness values do not define the allowable face load, pressure-velocity limit or wear life of a sealing pair. Material values also do not establish the finished face geometry.

For vacuum duty

Low apparent porosity does not establish vacuum tightness, helium leak rate or outgassing. The finished ring, surface condition, mating parts and complete sealing interface must be evaluated for the specified assembly.

Confirm the counterpart

Identify the actual counterpart material and grade, whether silicon carbide, tungsten carbide, carbon graphite or silicon nitride. Review the pair with the medium, lubrication, pressure, speed and thermal cycle. Material names alone do not establish a qualified combination.

AD-SIN-SUB80 is a bare thermal substrate product. Its thermal, electrical and dimensional values do not transfer to these seal rings.

05 APPLICATION REVIEW

Describe the sealing conditions

Provide the operating conditions for the complete sealing interface. The review should distinguish continuous duty, start-up, shutdown and abnormal conditions.

Duty	Inputs for engineering review
Dynamic mechanical seal	Media and particles; operating and peak pressure; pressure direction; shaft speed or sliding speed; temperature; start-stop cycle; flush, lubrication and cooling arrangement.
Static or vacuum interface	Actual ring function; gas and target pressure; pressure direction; leak-rate requirement with units and test method; auxiliary seals; cleanliness, bake-out and outgassing requirements.
Replacement or service issue	Ring location; counterpart condition; assembly photos; leakage trend; operating history; visible damage; original part number and equipment model when known.

Use damage to focus the review

Edge chipping

Record the chip location and whether it reaches the working face. Review handling, assembly alignment, edge details and housing contact before approving a replacement.

Face scoring or uneven wear

Provide photos of both faces, the medium and particle content, lubrication and flush conditions. Review the contact track and counterpart together; a ring photograph alone does not establish the cause.

Leakage or thermal damage

Include the pressure and speed history, temperature changes, preload, runout and any loss of flush or lubrication. Define the required checks at ring, mating-pair and assembly level before reuse.

Operating limits are set by the seal design

Use the seal designer’s approved installation and operating procedure. Pressure-velocity limits, leakage criteria, temperature limits and dry-running capability require application-specific verification; they are not inferred from the catalog dimensions or material table.

06 ACCEPTANCE AND SUPPLY

Agree what will be inspected

Define the inspection scope before the order is released. The checks below are an acceptance-planning checklist; methods, sampling, limits and reports are agreed for the quoted part.

Level	Acceptance items to agree
Material identity	Specified grade and applicable batch documentation; material tests and specimen conditions where required.
Ring dimensions	OD, ID, T, datums, fits and each drawing-defined feature; inspection locations and measurement conditions.
Working face	Contact-band geometry, flatness, parallelism, runout and surface texture; method, filter or gauge length where relevant.
Edges and surfaces	Cracks, chips, scratches and open defects; permitted location, size and quantity; cleanliness and handling criteria.
Mating pair or assembly	Static or dynamic leakage, helium leak rate where required, friction, temperature and wear under the agreed service and test conditions.

Protect the face through delivery

Specify individual separation so working faces cannot rub, with protection for edges and thin sections. Agree pouch or tray materials, cleanliness, handling and any vacuum-specific packaging requirements. Confirm packing details in the quotation.

Make repeat orders identifiable

Retain the approved drawing revision, catalog reference where used, material grade, quantity, acceptance requirements and order reference. Identify changes in the mating face, housing or service conditions before repeating an order.

Handle and install to the seal procedure

Keep working faces protected during storage and handling. Check the ring and mating surfaces before assembly, avoid face-to-face or metal contact, and use the specified alignment and loading procedure. Select cleaning agents and methods for the complete material and seal system.

Availability, minimum order quantity, inspection documents, packing, price and lead time are quotation-controlled.

07 REQUEST FOR QUOTATION

Send your ring requirement

Start with a drawing or key dimensions, the sealing medium and quantity. A clear set of old-part photos, sample details or a sketch is useful when a complete drawing is not available.

Using a catalog reference

Quote the full AT-DHG-MF item number, OD × ID × T, quantity, ring duty and any differences from the reference. Include the material requirement, destination and target schedule. MF021 inquiries need your exact dimensions.

Using a drawing or sample

Attach the drawing and revision, or photos of both faces, the side profile and all holes, slots or notches. Add measured OD, ID and thickness with units. State whether the part is a rotating face, stationary face or another ring in the assembly.

Complete these details during review

Requirement	Information to include
Part and quantity	Catalog reference or drawing revision; quantity; prototype or repeat-order requirement.
Material and mating parts	Required silicon nitride grade, counterpart grade and condition, housing and auxiliary seals.
Face and geometry	Contact-band definition, tolerances, surface finish, flatness, datums and interfaces.
Service	Medium, pressure or vacuum, temperature, speed, cycles, lubrication and flush conditions.
Acceptance and delivery	Inspection and reports, assembly test criteria, packing, destination and target schedule.

Request engineering review and quotation

info@adcerax.com

Product page | Send an inquiry online

Catalog reference: ADC-CAT-SN-SR-001 | Rev 01

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

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