ADCERAX
ADVANCED CERAMICS

ENGINEERING PRODUCT CATALOG

ZTA Ceramic Seal Ring

Drawing based components for fluid handling equipment

Zirconia toughened alumina seal rings for rotating faces, stationary faces, valve seats and static seals. Define the ring function, sealing face and mating interface before selecting the finished component.



Product form reference. The project drawing controls the supplied profile, dimensions and finish.

AT-ZTA-ZZ001 | Custom by drawing

Inner diameter 6-120 mm • Outer diameter up to 160 mm
Height, sealing band and interfaces defined for the project.

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

adcerax.com/product/zta-ceramic-seal-ring/

02 / ENGINEERING PRODUCT CATALOG

Define the component you need

The ring function and purchase scope determine what must be specified and tested. A matching diameter alone does not establish interchangeability.





Representative ring forms from the product page. Visible shapes do not establish grade, tolerances or suitability for a particular seal assembly.

Purchase scope	Define with the inquiry	Acceptance boundary
Ceramic ring only	Ring role, drawing revision, working face, mounting interface and quantity.	Dimensions, surface and defects of the individual ceramic ring.
Ring and counter-face	Both contact geometries, counter-face material, loading and lubrication.	Pair behavior under agreed contact and service conditions.
Assembly request	Bill of materials identifying the seat, auxiliary seals and loading hardware.	Included components and assembly tests must be explicitly quoted.

Pump mechanical seal Identify the rotating and stationary sides, shaft and housing datums, counter-face, speed and flushing arrangement.

Valve or static seat Define seat profile, sealing direction, contact load, pressure cycle and leakage acceptance.

Metering or abrasive service State fluid, viscosity, particles, start-stop duty and the wear or leakage problem to be addressed.

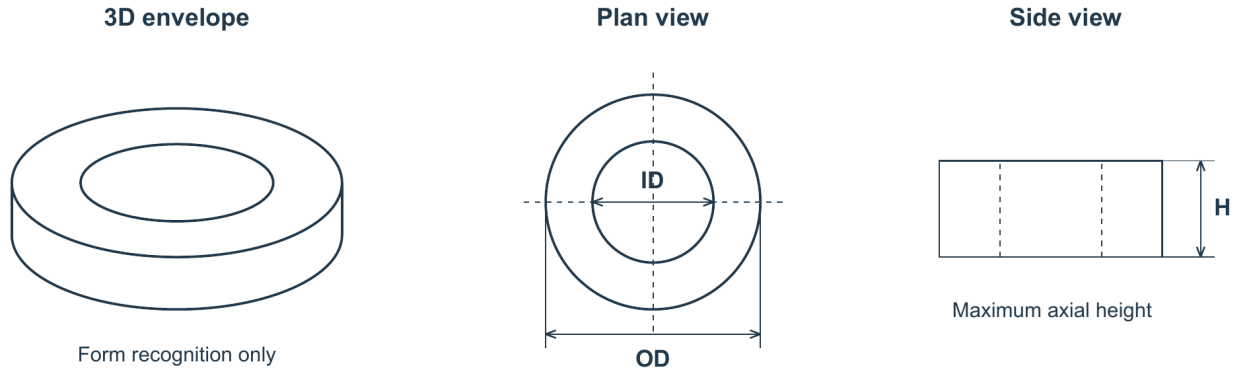
Catalog route

Dimensions 3 / Material 4 / Selection 5 / Inspection and supply 6 / Handling 7 / RFQ 8

03 / ENGINEERING PRODUCT CATALOG

Specify the ring geometry

AT-ZTA-ZZ001 identifies the custom inquiry route. It is not a list of interchangeable standard sizes. Choose a consistent ID, OD and height for the actual mounting design.



Not to scale. Envelope only; steps, grooves and sealing profile follow the project drawing.

Dimension or feature	Custom range or definition	Include on the drawing
ID / inner diameter	6-120 mm	Selected ID, tolerance and bore datum.
OD / outer diameter	Up to 160 mm	Selected maximum OD, tolerance and locating diameter where different.
H / axial height	Per drawing	Overall height plus each step or recess depth.
Sealing band	Per drawing	Working face, inner and outer band boundaries, width and profile.
Mounting and drive	Per mating design	Steps, grooves, O-ring seats, slots, flats and their positions, if required.
Edges and transitions	Per drawing	Each chamfer or radius and permissible edge defects.
Geometric controls	Per drawing	Datums, runout, parallelism, perpendicularity and coaxiality as applicable.

The drawing completes the envelope. The key above defines ID, OD and H only. It does not define a sealing band, groove, step or mounting fit. Add the necessary detailed views for those features.

Final specification. Material grade, selected dimensions, face finish, tolerances and inspection methods are agreed for the ring geometry. The published diameter range does not imply that every ID/OD combination is feasible.

04 / ENGINEERING PRODUCT CATALOG

Select the ZTA material route

ZTA is zirconia toughened alumina: an alumina matrix containing dispersed zirconia. Select the actual grade and forming route with the ring geometry, counter-face and service conditions.

Material selection reference

The following values describe injection-molded ZTA material grades. They are not assigned specifications or acceptance limits for every AT-ZTA-ZZ001 ring. The ordered grade requires a project-specific material and process mapping.

Property	AD-ZTA-10	AD-ZTA-20-CIM	AD-ZTA-40
Forming route	Injection molding	Injection molding	Injection molding
Bulk density (g/cm³)	4.25	≥4.25	≥4.80
Flexural strength (MPa)	≥700	≥800	650
Vickers hardness (HV)	2000	1800	1500
Color	White	White	White

Reference: ADCERAX ZTA material data Rev 06. Unmarked values are typical selection references; ≥ denotes a stated lower bound in the material source. Neither status creates a finished-ring guarantee.

Use the test basis. Flexural results depend on specimen dimensions, loading mode and surface condition. Specify the Vickers test force, dwell and surface preparation before using hardness for acceptance. HV values must not be relabeled HV10 without that test basis.

Read the grade correctly. The numerals 10, 20 and 40 are grade identifiers. They do not declare a fixed zirconia percentage. Plate and rod-specific properties are not transferred to the seal ring.

Separate material data from seal performance

Material or part review	System qualification
Confirm grade, process route and batch identity. Define ring geometry, face condition and permissible defects.	Establish pressure, leakage, friction, temperature rise, wear and service life for the actual ring, counter-face and assembly.
Use strength and hardness with their test conditions.	PV applies only to a defined sliding contact and its pressure, speed, medium, cooling and test method; it is not a static-seat rating.

05 / ENGINEERING PRODUCT CATALOG

Match the face to the service

Define the working face and mating system together. Material selection alone does not establish chemical compatibility, allowable pressure or seal life.

Service input	Why it changes the review	Information to send
Medium and solids	Particles, deposits and chemical exposure affect the contact surfaces.	Fluid name, concentration or pH, phase, particle size and solids loading.
Pressure and motion	Load direction, sliding speed and cycling affect the working contact.	Operating and peak pressure, differential pressure, speed or stroke, direction and starts.
Temperature and flushing	The ring, counter-face and auxiliary seal may experience different conditions.	Continuous and peak temperature, cycling, cooling, flushing and loss-of-liquid events.
Counter-face and support	A new ring works against the existing mating face and mounting structure.	Material and grade, finish, contact geometry, preload, housing fit and alignment.
Sealing face	Roughness, flatness, waviness and band geometry govern distinct features.	Face boundaries, Ra or Rz, flatness or profile, runout, finish and measurement method.

Use the old ring as evidence

Chipped edge or cracked step. Send close-up photographs, the mounting drawing and assembly history. Review edge treatment, support, impact and localized loading before repeating the design.

Leakage after installation. Record the contact pattern, housing alignment, auxiliary seals, contamination and tightening procedure. Replacement material alone may not address the cause.

Worn or scratched face. Report the wear location, particles, counter-face condition, lubrication and cleaning method. Agree a measurable wear or leakage endpoint.

Comparison with other ceramics. Compare ZTA, alumina, zirconia or SiC for the same geometry, counter-face and operating conditions. A single hardness or strength value does not establish the best seal material.

06 / ENGINEERING PRODUCT CATALOG

Agree inspection and supply

Turn the approved drawing into an order definition that purchasing, engineering and incoming quality can use consistently.

Acceptance level	Define before order	Record to agree
Material	Actual grade, forming or machining route and required material tests.	Material identity, batch reference, certificate content and test basis.
Individual ring	Critical dimensions and datums; face geometry and roughness; cracks, chips, scratches and cleanliness.	Inspection method, instrument suitability, sampling and dimensional report requirements.
Mating pair	Counter-face, contact loading, fit, lubrication and contact pattern.	Pair identification and the agreed leakage, friction, wear or temperature-rise test.
Complete assembly	Included hardware and auxiliary seals, operating medium, pressure, motion, temperature and cycles.	Assembly test procedure, acceptance limits and responsibility for qualification.

From drawing review to repeat supply

Define. Submit the drawing revision, ring role, critical surfaces and mating details. Resolve material and geometric requirements before committing to the order specification.

Confirm. Agree the applicable manufacturing route, finish, inspection scope, samples or first-article requirements, and the commercial quotation.

Identify. Keep the part number, drawing revision, material grade and agreed batch information linked to the delivered components. Define matched-pair marking if required.

Protect. Specify individual protection for sealing faces, thin edges and locating steps. Define packing separation, labeling and any matched-pair grouping in the purchase specification.

Reorder. Reference the last accepted drawing revision and order. Identify changes in duty, counter-face or acceptance criteria before repeat supply.

Quantity, sample plan, documentation, packing, price and delivery schedule are quotation-controlled. The listed records are requirements to agree, not a promise that every test or certificate is included.

07 / ENGINEERING PRODUCT CATALOG

Handle and install with care

Follow the equipment or seal manufacturer’s approved assembly and operating procedure. The guidance below supports handling of the ceramic component.

Before installation. Inspect the working face, counter-face, housing seat and auxiliary seal. Check the drawing revision, ID, OD, height, locating features and ring orientation. Keep sealing surfaces free of particles and scratches.

During assembly. Support the ring evenly and protect its edges. Avoid impact, prying, skew and point loading. Use the specified fit, alignment and tightening procedure; do not derive a universal torque from the ceramic material.

At start-up. Follow the prescribed lubrication, break-in and flushing plan. Monitor leakage, heat, noise and vibration. Dry running requires a seal system designed and qualified for that condition.

Cleaning and storage. Use a cleaning method compatible with the process residue and mating materials. Avoid abrasive tools on the sealing face. Dry with lint-free material and store rings separately in protective compartments.

Before reuse. Recheck chips, cracks, face condition, contact pattern and mounting fit. Follow the specified acceptance limits and paired-replacement rules.

Questions before ordering

Can a worn sample start the inquiry? Yes. Send photographs from several views, known dimensions, the ring role and failure history. A worn sample may not preserve the original fit or face geometry; the production definition still requires agreement.

Does the same ID and OD mean it fits? No. Height, seating profile, sealing band, grooves, datums and counter-face must also match.

Can a material temperature value rate the seal? No. Temperature suitability depends on the ring, mating part, auxiliary seals, medium, lubrication and complete assembly.

Does a ring quotation include the full seal? Only the items explicitly listed in the quotation are included. Identify requests for a mating pair or assembly and provide the corresponding bill of materials.

08 / ENGINEERING PRODUCT CATALOG

Send a ZTA seal ring inquiry

Start with the information you already have. Reference AT-ZTA-ZZ001 and this catalog revision so the discussion begins with the correct component.

Existing part or repeat order

Send the part or previous order reference, accepted drawing revision, quantity, equipment and any change in operating conditions. For a replacement, add old-ring photographs and the observed failure.

New drawing or sample

Send a 2D drawing, 3D model, sketch or sample photographs; identify the ring role and quantity. Add dimensions and the application details below as they become available.

RFQ field	Information for your project
Part and scope	AT-ZTA-ZZ001 or your part number; ring only, mating pair or assembly request; rotating face, stationary face, valve seat or static seal.
Drawing and geometry	Complete dimensioned drawing with units and revision; sealing-band boundaries; mounting and drive details; datums, tolerances and edge requirements.
Material and pairing	Specified ZTA grade or selection request; counter-face, housing and auxiliary-seal materials.
Face and acceptance	Face profile, flatness, Ra/Rz, finish and inspection method; required reports; ring or assembly test criteria.
Service conditions	Medium and particles; operating and peak pressure and temperature; speed or stroke; preload, lubrication and flushing.
Supply requirements	Prototype and repeat quantities; destination; target schedule; packing and identification requirements.

Send your drawing for engineering review and quotation

info@adcerax.com

Product page

HUNAN ATCERA CO.,LTD
ADCERAX | Changsha, China | +86-0731-84428843

Final supply scope, material, geometry, acceptance criteria and commercial terms follow the agreed drawing and quotation.