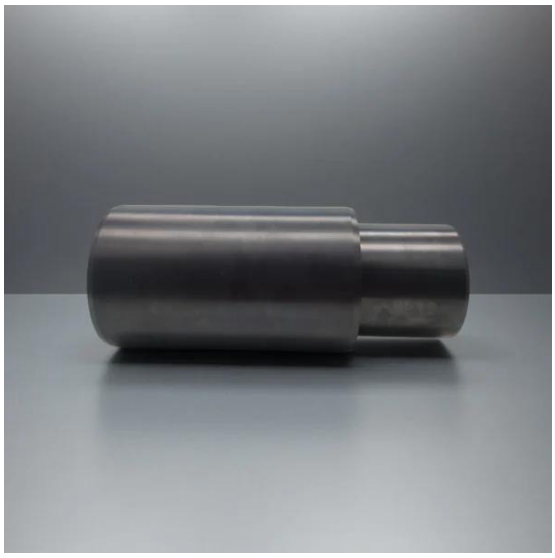
ADCERAX

ENGINEERING PRODUCT CATALOG

Silicon Nitride Plungers

Size selection and drawing review for pump, metering, dosing and filling systems



Stepped plunger example. Photograph shows external form only; it is not assigned to a catalog item or installation.

Select a listed size or define a new part

Use the AT-SN-ZS size index to identify a starting reference. Then define the working band, end connection and mating system before confirming a finished part.

ADCERAX is a China-based advanced ceramics manufacturer brand operating through qualified production partners. Each plunger inquiry is reviewed against the drawing, service conditions and acceptance requirements.

Inside this catalog

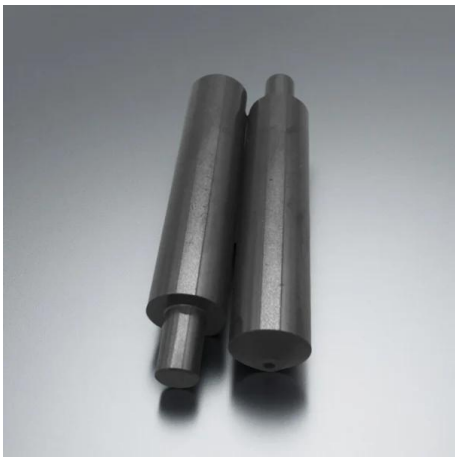
2 Product and application fit
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adcerax.com/product/silicon-nitride-plunger/

01 PRODUCT AND APPLICATION FIT

Define the component first

A silicon nitride plunger is a reciprocating ceramic rod that moves through fixed packing or seals in a pump head or metering mechanism. This catalog covers the plunger component; a piston with moving seals, a sleeve, a valve and a complete pump require separate definitions.



Product examples with different visible end details. The photograph does not define dimensions, grade, tolerances or equipment compatibility.

Your procurement task	What to identify before selection
Pump or pump-head design	The plunger drawing, fixed seal arrangement, guide spacing and axial load path.
Metering or chemical dosing	Working fluid, concentration, temperature, packing and the required leakage or dosing acceptance test.
Filling or dispensing	Viscosity, particle content, cleaning cycle, stroke length and frequency.
Maintenance replacement	Old-part photographs, critical measurements, failure location and equipment or part number if known.

Choose the inquiry route

Listed item: cite an AT-SN-ZS number and its D × L dimensions from page 3. A matching size is an identification starting point; it does not establish fit, end details or stock.

Drawing or sample: send an existing drawing, a sketch, sample details or several clear old-part photographs. Complete drawings and original equipment part numbers are optional for the first inquiry.

State whether you need a ceramic part alone or a ceramic-metal assembly. Identify any bushing, guide, packing or seal you want assessed with it.

02 CATALOG SIZE INDEX

Silicon nitride plunger sizes

Confirmed item-to-size references, in millimeters. Item-number order is retained. End profiles, working bands, material grade and tolerances are defined separately.

3D ENVELOPE



GOVERNING SIDE VIEW



Envelope key only - end geometry is not defined. Not to scale.

D = listed diameter; L = overall length. The envelope illustrates dimension reading, not the individual item profile.

Catalog item	D (mm)	L (mm)	Reference type
AT-SN-ZS001	2	20	Size reference
AT-SN-ZS002	2	50	Size reference
AT-SN-ZS003	3	50	Size reference
AT-SN-ZS004	4	50	Size reference
AT-SN-ZS005	5	50	Size reference
AT-SN-ZS006	6	60	Size reference
AT-SN-ZS007	6.75	50	Size reference
AT-SN-ZS008	7.5	100	Size reference
AT-SN-ZS009	8	30	Size reference
AT-SN-ZS010	10	40	Size reference
AT-SN-ZS011	12	10	Size reference
AT-SN-ZS012	12	40	Size reference
AT-SN-ZS013	15	10	Size reference
AT-SN-ZS014	15	40	Size reference
AT-SN-ZS015	20	80	Size reference
AT-SN-ZS016	20	40	Size reference
AT-SN-ZS017	25	50	Size reference
AT-SN-ZS018	30	80	Size reference
AT-SN-ZS019	2-80	20-200	Range reference*

* AT-SN-ZS019 is a range entry, not one fixed-size part. Review the requested D/L combination and the full drawing; the range does not establish every possible combination.

The index specifies sizes, not finished tolerances or inventory. Availability, final geometry, surface requirements and inspection scope are confirmed in the quotation and approved drawing.

03 CUSTOM DRAWING INPUTS

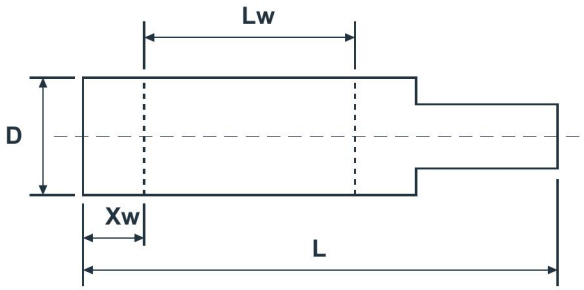
Define the working band and connection

Use the actual part drawing to locate the sealing surface and connection features. The stepped example below explains the input fields; it is not a manufacturing drawing or a profile assigned to the size index.

3D FORM EXAMPLE



GOVERNING SIDE VIEW



Illustrative stepped form. Xw locates the band start from the left end face.

Actual profile, band position and end connection follow the drawing. Not to scale.

Drawing field	Define for engineering review
D Working diameter	Diameter value, units, tolerance and measuring positions on the working cylinder. Identify whether it is the same surface as the catalog diameter.
L Overall length	End-to-end dimension and the end faces used for measurement.
Lw / Xw Working band	Lw is the required sealing or sliding length. Xw is its start position from the illustrated left end face; identify the actual datum and relate the band to stroke and packing.
End connection and profile	Provide dimensioned views of required shoulders, end diameters, holes, threads, flats, grooves, radii and chamfers where present.
Datums and geometry	Define the functional axis and locating faces; specify applicable roundness, cylindricity, straightness, coaxiality and runout requirements.
Surface and edges	Mark each surface zone, Ra/Rz requirements, texture direction, finish, edge condition, cleanliness and permitted defects.
Mating parts or joint	Include mating dimensions and materials. Define ceramic-metal joints, connection length and load transfer if an assembly is requested.

For a worn part

Photograph the whole part, both ends, the working band and the damaged area. Include a scale and known measurements. Record the condition of the worn surface so it is not mistaken for the original drawing dimension.

Send what is available first. Missing geometry and acceptance details can be resolved during engineering review; a photograph alone does not establish interchangeability.

04 MATERIAL AND OPERATING REVIEW

Select the plunger with its mating system

Specify silicon nitride as the requested material, then confirm the selected grade and its applicable material documentation. A material property table does not define the pressure rating, sealing behavior or service life of a finished plunger.

When to review the material

Wear tracks, surface damage or sealing drift on an existing plunger are reasons to review the material together with the working surface and mating system. Assess a silicon nitride candidate against the actual fluid, reciprocating load and seal contact; a material change alone does not resolve every failure.

Keep the material and part definitions separate

Confirm the proposed plunger grade and its part and batch traceability before applying material data. A sintering-process name is not a complete material specification. The catalog item number identifies a size reference; it does not assign a grade or a performance rating.

Review input	Information that changes the design decision
Fluid and solids	Exact fluid or formulation, concentration, pH where relevant, viscosity, particles and cleaning agents. Include particle size, hardness and solids loading if known.
Pressure and load	Operating and peak pressure, pressure difference across the part, pulsation, axial force, lateral load and guide support.
Motion	Stroke, frequency or speed, acceleration, starts/stops, dwell and required cycle test.
Temperature	Fluid, ceramic, bushing and seal temperatures; continuous, peak and cycling conditions.
Mating system	Bushing/guide material, seal or packing type, preload, lubrication, flushing and assembly alignment.
Acceptance target	Leakage limit, dosing or flow requirement, wear measurement, test conditions and the end-of-life criterion.

Define clearance precisely

Identify the mating surfaces, whether the specified clearance is radial or diametral, the measurement temperature and the cold or operating condition. Packing compression and a plunger-to-bushing clearance are different definitions. No universal clearance or sealing-band finish applies to every pump head.

Material changes require a system review

A replacement for a metal or another ceramic plunger requires review of the connection, seals, guide, surface and operating conditions. Diameter matching alone does not establish an approved replacement. Application fitness is confirmed for the defined part and duty.

05 ACCEPTANCE AND SUPPLY

Agree how the part will be accepted

Use the drawing revision and quotation to define the inspection and supply scope. The checkpoints below are order-definition inputs; agree the methods, sampling and documents required for your project.

Checkpoint	Agreement to record
Material identity	Selected grade, required material or batch identification, and the applicable certificate or test scope.
Dimensions and geometry	Working diameter and axial measurement positions; overall length, functional datums, end interfaces and agreed geometry tolerances.
Surface condition	Defined working-band finish, edge quality, cracks, chips, scratches, open defects and cleanliness criteria.
Mating or assembly checks	Defined fit, joint and alignment checks for the actual mating parts or ceramic-metal assembly.
Functional validation	Where required, define test medium, temperature, pressure, motion, duration, leakage and wear limits for the assembly or pump.
Documentation	Drawing revision, inspection results and agreed material identification; specify which documents accompany the shipment.

Protect the working surface in transit

Agree individual separation and cushioning so ceramic surfaces do not contact other parts. For long parts, define support and handling orientation. Specify protection for working bands, thin ends and connection features, together with package quantity and label requirements.

Make repeat orders traceable

Reference the approved drawing revision, item number, material requirement and previous order. Identify any changes to media, mating parts or operating conditions. Confirm the quantity, inspection scope, packaging, delivery destination and target schedule for each order.

Record evidence before replacing a failed part

For chipping, scoring, leakage drift or fracture, retain photographs showing the location and direction of damage. Include service history, cleaning method, packing changes and alignment observations. These observations guide review; the damage pattern alone does not prove a root cause.

Use the equipment supplier’s approved handling and installation procedure. Do not infer an operating limit from the catalog size or a material reference value.

06 REQUEST A QUOTATION

Start with a reference or a drawing

Send the information already available. ADCERAX reviews the component identity, drawing and service requirements, then identifies the details needed for an engineering quotation.

Route A A listed catalog size

Quote the AT-SN-ZS item number and D × L in millimeters. Add quantity, the part or assembly you require, known end details, application and destination. Include a drawing or old-part photographs when available.

Route B A new or replacement part

Attach a drawing/3D model, sketch, sample details or old-part photographs with key measurements. Describe the working band, end connection, mating parts and current problem. Equipment and original part numbers help identification when known; they are optional for the first inquiry.

To start	Useful information to include
Part reference	Catalog number and dimensions, or drawing/sample/photo reference; state the revision if known.
Purchase scope	Ceramic plunger alone or an assembly; quantity and any related mating parts.
Duty	Application, working fluid, pressure and temperature if known; describe the current failure or change.
Supply request	Destination, target schedule and prototype or repeat-order requirement.

Complete during engineering and order review

Confirm material grade and mapping; full geometry, datums and tolerances; sealing-band finish; bushing and packing; pressure, motion and temperature; inspection and functional acceptance; labeling and packaging. Availability, minimum order quantity, price and lead time are quotation-controlled.

Send your drawing or part reference for review

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Product page | Contact ADCERAX

Reference: ADC-CAT-SN-PLG-001, Rev 01

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