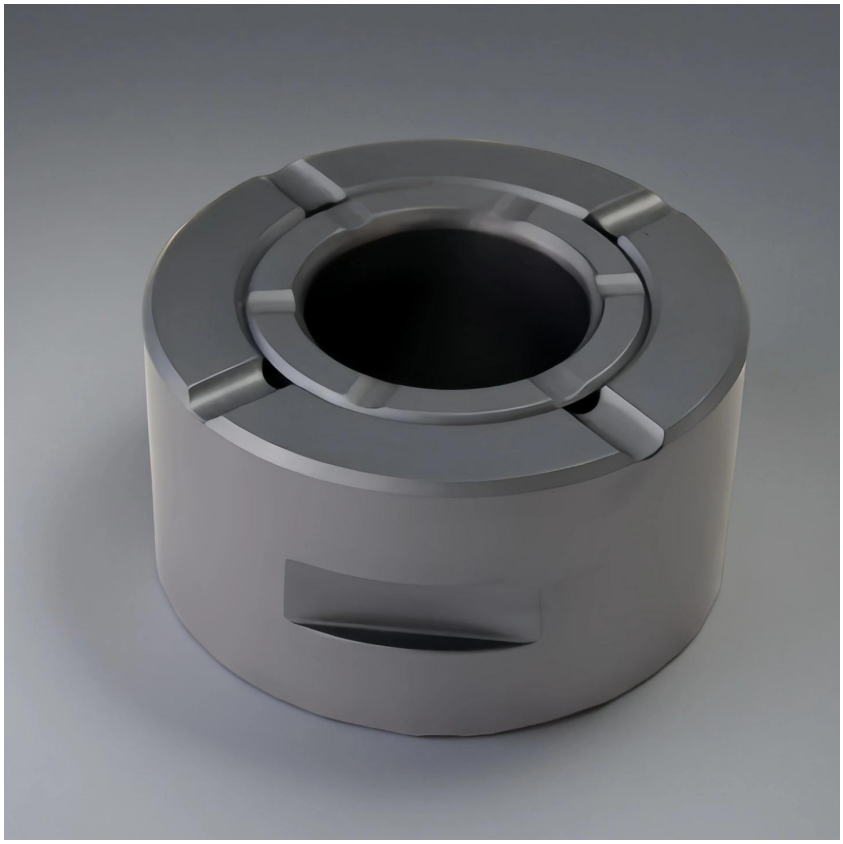
ADCERAX
ADVANCED CERAMICS

ENGINEERING PRODUCT CATALOG

ADC-CAT-SCS-001 | Revision 01

Silicon Carbide Shaft Sleeves

Catalog dimensions and drawing requirements for pumps and rotating equipment



Website form reference: a sleeve with end-face grooves and a side recess. The image is not a model-specific dimensional or material record.

Select a complete OD, ID and length combination, then define the shaft fit, working surfaces, material route and operating conditions.

20 catalog references • Drawing-defined configurations • Engineering RFQ inputs

View the shaft sleeve product page

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01 | APPLICATION AND SCOPE

Identify the sleeve and its position

A shaft sleeve fits over the shaft and provides a replaceable surface at a contact or exposed process zone. Identify whether the requested part rotates with the shaft or remains fixed in a housing before selecting dimensions.



Website form reference: cylindrical pieces with different bore and end profiles. These forms are not assigned to individual AT-SCS models.

Part requested	What to identify
Shaft protection sleeve	The shaft-fit bore, outer contact or exposed surface, axial location and retention.
Fixed bearing bushing	The stationary support, running bore and mating shaft. Specify this separately from a rotating sleeve.
Seal ring or complete assembly	The seal face, bearing assembly or pump is a separate supply unit with its own specification.

Find the information you need

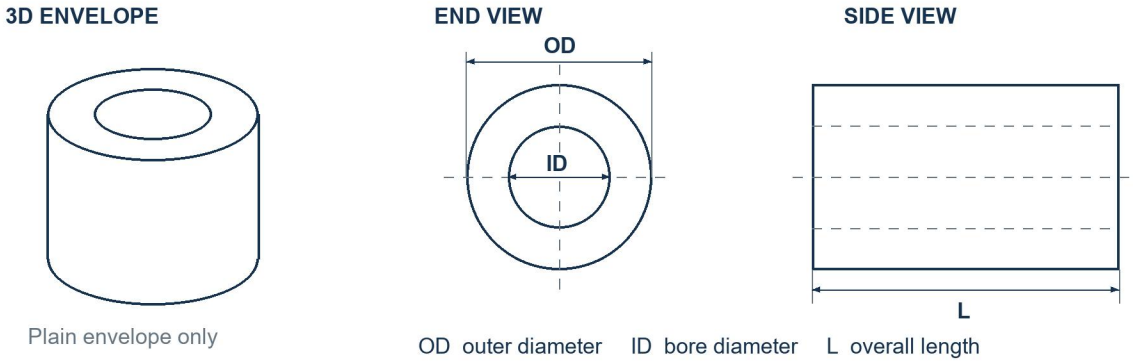
Catalog sizes and model references / 3
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Dimensions screen the envelope. They do not establish interchangeability, end features, fit, tolerance, material batch or operating limits.

02 | MODEL REFERENCE

Catalog dimensions

Each row is one complete OD, ID and L combination in millimeters. Keep the three values together when identifying a sleeve. Final fit, end features and material route are defined on the order drawing.



Dimension key • not to scale. Cylindrical envelope only; end details, steps and grooves follow the order drawing.

Model	OD (mm)	ID (mm)	L (mm)
AT-SCS-001	19	8	42
AT-SCS-002	16	10	42
AT-SCS-003	14	8	42
AT-SCS-004	18	8	45
AT-SCS-005	22	14	51
AT-SCS-006	23	11	51
AT-SCS-007	26	12	51
AT-SCS-008	29	20	56
AT-SCS-009	28	14	60
AT-SCS-010	35	20	70
AT-SCS-011	45	34	85
AT-SCS-012	44	25	108
AT-SCS-013	57	30	108
AT-SCS-014	68	42	108
AT-SCS-015	49	28	108
AT-SCS-016	80	60	108
AT-SCS-017	110	88	108
AT-SCS-018	130	110	108
AT-SCS-019	140	123	108
AT-SCS-020	175	140	140

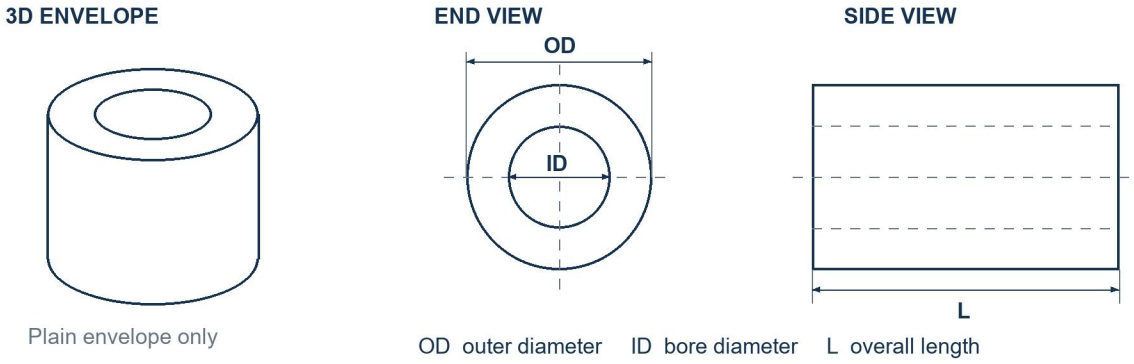
Published catalog dimensions are nominal reference values. They do not state a dimensional tolerance or current stock. Quote the full model number and identify any required difference.

Source: ADCERAX shaft sleeve product table

03 | GEOMETRY AND INTERFACES

Define the custom sleeve drawing

Use a part drawing and, where possible, an assembly section. The basic envelope below defines OD, ID and L only; local steps, grooves, shoulders and retaining details need their own views and dimensions.



Dimension key • not to scale. Cylindrical envelope only; end details, steps and grooves follow the order drawing.

Drawing field	Information to supply
OD, ID and L	Outer diameter, bore diameter and overall length in mm; individual tolerances and local wall sections.
Bore and shaft fit	Shaft dimensions and material; clearance or interference; fit length, assembly temperature and intended motion.
End and locating features	Shoulders, steps, grooves, recesses, holes, chamfers or radii where present; positions, depths, widths and axial retention.
Datums and geometry	Datum scheme; roundness, cylindricity, coaxiality, end-face perpendicularity and runout as required.
Working surfaces	Identify the contact zones and specify Ra or Rz, finish direction, waviness, edge condition and cleanliness.
Material and batch	Name the SiC route or required grade; identify composition, phase, porosity and document requirements.
Acceptance and supply	Inspection method and sampling, quantity, trial criteria, identification, packing, destination and target schedule.

Measuring an existing part

Mark the bore, outer working zone and locating faces on a sketch. Measure unworn reference surfaces separately from damaged areas, and include photographs of the wear and the installation position.

An old part can start the discussion. A worn dimension does not automatically define the replacement drawing.

04 | MATERIAL SELECTION DATA

Dense silicon carbide material routes

Reaction-bonded SiC (RBSiC / SiSiC, AD-SIC-RB) contains residual free silicon. Pressureless-sintered SiC (SSiC, AD-SIC-SS) is a dense sintered route without a silicon-infiltration phase. Specify the route for the actual medium and geometry.

The values below are material selection references, with the source conditions and qualifiers retained. They are not finished-sleeve acceptance values or individual AT-SCS material assignments.

Property	Unit or condition	RBSiC / SiSiC	SSiC
SiC content	wt%	85 nominal	≥99
Residual free silicon	wt% / phase	15 nominal	No silicon-infiltration phase
Bulk density	g/cm³	≥3.02	3.10 typical
Apparent open porosity	vol%	≤0.1	<0.1
Flexural strength[1]	MPa	250 at 20 °C	380; temperature not stated
Compressive strength[1]	MPa	Not listed	≥2600; temperature not stated
Young's modulus[1]	GPa	330 at 20 °C	420; temperature not stated
Poisson's ratio	Dimensionless	Not listed	0.16 typical
Thermal conductivity[1]	W/(m·K)	Not listed at ambient	100–120; temperature not stated
Temperature ceiling[2]	°C	1380	1600
Flexural strength[1]	MPa at 1200 °C	280	Not listed
Young's modulus[1]	GPa at 1200 °C	300	Not listed
Thermal conductivity[1]	W/(m·K) at 1200 °C	45	Not listed

[1] Typical material selection values; stated inequality signs are preserved. Where the source does not state a temperature, none is assumed. "Not listed" means the source gives no value.

[2] Initial material-selection ceiling only. It is not the continuous operating temperature of a sleeve, its mating parts, a pump or a seal.

Apply the material data at the correct level

Material strength, density and conductivity do not determine sleeve load, interference, running clearance, pressure–velocity limit, friction, leakage, dry-running capability or life. These depend on the part, mating surfaces and service conditions.

05 | MATERIAL BOUNDARIES

Porous routes and route selection

Silicon-nitride-bonded SiC (NBSiC, AD-SIC-NB) and recrystallized SiC (RSiC, AD-SIC-RC) are porous routes. Their permeability and working surfaces require specific review; dense-route values cannot be transferred to them.

NBSiC property	Unit and condition	Selection value
SiC content	wt%; nominal	80
Silicon nitride bond	wt%; nominal	20
Bulk density	g/cm³; typical	2.80
Porosity	vol%; typical	12
Flexural strength	MPa at 20 °C; typical	160
Flexural strength	MPa at 1200 °C; typical	180
Young’s modulus	GPa at 20 °C; typical	220
Thermal conductivity	W/(m·K) at 1000 °C; typical	15
Temperature ceiling	°C; initial material selection	1550

NBSiC porosity is reported as “porosity” in the source; it is not relabeled as measured open porosity. The temperature ceiling is not a finished-sleeve service rating.

RSiC requires component-specific values

The material source describes a porous recrystallized SiC skeleton but gives no uniform numerical RSiC table. Specify the required porosity, strength at operating temperature and permeability for the ordered component.

Choose by medium and working surface

Review question	Selection consequence
Does the liquid reach residual or bonding phases?	Review the actual medium, concentration and temperature against the chosen route.
Does the part need a fluid barrier or a fitted working surface?	Confirm porosity, permeability, machining and surface requirements together.
Does the geometry change the manufacturing route?	Review size, wall sections, profile complexity and finished surfaces before fixing the route.

Material data are selection references. The order identifies the actual grade, batch requirements and agreed material acceptance.

06 | APPLICATION CHECKS

Review service and replacement conditions

Define the sleeve by its installation position and contact pair. Chemical pumps, seawater systems and cooled rotating equipment can expose similar sleeves to different liquids, particles, temperatures and loads.

Service input	What to record
Liquid and solids	Medium and concentration, pH where relevant, viscosity, particle size and concentration, deposits and cleaning chemicals.
Motion and loading	Speed or sliding velocity, axial and radial load, vibration, misalignment, start–stop frequency and pressure difference.
Temperature and fit	Continuous, peak and cyclic temperatures of the sleeve, shaft and housing; heating/cooling rates and assembly temperature.
Contact and support	Shaft, seal or bearing materials; contact surface, fit, retention, support length, lubrication and flushing.

Use observed damage to guide the review

Observed condition	Information to check before replacement
Chipped bore edge or end face	Handling and fitting sequence, support surfaces, edge geometry and localized installation loads.
Scoring or wear	Damaged location, mating surfaces, particles, relative motion and lubrication or flush condition.
Cracking after a thermal event	Temperature history, rates of change, wall sections, fit and restraint by the mating parts.
Changed fit, deposits or leakage	Drawing dimensions, operating medium, surface condition and separate assembly acceptance criteria.

These are investigation prompts, not diagnoses. Do not infer a root cause or a service-life improvement from appearance alone.

Installation and reuse

Check drawing revision, dimensions, locating surfaces, cleanliness and ceramic edges before assembly. Follow the equipment’s approved support and retention procedure; avoid point loading at the bore edge or end face.

At commissioning, check alignment, fit, lubrication or flush and temperature conditions. Record the baseline. Before reuse, inspect geometry, surfaces, cracks and chips against agreed maintenance criteria.

07 | ACCEPTANCE AND REPEAT ORDERS

Agree inspection and supply requirements

Separate material, finished-part and assembly checks. State the method, sampling and acceptance limit for each required record before ordering.

Acceptance level	What to define
Material batch	SiC route or grade, composition and phases, porosity, batch identity and requested material documents.
Finished sleeve	OD, ID, length, local features, datum-based geometry, surface finish, edge condition, visual defects and cleanliness.
Mating assembly	Fit or clearance, retention, alignment, contact, friction or temperature rise and leakage where relevant.
Equipment trial	Medium, load, speed, pressure, temperature and cycle; trial duration and criteria for wear or dimensional change.

Define the order before production

Review the drawing against the material route, forming and machining requirements. Agree the drawing revision, critical characteristics, inspection records and trial quantity in the quotation. Set trial acceptance before approving repeat supply.

Protect the working and locating surfaces

Specify separation between sleeves, protection for bore edges and end faces, and restraint against movement in transit. Agree clean packing materials and any preservation requirements for the intended process.

Keep the repeat order identifiable

Order record	Information to retain
Part identity	Catalog reference where used, customer part number, drawing revision, material route and quantity.
Acceptance record	Agreed inspection items, approved deviations and any first-article or trial reference.
Packing and delivery	Part or set identification, batch separation, delivery destination and required documents.
Commercial terms	Price, minimum order quantity, availability and lead time as confirmed in the quotation.

The requirements on this page define the requested order scope. They do not claim a specific test, certificate, packaging method or stock position is included in every shipment.

08 | ENGINEERING RFQ

Request a shaft sleeve quotation

Start with a catalog reference, drawing, 3D model or photographs of an old part. Add the installation position, quantity and process medium. Remaining fit and inspection details can be completed during review.

Using a catalog reference

Cite ADC-CAT-SCS-001 Rev 01 and the full AT-SCS model. Confirm its complete OD, ID and L combination, the required material route and any changes to the bore, outer profile or end details.

Using a drawing or replacement part

Send the drawing revision or measured sketch and identify the sleeve in the assembly. For a worn part, distinguish unworn locating surfaces from the damaged working zone and include equipment and part references when available.

Information group	Include with the inquiry
Part and geometry	Drawing or model reference; OD, ID and L; end features; tolerances; datums; working surfaces and Ra/Rz.
Assembly	Rotating or fixed role; shaft, housing and mating materials; fit, axial location, retention and assembly temperature.
Operating conditions	Medium, concentration, particles, pressure, load, speed, lubrication or flush, temperature range and duty cycle.
Acceptance	Material requirements, finished-part checks, trial criteria, sampling and requested inspection documents.
Supply	Sample or batch quantity, repeat demand, packing, destination and target schedule.

Send the drawing or sleeve details

info@adcerax.com

Product page and inquiry form

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Final geometry, material, acceptance scope, availability and delivery terms are established in the agreed drawing and quotation.