



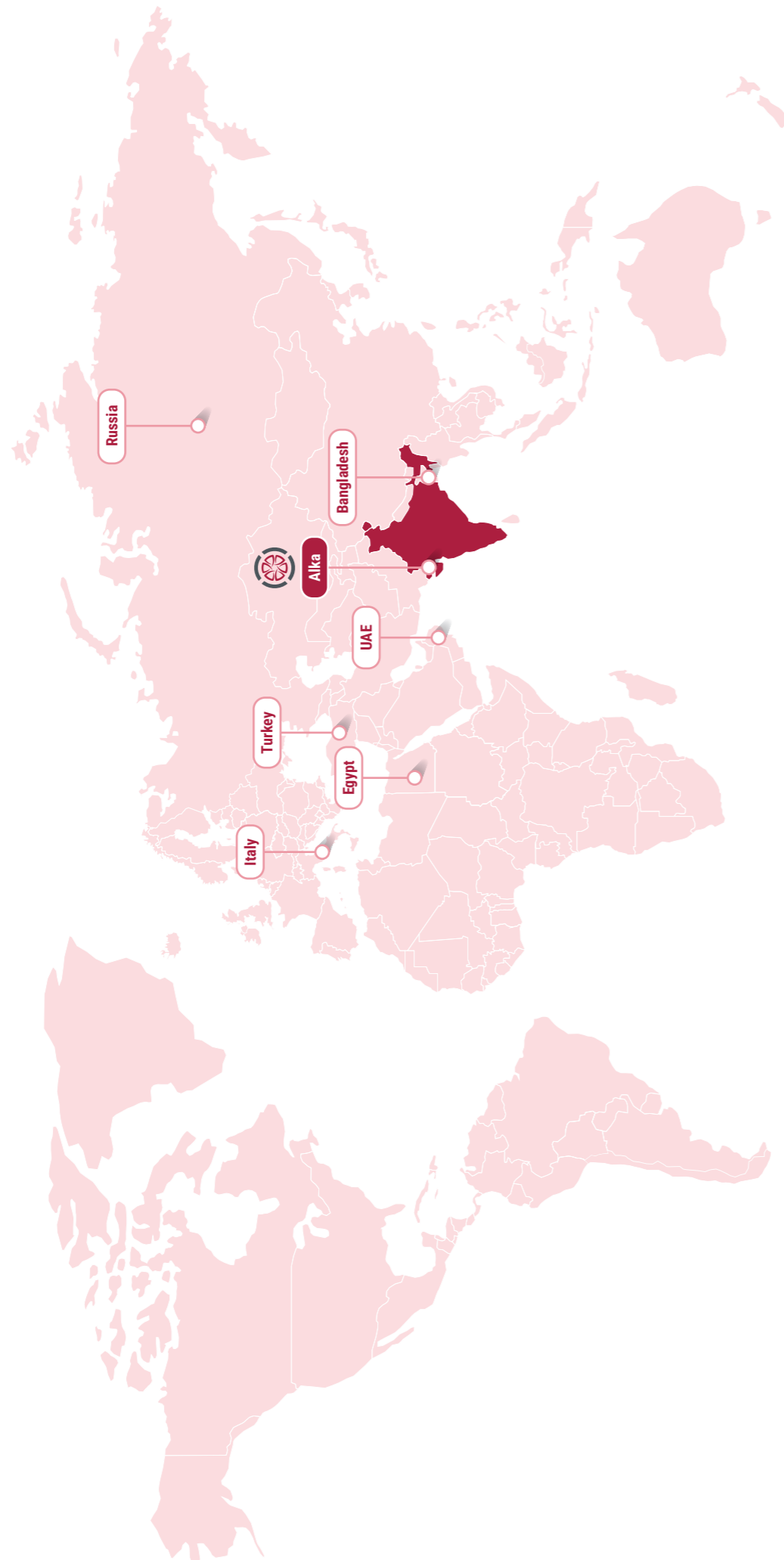
TECHNICAL CATALOGUE



Shri Alka Industries

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www.alkaindustries.com



About Us

Founded In 1988, Shri Alka Industries Stands As A Pioneer In Submersible Pump Component Engineering, Blending Heritage Craftsmanship With Cutting-Edge Innovation. For Over Three Decades, We Have Powered The Global Pump Industry With Products That Embody Precision, Durability, And Performance – All Guided By Our Core Philosophy, “*Innovative Thinking*”.

With 7 Granted Patents, Our Name Is Synonymous With Innovation In Thrust Bearings, Bush Bearings, And Precision Investment Castings. Every Component We Make Reflects Our Passion For Excellence And Our Relentless Drive To Redefine Industry Standards.



Our State-Of-The-Art 75,000 Sq. Ft. Manufacturing Campus Integrates Advanced CNC And VMC Machining Centers, In-House R&D, And Stringent Quality Control Systems. This Modern Infrastructure Enables Us To Achieve Impressive Production Capabilities:

Driven By Sustainability, We Proudly Operate On Clean Energy Through Our 1.5 Mw Solar Power Plant, Making Shri Alka Industries A Benchmark In Green Manufacturing Excellence.

With The Trust Of Over 300 Customers Across 25+ Countries, We’ve Earned Our Reputation As A

Dependable Partner For The World’s Leading Pump Oems And Brands.

From Agricultural Irrigation And Deep-Well Pumping To Industrial, Municipal, And Desalination Applications, Our Components Are Engineered To Perform Where It Matters Most – Deep Below The Surface.

As We Continue Our Journey Of Innovation, Shri Alka Industries Remains Committed To One Purpose: Creating Products That Not Only Move Water – But Move The World Forward.

150

Ton/Month In Our Investment Casting Division









150,000

Bush Bearings /Month

90,000

Thrust Bearings /Month

Product Range

Product	Size Range	Materials Available	Applications
Submersible Thrust Bearings	40mm – 250mm	1. Polymer With Stainless Steel	 1. Agriculture,
		2. Ssic + Ssic (Silicon Carbide)	 2. Irrigation,
			 3. Mining.
Bush Bearing	20mm – 100mm	1. Polymer	 1. Submersible Pumps,
		2. SSiC (Sintered Silicon Carbide)	 2. Submersible Motors.
Investment Casting	0.01kg - 150kg/pc.	1. Austenitic Stainless Steel : Cf8, Cf8m, Cf8c, Cf3, Cf3m, Duplex, Super Duplex, Cb7cu1 And All Other Ss Metals.	 1. Motor, Pump & Valve Manufacturers
		2. Martensitic Stainless Steel : Ca15 (410), Ca40 (420)	 2. Facade Engineering & Architectural Firms
			 3. General Industrial Machinery OEMs

Thrust Bearing

A **Submersible Thrust Bearing** Is A Specialized Type Of Bearing Used Inside **Submersible Pumps And Motors** To Absorb And Manage The **Thrust Load** That Develops When The Pump Impeller Pushes Water Upward.

Since The Motor And Pump Operate **Completely Submerged In Water (Or Other Liquids)**, These Bearings Must Be Designed To Work In Harsh, Wet Environments With **Continuous Lubrication From The Pumped Liquid Itself**.

Material Selection Guide (Paired Combinations)

Thrust Bearings Typically Work In Pairs Of Specialized Materials. This Ensures One Side Provides Wear Resistance While The Other Provides Load-Carrying Or Low-Friction Properties.

Material Pair	Strength	Corrosion Resistance	Wear Resistance	Cost	What We Can Offer
Fiber + Gunmetal	Good	Moderate	Moderate	Low	
Alka Super Thrust Bearing Polymer + Stainless Steel	High	Good	Moderate	Low	
Carbon + Stainless Steel	High	Good	Excellent	Medium	
Alka Premium Thrust Bearing Ssic + Ssic (Silicon Carbide)	Very High	Excellent	Outstanding	Medium	

Alka Premium Thrust Bearing

Silicon Carbide (SSiC) Bearings

1. Advantages

- **Outstanding Hardness & Wear Resistance** – Withstands Abrasive And Dirty Water Conditions With Minimal Wear.
- **High Load Capacity** – Handles Extreme **Pv (Pressure x Velocity)** Conditions Better Than Carbon And Other Materials.
- **Temperature Resilient** – Performs Reliably At High Operating Temperatures (>200 °C).
- **Superior Corrosion Resistance** – Chemically Inert In Seawater, Brackish Water, And Aggressive Fluids.
- **Long Service Life** – Reduces Downtime And Extends Maintenance Intervals.

2. Limitations

- **Brittleness** – While Very Hard, Sic Can Fracture Under Severe Impact Or Shock Loads.

3. Typical Applications

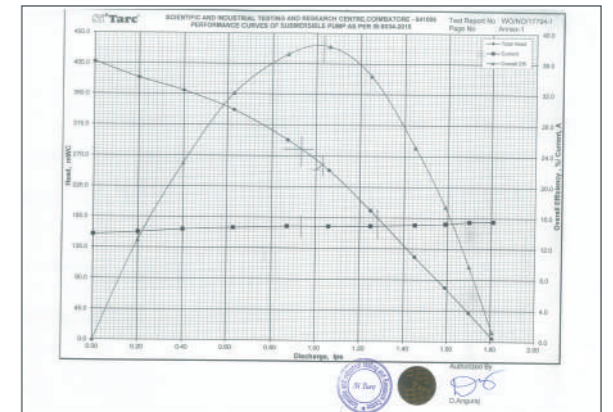
- Heavy-Duty Submersible Pumps (Industrial, Municipal, Desalination, Oil & Gas, Mining).
- Abrasive Environments – Sand-Laden, Slurry, Or Dirty Water Pumping.
- Mission-Critical Systems – Where Pump Failure Or Downtime Carries High Costs.

Thrust Bearing Size	Thrust Bearing Od	Number Of Segment	Pv	Load Acting On The Thrust Bearing (Kn)
	Od	N	(Psi X Ft/Min)	Kn
V4 - 55 X 3	55	3	10539	5 Kn
V4 - 55 X 5	55	5	11383	9 Kn
V5 - 70 X 3	70	3	21462	14 Kn
V5 - 70 X 4	70	4	34492	30 Kn
V6 - 80 X 4	80	4	36177	41 Kn
V6 - 80 X 5	80	5	36000	51 Kn
V7 - 90 X 5	90	5	38749	60 Kn
V8 - 90 X 5	90	5	38749	60 Kn
V9 - 100 X 6	100	6	36424	72 Kn
V10 - 115 X 8	115	8	37500	85 Kn
V12 - 150 X 12	150	12	36536	130 Kn
V14 - 210 X 14	210	14	37264	165 Kn

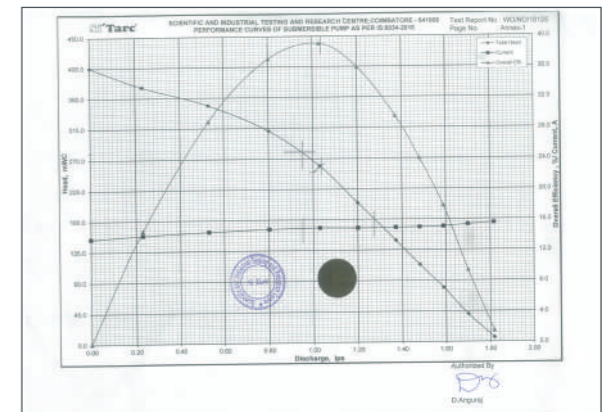
Note: Ratings Are Comparative Guidelines. Final Selection Depends On Load, Speed, and Water Quality

TEST PARAMETERS @ 380 V

Bearing Material	SiC vs SiC	Carbon vs SS steel
Test Report No.	17794	18125
Test Date	9th June 2025	23rd June 2025
Serial Number	A17550TB01	K17550TB02
Description	55mm 3 pad	60 dia 4 pad
Motor HP / Stages	7.5 / 50	7.5 / 50
Current Min	13.99 A	13.64 A
Current Max	15.54 A	15.53 A
Duty Point Current	14.92 A	14.93 A
Input Power Min	5.8 W	5.78 KW
Input Power Max	7.39 KW	7.36 KW
Duty Point Input Power	6.78 KW	6.7 KW
Total Head Min	4.98 m	6.12 m
Total Head Max	383.81 m	376 m
Duty Point Head	256.95 m	257.85 m
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Alka Premium Thrust Bearing (SSiC)



Rival's Thrust Bearing



Super Thrust Bearing

Engineered Polymer Thrust Bearing

1. Advantages Of Polymer + Stainless Steel

- **Low Friction:** Polymer Provides A Smooth Sliding Surface, Reducing Friction Losses.
- **Noise & Vibration Absorption:** Polymer Has Damping Properties, Leading To Quieter Operation.
- **Corrosion Resistance:** Stainless Steel Resists Water Corrosion, While Polymer Is Chemically Inert.
- **Cost-Effective:** Generally Lower Cost Compared To SSiC Or Carbon–Metal Pairs.

2. Limitations Of Polymer + Stainless Steel

- **Temperature Limitations:** Polymers Lose Strength At High Temperatures
- **Wear Rate:** Higher Wear Compared To Sic Or Carbon Bearings, Especially Under Abrasive Or Dirty Water Conditions.
- **Load Capacity:** Limited Pv (Pressure x Velocity) Rating Compared To SSiC Bearings.
- **Creep / Deformation:** Polymers May Deform Slightly (Especially At High Temperature).

3. Typical Applications

- Small & Medium Submersible Pumps (Agriculture, Domestic, Government).
- Applications With Light-Duty Pumping.
- Where Cost Efficiency And Ease Of Replacement Are Key.



Bush Bearing

At **Shri Alka Industries**, Our **Submersible Bush Bearings** Are Designed To Deliver Outstanding Reliability And Smooth Operation In Demanding Underwater Conditions. Each Bearing Is Engineered From **Sintered Silicon Carbide (SSiC)** And **High-Performance Engineered Polymers**, Ensuring Long-Term Stability Even In Abrasive Or Chemically Aggressive Water.

These Precision Components Support And Guide The Rotating Pump Shaft While Maintaining Perfect Alignment, Minimal Friction, And Low Wear. The Pumped Liquid Itself Acts As The Lubricant, Forming A Fine Hydrodynamic Film That Provides **Self-Lubrication** And Eliminates The Need For External Lubricants.

Submersible Bearing Bush Material Comparison Chart

Material Pair	Strength	Corrosion Resistance	Wear Resistance	Cost	What We Can Offer
Gunmetal (Bronze Alloy)	Good	Moderate	Moderate	Low	
Nitrile Rubber (Elastomer)	Low	Excellent	Low	Low	
Alka Super Bush Engineered Polymer (Composite)	High	Good	Moderate	Low	
Carbon Graphite	High	Good	Excellent	Medium	
Tungsten Carbide	Very High	Excellent	Excellent	High	
Alka Premium Bush SSiC (Sintered Silicon Carbide)	Very High	Excellent	Outstanding	Medium	

Note: Ratings Are Comparative Guidelines. Final Selection Depends On Load, Speed, Water Quality

Alka Premium Bush Bearing

Silicon Carbide (SSiC) Bush Bearings

Property	Typical Value	Benefit
Purity	≥ 99% Sic	Corrosion And Oxidation Resistant
Hardness	2200–2500 Hv	Extreme Wear Protection
Flexural Strength	350–450 Mpa	Handles High Mechanical Stress
Density	3.05–3.1 G/cm ³	High Structural Rigidity
Thermal Conductivity	100–120 W/M·K	Rapid Heat Dissipation
Water Absorption	0%	No Swelling Or Distortion





Operational Performance

- Operates Continuously At **900 °C** (Water-Cooled).
- Wear Rate - 0.01 Mg/Cm²/Hr.
- Service Life - **25,000 H** In Borewell Water.
- Zero Dimensional Change After 5 Days Water Soak at **85 °C**.

Recommended Applications

- Deep Bore Submersible Pump Bushes & Thrust Bearings
- Heavy-Duty Irrigation And Industrial Pumps
- Chemical And Brine Transfer Pumps
- Marine And Offshore Water Handling Systems

Engineering Advantages

-  **No Lubricant Degradation** – Uses Process Water As Lubricant.
-  **High Load Stability** – No Creep Or Deformation.
-  **Corrosion Proof** Against most chemical.
-  **No Contamination Risk** → Suitable For Ro And Food-Grade Pumps.
-  **High Thermal Conductivity** Maintains Low Bearing Temperature.



Alka Super Bush Bearing

Polymer Bush Bearings

Property	Typical Value	Benefit
Reinforcement	40% Glass Fiber	High Rigidity And Strength
Tensile Strength	≈130 Mpa	High Mechanical Load Capacity
Flexural Strength	≈180 Mpa	Stable Under Deflection
Heat Deflection Temp.	>260°C	High Temperature Resistance
Water Absorption	0.02% at Room temp.	Minimal Swelling In Water
Chemical Resistance	Excellent	Corrosion-Resistant Performance






Operational Performance

- Operates Continuously Up To **200 °C** Without Deformation Or Loss Of Precision.
- Low Friction Coefficient Ensures **Smooth, Energy-Efficient Operation** Under Varying Loads.
- Dry-Run Tolerant** For very Short Durations During Startup Or Low-Water Conditions.
- Wear Rate < 0.05 µm/Hr** Under Standard Submersible Pump Operating Conditions.
- Delivers **10,000 Hours** Of Service Life In Borewell Water.

Recommended Applications

- Submersible Pump Bearing Bushes For Domestic And Agricultural Use.
- Industrial And Ro System Pumps Handling Chemical Or Saline Water.
- Deep-Bore And High-Head Pumps.

Engineering Advantages

-  **40% Glass-Fiber Reinforcement** Provides High Rigidity And Shape Stability.
-  **Excellent Chemical Resistance** To Chlorinated, Brackish, And Alkaline Water.
-  **Self-Lubricating Polymer Matrix** Reduces Startup Torque And Power Loss.
-  **High Thermal And Mechanical Stability** Ensures Consistent Performance In All Climates.
-  Easily Machinable For **Custom OEM Fits** And **Grooved Designs**.



Investment Casting Product

Investment Casting Process Overview

- Wax Injection
- Assembly & Shell Building
- Dewaxing & Firing
- Pouring & Solidification
- Knockout & Fettling
- Heat Treatment & Machining
- Quality Inspection

TECHNICAL SPECIFICATION

Material specification: Listed below are most commonly poured alloys in Alka. Our broad selection of alloys helps you to select the alloy that is best suited for your Stainless Steel Investment Castings

Material	
S S Grades	CF8, CF8M, CF3, CF3M, CN7M, CH20, CK20, CD4MCU, Etc
Martensitic Stainless Steel	CA15, CA-40, WC1, WC4, WC5, WCB, WCQ, WC11, C5, C12, C12A, Etc
Duplex Stainless Steel	CD4MCUN, GRADE 1A, 2A, 3A, 4A, 5A, 6A Etc
Supper Alloy	HAST-B, HAST-C, HAST ALLOY 22C, MONEL, STELLITE- 6/12, 50CR-50 NICB, CZ 100, M35-1, M35-2, CN-7M, CY-40, CW12MW, CW-6M, CX2MW, Etc.
CS Grades	WCB, WCA, WCC, LCA, LCB, LCC, LC1, LC2, LC3, LC4, LC9, & All EN SERIES GRADES Etc.
Precipitation Hardening grade	15-5-PH, 17-4-PH, CB7CU1, CB7CU2 Etc.
Also more then 100 grade in ASTM, DIN, EN, BS standard	

Casting Tolerances : These tolerances apply as a general rule of thumb. Closer tolerances can be obtained depending on part design.

General metric tolerance	
up to 25 mm	± 0.1
up to 50 mm	± 0.25
up to 100 mm	± 0.4
up to 125 mm	± 0.5
up to 150 mm	± 0.6
up to 200 mm	± 0.75

Value-Added Services

- Cnc Machining
- Vmc Machine
- Heat Treatment
- Surface Coatings & Finishing (Pickling, Passivation, Polishing, Plating)

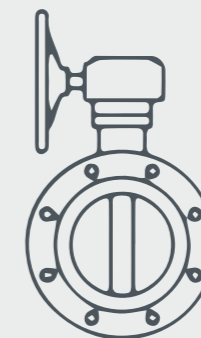
Product Portfolio



Industries We Serve



Pumps



Valves



General Engineering

Failure Analysis Of Submersible Thrust Bearings

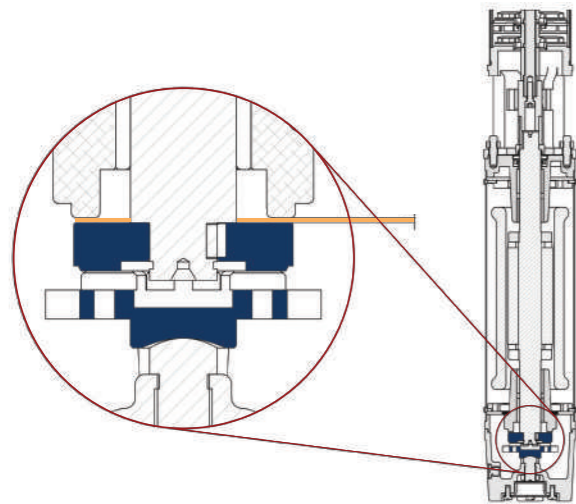
Failure Type	Root Cause	Effect	Prevention
Wear	<ul style="list-style-type: none"> • Poor Lubrication, • Incompatible Material Pair, • Misalignment 	<ul style="list-style-type: none"> • Excess Clearance, • Vibration, • Noise 	<ul style="list-style-type: none"> • Proper Lubrication, • Accurate Alignment, • Use Wear-Resistant Materials
Pitting / Spalling	<ul style="list-style-type: none"> • Fatigue From Overload, • Surface Defects, • Contamination, • Improper Heat Treatment 	<ul style="list-style-type: none"> • Cracks, • Surface Flaking, • Early Failure 	<ul style="list-style-type: none"> • Avoid Overload, • Use Defect-Free Material, • Surface Hardening/Coatings
Overheating	<ul style="list-style-type: none"> • High Friction, • Excess Speed, • Poor Cooling, • Lubrication 	<ul style="list-style-type: none"> • Distortion, • Loss Of Hardness, • Seizure 	<ul style="list-style-type: none"> • Correct Lubricant, • Maintain Cooling Flow, • Monitor Operating Temperature
Corrosion	<ul style="list-style-type: none"> • Chemical Ingress, • Poor Sealing, • Incompatible Material 	<ul style="list-style-type: none"> • Rust, • Pitting, • Surface Degradation 	<ul style="list-style-type: none"> • Use Corrosion-Resistant Material, • Maintain Sealing, • Inspection
Misalignment	<ul style="list-style-type: none"> • Improper Shaft Installation, • Uneven Loading, • Vibration 	<ul style="list-style-type: none"> • Edge Loading, • Uneven Wear, • Premature Failure 	<ul style="list-style-type: none"> • Precision Machining, • Alignment Checks, • Self-Aligning Design
Foreign Particle Damage	<ul style="list-style-type: none"> • Dust, Sand, Or Debris In Lubrication, • Poor Assembly, • Cleanliness 	<ul style="list-style-type: none"> • Scratches, • Abrasive Wear, • Scoring, • Seizure 	<ul style="list-style-type: none"> • Install Filters/Seals, • Maintain Clean Assembly, • Flush Lubrication System
Fracture / Cracking	<ul style="list-style-type: none"> • Sudden Overload, • Impact Load, • Material Defects, • Brittleness 	<ul style="list-style-type: none"> • Catastrophic Failure, • Shaft Damage 	<ul style="list-style-type: none"> • Use Tough Materials, • Avoid Shock Loads, • Strict Quality Inspection
Power Fluctuation Shock	<ul style="list-style-type: none"> • Irregular torque • Axial load variation 	<ul style="list-style-type: none"> • Micro-hammering on thrust pads, • surface pitting • edge chipping 	<ul style="list-style-type: none"> • Use Soft Starter or VFD, • Install Non-Return Valve (NRV), • Use stabilizer
Power Cut Reverse Thrust	<ul style="list-style-type: none"> • hydraulic column reversal • axial bounce 	<ul style="list-style-type: none"> • Sudden impact load on thrust pads, • pad breakage, • increased axial play 	<ul style="list-style-type: none"> • Install Non-Return Valve (NRV), • Maintain Axial Play ≤ 1.5 mm

Failure Analysis Of Submersible Bush Bearings

Failure Type	Root Cause	Effect	Prevention
Wear Resistance	<ul style="list-style-type: none"> • Continuous Operation In Abrasive Or Sandy Water, • Poor Material Hardness, • Insufficient Lubrication Film 	<ul style="list-style-type: none"> • Excessive Clearance, • Noise, • Vibration, • Reduced Pump Efficiency 	<ul style="list-style-type: none"> • Use Materials With High Hardness; • Maintain Optimal Surface Finish • Lubrication Flow, • Maintain Optimal Tolerance.
Handling In Abrasive Water	<ul style="list-style-type: none"> • Presence Of Sand, Silt, Or Iron In Water; • Inadequate Groove Design For Flushing. 	<ul style="list-style-type: none"> • Surface Scoring, • Rapid Wear, • Imbalance In Rotation. 	<ul style="list-style-type: none"> • Adopt Spiral Or Axial Grooves For Debris Flushing; • Use Wear-Resistant Materials.
Friction / Energy Efficiency	<ul style="list-style-type: none"> • Poor Surface Finish, • High Friction Coefficient Material, • Dry Running. 	<ul style="list-style-type: none"> • Increased Energy Consumption, • Temperature Rise, • Premature Wear. 	<ul style="list-style-type: none"> • Use Low-Friction Materials, • Maintain Shaft Smoothness.
Temperature Resistance	<ul style="list-style-type: none"> • High Operating Temperature From Motor Heat Or Dry Running. 	<ul style="list-style-type: none"> • Distortion In Polymer And Carbon Bush Bearing, • Loss Of Clearance. 	<ul style="list-style-type: none"> • Use A Material With High Temperature Capability; • Maintain Water Cooling Flow.
Life Expectancy	<ul style="list-style-type: none"> • Material Degradation, • Abrasive Wear, • Poor Maintenance. 	<ul style="list-style-type: none"> • Frequent Replacement, • Reduced Pump Lifespan. 	<ul style="list-style-type: none"> • Select Long-Life Materials; • Proper Installation • Add Water Filtration System.
Power Fluctuation Shock	<ul style="list-style-type: none"> • Uneven Shaft Speed • Torque Pulsation. 	<ul style="list-style-type: none"> • Vibration, • Micro-Wear On softer material. 	<ul style="list-style-type: none"> • Use Soft Starter Or VFD To Control Start/Stop; • Install Non-Return Valve (NRV)
Power Cut Reverse Rotation	<ul style="list-style-type: none"> • Hydraulic Thrust • Shaft Impact. 	<ul style="list-style-type: none"> • Uneven Axial Movement • Impact On softer material, • Oval Wear, • Shaft Scoring. 	<ul style="list-style-type: none"> • Install Non-Return Valve (NRV)

Installation & Handling Guidelines

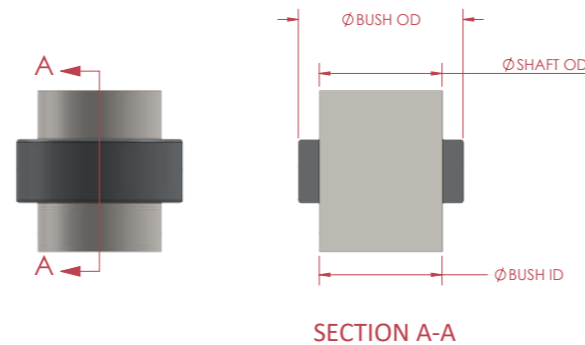
SSiC Thrust Bearing



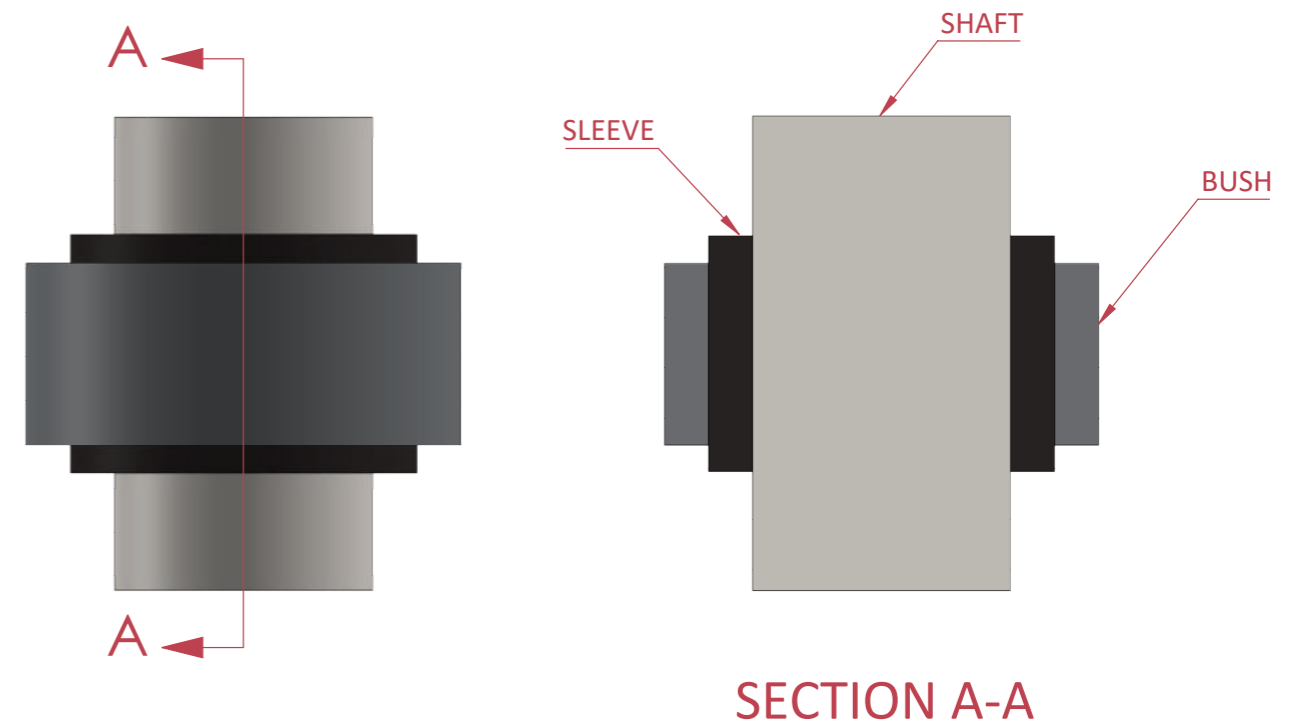
- **In motor assembly, ensure axial play does not exceed ≤ 1 mm.**
Excessive axial movement creates hammering on the thrust bearing, leading to cracking or complete bearing failure.
- **Avoid hammering during installation.**
SSiC is a hard but brittle material; mechanical shock may cause microcracks.

Polymer Bush Bearing

Size	Press Fit	Adhesive Fit
V4		
Bush OD	+0.03 To +0.06	-0.02 To +0.04
Bush ID	+0.08 To +0.10	+0.05 To +0.07
Shaft OD(If 30mm)	29.94 To 29.96	29.94 To 29.96
V6 & V8		
Bush OD	+0.03 To +0.06	-0.03 To +0.05
Bush ID	+0.09 To +0.11	+0.07 To +0.09
Shaft OD(If 38mm)	37.94 To 37.96	37.94 To 37.96
V9 & V10		
Bush OD	+0.04 To + 0.06	- 0.03 To +0.05
Bush ID	+0.11 To+ 0.13	+0.09 To +0.11
Shaft OD(If 45mm)	44.94 To 44.96	44.94 To 44.96



SSiC Bush Bearing



- **Always use an SSiC sleeve between the shaft and the SSiC bush.**
Direct contact between the SSiC bush and the shaft must be avoided to prevent damage or premature failure.
- **Ensure perfect alignment during assembly.**
Misalignment can cause uneven load distribution and lead to premature wear or cracking.
- **Use only adhesive fit for installation.**
Do not use press or interference fits, as they may induce stress and distort the bearing geometry.

- **After fitting, do not pass the ball or any hard object through the bore.**
It may chip or scratch the precision surface of the SSiC material.
It may break the SSiC bush.
- **Avoid hammering or impact loading during installation.**
SSiC is a hard but brittle material; mechanical shock may cause microcracks.
- **Clean and dry all surfaces before bonding.**
Oil, dust, or moisture can weaken adhesive strength and affect alignment accuracy.

Testing & Quality Assurance

At Shri Alka Industries, quality isn't just a process – it's a philosophy.

From sourcing the finest global raw materials to precision-crafting the final component, every step reflects our pursuit of perfection.

Our materials come exclusively from certified suppliers in Europe, Japan, and the USA, meeting IS, DIN, ASTM, JIS, and BS standards. Each batch is tested for purity, hardness, and performance before production begins.

Within our 75,000 sq ft facility, every bearing and casting passes multiple quality gates – dimensional accuracy,

metallurgical checks, surface finish validation, and endurance testing – powered by advanced instruments and automated systems.

Backed by **ISO 9001-certified processes**, in-house R&D and tribology labs, and real-time data traceability, we uphold a **zero-defect philosophy** that ensures reliability in every product.

Our Promise: Every component leaving Shri Alka Industries must embody engineering excellence – built to perform flawlessly in the world's most demanding environments.



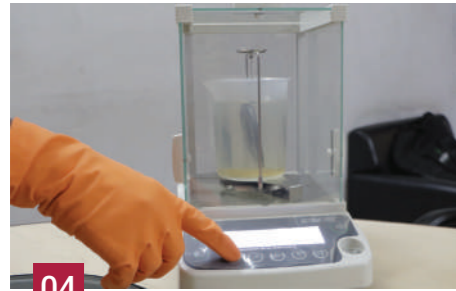
01 Spectrometer



02 Hardness Tester for Polymer



03 Ra Value


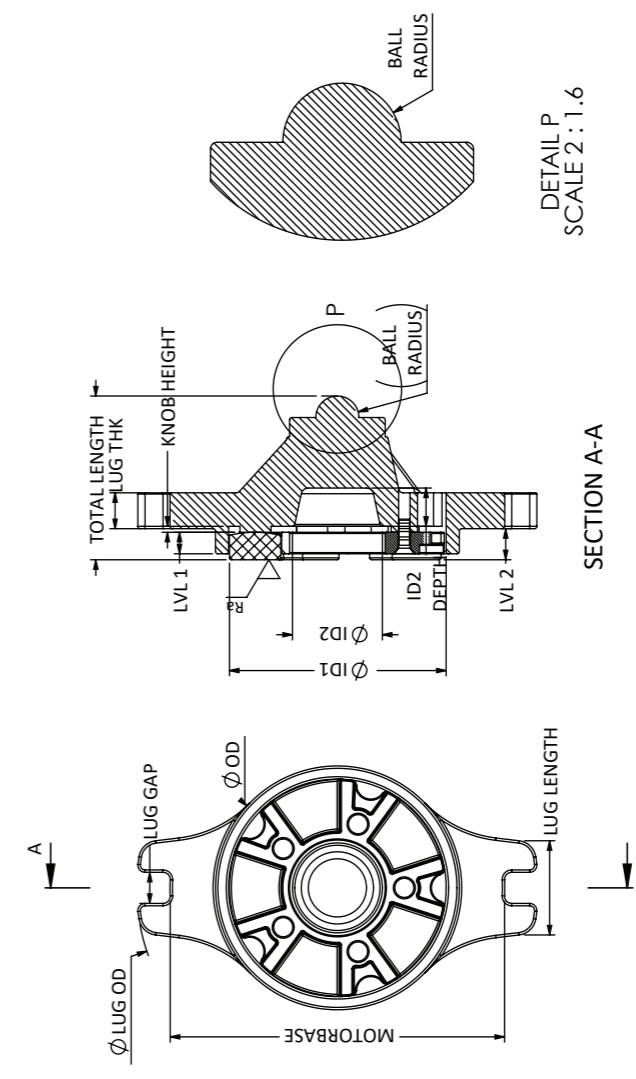
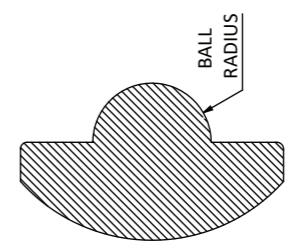






04 Density



05 Hardness Tester

Ordering Information

Item Name -	Customer Name/Code -	Date - / /		ISSUE DATE		REV DATE																																					
		FORMAT NO	REV NO.	TYPE 1	TYPE 2																																						
	SEGMENT DIMENSION REPORT	REQUIRED DIMENSIONS		TYPE 1		TYPE 2																																					
		CHARACTERISTICS		1 CARRIER OD		2 MOTORBASE		3 LUG OD		4 LUG GAP		5 LUG LENGTH		6 TOTAL LENGTH		7 LUG THICKNESS		8 LEVEL 1		9 LEVEL 2		10 ID1		11 ID2		12 ID2 DEPTH		13 BOSS OD		14 BOSS LENGTH		15 RADIUS		16 RADIUS DIA		17 DEEP		18 DEGREE HOLE		19 BALL DIA		20 MATERIAL	
		CHARACTERISTICS INDICATION						DETAIL P SCALE 2 : 1.6		SECTION A-A		if other than upper please select from below				<input type="checkbox"/>				<input type="checkbox"/>				<input type="checkbox"/>				<input type="checkbox"/>		Remark If Any :													

