SKF 6305-2RS1

SKF 6305-2RS1 Radial Bearing Instruction Manual

Model: 6305-2RS1 | Brand: SKF

1. Product Overview

The SKF 6305-2RS1 is a single-row, deep groove radial ball bearing designed for applications requiring high speeds and rotational accuracy while supporting radial loads. This bearing features a double-sealed design to protect internal components from contaminants and retain lubricant, ensuring extended service life.

Key characteristics include:

- **Axially Symmetric Races:** Engineered to support radial loads effectively while maintaining high speeds and precise rotation.
- **ABEC 1 Precision Standard:** Conforms to industry standards for performance within a narrow range of variation.
- **Deep Grooves:** Designed to support heavier loads compared to standard grooves and maintain ball stability at high rotational speeds.
- **CN (Normal) Radial Internal Clearance:** Suitable for applications that do not involve significant thermal expansion or require atypical precision.
- **Steel Cage:** Ensures even spacing of rolling elements for uniform load distribution, reducing friction, vibrations, and noise.
- **Double Sealed (2RS1):** Equipped with rubber seals on both sides to prevent lubricant leakage and ingress of dust and moisture.



Figure 1: SKF 6305-2RS1 Radial Bearing. This image shows the exterior of the double-sealed bearing, highlighting its robust construction and the SKF branding.

2. Installation and Setup

Proper installation is crucial for the optimal performance and longevity of the SKF 6305-2RS1 radial bearing. Incorrect installation can lead to premature failure, increased noise, and reduced efficiency.

2.1. Preparation

- **Cleanliness:** Ensure that the bearing, shaft, and housing are thoroughly clean and free from any dust, dirt, or foreign particles.
- **Inspection:** Visually inspect the bearing for any signs of damage during transit. Check the shaft and housing for burrs, nicks, or other imperfections that could affect fit.
- **Tools:** Use appropriate tools for installation, such as bearing heaters, hydraulic presses, or mounting kits. Avoid using hammers directly on the bearing rings or seals.

2.2. Mounting Methods

The choice of mounting method depends on the bearing size, fit, and application. Common methods include:

- **Cold Mounting (Press Fit):** For smaller bearings, the bearing can be pressed onto the shaft or into the housing using a hydraulic press. Apply force only to the ring being fitted.
- **Hot Mounting (Thermal Expansion):** For larger bearings or tighter fits, heating the bearing allows it to expand, making installation easier. Use an induction heater or oil bath. Do not exceed 120°C (248°F) to avoid damaging seals or lubricant.
- **Hydraulic Mounting:** For very large bearings, hydraulic methods can be used to expand the bearing bore for mounting.

Important: Always ensure that the mounting force is applied evenly and directly to the ring that is being fitted. Applying force through the rolling elements can cause damage.

3. Operation Guidelines

To ensure reliable operation and maximize the lifespan of your SKF 6305-2RS1 bearing, adhere to the following guidelines:

- **Load Conditions:** This bearing is primarily designed for radial loads. While it can accommodate minimal axial loads, excessive axial forces should be avoided.
- **Speed Limits:** Operate within the specified speed limits for the bearing. Exceeding these limits can lead to overheating and premature failure.
- **Temperature Range:** Ensure the operating temperature remains within the recommended range for the bearing and its lubricant. High temperatures can degrade lubricant and bearing materials.
- **Vibration and Noise:** Monitor for unusual vibration or noise during operation, which can indicate a problem.
- **Alignment:** Maintain proper alignment of shafts and housings to prevent uneven loading and stress on the bearing.

4. Maintenance

The SKF 6305-2RS1 bearing is double-sealed and pre-lubricated for life in many applications. However, periodic inspection and proper handling are still important.

4.1. Inspection

- Regularly inspect the bearing's external condition for signs of damage, corrosion, or seal degradation.
- Listen for unusual noises (grinding, squealing) that may indicate internal damage or lubrication issues.
- Check for excessive heat generation, which can be a sign of overload, insufficient lubrication, or improper installation.

4.2. Cleaning and Handling

- Keep the bearing and its surroundings clean to prevent contamination.
- When handling, use clean gloves to avoid introducing dirt or moisture.
- Store bearings in their original packaging in a dry, clean environment until ready for use.

Note: As this bearing is double-sealed, it is generally not designed for re-lubrication. Attempting to remove the seals for re-lubrication may damage the seals and compromise the bearing's protective properties.

5. Troubleshooting

This section outlines common issues that may arise with radial bearings and potential causes. Always consult a qualified technician for complex issues.

Symptom	Possible Cause	Action
Excessive Noise (Grinding, Squealing)	Contamination, improper lubrication, damage to rolling elements or raceways, incorrect fit.	Inspect for contamination. Verify proper installation and fit. Replace if damaged.
Overheating	Excessive speed, overload, insufficient clearance, misalignment, inadequate lubrication.	Check operating conditions against specifications. Verify alignment. Ensure proper fit.
Excessive Vibration	Imbalance, misalignment, loose fit, damage to bearing components.	Check for balance and alignment of rotating components. Inspect bearing for damage.
Premature Failure	Improper installation, overload, contamination, fatigue, corrosion.	Review installation procedures. Assess operating loads. Ensure clean environment.

6. Specifications

Detailed technical specifications for the SKF 6305-2RS1 Radial Bearing.

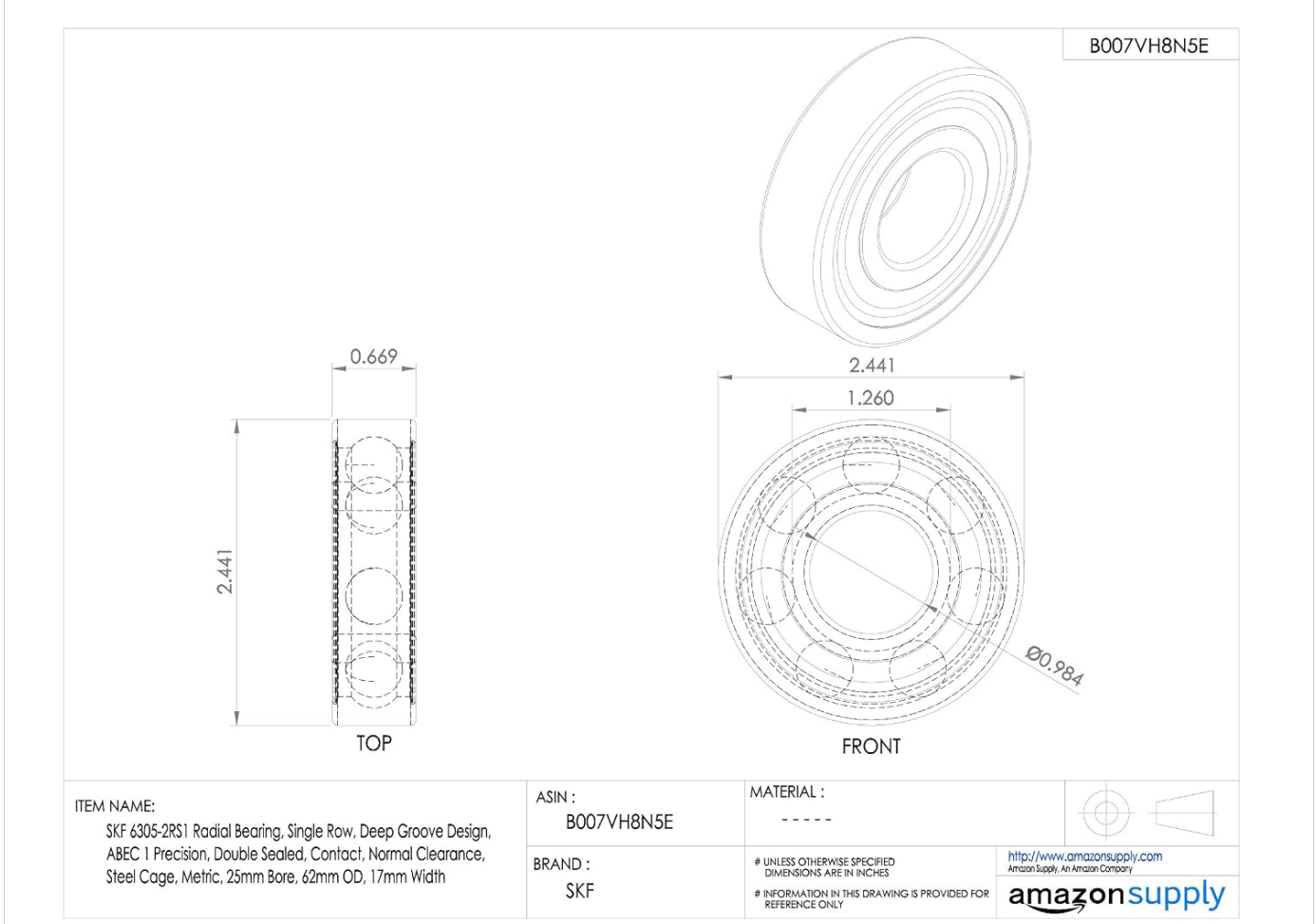


Figure 2: Technical drawing of the SKF 6305-2RS1 Radial Bearing. This diagram illustrates the bearing's dimensions and internal structure, including bore, outer diameter, and width measurements.

Attribute	Value

Attribute	Value
Model Number	6305-2RS1
Bearing Type	Radial Ball Bearing, Deep Groove, Single Row
Precision Standard	ABEC 1
Sealing Type	Double Sealed (2RS1) - Rubber seals on both sides
Internal Clearance	CN (Normal)
Bore Diameter (d)	25 mm
Outer Diameter (D)	62 mm
Width (B)	17 mm
Cage Material	Steel
Material	Alloy Steel, Rubber (for seals)
Product Dimensions (L x W x H)	2.36 x 1.18 x 2.36 inches (approx. 60 x 30 x 60 mm)
Item Weight	0.51 Pounds (approx. 231 grams)
Relevant Standards	ISO 104:2002 (Main bearing dimensions), DIN ISO 281 (Basic dynamic load ratings), ISO 199:1997 (Dimensional and geometric tolerances), ISO 683-17 (Through-hardening steel), (DIN) EN 10111:1998 (Pressed sheet steel for cage), ISO 281:1990 (Load carrying capacity and life), DIN 623-1 (Part numbering system).

7. Warranty and Support

For specific warranty information, technical support, or further inquiries regarding the SKF 6305-2RS1 Radial Bearing, please contact SKF directly through their official website or authorized distributors. SKF is a global manufacturer known for its quality bearings and industrial solutions.

You can find more information and contact details on theSKF Store on Amazon or the official SKF website.

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