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Model: 19831 | Brand: SKF

1. INTRODUCTION

The SKF 19831 Rotary Shaft Seal is a precision-engineered component designed to prevent the leakage of lubricants or other fluids and to exclude contaminants such as dirt and moisture from entering a system. This seal features a single lip with a spring, made from durable Nitrile rubber, ensuring reliable performance in various applications. Proper installation and maintenance are crucial for the longevity and effectiveness of the seal.

2. PRODUCT FEATURES AND COMPONENTS

The SKF 19831 seal is characterized by its robust construction and specific design for optimal sealing. Key features include:

- **Seal Type:** Single Lip with Spring
- **Lip Material:** Nitrile Rubber
- **Design Code:** CRW1
- **Country of Origin:** United States



Figure 2.1: Exterior view of the SKF 19831 Rotary Shaft Seal, displaying the part number 'CR-19831' on its outer surface. This image highlights the overall shape and the grey and green color of the seal.



Figure 2.2: Interior view of the SKF 19831 Rotary Shaft Seal, clearly showing the garter spring and the sealing lip. This internal component is critical for maintaining consistent pressure against the shaft.

3. SPECIFICATIONS

Detailed technical specifications for the SKF 19831 Rotary Shaft Seal:

Specification	Value
Model Number	19831
Shaft Diameter	2 Inches
Width	5/16 Inches
For Bore Diameter	2-3/4 Inches
Material	Nitrile Rubber
Color	Grey
Item Weight	0.353 ounces
Package Dimensions	18 L x 21 H x 18 W (inches)

Package Weight	2.03 pounds
UPC	085311022316

4. SETUP AND INSTALLATION

Proper installation is critical for the performance and lifespan of the SKF 19831 shaft seal. Follow these general guidelines:

1. Preparation:

- Ensure the shaft and bore surfaces are clean, free from burrs, nicks, or scratches.
- Inspect the seal for any visible damage before installation.
- Apply a thin layer of the system's operating fluid or a compatible lubricant to the seal lip and the shaft surface to aid installation and prevent initial dry running.

2. Installation Tooling:

- Use a proper seal installation tool that applies force evenly to the outer diameter of the seal. Avoid using sharp objects or hammers directly on the seal.
- If a tool is not available, a flat, blunt object can be used with care, ensuring even pressure around the seal's circumference.

3. Insertion:

- Carefully align the seal with the bore.
- Press the seal squarely into the bore until it is fully seated. Ensure it is not cocked or tilted.
- Verify that the seal lip is not inverted or damaged during installation.

4. Shaft Insertion:

- When inserting the shaft through the seal, protect the seal lip from sharp edges (e.g., keyways, splines, threads) by using a protective sleeve or tape.
- Rotate the shaft slightly while inserting to help the lip slide over the shaft smoothly.

Note: Incorrect installation is a leading cause of premature seal failure. Always refer to specific equipment manufacturer guidelines if available.

5. OPERATING PRINCIPLES

The SKF 19831 Rotary Shaft Seal operates by creating a dynamic seal between a rotating shaft and a stationary housing. The Nitrile rubber lip, reinforced by a garter spring, maintains a constant radial force against the shaft surface. This force, combined with the precise design of the lip, creates a thin fluid film between the lip and the shaft, which is essential for lubrication and cooling, while simultaneously preventing the passage of fluid or contaminants.

The garter spring ensures that the sealing lip maintains consistent contact pressure on the shaft, even with minor shaft runout or vibration. The Nitrile material is chosen for its excellent resistance to oils, fuels, and other petroleum-based fluids, making it suitable for a wide range of automotive and industrial applications.

6. MAINTENANCE

Rotary shaft seals are wear components and require periodic inspection and replacement. While the SKF 19831 seal is designed for durability, its lifespan is influenced by operating conditions such as temperature, shaft speed, pressure, and the presence of contaminants.

- **Regular Inspection:** Periodically check for signs of leakage around the seal area. Even minor weeping can indicate the beginning of seal failure.
- **Fluid Compatibility:** Ensure that the operating fluid remains compatible with Nitrile rubber. Changes in fluid type can degrade the seal material.
- **Contamination Control:** Minimize exposure to abrasive particles or harsh chemicals that can damage the sealing lip.
- **Replacement:** Replace the seal at recommended service intervals or at the first sign of leakage or wear. Always replace with a new seal; used seals should not be reinstalled.

7. TROUBLESHOOTING

Most issues with rotary shaft seals manifest as leakage. Common causes and potential solutions are outlined below:

- **Leakage Immediately After Installation:**
 - *Cause:* Damaged seal lip during installation (e.g., cut, inverted, or folded).
 - *Solution:* Remove and inspect the seal. Replace if damaged. Re-install carefully, using proper tools and lubrication.
 - *Cause:* Improper seating of the seal in the bore (cocked or not fully inserted).
 - *Solution:* Remove and re-install, ensuring the seal is seated squarely and fully.
- **Leakage After Some Operating Time:**
 - *Cause:* Worn sealing lip due to normal wear, excessive shaft runout, or abrasive contaminants.
 - *Solution:* Replace the seal. Inspect shaft for wear or damage. Address contamination sources.
 - *Cause:* Hardening or cracking of the Nitrile rubber due to high temperatures or chemical incompatibility.
 - *Solution:* Replace the seal. Verify operating temperature is within Nitrile's limits. Ensure fluid compatibility.
 - *Cause:* Damaged shaft surface (grooves, scratches) at the sealing area.
 - *Solution:* Repair or replace the shaft. A shaft repair sleeve may be an option for minor wear.
- **Excessive Heat Generation at Seal:**
 - *Cause:* Insufficient lubrication, excessive interference fit, or high shaft speed.
 - *Solution:* Ensure proper lubrication. Verify seal and shaft dimensions. Reduce shaft speed if possible or consider a different seal material/design for high-speed applications.

8. WARRANTY AND SUPPORT

SKF products are manufactured to high-quality standards. For specific warranty information regarding the SKF 19831 Rotary Shaft Seal, please refer to the official SKF warranty policy available on the SKF website or contact SKF customer support directly. Keep your purchase receipt as proof of purchase.

For technical assistance, product inquiries, or support, please visit the official SKF website or contact their customer service department. You can often find detailed technical specifications, application guides, and contact information on the SKF brand store or main corporate website.

SKF Official Website: www.skf.com

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