uxcell S51102

uxcell S51102 Thrust Ball Bearing Instruction Manual

Model: S51102 | Brand: uxcell

1. Introduction

This manual provides essential information for the proper installation, operation, and maintenance of the uxcell S51102 Thrust Ball Bearing. Understanding these guidelines will ensure optimal performance and longevity of the bearing.

Thrust ball bearings are designed to accommodate axial loads and locate a shaft axially in one direction only. They are not intended for radial loads. The S51102 model features separable components, which simplifies both mounting and maintenance inspections.

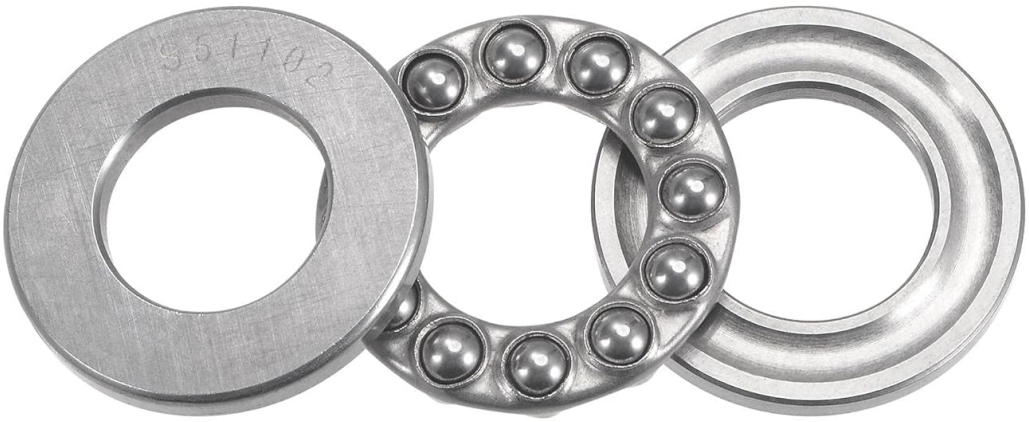

Figure 1: Components of the uxcell S51102 Thrust Ball Bearing, showing the shaft washer, housing washer, and ball and cage assembly.

2. Components and Material

The uxcell S51102 Thrust Ball Bearing consists of three main separable components:

- **Shaft Washer:** The inner ring, typically mounted on the shaft.
- **Housing Washer:** The outer ring, typically mounted in the housing.
- **Ball and Cage Assembly:** Contains the steel balls held in place by a cage, positioned between the two washers.

All components are constructed from 420 Stainless Steel. This material is a martensitic stainless steel known for its high and uniform hardness, good wear resistance, and corrosion resistance.

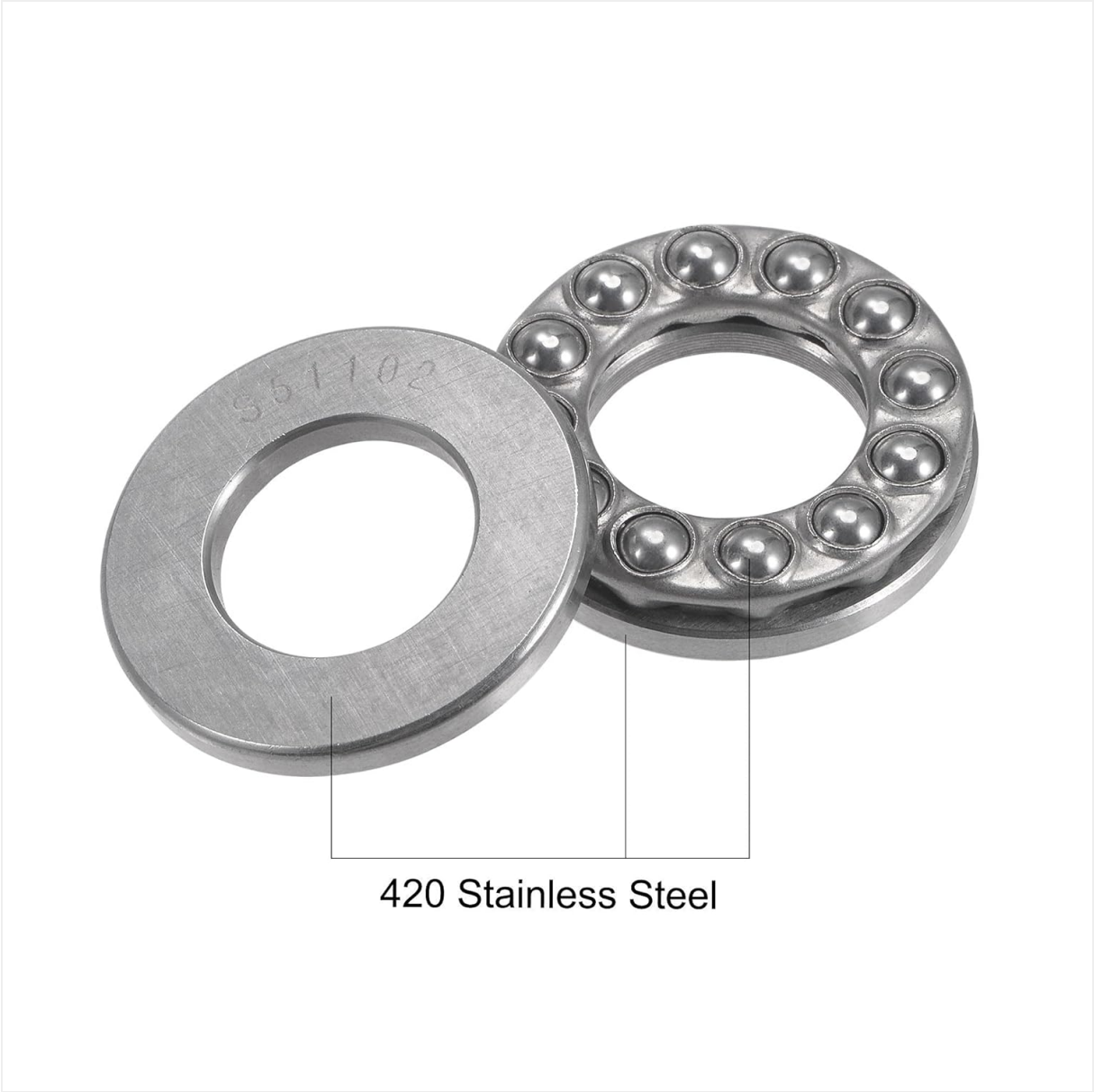

Figure 2: Illustration highlighting the 420 Stainless Steel construction of the bearing components.

3. Installation and Setup

The separable design of the uxcell S51102 thrust ball bearing simplifies its installation. Follow these steps for proper assembly:

1. **Preparation:** Ensure all mating surfaces on the shaft and housing are clean, free from burrs, and properly machined to the correct tolerances.
2. **Lubrication:** Apply a suitable lubricant (e.g., grease) to the bearing components before assembly. This aids in initial operation and protects against corrosion.
3. **Shaft Washer Installation:** Carefully slide the shaft washer (the inner ring with the smaller bore) onto the shaft.
4. **Ball and Cage Assembly Placement:** Position the ball and cage assembly onto the shaft washer. Ensure it sits centrally.
5. **Housing Washer Installation:** Place the housing washer (the outer ring with the larger outer diameter) on top of the ball and cage assembly, ensuring it aligns correctly with the housing.
6. **Final Seating:** Gently press the components together to ensure they are fully seated. Avoid using excessive force or striking the bearing directly, as this can cause damage.

Proper alignment during installation is crucial for optimal performance and to prevent premature wear.

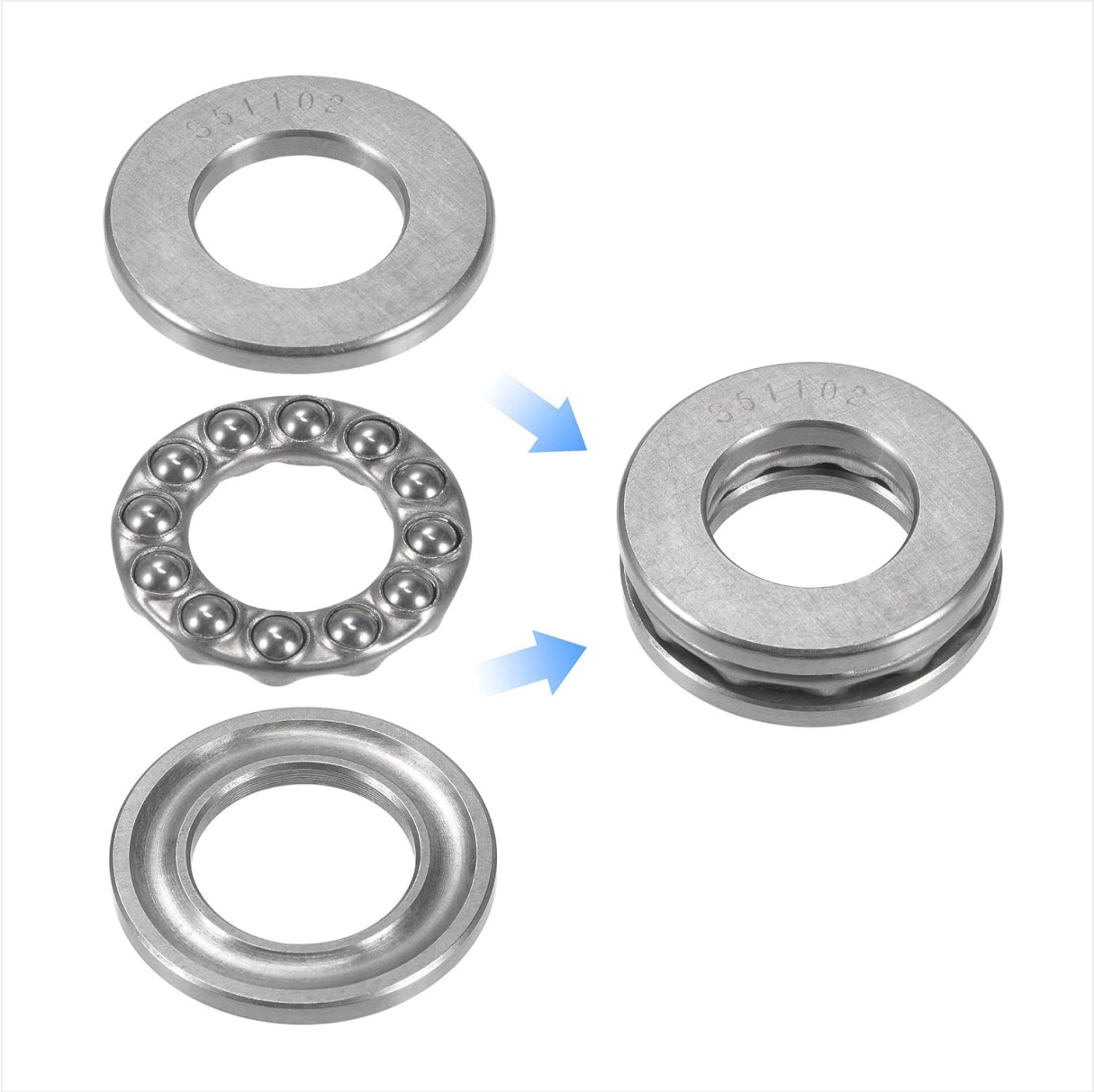

Figure 3: Assembly process of the thrust ball bearing, illustrating how the three components fit together.

4. Operating Principles and Limitations

The uxcell S51102 Thrust Ball Bearing is specifically engineered to handle axial loads. It is designed to support a shaft axially in one direction.

- **Axial Load Capacity:** The bearing is designed to withstand forces acting parallel to the shaft axis.
- **No Radial Load:** It is critical that this bearing is **not** subjected to any radial loads (forces acting perpendicular to the shaft axis), as this will lead to rapid failure.
- **Low-Speed Operation:** This bearing is designed for low-speed applications. Refer to the specifications section for limiting speeds with grease and oil lubrication.

Typical applications include oven turntables, jacks, pumps, and various machine tools where axial support is required.

5. Maintenance

Regular maintenance is essential to ensure the long service life and reliable performance of your uxcell

S51102 Thrust Ball Bearing.

- **Cleanliness:** Always maintain a clean working environment around the bearing. Contaminants such as dust, dirt, and debris can significantly reduce bearing life and cause premature wear.
- **Lubrication:** Ensure the bearing is adequately lubricated at all times. Re-lubricate periodically with a compatible grease or oil, as specified for your application. Proper lubrication reduces friction, dissipates heat, and prevents corrosion.
- **Inspection:** Periodically inspect the bearing for signs of wear, damage, or unusual noise during operation. Early detection of issues can prevent more significant problems.
- **Storage:** If storing the bearing, keep it in its original packaging in a dry, clean environment to prevent corrosion and contamination.

6. Troubleshooting

This section provides general guidance for common issues that may arise with thrust ball bearings.

Problem	Possible Cause	Solution
Excessive Noise	• Insufficient lubrication • Contamination • Improper installation/alignment • Overload (radial or excessive axial)	• Check and replenish lubrication • Clean bearing and surrounding area • Re-install bearing correctly • Verify application loads are within limits
Overheating	• Insufficient lubrication • Excessive speed • Overload • Misalignment	• Check and replenish lubrication • Reduce operating speed if exceeding limits • Verify application loads are within limits • Re-install bearing correctly
Premature Wear	• Contamination • Lack of lubrication • Radial load application • Vibration	• Ensure clean environment • Maintain proper lubrication • Ensure only axial loads are applied • Address source of vibration

7. Technical Specifications

Detailed specifications for the uxcell S51102 Thrust Ball Bearing:

Specification	Value
Model	S51102
Brand	uxcell
Material	420 Stainless Steel
Inner Diameter (Bore)	15 mm
Outer Diameter	28 mm
Thickness	9 mm
Dynamic Load Rating (Cr)	10.5 kN

Specification	Value
Static Load Rating (Cor)	16.8 kN
Limiting Speed (Grease)	6100 rpm
Limiting Speed (Oil)	9400 rpm
Bearing Type	Thrust Ball Bearing
Compatible Lubricant	Grease (or Oil, depending on application)

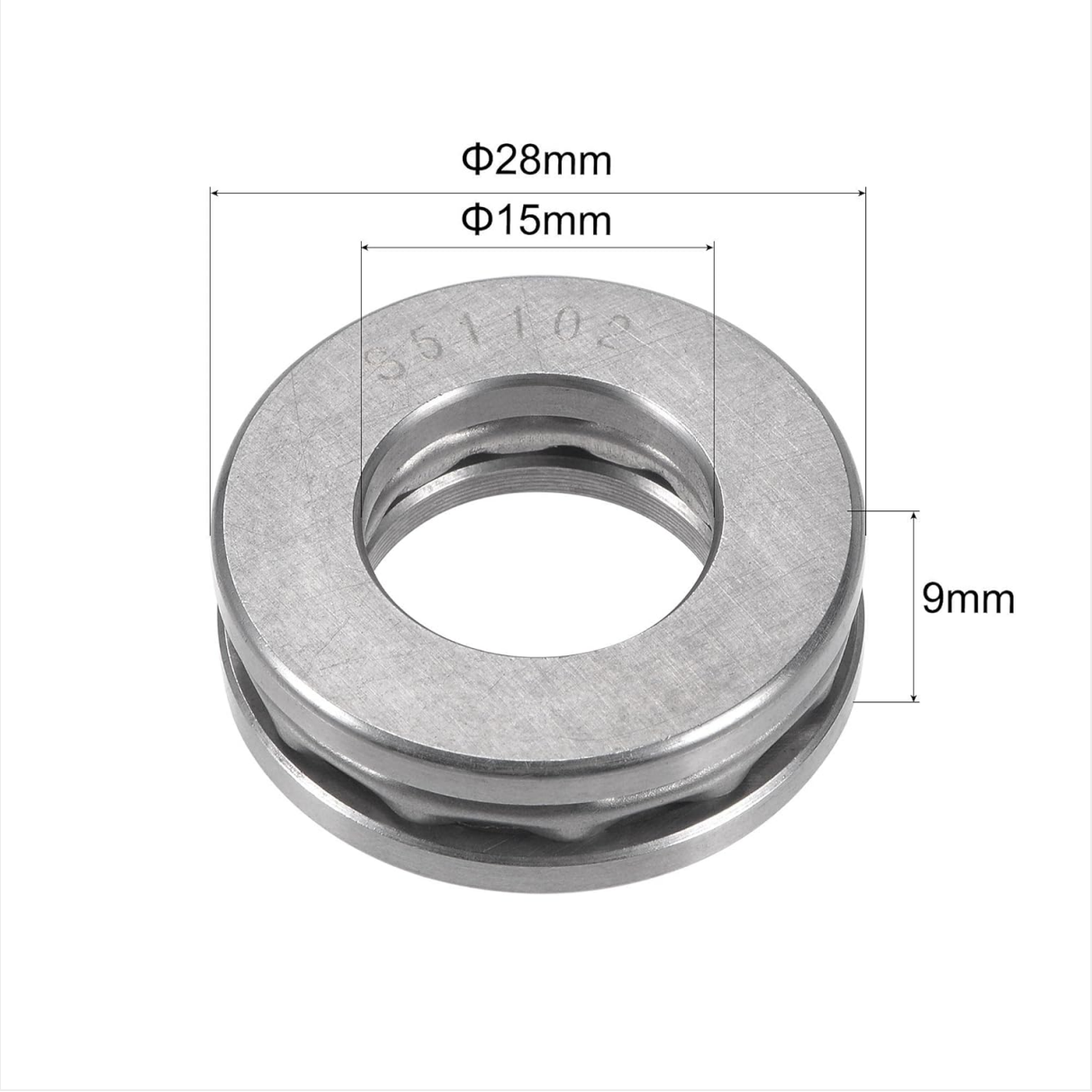

Figure 4: Dimensional drawing of the uxcell S51102 Thrust Ball Bearing.

8. Warranty and Support

Information regarding specific warranty terms or direct customer support contacts for the uxcell S51102 Thrust Ball Bearing is not available in the provided product data. For warranty inquiries or technical assistance, please refer to the retailer's return policy or contact uxcell directly through their official channels.

You may find additional information or contact details on theuxcell Store on Amazon.

Documents - uxcell – S51102

no relevant documents