

# Types of Bearings

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## *Ball Bearings*

Powerhouse Bearing & Supply, Inc. provides quality products to many different industries. We also realize that every industry is different and has its own unique requirements. Whatever the application, Powerhouse Supply has the products to help maintain the efficiency, cleanliness, power, and reliability your process requires.

## *Radial Ball Bearings*

Radial ball bearings consist of ball rolling elements that sit in grooves between the inner and outer race. These bearings provide support and superior anti-friction movement due to the minimal contact between the rolling elements and the races. These bearings are available with rubber contact seals, metal shields, or open.

## *Angular Contact Bearings*

Angular contact bearings are designed to handle axial (thrust) loads. Like radial ball bearings, angular ball bearings also use balls as the rolling element between the inner and outer race to maintain minimal surface contact. To facilitate the axial load, the inner and outer races are displaced to allow for the rolling element to make contact at an angle. They are available with steel, bronze, or polyamide retainers.

## *Brands available: Nachi, Koyo, AXIS*

Cylindrical roller bearings are similar to radial ball bearings except for the fact that they employ cylindrical rollers instead of balls for the rolling element. Due to the rollers having more surface contact, these bearings can handle a heavier radial load. However, the RPM ratings of these bearings are less than that of radial ball bearings. These bearings also often have removable inner or outer races.

## *Spherical Roller Bearings*

Spherical roller bearings provide excellent radial support and anti-friction movement. The rolling element consists of two rows of cylinders that sit between an inner and outer race. What makes these bearings unique is their performance in applications in which there is shaft misalignment. This is due to the crowned profile of the inside surface of the outer race. These bearings are available with steel or bronze retainers.

In this same category of bearings you have Spherical Roller Thrust Bearings. These bearings are designed to handle an axial load. They are different than angular ball bearings in how the rolling element is spherical rollers instead of balls. Due to the increased surface area of the rollers, they are able to handle a heavier axial load than a radial ball bearing.

### *Double Row Ball Bearings*

Double row ball bearings are similar to standard radial ball bearings, except that they use two rows of ball rolling elements instead of just one. Having two rows of ball rolling elements increases the radial load capacity, while still providing superior anti-friction movement because of the minimal surface contact between the rolling elements and the inner and outer races. These bearings are available sealed, shielded, and open.

### *Self-Aligning Bearings*

Self-aligning bearings are similar to spherical roller bearings in how they are insensitive to some shaft misalignment. Rather than spherical rollers, they employ balls as rolling elements. The less surface area contact between the rolling elements and the inner and outer race allows these bearings to run at higher RPMs. Self-aligning ball bearings generate the least amount of friction than any other ball bearing.

### *High-Precision Angular Bearings*

High-precision angular ball bearings provide the highest level of accuracy, speed, and strength for machinery that requires such attributes. Often referred to as spindle bearings, high-precision angular ball bearings are often used in high-speed machine live centers where precision and rigidity are paramount. The higher RPM's are achieved by using smaller ball rolling elements, which results in less surface area contact between the rolling elements and the inner and outer race. These bearings have phenolic retainers to decrease noise. They are also flush ground so they can be run in duplex and triplex formations. Flush ground bearings can also be run face-to-face, back-to-back, and in tandem.



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