

## Why ball bearing is expensive

Ball bearings are one of the most common types of bearings used in rotating systems. They are also available in different materials such as steel, nylon, bronze and plastic. The ball bearings are used in automobiles, heavy equipment, manufacturing plants and many other places. The ball bearings come in different types and sizes depending on the application they are going to be used for.

The price of ball bearings depends on many factors such as:

### Ball bearing material selection and dimensions

While ball bearings are relatively inexpensive, they are not as cheap as you might think. The main reason for this is that they are made of high-quality steel. This is not only strong but also hard and durable. The bearings used in the bearing balls must be made of high-quality steel because they work under extreme pressure, which can damage any kind of material.

The most common material used to make ball bearings is stainless steel, which has been hardened and tempered to provide maximum durability. These bearings can withstand a huge amount of pressure without losing their shape or becoming damaged in any way. This is why they are so popular with machine manufacturers who want their machines to run smoothly for many years without requiring any maintenance or repair work being carried out on them.

Another important factor when it comes to choosing ball bearings is the size of the balls themselves. Smaller sized balls tend to have more space between them than larger sized ones do, meaning that they can spin freely without hitting each other or becoming damaged at all during use. If you find yourself having difficulty choosing a suitable size then it's best if you speak with an expert before making a purchase as this will help you choose the right size for your specific needs.

## Tight tolerances

The reason why ball bearings are more expensive than other types of bearings is that they can operate at very high speeds and have very tight tolerances. If you look at a typical roller bearing, you'll notice that the balls are larger and have a greater diameter than those found in a ball bearing. Also, the raceways in a roller bearing are less precise than those found in a ball bearing. This means that the rolling elements in a roller bearing have more play or movement, which results in less efficiency and performance.

Ball bearings have an outer ring (also known as an outer race) with small grooves that fit around each individual ball. The inner ring fits inside of this outer ring, with its own set of grooves for each ball to sit in. When this assembly is placed between two plates or surfaces, the balls roll freely between each other and become self-lubricating due to their design.

## **The production process is complicated**

A ball bearing is a type of rolling-element bearing that uses balls to maintain the separation of moving components. The balls are held in a cage (aka, retainer, or race) that rotates with the shaft. Unlike a roller bearing, there are no rollers to wear out.

The production process for ball bearings is complicated. It usually involves several steps and machines, including grinding, polishing, heat treatment and others. For example, before being used as an industrial-grade bearing, a steel rod has to be machined into a spherical shape by using a lathe machine or another similar tool. Then the rod is hardened and tempered at high temperatures so that it can resist wear, corrosion and fatigue over time. Once this is done, the balls are placed inside a housing made from materials like stainless steel or aluminum alloy to form a unit called an inner race or outer ring. Finally, lubricant such as grease or oil is added between the inner race or outer ring and its respective housing in order to reduce friction between them during rotation.

## **Standard and custom components**

Standard components are usually cheaper than custom components because they can be mass-produced. The cost of manufacturing is lower, and this leads to a lower price tag for consumers.

The main reason why standard components are cheaper is because they are made in bulk and can be produced quickly. The manufacturer does not have to worry about the design and development of each product. They only need to focus on making sure that the specifications of the product meet standards required by different industries.

Customized components can be more expensive than their counterparts because they are made from scratch using premium materials. This means that there is no stock available for re-sale as with standard components. It also means that you may end up paying more for customized parts as compared to standard components even though you know exactly what you want from your custom component supplier.

## **As high-precision parts, ball bearings are expensive to manufacture**

Ball bearings are precision components, and as such they are expensive to manufacture. Specifically, ball bearings are made from high-quality steel that is heat-treated and then polished to a high surface finish. The pre-loaded balls and raceways have to be perfectly sized and shaped, so the ball bearings must be precisely machined before being heat-treated. After heat treatment, the parts are inspected to ensure the tolerances are within specification.

To make matters more complicated, the axes of many ball bearings must be ground and honed after machining to ensure a perfect fit for the balls. This process uses diamond abrasives in a grinding machine that can cost up to \$500 per hour to operate. Once these steps are

completed, the part is then plated with a protective coating such as nickel or chrome to prevent corrosion during long storage periods or shipping between facilities.

Firstly, in today's market, ball bearing is the most widely used bearing and is easy to use. Secondly, it has high dynamic quality so it can be used a long time without maintenance. And thirdly, it has excellent corrosion resistance and is easy to install. Therefore , its value is higher than that of other bearings. It's worth mentioning that when choosing ball bearings, we should choose large-sized ones because small-sized ones are easy to get worn out and heat after continuous being used for a long period of time. It's essential to pay attention to the choice of ball bearings.