

# Bogus Bearings Still on a Roll

## Counterfeits continue to vex big-name suppliers

Jack McGuinn, Senior Editor

When a Rolex knock-off one day disassembles on its owner's wrist—caveat emptor, you get what you pay for. And when—say Walmart—gets stuck with a counterfeit \$50 bill, it is duly noted and life goes on. But when a counterfeit bearing finds its way into the guts of a piece of heavy machinery, or a medical device, or a production line—the ramifications can be significant, if not deadly. Bearings are much like gears—they're everywhere. Which ups the ante that there exist numerous applications possibilities for counterfeit bearings to impact performance and outcome. Consider the potential result of bearing failure in a high-balling locomotive; or a surgical tool used for brain surgery; or in a heavy-duty crane operating in the heart of Manhattan. Indeed, when speaking of counterfeit bearings, the you-get-what-you-pay-for bromide couldn't be more accurate.

About now, however, you might be asking yourself—when was the last time I actually heard of counterfeit bearings being responsible for a severe accident? Well, you won't hear

about it in the mainstream news media, but documented mishaps do indeed occur. Here are three true-life scenarios that are presented on SKF's website ([skf.com](http://skf.com)):

### Steel mill discovers 1,000 counterfeits

On suspicion that a non-authorized dealer had supplied them with a large quantity of counterfeit SKF bearings, mill management asked SKF to conduct an inspection. The mill reported that after two to three hours of operation, the replacement bearings were performing so poorly that the mill's maintenance team was forced to shut down the machinery, dismount the bearings, and remount the older bearings. After inspecting more than 1,000 suspect bearings, SKF technicians concluded that they were in fact counterfeit, thereby helping the mill keep a costly mistake from becoming even more expensive.

### Unplanned shutdown at petrochemical plant

For one unfortunate petrochemical processor, it took an emergency shutdown to reveal that it was being supplied



Often counterfeit bearings are virtually indistinguishable from the real thing. That's why SKF offers a free service to authenticate their products. Visit [www.skf.com/genuine](http://www.skf.com/genuine) for more info.

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These counterfeit bearings are being destroyed. Courtesy of SKF.

with counterfeit SKF bearings. Following just two days of operation, one of these bearings failed in a crucial application, forcing the costly, unplanned shutdown. After a complete analysis, SKF confirmed that the bearings were counterfeit. In cooperation with an SKF authorized distributor, the counterfeits were quickly replaced with genuine components.

### Marine vessel finds repairs almost worse than problem

After only 14 hours of continuous operation, a generator on-board a marine vessel began experiencing such extreme vibration that it had to be shut down. As the generator had just undergone repairs, the crew was immediately suspicious. Fearing the worst, the vessel's maintenance team removed the suspect bearing and sent it to SKF for a rigorous bearing failure analysis. SKF confirmed that the bearing was counterfeit, which nearly caused the "repairs" to be worse than the original problem.

Commenting on the above, Christopher Napoleon, president/chief engineer of Napoleon Engineering Services, says that "For most industrial applications the greatest concern is loss of equipment uptime and the loss of revenue while maintenance crews diagnose the problem and repair the equipment. For the end user, that is typically the greatest risk. There are always the concerns about personal injury, but I suspect they are relatively small in number compared to reduced bearing life and loss of return on investment due to poor performance."

So given an absence of severe injuries or fatalities due to counterfeit bearings, this is one occasion where "it's all about the money" is relatively good, if not incredible news — especially when you consider that it took only some defective o-rings to bring down NASA's Challenger space shuttle, killing all seven crew members.

How difficult is it to identify counterfeit bearings? It would seem learning to do so can't be that complicated — or is it?

"It's oftentimes quite difficult to identify a counterfeit bearing," says Napoleon. "The quality level of some of the plants that are engaged in counterfeit production can be outstanding. I've seen product that is equal to, or better than, the original manufacturer, but the internal design was different," proving that the product was counterfeit. "It's not always that the quality is poor," he continues, "It could be a different grade of steel or different design intention that separates a counterfeit bearing from the brand name. Bearings are actually very complicated and there are many attributes that can identify separate suppliers. However, if someone is intent on counterfeiting a major brand name, and they work hard at reverse engineering the bearing design, manufacturing practices, marking, packaging, etc., it can often be difficult to identify the knock-off version."

"Counterfeit bearings are very difficult to identify and it requires a trained expert to do so," seconds Tina Åström, SKF director group marketing, communication & brand protection. "The counterfeits have a very high level of resemblance to genuine product, where the most obvious visual features

are copied, such as colors and logo types.” But just as with “nice” packaging, a “nice” looking bearing “is no guarantee that it is genuine.” Åström points out that “SKF offers our customers a verification support through the SKF Authenticate app, where SKF experts will verify authenticity for them within 24 hours. The best way to safeguard authenticity is to buy from distributors authorized by SKF (see list of authorized SKF distributors at [www.skf.com](http://www.skf.com)).”

Something else to wonder about is why there is a surfeit of counterfeited bearings around the world compared to, for example, counterfeit commodity-class gears.

“Bearings are mostly sold according to the standards and brand name catalogues, while gears are mostly custom made—even though there are several companies selling standard gears,” according to Dr. Joe Liou, senior scientist at ABB, Inc., USA, whose comments here are his own and not necessarily attributed to ABB USA.

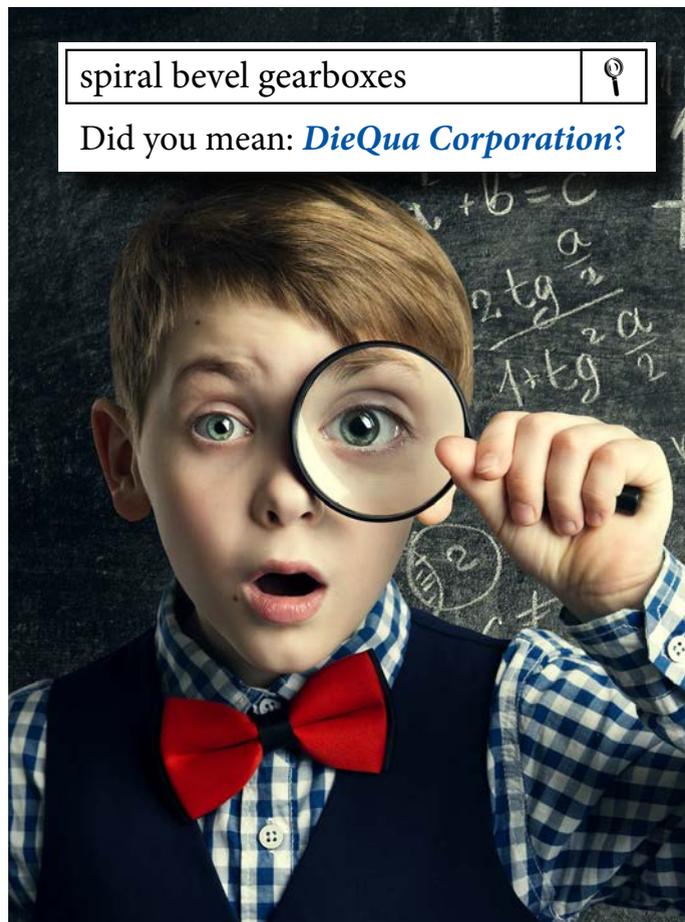
“Bearings are more prevalent than gears and perhaps other components because there is a much larger selection of standard bearings out in the market,” says Napoleon. “Bearing catalogs are full of standard bearings types and sizes. There are hundreds and hundreds of them. But there is the same number of standard gears out there. Bearings are often considered a commodity; it’s typically easier to replicate a commodity than a specialized product. The problem is that a bearing is not a commodity. There are many technical aspects of a bearing that can and will bite you if not attended to. That’s one of the reasons why the major suppliers are so

adamant about ridding the market of counterfeit.”

As for SKF’s Åström, “Bearings are not more counterfeited than other mechanical components,” she says. “All premium brands are being counterfeited. Unlike many other producers, SKF has taken a conscious decision to be open with the existence of counterfeits. SKF feels that it is our obligation to protect our customers by informing about the existence of counterfeits, the risks of using counterfeits and that the best way to safeguard authenticity is to buy from distributors authorized by SKF. We also provide free-of-charge verification support through the Authenticate app. This could possibly be perceived that bearings might be more counterfeited than other mechanical components, but that is likely not the case.”

What drives the continuing existence of counterfeit bearings? Why haven’t they been eradicated by now? Does the extreme competitiveness of the global economy compel some companies to cut corners by knowingly buying bogus bearings?

“No,” says Åström. “A bearing is a critical mechanical component in any machinery. The selection of bearing is based on the machine characteristics, e.g. temperatures, speeds and loads. There are many bearing manufacturers on the market, each listing load capacity, etc. of their products and the end user can decide which bearing manufacturer they shall buy from. (One) should instead compare counterfeit bearings with pharmaceuticals that would contain a medicine of uncertain origin or active ingredient(s) to treat an illness. In addition we do not see any price difference at end



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Destroying counterfeit bearings prevents them from entering the marketplace. Courtesy of SKF.

user level between counterfeit and genuine products. Less-serious distributors gain financially through knowingly buying counterfeit products and selling them to end-users with much higher margins.”

“I don’t think for a minute that legitimate OEMs are searching out counterfeit product to put into their equipment to gain competitive advantage,” says Napoleon, adding, “There is no gain for them. If they say that they use SKF or Timken bearings when they aren’t, and the product fails prematurely, they cannot go back to SKF and Timken and expect them to stand by a product they didn’t supply. If they are looking for a lower-cost bearing, then there are plenty of lower-cost suppliers out there to begin with, so there is no real benefit in my mind; it will come out in the wash anyway. Lastly, if the counterfeit supplier is actually a good bearing manufacturer and the product provides good service life, why then go knowingly down the path in an illegal means. Simply purchase the product under the real brand name and do business as it was intended to be done. I believe that in most cases there are brokers or unauthorized distributors involved in the counterfeit business, and the OEM is often not intentionally purchasing counterfeit product.

On those apparently rare occasions when injuries occurred due in part to bad bearings, who is ultimately liable? It would appear to be difficult to determine who holds the smoking gun.

Responds Liou: “Manufacturers, retailers and traders. For example, in this video—<http://abc13.com/news/>

[federal-agents-raid-bearings-warehouse-in-sw-houston/192795](http://federal-agents-raid-bearings-warehouse-in-sw-houston/192795), the warehouse is responsible for the physical harm.”

Napoleon, while stipulating that he “cannot answer this question from a legal liability standpoint,” says that “when a bearing fails, a manufacturer needs to trace that bearing back through the purchasing process to determine the plant of manufacture and the timeframe in which it was made. When they can’t track the bearing through the approved sales agents, a red flag goes up. Concurrently, engineering might start to evaluate the bearing failure and put significant time and energy into assessing the cause of the failure. All of this takes time and costs money. This is another reason why major brand name manufacturers want to crack down on counterfeit production. There is a significant cost associated with these efforts assessing product that is not their own. If it is proven that the product is not made by the brand name manufacturer and they have taken steps to protect their product integrity, then the responsibility falls back to those that sold the counterfeit product. But remember—the sellers are typically not legitimate businesses and they don’t have insurance and other means of protecting against catastrophic events. Very often the liability falls on the OEM. That is why OEMs typically have very detailed bearing qualification programs to protect themselves.

Åström states unequivocally that “It is the producer of a product that has liability. If the product is not made by SKF, SKF cannot be held liable. The end user should always contact their supplier.”

Some say that there are in fact “counterfeit” bearings out there that are as good as legitimate bearings. Which begs the question—at what point does “counterfeit” simply mean “cheaper than name brands?” Sort of like the lesser-priced, private label foods found at grocery stores everywhere—or getting an oil change at the neighborhood auto repair shop instead of at the pricey vehicle dealership.

For SKF’s Åström, “It sounds very odd! We have never seen those types of statements. We have seen it with luxury goods, but that is completely different. There are many manufacturers of bearings, and the price differs. Some bearings are even sold without brand. The customer should get what they paid for, and not a bearing with unpredictable quality “dressed up” to look like an SKF bearing. Premium manufacturers like SKF have invested heavily in their manufacturing processes to obtain a high and stable quality level.”

“Yes indeed there are counterfeits that are equal to or better than the brand name,” says Napoleon. “I was involved in a case identical to this; an OEM was being forced by their customer to prove the life of the bearing they had designed into the application. They solicited help from the brand name bearing manufacturer. Upon their evaluation of the product they noticed that the ball complement of the product that had their name on it was not consistent with what their plant manufactured. It was a counterfeit bearing. The OEM called me because the counterfeit bearing was already qualified, through testing, into the application and they wanted me to evaluate the counterfeit bearing against the brand name

bearing. The counterfeit bearing was equal to or better than the brand name—even though it had a different internal design. The reality of situations like this is that the manufacturer of the counterfeit bearing is actually taking the easy way out in order to make a sale. Their product was good enough to work in the application, but instead of selling themselves to the OEM on the merits of their own quality, it was easier to use illegal tactics to secure an order.”

Despite the in large part successful efforts of the majors like SKF, Timken, NSK, etc.—along with the support and assistance from trade groups like the WBA (World Bearing Association) and ABA (American Bearing Association)—in policing counterfeiters, it seems that the counterfeiters continue to survive—if not thrive. Is dealing with the ongoing production of counterfeit bearings now simply an accepted cost of doing business?

“It’s certainly a cost for doing business,” Napoleon affirms. “They don’t like doing it, but it is less costly than the engineering time to evaluate product that might not be theirs and legal fees to fight liability cases that have pulled them into a fight that could jeopardize their brand name. It’s a terrible cost to do business, but a proactive approach is typically more cost-effective than the reactive alternative of defending the brand.”

Says Åström: “Yes, it is true that SKF and some others are very actively supporting law enforcement in their efforts to go after counterfeiters. Counterfeiting of premium products has always existed, and will continue to exist as long as there

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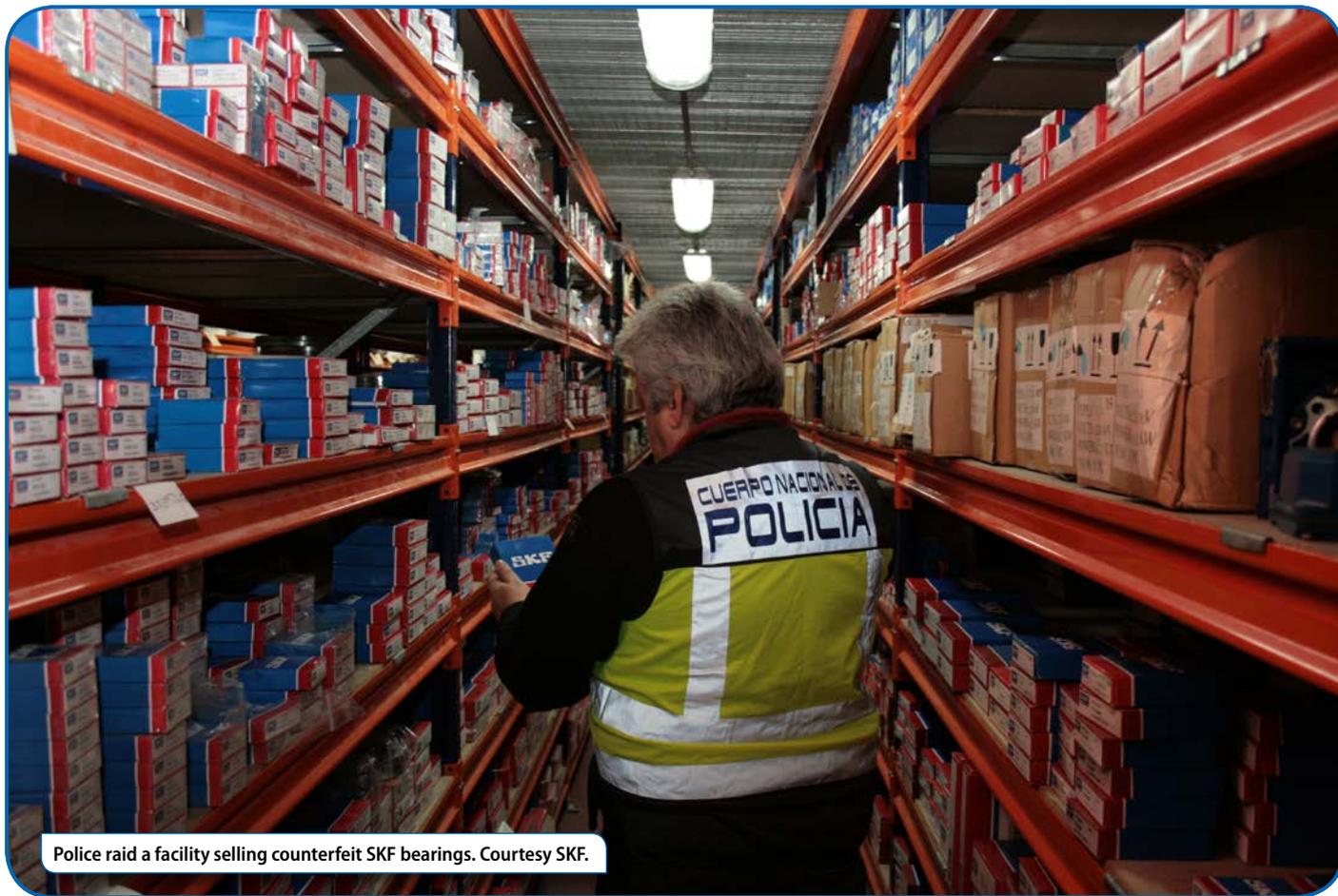
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Police raid a facility selling counterfeit SKF bearings. Courtesy SKF.

is a possible market. That is why SKF is working actively to reach out to customers to make them aware of the counterfeiting situation. We see a large decrease in the amount of counterfeit in geographies where end-users have been made aware (to understand) the importance of selecting reliable suppliers and/or use the SKF Authenticate app to validate their purchases. In Europe it has decreased considerably, compared to 4–5 years ago, and in other markets we see a dramatic effect after law enforcement actions combined with media exposure.

The shipping industry (sea, air, rail, truck) is a major component of any business in the world market. While it might be unfair to consider, is there anything that shipping companies could do to help deter counterfeit bearings?

“Shipping companies should take a stronger responsibility for what they are actually carrying,” says Åström. “They should blacklist logistic companies and forwarders that have been caught transporting counterfeits. That would push back the responsibility to the forwarder to assure what they are transporting. Customs authorities also play an important role.”

Liou, on the other hand, believes it is “difficult for shipping companies to determine if their customers are shipping counterfeit bearings.”

And what of deterrents? And who is responsible for devising and enforcing them? The answer may include a bit of a surprise in that China has been very aggressive in policing counterfeiters.

“(Policing) varies between country to country, but generally not (sufficiently),” says Åström. “Chinese authorities are taking the matter very seriously and have convicted many people to long prison sentences, while in Europe, for example, the conviction rate is rather low in combination with low penalties. Generally we do not think that stiff penalties will improve the situation. As end-customers (become victims of fraud), the most effective (policy) is to make them aware of how they may best avoid counterfeiting and/or to validate their purchases free-of-charge using the SKF Authenticate app.

With all of the sophisticated tools available today, why aren’t companies’ quality control efforts having sufficient success in identifying them?

“Counterfeits are very difficult to identify and require trained experts,” Astrom says. “Especially (given the fact that) the counterfeit packaging very much resembles genuine packaging and hence the problem is not likely to be detected until a mounting occasion where (counterfeits) might result in mounting problems. However, it might not. And so the counterfeit bearing is mounted into the machinery. As already stated, end-users should select their suppliers carefully and check [www.skf.com](http://www.skf.com) to see if a distributor is authorized.”

“Assuming that ‘companies’ are OEMs who are purchasing bearings, OEMs are not bearing specialists or bearing designers,” Napoleon points out. “They don’t know what to look for and inspect to know if a bearing is good or bad—let alone know whether it’s a counterfeit bearing or not. That’s not the

area of expertise of an OEM. In large part, only the aerospace industry owns the design rights to a bearing that they use. The industrial industry typically allows the bearing manufacturer to design the correct bearing for the application, but that information is not always passed on to the OEM. That is why it is so important for an OEM to have third-party or independent inspection and testing performed while qualifying a bearing supplier. (In this way) the OEM knows what makes a bearing work in the application and can empower them so that they can perform audits of the product they are purchasing to know that it is still the same source. This auditing is both on the technical aspects of the bearing but also on the commercial side of product distribution and to ensure that no one is illegally penetrating the supply chain.”

At the end of the day it seems that counterfeiters’ expertly executed packaging rip-offs of major bearing suppliers are central to their continued existence.

“Yes — the (counterfeit) packaging has a very high degree of (resemblance) to genuine packaging,” says Åström. “This is where many counterfeiters ‘invest’ to create a superior impression, (thus avoiding) that the buyer will suspect that it is counterfeit. However, good looking packaging does not make up for the unpredictable content inside the package.”

Napoleon believes that “The greatest enticement is making money the easy way, although they put a lot of effort into making the bearing and the packaging nearly identical. But that effort is still easier than creating brand recognition. That is the fundamental issue behind any counterfeit issue. Brand recognition requires intense effort and a long time to create within a regional market — let alone a global market. SKF has been in business for over 100 years. The counterfeit producer is trying to make a quick buck without the effort and cost of 100-plus years of effort on all fronts— product development, application experience and expertise and, obviously, marketing. The counterfeit organizations are cutting that time and expense out of their business model, so any cost associated with creating an identical product — right down to the packaging — is worth the effort and results in a payoff at the expense of the brand name manufacturer who has worked for a century at creating brand awareness. **PTE**

#### For more information

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