



Frequently Asked Questions About Bearings

常碰到的轴承的疑问

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Etch surface 酸洗表面

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- Why does visible dull-grey colour on the bearing surface (inner ring or outer ring) sometimes, instead of normal finished colour?

轴承（内外圈）表面是明显的暗灰色，不是通常加工后的颜色，这是为什么？



Etched ring 酸洗后的轴承套圈



Not etched ring 未酸洗的轴承套圈

Etching surface 酸洗表面

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- Etching is carried out as one method of random quality inspections during manufacturing process, grinding burn defect due to high temperature can be detected, therefor it ensure better quality with high reliability.

在舍弗勒的生产部门，推行了对轴承部件随机抽查，进行酸洗，检测是否有高温磨削缺陷。从而获得更可靠，更完美的轴承品质。

- The colour of bearing ring after etched is shallow gray or dull gray.

酸洗过的轴承呈现出浅灰色或中灰色。

Etching surface 酸洗表面

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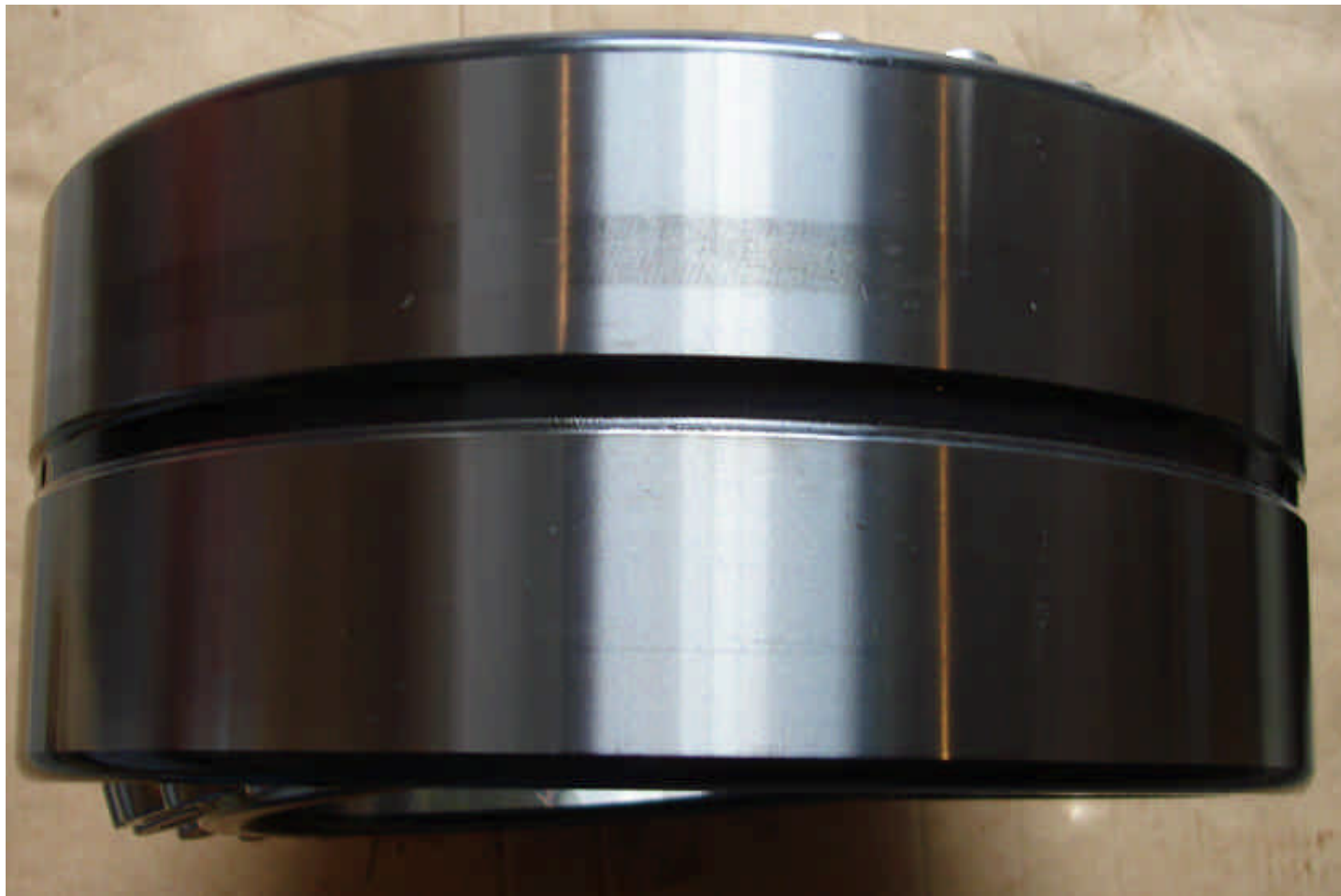
- Compare to the etched and non etched bearing, there is no difference regarding dimension deviation, geometric tolerance and function. On the contrary, etching process can guarantee product with high quality and reliability. So etched product can be used safely.

酸洗过的轴承与未酸洗过的光亮的轴承相比，它在尺寸公差，形位公差和功能上无任何差异。相反，酸洗增加了这些部件的质量保障。因此，酸洗过的部件可以安全地装配和使用。

Shoe mark on outer ring surface 外圈支撑痕迹

There is shoe mark on the bearing outer surface sometimes, it seems as seizure mark, does it influence bearing quality?

有的轴承外圈外径表面有些痕迹，似乎是划伤的，是否影响轴承的质量？



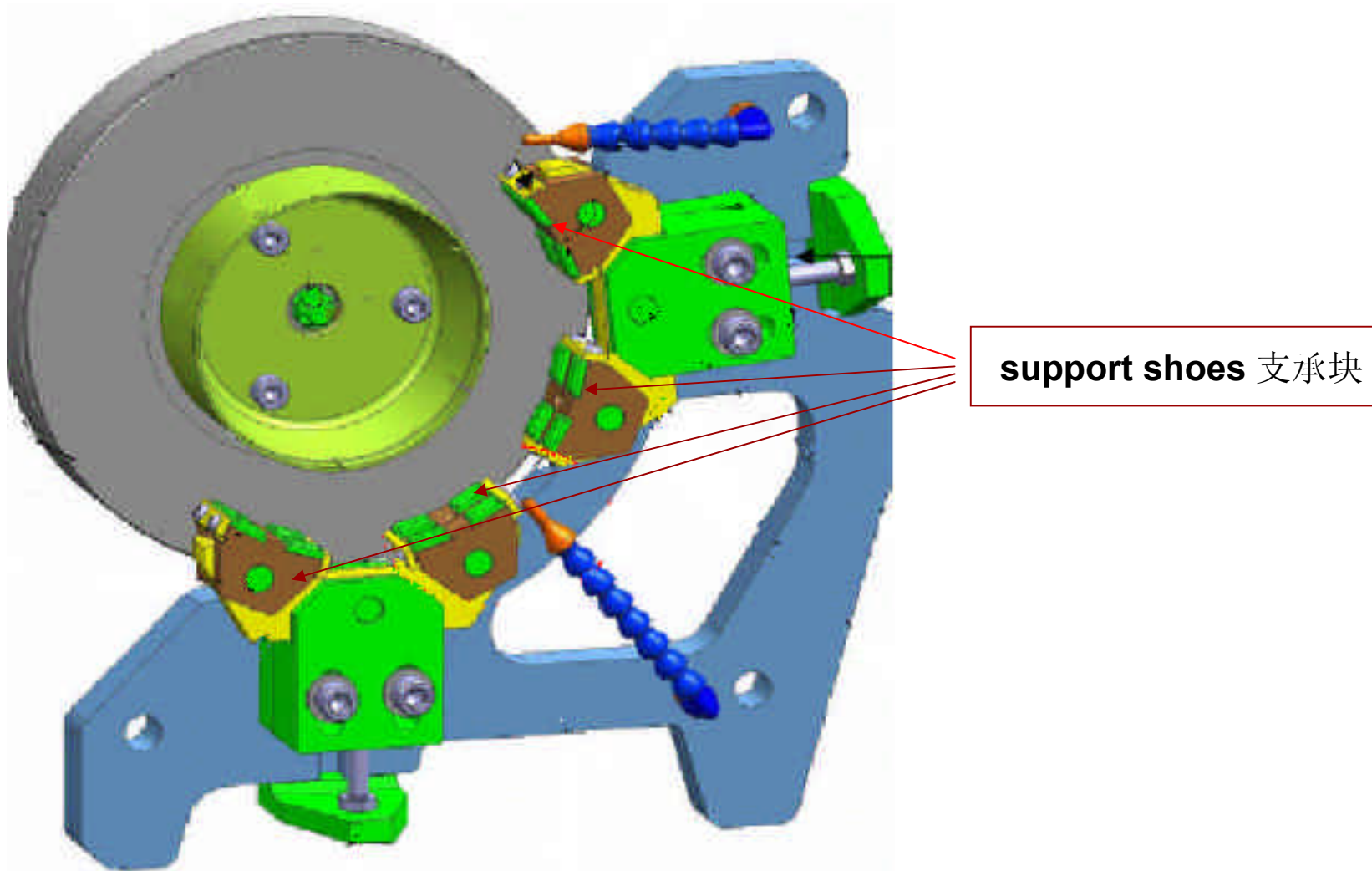
Shoe mark on outer ring surface 外圈支撑痕迹

- This mark is from grinding process. When grinding raceway or bore, as a reference surface, outer surface is running contacting with support shoes forming this mark(as figure), It has no depth, just has visible bright or dull colour on the surface, all the measurements of this area are up to criterion. So it is no influence on useage.

这种支承座的痕迹来自磨削过程中,由于外径是磨削内径或滚道的基准,当磨削滚道或内径时,外径在支承座上回转,这样就会在外径表面留下一圈印迹,(如图所示).这种痕迹没有任何深度,只是颜色看上去上会有些暗或亮。它不影响使用,支承座的痕迹中间的所有表面测量数据都是满足质量要求的。

Shoe mark on outer ring surface 外圈支撑痕迹

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Grinding machine headstock arrangement

磨床床头箱布置

Etching and shoe mark 酸洗表面及外圈支撑痕

Normally, an instruction sheet is attached in the package for this kind of bearing
 一般情况下，有上述疑问的轴承，在出厂时会有如下文件附于轴承包装箱内。

Important note!
 重要信息





ご注意

Parts having a **dull-grey surface finish** were submitted to a very severe quality inspection.

The colour resulting from this inspection has no influence on the product quality.

Sporadic bright marks on bearing rings originate from a grinding method resulting in a particular geometrical accuracy. They have no adverse effect on the proper function.

表面带暗灰色的轴承零件经过了一种非常严格的质量检验。
 这种检验引起的表面颜色对产品质量没有影响。
 轴承套圈表面上的零星亮色痕迹，是在为确保特定几何精度的研磨加工过程中产生的，
 对轴承性能无不良影响。

きびしい品質検査を行うために、製品の表面はダークグレーに施されますが、
 これはあくまでも検査の為のもので、品質には何等影響はありません。また、
 軸受のリング上の所々にみられる光沢のある斑点は、研磨加工により発生する
 もので、製品の機能上何の支障もございません。

Bright chamfer 光亮倒角

Why some chamfers are bright instead of normal dark colour?

为什么有的轴承倒角是光亮的, 而不是通常见到的黑色?



bright chamfer

光亮倒角

Normally, bearing chamfer is black, no further process after heat treatment, but sometimes hard turning is carried out after heat treatment in order to get good visual effect, and this resulted the bright chamfer.

正常情况下, 轴承套圈的倒角是黑色的, 不再进行机加工。有时, 美化外观, 在套圈热处理后会对其倒角进行硬车, 此时就产生了光亮的倒角。

Discolouration chamfer 变色倒角

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Sometimes, the bearing chamfer has non-uniform discolouration, why?

有时会发现轴承倒角颜色不匀, 有色差, 是什么原因?



discolouration chamfer

变色倒角

It is a common colour after heat treatment(as figure). The chamfer colour will be uniform if the bearing undergo sand blast process.

图示是热处理后的正常颜色。如果轴承经过喷砂处理, 则倒角的颜色会比较均匀。

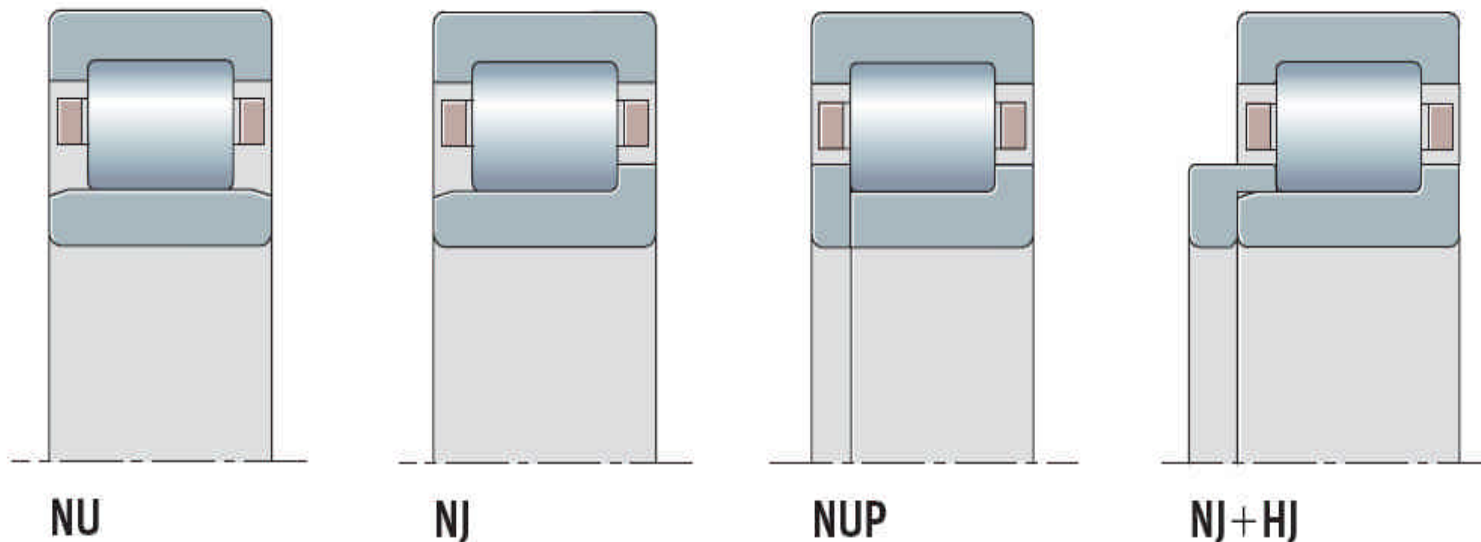
Exchangeability of cylindrical roller bearing ring

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圆柱滚子轴承的套圈互换性

- Why the designation is different which is marked on the inner ring and outer ring sideface, especially for suffix?

为何圆柱滚子轴承内圈和外圈上的型号,尤其是后缀不一致?



Exchangeability of cylindrical roller bearing ring

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圆柱滚子轴承的套圈互换性

为何圆柱滚子轴承内圈和外圈上的型号,尤其是后缀不一致?

- **The bearing outer ring can be exchanged among different bearing type, for example, NU outer ring is the same with NJ, NUP and NJ+HJ**
In this case, bearing designation is determined by the mark which is marked on inner ring sideface. This have no influence on bearing quality and applications.

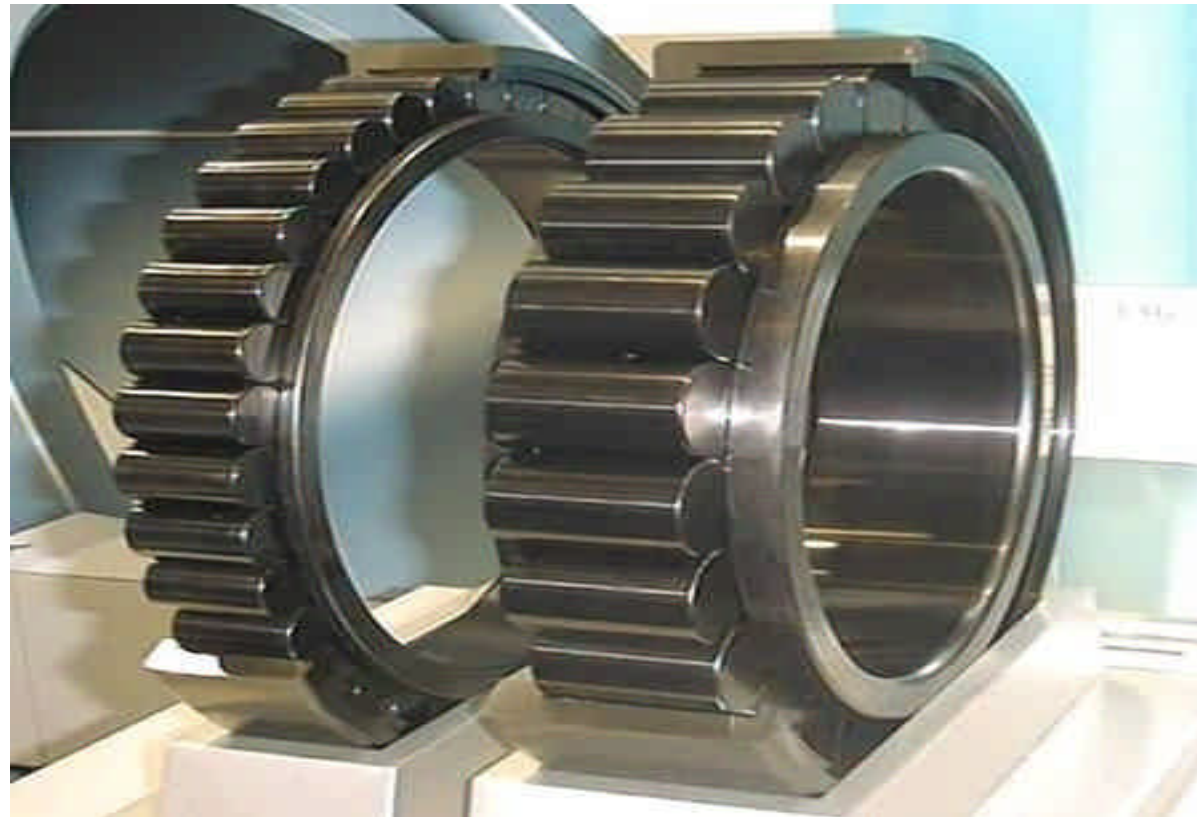
因为些类型轴承的套圈是通选的,例如, **NU**的外圈可以与**NJ**、**NUP**和**NJ+HJ**等型号进行互换,但轴承系列号应是匹配的。因此在装配时有时会发生型号的不一致,应以内圈上的型号为准。这不影响装配后轴承的品质和使用。

Full complement cylindrical roller bearing with black oxidizing

表面黑化的满装圆柱滚子轴承

- Most of full complement CRB bearing with black colour, any function change? why recommend to use this kind of bearing?

舍弗勒的满装圆柱滚子轴承为何多表面涂黑，有无性能变化，为何要推荐这种类型的轴承？



Full complement cylindrical roller bearing with black oxidizing 表面黑化的满装圆柱滚子轴承

- **As we know, in wind power gearbox, full complement cylindrical roller bearing is suitable for input shaft due to its high load carry capacity. But slippage will occur if the bearing work on low load situation, this is harmful for bearing application.**

我们经过一系列应用分析发现，在风电齿轮箱的应用中，满装圆柱滚子轴承具有承载能力高等特点，适于低速输入轴，但若遇低载荷时往往会发生打滑的现象，这对轴承的使用是很不利的。

Full complement cylindrical roller bearing with black oxidizing 表面黑化的满装圆柱滚子轴承

- **After a lot of investigation and testing, we develop CRB bearing with black oxidizing(suffix BR), which is valid to avoid slippage, and increase the bearing performance. Black coating can protect bearing from corrosion, reduce wear, meanwhile prevent slippage. We strongly recommend to use this advanced bearing, and for this application, we do not offer full complement CRB bearing without BR suffix from Dec. 2007.**

经过这类轴承进行了研究及测试，开发出的表面黑化的满装圆柱滚子轴承(后缀为**BR**)，可以有效防止对应工况的打滑现象，因此提高了轴承的整体性能。黑色的氧化层既可防腐蚀，耐磨损，又可防止打滑。我们强力推荐这种轴承，从**2007年12月**起对此类应用不再提供非黑化的轴承。