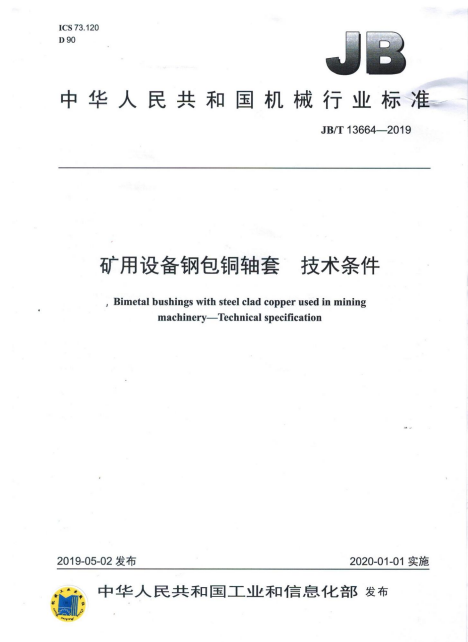


## Zhejiang Haima Transmission Technology Co., LTD

Zhejiang Haima Transmission Technology Co., LTD., is a company committed to wind power gearbox transmission components (sliding shaft Bimetal shaft sleeve, wear ring) technology product development and manufacturing companies. The company was established in 2014. Since then, has been based on scientific and technological innovation, vigorously promote the research and development of new metal materials projects, in intellectual property rights. At present, in the bimetal bushing has obtained a number of invention patents, 3 national standards and industry standards Allowed. In terms of projects, it provides a more economical solution for the majority of wind power machine manufacturers and core component manufacturers The solution enables customers to greatly enhance their core competitiveness in this internal market environment. Orders, Bimetal bushings manufactured by Qianhaima Drive are widely used in wind power yaw systems, spinners and gears. Among the components such as boxes, the price is optimized under the premise of ensuring consistency and stability of product quality.



1. Product background: gear box transmission parts, wind power yaw system, spinner and other high-speed and high-performance mechanical equipment are widely used in the bushing parts, which play a role in fixing, reducing load and reducing friction coefficient. Such bushing parts often fail due to wear and tear during use and the consumption is large, so the product has high wear resistance requirements.

2. Second, technical features: the working surface of the shaft sleeve is selected with high hardness and good wear resistance of copper alloy material to ensure the working performance of the shaft sleeve, while the non-working surface of the shaft sleeve is selected with a certain toughness, mechanical properties of steel-based materials, through centrifugal casting method to prepare the copper bimetal shaft sleeve, combined with the wear resistance of copper alloy and the mechanical strength of steel. The product gives full play to the performance advantages of different materials, with the advantages of two metals, and the use of cheaper steel-based materials, better control the production cost. Third, product advantages:

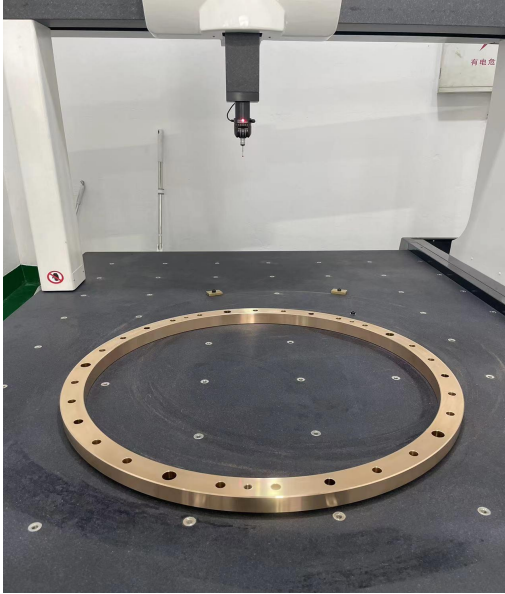
1. Compared with copper alloy bushing, it has better mechanical properties, such as section shrinkage, yield strength;

2 Compared with copper alloy shaft sleeve, more cost advantages;

3. Because the inner and outer layer materials have different friction coefficients, it can prevent the shaft sleeve from moving and going round under high load conditions;

4. Compared with traditional copper alloy bushing, it has more applicability, and the thermal expansion coefficient is smaller than that of pure copper, which is more suitable for working environments at different temperatures.

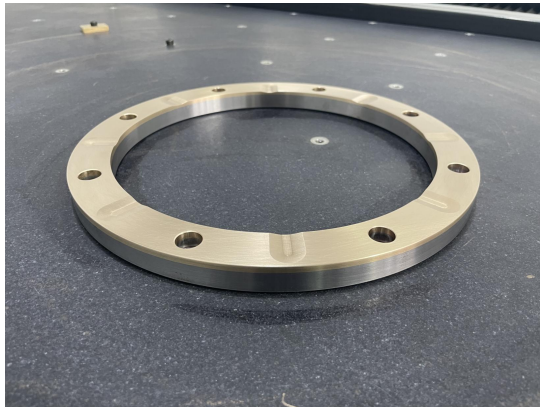
5. The company's production of bimetal bushings in high-performance mechanical equipment advantages are particularly obvious, the shape of the 3 parts, metal materials combined in a part above, not only optimize the design of equipment parts and innovative ideas, but also make the 3 parts into one, reduce the friction coefficient between parts and parts and parts between parts and parts. The tolerance between the parts and the main engine is more optimized, which makes the accuracy of the equipment more improved a level.



Wind power gearbox copper ring



Wind power gear box bimetal wear ring



Wind power planetary thrust disk



Oil distribution ring for wind power gearbox

Four, bimetal shaft sleeve product performance:

1. Tensile strength ( $R_m$ ) :  $\geq 150\text{MPa}$ ;
2. Elongation after fracture ( $A$ ) :  $\geq 3-4\%$ ;
3. Cloth hardness:  $\geq 150\text{HBW}$ ;
4. Lower yield strength ( $R_{eL}$ ) :  $\geq 110\text{MPa}$ ;
5. Bonding strength:  $\geq 150\text{MPa mm}^2$ ;
6. Friction coefficient:  $\leq 0.2$