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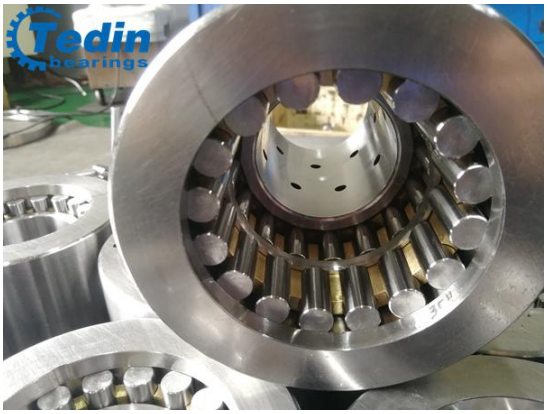
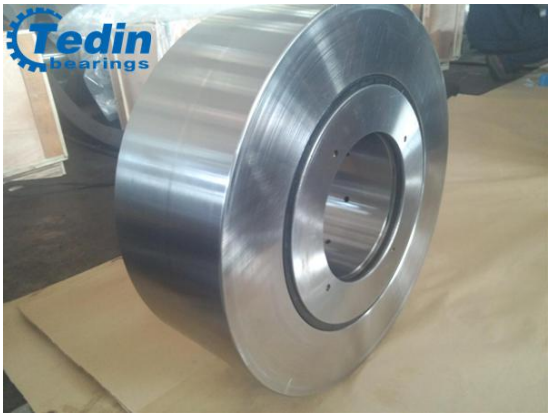
Backup Roll Bearing

Backup roll bearings are typically cylindrical roller bearings for multi-roll mill backup rolls, with extra-thick outer rings and handled in group per shaft. They specifically designed for Sendzimir mills in Iron and Steel works. Due to the optimised seal design these bearings achieve long life under high-speed and badly working conditions.

There are the following types of backup roll bearings:

1. Double row cylindrical roller bearing with brass cage: with seals, without seals, with locating ring, without locating ring;
2. Three row cylindrical roller bearing with brass cage: with seals, without seals, with locating ring, without locating ring;
3. Double row full complement cylindrical roller bearing without cage;
4. Three row full complement cylindrical roller bearing without cage;

Full complement cylindrical roller bearings have maximum possible number of rollers, they have extremely high load carrying capacity and are suitable for compact design, but do not proper in high speeds applications due to absence of cage.

Backup roll bearing features:

High load capacity: with thick-walled outer ring.

Low friction: The optimized internal design reduces friction and heat increasing generated by the bearing rotating.

Effective lubrication

Backup roll bearings usually have lubrication holes and have one or more annular grooves in the inner ring to enable lubrication via the support shaft.

Long service life: The logarithmic profiling of their rollers and raceway reduces edge stresses at the contact surface under all load conditions. It will help to improve the bearing's service life.

There are two ways of lubrication for the bearings for multi-row mill backup rolls:

1.Oil mist lubrication:

Improving bearing service life(2-fold or better compared to conventional types)

High sealing performance

Oil-seals space-saving size for simple installation or removal

2. Forced oil lubrication:

Outer ring with both high rigidity and durability realized

High resistance to fatigue realized owing to superior material composition

Design optimized to match surrounding structure

Tedin's Advantages:

1. Self-developed roller production line:

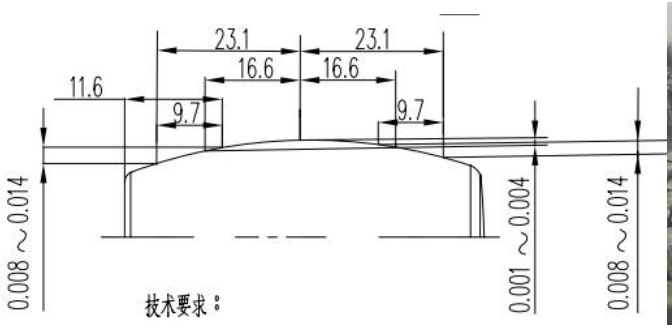
Roller generatrix is modified by logarithmic curve.

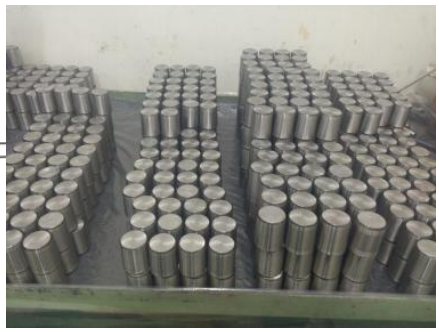
Reduce the stress concentration at the edge of the roller.

Increase bearing service life.

Precise control of roller roundness and contour.

Roller accuracy can reach to Grade 1.





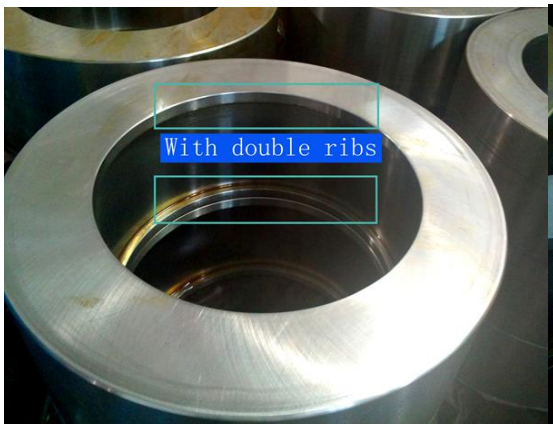
Group diameter variation: 0.001mm;

Outer diameter waviness: 0.00015;

Contour deviation: 0.0015mm;

Hardness: HRC 61-64;

2. **Bearing outer ring with double ribs:** Effectively withstand axial force.



3. With special design of cage structure.

Typical success cases:

Case I:

Sendzimir mill (Z-mill): 20 high cold rolling mills for steel strip.

Applied bearing types: NNCF3680181X （sealed type), NNCF2660168X （sealed type）

Rolling mills for steel types: alloy steel, stainless steel, beryllium copper, etc.

Working roll：Φ45~50×550 mm

Blank width：300~450 mm

Blank thickness：< 2.0mm

Rolling speed：<420M/min
Coiling tension：2.5~100KN
Rolling Pressure：<1500KN
Case 2:

Sendzimir mill (Z-mill): 12 high cold rolling mills for steel strip.
Applied bearing types: NNCF43110205X （ sealed type), NNCF3680171X （ sealed type), NNCF3680224X （sealed type）
Rolling steel types：Carbon Steel、Nonoriented silicon steel、Oriented silicon steel, etc.
Working roll：Φ150~140mm×1450 mm
Blank width：900~1350 mm
Blank thickness：< 3.5mm
Rolling speed：<750M/min
Coiling tension：≤300KN
Rolling Pressure：<10000KN

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