Repair of a Large Bearing from a Tunnel Boring Machine

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Axial-radial cylindrical roller bearing from a tunnel boring machine

Technical data of the axial-radial cylindrical roller bearing (FAG 576875E18B.M15QW):
Outside diameter 3,275 mm
Bore diameter 2,485 mm
Width 500 mm
Mass ca. 11 tons

This large bearing was delivered to our Wuppertal plant on 24 May 2002 for reworking.

The repair work took ca. six weeks so that the bearing was ready to be shipped back on 9 July 2002.
The repair comprised the following steps:
  • Disassembly
  • Cleaning and examination
  • Regrinding of the 6 raceways (removing a maximum of 0.30 mm of material). All rolling elements for both axial raceways and for the radial raceway were replaced by rollers that are 0.6 mm thicker than the old ones.
  • Assembly
  • Preservation and packaging (long-term packaging in new wooden crate)
The repair cost, including the new packaging, totalled ca. EUR 50,000 (corresponding to ca. 40 percent of the price of an equivalent new bearing).
Used Bearings. As Good As New Bearings

FAG offers the diagnosis and repair of large rolling bearings, which are used in rolling mills, paper machines, open-pit mining excavators, tunnelling machines, crushing machines or similar applications. This offer includes further reduction of maintenance cost. A team of top specialists at the FAG plant in Wuppertal can make a renewed bearing out of an old one within 2 to 10 weeks, depending on the extent of repair. For this bearing FAG offers the same warranty as for a new bearing. Diagnosis or damage survey comes before repair and costs between € 100 and € 500. Then it can be decided whether repair is worthwhile or not. Of course, this amount will not be charged extra but included in the repair cost or the cost for a replacement bearing. During maintenance and repair of machines and plants, many bearings are dismounted and replaced as a precautional measure, although they could be made as good as new by skilful reconditioning.

Disassembly of the bearing.
The raceways of the inner and outer ring are reworked and all rolling elements replaced by new ones.

The bearing is wrapped in PE foil to protect it against atmospheric influences and packed into a solid wood crate.

This overcautious care often makes one blind to the cost reduction potential still existing in the maintenance area.

Economic benefit to customers

Maintenance cost can be reduced considerably if used bearings are overhauled and repaired. Reconditioned bearings will be like new ones. This is ensured by the great experience in production and repair of FAG, the rolling bearing pioneer.

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