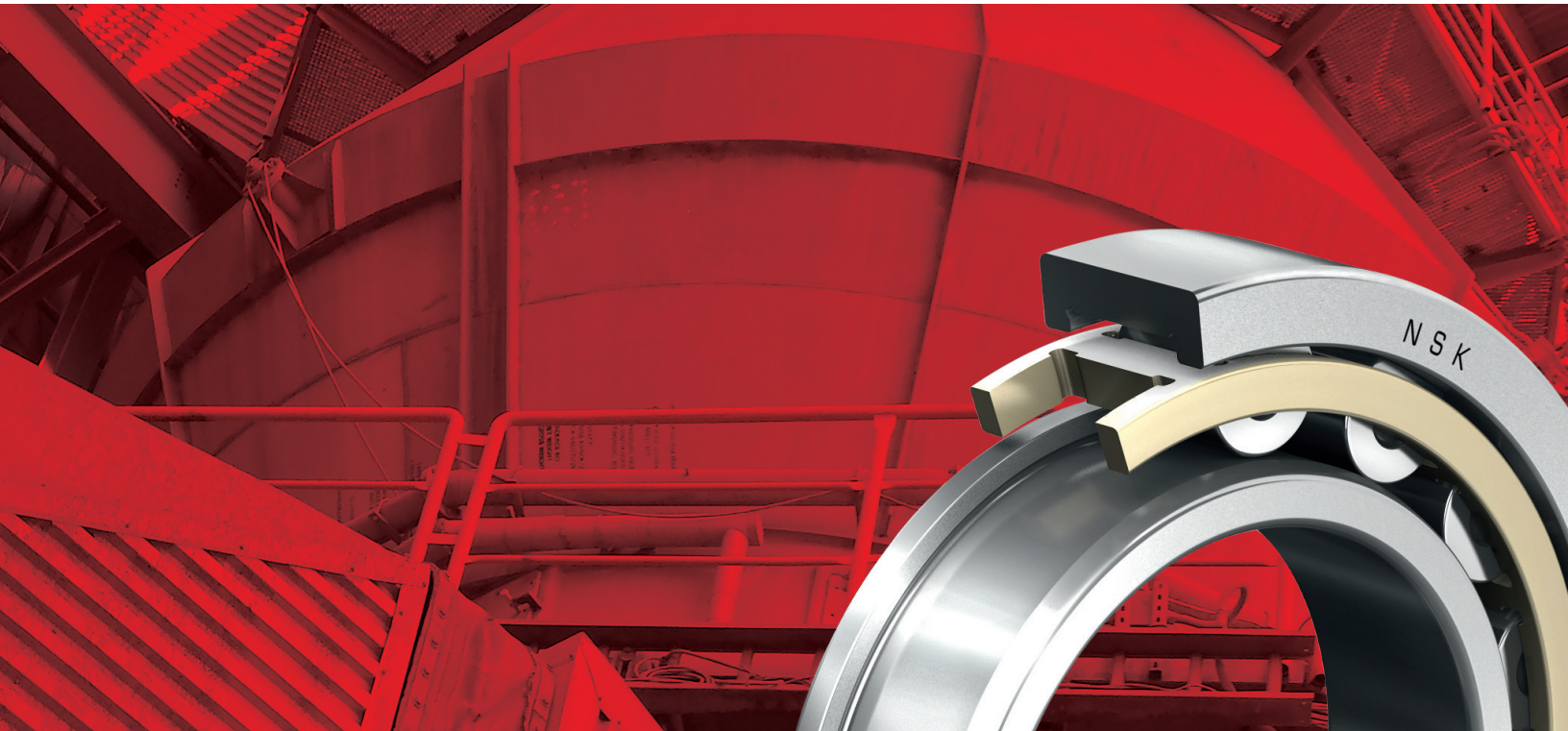


NSK

**BEARINGS FOR PULVERIZERS
AND VERTICAL ROLLING MILLS**



STAY IN MOTION. STAY IN CONTROL.

CEMENT PLANTS



Rather in the raw or finishing mill, cement vertical roller mills are used to grind the raw cement materials to fine particles. The quality of the cement is dependent on the size of the materials.

NSK IN THE PLANT

A cement plant requested assistance installing a 480 mm bore cylindrical roller bearing and a 480 mm bore double row tapered roller bearing set for their vertical roller mill wheels. NSK was on site to measure initial clearance, make recommendations on spacer grinding, and measure final clearance to ensure the bearing was installed with proper methods and clearances.

COAL POWER PLANTS



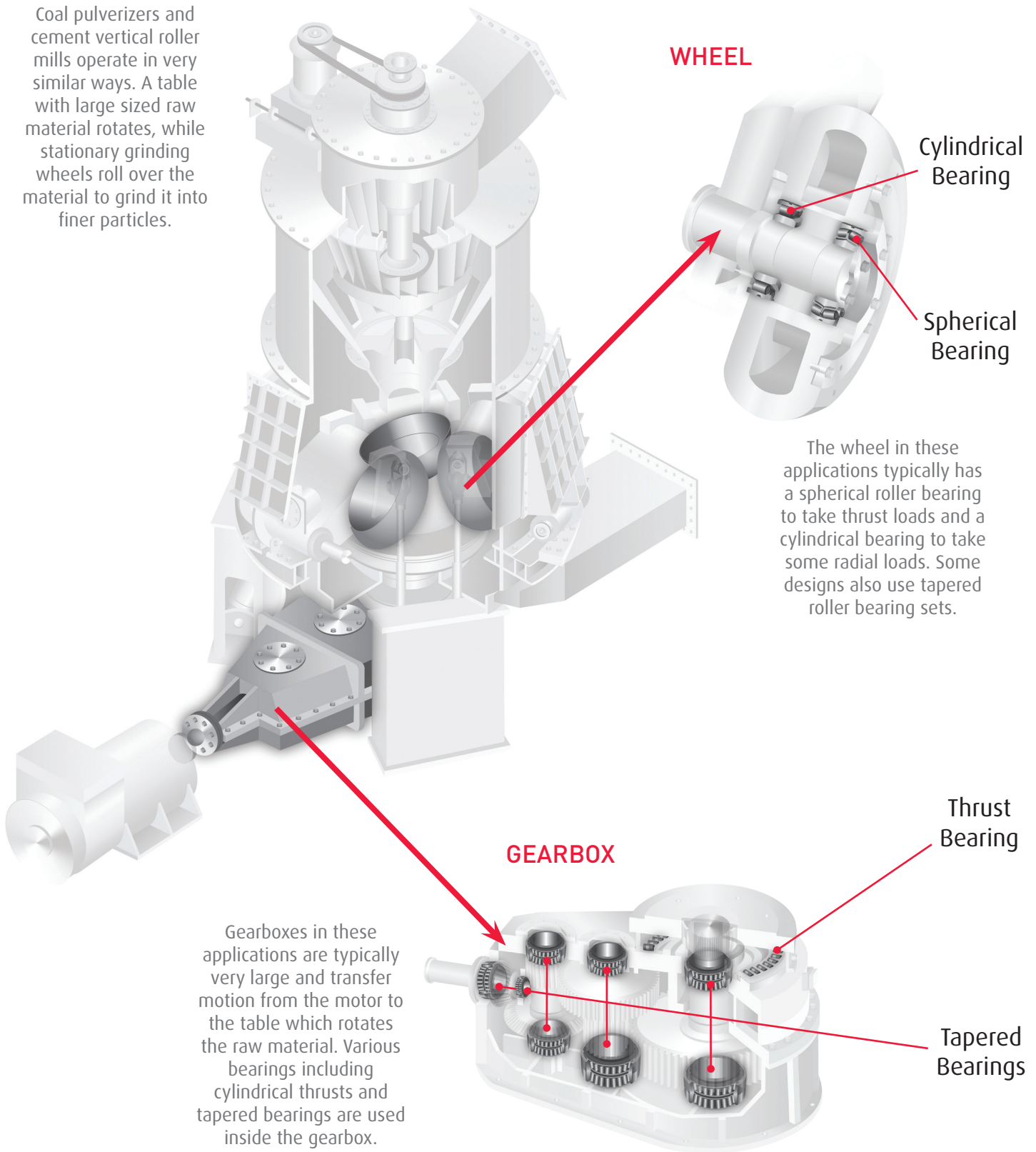
In order to operate efficiently, coal fired power plants require very fine “pulverized” particles of coal. The finer the particles, the more easy and efficient it is to burn the coal. Coal pulverizers are an integral part to this process.

NSK IN THE PLANT

A utility company was in need of a thrust bearing for a gearbox in a tight time frame. NSK suggested utilizing the NSK Reconditioning Program. NSK inspected, quoted, and repaired a 28 year old thrust bearing back to O.E. specifications and returned it for use several months before the required delivery date. The reconditioning saved the customer \$102,000.

APPLICATIONS

Coal pulverizers and cement vertical roller mills operate in very similar ways. A table with large sized raw material rotates, while stationary grinding wheels roll over the material to grind it into finer particles.



WHEEL

Cylindrical Bearing

Spherical Bearing

The wheel in these applications typically has a spherical roller bearing to take thrust loads and a cylindrical bearing to take some radial loads. Some designs also use tapered roller bearing sets.

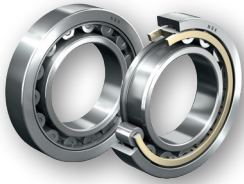
GEARBOX

Thrust Bearing

Tapered Bearings

Gearboxes in these applications are typically very large and transfer motion from the motor to the table which rotates the raw material. Various bearings including cylindrical thrusts and tapered bearings are used inside the gearbox.

BEARING FEATURES, BENEFITS AND SERVICES



CYLINDRICAL ROLLER BEARINGS

EM and EW series bearings are cylindrical roller bearings capable of carrying particularly large radial loads and are suitable for high-speed applications. The EW series features a pressed steel cage and the EM series features a one-piece machined brass cage. Both cages offer high-load capacity for standard-size bearings, in addition to excellent functionality and longer operating life.



SPHERICAL ROLLER BEARINGS

HPS series bearings are double-row self-aligning spherical roller bearings capable of carrying heavy radial loads with moderate axial loads in either direction. The spherical profile of the rollers, the inner ring raceway, and the outer ring raceway, enable a self-aligning function that allows full capacity loading. The HPS series offers high performance standard-size bearings with longer operating life and higher limiting speeds than conventional bearings.



THRUST BEARINGS

TMP cylindrical thrust bearings are produced with ultra clean steel to extend bearing life. They are capable of carrying high axial loads and are offered in several styles.



TAPERED ROLLER BEARINGS

NSK offers 2 and 4 row versions of tapered roller bearings to support axial loads in either direction. They are produced with hardened high carbon chromium steel and are available in High TF and Super TF for more arduous conditions.

NSK has identified multiple tools for partnering with our customers to reach maximum performance, maximum efficiency and maximum service of their bearings and equipment.

FIELD SERVICES

- › After the Sale Support of NSK Products
- › Industry Specific Maintenance Training
- › Machine and Bearing Failure Analysis
- › Bearing Inspections
- › Troubleshooting
- › Bearing Storage Solutions
- › Tilt and Deflection Testing
- › Slewing Ring Installation and Removal
- › Service Work Quotes
- › Reconditioning/Repair Determinations
- › Bolt Retorque



RECONDITIONING

- › No inspection fee
- › We are able to recondition all brands of roller bearings from 0" to 56"
- › Lead times never exceed 10 weeks for full rebuilds and shorter for less severe repairs
- › Shorter lead times than manufacture of new
- › Significant cost savings over purchase of new
- › Detailed reports with pictures
- › Quote and report prepared within 14 days of receiving product



TRAINING

- › Can accommodate class sizes from one to several dozen
- › Completely customized content relevant to needs, audience, and industry
 - Steel industry, Paper Industry, Machine Tool, Mining
- › Hands-on installation/removal and maintenance tool training available





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