



HIGHLIGHTS

Nuttall Gear Custom Gearbox

- Drop-in replacement parallel shaft speed reducer
- 8.4265:1 reduction ratio
- Three input shafts each rated for 78,747 in.lbs. of torque, and 663,565 in.lbs. of output torque
- Precision ground carburized gearing
- Special tapered output shafts

Stromag Modified SNJ 60 Multi-Disc Clutches

- 3 sec. max. slipping time
- 54000 Nm (477940.2715 in.lbs.) max. slipping torque

Application Success Story



Custom Gear Drive with Modified Clutches Steel Mill Plate Leveler

PROBLEM

A major steel company needed a replacement spare gearbox for a leveler at its plate mill in North Carolina. The mill keeps spare drives for most of its main production lines to reduce downtime in case of extended maintenance requirements or unit failures. The large drive features three input shafts and six output shafts. Each input shaft drives three output shafts. A slipping clutch is installed on each output shaft to protect the gearbox since high torque peaks can occur on each shaft independently.

SOLUTION

Nuttall Gear was selected to supply the new gearbox based on their superior quality and mill application expertise. Stromag, a sister Regal Rexnord company supplied the required clutches as part of the single-source order.

Nuttall engineers were able to develop the custom-designed, drop-in replacement parallel shaft speed reducer based only on an outline drawing and the input/output dimension specs of the original competitor drive. Each of the three input shafts on the new gearbox were rated for 583 HP and 78,747 in.lbs. of torque, and 663,565 in.lbs. of output torque. The Nuttall unit featured a 8.4265:1 reduction ratio, precision ground carburized gearing, special tapered output shafts to accept the Stromag clutches and a custom fabricated housing.

Stromag provided customized SNJ 60 multi-disc clutches with a modified slipping torque curve and slipping time (max 3s) and torque (54000 Nm [477940.2715 in.lbs.]) to meet the leveler application requirements.

Full run in-house testing was performed with temperature, vibration and sound level monitoring. Live testing videos were shared with the customer via TEAMS. Customer steel was used on 60% of the unit, including gearing, shafts and housing plates. Nuttall technicians were present for the installation of the gearbox and Stromag clutches as part of the order.

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