

CASE STUDY

High Torque Gear Coupling for Steel Mill Roughing Stand



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A major steel manufacturer needed a large replacement gear coupling as part of an upgrade for a roughing stand drive at one of its U.S. mills. Positioned on the low-speed, high-torque shaft between the gearbox and pinion drive, the gear coupling rotates at approximately 10 RPM. The goal was to ensure that the new coupling was capable of transmitting the new, higher torques.

The mill contacted several coupling manufacturers, including the original coupling OEM. Ameridrives was the only coupling manufacturer that was willing and able to provide a reliable replacement coupling in the large size needed within the required delivery timeline.

The engineering team used the original drawing for the 20-year-old existing coupling to ensure that the new coupling was a size-for-size drop-in replacement. The solution was a massive, torque-dense, size 230, 80-in. diameter gear coupling with a torque rating of 60,000,000 in.lbs.

The engineering team incorporated fully-crowned tooth design which increases torque capacity by 300% and operates effectively with up to 3/4° of angular misalignment per gear mesh. The crowned gear tooth design also prevents end loading of the gear teeth when operated within the rated misalignment. The tooth design minimizes wear within the gear mesh.



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