Castrol® Optigear® Synthetic Eliminates Failures of Cooling Bed Gearboxes

Situation

The cooling bed at a major US steel mill is operated by three carryover worm gear drives that were experiencing frequent failures. One of the causes was significantly increased load on the cooling bed to meet the production schedule. Based on maintenance data, the average life of these gearboxes varied from 1.4 years for the South gearbox to 3.5 years for the North gearbox. One gearbox repair cost is approx. $30,000.

Solution

Castrol® worked with the customer's reliability department to conduct root cause analysis and to make recommendations to significantly increase the life of the gearboxes. Conventional mineral gear oils were designed only for gearboxes running under normal load and temperature conditions. In this case, the higher loads and temperatures could not be handled by the current oil, leading to frequent failures. Castrol engineers recognized the conditions and chose Optigear® Synthetic 800/2200.

Outcome

Castrol Optigear Synthetic 800/2200 is a fully synthetic polyglycol gear oil. It provides an exceptionally low coefficient of friction and extremely high viscosity index for maximum protection under heavy loads like those experienced in this mill. The fluid did not break down and was able to provide the appropriate film thickness for the gearboxes. The change resulted in longer life for the reducers.

Savings

- Eliminated failures experienced (3 to 6 gearboxes yearly)
- Achieved >3.5 years without cooling bed gearbox failure
- Extended gear life and eliminated need for monthly oil changes previously used to preserve gear function