

INNOVATION

SPOTLIGHT from the brands of Altra Industrial Motion Corp.



CONVERSION FROM GEAR SPINDLES TO AMERIDRIVES UNIVERSAL JOINTS INCREASES PRODUCTION AND PROFITS FOR COLD STRIP MILLS

Steel producers worldwide are continually refining their processes to serve the changing needs of their automotive and appliance customers. Federal emission standards and consumers are demanding more efficient autos without compromising performance and styling. In response, steel producers have begun to develop thinner, lighter weight auto gage steels that perform as well and look better than previous materials.

Producing a specialty steel cost-effectively is always challenging but particularly when incorporating new alloy technology that is designed to be stronger yet lighter than previous steels. These thinner steels are much more sensitive to surface damage from vibrations of rotating mill rolls.

VIBRATION REDUCTION IS THE KEY

Ameridrive engineers work closely with steel mill operators around the world to replace their cold mill gear spindles, which amplify vibration, as they drive the work rolls on the mill stands. Mills that have converted from gear spindles to Ameridrive universal joints have experienced significant increases in production speeds and yields because of better surface finish due to lower mill vibration.

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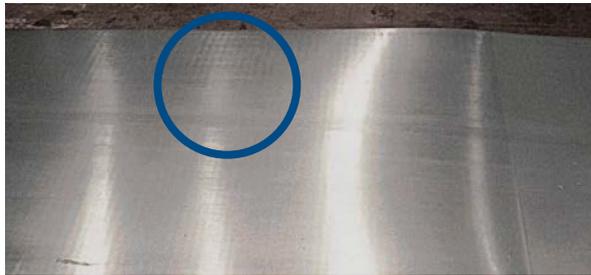
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THE HIGH COSTS OF DOWNGRADED SURFACE FINISHED STEEL

The financial losses associated with steel surface damage due to mill vibration can be very significant. To understand why mill operators are eager to convert to Ameridrives U-joints consider the following example*:

Surface-critical exposed prime steel sells for approx. \$850/ton. If the surface is marred or damaged, the steel is downgraded to secondary, non-exposed usage with a 20% reduction in price (-\$170/ton). Typical annual cold mill production is around 3 million tons. If only 2% of product is downgraded = 60,000 tons. 60,000 tons -\$170/ton yields a total annual loss of a staggering \$10.2 million.



1.5 in. spaced full body marks on cold rolled strip caused by excessive vibration makes this steel unacceptable for use in surface-critical automotive applications.

IMPROVED PERFORMANCE YIELDS INCREASED OUTPUT AND PROFITS

In order to reduce the damage caused by vibration, operators often reduce the speed of their mills by up to 20% which reduces production. Conversion from gear spindles to robust Ameridrives U-joints allows mills to run at higher speeds with reduced vibration for longer periods of time. A 20% increase in mill production can equate to one 20-ton coil of steel/hour with a \$50/ton* profit resulting in a \$24,000 profit/day. This example yields an annual mill profit increase of approximately \$8 million!



AMERICARDAN UNIVERSAL JOINTS

Designed for operation at high misalignment angles up to 15°. Ideal for use in severe atmospheric conditions. Superior materials and tight tolerances have proven to reduce vibration levels in rolling mills.

Unique Ameridrives cold mill universal joint design features include:

- Lightest weight
- Closed eye one piece yokes
- Replaceable inner race bearing package (which reduce normal repair in half as the cross can be reused)
- Zero radial clearance bearing package – allows repairs to have as new warranty
- Built-in spring packs on the roll end knuckle allow for work roll changes without modifying spindle carriers when required
- Spring packs are non-contacting in operation and are only engaged during roll change
- Spline adapters that mate to the gear spindle pinion end adapter spline without removing the adapter providing the quickest installation in the industry
- Units can be interchanged with any gear spindle in any mill stand in top or bottom position at any time
- Reduced lubrication manpower, lube costs and clean up by \$120k annually compared to a grease lubricated gear spindle for a 5-stand mill

** Based on 2014 estimates.*

