



Products

Modified Americardan 3285 Universal Joints

Application

Steel Mill Slab Caster

Highlights

- Integral tapered key or face pad developed for roller ends of U-joints
- U-joints compensate for approximately 10-degree angular misalignment and shock loads of up to 800,000 in. lb. torque
- Tapered key allows for easier, more reliable connection of U-joints to segment roll spools
- Mill rotation speed: 8 RPM (5ft./min.)
- 11 pairs of U-joints were modified

The original U-joints installed in this demanding application featured split-flanged yokes. The driven (segment) ends of the U-joints pass through the sidewall of the segment frame and position within 12" of a heat/water wall. The tight space constraints did not allow full access to the roller end of the U-joints. This resulted in mounting bolts that could not be tightened to the torque specifications.

Over time, the loose bolt connections between the spool and split-flange yoke (driven end) allowed the key to shift, causing the keyway and holes to become elongated in the mated flanges. This caused premature wear on the segment rollers, segment bearings, and flange yokes, resulting in uneven torque loads being transferred to other drives which over-torqued the next immediate segment, eventually causing the cross to fail within the flange yoke assembly. In some cases, slabs would have to be stopped inside the caster which required them to be cut out.

Ameridrive engineers' extensive U-joint experience with steel mill applications allowed them to develop a creative new facing connection that solved the customer's dilemma. The solution was an integral tapered key or face pad design for the roller end of the U-joints to replace the straight face key flange yokes. The new face pad configuration featured four raised, wedge-shaped integral keys and required only four mounting bolts versus the typical eight-bolt design. With the enhanced reliability of the new U-joint modification, the customer's up-time increased and slab quality was improved.

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