BELDEN universal

Metal Processing Industry Case Study

CUSTOMIZATIONS CREATE A SUPERIOR MRO DRIVESHAFT

A customer's high-speed (RPM) leveling machine operated with a drive shaft assembly containing a traditional "pin & block" style universal joint. The speed of the application caused the component to overheat and posed a considerable fire hazard. Pin & block style joints can be robust, cost-effective and can work well in restricted spaces. However, the bearing surface friction can result in excessive heat and premature wear in high-RPM applications.

To address the problem of overheating, Belden Universal's engineering team recommended replacing the pin & block component of the drive shaft with a forged cross & needle-bearing universal joint. Cross & bearing configurations don't present friction on the surface of the yoke ears, significantly reducing the issue of heat generation. However, the swing diameter of standard cross & bearing joints is often too large and doesn't fit flush with other existing components. To resolve this problem, Belden's design team modified the yoke ears of the original drive shaft to align these with the larger outside diameter of the new cross & bearing component.

The assembly was manufactured from high-grade alloy steel. The yoke ears were hardened and ground for increased torque capacity. A special telescoping quick-release "spring-loading" feature provided for easy on and-off installation. A forged cross that could easily be lubricated in the machine was fitted into customized leveler yokes to handle the high torque and maintain the tight envelope common to steel processing equipment.

The array of customization resulted in a high-performance, low-maintenance drive shaft optimized for the speed, torque, strength and available space as was appropriate for the customer's metal processing machinery.

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