

Optimize Your Paper Mill's Driveshafts

By Randy Hoag and Frank Mathews, Motion Industries

Driveshafts, jack shafts, floating shafts, universals – they go by different names but are common on paper machines. They are typically used to transmit power from gearboxes to various types of rolls on the paper machine. Operating continuously in difficult environmental conditions, driveshafts present challenges in design and maintenance.

Paper roller applications present their own unique challenges. For example, during one packaging plant's annual outage, maintenance personnel discovered the top calendar driveshaft was bad on a paper machine, and the spare shaft stocked in the storeroom was incorrect.

This particular universal shaft connects a gearbox to the gloss calendar roll, allowing the mill to drive the roll at a desired speed. A gloss calendar roll (top) is a heated roll that has 400-degree hot oil passing through the shell of the roll. As the paper passes over it, it creates a 'glossy' shine on the paper, which reduces the test print value of the paper.

The plant asked if Mi Mill Services could inspect the broken shaft and possibly repair it. Mi's official inspection report showed that the approximately 122"-long driveshaft was repairable. The key flanges could be refurbished to meet the manufacturer's requirements, and there was a broken cap bolt on the slip side yoke. There was also a substantial amount of brinnelling on the journal surface as well a heat trace. A 4-point lube with an open center channel was recommended, since the existing lubrication was "central point" and not best for paper mill applications.

The recommendations were summarized as follows:

- All components cleaned
- Cross and bearings replaced featuring 4-point lube open center with zerk protectors
- All cap bolts replaced with new (recommended to insure appropriate service life)
- Flanges refurbished
- Entire assembly balanced @ 1000 RPM
- Epoxy painted for corrosion resistance

Another spare was also recommended due to the obsolescence of the older driveshaft series.

After the proposal was accepted, the Mi team at the shop machined and balanced the driveshaft to spec, and had the drive shaft working like new – same day as promised.

The paper mill also purchased the recommended spare. A spare part is a good idea for any machinery component, to help prevent unexpected downtime and the unplanned costs that go with it.

To determine if a self-lubing driveshaft could be the answer for your paper machinery, or to find out if your driveshafts are operating at their optimum, engaging a qualified third party could help you get on track. Contact your local Motion Industries servicing branch.

For more information, visit MotionIndustries.com or see the Mi Mill Services video (<https://tinyurl.com/y7lea8ql>).



About the Authors



Randy Hoag has more than 30 years of experience providing mechanical power transmission solutions. He has been a Field Product Specialist with Motion Industries since 2015.



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