

PRÜFTECHNIK *success story*

> Industry **Mining**

> Application **Cardan Shaft Alignment**

Mine saves two workdays during time-critical shutdown



FLSmidth is a global engineering company supplying one source plants, systems and services to the cement and minerals industries.

In September 2013, the company needed to perform the alignment of a three-machine train with two cardan shafts at a gold mine in Western Australia. The machine train consisted of an arrangement of conveyor pulley, gearbox and motor.

One of the cardan shafts weighed over 7500 kg with a shaft length of around 4 meters. Originally, the plan was to perform the alignment uncoupled, as this was the only option. Typically, the removal of the shaft would have taken a full day, and the whole alignment process up to two days, involving a team of 4-5 people and considerable labour and crane hire costs. Not to mention the safety risks and possible machine damage during removal and replacement of the shaft.

FLSmidth contacted Aquip Systems to purchase a recently released cardan shaft bracket from PRÜFTECHNIK as they wanted to use their ROTALIGN® Ultra iS unit for the job. The new cardan bracketing system, together with

a new firmware release for the ROTALIGN® Ultra platform, allows aligning cardan shafts without removal of the cardan shaft.

After Aquip Systems introduced FLSmidth to the new alignment solution, the alignment team was more than confident to perform the task.

“Once the alignment task began on site, the brackets were set up on the shaft and measurement taken within 15 minutes.”

Bryan Rodgers, Aquip Systems

Setting up is virtually as simple as with any regular rotatable, coupled alignment using PRÜFTECHNIK measurement technology: Mount the sensor and laser using the supplied brackets, enter dimensions and take measurements. >>

The onscreen tutorial and instructions are very easy to understand, so you always know what to do next.

The laser was set up at the stationary end using a non-rotating arm bracket. At the moveable machine end of the shaft, a rotating arm bracket was used to mount the sensor. As the coupled shaft was rotated to each new measurement position, the rotating arm bracket was turned back at the base and the sensor moved along the posts to intersect the laser beam and take the necessary readings. The procedure was repeated at several shaft angular positions to capture the alignment condition, after which the required machine adjustments were made and checked.

The entire measurement task was completed without removal of the 7500 kg cardan shaft.

As the alignment was performed as part of a time-critical shutdown, the saving of approximately 2 days was highly significant, not to mention the reduced manpower and the elimination of crane hire costs and OH&S hazards. There are several identical machines on this site, all having planned shutdowns in the near future. The combined time saving will extend into weeks, with possibly up to 150 to 200 man-hours saved. ■



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