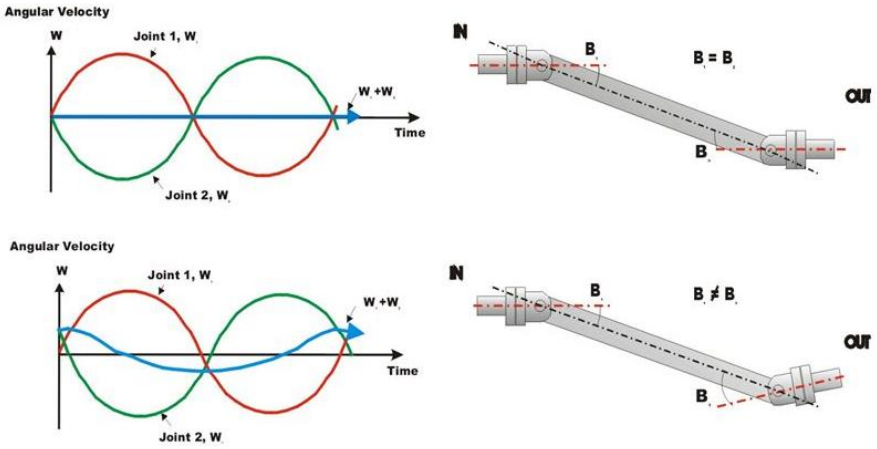
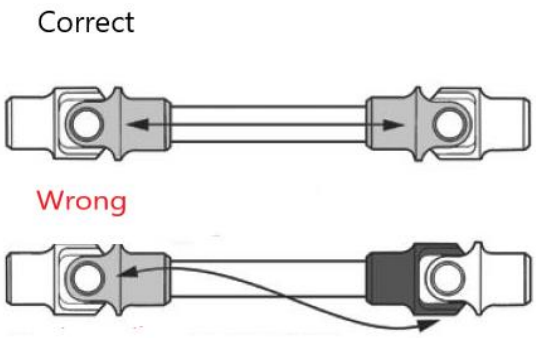
Cardan shaft alignment

People often mistakenly think that cardan shafts are not sensitive to misalignment. It is true that they tolerate parallel misalignment to some extent. Angular misalignment is problematic. If the input and output shafts are not aligned, this causes a sinusoidal variation in the rotational speed of the output shaft.

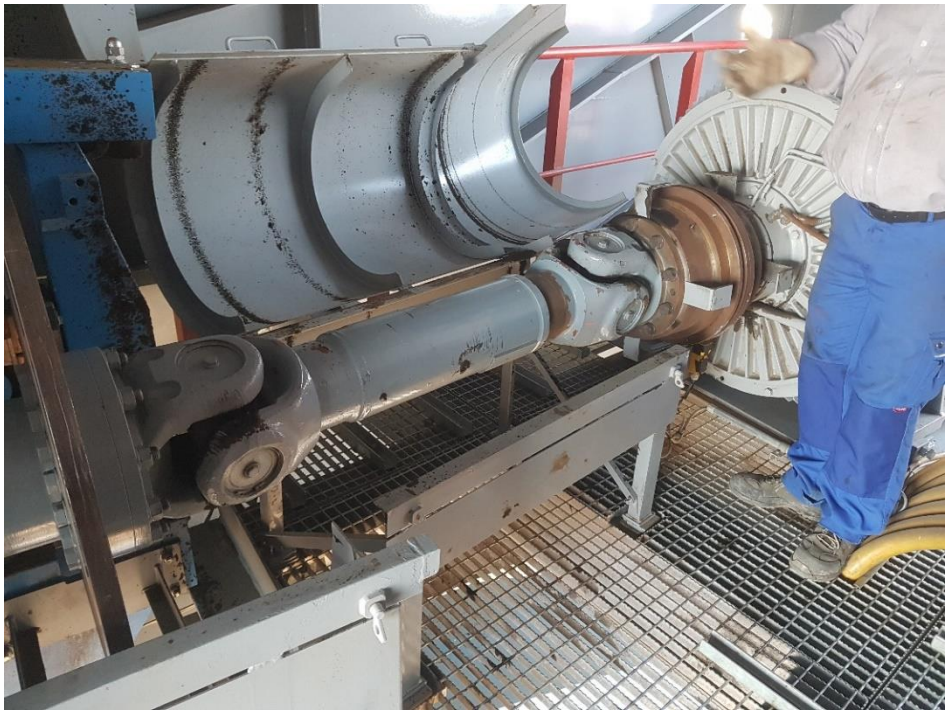


The result of such misalignment is dynamic loads on the cardan shaft and increased vibration levels!
https://youtu.be/Idk3BVDVHq4

The alignment of the cardan shaft crosses also has a similar effect.



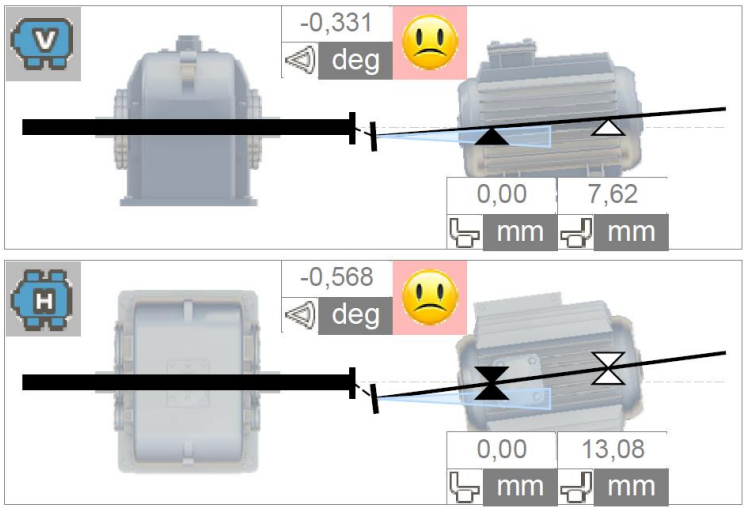
Let's show you an example. We were hired by a mining excavator manufacturer who was having problems with increased vibrations.



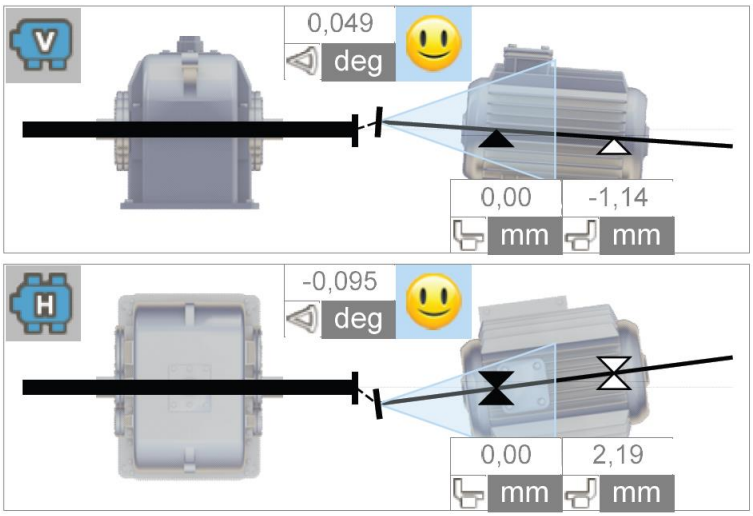
Vibration measurements showed that there was poor alignment between the drive electric motor and the reducer.

The alignment measurement confirmed the suspicion.

https://youtu.be/md7X_ulJVL0?si=8tNfzO_PHB-D3Ikj



After laser alignment adjustment, we repeated the vibration measurements.



The amplitudes decreased by a factor of 4.