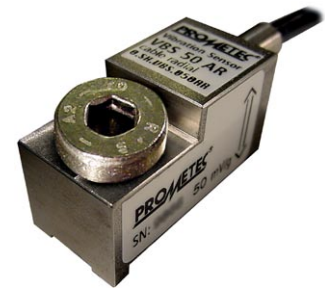


Success Story No. 0611_01

VBS 50 Vibration and Acceleration sensor

Tool wear detection at machining of spiral bevel gears according to the Gleason and Oerlikon method



In use at

German automotive manufacturer

Machine Data

Gear hobbing mill for spiral bevel gears

Machining - Workpiece



spiral bevel gears
Material: steel
(pic.: ring gear and bevel gear)

Tool



(pic.: Inserted tooth milling cutter)

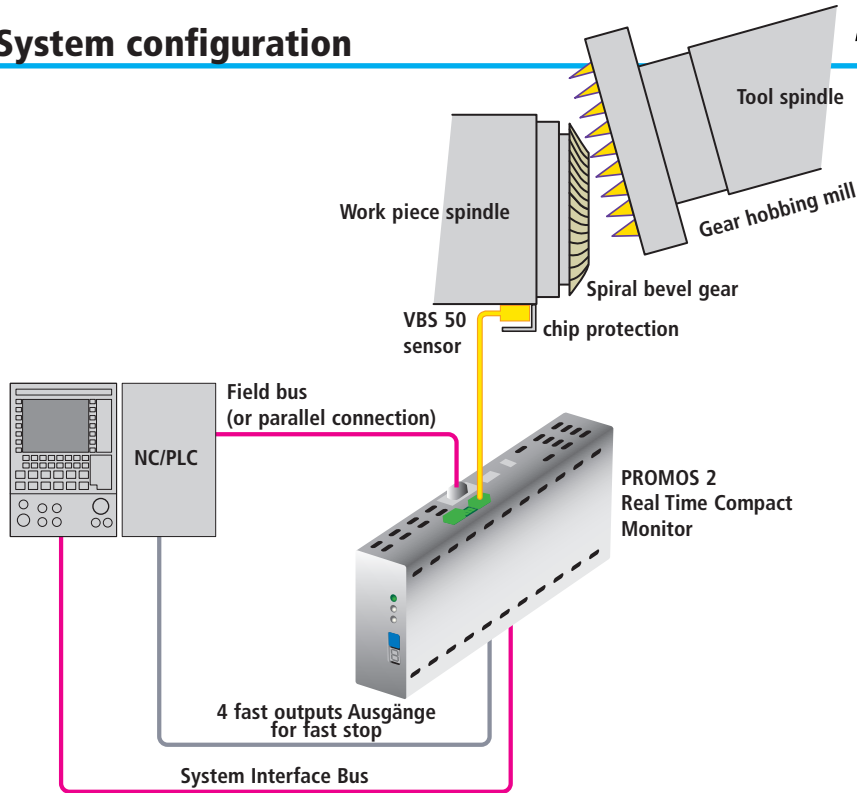
Machining - Task

This application should prove the applicability of the PROMETEC RTCM System for monitoring of hobbing processes.

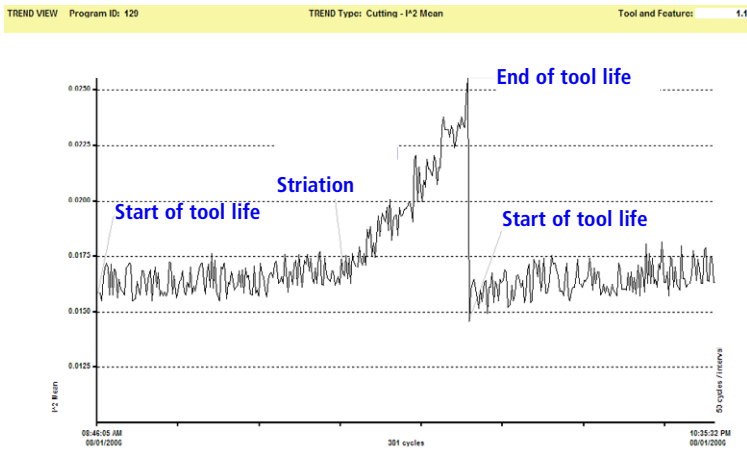
The system must detect wear on the inserted tooth milling cutter as early as possible and it must be able to detect the end of life of the tool.

Early announcement of the tool's end of life should avoid tool overload and thus the danger of a total breakage and scoring or drag marking of the tooth flanks will be avoided.

Solution/System configuration



Results



This image displays the I² Mean values of 381 machinings. The I² value shows a significant wear trend as well as an increased build-up because of lower workpiece quality. Thus, wear monitoring with defined limits is possible.

Summary

The PROMETEC PROMOS-2(RTCM) System is an ideal possibility to safely detect the end of life of gear hobbing mills. Thus, several interesting and quantifiable economical advantages arise.

Continuous recording of the process values makes it possible to display wear trends and the tool can be protected against wear-induced overload. The integrated "end of life" message prompts the operators to inspect the tool for any wear marks.

Excessive score or drag marking on the surface of the teeth (or on their base) can be avoided by continuous checking of the wear status of the tool. This should lead to a considerable reduction of rework and lower costs.