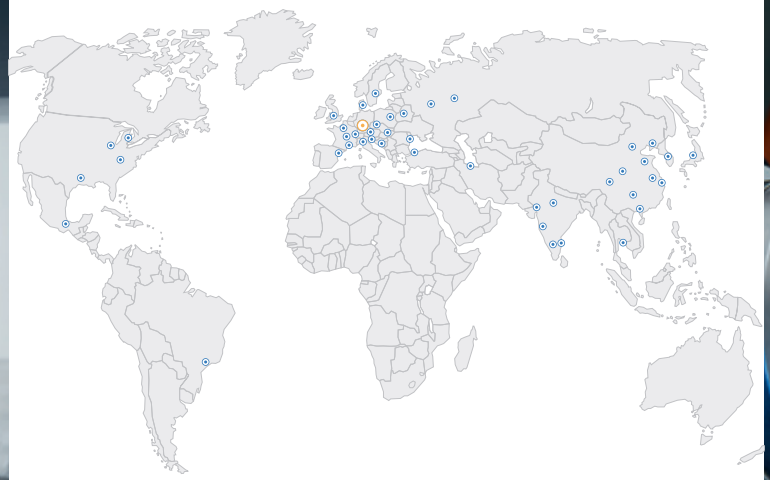

SolidProcess

To optimize the hobbing process, post-process measurement of toothing are taken and measurement feedback is used to provide automatic correction.

System requirements

- Measuring device in the EMAG KOEPFER gear hobbing machine
- Control: Siemens 840 D, Fanuc 32i, BWO 920, BWO Vector

Benefits

- Stable tooth cutting processes
- Documentation of all measurement results for quality assurance
- Easier compliance with tight tolerances, e.g. for soft finish-hobbing, allowing the hard fine-machining processes to be optimized through precise pre-machining
- Reduction of negative effects on the tooth cutting result from tool wear
- Closed-loop quality assurance system – manual correction no longer required
- Optimum cutting results assured

READY FOR i 4.0

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EMAG

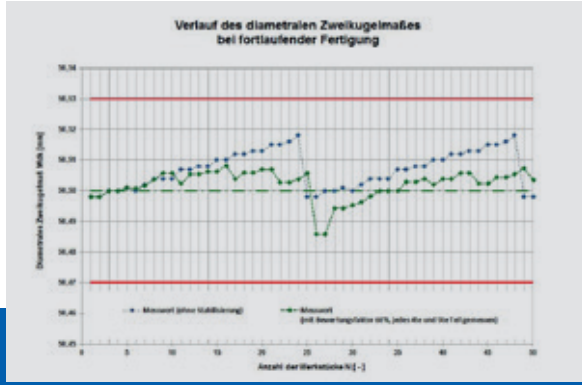
SolidProcess

Optimizing gear hobbing processes automatically

Gears usually have to be produced in large batch sizes. To keep the quality of parts constant, EMAG KOEPFER has developed SolidProcess, a software solution to enable continuous and automated optimization of the tooth cutting processes.

Dry hobbing of a helical gear

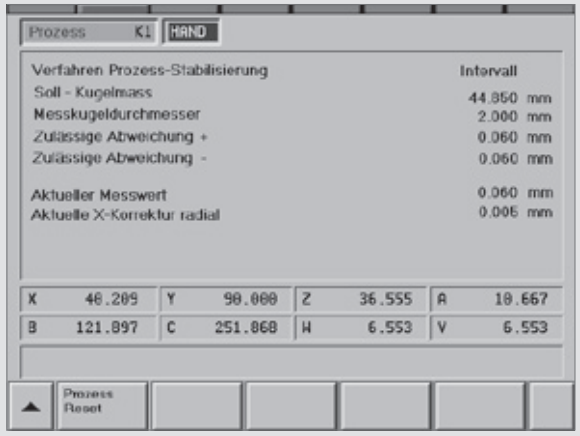
Representation of the process curve (blue line) and stabilized (green line). Measured the two-ball dimension, nominal size 50, 50 +/- 0,03.
Process **without** SolidProcess: Cpk = 1,24
Process **with** SolidProcess Cpk = 1,95



Post-Process Toothing Measurements and Automatic Correction

SolidProcess is used to continuously record measurements of the dimension over balls or the base tangent length of machined workpieces. The gear hobbing machine may be equipped with a measuring device, or the measurement can be done using external measuring systems. The data obtained is then compared with the nominal dimension and the tolerance limits that are saved in the machine control.

A measuring device integrated into the machine (or alternatively an external one) measures the hobbed teeth, either continuously or in intervals, during production. The nominal dimension and the tolerance limits are entered in the machine control. The machine control software assesses the measurement and corrects the infeed (the X-axis) automatically as needed. All the assessment factors and measuring intervals can be defined individually for each application.



SolidProcess screen mask for monitoring of the hobbing quality results