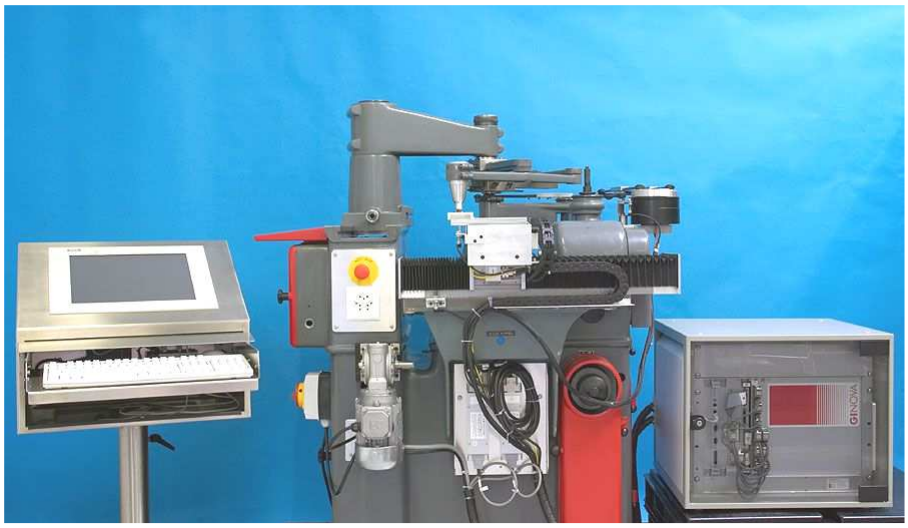


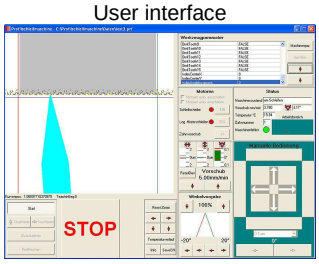
Control system for profile grinding machine

the task

Based on a 400MHz Power-PC (freescale) a control system for a grinding machine has been developed. The user interface has been realized on a PC which communicates through Ethernet with the Power-PC.

With a diamond disc structures with contours in the sub-micrometer range are grinded into the raw part. With the finished cutters toothed wheels with diameters bellow 1mm and multiple teeth are manufactured (watchmaking industry). The absolute tolerance of the machine making parts is below 1 micrometer.

User interface



the solution

The data for the tooth-shape are transferred directly from the CAD-System to the control of the grinding machine. The machine manufactures a cutter in a single operation. A special supplement allows manufacturing of cutters with complex variations as they are used in watchmaking industry.

The control calculates in real time the helix correction as well as deformations that originate from grinding. The trajectories calculated considering the diamond disc diameter are transmitted to the trajectory controller. The trajectory controller is an integrated module of the Power-PC system. Linear actuators are used for all of the three axis.

Linear actuators of
X- and Y-axis

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