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- » Increasing process reliability
- » Minimizing operator error
- » Improving the machining quality
- » Documentation of all process data
- » Optimizing the hardening results
- » Reducing machine breakdowns

eldec Quality Control – eQC

Optimizing and monitoring of processes to boost the productivity of induction hardening machines



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eldec Quality Control

The combination of modules in the eldec Quality Control package are designed to compliment each other and guarantee customers a fully monitored hardening process. The data of the eQC modules can be saved in relation to the components in the optional process database, which ensures a seamless documentation of process data.



Inductor checking and status monitoring

eQC RFID is used before the start of production to verify if the correct inductor has been inserted for the preselected machining program, and to monitor the tool status. To do so, the system reads important performance data, such as remaining tool life and impending maintenance intervals, from an RFID chip in the tool. After the hardening process is completed, the relevant operating data is written to the RFID chip. For this purpose, a read-write unit is installed in the connection system of the machine. In the event of tool faults or errors, the process will not start again. Information on production tolerances for the inductor can also be included, allowing automatic repositioning of axes if necessary.



Viscosity monitoring of quenching medium

The quality and stability of the hardening process are also greatly influenced by the condition of the quenching medium. It changes during the process, since the polymer chains it contains will gradually break up under the influence of light and heat. Therefore, the quality of the quenching medium must be checked regularly. Presently, this is often still done by measuring the light refraction index. However, this does not indicate the condition of the polymer chains and is therefore inaccurate. The testing method offered by eldec is based on an ultrasonic sensor that continuously monitors the viscosity of the quenching medium, and provides very precise information regarding its quality.



Measuring inductor base voltage and magnetic flow

eQC Flux monitors both the inductor base voltage and the magnetic flow. With these parameters, a wide range of error sources can be analyzed, such as faulty workpiece geometries or improper materials, and appropriate remedial action can be taken.



A read-write unit writes all the relevant data to the RFID chip in the tool. This is used before production start to verify if the correct inductor has been inserted for the preselected machining program, and to monitor the inductor status.

