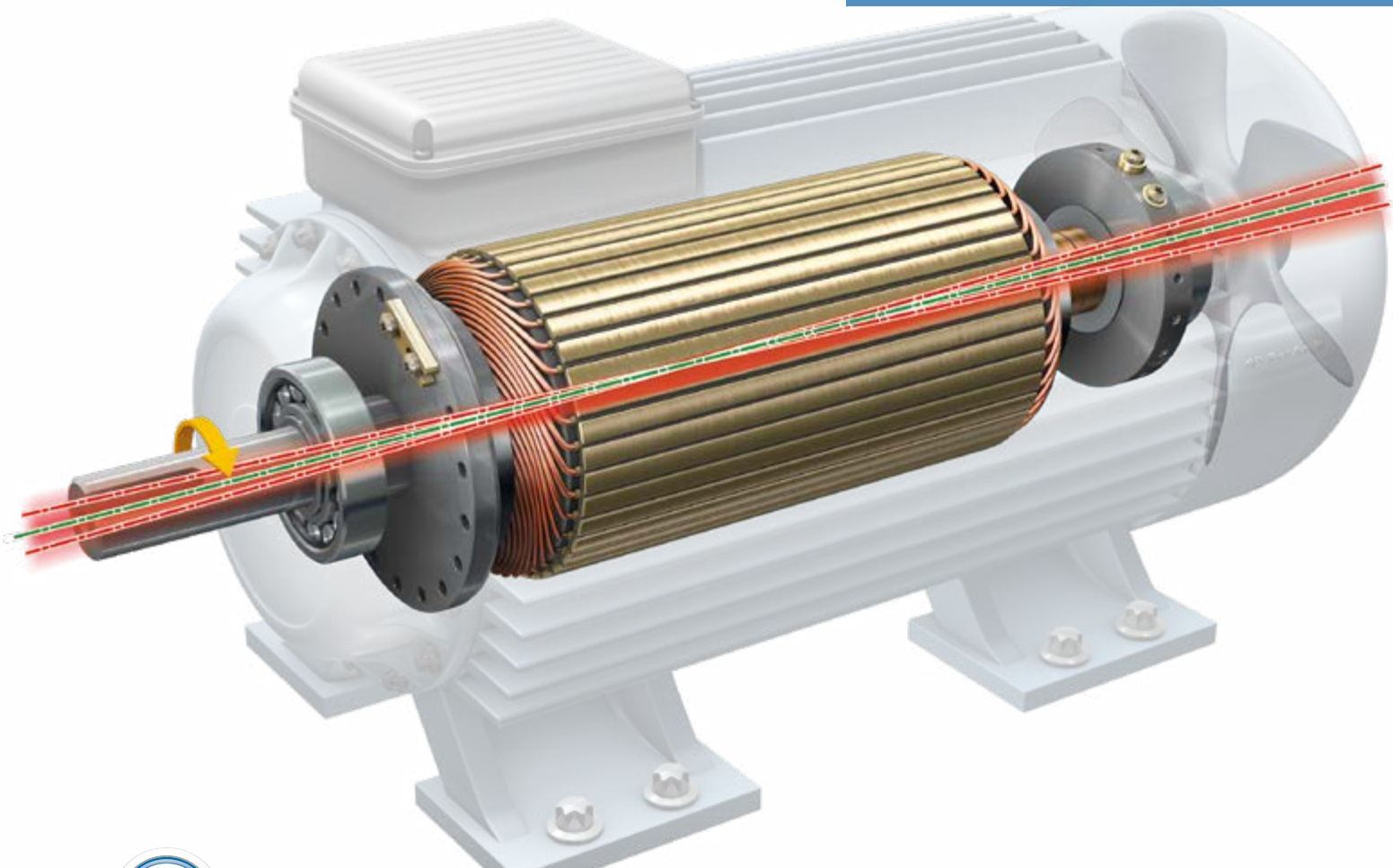


PRUFTECHNIK Service Center

Precision balancing to prevent resonance vibration

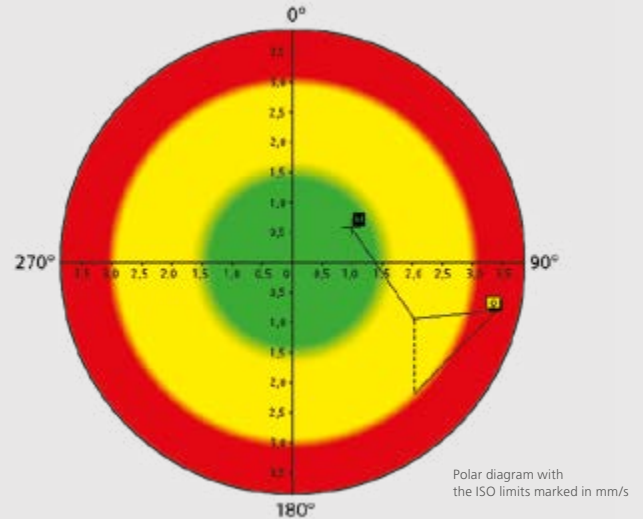
- Improve machine balancing conditions
- Reduce resonance risks
- Increase system availability
- Balance quality of at least $G= 1.0$



Reason

Machines are increasingly operated on a variable speed basis. This increases the risk of resonance vibration. When machine components are well balanced, the possibility of excitation for RPM-dependent interfering vibration and of natural frequencies is reduced.

Precision balancing using PRUFTECHNIK systems is straightforward. In practise, bearing vibration is measured using accelerometers, while the RPM and phase information is obtained using a laser optical RPM sensor. Should there be particularly stringent requirements, shaft movement may also be used for precision balancing.



Relevant experience

Finding suitable locations for exact mounting of the balancing weights is a significant challenge in precision balancing. If for example, electrical machines had planes — for the attachment of balanc-

ing weights — as those shown in the cover photo, then all mounted machines would attain a balance quality $G < 1$.

Approach

Balancing carried out by ISO-certified vibration technicians



Use handheld and stationary vibration measurement systems



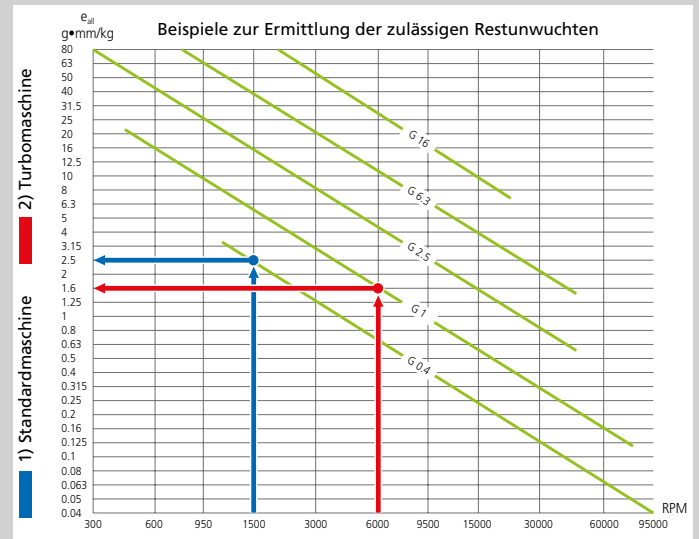
Selection of typical test points for the sensors and rotary pulse encoder



Independent reporting



Comparison with the current state of the art



A good balancing condition can be judged subjectively on the machine. The residual imbalance can be derived quantitatively by using the DIN ISO 21940 nomograms.

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