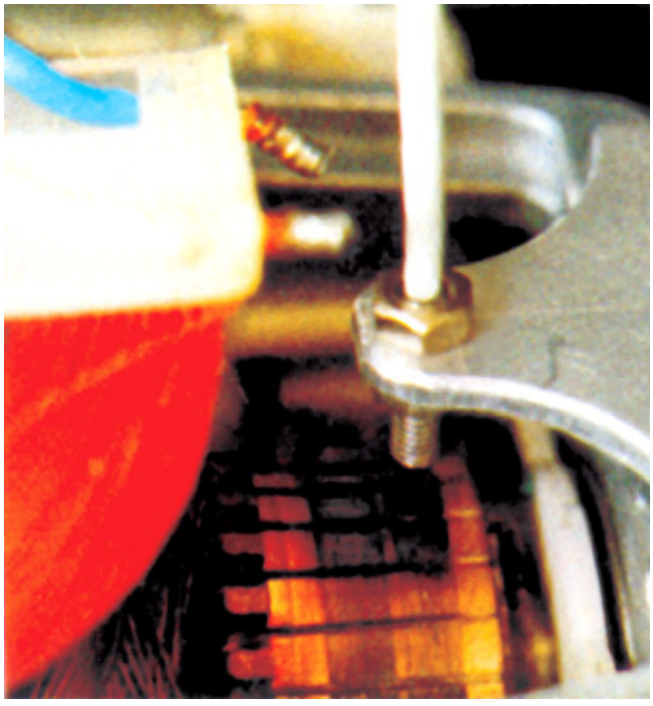
MICRO-EPSILON

Monitoring the commutator in electric motors

The “eddyNCDT” system offers many advantages for the non-contact monitoring of the mechanical condition of the commutator in electric D.C. motors or generators. The system uses the eddy-current measuring principle, is not subject to wear and cannot affect or influence the commutator. Continuos monitoring of the commutator condition is particularly advisable for motors located in places where access for service is difficult or critically important motors, which have a dominant influence on the availability of an entire, highly complex system. MICRO-EPSILON offers a wide range of compact sensors for eddyNCDT, allowing the selection of an optional model for almost any application. Commutator monitoring by means of eddyNCDT is employed frequently in research and development laboratories, for quality control during and following production, or during commissioning of plant.



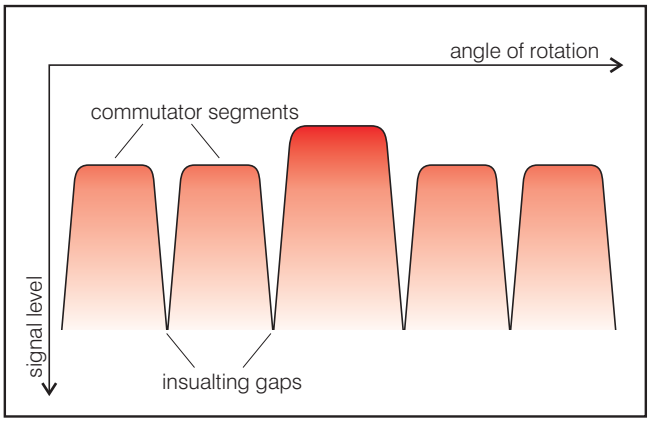
Measurement system set-up

A eddyNCDT measuring system generally comprises a suitable sensor, an interconnecting cable and a signal conditioning electronics. Basic measurements can be carried out with a eddyNCDT system. For complex measuring tasks, requiring special conditioning and processing of the signals, or for highly automated plant, eddyNCDT systems are recommended.

Reasons for choosing the system

- extreme precision
- rapid response
- exceptional stability even for large environmental temperature fluctuations
- good electromagnetic compatibility

Application



Technical data:

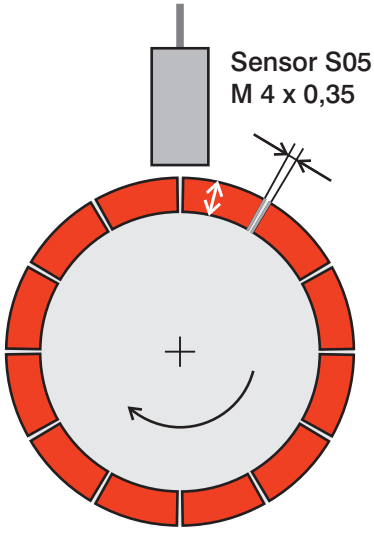
- Measuring range 0.5 mm
- Non-linearity ≤± 1µm
- Temperature stability sensor and cable ≤± 0.1 µm / °K
- Dynamic response: DC to 100 kHz (-3dB)

Additional possible applications of eddyNCDT in monitoring of electric motors

- Monitoring of shaft vibration and bearing play
- Detection of the insulating gaps between the individual commutator segments
- Verification of the free movement of the brushes
- Measurement of motor speed

Remarks concerning sensor installation

To achieve optimum measurement accuracy, the sensor support should be designed and constructed for high rigidity and freedom of vibration.
Compensation for interfering effects arising from play in the motor bearings can be achieved by supplementary use of a second sensor.



Typical system configuration

Compact electronic model DT 332 with matching board model BC-S05A
Shielded sensor S05 with interconnecting cable

MICRO-EPSILON
A member of micro-epsilon group.
Koenigbacher Str. 15
94496 Ortenburg / Germany
Tel.: 0 85 42/1 68-0
Fax: 0 85 42/1 68 90
info@micro-epsilon.com
www.micro-epsilon.com
Certified DIN EN ISO 9001 : 2000
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