

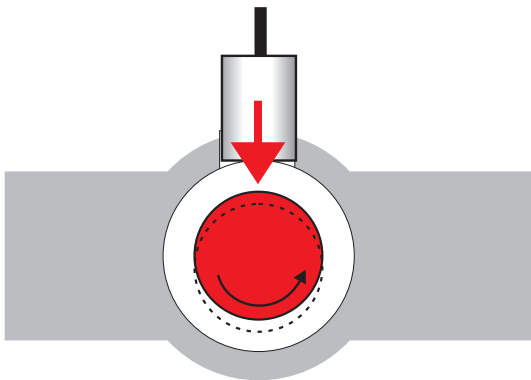
## Measuring the lubricating gap in plain bearings

The lubricating gap of a plain bearing is influenced by several factors such as temperature, speed, angle, load etc. This influence can only be measured under operating conditions. Therefore a measuring system which detects the gap size or the shaft displacement is subject to strict requirements:

- Temperature stability
- Resistance to pressure
- Oil resistance

Small sensors

eddyNCDT systems with the miniature sensors U 05 and S 05 have been used successfully for displacement measurements in the crankshaft bearing of internal combustion engines. The special design of these miniature sensors enables them to be inserted in even the smallest of bearings where they deliver reliable, accurate measuring results and high resolution of the values.

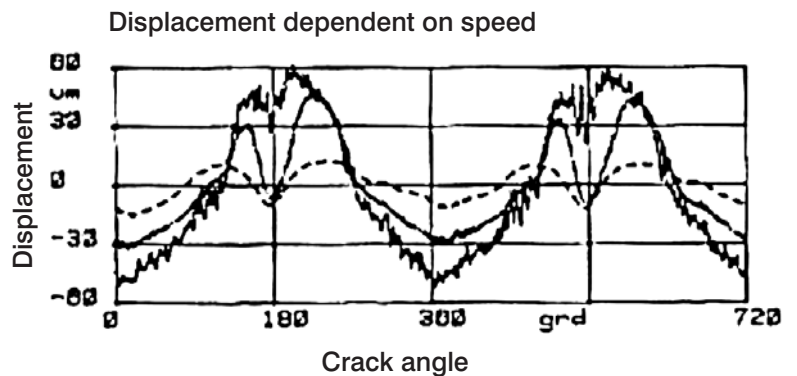


### Structure

Measurements in the plain bearing normally require several measuring axes. The series 500 module system is particularly capable of dealing with this task. An oscillator feeds all measuring channels. There are no synchronisation problems even if the sensors are very close together. Each channel supplies an analog signal proportional to the gap which is normally calibrated to 10 V for the full measuring range. Subsequent processing of the measuring data is no problem. Further modules can also be integrated in the system for further signal processing. A direct computer link is possible through the IEC bus interface unit IEC 800.

### System characteristics

- Non-contact measurement under operating conditions
- $\mu\text{m}$ -accuracy
- High measuring speed
- Small sensors



# Application

## Technical Data

eddyNCDT with sensors U 05/S 05

- Measuring range: 0.5 mm
- Linearity: 1  $\mu\text{m}$
- Temperature stability: 0.01  $\mu\text{m}/\text{K}$  in the standard range 10...90 °C (with option TCS up to 150 °C)
- Operating temperature range: sensor and cable 50...+150 °C

## Typical System Configuration

RS 584 8-channel Eurocard cabinet

DD 500 Digital display module

OS 520 Oscillator module

per measuring channel:

DL 504 Demodulator module

S 05 Shielded sensor with 2 m cable

BC-S 05 A Matching board for non-ferromagnetic target

## Options

BC-S 05M Matching board for ferromagnetic target

TCS Special temperature compensation  
longer cables

## Other eddyNCDT applications in the scope of internal combustion engines:

- Measuring radial and axial motion of shaft
- Piston motion in the cylinder
- Acquisition of piston ring motion
- Measurement of gasket gap
- Acquisition of valve movements.