

measuring log

bearing code: KB27

bearing designation: 11-01

test setup:

- test motor module (Hanning-Motor SD4CDu8S-009/425W/Y230V); operation by frequency converter KEB Combivert 07F5E 1D-2B0A
- measuring shaft module
- radial force module
- flywheel module
- load motor module (Siemens-Motor 1FT7062-1AF70-1DG1)

measuring devices:

- current measurement: current measurement box (self-construction): current transformer LEM Typ CKSR 15-NP, Bessel-Filter (4th order, cut-off frequency: 25 kHz)
- force measurement: load cell K11 (10 kN, Lorenz Messtechnik GmbH)
- speed measurement: measuring shaft TM305 (Magtrol Inc.)
- torque measurement: measuring shaft TM305 (Magtrol Inc.)
- vibration measurement: vibration transducer 336C04 (97/F/3, 100 mV/g, PCB Piezotronics Inc.), charge amplifier type 5015 (filter 30 kHz , 2. Order, Kistler)
- temperature measurement: temperature transducer MINI MCR-SL-TC-UI-NC (Phoenix Contact)
- hardware: processor-Board DS 1006 Single Core (with DS2004) (dSpace GmbH)

Simulink-model: Messung_Strom64kHz_Mech4kHz_Temp1Hz_05_14

- motor current sampling frequency: 64 kHz
- vibration sampling frequency: 64 kHz
- sampling frequency of mechanic parameters (load force, load torque, speed): 4 kHz
- temperature sampling frequency: 1 Hz

load variants:

- K0: N15_M07_F10_...
- K1: N09_M07_F10_...
- K2: N15_M01_F10_...
- K3: N15_M07_F04_...

preheating:

- (F=2000 N; n=2000 1/min):
- duration of preheating: 38 min
- temperature reached: 49.4°C

remarks:

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date: 07.08.2014