

## Bearing Database

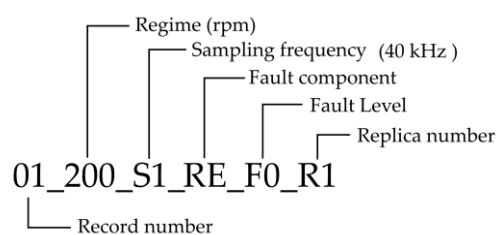
### Induced Failure Test Data on Rolling Elements of a Spherical Roller Bearing (FAG 22205E1KC3)

Two spherical roller bearing housings (FAG 22205E1KC3) and a threaded tightening tower using three ball bearings (SKF 6304-2R) for 1.4kN load transmission are used in the test bench configuration. The development of the failures in the RE was generated in an FAG 22205E1KC3 bearing by milling the surface of three components.

This database is the result of an experiment design "Factorial 5 x 3", for the analysis of the 5 failure levels (F0, F1, F2, F3, F4) of the ER, under three operation regimes (200, 350, 500 rpm). The fault level "F0" refers to the normal state of the bearing. The failure depth generated in the RE (F1, F2, F3, F4), is expressed as an absolute magnitude of the difference between the normal diameter and the induced failure, which are 0.006, 0.014, 0.019 and 0.027 mm deep. Each treatment was run three times, to ensure that small differences due to uncontrollable variables were distributed evenly across all records. Below are the specifications for the bearings used in the housings and the tightening tower:

The accelerometers were located in the load area of the supports and the clamping tower. The length of the records is 30 seconds and under a sampling frequency of 40kHz. The records are presented in '.mat' (Matlab®) format.

Each file contains the sampling frequency (Fs) and the data of the three accelerometers used in the test (Variable "Rod\_1", "Rod\_2", "Rod\_3"); however, the variable "Rod\_1" corresponds to the bearing with induced failure. The name of each file provides information on the conditions under which the records were obtained, as detailed below:



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