EXERCISES

Fatigue damage

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1. Fatigue damage is the most common cause of bearing damage.
a) Correct
b) Incorrect

2. What are the types of fatigue damage?
a) Fatigue starting below the surface
b) Temperature fatigue
c) External fatigue
d) Fatigue originating from the surface

3. What are signs of fatigue damage?
a) Frosting
b) Flaking rolling bearing material
c) Cracking under the surface
d) Spalling

4. What does the shear stress hypothesis of Lundberg and Palmgren provide an explanation for?
a) Fatigue damage below the surface
b) Peeling
c) Rust in the bearing
d) Fatigue damage starting from the rolling element surface

5. Which factors play a role in the formation of fatigue damage below the surface?
a) Structure
b) Temperature
c) Material purity
d) Applied load

6. Proper lubrication ensures that indentations can be ruled out.
a) Correct
b) Incorrect

7. How can you recognise skidding?
a) Black spots
b) The noise that the bearing makes
c) Major cracks
d) Flat spots

8. Which minimum load prevents skidding from occurring in cylindrical rolling elements?
a) 0.01 C
b) 0.02 C
c) 0.1 C
d) 0.2 C

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9. What is also likely to occur due to skidding?

a) Elevated temperatures
b) Flaking
c) Peeling
d) Scuffing

10. How can rolling bearing damage be detected at an early stage?

a) This is not possible
b) Distance measurement
c) Vibration analysis
d) Temperature monitoring

Solution: 1. b; 2. a, d; 3. b, c, d; 4. a; 5. a, b, c, d; 6. b; 7. b, d; 8. b; 9. d; 10. c, d