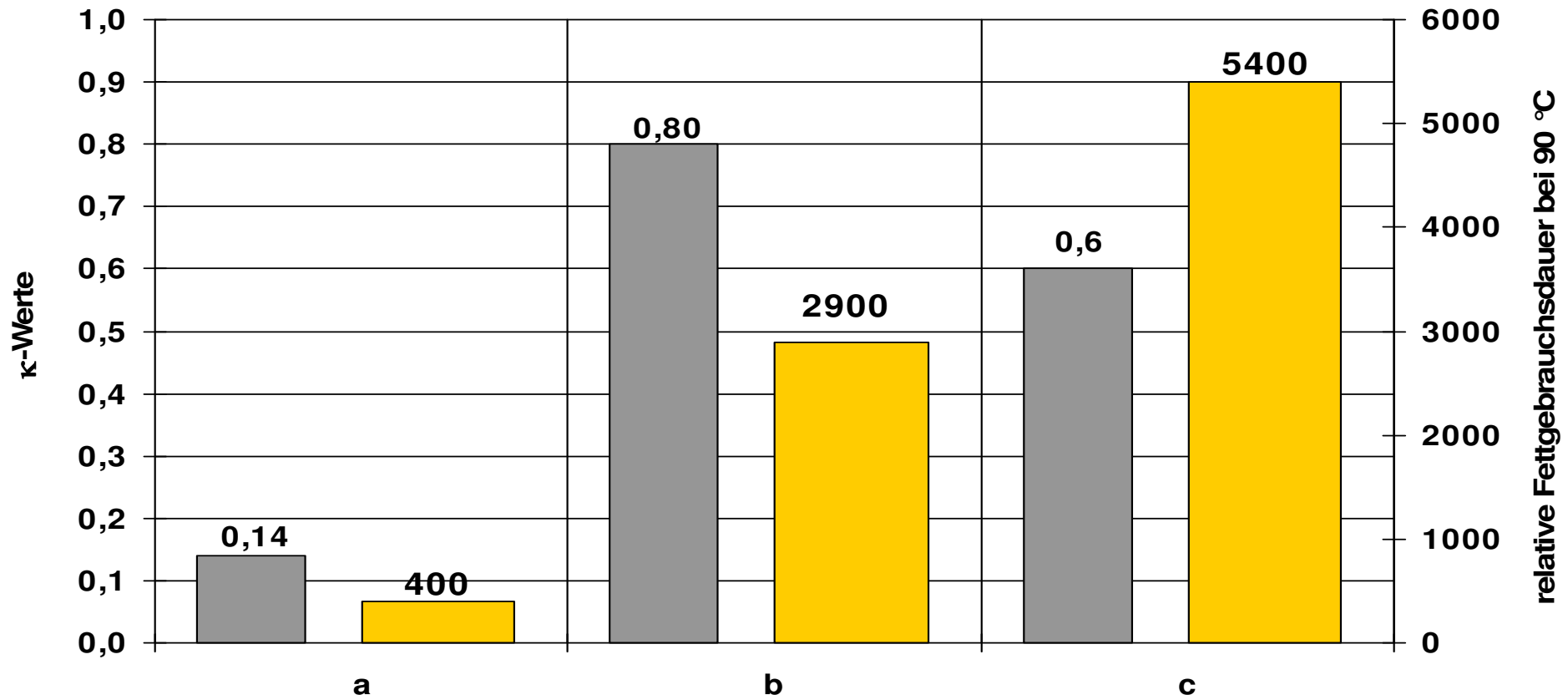


2 Analyzing the manifold interaction between the rolling bearing and its lubricant is a first step to attain long bearing life.

Comparison of lubricants for generator bearings

FAG-FE9: $n \times d_m = 276,000 \text{ mm} \times \text{min}^{-1}$, temperature 150°C

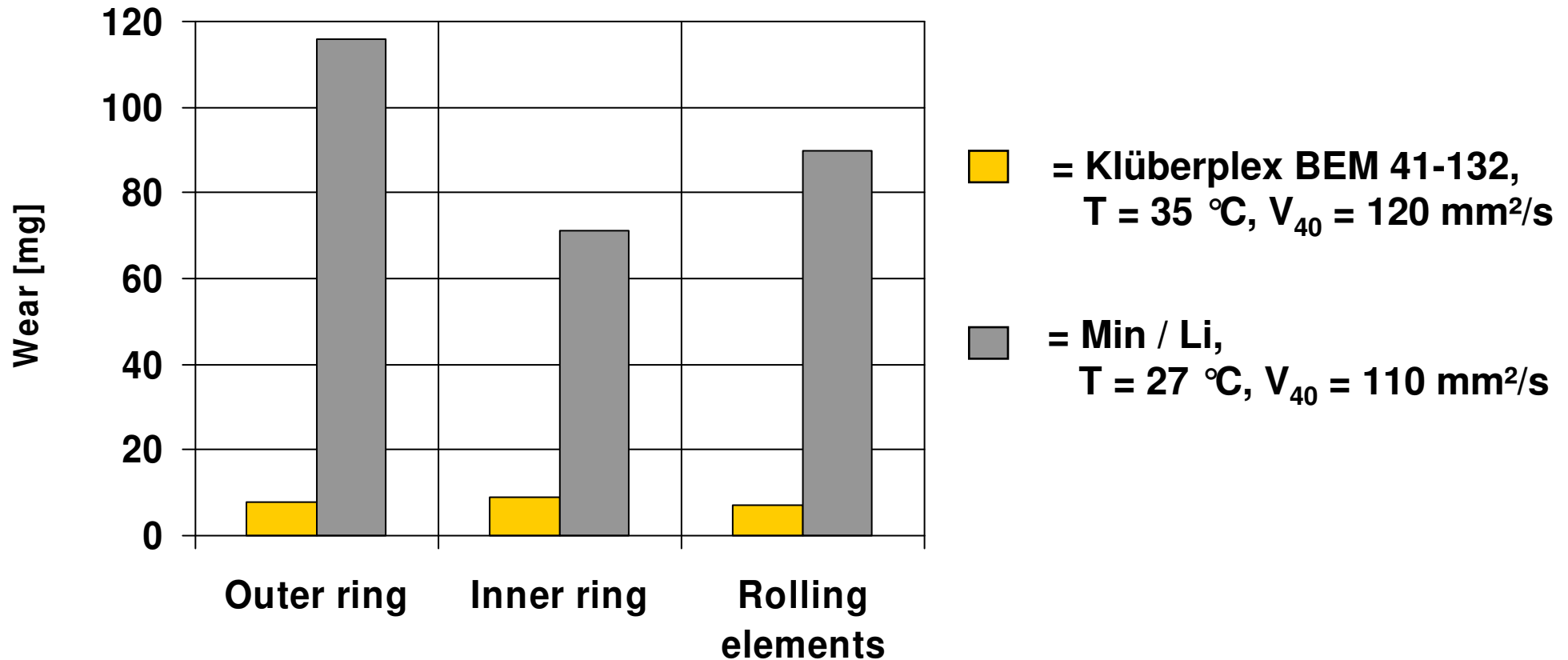
- a) $F_{10} = 23 \text{ h Min. oil / Lithium soap}$
- b) $F_{10} = 180 \text{ h Ester / Lithium complex soap}$
- c) $F_{10} = 340 \text{ h Klüberplex BEM 41-132}$



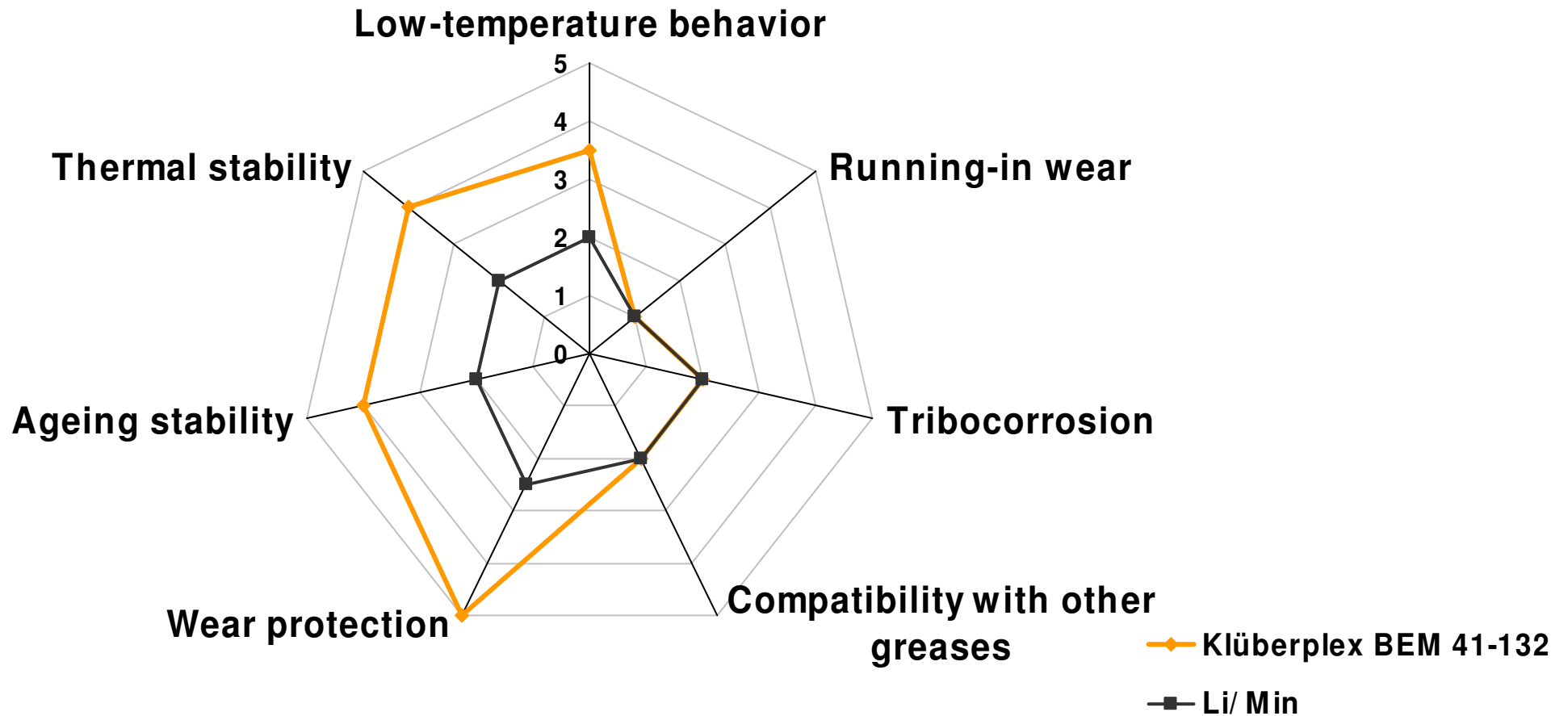
Rolling bearing wear with two different lubricants



FAG FE8 test with tapered roller bearing $F_a = 50 \text{ kN}$, $n = 75 \text{ min}^{-1}$,
test duration = 500 h



Performance comparison between two lubricants



Influencing factors in the tribological system that is a rolling bearing



Known factors

- Max./ min. temperature
- Speed
- Location
- Run time / downtime
- Bearing design
- Generator manufacturer
- Bearing manufacturer

Unknown factors

- Water content
- Emulsifiability
- Fretting corrosion
- Lubricant dispensability
- Cleanliness

Rolling bearing – low-temperature torque



Temperatures at which the permissible starting (M_{St}) and running torques (M_L) are reached

IP 186 / 93, $M_{St} < 1000 \text{ Nmm}$, $M_L < 100 \text{ Nmm}$

