

LUBRICATION

Grease lubrication

Grease lubrication is generally used when rolling bearings operate at normal speeds, loads and temperature conditions. For normal application the bearings and housings should be filled with grease up to 30-50% of the free space. Overpacking with grease will cause overheating. When selecting a grease, the consistency, rust-inhibiting properties and temperature range must be carefully considered. The relubrication period for a grease-lubricated bearing is related to the service life of the grease and can be estimated from the expression:

$$t_f = k \left(\frac{14 \times 10^6}{n\sqrt{d}} - 4d \right)$$

where:

- t_f = service life of grease or relubrication interval, hours
- k = factor dependent on the type of bearing (Table 20.4)
- n = speed, rev/min
- d = bearing bore diameter, mm

Table 20.4

Bearing type	Factor k for calculation of re-lubrication interval
Spherical roller bearings, tapered roller bearings	1
Cylindrical roller bearings, needle roller bearings	5
Radial ball bearings	10

The amount of grease required for relubrication is obtained from:

$$G = 0.005 DB$$

where:

- G = weight of grease, g
- D = bearing outside diameter, mm
- B = bearing width, mm

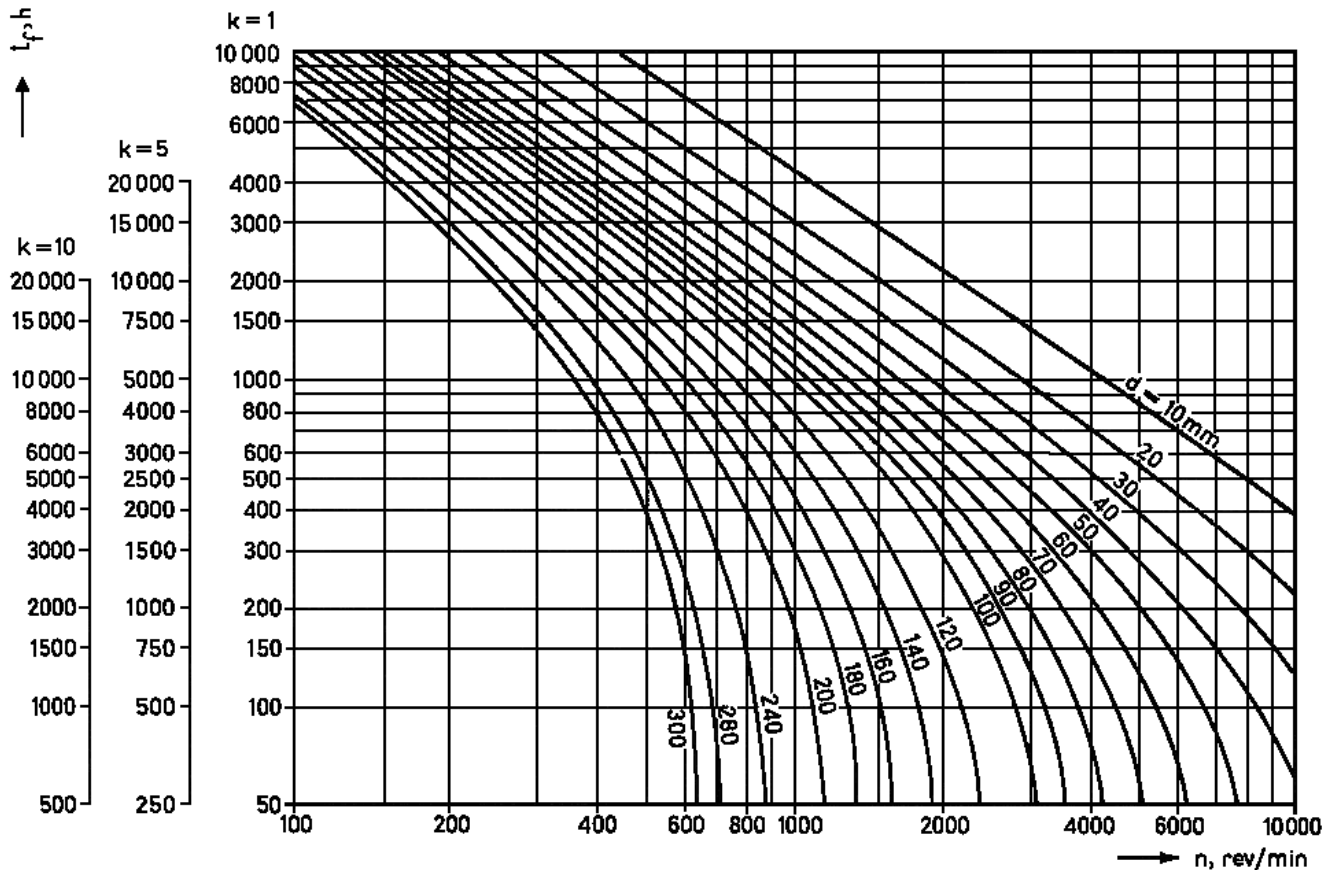


Fig. 20.5.