

SPEED LIMIT

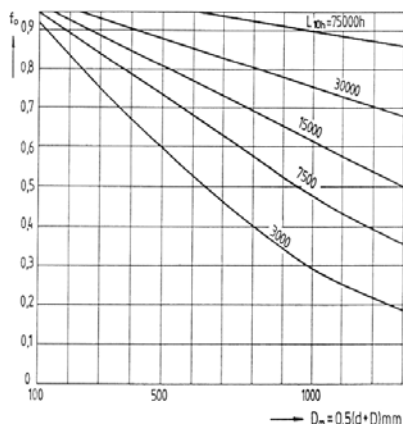


Figure 1

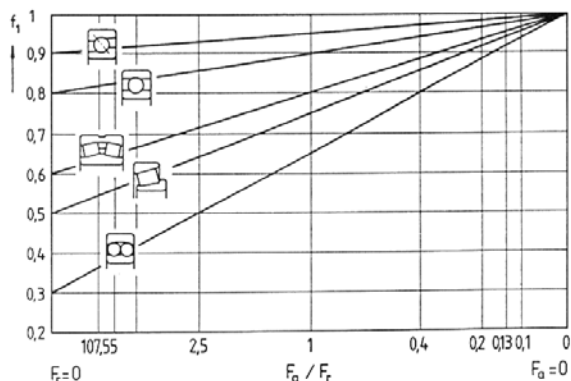


Figure 2

Maximum (limit) rotational speed to which a bearing may be subject to is indicated in bearings tables and catalogues for greasing and oil lubrication.

The values are approximate and valid if bearings are used for loads corresponding to a rating life $L_h < 150.000$ hours and operate in the following conditions:

- good rigidity of the shaft and housing
- adequate greasing conditions
- heat dispersing conditions (maximum operating temperature 70°C)
- adequate sealing

In the case in which the bearings operating conditions are not known it is recommended that the effective rotational speed not to exceed 75% of the rotational speed indicated in the catalogue.

For heavy loads applied to bearings with the mean diameter greater than 100 mm when the rating life L_h is smaller than 75.000 hours, the limit rotational speed indicated by the catalogue shall be multiplied with the factor f_0 from figure 1.

For combined loads applied to bearings, the rotational speed indicated in the catalogue shall be multiplied with the factor f_1 from figure 2

The increase of the maximum rotational speed above the limit value mentioned in the catalogue could be realized both through the use of higher precision bearing classes in the same time with the increase of the shaft and housing manufacturing precision and through the improvement of the greasing and cooling conditions.

Table 1 presents the multiplication factors of the limit rotational speed.

For high rotational speed the bearings of small size series are to be preferred.

In case of pure radial loads carrying, radial ball or roller bearings can support the higher rotational speeds.

In the case of combined loads carrying, even in the case in which the axial loads are foremost will be preferred radial - axial ball bearings.

In the case of spherical (ball or roller) bearings when axial loads are predominating, it is recommended to reduce the upper limit of the maximum rotational speed.

For all bearings used at high rotational speeds it is recommended the use of a radial clearance greater than the normal one (groups C3, C4, C5).

Table 1

Constructive features/ Precision class	Greasing type	Bearing type	
		Radial ball bearing. Radial roller bearing	Axial ball bearing
Special cage / P6	Oil circulation	1,6 - 1,8	1,1 - 1,3
Special cage / P5	Cooled oil circulation Oil mist	1,8 - 2,1	1,3 - 1,4
Special cage / P4	Cooled oil circulation Oil spot	2,1 - 2,4	1,3 - 1,4