

Life Calculation

KM series consists of a linear guideway, a ballscrew and a support bearing. The calculation of nominal life of each component is shown below. The nominal life is defined as the total running distance that 90% of identical linear guideways or ballscrew in a group, when they are applied under the same conditions, can work without developing flaking.

Linear Guideway

$$L = \left(\frac{f_c}{f_w} \cdot \frac{C}{P} \right)^3 \times 50 \text{ km}$$

L : Nominal life (km)

f_c : Contact factor (see Table 1)

f_w : Load factor (see Table 2)

C : Basic dynamic load rating (N)

P : Calculated applied load (N)

Table 1

Carriage-Nut Type	Contact factor f_c
A、C	1.00
B、D	0.81

Ballscrew and Bearing

$$L = \left(\frac{1}{f_w} \cdot \frac{C_a}{P_a} \right)^3 \times 10^6 \text{ rev}$$

L : Nominal life (rev)

f_w : Load factor (see Table 2)

C_a : Basic dynamic load rating (N)

P_a : Applied axial load (N)

Table 2

Motion Condition	Operating Speed	Load factor f_w
No Impact & Vibration	$V \leq 15\text{m/min}$	1.0~1.2
Slight Impact & Vibration	$15 < V \leq 60\text{m/min}$	1.2~1.5
Moderate Impact & Vibration	$60 < V \leq 120\text{m/min}$	1.5~2.0
Strong Impact & Vibration	$V \geq 120\text{m/min}$	2.0~3.5