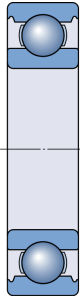


1. Abstract

Calculation overview



Deep groove ball bearing

■ SKF Explorer

Designation	Bearing rating life	
	Basic	SKF life
	L_{10h} (h)	L_{10mh} (h)
16052 MA	150000	$> 2 \times 10^5$

Consideration

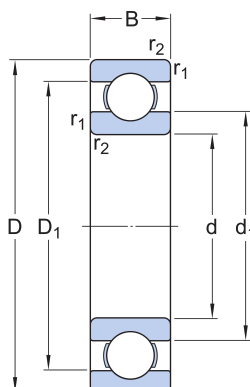
High viscosity ratio k , no asperity contact. $k > 4$ will no further increase bearing rating life but result in higher viscous frictional losses.
Operating temperature must be given more attention [More info](#)

Consideration

For rating life results above 100000 hours, other failure modes than those included in the current rating life models will dominate and limit the life of the bearing.

2. Input

2.1. Bearing data



Designation	Bearing type	Principal dimensions			Basic load ratings		Fatigue load limit	Speed ratings		Clearance class
					Dynamic	Static		Reference	Limiting	
		d (mm)	D (mm)	B (mm)	C (kN)	C ₀ (kN)	P _u (kN)	n _{ref} (r/min)	n _{lim} (r/min)	
<u>16052 MA</u>	Deep groove ball bearing	260.0	400.0	44.0	238.0	310.0	7.2	3200.0	2800.0	Normal

2.2. Loads, Speed and Temperature

	Forces		Speed	Temperature		Case weight
	Radial (F _r) (kN)	Axial (F _a) (kN)	(r/min)	Inner ring (°C)	Outer ring (°C)	
LC1	11.13	0.0	1080.0	70	65	1

Maximum temperature is used for calculating the actual viscosity, κ , a_{SKF} and SKF rating life.

Mean temperature is used for calculating bearing friction and power loss.

2.3. Lubrication

Designation	Lubricant			Effective EP additives	Contamination	
	Type	Method	Name		Method	Cleanliness / Factor
<u>16052 MA</u>	Grease	SKF grease	LGMT 2: all purpose industrial and automotive	False	Detailed guidelines	Normal cleanliness

3. Results

3.1. Bearing loads

	Load ratio	Equivalent dynamic load
Designation	C/P	P (kN)
<u>16052 MA</u>	21.38	11.13

3.2. Lubrication conditions

	Operating viscosity			Viscosity ratio
Designation	Actual	Rated	Rated @ 40 °C	
	ν (mm ² /s)	ν_1 (mm ² /s)	ν_{ref} (mm ² /s)	κ
<u>16052 MA</u>	28.0	6.02	15.1	4.64

3.3. Bearing rating life

	Bearing rating life		SKF life modification factor	Contamination factor
Designation	Basic	SKF		
	L_{10h} (h)	L_{10mh} (h)	a_{skf}	η_c
<u>16052 MA</u>	150000	> 2x10 ⁵	50.0	0.83

Consideration

High viscosity ratio κ , no asperity contact. $\kappa > 4$ will no further increase bearing rating life but result in higher viscous frictional losses. Operating temperature must be given more attention [More info](#)

Consideration

For rating life results above 100000 hours, other failure modes than those included in the current rating life models will dominate and limit the life of the bearing.