Bearing Selection Tool
Input data required

Operating conditions and application requirements

- Bearing type
  - Space
  - Speed
  - Vibration
  - Easy mounting
- Load
- Peak load
- Misalignment
- Position control
- Run out
- Speed
- Required life
- Dynamic load
- Static load
- Viscosity
Lubrication
- Lubricant life
- Relubrication interval

Environment
- Operating temperature
- Seal type

Mounting
- Ease of replacement
- Procedure for same

Tooling

Fits
- Ease of mounting and replacement

Speed

Input data required

Operating conditions and application requirements
## Basic Selection procedure

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Performance and operating conditions</td>
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<tr>
<td>Bearing type and arrangement</td>
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<tr>
<td>Bearing size</td>
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<tr>
<td>Lubrication</td>
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<td>Operating temperature and speed</td>
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<tr>
<td>Bearing interfaces</td>
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<td>Bearing execution</td>
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<td>Sealing, mounting and dismounting</td>
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</tbody>
</table>
 SKF bearing selection tool

1. Make your selection
2. Type and arrangement
3. Select Calculation
4. Operating load & speed
5. Operating condition
6. Summary

- Single bearing
- Two bearings on a shaft
- Re-open existing project
SKF bearing selection tool

- Make your selection
- Type and arrangement
- Select Calculation
- Operating load & speed
- Operating conditions
- Summary

Select bearing type

Search designation

SKF Explorer

Popular item
SKF bearing selection tool

1. Make your selection
2. Type and arrangement
3. Select Calculations
4. Operating load & speeds
5. Operating conditions
6. Summary

Select calculation(s):

- Select all
- Minimum load
- Viscosity
- Equivalent dynamic load
- Bearing frequencies
- Grease life and relubrication interval
- Friction and power loss
- Bearing rating life
- Adjusted reference speed
- Static safety factor
SKF bearing selection tool

Make your selection → Type and arrangement → Select Calculations → Operating load & speed → Operating conditions → Summary

Radial Load

Axial Load

To change rotating race

<table>
<thead>
<tr>
<th>Forces</th>
<th>Radial (kN)</th>
<th>Axial</th>
<th>Speed (r/min)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>0</td>
<td>400</td>
<td>50</td>
<td>32</td>
</tr>
</tbody>
</table>

Add load case → Calculate
SKF bearing selection tool

Make your selection → Type and arrangement → Select Calculations → Operating load & speed → Operating conditions → Summary
SKF bearing selection tool

Make your selection

Type and arrangement

Select Calculations

Operating load & speed

Operating conditions

Summary

<table>
<thead>
<tr>
<th>BEARING PROPERTIES</th>
<th>16004</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINIMUM LOAD</td>
<td>$F_{w,0} = 0.01$ kN</td>
</tr>
<tr>
<td>VISCOSITY</td>
<td>$\eta = 1.36$</td>
</tr>
<tr>
<td>BEARING LOADS</td>
<td>$C_F = 72.8$</td>
</tr>
<tr>
<td>GREASE LIFE AND RELUBRICATION INTERVAL</td>
<td>$t_1 = 30000$ h</td>
</tr>
<tr>
<td>ADJUSTED REFERENCE SPEED</td>
<td>$n_a = 38000$ r/min</td>
</tr>
<tr>
<td>STATIC SAFETY FACTOR</td>
<td>$S = 40.5$</td>
</tr>
<tr>
<td>BEARING RATING LIFE</td>
<td>$L_{10h} = &gt; 10^5$ h</td>
</tr>
<tr>
<td>FREQUENCIES</td>
<td>Please unfold to see results</td>
</tr>
<tr>
<td>FRICTION</td>
<td>$M = 2.67$ Nmm, $P_{loss} = 0$ W</td>
</tr>
</tbody>
</table>
SKF and Indian standard bearing designation

Prefix: SKF
Suffix: (x5) Shaft Diameter
Bearing Type: Type of series

IS – 40 – BC - 03
Shaft dia. 40mm
Series type
Bearing Type

Exception:
00 – 10mm
01 – 12mm
02 – 15mm
03 – 17mm
04 – 20mm
05 – 25mm etc.

<table>
<thead>
<tr>
<th>Code</th>
<th>Bearing type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Double row angular contact ball bearing</td>
</tr>
<tr>
<td>1</td>
<td>Self-aligning ball bearing</td>
</tr>
<tr>
<td>2</td>
<td>Spherical roller bearing, spherical roller thrust bearing</td>
</tr>
<tr>
<td>3</td>
<td>Tapered roller bearing</td>
</tr>
<tr>
<td>4</td>
<td>Double row deep groove ball bearing</td>
</tr>
<tr>
<td>5</td>
<td>Thrust ball bearing</td>
</tr>
<tr>
<td>6</td>
<td>Single row deep groove ball bearing</td>
</tr>
<tr>
<td>7</td>
<td>Single row angular contact ball bearing</td>
</tr>
<tr>
<td>QJ</td>
<td>Four-point contact ball bearing</td>
</tr>
<tr>
<td>T</td>
<td>Tapered roller bearing in accordance with ISO 355</td>
</tr>
</tbody>
</table>

Code: 8
Bearing type: C
CARB toroidal roller bearing
Theoretical Calculations required

Equivalent load:

\[ Pe = S \left[ XVFr + YFa \right] \]

Bearing Life:

\[ L_{90} = \left( \frac{C}{Pe} \right)^k \]

- \( S \) = Service factor/Shock factor
- \( V \) = Race rotation factor
- \( X \) = Radial load factor
- \( Y \) = Axial load factor
- \( Fr \) = Radial load
- \( Fa \) = Axial load

- \( C \) = Dynamic load capacity
- \( K \) = 3 for ball bearing
- \( K \) = \((10/3)\) for roller bearing

\[ \left( \frac{C}{Pe} \right) = Loading \; Ratio \]
THANK YOU