Double row angular contact ball bearing

Bearing Designation: 3303E

Dimensions (mm):
- d: 17
- D: 47
- B: 22.2
- rₐ min: 1.50
- a: 24.5

Abutment and Fillet Dimensions (mm):
- dₐ max: 22.50
- Dₐ max: 38.50
- rₐ max: 0.600

Basic Load Rating (kN):
- C: 18,200
- C⁰: 13,800

Weight [kg]: 0.190

Limiting Speed for Lubrication (min⁻¹):
- Grease: 9400
- Oil: 11000
## Tolerance Class

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Inner Ring</th>
<th>Cylindrical Bore</th>
<th>Diameter Series</th>
<th>( \Delta_{\text{dmp}} )</th>
<th>( \Delta_{\text{dmp}} \pm \Delta_{\text{dmp}} )</th>
<th>( V_{\text{dmp}} )</th>
<th>( K_{\text{ia}} )</th>
<th>( \Delta_{\text{BS}} )</th>
<th>( V_{\text{BS}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>0</td>
<td>-8</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>-120</td>
</tr>
<tr>
<td>P6</td>
<td>0</td>
<td>-7</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>0</td>
<td>-120</td>
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</tbody>
</table>

### Tapered Bore

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Inner Ring</th>
<th>Tapered Bore 1:12</th>
<th>Tapered Bore 1:30</th>
<th>( \Delta_{\text{dmp}} )</th>
<th>( \Delta_{\text{dmp}} \pm \Delta_{\text{dmp}} )</th>
<th>( V_{\text{dmp}} )</th>
<th>( V_{\text{dmp}} )</th>
<th>( \Delta_{\text{BS}} )</th>
<th>( V_{\text{BS}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1) Valid in any bore radial plane

2) P0 - Valid only for bearings in diameter series 2, 3 and 4  
   P6 - Valid only for bearings in diameter series 0, 1, 2, 3 and 4

### Axial Clearance

<table>
<thead>
<tr>
<th></th>
<th>C2</th>
<th>normal</th>
<th>C3</th>
<th>C4</th>
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<tbody>
<tr>
<td>min</td>
<td>max</td>
<td>min</td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>( \mu m )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>12</td>
<td>6</td>
<td>23</td>
</tr>
</tbody>
</table>

Corresponds to \( \Delta_{\text{BS}} \) of the same bearing inner ring

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Tolerance Symbols and Their Meaning

d nominal bore diameter
\(d_1\) nominal diameter of larger theoretical tapered bore diameter
\(d_2\) nominal diameter of the shaft washer of double direction thrust bearings
\(\Delta_{db}\) deviation of single bore diameter from nominal
\(\Delta_{asp}\) mean cylindrical bore diameter deviation in single radial plane
\(\Delta_{sng}\) deviation of mean larger theoretical diameter of tapered bore
\(\Delta_{swh}\) mean shaft washer bore diameter deviation of double direction thrust bearings in single radial plane
\(V_{\text{sb}}\) single bore diameter variation in single radial plane
\(V_{\text{asp}}\) mean cylindrical bore diameter variation
\(V_{\text{swh}}\) shaft washer bore diameter variation of double direction thrust bearings in single radial plane
\(D\) nominal outside diameter
\(\Delta_{os}\) deviation of single outside diameter from the nominal dimension
\(\Delta_{osd}\) mean outside cylindrical surface diameter deviation in single plane
\(V_{\text{os}}\) single outside cylindrical surface diameter variation in single radial plane
\(V_{\text{osd}}\) mean outside cylindrical surface diameter variation
\(B\) inner ring nominal width
\(T\) total nominal width of tapered roller bearings
\(T_1\) nominal effective width of cup sub-unit
\(T_2\) nominal effective width of cone sub-unit
\(H_1\) rated width of unidirectional axial bearing
\(H_2\) rated height of unidirectional ball axial bearing including the body ring
\(H_3\) rated height of bidirectional axial bearing
\(H_{1s}\) rated height of spherical-roller bearing
\(\Delta_{ir}\) inner ring single width deviation
\(\Delta_{or}\) outer ring single width deviation
\(\Delta_{irs}\) bearing single width deviation (total)
\(\Delta_{os}\) cone sub-unit effective width deviation
\(\Delta_{osd}\) cup sub-unit effective width deviation
\(\Delta_{osv}\) height deviation of single direction axial bearings from nominal value
\(\Delta_{osw}\) height deviation of single direction axial ball bearings with sphered housing washer from nominal value
\(\Delta_{osd}\) height deviation of double direction axial bearings from nominal value
\(\Delta_{osvd}\) height deviation of double direction axial ball bearings with sphered housing washer from nominal value
\(\Delta_{osd}\) height deviation of axial spherical-roller bearing from the rated value
\(C\) outer ring nominal width
\(V_{\text{ir}}\) inner ring single width variation
\(V_{\text{or}}\) outer ring single width variation
\(K_{\text{r}}\) radial runout of assembled bearing inner ring
\(K_{\text{s}}\) radial runout of assembled bearing outer ring
\(S_{\text{w}}\) shaft washer raceway axial runout
\(S_{\text{n}}\) housing washer raceway axial runout
\(S_{\text{f}}\) inner ring flat seat face axial runout of assembled bearing
\(S_{\text{g}}\) outer ring flat seat face axial runout of assembled bearing
\(S_{\text{s}}\) flat seat face axial runout
\(S_{\text{r}}\) runout of supporting face towards seat face for single row tapered roller bearings.