## Double row angular contact ball bearing

<table>
<thead>
<tr>
<th>Bearing Designation</th>
<th>3203</th>
</tr>
</thead>
</table>

### Dimensions (mm)

<table>
<thead>
<tr>
<th>d</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>17,5</td>
</tr>
<tr>
<td>rₐ min</td>
<td>0,60</td>
</tr>
<tr>
<td>a</td>
<td>24,4</td>
</tr>
</tbody>
</table>

### Abutment and Fillet Dimensions (mm)

<table>
<thead>
<tr>
<th>dₐ max</th>
<th>24,50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dₐ max</td>
<td>33,50</td>
</tr>
<tr>
<td>rₐ max</td>
<td>0,600</td>
</tr>
</tbody>
</table>

### Basic Load Rating (kN)

<table>
<thead>
<tr>
<th>C</th>
<th>10,640</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₀</td>
<td>7,200</td>
</tr>
</tbody>
</table>

### Limiting Speed for Lubrication (min⁻¹)

<table>
<thead>
<tr>
<th>Grease</th>
<th>11000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>13000</td>
</tr>
</tbody>
</table>

### Weight [kg]

| 0,100 |
## Tolerance Class

### Inner Ring

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Diameter Series</th>
<th>( \Delta_{dmp} )</th>
<th>( V_{dp} )</th>
<th>( K_{ia} )</th>
<th>( \Delta_{B_{sa}} )</th>
<th>( V_{B_{sa}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>7,8,9</td>
<td>max -8</td>
<td>min 10</td>
<td>max 5</td>
<td>max 6</td>
<td>min 6</td>
</tr>
<tr>
<td>P6</td>
<td>0,1</td>
<td>max -7</td>
<td>min 9</td>
<td>max 5</td>
<td>max 5</td>
<td>min 7</td>
</tr>
</tbody>
</table>

### Cylindrical Bore

<table>
<thead>
<tr>
<th>Diameter Series</th>
<th>( \Delta_{dmp} )</th>
<th>( \Delta_{dmp} - \Delta_{dmp} )</th>
<th>( V_{dp} )</th>
<th>( \Delta_{dmp} )</th>
<th>( \Delta_{dmp} - \Delta_{dmp} )</th>
<th>( V_{dp} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0 = P6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Outer Ring

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Diameter Series</th>
<th>( \Delta_{dmp} )</th>
<th>( V_{dp} )</th>
<th>( V_{Dmp} )</th>
<th>( K_{ia} )</th>
<th>( \Delta_{CS}, V_{CS} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>7,8,9</td>
<td>max -11</td>
<td>min 14</td>
<td>max 16</td>
<td>max 8</td>
<td>max 20</td>
</tr>
<tr>
<td>P6</td>
<td>0,1</td>
<td>max -9</td>
<td>min 11</td>
<td>max 13</td>
<td>max 7</td>
<td>max 10</td>
</tr>
</tbody>
</table>

1) Valid in any bore radial plane

2) P0 - Valid 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>C2</th>
<th>normal</th>
<th>C3</th>
<th>C4</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>max</td>
<td>min</td>
<td>max</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>6</td>
<td>23</td>
</tr>
</tbody>
</table>

Corresponds to \( \Delta_{BS}, V_{BS} \) of the same bearing inner ring.
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

\( \Delta_{sb} \)  
deviation of single bore diameter from nominal

\( \Delta_{smp} \)  
mean cylindrical bore diameter deviation in single radial plane

\( \Delta_{smp} \)  
(for tapered bore \( \Delta_{smp} \) is valid for theoretical bore diameter)

\( \Delta_{stf} \)  
deviation of mean larger theoretical diameter of tapered bore

\( \Delta_{dwh} \)  
mean shaft washer bore diameter deviation of double direction thrust bearings in single radial plane

\( V_{s1} \)  
single bore diameter variation in single radial plane

\( V_{smp} \)  
mean cylindrical bore diameter variation

\( V_{sdp} \)  
shaft washer bore diameter variation of double direction thrust bearings in single radial plane

\( D \)  
nominal outside diameter

\( \Delta_{dos} \)  
deviation of single outside diameter from the nominal dimension

\( \Delta_{dos} \)  
mean outside cylindrical surface diameter deviation in single plane

\( V_{d1} \)  
single outside cylindrical surface diameter variation in single radial plane

\( V_{dmp} \)  
mean outside cylindrical surface diameter variation

\( B_b \)  
inner ring nominal width

\( T \)  
total nominal width of tapered roller bearings

\( T'_f \)  
nominal effective width of cup sub-unit

\( T'_r \)  
nominal effective width of cone sub-unit

\( H'_f \)  
rated width of unidirectional axial bearing

\( H'_i \)  
rated height of unidirectional ball axial bearing including the body ring

\( H'_j \)  
rated height of bidirectional axial bearing

\( H'_s \)  
rated height of bidirectional axial ball bearing including body rings

\( H'_{lb} \)  
rated height of spherical-roller bearing

\( \Delta_{ib} \)  
inner ring single width deviation

\( \Delta_{oa} \)  
outer ring single width deviation

\( \Delta_{bs} \)  
bearing single width deviation (total)

\( \Delta_{cse} \)  
cone sub-unit effective width deviation

\( \Delta_{cew} \)  
cup sub-unit effective width deviation

\( \Delta_{sd} \)  
height deviation of single direction axial bearings from nominal value

\( \Delta_{ah} \)  
height deviation of single direction axial ball bearings with sphered housing washer from nominal value

\( \Delta_{aht} \)  
height deviation of double direction axial bearings from nominal value

\( \Delta_{ahs} \)  
height deviation of double direction axial ball bearings with sphered housing washer from nominal value

\( \Delta_{ahs} \)  
height deviation of axial spherical-roller bearing from the rated value

\( C \)  
outer ring nominal width

\( V_{oa} \)  
outer ring single width variation

\( V_{oc} \)  
outer ring single width variation

\( K'_{ib} \)  
radius runout of assembled bearing inner ring

\( K'_{oa} \)  
radius runout of assembled bearing outer ring

\( S'_{iw} \)  
shaft washer raceway axial runout

\( S'_{ir} \)  
housing washer raceway axial runout

\( S'_{ic} \)  
inner ring flat seat face axial runout of assembled bearing

\( S'_{oc} \)  
outer ring flat seat face axial runout of assembled bearing

\( S'_{of} \)  
flat seat face axial runout

\( S'_{ok} \)  
rout of supporting face towards seat face for single row tapered roller bearings