Double row spherical roller bearings with cylindrical and tapered bore

Bearing Designation with Cylindrical Bore
22205EW33J

Bearing Designation with Tapered Bore (1:12)
22205EKW33J

Dimensions (mm)
- \( d \) = 25mm
- \( D \) = 52mm
- \( B \) = 18,00mm
- \( r_a \text{ min} \) = 1mm

Abutment and Fillet Dimensions (mm)
- \( d_a \text{ min} \) = 31mm
- \( D_a \text{ max} \) = 46mm
- \( r_a \text{ max} \) = 1mm

Basic Load Rating (kN)
- \( C \) = 43,00kN
- \( C^0 \) = 44,00kN

Limiting Speed for Lubrication (min⁻¹)
- Grease = 8500 min⁻¹
- Oil = 10000 min⁻¹

Weight [kg] = 0,180
Weight - K [kg] = 0,175

Corresponding
- Adapter Sleeve: H305
- Withdrawal Sleeve: AH305
- Withdrawal Nut: KM6

Coefficients
- \( e \) = 0,34
- \( Y_1 \) = 1,8
- \( Y_2 \) = 2,9
- \( Y_3 \) = 1,8
### Tolerance Class

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Inner Ring</th>
<th>Cylindrical Bore</th>
<th></th>
<th>Δ_{dmp}</th>
<th>Δ_{dmp}</th>
<th>K_{ia}</th>
<th>Δ_{B_s}</th>
<th>V_{B_s}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Diameter Series</td>
<td>7,8,9</td>
<td>0,1</td>
<td>2,3,4</td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>P0</td>
<td>0</td>
<td>-10</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>P6</td>
<td>0</td>
<td>-8</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

| Tolerance Class | Tapered Bore 1:12 | Tapered Bore 1:30 | | Δ_{dmp} | Δ_{dmp} | Δ_{dmp} | Δ_{dmp} | Δ_{dmp} | Δ_{dmp} |
|-----------------|-------------------|-------------------|-----------------------------------|---|---|---|---|---|
|                 | μm                | μm                | max | min | max | min | max | min | max | max |
| P0 - P6         | 21                | 0                 | 21  | 0   | 13  | -   | -   | -   | -   | -   |

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Outer Ring</th>
<th></th>
<th>Δ_{dmp}</th>
<th>Δ_{dmp}</th>
<th>V_{dp}</th>
<th>Δ_{dmp}</th>
<th>Δ_{dmp}</th>
<th>K_{ia}</th>
<th>Δ_{CS}, V_{CS}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Diameter Series</td>
<td>7,8,9</td>
<td>0,1</td>
<td>2,3,4</td>
<td>bearings with seals</td>
<td></td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>P0</td>
<td>0</td>
<td>-13</td>
<td>16</td>
<td>13</td>
<td>10</td>
<td>20</td>
<td>10</td>
<td>25</td>
<td>Corresponds to Δ_{B_s}, V_{B_s} of the same bearing inner ring</td>
</tr>
<tr>
<td>P6</td>
<td>0</td>
<td>-11</td>
<td>14</td>
<td>11</td>
<td>8</td>
<td>16</td>
<td>8</td>
<td>13</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

### Radial Clearance - Cylindrical Bore

<table>
<thead>
<tr>
<th>C2</th>
<th>normal</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>max</td>
<td>min</td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>μm</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Radial Clearance - Tapered Bore

<table>
<thead>
<tr>
<th>C2</th>
<th>normal</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>min</td>
<td>max</td>
<td>min</td>
<td>max</td>
<td>min</td>
</tr>
<tr>
<td>μm</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
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
\(\Delta_{lb}\) deviation of single bore diameter from nominal
\(\Delta_{lb}\) mean cylindrical bore diameter deviation in single radial plane (for tapered bore \(\Delta_{lb}\) is valid for theoretical bore diameter)
\(\Delta_{lb}\) deviation of mean larger theoretical diameter of tapered bore
\(\Delta_{dwb}\) mean shaft washer bore diameter deviation of double direction thrust bearings in single radial plane
\(V_{lb}\) single bore diameter variation in single radial plane
\(V_{lb}\) mean cylindrical bore diameter variation
\(V_{dwb}\) shaft washer bore diameter variation of double direction thrust bearings in single radial plane
\(D\) nominal outside diameter
\(\Delta_{ois}\) deviation of single outside diameter from the nominal dimension
\(\Delta_{ois}\) mean outside cylindrical surface diameter deviation in single plane
\(V_{ois}\) single outside cylindrical surface diameter variation in single radial plane
\(V_{ois}\) 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
\(H_i\) rated height of unidirectional ball axial bearing including the body ring
\(H_i\) rated height of bidirectional axial bearing
\(H_s\) rated height of bidirectional axial ball bearing including body rings
\(H_s\) rated height of spherical-roller bearing
\(\Delta_{ib}\) inner ring single width deviation
\(\Delta_{ib}\) outer ring single width deviation
\(\Delta_{ib}\) bearing single width deviation (total)
\(\Delta_{ib}\) cone sub-unit effective width deviation
\(\Delta_{ib}\) cup sub-unit effective width deviation
\(\Delta_{sb}\) height deviation of single direction axial bearings from nominal value
\(\Delta_{sb}\) height deviation of single direction axial ball bearings with sphered housing washer from nominal value
\(\Delta_{db}\) height deviation of double direction axial bearings from nominal value
\(\Delta_{db}\) height deviation of double direction axial ball bearings with sphered housing washer from nominal value
\(\Delta_{as}\) height deviation of axial spherical-roller bearing from the rated value
\(C\) outer ring nominal width
\(V_{ib}\) inner ring single width variation
\(V_{ib}\) outer ring single width variation
\(K_s\) radial runout of assembled bearing inner ring
\(K_s\) radial runout of assembled bearing outer ring
\(S_r\) shaft washer raceway axial runout
\(S_r\) housing washer raceway axial runout
\(S_i\) inner ring flat seat face axial runout of assembled bearing
\(S_i\) outer ring flat seat face axial runout of assembled bearing
\(S_i\) flat seat face axial runout
\(S_{ir}\) runout of supporting face towards seat face for single row tapered roller bearings.