For Extreme Special Environments

EXSEV Product Guidebook
EXSEV Bearing Series
Product Guidebook

The Koyo EXSEV Bearing Series is a collection of high-performance bearings compatible with special operating environments and conditions, where conventional bearings are not applicable.

From among our varied collection of EXSEV Series bearings, this Guidebook includes products that are especially contributory to the semiconductor industry, such as in clean-room or vacuum-chamber applications.

Koyo is certain that the high-performance EXSEV Bearing Series, which is the materialization of new values, will assist the many engineers working not only in the semiconductor industry but in a variety of fields.

For your needs in varied extreme special environments

EXSEV Bearing Series

- Clean
- Hygiene
- Corrosion
- Electric field
- High temperature
- Magnetic field

Contents

EXSEV Bearings: Table of Characteristics
EXSEV Bearing: Table of standard delivery times
Clean environment
- Clean Pro PRZ Bearing
- High Temperature Clean Pro Bearing
- Clean Pro Bearing
- DL Bearing
- FA Bearing
Corrosive environment
- High Corrosion Resistant Ceramic Bearing
- Corrosion Resistant Ceramic Bearing
- Ceramic Bearing
- Corrosion Guard Pro Bearing
- Corrosion Resistant Hybrid Ceramic Bearing
- SK Bearing
High temperature environment
- Full Complement Ceramic Ball Bearing
- WS Bearing
- MG Bearing
- PN Bearing
- MO Bearing
Magnetic field environment
- Non-magnetic Hybrid Ceramic Bearing
Electric field environment
- Hybrid Ceramic Bearing
Hygiene
- Grease-filled Bearing for Food Machinery
- K Series Full Complement Hybrid Ceramic Ball Bearing
- Linear Motion Ball Bearings
- Linear Way Bearing Units
- Ceramic Balls
- KDL Grease
EXSEV bearings in daily life and at the cutting edge of technology

- **Electric field**
  - Hybrid Ceramic Bearing
- **High temperature**
  - WS Bearing
  - PN Bearing
  - Full Complement Ceramic Ball Bearing
- **Vacuum**
  - Ceramic Bearing
- **High Speed**
  - Non-magnetic Hybrid Ceramic Bearing
- **Corrosion**
  - Corrosion Resistant Hybrid Ceramic Bearing
  - Corrosion Resistant Bearing with Aligning Ring
  - Ceramic Bearing
  - Corrosion Guard Pro Bearing
- **Clean**
  - Clean Pro Bearing
  - Clean Pro PRZ Bearing
  - Touchdown Bearings for Turbo Molecular Pump
  - MO Bearing
  - MG Bearing
  - PN Bearing
- **High temperature**
  - WS Bearing
  - PN Bearing
  - Full Complement Ceramic Ball Bearing

EXSEV bearings are used in the product itself.
EXSEV bearings are used during manufacturing.
### Bearings: Table of Characteristics

<table>
<thead>
<tr>
<th>Major Uses</th>
<th>Products</th>
<th>Limiting Speeds (Max. (min^{-1}))</th>
<th>Operating Temp. (°C)</th>
<th>Vacuum (Pa)</th>
<th>Performance and functions</th>
<th>Bearing Number (Cage Code)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean environment</td>
<td>Clean Pro PRZ Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 5% of Cr or less</td>
<td>High</td>
<td>SE□□□□ZZSTPRZ (YS)</td>
<td>Page 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Temperature Clean Pro Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 5% of Cr or less</td>
<td>High</td>
<td>SE□□□□ZZSTPRB (YS)</td>
<td>Page 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clean Pro Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 5% of Cr or less</td>
<td>High</td>
<td>SE□□□□ZZSTPRI (YS)</td>
<td>Page 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DL Bearing</td>
<td>&lt;40 000 --</td>
<td></td>
<td>Low</td>
<td>SV□□□□ZZST (YS)</td>
<td>Page 8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FA Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>SE□□□□ZZST (FA)</td>
<td>Page 9</td>
<td></td>
</tr>
<tr>
<td>Corrosive</td>
<td>High Corrosion Resistant Ceramic Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>N□□□□□□ (FA)</td>
<td>Page 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrosion Resistant Ceramic Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>N□□□□□□ (FA)</td>
<td>Page 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ceramic Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>N□□□□□□ (FA)</td>
<td>Page 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrosion Guard Pro Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 3% of Cr or less</td>
<td>High</td>
<td>3□□□□□□□□UN4 (PN)</td>
<td>Page 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corrosion Resistant Hybrid Ceramic Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>3□□□□□□□□□□□□ (FA)</td>
<td>Page 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SK Bearing</td>
<td>Equal to the dn value of normal bearings</td>
<td></td>
<td>Low</td>
<td>SK□□□□ZZST (YS)</td>
<td>Page 12</td>
<td></td>
</tr>
<tr>
<td>High temperature</td>
<td>Full Complement Ceramic Ball Bearing</td>
<td>&lt;4 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>N□□□□□□ (—)</td>
<td>Page 12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WS Bearing</td>
<td>&lt;4 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>High</td>
<td>SE□□□□ZZST (WS)</td>
<td>Page 13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MG Bearing</td>
<td>&lt;10 000 500</td>
<td>Approximately 3% of Cr or less</td>
<td>Low</td>
<td>SE□□□□□□□□□□□□ (YS)</td>
<td>Page 13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 3% of Cr or less</td>
<td>Low</td>
<td>SE□□□□□□□□□□□□ (YS)</td>
<td>Page 14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MO Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 3% of Cr or less</td>
<td>Low</td>
<td>SE□□□□□□□□□□□□ (YS)</td>
<td>Page 14</td>
<td></td>
</tr>
<tr>
<td>Magnetic field environment</td>
<td>Non-magnetic Hybrid Ceramic Bearing</td>
<td>&lt;10 000 1 000</td>
<td>Approximately 1% of Cr or less</td>
<td>Low</td>
<td>3□□□□□□□□□□□□ (FA)</td>
<td>Page 15</td>
<td></td>
</tr>
<tr>
<td>Electric field environment</td>
<td>Hybrid Ceramic Bearing</td>
<td>No less than 12 times that of steel bearings</td>
<td></td>
<td>Low</td>
<td>3□□□□□□□□□□□□ (FA)</td>
<td>Page 15</td>
<td></td>
</tr>
<tr>
<td>Hygiene</td>
<td>Grease-filled Bearing for Food Machinery</td>
<td>Equal to the dn value of normal bearings</td>
<td></td>
<td>Low</td>
<td>□□□□□□□□□□□□ (FA)</td>
<td>Page 16</td>
<td></td>
</tr>
</tbody>
</table>

1) Solid lubricants are used in the majority of applicable environments.
2) dn value: Bearing bore diameter (mm) × Rotational speed (min^{-1})
3) The cleanliness classes may vary depending on operating conditions.
4) The four blank boxes (□□□□) represent the basic number of the bearing. A basic number consists of three or four alphanumeric characters.
A bearing number may be used as a convenience in the case of any queries to JTEKT.
**EXSEV Bearings**

**Bearing : Table of standard delivery times**

*As situations may change, contact JTEKT regarding details such as the period for delivery.*

1. The basic load rating (C) indicates the value for high-carbon steel chrome bearings. These values are used in the calculation of the permissible radial load.

2. The bearing number marked with an asterisk have a C3 clearance.

3. Because the configuration of these bearings is that of angular contact ball bearings, their basic bearing number and basic load ratings differ from those shown in this table.

<table>
<thead>
<tr>
<th>Boundary dimensions (mm)</th>
<th>Basic load ratings</th>
<th>Bearing number</th>
<th>Series</th>
<th>Clean Pro Bearing</th>
<th>High Temperature Clean Pro Bearing</th>
<th>DL Bearing</th>
<th>FA Bearing</th>
<th>High Corrosion Resistant Ceramic Bearing</th>
<th>Ceramic Bearing</th>
<th>Corrosion Guard Pro Bearing</th>
<th>Corrosion Resistant Hybrid Ceramic Bearing</th>
<th>SK Bearing</th>
<th>SK Bearing (Dual)</th>
<th>SK Bearing (Dual)</th>
<th>PN Bearing</th>
<th>MO Bearing</th>
<th>MO Bearing</th>
<th>Non-magnetic Hybrid Ceramic Bearing</th>
<th>Hybrid Ceramic Bearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore dia.</td>
<td>Outside dia.</td>
<td>Width</td>
<td>C1</td>
<td>Cr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>6</td>
<td>0.97</td>
<td>0.38</td>
<td>604</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>5</td>
<td>3.00</td>
<td>0.49</td>
<td>624</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>5</td>
<td>1.75</td>
<td>0.67</td>
<td>625</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>17</td>
<td>6</td>
<td>1.95</td>
<td>0.74</td>
<td>606</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>19</td>
<td>6</td>
<td>2.90</td>
<td>1.05</td>
<td>626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>22</td>
<td>7</td>
<td>2.80</td>
<td>1.35</td>
<td>627</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>22</td>
<td>7</td>
<td>3.30</td>
<td>1.35</td>
<td>609</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>24</td>
<td>8</td>
<td>3.35</td>
<td>1.40</td>
<td>628</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>24</td>
<td>8</td>
<td>3.35</td>
<td>1.40</td>
<td>609</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>26</td>
<td>8</td>
<td>4.55</td>
<td>1.96</td>
<td>629</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>22,225</td>
<td>7.142</td>
<td>2.83</td>
<td>1.13</td>
<td>EE3S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>22</td>
<td>6</td>
<td>2.30</td>
<td>1.00</td>
<td>6900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>26</td>
<td>8</td>
<td>4.55</td>
<td>1.96</td>
<td>6000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>30</td>
<td>9</td>
<td>5.10</td>
<td>2.40</td>
<td>6200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>24</td>
<td>8</td>
<td>2.45</td>
<td>1.15</td>
<td>6001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>28</td>
<td>8</td>
<td>5.10</td>
<td>2.40</td>
<td>6001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>32</td>
<td>10</td>
<td>6.80</td>
<td>3.05</td>
<td>6201</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>28</td>
<td>7</td>
<td>3.65</td>
<td>1.80</td>
<td>6902</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>32</td>
<td>9</td>
<td>5.60</td>
<td>2.85</td>
<td>6002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>35</td>
<td>10</td>
<td>6.65</td>
<td>3.75</td>
<td>6002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>37</td>
<td>9</td>
<td>5.40</td>
<td>2.56</td>
<td>6904</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>42</td>
<td>12</td>
<td>9.40</td>
<td>5.05</td>
<td>6004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>47</td>
<td>14</td>
<td>12.8</td>
<td>6.65</td>
<td>6004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>42</td>
<td>9</td>
<td>5.95</td>
<td>3.65</td>
<td>6905</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>47</td>
<td>12</td>
<td>10.1</td>
<td>5.85</td>
<td>6005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>52</td>
<td>15</td>
<td>14.0</td>
<td>7.85</td>
<td>6005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>47</td>
<td>9</td>
<td>6.15</td>
<td>4.00</td>
<td>6006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>55</td>
<td>13</td>
<td>13.2</td>
<td>8.25</td>
<td>6006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>62</td>
<td>16</td>
<td>19.5</td>
<td>11.3</td>
<td>6006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>55</td>
<td>10</td>
<td>9.25</td>
<td>6.20</td>
<td>6907</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>62</td>
<td>14</td>
<td>15.9</td>
<td>10.3</td>
<td>6007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>72</td>
<td>17</td>
<td>25.7</td>
<td>15.4</td>
<td>6207</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>68</td>
<td>15</td>
<td>18.7</td>
<td>11.5</td>
<td>6008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>80</td>
<td>18</td>
<td>29.1</td>
<td>17.8</td>
<td>6208</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) The basic load rating (C) indicates the value for high-carbon steel chrome bearings. These values are used in the calculation of the permissible radial load.

2) The bearing number marked with an asterisk have a C3 clearance.

3) Because the configuration of these bearings is that of angular contact ball bearings, their basic bearing number and basic load ratings differ from those shown in this table.

*Note: As a general rule, the internal clearance of bearings is as shown in the table.*
<table>
<thead>
<tr>
<th>Clean Pro PRZ Bearing</th>
<th>High Temperature Clean Pro Bearing</th>
<th>Clean Pro Bearing</th>
<th>DL Bearing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical bearing number</strong></td>
<td>SEZZSTPRZ (YS)</td>
<td>SEZZSTPRB (YS)</td>
<td>SEZZSTPR (YS)</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>This bearing has a fluoropolymer gel coating on its rolling surfaces as the lubricant.</td>
<td>This bearing has a fluoropolymer coating on its rolling surface as the lubricant.</td>
<td>This bearing is lubricated with a fluoropolymer coating on its rolling surfaces as the lubricant.</td>
</tr>
<tr>
<td><strong>Specifications</strong></td>
<td>Outer/inner rings and balls: Martensitic stainless steel • Ceramic ball types are also available. Cage: Austenitic stainless steel Shield: Austenitic stainless steel Lubrication: Clean/pro PRZ coating</td>
<td>Outer/inner rings and balls: Martensitic stainless steel • Ceramic ball types are also available. Cage: Austenitic stainless steel Shield: Austenitic stainless steel Lubrication: Clean/pro PRZ coating</td>
<td>Outer/inner rings and balls: Martensitic stainless steel • Ceramic ball types are also available. Cage: Austenitic stainless steel Shield: Austenitic stainless steel Lubrication: Clean/pro PRZ coating</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>Cleanliness: Class 10&lt;sup&gt;1&lt;/sup&gt; Ambient pressure: Atmospheric pressure to 10&lt;sup&gt;7&lt;/sup&gt; Pa Temperature: −30 to 200 °C Limiting speed: ( &lt; 10,000 \text{ rpm} ) 1 000 min&lt;sup&gt;−1&lt;/sup&gt; max. Permissible radial load: ≤ 5% of the basic dynamic load rating&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Cleanliness: Class 10&lt;sup&gt;1&lt;/sup&gt; Ambient pressure: Atmospheric pressure to 10&lt;sup&gt;7&lt;/sup&gt; Pa Temperature: −100 to 260 °C Limiting speed: ( &lt; 10,000 \text{ rpm} ) 1 000 min&lt;sup&gt;−1&lt;/sup&gt; max. Permissible radial load: ≤ 3% of the basic dynamic load rating&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Cleanliness: Class 10&lt;sup&gt;1&lt;/sup&gt; Ambient pressure: Atmospheric pressure to 10&lt;sup&gt;7&lt;/sup&gt; Pa Temperature: −100 to 200 °C Limiting speed: ( &lt; 10,000 \text{ rpm} ) 1 000 min&lt;sup&gt;−1&lt;/sup&gt; max. Permissible radial load: ≤ 3% of the basic dynamic load rating&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Applications</strong></td>
<td>• Semiconductor manufacturing equipment • Lithography equipment • Transfer systems • Vacuum motors • Vacuum equipment</td>
<td>• Semiconductor manufacturing equipment • LCD manufacturing equipment • Transfer systems • Vacuum equipment • Sputtering equipment</td>
<td>• Semiconductor manufacturing equipment • LCD manufacturing equipment • Transfer systems • Vacuum equipment • Sputtering equipment</td>
</tr>
</tbody>
</table>

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.
2) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, reaching the same limiting speed as that of standard products.
3) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to page 5 for each product’s basic dynamic load rating (C).
**Clean environment**

### FA Bearing

**Typical bearing number**

<table>
<thead>
<tr>
<th>Bearing Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE ZZST</td>
<td>(FA)</td>
</tr>
</tbody>
</table>

**Advantages**

This bearing is lubricated with a solid fluoropolymer lubricant, which offers superior lubrication performance. The cage is made from a low-particle-emission fluorocarbon resin.

**Specifications**

- Outer/inner rings and balls
  - Material: Stainless steel
- Cage: Fluorocarbon resin
- Shield: Stainless steel
- Lubrication: Fluorine polymer (solid lubricant)

**Performance**

- Cleanliness: Class 1000
- Ambient pressure: Atm. pressure to 10⁻⁵ Pa
- Temperature: −100 to 200°C
- Limiting speed: ≤ 10 000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer systems
- Inspection systems

---

### High Corrosion Resistant Ceramic Bearing

**Typical bearing number**

<table>
<thead>
<tr>
<th>Bearing Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC ZZST</td>
<td>(FA)</td>
</tr>
</tbody>
</table>

**Advantages**

This bearing uses a silicon carbide ceramic material, which is resistant to strong acids and alkalis.

**Specifications**

- Outer/inner rings and balls
  - Material: Ceramic (silicon carbide)
- Cage: Fluorocarbon resin
- Lubrication: Fluorine polymer (solid lubricant)

**Performance**

- Cleanliness: Class 1000
- Ambient pressure: Atm. pressure to 10⁻⁵ Pa
- Temperature: −100 to 200°C
- Limiting speed: ≤ 10 000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**

- Aluminum electrolytic capacitor manufacturing equipment

---

### Corrosion Resistant Ceramic Bearing

**Typical bearing number**

<table>
<thead>
<tr>
<th>Bearing Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCT ZZST</td>
<td>(FA)</td>
</tr>
</tbody>
</table>

**Advantages**

This bearing has its components made of corrosion resistant silicon nitride and is lubricated with fluoropolymer. This bearing can be used even in a highly corrosive solution.

**Specifications**

- Outer/inner rings and balls
  - Material: Ceramic (corrosion resistant silicon nitride)
- Cage: Fluorocarbon resin
- Lubrication: Fluorine polymer (solid lubricant)

**Performance**

- Cleanliness: Class 1000
- Ambient pressure: Atm. pressure to 10⁻⁵ Pa
- Temperature: −100 to 200°C
- Limiting speed: ≤ 10 000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**

- Liquid crystal film manufacturing equipment
  - Aluminum electrolytic capacitor manufacturing equipment
  - Plating equipment
  - Synthetic fiber manufacturing equipment
  - Food container washing machine

---

### Ceramic Bearing

**Typical bearing number**

<table>
<thead>
<tr>
<th>Bearing Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC ZZST</td>
<td>(FA)</td>
</tr>
</tbody>
</table>

**Advantages**

This bearing has its components made of silicon nitride ceramic and uses fluoropolymer as the lubricant. It is typically used in vacuum and corrosive environments.

**Specifications**

- Outer/inner rings and balls
  - Material: Ceramic (silicon nitride, corrosion resistant)
- Cage: Fluorocarbon resin
- Shield: Austenitic stainless steel
- Lubrication: Fluorine polymer (solid lubricant)

**Performance**

- Cleanliness: Class 1000
- Ambient pressure: Atm. pressure to 10⁻⁵ Pa
- Temperature: −100 to 200°C
- Limiting speed: ≤ 10 000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer systems
- Inspection systems

---

3) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to page 5 for each product’s basic dynamic load rating (C_r).

---

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.

2) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, reaching the same limiting speed as that of standard products.
Corrosion environment

**Corrosion Guard Pro Bearing**

**Typical bearing number**
3NCTUN4 (PN)

**Advantages**
This bearing is harder than normal corrosion-resistant steel, which gives it a long service life and excellent load carrying capability. It is lubricated with the solid lubricant of the molded PEEK resin cage and can be used in corrosive liquids or water.

**Specifications**
- Outer/inner rings and balls
  - Precipitation hardening stainless steel
  - Ceramic (silicon nitride)
- Cage
  - PEEK resin
- Seal
  - Austenitic stainless steel
- Lubrication
  - Fluoropolymer (solid lubricant)

**Performance**
- Cleanliness: Class 1,000
- Ambient pressure: Atmospheric pressure
- Temperature: −30 to 120 °C
- Limiting speed: dN < 10,000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**
- High-performance film manufacturing equipment
- Semiconductor manufacturing equipment
- Chemical manufacturing equipment
- Food machinery
- Cleaning equipment

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.

**Corrosion Resistant Hybrid Ceramic Bearing**

**Typical bearing number**
3NCZZMD4 (FA)

**Advantages**
This bearing uses a stainless steel variety that has excellent corrosion resistance. As the lubricant, fluoropolymer is used. It is compatible with underwater use.

**Specifications**
- Outer/inner rings
  - High-hardness and corrosion-resistant stainless steel
- Balls
  - Ceramic (silicon nitride)
- Cage
  - Fluorocarbon resin
- Shield
  - Austenitic stainless steel
- Lubrication
  - Fluorine polymer (solid lubricant)

**Performance**
- Cleanliness: Class 1,000
- Ambient pressure: Atmospheric pressure
- Temperature: −100 to 200 °C
- Limiting speed: dN < 10,000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**
- High-performance film manufacturing equipment
- Semiconductor manufacturing equipment
- Chemical manufacturing equipment
- Food machinery
- Cleaning equipment

2) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to page 5 for each product’s basic dynamic load rating (C).

**SK Bearing**

**Typical bearing number**
SKZZST (YS)

**Advantages**
This bearing has its components made of stainless steel, and is lubricated with lithium containing KHD grease, which is packed in adequate amounts. This bearing is suitable for use in slightly corrosive environments.

**Specifications**
- Outer/inner rings and balls
  - Martensitic stainless steel
- Cage
  - Fluorocarbon resin
- Shield
  - Austenitic stainless steel
- Lubrication
  - KHD grease

**Performance**
- Cleanliness: -
- Ambient pressure: Atmospheric pressure
- Temperature: −30 to 120 °C
- Limiting speed: Equal to the dN value of normal bearings
- Permissible radial load: ≤ 3% of the basic dynamic load rating

**Applications**
- Chemical equipment
- Transfer systems

**Full Complement Ceramic Ball Bearing**

**Typical bearing number**
NCV (–)

**Advantages**
This bearing has all components made of ceramic for use in an ultrahigh temperature environments. No cage is provided. Being an angular contact ball bearing, this bearing is normally used in pairs.

**Specifications**
- Outer/inner rings and balls
  - Ceramic (silicon nitride)
- Cage
  - Not provided

**Performance**
- Cleanliness: -
- Ambient pressure: Atmospheric pressure
- Temperature: −30 to 300 °C
- Limiting speed: dN < 4,000 min⁻¹ max.
- Permissible radial load: ≤ 1% of the basic dynamic load rating

**Applications**
- Baking furnace cars
- Fans in furnaces
<table>
<thead>
<tr>
<th>Bearing</th>
<th>Typical bearing number</th>
<th>Advantages</th>
<th>Specifications</th>
<th>Performance</th>
<th>Applications</th>
</tr>
</thead>
</table>
| SE ZZST (WS)  | SE ZZST MG3 (YS)  | This bearing has extremely heat resistant tungsten disulfide included in the separator material as the lubricant.  
We recommend that this bearing is used with horizontal axes. For information on using this bearing with items other than horizontal axes, consult JTEKT.  | Outer/inner rings and balls  
Martensitic stainless steel  
Ceramic ball types are also available.  
Separator  
Austenitic stainless steel  
Solid lubricant including tungsten disulfide | Cleanliness : -  
Ambient pressure : Atmospheric pressure to 10⁻⁵ Pa  
Temperature : -100 to 350 °C  
Limiting speed : ≤ 4,000  
1,000 min⁻¹ max.  
Permissible radial load : ≤ 5% of the basic dynamic load rating ¹ |  
• Semiconductor manufacturing equipment  
• LCD manufacturing equipment  
• Vacuum evaporator  
• Plasma display panel manufacturing equipment |
| SE ZZST (PN)  | SE ZZSTMSA7 (YS)  | This bearing has silver ion plated on the stainless steel balls, as the lubricant.  | Outer/inner rings and balls  
Martensitic stainless steel  
Ceramic ball types are also available.  
Cage  
PEEK resin  
Shield  
Austenitic stainless steel  
Lubrication  
Silver ion plating | Cleanliness : -  
Ambient pressure : Atmospheric pressure to 10⁻⁵ Pa  
Temperature : -100 to 350 °C  
Limiting speed : ≤ 10,000  
1,000 min⁻¹ max.  
Permissible radial load : ≤ 3% of the basic dynamic load rating ¹ |  
• Semiconductor manufacturing equipment  
• LCD manufacturing equipment  
• Vacuum evaporator  
• Turbo molecular pump  
• Rotary furnaces |

¹) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to page 5 for each product’s basic dynamic load rating (Cₚ).
### Non-magnetic Hybrid Ceramic Bearing

**Typical bearing number**

3NC□□□□YH4 (FA)

**Advantages**

This bearing uses non-magnetic stainless steel. It includes fluoropolymer as the lubricant. This bearing can be used in a vacuum environment.

**Specifications**

- Outer/inner rings: Non-magnetic stainless steel
- Balls: Ceramic (silicon nitride)
- Cage: Fluorocarbon resin
- Lubrication: Fluorine polymer (solid lubricant)

**Performance**

- Cleanliness: Class 1 000
- Ambient pressure: Atmospheric pressure to $10^{-5}$ Pa
- Temperature: $-100$ to $200^\circ$C
- Limiting speed: $< 10,000$ min$^{-1}$ max.
- Permissible radial load: $\leq 1$% of the basic dynamic load rating

**Applications**

- Semiconductor manufacturing equipment
- Semiconductor inspection equipment
- Canning machinery
- Superconductivity-related equipment
- Welder

### Hybrid Ceramic Bearing

**Typical bearing number**

3NC□□□□ZZ (FG)

**Advantages**

This bearing is a standard hybrid ceramic bearing. Lubricated with grease or oil, it can be used as an insulating bearing or high speed bearing.

**Specifications**

- Outer/inner rings: High carbon chromium bearing steel
- Balls: Ceramic (silicon nitride)
- Cage: Reinforced polyamide resin
- Shield: Stainless steel
- Lubrication: Grease or oil

**Performance**

- Cleanliness: Class 1 000
- Ambient pressure: Atmospheric pressure to $10^{-5}$ Pa
- Temperature: $-30$ to $120^\circ$C
- Limiting speed: Equal to or higher than 1.2 times the limiting speed of steel bearings

**Applications**

- High speed stranding machine guide rollers
- Motors
- Generators

### Grease-filled Bearing for Food Machinery

**Typical bearing number**

3NC□□□□ZZ (FG)

**Advantages**

This bearing is filled with grease for food machinery. It can be used in hygienic environments such as food machinery or cosmetic/pharmaceutical production machinery.

**Specifications**

- Outer/inner rings: High carbon chromium bearing steel
- Balls: High carbon chromium bearing steel
- Cage: Reinforced polyamide resin
- Shield: Stainless steel
- Lubrication: Grease for food machinery

**Performance**

- Cleanliness: Class 100
- Ambient pressure: Atmospheric pressure
- Temperature: $-30$ to $200^\circ$C
- Limiting speed: Equal to or higher than 1.2 times the limiting speed of steel bearings

**Applications**

- Food machinery
- Chemical manufacturing equipment

### K Series Full Complement Hybrid Ceramic Ball Bearing

**Typical bearing number**

3NC□□□□VST-1

**Advantages**

This bearing is based on the K series super thin section ball bearing, which is widely used in industrial robots. Provided with some adaptations, this bearing is compatible with clean or vacuum environments. It uses fluorinated KDL grease as the standard lubricant. However, it can also be used with other solid greases such as Clean Pro.

**Specifications**

- Outer/inner rings and separator: Martensitic stainless steel
- Balls: Ceramic (silicon nitride)
- Cage: Not provided
- Shield: Carbon steel
- Lubrication: KDL grease

**Performance**

- Cleanliness: Class 100
- Ambient pressure: Atmospheric pressure to $10^{-5}$ Pa
- Temperature: $-30$ to $200^\circ$C

**Applications**

- Wafer transfer robot
- LCD manufacturing equipment
- Semiconductor manufacturing equipment
- Welder

*Remark*

For details, please refer to the EXSEV BEARINGS AND CERAMIC BEARINGS catalog (CATNO.B2004B) or consult JTEKT.

---

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.

2) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, matching the same limiting speed as that of standard products.

3) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to page 5 for each product’s basic dynamic load rating ($C_r$).
The linear motion ball bearings are a high precision product that moves linearly in axial directions while having rolling contact with the shaft. Having balls, retainer and shields housed in an external cylinder, this compact bearing moves linearly without limit to the stroke distance.

### Specifications
- **Housing and track rail**
  - Material: Silicon nitride or ceramics
- **Lubrication**
  - KDL grease (Std. specification)
  - Clean pro coating (Clean specification)

### Performance
- **Lubrication specification**
  - KDL
    - Class 100: From -30 to 200 °C
    - Clean Pro: From -100 to 200 °C

### Ceramic Balls
- **Advantages**
  - JTEKT also supplies Ceramic Balls (silicon nitride), which have excellent resistance to wear and seizure, and are usable in corrosive environments and ultrahigh vacuums. Other major features of these balls are excellent heat resistance (up to 800 °C), high rigidity, lightweight (40% compared to bearing steel), non-magnetic, and have insulating characteristics.

### Table of Dimensions and Masses

<table>
<thead>
<tr>
<th>Nominal dimension (mm)</th>
<th>Nominal outside diameter (mm)</th>
<th>Precision grade 1)</th>
<th>Mass 2) (per piece)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
<td>0.800 00</td>
<td>0.866 mg</td>
<td>3.67 mg</td>
</tr>
<tr>
<td>1.0</td>
<td>1.000 00</td>
<td>1.691 mg</td>
<td>5.31 mg</td>
</tr>
<tr>
<td>1.2</td>
<td>1.200 00</td>
<td>2.922 mg</td>
<td>6.76 mg</td>
</tr>
<tr>
<td>2.0</td>
<td>2.000 00</td>
<td>6.78 mg</td>
<td>13.53 mg</td>
</tr>
<tr>
<td>3.5</td>
<td>3.500 00</td>
<td>15.29 mg</td>
<td>32.7 mg</td>
</tr>
<tr>
<td>5.0</td>
<td>5.000 00</td>
<td>22.84 mg</td>
<td>54.1 mg</td>
</tr>
<tr>
<td>7.0</td>
<td>7.000 00</td>
<td>32.62 mg</td>
<td>72.8 mg</td>
</tr>
<tr>
<td>9.0</td>
<td>9.000 00</td>
<td>45.1 mg</td>
<td>100.1 mg</td>
</tr>
<tr>
<td>11.0</td>
<td>11.000 00</td>
<td>60.95 mg</td>
<td>133.3 mg</td>
</tr>
<tr>
<td>13.0</td>
<td>13.000 00</td>
<td>76.7 mg</td>
<td>166.5 mg</td>
</tr>
</tbody>
</table>

Notes:
1. For the grades, those specified in JIS B 1501 shall apply.
2. The masses are calculated on the basis of 3.23 g/cm³ in density.

### Advantages
- The Linear Way Bearing Units have a slide unit in which balls circulate, allowing the slide unit to move linearly on the track rail without limit. High precision linear motion can be obtained easily by fixing the slide unit and track rail with bolts.

### Specifications
- **Housing and track rail**
  - Material: Silicon nitride or ceramics
- **Lubrication**
  - KDL grease (Std. specification)
  - Clean pro coating (Clean specification)

### Performance
- **Lubrication specification**
  - KDL
    - Class 100: From -30 to 200 °C
    - Clean Pro: From -100 to 200 °C

### Ceramic Balls
- **Advantages**
  - JTEKT also supplies Ceramic Balls (silicon nitride), which have excellent resistance to wear and seizure, and are usable in corrosive environments and ultrahigh vacuums. Other major features of these balls are excellent heat resistance (up to 800 °C), high rigidity, lightweight (40% compared to bearing steel), non-magnetic, and have insulating characteristics.

### Table of Dimensions and Masses

<table>
<thead>
<tr>
<th>Nominal dimension (mm)</th>
<th>Nominal outside diameter (mm)</th>
<th>Precision grade 1)</th>
<th>Mass 2) (per piece)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
<td>0.800 00</td>
<td>0.866 mg</td>
<td>3.67 mg</td>
</tr>
<tr>
<td>1.0</td>
<td>1.000 00</td>
<td>1.691 mg</td>
<td>5.31 mg</td>
</tr>
<tr>
<td>1.2</td>
<td>1.200 00</td>
<td>2.922 mg</td>
<td>6.76 mg</td>
</tr>
<tr>
<td>2.0</td>
<td>2.000 00</td>
<td>6.78 mg</td>
<td>13.53 mg</td>
</tr>
<tr>
<td>3.5</td>
<td>3.500 00</td>
<td>15.29 mg</td>
<td>32.7 mg</td>
</tr>
<tr>
<td>5.0</td>
<td>5.000 00</td>
<td>22.84 mg</td>
<td>54.1 mg</td>
</tr>
<tr>
<td>7.0</td>
<td>7.000 00</td>
<td>32.62 mg</td>
<td>72.8 mg</td>
</tr>
<tr>
<td>9.0</td>
<td>9.000 00</td>
<td>45.1 mg</td>
<td>100.1 mg</td>
</tr>
<tr>
<td>11.0</td>
<td>11.000 00</td>
<td>60.95 mg</td>
<td>133.3 mg</td>
</tr>
<tr>
<td>13.0</td>
<td>13.000 00</td>
<td>76.7 mg</td>
<td>166.5 mg</td>
</tr>
</tbody>
</table>

Notes:
1. For the grades, those specified in JIS B 1501 shall apply.
2. The masses are calculated on the basis of 3.23 g/cm³ in density.
This is low-particle-emission fluorocarbon grease for use in vacuum environments. KDL grease expresses its high properties when used with rolling bearings, linear-motion bearings, and ball screws. JTEKT also respond to requests only for grease, so consult JTEKT with such requests. This grease can be used up to an atmospheric pressure of $10^5$ Pa, but consult JTEKT for information on using this grease under conditions combining high temperature and high vacuum.

**Performance**

**Characteristics**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickener</td>
<td>Fluorocarbon resin</td>
</tr>
<tr>
<td>Base oil</td>
<td>None</td>
</tr>
<tr>
<td>Dropping point</td>
<td>None</td>
</tr>
<tr>
<td>Evaporation around $200$ °C (22%)</td>
<td>$0.1$ wt% or less</td>
</tr>
<tr>
<td>Degree of oil separation (100 °C for 24 h)</td>
<td>$2$ wt% or less</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Ambient temperature (-30 \text{ to } 200 \text{ °C}) Vacuum (-30 \text{ to } 100 \text{ °C})</td>
</tr>
</tbody>
</table>

**Advantages**

For details on EXSEV products, please refer to the EXSEV BEARINGS AND CERAMIC BEARINGS FOR EXTREME SPECIAL ENVIRONMENTS catalog (CAT.NO.B2004E).

**Global Network**

**Bearings Business Operations**

http://www.jtekt.co.jp

**JTEKT CORPORATION NAGOYA HEAD OFFICE**

No.8-1, Masaki 4-chome, Nakamura-ku, Nagoya, Aichi 455-8615, JAPAN

TEL: 81-52-527-1902

FAX: 81-52-527-1911

**JTEKT CORPORATION OSAKA HEAD OFFICE**

No.8-9, Minamienshi 3-chome, Chuo-ku, Osaka 542-8502, JAPAN

TEL: 81-6-6271-8451

FAX: 81-6-6245-3752

**Sales & Marketing Headquarters**

No.8-9, Minamienshi 3-chome, Chuo-ku, Osaka 542-8502, JAPAN

TEL: 81-6-6245-8097

FAX: 81-6-6244-9007

**OFFICES**

**KYO CANADA INC.**

3804A Lea Road, Units 4 & 5 Mississauga, Ontario L5L 0B2, CANADA

TEL: 905-336-4206

FAX: 905-680-2015

**JTEKT NORTH AMERICA CORPORATION**

- **Main Office**-
  4777 Hayward Drive, Plymouth, MI 48170, U.S.A.
  TEL: 734-454-1500
  FAX: 734-454-1059

- **Cleveland Office**-
  2076 Cleve drive, Unit 5002, Westlake, OH 44145, U.S.A.
  TEL: 440-835-1000
  FAX: 440-835-9347

- **Chicago Office**-
  216 W. University Dr., Arlington Heights, IL 60004, U.S.A.
  TEL: 847-263-0340
  FAX: 847-263-0500

**KYO MEXICANA, S.A. DE C.V.**

Av. Ahuizotl y Av. Reforma, S/N, 17-100 Mexicali, B.C., Mexico, MEXICO

TEL: 52-61-2297-3960

FAX: 52-61-2297-3873

**KYO LATIN AMERICA, S.A.**

Edificio Bacardi del Parque Paez-Baca, Calle Aquilino de la Guardia y Calle 52, Panama, REPUBLICA DE PANAMA

TEL: 507-208-2010

FAX: 507-264-2782-507-269-7578

**KYO ROLAMENTOS DO BRASIL LTDA.**

Pavimento 10º Andar, Edificio Estrela, Avenida 23 de Maio, 11451-001, Curitiba, PR, Brazil

TEL: 55-41-3372-7000

FAX: 55-41-3361-1039

**KYO MIDDLE EAST FZE**

IEA-601, Dubai Airport Free Zone, P.O. Box 54186, Dubai, U.A.E.

TEL: 971-4-4258-3600

FAX: 971-4-4258-3700

**KOYO BEARINGS INDIA PRIVATE LIMITED**

C/o Styka Commercial Services Pvt Ltd, Ground Floor, The Beach, E-1, Mentana Embassy Business Park, Outer Ring Road, Bangalore, 560045, INDIA

TEL: 91-40-4276-4267 (Reception Desk of Service Office)

FAX: 91-40-4276-4588

**JTEKT (THAILAND) CO., LTD.**

27/1-21, Tambon Bangna, Amporn Bangkok, Chachoengsao 24100, THAILAND

TEL: 66-2-539-3175

FAX: 66-2-632-7769

**PT. JTEKT INDONESIA**

Jl. Sunar Mantri Plot I-07B, Kawasan Industri Surya Cipta, Kec. Kramat, Karawang Barat, 41383 INDONESIA

TEL: 62-287-8800-270

FAX: 62-287-8800-271

Star the contents of this catalogue are subject to change without prior notice. We took special care in preparing the contents of this catalogue. JTEKT does not accept liability for errors, omissions, or missing pages, or any loss incurred from the use of this catalogue.

Reproduction of the catalogue or any part thereof without JTEKT’s prior permission is strictly prohibited.