Catalog Number of KHK Stock Gears

The Catalog Number for KHK stock gears is based on the simple formula listed below. Please order KHK gears by specifying the Catalog Numbers.

(Example) Gearboxes

P BX - 04 1 L

- Model (L.Model)
- Gear Ratio (1)
- Shaft Diameter (4 mm)
- Type (Bevel Gearbox)
- Housing Material (Plastic)

P Plastic
K Light Metal Alloy
C FC250 Cast Iron

Main body
BX Bevel Gearbox

Housing Material

Main body

PBX Miniature Bevel Gearboxes
KBX Bevel Gearboxes
CBX Bevel Gearboxes

Model L/T Page 414
Model L/T Page 418
Model L/T Page 422

Miniature Bevel Gearboxes
Bevel Gearboxes
Bevel Gearboxes

Model L/T Page 414
Model L/T Page 418
Model L/T Page 422

KBX
PBX
CBX
PBX Miniature Bevel Gearboxes

**Features**

1. **Light weight and compact**
   - Simple construction with plastic housing.
   - Uses a plastic resin which has superior chemical and thermal resistance.

2. **Freedom of installing orientation**
   - Unit has through holes and counter-bores allowing mounting on any orientation.

3. **Maintenance free**
   - Grease is applied to gears before shipping.

4. **Speed ratio**
   - 1:1

**Points to observe during use**

1. **Environmental conditions**
   - Ambient temperature: -10°C to 40°C
   - Ambient humidity: 80% or less
   - Atmosphere: Well-ventilated, dust-free air not including corrosive gas and steam.
   - Location: Indoors

2. **Mounting Methods**
   - Bolt or screw the unit firmly on a flat surface free from variations.
   - For screws, we recommend JIS Type 2 grooved screws.
   - The dimensions of the mounting screws and the recommended tightening torques are given in the table below.
   - No secondary operations such as adding bolt holes can be performed on the casing. There is a danger that the gearbox will break.

3. **Connection with mating machinery**
   - Before connecting to the mating machinery, please verify the directions of the shaft rotation to avoid breakage of the equipment.
   - Please use a flexible coupling to connect the gearbox shaft to a mating shaft.
   - Make sure that the shafts of the gearbox and the mating machinery are lined up center to center.
   - If the gearbox shaft does not have a step, care should be exercised when attaching a coupling so that it does not interfere with the housing.
   - There is no keyway on the gearbox shaft. Use clamping type couplings to avoid slippage.

4. **Operating precautions**
   - Do not go near or touch rotating portions of the machine such as the shafts during operation. You may get caught and injure yourself.
   - Stop the operation immediately when the noise level or vibration is increased. This may be the initial sign of malfunctions.
   - Do not disassemble or modify these productions. You may destroy the unit.

**Selection Hints**

1. PBX series are economical bevel gearboxes. For applications requiring high precision, strength and/or speed, we recommend the use of KBX type bevel gearboxes.

2. Please avoid overhang and thrust loads on the shafts.
   - By supporting both ends of the shaft on which a gear or sprocket is mounted by means of pillow blocks or bearings as shown below, you can eliminate overhang loads.

3. These units are not suitable when you have sudden reversals of rotation or impact loads. Please consider KBX type bevel gearboxes in such applications.

**PBX Specification Chart**

<table>
<thead>
<tr>
<th>Type</th>
<th>Specifications</th>
<th>X-axis revolutions per minute (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBX-041</td>
<td>X&amp;Y-axis torque (N・cm) [kgf・cm]</td>
<td>50 100 200 250 300 400 500</td>
</tr>
<tr>
<td></td>
<td>Efficiency (reference value) 70%</td>
<td>9.8 (1.0) 9.6 (0.96) 9.5 (0.97) 9.4 (0.96) 9.3 (0.95) 9.1 (0.93)</td>
</tr>
<tr>
<td>PBX-061</td>
<td>X&amp;Y-axis torque (N・cm) [kgf・cm]</td>
<td>39.2 (4.0) 38.5 (3.93) 38.2 (3.90) 37.9 (3.87) 37.2 (3.80) 36.5 (3.72)</td>
</tr>
<tr>
<td></td>
<td>Efficiency (reference value) 80%</td>
<td></td>
</tr>
<tr>
<td>PBX-081</td>
<td>X&amp;Y-axis torque (N・cm) [kgf・cm]</td>
<td>78.4 (8.0) 77.0 (7.86) 76.5 (7.80) 75.7 (7.72) 74.4 (7.59) 73.1 (7.48)</td>
</tr>
<tr>
<td></td>
<td>Efficiency (reference value) 75%</td>
<td></td>
</tr>
</tbody>
</table>

CAUTION:
- Be sure not to exceed the allowable values.
- The values in the table are effective when the service factor is 1. When the units are used under other conditions, refer to the Selection Guide.

**Recommended tightening torques**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Thrust-hole</th>
<th>Tapped screw hole</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Size</td>
<td>Tightening torque (N・m)</td>
</tr>
<tr>
<td>PBX-04 Type</td>
<td>M3</td>
<td>0.3 ~ 0.6</td>
</tr>
<tr>
<td>PBX-06 Type</td>
<td>M3</td>
<td>0.4 ~ 0.8</td>
</tr>
<tr>
<td>PBX-08 Type</td>
<td>M4</td>
<td>0.5 ~ 1.0</td>
</tr>
</tbody>
</table>
**Miniature Bevel Gearboxes**

### L Type

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBX-041L</td>
<td>1:1</td>
<td>51</td>
<td>20.5</td>
<td>59</td>
<td>45</td>
<td>32</td>
<td>10</td>
<td>26</td>
<td>9.5</td>
<td>16</td>
<td>15</td>
<td>18</td>
<td>9</td>
<td>4.5</td>
<td>3</td>
<td>10</td>
<td>0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>PBX-061L</td>
<td>1.1</td>
<td>70</td>
<td>27.5</td>
<td>74</td>
<td>58</td>
<td>41</td>
<td>15</td>
<td>34</td>
<td>13.5</td>
<td>20</td>
<td>19</td>
<td>26</td>
<td>13</td>
<td>4.5</td>
<td>4.5</td>
<td>14</td>
<td>0.6</td>
<td>0.35</td>
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<tr>
<td>PBX-081L</td>
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<td>81</td>
<td>30.5</td>
<td>88</td>
<td>68</td>
<td>47.5</td>
<td>20</td>
<td>41</td>
<td>16</td>
<td>24.5</td>
<td>22.5</td>
<td>30</td>
<td>15</td>
<td>6</td>
<td>5.5</td>
<td>16.5</td>
<td>0.8</td>
<td>0.45</td>
</tr>
</tbody>
</table>

### Caution

1. The arrow marks on the shafts are intended to show the relative direction of rotation. The units can be driven in the opposite direction as well.
2. In the standard unit, the X-axis rotates clockwise, and the Y-axis counterclockwise.
3. The backlash at the X-axis (input shaft) is about 3 degrees.

### T Type

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBX-041T</td>
<td>1:1</td>
<td>61</td>
<td>20.5</td>
<td>59</td>
<td>45</td>
<td>32</td>
<td>10</td>
<td>26</td>
<td>9.5</td>
<td>16</td>
<td>15</td>
<td>18</td>
<td>9</td>
<td>4.5</td>
<td>3</td>
<td>10</td>
<td>0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>PBX-061T</td>
<td>1.1</td>
<td>83</td>
<td>27.5</td>
<td>74</td>
<td>58</td>
<td>41</td>
<td>15</td>
<td>34</td>
<td>13.5</td>
<td>20</td>
<td>19</td>
<td>26</td>
<td>13</td>
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<td>0.6</td>
<td>0.35</td>
</tr>
<tr>
<td>PBX-081T</td>
<td>1:1</td>
<td>101</td>
<td>30.5</td>
<td>88</td>
<td>68</td>
<td>47.5</td>
<td>20</td>
<td>41</td>
<td>16</td>
<td>24.5</td>
<td>22.5</td>
<td>30</td>
<td>15</td>
<td>6</td>
<td>5.5</td>
<td>16.5</td>
<td>0.8</td>
<td>0.45</td>
</tr>
</tbody>
</table>

### Caution

1. The arrow marks on the shafts are intended to show the relative direction of rotation. The units can be driven in the opposite direction as well.
2. In the standard unit, the X-axis rotates clockwise, and the Y-axis counter clockwise.
3. The backlash at the X-axis (input shaft) is about 3 degrees.
KBX Bevel Gearboxes

**Features**
1. **Compactness**
   - Simplicity of design, enclosed in an aluminum die-cast casing.
2. **Low noise and high efficiency**
   - The spiral bevel gears are made of case-hardened alloy steel.
3. **Freedom of installing orientation**
   - The unit can be installed easily in any orientation.
4. **Maintenance-free**
   - High-grade grease is sealed in the casting before shipping.
5. **Selective speed ratio**
   - Gear ratios of 1/1 or 1/2 are available to meet most applications.

**Lubrication**
A standard volume of lubricant is sealed at the factory before shipping.

**Points to observe during use**
1. **Environmental space suitable for installation**
   - Ambient temperature: -10°C to 40°C
   - Ambient humidity: 80% or less
   - Atmosphere: Well-ventilated, dust-free air not including corrosive gas and steam.
   - Location: Indoors

2. **Mounting methods**
   - Mounting methods must be selected carefully to avoid damage to the gearboxes.

3. **Connections with mating machinery**
   - Before connecting to the mating machinery, please check if the direction of the shaft rotation will cause damage to the equipment.

4. **Operating precautions**
   - Do not use the equipment in the specified temperature range. Do not operate within the allowable range of the shafts during operations.

5. **Stop the operation immediately when the noise level or the vibration exceeds normal limits.**
   - When using a coupling, sprocket, pulley, gear, etc. to gearbox shafts, recommend flexible couplings.

6. **Gearboxes**
   - The grease contains the Lucombe Pressure additive NLGI-00.

**KBX Performance Chart**

<table>
<thead>
<tr>
<th>Model</th>
<th>Volume of lubricant</th>
<th>Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBX-10 Type</td>
<td>10g</td>
<td>Grease</td>
</tr>
<tr>
<td>KBX-15 Type</td>
<td>30g</td>
<td></td>
</tr>
<tr>
<td>KBX-20 Type</td>
<td>50g</td>
<td></td>
</tr>
</tbody>
</table>

**KBX-101**
- **X-axis O.H.L. (N·kgf)**: 78 (8)
- **Y-axis O.H.L. (N·kgf)**: 127 (13)
- **Allowable Power (kW)**: 0.09 to 0.18
- **Efficiency (Reference values)**: 90%

<table>
<thead>
<tr>
<th>Ratio Type</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBX-101</td>
<td></td>
</tr>
<tr>
<td>X-axis</td>
<td>17.6 (1.80)</td>
</tr>
<tr>
<td>Y-axis</td>
<td>17.6 (1.80)</td>
</tr>
</tbody>
</table>

**KBX-151**
- **X-axis O.H.L. (N·kgf)**: 255 (24)
- **Y-axis O.H.L. (N·kgf)**: 294 (24)
- **Allowable Power (kW)**: 0.05 to 0.09
- **Efficiency (Reference values)**: 90%

<table>
<thead>
<tr>
<th>Ratio Type</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBX-151</td>
<td></td>
</tr>
<tr>
<td>X-axis</td>
<td>17.6 (1.80)</td>
</tr>
<tr>
<td>Y-axis</td>
<td>17.6 (1.80)</td>
</tr>
</tbody>
</table>

**KBX-201**
- **X-axis O.H.L. (N·kgf)**: 533 (36)
- **Y-axis O.H.L. (N·kgf)**: 529 (54)
- **Allowable Power (kW)**: 0.04 to 0.05
- **Efficiency (Reference values)**: 90%

<table>
<thead>
<tr>
<th>Ratio Type</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBX-201</td>
<td></td>
</tr>
<tr>
<td>X-axis</td>
<td>17.6 (1.80)</td>
</tr>
<tr>
<td>Y-axis</td>
<td>17.6 (1.80)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X-axis revolutions per minute (rpm)</th>
<th>Allowable thrust load (N){kgf}</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>10.8</td>
</tr>
<tr>
<td>100</td>
<td>21.6</td>
</tr>
<tr>
<td>200</td>
<td>42.3</td>
</tr>
<tr>
<td>300</td>
<td>63.0</td>
</tr>
<tr>
<td>400</td>
<td>83.7</td>
</tr>
<tr>
<td>500</td>
<td>104.4</td>
</tr>
<tr>
<td>600</td>
<td>125.1</td>
</tr>
<tr>
<td>900</td>
<td>187.7</td>
</tr>
<tr>
<td>1200</td>
<td>250.3</td>
</tr>
<tr>
<td>1500</td>
<td>312.9</td>
</tr>
<tr>
<td>1800</td>
<td>375.5</td>
</tr>
<tr>
<td>2000</td>
<td>438.1</td>
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<tr>
<td>3000</td>
<td>657.2</td>
</tr>
<tr>
<td>4000</td>
<td>876.3</td>
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<tr>
<td>5000</td>
<td>1095.4</td>
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<tr>
<td>6000</td>
<td>1314.5</td>
</tr>
<tr>
<td>7000</td>
<td>1533.6</td>
</tr>
<tr>
<td>8000</td>
<td>1752.7</td>
</tr>
<tr>
<td>9000</td>
<td>1971.8</td>
</tr>
<tr>
<td>10000</td>
<td>2190.9</td>
</tr>
</tbody>
</table>

**CAUTION**
1. Be sure not to exceed the allowable values. Units with 1/2 reduction ratio have the slower speed in the X-axis.
2. The values in the table are in effect when the service factor is 1 when the values are under other conditions, refer to the Selection Guide.
3. Overloading (O.H.L.) means the load applied to the middle of the overlapping shaft, perpendicular to the axis. When using the units under other conditions, refer to the factors K1 and K2 described in the Selection Guide.
4. When K1=1, the 1/2 speed ratio unit is used as a speed increaser (from the X-axis to the Y-axis), the X-axis torque becomes one-half of the Y-axis torque shown in the table.
5. The X-axis of type T is the sum of the values on both right and left axis.
6. The Y-axis O.H.L. of type T is the sum of the values of both right and left axis.
**KBX**

**Bevel Gearboxes**

---

**L Type**

![Fig.1](image1)

---

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBX-101L</td>
<td>1:1</td>
<td>37</td>
<td>58</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>14</td>
<td>46</td>
<td>38</td>
<td>40</td>
<td>82</td>
<td>5</td>
<td>82</td>
<td>102</td>
<td>20</td>
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<td>0.5</td>
<td>0.10</td>
</tr>
<tr>
<td>KBX-102L</td>
<td>1:2</td>
<td>66</td>
<td>100</td>
<td>31</td>
<td>36</td>
<td>31</td>
<td>22</td>
<td>80</td>
<td>62</td>
<td>66</td>
<td>140</td>
<td>8</td>
<td>137</td>
<td>170</td>
<td>30</td>
<td>0.85</td>
<td>0.85</td>
<td>0.15</td>
</tr>
<tr>
<td>KBX-201L</td>
<td>1:2</td>
<td>80</td>
<td>120</td>
<td>36</td>
<td>36</td>
<td>36</td>
<td>26</td>
<td>92</td>
<td>72</td>
<td>76</td>
<td>166</td>
<td>10</td>
<td>168</td>
<td>206</td>
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<td>0.85</td>
<td>0.20</td>
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<td>KBX-202L</td>
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<td>120</td>
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<td>26</td>
<td>92</td>
<td>72</td>
<td>76</td>
<td>166</td>
<td>10</td>
<td>168</td>
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<td>40</td>
<td>0.85</td>
<td>0.85</td>
<td>0.20</td>
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</tbody>
</table>

**T Type**

![Fig.2](image2)

---

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
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</thead>
<tbody>
<tr>
<td>KBX-101T</td>
<td>1:1</td>
<td>37</td>
<td>58</td>
<td>18</td>
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<td>5</td>
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<td>0.5</td>
<td>0.10</td>
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<tr>
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<td>31</td>
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<td>80</td>
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<td>80</td>
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<td>76</td>
<td>166</td>
<td>10</td>
<td>168</td>
<td>206</td>
<td>40</td>
<td>0.85</td>
<td>0.85</td>
<td>0.20</td>
</tr>
</tbody>
</table>

---

**[Caution]**

① The arrow marks on the shafts are intended to show the relative direction of rotation. The units can be driven in the opposite direction as well.
② In the unit, the X-axis rotates clockwise, and the Y-axis counter-clockwise.
③ The key grooves in the X-axis and the Y-axis do not always coincide in phase with each other.
④ The tolerance of shaft diameter is JIS h7.
⑤ The pinion gear is mounted on the x-axis (the input side) in 1:2 ratio units.
⑥ The key dimensions are per JIS B 1301-1976 (Standard Grade).
⑦ The backlash angles are measured at the X-axis (Input Shaft).

---

**T (U) Key Backlash of shaft rotation**

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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<th>P</th>
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<tbody>
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<td>1:1</td>
<td>37</td>
<td>58</td>
<td>18</td>
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</table>

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⑦ The backlash angles are measured at the X-axis (Input Shaft).

---

**Weight (kg)**

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>P</th>
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<th>R</th>
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</table>

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**T (U) Key Backlash of shaft rotation**

<table>
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<tr>
<th>Catalog No.</th>
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</tr>
</tbody>
</table>

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② In the unit, the X-axis rotates clockwise, and the Y-axis counter-clockwise.
③ The key grooves in the X-axis and the Y-axis do not always coincide in phase with each other.
④ The tolerance of shaft diameter is JIS h7.
⑤ The pinion gear is mounted on the x-axis (the input side) in 1:2 ratio units.
⑥ The key dimensions are per JIS B 1301-1976 (Standard Grade).
⑦ The backlash angles are measured at the X-axis (Input Shaft).
CBX Bevel Gearboxes

- **Features**
  - **Very strong**
    - The unit has high grade cast iron housing and uses tapered roller bearings.
  - **Low noise and high efficiency**
    - The spiral bevel gears are made of case-hardened alloy steel.
  - **Freedom of installing orientation**
    - The unit can be installed in any orientation.
  - **Maintenance-free**
    - High-grade oil is added to the casing before shipping.
  - **Selective speed ratio**
    - Gear ratios of V1 or V2 are available to meet most applications.

**Lubrication**

A standard volume of lubricant is sealed at the factory before shipping.

See KBX (Page 418)

- **Shaft Orientations and Orientation Codes**
  - There are 24 permutations of shaft orientations and rotators, which are standardized for CBX Bevel Gearboxes.
  - Please pay attention to the shaft orientations in addition to the catalog number when selecting the units.
  - CAUTION:
    - The diagrams below show the mounting surface.
    - The arrow marks on the shafts are intended to show the relative direction of rotation. The units can be driven in the opposite directions as well.
    - * mark indicates the surface on which the oiling and drain plugs are located when mounting horizontally. The ones without the marks have the plugs on the rear surface (Standard specifications).
    - When the unit (other than LI, LI' Type, TE Type) is used with the input shaft (X-axis) pointing up and is wall mounted, the lubrication method for the bearings must be altered. Please notify us at the time of placing your order.

- **Operating preconditions**
  - See KBX (Page 418)

**CBX Performance Chart**

<table>
<thead>
<tr>
<th>Model</th>
<th>Lubricant</th>
<th>Lubrication</th>
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</thead>
<tbody>
<tr>
<td>CBX-19 Type</td>
<td>0.3L</td>
<td>Oil</td>
</tr>
<tr>
<td>CBX-25 Type</td>
<td>0.7L</td>
<td>Oil</td>
</tr>
<tr>
<td>CBX-32 Type</td>
<td>1.0L</td>
<td>Industrial Type 2</td>
</tr>
<tr>
<td>CBX-40 Type</td>
<td>1.5L</td>
<td>Industrial Type 2</td>
</tr>
</tbody>
</table>

- **CBX Shaft Orientations Chart**
  - CBX-L Type Diagram
  - CBX-T Type Diagram
  - Type A
  - Type B
  - Type C
  - Type D
  - Type E
  - Type F
  - Type G
  - Type H
  - Type I
  - Type J
  - Type K
  - Type L
  - Type M
  - Type N
  - Type O
  - Type P

- **CBX Performance Chart**
  - X-axis revolutions per minute (rpm)
  - Compatibility Table
  - Allowable Power (kW)
  - Efficiency (Reference values)
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-19**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-25**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-32**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-40**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-19L**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-25L**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-32L**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque

- **CBX-40L**
  - Model
  - Specifications
  - X-axis revolutions
  - Y-axis revolutions
  - Allowable Power (kW)
  - Efficiency
  - Overhang load (O.H.L.)
  - X&Y-axis torque
CBX Bevel Gearboxes

Please see our web site for corrections on KHK Catalogs.

[ Caution ]

① The key grooves in the X-axis and the Y-axis do not always coincide in phase with each other.
② The tolerance of shaft diameter is JIS H1 (Standard Grade)
③ The key dimensions are per JIS B 1301-1976 (Standard Grade)
④ The backlash angles are measured at the X-axis (Input Shaft).
⑤ Sides of the oil plugs are for the supply port → PT 1/4 and for the drain port → PT 1/4 (standard specifications.)

We can accept as a special order units that are mounted on the ceiling or on a wall. Please let us know at the time of ordering.

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Speed ratio</th>
<th>A</th>
<th>Bx</th>
<th>C</th>
<th>Dz</th>
<th>D1</th>
<th>D2</th>
<th>E</th>
<th>F</th>
<th>F1</th>
<th>H</th>
<th>J</th>
<th>Kx</th>
<th>φM</th>
<th>N</th>
<th>P</th>
<th>R</th>
<th>φS</th>
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<tbody>
<tr>
<td>CBX-191L</td>
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<td>116</td>
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<td>129</td>
<td>125</td>
<td>154</td>
<td>109</td>
<td>117.5</td>
<td>53.5</td>
<td>10.5</td>
<td>17</td>
<td>38</td>
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<tr>
<td>CBX-192L</td>
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<td>90</td>
<td>222</td>
<td>157</td>
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<td>152</td>
<td>188</td>
<td>133</td>
<td>146</td>
<td>81</td>
<td>14</td>
<td>20</td>
<td>50</td>
<td>12</td>
<td>82.5</td>
</tr>
<tr>
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<td>1:1</td>
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<td>277</td>
<td>100</td>
<td>242</td>
<td>168</td>
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<td>20</td>
<td>55</td>
<td>9</td>
<td>88.5</td>
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<tr>
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<td>337</td>
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<td>110.5</td>
<td>14</td>
<td>22</td>
<td>75</td>
<td>14</td>
<td>114.5</td>
</tr>
</tbody>
</table>

Please place one of the orientation codes (A to P) from Page 422 on the box at the end of the catalog number.

CBX Bevel Gearboxes

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<th>Kx</th>
<th>φM</th>
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<tr>
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<td>114.5</td>
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</table>

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Since these products are assembled to each customer’s specifications, the delivery lead time is about 10 working days after placing an order. These units are not available from stock.
### Selection Guide

#### Essential data for selection
Load torque, type of prime mover, input speed, speed ratio, running time, coupling method, and frequency of start and stop.

#### Selection Procedure
The performance table in the catalog is based on the design conditions that the prime mover is a motor, the load is uniform, and the unit runs 10 hours per day.

- **a)** When using the units under any other condition, it is necessary to correct the value of load to torque by applying the service factors shown in Table 1.
- **b)** Select a model capable of satisfying all of a), b) and c) obtained above.

**Loadtorque = Load torque applied to gearbox x Service factor (See Table 1).**

#### Service factors (SF)

<table>
<thead>
<tr>
<th>Loading condition</th>
<th>SF</th>
<th>1-2</th>
<th>3-10 hrs/day operation</th>
<th>More than 10 hrs/day operation</th>
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</thead>
<tbody>
<tr>
<td>Uniform load</td>
<td>1</td>
<td>1.25</td>
<td>1.50</td>
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</tr>
<tr>
<td>Light impact load</td>
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<td>1.25</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>Heavy impact load</td>
<td>1</td>
<td>1.50</td>
<td>1.75</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** 1. Use the factors in parentheses when frequency of starts and stops exceeds 10 times per hour.
2. Also, use the factors in parentheses when a prime mover other than a motor is used (for example, an internal combustion engine).

Keep the corrected load torque at the speed at less than the allowed X & Y axis torque (Speed ratio 1:1), or the allowable Y axis torque (Speed ratio 1:2) shown in the performance table.

#### Service factors

| Loadtorque = Load torque applied to gearbox x Service factor (See Table 1). |
|---------------------------|---------------------------|
| O.H.L. Analysis           |                           |
| O.H.L. = TLE x K1 x K2   |                           |

**Example 1**

**Application** Line shaft drive

**Load torque** 58.8N·m {6kgf·m} (uniform load) for each A and C

**Rotation speed** 600rpm

**Speed ratio** 1:1

**Shaft layout** / As illustrated at right

**Running time** 8 hours/day

**Coupling method** / All couplings

**Installation** / Horizontal

**Location** / Indoors

- **① Torque Analysis**
  - Service factor on load is SF = 1.25 (Table 1). Accordingly, corrected load torque applied to Y-axis.
  - TLE = 78.4 x 1.25 = 98N·m {78.4 x 1.25 = 101kgf·m}

- **② O.H.L. Analysis**
  - O.H.L. = (58.8 x 1.0) x 1.0 = 58.8N·m   {6 x 1.0 = 6kgf·m}

- **③ Model Selection**
  - A model capable of satisfying all of the design conditions, torque and O.H.L. is CBX-321LB.

**Example 2**

**Application** Conveyor (uniform load)

**Load torque** 78.4N·m {8kgf·m} (uniform load) for each A and C

**Rotation speed** 300rpm

**Speed ratio** 1:2

**Shaft layout** / As illustrated at right

**Running time** 12 hours/day

**Installation** / Horizontal

**Location** / Indoors

- **① Torque Analysis**
  - Service factor on load is SF = 1.25 (Table 1). Accordingly, corrected load torque applied to Y-axis.
  - TLE = 78.4 x 1.25 = 98N·m {78.4 x 1.25 = 101kgf·m}

- **② O.H.L. Analysis**
  - O.H.L. = (58.8 x 1.0) x 1.0 = 58.8N·m   {6 x 1.0 = 6kgf·m}

- **③ Model Selection**
  - A model capable of satisfying all of the design conditions, torque and O.H.L. is CBX-321LB.

Please see our website for corrections on KHK Catalogs.
### Moment of Inertia of KBX Bevel Gearbox's

<table>
<thead>
<tr>
<th>Type</th>
<th>Catalog No.</th>
<th>Pinion Shaft (X-axis)</th>
<th>Gear Shaft (Y-axis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>KBX-101L</td>
<td>$4.45 \times 10^{-6}$</td>
<td>$4.45 \times 10^{-6}$</td>
</tr>
<tr>
<td></td>
<td>KBX-102L</td>
<td>$2.16 \times 10^{-6}$</td>
<td>$8.65 \times 10^{-6}$</td>
</tr>
<tr>
<td></td>
<td>KBX-151L</td>
<td>$5.30 \times 10^{-5}$</td>
<td>$5.30 \times 10^{-5}$</td>
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<tr>
<td></td>
<td>KBX-152L</td>
<td>$3.65 \times 10^{-5}$</td>
<td>$1.47 \times 10^{-4}$</td>
</tr>
<tr>
<td></td>
<td>KBX-201L</td>
<td>$1.79 \times 10^{-4}$</td>
<td>$1.79 \times 10^{-4}$</td>
</tr>
<tr>
<td></td>
<td>KBX-202L</td>
<td>$7.85 \times 10^{-4}$</td>
<td>$3.15 \times 10^{-4}$</td>
</tr>
<tr>
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</table>

**Unit**: kg • m²

#### CAUTION

The moments of inertia shown in this table are reference values. Please use data only for reference.

### Moment of Inertia of CBX Bevel Gearbox's

<table>
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<tr>
<th>Type</th>
<th>Catalog No.</th>
<th>Pinion Shaft (X-axis)</th>
<th>Gear Shaft (Y-axis)</th>
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</table>

**Unit**: kg • m²

#### CAUTION

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