




**KPBX**  
Miniature Bevel Gearboxes




Model L/T Page 564




**KKBX**  
Bevel Gearboxes




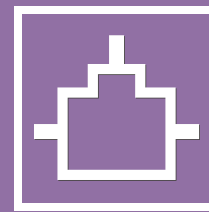
Model L/T Page 568



**KCBX**  
Bevel Gearboxes



Model L/T Page 572

# Gear Boxes

Spur  
Gears

Helical  
Gears

Internal  
Gears

Racks

CP Racks  
& Pinions

Miter  
Gears

Bevel  
Gears

Screw  
Gears

Worm  
Gear Pair

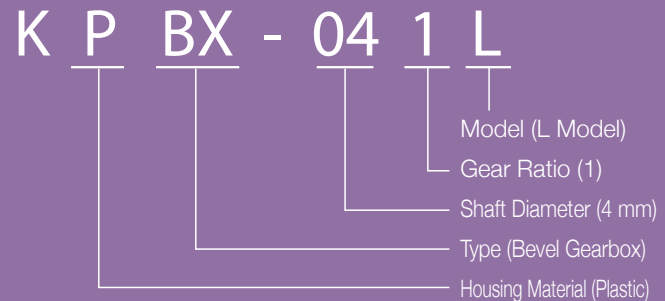
Bevel  
Gearboxes

Other  
Products

## Catalog Number of 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

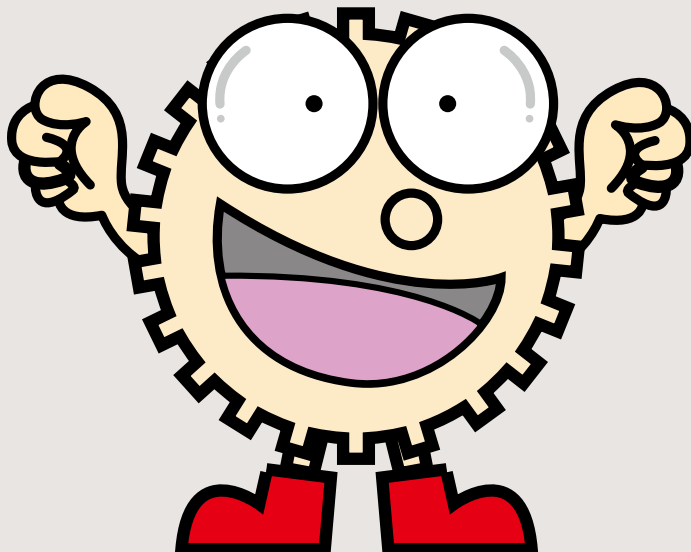


### Housing Material











- P Plastic
- K Light Metal Alloy
- C FC250 Cast Iron

### Main body

- BX Bevel Gearbox



### Feature Icons

-  RoHS Compliant Product
-  Re-machinable Product
-  Finished Product
-  Heat Treated Product
-  Ground Gear
-  Stainless Product
-  Resin Product
-  Copper Alloy Product
-  Injection Molded Product
-  Black Oxide coated Product



- Spur Gears
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## ■ 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.
  - When used in applications where oil contamination is undesirable such as in a food processing machines, please use preventive measures against oil leaks due to malfunction or the units wearing out.

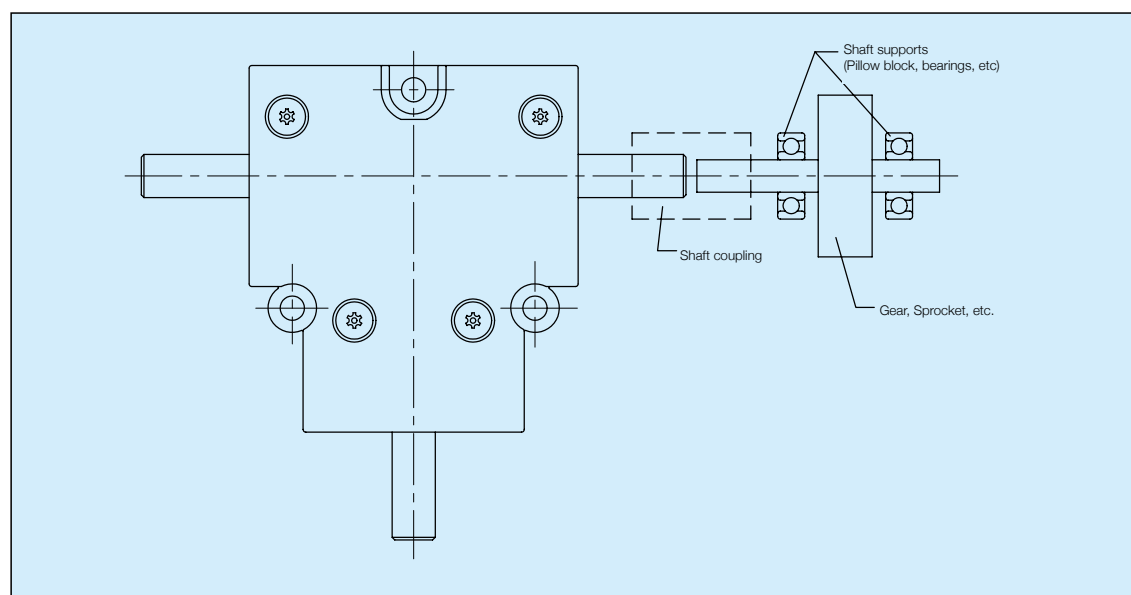
3. Connection with mating machinery
  - Before connecting to the mating machinery, please verify the directions of the shaft rotation to avoid breakage of the equipment.
  - Please use a flexible coupling to connect the gearbox shaft to a mating shaft.
  - Make sure that the shafts of the gearbox and 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 the temperature rises abnormally. Do not restart until all of the causes are analyzed and proper repairs are made.
  - Do not disassemble or modify these productions. You may destroy the unit.

## ■ Recommended tightening torques

Mode	Thru-hole		Tapped screw hole		
	Size	Tightening torque (N·m)	Nominal dia.	Effective length (mm)	Tightening torque (N·m)
KPBX-04 Type	M3	0.3~0.6	3	7~11	0.4~0.8
KPBX-06 Type	M3	0.4~0.8	3	9~13	0.5~1.0
KPBX-08 Type	M4	0.5~1.0	4	9~14	0.5~1.0

### ■ Selection Hints

- ① KPBX series are economical bevel gearboxes. For applications requiring high precision, strength and/or speed, we recommend the use of KKBX 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 KKBX type bevel gearboxes in such applications.



### ■ KPBX Specification Chart

Type	Specifications	X-axis revolutions per minute (rpm)						
		50	100	200	250	300	400	500
KPBX-041	X&Y-axis torque (N·cm){kgf·cm}	9.8 {1.0}	9.8 {1.0}	9.6 {0.98}	9.5 {0.97}	9.4 {0.96}	9.3 {0.95}	9.1 {0.93}
	Efficiency (Reference values)	70%						
KPBX-061	X&Y-axis torque (N·cm){kgf·cm}	39.2 {4.0}	39.2 {4.0}	38.5 {3.93}	38.2 {3.90}	37.9 {3.87}	37.2 {3.80}	36.5 {3.72}
	Efficiency (Reference values)	80%						
KPBX-081	X&Y-axis torque (N·cm){kgf·cm}	78.4 {8.0}	78.4 {8.0}	77.0 {7.86}	76.5 {7.80}	75.7 {7.72}	74.4 {7.59}	73.1 {7.46}
	Efficiency (Reference values)	75%						

- (CAUTION)
- ① Be sure not to exceed the allowable values.
  - ② 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.

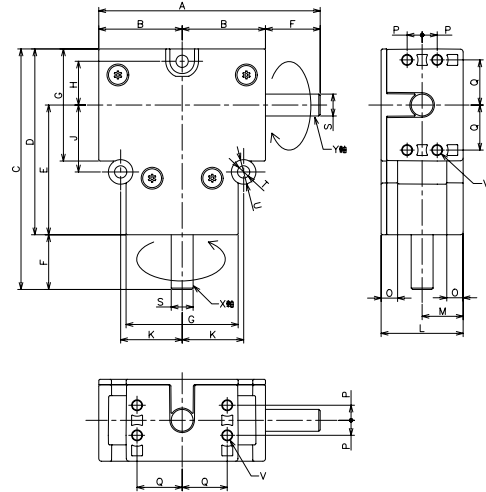


# KPBX Miniature Bevel Gearboxes

L Type



- Spur Gears
- Helical Gears
- Internal Gears
- Racks
- CP Racks & Pinions
- Miter Gears
- Bevel Gears
- Screw Gears
- Worm Gear Pair
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- Other Products

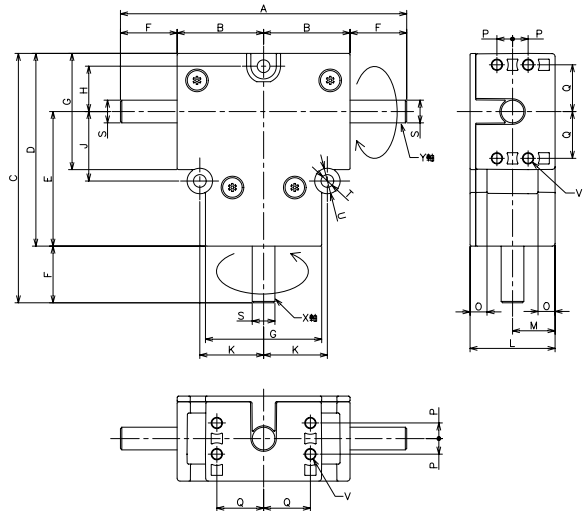


Catalog No.	Speed Ratio	A	B	C	D	E	F	G	H	J	K	L	M	O	P	Q	S	T
<b>KPBX-041L</b>	1:1	51	20.5	55	45	32	10	26	9.5	16	15	18	9	4.5	3	10	Ø 4	Ø 3.5
<b>KPBX-061L</b>	1:1	70	27.5	73	58	41	15	34	13.5	20	19	26	13	4.5	4.5	14	Ø 6	Ø 3.5
<b>KPBX-081L</b>	1:1	81	30.5	88	68	47.5	20	41	16	24.5	22.5	30	15	6	5.5	16.5	Ø 8	Ø 4.5



# KPBX Miniature Bevel Gearboxes

T Type



Catalog No.	Speed Ratio	A	B	C	D	E	F	G	H	J	K	L	M	O	P	Q	S	T
<b>KPBX-041T</b>	1:1	61	20.5	55	45	32	10	26	9.5	16	15	18	9	4.5	3	10	Ø 4	Ø 3.5
<b>KPBX-061T</b>	1:1	85	27.5	73	58	41	15	34	13.5	20	19	26	13	4.5	4.5	14	Ø 6	Ø 3.5
<b>KPBX-081T</b>	1:1	101	30.5	88	68	47.5	20	41	16	24.5	22.5	30	15	6	5.5	16.5	Ø 8	Ø 4.5

**Bevel Gearboxes**

- [ 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 tolerance of shaft diameter is JIS h8.
  - ④ The shafts do not have keyways. Please use clamping type couplings to avoid slippage.
  - ⑤ The backlash at the X-axis (input shaft) is about 3 degrees.

U	V		Weight (g)	Catalog No.
	Diameter	Depth		
7	ø2.5	11	45	<b>KPBX-041L</b>
7	ø2.5	13	120	<b>KPBX-061L</b>
9	ø3.3	14	200	<b>KPBX-081L</b>

**KPBX**

**Miniature Bevel Gearboxes**

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  - ⑤ The backlash at the X-axis (input shaft) is about 3 degrees.

U	V		Weight (g)	Catalog No.
	Diameter	Depth		
7	Ø 2.5	11	45	<b>KPBX-041T</b>
7	Ø 2.5	13	120	<b>KPBX-061T</b>
9	Ø 3.3	14	200	<b>KPBX-081T</b>

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## ■ 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.

Model	Volume of lubricant	Lubrication	
KKBX-10 Type	10g	Grease	The grease contains the Li Extreme Pressure additive NLGI-00
KKBX-15 Type	30g		
KKBX-20 Type	50g		

## ■ Points to observe during use

- 1. Environmental space suitable for installation
  - ① Ambient temperature      -10°C to 40°C
  - ② Ambient humidity          80% or less
  - ③ Atmosphere                 Well-ventilated, dust-free air not including corrosive gas and steam.
  - ④ Location                      Indoors

### 2. Mounting methods

- ① Bolt the unit firmly on a machined plain surface free from vibrations.
- ② No secondary operations such as adding bolt holes can be performed on the casing. Also, do not disassemble or modify the units. There is a danger that the gearbox will break.
- ③ When used in applications where oil contamination is undesirable such as in a food processing machines, please use preventive measures against oil leaks due to malfunction or the units wearing out.

### 3. Connections with mating machinery

- ① Before connecting to the mating machinery, please verify the direction of the shaft rotation to avoid breakage of the equipment.
- ② Take care not to cause interference with an oil seal or case surface when fitting a coupling, sprocket, pulley, gear, etc. to gearbox shafts, especially for models without steps on the shaft. We recommend an H7 tolerance for the bore.
- ③ In the case of direct connection, alignment must be made accurately so that the gearbox shaft and the mating shaft are inline. We recommend flexible couplings.
- ④ When using a chain, belt or gear drive, position the gearbox shaft and the mating shaft accurately parallel with each other so that a line connecting the center of one shaft to the center of the other shaft makes a right angle with the shafts.

### 4. Operating precautions

- ① Do not get near or touch rotating portions of the machine such as the shafts during operations. You may get caught and injure yourself.
- ② Stop the operation immediately when the noise level or the temperature rises abnormally. Do not restart until all of the causes are analyzed and proper repairs are made.
- ③ Sudden reversal of the direction of rotation could affect the gearbox and mating machinery. Be sure to stop the unit before reversing the rotation.
- ④ Be sure to keep the load torque and overhang load (O.H.L.) within the allowable range during operation.

■ KKBX Performance Chart

Bevel Gearboxes

Speed Ratio	Type	Specifications	X-axis revolutions per minute(rpm)												Allowable thrust load (N)[kgf]	
			50	100	200	300	400	600	900	1200	1500	1800	2500	3600	X-axis	Y-axis
1 : 1	KKBX-101	Allowable Power(kW)	0.01	0.02	0.05	0.07	0.09	0.14	0.20	0.26	0.31	0.35	0.38	0.44	59 {6}	69 {7}
		X&Y-axis torque (N·m){kgf·m}	2.35 {0.24}	2.35 {0.24}	2.25 {0.23}	2.25 {0.23}	2.16 {0.22}	2.16 {0.22}	2.06 {0.21}	2.06 {0.21}	1.96 {0.20}	1.86 {0.19}	1.47 {0.15}	1.18 {0.12}		
		X-axis O.H.L. (N){kgf}	78 {8}	78 {8}	78 {8}	78 {8}	69 {7}	69 {7}	69 {7}	69 {7}	69 {7}	59 {6}	49 {5}	39 {4}		
		Y-axis O.H.L. (N){kgf}	127 {13}	127 {13}	118 {12}	118 {12}	118 {12}	118 {12}	108 {11}	108 {11}	108 {11}	98 {10}	78 {8}	59 {6}		
		Efficiency (Reference values)	90%													
	KKBX-151	Allowable Power(kW)	0.05	0.09	0.18	0.27	0.35	0.51	0.75	0.96	1.16	1.30	1.44	1.66	98 {10}	118 {12}
		X&Y-axis torque (N·m){kgf·m}	8.82 {0.90}	8.82 {0.90}	8.62 {0.88}	8.53 {0.87}	8.33 {0.85}	8.13 {0.83}	7.94 {0.81}	7.64 {0.78}	7.35 {0.75}	6.86 {0.70}	5.49 {0.56}	4.41 {0.45}		
		X-axis O.H.L. (N){kgf}	255 {26}	255 {26}	255 {26}	245 {25}	245 {25}	235 {24}	225 {23}	216 {22}	216 {22}	186 {19}	157 {16}	127 {13}		
		Y-axis O.H.L. (N){kgf}	294 {30}	294 {30}	284 {29}	284 {29}	274 {28}	265 {27}	265 {27}	255 {26}	245 {25}	216 {22}	176 {18}	147 {15}		
		Efficiency (Reference values)	90%													
	KKBX-201	Allowable Power(kW)	0.09	0.18	0.36	0.52	0.68	0.95	1.38	1.78	2.15	2.50	2.55	2.95	196 {20}	274 {28}
		X&Y-axis torque (N·m){kgf·m}	17.6 {1.80}	17.6 {1.80}	17.2 {1.75}	16.7 {1.70}	16.2 {1.65}	15.2 {1.55}	14.7 {1.50}	14.2 {1.45}	13.7 {1.40}	13.2 {1.35}	9.80 {1.00}	7.84 {0.80}		
		X-axis O.H.L. (N){kgf}	353 {36}	353 {36}	343 {35}	333 {34}	333 {34}	323 {33}	314 {32}	304 {31}	294 {30}	265 {27}	216 {22}	176 {18}		
		Y-axis O.H.L. (N){kgf}	529 {54}	529 {54}	519 {53}	510 {52}	500 {51}	490 {50}	470 {48}	451 {46}	441 {45}	392 {40}	314 {32}	255 {26}		
		Efficiency (Reference values)	90%													
1 : 2	KKBX-102	Allowable Power(kW)	0.005	0.01	0.02	0.03	0.04	0.06	0.09	0.12	0.14	0.16	0.17	0.20	59 {6}	69 {7}
		X&Y-axis torque (N·m){kgf·m}	2.06 {0.21}	2.06 {0.21}	2.06 {0.21}	1.96 {0.20}	1.96 {0.20}	1.96 {0.20}	1.86 {0.19}	1.86 {0.19}	1.76 {0.18}	1.67 {0.17}	1.27 {0.13}	1.08 {0.11}		
		X-axis O.H.L. (N){kgf}	88 {9}	88 {9}	88 {9}	88 {9}	88 {9}	78 {8}	78 {8}	78 {8}	78 {8}	69 {7}	59 {6}	49 {5}		
		Y-axis O.H.L. (N){kgf}	137 {14}	137 {14}	137 {14}	127 {13}	127 {13}	127 {13}	127 {13}	118 {12}	118 {12}	108 {11}	88 {9}	69 {7}		
		Efficiency (Reference values)	90%										85%			
	KKBX-152	Allowable Power(kW)	0.02	0.04	0.08	0.13	0.17	0.25	0.36	0.46	0.55	0.62	0.69	0.80	98 {10}	118 {12}
		X&Y-axis torque (N·m){kgf·m}	8.43 {0.86}	8.43 {0.86}	8.23 {0.84}	8.13 {0.83}	8.04 {0.82}	7.84 {0.80}	7.55 {0.77}	7.25 {0.74}	7.06 {0.72}	6.57 {0.67}	5.29 {0.54}	4.21 {0.43}		
		X-axis O.H.L. (N){kgf}	255 {26}	255 {26}	255 {26}	245 {25}	245 {25}	235 {24}	225 {23}	216 {22}	216 {22}	186 {19}	157 {16}	127 {13}		
		Y-axis O.H.L. (N){kgf}	294 {30}	294 {30}	284 {29}	284 {29}	274 {28}	265 {27}	265 {27}	255 {26}	245 {25}	216 {22}	176 {18}	147 {15}		
		Efficiency (Reference values)	90%										85%			
	KKBX-202	Allowable Power(kW)	0.05	0.10	0.19	0.28	0.37	0.53	0.77	0.99	1.15	1.31	1.40	1.57	196 {20}	274 {28}
		X&Y-axis torque (N·m){kgf·m}	19.6 {2.00}	19.6 {2.00}	18.6 {1.90}	18.1 {1.85}	17.6 {1.80}	17.0 {1.73}	16.4 {1.67}	15.7 {16.0}	14.7 {1.50}	13.9 {1.42}	10.8 {1.10}	8.33 {0.85}		
		X-axis O.H.L. (N){kgf}	372 {38}	372 {38}	363 {37}	363 {37}	353 {36}	343 {35}	333 {34}	323 {33}	314 {32}	274 {28}	235 {24}	186 {19}		
		Y-axis O.H.L. (N){kgf}	588 {60}	588 {60}	578 {59}	568 {58}	559 {57}	539 {55}	529 {54}	510 {52}	490 {50}	441 {45}	363 {37}	294 {30}		
		Efficiency (Reference values)	90%										85%			

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- (CAUTION)** ① Be sure not to exceed the allowable values. Units with (1:2) reduction ratio have the slower speed in the Y-axis.  
 ② The values in the table are in effect when the service factor is 1. When the units are used under other conditions, refer to the Selection Guides.  
 ③ Overhang load (O.H.L.) means the load applied to the middle of the overhang 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 the 1:2 speed ratio unit is used as a speed increaser (from the Y-axis to the X-axis), the X-axis torque becomes one half of the Y-axis torque shown in the table. ⑤ The Y-axis torque 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 on both right and left axis.





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L Type



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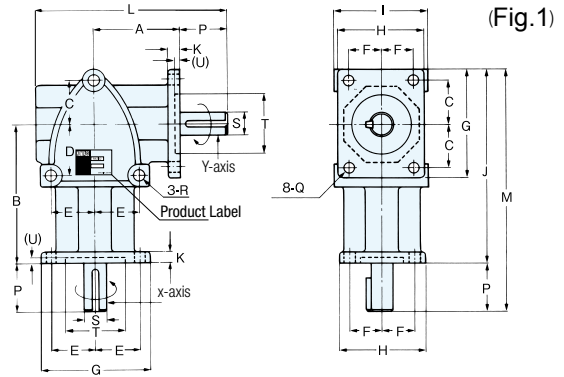
Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products



Catalog No.	Speed Ratio	A	B	C	D	E	F	G	H	I	J	K	L	M	P	Q	R	S
KKBX-101L	1:1	37	58	18	18	18	14	46	38	40	82	5	82	102	20	ø5.5	ø6.5	ø10
KKBX-102L	1:2																	
KKBX-151L	1:1	66	100	31	36	31	22	80	62	66	140	8	137	170	30	ø8.5	ø8.5	ø15
KKBX-152L	1:2																	
KKBX-201L	1:1	80	120	36	36	36	26	92	72	76	166	10	168	206	40	ø8.5	ø8.5	ø20
KKBX-202L	1:2																	



# KKBX Bevel Gearboxes

T Type



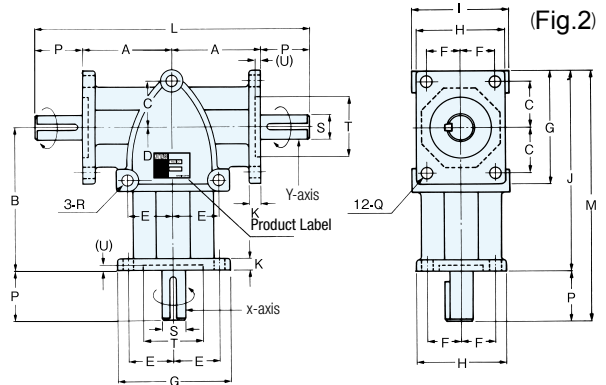
Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products



Catalog No.	Speed Ratio	A	B	C	D	E	F	G	H	I	J	K	L	M	P	Q	R	S
KKBX-101T	1:1	37	58	18	18	18	14	46	38	40	82	5	114	102	20	ø5.5	ø6.5	ø10
KKBX-102T	1:2																	
KKBX-151T	1:1	66	100	31	36	31	22	80	62	66	140	8	192	170	30	ø8.5	ø8.5	ø15
KKBX-152T	1:2																	
KKBX-201T	1:1	80	120	36	36	36	26	92	72	76	166	10	240	206	40	ø8.5	ø8.5	ø20
KKBX-202T	1:2																	

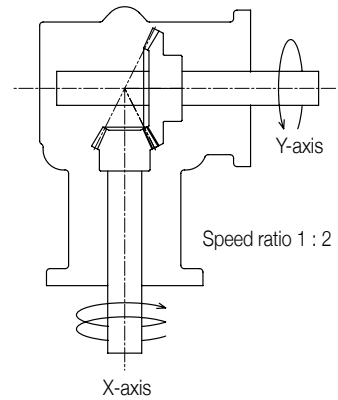
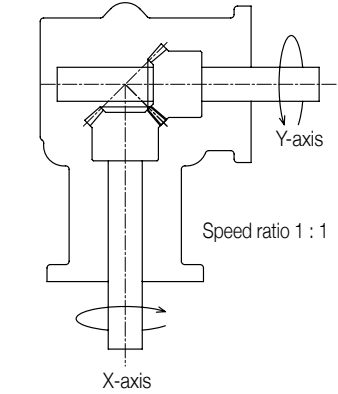


Bevel Gearboxes

[ 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	Weight (kg)	Catalog No.
ø26 <sub>H7</sub>	(2)	1 x 15  (flat)	16' ~ 44'	0.40	<b>KKBX-101L</b>
			30' ~ 1° 23'		<b>KKBX-102L</b>
ø42 <sub>H7</sub>	(3)	5 x 5 x 27	10' ~ 37'	1.80	<b>KKBX-151L</b>
			19' ~ 1° 09'		<b>KKBX-152L</b>
ø52 <sub>H7</sub>	(4)	6 x 6 x 35	8' ~ 33'	3.10	<b>KKBX-201L</b>
			15' ~ 60'		<b>KKBX-202L</b>



Spur Gears

Helical Gears

Internal Gears

Racks

CP Racks & Pinions

Miter Gears

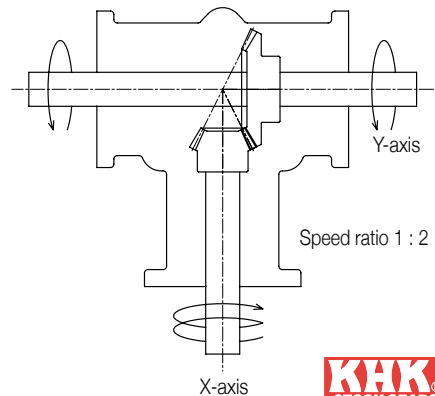
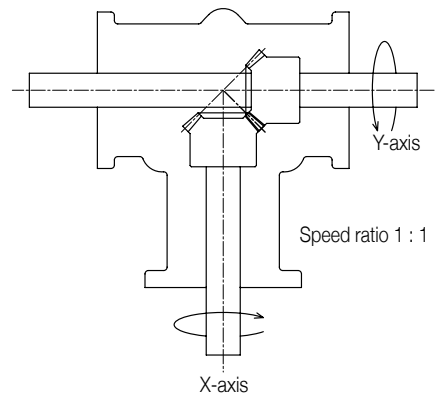
KKBX

Bevel Gearboxes

[ 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	Weight (kg)	Catalog No.
ø26 <sub>H7</sub>	(2)	1 x 15  (flat)	16' ~ 44'	0.50	<b>KKBX-101T</b>
			30' ~ 1° 23'		<b>KKBX-102T</b>
ø42 <sub>H7</sub>	(3)	5 x 5 x 27	10' ~ 37'	2.20	<b>KKBX-151T</b>
			19' ~ 1° 09'		<b>KKBX-152T</b>
ø52 <sub>H7</sub>	(4)	6 x 6 x 35	8' ~ 33'	3.40	<b>KKBX-201T</b>
			15' ~ 60'		<b>KKBX-202T</b>



Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products





- Spur Gears
- Helical Gears
- Internal Gears
- Racks
- CP Racks & Pinions
- Miter Gears
- Bevel Gears
- Screw Gears
- Worm Gear Pair
- Bevel Gearboxes
- Other Products



## Shaft Orientations and Orientation Codes

There are 24 permutations of shaft orientations and rotations, which are standardized for KCBX Bevel Gearboxes. Please pay attention to the shaft orientations in addition to the catalog number when selecting the units.

(CAUTION)

- ① The diagrams below show the mounting surface.
- ② The arrow marks on the shafts are intended to show the relative directions of rotation. The units can be driven in the opposite directions as well.
- ③ "▼" mark indications 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).
- ④ When the unit (other than LI-LL Type, TE-TF 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.
- ⑤ For use other than mounting on a horizontal surface, please see page 575.

## KCBX Shaft Orientations Chart

	KCBX-L Type Diagram				KCBX-T Type Diagram	
Horizontal Type (Top View)						
	A Type	B Type	C Type	D Type	A Type	B Type
Vertical Type (Front View)						
	E Type	F Type	G Type	H Type	C Type	D Type
	I Type	J Type	K Type	L Type	E Type	F Type
	M Type	N Type	O Type	P Type	G Type	H Type

## Features

- ① **Very strong**  
The unit has high grade cast iron housing and uses tapered roller bearings.
- 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. However, if you cannot use one of the standard orientations, please see page 575.
- ④ **Maintenance-free**  
High-grade oil is added to the casing 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.

Model	Volume of lubricant	Lubrication	
KCBX-19 Type	0.3L	Oil	JIS Gear oil Industrial Type 2
KCBX-25 Type	0.7L		
KCBX-32 Type	1.0L		
KCBX-40 Type	1.5L		

## Operating preconditions

See KKBX (Page 568)

**KCBX Performance Chart**

**Bevel Gearboxes**

Speed Ratio	Type	Specifications	X-axis revolutions per minute(rpm)												
			20	50	100	200	300	400	600	900	1200	1500	1800	2500	3600
1 : 1	KCBX-191	Allowable Power(kW)	0.08	0.20	0.39	0.77	1.15	1.50	2.05	2.67	3.30	3.95	4.40	4.40	4.40
		X&Y-axis torque (N·m){kgf·m}	37.2 {3.8}	37.2 {3.8}	37.2 {3.8}	36.3 {3.7}	36.3 {3.7}	36.3 {3.6}	32.3 {3.3}	28.4 {2.9}	26.5 {2.7}	24.5 {2.5}	23.5 {2.4}	16.7 {1.7}	10.8 {1.1}
		X-axis O.H.L. (N){kgf}	1760 {180}	1760 {180}	1760 {180}	1760 {180}	1670 {170}	1620 {165}	1270 {130}	1080 {110}	882 {90}	833 {85}	784 {80}	686 {70}	637 {65}
		Y-axis O.H.L. (N){kgf}	1960 {200}	1960 {200}	1960 {200}	1960 {200}	1960 {200}	1810 {185}	1470 {150}	1180 {120}	1030 {105}	980 {100}	931 {95}	784 {80}	735 {75}
		Efficiency (Reference values)	95%						90%						
	KCBX-251	Allowable Power(kW)	0.25	0.62	1.24	2.47	3.68	4.70	6.40	8.60	10.5	12.3	13.8	—	—
		X&Y-axis torque (N·m){kgf·m}	118 {12.0}	118 {12.0}	118 {12.0}	118 {12.0}	116 {11.8}	112 {11.4}	101 {10.3}	91.1 {9.3}	83.3 {8.5}	78.4 {8.0}	73.5 {7.5}	—	—
		X-axis O.H.L. (N){kgf}	3920 {400}	3920 {400}	3920 {400}	3920 {400}	3630 {370}	3330 {340}	2940 {300}	2450 {250}	2160 {220}	1960 {200}	1760 {180}	—	—
		Y-axis O.H.L. (N){kgf}	4120 {420}	4120 {420}	4120 {420}	4120 {420}	4020 {410}	3920 {400}	3430 {350}	2940 {300}	2550 {260}	2450 {250}	2250 {230}	—	—
		Efficiency (Reference values)	95%						90%						
	KCBX-321	Allowable Power(kW)	0.36	0.88	1.77	3.53	5.26	6.72	9.15	12.3	15.0	17.5	19.7	—	—
		X&Y-axis torque (N·m){kgf·m}	167 {17.0}	167 {17.0}	167 {17.0}	167 {17.0}	165 {16.8}	160 {16.3}	144 {14.7}	130 {13.3}	119 {12.1}	112 {11.4}	104 {10.6}	—	—
		X-axis O.H.L. (N){kgf}	4900 {500}	4900 {500}	4900 {500}	4900 {500}	4610 {470}	4210 {430}	3720 {380}	3140 {320}	2740 {280}	2450 {250}	2160 {220}	—	—
		Y-axis O.H.L. (N){kgf}	5190 {530}	5190 {530}	5190 {530}	5190 {530}	5100 {520}	4900 {500}	4310 {440}	3720 {380}	3230 {330}	3140 {320}	2840 {290}	—	—
		Efficiency (Reference values)	95%						90%						
	KCBX-401	Allowable Power(kW)	0.62	1.59	3.18	6.32	9.50	12.0	16.1	22.0	26.5	—	—	—	—
		X&Y-axis torque (N·m){kgf·m}	294 {30.0}	294 {30.0}	294 {30.0}	294 {30.0}	294 {30.0}	284 {29.0}	225 {26.0}	231 {23.6}	211 {21.5}	—	—	—	—
		X-axis O.H.L. (N){kgf}	9800 {1000}	9800 {1000}	9800 {1000}	7840 {800}	5880 {600}	4900 {500}	4410 {450}	3720 {380}	3430 {350}	—	—	—	—
		Y-axis O.H.L. (N){kgf}	11760 {1200}	11760 {1200}	11760 {1200}	9800 {1000}	7350 {750}	6370 {650}	5880 {600}	5100 {520}	4020 {410}	—	—	—	—
		Efficiency (Reference values)	95%						90%						

- Spur Gears
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- CP Racks & Pinions
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- Bevel Gears
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- Worm Gear Pair
- Bevel Gearboxes
- Other Products

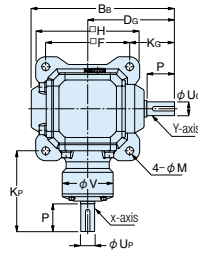
Speed Ratio	Type	Specifications	X-axis revolutions per minute(rpm)												
			20	50	100	200	300	400	600	900	1200	1500	1800	2500	3600
1 : 2	KCBX-192	Allowable Power(kW)	0.03	0.07	0.14	0.27	0.40	0.53	0.78	1.15	1.50	1.85	2.17	2.20	2.20
		Y-axis torque (N·m){kgf·m}	25.5 {2.6}	25.5 {2.6}	25.5 {2.6}	25.5 {2.6}	25.5 {2.6}	24.5 {2.5}	24.5 {2.5}	24.5 {2.5}	23.5 {2.4}	23.5 {2.4}	22.5 {2.3}	16.7 {1.7}	10.8 {1.1}
		X-axis O.H.L. (N){kgf}	1180 {120}	1180 {120}	1180 {120}	1180 {120}	1180 {120}	1130 {115}	1130 {115}	1080 {110}	1080 {110}	882 {90}	833 {85}	784 {80}	735 {75}
		Y-axis O.H.L. (N){kgf}	1760 {180}	1760 {180}	1760 {180}	1760 {180}	1760 {180}	1720 {175}	1670 {170}	1470 {150}	1270 {130}	1080 {110}	980 {100}	833 {85}	784 {80}
		Efficiency (Reference values)	90%						85%						
	KCBX-252	Allowable Power(kW)	0.09	0.23	0.45	0.90	1.34	1.78	2.67	4.00	5.30	6.33	7.50	7.50	—
		Y-axis torque (N·m){kgf·m}	85.3 {8.7}	85.3 {8.7}	85.3 {8.7}	85.3 {8.7}	85.3 {8.7}	84.3 {8.6}	84.3 {8.6}	84.3 {8.6}	84.3 {8.6}	80.4 {8.2}	79.4 {8.1}	56.8 {5.8}	—
		X-axis O.H.L. (N){kgf}	3920 {400}	3920 {400}	3920 {400}	3920 {400}	3920 {400}	3720 {380}	3630 {370}	3530 {360}	3230 {330}	2740 {280}	2250 {230}	1670 {170}	—
		Y-axis O.H.L. (N){kgf}	4120 {420}	4120 {420}	4120 {420}	4120 {420}	4020 {410}	3920 {400}	3820 {390}	3720 {380}	3430 {350}	3040 {310}	2650 {270}	2350 {240}	—
		Efficiency (Reference values)	90%						85%						
	KCBX-322	Allowable Power(kW)	0.13	0.32	0.64	1.28	1.91	2.54	3.80	5.72	7.57	9.05	10.7	—	—
		Y-axis torque (N·m){kgf·m}	123 {12.5}	123 {12.5}	123 {12.5}	123 {12.5}	122 {12.4}	122 {12.4}	121 {12.3}	121 {12.3}	120 {12.2}	115 {11.7}	114 {11.6}	—	—
		X-axis O.H.L. (N){kgf}	4900 {500}	4900 {500}	4900 {500}	4900 {500}	4900 {500}	4700 {480}	4610 {470}	4410 {450}	4120 {420}	3430 {350}	2840 {290}	—	—
		Y-axis O.H.L. (N){kgf}	5190 {530}	5190 {530}	5190 {530}	5190 {530}	5100 {520}	4900 {500}	4800 {490}	4700 {480}	4310 {440}	3820 {390}	3330 {340}	—	—
		Efficiency (Reference values)	90%						85%						
	KCBX-402	Allowable Power(kW)	0.20	0.48	0.96	1.93	2.90	3.84	5.72	8.55	11.0	13.8	16.4	—	—
		Y-axis torque (N·m){kgf·m}	183 {18.7}	183 {18.7}	183 {18.7}	183 {18.7}	183 {18.7}	182 {18.6}	181 {18.5}	180 {18.4}	174 {17.8}	173 {17.6}	172 {17.5}	—	—
		X-axis O.H.L. (N){kgf}	9800 {1000}	9800 {1000}	9800 {1000}	9800 {1000}	9800 {1000}	8820 {900}	7840 {800}	6860 {700}	5880 {600}	4900 {500}	3920 {400}	—	—
		Y-axis O.H.L. (N){kgf}	11760 {1200}	11760 {1200}	11760 {1200}	11760 {1200}	11760 {1200}	9800 {1000}	8820 {900}	8820 {900}	8820 {900}	7840 {800}	6860 {700}	—	—
		Efficiency (Reference values)	90%						85%						

- (CAUTION)** ① Be sure not to exceed the allowable values. Units with (1:2) reduction ratio have the slower speed in the Y-axis.  
 ② The values in the table are in effect when the service factor is 1. When the units are used under other conditions, refer to the Service Factor. Tables 2 and 3 (Page 576).  
 ③ Overhang load (O.H.L.) means the load applied to the middle of the overhang shaft, perpendicular to the axis, When using the units under other conditions, refer to the factors K1 and K2 described in Tables 2 and 3 (Page 576).  
 ④ When the 1:2 speed ratio unit is used as a speed increaser (from the Y-axis to the X-axis), the X-axis torque becomes one half of the Y-axis torque shown in the table.  
 ⑤ The Y-axis torque of KCBX-T Type is the sum of the values on both right and left axis.  
 ⑥ The Y-axis O.H.L. of KCBX-T Type is the sum of the values on both right and left axis. ⑦ The allowable thrust load is half of O.H.L. value in each case.

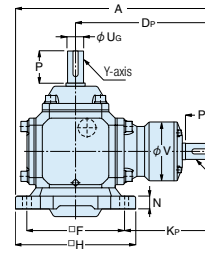
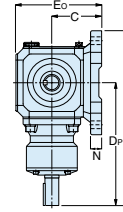


# KCBX Bevel Gearboxes

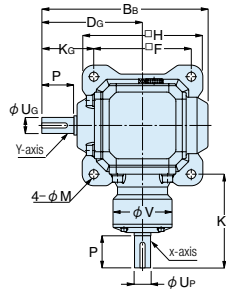
## L type



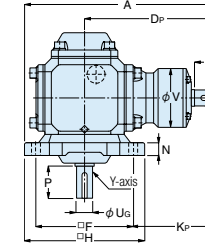
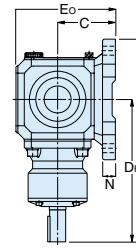
LA, LB



LE, LF



LC, LD



LG, LH

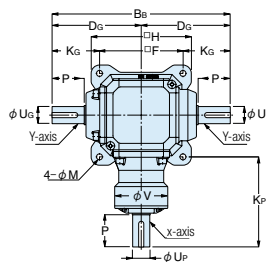
Catalog No.	Speed ratio	A	B <sub>B</sub>	C	D <sub>P</sub>	D <sub>G</sub>	E	E <sub>o</sub>	F	H	J	K <sub>P</sub>	K <sub>G</sub>	øM	N	P	R	øS
KCBX-191 L <input type="checkbox"/>	1:1	257	193	76	180	116	146	129	125	154	109	117.5	53.5	10.5	17	38	—	—
KCBX-192 L <input type="checkbox"/>	1:2																	
KCBX-251 L <input type="checkbox"/>	1:1	316	259	90	222	157	177.5	155	152	188	133	146	81	14	20	50	12	82.5
KCBX-252 L <input type="checkbox"/>	1:2																	
KCBX-321 L <input type="checkbox"/>	1:1	340	277	100	242	168	192.5	174	160	196	151	162	88	14	20	55	9	88.5
KCBX-322 L <input type="checkbox"/>	1:2																	
KCBX-401 L <input type="checkbox"/>	1:1	425	337	115	308	208	225	200	195	234	173	210.5	110.5	14	22	75	14	114.5
KCBX-402 L <input type="checkbox"/>	1:2																	

Please place one of the orientation codes (A to P) from page 572 on the box at the end of the catalog number.

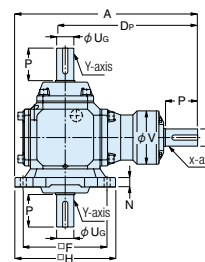
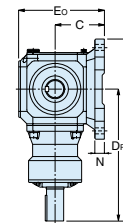


# KCBX Bevel Gearboxes

## T type



TA, TB

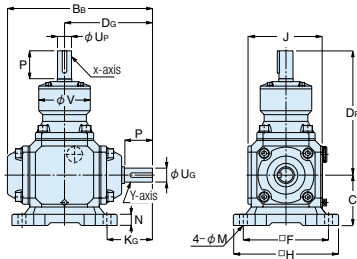


TC, TD

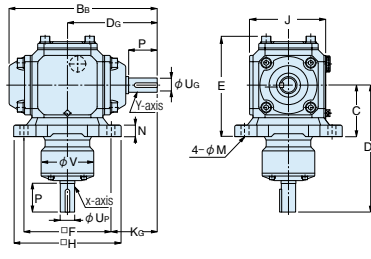
Catalog No.	Speed ratio	A	B <sub>B</sub>	C	D <sub>P</sub>	D <sub>G</sub>	E	E <sub>o</sub>	F	H	J	K <sub>P</sub>	K <sub>G</sub>	øM	N	P	R	øS
KCBX-191 T <input type="checkbox"/>	1:1	257	232	76	180	116	146	129	125	154	109	117.5	53.5	10.5	17	38	—	—
KCBX-192 T <input type="checkbox"/>	1:2																	
KCBX-251 T <input type="checkbox"/>	1:1	316	314	90	222	157	177.5	155	152	188	133	146	81	14	20	50	12	82.5
KCBX-252 T <input type="checkbox"/>	1:2																	
KCBX-321 T <input type="checkbox"/>	1:1	340	336	100	242	168	192.5	174	160	196	151	162	88	14	20	55	9	88.5
KCBX-322 T <input type="checkbox"/>	1:2																	
KCBX-401 T <input type="checkbox"/>	1:1	425	416	115	308	208	225	200	195	234	173	210.5	110.5	14	22	75	14	114.5
KCBX-402 T <input type="checkbox"/>	1:2																	

Please place one of the orientation codes (A – P) from page 572 on the box at the end of the catalog number.

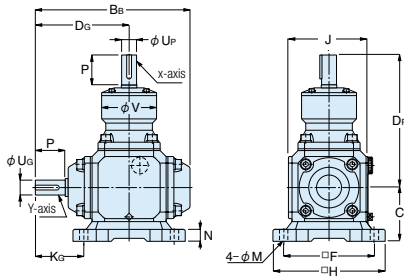
Bevel Gearboxes



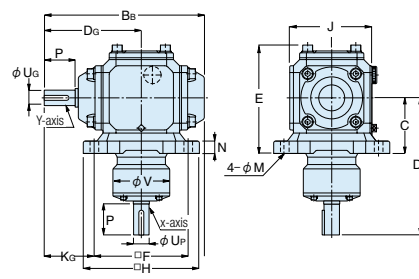
LI, LJ



LM, LN



LK, LL



LO, LP

φV	X-axis φUp	Y-axis φUg	Key	Backlash of shaft rotation	Weight (kg)	Catalog No.
66	19	19	6 x 6 x 27	11' ~30'	10.0	KCBX-191 L <input type="checkbox"/>
	18					KCBX-192 L <input type="checkbox"/>
92	25	25	8 x 7 x 40	9' ~22'	17.0	KCBX-251 L <input type="checkbox"/>
						15' ~36'
100	32	32	10 x 8 x 50	9' ~21'	22.0	KCBX-321 L <input type="checkbox"/>
						15' ~36'
124	40	40	12 x 8 x 60	8' ~20'	33.0	KCBX-401 L <input type="checkbox"/>
						15' ~37'

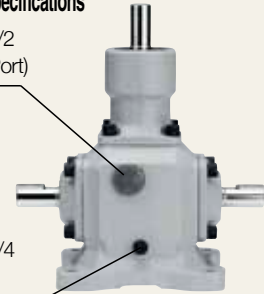
[ Caution ]

- 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 h6.
- 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 → PF 1/2 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 or ordering.

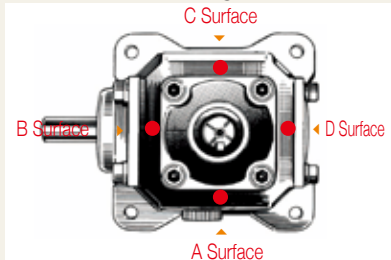
Standard Specifications

Oil Plug PF1/2  
(Oil Supply Port)

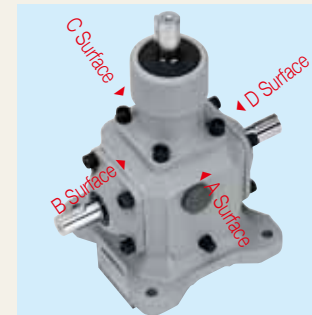
Oil Plug PT1/4  
(Oil Drain)



Additional Oil Plug Locations

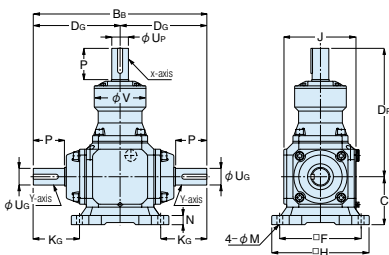


The mark "•" indicates the possible positions for additional oil plug.

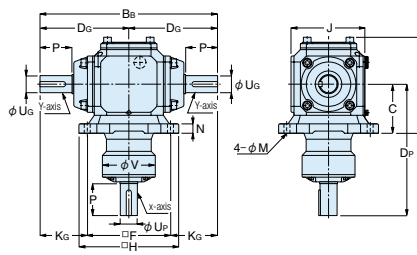


\*Starting on the surface containing the standard oil plug as A, go clockwise looking from the top as B, C and D surfaces.

KCBX



TE, TF



TG, TH

φV	X-axis φUp	Y-axis φUg	Key	Backlash of shaft rotation	Weight (kg)	Catalog No.
66	19	19	6 x 6 x 27	11' ~30'	10.0	KCBX-191 T <input type="checkbox"/>
	18					KCBX-192 T <input type="checkbox"/>
92	25	25	8 x 7 x 40	9' ~22'	18.0	KCBX-251 T <input type="checkbox"/>
						15' ~36'
100	32	32	10 x 8 x 50	9' ~21'	23.0	KCBX-321 T <input type="checkbox"/>
						15' ~36'
124	40	40	12 x 8 x 60	8' ~20'	34.0	KCBX-401 T <input type="checkbox"/>
						15' ~37'



# Bevel Gearboxes

Spur Gears

Helical Gears

Internal Gears

Racks

CP Racks & Pinions

Miter Gears

Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products

## 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.

**Corrected Load Torque = Load torque applied to gearbox x Service factor <See Table 1>.**

Service factors (Sf) (Table 1)

Loading condition	Service factors(Sf)		
	Less than 3 hrs/day operation	3-10 hrs/day operation	More than 10 hrs/day operation
Uniform load	1 (1)	1 (1.25)	1.25 (1.50)
Light impact load	1 (1.25)	1.25 (1.50)	1.50 (1.75)
Heavy impact load	1.25 (1.50)	1.50 (1.75)	1.75 (2.00)

(NOTE)1. Use the factors in parentheses when frequency of starts and stops exceed 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.

- b) Select an appropriate shaft layout from the shaft layout drawing for each model.
- c) Check for overhang load space (O.H.L.)  
Overhang load is a load applied beyond the bearing support. Examining the overhang load is indispensable whenever chains, belts, or gears are used to couple the unit with the mating machinery.

$$\text{O.H.L.} = \frac{T_{LE} \times K_1 \times K_2}{R} \text{ (N) \{kgf\}}$$

$T_{LE}$  : Corrected load torque applied to the gearbox shaft(N·m){kgf·m}  
 $R$  : Pitch radius of sprocket, pulley, gear, etc., mounted on the gearbox shaft(m)  
 $K_1$  : Factor depending on the method of coupling <See Table 2>  
 $K_2$  : Factor depending on the position of load <See Table 3>

\* The value of O.H.L. from the equation above must be smaller than the value of allowable O.H.L. on the X-and the Y-axis shown on the performance table.

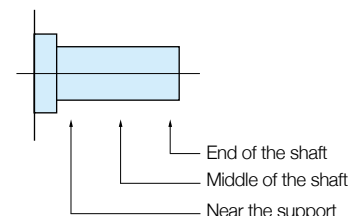
Factor  $K_1$  (Table 2)

Coupling method	$K_1$
Chain, timing belt	1.00
Gear	1.25
V belt	1.50

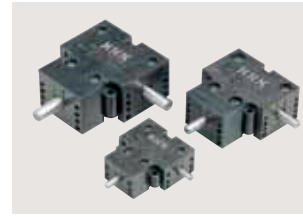
Factor  $K_2$  (Table 3)

Position of load	$K_2$
Near the support	0.75
Middle of shaft	1.00
End of the shaft	1.50

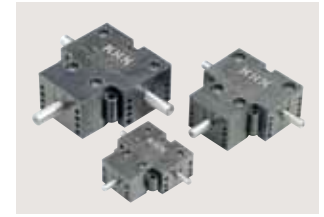
### Position of load



- d) Select a model capable to satisfy all of a), b) and c) obtained above.



KPBX-L Type



KPBX-T Type



KKBX-L Type



KKBX-T Type

## ■ Selection Examples

### Example 1

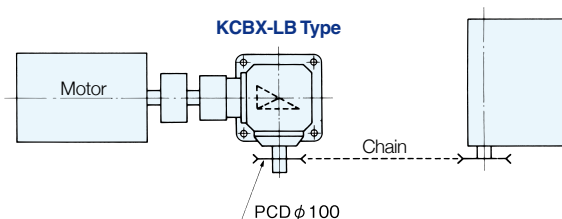
- Application / Conveyor (uniform load)
- Load torque / 78.4N·m {8kgf·m}
- X-axis rotational speed / 300rpm
- Speed Ratio / 1 : 2
- Shaft layout / As illustrated at right
- Running time / 12 hours/day
- Coupling method / X-axis-Coupling  
Y-axis-Chain (positioned at the middle of the shaft)
- Installation / Horizontal
- Location / Indoors



KCBX-L Type



KCBX-T Type



#### ① Torque Analysis

Service factor under load is  $S_f=1.25$  (Table 1).  
Accordingly, corrected load torque applied to Y-axis.  
 $T_{LE}=78.4 \times 1.25=98\text{N}\cdot\text{m}$  { $T_{LE}=8 \times 1.25=10\text{kgf}\cdot\text{m}$ }

#### ② O.H.L. Analysis

O.H.L.on the Y-axis

$$\text{O.H.L.} = \frac{T_{LE} \times K_1 \times K_2}{R} = \frac{98 \times 1 \times 1}{2 \times 1000} = 1960\text{N} \quad \left\{ \text{O.H.L.} = \frac{T_{LE} \times K_1 \times K_2}{R} = \frac{10 \times 1 \times 1}{2 \times 1000} = 200\text{kgf} \right\}$$

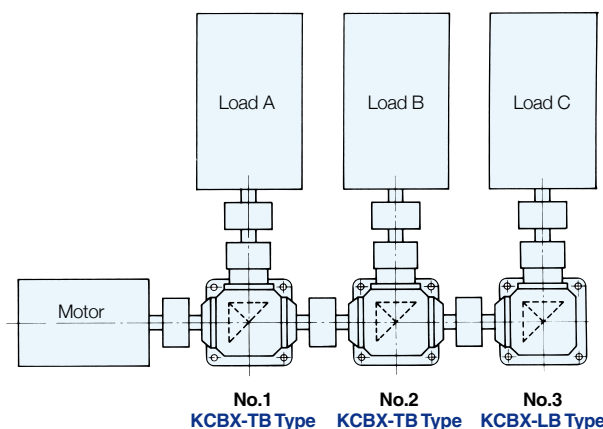
#### ③ Model Selection

A model capable of satisfying all of the design conditions, torque and O.H.L. is **KCBX-322LB**.

### Example 2

- Application / Line shaft drive
- Load torque / 58.8N·m{6kgf·m}(uniform load) for each A,B and C
- Rotational 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

In case of an inline shaft drive, load applied to the Y-axis varies with the location of the gearbox. Therefore, an adequate model must be selected individually for each position. Service factor (Table 1) under the design condition is  $S_f=1.0$  for all gearboxes.



#### ① Gearbox No.1

Corrected load torque applied to the X-axis that drives only load A is:  
 $58.8 \times 1.0=58.8\text{N}\cdot\text{m}$  { $6 \times 1.0=6\text{kgf}\cdot\text{m}$ }  
Corrected load torque applied to the Y-axis that drives load A, B and C is:  
 $(58.8+58.8+58.8) \times 1.0=176.4\text{N}\cdot\text{m}$   
{ $(6+6+6) \times 1.0=18\text{kgf}\cdot\text{m}$ }  
**KCBX-401TB** is selected from the performance table.

#### ② Gearbox No.2

Corrected load torque applied to the X-axis that drives only load B is:  
 $58.8 \times 1.0=58.8\text{N}\cdot\text{m}$  { $6 \times 1.0=6\text{kgf}\cdot\text{m}$ }  
Corrected load torque applied to the Y-axis that drives load B and C is:  
 $(58.8+58.8) \times 1.0=117.6\text{N}\cdot\text{m}$   
{ $(6+6) \times 1.0=12\text{kgf}\cdot\text{m}$ }  
**KCBX-321TB** is selected from the performance table.

#### ③ Gearbox No.3

Corrected load torque applied to the X-axis that drives only load C is:  
 $58.8 \times 1.0=58.8\text{N}\cdot\text{m}$  { $6 \times 1.0=6\text{kgf}\cdot\text{m}$ }  
Corrected load torque applied to the Y-axis that drives only load C is:  
 $58.8 \times 1.0=58.8\text{N}\cdot\text{m}$  { $6 \times 1.0=6\text{kgf}\cdot\text{m}$ }  
**KCBX-251LB** is selected from the performance table.

#### ④ Model selection

No.1 gearbox is **KCBX-401TB**  
No.2 gearbox is **KCBX-321TB**  
No.3 gearbox is **KCBX-251LB**



# Bevel Gearbox's - Moment of Inertia

## ■ Moment of Inertia of KKBX Bevel Gearbox's

Unit : kg·m<sup>2</sup>

Type	Catalog No.	Pinion Shaft (X-axis)	Gear Shaft (Y-axis)
L	KKBX-101L	$4.45 \times 10^{-6}$	$4.45 \times 10^{-6}$
	KKBX-102L	$2.16 \times 10^{-6}$	$8.65 \times 10^{-6}$
	KKBX-151L	$5.30 \times 10^{-5}$	$5.30 \times 10^{-5}$
	KKBX-152L	$3.65 \times 10^{-5}$	$1.47 \times 10^{-4}$
	KKBX-201L	$1.79 \times 10^{-4}$	$1.79 \times 10^{-4}$
	KKBX-202L	$7.85 \times 10^{-5}$	$3.15 \times 10^{-4}$
T	KKBX-101T	$4.75 \times 10^{-6}$	$4.75 \times 10^{-6}$
	KKBX-102T	$2.23 \times 10^{-6}$	$8.93 \times 10^{-6}$
	KKBX-151T	$5.60 \times 10^{-5}$	$5.60 \times 10^{-5}$
	KKBX-152T	$3.37 \times 10^{-5}$	$1.50 \times 10^{-4}$
	KKBX-201T	$1.94 \times 10^{-4}$	$1.94 \times 10^{-4}$
	KKBX-202T	$8.20 \times 10^{-5}$	$3.28 \times 10^{-4}$

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

## ■ Moment of Inertia of KCBX Bevel Gearbox's

Unit : kg·m<sup>2</sup>

Type	Catalog No.	Pinion Shaft (X-axis)	Gear Shaft (Y-axis)
L	KCBX-191L	$4.00 \times 10^{-4}$	$4.00 \times 10^{-4}$
	KCBX-192L	$1.86 \times 10^{-4}$	$7.43 \times 10^{-4}$
	KCBX-251L	$2.48 \times 10^{-3}$	$2.48 \times 10^{-3}$
	KCBX-252L	$1.03 \times 10^{-3}$	$4.13 \times 10^{-3}$
	KCBX-321L	$4.00 \times 10^{-3}$	$4.00 \times 10^{-3}$
	KCBX-322L	$1.29 \times 10^{-3}$	$5.18 \times 10^{-3}$
	KCBX-401L	$8.95 \times 10^{-3}$	$8.95 \times 10^{-3}$
	KCBX-402L	$3.83 \times 10^{-3}$	$1.53 \times 10^{-2}$
T	KCBX-191T	$4.05 \times 10^{-4}$	$4.05 \times 10^{-4}$
	KCBX-192T	$1.87 \times 10^{-4}$	$7.48 \times 10^{-4}$
	KCBX-251T	$2.50 \times 10^{-3}$	$2.50 \times 10^{-3}$
	KCBX-252T	$1.04 \times 10^{-3}$	$4.15 \times 10^{-3}$
	KCBX-321T	$4.08 \times 10^{-3}$	$4.08 \times 10^{-3}$
	KCBX-322T	$1.31 \times 10^{-3}$	$5.25 \times 10^{-3}$
	KCBX-401T	$9.20 \times 10^{-3}$	$9.20 \times 10^{-3}$
	KCBX-402T	$3.88 \times 10^{-3}$	$1.55 \times 10^{-2}$

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