



Spur Gears

Helical Gears

Internal Gears

Racks

CP Racks & Pinions

Miter Gears

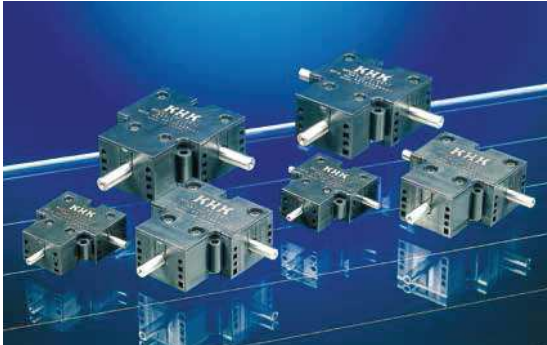
Bevel Gears

Screw Gears

Worm Gear Pair

Bevel Gearboxes

Other Products



■ 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.

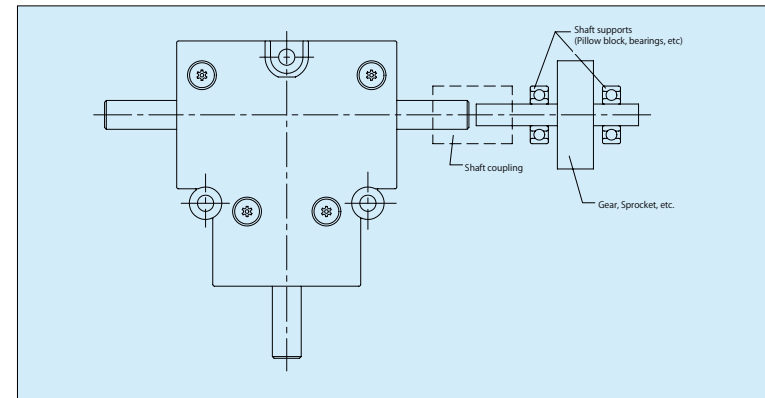
■ Recommended tightening torques

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

- 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.

■ 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

Type	Specifications	X-axis revolutions per minute (rpm)						
		50	100	200	250	300	400	500
PBX-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%						
PBX-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%						
PBX-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.

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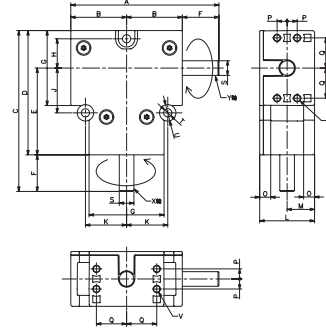
Other Products



PBX Miniature Bevel Gearboxes



L Type



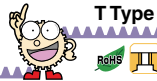
Catalog No.	Speed Ratio	A	B	C	D	E	F	G	H	J	K	L	M	O	P	Q	S	T
PBX-041L	1:1	51	20.5	55	45	32	10	26	9.5	16	15	18	9	4.5	3	10	φ4	φ3.5
PBX-061L	1:1	70	27.5	73	58	41	15	34	13.5	20	19	26	13	4.5	4.5	14	φ6	φ3.5
PBX-081L	1:1	81	30.5	88	68	47.5	20	41	16	24.5	22.5	30	15	6	5.5	16.5	φ8	φ4.5

- [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.

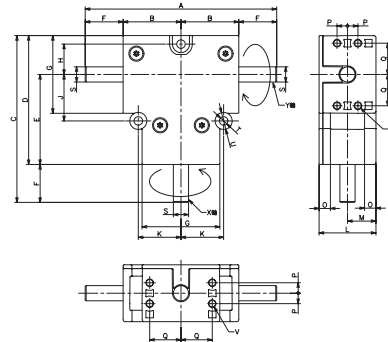
U	V		Weight (g)	Catalog No.
	Diameter	Depth		
7	φ2.5	11	45	PBX-041L
7	φ2.5	13	120	PBX-061L
9	φ3.3	14	200	PBX-081L



PBX 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
PBX-041T	1:1	61	20.5	55	45	32	10	26	9.5	16	15	18	9	4.5	3	10	φ4	φ3.5
PBX-061T	1:1	85	27.5	73	58	41	15	34	13.5	20	19	26	13	4.5	4.5	14	φ6	φ3.5
PBX-081T	1:1	101	30.5	88	68	47.5	20	41	16	24.5	22.5	30	15	6	5.5	16.5	φ8	φ4.5

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