



# ELECTROMAGNETIC CLUTCH & BRAKE

## ELECTROMAGNETIC CLUTCH AND BRAKE UNITS

### 121 / 122 / 125 / 126

## Instruction Manual

☆ This instruction manual describes mainly installation, removal, and notes pertaining to same for standard-specification products after purchase; see the Miki Pulley website and our latest catalog for product specifications and performance.

☆ Before use this product, read the instruction manual carefully and use the product safely and correctly.

☆ First, please check that it is the correct product and if the product was damaged during transportation.

### CONTENTS

- |                        |                             |
|------------------------|-----------------------------|
| 1. STRUCTURE AND PARTS | 4. CONNECTION               |
| 2. NOTES               | 5. OPERATION CHECK          |
| 3. MOUNTING            | 6. MAINTENANCE & INSPECTION |

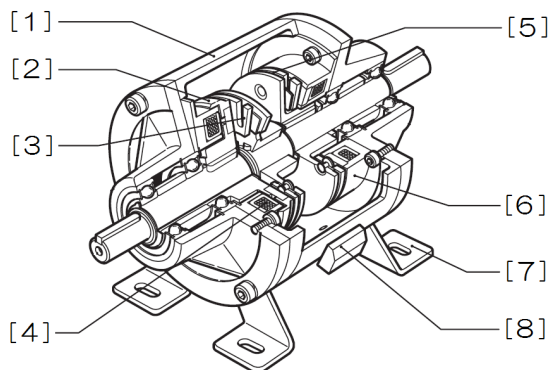
## 1. STRUCTURE AND PARTS

**Note** The device (application) and structure depend on the product model and type.

**Note** The base can be either steel plate or cast, depending on the product model and size.

Model/Type	Device		Shaft structure		Unitized construction
	Clutch	Brake	Through-shaft	Butt shaft	Motor
121-□-10G	● (Double)		●		
121-□-20G	●	●	●		
122	● (Double)	●	●		
125	●	●		●	
126	●	●		●	●

■ 125



[1] Housing [2] Rotor [3] Clutch armature [4] Clutch stator

[5] Brake armature [6] Brake stator [7] Base [8] Terminal block



※ Description of model names is given for Model 125

## 2. NOTES




### 2.1 SAFETY PRECAUTIONS

Please read carefully through the instruction manual and the technical information for proper use and safety. In this manual, safety precautions are classified by "DANGER" and "CAUTION".





#### 【CLASS】

 <b>DANGER</b>	When death or serious injury may result by mishandling.
 <b>CAUTION</b>	When disability or only physical damage may result by mishandling.





#### 【FIGURE SIGN】

 <b>PROHIBITION</b>	In the handling of the product, it indicates that prohibit the act.
 <b>CAUTION</b>	In the handling of the product, it indicates that attention is required.
 <b>MANDATORY</b>	In the handling of the product, it indicates that the action is compulsory on the basis of the instructions.




## DANGER

	<b>Make sure that the main power of the product is off before mounting or performing maintenance/inspection.</b>		<b>Set up a safety mechanism such as a safety brake to avoid any danger.</b>
	It is extremely dangerous if the driving part starts operating by accident while handling the product.		The driven and driving sides could become completely detached if the product is damaged while in operation and not immediately halted.
	<b>Do not use in flammable environments.</b>		<b>Be sure to use a safety cover.</b>
	There is a danger of explosion due to sparks from machinery or the product in operation. In particular, explosion can occur easily in environments with oil/grease or flammable gas.		It is extremely dangerous if hands, fingers, hair, clothing, etc. get caught in the product or a rotating part while in operation.







## CAUTION

	<b>Do not touch the hot clutch and brake body or power supply.</b>		<b>Always use bolts specified by Miki Pulley and a calibrated torque wrench correctly to install brakes at the specified tightening torque.</b>
	Hot while in operation; will result in burn injuries if touched. Warm surroundings will prevent clutch and brake body heat from dissipating; locate in a well-ventilated area.		Depending on the tightening adjustment of bolts or screws, exceptionally dangerous situations such as product damage or performance degradation could occur.
	<b>Be careful lifting a heavy weight. Do not lift with a bad posture.</b>		<b>Use a safety glasses or gloves.</b>
	Straining yourself to lift a heavy product or using a torque wrench, or an awkward posture when installing the product in a machine could cause back injury.		Sharp portions of product bore diameter, keyway, shaft keyway, etc. may cause injury. Wear protective equipment to also prevent burn injuries and electric shock.

## 2. 2 IMPORTANT POINTS OF PRODUCT SPECIFICATIONS

	<p><b>Do not use the product in a bad environment.</b>  <b>Product is for dry use; do not allow exposure to water or oil/grease.</b></p>		<p><b>Request disposal with a waste-collection company, or dispose of according to laws and regulations.</b></p>
	<p>Operating temperature range :          — 10~+40°C</p> <p>Do not use the product in an environment where water, oil, or chemicals may spill (no matter how little), that is corrosive, where temperature is extremely high or low, that is dusty, where condensation forms, that is exposed to wind and rain, or that is subject to a high degree of vibration/impact; may cause product damage or performance deterioration.</p>		<p>When disposing of the product, request disposal with professionals, or dispose of according to law and local regulations if disposing of product by yourself.          Do not dispose of or leave unattended where children play or in a public space.</p>
	<p><b>Comes as a finished product.</b>  <b>Do not unnecessarily disassemble, modify, or additionally process the product.</b></p>		
	<p>We do not guarantee quality nor shall we be liable for damages in the event of damage or affected performance of the product or of injury or accident occurring as a result of the product being disassembled, modified, or additionally processed by the customer.</p>		

## 2. 3 IMPORTANT POINTS BEFORE MOUNTING

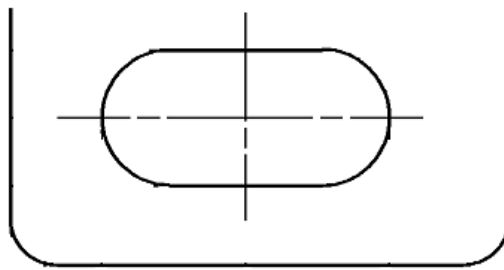
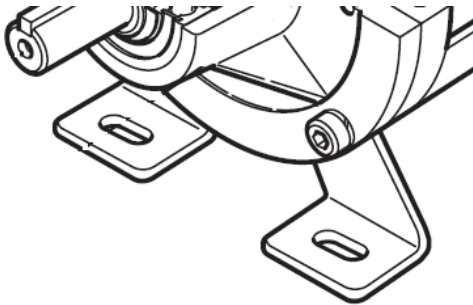
	<p><b>Do not carry with the lead wire dangling.</b>  <b>Do not pull or bend the lead wire forcefully.</b></p>		<p><b>Make sure to keep fluctuations in power supply voltage to within <math>\pm 10\%</math> of the rated voltage.</b></p>
	<p>May break wire, and render the product unusable. If lead wire breaks or slips from your hand, the product may fall on and injure your foot.</p>		<p>Extreme fluctuations in power voltage may prevent the product from reaching optimal performance.</p>
	<p><b>Do not use any bolt or screw other than the bolts on the product.</b></p>		<p><b>Implement screw-locking measures such as an adhesive thread-locking compound to bolts and screws used to install the product.</b></p>
	<p>Check the strength category of the bolt or screw as well as the strength and material of where the product is being installed. Inadequate strength will result in the product being poorly installed and may cause an accident.</p>		<p>Loosening of the bolts or screws due to operational vibration, etc. may allow the product to detach and cause an accident.</p>
	<p><b>Do not bang with a hammer or other tool when inserting a pulley or sprocket onto the shaft or armature hub.</b></p>		<p><b>Bore tolerance of the pulley or sprocket being inserted onto the shaft or armature hub should be finished to H7 class.</b></p>
	<p>Use the supplied insertion set.</p>		<p>Forcefully inserting the pulley or sprocket may damage and affect the performance of the product.</p>

### 3. MOUNTING

(1)

Securely fasten base on sturdy and flat surface with bolts and washers. Installation in any direction is possible. See chart for dimensions of holes for installing base. Select the bolt length according to your design specifications.

SIZE	121-□-10G 121-□-20G	122	125	126
05			Φ6	
06	13.5×6.5	13.5×6.5	13.5×6.5	13.5×6.5
08	13.5×6.5	15.5×9	15.5×9	15.5×9
10	15.5×9	20×11.5	20×11.5	20×11.5
12	20×11.5	24.5×11.5	24.5×11.5	24.5×11.5
16	24.5×11.5	28×14	28×14	28×14
20	28×14	28×14	28×14	
25	28×14			



#### Note

The infiltration of foreign matter into the frictional surface is undesirable. Infiltration of oils markedly degrades frictional force. Dust, especially if it contains metal particles, can cause problems by damaging the frictional surface and rotating parts.

Chemical infiltration can cause corrosion, in addition to the rust described above.

In such environments, consider the use of a protective cover.

(2)

When installing a pulley, sprocket, etc. on the shaft or armature hub, be sure to use screw holes at end of shaft and on end face of armature hub and the supplied insertion set.

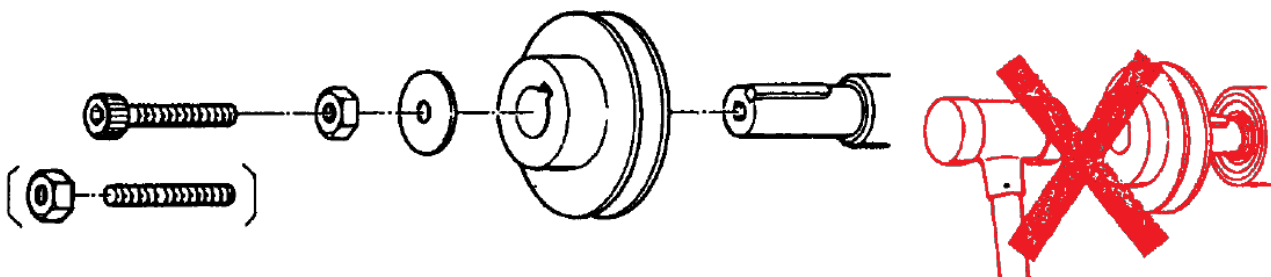
Do not bang on with a hammer, etc.

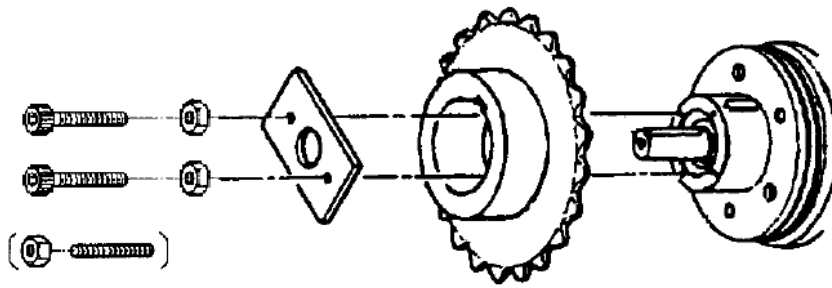
#### Note

Hexagon socket head cap screws may be supplied in place of headless bolts and hexagon nuts in the insertion set.

#### Note

Pulleys and sprockets require processing for holes, keyways, etc. A bore tolerance of H7 class is recommended.

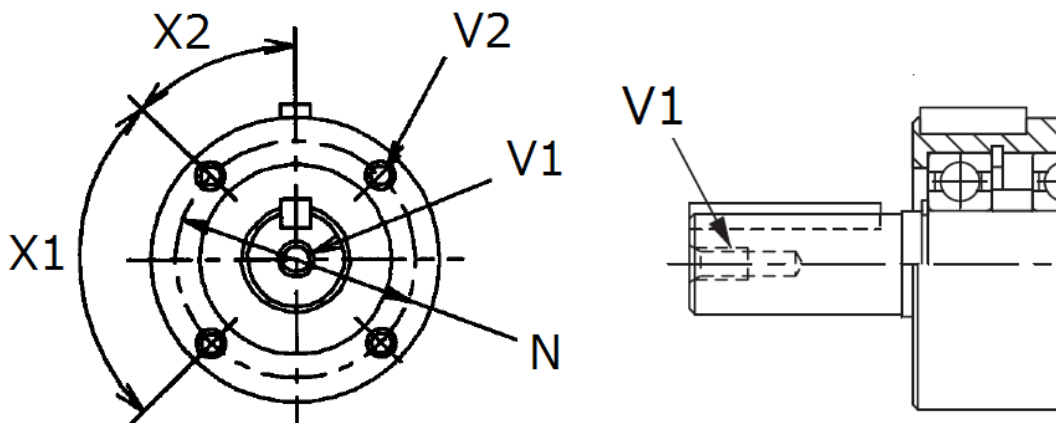




【Dimensions for screw holes at end of shaft and on end face of armature hub】

※Screw holes at end of shaft not provided with 125-05-12G.

SIZE	V1 [mm]	N (P.C.D.) [mm]	X1 [°]	X2 [°]	V2 [mm]
06	M4×0.7 (length:8)	33	120	60	3 – M4×0.7 (length:4)
08	M4×0.7 (length:8)	37	120	60	3 – M4×0.7 (length:6)
10	M6×1 (length:11)	47	90	45	4 – M4×0.7 (length:8)
12	M6×1 (length:11)	52	90	45	4 – M4×0.7 (length:8)
16	M6×1 (length:11)	62	60	30	6 – M5×0.8 (length:8)
20	M10×1.5 (length:17)	74.5	90	45	4 – M6×1 (length:12)
25	M10×1.5 (length:17)	101.5	45	22.5	8 – M6×1 (length:12)



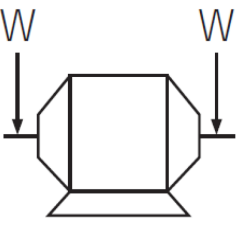
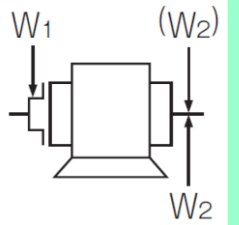
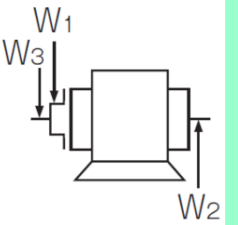
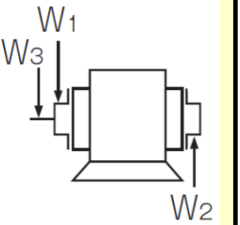
(3)

Install the CB unit to the machine so that the travel lines are correct, and to align the centers of both shafts correctly. The table below shows the allowable values for radial load that can be applied to the shaft of the unit.

## 【OVERHANG LOAD OF UNIT】

※Numbers in parentheses are for loads in the same direction.

※126-□-4B: Mounting type (Base-mounted)

SIZE	125 126-□-4B	121-□-20G		121-□-10G 122
				
Overhang Load [N]				
05	250	—	—	—
06	320	300 (320)	140	140
08	480	450 (500)	250	250
10	700	700 (800)	450	450
12	900	900 (1000)	700	700
16	1300	1400 (1600)	1000	1000
20	1800	2000 (2500)	1800	1800
25	—	2900 (3600)	2600	2600

## 4. CONNECTION

Beforehand, be sure to see “Items Checked for Design Purposes”, etc. in the catalog, and also again check aspects which were considered when designing the system such as circuits (control circuit, power supply circuit, discharge circuit) and components for power supplies (transformers, rectifiers, relays).

### 4. 1 POWER SUPPLIES

Voltage is DC 24 V . Users who use any of our recommended power supplies (listed in our catalog) can use full-wave rectified single-phase commercial AC 100 V or 200 V.

Make sure to keep fluctuations in voltage to within  $\pm 10 \%$ .

#### Note

Connect motor for Model 126.

The power supplies for the motors are 3-phase, 200 V AC at 50 Hz, or 200/220 V AC at 60 Hz.

Refer to motor manufacturer instructions for how to connect motor, etc.

### 4. 2 SWITCHING

Set switching to the DC side. It can also be set to the AC side, however, operation time becomes longer.

### 4. 3 CIRCUIT PROTECTORS(VARISTOR)

Connect in parallel with the clutch and brake. This element does not have polarity.

Also note that our selection of recommended power supplies features units with a built-in circuit protector (connection to circuit protector prohibited).

## 4. 4 TERMINAL BLOCK AND COVER / LEAD WIRE

### ■ TERMINAL BLOCK

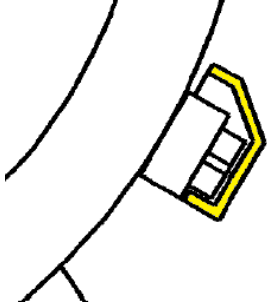
The terminal block is set on the housing or drum, or on the base depending on the model and size.

※The shape of the terminal set on the base and the cover may differ from the figure.

※Terminal block not provided with 125-05-12G. A lead wire exits directly from the main unit.

### ■ TERMINAL BLOCK COVER

The terminal block cover is fitted in the terminal block. Removing it forcefully may cause it to crack.



### ■ LEAD WIRE

To connect the lead wire to the terminal block, strip and then insert the wire, then screw to fasten with a minus screwdriver, etc. to fasten.

The lead wire does not require a crimped terminal.

## 5. OPERATION CHECK

### 5. 1 OPERATION CHECK

After completing installation and wiring, first operate the clutch and brake without transmitting power to check that it operates normally.

If operation is normal, engage the clutch and brake with the driving side. Use caution, as fingers can be caught with only the operation of the clutch and brake.

### 5. 2 TEST RUN

Test run the product. If abnormal noise or vibration is generated, stop the product immediately and remedy the cause.

#### Note

Friction surfaces are new and at first torque may be lower than the indicated value, and is normal.

Operate the system for a while initially to allow the friction surfaces to become matched and increase the torque.

## 6. MAINTENANCE & INSPECTION

Although the clutch and brake requires almost no maintenance during its life when used under normal operating conditions, periodically inspection will allow longer and better performance of its function.

Also be sure to carry out routine maintenance and inspection according to any items specified separately for the machinery or apparatus with which the clutch and brake is combined.

Periodic check points:

- ① Normal on-off operation
- ② Abnormal noise generation
- ③ Abnormal heat generation
- ④ Friction parts and revolving parts for entering or sticking of foreign objects, water, oil, grease.
- ⑤ Widening of friction part clearance
- ⑥ Large amounts of rust
- ⑦ Proper supply of exciting voltage
- ⑧ Broken lead wire or poor connection
- ⑨ Operating temperature range

### Note

Product is shipped with the air gap adjusted. However, after a long period of use, friction surfaces wear and the air gap may increase. Any increase more than the threshold results in a degrade in performance, and requires adjustment of the air gap.

Before adjusting the air gap, contacting Miki Pulley to confirm is recommended.

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# MIKI PULLEY

<http://www.mikipulley.co.jp/>

### Contact by email

Please contact us using the inquiry form and be aware that support for inquiries received on Saturdays, Sundays, holidays, New Year's, and summer business holidays will be provided on the next business day.

### Contact by phone

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