Connection and Release, Required Functions Integrated in a Compact Form Factor, Electromagnetic Clutch and Brake Units

Multiple clutches and brakes are required when designing complex actions. You can select from our clutch and brake units to get the operation you require rather than just combine as many clutches and brakes you need. We provide not just clutch and brake combinations, but total solutions that also include motors, speed reducers and the like.
## Available Models

<table>
<thead>
<tr>
<th>Series</th>
<th>Clutches &amp; Brakes</th>
<th>Structure</th>
<th>Lineup</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLUTCH AND BRAKE UNITS</td>
<td>Clutch and brake units</td>
<td>Butt shaft construction, drip-proof type</td>
<td>125 ➞ P.290</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Through-shaft construction, open-disc brake system type</td>
<td>121-□ -20G ➞ P.294</td>
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<tr>
<td></td>
<td></td>
<td>Motor-coupled type</td>
<td>126 ➞ P.296</td>
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<tr>
<td></td>
<td></td>
<td>Speed reducer-integrated type</td>
<td>CBW ➞ P.300</td>
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<tr>
<td></td>
<td></td>
<td>Motor/speed reducer integrated type</td>
<td>CMW ➞ P.304</td>
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<tr>
<td></td>
<td></td>
<td>Double-clutch units</td>
<td>121-□ -10G ➞ P.306</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Double clutch and brake units</td>
<td>122 ➞ P.308</td>
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</table>

## Model Selection

<table>
<thead>
<tr>
<th>Model/Type</th>
<th>Torque (N·m)</th>
<th>Device</th>
<th>Shaft structure</th>
<th>Utilized construction</th>
<th>Position/ control</th>
<th>Forward/ reverse operation</th>
<th>Two-step speed changing</th>
</tr>
</thead>
<tbody>
<tr>
<td>125</td>
<td>2.4 ~ 160</td>
<td>Clutch</td>
<td>Through-shaft</td>
<td>Clutch</td>
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<td>☐</td>
<td>☐</td>
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<tr>
<td></td>
<td></td>
<td>Brake</td>
<td>Butt shaft</td>
<td>Motor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>121-□ -20G</td>
<td>5 ~ 320</td>
<td>☐</td>
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<tr>
<td>126</td>
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<tr>
<td>CBW</td>
<td>5 ~ 40</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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<tr>
<td>CMW</td>
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<tr>
<td>121-□ -10G</td>
<td>5 ~ 320</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>122</td>
<td>5 ~ 160</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
</tbody>
</table>

For details on selection, see P.310.
ELECTROMAGNETIC-ACTUATED CLUTCHES AND BRAKES

Product Lineup

125

Butt shaft construction, drip-proof type
Handling is made simpler by drip-proof construction that encloses clutch and brake inside a light alloy housing.

Mounting direction freedom
Disc springs are used, so this clutch/brake unit can be used vertically.

This design preserves the performance of clutch and brake to the maximum extent. Its construction is sturdy, yet lightmass. Its easy-to-use butt-connected construction is drip proof, making it suitable for a variety of general industrial machinery applications. The base can be either steel plate or cast (E type made to order). Mounting is simple and service life is long.

Unit types 125 □ -4B 125 □ -4F-N
Clutch/brake torque [N·m] 2.4 〜 80 5 〜 160
Operating temperature [℃ ] −10 〜 +40
Backlash Zero

121 - □ -20G

Through-shaft construction, open-disc brake system type
These are open-disc brake system type with clutch and brake mounted on the outside of a light alloy drum. They use through-shaft construction.

Ideal for winding or geared transmission
The construction holds up well under radial loads due to a wide bearing span, so they can be used under high tension when mounted with V-pulleys, spur gears or the like.

Output shaft can be used in many applications
Through-shaft construction means that output is available on both sides of the shaft. Many mechanism layouts are possible, including using both ends in split driving or mounting a detection disc or the like on one end.

This design preserves the performance of clutch and brake to the maximum extent. Its construction is sturdy, yet lightmass. Its compact through-shaft construction is open, making it suitable for a variety of general industrial machinery applications. Mounting is simple and service life is long.

Clutch/brake torque [N·m] 5 〜 320
Operating temperature [℃ ] −10 〜 +40
Backlash Zero

126

Easy to mount and handle
These types directly connect 3-phase induction motors to clutch/brake units, requiring less installation space and eliminating cumbersome tasks such as centering and processing of mounts. Since the output shaft is simply engaged to the load, handling is easy.

Capable of high-frequency operation
These can repeatedly start and stop the output shaft without stopping the motor, so they can operate intermittently at a higher frequency than on/off operation of the motor.

Two ways to mount
Base and flange types are available. Decide which to use based on your installation location. Flange mountings have the same shape mounting surface as general purpose flange motors, so they can be integrated with speed reducers.

These are practical units in which induction motors are directly connected to clutch/brake units in advance. Base and flange types are available.

Unit types 126 □ -48 126 □ -4F-N
Clutch/brake torque [N·m] 5 〜 80
Operating temperature [℃ ] −10 〜 +40
Backlash Zero
Motor output [kW] 0.2 〜 3.7 3-phase 4-pole fully-sealed external fan type

**Power transmission**

Input and output shafts are isolated. A pulley or the like is mounted on the input shaft, connecting it to the driver so it is always rotating. When electricity flows to the clutch, the two shafts are connected, and rotation is transmitted. If the brake mounted on the output shaft is supplied with electricity simultaneous with clutch current being shut off, the input and output shafts are isolated and the output shaft is quickly braked.

**Mounting**

The end faces of the input and output shafts are equipped with screw holes, so pulleys and the like can be easily mounted using jig accessories. They are attached by screwing them in from the end face or by using a set screw.

---

**Structure**

- Housing
- Rotor
- Clutch armature type 1
- Bearing cover
- Input shaft
- Clutch stator
- Output shaft
- Brake armature type 2
- Bearing cover
- Brake stator
- Base
- Terminal block

**Power transmission**

The motor shaft serves as the clutch input shaft, while the output shaft is isolated. When current flows to the clutch, the motor’s rotation is transmitted to the output shaft via the clutch. If the brake is supplied with electricity simultaneously with clutch current being shut off, the output shaft is isolated from the motor side and instantly stopped.

**Mounting**

The end faces of the input and output shafts are isolated. A pulley or the like is mounted on the input shaft, connecting it to the driver so it is always rotating. When electricity flows to the clutch, the two shafts are connected, and rotation is transmitted. If the brake mounted on the output shaft is supplied with electricity simultaneous with clutch current being shut off, the input and output shafts are isolated and the output shaft is quickly braked.

**Series**

- ETP BUSHINGS
- ELECTROMAGNETIC ACTUATED MICRO CLUTCHES & BRAKES
- SPEED CHANGERS & REDUCERS
- INVERTERS
- LINEAR SHAFT DRIVES
- TORQUE LIMITERS
- ROSTA

**Models**

- 125
- 121-□-20G
- 126
- CBW
- CMW
- 121-□-10G
- 122
ELECTROMAGNETIC ACTUATED CLUTCHES AND BRAKES

**Product Lineup**

**CBW**
- **Compact, space saving**
  These are very compact units that combine a worm reducer and clutch/brake in a single unit. They can greatly save space required for mounting.
- **Easy to mount and handle**
  A V-pulley comes mounted as standard on the input part, so simply connect it to a drive with a belt. Install the speed reducer to complete the mounting. No troublesome centering or processing is needed.
- **Efficient starting and stopping**
  Integration keeps self-inertia low, so the efficiency of starting and stopping is good. It can be combined with a speed changer for a wide range of speed changes, and excellent performance can be achieved in many applications, such as 360° rotation stop of the output shaft.
- **Compact, easy, efficient**
  These multifunction units perform complex and precise handling, stopping at predetermined positions, and the like.
- **Easy to build into machinery**
  Through-shaft construction for winding, gear transmission, and the like.
- **High-speed operation**
  This single unit can perform functions such as two-step speed changing, forward/reverse operation, and power distribution, so the transmission mechanism can be simplified.
- **Zero backlash**
  Zero backlash (clutch/brake units)

**CMW**
- **Easy to mount and handle**
  These types integrate induction motors, clutch/brake units, couplings, and speed reducers in a single unit, requiring less installation space and eliminating cumbersome tasks such as centering and processing of mounts. Since the output shaft is simply engaged to the load, handling is easy.
- **Efficient starting and stopping**
  Integration keeps self-inertia low, so the efficiency of starting and stopping is good.
- **Capable of high-frequency operation**
  These can repeatedly start and stop the output shaft without stopping the motor, so they can operate intermittently at a higher frequency than on-off operation of the motor.
- **Compact through-shaft construction**
  This is an efficient unit whose basic design is the same as that of clutch/brake type 121. It is a strong construction for winding, gear transmission, and the like.
- **Multi-function unit**
  This single unit can perform functions such as two-step speed changing, forward/reverse operation, and power distribution, so the transmission mechanism can be simplified.
- **Zero backlash**
  Zero backlash (clutch/brake units)

**121-□-10G**
- **Compact through-shaft construction**
  This is an efficient unit whose basic design is the same as that of clutch/brake type 121. It is a strong construction for winding, gear transmission, and the like.
- **Multi-function unit**
  This single unit can perform functions such as two-step speed changing, forward/reverse operation, and power distribution, so the transmission mechanism can be simplified.
- **Zero backlash**
  Zero backlash (clutch/brake units)

**122**
- **Compact through-shaft construction**
  These unique units have everything placed extremely skillfully on the through-shaft. They are suitable for winding, gear transmission, and the like.
- **Multi-function unit**
  These multifunction units perform complex and precise control in a single unit, including two-step speed changing, stopping at predetermined positions, and high-frequency forward/reverse operation. The transmission mechanism can be greatly simplified.
- **Easy handling**
  They not only perform many functions, they also easy to build into machinery, just like other units.

**121□15G**
- **Compact through-shaft construction**
  This is an efficient unit whose basic design is the same as that of clutch/brake type 121. It is a strong construction for winding, gear transmission, and the like.
- **Multi-function unit**
  This single unit can perform functions such as two-step speed changing, forward/reverse operation, and power distribution, so the transmission mechanism can be simplified.
- **Zero backlash**
  Zero backlash (clutch/brake units)

**Unit types**
- **CBW-□ N-H □ CBW-□ N-B □**
  Speed reducer manufacturer: Hirai Reduction Gear Co., Ltd. Motor output: 0.2 to 1.5 kW 3-phase 4-pole

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Clutch/brake torque [N·m]</th>
<th>Operating temperature [℃]</th>
<th>Backlash</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.30</td>
<td>5 〜 160</td>
<td>0 〜 +40</td>
<td>Zero</td>
</tr>
<tr>
<td>P.304</td>
<td>5 〜 40</td>
<td>0 〜 +40</td>
<td>Zero</td>
</tr>
<tr>
<td>P.306</td>
<td>2 〜 15</td>
<td>0 〜 +40</td>
<td>Zero</td>
</tr>
<tr>
<td>P.308</td>
<td>5 〜 160</td>
<td>0 〜 +40</td>
<td>Zero</td>
</tr>
</tbody>
</table>
A V pulley is installed on the input part of the clutch, connected by a belt to the drive, and rotates continuously. When current flows to the clutch, rotation is transmitted to the worm shaft, and the output shaft of the speed reducer rotates. If the brake is supplied with electricity when clutch current is shut off, the output shaft stops.

The motor shaft becomes the clutch input shaft via a CENTAFLEX coupling, and the worm shaft is isolated. When current flows to the clutch, the motor's rotation is transmitted to the worm shaft via the clutch, and the output shaft of the speed reducer rotates. If the brake is supplied with electricity when clutch current is shut off, the output shaft stops.

Two clutches, C1 and C2, have a hub shape on the armature side; a V pulley or the like is installed on each. When the hub is used as the input, different force power is connected to the two hubs and they rotate continuously. When current runs to clutch C1, power is transmitted to the shaft via the rotor. When C1 current is shut off and current simultaneously sent to C2, the power switches quickly and the new power is transmitted to the shaft. When the shaft is used as the input, the drive and shaft engage and rotation is continuous. When current flows to the clutches, power is transmitted via the armature to the hub that serves as output.

Different force power is connected to the input hubs of the two clutches C1 and C2 to make them rotate continuously. When current flows to clutch C1, that power is transmitted and the output shaft rotates. When C1 current is shut off and current simultaneously sent to C2, power switches quickly and the new power is transmitted to the shaft. If the brake is supplied with electricity simultaneously with clutch current being shut off, the shaft is instantly stopped.

Installation of these units and mounting of components and the like is the same as for 121-□-20G type clutch/brake units.
**Customization**

**Examples of Special Cases**

- **Special friction material (lining) specifications**
  In addition to standard friction materials, high-torque friction materials and long-life friction materials can also be handled. When using non-standard friction materials, the friction torque and total work will differ from catalog specifications tables. Contact Miki Pulley for details.

- **Special voltage specifications**
  The standard voltage of clutch and brakes is DC 24 V. Special voltages such as DC 12 V, 90 V and 180 V can also be handled.

- **New JIS standard compliance for input and output shafts**
  Input/output shaft parts other than those of 126-□-4F-N, CBW-□N-, and CMW-□N-H□H are compliant with old JIS standards. They can also be made compliant with new JIS standards. Contact Miki Pulley for details.

- **V pulleys, sprockets, etc.**
  Input and output components that meet your needs, for example, by having V pulleys (including with different pulley diameters), sprockets, or timing pulleys, can be designed and produced.

- **Integrated or unitized products**
  We can also produce units that combine motors, speed reducers, couplings and the like to meet your needs.

* Please understand that we may not be able to meet all such special specifications, depending on the usage conditions, dimensional restrictions, clutch and brake sizes, mounting restrictions and the like.

**Special Application Examples**

- **Integrated unit that uses a coupling to connect a 126 model with an above-shaft worm reducer**

- **Unit that uses a spring-actuated brake as the brake of a model 121 clutch/brake unit**

---

**How to Place an Order**

After exchanging delivery specifications for designing a product to meet your particular requirements (special production), we will custom manufacture it using the type name at right.
Integrated drive unit that connects a motor and special type of CBW model (hollow-shaft worm reducer) with a belt.

Integrated drive unit, covered with a safety cover, that connects a motor and a special CBW model worm reducer with a belt.
**ELECTROMAGNETIC ACTUATED CLUTCHES AND BRAKES**

### 125 Models

**ELECTROMAGNETIC-ACTUATED CLUTCHES AND BRAKES**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>125-05-12G</td>
<td>05</td>
<td>2.4</td>
<td>1</td>
<td>DC24 10</td>
<td>0.42</td>
<td>58</td>
<td>8</td>
<td>3000</td>
<td>2.4 × 10⁻¹⁰</td>
<td>9 × 10⁴</td>
<td>C:0.012</td>
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<td>B:0.013</td>
<td>B:0.0012</td>
<td>C:0.040</td>
<td>B:0.012</td>
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<td>5.5</td>
<td>5.5</td>
<td>DC24 11</td>
<td>0.46</td>
<td>52</td>
<td>8</td>
<td>3000</td>
<td>1.28 × 10⁻⁸</td>
<td>36 × 10⁴</td>
<td>C:0.020</td>
<td>B:0.015</td>
<td>B:0.014</td>
<td>B:0.0015</td>
<td>C:0.020</td>
<td>B:0.015</td>
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<tr>
<td>125-08-12G</td>
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<td>10</td>
<td>11</td>
<td>DC24 15</td>
<td>0.63</td>
<td>38</td>
<td>8</td>
<td>3000</td>
<td>3.70 × 10⁻⁹</td>
<td>60 × 10⁴</td>
<td>C:0.023</td>
<td>B:0.016</td>
<td>B:0.014</td>
<td>B:0.0016</td>
<td>C:0.030</td>
<td>B:0.025</td>
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<tr>
<td>125-10-12G</td>
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<td>20</td>
<td>22</td>
<td>DC24 20</td>
<td>0.83</td>
<td>29</td>
<td>8</td>
<td>3000</td>
<td>1.40 × 10⁻⁸</td>
<td>130 × 10⁴</td>
<td>C:0.025</td>
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<tr>
<td>125-12-12G</td>
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<td>40</td>
<td>45</td>
<td>DC24 25</td>
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<td>23</td>
<td>8</td>
<td>3000</td>
<td>3.85 × 10⁻⁹</td>
<td>250 × 10⁴</td>
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<td>B:0.027</td>
<td>B:0.020</td>
<td>B:0.015</td>
<td>C:0.065</td>
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<td>125-16-12G</td>
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<td>90</td>
<td>DC24 35</td>
<td>1.46</td>
<td>16</td>
<td>8</td>
<td>3000</td>
<td>1.35 × 10⁻⁸</td>
<td>470 × 10⁴</td>
<td>C:0.050</td>
<td>B:0.035</td>
<td>B:0.027</td>
<td>B:0.015</td>
<td>C:0.085</td>
<td>B:0.055</td>
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</table>

* The dynamic friction torque, Td, is measured at a relative speed of 100 min⁻¹.

### Dimensions (125-05-12G)

![Dimensions Diagram]

### Dimensions (125-□-12G)

![Dimensions Diagram]

---

*The input/output shaft keyways are old JIS standard class 2 while the key is old JIS standard class 1.*

*When inserting pulleys or the like onto input/output shafts, use the supplied insertion set.*

---

**How to Place an Order**

Size: 125-06-12G Base
### Specifications (125-□-12E) Made to Order

<table>
<thead>
<tr>
<th>Model</th>
<th>Size</th>
<th>Dynamic friction torque, Td [N·m]</th>
<th>Static friction torque, Ts [N·m]</th>
<th>Coil (at 20℃)</th>
<th>Max. rotation speed [min⁻¹]</th>
<th>Rotating part moment of inertia J [kg·m²]</th>
<th>Total work performed until readjustment of the air gap E [J]</th>
<th>Armature pull-in time to [s]</th>
<th>Torque rise time to [s]</th>
<th>Torque extinction time td [s]</th>
<th>Mass [kg]</th>
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</thead>
<tbody>
<tr>
<td>125-06-12E</td>
<td>06 5 5.5 DC24</td>
<td>0.46 52 8 3000</td>
<td>1.28×10⁻⁹</td>
<td>36×10⁶</td>
<td>C:0.020 B:0.015</td>
<td>C:0.041 B:0.013</td>
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<tr>
<td>125-08-12E</td>
<td>08 10 11 DC24</td>
<td>0.63 38 8 3000</td>
<td>3.70×10⁻⁹</td>
<td>60×10⁶</td>
<td>C:0.023 B:0.016</td>
<td>C:0.051 B:0.042</td>
<td>C:0.030 B:0.025</td>
<td>4.2</td>
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<tr>
<td>125-10-12E</td>
<td>10 20 22 DC24</td>
<td>0.83 29 8 3000</td>
<td>1.40×10⁻⁹</td>
<td>130×10⁶</td>
<td>C:0.025 B:0.018</td>
<td>C:0.063 B:0.056</td>
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<tr>
<td>125-12-12E</td>
<td>12 40 45 DC24</td>
<td>1.09 23 8 3000</td>
<td>3.85×10⁻⁹</td>
<td>250×10⁶</td>
<td>C:0.040 B:0.027</td>
<td>C:0.111 B:0.090</td>
<td>C:0.065 B:0.050</td>
<td>12</td>
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<tr>
<td>125-16-12E</td>
<td>16 80 90 DC24</td>
<td>1.46 16 8 3000</td>
<td>1.35×10⁻⁹</td>
<td>470×10⁶</td>
<td>C:0.050 B:0.035</td>
<td>C:0.160 B:0.127</td>
<td>C:0.085 B:0.055</td>
<td>22</td>
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<tr>
<td>125-20-12E</td>
<td>20 160 175 DC24</td>
<td>1.86 13 8 2500</td>
<td>4.08×10⁻⁹</td>
<td>10×10⁶</td>
<td>C:0.090 B:0.065</td>
<td>C:0.250 B:0.207</td>
<td>C:0.130 B:0.070</td>
<td>49</td>
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</table>

*The dynamic friction torque, Td, is measured at a relative speed of 100 min⁻¹.

### Dimensions (125-□-12E) Made to Order

#### How to Place an Order

125-06-12E

Size ______ Base casting (Made to Order): E

---

**Table:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions of part</th>
<th>Dimensions of shaft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>A₁</td>
<td>A₂</td>
</tr>
<tr>
<td>06</td>
<td>65</td>
<td>90</td>
</tr>
<tr>
<td>08</td>
<td>80</td>
<td>110</td>
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<tr>
<td>10</td>
<td>105</td>
<td>135</td>
</tr>
<tr>
<td>12</td>
<td>135</td>
<td>160</td>
</tr>
<tr>
<td>16</td>
<td>155</td>
<td>200</td>
</tr>
<tr>
<td>20</td>
<td>195</td>
<td>240</td>
</tr>
</tbody>
</table>

* The input/output shaft keyways are old JIS standard class 2 while the key is old JIS standard class 1.

* When inserting pulleys or the like onto input/output shafts, use the supplied insertion set.
## Electromagnetic-Actuated Clutches and Brakes

### 125 Models

#### List of Stand-alone Clutches and Brakes Used

<table>
<thead>
<tr>
<th>Model</th>
<th>Stand-alone clutch system</th>
<th>Stand-alone braking system</th>
<th>Bearing number</th>
<th>Input part</th>
<th>Output part</th>
</tr>
</thead>
<tbody>
<tr>
<td>125-05-12</td>
<td>101-06-11G 24V R15JIS A15JIS</td>
<td>111-06-12G 24V 15JIS</td>
<td>6202</td>
<td>6000</td>
<td>6000</td>
</tr>
<tr>
<td>125-06-12</td>
<td>101-08-11G 24V R20JIS A20JIS</td>
<td>111-08-12G 24V 20JIS</td>
<td>6004</td>
<td>6004</td>
<td></td>
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<tr>
<td>125-10-12</td>
<td>101-10-11G 24V R25JIS A25JIS</td>
<td>111-10-12G 24V 25JIS</td>
<td>6205</td>
<td>6205</td>
<td></td>
</tr>
<tr>
<td>125-12-12</td>
<td>101-12-11G 24V R30JIS A30JIS</td>
<td>111-12-12G 24V 30JIS</td>
<td>6206</td>
<td>6206</td>
<td></td>
</tr>
<tr>
<td>125-16-12</td>
<td>101-16-11G 24V R40JIS A40JIS</td>
<td>111-16-12G 24V 40JIS</td>
<td>6208</td>
<td>6208</td>
<td></td>
</tr>
<tr>
<td>125-20-12</td>
<td>101-20-11G 24V R50JIS A50JIS</td>
<td>111-20-12G 24V 50JIS</td>
<td>6011</td>
<td>6011</td>
<td></td>
</tr>
</tbody>
</table>

#### Recommended Power Supplies and Accessory Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Recommended power supplies</th>
<th>Circuit protector (Varistor), qty. 2</th>
<th>Tightening collar</th>
<th>Screw stock</th>
<th>Hexagonal nut</th>
</tr>
</thead>
<tbody>
<tr>
<td>125-05-12</td>
<td>BEH-10G NVD07SCD082 or an equivalent</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>125-06-12</td>
<td>BEH-10G NVD07SCD082 or an equivalent</td>
<td>Qty. 1</td>
<td>M4 × 55 (hex-sOCKET bolt), qty. 1</td>
<td>M4, qty. 1</td>
<td></td>
</tr>
<tr>
<td>125-10-12</td>
<td>BEH-10G NVD07SCD082 or an equivalent</td>
<td>Qty. 1</td>
<td>M6 × 100, qty. 1</td>
<td>M6, qty. 2</td>
<td></td>
</tr>
<tr>
<td>125-12-12</td>
<td>BEH-10G NVD07SCD082 or an equivalent</td>
<td>Qty. 1</td>
<td>M6 × 100, qty. 1</td>
<td>M6, qty. 2</td>
<td></td>
</tr>
<tr>
<td>125-16-12</td>
<td>BEH-10G NVD07SCD082 or an equivalent</td>
<td>Qty. 1</td>
<td>M6 × 100, qty. 1</td>
<td>M6, qty. 2</td>
<td></td>
</tr>
<tr>
<td>125-20-12</td>
<td>BEH-20G NVD07SCD082 or an equivalent</td>
<td>Qty. 1</td>
<td>M10 × 160, qty. 1</td>
<td>M10, qty. 2</td>
<td></td>
</tr>
</tbody>
</table>

* NVD□SCD□ parts are manufactured by KOA Corporation.
* Varistors need not be used when a BEH model overexcitation electromagnetic power supply is used. For details, refer to the section on power supplies.
In Combination with Speed Changers
Clutches and brakes are generally used after motors and speed changers. This unit was designed so that it can be used in combination with a Miki Pulley belt-type stepless speed changer. We provide items precombined into sets. Contact Miki Pulley for details.

Examples of Direct Connection to Motors
Couplings generally have small inertial moments compared to pulleys, sprockets and the like, so they are often used in combination with clutches and brakes. This unit is often combined with our flexible couplings (CENTAFLEX) in particular. It is very effective to mount it on the motor side in combination with a flywheel.

Special Types
In addition to the special application examples shown below, drivers can also be set, and units can be provided with pulleys, sprockets, and the like. Contact Miki Pulley for details.

One-piece Unit Connected to Geared Motor and Coupling

Clutch Unit (No Brake)
ELECTROMAGNETIC ACTUATED CLUTCHES & BRAKES

121-□-20G Types Clutch/Brake Units

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Order</th>
<th>Dynamic friction torque Td [N·m]</th>
<th>Static friction torque Ts [N·m]</th>
<th>Coil (at 20°C)</th>
<th>Max. rotation speed [min⁻¹]</th>
<th>Rotating part moment of inertia J [kg·m²]</th>
<th>Total work performed until readjustment of the air gap E [J]</th>
<th>Armature pull-in time ta [s]</th>
<th>Torque build-up time tb [s]</th>
<th>Torque decaying time td [s]</th>
<th>Mass [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>121-06-20G</td>
<td>06 5 5.5</td>
<td>DC24 11 0.46 52 B 3000</td>
<td>1.43 × 10⁻¹⁰</td>
<td>36 × 10⁸</td>
<td>C:0.020 B:0.015</td>
<td>C:0.020</td>
<td>B:0.015</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-08-20G</td>
<td>08 10 11</td>
<td>DC24 15 0.63 38 B 3000</td>
<td>4.23 × 10⁻¹⁰</td>
<td>60 × 10⁸</td>
<td>C:0.023 B:0.016</td>
<td>C:0.051</td>
<td>B:0.042</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-10-20G</td>
<td>10 20 22</td>
<td>DC24 20 0.83 29 B 3000</td>
<td>1.42 × 10⁻¹⁰</td>
<td>130 × 10⁸</td>
<td>C:0.025 B:0.018</td>
<td>C:0.063</td>
<td>B:0.056</td>
<td>5.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-12-20G</td>
<td>12 40 45</td>
<td>DC24 25 1.09 23 B 3000</td>
<td>4.18 × 10⁻¹⁰</td>
<td>250 × 10⁸</td>
<td>C:0.040 B:0.027</td>
<td>C:0.115</td>
<td>B:0.090</td>
<td>9.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-16-20G</td>
<td>16 80 90</td>
<td>DC24 35 1.46 16 B 3000</td>
<td>1.34 × 10⁻¹⁰</td>
<td>470 × 10⁸</td>
<td>C:0.050 B:0.033</td>
<td>C:0.160</td>
<td>B:0.127</td>
<td>18.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-20-20G</td>
<td>20 160 175</td>
<td>DC24 45 1.88 13 B 2500</td>
<td>4.13 × 10⁻¹⁰</td>
<td>10 × 10⁸</td>
<td>C:0.090 B:0.065</td>
<td>C:0.250</td>
<td>B:0.200</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121-25-20G</td>
<td>25 320 350</td>
<td>DC24 60 2.50 9.6 B 2000</td>
<td>1.02 × 10⁻¹⁰</td>
<td>20 × 10⁸</td>
<td>C:0.115 B:0.085</td>
<td>C:0.335</td>
<td>B:0.275</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The dynamic friction torque, Td, is measured at a relative speed of 100 min⁻¹.

Dimensions

*The input/output shaft keyways are old JIS standard class 2 while the key is old JIS standard class 1. Note that the keyway dimensions of the unit hub part do not conform to the old JIS standard. Check them on the dimensions table above.

When inserting pulleys or the like onto input/output shafts, use the supplied insertion set.

The 121-25-20G base is a casting.

How to Place an Order

121-06-20G
List of Stand-alone Clutches and Brakes Used

<table>
<thead>
<tr>
<th>Model</th>
<th>Stand-alone clutch system</th>
<th>Stand-alone braking system</th>
<th>Bearing number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Main shaft part</td>
</tr>
<tr>
<td>121-06-200</td>
<td>101-06-15G 24V R15JIS A12JIS</td>
<td>111-06-12G 24V 15.85</td>
<td>6202</td>
</tr>
<tr>
<td>121-08-200</td>
<td>101-08-15G 24V R20JIS A15JIS</td>
<td>111-08-12G 24V 20.85</td>
<td>6002</td>
</tr>
<tr>
<td>121-10-200</td>
<td>101-10-15G 24V R25JIS A20JIS</td>
<td>111-10-12G 24V 25.85</td>
<td>6205</td>
</tr>
<tr>
<td>121-12-200</td>
<td>101-12-15G 24V R30JIS A25JIS</td>
<td>111-12-12G 24V 30.85</td>
<td>6206</td>
</tr>
<tr>
<td>121-14-200</td>
<td>101-14-15G 24V R40JIS A30JIS</td>
<td>111-14-12G 24V 40.85</td>
<td>6208</td>
</tr>
<tr>
<td>121-20-200</td>
<td>101-20-15G 24V R50JIS A40JIS</td>
<td>111-20-12G 24V 50.85</td>
<td>6211</td>
</tr>
<tr>
<td>121-25-200</td>
<td>101-25-15G 24V R60JIS A50JIS</td>
<td>111-25-12G 24V 60.85</td>
<td>6214</td>
</tr>
</tbody>
</table>

Recommended Power Supplies and Accessory Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Recommended power supplies</th>
<th>Accessory parts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Circuit protector (Varistor), qty. 2</td>
</tr>
<tr>
<td>121-06-200</td>
<td>BEH-10G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
<tr>
<td>121-08-200</td>
<td>BEH-10G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
<tr>
<td>121-10-200</td>
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</tr>
<tr>
<td>121-12-200</td>
<td>BEH-10G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
<tr>
<td>121-14-200</td>
<td>BEH-10G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
<tr>
<td>121-20-200</td>
<td>BEH-20G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
<tr>
<td>121-25-200</td>
<td>BEH-20G IVD07SC082 or an equivalent</td>
<td>Qty. 1</td>
</tr>
</tbody>
</table>

* NVD □ SCD □ parts are manufactured by KOA Corporation.
* Varistors need not be used when a BEH model overexcitation electromagnetic power supply is used. For details, refer to the section on power supplies.

Mounting Example

This clutch/brake unit allows the output shaft to be used in two locations, so both outputs can be used simultaneously, or one can be connected to a load and a rotation detection disk mounted to the other. A variety of transmission paths can be used in layouts.

### Example with Two Outputs

![Example with Two Outputs](image)

### Example with Detection Disk on One Side

![Example with Detection Disk on One Side](image)

Special Types

In addition to the special application examples shown below, drivers can also be set, and units can be provided with pulleys, sprockets, and the like. Contact Miki Pulley for details.

#### One-piece Unit Connected by Geared Motor and Sprocket

![One-piece Unit Connected by Geared Motor and Sprocket](image)

#### Clutch/Brake Unit with V Pulley Mounted on Input Side

![Clutch/Brake Unit with V Pulley Mounted on Input Side](image)
Call: 01386 421 005
Fax: 01386 422 441
Email: sales@abssac.co.uk
Web: www.abssac.co.uk

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