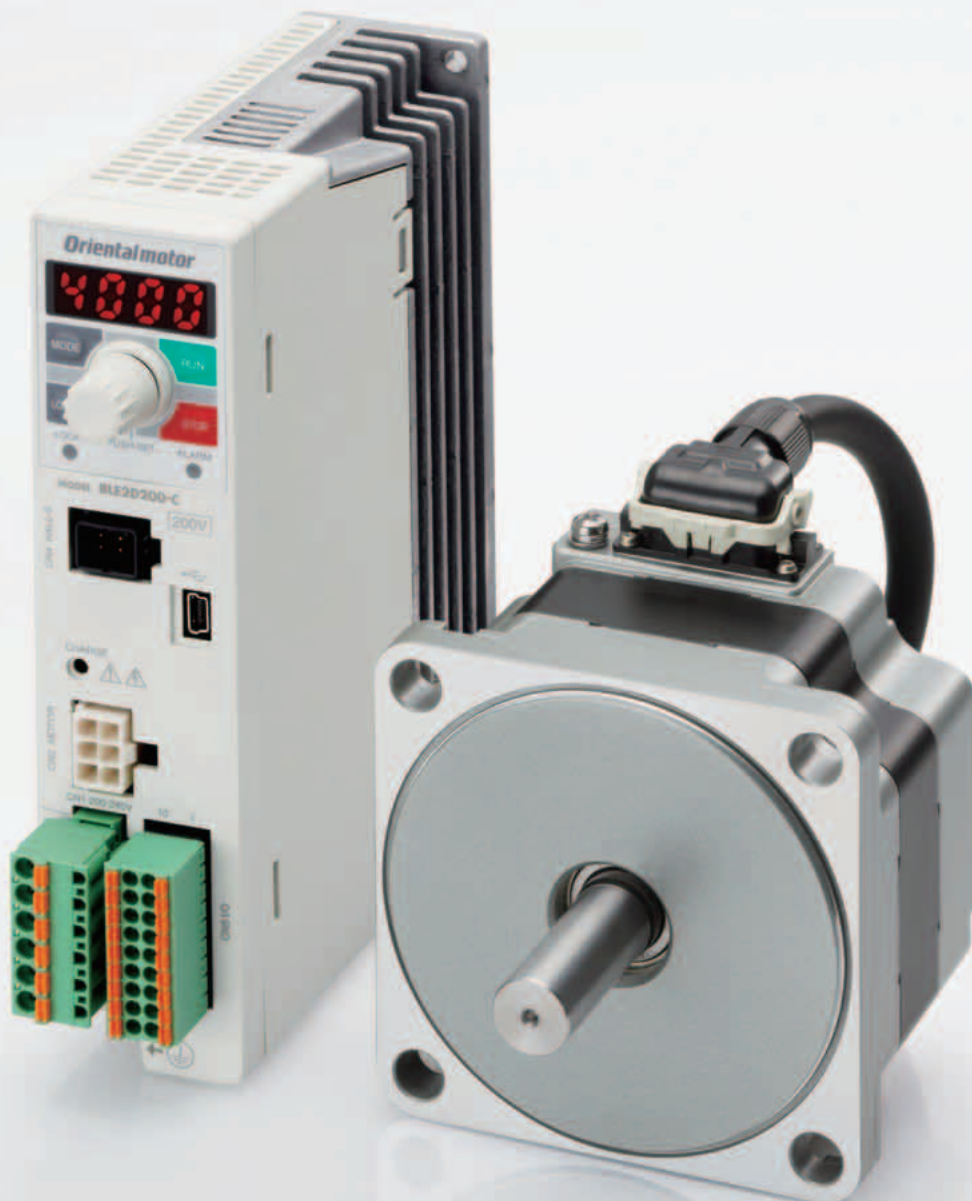


# ***Orientalmotor***

## Brushless Motor **BLE2 Series**

Advanced products that offer high functionality  
and are easy to use.





Further Evolution in Brushless Motors

# Introducing the BLE2 Series

The **BLE** Series products have been fully revamped. The motor, driver, and cable have been redesigned, and achieved both high performance and ease of use while still retaining the original advantages of the brushless motors. These advanced products reveal its excellence with every application.



The NexBL is the new brushless motor from Oriental Motor. All of the structures have been updated, with a focus on maximizing the performance demanded of a motor. A combination of unprecedented compactness, high power, and high efficiency.

## Superb Performance and Features

- Speed Control Range 80~4000 r/min
- Speed Regulation  $\pm 0.2\%$  \*With digital setting
- Torque Control is Possible
- Multiple Speed-Change Operation Max. 16 speeds
- Load Holding when Stopped (up to 50% of rated torque)
- Degree of Protection IP66 \*Motor only
- Stainless Steel Shaft Provides High Rust-Proof and Anti-Corrosion Properties
- Monitoring and Testing Features are Useful for Setup and Trouble Shooting

## Easy to Use and Affordable Prices

- The Driver can be Digitally Set and Controlled via the Front Panel.
- Compact and Slim Driver Allows for Side-by-Side Installation
- Speed Setting via PC and External Signals
- Selectable Cable Outlet Directions
- Direct Connection Allows a Maximum Distance of 20 m (65.6 ft.) between the Motor and the Driver
- Product Line 30 W (1/25 HP)~200 W (1/4 HP) 400 W (1/2 HP) Coming Soon



200 W (1/4 HP)  
400 W (1/2 HP) Coming Soon



## Features of the Brushless Motor

Brushless motors are more efficient and compact than AC induction motors and do not use brushes as compared to DC Brush motors. Brushless motors allow for quiet, long life maintenance-free operation. Brushless motors include permanent magnets in the motor's rotor providing high power and high efficiency and built-in hall effect IC in the stator for speed detection. Speed is controlled through a driver by using feedback signals from the motor.

### Wide Speed Control Range

Brushless motors have a broader speed control compared to three-phase AC inverter driven motors. Additionally they are ideal for applications that require constant torque from low to high speed.

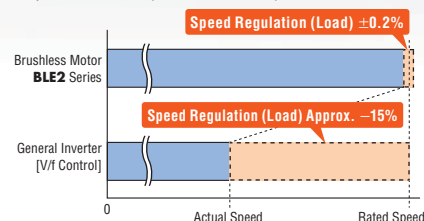
| Product Group                                       | Speed Control Range* | Speed Ratio |
|---|----------------------|-------------|
| Brushless Motor<br><b>BLE2 Series</b>               | 80~4000 r/min        | 50:1        |
| Inverter-Controlled<br>Three-Phase Induction Motors | 200~2400 r/min       | 12:1        |
| AC Speed Control Motor                              | 50Hz: 90~1400 r/min  | 15:1        |
|   | 60Hz: 90~1600 r/min  | 17:1        |

\*The speed control range varies depending on the product.

### Stable Speed Control

The driver constantly monitors feedback signals from the motor and then adjusts the applied voltage by comparing the signals against the set speed. For this reason, even if the load changes, stable rotation is performed from low speed to high speed.

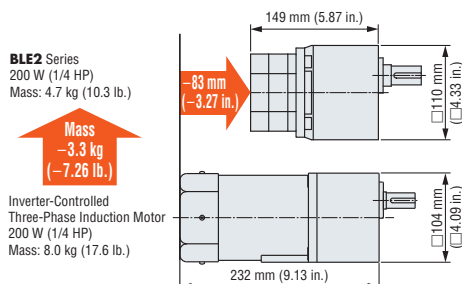
● Comparison of Speed Variation (Reference value)



### Slim, Light, High Power

Brushless motors have a slim body and provide high power due to permanent magnets being used in the rotor. This contributes to downsizing of equipment.

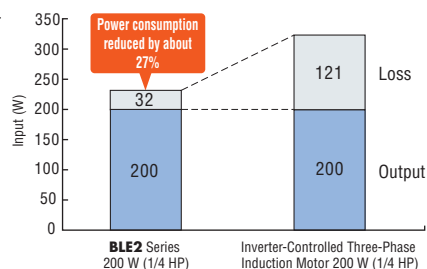
[Comparison Using 200 W (1/4 HP) Output Model]



### Contributes to Energy Savings

Brushless motors significantly reduce power consumption as the use of permanent magnets in the rotor prevents secondary loss from the rotor, which provides a large decrease in power consumption. This helps the equipment save energy.

● Rated Output Power At 60 Hz (Representative values)



# Easy Setting, Installation, and Wiring

The new motor structure is smaller than previous versions and enables high power and high efficiency.

The driver is equipped with a digital display that allows the speed to be set via a single potentiometer.

Additionally, connection cables now allow for a choice of cable outlet direction with direct connection (one cable) providing a maximum distance of up to 20 m (65.6 ft.).

The **BLE2** Series embodies ease of use.

## The Control Panel Allows for Easy Setting

The operating data and parameters can be set by using the operation keys or the dial while checking the digital display.



\*The control panel cannot be removed from the driver.



## Quick and Accurate Wiring and Connection

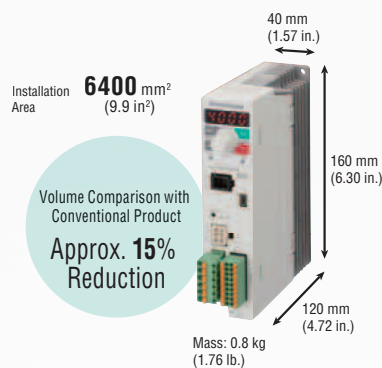
Quick and reliable wiring is possible thanks to the use of spring type connectors.



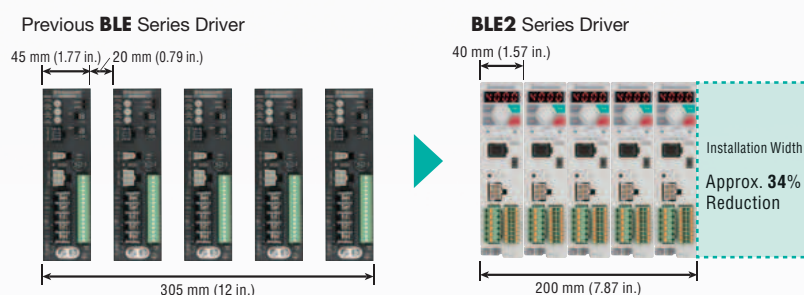
## Effective Utilization of Installation Space

The driver has a compact and slim body through the rearrangement of the internal components to optimize space. Multiple drivers can now be installed in contact with each other, making it possible to reduce the amount of installation space or increase the number of axes within the same equipment space.

### ● Compact, light-weight driver



### ● Multiple units can be installed in contact with each other



### Conditions for of Side-By-Side Installation

- Ambient temperature 0~+50°C (+32~+122°F)  
[For 200W (1/4 HP) 0~+40°C (+32~+104°F)]
- Ensure to install on a heat sink [Material: Aluminum, equivalent to 350×350×2 mm (13.8×13.8×0.08 in.)].

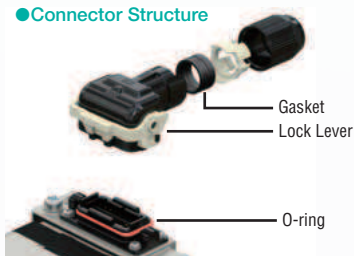


## Degree of Protection IP66

The connector is newly developed for small motors and enables a direct connection between the motor and driver. Connecting is easy due to the lock lever that does not require screws. Also, the motor structure has achieved an IP66\* degree of protection for its improved watertight and dust-resistant performance. The internal gasket and O-ring improve the watertight performance.

\*The degree of protection and output shaft material vary depending on the types of gearheads combined. See the product lineup for details. → Page 10

### Connector Structure



### Installation Method



Insert the connector



Turn down the lock lever



Connection complete

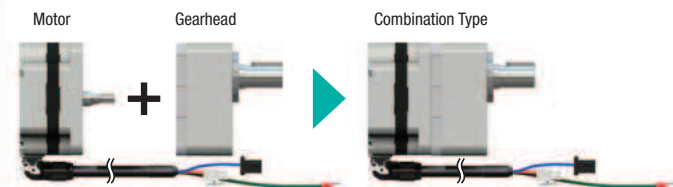
## Standardized Use of Stainless Steel Shaft

Uses a shaft made of SUS303 type steel, which provides excellent rust prevention and corrosion resistance. Stainless steel is also used in the parallel keys and installation screws.



## Easy Assembly with Combination Type

With the gearhead's boss and machined mounting surface, the installation accuracy has been greatly improved. This has also resulted in less noise than previous products. Since the combination type features a pre-assembled motor and gearhead, installation on equipment is easy.



## Selectable Cable Outlet Direction and Direct Connectable Cables

Two types of the connection cables are available, depending on which direction the cable will be drawn. Since a single connection cable can connect directly between the driver and motor at a distance of up to 20 m (65.6 ft.), no extension cable is required.

### Selectable Cable Outlet Direction

Cable outlet on output shaft side



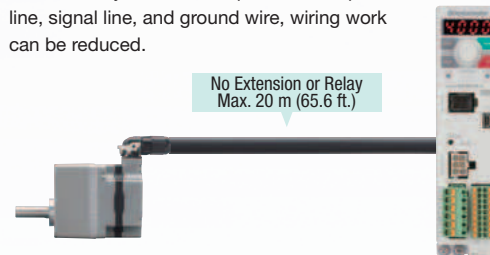
Cable drawn in the opposite side of the output shaft



\*The round shaft type can only use the cable drawn to the opposite side of the output shaft.

### Connection with 1 Connection Cable, No need for Relays

Because only 1 cable is required for the power line, signal line, and ground wire, wiring work can be reduced.

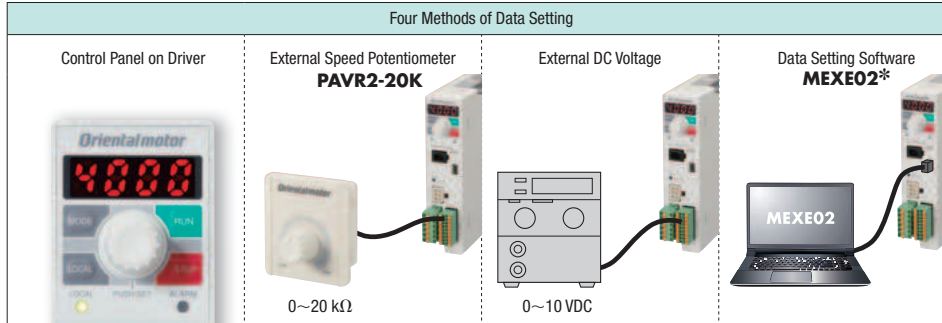


# Supporting Customers with Enhanced Functions

The driver is equipped with four methods of data setting and various functions that correspond with your purpose of use. By using data setting software, equipment start-up and checking operating status is simple. Functions are provided in accordance with the customers' usage conditions.

## Operating Method

- Local Control Operation: Set via the front control panel. It can be used for test operation.
- Remote Operation: Set via external signals and the data setting software **MEXE02**.



\*When using the data setting software **MEXE02**, the driver can be connected to the computer using a commercially available USB cable.

## Setting Details

| Setting                              | Application and Purpose   | Setting Value                                 | Setting Method |  |                     |  |
|--------------------------------------|---|---|----------------|--|---------------------|--|
|                                      |   |   | Control Panel  | External Speed Potentiometer<br><b>PAVR2-20K</b> | External DC Voltage | Data Setting Software<br><b>MEXE02</b> |
| Speed                                | Operation at the desired speed is available.  | 80 ~ 4000 r/min                               | ●              | ●  | ●                   | ●                                      |
| Torque Limiting                      | For suppressing the motor's max. output power for safety purpose or limiting it according to the load.            | 0 ~ 300%                                      | ●              | ●  | ●                   | ●                                      |
| Acceleration/<br>Deceleration Time   | Acceleration and deceleration time can be set to avoid imparting shocks to the load during starting and stopping. | 0 ~ 15.0 seconds                              | ●              | —  | —                   | ●                                      |
| Multistep Speed-<br>Change Operation | Operation at 2 speeds or more is available.   | Up to 16 speeds                               | ●              | —  | —                   | ●                                      |
| Multi-Motor Control                  | For operating multiple motors at the same speed.  | 20 units max.<br>(When using a potentiometer) | —              | ●  | ●                   | —                                      |

## Major Useful Functions

This section introduces the main functions available when using the driver's control panel and the data setting software **MEXE02**.

| Application and Purpose   | Function                          | Description   |
|---|-----------------------------------|---|
| Check the motor generated torque.                                       | Load factor indication            | With the rated torque of the motor at 100%, load factor is displayed. (Indication range: 0~300%)  |
| Display conveyor transportation speed or speed reduction in a gearhead. | Gear Ratio                        | When the gear ratio is set, the converted rotation speed can be displayed.  |
| Operate the motor within the specified speed control range.             | Sets upper and lower speed limits | Specify the upper and lower speed limit.  |
| Change the motor speed while the motor is rotating.                     | Speed Teaching                    | In monitoring mode, the rotation speed can be changed while the motor is rotating.  |
| Easily hold the motor in position when it is stopped.                   | Simple Holding Torque             | When the motor is stopped, the load can be electrically held. (Holding force up to 50% of rated torque)<br><b>Note</b> Since the holding force is canceled when the power supply to the driver is turned OFF, it cannot be used to prevent falling during standstill. |
| Alleviate shock when starting and stopping.                             | Impact Softening Filter           | This function offers slow acceleration and stopping, so that the load being transported during starting and stopping does not move.   |
| Check problem details.  | Alarm                             | This function enables you to identify and quickly respond to problems, including an overload, a disconnection or an operation error.  |
| Use for operation verification and regular maintenance.                 | General Information               | Output prior to the output of an alarm. Inputting the appropriate values for each of the information parameters is also useful for equipment maintenance.   |
| Protect the specified data.   | Editing lock                      | Prohibits the editing/deletion of data and parameters using the driver's control panel and local operation.   |

## Useful Functions of Data Setting Software MEXE02

The data setting software can be downloaded from the Oriental Motor website.

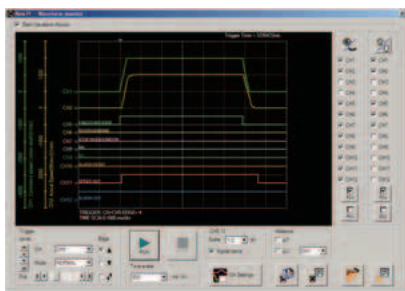
### Monitoring Function

This software is equipped with various monitoring functions for checking the operating status of the motor. Using the functions in accordance with the situation reduces the time necessary for equipment start-up and adjustment, and facilitates effective maintenance.

#### ●Waveform Monitoring

On startup

The operating status of the motor and output signals can be monitored like an oscilloscope. This can be used for equipment start-up and adjustment.



#### ●Alarm Monitoring

For operation

For maintenance

When an abnormality occurs, the details of the abnormality, the operating status at the time of the occurrence, and the solution can be checked. Because the solution can be checked, it is possible to respond to abnormalities quickly.



### Test Function

This function allows the motor to operate by itself and to confirm connection with the host system. Using this function at equipment startup leads to shortening the time needed.

#### ●Speed Adjustment is Possible during Test Operation (Speed Teaching)

On startup

Prior to connection to the host system, the speed data can be changed during testing. These changed speed settings can be saved and used, helping to reduce set-up time.

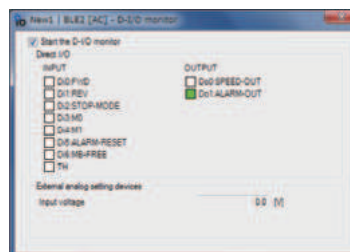


#### ●I/O Monitoring

On startup

For operation

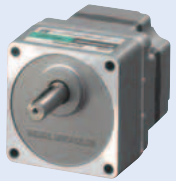


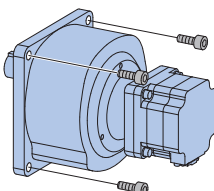
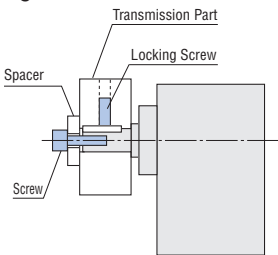
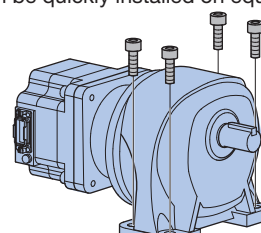
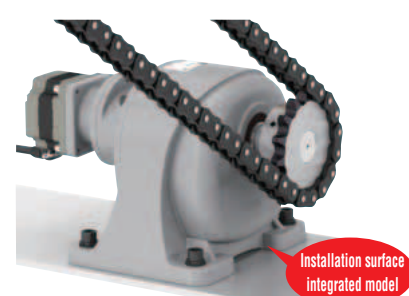
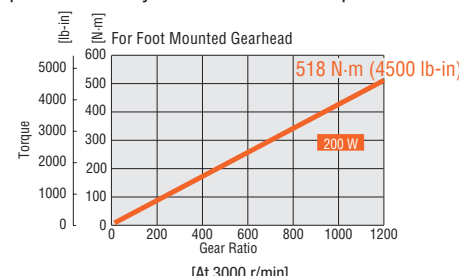
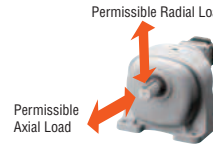
This allows for testing of the input/output signals used for direct I/O. This allows the monitoring of input signals and external DC voltage values, as well as forced output of the output signals. This functions is useful when checking wiring and connections to the host system.



## Types and Features of Gearheads

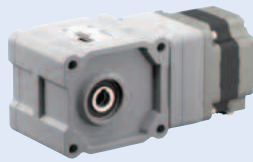
These are high-strength gearheads that are compatible with the high speed and high power of brushless motors.

A wide variety of gearheads suitable for every application, specification or installation method.

|                         | Parallel Shaft Gearhead   | Foot Mount Gearhead  |
|-------------------------|---|--|
| Product Line            |  <b>IP66</b>  <b>IP66</b> <p>Parallel Shaft Gearhead <b>GFV</b> Gear</p> <p>Parallel Shaft Gearhead <b>JV</b> Gear</p>  |  <b>IP44</b> <p>Foot Mount Gearhead <b>JB</b> Gear</p>  |
| Installation Advantages | <ul style="list-style-type: none"> <li>● <b>Can be Installed on the Flange Surface (JV Gear)</b></li> </ul>  <ul style="list-style-type: none"> <li>● <b>Improved Installation Accuracy (GFV Gear)</b><br/>The output shaft boss and installation surface have been machined. This improves the installation accuracy for the equipment.</li> <li>● <b>Tapped Hole at the End of the Output Shaft (GFV Gear □80 mm (3.15 in.) min.)</b><br/>A tapped hole has been machined at the tip of the output shaft. This can be used as an aid for preventing transmission parts from coming off.</li> </ul>  <p>Example of Using the Output Shaft End Tapped Hole</p>  | <ul style="list-style-type: none"> <li>● <b>Mounting Bracket Not Necessary</b><br/>Configured so it can be quickly installed on equipment.</li> </ul>  <ul style="list-style-type: none"> <li>● <b>High Rigidity / Integral Structure</b><br/>Well designed shaft axis, integrated construction with installation surface.</li> </ul>  <p>Installation surface integrated model</p>  |
| Features                | <ul style="list-style-type: none"> <li>● <b>High-Strength Gearhead (GFV Gear)</b><br/>High strength is achieved through improving the strength of gears through heat treatment and through larger bearing diameters. The high permissible torque is 2 ~ 3 times that of a gearhead for an AC motor with the same frame size, and this contributes to reducing the size of equipment.</li> <li>● <b>High Gear Ratios (JV Gear)</b><br/>The gear ratio lineup ranges to 450:1.</li> </ul> <p>Gear Ratio</p> <p>200 W (1/4 HP) 5 10 15 20 30 50 100 200 300 450</p> <p>● Parallel Shaft Gearhead <b>GFV</b> Gear</p> <ul style="list-style-type: none"> <li>● <b>Long Life (GFV Gear)</b><br/>A long life gearhead that uses a special bearing and grease for high-speed rotation. A rated life of 10000 hours is achieved.</li> </ul> | <ul style="list-style-type: none"> <li>● <b>High Permissible Torque</b><br/>Motor torque can be fully utilized without torque saturation.</li> </ul>  <p>For Foot Mounted Gearhead</p> <p>518 N·m (4500 lb-in)</p> <p>200 W</p> <p>[At 3000 r/min]</p> <ul style="list-style-type: none"> <li>● <b>High Strength</b></li> </ul>  <p>Permissible Radial Load</p> <p>3672 N (820 lb.)</p> <p>Permissible Axial Load</p> <p>577 N (129 lb.)</p> <p>[Gear ratio 1200:1 at 3000 r/min]</p> <ul style="list-style-type: none"> <li>● <b>High Gear Ratio</b><br/>The gear ratio lineup ranges to 1200:1.</li> </ul> <p>Gear Ratio</p> <p>5 10 20 30 50 100 200 300 450 600 1200</p> |



## Right-Angle Gearhead

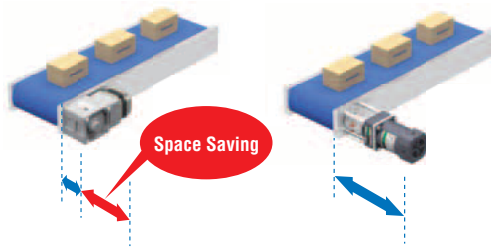


IP66

Right-Angle Hollow Shaft Hypoid **JH** Gear

### Space Saving

Space is saved by the motor being mounted perpendicularly.



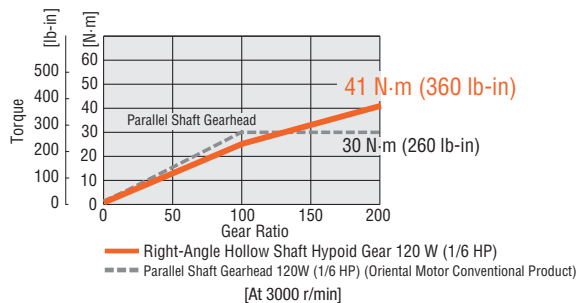
### Low Cost

Eliminating parts like the coupling or the belt-and-pulley will also decrease parts cost and labor.



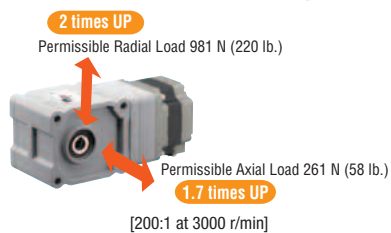
### Permissible Torque without Saturation

Permissible torque is not saturated even at high gear ratios. The motor torque can be fully utilized.



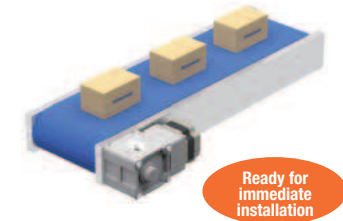
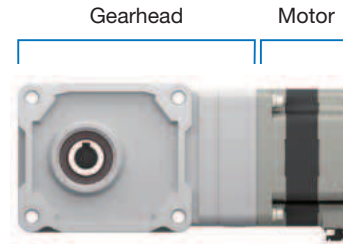
### High Strength

#### Parallel Shaft Gearhead Comparison

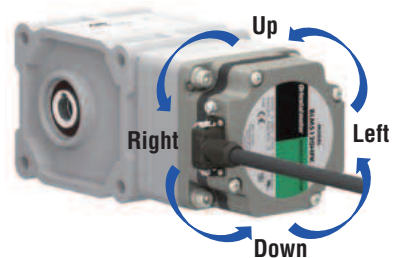
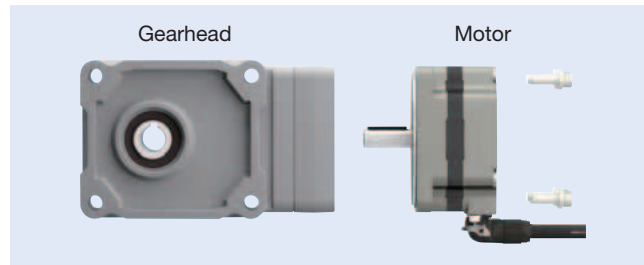


## Motor and Gearhead are Pre-Assembled

Motor and gearhead are delivered pre-assembled. This reduces assembly time, and allows for immediate installation of the equipment.



The gearhead can be removed and the assembly position can be changed in 90° increments. The connector positions can also be changed to suit the equipment.



## Types and Features of Gearheads

These are high-strength gearheads that are compatible with the high speed and high power of brushless motors.  
A wide variety of gearheads suitable for every application, specification or installation method.

### Parallel Shaft Gearhead



**GFV** Gear



**JV** Gear

High Gear Ratio 450:1  
Stainless Shaft

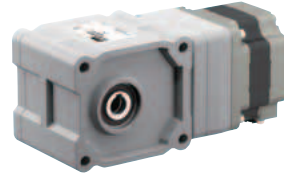
### Foot Mount Gearhead



**JB** Gear

Integrated Foot Mount  
High Rigidity  
High Gear Ratio 1200:1

### Right-Angle Hollow Shaft Hypoid

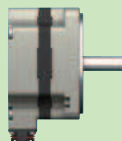







**JH** Gear

Space-Saving and Low Cost  
High Strength  
Stainless Shaft

## Product Line

### ● Motor



| Type / Output Shaft Material   |   | Output Power<br>[W (HP)] | Gear Ratio  | Degree of<br>Protection |
|--|---|--------------------------|---|-------------------------|
| Parallel Shaft<br>Gearhead   | <b>GFV</b> Gear<br><br>Stainless Shaft | 30<br>(1/25)             | <b>5, 10, 15, 20, 30,<br/>50, 100, 200</b>                          | IP66                    |
|  |   | 60<br>(1/12)             |   |                         |
|  |   | 120<br>(1/6)             |   |                         |
|  |   | 200<br>(1/4)             |   |                         |
|  | <b>JV</b> Gear<br><br>Stainless Shaft  | 200<br>(1/4)             | <b>300, 450</b>   | IP66                    |
| Foot Mount Gearhead <b>JB</b> Gear<br><br>Steel Shaft                 |   | 200<br>(1/4)             | <b>5, 10, 20, 30, 50,<br/>100, 200,<br/>300, 450,<br/>600, 1200</b> | IP44                    |
| Right-Angle Hollow Shaft Hypoid <b>JH</b> Gear<br><br>Stainless Shaft |   | 120<br>(1/6)             | <b>10, 15, 20, 30,<br/>50, 100, 200</b>                             | IP66                    |
|  |   | 200<br>(1/4)             | <b>5, 10, 15, 20, 30,<br/>50, 100, 200</b>                          |                         |
| Round Shaft Type<br><br>Stainless Shaft                               |   | 30<br>(1/25)             | —   | IP66                    |
|  |   | 60<br>(1/12)             |   |                         |
|  |   | 120<br>(1/6)             |   |                         |
|  |   | 200<br>(1/4)             |   |                         |

### ● Driver



| Output Power<br>[W (HP)] | Power Supply<br>Voltage [VAC]  |
|--------------------------|--|
| 30<br>(1/25)             | Single-Phase<br>100-120  |
| 60<br>(1/12)             | Single-Phase<br>200-240  |
| 120<br>(1/6)             | Three-Phase<br>200-240   |
| 200<br>(1/4)             | Single-Phase<br>200-240<br>Three-Phase<br>200-240                            |
| 200<br>(1/4)             | Single-Phase<br>200-240<br>Three-Phase<br>200-240                            |
| 200<br>(1/4)             | Single-Phase<br>200-240<br>Three-Phase<br>200-240                            |
| 120<br>(1/6)             | Single-Phase<br>100-120<br>Single-Phase<br>200-240<br>Three-Phase<br>200-240 |
| 200<br>(1/4)             | Single-Phase<br>200-240<br>Three-Phase<br>200-240                            |
| 30<br>(1/25)             | Single-Phase<br>100-120  |
| 60<br>(1/12)             | Single-Phase<br>200-240  |
| 120<br>(1/6)             | Three-Phase<br>200-240   |
| 200<br>(1/4)             | Single-Phase<br>200-240<br>Three-Phase<br>200-240                            |

### ● Connection Cable



Cable Type

0.5~20 m (1.6~65.6 ft.)



Output shaft side



Opposite side of output shaft\*



\*The round shaft type can only be combined with the connection cable pulled out to the opposite side (B type) of the output shaft.  
Connection cables sold separately.

## Product Number Code

### Motor

◇ Parallel Shaft Gearhead **GFV** Gear, Round Shaft Type

**BLM 4 60 S H P - 50A S**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

|   |                                |   |
|---|--------------------------------|---|
| ① | Motor Type                     | <b>BLM</b> : Brushless Motor  |
| ② | Frame Size                     | <b>2</b> : 60 mm (2.36 in.) <b>4</b> : 80 mm (3.15 in.)<br><b>5</b> : 90 mm (3.54 in.) <b>6</b> : 104 mm (4.09 in.)<br>[Gearhead part is 110 mm (4.33 in.)] |
| ③ | Output Power                   | <b>30</b> : 30 W (1/25 HP) <b>60</b> : 60 W (1/12 HP)<br><b>120</b> : 120 W (1/6 HP) <b>200</b> : 200 W (1/4 HP)  |
| ④ | Identification Number          | <b>S</b>  |
| ⑤ | Motor Connection Method        | <b>H</b> : Connector Type   |
| ⑥ | Motor Degree of Protection     | <b>P</b> : IP66 specification   |
| ⑦ | Gear Ratio/Shaft Configuration | Number: Gear Ratio for Gearhead (□ <b>A</b> : inch)<br><b>A</b> : Round Shaft Type ( <b>A</b> : mm)   |
| ⑧ | Output Shaft Material          | <b>S</b> : Stainless Steel  |

◇ Right-Angle Hollow Shaft Hypoid **JH** Gear, Foot Mount Gearhead **JB** Gear, Parallel Shaft Gearhead **JV** Gear

**BLM 5 200 H P K - 5 C B 50 A - L**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

| Motor Product Name    |   |                              | Gearhead Product Name   |  |  |
|-----------------------|---|------------------------------|---|--|--|
| Motor Product Name    | ① | Motor Type                   | <b>BLM</b> : Brushless Motor  |  |  |
|                       | ② | Frame Size                   | <b>5</b> : 90 mm (3.54 in.)   |  |  |
|                       | ③ | Output Power                 | <b>120</b> : 120 W (1/6 HP)<br><b>200</b> : 200 W (1/4 HP)  |  |  |
|                       | ④ | Motor Connection Type        | <b>H</b> : Connector Type   |  |  |
|                       | ⑤ | Motor Degree of Protection   | <b>P</b> : IP66   |  |  |
|                       | ⑥ | Applicable Motor             | <b>K</b> : Round Shaft Type (with key)  |  |  |
| Gearhead Product Name | ⑦ | Combination Motor Frame Size | <b>5</b> : 90 mm (3.54 in.)   |  |  |
|                       | ⑧ | Gearhead Size                | Symbol (Example) <b>C</b><br>Please refer to the ■ Specifications (→ 17 page and 19 page) for the gearhead size code. |  |  |
|                       | ⑨ | Gearhead Type                | <b>H</b> : <b>JH</b> Gear<br><b>B</b> : <b>JB</b> Gear<br><b>V</b> : <b>JV</b> Gear                                   |  |  |
|                       | ⑩ | Gear Ratio                   | Number: Gearhead Gear Ratio   |  |  |
|                       | ⑪ | Output Shaft Material        | <b>S</b> : Stainless Steel <b>A</b> : Steel   |  |  |
|                       | ⑫ | Connector Position           | <b>-L</b> : Left  |  |  |
|                       |   |                              |   |  |  |

### Driver

**BLE2D 60 - A**

① ② ③

|   |                      |  |
|---|----------------------|--|
| ① | Driver Type          | <b>BLE2D</b> : <b>BLE2</b> Series Driver   |
| ② | Output Power         | <b>30</b> : 30 W (1/25 HP) <b>60</b> : 60 W (1/12 HP)<br><b>120</b> : 120 W (1/6 HP) <b>200</b> : 200 W (1/4 HP) |
| ③ | Power Supply Voltage | <b>A</b> : Single-Phase 100-120 VAC<br><b>C</b> : Single-Phase, Three-Phase 200-240 VAC                          |

### Connection Cable

**CC 010 H BL F**

① ② ③ ④ ⑤

|   |                           |  |                              |
|---|---------------------------|--|------------------------------|
| ① | Cable Type                | <b>CC</b> : Connection Cables            |                              |
| ② | Length                    | <b>005</b> : 0.5 m (1.6 ft.)             | <b>010</b> : 1 m (3.3 ft.)   |
|   |                           | <b>015</b> : 1.5 m (4.9 ft.)             | <b>020</b> : 2 m (6.6 ft.)   |
|   |                           | <b>025</b> : 2.5 m (8.2 ft.)             | <b>030</b> : 3 m (9.8 ft.)   |
|   |                           | <b>040</b> : 4 m (13.1 ft.)              | <b>050</b> : 5 m (16.4 ft.)  |
|   |                           | <b>070</b> : 7 m (23.0 ft.)              | <b>100</b> : 10 m (32.8 ft.) |
|   |                           | <b>150</b> : 15 m (49.2 ft.)             | <b>200</b> : 20 m (65.6 ft.) |
|   |                           |  |                              |
| ③ | Motor Connection Method   | <b>H</b> : Connector Type                |                              |
| ④ | Applicable Models         | <b>BL</b> : Brushless Motor              |                              |
| ⑤ | Direction of Cable Outlet | <b>F</b> : Output shaft side             |                              |
|   |                           | <b>B</b> : Opposite side of output shaft |                              |

Motors, drivers, and connection cables must be ordered individually.



| BLE2 Series                                      |                  |                                     | + | Accessories      |                    |                              |
|--|------------------|-------------------------------------|---|------------------|--------------------|------------------------------|
| Motor<br>Parallel Shaft Gearhead <b>GFV</b> Gear | Driver           | Connection Cable<br>[3 m (9.8 ft.)] |   | Mounting Bracket | Flexible Couplings | DIN Rail Mounting<br>Bracket |
| <b>BLM230HP-10AS</b>                             | <b>BLE2D30-A</b> | <b>CC030HBLF</b>                    |   | <b>SOL2U08F</b>  | <b>MCL30F06F06</b> | <b>MADPO2</b>                |
| \$241.00   | \$253.00         | \$62.00                             |   | \$22.00          | \$51.00            | \$29.00                      |

● The system configuration shown above is an example. Other combinations are also available.



## Types and Prices

Motors, drivers and connection cables are sold separately.

### Motor

#### Parallel Shaft Gearhead **GFV** Gear

| Output Power      | Product Name          | Gear Ratio           |  |
|-------------------|-----------------------|----------------------|--|
| 30 W<br>(1/25 HP) | <b>BLM230HP-□AS</b>   | <b>5, 10, 15, 20</b> |  |
|                   |                       | <b>30, 50, 100</b>   |  |
|                   |                       | <b>200</b>           |  |
| 60 W<br>(1/12 HP) | <b>BLM460SHP-□AS</b>  | <b>5, 10, 15, 20</b> |  |
|                   |                       | <b>30, 50, 100</b>   |  |
|                   |                       | <b>200</b>           |  |
| 120 W<br>(1/6 HP) | <b>BLM5120HP-□AS</b>  | <b>5, 10, 15, 20</b> |  |
|                   |                       | <b>30, 50, 100</b>   |  |
|                   |                       | <b>200</b>           |  |
| 200 W<br>(1/4 HP) | <b>BLM6200SHP-□AS</b> | <b>5, 10, 15, 20</b> |  |
|                   |                       | <b>30, 50</b>        |  |
|                   |                       | <b>100, 200</b>      |  |

#### Parallel Shaft Gearhead **JV** Gear

| Output Power      | Product Name            | Gear Ratio      |  |
|-------------------|-------------------------|-----------------|--|
| 200 W<br>(1/4 HP) | <b>BLM5200HPK-5KV□C</b> | <b>300, 450</b> |  |

#### Round Shaft Type

| Output Power      | Product Name        |  |
|-------------------|---------------------|--|
| 30 W<br>(1/25 HP) | <b>BLM230HP-AS</b>  |  |
| 60 W<br>(1/12 HP) | <b>BLM260HP-AS</b>  |  |
| 120 W<br>(1/6 HP) | <b>BLM5120HP-AS</b> |  |
| 200 W<br>(1/4 HP) | <b>BLM5200HP-AS</b> |  |

### Driver

| Output Power      | Power Supply Voltage                  | Product Name      |  |
|-------------------|---------------------------------------|-------------------|--|
| 30 W<br>(1/25 HP) | Single-Phase 100-120 VAC              | <b>BLE2D30-A</b>  |  |
|                   | Single-Phase, Three-Phase 200-240 VAC | <b>BLE2D30-C</b>  |  |
| 60 W<br>(1/12 HP) | Single-Phase 100-120 VAC              | <b>BLE2D60-A</b>  |  |
|                   | Single-Phase, Three-Phase 200-240 VAC | <b>BLE2D60-C</b>  |  |
| 120 W<br>(1/6 HP) | Single-Phase 100-120 VAC              | <b>BLE2D120-A</b> |  |
|                   | Single-Phase, Three-Phase 200-240 VAC | <b>BLE2D120-C</b> |  |
| 200 W<br>(1/4 HP) | Single-Phase, Three-Phase 200-240 VAC | <b>BLE2D200-C</b> |  |

## Included Items

### Motor

| Type            | Parallel Key | Safety Cover | Installation Screws | Operating Manual |
|-----------------|--------------|--------------|---------------------|------------------|
| <b>GFV</b> Gear | 1            | —            | 1 Set               | 1 Set            |
| <b>JV</b> Gear  | —            | —            | —                   |                  |
| <b>JB</b> Gear  | —            | —            | —                   |                  |
| <b>JH</b> Gear  | 1            | 1 Piece      | 1 Set               |                  |
| Round Shaft     | —            | —            | —                   |                  |

● A number indicating the gear ratio is specified where the box □ is located in the product name.

#### Foot Mount Gearhead **JB** Gear

| Output Power      | Product Name              | Gear Ratio       |  |
|-------------------|---------------------------|------------------|--|
| 200 W<br>(1/4 HP) | <b>BLM5200HPK-5AB□A-L</b> | <b>5, 10, 20</b> |  |
|                   | <b>BLM5200HPK-5CB□A-L</b> | <b>30, 50</b>    |  |
|                   | <b>BLM5200HPK-5EB□A-L</b> | <b>100, 200</b>  |  |
|                   | <b>BLM5200HPK-5KB□A-L</b> | <b>300, 450</b>  |  |
|                   | <b>BLM5200HPK-5SB□A-L</b> | <b>600, 1200</b> |  |

#### Right-Angle Hollow Shaft Hypoid **JH** Gear

| Output Power      | Product Name            | Gear Ratio           |  |
|-------------------|-------------------------|----------------------|--|
| 120 W<br>(1/6 HP) | <b>BLM5120HPK-5H□C</b>  | <b>10, 15, 20</b>    |  |
|                   |                         | <b>30, 50</b>        |  |
|                   |                         | <b>100, 200</b>      |  |
| 200 W<br>(1/4 HP) | <b>BLM5200HPK-5XH□C</b> | <b>5, 10, 15, 20</b> |  |
|                   |                         | <b>30</b>            |  |
|                   |                         | <b>50</b>            |  |
|                   | <b>BLM5200HPK-5YH□C</b> | <b>100</b>           |  |
|                   |                         | <b>200</b>           |  |

### Connection Cables

| Length             | Product Name      |  | Length             | Product Name      |  |
|--------------------|-------------------|--|--------------------|-------------------|--|
| 0.5 m<br>(1.6 ft.) | <b>CC005HBL</b> ■ |  | 4 m<br>(13.1 ft.)  | <b>CC040HBL</b> ■ |  |
| 1 m<br>(3.3 ft.)   | <b>CC010HBL</b> ■ |  | 5 m<br>(16.4 ft.)  | <b>CC050HBL</b> ■ |  |
| 1.5 m<br>(4.9 ft.) | <b>CC015HBL</b> ■ |  | 7 m<br>(23.0 ft.)  | <b>CC070HBL</b> ■ |  |
| 2 m<br>(6.6 ft.)   | <b>CC020HBL</b> ■ |  | 10 m<br>(32.8 ft.) | <b>CC100HBL</b> ■ |  |
| 2.5 m<br>(8.2 ft.) | <b>CC025HBL</b> ■ |  | 15 m<br>(49.2 ft.) | <b>CC150HBL</b> ■ |  |
| 3 m<br>(9.8 ft.)   | <b>CC030HBL</b> ■ |  | 20 m<br>(65.6 ft.) | <b>CC200HBL</b> ■ |  |

● Either **F** or **B** indicating the cable drawing direction is entered where the box ■ is located within the product name.

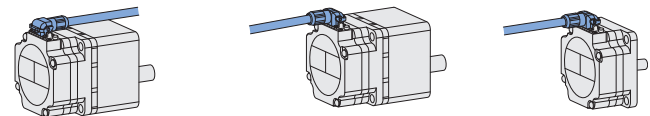
Two types of the connection cables with different drawing directions are available.

#### Note

● The cable drawing direction for the round shaft type is opposite the output shaft only.

**F:** Output shaft side

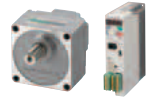
**B:** Opposite side of output shaft



### Driver

| Start-up Guide | Operating Manual |
|----------------|------------------|
| 1 Set          | 1 Set            |

# Parallel Shaft Gear head GFV Gear 30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)



## Specifications



| Product Name                    | Motor Driver                | BLM230HP-□AS |  | BLM460SHP-□AS                              |                      | BLM5120HP-□AS                              |                      |  |  |
|---------------------------------|-----------------------------|--------------|--|--|----------------------|--|----------------------|--|--|
|                                 |                             | BLE2D30-A    | BLE2D30-C  | BLE2D60-A                                  | BLE2D60-C            | BLE2D120-A                                 | BLE2D120-C           |  |  |
| Rated Output Power (Continuous) |                             | W (HP)       |  | 30 (1/25)                                  |                      | 60 (1/12)                                  |                      | 120 (1/6)                                  |  |
| Power Supply Input              | Rated Voltage               | VAC          | Single-Phase 100-120   | Single-Phase 200-240 / Three-Phase 200-240 | Single-Phase 100-120 | Single-Phase 200-240 / Three-Phase 200-240 | Single-Phase 100-120 | Single-Phase 200-240 / Three-Phase 200-240 |  |
|                                 | Permissible Voltage Range   |              | -15~+10%   |  | -15~+10%             |  | -15~+10%             |  |  |
|                                 | Frequency                   | Hz           | 50 / 60  |  | 50 / 60              |  | 50 / 60              |  |  |
|                                 | Permissible Frequency Range |              | ±5%  |  | ±5%                  |  | ±5%                  |  |  |
|                                 | Rated Input Current         | A            | 1.1  | Single-Phase: 0.67/Three-Phase: 0.39       | 1.7                  | Single-Phase: 1.0/Three-Phase: 0.61        | 2.7                  | Single-Phase: 1.7/Three-Phase: 1.02        |  |
|                                 | Maximum Input Current       | A            | 3.3  | Single-Phase: 2.2/Three-Phase: 1.2         | 5.4                  | Single-Phase: 3.5/Three-Phase: 2.0         | 7.4                  | Single-Phase: 4.8/Three-Phase: 3.3         |  |
| Rated Speed                     |                             | r/min        | 3000   |  |                      |  |                      |  |  |
| Speed Control Range             |                             |              | 80~4000 r/min (Speed ratio 50:1)   |  |                      |  |                      |  |  |
| Speed Regulation*               | Load                        |              | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |  |                      |  |                      |  |  |
|                                 | Voltage                     |              | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |  |                      |  |                      |  |  |
|                                 | Temperature                 |              | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |  |                      |  |                      |  |  |

\* The value inside the parentheses is the specification for an analog setting.

● The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  | 5                           | 10         | 15         | 20         | 30                              | 50          | 100          | 200                         |
|---|--|-----------------------------|------------|------------|------------|---------------------------------|-------------|--------------|-----------------------------|
| Rotation Direction  |  | Same direction as the motor |            |            |            | Opposite direction to the motor |             |              | Same direction as the motor |
| Output Shaft Speed [r/min]*1  |  | 80 r/min                    | 16         | 8          | 5.3        | 4                               | 2.7         | 1.6          | 0.8                         |
|   |  | 4000 r/min                  | 800        | 400        | 267        | 200                             | 133         | 80           | 40                          |
| Permissible Torque [N·m (lb·in)]  | 30 W (1/25 HP)   | At 80~2500 r/min            | 0.54 (4.7) | 1.1 (9.7)  | 1.6 (14.1) | 2.2 (19.4)                      | 3.1 (27)    | 5.2 (46)     | 6 (53)                      |
|   |  | At 3000 r/min               | 0.43 (3.8) | 0.86 (7.6) | 1.3 (11.5) | 1.7 (15.0)                      | 2.5 (22)    | 4.1 (36)     | 6 (53)                      |
|   |  | At 4000 r/min               | 0.32 (2.8) | 0.65 (5.7) | 0.97 (8.5) | 1.3 (11.5)                      | 1.9 (16.8)  | 3.1 (27)     | 5.4 (47)                    |
|   |  | At 80~2000 r/min            | 0.9 (7.9)  | 1.8 (15.9) | 2.7 (23)   | 3.6 (31)                        | 5.2 (46)    | 8.6 (76)     | 16 (141)                    |
|   | 60 W (1/12 HP)   | At 3000 r/min               | 0.86 (7.6) | 1.7 (15.0) | 2.6 (23)   | 3.4 (30)                        | 4.9 (43)    | 8.2 (72)     | 16 (141)                    |
|   |  | At 4000 r/min               | 0.65 (5.7) | 1.3 (11.5) | 1.9 (16.8) | 2.6 (23)                        | 3.7 (32)    | 6.2 (54)     | 12.4 (109)                  |
|   |  | At 80~2000 r/min            | 2.0 (17.6) | 4.1 (36)   | 6.1 (53)   | 8.1 (71)                        | 11.6 (102)  | 19.4 (171)   | 30 (260)                    |
|   |  | At 3000 r/min               | 1.7 (15.0) | 3.4 (30)   | 5.2 (46)   | 6.9 (61)                        | 9.9 (87)    | 16.4 (145)   | 30 (260)                    |
|   |  | At 4000 r/min               | 1.3 (11.5) | 2.6 (23)   | 3.9 (34)   | 5.2 (46)                        | 7.4 (65)    | 12.3 (108)   | 24.7 (210)                  |
|   | 120 W (1/6 HP)   | At 80~3000 r/min            | 100 (22)   |            | 150 (33)   |                                 |             | 200 (45)     |                             |
|   |  | At 4000 r/min               | 90 (20)    |            | 130 (29)   |                                 |             | 180 (40)     |                             |
|   |  | At 80~3000 r/min            | 200 (45)   |            | 300 (67)   |                                 |             | 450 (101)    |                             |
|   |  | At 4000 r/min               | 180 (40)   |            | 270 (60)   |                                 |             | 420 (94)     |                             |
| Permissible Radial Load [N (lb.)]   | 10 mm (0.39 in.) from End of Output Shaft*2                        | At 80~3000 r/min            | 300 (67)   |            | 400 (90)   |                                 |             | 500 (112)    |                             |
|   |  | At 4000 r/min               | 230 (51)   |            | 370 (83)   |                                 |             | 450 (101)    |                             |
|   |  | At 80~3000 r/min            | 150 (33)   |            | 200 (45)   |                                 |             | 300 (67)     |                             |
|   |  | At 4000 r/min               | 110 (24)   |            | 170 (38)   |                                 |             | 230 (51)     |                             |
|   | 20 mm (0.79 in.) from End of Output Shaft*2                        | At 80~3000 r/min            | 250 (56)   |            | 350 (78)   |                                 |             | 550 (123)    |                             |
|   |  | At 4000 r/min               | 220 (49)   |            | 330 (74)   |                                 |             | 500 (112)    |                             |
|   |  | At 80~3000 r/min            | 400 (90)   |            | 500 (112)  |                                 |             | 650 (146)    |                             |
|   |  | At 4000 r/min               | 300 (67)   |            | 430 (96)   |                                 |             | 550 (123)    |                             |
|   | Permissible Axial Load [N (lb.)]                                   | 30 W (1/25 HP)              |            |            |            | 40 (9)                          |             |              |                             |
|   |  | 60 W (1/12 HP)              |            |            |            | 100 (22)                        |             |              |                             |
|   |  | 120 W (1/6 HP)              |            |            |            | 150 (33)                        |             |              |                             |
|   |  | 30 W (1/25 HP)              | 12 (66)    | 50 (270)   | 110 (600)  | 200 (1090)                      | 370 (2000)  | 920 (5000)   | 2500 (13700)                |
| Permissible Inertia J [ $\times 10^{-4}$ kg·m <sup>2</sup> (oz·in <sup>2</sup> )] | When Instantaneous Stop or Bi-Directional Operation is performed*3 | 60 W (1/12 HP)              | 22 (120)   | 95 (520)   | 220 (1200) | 350 (1910)                      | 800 (4400)  | 2200 (12000) | 6200 (34000)                |
|   |  | 120 W (1/6 HP)              | 45 (250)   | 190 (1040) | 420 (2300) | 700 (3800)                      | 1600 (8800) | 4500 (25000) | 12000 (66000)               |
|   |  | 30 W (1/25 HP)              | 1.55 (8.5) | 6.2 (34)   | 14 (77)    | 24.8 (136)                      | 55.8 (310)  |              | 155 (850)                   |
|   |  | 60 W (1/12 HP)              | 5.5 (30)   | 22 (120)   | 49.5 (270) | 88 (480)                        | 198 (1080)  |              | 550 (3000)                  |
|   |  | 120 W (1/6 HP)              | 25 (137)   | 100 (550)  | 225 (1230) | 400 (2200)                      | 900 (4900)  |              | 2500 (13700)                |
|   |  |                             |            |            |            |                                 |             |              |                             |

\*1 The output shaft speed is calculated by dividing the speed by the gear ratio.

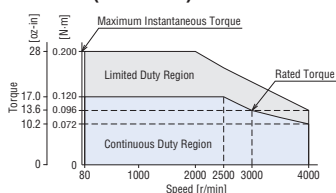
\*2 Regarding load position → Page 15

\*3 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

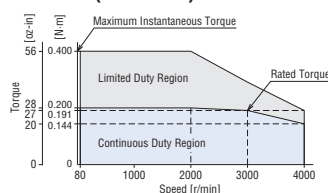
## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region. Limited Duty Region: This region is used primarily when accelerating.

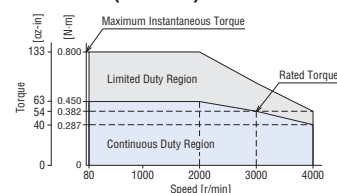
### 30 W (1/25 HP)



### 60 W (1/12 HP)



### 120 W (1/6 HP)



● The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

● A number indicating the gear ratio is specified in the box □ in the product name.

# Parallel Shaft Gearhead GFV Gear 200 W (1/4 HP)



## Specifications

| Product Name                           | Motor Driver                | BLM6200SHP-□AS<br>BLE2D200-C   |  |
|--|-----------------------------|--|--|
| Rated Output Power (Continuous) W (HP) |                             | 200 (1/4)  |  |
| Power Supply Input                     | Rated Voltage VAC           | Single-Phase 200-240 / Three-Phase 200-240   |  |
|  | Permissible Voltage Range   | -15~+10%   |  |
|  | Frequency Hz                | 50 / 60  |  |
|  | Permissible Frequency Range | ±5%  |  |
|  | Rated Input Current A       | Single-Phase: 2.4/Three-Phase: 1.4   |  |
|  | Maximum Input Current A     | Single-Phase: 6.5/Three-Phase: 4.3   |  |
| Rated Speed r/min                      |                             | 3000   |  |
| Speed Control Range                    |                             | 80~4000 r/min (Speed ratio 50:1)   |  |
| Speed Regulation*                      | Load                        | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |  |
|  | Voltage                     | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |  |
|  | Temperature                 | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |  |

\*The value inside the parentheses is the specification for an analog setting.

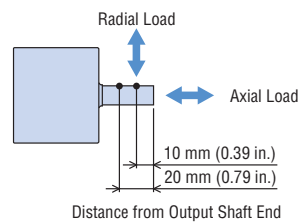
●The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  |                  | 5                           | 10         | 15          | 20          | 30                              | 50           | 100                         | 200            |          |
|---|--|------------------|-----------------------------|------------|-------------|-------------|---------------------------------|--------------|-----------------------------|----------------|----------|
| Rotation Direction  |  |                  | Same direction as the motor |            |             |             | Opposite direction to the motor |              | Same direction as the motor |                |          |
| Output Shaft Speed [r/min]*1  |  |                  | 80 r/min                    | 16         | 8           | 5.3         | 4                               | 2.7          | 1.6                         | 0.8            | 0.4      |
|   |  |                  | 4000 r/min                  | 800        | 400         | 267         | 200                             | 133          | 80                          | 40             | 20       |
| Permissible Torque [N·m (lb·in)]  |  |                  | At 80~3000 r/min            | 2.9 (25)   | 5.7 (50)    | 8.6 (76)    | 11.5 (101)                      | 16.4 (145)   | 27.4 (240)                  | 51.6 (450)     | 70 (610) |
|   |  |                  | At 4000 r/min               | 2.2 (19.4) | 4.3 (38)    | 6.5 (57)    | 8.6 (76)                        | 12.4 (109)   | 20.6 (182)                  | 38.9 (340)     | 63 (550) |
| Permissible Radial Load [N (lb.)]   | 10 mm (0.39 in.) from End of Output Shaft                          | At 80~3000 r/min | 550 (123)                   |            |             |             | 1000 (220)                      |              | 1400 (310)                  |                |          |
|   |  | At 4000 r/min    | 500 (112)                   |            |             |             | 900 (200)                       |              | 1200 (270)                  |                |          |
|   | 20 mm (0.79 in.) from End of Output Shaft                          | At 80~3000 r/min | 800 (180)                   |            |             |             | 1250 (280)                      |              | 1700 (380)                  |                |          |
|   |  | At 4000 r/min    | 700 (157)                   |            |             |             | 1100 (240)                      |              | 1400 (310)                  |                |          |
| Permissible Axial Load [N (lb.)]  |  |                  | 200 (45)                    |            |             |             | 300 (67)                        |              | 400 (90)                    |                |          |
|   |  |                  | 100 (550)                   | 460 (2500) | 1000 (5500) | 1700 (9300) | 3900 (21000)                    | 9300 (51000) | 18000 (98000)               | 37000 (200000) |          |
| Permissible Inertia J<br>[×10 <sup>-4</sup> kg·m <sup>2</sup><br>(oz·in <sup>2</sup> )] | When Instantaneous Stop or Bi-Directional Operation is performed*2 |                  | 50 (270)                    | 200 (1090) | 450 (2500)  | 800 (4400)  | 1800 (9800)                     | 5000 (27000) |                             |                |          |

\*1 The output shaft speed is calculated by dividing the speed by the gear ratio.

\*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

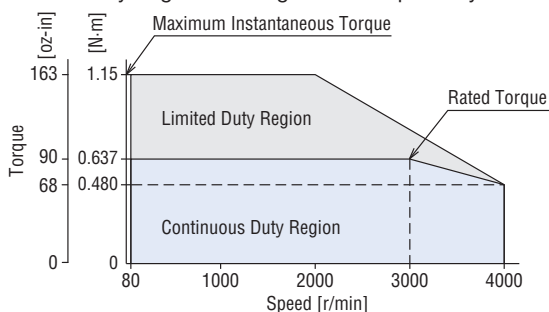
### Load Position



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

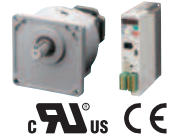
Limited Duty Region: This region is used primarily when accelerating.



●The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

●A number indicating the gear ratio is specified in the box □ in the product name.

# Parallel Shaft Gearhead JV Gear 200 W (1/4 HP)



## Specifications

| Product Name                    | Motor Driver | BLM5200HPK-5KV□C   |
|---------------------------------|--------------|--|
|                                 |              | BLE2D200-C   |
| Rated Output Power (Continuous) | W (HP)       | 200 (1/4)  |
| Rated Voltage                   | VAC          | Single-Phase 200-240 / Three-Phase 200-240   |
| Permissible Voltage Range       |              | -15~+10%   |
| Frequency                       | Hz           | 50 / 60  |
| Permissible Frequency Range     |              | ±5%  |
| Rated Input Current             | A            | Single-Phase: 2.4/Three-Phase: 1.4   |
| Maximum Input Current           | A            | Single-Phase: 6.5/Three-Phase: 4.3   |
| Rated Speed                     | r/min        | 3000   |
| Speed Control Range             |              | 80~3600 r/min (Speed ratio 45:1)   |
| Speed Regulation*               | Load         | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |
|                                 | Voltage      | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |
|                                 | Temperature  | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |

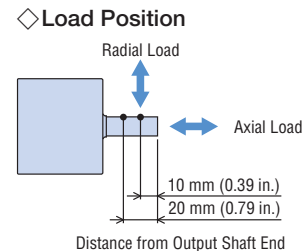
\*The value inside the parentheses is the specification for an analog setting.

● The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  | 300                         | 450              |
|---|--|-----------------------------|------------------|
| (Actual Gear Ratio)   |  | (300.5)                     | (450.8)          |
| Rotation Direction  |  | Same direction as the motor |                  |
| Output Shaft Speed [r/min]*1  | 80 r/min   | 0.27                        | 0.18             |
|   | 3600 r/min   | 12                          | 8                |
| Permissible Torque [N·m (lb-in)]  | At 80~3000 r/min   | 132 (1160)                  | 198 (1750)       |
|   | At 3600 r/min  | 92.3 (810)                  | 138 (1220)       |
| Permissible Radial Load [N (lb.)]   | 10 mm (0.39 in.) from End of Output Shaft                          | At 80~1500 r/min            | 4461 (1000)      |
|   |  | At 3000 r/min               | 3123 (700)       |
|   |  | At 3600 r/min               | 2231 (500)       |
|   | 20 mm (0.79 in.) from End of Output Shaft                          | At 80~1500 r/min            | 5174 (1160)      |
|   |  | At 3000 r/min               | 3622 (810)       |
|   |  | At 3600 r/min               | 2587 (580)       |
| Permissible Axial Load [N (lb.)]  | At 80~1500 r/min   | 686 (154)                   |                  |
|   | At 3000 r/min  | 480 (108)                   |                  |
|   | At 3600 r/min  | 343 (77)                    |                  |
| Permissible Inertia J [ $\times 10^{-4}$ kg·m <sup>2</sup> (oz-in <sup>2</sup> )] | When Instantaneous Stop or Bi-Directional Operation is performed*2 | At 80~1500 r/min            | 900000 (4900000) |
|   |  | At 3000 r/min               | 324000 (1770000) |
|   |  | At 3600 r/min               | 182250 (1000000) |
|   |  | At 80~1500 r/min            | 300000 (1640000) |
|   |  | At 3000 r/min               | 108000 (590000)  |
|   |  | At 3600 r/min               | 60750 (330000)   |

\*1 The output shaft speed is calculated by dividing the speed by the gear ratio.

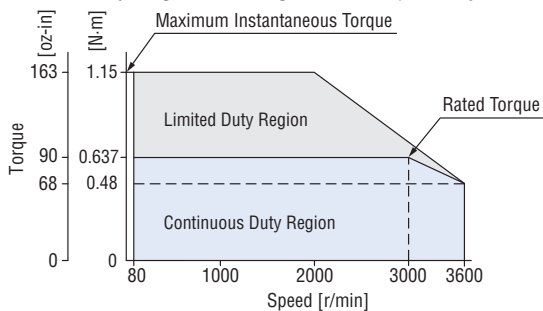
\*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.



● The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

● A number indicating the gear ratio is specified where the box □ is located in the product name.



# Foot Mount Gearhead JB Gear 200 W (1/4 HP)



## Specifications

|                                 |                 |  |
|---------------------------------|-----------------|--|
| Product Name                    | Motor<br>Driver | <b>BLM5200HPK-5</b> <b>B</b> <b>A-L</b><br><b>BLE2D200-C</b>   |
| Rated Output Power (Continuous) | W (HP)          | 200 (1/4)  |
| Rated Voltage                   | VAC             | Single-Phase 200-240 / Three-Phase 200-240   |
| Permissible Voltage Range       |                 | -15~+10%   |
| Frequency                       | Hz              | 50 / 60  |
| Permissible Frequency Range     |                 | ±5%  |
| Rated Input Current             | A               | Single-Phase: 2.4/Three-Phase: 1.4   |
| Maximum Input Current           | A               | Single-Phase: 6.5/Three-Phase: 4.3   |
| Rated Speed                     | r/min           | 3000   |
| Speed Control Range             |                 | 80~3600 r/min (Speed ratio 45:1)   |
| Speed Regulation*               | Load            | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |
|                                 | Voltage         | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |
|                                 | Temperature     | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |

\*The value inside the parentheses is the specification for an analog setting.

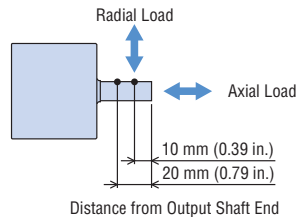
● The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  | 5                           | 10         | 20          | 30           | 50                              | 100            | 200             | 300                         | 450              | 600                | 1200               |                     |
|---|--|-----------------------------|------------|-------------|--------------|---------------------------------|----------------|-----------------|-----------------------------|------------------|--------------------|--------------------|---------------------|
| (Actual Gear Ratio)   |  | (4.97)                      | (10.12)    | (20.08)     | (30.86)      | (49.09)                         | (104.1)        | (196.4)         | (300.5)                     | (450.8)          | (588.9)            | (1178)             |                     |
| Gearhead Size Code  |  | A                           |            |             | C            |                                 | E              |                 | K                           |                  | S                  |                    |                     |
| Rotation Direction  |  | Same direction as the motor |            |             |              | Opposite direction to the motor |                |                 | Same direction as the motor |                  |                    |                    |                     |
| Output Shaft Speed [r/min]*1  |  | 80 r/min                    | 16         | 8           | 4            | 2.7                             | 1.6            | 0.8             | 0.4                         | 0.27             | 0.18               | 0.13               | 0.07                |
|   |  | 3600 r/min                  | 720        | 360         | 180          | 120                             | 72             | 36              | 18                          | 12               | 8                  | 6                  | 3                   |
| Permissible Torque<br>[N·m (lb·in)]   |  | At 80~3000 r/min            | 2.4 (21)   | 4.9 (43)    | 9.7 (85)     | 13.0 (115)                      | 22.5 (199)     | 48.4 (420)      | 91.3 (800)                  | 132 (1160)       | 198 (1750)         | 259 (2200)         | 518 (4500)          |
|   |  | At 3600 r/min               | 1.7 (15.0) | 3.4 (30)    | 6.8 (60)     | 8.2 (72)                        | 15.6 (138)     | 32.0 (280)      | 60.3 (530)                  | 92.3 (810)       | 138 (1220)         | 181 (1600)         | 362 (3200)          |
| Permissible Radial<br>Load [N (lb.)]  | 10 mm (0.39 in.)<br>from End of Output<br>Shaft                              | At 80~1500 r/min            | 521 (117)  | 977 (210)   | 1243 (270)   | 1824 (410)                      | 2032 (450)     | 2888 (640)      | 3483 (780)                  | 4461 (1000)      | 5245 (1180)        |                    |                     |
|   |  | At 3000 r/min               | 365 (82)   | 684 (153)   | 870 (195)    | 1277 (280)                      | 1422 (310)     | 2022 (450)      | 2438 (540)                  | 3123 (700)       | 3672 (820)         |                    |                     |
|   |  | At 3600 r/min               | 261 (58)   | 489 (110)   | 622 (139)    | 912 (200)                       | 1016 (220)     | 1444 (320)      | 1742 (390)                  | 2231 (500)       | 2623 (590)         |                    |                     |
|   | 20 mm (0.79 in.)<br>from End of Output<br>Shaft                              | At 80~1500 r/min            | 663 (149)  | 1244 (270)  | 1582 (350)   | 2280 (510)                      | 2540 (570)     | 3496 (780)      | 4216 (940)                  | 5174 (1160)      | 5921 (1330)        |                    |                     |
|   |  | At 3000 r/min               | 464 (104)  | 871 (195)   | 1107 (240)   | 1596 (350)                      | 1778 (400)     | 2447 (550)      | 2951 (660)                  | 3622 (810)       | 4145 (930)         |                    |                     |
|   |  | At 3600 r/min               | 332 (74)   | 622 (139)   | 791 (177)    | 1140 (250)                      | 1270 (280)     | 1748 (390)      | 2108 (470)                  | 2587 (580)       | 2961 (660)         |                    |                     |
| Permissible Axial Load<br>[N (lb.)]   |  | At 80~1500 r/min            | 39 (8.7)   | 88 (19.8)   | 177 (39)     | 255 (57)                        | 275 (61)       | 422 (94)        | 461 (103)                   | 686 (154)        | 824 (185)          |                    |                     |
|   |  | At 3000 r/min               | 27.3 (6.1) | 61.6 (13.8) | 124 (27)     | 179 (40)                        | 193 (43)       | 295 (66)        | 323 (72)                    | 480 (108)        | 577 (129)          |                    |                     |
|   |  | At 3600 r/min               | 19.5 (4.3) | 44 (9.9)    | 88.5 (19.9)  | 128 (28)                        | 138 (31)       | 211 (47)        | 231 (51)                    | 343 (77)         | 412 (92)           |                    |                     |
| Permissible Inertia J<br>[×10 <sup>-4</sup> kg·m <sup>2</sup><br>(oz·in <sup>2</sup> )] | At 80~1500 r/min   | At 80~1500 r/min            | 250 (1370) | 1000 (5500) | 4000 (22000) | 9000 (49000)                    | 25000 (137000) | 100000 (550000) | 400000 (2200000)            | 900000 (4900000) | 2025000 (11100000) | 3600000 (19700000) | 14400000 (79000000) |
|   |  | At 3000 r/min               | 90 (490)   | 360 (1970)  | 1440 (7900)  | 3240 (17700)                    | 9000 (49000)   | 36000 (197000)  | 144000 (790000)             | 324000 (1770000) | 729000 (4000000)   | 1296000 (7100000)  | 5184000 (28000000)  |
|   |  | At 3600 r/min               | 50.6 (280) | 203 (1110)  | 810 (4400)   | 1823 (10000)                    | 5063 (28000)   | 20250 (111000)  | 81000 (440000)              | 182250 (1000000) | 410063 (2200000)   | 729000 (4000000)   | 2916000 (16000000)  |
|   | When Instantaneous<br>Stop or Bi-<br>Directional Operation<br>is performed*2 | At 80~1500 r/min            | 83.3 (460) | 333 (1820)  | 1333 (7300)  | 3000 (16400)                    | 8333 (46000)   | 33333 (182000)  | 133333 (730000)             | 300000 (1640000) | 675000 (3700000)   | 1200000 (6600000)  | 4800000 (26000000)  |
|   |  | At 3000 r/min               | 30 (164)   | 120 (660)   | 480 (2600)   | 1080 (5900)                     | 3000 (16400)   | 12000 (66000)   | 48000 (260000)              | 108000 (590000)  | 243000 (1330000)   | 432000 (2400000)   | 1728000 (9500000)   |
|   |  | At 3600 r/min               | 16.9 (92)  | 67.5 (370)  | 270 (1480)   | 608 (3300)                      | 1688 (9200)    | 6750 (37000)    | 27000 (148000)              | 60750 (330000)   | 136688 (750000)    | 243000 (1330000)   | 972000 (5300000)    |

\*1 The output shaft speed is calculated by dividing the speed by the gear ratio.

\*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

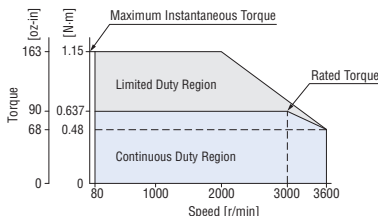
### Load Position



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.



● The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

● A symbol indicating the gearhead size symbol (**A**, **C**, **E**, **K**, **S**) is specified in the box   in the product name.

A number indicating the gear ratio is specified where the box   is located in the product name.

# Right-Angle Hollow Shaft Hypoid JH Gear 120 W (1/6 HP)



## Specifications



| Product Name                    | Motor Driver                | BLM5120HPK-5H□C  |  |
|---------------------------------|-----------------------------|--|--|
|                                 |                             | BLE2D120-A   | BLE2D120-C                                 |
| Rated Output Power (Continuous) | W (HP)                      | 120 (1/6)  |  |
| Power Supply Input              | Rated Voltage               | VAC  | Single-Phase 100-120                       |
|                                 | Permissible Voltage Range   |  | Single-Phase 200-240 / Three-Phase 200-240 |
|                                 | Frequency                   | Hz   | −15~+10%                                   |
|                                 | Permissible Frequency Range |  | 50 / 60                                    |
|                                 | Rated Input Current         | A  | ±5%  |
|                                 | Maximum Input Current       | A  | Single-Phase: 1.7/Three-Phase: 1.02        |
| Rated Speed                     | r/min                       | 2.7  | Single-Phase: 4.8/Three-Phase: 3.3         |
| Speed Control Range             |                             | 7.4  | 3000                                       |
| Speed Regulation*               | Load                        | 80~3600 r/min (Speed ratio 45:1)   |  |
|                                 | Voltage                     | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |  |
|                                 | Temperature                 | Max. ±0.2% (±0.5%): Conditions Rated voltage −15~+10%, rated speed, no load, normal temperature                        |  |
|                                 |                             | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |  |

\*The value inside the parentheses is the specification for an analog setting.

● The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  | 10                          | 15         | 20         | 30          | 50           | 100            | 200                             |
|---|--|-----------------------------|------------|------------|-------------|--------------|----------------|---------------------------------|
| (Actual Gear Ratio)   |  | (10.25)                     | (15.38)    | (20.50)    | (30.75)     | (51.25)      | (102.5)        | (205.0)                         |
| Rotation Direction*1  |  | Same direction as the motor |            |            |             |              |                | Opposite direction to the motor |
| Output Shaft Speed [r/min]*2  | 80 r/min   | 8                           | 5.3        | 4          | 2.7         | 1.6          | 0.8            | 0.4                             |
|   | 3600 r/min   | 360                         | 240        | 180        | 120         | 72           | 36             | 18                              |
| Permissible Torque [N·m (lb-in)]  | At 80~1500 r/min   | 3.2 (28)                    | 4.8 (42)   | 6.5 (57)   | 9.7 (85)    | 16.0 (141)   | 32.3 (280)     | 53.9 (470)                      |
|   | At 3000 r/min  | 2.5 (22)                    | 3.8 (33)   | 5.1 (45)   | 7.6 (67)    | 12.7 (112)   | 25.5 (220)     | 41.0 (360)                      |
|   | At 3600 r/min  | 1.8 (15.9)                  | 2.6 (23)   | 3.5 (30)   | 5.3 (46)    | 8.8 (77)     | 17.7 (156)     | 30.2 (260)                      |
|   | At 80~1500 r/min   | 363 (81)                    | 484 (108)  | 605 (136)  | 806 (181)   | 971 (210)    | 1045 (230)     | 1127 (250)                      |
| Permissible Radial Load [N (lb.)]*3   | At 3000 r/min  | 276 (62)                    | 368 (82)   | 460 (103)  | 613 (137)   | 738 (166)    | 794 (178)      | 857 (192)                       |
|   | At 3600 r/min  | 203 (45)                    | 271 (60)   | 339 (76)   | 451 (101)   | 544 (122)    | 585 (131)      | 631 (141)                       |
|   | At 80~1500 r/min   | 108 (24)                    | 147 (33)   | 186 (41)   | 245 (55)    | 294 (66)     | 324 (72)       | 343 (77)                        |
|   | At 3000 r/min  | 82 (18.4)                   | 112 (25)   | 141 (31)   | 186 (41)    | 223 (50)     | 246 (55)       | 261 (58)                        |
| Permissible Axial Load [N (lb.)]  | At 3600 r/min  | 60 (13.5)                   | 82 (18.4)  | 104 (23)   | 137 (30)    | 165 (37)     | 181 (40)       | 192 (43)                        |
|   | At 80~1500 r/min   | 200 (1090)                  | 450 (2500) | 800 (4400) | 1800 (9800) | 5000 (27000) | 20000 (109000) | 80000 (440000)                  |
|   | At 3000 r/min  | 72 (390)                    | 162 (890)  | 288 (1580) | 648 (3500)  | 1800 (9800)  | 7200 (39000)   | 28800 (158000)                  |
|   | At 3600 r/min  | 40.5 (220)                  | 91.1 (500) | 162 (890)  | 365 (2000)  | 1013 (5500)  | 4050 (22000)   | 16200 (89000)                   |
| Permissible Inertia J [ $\times 10^{-4}$ kg·m <sup>2</sup> (oz-in <sup>2</sup> )] | At 80~1500 r/min   | 66.7 (360)                  | 150 (820)  | 267 (1460) | 600 (3300)  | 1667 (9100)  | 6667 (36000)   | 26667 (146000)                  |
|   | At 3000 r/min  | 24 (131)                    | 54 (300)   | 96 (530)   | 216 (1180)  | 600 (3300)   | 2400 (13100)   | 9600 (53000)                    |
|   | At 3600 r/min  | 13.5 (74)                   | 30.4 (166) | 54 (300)   | 122 (670)   | 338 (1850)   | 1350 (7400)    | 5400 (30000)                    |
|   | When Instantaneous Stop or Bi-Directional Operation is performed*4 |                             |            |            |             |              |                |                                 |

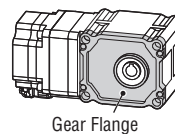
\*1 The rotation direction is as seen from the gear brush surface (drawing on the right).

\*2 The output shaft speed is calculated by dividing the speed by the gear ratio.

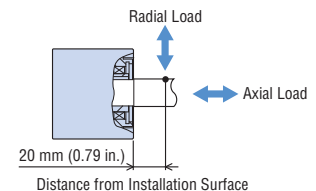
\*3 The radial load at each distance can be calculated with a formula. → Page 34

\*4 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

### ◇ Gear Flange Position



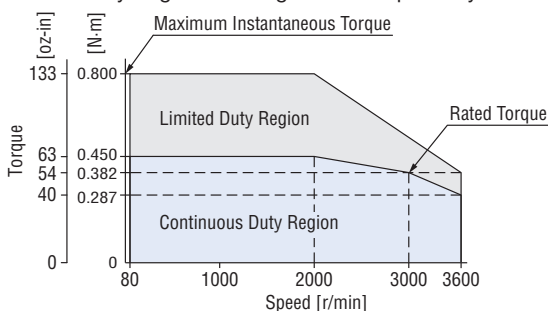
### ◇ Load Position



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.



● The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

● A number indicating the gear ratio is specified where the box □ is located in the product name.

# Right-Angle Hollow Shaft Hypoid JH Gear 200 W (1/4 HP)



## Specifications



| Product Name                    |  | Motor       | Driver | BLM5200HPK-5 H C   |
|---------------------------------|--|-------------|--------|--|
| Rated Output Power (Continuous) |  | W (HP)      |        | 200 (1/4)  |
| Rated Voltage                   |  | VAC         |        | Single-Phase 200-240 / Three-Phase 200-240   |
| Permissible Voltage Range       |  |             |        | -15~+10%   |
| Frequency                       |  | Hz          |        | 50 / 60  |
| Permissible Frequency Range     |  |             |        | ±5%  |
| Rated Input Current             |  | A           |        | Single-Phase: 2.4/Three-Phase: 1.4   |
| Maximum Input Current           |  | A           |        | Single-Phase: 6.5/Three-Phase: 4.3   |
| Rated Speed                     |  | r/min       |        | 3000   |
| Speed Control Range             |  |             |        | 80~3600 r/min (Speed ratio 45:1)   |
| Speed Regulation*               |  | Load        |        | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |
|                                 |  | Voltage     |        | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |
|                                 |  | Temperature |        | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |

\*The value inside the parentheses is the specification for an analog setting.

● The values correspond to each specification and characteristics of a stand-alone motor.

| Gear Ratio  |  | 5  | 10               | 15          | 20           | 30           | 50           | 100                             | 200             |
|---|--|--|------------------|-------------|--------------|--------------|--------------|---------------------------------|-----------------|
| (Actual Gear Ratio)   |  | (5)  | (10)             | (15)        | (20)         | (30)         | (50)         | (98.95)                         | (200)           |
| Gearhead Size Code  |  | X  |                  |             |              |              |              | Y                               |                 |
| Rotation Direction*1  |  | Same direction as the motor  |                  |             |              |              |              | Opposite direction to the motor |                 |
| Output Shaft Speed [r/min]*2  |  | 80 r/min   | 16               | 8           | 5.3          | 4            | 2.7          | 1.6                             | 0.8             |
|   |  | 3600 r/min   | 720              | 360         | 240          | 180          | 120          | 72                              | 36              |
| Permissible Torque [N·m (lb·in)]  |  | At 80~3000 r/min   | 2.1 (18.5)       | 4.1 (36)    | 6.2 (54)     | 8.3 (73)     | 13.4 (118)   | 22.3 (197)                      | 41.0 (360)      |
|   |  | At 3600 r/min  | 1.3 (11.5)       | 2.6 (23)    | 4.0 (35)     | 5.3 (46)     | 9.4 (83)     | 15.6 (138)                      | 28.5 (250)      |
| Permissible Radial Load [N (lb.)]*3   |  | 20 mm (0.79 in.) from Installation Surface                         | At 80~1500 r/min | 1346 (300)  | 1663 (370)   | 1882 (420)   | 2035 (450)   | 2309 (510)                      | 2681 (600)      |
|   |  |  | At 3000 r/min    | 942 (210)   | 1164 (260)   | 1317 (290)   | 1425 (320)   | 1616 (360)                      | 1877 (420)      |
|   |  |  | At 3600 r/min    | 673 (151)   | 832 (187)    | 941 (210)    | 1018 (220)   | 1155 (250)                      | 1341 (300)      |
| Permissible Axial Load [N (lb.)]  |  | At 80~1500 r/min   | 307 (69)         | 380 (85)    | 429 (96)     | 466 (104)    | 527 (118)    | 613 (137)                       | 785 (176)       |
|   |  | At 3000 r/min  | 215 (48)         | 266 (59)    | 300 (67)     | 326 (73)     | 369 (83)     | 429 (96)                        | 550 (123)       |
|   |  | At 3600 r/min  | 154 (34)         | 190 (42)    | 215 (48)     | 233 (52)     | 264 (59)     | 307 (69)                        | 393 (88)        |
| Permissible Inertia J [ $\times 10^{-4}$ kg·m <sup>2</sup> (oz·in <sup>2</sup> )] |  | At 80~1500 r/min   | 250 (1370)       | 1000 (5500) | 2250 (12300) | 4000 (22000) | 9000 (49000) | 25000 (137000)                  | 100000 (550000) |
|   |  | At 3000 r/min  | 90 (490)         | 360 (1970)  | 810 (4400)   | 1440 (7900)  | 3240 (17700) | 9000 (49000)                    | 36000 (197000)  |
|   |  | At 3600 r/min  | 50.6 (280)       | 203 (1110)  | 456 (2500)   | 810 (4400)   | 1823 (10000) | 5063 (28000)                    | 20250 (111000)  |
|   |  | When Instantaneous Stop or Bi-Directional Operation is performed*4 | At 80~1500 r/min | 83.3 (460)  | 333 (1820)   | 750 (4100)   | 1333 (7300)  | 3000 (16400)                    | 8333 (46000)    |
|   |  |  | At 3000 r/min    | 30 (164)    | 120 (660)    | 270 (1480)   | 480 (2600)   | 1080 (5900)                     | 3000 (16400)    |
|   |  |  | At 3600 r/min    | 16.9 (92)   | 67.5 (370)   | 152 (830)    | 270 (1480)   | 608 (3300)                      | 1688 (9200)     |

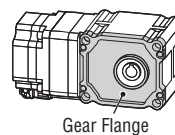
\*1 The rotation direction is as seen from the gear brush surface (drawing on the right).

\*2 The output shaft speed is calculated by dividing the speed by the gear ratio.

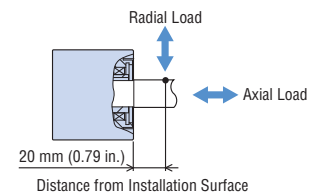
\*3 The radial load at each distance can be calculated with a formula. → Page 34

\*4 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

### ◇ Gear Flange Position



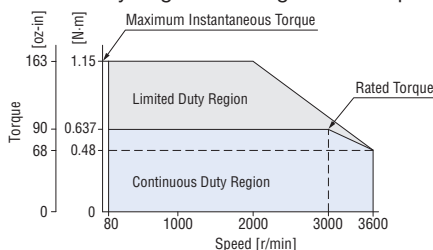
### ◇ Load Position



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.

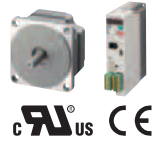


● The values correspond to each specification and characteristics of a stand-alone motor. The speed – torque characteristics show the values when rated voltage is applied.

● A symbol indicating the gearhead size symbol (X, Y) is specified in the box [ ] in the product name.

A number indicating the gear ratio is specified where the box [ ] is located in the product name.

# Round Shaft Type 30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)

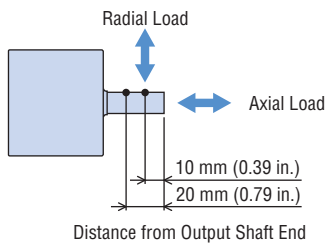


## Specifications

| Product Name                    | Motor Driver                              | BLM230HP-AS  |                                  | BLM260HP-AS                                |                      | BLM5120HP-AS                               |                      |  |  |
|---------------------------------|---|--|----------------------------------|--|----------------------|--|----------------------|--|--|
|                                 |   | BLE2D30-A  | BLE2D30-C                        | BLE2D60-A                                  | BLE2D60-C            | BLE2D120-A                                 | BLE2D120-C           |  |  |
| Rated Output Power (Continuous) |   | W (HP)   |                                  | 30 (1/25)                                  |                      | 60 (1/12)                                  |                      | 120 (1/6)                                  |  |
| Power Supply Input              | Rated Voltage                             | VAC  | Single-Phase 100-120             | Single-Phase 200-240 / Three-Phase 200-240 | Single-Phase 100-120 | Single-Phase 200-240 / Three-Phase 200-240 | Single-Phase 100-120 | Single-Phase 200-240 / Three-Phase 200-240 |  |
|                                 | Permissible Voltage Range                 |  | -15~+10%                         |  | -15~+10%             |  | -15~+10%             |  |  |
|                                 | Frequency                                 | Hz   | 50 / 60                          |  | 50 / 60              |  | 50 / 60              |  |  |
|                                 | Permissible Frequency Range               |  | ±5%                              |  | ±5%                  |  | ±5%                  |  |  |
|                                 | Rated Input Current                       | A  | 1.1                              | Single-Phase: 0.67/<br>Three-Phase: 0.39   | 1.7                  | Single-Phase: 1.0/<br>Three-Phase: 0.61    | 2.7                  | Single-Phase: 1.7/<br>Three-Phase: 1.02    |  |
|                                 | Maximum Input Current                     | A  | 3.3                              | Single-Phase: 2.2/<br>Three-Phase: 1.2     | 5.4                  | Single-Phase: 3.5/<br>Three-Phase: 2.0     | 7.4                  | Single-Phase: 4.8/<br>Three-Phase: 3.3     |  |
| Rated Speed                     |   | r/min  | 3000                             |  |                      |  |                      |  |  |
| Speed Control Range             |   |  | 80~4000 r/min (Speed ratio 50:1) |  |                      |  |                      |  |  |
| Rated Torque                    |   | N·m (oz·in)  | 0.096 (13.6)                     |  | 0.191 (27)           |  | 0.382 (54)           |  |  |
| Maximum Instantaneous Torque    |   | N·m (oz·in)  | 0.2 (28)                         |  | 0.4 (56)             |  | 0.8 (113)            |  |  |
| Permissible Radial Load         | 10 mm (0.39 in.) from End of Output Shaft | N (lb.)  | 80 (18)                          |  | 80 (18)              |  | 150 (33)             |  |  |
|                                 | 20 mm (0.79 in.) from End of Output Shaft | N (lb.)  | 100 (22)                         |  | 100 (22)             |  | 170 (38)             |  |  |
| Permissible Axial Load          |   |  | Half of motor mass max.          |  |                      |  |                      |  |  |
| Rotor Inertia J                 |   | ×10 <sup>-4</sup> kg·m <sup>2</sup> (oz·in <sup>2</sup> )  | 0.042 (0.23)                     |  | 0.082 (0.45)         |  | 0.23 (1.26)          |  |  |
| Permissible Inertia J           |   | ×10 <sup>-4</sup> kg·m <sup>2</sup> (oz·in <sup>2</sup> )  | 1.8 (9.8)                        |  | 3.75 (21)            |  | 5.6 (31)             |  |  |
| Speed Regulation*               | Load                                      | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |                                  |  |                      |  |                      |  |  |
|                                 | Voltage                                   | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |                                  |  |                      |  |                      |  |  |
|                                 | Temperature                               | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |                                  |  |                      |  |                      |  |  |

\*The value inside the parentheses is the specification for an analog setting.

## Load Position

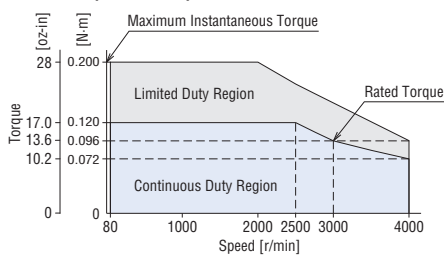


## Speed – Torque Characteristics

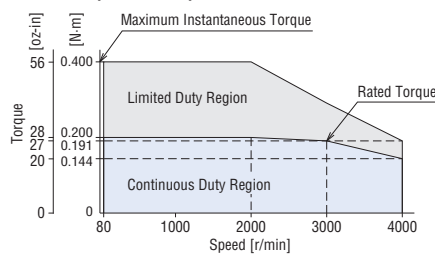
Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.

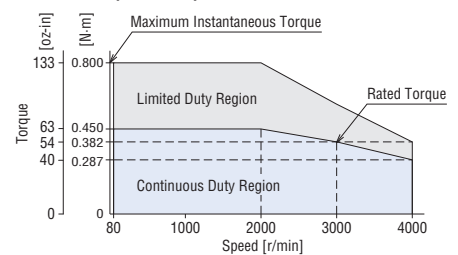
### 30 W (1/25 HP)



### 60 W (1/12 HP)



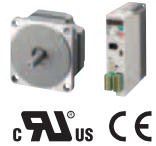
### 120 W (1/6 HP)



● The speed – torque characteristics show the values when rated voltage is applied.



# Round Shaft Type 200 W (1/4 HP)

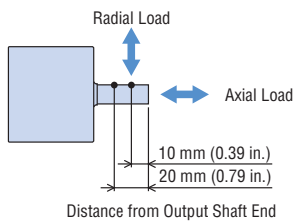


## Specifications

| Product Name                    |  | Motor  | Driver | BLM5200HP-AS<br>BLE2D200-C   |
|---------------------------------|--|--|--------|--|
| Rated Output Power (Continuous) |  | W (HP)   |        | 200 (1/4)  |
| Power Supply Input              | Rated Voltage                                | VAC  |        | Single-Phase 200-240 / Three-Phase 200-240   |
|                                 | Permissible Voltage Range                    |  |        | -15~+10%   |
|                                 | Frequency                                    | Hz   |        | 50 / 60  |
|                                 | Permissible Frequency Range                  |  |        | ±5%  |
|                                 | Rated Input Current                          | A  |        | Single-Phase: 2.4/Three-Phase: 1.4   |
| Maximum Input Current           |  | A  |        | Single-Phase: 6.5/Three-Phase: 4.3   |
| Rated Speed                     |  | r/min  |        | 3000   |
| Speed Control Range             |  |  |        | 80~4000 r/min (Speed ratio 50:1)   |
| Rated Torque                    |  | N·m (oz·in)  |        | 0.637 (90)   |
| Maximum Instantaneous Torque    |  | N·m (oz·in)  |        | 1.15 (163)   |
| Permissible Radial Load         | 10 mm (0.39 in.)<br>from End of Output Shaft | N (lb.)  |        | 150 (33)   |
|                                 | 20 mm (0.79 in.)<br>from End of Output Shaft | N (lb.)  |        | 170 (38)   |
| Permissible Axial Load          |  |  |        | Half of motor mass max.  |
| Rotor Inertia J                 |  | $\times 10^{-4}$ kg·m <sup>2</sup> (oz·in <sup>2</sup> ) |        | 0.454 (2.5)  |
| Permissible Inertia J           |  | $\times 10^{-4}$ kg·m <sup>2</sup> (oz·in <sup>2</sup> ) |        | 8.75 (48)  |
| Speed Regulation*               | Load   |  |        | Max. ±0.2% (±0.5%): Conditions 0~rated torque, rated speed, rated voltage, normal temperature                          |
|                                 | Voltage                                      |  |        | Max. ±0.2% (±0.5%): Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature                        |
|                                 | Temperature                                  |  |        | Max. ±0.2% (±0.5%): Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage |

\*The value inside the parentheses is the specification for an analog setting.

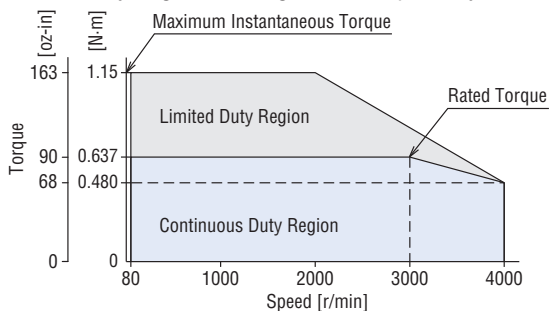
## Load Position



## Speed – Torque Characteristics

Continuous Duty Region: Continuous operation is possible in this region.

Limited Duty Region: This region is used primarily when accelerating.



● The speed – torque characteristics show the values when rated voltage is applied.

## Common Specifications

| Item                           | Specifications  |
|--------------------------------|---|
| Speed Setting Methods          | Digital Setting · Control Panel · Data Setting Software <b>MEXE02</b>   |
|                                | Analog setting · Set using an External Speed Potentiometer <b>PAVR2-20K</b> (Sold separately): 0~20 kΩ, 0.05 W min.<br>· Set using External DC Voltage: DC0~10 V, 1 mA min. (Factory setting: DC0~5 V)  |
| Acceleration/Deceleration Time | Setting Range 0.0~15.0 s (Factory setting: 0.5 s)   |
|                                | Setting Method · Control Panel · Data Setting Software <b>MEXE02</b>  |
| Torque Limiting*1              | Setting Range 0~300% (Factory setting: 300%)  |
|                                | Digital Setting · Control Panel · Data Setting Software <b>MEXE02</b>   |
|                                | Analog setting · Set using an External Speed Potentiometer <b>PAVR2-20K</b> (Sold separately): 0~20 kΩ, 0.05 W min.<br>· Set using External DC Voltage: DC0~10 V, 1 mA min. (Factory setting: DC0~5 V)  |
| Operating Data Setting Number  | Max. 16 points (Factory setting: 4 points)  |
| Input Signals                  | Photocoupler Input Input Resistance: 6.6 kΩ<br>Connectable External DC Power Supply: 24 VDC —15~+20% Current 100 mA min.<br>Sink Input/Source Input Supports External Wiring  |
|                                | Arbitrary signal assignment to IN0~IN6 input (7 points) is possible. [ ]: Initial Setting<br>[FWD], [REV], [STOP-MODE], [M0], [M1], [ALARM-RESET], [Not used], M2, M3, H-FREE, TL, INFO-CLR, HMI, EXT-ERROR<br>START/STOP*2, RUN/BRAKE*2, CW/CCW*2  |
| Output Signal                  | Photocoupler and Open-Collector Output (ON Power supply: 1.6 V max.)<br>External Power Supply: 4.5~30 V 100 mA max. (5 mA min. for SPEED-OUT output)<br>Sink Output/Source Output Supported through external wiring   |
|                                | Arbitrary signal assignment to OUT0, OUT1 (2 points) is possible. [ ]: Initial setting<br>[SPEED-OUT], [ALARM-OUT], MOVE, INFO, TLC, VA, DIR  |
| Protective Function            | When the following protective functions are activated, the output from ALARM-OUT will turn OFF and the motor will perform a coasting stop. At the same time, the alarm code will be displayed and the Alarm LED flashes red.<br>Overcurrent, main circuit overheat, overvoltage, undervoltage, sensor error, main circuit output error, overload, over-speed, EEPROM error, initial sensor error, initial operation prohibited, external stop |
| General Information            | When general information is generated, the INFO output will turn ON. Alarm LED flashes orange. The motor will continue to operate.  |
| Maximum Extension Distance     | Motor and Driver Distance: 20.5 m (67.2 ft.) [when an accessory connection cable (for relaying) is used]  |
| Time Rating                    | Continuous  |

\*1 For the torque limit, an error up to a max. of approximately  $\pm 10\%$  (at rated torque and rated speed) may occur between the setting value and generated torque due to the setting speed, power supply voltage and motor cable extension length.

\*2 Can be used when 3 wire input method is selected.

## General Specifications

| Item                   | Motor  | Driver   |
|------------------------|--|--|
| Insulation Resistance  | 100 MΩ or more when 500 VDC megger is applied between the windings and the case after continuous operation under normal ambient temperature and humidity.  | 100 MΩ or more when 500 VDC megger is applied between the power supply terminal and the protective ground terminal, and between the power supply terminal and the I/O signal terminal after continuous operation under normal ambient temperature and humidity.  |
| Dielectric Strength    | Sufficient to withstand 1.5 kVAC at 50 Hz applied between the windings and the case for 1 minute after continuous operation under normal ambient temperature and humidity.   | Sufficient to withstand 1.5 kVAC at 50 Hz applied between the power supply terminal and the protective earth terminal for 1 minute, and 1.5 kVAC at 50 Hz applied between the power supply terminal and the I/O signal terminal for 1 minute after continuous operation under normal ambient temperature and humidity. |
| Temperature Rise       | The temperature rise of the windings is 50°C (90°F) max. and that of the case surface is 40°C (72°F) max.,*1 measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity. | Temperature rise of the heat sink is 50°C (90°F) or less measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity.   |
| Storage Conditions*2   | Ambient Temperature 0~+40°C (+32~+104°F) (non-freezing)  | 0~+50°C (+32~+122°F)*3 (non-freezing)  |
|                        | Ambient Humidity 85% or less (Non-condensing)  |  |
|                        | Altitude Max. of 1000 m (3300 ft.) above sea level   |  |
|                        | Atmosphere No corrosive gases or dust. Not exposed to oil. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.  |  |
|                        | Vibration Must not be subjected to continuous vibration or excessive shock. Frequency range: 10~55 Hz Half amplitude: 0.15 mm (0.006 in.) Sweep direction: 3 directions (X, Y, Z) Number of sweeps: 20 times                     |  |
| Storage Conditions*4   | Ambient Temperature [JV gear, JB gear, and JH gear are -20~+70°C (-4~+158°F)] (non-freezing)   | -25~+70°C (-13~+158°F) (non-freezing)  |
|                        | Ambient Humidity 85% or less (Non-condensing)  |  |
|                        | Altitude 3000 m (10000 ft.) max. above sea level [JV gear, JB gear, and JH gear are 1000 m (3300 ft.) max. above sea level]  |  |
|                        | Atmosphere No corrosive gases or dust. Not exposed to water and oil. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.  |  |
| Insulation Class       | UL/CSA Standards: 105 (A), EN Standards: 120 (E)   | —  |
| Degree of Protection*5 | GFV gear, JH gear, JV gear, and the round shaft: IP66 (Excluding the installation surface of the round shaft type)<br>JB gear: IP44 (Excluding the connector for connecting to the driver when the cable is connected)           | IP20   |

\*1 For round shaft types, attach to a heat sink (Material: aluminum) of one of the following sizes to maintain a motor case surface temperature of 90°C (194°F) or less.

30 W (1/25 HP) type: 115×115 mm (4.53×4.53 in.) thickness 5 mm (0.20 in.), 60 W (1/12 HP) type: 135×135 mm (5.31×5.31 in.) thickness 5 mm (0.20 in.)

120 W (1/6 HP) type: 165×165 mm (6.50×6.50 in.) thickness 5 mm (0.20 in.), 200 W (1/4 HP) type: 200×200 mm (7.87×7.87 in.) thickness 5 mm (0.20 in.)

\*2 Install the driver in a place that has the same heat dissipation capacity of an aluminum plate.

Stand-alone installation 200×200 mm (7.87×7.87 in.) thickness 2 mm (0.08 in.)

Side-by-side installation 350×350 mm (13.8×13.8 in.) thickness 2 mm (0.08 in.)

\*3 When installing side-by-side [200 W (1/4 HP) only], or a DIN rail, it is 0~+40°C (+32~+104°F).

\*4 The storage condition applies to short periods such as the period during transport.

\*5 The IP indication that shows the watertight and dust-resistant performance are specified under IEC 60529 and IEC 60034-5.

### Note




● Do not measure insulation resistance or perform a dielectric strength test while the motor and driver are connected.

### Materials and Surface Treatment for IP66 Specification (Motor and Gearhead)

· Materials Case: Aluminum, Output Shaft: Stainless steel, Screws: Stainless steel (externally facing screws only ; protective earth terminals excluded)

· Surface Treatment Case: Paint (GFV gear and round shaft type installation surface excluded)

**■ Dimensions** Unit = mm (in.)

- The motor dimensions are the dimensions are illustrated with the separately-sold connection cable (  parts in the figure). The described masses do not include the mass of the connection cable. Dimensions and mass of the connection cables → Page 32
- Installation screws are included. Dimensions for installation screws → Page 32
- A number indicating the gear ratio is specified where the box  is located in the product name. A symbol indicating the gearhead size symbol is specified in the box  in the product name.

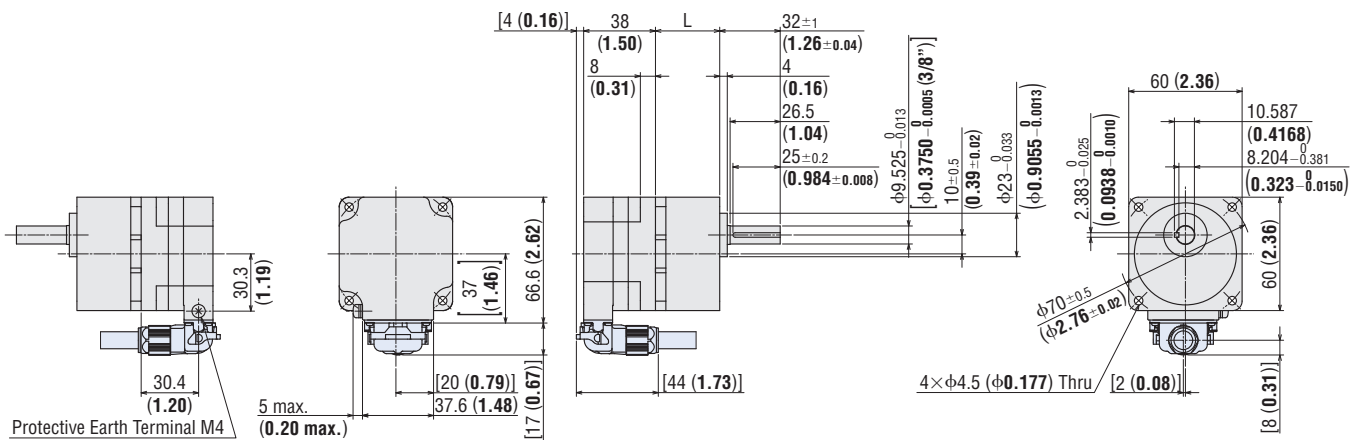
● **Motor**

### ◆ Parallel Shaft Gearhead **GFV** Gear 30 W (1/25 HP)

## 2D & 3D CAD

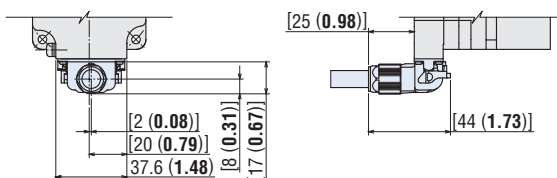
| Product Name        | Motor Product Name | Gearhead Product Name | Gear Ratio    | L         | Mass<br>kg (lb.) | 2D CAD   |   |
|---------------------|--------------------|-----------------------|---------------|-----------|------------------|--|---|
|                     |                    |                       |               |           |                  | Installation of connection<br>cable to output shaft side | Installation of connection<br>cable to opposite side of<br>output shaft |
| <b>BLM230HP-□AS</b> | BLM230HP-GFV       | GFV2G□AS              | <b>5~20</b>   | 34 (1.34) | 0.85 (1.87)      | A1575A   | A1576A  |
|                     |                    |                       | <b>30~100</b> | 38 (1.50) |                  | A1575B   | A1576B  |
|                     |                    |                       | <b>200</b>    | 43 (1.69) |                  | A1575C   | A1576C  |

• Installation of connection cable to output shaft side



- At the time of shipment, a key is fixed in the key slot of the gearhead shaft.

- Installation of connection cable to opposite side of output shaft

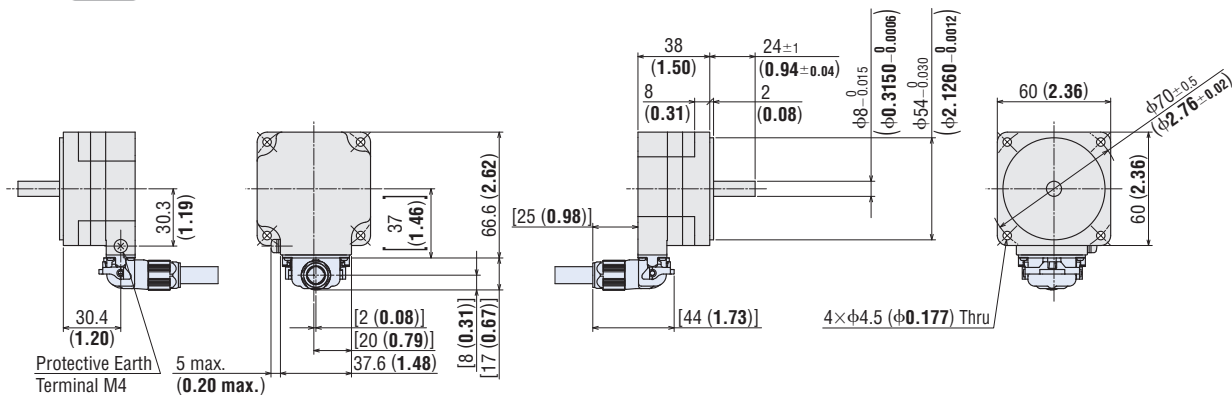


◆Round Shaft Type 30 W (1/25 HP)

**BLM230HP-AS**

Mass: 0.35 kg (0.77 lb.)

**2D CAD** A1475 **3D CAD**

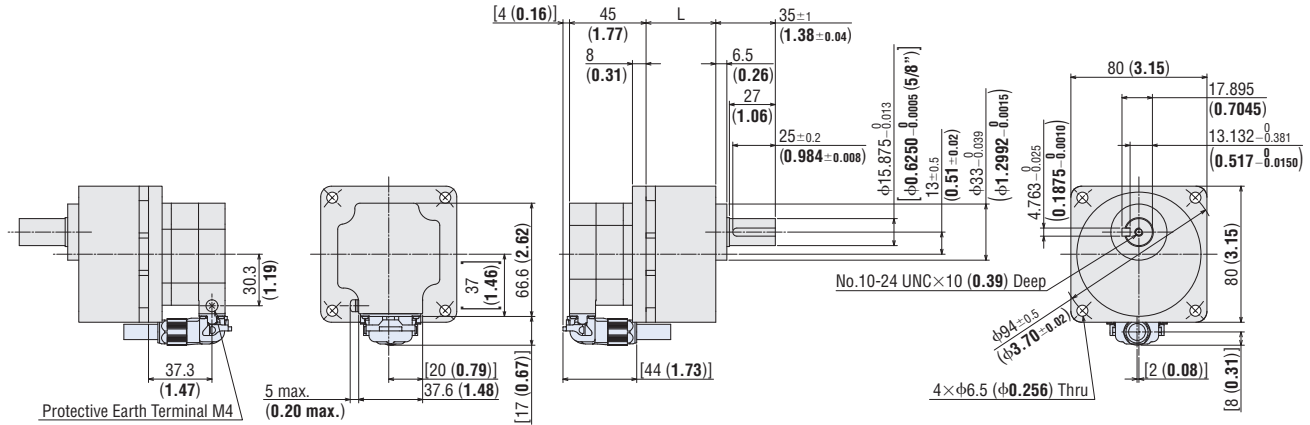


◇ Parallel Shaft Gearhead **GFV** Gear 60 W (1/12 HP)

2D & 3D CAD

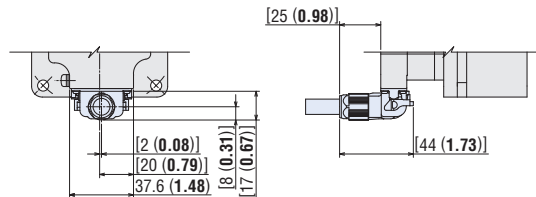
| Product Name         | Motor Product Name | Gearhead Product Name | Gear Ratio    | L         | Mass<br>kg (lb.) | 2D CAD   |   |
|----------------------|--------------------|-----------------------|---------------|-----------|------------------|--|---|
|                      |                    |                       |               |           |                  | Installation of connection<br>cable to output shaft side | Installation of connection<br>cable to opposite side of<br>output shaft |
| <b>BLM460SHP-□AS</b> | BLM460SHP-GFV      | GFV4G□AS              | <b>5~20</b>   | 41 (1.61) | 1.6 (3.5)        | A1577A   | A1578A  |
|                      |                    |                       | <b>30~100</b> | 46 (1.81) |                  | A1577B   | A1578B  |
|                      |                    |                       | <b>200</b>    | 51 (2.01) |                  | A1577C   | A1578C  |

● Installation of connection cable to output shaft side



● At the time of shipment, a key is fixed in the key slot of the gearhead shaft.

● Installation of connection cable to opposite side of output shaft

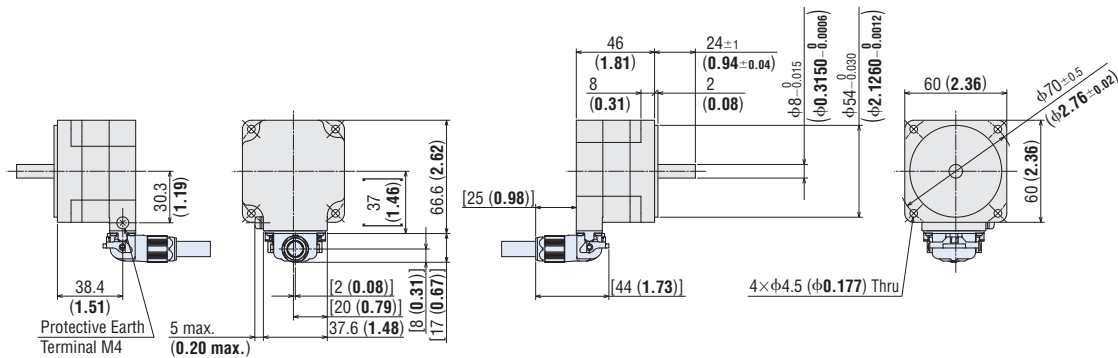


◇ Round Shaft Type 60 W (1/12 HP)

**BLM260HP-AS**

Mass: 0.52 kg (1.14 lb.)

2D CAD A1477 3D CAD



## 2D & 3D CAD

- Installation of connection cable to output shaft side



Technical drawing of the 1000 Series LED strip light showing top and side views with dimensions in mm and inches.

**Top View Dimensions:**

- Overall width: 22 (0.87)
- Distance from left edge to mounting hole center: 1 (0.04)
- Distance between mounting holes: 18 (0.71)
- Distance from mounting hole center to right edge: 35.4 (1.39)
- Distance from mounting hole center to LED chip center: 8 (0.31)
- Distance from LED chip center to right edge: 17 (0.67)

**Side View Dimensions:**

- Overall height: 44 (1.73)

**2D CAD** A1479 **3D CAD**





## 2D & 3D CAD

- Installation of connection cable to output shaft side



Technical drawings of the 1000 Series Ball Valve showing front and side views with dimensions in inches and millimeters.

**Front View Dimensions:**

- Top flange thickness: 1 (0.04)
- Distance from top flange to ball center: 18 (0.71)
- Ball diameter: 35.4 (1.39)
- Distance from ball center to bottom flange: 8 (0.31)
- Bottom flange thickness: 17 (0.67)

**Side View Dimensions:**

- Distance from top flange to ball center: 22 (0.87)
- Distance from ball center to end of valve body: 44 (1.73)

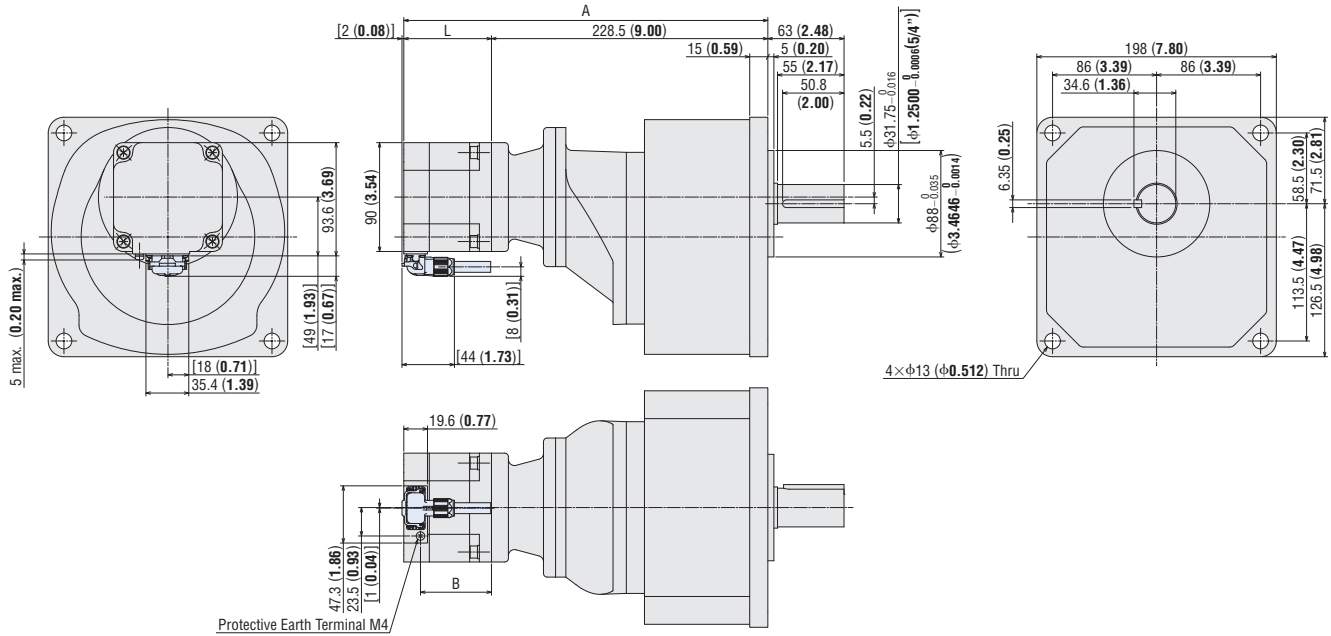
**2D CAD** A1481 **3D CAD**



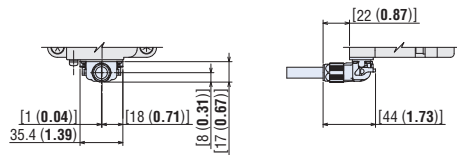
## 2D & 3D CAD

| Product Name            | Motor Product Name | Gearhead Product Name | Gear Ratio      | Dimensions           |                |                | Mass<br>kg (lb.) | 2D CAD   |   |
|-------------------------|--------------------|-----------------------|-----------------|----------------------|----------------|----------------|------------------|--|---|
|                         |                    |                       |                 | A                    | L              | B              |                  | Installation of connection<br>cable to output shaft side | Installation of connection<br>cable to opposite side of<br>output shaft |
| <b>BLM5200HPK-5KV□C</b> | BLM5200HPK         | 5KV□C                 | <b>300, 450</b> | (290.1)<br>[[11.42]] | 61.6<br>(2.43) | 47.5<br>(1.87) | 12.1<br>(26.6)   | A1659  | A1660   |

- Installation of connection cable to output shaft side



- Installation of connection cable to opposite side of output shaft



◇ Foot Mount Gearhead **JB** Gear 200 W (1/4 HP)

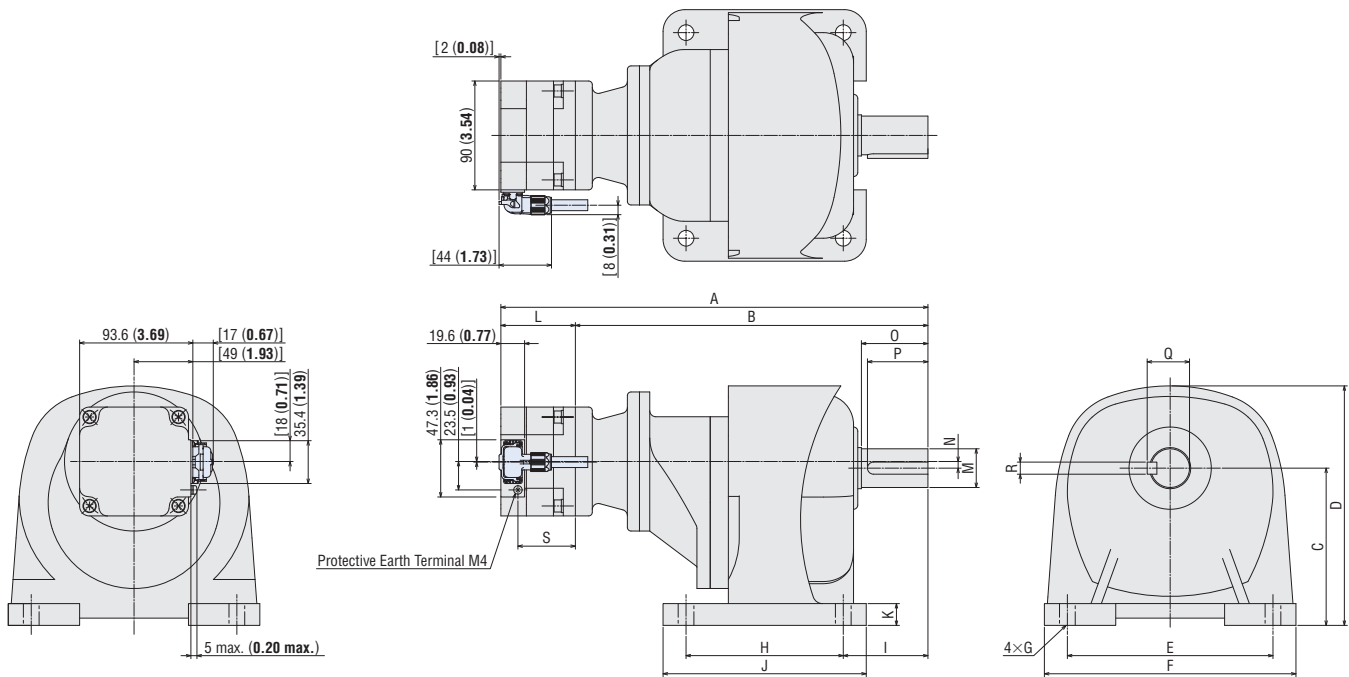
2D & 3D CAD

| Product Name               | Motor Product Name | Gearhead Product Name | Gear Ratio       | Dimensions No. | L           | Mass kg (lb.) | 2D CAD  |   |
|----------------------------|--------------------|-----------------------|------------------|----------------|-------------|---------------|---|---|
|                            |                    |                       |                  |                |             |               | Installation of connection cable to output shaft side | Installation of connection cable to opposite side of output shaft |
| <b>BLM5200HPK-5</b> ■B□A-L | BLM5200HPK         | 5■B□A                 | <b>5, 10, 20</b> | ①              | 61.6 (2.43) | 4.6 (10.1)    | A1639   | A1640   |
|                            |                    |                       | <b>30, 50</b>    | ②              |             | 5.6 (12.3)    | A1641   | A1642   |
|                            |                    |                       | <b>100, 200</b>  | ③              |             | 7.6 (16.7)    | A1643   | A1644   |
|                            |                    |                       | <b>300, 450</b>  | ④              |             | 11.6 (25.5)   | A1645   | A1646   |
|                            |                    |                       | <b>600, 1200</b> | ⑤              |             | 18.1 (39.8)   | A1647   | A1648   |

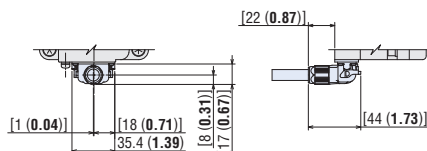
| Dimensions No. | Overall Length       | Gearhead Frame Size |                        |               |               |                |                |               |              |               |              | Output Shaft Dimensions   |                  |              |                |                  |                 |                | S |
|----------------|----------------------|---------------------|------------------------|---------------|---------------|----------------|----------------|---------------|--------------|---------------|--------------|---|------------------|--------------|----------------|------------------|-----------------|----------------|---|
|                | A                    | B                   | C                      | D             | E             | F              | G              | H             | I            | J             | K            | M   | N                | O            | P              | Q                | R               |                |   |
| ①              | (219.1)<br>[(8.63)]  | 157.5<br>(6.20)     | 85±0.2<br>(3.35±0.01)  | 131<br>(5.16) | 110<br>(4.33) | 134<br>(5.28)  | φ9<br>(φ0.35)  | 40<br>(1.57)  | 45<br>(1.77) | 64<br>(2.52)  | 10<br>(0.39) | φ19.05 <sup>0</sup> <sub>-0.013</sub><br>[φ0.7500 <sup>0</sup> <sub>-0.0005</sub> (3/4")]   | 16.5*<br>(0.65)* | 30<br>(1.18) | 24.6<br>(0.97) | 21.133<br>(0.83) | 4.763<br>(0.19) | 47.5<br>(1.87) |   |
| ②              | (245.1)<br>[(9.65)]  | 183.5<br>(7.22)     | 90±0.2<br>(3.54±0.01)  | 139<br>(5.47) | 130<br>(5.12) | 154<br>(6.06)  | φ11<br>(φ0.43) | 65<br>(2.56)  | 55<br>(2.17) | 90<br>(3.54)  | 12<br>(0.47) | φ22.225 <sup>0</sup> <sub>-0.013</sub><br>[φ0.8750 <sup>0</sup> <sub>-0.0005</sub> (7/8")]  | 19*<br>(0.75)*   | 40<br>(1.57) | 34.1<br>(1.34) | 24.343<br>(0.96) | 4.763<br>(0.19) |                |   |
| ③              | (258.1)<br>[(10.16)] | 196.5<br>(7.74)     | 110±0.2<br>(4.33±0.01) | 167<br>(6.57) | 140<br>(5.51) | 175<br>(6.89)  | φ11<br>(φ0.43) | 90<br>(3.54)  | 65<br>(2.56) | 125<br>(4.92) | 15<br>(0.59) | φ28.575 <sup>0</sup> <sub>-0.013</sub><br>[φ1.1250 <sup>0</sup> <sub>-0.0005</sub> (9/8")]  | 23.5*<br>(0.93)* | 45<br>(1.77) | 41.3<br>(1.63) | 31.39<br>(1.24)  | 6.35<br>(0.25)  |                |   |
| ④              | (353.1)<br>[(13.90)] | 291.5<br>(11.48)    | 130±0.2<br>(5.12±0.01) | 198<br>(7.80) | 170<br>(6.69) | 208<br>(8.19)  | φ13<br>(φ0.51) | 130<br>(5.12) | 70<br>(2.76) | 168<br>(6.61) | 18<br>(0.71) | φ31.75 <sup>0</sup> <sub>-0.016</sub><br>[φ1.2500 <sup>0</sup> <sub>-0.0006</sub> (5/4")]   | 5.5<br>(0.22)    | 55<br>(2.17) | 50.8<br>(2.00) | 34.6<br>(1.36)   | 6.35<br>(0.25)  |                |   |
| ⑤              | (375.1)<br>[(14.77)] | 313.5<br>(12.34)    | 150±0.2<br>(5.91±0.01) | 230<br>(9.06) | 210<br>(8.27) | 254<br>(10.00) | φ15<br>(φ0.59) | 150<br>(5.91) | 90<br>(3.54) | 196<br>(7.72) | 20<br>(0.79) | φ41.275 <sup>0</sup> <sub>-0.016</sub><br>[φ1.6250 <sup>0</sup> <sub>-0.0006</sub> (13/8")] | 0<br>(0)         | 65<br>(2.56) | 61.9<br>(2.44) | 45.475<br>(1.79) | 9.525<br>(0.38) |                |   |

\*The gearhead output shaft's central position is offset above the motor's central position.

• Installation of connection cable to output shaft side



• Installation of connection cable to opposite side of output shaft

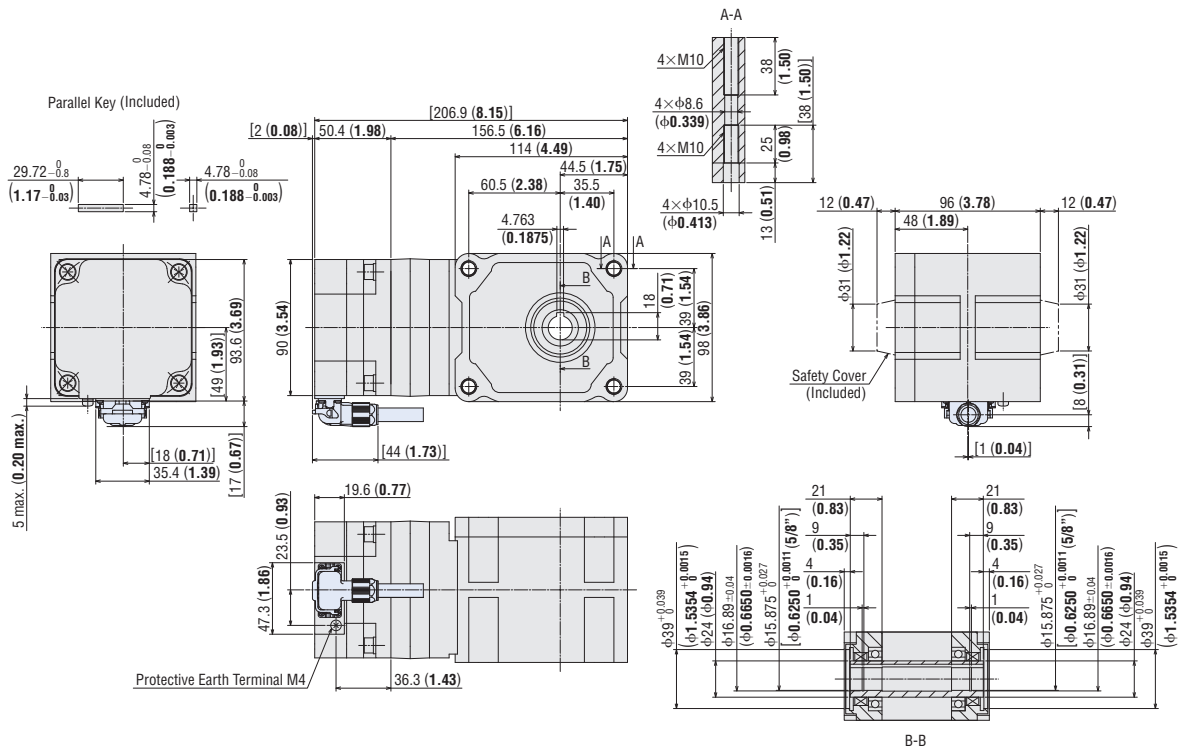


◇ Right-Angle Hollow Shaft Hypoid **JH** Gear 120 W (1/6 HP)

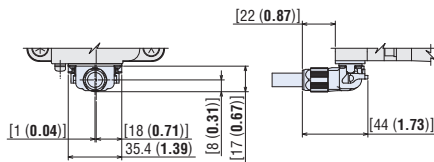
2D & 3D CAD

| Product Name           | Motor Product Name | Gearhead Product Name | Mass<br>kg (lb.) | 2D CAD   |  |
|------------------------|--------------------|-----------------------|------------------|--|--|
|                        |                    |                       |                  | Installation of connection cable to output<br>shaft side | Installation of connection cable to opposite<br>side of output shaft |
| <b>BLM5120HPK-5H□C</b> | BLM5120HPK         | 5H□C                  | 4.1 (9.0)        | A1629  | A1630  |

● Installation of connection cable to output shaft side

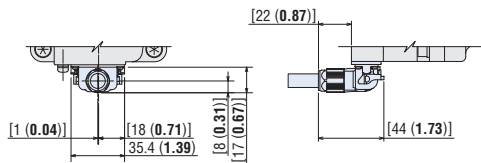
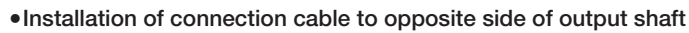


● Installation of connection cable to opposite side of output shaft



## 2D & 3D CAD

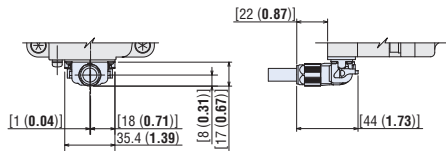
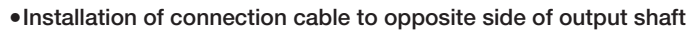
- Installation of connection cable to output shaft side





## 2D & 3D CAD

- Installation of connection cable to output shaft side



**BLE2D30-A, BLE2D30-C, BLE2D60-A, BLE2D60-C, BLE2D120-A, BLE2D120-C, BLE2D200-C**

**2D CAD** A1461 **3D CAD**



Figure 1: Cable Assembly Dimensions

Driver Side

Motor Side

Dimensions (inches in parentheses):

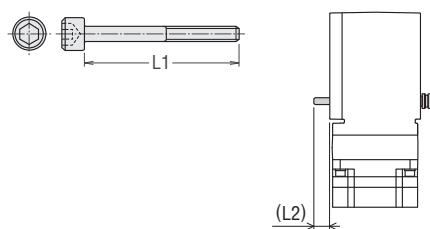
- 14.5 (0.57)
- 11.6 (0.46)
- 13.8 (0.54)
- 8 (0.31)
- 10.5 (0.41)
- 15.2 (0.60)
- 25 (1.00)
- 135 (5.31)
- 44 (1.73)
- 17 (0.67)
- 31.8 (1.25)
- 15.6 (0.61)
- $\phi 9 (\phi 0.35)$

Labels:

- Housing: 5557-06R-210 (Molex)
- Housing: J11DF-06V-KY (JST)
- Ring Terminal: FN1.25-4 (JST) or N1.25-4 (JST)
- L

L2 are the dimensions when the flat washers and spring washers are mounted to the screw head.

- Right-Angle Hollow Shaft Hypoid



| Product Name | Gear Ratio      | Installation Screws |               | L2 [mm (in.)] |
|--------------|-----------------|---------------------|---------------|---------------|
|              |                 | Screw Size          | L1 [mm (in.)] |               |
| <b>5H□C</b>  | <b>10~200</b>   | 5/16-18UNC          | 114 (4.5)     | 16 (0.63)     |
| <b>5XH□C</b> | <b>5~50</b>     | 5/16-18UNC          | 127 (5)       | 24 (0.94)     |
| <b>5YH□C</b> | <b>100, 200</b> | 3/8-16UNC           | 127 (5)       | 17 (0.67)     |

● Installation screws: 4 flat washers and spring washers are included.  
The installation screw material is stainless steel.

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## ■ Installation of Hollow Shaft Load

### ● Load Shaft Installation Method Example

The installation method varies depending on the configuration of the load shaft. Refer to the diagram below.

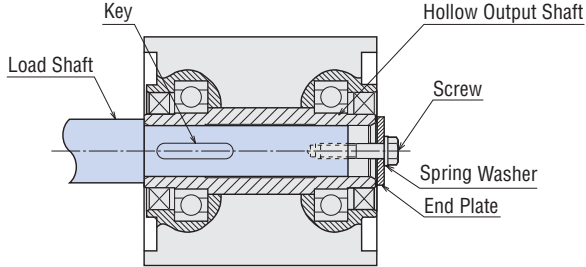
● The hollow output shaft has key grooves machined for the installation of the load shaft.

#### Note

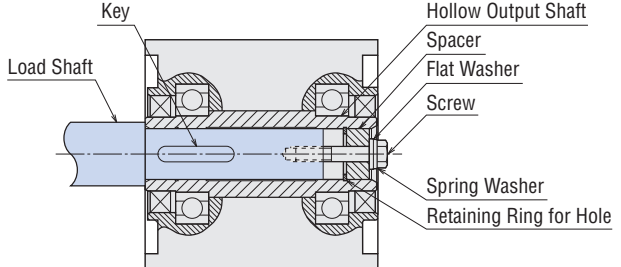
● To prevent sticking, apply a coat of grease on the surface of the load shaft and interior of the hollow output shaft.

#### ◇ Stepped Load Shaft

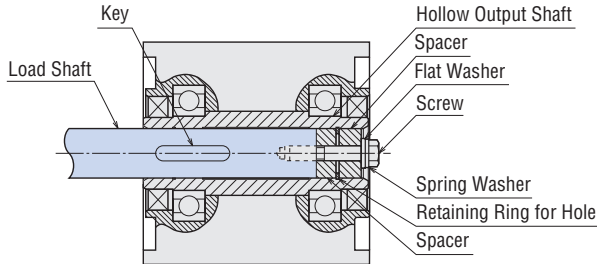
##### ● Fixing Method Using an End Plate



##### ● Fixing Method Using a Retaining Ring for Hole



#### ◇ Straight Load Shaft



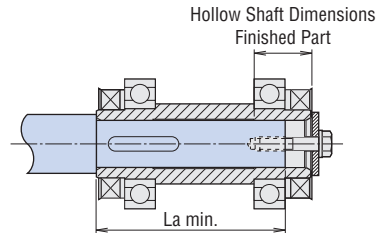
#### ◇ Recommended Load Shaft Installation Dimensions

Unit: mm (in.)

| Output Power  | 120 W (1/6 HP)   | 200 W (1/4 HP)                                     |  |
|---|--|--|--|
| Gear Ratio  | 10~200   | 5~50   | 100, 200   |
| Hollow Output Shaft Inner Diameter                              | $\phi 15.875^{+0.027}_0$<br>[ $\phi 0.625^{+0.0011}_0$ (5/8")] | $\phi 25.4^{+0.033}_0$<br>[ $\phi 1^{+0.0013}_0$ ] | $\phi 31.75^{+0.039}_0$<br>[ $\phi 1.25^{+0.0015}_0$ (5/4")] |
| Recommended Load Shaft Dimensions                               | $\phi 15.875^{+0.018}_0$<br>[ $\phi 0.625^{+0.0007}_0$ (5/8")] | $\phi 25.4^{+0.021}_0$<br>[ $\phi 1^{+0.0008}_0$ ] | $\phi 31.75^{+0.025}_0$<br>[ $\phi 1.25^{+0.001}_0$ (5/4")]  |
| Screw Size  | M6   | M6   | M8   |
| Spacer Dimensions   | Outer Diameter   | $\phi 14.5$ ( $\phi 0.57$ )                        | $\phi 24.5$ ( $\phi 0.96$ )                                  |
|   | Inner Diameter   | $\phi 7$ ( $\phi 0.28$ )                           | $\phi 9$ ( $\phi 0.35$ )                                     |
|   | Width  | 3 (0.12)   | 4 (0.16)   |
| Nominal Hole Diameter of Retaining Ring (C-type Retaining Ring) | $\phi 15$ ( $\phi 0.59$ )                                      | $\phi 25$ ( $\phi 0.98$ )                          | $\phi 30$ ( $\phi 1.18$ )                                    |
| End Plate Thickness   | 3 (0.12)   | 4 (0.16)   | 5 (0.20)   |
| Length of Stepped Shaft La                                      | 72 (2.83)  | 96 (3.78)  | 96 (3.78)  |

● Retaining rings for holes, spacers, screws or other parts used to install the load shaft are not included. Not supplied.

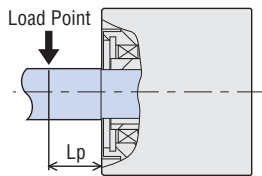
#### ◇ Recommended length of load shaft



## ● Calculating the Permissible Radial Load for the Hollow Shaft Type

The formula for permissible radial load varies depending on the mechanism.

### ◇ When End of Shaft being Driven is Not Supported by Bearing



#### ● 60 W (1/12 HP)

$$\text{Permissible radial load } W \text{ [N]} = \frac{68.5}{48.5 + L_p} \times F_0$$

#### ● 120 W (1/6 HP)

$$\text{Permissible radial load } W \text{ [N]} = \frac{79}{59 + L_p} \times F_0$$

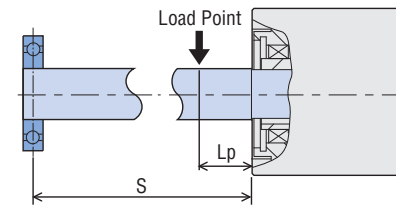
#### ● 200 W (1/4 HP) (Gear Ratio **5~50**)

$$\text{Permissible radial load } W \text{ [N]} = \frac{95.5}{75.5 + L_p} \times F_0$$

#### ● 200 W (1/4 HP) (Gear ratio **100, 200**)

$$\text{Permissible radial load } W \text{ [N]} = \frac{102}{82 + L_p} \times F_0$$

### ◇ When End of Shaft being Driven is Supported by Bearing



#### ● 60 W (1/12 HP)

$$\text{Permissible radial load } W \text{ [N]} = \frac{68.5 (S + 5.5)}{53 (S - L_p)} \times F_0$$

#### ● 120 W (1/6 HP)

$$\text{Permissible radial load } W \text{ [N]} = \frac{79 (S + 4)}{65 (S - L_p)} \times F_0$$

#### ● 200 W (1/4 HP) (Gear Ratio **5~50**)

$$\text{Permissible radial load } W \text{ [N]} = \frac{95.5 (S - 9)}{104.5 (S - L_p)} \times F_0$$

#### ● 200 W (1/4 HP) (Gear ratio **100, 200**)

$$\text{Permissible radial load } W \text{ [N]} = \frac{102 (S - 9)}{111 (S - L_p)} \times F_0$$

$F_0$  [N]: Permissible radial load at 20 mm from the installation surface

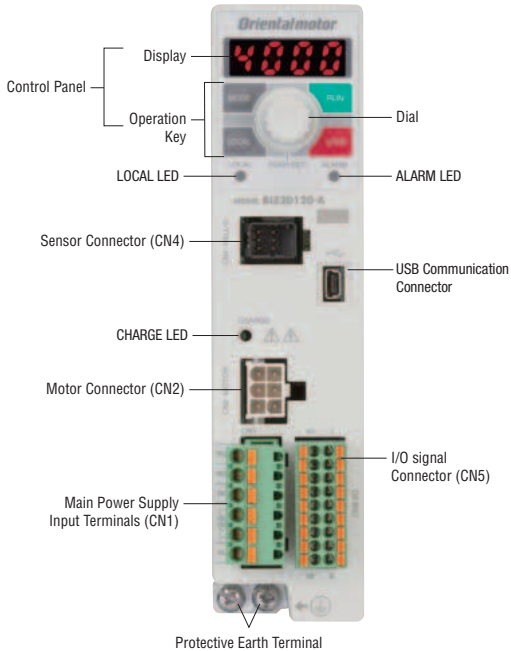
$L_p$  [mm]: Distance from the installation surface to the load point

$S$  [mm]: Distance from the installation surface to the bearing unit

● Refer to the specification table for the permissible radial load when 20 mm (0.79 in.) from the flange installation surface. → Page 18, page 19

## Connection and Operation

### Names and Functions of Driver Parts



| Name                            | Indication                   | Description  |
|---------------------------------|------------------------------|--|
| Control Panel                   | —                            | Display: displays the monitor contents, setting screen, alarm, etc.  |
|                                 | MODE<br>LOCAL<br>RUN<br>STOP | Operation Key: switches the operating mode and changes the parameters.<br>During local operation, use the <b>RUN</b> key for operating the motor and <b>STOP</b> key for stopping the motor. |
|                                 | PUSH-SET                     | Setting Dial: Rotate to set parameter values and change screens. Push to set.  |
| LOCAL LED                       | LOCAL                        | Illuminates during local operation. (Green)  |
| ALARM LED                       | ALARM                        | Blinks when an alarm is generated. (Red)<br>Blinks for information notification. (Orange)  |
| CHARGE LED                      | CHARGE                       | Illuminates when the main power supply is ON. (Red)<br>Turns off after the main power supply is turned OFF and the internal residual voltage drops to a stable level.                        |
| Main Power Input Terminal (CN1) | —                            | Connects the main power supply   |
|                                 | L, N, NC                     | Single-Phase 100-120 VAC:<br>Connect 100-120 VAC to L and N. NC is not used.   |
|                                 | L1, L2, NC<br>L1, L2, L3     | Single-Phase 200-240 VAC:<br>Connect 200-240 VAC to L1 and L2. NC is not used.   |
|                                 | RG1, RG2                     | Three-Phase 200-240 VAC: Connect three-phase 200-240 VAC to L1, L2 and L3.   |
| Motor Connector (CN2)           | MOTOR                        | Connects the power connector (white) of the connection cable.  |
| Sensor Connector (CN4)          | HALL-S                       | Connects the sensor connector (black) of the connection cable.   |
| USB Communication Connector     |                              | Connects to the computer on which the data setting software <b>MEXE02</b> is installed.  |
| I/O Signal Connector (CN5)      | I/O                          | Connects to input signal   |
|                                 |                              | Connects an external speed potentiometer (accessory, sold separately) and the external DC power supply.  |
|                                 |                              | Connects to output signal  |
| Protective Earth Terminals      |                              | Connect the grounding conductor of the connection cable to the protective earth terminal.  |

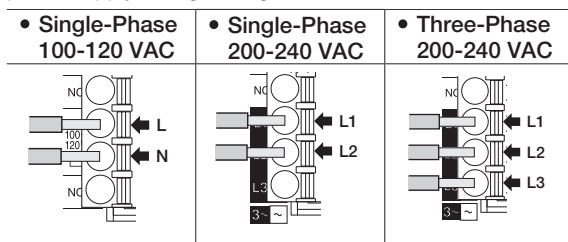
### Operation Key

The **BLE2** Series has four operating modes.

| Operating Mode  | Description  | Setting Item   |
|-----------------|--|--|
| Monitoring Mode | This mode is displayed when the power is turned on.      | Speed, load factor, operating data number, alarm, information, I/O monitor   |
| Data Mode       | Operating data for up to 16 speeds can be set.           | Speed, torque limiting values, acceleration time and deceleration time, reset  |
| Parameter Mode  | Various parameters can be set.                           | Basic setting parameters, speed and torque limiting parameters, alarm and information setting parameters, operation setting parameters, I/O operating parameters, I/O function selection parameters, I/F function parameters, reset, configuration |
| Test Mode       | The connection status of the I/O signals can be checked. |  |

### Main Power Input Terminal (CN1)

The main power supply is connected. Please connect to the power supply according to the power supply voltage being used.



• Applicable Lead Wire Size  
AWG18~14 (0.75~2.0 mm<sup>2</sup>)

### USB Cable Connection

Use a USB cable with the specifications below.

| Specifications | USB 2.0 (Full Speed)                                    |
|----------------|---|
| Cables         | Length: 3 m (9.8 ft.) max.<br>Configuration: A - mini-B |

### Operating via Control Panel

#### Selecting an Operation

When the “LOCAL key” is pressed, LOCAL LED will illuminate, and operations via control panel become available.

#### Selecting the Rotation Direction

The rotation direction of the motor changes each time the “MODE key” is pressed.

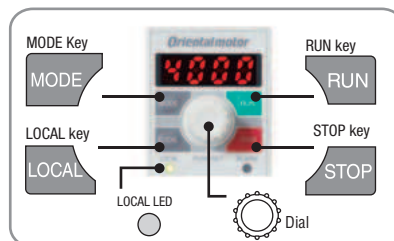
#### Starting and Stopping Motors

When “RUN” is pressed, the motor rotates.  
When “OFF” is pressed, the motor stops.

#### Speed Setting Method

The display will flash when “Dial” is pressed, and the speed increases when it is turned clockwise. Turning the dial counterclockwise will decelerate. Pressing the “Dial” will set the speed.

### Control Panel

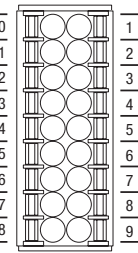




## ● Operation by External Signals

### ◇ I/O Signal Connector (CN5)

| Pin No. | Signal Type | Signal Name | Function*                                       | Description   |
|---------|-------------|-------------|---|---|
| 1       | Input       | IN-COM0     | Input Signal Common (for external power supply) | Connect when using external power supply.   |
| 2       |             | IN0         | FWD   | The motor rotates when FWD input or REV input is turned ON. Turning it OFF decelerates the motor to a stop.         |
| 3       |             | IN1         | REV   |   |
| 4       |             | IN2         | STOP-MODE                                       | Selects how to stop the motor.  |
| 5       |             | IN3         | M0  | Selects the operating data No. for switching the input of M0 or M1 to ON/OFF.                                       |
| 6       |             | IN4         | M1  |   |
| 7       |             | IN5         | ALARM-RESET                                     | Alarms are reset.   |
| 8       |             | IN6         | Not used  | Various functions can be assigned.  |
| 9       | Output      | IN-COM1     | 0 V<br>(for internal power supply)              | Connect when using internal power supply  |
| 10      |             | N.C.        | —   | No connection.  |
| 11      |             | VH          | External analog setting input                   | Connect when speed and torque limiting values are set using an external speed potentiometer or external DC voltage. |
| 12      |             | VM          |   |   |
| 13      |             | VL          |   |   |
| 14      |             | OUT0+       | SPEED-OUT                                       | 30 pulses are output when the motor output shaft makes one rotation.  |
| 15      |             | OUT0-       |   |   |
| 16      |             | OUT1+       | ALARM-OUT                                       | Output when an alarm activates. (Normally closed)   |
| 17      |             | OUT1-       |   |   |
| 18      |             |             |   |   |



● Applicable Lead Wire Size  
AWG24~18  
(0.2~0.75 mm<sup>2</sup>)

\*The text inside the [ ] represents the factory default function assignment. Pin No. 2 - 8, 15 - 18 can change the assigned functions. Assignment points are 7 points for the 12 types of input signal and 2 points for the 7 types of output signal.

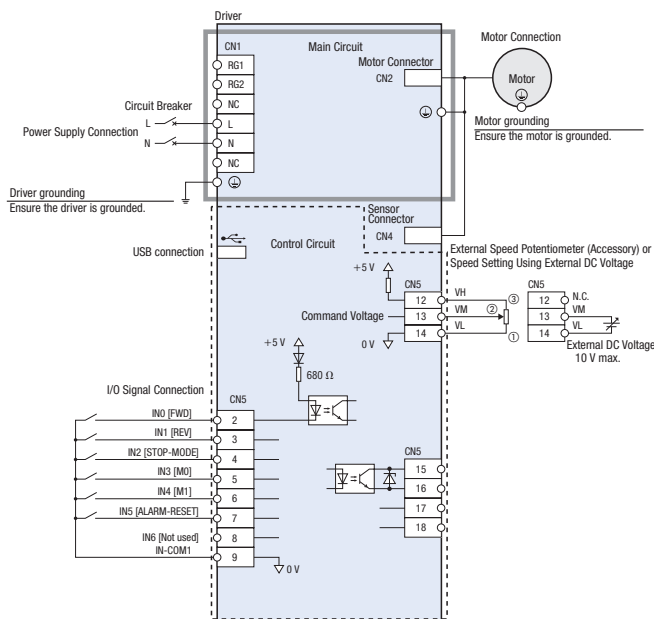
### ◇ Changeable Signal Assignments

| Signal Type | Function   | Description  |
|-------------|------------|--|
| Input       | START/STOP | The motor rotates when the START/STOP input and RUN/BRAKE input are ON.  |
|             | RUN/BRAKE  | The motor decelerates to a stop when START/STOP input is turned OFF.   |
|             | CW/CCW     | The motor comes to an instantaneous stop when RUN/BRAKE input is turned OFF.                                   |
|             | M2         | This signal allows you to change the rotation direction of the motor.  |
|             | M3         | This signal allows you to select the operating data No.  |
|             | H-FREE     | Switching the H-FREE input to ON will release simple holding.  |
|             | TL         | This signal allows you to enable and disable the torque limiting function externally.                          |
|             | INFO-CLR   | This signal cancels current information notifications.   |
| Output      | HMI        | This signal allows you to limit operations via the control panel and the data setting software <b>MEXE02</b> . |
|             | EXT-ERROR  | This signal allows you to force stop the motor externally.   |
|             | MOVE       | This signal is output when the operating input is switched to ON and the motor is rotating.                    |
|             | INFO       | This signal is output when information is generated.   |
|             | TLC        | This signal is output when the motor output torque reaches the torque limiting value.                          |
|             | VA         | This signal is output when the detected motor speed reaches the setting speed $\pm$ VA detection range.        |
|             | DIR        | This signal outputs the rotation direction of the motor.   |

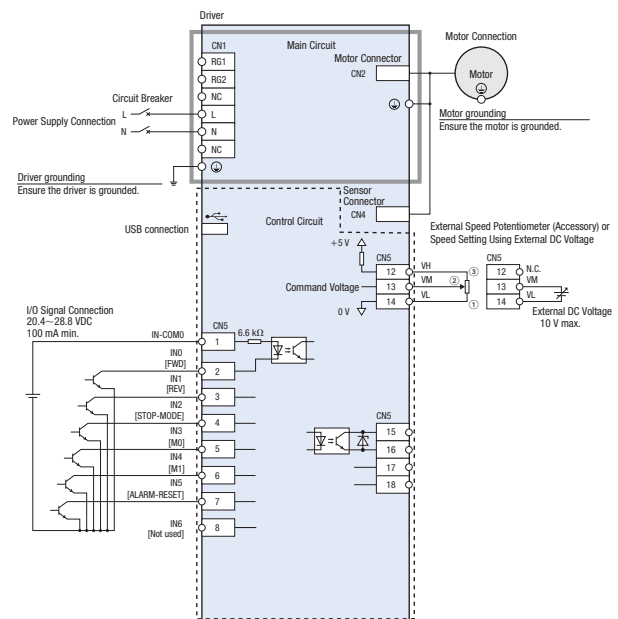
## ● Connection Diagram

The figure shows a connection example for when speed is set externally on a single-phase 100-120 VAC. I/O signals in the brackets [ ] indicate a factory setting.

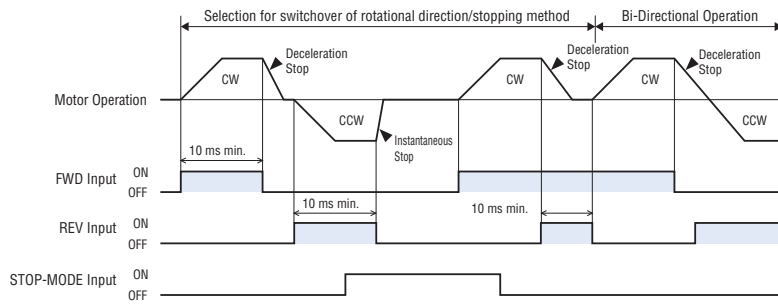
### ◇ Using an Internal Power Supply



### ◇ Using an External Power Supply



## ● Timing Chart (2-Wire Input Mode)



### ● FWD Input, REV Input

When FWD input is ON, it rotates in CW direction (clockwise). Turning it OFF decelerates the motor to a stop. When REV input is ON, it rotates in CCW direction (counterclockwise). Turning it OFF decelerates the motor to a stop.

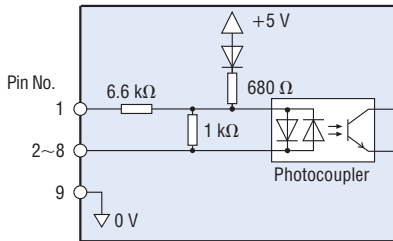
### ● STOP-MODE Input

Selects the stop method when FWD input and REV input are switched to OFF. When STOP-MODE input is set to OFF, the motor will coast to a stop in accordance with the operation data No. coasting. When STOP-MODE is set to ON, the motor will stop in the shortest amount of time (instantaneous stop).

## ● I/O Signal Circuits

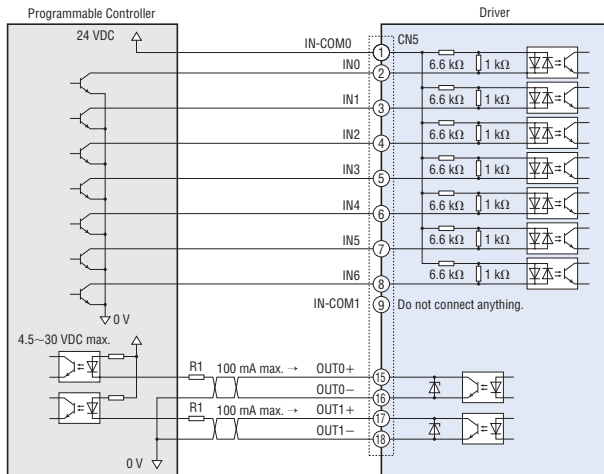
Select sink logic or source logic according to the external control device used.

### ◇ Input Signal

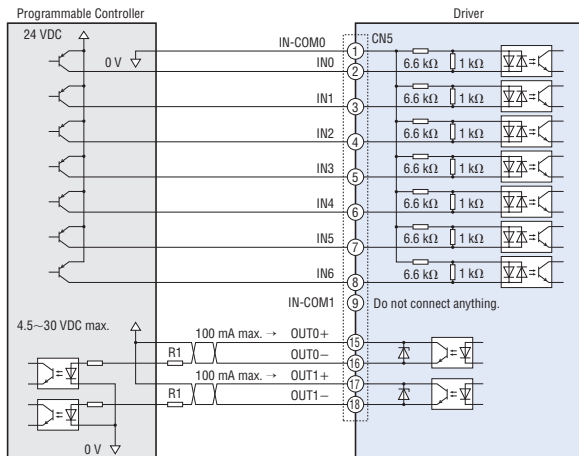


### ◇ Host Controller Connection Examples

#### ● Sink Logic

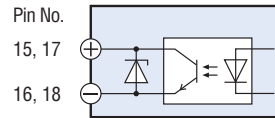


#### ● Source Logic



\*Recommended Resistance Value when Connected to Limiting Resistor R1  
24 VDC: 680 Ω ~ 2.7 kΩ (2 W), 5 VDC: 150 Ω ~ 560 kΩ (0.5 W)

### ◇ Output Circuit

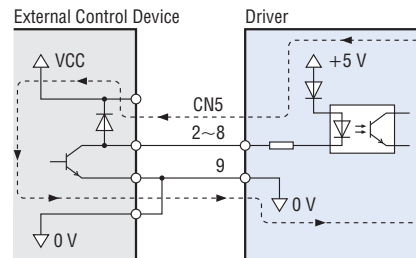


### ◇ When an External Control Device with a Built-In Clamp Diode is Used

If an external control device with a built-in clamp diode is connected and the external control device is turned off when the driver power is on, current may flow in and rotate the motor. Because the current capacity of the driver and external control device is different, the motor may also rotate when their power supplies are turned ON or OFF simultaneously.

To turn the power off, turn off the driver and then the external control device. To turn the power on, turn on the external control device and then the driver.

### ● Example of Sink Logic



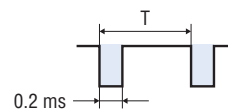
### ◇ SPEED-OUT

Pulse signals of 30 pulses (Pulse Width: 0.2 ms) are output per each rotation of the motor output shaft in synchronization with the motor operation.

The speed output frequency can be measured and the approximate motor speed calculated.

$$\text{SPEED-OUT frequency [Hz]} = \frac{1}{T [\text{s}]}$$

$$\text{Motor Shaft Speed [r/min]} = \frac{\text{SPEED-OUT frequency [Hz]}}{30} \times 60$$



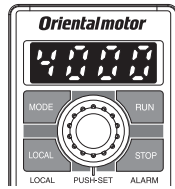
### ◇ ALARM-OUT

When any of the driver's protective functions is activated, the alarm output turns OFF and the ALARM LED blinks. An alarm code will be displayed on the control panel and the motor will coast to a stop.

## ● Speed Setting Methods

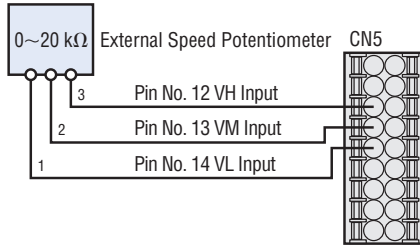
Speed can be set using the following 4 methods.

### ◇ Setting via Control Panel

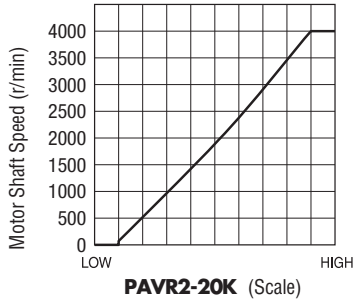


### ◇ Using the External Speed Potentiometer

Connect an external speed potentiometer to the I/O signal connector (CN5) of the driver



● External Speed Potentiometer – Speed Characteristics (Representative values)

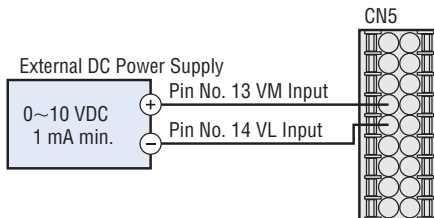


#### Note

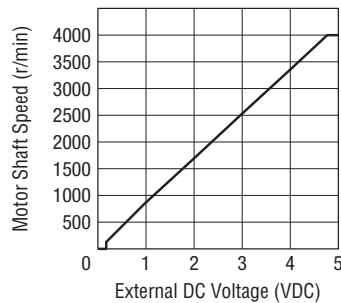
- The speed in the graph represents the speed of the motor alone. The gear output shaft speed is calculated by dividing the graph speed by the gear ratio.

### ◇ Using External DC Voltage

Connect external voltage to the I/O signal connector (CN5) of the driver.



● External DC Voltage – Speed Characteristics (Representative values)  
Example: At 0~5 VDC

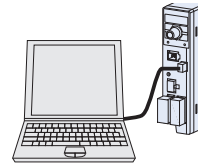


#### Note

- Can be set at 0~10 VDC.
- The speed in the graph represents the speed of the motor alone. The gear output shaft speed is calculated by dividing the graph speed by the gear ratio.

### ◇ Using the Data Setting Software (MEXE02)

Computer on which the data setting software (MEXE02) is installed.



### ● Multistep Speed-Change Operation (Max. 16 Speeds)

Selects the operating data No. using the ON/OFF combinations of M0~M3.

| Operating Data No. | M3  | M2  | M1  | M0  |
|--------------------|-----|-----|-----|-----|
| 0                  | OFF | OFF | OFF | OFF |
| 1                  | OFF | OFF | OFF | ON  |
| 2                  | OFF | OFF | ON  | OFF |
| 3                  | OFF | OFF | ON  | ON  |
| 4                  | OFF | ON  | OFF | OFF |
| 5                  | OFF | ON  | OFF | ON  |
| 6                  | OFF | ON  | ON  | OFF |
| 7                  | OFF | ON  | ON  | ON  |
| 8                  | ON  | OFF | OFF | OFF |
| 9                  | ON  | OFF | OFF | ON  |
| 10                 | ON  | OFF | ON  | OFF |
| 11                 | ON  | OFF | ON  | ON  |
| 12                 | ON  | ON  | OFF | OFF |
| 13                 | ON  | ON  | OFF | ON  |
| 14                 | ON  | ON  | ON  | OFF |
| 15                 | ON  | ON  | ON  | ON  |

### ● Parallel-Motor Operation

Multiple motors can be operated at the same speed using 1 speed potentiometer or external DC voltage.

The figure below shows an example of the single-phase power supply specification. For a three-phase power supply specification, change the power supply line to a three-phase power supply. The motor and operation control unit are not illustrated in the figure.

### ◇ Using Potentiometer

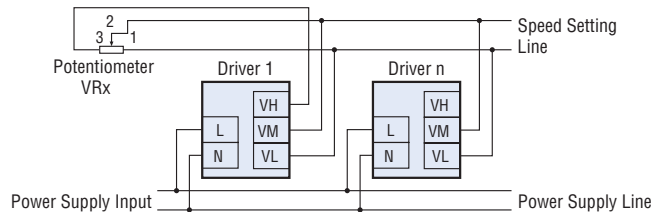
When using a potentiometer (VRx), operate 20 units or less.

Resistance value when the number of drivers is n:  $VRx = 20/n$  (kΩ),  $n/4$  (W)

Example: When two drivers are used

$$VRx = 20/2 = 10 \text{ (kΩ)}, 2/4 = 1/2 \text{ (W)}$$

10 kΩ, power is 1/2 W



### ◇ Using External DC Voltage

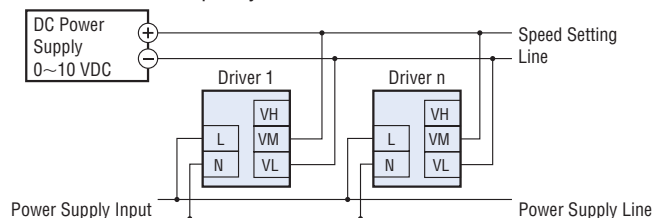
The power supply capacity of the external DC power supply is determined as follows.

Power supply capacity when the number of drivers is n:  $I = 1 \times n$  (mA)

Example: When two drivers are used

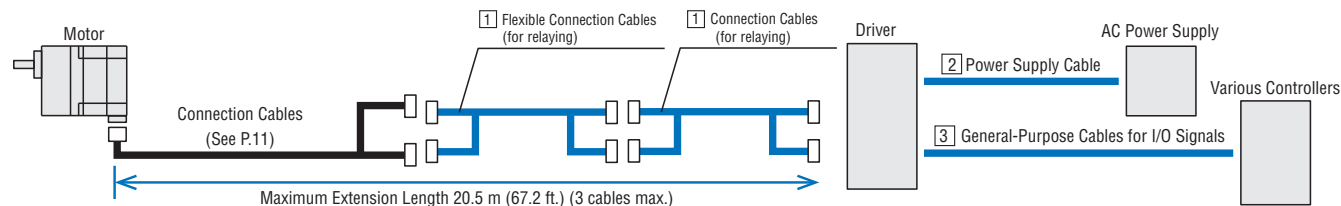
$$I = 1 \times 2 = 2 \text{ (mA)}$$

current capacity should be 2 mA or more.



# Accessory (Sold separately)

## ● Cable System Configuration



## 1 Connection Cables (for relaying), Flexible Connection Cables (for relaying)

When using connection cables (for relaying) / flexible connection cables (for relaying) to extend the distance between the motor and driver, keep the total length of the cables from exceeding 20.5 m (67.2 ft.) (3 cables max.).

### ● Types and Prices

#### ◇ Connection Cables

| Product Name   | Length [m (ft.)] |  |
|----------------|------------------|--|
| <b>CC01BL2</b> | 1 (3.3)          |  |
| <b>CC02BL2</b> | 2 (6.6)          |  |
| <b>CC03BL2</b> | 3 (9.8)          |  |
| <b>CC05BL2</b> | 5 (16.4)         |  |
| <b>CC07BL2</b> | 7 (23.0)         |  |
| <b>CC10BL2</b> | 10 (32.8)        |  |



#### ◇ Flexible Connection Cables

| Product Name    | Length [m (ft.)] |  |
|-----------------|------------------|--|
| <b>CC01BL2R</b> | 1 (3.3)          |  |
| <b>CC02BL2R</b> | 2 (6.6)          |  |
| <b>CC03BL2R</b> | 3 (9.8)          |  |
| <b>CC05BL2R</b> | 5 (16.4)         |  |
| <b>CC07BL2R</b> | 7 (23.0)         |  |
| <b>CC10BL2R</b> | 10 (32.8)        |  |



## 2 Power Supply Cable

These cables are used to connect the driver and the AC power supply. Cables are available with or without a power supply plug.



Plug Included

### ● Types and Prices

| Product Name     | Product Line  | Power Supply Voltage                                 | Length [m (ft.)] |  |
|------------------|---------------|--|------------------|--|
| <b>CC01AC03P</b> | Plug Included | Single-Phase 100-120 VAC                             | 1 (3.3)          |  |
| <b>CC02AC03P</b> |               |  | 2 (6.6)          |  |
| <b>CC03AC03P</b> |               |  | 3 (9.8)          |  |
| <b>CC01AC03N</b> | No plug       | Single-Phase 100-120 VAC<br>Single-Phase 200-240 VAC | 1 (3.3)          |  |
| <b>CC02AC03N</b> |               |  | 2 (6.6)          |  |
| <b>CC03AC03N</b> |               |  | 3 (9.8)          |  |
| <b>CC01AC04N</b> | No plug       | Three-Phase 200-240 VAC                              | 1 (3.3)          |  |
| <b>CC02AC04N</b> |               |  | 2 (6.6)          |  |
| <b>CC03AC04N</b> |               |  | 3 (9.8)          |  |

## 3 General-Purpose Cable for I/O Signals

A cable for connecting the driver and programmable controller.



### ● Types and Prices

| Product Name | Length<br>[m (ft.)] | Number of Lead<br>Wire Cores | Outer Diameter<br>[mm (in.)] | AWG |  |
|--------------|---------------------|------------------------------|------------------------------|-----|--|
| CC06D010B-1  | 1 (3.3)             | 6                            | φ5.4 (φ0.21)                 | 24  |  |
| CC06D020B-1  | 2 (6.6)             |                              |                              |     |  |
| CC10D010B-1  | 1 (3.3)             | 10                           | φ6.7 (φ0.26)                 |     |  |
| CC10D020B-1  | 2 (6.6)             |                              |                              |     |  |
| CC12D010B-1  | 1 (3.3)             | 12                           | φ7.5 (φ0.30)                 |     |  |
| CC12D020B-1  | 2 (6.6)             |                              |                              |     |  |
| CC16D010B-1  | 1 (3.3)             | 16                           | φ7.5 (φ0.30)                 |     |  |
| CC16D020B-1  | 2 (6.6)             |                              |                              |     |  |

#### Note

The general-purpose cable for I/O signals and the external speed potentiometer (**PAVR2-20K**) cannot be used together.

## Flexible Couplings

These are clamp type couplings for connecting the motor and gearhead shaft with the driven shaft.

- Couplings can also be used with round shaft types.

Select a coupling with the same inner diameter size as the motor shaft diameter.



### Types

| Applicable Product | Load Type    | Coupling Type     |  |
|--------------------|--------------|-------------------|--|
| <b>BLM230</b>      | Uniform load | <b>MCL30</b> Type |  |
|                    | Impact Load  |                   |  |
| <b>BLM460</b>      | Uniform load | <b>MCL40</b> Type |  |
|                    | Impact Load  |                   |  |
| <b>BLM5120</b>     | Uniform load | <b>MCL55</b> Type |  |
|                    | Impact Load  |                   |  |
| <b>BLM6200</b>     | Uniform load | <b>MCL65</b> Type |  |
|                    | Impact Load  |                   |  |

## External Speed Potentiometer

### Features

- A Potentiometer that can adjust speed and torque.
- Easy Installation  
Simply insert into the installation hole, no tool is required. It can also be removed just as easily.
- Easy wiring  
It uses terminal blocks. It requires no soldering for connecting lead wires.  
This improves the work efficiency of the wiring.



Front Face



Rear Face

### Types and prices

| Product Name     |  |
|------------------|--|
| <b>PAVR2-20K</b> |  |

The following items are included with each product.  
External Speed Potentiometer, Operating Manual

#### Note

The general-purpose cable for I/O signals and the external speed potentiometer (**PAVR2-20K**) cannot be used together.

### Specifications

Resistance: 0~20 kΩ

Rated Power: 0.05 W

Resistance Variation Characteristics: B curve

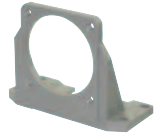
### Applicable Lead Wire Size\*

AWG22~18 (0.3~0.75 mm<sup>2</sup>)

\*When combined with **BLE2** Series

## Motor and Gearhead Mounting Brackets

These dedicated mounting brackets are for mounting parallel shaft gearhead **GFV** gear and round shaft type.



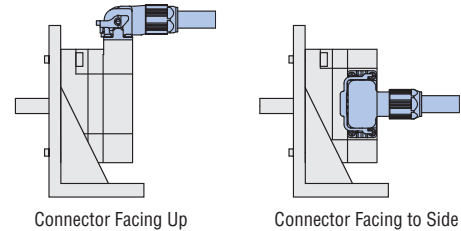
### Types

| Product Name    | Applicable Product                         |
|-----------------|--|
| <b>SOL2U08F</b> | <b>BLM230, BLM260</b> (Round shaft type)   |
| <b>SOL4UAF</b>  | <b>BLM460</b> (GFV Gear)                   |
| <b>SOL5UBF</b>  | <b>BLM5120, BLM5200</b> (Round shaft type) |
| <b>SOL6UBF</b>  | <b>BLM6200</b> (GFV Gear)                  |

#### Note

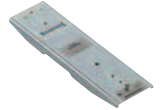
When fixing the mounting brackets and motors, ensure that the motor connector is facing upwards or sideways with respect to the installation surface.

Installing with the motor connector facing downwards is not recommended as this will interfere with the mounting brackets and installation surface.



## DIN Rail Mounting Bracket

Use DIN rail mounting brackets to install a driver to a DIN rail.



### Types and Prices

| Product Name  |  |
|---------------|--|
| <b>MADP02</b> |  |

For details, check the website or contact the customer support center.

<http://www.orientalmotor.com>



■ **Motor Cover**

This cover protects the motor. They are compatible with the degree of protection IP66 specification, and can be used in wet and dusty environments.

● **Types**

◇ **Motor Cover**

| Product Name  |  |
|---------------|--|
| <b>PCM5-C</b> |  |



◇ **Replacement Gasket**

Replace the gasket approximately once a year.

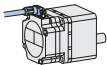


| Product Name |  | Package Contents |
|--------------|--|------------------|
| <b>PCMP5</b> |  | Set of 2 gaskets |

● **Applicable Product**

| Output   | Motor                                       | Direction of Cable Outlet  |
|--|---|--|
| 30 W (1/25 HP),<br>60 W (1/12 HP),<br>120 W (1/6 HP) | Parallel Shaft Gearhead<br><b>GFV Gear*</b> | Output shaft side<br>             |
|  | Round Shaft Type                            | Opposite side of output shaft<br> |

\*Parallel shaft combination type cannot be used where the cable is drawn to the opposite side of the output shaft.



With a Cable Ground  
**PCM5-C**

For details, check the website or contact the customer support center.

<http://www.orientalmotor.com>





Specifications are subject to change without notice. This catalog was published in July, 2017.

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