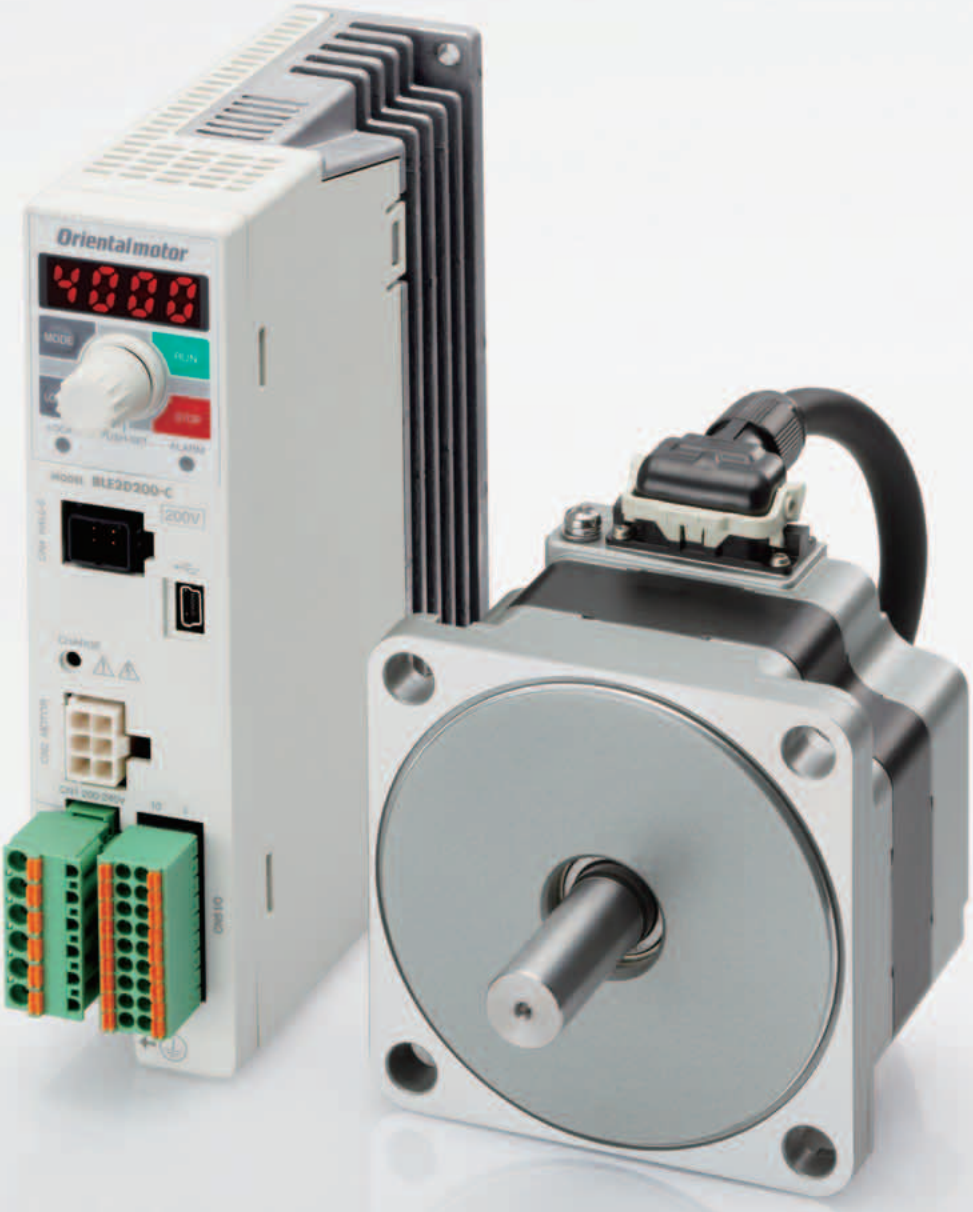
Oriental motor

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.

NexBL

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 ±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
- Prices starting from $428.00

✻Motor: 30 W (1/25 HP) round shaft type, Driver: 30 W (1/25 HP) type, Connection Cable: 1 m (3.3 ft.)

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.

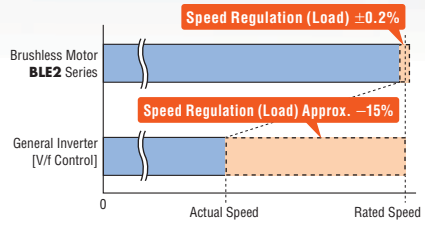
Product Group	Speed Control Range*	Speed Ratio
Brushless Motor **BLE2** Series	80~4000 r/min	50:1
Inverter-Controlled Three-Phase Induction Motors	200~2400 r/min	12:1
AC Speed Control Motor	50Hz: 90~1400 r/min 60Hz: 90~1600 r/min	15:1 17:1

*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.

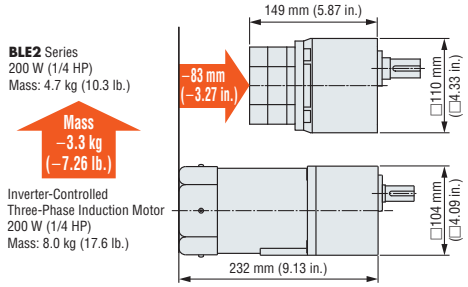
●Comparison of Speed Variation (Reference value)



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.

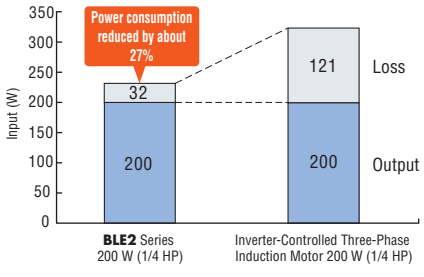
[Comparison Using 200 W (1/4 HP) Output Model]



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.

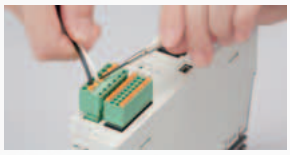
The Control Panel Allows for Easy Setting

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

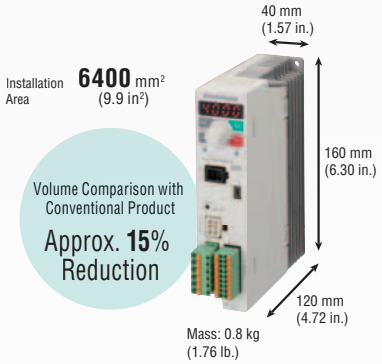
Quick and reliable wiring is possible thanks to the use of spring type connectors.



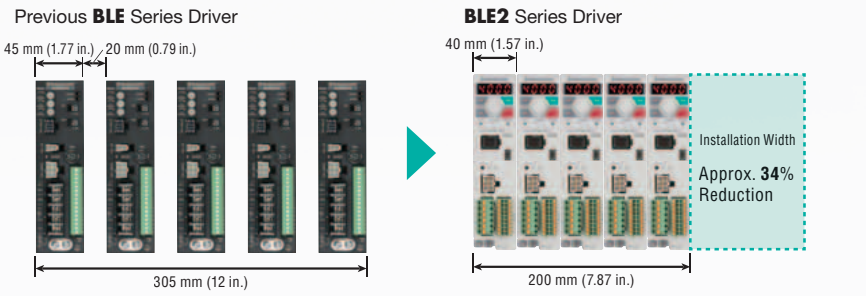
Effective Utilization of Installation Space

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

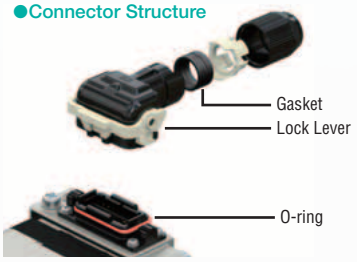
- Ambient temperature 0~+50°C (+32~+122°F) [For 200W (1/4 HP) 0~+40°C (+32~+104°F)]
- Ensure to install on a heat sink [Material: Aluminum, equivalent to 350×350×2 mm (13.8×13.8×0.08 in.)].

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

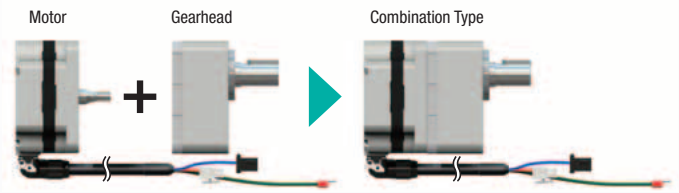
Insert the connector | Turn down the lock lever | Connection complete

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

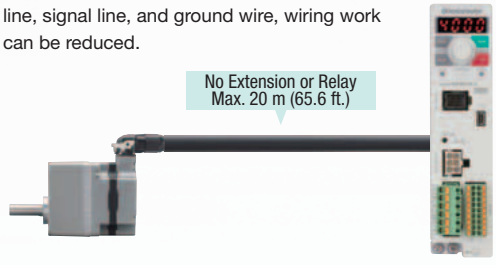
Cable outlet on output shaft side

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.

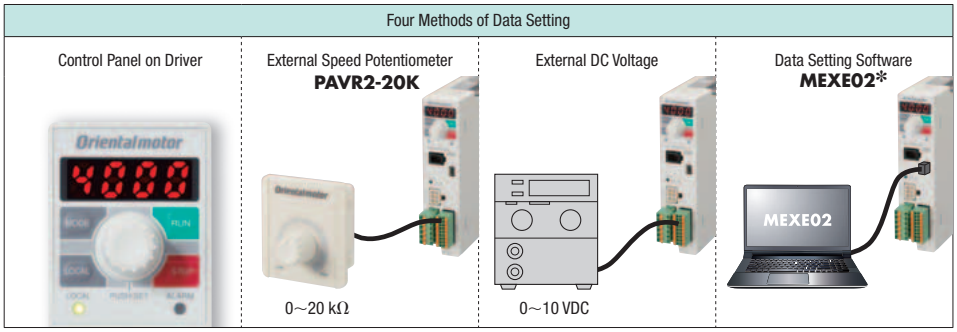


Supporting Customers with Enhanced Functions

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 **PAVR2-20K**	External DC Voltage	Data Setting Software **MEXE02**
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/ 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-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. (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) Note 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.

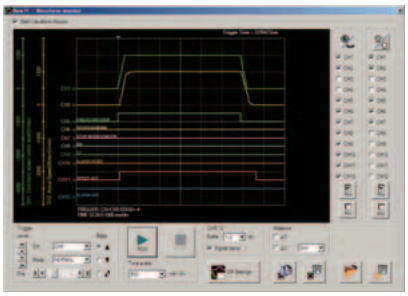
Monitoring Function

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)

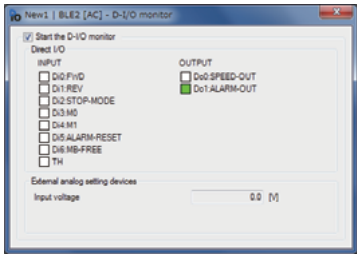
On startup

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 or 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.

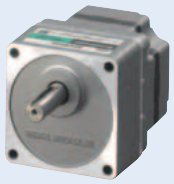


Types and Features of Gearheads

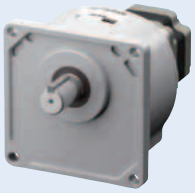
These are high-strength gearheads that are compatible with the high speed and high power of brushless motors.
A wide variety of gearheads suitable for every application, specification or installation method.

Product Line

Parallel Shaft Gearhead

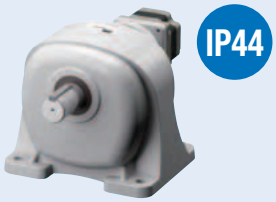


Parallel Shaft Gearhead **GFV** Gear



Parallel Shaft Gearhead **JV** Gear

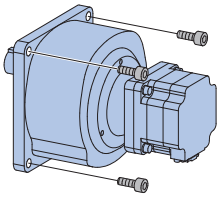
Foot Mount Gearhead



Foot Mount Gearhead **JB** Gear

Installation Advantages

●Can be Installed on the Flange Surface (**JV** Gear)

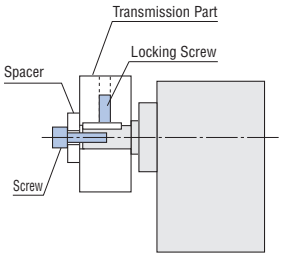


●Improved Installation Accuracy (**GFV** Gear)

The output shaft boss and installation surface have been machined. This improves the installation accuracy for the equipment.

●Tapped Hole at the End of the Output Shaft (**GFV** Gear □80 mm (3.15 in.) min.)

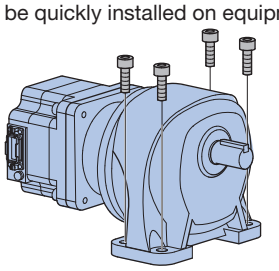
A tapped hole has been machined at the tip of the output shaft. This can be used as an aid for preventing transmission parts from coming off.



Example of Using the Output Shaft End Tapped Hole

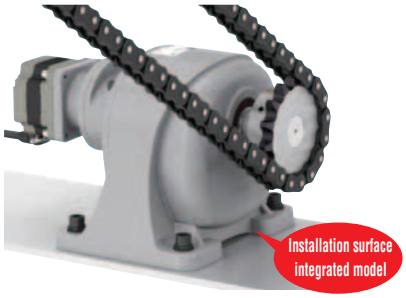
●Mounting Bracket Not Necessary

Configured so it can be quickly installed on equipment.



●High Rigidity / Integral Structure

Well designed shaft axis, integrated construction with installation surface.



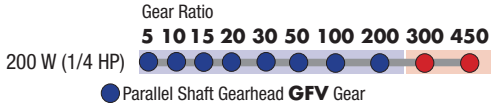
Features

●High-Strength Gearhead (**GFV** Gear)

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.

●High Gear Ratios (**JV** Gear)

The gear ratio lineup ranges to 450:1.

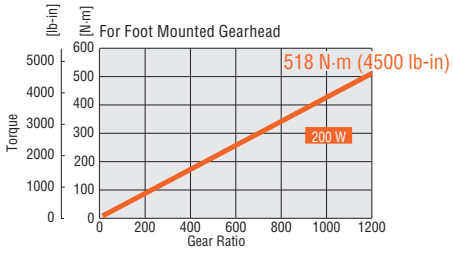


●Long Life (**GFV** Gear)

A long life gearhead that uses a special bearing and grease for high-speed rotation.
A rated life of 10000 hours is achieved.

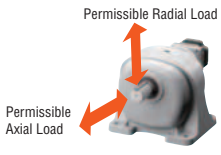
●High Permissible Torque

Motor torque can be fully utilized without torque saturation.



[At 3000 r/min]

●High Strength



Permissible Radial Load
3672 N (820 lb.)
Permissible Axial Load
577 N (129 lb.)

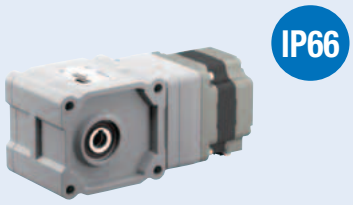
[Gear ratio 1200:1 at 3000 r/min]

●High Gear Ratio

The gear ratio lineup ranges to 1200:1.

Gear Ratio
5 10 20 30 50 100 200 300 450 600 1200

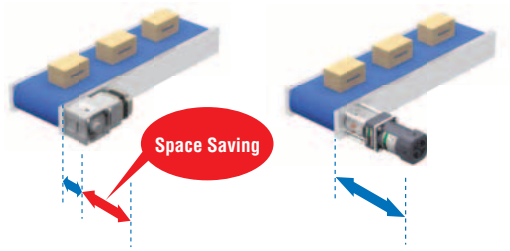
Right-Angle Gearhead



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

●Space Saving

Space is saved by the motor being mounted perpendicularly.

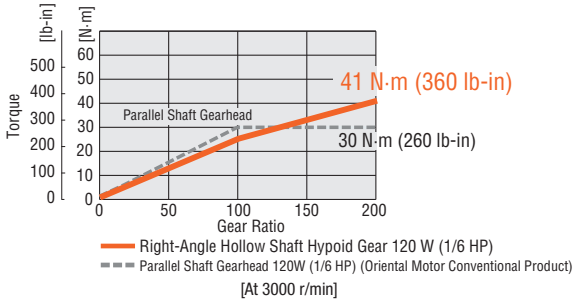


●Low Cost

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.



[At 3000 r/min]

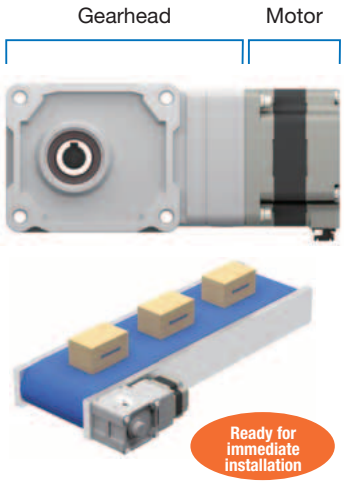
●High Strength

Parallel Shaft Gearhead Comparison

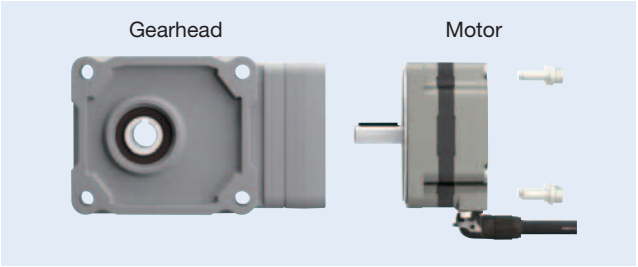
[200:1 at 3000 r/min]

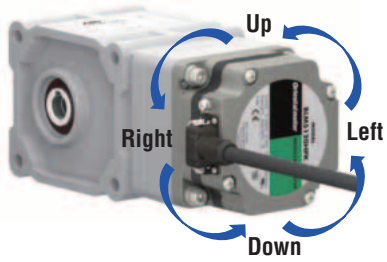
Motor and Gearhead are Pre-Assembled

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

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

Parallel Shaft Gearhead

GFV Gear

JV Gear

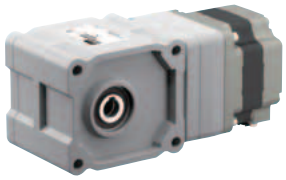
High Gear Ratio 450:1
Stainless Shaft

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

Driver

Output Power [W (HP)]	Power Supply Voltage [VAC]
30 (1/25)	Single-Phase 100-120
60 (1/12)	Single-Phase 200-240
120 (1/6)	Three-Phase 200-240
200 (1/4)	Single-Phase 200-240 Three-Phase 200-240
200 (1/4)	Single-Phase 200-240 Three-Phase 200-240
200 (1/4)	Single-Phase 200-240 Three-Phase 200-240
120 (1/6)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
200 (1/4)	Single-Phase 200-240 Three-Phase 200-240
30 (1/25)	Single-Phase 100-120
60 (1/12)	Single-Phase 200-240
120 (1/6)	Three-Phase 200-240
200 (1/4)	Single-Phase 200-240 Three-Phase 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	**BLM**: Brushless Motor
②	Frame Size	**2**: 60 mm (2.36 in.) **4**: 80 mm (3.15 in.) **5**: 90 mm (3.54 in.) **6**: 104 mm (4.09 in.) [Gearhead part is 110 mm (4.33 in.)]
③	Output Power	**30**: 30 W (1/25 HP) **60**: 60 W (1/12 HP) **120**: 120 W (1/6 HP) **200**: 200 W (1/4 HP)
④	Identification Number	**S**
⑤	Motor Connection Method	**H**: Connector Type
⑥	Motor Degree of Protection	**P**: IP66 specification
⑦	Gear Ratio/Shaft Configuration	Number: Gear Ratio for Gearhead (□□**A**: inch) **A**: Round Shaft Type (**A**: mm)
⑧	Output Shaft Material	**S**: 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	**BLM**: Brushless Motor
	②	Frame Size	**5**: 90 mm (3.54 in.)
	③	Output Power	**120**: 120 W (1/6 HP) **200**: 200 W (1/4 HP)
	④	Motor Connection Type	**H**: Connector Type
	⑤	Motor Degree of Protection	**P**: IP66
	⑥	Applicable Motor	**K**: Round Shaft Type (with key)
Gearhead Product Name	⑦	Combination Motor Frame Size	**5**: 90 mm (3.54 in.)
	⑧	Gearhead Size	Symbol (Example) **C** Please refer to the ■ Specifications (➜ 17 page and 19 page) for the gearhead size code.
	⑨	Gearhead Type	**H**: **JH** Gear **B**: **JB** Gear **V**: **JV** Gear
	⑩	Gear Ratio	Number: Gearhead Gear Ratio
	⑪	Output Shaft Material	**S**: Stainless Steel **A**: Steel
	⑫	Connector Position	**-L**: Left

●Driver

BLE2D 60 - A

① ② ③

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

●Connection Cable

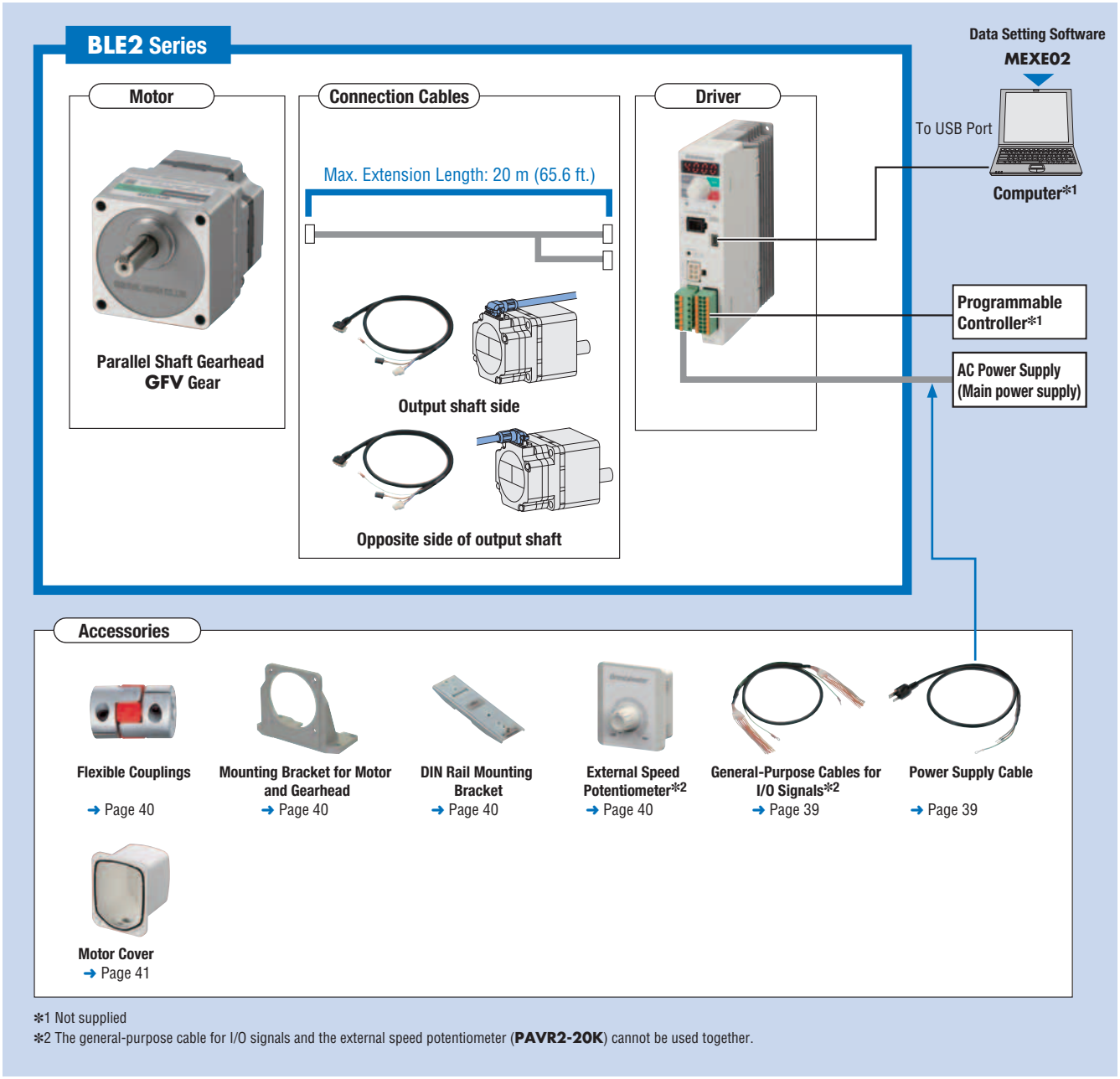
CC 010 H BL F

① ② ③ ④ ⑤

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

System Configuration

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



*1 Not supplied

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

●**Example of System Configuration**

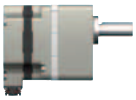
BLE2 Series			+	Accessories		
Motor Parallel Shaft Gearhead GFV Gear	Driver	Connection Cable [3 m (9.8 ft.)]		Mounting Bracket	Flexible Couplings	DIN Rail Mounting Bracket
BLM230HP-10AS	**BLE2D30-A**	**CC030HBLF**		**SOL2U08F**	**MCL30F06F06**	**MADP02**
$241.00	$253.00	$62.00		$22.00	$51.00	$29.00

● 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	List Price
30 W (1/25 HP)	**BLM230HP-□AS**	**5**, **10**, **15**, **20**	$241.00
		30, **50**, **100**	$249.00
		200	$260.00
60 W (1/12 HP)	**BLM460SHP-□AS**	**5**, **10**, **15**, **20**	$268.00
		30, **50**, **100**	$276.00
		200	$288.00
120 W (1/6 HP)	**BLM5120HP-□AS**	**5**, **10**, **15**, **20**	$337.00
		30, **50**, **100**	$348.00
		200	$358.00
200 W (1/4 HP)	**BLM6200SHP-□AS**	**5**, **10**, **15**, **20**	$417.00
		30, **50**	$431.00
		100, **200**	$449.00

◇Parallel Shaft Gearhead **JV** Gear

Output Power	Product Name	Gear Ratio	List Price
200 W (1/4 HP)	**BLM5200HPK-5KV□C**	**300**, **450**	$1,079.00

◇Round Shaft Type

Output Power	Product Name	List Price
30 W (1/25 HP)	**BLM230HP-AS**	$140.00
60 W (1/12 HP)	**BLM260HP-AS**	$154.00
120 W (1/6 HP)	**BLM5120HP-AS**	$184.00
200 W (1/4 HP)	**BLM5200HP-AS**	$224.00

Driver

Output Power	Power Supply Voltage	Product Name	List Price
30 W (1/25 HP)	Single-Phase 100-120 VAC	**BLE2D30-A**	$253.00
	Single-Phase, Three-Phase 200-240 VAC	**BLE2D30-C**	$253.00
60 W (1/12 HP)	Single-Phase 100-120 VAC	**BLE2D60-A**	$253.00
	Single-Phase, Three-Phase 200-240 VAC	**BLE2D60-C**	$253.00
120 W (1/6 HP)	Single-Phase 100-120 VAC	**BLE2D120-A**	$259.00
	Single-Phase, Three-Phase 200-240 VAC	**BLE2D120-C**	$259.00
200 W (1/4 HP)	Single-Phase, Three-Phase 200-240 VAC	**BLE2D200-C**	$288.00

◇Foot Mount Gearhead **JB** Gear

Output Power	Product Name	Gear Ratio	List Price
200 W (1/4 HP)	**BLM5200HPK-5AB□A-L**	**5**, **10**, **20**	$604.00
	BLM5200HPK-5CB□A-L	**30**, **50**	$638.00
	BLM5200HPK-5EB□A-L	**100**, **200**	$706.00
	BLM5200HPK-5KB□A-L	**300**, **450**	$950.00
	BLM5200HPK-5SB□A-L	**600**, **1200**	$1161.00

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

Output Power	Product Name	Gear Ratio	List Price
120 W (1/6 HP)	**BLM5120HPK-5H□C**	**10**, **15**, **20**	$611.00
		30, **50**	$617.00
		100, **200**	$620.00
200 W (1/4 HP)	**BLM5200HPK-5XH□C**	**5**, **10**, **15**, **20**	$848.00
		30	$848.00
		50	$875.00
	BLM5200HPK-5YH□C	**100**	$1079.00
		200	$1147.00

Connection Cables

Length	Product Name	List Price
0.5 m (1.6 ft.)	**CC005HBL■**	$35.00
1 m (3.3 ft.)	**CC010HBL■**	$35.00
1.5 m (4.9 ft.)	**CC015HBL■**	$40.00
2 m (6.6 ft.)	**CC020HBL■**	$44.00
2.5 m (8.2 ft.)	**CC025HBL■**	$53.00
3 m (9.8 ft.)	**CC030HBL■**	$62.00

Length	Product Name	List Price
4 m (13.1 ft.)	**CC040HBL■**	$73.00
5 m (16.4 ft.)	**CC050HBL■**	$83.00
7 m (23.0 ft.)	**CC070HBL■**	$102.00
10 m (32.8 ft.)	**CC100HBL■**	$129.00
15 m (49.2 ft.)	**CC150HBL■**	$181.00
20 m (65.6 ft.)	**CC200HBL■**	$230.00

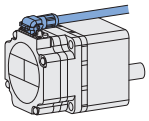
● Either **F** or **B** indicating the cable drawing direction is entered where the box ■ is located within the product name.

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

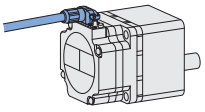
Note

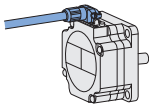
● The cable drawing direction for the round shaft type is opposite the output shaft only.

F: Output shaft side



B: Opposite side of output shaft





Included Items

Motor

Type	Parallel Key	Safety Cover	Installation Screws	Operating Manual
GFV Gear	1	–	1 Set	1 Set
JV Gear	–	–	–	
JB Gear	–	–	–	
JH Gear	1	1 Piece	1 Set	
Round Shaft	–	–	–	

Driver

Start-up Guide	Operating Manual
1 Set	1 Set

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

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

Specifications

Product Name			BLM230HP-□AS		BLM460SHP-□AS		BLM5120HP-□AS	
	Driver		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	0.4
			4000 r/min	800	400	267	200	133	80	40	20
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)	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)	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)	5.4 (47)
		60 W (1/12 HP)	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)	16 (141)
			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)	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)	14 (123)
		120 W (1/6 HP)	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)	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)	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)	27 (230)
Permissible Radial Load [N (lb.)]	10 mm (0.39 in.) from End of Output Shaft*2	30 W (1/25 HP)	At 80～3000 r/min	100 (22)	150 (33)			200 (45)			
			At 4000 r/min	90 (20)	130 (29)			180 (40)			
		60 W (1/12 HP)	At 80～3000 r/min	200 (45)	300 (67)			450 (101)			
			At 4000 r/min	180 (40)	270 (60)			420 (94)			
		120 W (1/6 HP)	At 80～3000 r/min	300 (67)	400 (90)			500 (112)			
			At 4000 r/min	230 (51)	370 (83)			450 (101)			
	20 mm (0.79 in.) from End of Output Shaft*2	30 W (1/25 HP)	At 80～3000 r/min	150 (33)	200 (45)			300 (67)			
			At 4000 r/min	110 (24)	170 (38)			230 (51)			
		60 W (1/12 HP)	At 80～3000 r/min	250 (56)	350 (78)			550 (123)			
			At 4000 r/min	220 (49)	330 (74)			500 (112)			
		120 W (1/6 HP)	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)							
Permissible Inertia J [$\times 10^{-4}$ kg·m^2 (oz-in^2)]		30 W (1/25 HP)		12 (66)	50 (270)	110 (600)	200 (1090)	370 (2000)	920 (5000)	2500 (13700)	5000 (27000)
		60 W (1/12 HP)		22 (120)	95 (520)	220 (1200)	350 (1910)	800 (4400)	2200 (12000)	6200 (34000)	12000 (66000)
		120 W (1/6 HP)		45 (250)	190 (1040)	420 (2300)	700 (3800)	1600 (8800)	4500 (25000)	12000 (66000)	25000 (137000)
	When Instantaneous Stop or Bi-Directional Operation is performed*3	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.

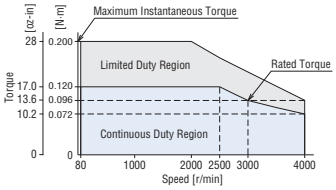
*2 Regarding load position ➜ Page 15

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

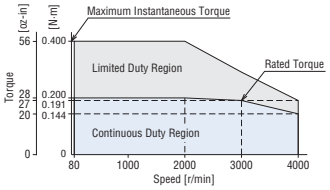
Speed – Torque Characteristics

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

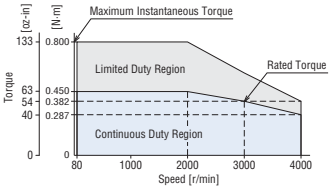
●30 W (1/25 HP)



●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			BLM6200SHP-□AS
	Driver		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.

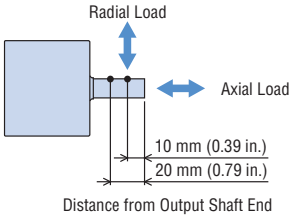
● The values correspond to each specification and characteristics of a stand-alone motor.

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)	
Permissible Inertia J [$\times 10^{-4}$ kg·m^2 (oz-in^2)]			100 (550)	460 (2500)	1000 (5500)	1700 (9300)	3900 (21000)	9300 (51000)	18000 (98000)	37000 (200000)
	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.

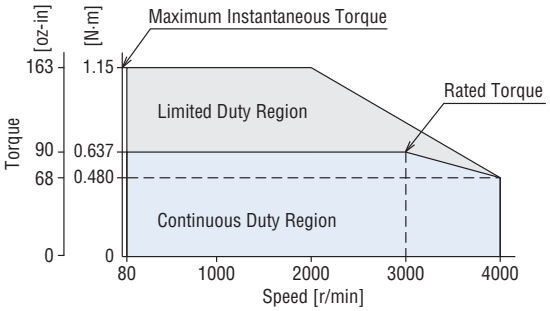
*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇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

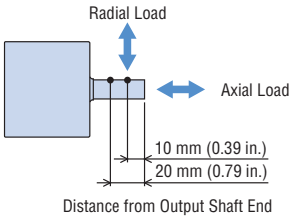
Product Name			BLM5200HPK-5KV□C
	Driver		BLE2D200-C
Rated Output Power (Continuous)		W (HP)	200 (1/4)
Power Supply Input	Rated Voltage	VAC	Single-Phase 200-240 / Three-Phase 200-240
	Permissible Voltage Range		−15～+10%
	Frequency	Hz	50 / 60
	Permissible Frequency Range		±5%
	Rated Input Current	A	Single-Phase: 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			80～3600 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 [×10^{-4} kg·m^2 (oz-in^2)]		At 80～1500 r/min	900000 (4900000)	2025000 (11100000)
		At 3000 r/min	324000 (1770000)	729000 (4000000)
		At 3600 r/min	182250 (1000000)	410063 (2200000)
	When Instantaneous Stop or Bi-Directional Operation is performed*2	At 80～1500 r/min	300000 (1640000)	675000 (3700000)
		At 3000 r/min	108000 (590000)	243000 (1330000)
		At 3600 r/min	60750 (330000)	136688 (750000)

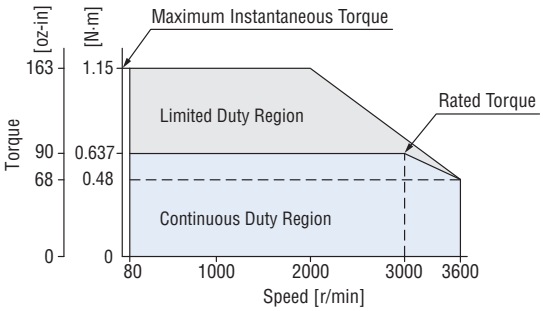
*1 The output shaft speed is calculated by dividing the speed by the gear ratio.
*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇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 where the box □ is located in the product name.

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

Specifications

Product Name	Motor		BLM5200HPK-5□B□A-L
	Driver		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			80～3600 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.

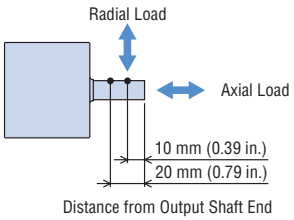
● The values correspond to each specification and characteristics of a stand-alone motor.

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 [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 Load [N (lb.)]	10 mm (0.39 in.) from End of Output 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.) from End of Output 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 [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 [$\times 10^{-4}$ kg·m^2 (oz-in^2)]		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 Stop or Bi-Directional Operation 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.

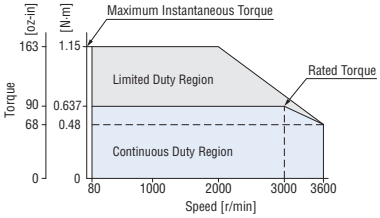
*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇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			BLM5120HPK-5H□C	
	Driver		BLE2D120-A	BLE2D120-C
Rated Output Power (Continuous)		W (HP)	120 (1/6)	
Power Supply Input	Rated Voltage	VAC	Single-Phase 100-120	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	2.7	Single-Phase: 1.7/Three-Phase: 1.02
	Maximum Input Current	A	7.4	Single-Phase: 4.8/Three-Phase: 3.3
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			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)
Permissible Radial Load [N (lb.)]*3	20 mm (0.79 in.) from Installation Surface	At 80～1500 r/min	363 (81)	484 (108)	605 (136)	806 (181)	971 (210)	1045 (230)	1127 (250)
		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)
Permissible Axial Load [N (lb.)]		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)
		At 3600 r/min	60 (13.5)	82 (18.4)	104 (23)	137 (30)	165 (37)	181 (40)	192 (43)
Permissible Inertia J [$\times 10^{-4}$ kg·m^2 (oz-in^2)]		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)
	When Instantaneous Stop or Bi-Directional Operation is performed*4	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)

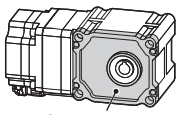
*1 The rotation direction is as seen from the gear brush surface (drawing on the right).

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

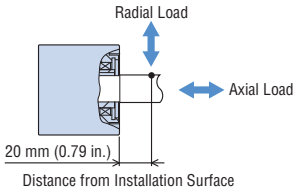
*3 The radial load at each distance can be calculated with a formula. ➜ Page 34

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

◇Gear Flange Position

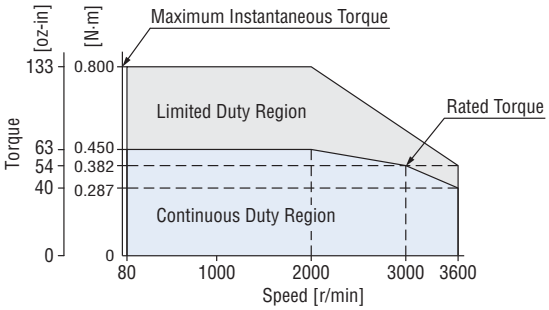


◇Load Position



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			BLM5200HPK-5■H□C
	Driver		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			80～3600 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℃ (+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	0.4
		3600 r/min	720	360	240	180	120	72	36	18
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)	82.8 (730)
		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)	57.6 (500)
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)	3436 (770)	
		At 3000 r/min	942 (210)	1164 (260)	1317 (290)	1425 (320)	1616 (360)	1877 (420)	2405 (540)	
		At 3600 r/min	673 (151)	832 (187)	941 (210)	1018 (220)	1155 (250)	1341 (300)	1718 (380)	
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^2 (oz-in^2)]		At 80～1500 r/min	250 (1370)	1000 (5500)	2250 (12300)	4000 (22000)	9000 (49000)	25000 (137000)	100000 (550000)	400000 (2200000)
		At 3000 r/min	90 (490)	360 (1970)	810 (4400)	1440 (7900)	3240 (17700)	9000 (49000)	36000 (197000)	144000 (790000)
		At 3600 r/min	50.6 (280)	203 (1110)	456 (2500)	810 (4400)	1823 (10000)	5063 (28000)	20250 (111000)	81000 (440000)
	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)	33333 (182000)	133333 (730000)
		At 3000 r/min	30 (164)	120 (660)	270 (1480)	480 (2600)	1080 (5900)	3000 (16400)	12000 (66000)	48000 (260000)
		At 3600 r/min	16.9 (92)	67.5 (370)	152 (830)	270 (1480)	608 (3300)	1688 (9200)	6750 (37000)	27000 (148000)

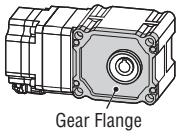
*1 The rotation direction is as seen from the gear brush surface (drawing on the right).

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

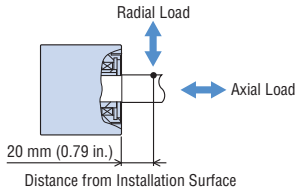
*3 The radial load at each distance can be calculated with a formula. → Page 34

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

◇Gear Flange Position

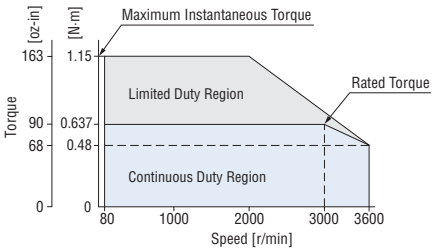


◇Load Position



Speed – Torque Characteristics

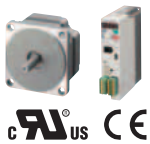
Continuous Duty Region: Continuous operation is possible in this region.
Limited Duty Region: This region is used primarily when accelerating.



● 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)

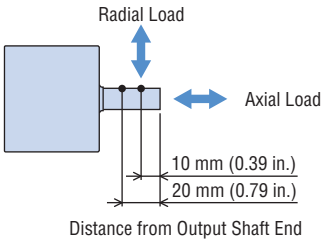


Specifications

Product Name: Motor			BLM230HP-AS		BLM260HP-AS		BLM5120HP-AS	
Product Name: Driver			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)					
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		$\times 10^{-4}$ kg·m^2 (oz-in^2)	0.042 (0.23)		0.082 (0.45)		0.23 (1.26)	
Permissible Inertia J		$\times 10^{-4}$ kg·m^2 (oz-in^2)	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.

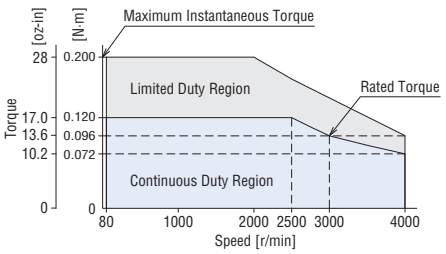
◇Load Position



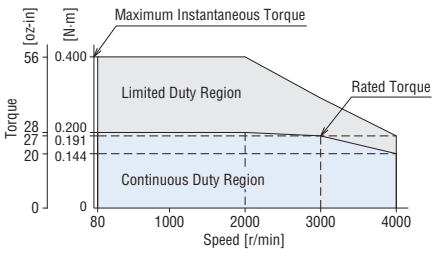
Speed – Torque Characteristics

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

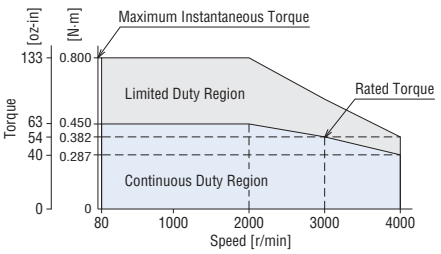
●30 W (1/25 HP)



●60 W (1/12 HP)

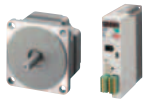


●120 W (1/6 HP)



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

Round Shaft Type 200 W (1/4 HP)

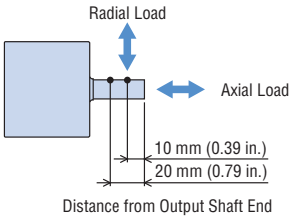


Specifications

Product Name	Motor			**BLM5200HP-AS**
	Driver			**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.) from End of Output Shaft	N (lb.)	150 (33)
		20 mm (0.79 in.) 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^2 (oz-in^2)	0.454 (2.5)
Permissible Inertia J			$\times 10^{-4}$ kg·m^2 (oz-in^2)	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

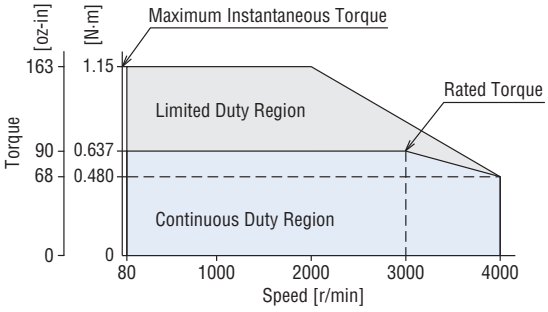
*The value inside the parentheses is the specification for an analog setting.

◇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 **MEXE02**
	Analog setting	・Set using an External Speed Potentiometer **PAVR2-20K** (Sold separately): 0～20 kΩ, 0.05 W min. ・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 **MEXE02**
Torque Limiting*1	Setting Range	0～300% (Factory setting: 300%)
	Digital Setting	・Control Panel ・Data Setting Software **MEXE02**
	Analog setting	・Set using an External Speed Potentiometer **PAVR2-20K** (Sold separately): 0～20 kΩ, 0.05 W min. ・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 Connectable External DC Power Supply: 24 VDC −15～+20% Current 100 mA min. Sink Input/Source Input Supports External Wiring
		Arbitrary signal assignment to IN0～IN6 input (7 points) is possible. [ ]: Initial Setting [FWD], [REV], [STOP-MODE], [M0], [M1], [ALARM-RESET], [Not used], M2, M3, H-FREE, TL, INFO-CLR, HMI, EXT-ERROR START/STOP*2, RUN/BRAKE*2, CW/CCW*2
Output Signal		Photocoupler and Open-Collector Output (ON Power supply: 1.6 V max.) External Power Supply: 4.5～30 V 100 mA max. (5 mA min. for SPEED-OUT output) Sink Output/Source Output Supported through external wiring
		Arbitrary signal assignment to OUT0, OUT1 (2 points) is possible. [ ]: Initial setting [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. 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 ±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 Conforms to JIS C 60068-2-6, "Sine-wave vibration test method" 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	−20～+70°C (−4～+158°F) [**JV** gear, **JB** gear, and **JH** gear are −10～+60°C (+14～+140°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) **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.

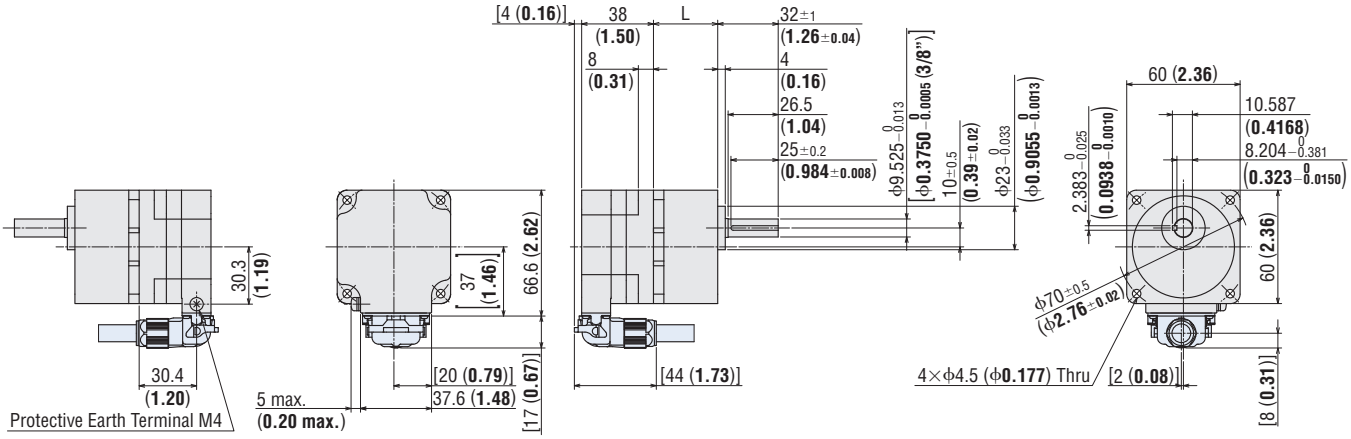
Motor

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

2D & 3D CAD

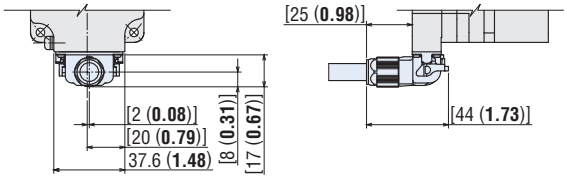
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM230HP-□AS	BLM230HP-GFV	GFV2G□AS	**5**～**20**	34 (1.34)	0.85 (1.87)	A1575A	A1576A
	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

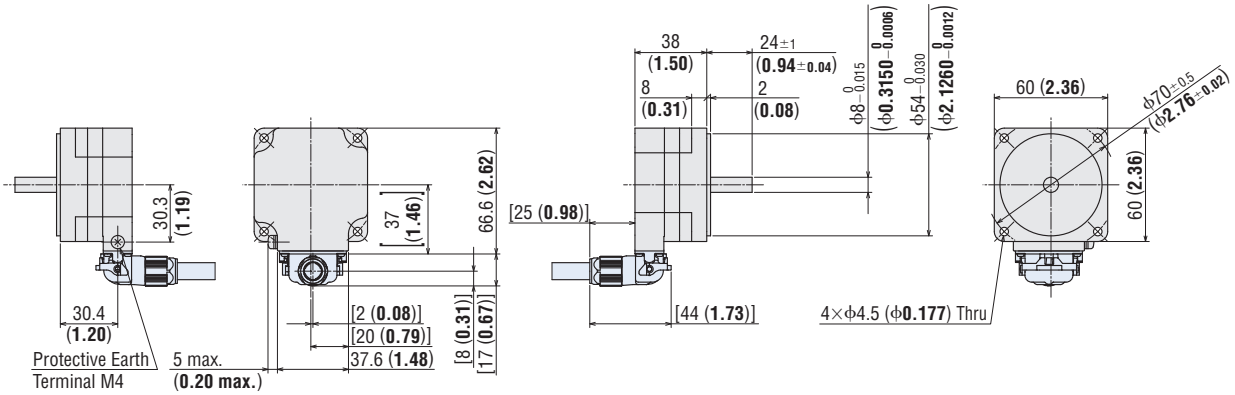


◇Round Shaft Type 30 W (1/25 HP)

BLM230HP-AS

Mass: 0.35 kg (0.77 lb.)

2D CAD A1475 3D CAD

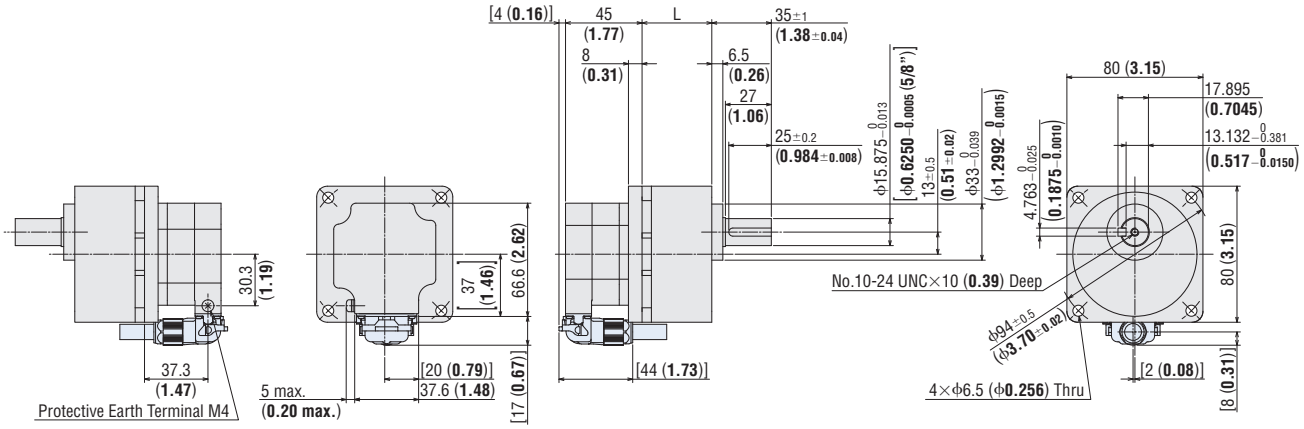


◇Parallel Shaft Gearhead **GFV** Gear 60 W (1/12 HP)

2D & 3D CAD

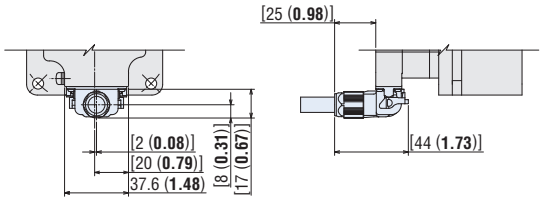
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM460SHP-□AS	BLM460SHP-GFV	GFV4G□AS	**5**～**20**	41 (1.61)	1.6 (3.5)	A1577A	A1578A
	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

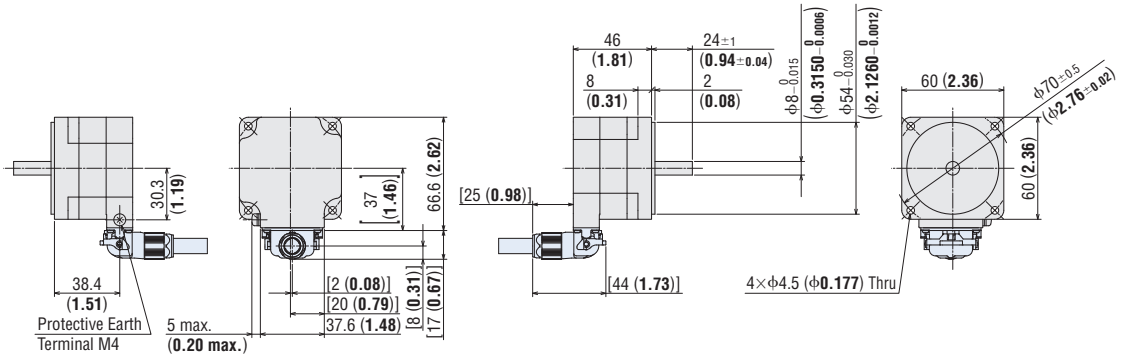


◇Round Shaft Type 60 W (1/12 HP)

BLM260HP-AS

Mass: 0.52 kg (1.14 lb.)

2D CAD A1477 3D CAD

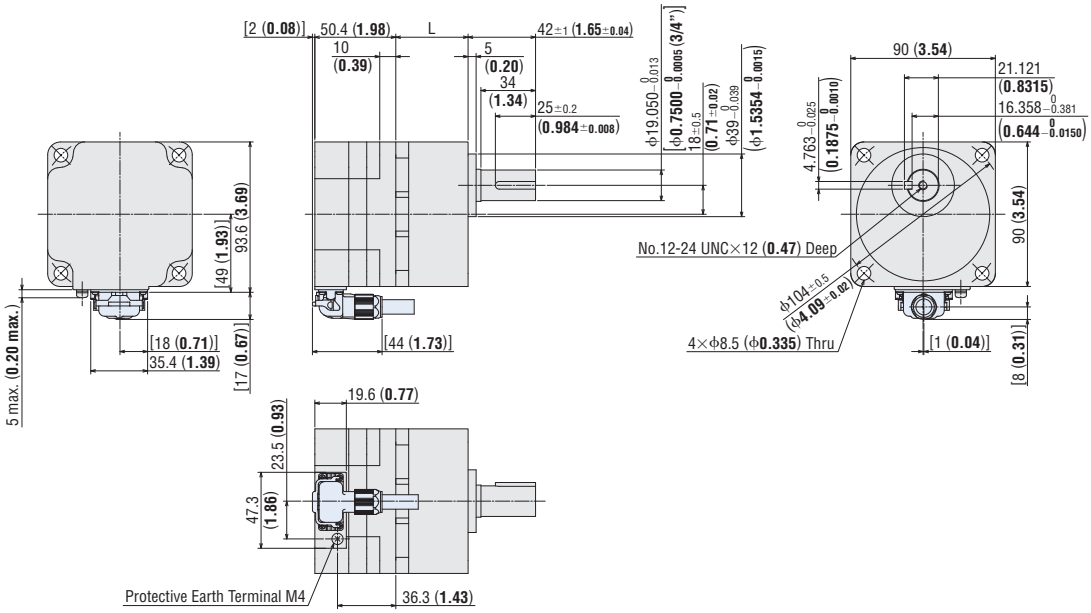


◇Parallel Shaft Gearhead **GFV** Gear 120 W (1/6 HP)

2D & 3D CAD

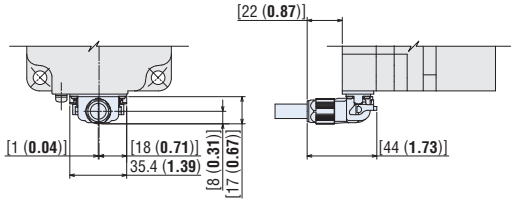
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM5120HP-□AS	BLM5120HP-GFV	GFV5G□AS	**5**～**20**	45 (1.77)	2.6 (5.7)	A1579A	A1580A
			30～**100**	58 (2.28)		A1579B	A1580B
			200	64 (2.52)		A1579C	A1580C

•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

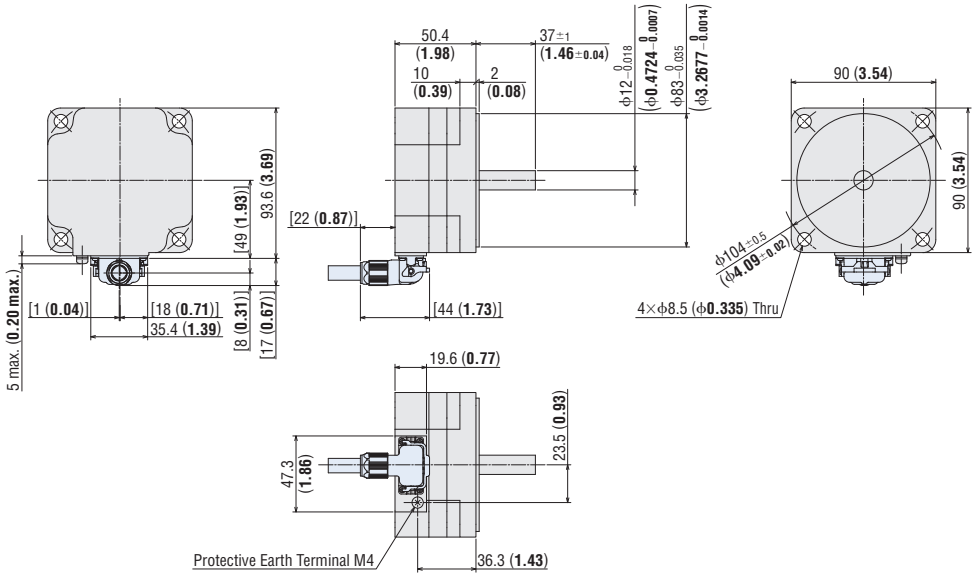


◇Round Shaft Type 120 W (1/6 HP)

BLM5120HP-AS

Mass: 1.1 kg (2.4 lb.)

2D CAD A1479 3D CAD

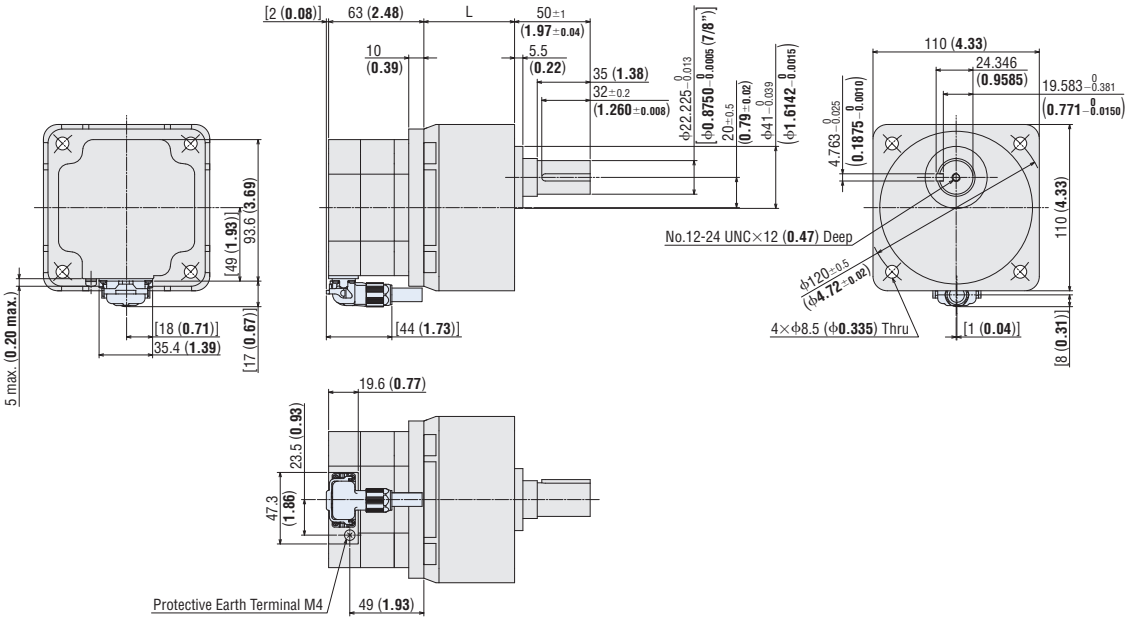


◇Parallel Shaft Gearhead **GFV** Gear 200 W (1/4 HP)

2D & 3D CAD

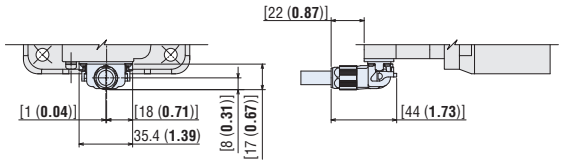
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM6200SHP-□AS	BLM6200SHP-GFV	GFV6G□AS	**5**～**20**	60 (2.36)	4.7 (10.3)	A1581A	A1582A
			30, **50**	72 (2.83)		A1581B	A1582B
			100, **200**	86 (3.39)		A1581C	A1582C

•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

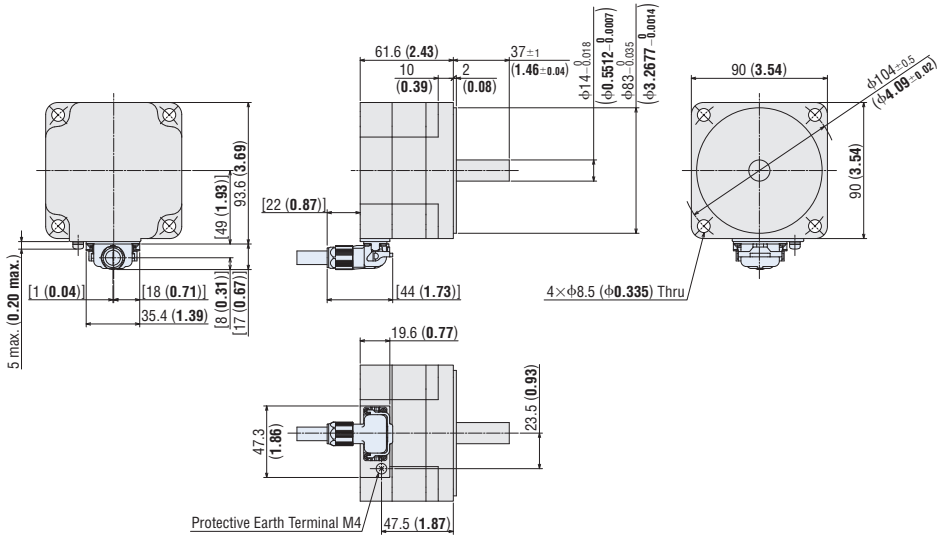


◇Round Shaft Type 200 W (1/4 HP)

BLM5200HP-AS

Mass: 1.6 kg (3.5 lb.)

2D CAD A1481 3D CAD

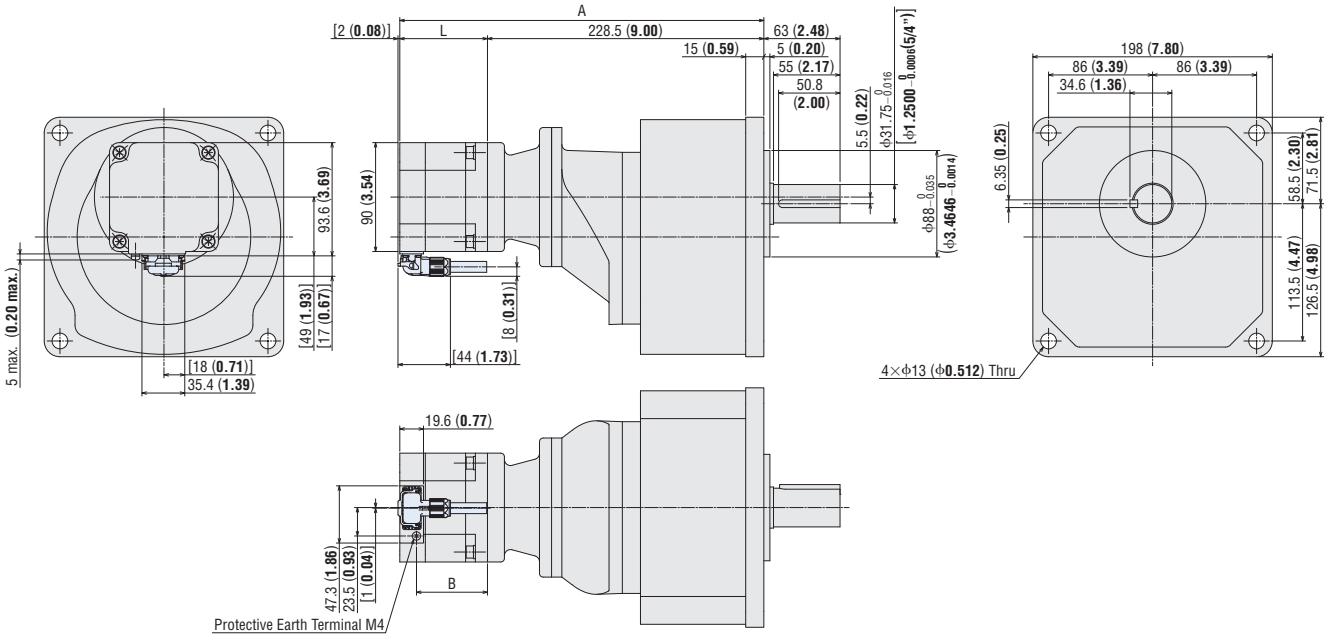


◇Parallel Shaft Gearhead **JV** Gear 200 W (1/4 HP)

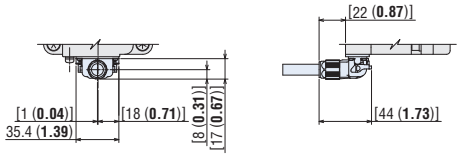
2D & 3D CAD

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

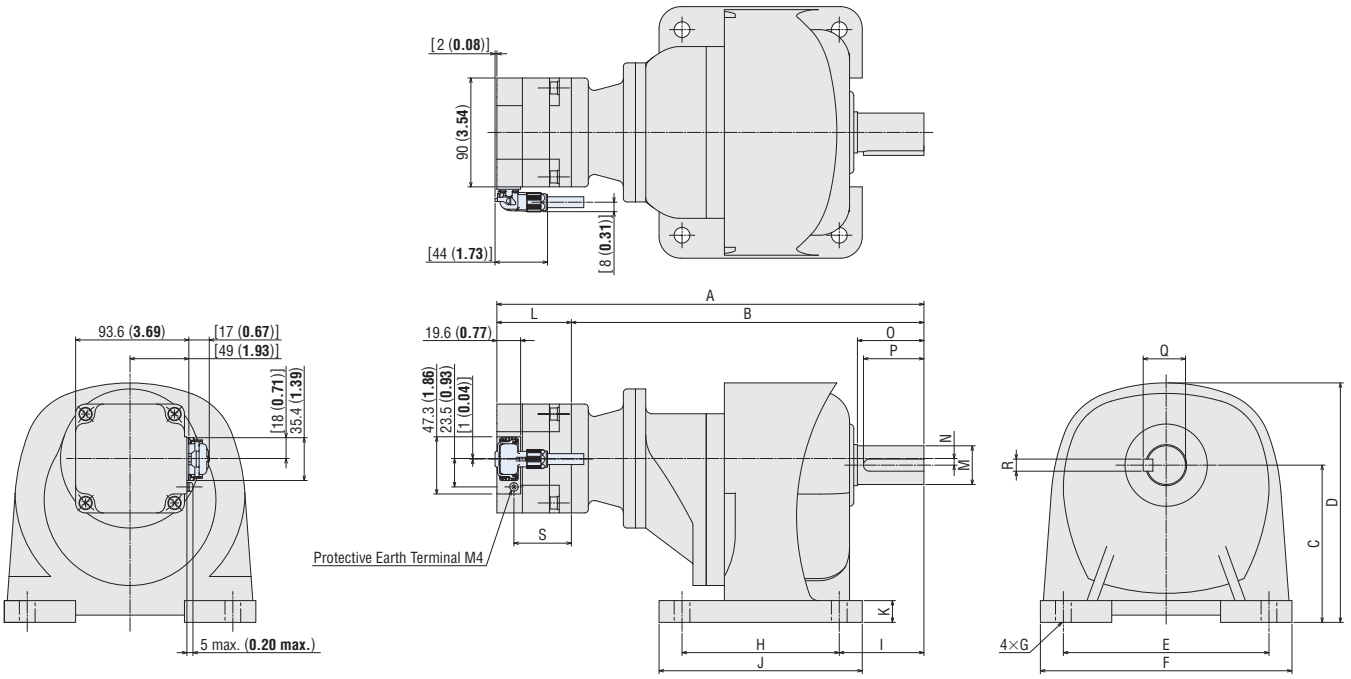
2D & 3D CAD

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
BLM5200HPK-5■B□A-L	BLM5200HPK	5■B□A	**5**, **10**, **20**	①	61.6 (2.43)	4.6 (10.1)	A1639	A1640
			30, **50**	②		5.6 (12.3)	A1641	A1642
			100, **200**	③		7.6 (16.7)	A1643	A1644
			300, **450**	④		11.6 (25.5)	A1645	A1646
			600, **1200**	⑤		18.1 (39.8)	A1647	A1648

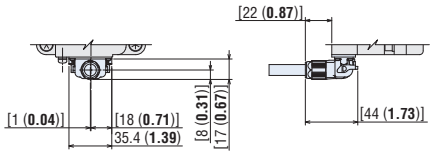
Dimensions No.	Overall Length	Gearhead Frame Size										Output Shaft Dimensions						S
	A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	
①	(219.1)	157.5	85±0.2	131	110	134	ϕ9	40	45	64	10	ϕ19.05 $^{0}_{-0.013}$	16.5✻	30	24.6	21.133	4.763	47.5 (1.87)
	[(8.63)]	(6.20)	(3.35±0.01)	(5.16)	(4.33)	(5.28)	(ϕ0.35)	(1.57)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

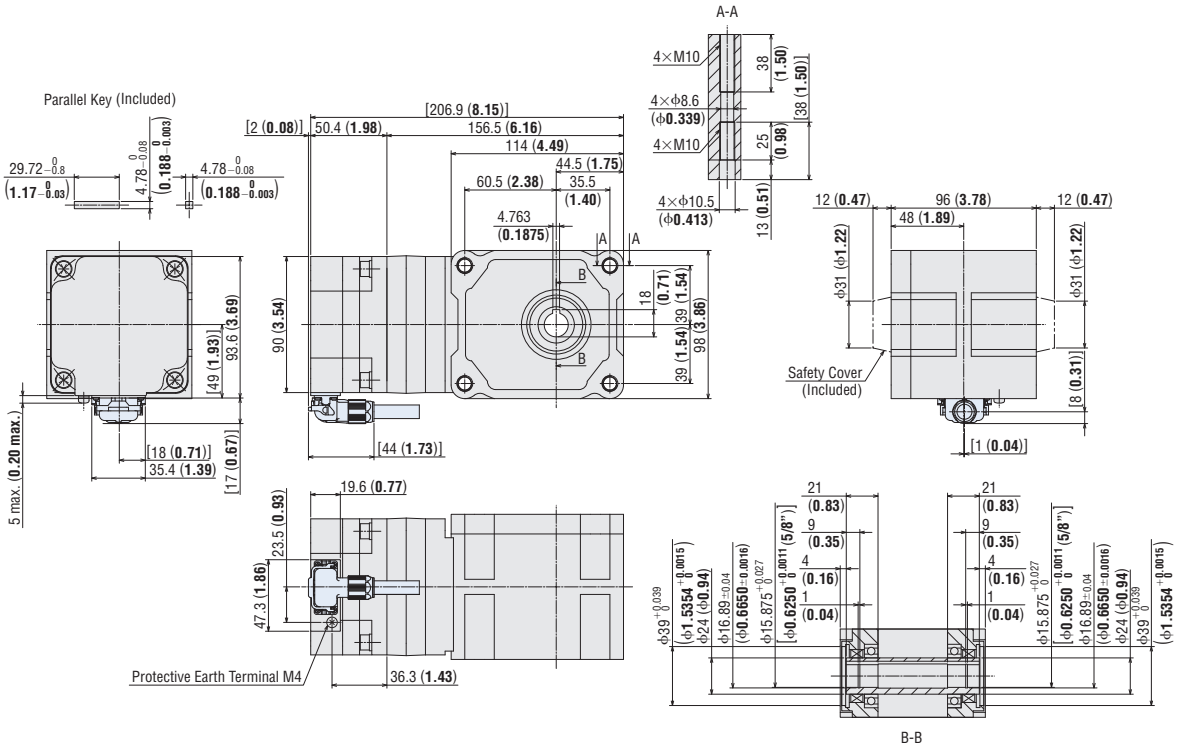


◇Right-Angle Hollow Shaft Hypoid **JH** Gear 120 W (1/6 HP)

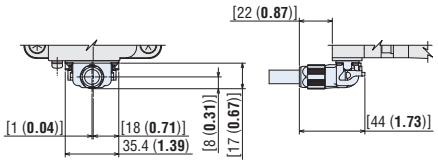
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Mass kg (lb.)	2D CAD	
				Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM5120HPK-5H□C	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

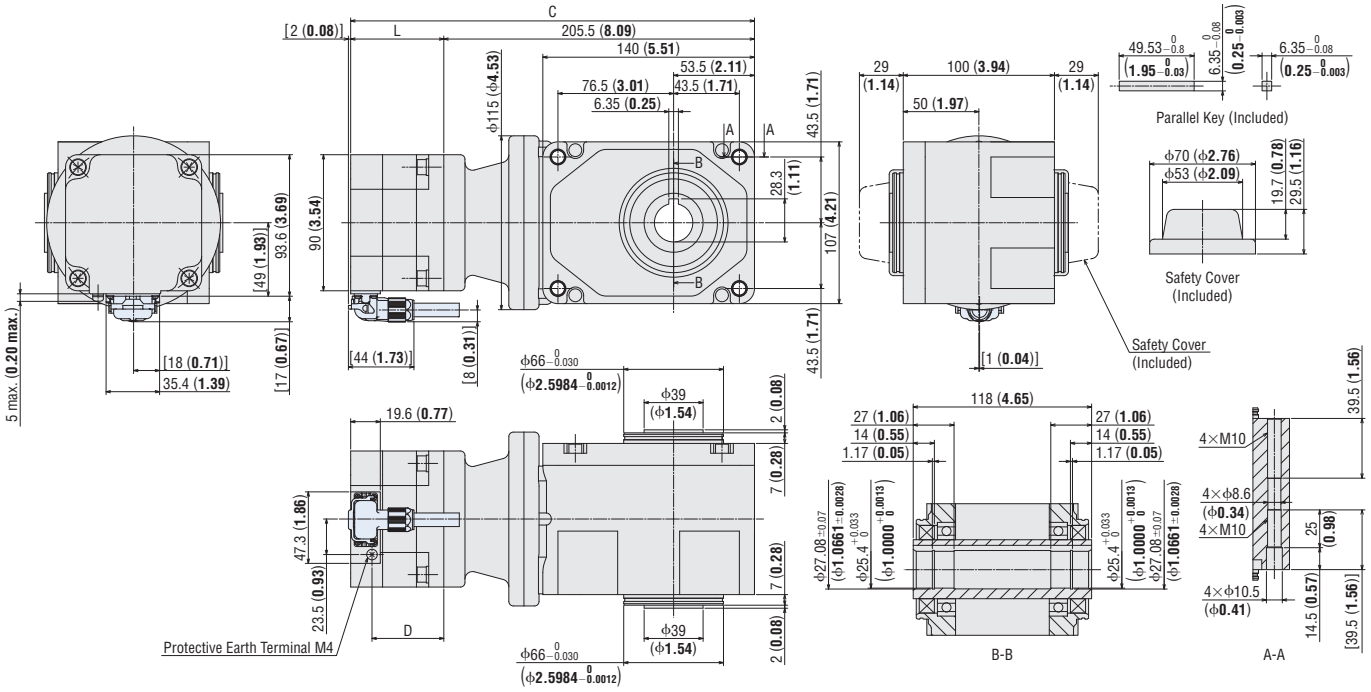


◇Right-Angle Hollow Shaft Hypoid **JH** Gear 200 W (1/4 HP)

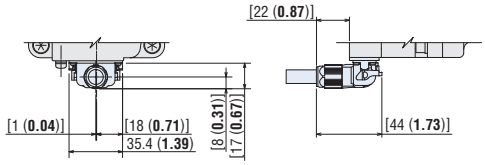
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Dimensions			Mass kg (lb.)	2D CAD	
				C	L	D		Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM5200HPK-5XH□C	BLM5200HPK	5XH□C	**5**, **10**, **15**, **20**, **30**, **50**	(267.1) [(10.52)]	61.6 (2.43)	47.5 (1.87)	6.6 (14.5)	A1631	A1632

●Installation of connection cable to output shaft side



●Installation of connection cable to opposite side of output shaft

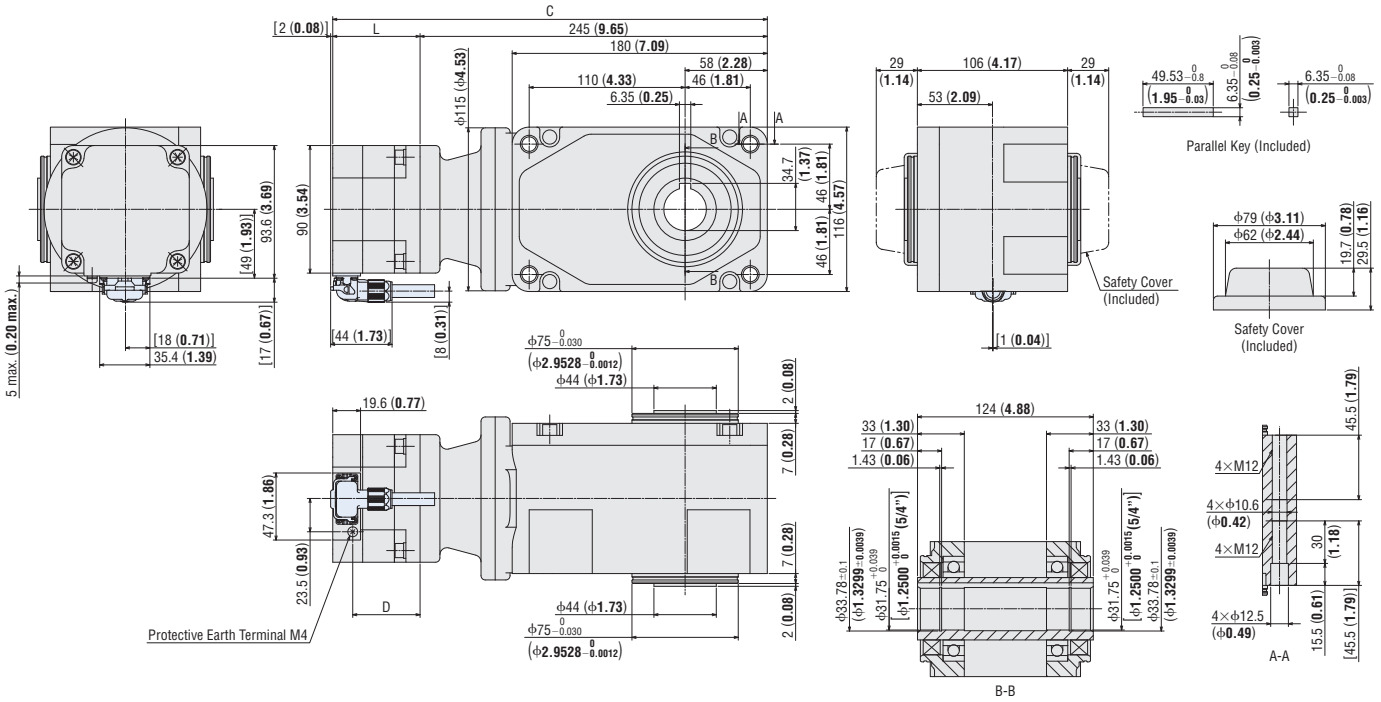


◇Right-Angle Hollow Shaft Hypoid **JH** Gear 200 W (1/4 HP)

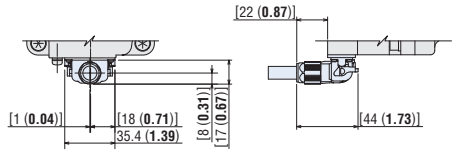
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Dimensions			Mass kg (lb.)	2D CAD	
				C	L	D		Installation of connection cable to output shaft side	Installation of connection cable to opposite side of output shaft
BLM5200HPK-5YH□C	BLM5200HPK	5YH□C	**100, 200**	(306.6) [(12.07)]	61.6 (2.43)	47.5 (1.87)	8.1 (17.8)	A1633	A1634

•Installation of connection cable to output shaft side



•Installation of connection cable to opposite side of output shaft

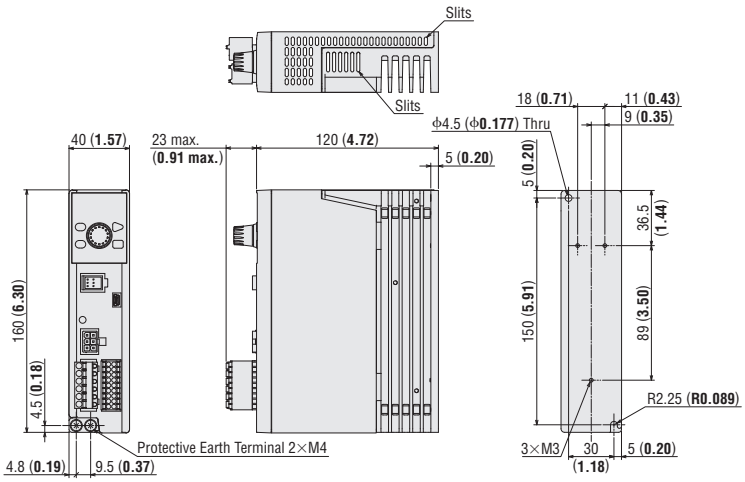


●Driver

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

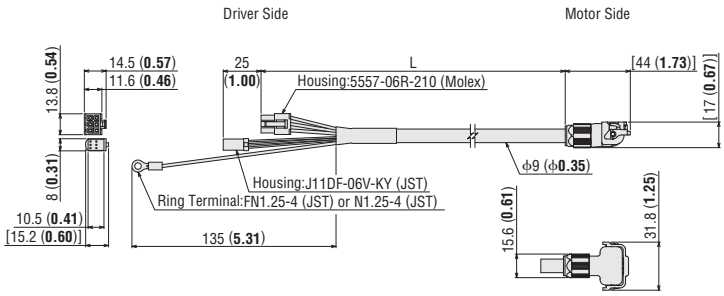
Mass: 0.8 kg (1.76 lb.)

2D CAD A1461 3D CAD



●Connection Cables

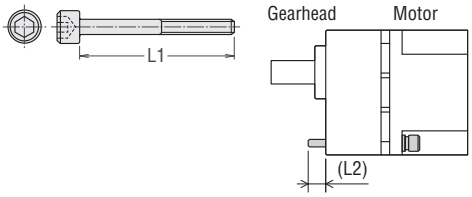
Length L [m (ft.)]	Product Name		Mass [kg (lb.)]
	Output shaft side	Opposite side of output shaft	
0.5 (1.6)	**CC005HBLF**	**CC005HBLB**	0.08 (0.176)
1 (3.3)	**CC010HBLF**	**CC010HBLB**	0.12 (0.26)
1.5 (4.9)	**CC015HBLF**	**CC015HBLB**	0.2 (0.44)
2 (6.6)	**CC020HBLF**	**CC020HBLB**	0.25 (0.55)
2.5 (8.2)	**CC025HBLF**	**CC025HBLB**	0.32 (0.70)
3 (9.8)	**CC030HBLF**	**CC030HBLB**	0.38 (0.84)
4 (13.1)	**CC040HBLF**	**CC040HBLB**	0.49 (1.08)
5 (16.4)	**CC050HBLF**	**CC050HBLB**	0.62 (1.36)
7 (23)	**CC070HBLF**	**CC070HBLB**	0.86 (1.89)
10 (32.8)	**CC100HBLF**	**CC100HBLB**	1.2 (2.6)
15 (49.2)	**CC150HBLF**	**CC150HBLB**	1.9 (4.2)
20 (65.6)	**CC200HBLF**	**CC200HBLB**	2.5 (5.5)



■Dimensions for Installation Screws

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

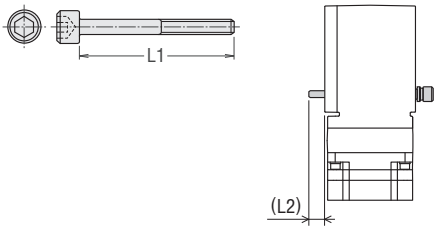
●Parallel Shaft Gearhead



Product Name	Gear Ratio	Installation Screws		L2 [mm (in.)]
		Screw Size	L1 [mm (in.)]	
GFV2G□AS	**5**~**20**	No.8-32UNC	50.8 (2)	7 (0.28)
	30~**100**		57.2 (2.25)	9 (0.35)
	200		63.5 (2.5)	11 (0.43)
GFV4G□AS	**5**~**20**	1/4-20UNC	63.5 (2.5)	12 (0.47)
	30~**100**		69.9 (2.75)	13 (0.51)
	200		76.2 (3)	15 (0.59)
GFV5G□AS	**5**~**20**	5/16-18UNC	69.9 (2.75)	12.5 (0.49)
	30~**100**		82.6 (3.25)	11.5 (0.45)
	200		88.9 (3.5)	12.5 (0.49)
GFV6G□AS	**5**~**20**	5/16-18UNC	88.9 (3.5)	16 (0.63)
	30, **50**		101.6 (4)	17 (0.67)
	100, **200**		114.3 (4.5)	15 (0.59)

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

●Right-Angle Hollow Shaft Hypoid



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

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

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.

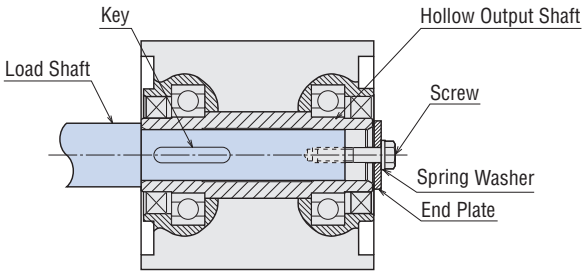
- The hollow output shaft has key grooves machined for the installation of the load shaft.

Note

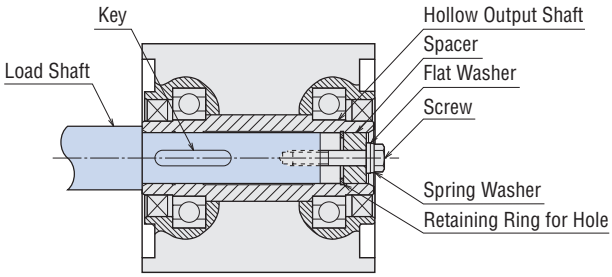
- To prevent sticking, apply a coat of grease on the surface of the load shaft and interior of the hollow output shaft.

◇Stepped Load Shaft

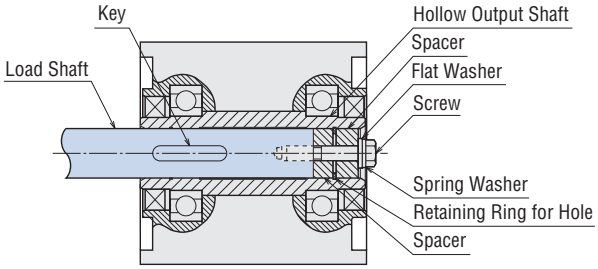
•Fixing Method Using an End Plate



•Fixing Method Using a Retaining Ring for Hole



◇Straight Load Shaft



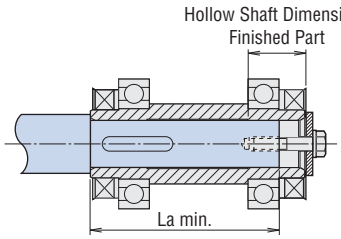
◇Recommended Load Shaft Installation Dimensions

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		$\phi 15.875\ ^{+0.027}_{0}$ [$\phi 0.625\ ^{+0.0011}_{0}$ (5/8″)]	$\phi 25.4\ ^{+0.033}_{0}$ [$\phi 1\ ^{+0.0013}_{0}$]	$\phi 31.75\ ^{+0.039}_{0}$ [$\phi 1.25\ ^{+0.0015}_{0}$ (5/4″)]
Recommended Load Shaft Dimensions		$\phi 15.875\ ^{0}_{-0.018}$ [$\phi 0.625\ ^{0}_{-0.0007}$ (5/8″)]	$\phi 25.4\ ^{0}_{-0.021}$ [$\phi 1\ ^{0}_{-0.0008}$]	$\phi 31.75\ ^{0}_{-0.025}$ [$\phi 1.25\ ^{0}_{-0.001}$ (5/4″)]
Screw Size		M6	M6	M8
Spacer Dimensions	Outer Diameter	ϕ14.5 (ϕ0.57)	ϕ24.5 (ϕ0.96)	ϕ29.5 (ϕ1.16)
	Inner Diameter	ϕ7 (ϕ0.28)	ϕ7 (ϕ0.28)	ϕ9 (ϕ0.35)
	Width	3 (0.12)	4 (0.16)	5 (0.20)
Nominal Hole Diameter of Retaining Ring (C-type Retaining Ring)		ϕ15 (ϕ0.59)	ϕ25 (ϕ0.98)	ϕ30 (ϕ1.18)
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.

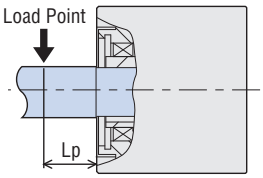
◇Recommended length of load shaft



●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)

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

- 120 W (1/6 HP)

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

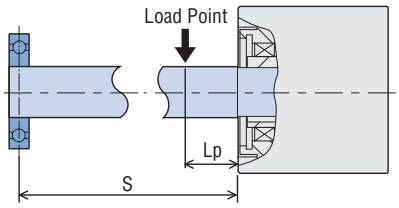
- 200 W (1/4 HP) (Gear Ratio **5**~**50**)

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

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

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

◇When End of Shaft being Driven is Supported by Bearing



- 60 W (1/12 HP)

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

- 120 W (1/6 HP)

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

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

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

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

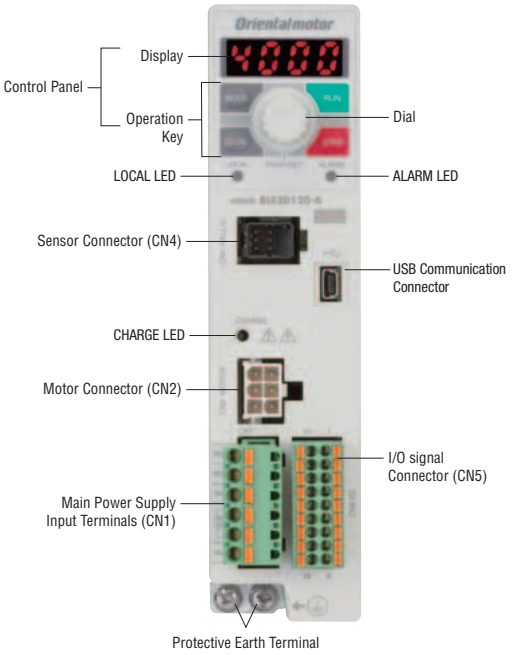
$$\text{Permissible radial load W [N]} = \frac{102\ (S - 9)}{111\ (S - Lp)} \times F_0$$

F_0 [N]: Permissible radial load at 20 mm from the installation surface
Lp [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 LOCAL RUN STOP	Operation Key: switches the operating mode and changes the parameters. During local operation, use the RUN key for operating the motor and STOP 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) Blinks for information notification. (Orange)
CHARGE LED	CHARGE	Illuminates when the main power supply is ON. (Red) 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: Connect 100-120 VAC to L and N. NC is not used.
	L1, L2, NC L1, L 2, L3	Single-Phase 200-240 VAC: Connect 200-240 VAC to L1 and L2. NC is not used.
		Three-Phase 200-240 VAC: Connect three-phase 200-240 VAC to L1, L2 and L3.
	RG1, RG2	No connection
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 **MEXE02** 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.

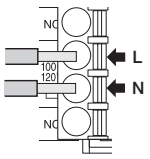
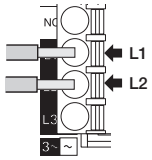
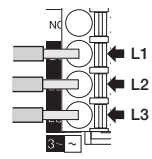
◇Operation Key

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.

• Single-Phase 100-120 VAC	• Single-Phase 200-240 VAC	• Three-Phase 200-240 VAC
		

•Applicable Lead Wire Size

AWG18~14 (0.75~2.0 mm^2)

◇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.
	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.

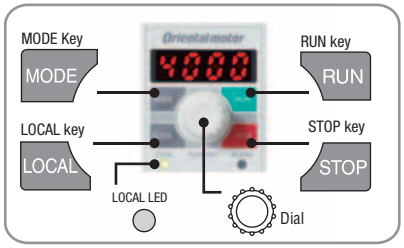
◇Starting and Stopping Motors

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.

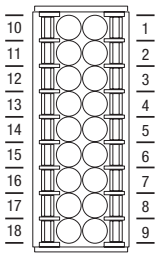
•Control Panel



●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.	2-wire input method
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		IN-COM1	0 V (for internal power supply)	Connect when using internal power supply	
10		N.C.	—	No connection.	
11					
12		VH	External analog setting input	Connect when speed and torque limiting values are set using an external speed potentiometer or external DC voltage.	
13		VM			
14		VL			
15	Output	OUT0+	SPEED-OUT	30 pulses are output when the motor output shaft makes one rotation.	
16		OUT0−			
17		OUT1+	ALARM-OUT	Output when an alarm activates. (Normally closed)	
18		OUT1−			



●Applicable Lead Wire Size
AWG24～18 (0.2～0.75 mm²)

*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.

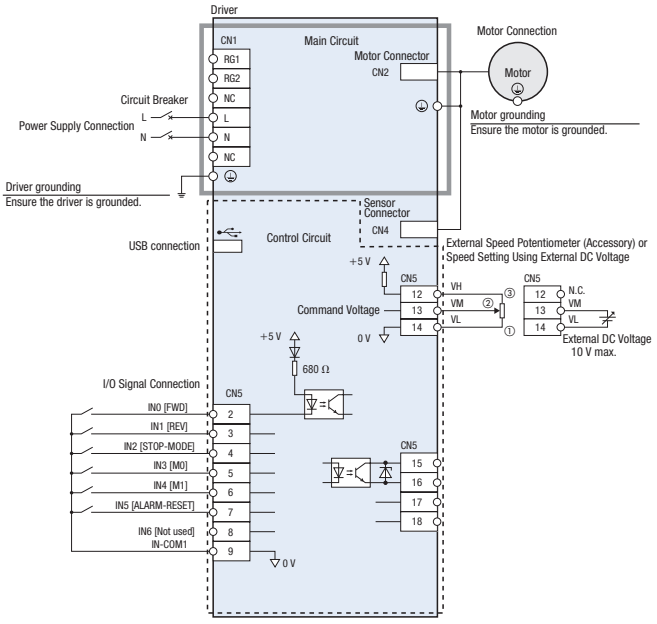
◇Changeable Signal Assignments

Signal Type	Function	Description	
Input	START/STOP	The motor rotates when the START/STOP input and RUN/BRAKE input are ON. The motor decelerates to a stop when START/STOP input is turned OFF. The motor comes to an instantaneous stop when RUN/BRAKE input is turned OFF.	3-wire input method
	RUN/BRAKE		
	CW/CCW	This signal allows you to change the rotation direction of the motor.	
	M2	This signal allows you to select the operating data No.	
	M3		
	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.	
	HMI	This signal allows you to limit operations via the control panel and the data setting software **MEXE02**.	
	EXT-ERROR	This signal allows you to force stop the motor externally.	
Output	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 ±VA detection range.	
	DIR	This signal outputs the rotation direction of the motor.	

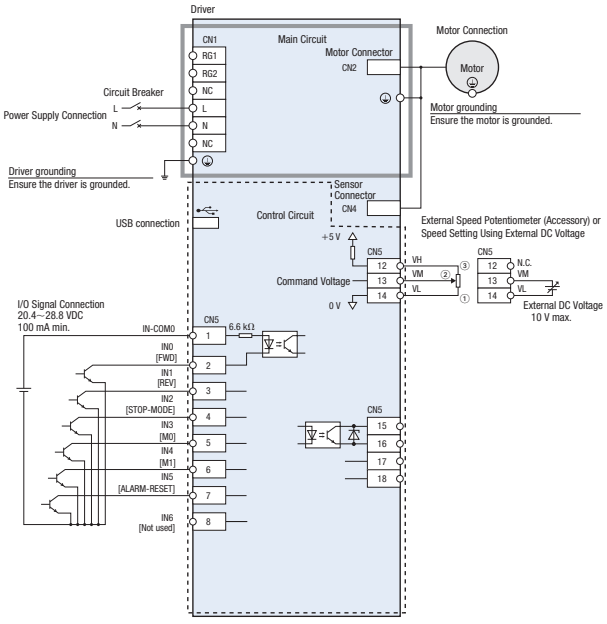
●Connection Diagram

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.

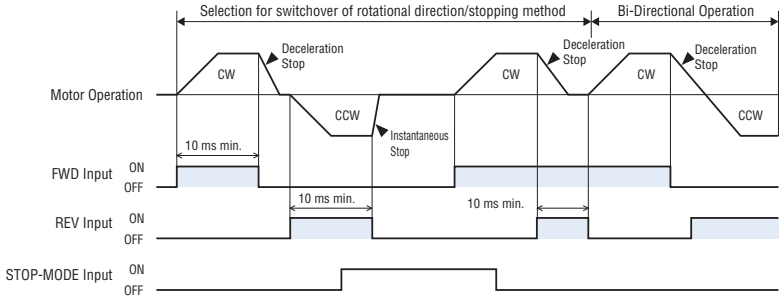
◇Using an Internal Power Supply



◇Using an External Power Supply



●Timing Chart (2-Wire Input Mode)



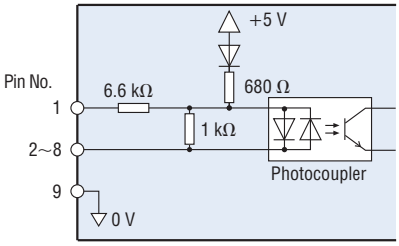
● FWD Input, REV Input
When FWD input is ON, it rotates in CW direction (clockwise). Turning it OFF decelerates the motor to a stop.
When REV input is ON, it rotates in CCW direction (counterclockwise). Turning it OFF decelerates the motor to a stop.

● 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

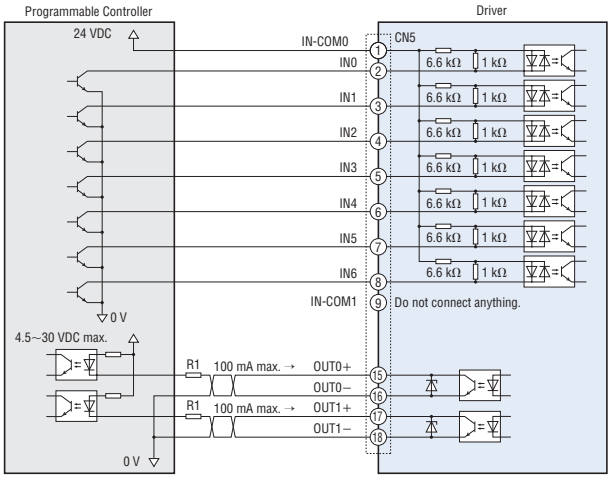
Select sink logic or source logic according to the external control device used.

◇Input Signal

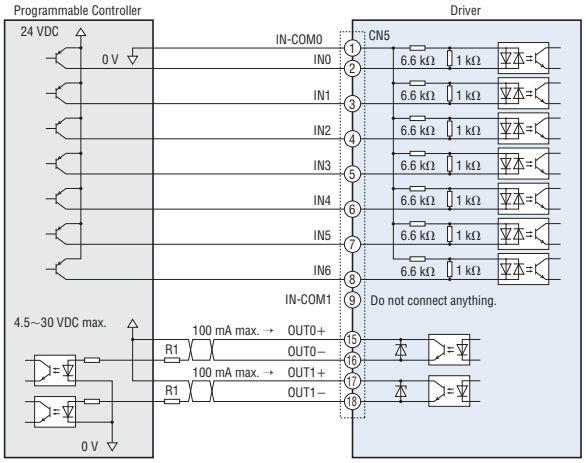


◇Host Controller Connection Examples

•Sink Logic

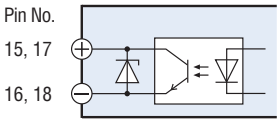


•Source Logic



✻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)

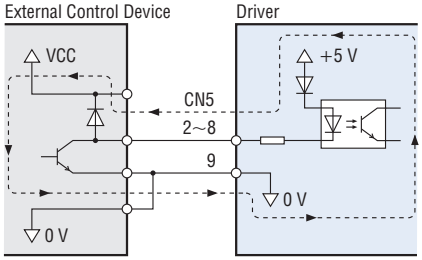
◇Output Circuit



◇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

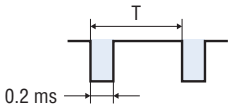


◇SPEED-OUT

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.

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

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



◇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.

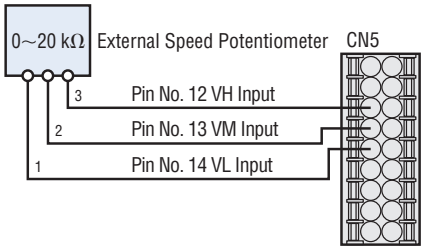
●Speed Setting Methods

Speed can be set using the following 4 methods.

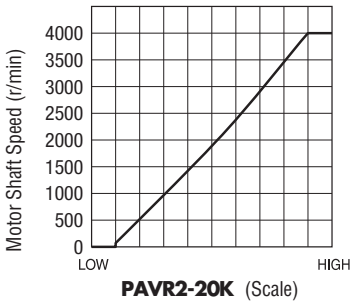
◇Setting via Control Panel

◇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)

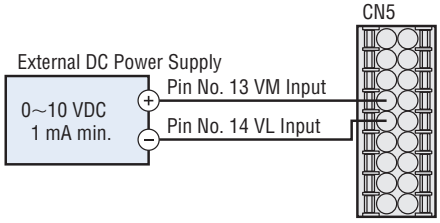


Note

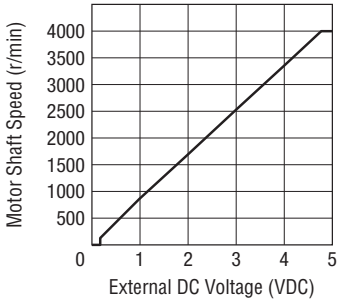
● The speed in the graph represents the speed of the motor alone. The gear output shaft speed is calculated by dividing the graph speed by the gear ratio.

◇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



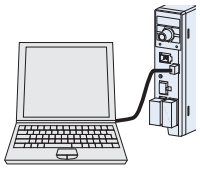
Note

● 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

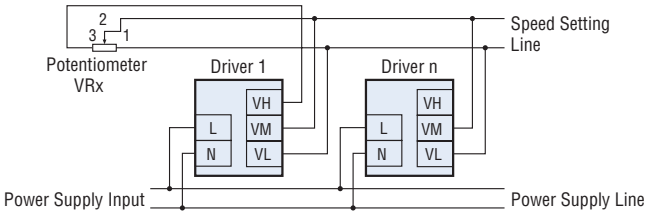
●Parallel-Motor Operation

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.

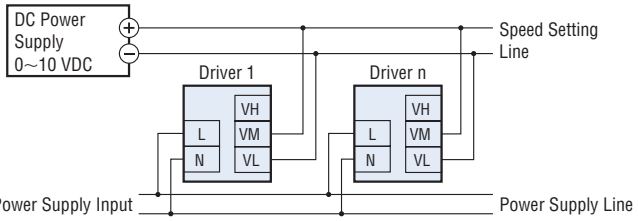
Resistance value when the number of drivers is n: VRx = 20/n (kΩ), n/4 (W)
Example: When two drivers are used
VRx = 20/2 = 10 (kΩ), 2/4 = 1/2 (W)
10 kΩ, power is 1/2 W



◇Using External DC Voltage

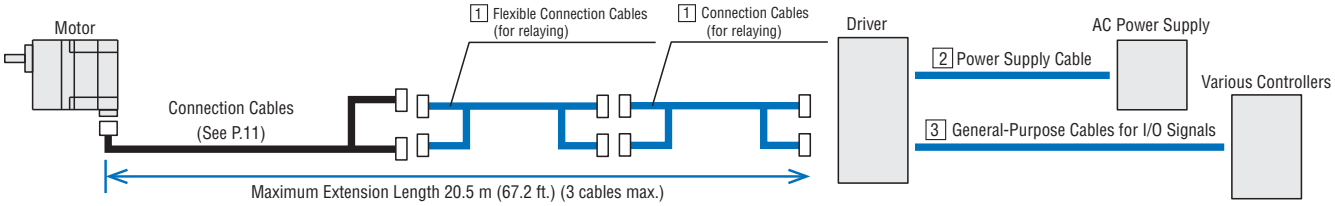
The power supply capacity of the external DC power supply is determined as follows.

Power supply capacity when the number of drivers is n: I = 1 × n (mA)
Example: When two drivers are used
I = 1 × 2 = 2 (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.)]	List Price
CC01BL2	1 (3.3)	$28.00
CC02BL2	2 (6.6)	$38.00
CC03BL2	3 (9.8)	$47.00
CC05BL2	5 (16.4)	$94.00
CC07BL2	7 (23.0)	$122.00
CC10BL2	10 (32.8)	$166.00

◇Flexible Connection Cables

Product Name	Length [m (ft.)]	List Price
CC01BL2R	1 (3.3)	$72.00
CC02BL2R	2 (6.6)	$101.00
CC03BL2R	3 (9.8)	$130.00
CC05BL2R	5 (16.4)	$187.00
CC07BL2R	7 (23.0)	$245.00
CC10BL2R	10 (32.8)	$331.00

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.)]	List Price
CC01AC03P	Plug Included	Single-Phase 100-120 VAC	1 (3.3)	$18.00
CC02AC03P			2 (6.6)	$24.00
CC03AC03P			3 (9.8)	$30.00
CC01AC03N	No plug	Single-Phase 100-120 VAC Single-Phase 200-240 VAC	1 (3.3)	$12.00
CC02AC03N			2 (6.6)	$18.00
CC03AC03N			3 (9.8)	$24.00
CC01AC04N	No plug	Three-Phase 200-240 VAC	1 (3.3)	$12.00
CC02AC04N			2 (6.6)	$18.00
CC03AC04N			3 (9.8)	$24.00

3 General-Purpose Cable for I/O Signals

A cable for connecting the driver and programmable controller.

●Types and Prices

Product Name	Length [m (ft.)]	Number of Lead Wire Cores	Outer Diameter [mm (in.)]	AWG	List Price
CC06D010B-1	1 (3.3)	6	ϕ5.4 (ϕ0.21)	24	$19.00
CC06D020B-1	2 (6.6)				$23.00
CC10D010B-1	1 (3.3)	10	ϕ6.7 (ϕ0.26)		$21.00
CC10D020B-1	2 (6.6)				$26.00
CC12D010B-1	1 (3.3)	12	ϕ7.5 (ϕ0.30)		$24.00
CC12D020B-1	2 (6.6)				$30.00
CC16D010B-1	1 (3.3)	16	ϕ7.5 (ϕ0.30)		$25.00
CC16D020B-1	2 (6.6)				$31.00

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 and Prices

Applicable Product	Load Type	Coupling Type	List Price
BLM230	Uniform load	**MCL30** Type	$51.00
	Impact Load		
BLM460	Uniform load	**MCL40** Type	$76.00
	Impact Load	**MCL55** Type	$97.00
BLM5120	Uniform load	**MCL55** Type	$97.00
	Impact Load		
BLM6200	Uniform load	**MCL65** Type	$147.00
	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	List Price
PAVR2-20K	$23.00

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.

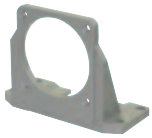
Specifications

Resistance: 0~20 kΩ
Rated Power: 0.05 W
Resistance Variation Characteristics: B curve

•Applicable Lead Wire Size*

AWG22~18 (0.3~0.75 mm²)
*When combined with **BLE2** Series

Motor and Gearhead Mounting Brackets

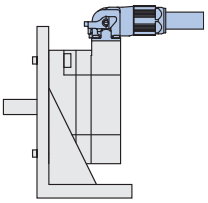


These dedicated mounting brackets are for mounting parallel shaft gearhead **GFV** gear and round shaft type.

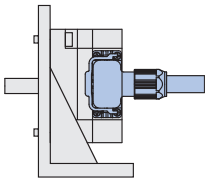
Types and Prices

Product Name	List Price	Applicable Product
SOL2U08F	$22.00	**BLM230**, **BLM260** (Round shaft type)
SOL4UAF	$25.00	**BLM460** (**GFV** Gear)
SOL5UBF	$29.00	**BLM5120**, **BLM5200** (Round shaft type)
SOL6UBF	$33.00	**BLM6200** (**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.

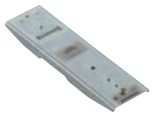


Connector Facing Up



Connector Facing to Side

DIN Rail Mounting Bracket



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

Types and Prices

Product Name	List Price
MADP02	$29.00

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.

With a Cable Ground
PCM5-C

Types and Prices

◇Motor Cover

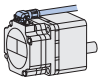
Product Name	List Price
PCM5-C	$49.00

◇Replacement Gasket

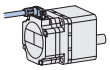
Replace the gasket approximately once a year.

Product Name	List Price	Package Contents
PCMP5		Set of 2 gaskets

Applicable Product

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

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



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