Brushless Motors

BLE2 Series

BLE2 Series

Brushless Motor and Driver

BLE2 Series

For detailed information about regulations and standards, please see to the Oriental Motor website.

- Achieves a balance between high functionality and ease of use
- Digital setting and operation with the driver
- Speed can be set via a PC or external signals
- Degree of Protection IP66 Watertight and Dust-Resistant
- Direct connection between motors and drivers [up to 20 m (65.6 ft.)]
- Utilizes a new brushless motor that is compact, high power, and highly efficient
- Providing the highest standard in speed control at an affordable price
- Available Gearheads

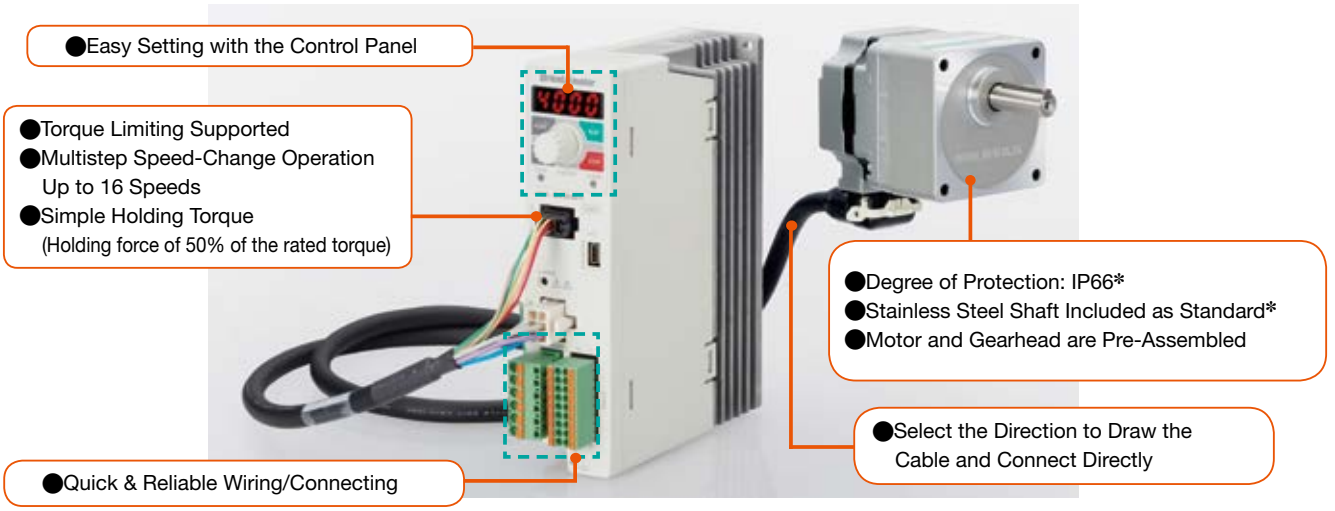
See Full Product Details Online
www.orientalmotor.com

- Manual
- Specifications
- Dimensions
- CAD
- Characteristics
- Connection and Operation

Features

BLE2 Series Overview

The new motor structure is smaller than previous models and enables high power and high efficiency. The driver, equipped with the digital indication panel can, easily set the speed.



*The degree of protection and output shaft material differ depending on the type of gearhead being combined. For more details, please refer to the product line table. ➜ Page D-36

Easy Setting with the Control Panel

The control panel is equipped on the face of the driver. 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.

- Speed Setting Range 80~4000 r/min*
  *Varies with some gearheads
- Speed Regulation ±0.2%*
  *Digital setting

Quick & Reliable Wiring/Connecting

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

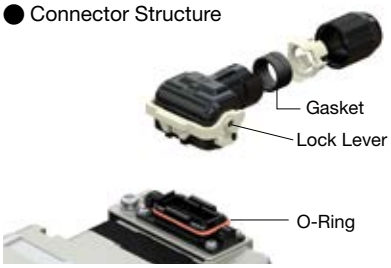
Degree of Protection IP66*

The connector was newly developed for small motors. It enables a direct connection between motors and drivers.
In addition, the motor structure improves the watertight and dust-resistant performance through compliance with the degree of protection IP66*.

New Connector Type

The internal gasket and O-ring improve the watertight performance. Connecting is easy due to the lock lever that does not require screws.

● Connector Structure



● Installation Method

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

Stainless Steel Shaft Included as Standard*

The shaft uses a stainless steel with particularly superior rust prevention and corrosion resistance. Also, the parallel key and installation screws are made of stainless steel.

*The degree of protection and output shaft material differ depending on the type of gearhead being combined. For more details, please refer to the product line table. ➜ Page D-36

Select the Direction to Draw the Cable and Connect It Directly

2 types of the connection cables are available, depending on which direction the cable will be drawn. No extension cable is required, since a single connection cable can connect directly between drivers and motors at a max. distance of 20 m (65.6 ft.).

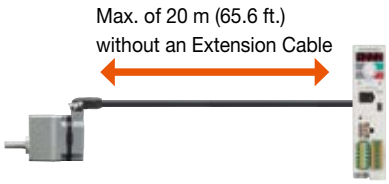
Selectable Cable Outlet Direction

You can choose between 2 directions for the motor cable based on the equipment. (The round shaft type can only use the cable drawn to the opposite side of the output shaft.)

Cable Drawn in the Side of the Output Shaft — Cable Drawn in the Opposite Side of the Output Shaft

Direct Connection with Motors and Drivers

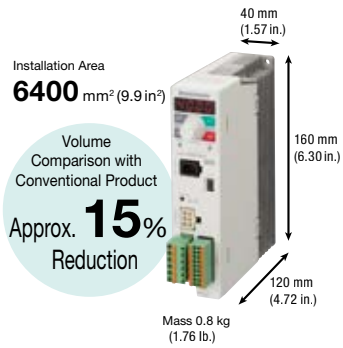
Connect up to a max. distance of 20 m (65.6 ft.) without an extension cable. No extension cable is required. The wiring process is simplified by using 1 cable, instead of power lines, signal lines, and ground wires.



Effective Utilization of Installation Space

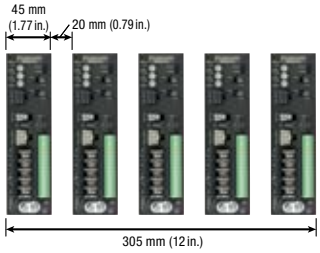
This new driver has a compact and slim body through the rearrangement of the internal components to optimize space. Multiple drivers can now be installed in contact with each other, making it possible to reduce the amount of installation space or increase the number of axes within the same equipment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

Compact, Slim Body Driver

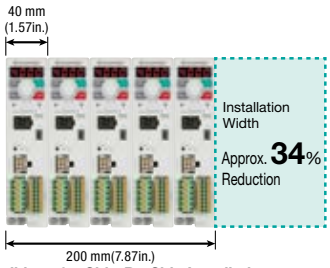


Multiple Drivers Can be Installed in Contact with Each Other

Conventional **BLE** Series Driver



BLE2 Series Driver



Conditions for Side-By-Side Installation

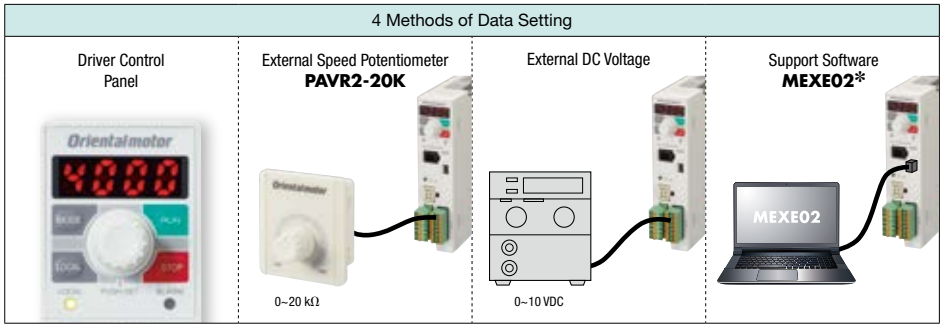
- Ambient temperature 0~+50°C (+32~+122°F) [200 W (1/4 HP), 400 W (1/2 HP) only 0~+40°C (+32~+104°F)]
- Attach to a heat sink (Material: aluminum, 350 × 350 × 2 mm (13.8 × 13.8 × 0.08 in.) equivalent).

Supporting Customers with Enhanced Functions

The drivers are equipped with 4 methods of data setting and various functions that correspond with your purpose of use.
Using support software allows you to easily check the equipment start-up and operating status.

Operating Method

- Local Operation: method for operation from the control panel. This can be used for test runs.
- Remote Operation: operating method via external signals and the **MEXE02** support software.



*When using the **MEXE02** support software, the driver can be connected to your computer using a commercially available USB cable.

Setting Details

Functions are provided in accordance with the customers' usage conditions.

Setting	Application and Purpose	Setting Value	Setting Method			
			Control Panel	External Speed Potentiometer **PAVR2-20K**	External DC Voltage	Support Software **MEXE02**
Speed	Operation at the desired speed is available.	80～4000 r/min	●	●	●	●
Torque Limiting	In addition to suppressing the max. output torque of a motor for safety purposes, the max. output torque can be limited according to the load.	0~300%	●	●	●	●
Acceleration/ Deceleration Time	Acceleration time and deceleration time can be set to prevent excessive shock when starting and stopping.	0~15.0 seconds	●	–	–	●
Multistep Speed-Change Operation	Operation at 2 speeds or more is available.	Up to 16 speeds	●	–	–	●
Parallel-Motor Operation	Multiple motors can be operated at the same speed.	20 motors max. (when a potentiometer is used)	–	●	●	–

Useful Functions

This section introduces the main functions available when using the control panel and the **MEXE02** support software.

Functions	Application and Purpose	Description
Load Factor Indication	Check the motor generated torque.	With the rated torque of the motor at 100%, display the load factor. (Indication Range: 0～300%)
Gear Ratio	Display the conveyor transportation speed or the speed reduced by the gearhead.	When the gear ratio is set, the converted speed can be displayed.
Speed Upper and Lower Limits	Operate the motor within the specified speed control range.	Specify the upper and lower speed limits.
Speed Teaching	Store the speed while the motor is rotating.	In monitoring mode, store the speed while the motor is rotating.
Simple Holding Torque	Simply hold the load when the motor is stopped.	An electrical holding torque can be generated when the motor is stopped. (Holding force up to 50% of rated torque) Note Because the holding force dissipates if the power to the driver is turned OFF, this cannot be used to prevent the load falling while stopped.
Impack softening Filter	Alleviate shock when starting and stopping.	This function offers slow acceleration and stopping, so that the load being transported during starting and stopping does not move.
Alarm	Check problem details.	This function enables you to identify the causes and quickly respond to problems, including an overload, a disconnection or an operation error.
General Information	Use for operation verification and regular maintenance.	The signal is output before an alarm is output. Inputting appropriate parameters for each type of information also helps equipment maintenance.
Editing Lock	Protect the specified data.	Prohibit the editing/deletion of data and parameters with the driver's control panel and local operations.

Useful **MEXE02** Support Software Functions

The support software can be downloaded from the Oriental Motor website.

Support Software **MEXE02**

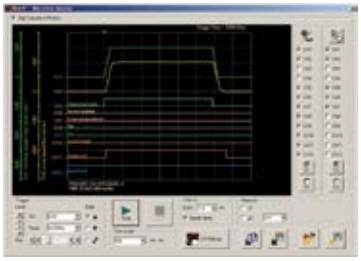
Monitoring Functions

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 enables you to operate a motor alone or check the connection to the host system. Using this function when starting up the equipment can reduce the overall startup time.

●Capable of Adjusting the Speed During Test Operation (Speed teaching)

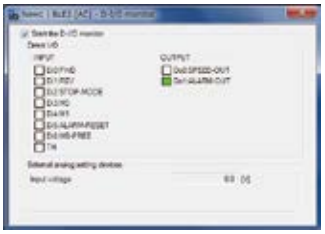
On startup

The speed data can be set during test operation before connecting to the host system. Because the speed data is set and saved, this reduces the startup time.

●I/O Monitoring

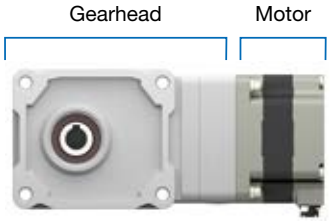
On startup | For operation

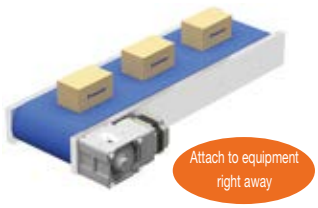
A direct I/O signal test can be performed. Input signals and external DC voltage can be monitored, and output signals can be forced to output. This function is useful for checking the connection to the host system.



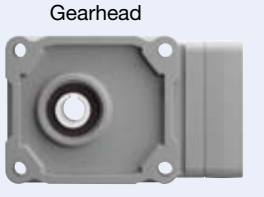
Motor and Gearhead are Pre-Assembled

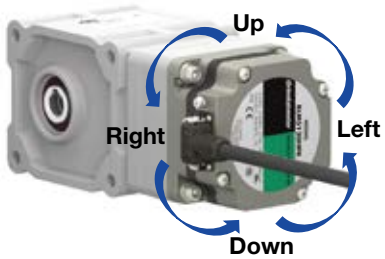
The motor and gearhead are delivered pre-assembled. This allows customers to reduce assembly time and install it in equipment right away.





In addition, the gearhead can be removed and the assembly position can be changed in 90° increments. The connector position can be changed to match your equipment.





Product Line

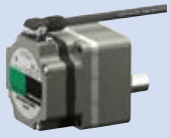
Motor

Driver

Connection Cable

Type/Output Shaft Material			Output Power [W]	Gear Ratio	Degree of Protection	Output Power [W]	Power Supply Voltage [VAC]
Parallel Shaft Gearhead	**GFV** Gear Stainless Shaft		30 (1/25 HP)	**5**, **10**, **15**, **20**, **30**, **50**, **100**, **200**	IP66	30 (1/25 HP)	Single-Phase 100-120 Single/Three-Phase 200-240
			60 (1/12 HP)			60 (1/12 HP)	
			120 (1/6 HP)			120 (1/6 HP)	
			200 (1/4 HP)			200 (1/4 HP)	Single/Three-Phase 200-240
			400 (1/2 HP)	**5**, **10**, **15**, **20**, **30**, **50**		400 (1/2 HP)	Three-Phase 200-240
	JV Gear Stainless Shaft		200 (1/4 HP)	**300**, **450**		200 (1/4 HP)	Single/Three-Phase 200-240
Foot Mount Gearhead **JB** Gear Steel Shaft			200 (1/4 HP)	**5**, **10**, **20**, **30**, **50**, **100**, **200**, **300**, **450**, **600**, **1200**	IP44	200 (1/4 HP)	Single/Three-Phase 200-240
Right-Angle Hollow Shaft Hypoid **JH** Gear Stainless Shaft			120 (1/6 HP)	**10**, **15**, **20**, **30**, **50**, **100**, **200**	IP66	120 (1/6 HP)	Single-Phase 100-120 Single/Three-Phase 200-240
			200 (1/4 HP)	**5**, **10**, **15**, **20**, **30**, **50**, **100**, **200**		200 (1/4 HP)	Single/Three-Phase 200-240
Round Shaft Type Stainless Shaft			30 (1/25 HP)	–	IP66	30 (1/25 HP)	Single-Phase 100-120 Single/Three-Phase 200-240
			60 (1/12 HP)			60 (1/12 HP)	
			120 (1/6 HP)			120 (1/6 HP)	
			200 (1/4 HP)			200 (1/4 HP)	Single/Three-Phase 200-240
			400 (1/2 HP)			400 (1/2 HP)	Three-Phase 200-240

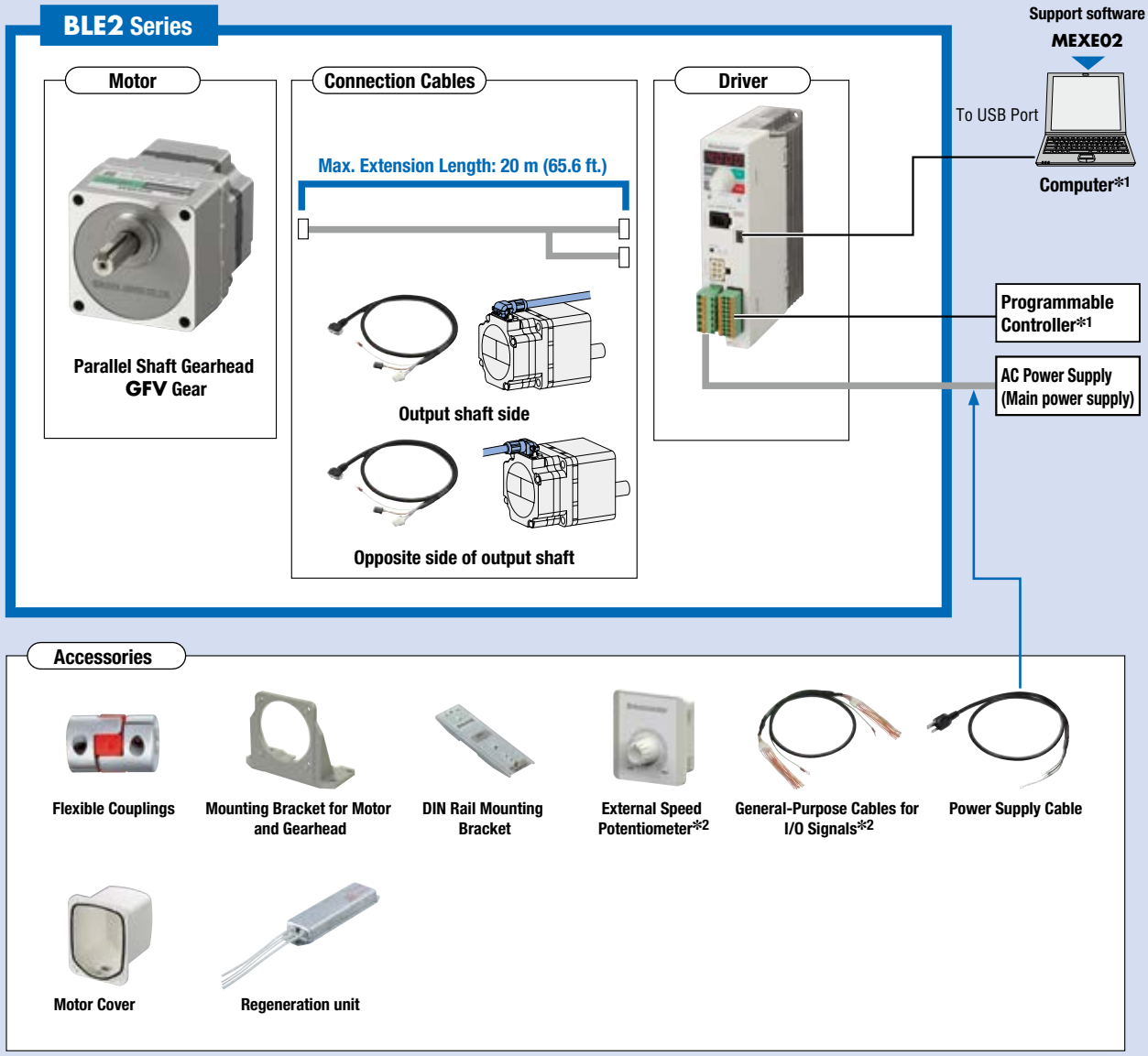
Cables
0.5~20 m (1.6~65.6 ft.)

Output Shaft Side

Opposite Side of Output Shaft*


*The round shaft type can only be combined with the connection cable drawn to the opposite side of the output shaft.

System Configuration

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



*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 Pricing

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.

■Product Number

●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) **400**: 400 W (1/2 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 (➔ D-43 page and D-45 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	**C**: Stainless Steel **A**: Steel
	⑫	Connector Position	Blank: Below **-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) **400**: 400 W (1/2 HP)
③	Power Supply Voltage	**A**: Single-Phase 100-120 VAC **C**: Single-Phase, Three-Phase 200-240 VAC **S**: 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

Product Line

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
400 W (1/2 HP)	**BLM6400SHP-□AS**	**5**, **10**, **15**, **20**	$454.00
		30, **50**	$468.00

◇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
400 W (1/2 HP)	**BLM5400HP-AS**	$260.00

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
400 W (1/2 HP)	Three-Phase 200-240 VAC	**BLE2D400-S**	$325.00

◇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**	$1,161.00

◇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**	$1,079.00
		200	$1,147.00

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

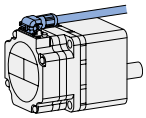
● Either **F** or **B** indicating the cable drawing direction is entered where the box □ is located within the product name.

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

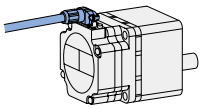
Note

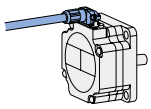
● The cable drawing direction for the round shaft type is opposite the output shaft only.

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	—	—	—	

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

Driver

Start-up Guide	Operating Manual
1 Set	1 Set

Parallel Shaft Gearhead 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 (17.7)	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 (9.0)							
		60 W (1/12 HP)		100 (22)							
		120 W (1/6 HP)		150 (33)							
Permissible Inertia J [×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)		

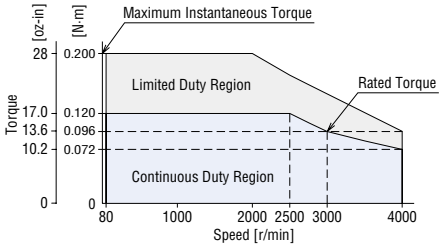
*1 The output shaft speed is calculated by dividing the speed by the gear ratio. *2 Regarding load position ➜ Page D-41

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

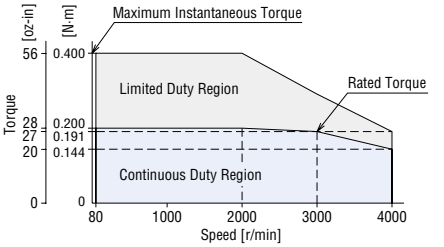
Speed – Torque Characteristics

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

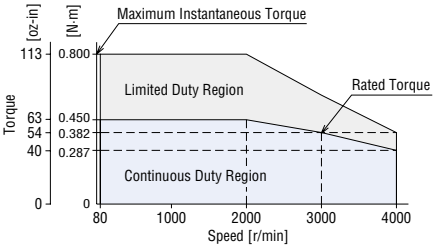
●30 W (1/25 HP)



●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), 400 W (1/2 HP)

Specifications

Product Name			BLM6200SHP-□AS	BLM6400SHP-□AS
	Driver		BLE2D200-C	BLE2D400-S
Rated Output Power (Continuous)		W (HP)	200 (1/4)	400 (1/2)
Power Supply Input	Rated Voltage	VAC	Single-Phase 200-240 / Three-Phase 200-240	Three-Phase 200-240
	Permissible Voltage Range		−15～+10%	−15～+10%
	Frequency	Hz	50 / 60	50 / 60
	Permissible Frequency Range		±5%	±5%
	Rated Input Current	A	Single-Phase: 2.4/Three-Phase: 1.4	2.3
	Maximum Input Current	A	Single-Phase: 6.5/Three-Phase: 4.3	6.1
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.

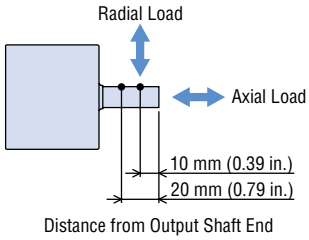
Gear Ratio			5	10	15	20	30	50	100*1	200*1
Rotation Direction			Same direction as the motor				Opposite direction to the motor		Same direction as the motor	
Output Shaft Speed [r/min]*2		80 r/min	16	8	5.3	4	2.7	1.6	0.8	0.4
		4000 r/min	800	400	267	200	133	80	40	20
Permissible Torque [N·m (lb-in)]	200 W (1/4 HP)	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)
	400 W (1/2 HP)	At 80～3000 r/min	5.7 (50)	11.4 (100)	17.1 (151)	22.9 (200)	32.8 (290)	54.6 (480)	—	—
		At 4000 r/min	4.3 (38)	8.6 (76)	12.9 (114)	17.2 (152)	24.6 (210)	41.1 (360)	—	—
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 [×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*3		50 (270)	200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)		

*1 Limited to 200 W(1/4 HP) type.

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

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

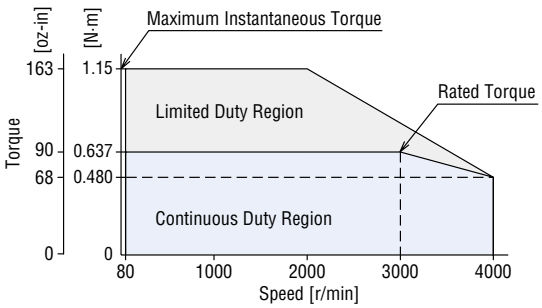
◇Load Position



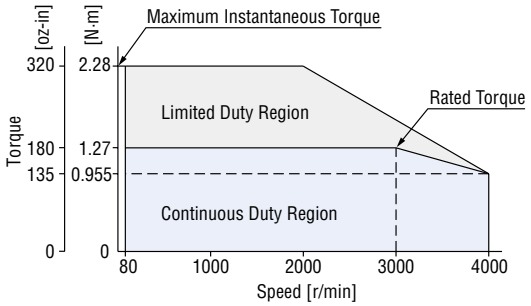
Speed – Torque Characteristics

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

●200 W (1/4 HP)



●400 W (1/2 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 JV Gear 200 W (1/4 HP)

Specifications

Product Name	Motor		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.

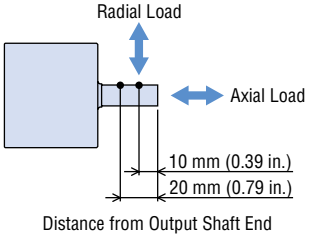
●The values correspond to each specification and characteristics of a stand-alone motor.

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.

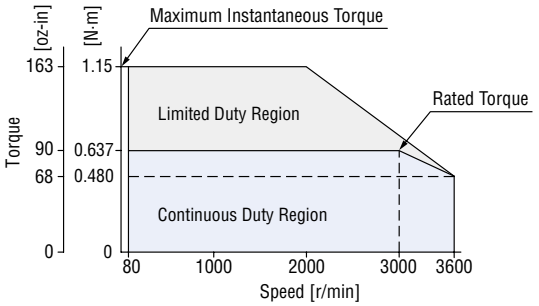
*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇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.

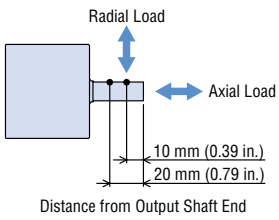
●The values correspond to each specification and characteristics of a stand-alone motor.

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 [$\times10^{-4}$ 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.

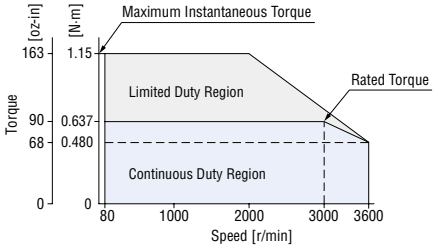
*2 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇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	Motor		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.

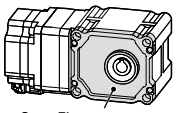
Gear Ratio			10	15	20	30	50	100	200
(Actual Gear Ratio)			(10.25)	(15.38)	(20.50)	(30.75)	(51.25)	(102.5)	(205.0)
Rotation Direction*1			Same direction as the motor					Opposite direction to the motor	
Output Shaft Speed [r/min]*2		80 r/min	8	5.3	4	2.7	1.6	0.8	0.4
		3600 r/min	360	240	180	120	72	36	18
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.)]	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*3	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).

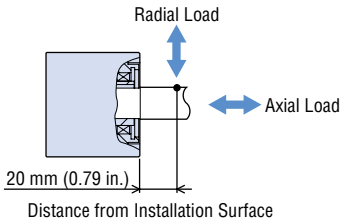
*2 The output shaft speed is calculated by dividing the speed by the gear ratio.

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

◇Gear Flange Position

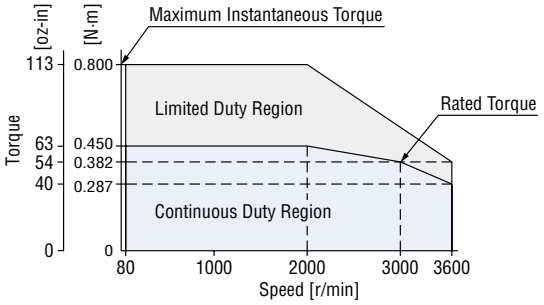


◇Load Position



Speed – Torque Characteristics

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



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

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

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

Specifications

Product Name	Motor		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°C (+32～+122°F), rated speed, no load, rated voltage

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

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

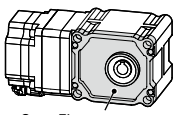
Gear Ratio			5	10	15	20	30	50	100	200
(Actual Gear Ratio)			(5)	(10)	(15)	(20)	(30)	(50)	(98.95)	(200)
Gearhead Size Code			X						Y	
Rotation Direction*1			Same direction as the motor						Opposite direction to the motor	
Output Shaft Speed [r/min]*2		80 r/min	16	8	5.3	4	2.7	1.6	0.8	0.4
		3600 r/min	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.)]	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 [×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*3	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.

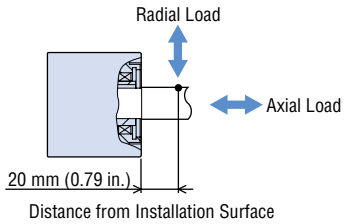
*3 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

◇Gear Flange Position



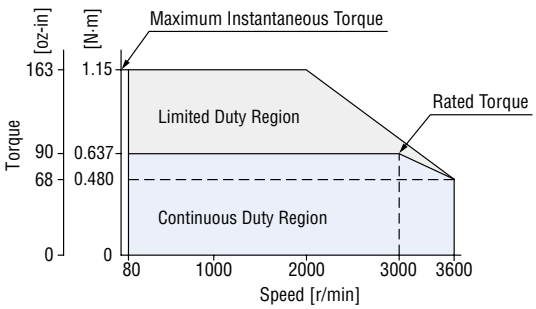
Gear Flange

◇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.

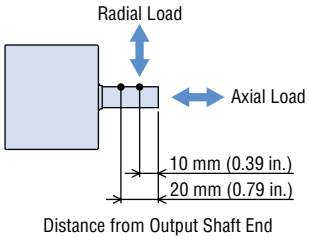
Round Shaft Type 30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)

Specifications

Product Name			BLM230HP-AS		BLM260HP-AS		BLM5120HP-AS	
	Motor / 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 (18.0)		80 (18.0)		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.

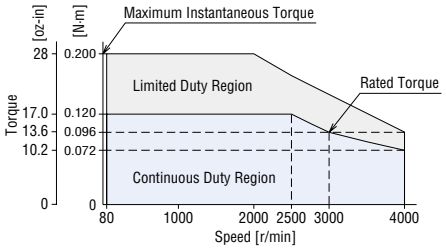
◇Load Position



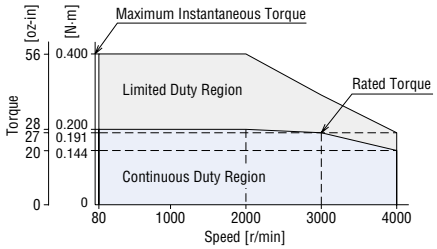
Speed – Torque Characteristics

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

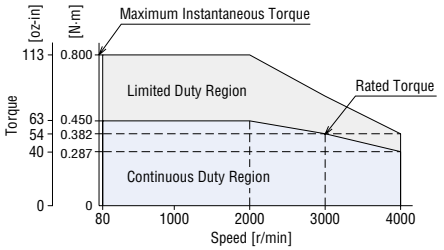
●30 W (1/25 HP)



●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), 400 W (1/2 HP)

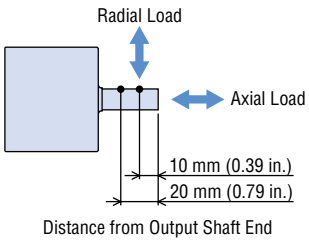
Specifications

			BLM5200HP-AS	BLM5400HP-AS
Product Name	Motor			
	Driver		BLE2D200-C	BLE2D400-S
Rated Output Power (Continuous)		W (HP)	200 (1/4)	400 (1/2)
Power Supply Input	Rated Voltage	VAC	Single-Phase 200-240 / Three-Phase 200-240	Three-Phase 200-240
	Permissible Voltage Range		−15～+10%	−15～+10%
	Frequency	Hz	50 / 60	50 / 60
	Permissible Frequency Range		±5%	±5%
	Rated Input Current	A	Single-Phase: 2.4/Three-Phase: 1.4	2.3
	Maximum Input Current	A	Single-Phase: 6.5/Three-Phase: 4.3	6.1
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)	1.27 (180)
Maximum Instantaneous Torque		N·m (oz-in)	1.15 (163)	2.28 (320)
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)	0.67 (3.7)
Permissible Inertia J*1		$\times 10^{-4}$ kg·m^2 (oz-in^2)	8.75 (48)	15 (82)
Speed Regulation*2	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	

*1 Please use the **RGB100** regeneration unit accessory (sold separately) when operating under an inertial load with the round shaft, 400 W type. Regeneration unit ⇒ Website

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

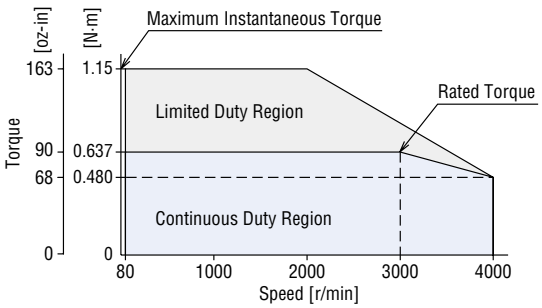
◇Load Position



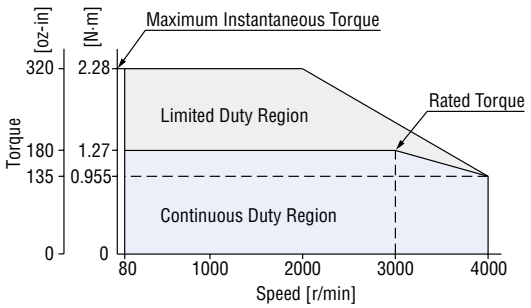
Speed – Torque Characteristics

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

●200 W (1/4 HP)



●400 W (1/2 HP)



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

Common Specifications

Item		Specifications
Speed Setting Methods	Digital Setting	· Control Panel · Support 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: 0～10 VDC, 1 mA min. (Factory setting: 0～5 VDC)
Acceleration/Deceleration Time	Setting Range	0.0～15.0 s (Factory setting: 0.5 s)
	Setting Method	· Control Panel · Support Software **MEXE02**
Torque Limiting*1	Setting Range	0～300% (Factory setting: 300%)
	Digital Setting	· Control Panel · Support 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.)
400 W (1/2 HP) type: 250×250 mm (9.84×9.84 in.) thickness 6 mm (0.24 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),400 W (1/2 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)