

Brushless Motors

BMU Series

BMU Series

Overview

AC Input
BMU

AC Input
BLE2

AC Input
BXII

DC Input
BLH

DC Input
BLV

Brushless Motor and Driver

BMU Series



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



- "Rotate and push" the configuration dial for easy speed control
- Easy wiring - just connect the motor and driver and flip the switch
- Utilizes a new brushless motor that is compact, high power, and highly efficient
- Connector types meet IP66 rating for high watertight and dust-resistant performance
- Providing the highest standard in speed control at an affordable price



See Full Product Details Online
www.orientalmotor.com

● Manual

● Specifications

● Dimensions

● CAD

● Characteristics

● Connection and Operation

Features

Rotate and Push. Easy Speed Control.



Turn the dial and set to the desired speed.



Turning the dial slowly changes the speed by 1 r/min.



Push the dial to set the speed.



The dial operation can be locked.

Easy Wiring. Easy Set Up.



The motor and driver set can be easily connected.



The power and I/O connectors feature a screwless connector.



Immediately start the motor with just one switch.



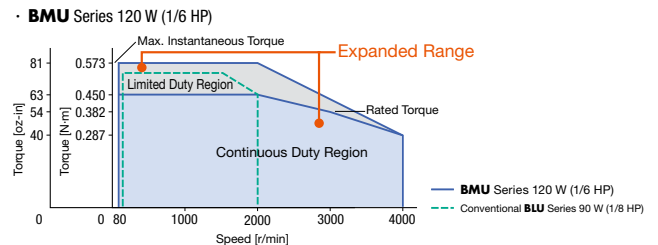
The motor's rotation direction can be switched with ease.

Max. Speed 4000 r/min, Speed Ratio 50:1* (2.5 times higher than conventional products)

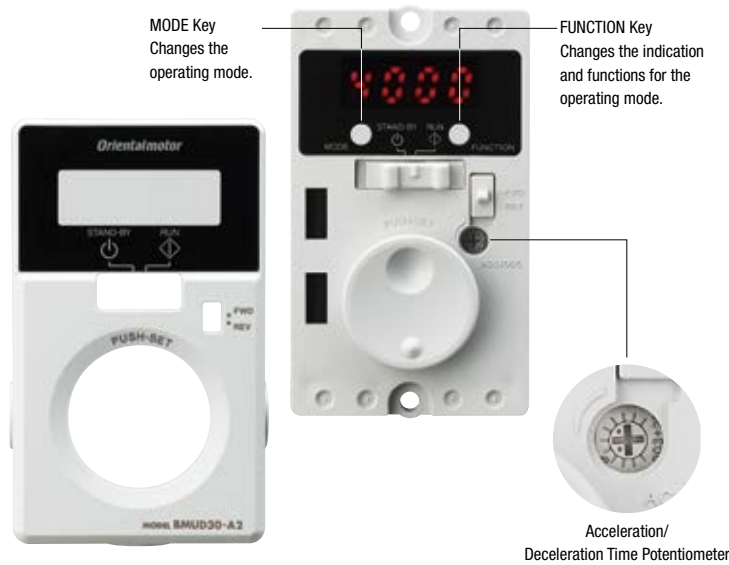
The **BMU** Series has a max. speed of 4000 r/min*.

Achieves a speed ratio of 50:1 (80~4000 r/min*). Conventional speed regulation has also been greatly improved from $\pm 0.5\%$ to $\pm 0.2\%$. Meets customer needs with the highest standard speed control.

*Varies with some gearheads



If You Open the Driver's Front Panel, You Can Set Various Functions.



<Typical Functions that can be Set when the Front Panel is Open>

- Motor start and stop*
 - Adjusting the operating speed*
 - Setting the operating speed*
 - Switching the rotation direction*
 - Changing the indication
 - Indicating the operating speed when the speed reduction and speed increasing ratio is set
 - Setting the acceleration/deceleration time
 - Dial operation lock
 - Speed setting for the 4-speed operation
 - Speed limits setting
 - Validating the external operating signals
 - External input and output signal allocation
 - Setting the overload alarm detection time, except during axial lock
 - Load holding function for output shaft
- *Setting is possible even if the front panel is attached.

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Speed Indication

Displays the motor speed in increments of 1 r/min. To display the conveyor transportation speed in m/s, calculate the conveyor gear ratio and set the "Gear Ratio" parameter. The conveyor transportation speed can be checked directly.



Load Factor Indication

With the rated torque of the motor at 100%, the load factor can be expressed as a percentage (40~200%). The load condition during start-up, as well as the load condition due to the aging deterioration of the equipment, can be confirmed.



Indication at a load factor of 50%

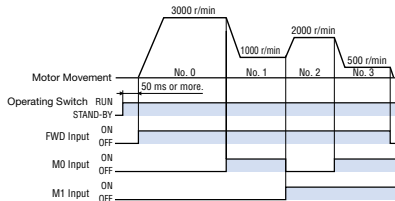
Protective Function

Equipped with various protective functions, such as the overload protective function and the overvoltage protective function. When any protective function is activated, the alarm code is shown on the display and the alarm signal is output.



4-Speed Operation

4-speed operation is possible by setting the data to operating data No. 0, No. 1, No. 2, or No. 3, and switching the input of the M0 and M1 terminals.



- When operating in 4-speed settings, the rotation direction of the motor cannot be changed by external input signals. [30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)]

Setting the Acceleration/Deceleration Time

The setting for the acceleration time and deceleration time can be adjusted with the acceleration/deceleration time potentiometer, or can be done via the digital setting.

- Setting Range:
0.0~15.0 seconds (Initial Value: 0.5 seconds)

The acceleration and deceleration times can be independently configured in the digital settings. This enables you to finely adjust the shock absorption for the load when starting and stopping or freely set the time according to the takt time.

Output Shaft Holding when Stopped

The load can be electrically held when the motor is at standstill. (Holding force of approximately 50% of the rated torque)

Note
If the power supply to the driver is turned OFF, the holding force dissipates. This cannot be used to prevent the load from moving during a power outage.

Other Functions

● Dial Operation Lock

Prevent unintended speed changes, data editing and deletion through dial operations.

● Can be Configured to "Disable the Front Panel Operation"

When operating by an external signal, operation of the front panel switches can be set to "Invalid".

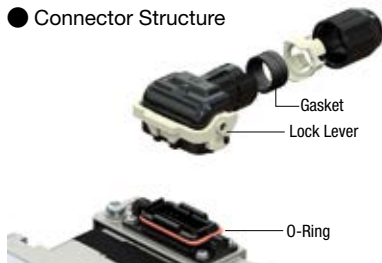
Connector Type Features

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 protection of the motor section which meets 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



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-18



Select the Direction to Draw the Cable and Connect It Directly

2 types of 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 10 m (32.8 ft.).

Cable Outlet Direction Can be Selected

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.)



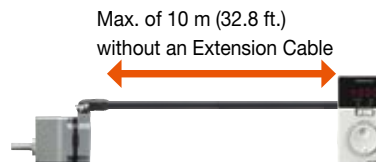
Cable Drawn in the Side of the Output Shaft



Cable Drawn in the Opposite Side of the Output Shaft

Direct Connection with Motors and Drivers

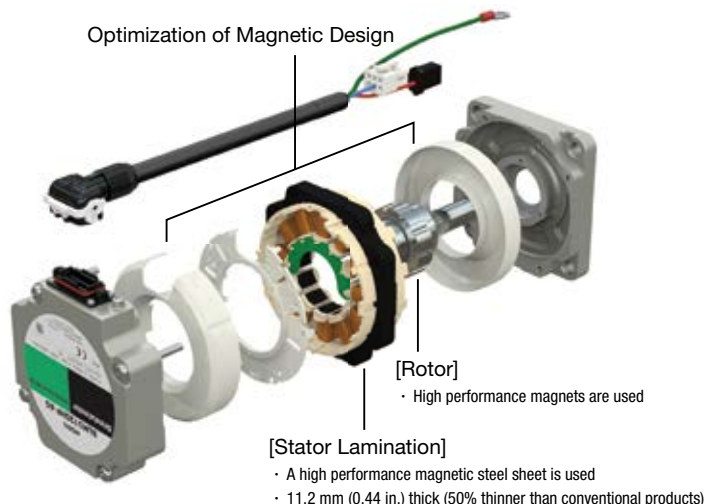
Connect up to a max. distance of 10 m (32.8 ft.) without an extension cable. No extension cable is required. The wiring process is simplified by using 1 cable, instead of power lines, signal lines, and ground wires.



Compact, High Power, and Highly Efficient Design

Optimal magnetic design and high-performance materials allow for a stator lamination thickness of only 11.2 mm (0.44 in.). This thinness achieves a highly efficient power unit that outputs 120 W (1/6 HP). Compared with a conventional brushless motor of the same output power, the stator plate thickness is reduced by half (for motors with a frame size of 90 mm (3.54 in.)).

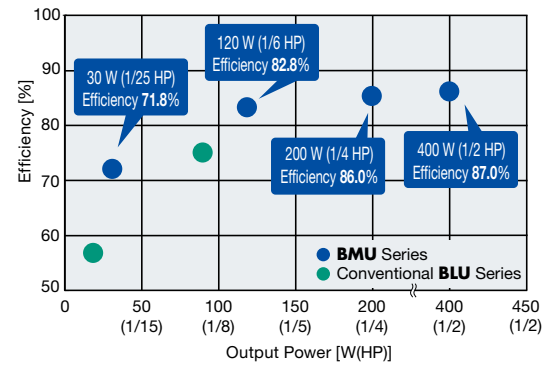
Moreover, by using high-performance materials while reducing the amount of material used, costs have been reduced significantly.



Significant Increase in Motor and Driver Unit Efficiency

The **BMU** Series increases the motor and driver unit efficiency by a max. of 15%* compared to conventional ratios.

*In a comparison of the **BMU** Series 30 W (1/25 HP) and the **BLU** Series 20 W (1/38 HP).



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.



Gearhead Types and Features Details → Page D-8

These are high strength gearheads that are compatible with the high speed and power of brushless motors. You can choose from various gearheads according to the type of application, specification, and installation.

Parallel Shaft Gearhead



GFV Gear **JV Gear**

High Gear Ratio 1/450
Stainless Shaft

Foot Mount Gearhead



JB Gear

Model with Built-in Foot Installation
High Rigidity
High Gear Ratio 1/1200

Right-Angle Hollow Shaft Hypoid







JH Gear

Space Saving and Cost Saving
High Strength
Stainless Shaft

Product Line

Motor

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

Driver

Output Power [W]	Power Supply Voltage [VAC]
30 (1/25 HP)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
60 (1/12 HP)	
120 (1/6 HP)	
200 (1/4 HP)	
400 (1/2 HP)	
400 (1/2 HP)	Three-Phase 200-240
200 (1/4 HP)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
400 (1/2 HP)	Three-Phase 200-240
200 (1/4 HP)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
400 (1/2 HP)	Three-Phase 200-240
120 (1/6 HP)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
200 (1/4 HP)	Single-Phase 200-240 Three-Phase 200-240
400 (1/2 HP)	Three-Phase 200-240
30 (1/25 HP)	Single-Phase 100-120 Single-Phase 200-240 Three-Phase 200-240
60 (1/12 HP)	
120 (1/6 HP)	
200 (1/4 HP)	
400 (1/2 HP)	

Connection Cable



Cable Type

0.5~10 m (1.6~32.8 ft.)



Output Shaft Side



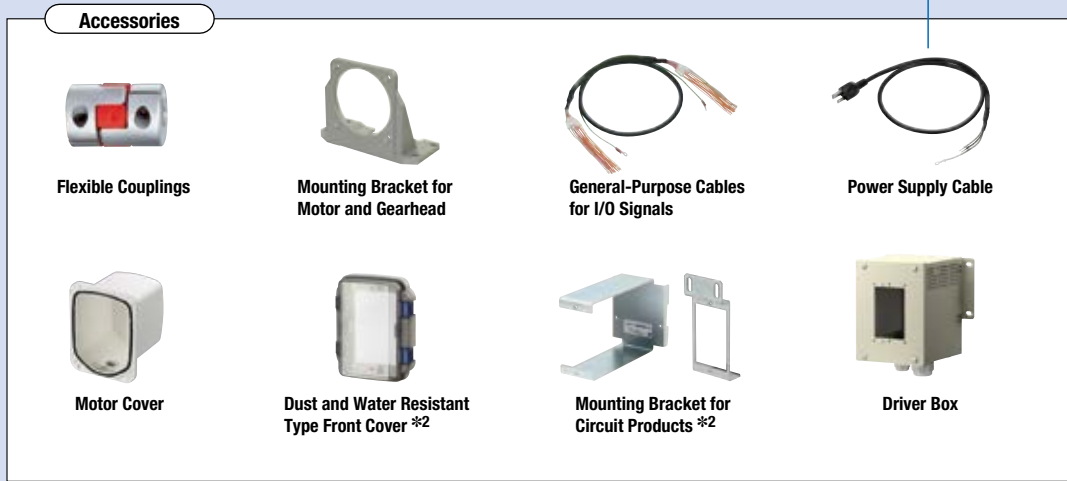
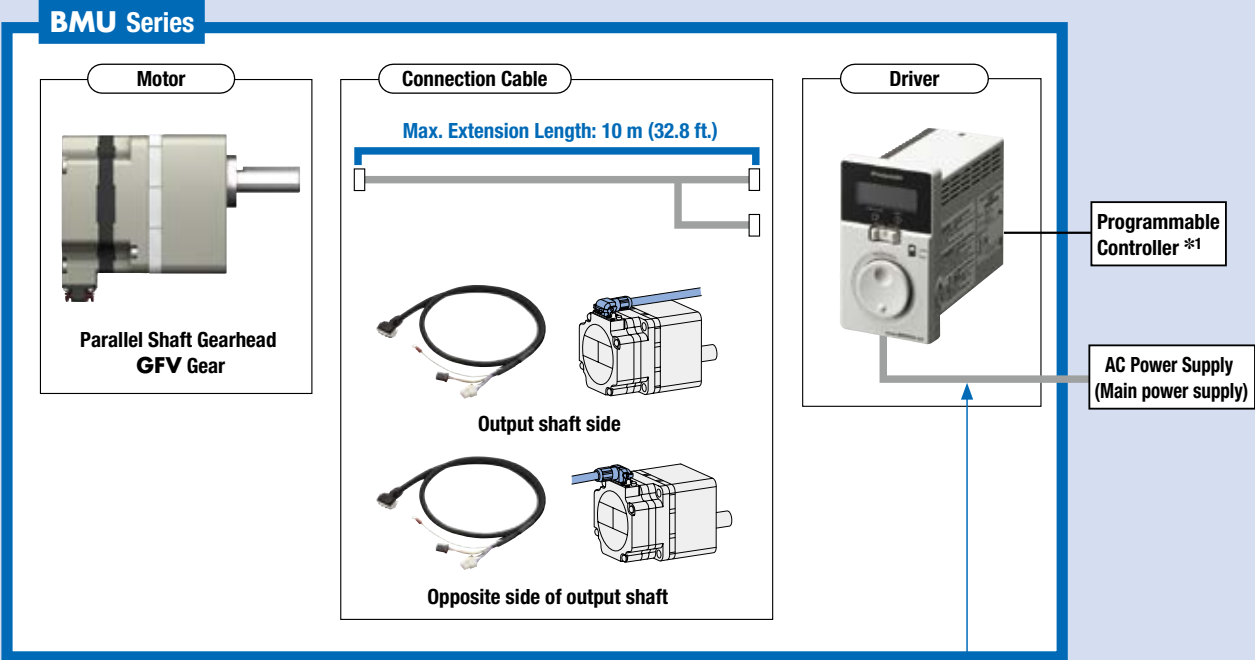
Opposite Side of Output Shaft*



* 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 Mounting brackets for circuit products and dust and water resistant type front covers cannot be used together.

Example of System Configuration Pricing

BMU Series			Accessories		
Motor Parallel Shaft Gearhead GFV Gear BLM230HP-10AS	Driver BMUD30-A2	Connection Cable [3 m (9.8 ft.)] CC030HBLF	Mounting Bracket SOL2U08F	Flexible Couplings MCL30F06F06	Driver Mounting Bracket MAFP04-15
\$241.00	\$160.00	\$62.00	\$22.00	\$51.00	\$35.00

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

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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) 400: 400 W (1/2 HP)
	④	Motor Connection Type	H: Connector Type
	⑤	Motor Degree of Protection	P: IP66
Gearhead Product Name	⑥	Applicable Motor	K: Round Shaft Type (with key)
	⑦	Combination Motor Frame Size	5: 90 mm (3.54 in.)
	⑧	Gearhead Size	Symbol (Example) C Please refer to the Specifications (→ D-24 page, D-25 page and D-27 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

BMUD 60 - A 2

① ② ③ ④

①	Driver Type	BMUD: BMU 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
④	Identification Number	

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.)
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
400 W (1/2 HP)	BLM5400HPK-5DV□C	100, 200	\$835.00
	BLM5400HPK-5KV□C	300, 450	\$1,125.00

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
400 W (1/2 HP)	BLM5400HPK-5AB□A-L	5, 10, 20	\$650.00
	BLM5400HPK-5CB□A-L	30, 50	\$684.00
	BLM5400HPK-5EB□A-L	100, 200	\$752.00
	BLM5400HPK-5KB□A-L	300, 450	\$996.00
	BLM5400HPK-5SB□A-L	600	\$1,207.00

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
		100	\$1,079.00
		200	\$1,147.00
400 W (1/2 HP)	BLM5400HPK-5XH□C	5, 10, 15, 20, 30	\$894.00
		50	\$921.00
		100	\$1,125.00
		200	\$1,193.00

Included

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.

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	BMUD30-A2	\$160.00
	Single-Phase, Three-Phase 200-240 VAC	BMUD30-C2	\$160.00
60 W (1/12 HP)	Single-Phase 100-120 VAC	BMUD60-A2	\$166.00
	Single-Phase, Three-Phase 200-240 VAC	BMUD60-C2	\$166.00
120 W (1/6 HP)	Single-Phase 100-120 VAC	BMUD120-A2	\$186.00
	Single-Phase, Three-Phase 200-240 VAC	BMUD120-C2	\$186.00
200 W (1/4 HP)	Single-Phase 100-120 VAC	BMUD200-A	\$210.00
	Single-Phase, Three-Phase 200-240 VAC	BMUD200-C	\$210.00
400 W (1/2 HP)	Three-Phase 200-240 VAC	BMUD400-S	\$220.00

Connection Cable

Length	Product Name	List Price	Length	Product Name	List Price
0.5 m (1.6 ft.)	CC005HBL □	\$35.00	3 m (9.8 ft.)	CC030HBL □	\$62.00
1 m (3.3 ft.)	CC010HBL □	\$35.00	4 m (13.1 ft.)	CC040HBL □	\$73.00
1.5 m (4.9 ft.)	CC015HBL □	\$40.00	5 m (16.4 ft.)	CC050HBL □	\$83.00
2 m (6.6 ft.)	CC020HBL □	\$44.00	7 m (23.0 ft.)	CC070HBL □	\$102.00
2.5 m (8.2 ft.)	CC025HBL □	\$53.00	10 m (32.8 ft.)	CC100HBL □	\$129.00

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

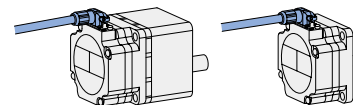
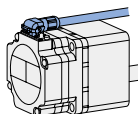
Two types of connection cables with different drawing directions are available.

Note

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

F: Output shaft side

B: Opposite side of output shaft



Driver

Connector	Start-up Guide	Operating Manual
CN1 Connector (1 Piece) CN4 Connector (1 Piece)	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	Motor Driver	BLM230HP-□AS		BLM460SH-□AS		BLM5120HP-□AS		
		BMUD30-A2	BMUD30-C2	BMUD60-A2	BMUD60-C2	BMUD120-A2	BMUD120-C2	
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	1.2	Single-Phase: 0.7 / Three-Phase: 0.38	1.7	Single-Phase: 1.0 / Three-Phase: 0.52	3.3	Single-Phase: 2.0 / Three-Phase: 1.1
	Maximum Input Current	A	2.0	Single-Phase: 1.2 / Three-Phase: 0.75	3.3	Single-Phase: 1.9 / Three-Phase: 1.1	6.8	Single-Phase: 4.1 / Three-Phase: 2.0
Rated Speed	r/min	3000						
Speed Control Range		80~4000 r/min (Speed ratio 50:1)						
Speed Regulation	Load	Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature						
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature						
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage						

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

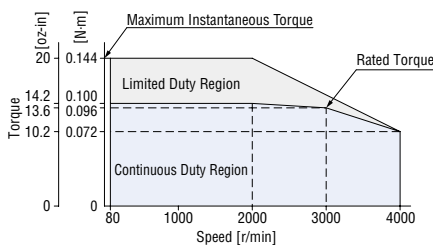
Gear Ratio		5	10	15	20	30	50	100	200		
Rotation Direction		Same direction as the motor				Opposite direction to the motor					
Output Shaft Speed [r/min]*1		80 r/min	16	8	5.3	4	2.7	1.6	0.8	0.4	
Permissible Torque [N·m (lb·in)]	30 W (1/25 HP)	At 80~2000 r/min	0.45 (3.9)	0.9 (7.9)	1.4 (12.3)	1.8 (15.9)	2.6 (23)	4.3 (38)	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 [$\times 10^{-4}$ 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 D-23
 *3 It is also applicable when digitally setting the deceleration time to below 0.1 seconds.

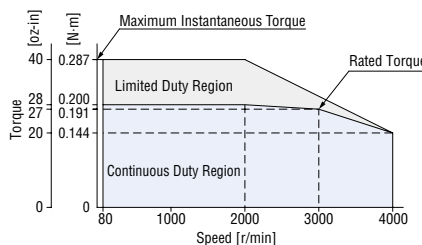
Speed – Torque Characteristics

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

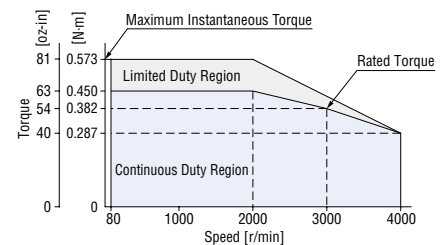
● 30 W (1/25 HP)



● 60 W (1/12 HP)



● 120 W (1/6 HP)



● The values correspond to each specification and characteristic of the 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.

Parallel Shaft Gearhead GFV Gear 200 W (1/4 HP), 400 W (1/2 HP)



Specifications

Product Name	Motor Driver	BLM6200SHP-□AS		BLM6400SHP-□AS	
		BMUD200-A	BMUD200-C	BMUD400-S	
Rated Output Power (Continuous)	W (HP)	200 (1/4)		400 (1/2)	
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	4.6	Single-Phase: 2.7/Three-Phase: 1.5	2.8
	Maximum Input Current	A	9.3	Single-Phase: 4.9/Three-Phase: 3.4	5.1
Rated Speed	r/min	3000			
Speed Control Range		80~4000 r/min (Speed ratio 50:1)			
Speed Regulation	Load	Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature			
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature			
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage			

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

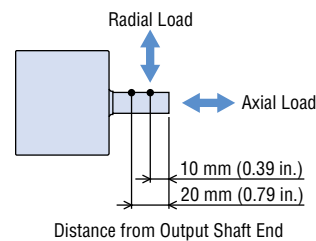
Gear Ratio			5	10	15	20	30	50	100*1	200*1
	Rotation Direction		Same direction as the motor				Opposite direction to the motor		Same direction as the motor	
Output Shaft Speed [r/min]*2	80 r/min		16	8	5.3	4	2.7	1.6	0.8	0.4
	4000 r/min		800	400	267	200	133	80	40	20
Permissible Torque [N·m (lb·in)]	200 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 [$\times 10^{-4}$ 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*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.

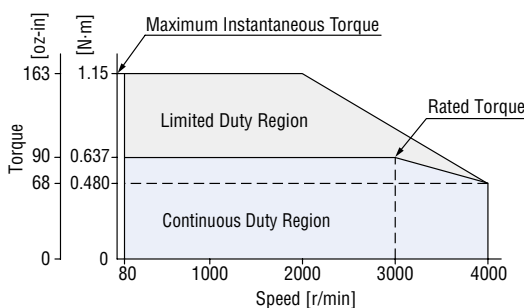
◇ Load Position



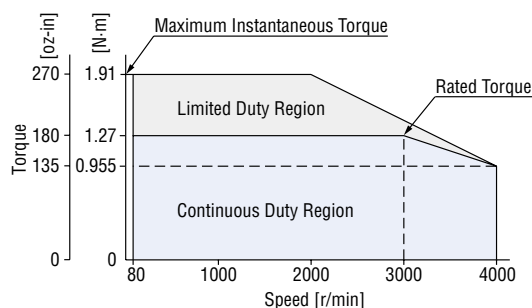
Speed – Torque Characteristics

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

● 200 W (1/4 HP)



● 400 W (1/2 HP)



● The values correspond to each specification and characteristic of the 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.

Parallel Shaft Gearhead JV Gear 200 W (1/4 HP), 400 W (1/2 HP)



Specifications

Product Name	Motor		BLM5200HPK-5KV□C		BLM5400HPK-5□V□C
	Driver		BMUD200-A	BMUD200-C	BMUD400-S
Rated Output Power (Continuous)	W (HP)		200 (1/4)		400 (1/2)
Power Supply Input	Rated Voltage	VAC	Single-Phase 100-120	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	4.6	Single-Phase: 2.7/Three-Phase: 1.5	2.8
	Maximum Input Current	A	9.3	Single-Phase: 4.9/Three-Phase: 3.4	5.1
Rated Speed	r/min		3000		
Speed Control Range	80~3600 r/min (Speed ratio 45:1)				
Speed Regulation	Load		Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature		
	Voltage		Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature		
	Temperature		Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage		

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

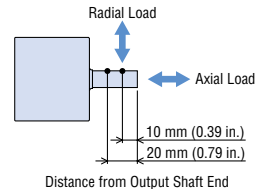
Gear Ratio		100*1	200*1	300	450	
(Actual Gear Ratio)		(104.1)	(196.4)	(300.5)	(450.8)	
Gearhead Size Code		D		K		
Rotation Direction		Opposite direction to the motor		Same direction as the motor		
Output Shaft Speed [r/min]*2	80 r/min	0.8	0.4	0.27	0.18	
	3600 r/min	36	18	12	8	
Permissible Torque [N·m (lb·in)]	200 W (1/4 HP)	At 80~3000 r/min	—	—	132 (1160)	198 (1750)
		At 3600 r/min	—	—	92.3 (810)	138 (1220)
	400 W (1/2 HP)	At 80~1500 r/min	108 (950)	205 (1810)	298 (2600)	431 (3800)
		At 3000 r/min	81.9 (720)	164 (1450)	219 (1930)	302 (2600)
Permissible Radial Load [N (lb.)]	10 mm (0.39 in.) from End of Output Shaft	At 80~1500 r/min	2888 (640)	3483 (780)	4461 (1000)	
		At 3000 r/min	2022 (450)	2438 (540)	3123 (700)	
		At 3600 r/min	1444 (320)	1742 (390)	2231 (500)	
	20 mm (0.79 in.) from End of Output Shaft	At 80~1500 r/min	3496 (780)	4216 (940)	5174 (1160)	
At 3000 r/min		2447 (550)	2951 (660)	3622 (810)		
At 3600 r/min		1748 (390)	2108 (470)	2587 (580)		
Permissible Axial Load [N (lb.)]	At 80~1500 r/min	422 (94)	461 (103)	686 (154)		
	At 3000 r/min	295 (66)	323 (72)	480 (108)		
	At 3600 r/min	211 (47)	231 (51)	343 (77)		
Permissible Inertia J [$\times 10^{-4}$ kg·m ² (oz·in ²)]	At 80~1500 r/min	100000 (550000)	400000 (2200000)	900000 (4900000)	2025000 (11100000)	
	At 3000 r/min	36000 (197000)	144000 (790000)	324000 (1770000)	729000 (4000000)	
	At 3600 r/min	20250 (111000)	81000 (440000)	182250 (1000000)	410063 (2200000)	
	When Instantaneous Stop or Bi-Directional Operation is performed*3	At 80~1500 r/min	33333 (182000)	133333 (730000)	300000 (1640000)	675000 (3700000)
		At 3000 r/min	12000 (66000)	48000 (260000)	108000 (590000)	243000 (1330000)
		At 3600 r/min	6750 (37000)	27000 (148000)	60750 (330000)	136688 (750000)

*1 Limited to 400 W (1/2 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

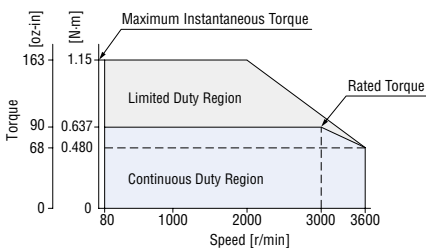


Speed – Torque Characteristics

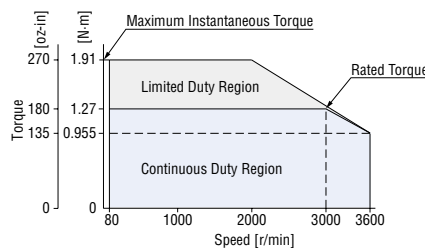
Continuous Duty Region: Continuous operation is possible in this region.

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

200 W (1/4 HP)



400 W (1/2 HP)



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

● A code (D, K) indicating the type of gearhead is specified where the box □ is located in the product name. 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), 400 W (1/2 HP)



Specifications

Product Name	Motor	BLM5200HPK-5 <input type="checkbox"/> B <input type="checkbox"/> A-L		BLM5400HPK-5 <input type="checkbox"/> B <input type="checkbox"/> A-L
	Driver	BMUD200-A	BMUD200-C	BMUD400-S
Rated Output Power (Continuous)	W (HP)	200 (1/4)		400 (1/2)
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	4.6	Single-Phase: 2.7/Three-Phase: 1.5
	Maximum Input Current	A	9.3	Single-Phase: 4.9/Three-Phase: 3.4
Rated Speed	r/min	3000		
Speed Control Range		80~3600 r/min (Speed ratio 45:1)		
Speed Regulation	Load	Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature		
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature		
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage		

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

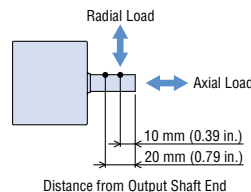
Gear Ratio	5	10	20	30	50	100	200	300	450	600	1200*1		
	(4.97)	(10.12)	(20.08)	(30.86)	(49.09)	(104.1)	(196.4)	(300.5)	(450.8)	(588.9)	(1178)		
Gearhead Size Code	A			C			E			K		S	
Rotation Direction	Same direction as the motor						Opposite direction to the motor			Same direction as the motor			
Output Shaft Speed [r/min]*2	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)]	200 W (1/4 HP)	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)
	400 W (1/2 HP)	At 80~1500 r/min	5.4 (47)	10.9 (96)	21.7 (192)	31.7 (280)	49.9 (440)	108 (950)	205 (1810)	298 (2600)	431 (3800)	583 (5100)	—
		At 3000 r/min	4.3 (38)	8.3 (73)	17.2 (152)	25.4 (220)	41.2 (360)	81.9 (720)	164 (1450)	219 (1930)	302 (2600)	438 (3800)	—
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)	—	
	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)	—	
Permissible Axial Load [N (lb.)]	At 80~1500 r/min	At 3000 r/min	39 (8.7)	88 (19.8)	177 (39)	255 (57)	275 (61)	422 (94)	461 (103)	686 (154)	824 (185)	—	
		At 3600 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	At 80~1500 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)	—	
		At 3000 r/min	250 (1370)	1000 (5500)	4000 (22000)	9000 (49000)	25000 (137000)	100000 (550000)	400000 (2200000)	900000 (4900000)	2025000 (11100000)	3600000 (19700000)	14400000 (79000000)
Permissible Inertia J [$\times 10^{-4}$ kg·m ² (oz·in ²)]	At 3000 r/min	At 80~1500 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*3	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 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

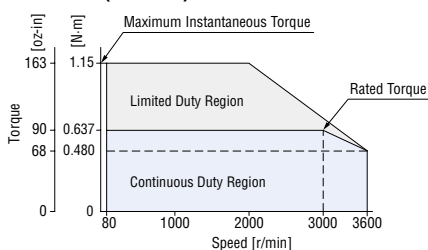


Speed – Torque Characteristics

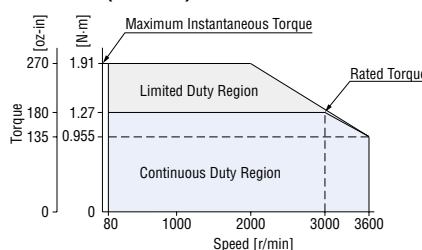
Continuous Duty Region: Continuous operation is possible in this region.

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

200 W (1/4 HP)



400 W (1/2 HP)



● The values correspond to each specification and characteristic of the 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		BMUD120-A2		BMUD120-C2
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	3.3	Single-Phase: 2.0/Three-Phase: 1.1
	Maximum Input Current	A	6.8	Single-Phase: 4.1/Three-Phase: 2.0
Rated Speed		r/min	3000	
Speed Control Range			80~3600 r/min (Speed ratio 45:1)	
Speed Regulation	Load		Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature	
	Voltage		Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature	
	Temperature		Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage	

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

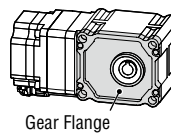
Gear Ratio		10	15	20	30	50	100	200	
(Actual Gear Ratio)		(10.25)	(15.38)	(20.50)	(30.75)	(51.25)	(102.5)	(205.0)	
Rotation Direction*1		Same direction as the motor					Opposite direction to the motor		
Output Shaft Speed [r/min]*2	80 r/min	8	5.3	4	2.7	1.6	0.8	0.4	
	3600 r/min	360	240	180	120	72	36	18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

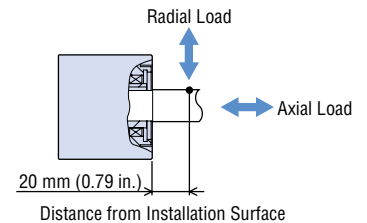
*2 The output shaft speed is calculated by dividing the speed by the gear ratio.

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

◇ Gear Flange Position



◇ Load Position

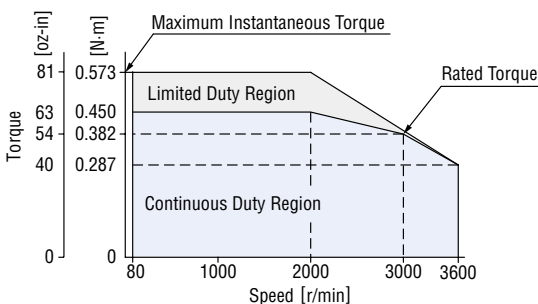


Speed – Torque Characteristics

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

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

● 120 W (1/6 HP)



● The values correspond to each specification and characteristic of the 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), 400 W (1/2 HP)



Specifications

Product Name	Motor Driver	BLM5200HPK-5□H□C		BLM5400HPK-5□H□C	
		BMUD200-A	BMUD200-C	BMUD400-S	
Rated Output Power (Continuous)	W (HP)	200 (1/4)		400 (1/2)	
Power Supply Input	Rated Voltage	Single-Phase 100-120		Three-Phase 200-240	
	Permissible Voltage Range	-15~+10%			
	Frequency	50 / 60		50 / 60	
	Permissible Frequency Range	±5%			
	Rated Input Current	A	4.6	Single-Phase: 2.7/Three-Phase: 1.5	2.8
	Maximum Input Current	A	9.3	Single-Phase: 4.9/Three-Phase: 3.4	5.1
Rated Speed	r/min	3000			
Speed Control Range		80~3600 r/min (Speed ratio 45:1)			
Speed Regulation	Load	Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature			
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature			
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage			

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

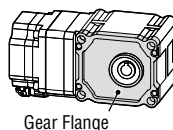
Gear Ratio	Gearhead Size Code										
	5	10	15	20	30	50	100	200			
(Actual Gear Ratio)	(5)	(10)	(15)	(20)	(30)	(50)	(98.95)	(200)			
Gearhead Size Code	X						Y				
Rotation Direction*1	Same direction as the motor						Opposite direction to the motor				
Output Shaft Speed [r/min]*2	80 r/min	16	8	5.3	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)]	200 W (1/4 HP)	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)	
	400 W (1/2 HP)	At 80~1500 r/min	4.8 (42)	9.5 (84)	14.3 (126)	19.1 (169)	30.5 (260)	50.8 (440)	88.0 (770)	178 (1570)	
		At 3000 r/min	3.8 (33)	7.7 (68)	11.9 (105)	16.1 (142)	23.1 (200)	38.5 (340)	73.5 (650)	128 (1130)	
		At 3600 r/min	2.7 (23)	5.5 (48)	8.5 (75)	11.5 (101)	16.5 (146)	27.5 (240)	52.5 (460)	92.0 (810)	
	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 [$\times 10^{-4}$ 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*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).

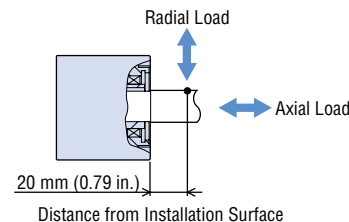
*2 The output shaft speed is calculated by dividing the speed by the gear ratio.

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

◇ Gear Flange Position



◇ Load Position

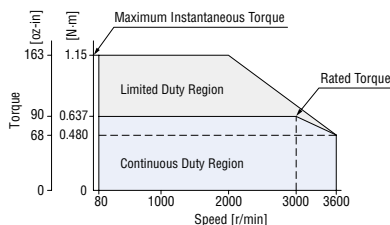


Speed – Torque Characteristics

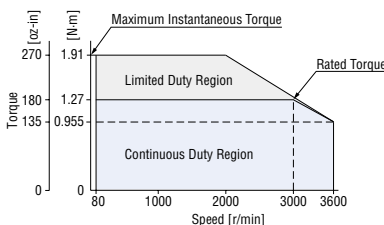
Continuous Duty Region: Continuous operation is possible in this region.

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

● 200 W (1/4 HP)



● 400 W (1/2 HP)



● The values correspond to each specification and characteristic of the 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.

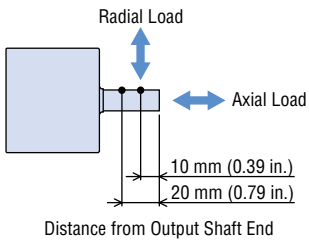
Round Shaft 30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)



Specifications

Product Name	Motor Driver	BLM230HP-AS		BLM260HP-AS		BLM5120HP-AS	
		BMUD30-A2	BMUD30-C2	BMUD60-A2	BMUD60-C2	BMUD120-A2	BMUD120-C2
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 / Three-Phase 200-240	Single-Phase 100-120 / Three-Phase 200-240	Single-Phase 100-120 / Three-Phase 200-240	Single-Phase 100-120 / Three-Phase 200-240	Single-Phase 100-120 / 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	1.2	Single-Phase: 0.7 / Three-Phase: 0.38	1.7	Single-Phase: 1.0 / Three-Phase: 0.52	3.3
Maximum Input Current	A	2.0	Single-Phase: 1.2 / Three-Phase: 0.75	3.3	Single-Phase: 1.9 / Three-Phase: 1.1	6.8	Single-Phase: 4.1 / Three-Phase: 2.0
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)	0.144 (20)		0.287 (40)		0.573 (81)	
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%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature					
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature					
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage					

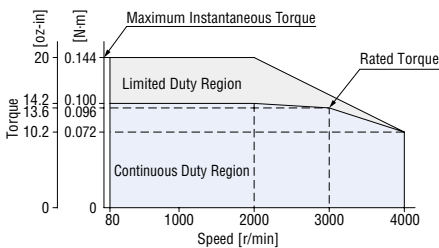
◇ Load Position



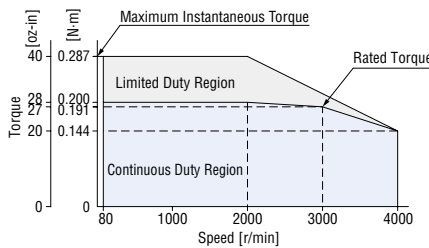
■ Speed – Torque Characteristics

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

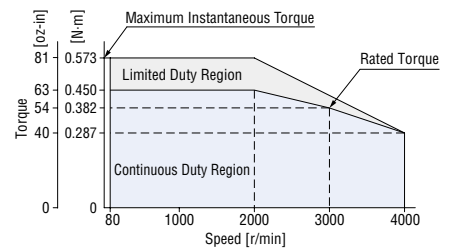
● 30 W (1/25 HP)



● 60 W (1/12 HP)



● 120 W (1/6 HP)



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

Round Shaft 200 W (1/4 HP), 400 W (1/2 HP)



Specifications

Product Name	Motor	BLM5200HP-AS		BLM5400HP-AS	
	Driver	BMUD200-A	BMUD200-C	BMUD400-S	
Rated Output Power (Continuous)	W (HP)	200 (1/4)		400 (1/2)	
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	4.6	Single-Phase: 2.7 / Three-Phase: 1.5	2.8
	Maximum Input Current	A	9.3	Single-Phase: 4.9 / Three-Phase: 3.4	5.1
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)		1.91 (270)	
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	$\times 10^{-4}$ kg·m ² (oz·in ²)	8.75 (48)		15 (82)	
Speed Regulation	Load	Max. ±0.2%: Conditions 0~rated torque, rated speed, rated voltage, normal temperature			
	Voltage	Max. ±0.2%: Conditions Rated voltage -15~+10%, rated speed, no load, normal temperature			
	Temperature	Max. ±0.2%: Conditions Operating ambient temperature 0~+40°C (+32~+104°F), rated speed, no load, rated voltage			

Overview

AC Input
BMU

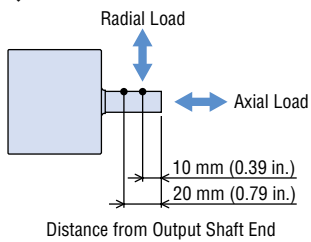
AC Input
BLE2

AC Input
BXII

DC Input
BLH

DC Input
BLV

◇ Load Position

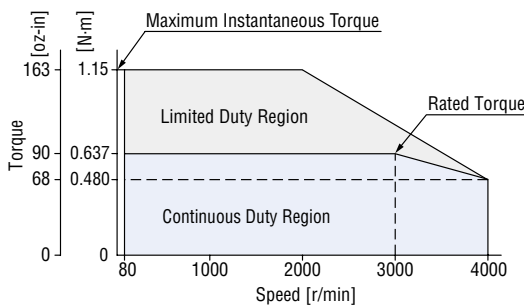


Speed – Torque Characteristics

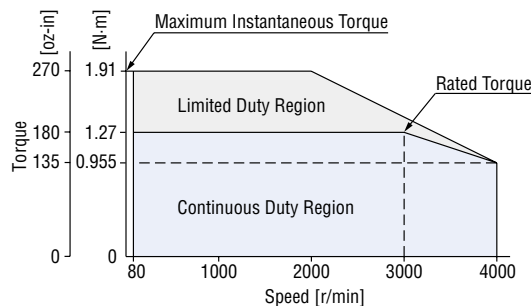
Continuous Duty Region: Continuous operation is possible in this region.

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

● 200 W (1/4 HP)



● 400 W (1/2 HP)



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

Common Specifications

Item	Specifications	
	30 W (1/25 HP), 60 W (1/12 HP), 120 W (1/6 HP)	200 W (1/4 HP), 400 W (1/2 HP)
Speed Setting Methods	Digital setting with dial 4 speed settings	
Acceleration/Deceleration Time	Analog Setting: 0.1~15.0 s (set time from stopped state to rated speed) Common setting for acceleration/deceleration time with acceleration/deceleration time potentiometer* Digital Setting: 0.0~15.0 s (set time from current speed to setting speed) Individual acceleration times and deceleration times can be set for each operating data* * Acceleration time/deceleration time varies with the load condition of the motor.	
Input Signals	Photocoupler input Input resistance: 5.7 kΩ Operated by internal power supply: 5 VDC Connectable external DC power supply: 24 VDC -15~+20% 100 mA min. Sink input/source input Supplied through external wiring Arbitrary signal assignment to X0~X2 input (3 points) is possible []: Initial setting [FWD], [REV], [MO], M1, ALARM-RESET, EXT-ERROR, H-FREE	Photocoupler input Input resistance: 6.6 kΩ Operated by internal power supply: 5 VDC Connectable external DC power supply: 24 VDC -15~+20% 100 mA min. Sink input/source input Supplied through external wiring Arbitrary signal assignment to IN0~IN4 input (5 points) is possible []: Initial setting [FWD], [REV], [MO], [M1], [ALARM-RESET], EXT-ERROR, H-FREE
Output Signals	Photocoupler and Open-Collector Output External power supply: 4.5~30 VDC 100 mA max. Sink output/source output Supplied through external wiring Arbitrary signal assignment to Y0, Y1 (2 points) is possible []: Initial setting [ALARM-OUT1], [SPEED-OUT], ALARM-OUT2, MOVE, VA, WNG	Photocoupler and Open-Collector Output External power supply: 4.5~30 VDC 100 mA max. Sink output/source output Supplied through external wiring Arbitrary signal assignment to OUT0, OUT1 (2 points) is possible []: Initial setting [ALARM-OUT1], [SPEED-OUT], ALARM-OUT2, MOVE, VA, WNG
Protective Functions	When the following protective functions are activated, ALARM-OUT1 output turns OFF and the motor will coast to a stop. The alarm code will be displayed at the same time. (Instantaneous stop for external stop only) Overcurrent, main circuit overheat, undervoltage, sensor error, overload, over-speed, EEPROM error, initial sensor error, initial operation prohibited, external stop.	
Max. Extension Distance	Motor and driver distance: 10.5 m (34.4 ft.) [when an accessory connection cable (for relaying) is used]	
Time Rating	Continuous	

- Overload alarm detection time _____
 The overload alarm is generated if the operation goes beyond the continuous duty region.
 The detection time for this overload alarm can be set from 0.1~60.0 seconds. (Initial Value: 30.0 seconds)
 However, an alarm is generated for a max. length of 5 seconds in the following cases.

- If an applied load goes beyond the limited duty region
- If the output shaft is locked

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 earth 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. (400 W (1/2 HP) type is 60°C (108°F) max.) and that of the case surface is 40°C (72°F) max. (400 W (1/2 HP) type is 50°C (90°F) max.)*1, measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity.	The temperature rise of the heat sink is 50°C (90°F) max., measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity.
Storage Conditions	Ambient Temperature	0~+40°C (+32~+104°F) (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.
Storage Conditions*2	Vibration	Must not be subjected to continuous vibration or excessive shock Frequency range: 10~55 Hz Half amplitude: 0.15 mm (0.006 in.) Sweep direction: 3 directions (X, Y, Z) Number of sweeps: 20 times
	Ambient Temperature	-20~+70°C (-4~+158°F)
	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]
Storage Conditions*3	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*3	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 The storage condition applies to short periods such as the period during transport.

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

Note

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

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

- Material Case: Aluminum, Output Shaft: Stainless steel, Screws: Stainless steel (Externally facing screws only. Except for the protective earth terminal)
- Surface Treatment Case: Paint (Except for the GFV gear and the round shaft type installation surface)