Oriental motor

Brushless Motors

BLV Series
R Type

Products for Mobile Automation

Battery-operated, Compact, and Lightweight Brushless Motors in the Era of Advancing Automation

100 W (1/8 HP)
200 W (1/4 HP)

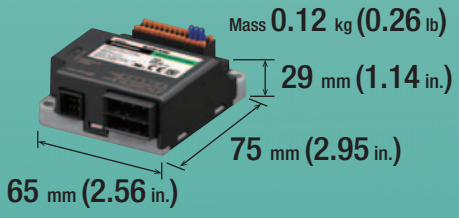
DC Input

High-power, Compact Brushless Motors. Developed to Support the Design of Compact, Battery Driven Automation.

Brushless Motors
BLV Series R Type

- Output Power: 100 W (1/8 HP), 200 W (1/4 HP)
- Power supply input: 24～48 VDC
- Electromagnetic brake type available

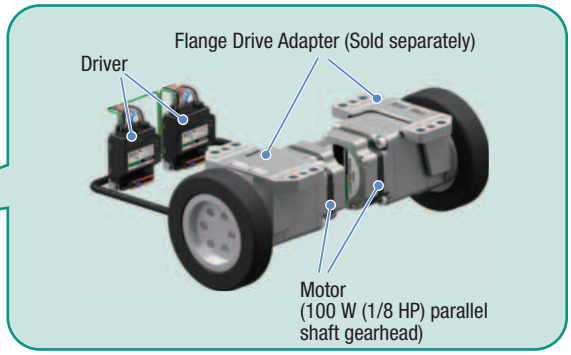
- Compact, lightweight driver



Compact, Lightweight, and High-power
Designed for Compact Equipment

P.4

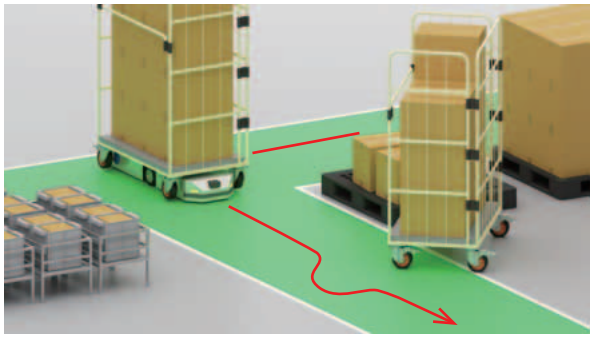
Transportation robots for flat, transportable masses can be designed



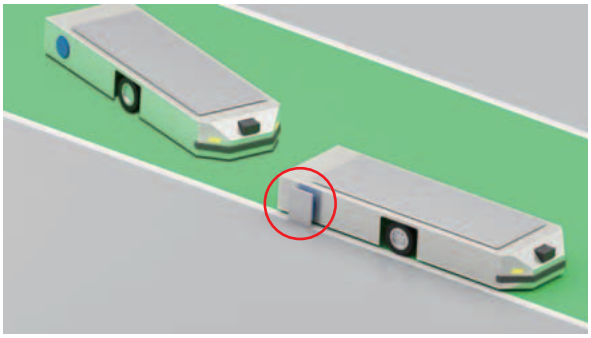
Wide Speed Range, Smooth Motion, Current Position and Position Feedback is Possible.

P.5

- Broad speed control range of 1～4000 r/min. Smooth performance is possible throughout the entire speed range.
- Current position and position feedback is possible from increased motor resolution.



Smooth performance while avoiding obstacles



Able to position at a target position, charging station or load loading station is possible.

What are “Products for Mobile Automation”?

“Products for Mobile Automation” is a product group with a shared conncept of battery-operated, compact, and lightweight products. Optimal for self-propelled equipment. These products meet the needs of flexible automation lines and mobile automation.

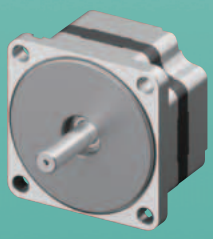
Modbus (RTU)

CANopen

Driver

Parallel Shaft Gearhead

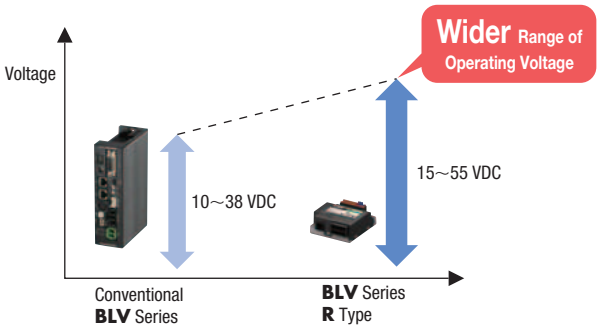
Hollow Shaft Flat Gearhead



Round Shaft

A Wider Range of Operating Voltage Supports Real World Battery Use.

P.6

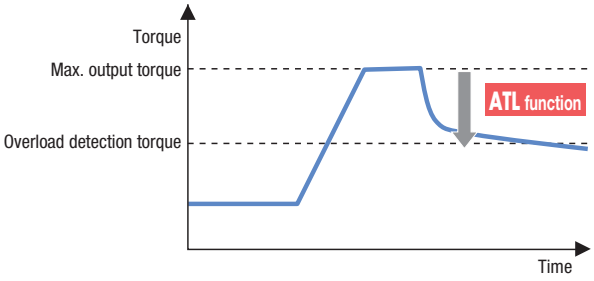


Operation possible even if the voltage drops

Various Recommended Functions

P.7

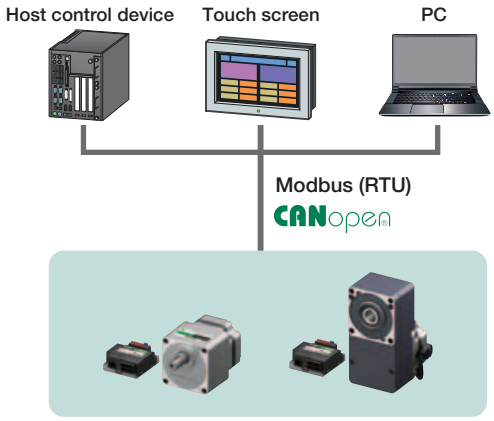
- Holding when stopped is possible without an electromagnetic brake
- ATL function that automatically limits output torque
- Two motor cable output directions to choose from



Avoid motor standstill due to overload

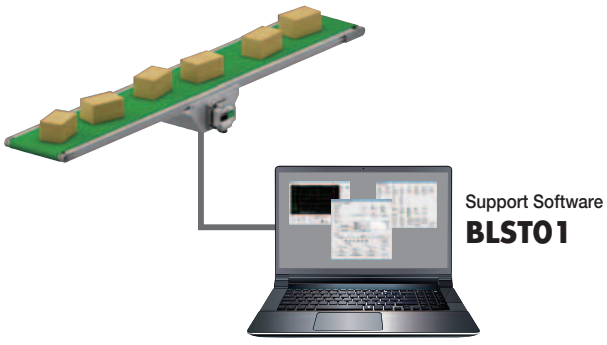
Compatible with Modbus (RTU) and CANopen Communication

P.8



Support from Startup and Operation to Maintenance with the Support Software **BLSTO1**

P.9-10



Conditions checked with various monitors

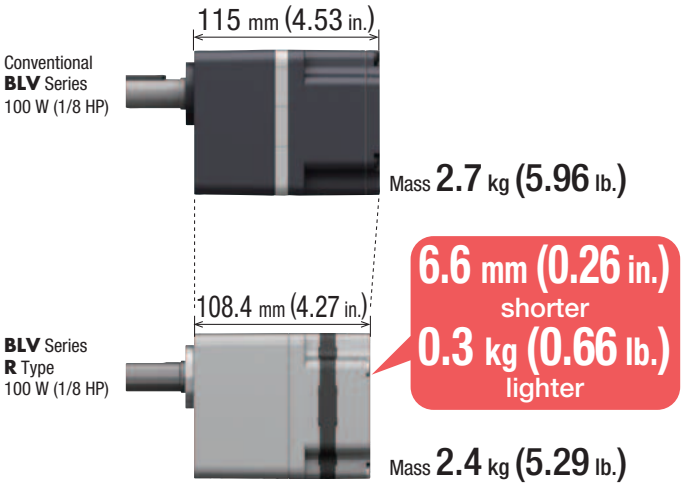
Compact, Lightweight, and High-power

Designed for Compact Equipment

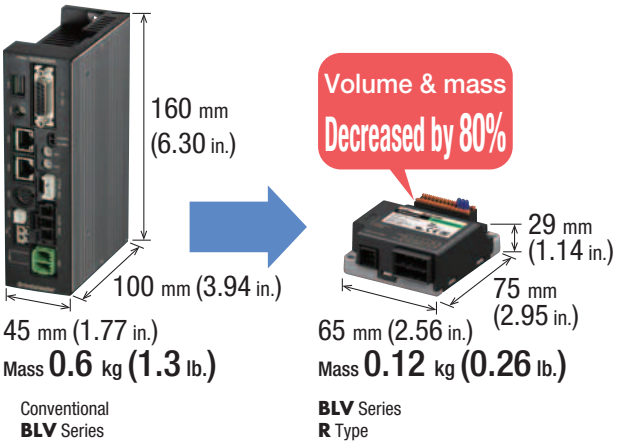
Compact & Lightweight

Both the motor and driver are significantly smaller and lighter.
The driver is approximately 80% smaller than the conventional product. The smaller driver saves valuable space in the automation equipment.

●Motor*



●Driver



*For a 100 W (1/8 HP) parallel shaft gearhead at a gear ratio of 30

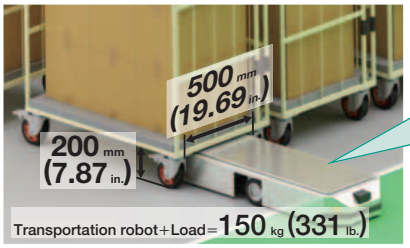
Powerful

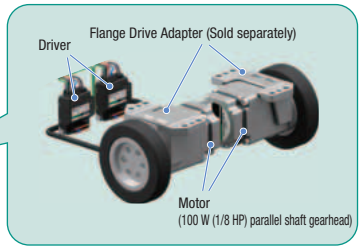
The new motor allows for larger inertia loads and heavier products to be transported when compared to the conventional product.
This also contributes to compact, high-power equipment design.

[Example of the design of a transportation robot]

Conditions

BLV Series **R** Type Motor	Product Line	Parallel Shaft Gearhead
	Output Power	100 W (1/8 HP)
	Gear Ratio	30
Flange Drive Adapter	Permissible Radial Load	1500 N (337 lb.)
	Permissible Axial Load	1000 N (227 lb.)
Driving Conditions	Vehicle Diameter	120 mm (4.72 in.)
	No. of Drive Wheels	2
	Acceleration Time	1 second





Results

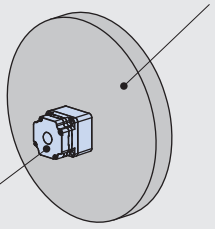
Max. Load Mass (Transportation robot mass+Load mass)	**150 kg (331 lb.)***
Maximum Traveling Speed	**0.6 m/sec**

*Wheel friction coefficient $\mu = 0.1$

Large Inertial Loads Can be Moved

-Image of inertial load (reference)-

Inertia: 20,700×10^{-4} kg·m^2 (108 oz·in^2)
(Diameter: 470 mm (18.50 in.), thickness: 50 mm (1.97 in.), material: iron)



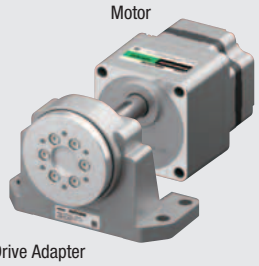
100 W (1/8 HP) parallel shaft gearhead, gear ratio 30
(Frame size: 90 mm (3.54 in.), motor length: 108.4 mm (4.26 in.))

●When the deceleration time is set to 0.1 seconds or higher

Flange Drive Adapter (Sold separately) ➜ Page 30

Increased permissible radial load and permissible axial load with the installation of a parallel shaft gearhead. Installation in equipment is easy as well.

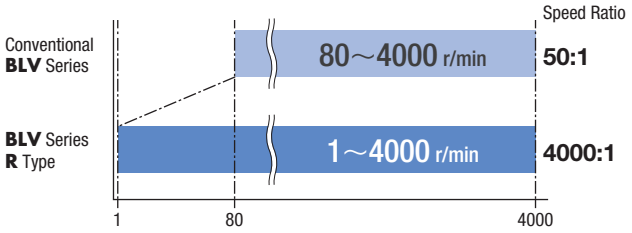
●For use with parallel shaft gearhead motors with an output power of 100 W (1/8 HP).



Wide Speed Range, Smooth Motion, Current Position and Position Feedback is Possible

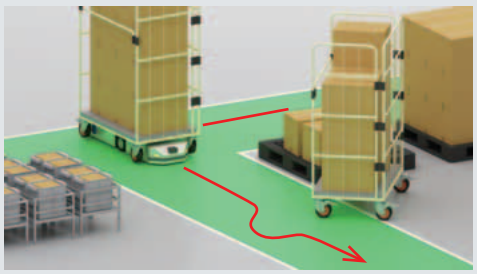
Broad speed control range of 1～4000 r/min

Smooth startup and stopping is possible thanks to stable operation even in the low speed range from 1 r/min.



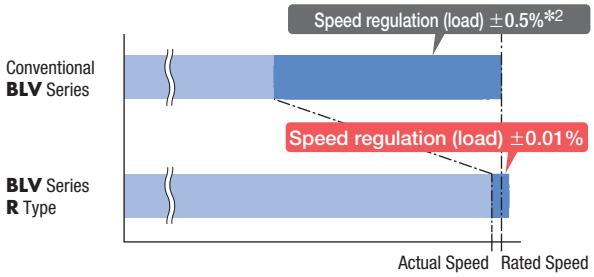
Merit

・Smooth travel is possible, even with repeated start and stop operations.



High speed stability when operated at high speed

Operation at the set speed is possible even with the load fluctuation due to the speed regulation (*1) of ±0.01%.



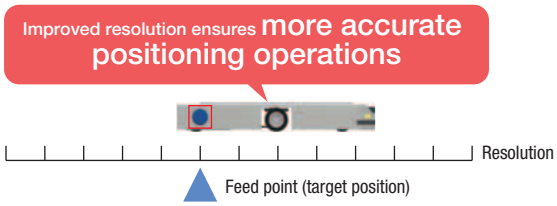
*1 Rate of change in speed when a constant load is applied

$$\text{Speed regulation} = \frac{\text{Actual speed} - \text{Command speed}}{\text{Rated speed}} \times 100\ (\%)$$

*2 ±0.2% for digital settings

Acquisition of current position and positioning operations are possible

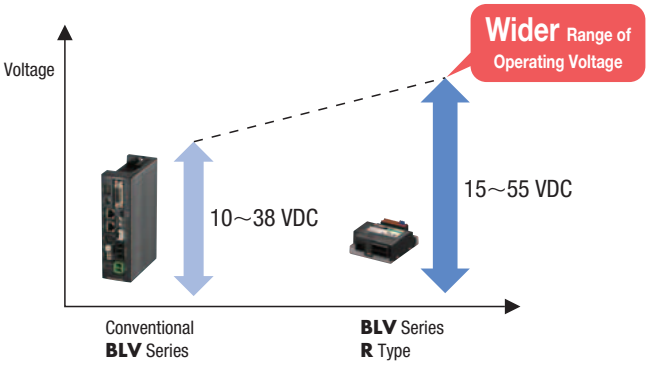
The current position can be acquired with enhanced motor feedback information.
Improved resolution allows the motor to stop at the target position.



A Wider Range of Operating Voltage

Support Real World Battery Use.

Wider Range of Operating Voltage

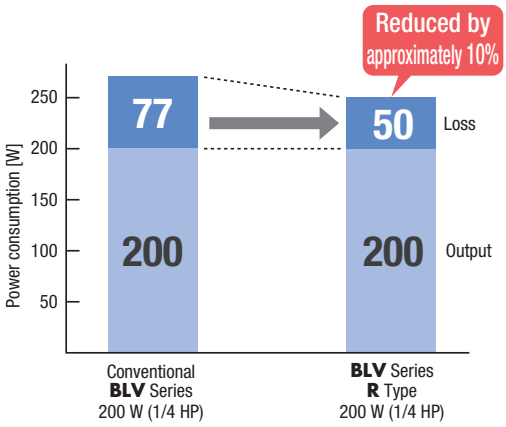


Merit

- Compatible with 24～48 VDC batteries.
- Will not stop even if the battery voltage drops.
  Continues operating while limiting the speed and torque.

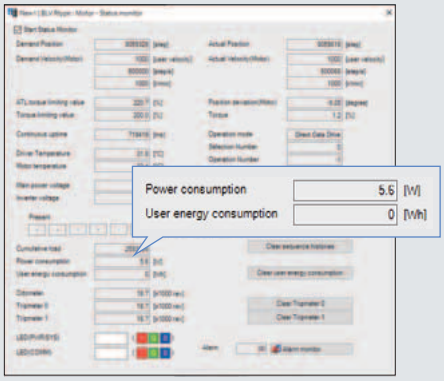
●The driver's overvoltage alarm threshold is 63 VDC.

Power Consumption Reduced by 10%



Merit

- Extended travel distance and time for transportation robots.
  The number of battery charges can also be decreased.
- Power consumption can be monitored via the Support Software **BLST01** and communication.
  This is useful as charging reference.



Various Recommended Functions

Holding when Stopped is Possible without an Electromagnetic Brake

When the motor has stopped in an excitation state, it can be used as an electrical holding brake even without a mechanical brake.
The motor enters an excitation state when the input signal “S-ON” is turned ON, and generates holding force. (Servo ON)
When the input signal “PLOOP-MODE” is turned ON, the position can be held with no deviation from the stop position.

Note

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

ATL Function that Automatically Limits Output Torque

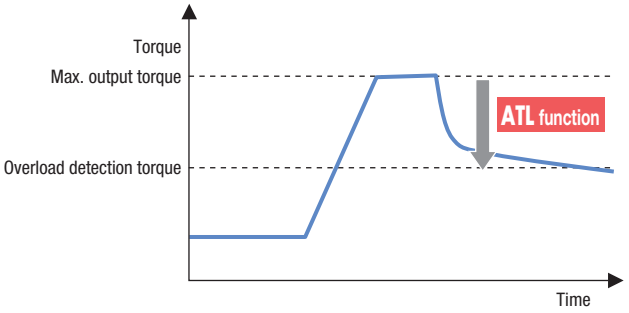
The ATL function limits torque and ensures that the motor does not stop when an overload alarm occurs, even when torque continues to be output at a level at which an overload alarm is detected.

The motor will continue driving even if an unexpected overload occurs*.

✻Examples)

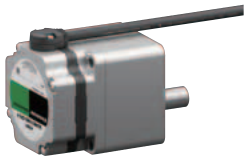
- Runs into an obstacle
- Sudden acceleration command
- Carrying a load exceeding the transportable mass

●Please disable the ATL function if the motor should stop when an alarm is output during overload.



Cable Output Direction Can be Selected

There are two motor cable output directions to choose from according to the equipment.



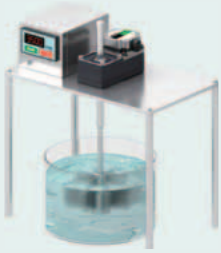
Cable output in the side of the output shaft

Cable output in the opposite side of the output shaft

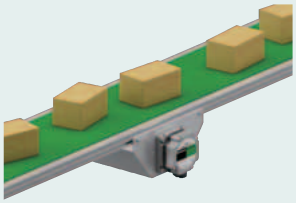
●Can be used for various applications, including transportation robots.

Transportation robot

Agitator

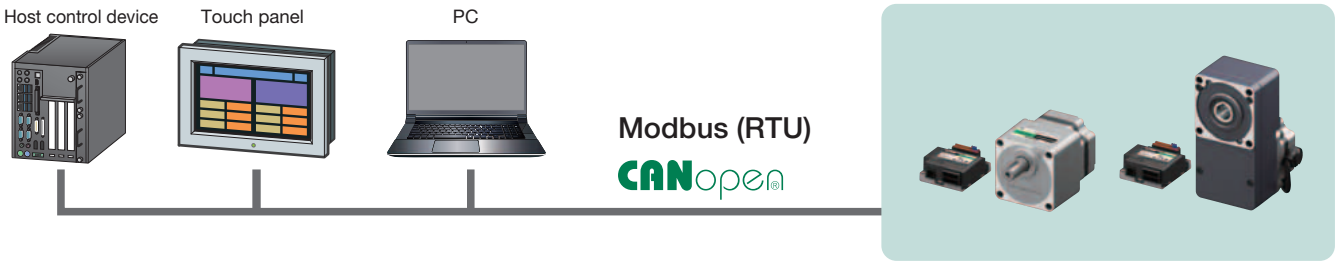


Conveyor



Compatible with Modbus (RTU) and CANopen Communication

The **BLV** Series **R** Type is compatible with the two interfaces of Modbus (RTU) and CANopen communication.



Main Functions with Modbus (RTU)

●Freely Create Operation Profiles - Direct Data Operation

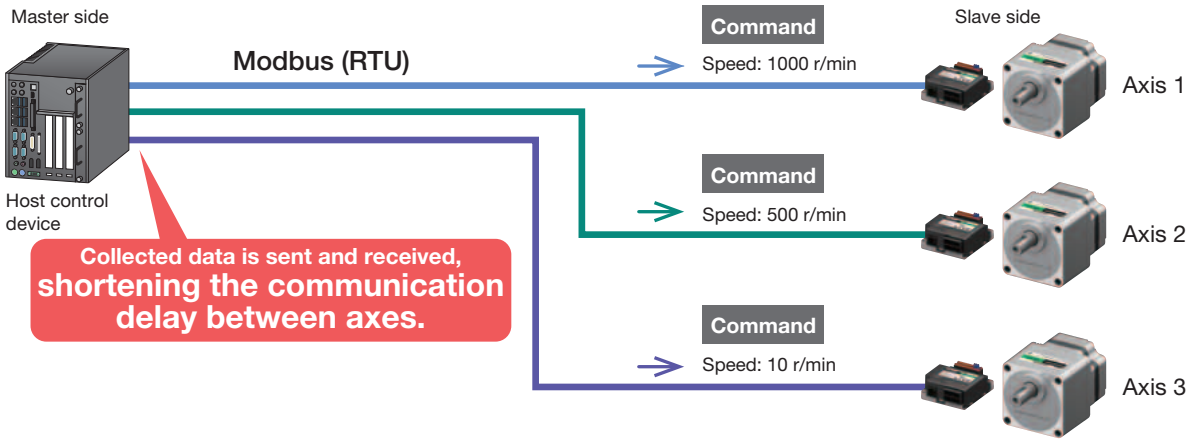
With Modbus (RTU) communication, data can be rewritten and operations can be started at the same time.

●Types of Operating Data

Operating Modes	Sets the operating mode.
Position	Sets the target position.
Speed	Sets the operating speed.
Acceleration Rate	Sets the acceleration time.
Deceleration Rate	Sets the deceleration time.
Torque Limiting Value	Sets the torque limiting value.

●Gather, Send, and Receive Data Across Different Axes - ID Share Mode

This function improves synchronization between axes with Modbus (RTU) communication.
Data collected from multiple axes can be sent and received, shortening the communication delay between axes.
It can also be used to send different commands to each axis at the same time.
This transmission method is unique to Oriental Motor.



Support from Startup and Operation to Maintenance

with the Support Software **BLST01**

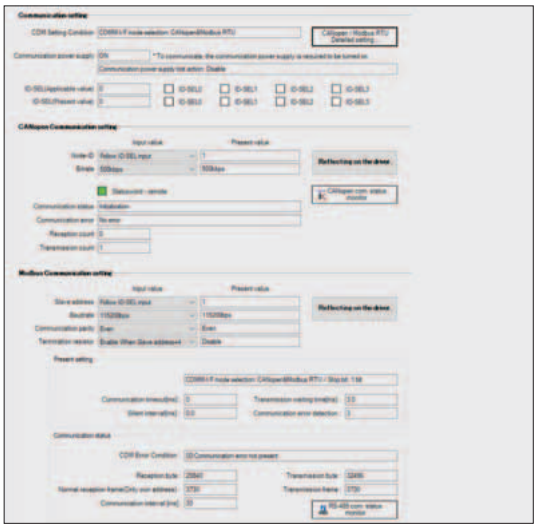
By using the Support Software **BLST01**, data setting, actual operation, and confirmation via each monitor can be performed easily on a computer. The support software can be downloaded for free from the Oriental Motor website.

Support Software
BLST01

Startup Functions that Support Programing at Setup

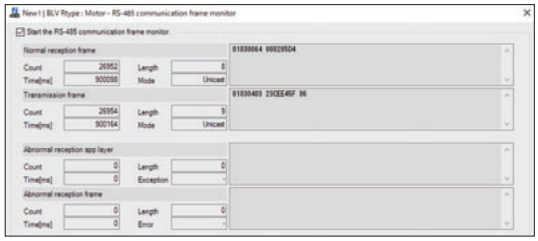
●Simple Settings

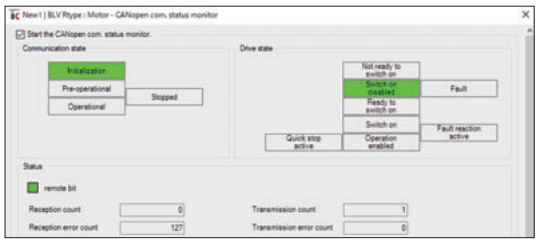
Various communication settings can be easily made using the “Simple communication settings”.



●Communication Frame Monitoring, Communication Status Monitoring

All communication frames and statuses can be monitored. This is useful for host program startup and debugging.

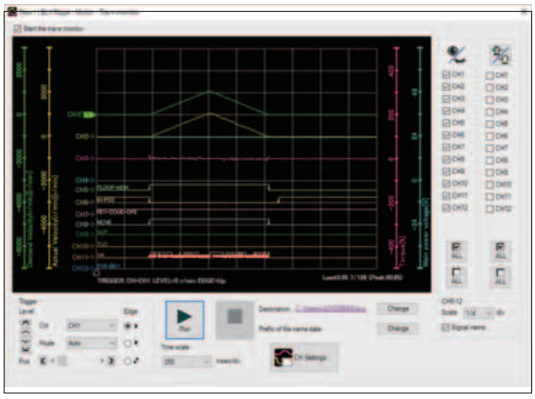




Operation Functions that Support Adjustments

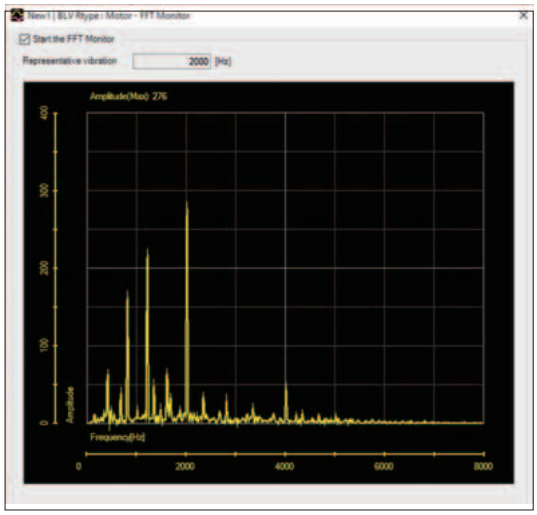
●Waveform Monitoring

The operating status of the motor (command speed, torque, I/O signal, etc.) can be checked like an oscilloscope. Waveform measurement results can be saved as images and in CSV format.



●FFT Monitoring

Visualizes mechanical resonance by analyzing frequency using FFT analysis. Noise and vibration can be reduced by adjusting the resonance suppression parameter.



●Gain Tuning

Motor tracking can be adjusted according to the command.

Maintenance Functions that Support Diagnostics and Maintenance

●Trace Monitoring

The operating status of the motor can be continuously measured for 24 hours or longer.
Data can be saved in CSV format.

Merit

Data is saved for a long period of time, making it easy to determine the cause of a problem.

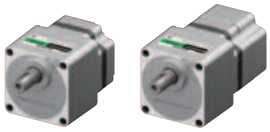
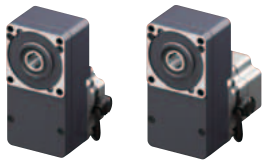
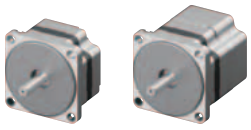
Various Monitoring Functions

The support software **BLST01** can also monitor various other types of information. For details, please see the Oriental Motor website.

Product Line

Different motors and gearheads are available based on the system requirements.

Motors

Output Shaft Type	Output Power [W]	Frame Size [mm]	Gear Ratio
Parallel Shaft Gearhead  With Electromagnetic Brake	100 (1/8 HP)	90 (3.54 in.)	10～100
	200 (1/4 HP)	110 (4.33 in.)	
Hollow Shaft Flat Gearhead  With Electromagnetic Brake	100 (1/8 HP)	90 (3.54 in.)	10～200
	200 (1/4 HP)	104 (4.09 in.)	10～100
Round Shaft Type  With Electromagnetic Brake	100 (1/8 HP)	90 (3.54 in.)	–
	200 (1/4 HP)	90 (3.54 in.)	

Driver

	Power Supply Voltage [VDC]	Output Power [W]
	24～48	100 (1/8 HP)
		200 (1/4 HP)

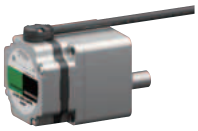
Connection Cables

	Length [m]
	1 (3.3 ft.), 2 (6.6 ft.), 3 (9.8 ft.)

Power Supply Cable

	Length [m]
	0.6 (1.97 in.)

●Two motor cable drawing directions to choose from



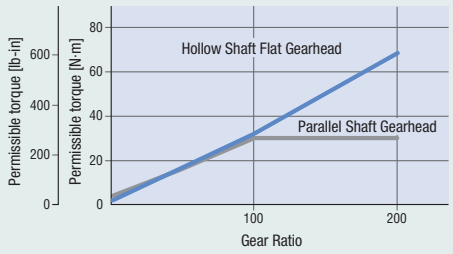
Cable drawn in the side of the output shaft

Cable drawn in the opposite side of the output shaft

Higher Torque and Space Saving are Achieved with a Hollow Shaft Flat Gearhead

●Permissible Torque with no Saturation

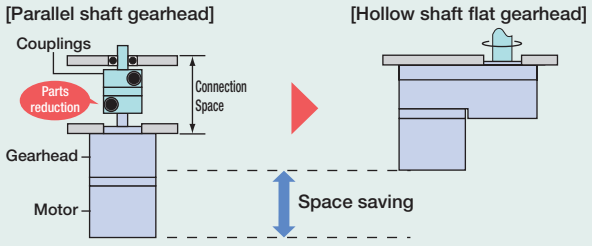
No saturation of permissible torque even at high gear ratios.
This is useful for maximizing the motor torque.



✻When frame size is 90 mm (3.54 in.)

●Space Saving and Cost Reduction

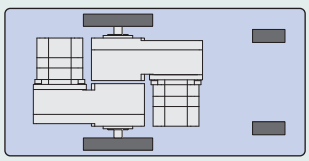
Direct connection to the drive shaft is possible without using a connecting part, which enables equipment space saving. The reduction in couplings, belts, pulleys, etc. also contributes to a decrease in the cost of parts and assembly work.



Example) Application in vehicle drive part

Staggered for a compact configuration.

✻Only compatible with 200 W (1/4 HP)

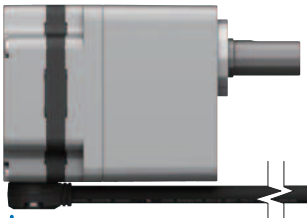


System Configuration

Motors, driver, connection cables, and power supply cables must be ordered separately.

◉ Must be purchased
○ Purchase as necessary

◉ Motor



●The motor cable can be connected directly to the driver.

Support Software
BLST01

To USB port

●The support software **BLST01** can be downloaded from the Oriental Motor website.

Must be supplied by customer.
USB Cable

Host Controller

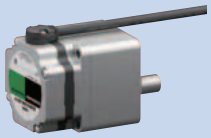
Power Supply for Communication

◉ Driver

Must be supplied by customer.
DC Power Supply (Main power supply)

Maximum Extension Length: 3.5 m (11.5 ft.) [Includes Motor Cable 0.5 m (1.64 ft.)]

2 types of motor cable outlet direction is available.



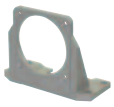
Cable outlet in output shaft direction

Cable outlet opposite to output shaft direction

○ Connection Cables
➜ Page 30

◉ Power Supply Cables
➜ Page 30

○ Accessories for Motor



Mounting Brackets for Motor and Gearhead*
➜ Page 31

Flexible Couplings
➜ Page 31

*Usable for the parallel shaft gearhead and the round shaft type.

○ Flange Drive Adapter ➜ Page 30

This product can be attached to the gearhead to increase the permissible load. Usable for the parallel shaft gearhead with motor output power of 100 W (1/8 HP).

Note

The driver does not include a connector that connects to a power supply. Please purchase an optional cable or supply a connecter by customer separately.
For the connecter parts number, check the dimensions of the power supply cable. ➜ Page 28

●Example of System Configuration Pricing

Motor		Driver		Cables			Peripheral Equipment
				Connection Cable (1 m)	Power Supply Cable		Flange Drive Adapter
BLMR5100K-10-F	+	BLVD-KRD	+	CCM010B1AAF	LC03D06A	+	AGD580B
$418.00		$432.00		$50.00	$29.00		$552.00
◉		◉		○	◉		○

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

Product Number

Motors

BLMR 6 200 S K M - 10 FR - F

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Series Name and Motor Type	**BLMR**: **BLV** Series **R** Type Motor
②	Motor Frame Size	**5**: 90 mm (3.54 in.) **6**: 104 mm (4.09 in.) [Gearhead part is 110 mm (4.33 in.)]
③	Output Power	**100**: 100 W (1/8 HP) **200**: 200 W (1/4 HP)
④	Motor Classification	**S**
⑤	Power Supply Voltage	**K**: DC Input
⑥	**M**: Electromagnetic Brake Type	
⑦	Gear Ratio and Shaft Type	Number: Gear Ratio for Gearhead **A**: Round Shaft Type
⑧	Gearhead Type	Blank: Parallel Shaft Gearhead **FR**: Hollow Shaft Flat Gearhead
⑨	Direction of Cable Outlet	**F**: Output shaft side **B**: Opposite side of output shaft

Driver

BLVD - K R D

① ② ③ ④

①	Driver Type	**BLVD**: **BLV** Series Driver
②	Power Supply Voltage	**K**: 24 - 48 VDC
③	Type	**R** Type
④	Driver Classification	**D**

Connection Cables

CCM 010 B1AAF

① ② ③

①	Cable Type	**CCM**: Connection Cable
②	Length	**010**: 1 m (3.3 ft.) **020**: 2 m (6.6 ft.) **030**: 3 m (9.8 ft.)
③	Cable Classification	**B1AAF**

Product Line

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

Motors

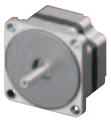
◇Parallel Shaft Gearhead

Output Power	Product Name	Gear Ratio	List Price
100 W (1/8 HP)	**BLMR5100K-□-■**	**10**, **15**, **20**	$418.00
		30, **50**, **100**	$428.00
200 W (1/4 HP)	**BLMR6200SK-□-■**	**10**, **15**, **20**	$496.00
		30, **50**	$510.00
		100	$528.00

◇Hollow Shaft Flat Gearhead

Output Power	Product Name	Gear Ratio	List Price
100 W (1/8 HP)	**BLMR5100K-□FR-■**	**10**, **15**, **20**	$734.00
		30, **50**, **100**	$746.00
		200	$758.00
200 W (1/4 HP)	**BLMR6200SK-□FR-■**	**10**, **15**, **20**	$832.00
		30, **50**, **100**	$844.00

◇Round Shaft Type



Output Power	Product Name	List Price
100 W (1/8 HP)	**BLMR5100K-A-■**	$278.00
200 W (1/4 HP)	**BLMR5200K-A-■**	$508.00

Driver

Output Power	Product Name	List Price
100 W (1/8 HP) 200 W (1/4 HP)	**BLVD-KRD**	$432.00

Electromagnetic Brake Motors

◇Parallel Shaft Gearhead

Output Power	Product Name	Gear Ratio	List Price
100 W (1/8 HP)	**BLMR5100KM-□-■**	**10**, **15**, **20**	$598.00
		30, **50**, **100**	$608.00
200 W (1/4 HP)	**BLMR6200SKM-□-■**	**10**, **15**, **20**	$685.00
		30, **50**	$700.00
		100	$718.00

◇Hollow Shaft Flat Gearhead

Output Power	Product Name	Gear Ratio	List Price
100 W (1/8 HP)	**BLMR5100KM-□FR-■**	**10**, **15**, **20**	$734.00
		30, **50**, **100**	$746.00
		200	$758.00
200 W (1/4 HP)	**BLMR6200SKM-□FR-■**	**10**, **15**, **20**	$832.00
		30, **50**, **100**	$844.00

◇Round Shaft Type

Output Power	Product Name	List Price
100 W (1/8 HP)	**BLMR5100KM-A-■**	$458.00
200 W (1/4 HP)	**BLMR5200KM-A-■**	$508.00

Connection Cables

Length	Product Name	List Price
1 m (3.3 ft.)	**CCM010B1AAF**	$50.00
2 m (6.6 ft.)	**CCM020B1AAF**	$68.00
3 m (9.8 ft.)	**CCM030B1AAF**	$86.00

Power Supply Cable

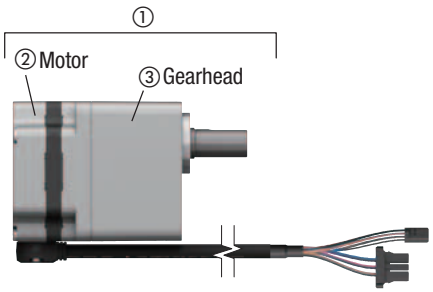
Length	Product Name	List Price
0.6 m (2 ft.)	**LC03D06A**	$29.00

Included

Type	Parallel Key	Safety Cover	Installation Screw
Parallel Shaft Gearhead	1 Piece	—	1 Set
Hollow Shaft Flat Gearhead	1 Piece	1 Set	1 Set
Round Shaft	—	—	—
Driver	—	—	—

● A number indicating the gear ratio is entered where the box □ is located within the product name.
Either **F** or **B** indicating the cable outlet direction is entered where the box ■ is located within the product name.

List of Combinations



④ Driver

⑤ Connection Cable

⑥ Power Supply Cable

●Motors

Output Power	Type	Brushless Motor			Driver	Connection Cable	Power Supply Cable
		Product Name	Component Product Name		Product Name	Product Name	Product Name
		①	②	③	④	⑤	⑥
100 W (1/8 HP)	Parallel Shaft Gearhead	**BLMR5100K-□-■**	BLMR5100K-GFV-■	GFV5G□	**BLVD-KRD**	**CCM010B1AAF** **CCM020B1AAF** **CCM030B1AAF**	**LC03D06A**
	Hollow Shaft Flat Gearhead	**BLMR5100K-□FR-■**		GFS5G□FR			
	Round Shaft	**BLMR5100K-A-■**	–	–			
200 W (1/4 HP)	Parallel Shaft Gearhead	**BLMR6200SK-□-■**	BLMR6200SK-GFV-■	GFV6G□			
	Hollow Shaft Flat Gearhead	**BLMR6200SK-□FR-■**		GFS6G□FR			
	Round Shaft	**BLMR5200K-A-■**	–	–			

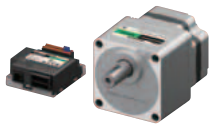
●Electromagnetic Brake Motors

Output Power	Type	Brushless Motor			Driver	Connection Cable	Power Supply Cable
		Product Name	Component Product Name		Product Name	Product Name	Product Name
		①	②	③	④	⑤	⑥
100 W (1/8 HP)	Parallel Shaft Gearhead	**BLMR5100KM-□-■**	BLMR5100KM-GFV-■	GFV5G□	**BLVD-KRD**	**CCM010B1AAF** **CCM020B1AAF** **CCM030B1AAF**	**LC03D06A**
	Hollow Shaft Flat Gearhead	**BLMR5100KM-□FR-■**		GFS5G□FR			
	Round Shaft	**BLMR5100KM-A-■**	–	–			
200 W (1/4 HP)	Parallel Shaft Gearhead	**BLMR6200SKM-□-■**	BLMR6200SKM-GFV-■	GFV6G□			
	Hollow Shaft Flat Gearhead	**BLMR6200SKM-□FR-■**		GFS6G□FR			
	Round Shaft	**BLMR5200KM-A-■**	–	–			

● A number indicating the gear ratio is entered where the box □ is located within the product name.
Either **F** or **B** indicating the cable outlet direction is entered where the box ■ is located within the product name.

Parallel Shaft Gearhead

100 W (1/8 W), 200 W (1/4 W)



Specifications

Product Name			BLMR5100K-□-■	BLMR6200SK-□-■
	Motor	With Electromagnetic Brake	BLMR5100KM-□-■	BLMR6200SKM-□-■
	Driver		BLVD-KRD	
Rated Output Power (Continuous)		W (HP)	100 (1/8)	200 (1/4)
Power Supply Input	Rated Voltage	V	24 - 48 VDC	
	Permissible Voltage Range	V	15 - 55 VDC	
	Rated Input Current	A	2.6 (48 VDC) to 5.1 (24 VDC)	5.3 (48 VDC) to 10.5 (24 VDC)
	Maximum Input Current	A	10	18
Rated Speed		r/min	3000	
Speed Control Range*			1 to 4000 r/min (Speed ratio 4000:1)	
Speed Regulation	Load		Max. ±0.01% Conditions: 0 to rated torque, at rated speed, at rated voltage, at normal temperature	
	Voltage		Max. ±0.01% Conditions: Rated voltage 24 - 48 VDC, at rated speed, with no load, at normal temperature	
	Temperature		Max. ±0.01% Conditions: Operating ambient temperature 0 to +40°C (+32 to +104°F), at rated speed, with no load, at rated voltage	
Resolution*			0.01° (36000 Pulses per rotation)	
Electromagnetic Brake	Type		Power off activated type, automatically controlled by the driver	
	Static Friction Torque	N·m (oz-in)	0.319 (45)	0.637 (90)

*Factory setting

● The values in the table are characteristics for the motor only.

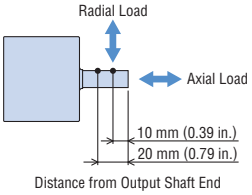
Gear Ratio				10	15	20	30	50	100
Rotation Direction		100 W (1/8 HP)		Same direction as the motor			Opposite direction to the motor		
		200 W (1/4 HP)		Same direction as the motor			Opposite direction to the motor		Same direction as the motor
Output Shaft Speed [r/min]*1			1 r/min	0.1	0.067	0.05	0.033	0.02	0.01
			3000 r/min	300	200	150	100	60	30
			4000 r/min	400	267	200	133	80	40
Permissible Torque [N·m (lb-in)]		100 W (1/8 HP)	At 1 to 3000 r/min	2.9 (25)	4.3 (38)	5.7 (50)	8.2 (72)	13.7 (121)	27.4 (240)
			At 4000 r/min	2.2 (19.4)	3.2 (28)	4.3 (38)	6.2 (54)	10.3 (91)	20.6 (182)
		200 W (1/4 HP)	At 1 to 3000 r/min	5.7 (50)	8.6 (76)	11.5 (101)	16.4 (145)	27.4 (240)	51.6 (450)
			At 4000 r/min	4.1 (36)	6.1 (53)	8.1 (71)	11.6 (102)	19.4 (171)	36.5 (320)
Maximum Instantaneous Torque [N·m (lb-in)]		100 W (1/8 HP)		5.7 (50)	8.6 (76)	11.5 (101)	16.5 (145)	27.4 (240)	40 (350)
		200 W (1/4 HP)		11.5 (101)	17.2 (152)	22.9 (200)	32.9 (290)	55 (480)	100 (880)
Permissible Inertia J [$\times 10^{-4}$kg·m^2 (oz-in^2)]	When acceleration/deceleration time is set*2	100 W (1/8 HP)		2300 (12600)	5175 (28000)	9200 (50000)	20700 (113000)	57500 (310000)	230000 (1260000)
		200 W (1/4 HP)		3400 (18600)	7650 (42000)	13600 (74000)	30600 (167000)	85000 (460000)	340000 (1860000)
	Instantaneous stop*3	100 W (1/8 HP)		100 (550)	225 (1230)	400 (2200)	900 (4900)	2500 (13700)	2500 (13700)
		200 W (1/4 HP)		200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)	5000 (27000)
Permissible Radial Load [N (lb.)]	10 mm (0.39 in.) from the end of the output shaft	100 W (1/8 HP)	At 1 to 3000 r/min	400 (90)			500 (112)		
			At 4000 r/min	370 (83)			450 (101)		
		200 W (1/4 HP)	At 1 to 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 the end of the output shaft	100 W (1/8 HP)	At 1 to 3000 r/min	500 (112)			650 (146)		
			At 4000 r/min	430 (96)			550 (123)		
		200 W (1/4 HP)	At 1 to 3000 r/min	800 (180)			1250 (280)		1700 (380)
			At 4000 r/min	700 (157)			1100 (240)		1400 (310)
Permissible Axial Load [N (lb.)]		100 W (1/8 HP)		150 (33)					
		200 W (1/4 HP)		200 (45)			300 (67)		400 (90)

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

*2 This is the maximum permissible inertia when the acceleration/deceleration time is set to 0.1 seconds or longer.
Set the acceleration/deceleration time so that the torque required for acceleration/deceleration operation does not exceed the maximum instantaneous torque.

*3 It also applies when the deceleration time is set to less than 0.1 seconds.

◇Load Position



Speed – Torque Characteristics

➜ Page 18

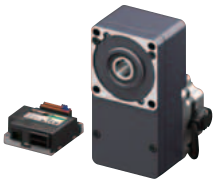
Dimensions

Motors ➜ Page 20
Electromagnetic Brake Motors ➜ Page 24
Driver ➜ Page 28

● A number indicating the gear ratio is entered where the box □ is located within the product name.
Either **F** or **B** indicating the cable outlet direction is entered where the box ■ is located within the product name.

Hollow Shaft Flat Gearhead

100 W (1/8 W), 200 W (1/4 W)



Specifications

Product Name			BLMR5100K-□FR-■	BLMR6200SK-□FR-■
	Motor	With Electromagnetic Brake	BLMR5100KM-□FR-■	BLMR6200SKM-□FR-■
	Driver		BLVD-KRD	
Rated Output Power (Continuous)		W (HP)	100 (1/8)	200 (1/4)
Power Supply Input	Rated Voltage	V	24 - 48 VDC	
	Permissible Voltage Range	V	15 - 55 VDC	
	Rated Input Current	A	2.6 (48 VDC) to 5.1 (24 VDC)	5.3 (48 VDC) to 10.5 (24 VDC)
	Maximum Input Current	A	10	18
Rated Speed		r/min	3000	
Speed Control Range*			1 to 4000 r/min (Speed ratio 4000:1)	
Speed Regulation	Load		Max. ±0.01% Conditions: 0 to rated torque, at rated speed, at rated voltage, at normal temperature	
	Voltage		Max. ±0.01% Conditions: Rated voltage 24 - 48 VDC, at rated speed, with no load, at normal temperature	
	Temperature		Max. ±0.01% Conditions: Operating ambient temperature 0 to +40°C (+32 to +104°F), at rated speed, with no load, at rated voltage	
Resolution*			0.01° (36000 Pulses per rotation)	
Electromagnetic Brake	Type		Power off activated type, automatically controlled by the driver	
	Static Friction Torque	N·m (oz-in)	0.319 (45)	0.637 (90)

*Factory setting

● The values in the table are characteristics for the motor only.

Gear Ratio				10	15	20	30	50	100	200*1
Output Shaft Speed [r/min]*2			1 r/min	0.1	0.067	0.05	0.033	0.02	0.01	0.005
			3000 r/min	300	200	150	100	60	30	15
			4000 r/min	400	267	200	133	80	40	20
Permissible Torque [N·m (lb-in)]		100 W (1/8 HP)	At 1 to 3000 r/min	2.7 (23)	4.1 (36)	5.4 (47)	8.1 (71)	13.6 (120)	27.1 (230)	54 (470)
			At 4000 r/min	2.0 (17.7)	3.0 (26)	4.1 (36)	6.1 (53)	10.2 (90)	20.3 (179)	40.6 (350)
		200 W (1/4 HP)	At 1 to 3000 r/min	5.4 (47)	8.1 (71)	10.8 (95)	16.2 (143)	27 (230)	54 (470)	–
			At 4000 r/min	3.8 (33)	5.7 (50)	7.7 (68)	11.5 (101)	19.1 (169)	38.3 (330)	–
Maximum Instantaneous Torque [N·m (lb-in)]		100 W (1/8 HP)		5.4 (47)	8.1 (71)	10.8 (95)	16.3 (144)	27.1 (230)	54 (470)	85 (750)
		200 W		10.8 (95)	16.2 (143)	21.7 (192)	32.5 (280)	54 (470)	108 (950)	–
Permissible Inertia J [×10^{-4}kg·m^2 (oz-in^2)]	When acceleration/deceleration time is set*3	100 W (1/8 HP)		2300 (12600)	5175 (28000)	9200 (50000)	20700 (113000)	57500 (310000)	230000 (1260000)	920000 (5000000)
		200 W (1/4 HP)		3400 (18600)	7650 (42000)	13600 (74000)	30600 (167000)	85000 (460000)	340000 (1860000)	–
	Instantaneous stop*4	100 W (1/8 HP)		100 (550)	225 (1230)	400 (2200)	900 (4900)	2500 (13700)		
		200 W (1/4 HP)		200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)		–
Permissible Radial Load [N (lb.)]*5	10 mm (0.39 in.) from installation surface	100 W (1/8 HP)	At 1 to 3000 r/min	900 (200)	1300 (290)		1500 (330)			
			At 4000 r/min	820 (184)	1200 (270)		1400 (310)			
		200 W (1/4 HP)	At 1 to 3000 r/min	1230 (270)	1680 (370)		2040 (450)			–
			At 4000 r/min	1130 (250)	1550 (340)		1900 (420)			–
	20 mm (0.79 in.) from installation surface	100 W (1/8 HP)	At 1 to 3000 r/min	770 (173)	1110 (240)		1280 (280)			
			At 4000 r/min	700 (157)	1020 (220)		1200 (270)			
		200 W (1/4 HP)	At 1 to 3000 r/min	1070 (240)	1470 (330)		1780 (400)			–
			At 4000 r/min	990 (220)	1360 (300)		1660 (370)			–
Permissible Axial Load [N (lb.)]		100 W (1/8 HP)		500 (112)						
		200 W (1/4 HP)		800 (180)						–

*1 Gear ratio **200** is only for the output power of 100 W (1/8 HP).

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

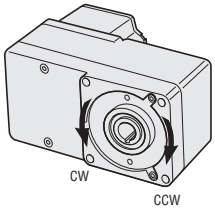
*3 This is the maximum permissible inertia when the acceleration/deceleration time is set to 0.1 seconds or longer.
Set the acceleration/deceleration time so that the torque required for acceleration/deceleration operation does not exceed the maximum instantaneous torque.

*4 It also applies when the deceleration time is set to less than 0.1 seconds.

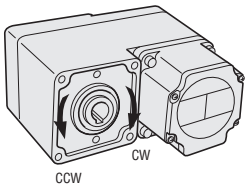
*5 The radial load at each distance can be calculated with a formula. ➜ Page 29

◇Rotation Direction

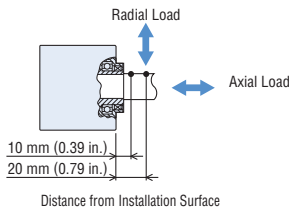
●Front View



●Rear View



◇Load Position



Speed – Torque Characteristics

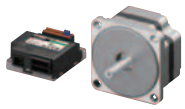
➜ Page 18

Dimensions

Motors ➜ Page 21, 22
Electromagnetic Brake Motors ➜ Page 25, 26
Driver ➜ Page 29

● A number indicating the gear ratio is entered where the box □ is located within the product name.
Either **F** or **B** indicating the cable outlet direction is entered where the box ■ is located within the product name.

Round Shaft 100 W (1/8 W), 200 W (1/4 W)



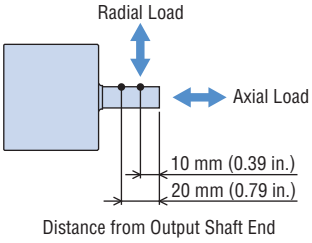
Specifications

Product Name			BLMR5100K-A-□	BLMR5200K-A-□
	Motor	With Electromagnetic Brake	BLMR5100KM-A-□	BLMR5200KM-A-□
	Driver		BLVD-KRD	
Rated Output Power (Continuous)		W (HP)	100 (1/8)	200 (1/4)
Power Supply Input	Rated Voltage	V	24 - 48 VDC	
	Permissible Voltage Range	V	15 - 55 VDC	
	Rated Input Current	A	2.6 (48 VDC) to 5.1 (24 VDC)	5.3 (48 VDC) to 10.5 (24 VDC)
	Maximum Input Current	A	10	18
Rated Speed		r/min	3000	
Speed Control Range*1			1 to 4000 r/min (Speed ratio 4000:1)	
Rated Torque		N·m (oz-in)	0.319 (45)	0.637 (90)
Maximum Instantaneous Torque		N·m (oz-in)	0.704 (99) (220%)	1.34 (190) (210%)
Rotor Inertia J		$\times10^{-4}$kg·m^2 (oz-in^2)	0.23 (1.26) [0.25 (1.37)] *2	0.454 (2.5) [0.47 (2.6)] *2
Permissible Inertia		$\times10^{-4}$kg·m^2 (oz-in^2)	23 (126)	34 (186)
Permissible Radial Load	10 mm (0.39 in.) from the end of the output shaft	N (lb.)	150 (33)	
	20 mm (0.79 in.) from the end of the output shaft	N (lb.)	170 (38)	
Permissible Axial Load		N (lb.)	25 (5.6)	
Speed Regulation	Load		Max. ±0.01% Conditions: 0 to rated torque, at rated speed, at rated voltage, at normal temperature	
	Voltage		Max. ±0.01% Conditions: Rated voltage 24 - 48 VDC, at rated speed, with no load, at normal temperature	
	Temperature		Max. ±0.01% Conditions: Operating ambient temperature 0 to +40°C (+32 to +104°F), at rated speed, with no load, at rated voltage	
Resolution*1			0.01° (36000 Pulses per rotation)	
Electromagnetic Brake	Type		Power off activated type, automatically controlled by the driver	
	Static Friction Torque	N·m (oz-in)	0.319 (45)	0.637 (90)

*1 Factory setting

*2 The values in the parentheses ( ) represent the values for the electromagnetic brake type.

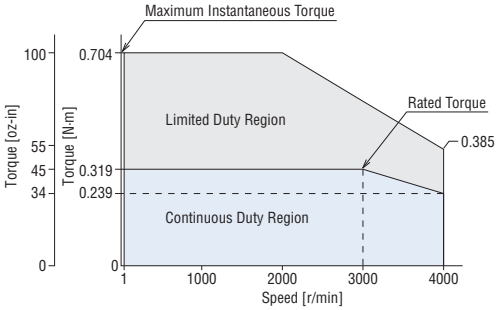
◇Load Position



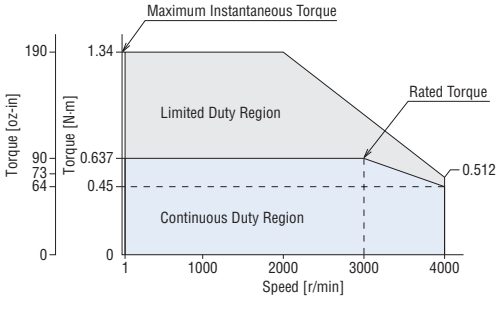
Speed – Torque Characteristics

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

●100 W (1/800 HP)



●200 W (1/400 HP)



● The values correspond to each specification and characteristic of the motor only. The speed - torque characteristics indicate the values when rated voltage is applied.

Dimensions

Motors ➜ Page 23
Electromagnetic Brake Motors ➜ Page 27
Driver ➜ Page 28

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

Common Specifications

Items	Specifications
Input Signals	4 Inputs, Photocoupler Input Method
Output Signals	2 Outputs, Photocoupler and Open-Collector Output
Main Operation Functions	Continuous Operation, Positioning Operation, JOG Operation, Return-to-Home Operation
Operating Data Setting Number	256 Points
Setting Tool	Support Software **BLST01**
Maximum Extension Length	Motor and Driver Distance: 3.5 m (11.5 ft.) (when a separately sold connection cable is used)
Time Rating	Continuous

Communication Specifications

RS-485 Communication Specifications

Electrical Characteristics	EIA-485 Based Use a shielded twisted pair cable and keep the total wiring distance including extension to 10 m (32.8 ft.) or less.*
Communication Mode	Half duplex and start-stop synchronization (data: 8 bits, stop bit: 1 bit or 2 bits, parity: none, even, or odd)
Transmission Rate	Select either from 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps, or 230400 bps (initial value).
Protocol	Modbus RTU Mode
Connection Type	Up to 31 units can be connected to a single programmable controller.

*If a specific wiring and layout causes the motor cable or power supply cable to generate a noise problem, shield the cable or use ferrite cores.

CANopen Communication Specifications

Electrical Characteristics	In conformance with ISO 11898 Use the CAN-Bus cable.
Communication Protocol	CANopen
Communication Profile	In conformance with CiA DS301 Version 4.2.0
Device Profile	In conformance with CiA DSP402 Version 4.0.0
Node ID	1 to 127
Bit Rate	Selectable from 1 Mbps, 800 kbps, 500 kbps (initial value), 250 kbps, 125 kbps, 50 kbps, 20 kbps, 10 kbps
Maximum Bus Length	25 m (82 ft.) (Maximum bus length at 1 Mbps)
Communication Objects	NMT (Network Management) SDO (Service Data Object: 1 SDO server) PDO (Process Data Object: 4 Receive-PDO, 4 Transmit-PDO) EMCY (Emergency Object) SYNC (Synchronization Object)
Operation Modes	Profile Velocity Mode (pv) Profile Position Mode (pp) Homing Mode (hm)

General Specifications

Item		Motor	Driver
Insulation Resistance		100 MΩ or more when a 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 a 500 VDC megger is applied between the heat sink and the main power supply input after continuous operation under normal ambient temperature and humidity.
Dielectric Strength		Sufficient to withstand 0.5 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 0.5 kVAC at 50 Hz applied between the heat sink and the power supply input for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise		The temperature rise of the windings is 60°C (108°F) max. and that of the case surface 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.
Operating Environment	Ambient Temperature	0 to +40°C (+32 to +104°F) (Non-freezing)	0 to +40°C (+32 to +104°F) (Non-freezing)*2
	Ambient Humidity	85% or less (Non-condensing)	
	Altitude	Up to 1000 m (3300 ft.) above sea level	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to oil. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.	
	Vibration	Not subject to continuous vibration or excessive impact. In conformance with JIS C 60068-2-6 "Sine-wave vibration test method" Frequency Range: 10 Hz to 55 Hz Pulsating Amplitude: 0.15 mm (0.006 in.) Sweep Direction: 3 directions (X, Y, Z) Number of Sweeps: 20 times	
Storage Condition*3	Ambient Temperature	−20 to +70°C (−4 to +158°F) (Non-freezing)	−25 to +70°C (−13 to +158°F) (Non-freezing)
	Ambient Humidity	85% or less (Non-condensing)	
	Altitude	Up to 3000 m (10000 ft.) above sea level	
	Atmosphere	No corrosive gases or dust. The product should not be exposed to water, oil. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.	
Thermal Class		UL/CSA Standards: 105 (A), EN Standards: 120 (E)	–
Degree of Protection		IP40	IP20

*1 For round shaft type motor, 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.
100 W (1/8 HP) type: 165×165 mm (6.50×6.50 in.) thickness 5 mm (0.20 in.), 200 W (1/4 HP) type: 200×200 mm (7.87×7.87 in.) thickness 5 mm (0.20 in.)

*2 Install the driver to a location that has the same heat radiation capability as an aluminum metal plate.
200×200 mm (7.87×7.87 in.) thickness 2 mm (0.08 in.)

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

Note

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

Dimensions (Unit: mm)

- Installation screws are included with the parallel shaft gearhead and the hollow shaft flat gearhead.
  Included ➜ Page 14, Dimensions for Installation Screws ➜ Page 29
- A number indicating the gear ratio is entered where the box □ is located within the product name.
  Either **F** (output shaft side) or **B** (opposite to output shaft side) indicating the cable outlet direction is entered where the box ■ is located within the product name.

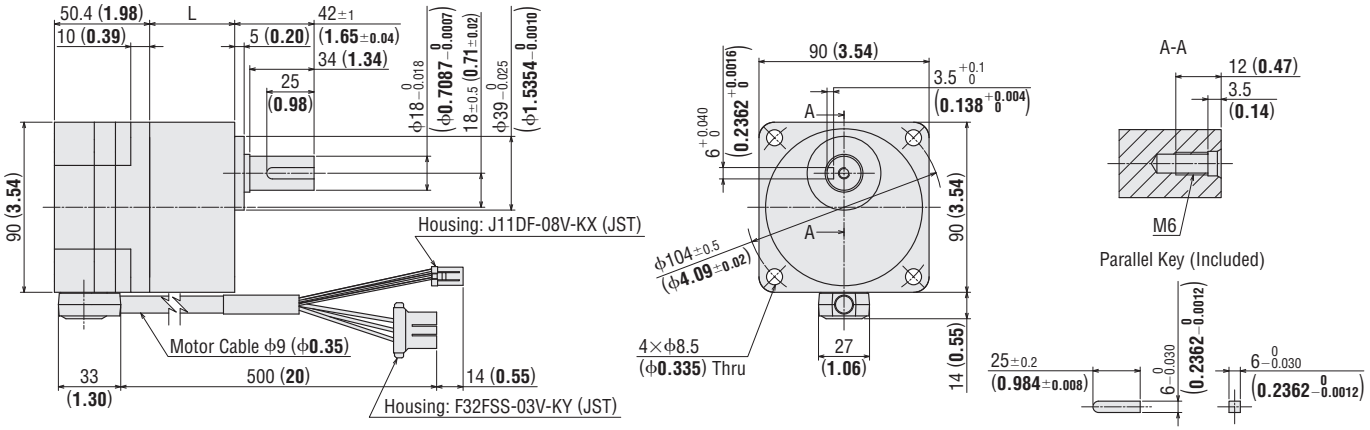
Motors

◇Parallel Shaft Gearhead 100 W (1/8 W)

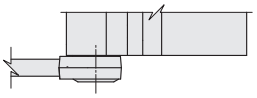
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR5100K-□-■	BLMR5100K-GFV-■	GFV5G□	**10** to **20**	45 (1.77)	2.05 (4.5)	A1808A_F	A1808A_B
			30 to **100**	58 (2.28)	2.4 (5.3)	A1808B_F	A1808B_B

●Cable Outlet in Output Shaft Direction



●Cable Outlet Opposite to Output Shaft Direction

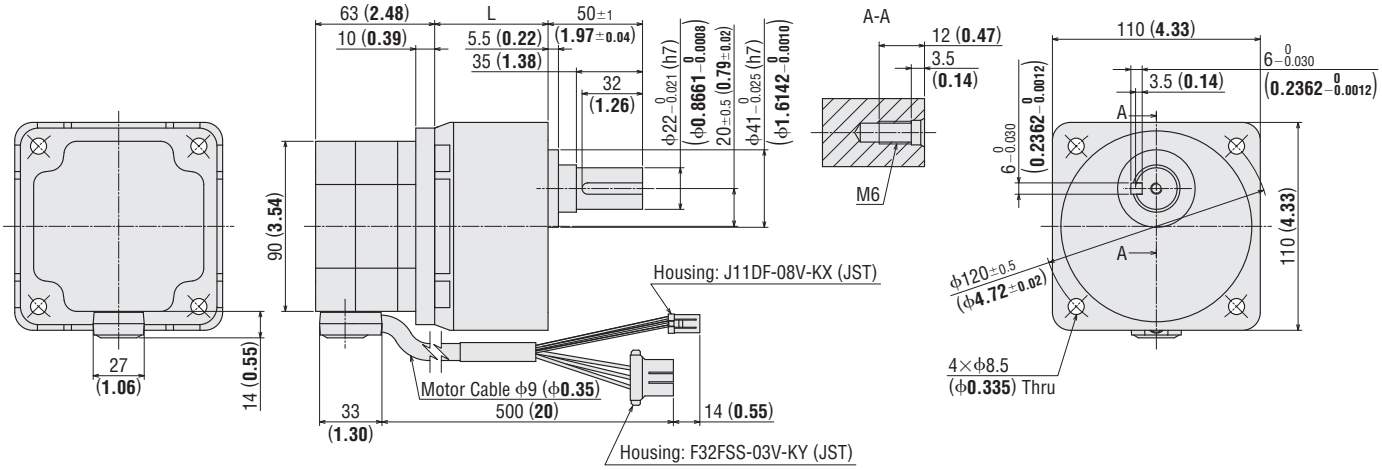


◇Parallel Shaft Gearhead 200 W (1/4 W)

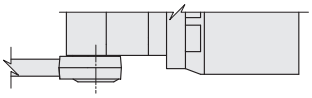
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR6200SK-□-■	BLMR6200SK-GFV-■	GFV6G□	**10** to **20**	60 (2.36)	3.6 (7.9)	A1814A_F	A1814A_B
			30, **50**	72 (2.83)	4.1 (9.0)	A1814B_F	A1814B_B
			100	86 (3.39)	4.7 (10.3)	A1814C_F	A1814C_B

●Cable Outlet in Output Shaft Direction



●Cable Outlet Opposite to Output Shaft Direction

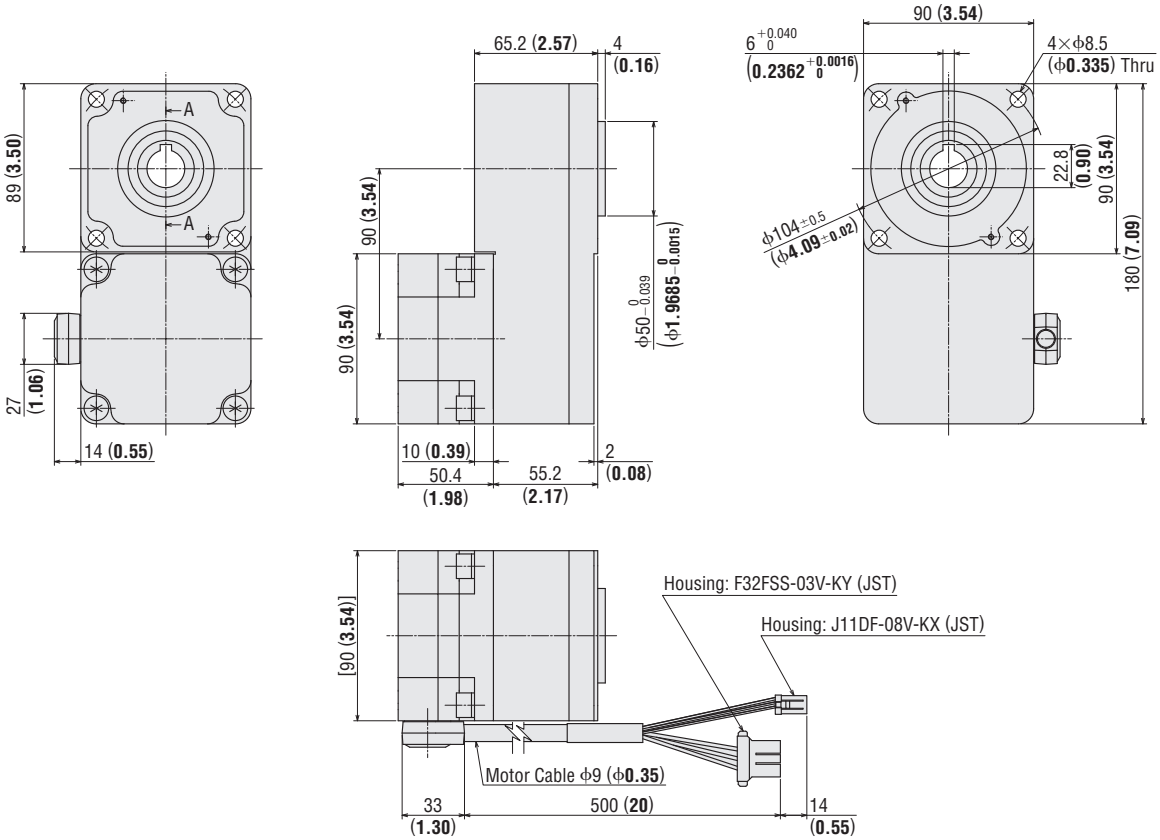


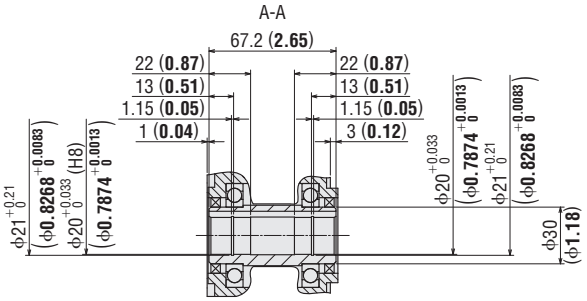
◇Hollow Shaft Flat Gearhead 100 W (1/8 W)

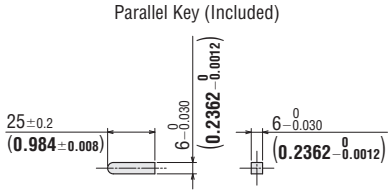
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Mass kg (lb.)	2D CAD	
					Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR5100K-□FR-■	BLMR5100K-GFV-■	GFS5G□FR	**10** to **200**	3.3 (7.3)	A1809_F	A1809_B

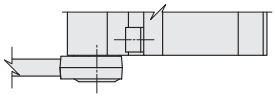
•Cable Outlet in Output Shaft Direction







•Cable Outlet Opposite to Output Shaft Direction

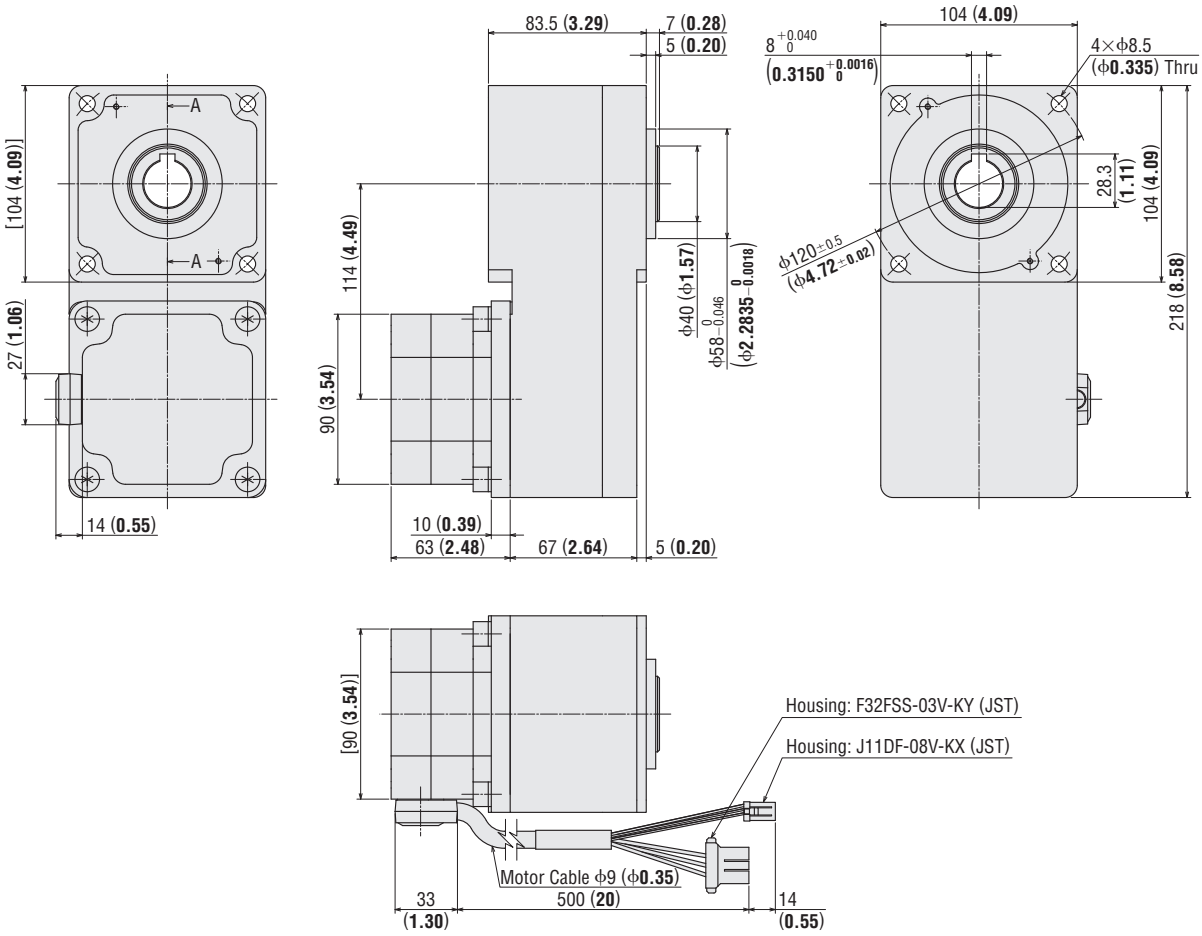


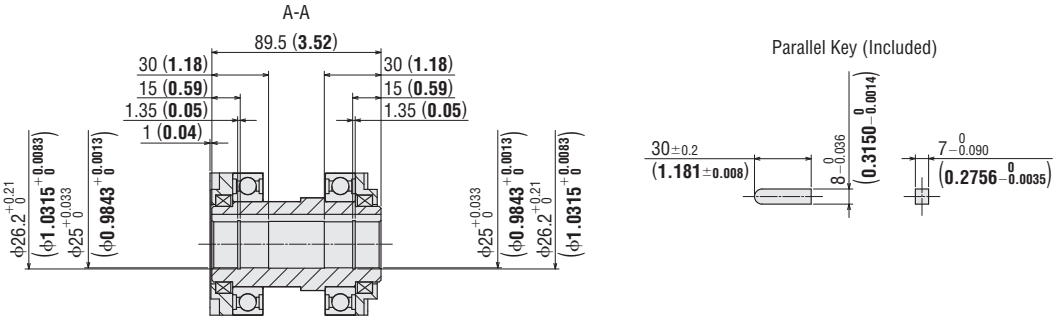
◇Hollow Shaft Flat Gearhead 200 W (1/4 W)

2D & 3D CAD

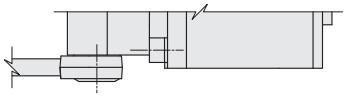
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Mass kg (lb.)	2D CAD	
					Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR6200SK-□FR-■	BLMR6200SK-GFV-■	GFS6G□FR	**10** to **100**	6.5 (14.3)	A1815_F	A1815_B

•Cable Outlet in Output Shaft Direction





•Cable Outlet Opposite to Output Shaft Direction



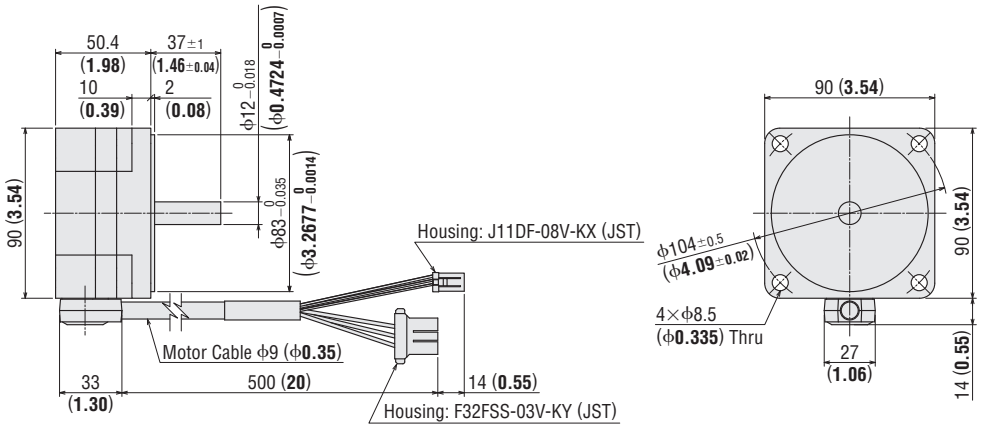
◇Round Shaft Type 100 W (1/8 W)

BLMR5100K-A-■

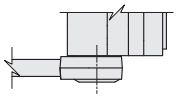
Mass: 1.1 kg (2.4 lb.)

2D CAD Cable outlet in output shaft direction: A1810_F Cable outlet opposite to output shaft direction: A1810_B 3D CAD

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction



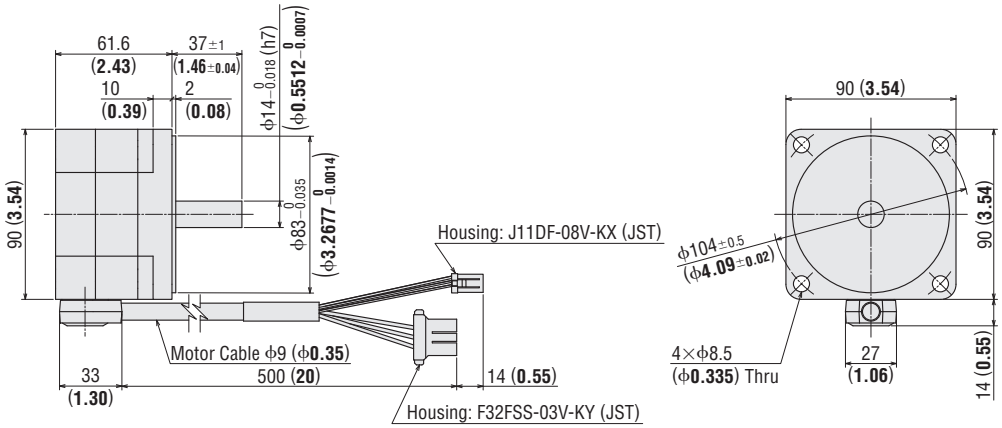
◇Round Shaft Type 200 W (1/4 W)

BLMR5200K-A-■

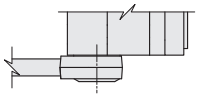
Mass: 1.6 kg (3.5 lb.)

2D CAD Cable outlet in output shaft direction: A1816_F Cable outlet opposite to output shaft direction: A1816_B 3D CAD

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction



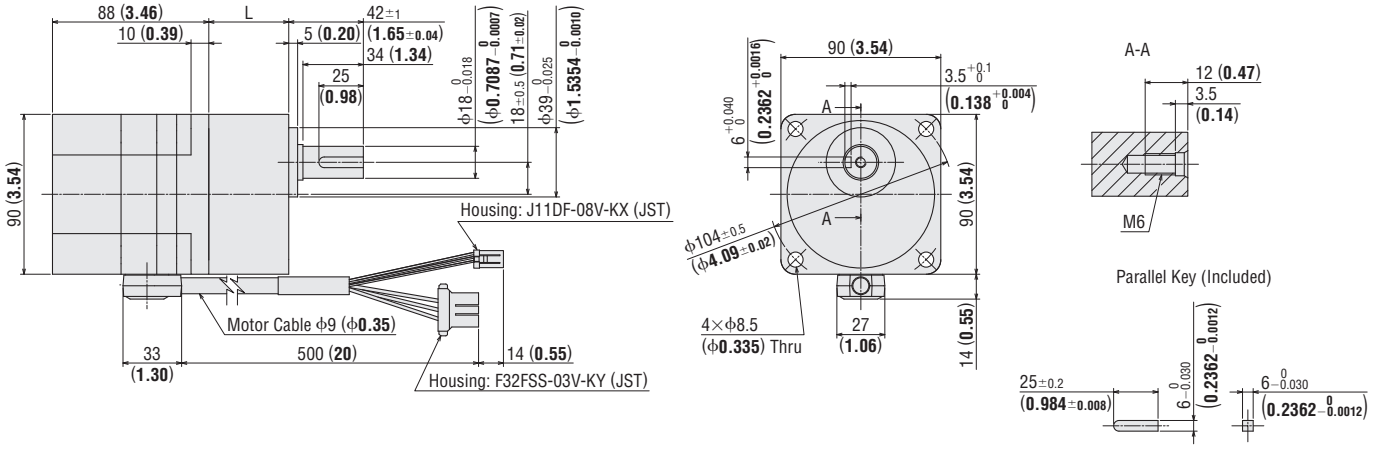
●Electromagnetic Brake Motors

◇Parallel Shaft Gearhead 100 W (1/8 W)

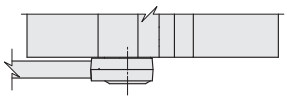
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR5100KM-□-■	BLMR5100KM-GFV-■	GFV5G□	**10** to **20**	45 (1.77)	2.65 (5.8)	A1811A_F	A1811A_B
			30 to **100**	58 (2.28)	3.0 (6.6)	A1811B_F	A1811B_B

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction

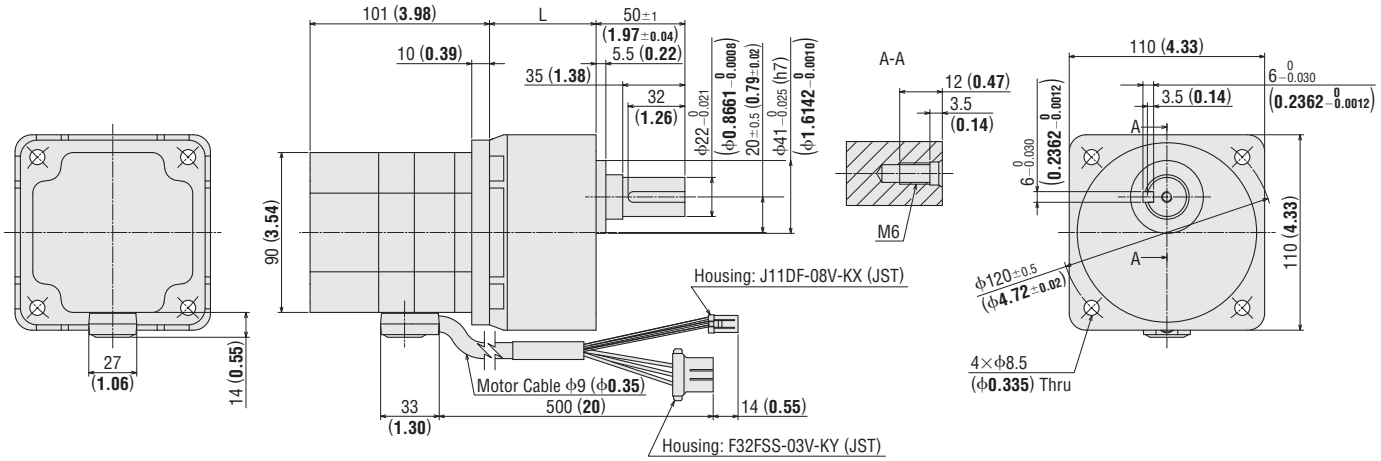


◇Parallel Shaft Gearhead 200 W (1/4 W)

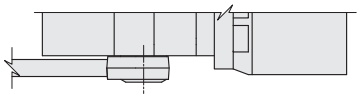
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD	
						Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR6200SKM-□-■	BLMR6200SKM-GFV-■	GFV6G□	**10**~**20**	60 (2.36)	4.1 (9.0)	A1817A_F	A1817A_B
			30, **50**	72 (2.83)	4.6 (10.1)	A1817B_F	A1817B_B
			100	86 (3.39)	5.2 (11.4)	A1817C_F	A1817C_B

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction

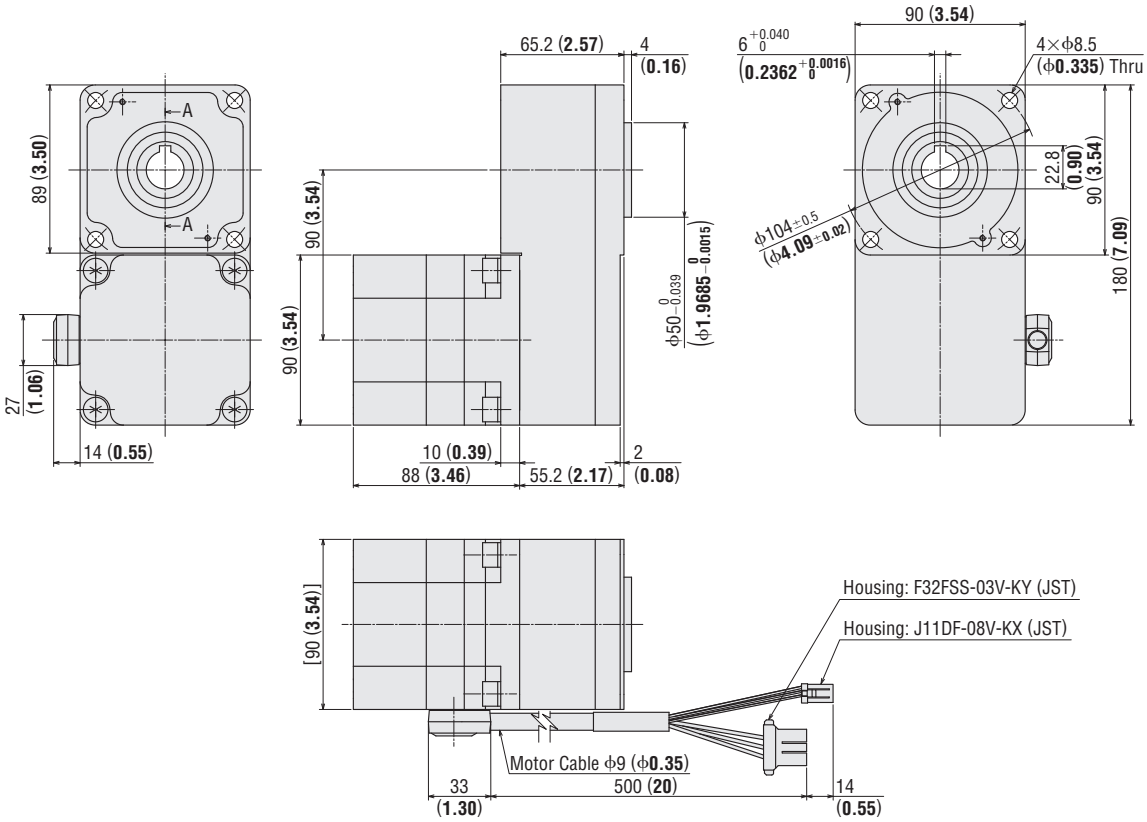


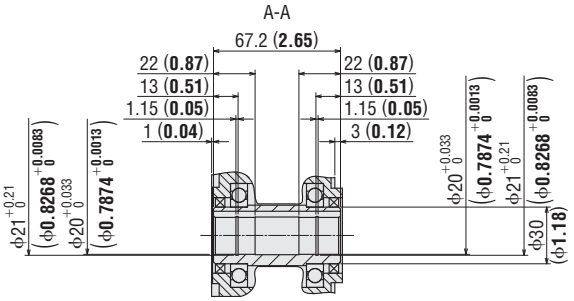
◇Hollow Shaft Flat Gearhead 100 W (1/8 W)

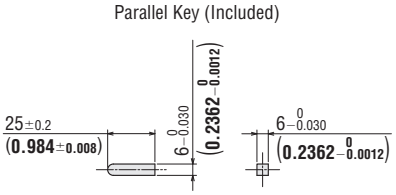
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Mass kg (lb.)	2D CAD	
					Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR5100KM-□FR-■	BLMR5100KM-GFV-■	GFS5G□FR	**10** to **200**	3.9 (8.6)	A1812_F	A1812_B

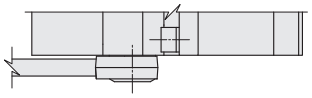
•Cable Outlet in Output Shaft Direction







•Cable Outlet Opposite to Output Shaft Direction

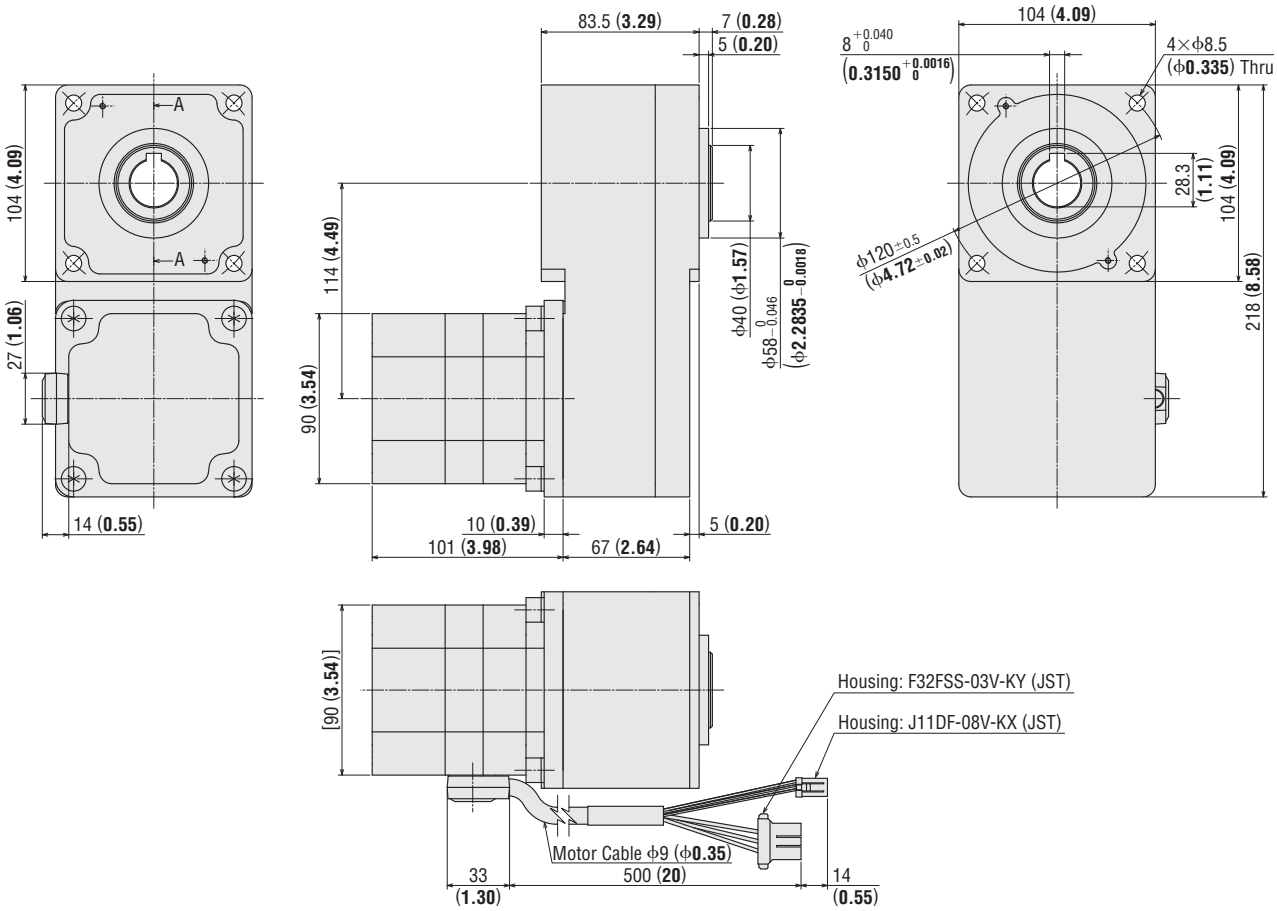


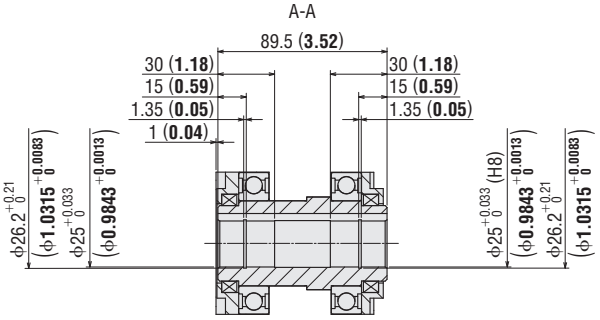
◇Hollow Shaft Flat Gearhead 200 W (1/4 W)

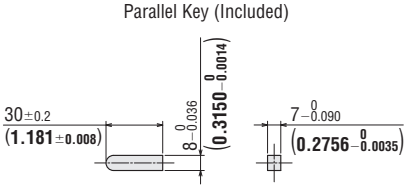
2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	Mass kg (lb.)	2D CAD	
					Cable Outlet in Output Shaft Direction	Cable Outlet Opposite to Output Shaft Direction
BLMR6200SKM-□FR-■	BLMR6200SKM-GFV-■	GFS6G□FR	**10** to **100**	7.0 (15.4)	A1818_F	A1818_B

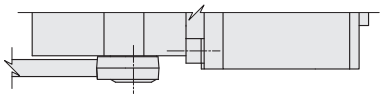
•Cable Outlet in Output Shaft Direction







•Cable Outlet Opposite to Output Shaft Direction



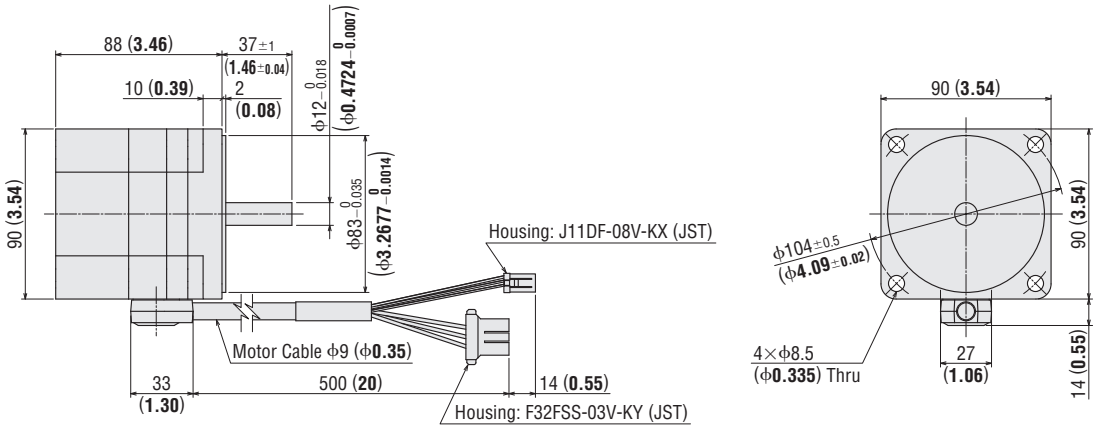
◇Round Shaft Type 100 W (1/8 W)

BLMR5100KM-A-■

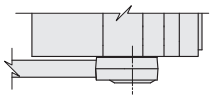
Mass: 1.7 kg (3.7 lb.)

2D CAD Cable outlet in output shaft direction: A1813_F Cable outlet opposite to output shaft direction: A1813_B 3D CAD

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction



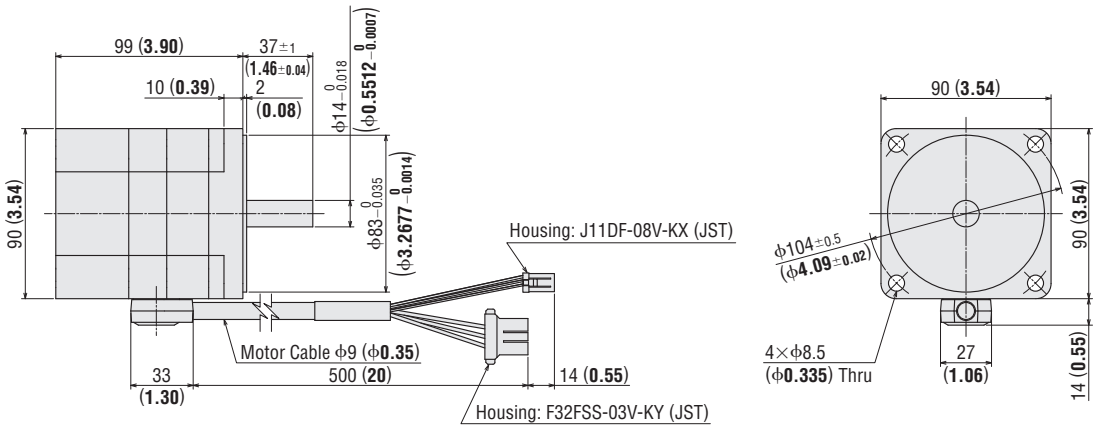
◇Round Shaft Type 200 W (1/4 W)

BLMR5200KM-A-■

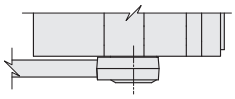
Mass: 2.1 kg (4.6 lb.)

2D CAD Cable outlet in output shaft direction: A1819_F Cable outlet opposite to output shaft direction: A1819_B 3D CAD

•Cable Outlet in Output Shaft Direction



•Cable Outlet Opposite to Output Shaft Direction

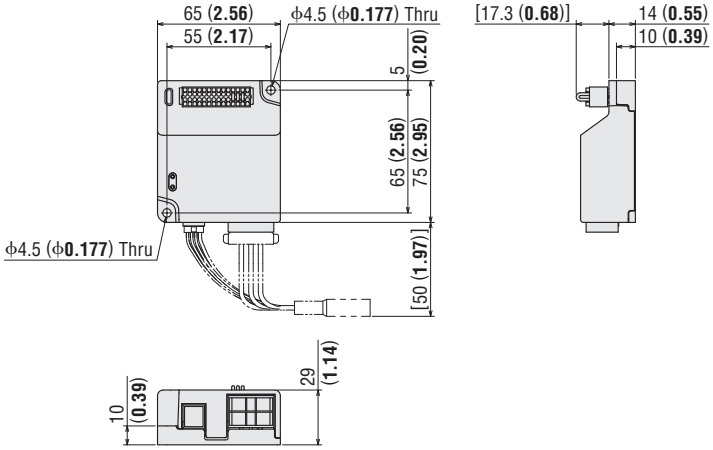


●Driver

BLVD-KRD

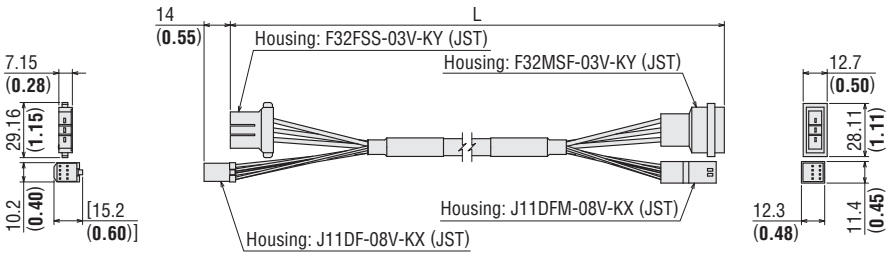
Mass: 0.12 kg (0.26 lb.)

2D CAD A1806 3D CAD



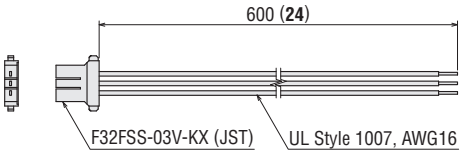
●Connection Cables

Length L [m (ft.)]	Product Name
1 (3.3)	**CCM010B1AAF**
2 (6.6)	**CCM020B1AAF**
3 (9.8)	**CCM030B1AAF**



●Power Supply Cable

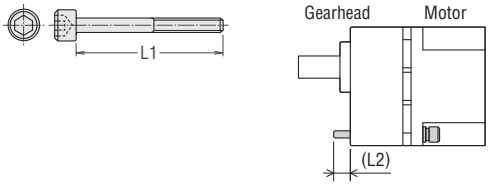
LC03D06A



Dimensions for Installation Screws

L2 is a dimension when a plain washer and a spring washer are attached to the head side of the screw.

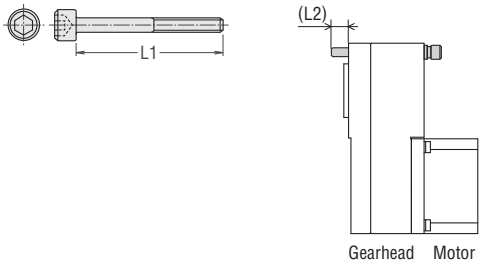
Parallel Shaft Gearhead



Product Name	Gear Ratio	Installation Screw		L2 [mm (in.)]
		Screw Size	L1 [mm (in.)]	
GFV5G□	10 to 20	M8	70 (2.76)	11.5 (0.45)
	30 to 100		85 (3.35)	13.5 (0.53)
GFV6G□	10 to 20	M8	85 (3.35)	11 (0.43)
	30, 50		100 (3.94)	14 (0.55)
	100		110 (4.33)	10 (0.39)

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

Hollow Shaft Flat Gearhead



Product Name	Gear Ratio	Installation Screw		L2 [mm (in.)]
		Screw Size	L1 [mm (in.)]	
GFS5G□FR	10 to 200	M8	90 (3.54)	21 (0.83)
GFS6G□FR	10 to 100	M8	100 (3.94)	13 (0.51)

● Installation screws: 4 pieces each of flat washers, spring washers, and hexagonal nuts are included.
For GFS6G□FR, hexagonal nuts are not included.

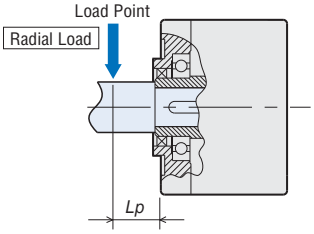
● A number indicating the gear ratio is entered where the box □ is located within the product name.

Permissible Radial Load Calculation of Hollow Shaft Flat Gearhead

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

◇When end of shaft being driven is not supported by a bearing

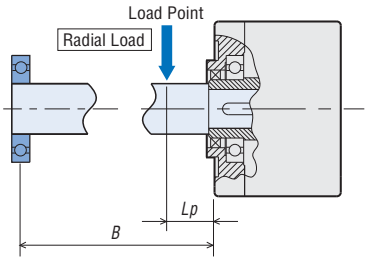
This mechanism experiences the highest amount of radial load. The stepped type is recommended for the load shaft.



F_0 [N (lb.)]: Permissible Radial Load at the Flange-Mounting Surface
Lp [mm (in.)]: Distance from Flange-Mounting Surface to Radial Load Point
B [mm (in.)] Distance from Flange-Mounting Surface to Bearing Unit

Product Name	Permissible Radial Load W [N (lb.)]
GFS5G□FR	W [N (lb.)] = $\frac{50\text{ mm (1.97 in.)}}{50\text{ mm (1.97 in.)} + Lp} \times F_0$ [N (lb.)]
GFS6G□FR	W [N (lb.)] = $\frac{60\text{ mm (2.36 in.)}}{60\text{ mm (2.36 in.)} + Lp} \times F_0$ [N (lb.)]

◇When end of shaft being driven is supported by a bearing



Product Name	Permissible Radial Load W [N (lb.)]
GFS5G□FR GFS6G□FR	W [N (lb.)] = $\frac{B}{B-Lp} \times F_0$ [N (lb.)]

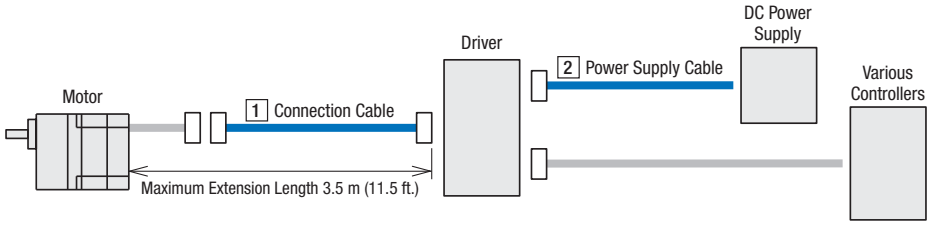
Product Name	Speed	Gear Ratio	F_0 [N]
GFS5G□FR	At 1 to 3000 r/min	10	1080 (240)
		15, 20	1550 (340)
		30 to 200	1800 (400)
	At 4000 r/min	10	980 (220)
		15, 20	1430 (320)
		30 to 200	1680 (370)
GFS6G□FR	At 1 to 3000 r/min	10	1430 (320)
		15, 20	1960 (440)
		30 to 100	2380 (530)
	At 4000 r/min	10	1320 (290)
		15, 20	1810 (400)
		30 to 100	2210 (490)

● A number indicating the gear ratio is entered where the box □ is located within the product name.

Cables and Accessories (Sold separately)

Cables

Cable System Configuration



1 Connection Cables

These cables are used to connect the motor and the driver.
Keep the overall length of the cable at 3.5 m (11.5 ft.) or less.

- Product Line → Page 14
- Dimensions → Page 28

2 Power Supply Cable

This cable is used to connect the driver and the DC power supply.

- Product Line → Page 14
- Dimensions → Page 28

Flange Drive Adapter

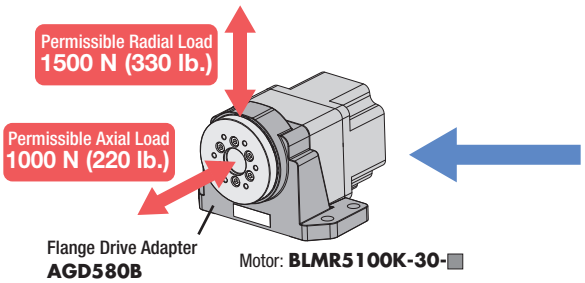
Permissible radial load and permissible axial load have been remarkably increased by mounting with a parallel shaft gearhead.
Cross-roller bearings are used for bearings.
Direct mounting of the rotation mechanism to wheels or rotary tables has been simplified, which helps reduce design time.

- This product can be used with the parallel shaft gearhead with motor output shaft of 100 W (1/8 HP).
- Refer to Brochure for details.

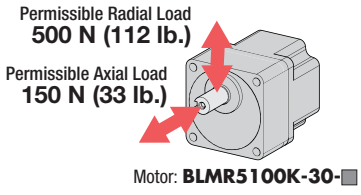
Product Line

Product Name	List Price	Applicable Product
AGD580B	$552.00	**BLMR5100**

· When a Flange Drive Adapter is Attached



· When only a Parallel Shaft Gearhead is Attached

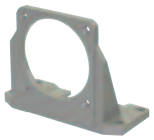


- Either **F** or **B** indicating the cable outlet direction is entered where the box □ is located within the product name.

✻The torque, rotation speed, and rotation direction are the same as when the parallel shaft gearhead is attached.

Motor and Gearhead Mounting Brackets

These dedicated mounting brackets are convenient for mounting and securing parallel shaft gearhead and round shaft type motor.



Product Line

Product Name	List Price	Applicable Products
SOL5M8F	$29.00	**BLMR5100** **BLMR5200** (Round Shaft Type)
SOL6M8F	$32.00	**BLMR6200** (Parallel Shaft Gearhead)

Note

- These mounting brackets cannot be used with the hollow shaft flat gearhead.

Flexible Couplings

These products are clamp type couplings to connect a motor or gearhead shaft to the shaft of the equipment.
The couplings that can be used for a motor with parallel shaft gearhead and for the round shaft type motor are available.

- Couplings can also be used with round shaft types.
  Select a coupling with the same inner diameter size as the motor shaft diameter.

Product Line

Applicable Product	Load Type	Coupling Type	List Price
BLMR5100	Uniform Load	**MCL55** Type	$97.00 ~ $113.00
	Impact Load		
BLMR6200	Uniform Load	**MCL65** Type	$191.00
	Impact Load		

Specifications are subject to change without notice. This catalog was published in October, 2021.

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