

Brushless Motor and Driver Package

BXII Series

<Additional Information>

- Technical reference → Page H-1
- Regulations & Standards → Page I-2



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



View Expanded Product Information, Specifications, CAD, Accessories & more online. Visit www.orientalmotor.com/catalog or use the QR code and select "BXII Series".

- These brushless motors can easily be used for a wide range of applications, with characteristics similar to those offered by servo motors.
- In addition to speed control, they are equipped with position control and torque limiting functions.
- Highly accurate speed control and positioning can be easily achieved without tuning.

Features

Speed Control

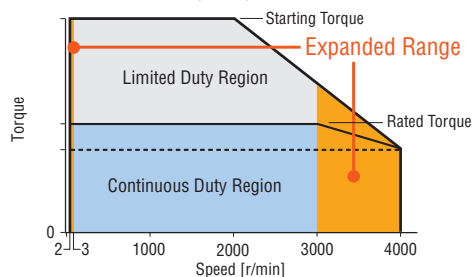
- **Contributes to Improved Takt Time with the Highest Level of Speed Control**

Max. speed of 4000 r/min

Speed ratio of 2000:1 (Double the ratio of conventional products)

The **BXII** Series achieves 2~4000 r/min (with digital setting)*. The speed range has been greatly expanded.

*30~4000 r/min with analog setting.



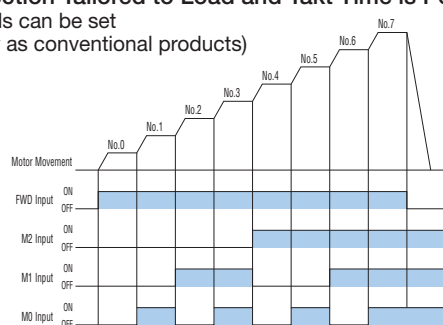
- **Smooth Operation with Minimum Impact from the External Environment**

Speed regulation: $\pm 0.05\%$ (load/voltage/temperature)

- **Speed Selection Tailored to Load and Takt Time is Possible**

Up to 16 speeds can be set

(Twice as many as conventional products)



- **Easy Speed Control During Vertical Operation**

An electromagnetic brake type motor enables stable speed control even during vertical operation (gravitational operation). The electromagnetic brake is automatically controlled to turn ON/OFF according to the operation command signal to the driver. When the power is turned OFF, such as during a blackout, the motor stops instantaneously to hold the load in place.

● Since regenerated energy is produced during vertical operation, a regeneration unit, sold separately, is required.

Regeneration units → Page D-188

Position Control

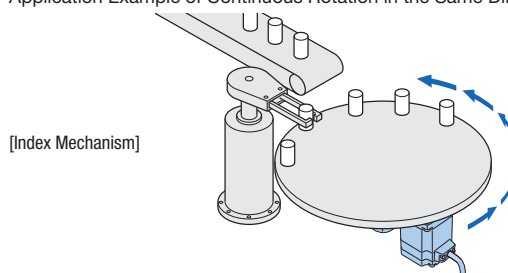
- **Built-in Positioning Function**

Positioning operations are possible with the driver on its own. A control module is not required.

- **Continuous Rotation in the Same Direction is Possible**

The command position and multiple rotation data can be returned to 0 when the command operation exceeds the round setting range parameter. Since the multiple rotation data is returned to 0, continuous rotation in the same direction is possible.

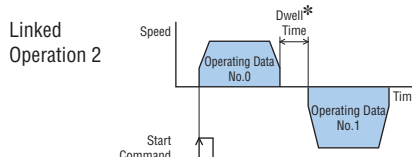
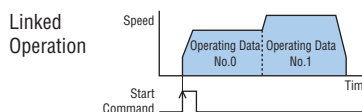
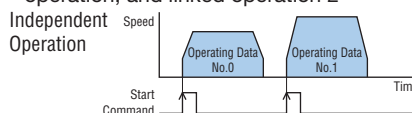
Application Example of Continuous Rotation in the Same Direction



- **Various Positioning Operations are Possible**

● Up to 16 points of operating data can be set (10 points more than conventional products)

● 3 types of operation function: independent operation, linked operation, and linked operation 2

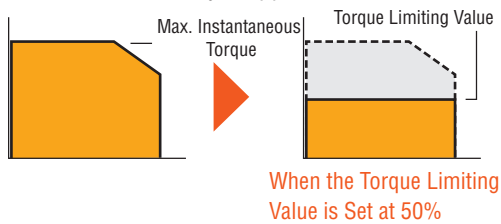


* Dwell time is the wait time until the next positioning operation starts.

Torque Limiting

●What is the Torque Limiting Function?

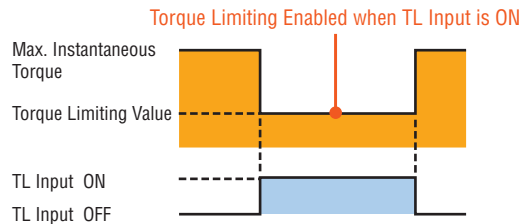
The setting range of the motor's starting torque (max. instantaneous torque) can be limited to 0~250% in 1% increments. In addition to suppressing motor torque for safety purposes, this can be utilized for a variety of applications based on the usage conditions.



●Improved Torque Limiting Accuracy

BXII ±Approx. 10% (with respect to rated torque)

- Torque limiting can be switched ON/OFF with an external signal (TL input)



User Friendly

●Data Setting is Easy

Digital setting and operation can be done with the driver's control panel. Speed, load factor, current position, operation number, etc. can be displayed. Remote settings are also possible when a control module (**OPX-2A**), sold separately, is used.

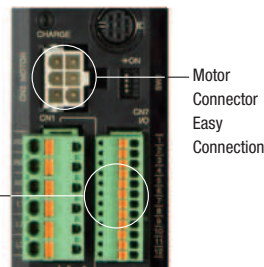


The Display when the Load Factor is 50%

●Easy Wiring

- The new I/O connector does not require a screw, which also eliminates the need for soldering or a special crimping tool.
- The motor connector and encoder connector can be connected easily.

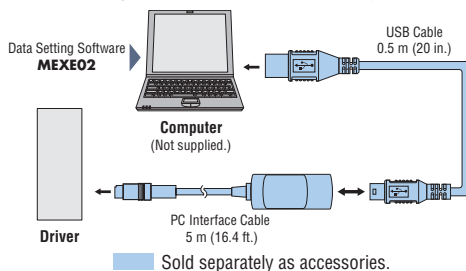
Just insert a lead wire while pressing down the orange button with a screwdriver or a pointed object.



●Easy Data Editing and Monitoring

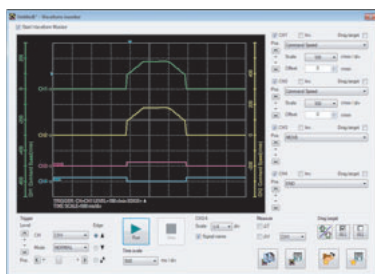
The data setting software (**MEXE02**) can be downloaded for free from the Oriental Motor website. It is also available as a CD-ROM. It is compatible with Windows 7, Vista, XP, and 2000. Besides data editing, I/O and operating speed waveform monitoring are also possible.

- The data setting software can be downloaded from <http://www.orientalmotor.com/>



*To connect to a computer, a dedicated device driver must be installed.

Waveform Monitoring



●Effective Utilization of Installation Space

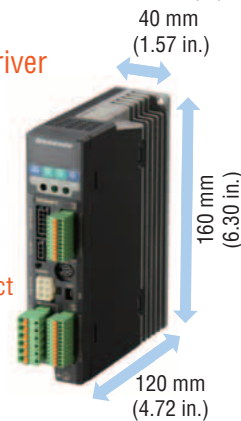
Optimized arrangement of internal parts has made the drivers compact and slim. Multiple drivers can now be installed in contact with each other, reducing the amount of installation space or increasing the number of axes within the same equipment space.

Compact Slim Body Driver

Installation Area
6400 mm²
(9.9 in²)

Volume Comparison
with Conventional Product

Approx. **5%** Reduction



Multiple Units can be Installed in Contact with Each Other

BXII Series Driver

40 mm
(1.57 in.)



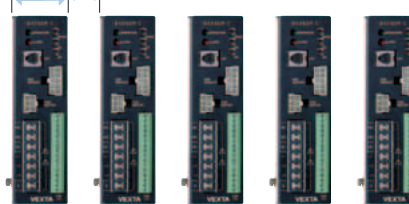
200 mm (7.87 in.)

Installation
Width
38%
Reduction

Conventional Product

BX Series Driver

45 mm 25 mm (0.98 in.)
(1.77 in.)



325 mm (12.8 in.)

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Reliability

●Peace of Mind even if a Problem Occurs
Quick response to a problem is possible thanks to the alarm (protective function) and warning that is output prior to an alarm.

Display Examples	Alarm	Warning
• Overflow	10	10
• Overvoltage	22	22
• Overload	30	30



Alarm Code
10 display



Warning Code
10 display

●Sink/Source Logic can be Selected
It is possible to switch between sink/source logic according to the external controller by changing the wiring .

Value Priced

●Motor + Gear + Driver + Cables + Software = Value

BXII Series
60 W (1/12 HP) motor
Combination type with a
parallel shaft gearhead
Gear ratio 30

Digital Setting is
Possible with Just the
Driver. Greatly Increased
Functionality.

Connection Cable Included

Cable for Motor

Cable for Encoder

\$936.00

BXII Series

Product Line

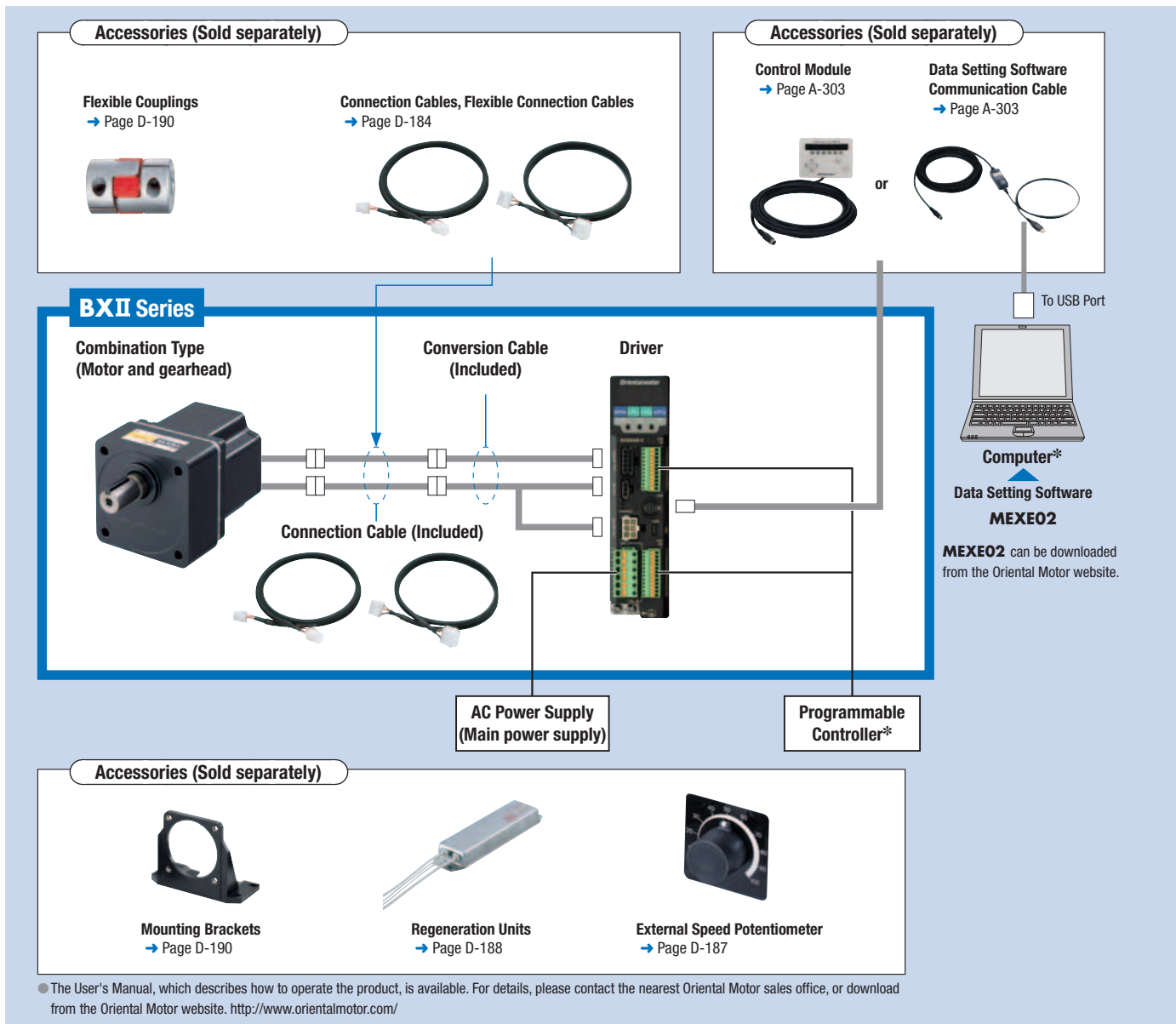
Conform to the voltage specifications of many countries around the world.

Motor and Driver Package						
Motor Type	Frame Size	Output Power	Driver	Power Supply Voltage	Connection Cable	Package Price Range
 Combination Type (Parallel shaft gear) Combination Type (Hollow shaft flat gear) Round Shaft Type ● Electromagnetic brake types are available for all types.	60 mm (2.36 in.)	30 W 1/25 HP		Single-phase 100-120 VAC Single-phase 200-240 VAC Three-phase 200-240 VAC	 Cable for Motor	\$753.00~\$1,165.00
	80 mm (3.15 in.)	60 W 1/12 HP				\$787.00~\$1,248.00
	90 mm (3.54 in.)	120 W 1/6 HP				\$799.00~\$1,337.00
	104 mm (4.09 in.)	200 W 1/4 HP			 Cable for Encoder	\$790.00~\$1,305.00
		400 W 1/2 HP		Single-phase 200-240 VAC Three-phase 200-240 VAC	3 m (9.8 ft.)	\$962.00~\$1,457.00

● Can be extended to a maximum of 30.4 m (99.7 ft.) with an accessory cable.

*Not supplied

System Configuration



● Example of System Configuration

BXII Series Combination Type – Parallel Shaft	Sold Separately		
	Connection Cable [7 m (23.0 ft.)]	Mounting Bracket	Flexible Coupling
BXS6200A-50S-3	CC07SBF	SOL6M8	MCL652222
\$998.00	\$167.00	\$37.00	\$191.00

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

Product Number

BXS 6 200 A M - 10 S - 3

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series Name	BXS: BXII Series
②	Motor 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.) (110 mm (4.33 in.) for gearhead)
③	Output Power (W)	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	Power Supply Voltage	A: Single-Phase 100-120 VAC C: Single-Phase, Three-Phase 200-240 VAC
⑤		M: Electromagnetic Brake Type Blank: Standard Type
⑥	Gear Ratio and Shaft Configuration	Number: Gear ratio for combination types A: Round Shaft Type
⑦	Gearhead Type (Combination type only)	S: Parallel Shaft Gearhead FR: Hollow Shaft Flat Gearhead
⑧	Connection Cable	3: Length of the included connection cable is 3 m (9.8 ft.)

Product Line

Combination Type

The combination type comes with a motor and gearhead pre-assembled.

The combination of motors and gearheads can be changed, and they are also available separately.

In addition, the gearhead can be removed and the assembly position can be changed in 90° increments.

● Standard Type

◇ Combination Type, Parallel Shaft Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230A-□S-3	5, 10, 15, 20	\$879.00
		30, 50, 100	\$888.00
		200	\$897.00
60 W (1/12 HP)	BXS460A-□S-3	5, 10, 15, 20	\$928.00
		30, 50, 100	\$936.00
		200	\$946.00
120 W (1/6 HP)	BXS5120A-□S-3	5, 10, 15, 20	\$969.00
		30, 50, 100	\$980.00
		200	\$990.00
200 W (1/4 HP)	BXS6200A-□S-3	5, 10, 15, 20	\$988.00
		30, 50	\$998.00
		100, 200	\$1,014.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230C-□S-3	5, 10, 15, 20	\$904.00
		30, 50, 100	\$913.00
		200	\$922.00
60 W (1/12 HP)	BXS460C-□S-3	5, 10, 15, 20	\$953.00
		30, 50, 100	\$961.00
		200	\$971.00
120 W (1/6 HP)	BXS5120C-□S-3	5, 10, 15, 20	\$989.00
		30, 50, 100	\$1,000.00
		200	\$1,010.00
200 W (1/4 HP)	BXS6200C-□S-3	5, 10, 15, 20	\$1,008.00
		30, 50	\$1,018.00
		100, 200	\$1,034.00
400 W (1/2 HP)	BXS6400C-□S-3	5, 10, 15, 20	\$1,160.00
		30, 50	\$1,170.00
		100, 200	\$1,186.00

◇ Combination Type, Hollow Shaft Flat Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230A-□FR-3	5, 10, 15, 20	\$937.00
		30, 50, 100	\$949.00
		200	\$961.00
60 W (1/12 HP)	BXS460A-□FR-3	5, 10, 15, 20	\$1,020.00
		30, 50, 100	\$1,032.00
		200	\$1,044.00
120 W (1/6 HP)	BXS5120A-□FR-3	5, 10, 15, 20	\$1,067.00
		30, 50, 100	\$1,078.00
		200	\$1,090.00
200 W (1/4 HP)	BXS6200A-□FR-3	10, 15, 20	\$1,071.00
		30, 50, 100	\$1,082.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230C-□FR-3	5, 10, 15, 20	\$962.00
		30, 50, 100	\$974.00
		200	\$986.00
60 W (1/12 HP)	BXS460C-□FR-3	5, 10, 15, 20	\$1,045.00
		30, 50, 100	\$1,057.00
		200	\$1,069.00
120 W (1/6 HP)	BXS5120C-□FR-3	5, 10, 15, 20	\$1,087.00
		30, 50, 100	\$1,098.00
		200	\$1,110.00
200 W (1/4 HP)	BXS6200C-□FR-3	10, 15, 20	\$1,091.00
		30, 50, 100	\$1,102.00
400 W (1/2 HP)	BXS6400C-□FR-3	5, 10, 15, 20	\$1,243.00
		30, 50, 100	\$1,254.00

◇ Round Shaft Type

● Single-Phase 100-120 VAC

Output Power	Product Name	List Price
30 W (1/25 HP)	BXS230A-A-3	\$753.00
60 W (1/12 HP)	BXS460A-A-3	\$787.00
120 W (1/6 HP)	BXS5120A-A-3	\$799.00
200 W (1/4 HP)	BXS6200A-A-3	\$790.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	List Price
30 W (1/25 HP)	BXS230C-A-3	\$778.00
60 W (1/12 HP)	BXS460C-A-3	\$812.00
120 W (1/6 HP)	BXS5120C-A-3	\$819.00
200 W (1/4 HP)	BXS6200C-A-3	\$810.00
400 W (1/2 HP)	BXS6400C-A-3	\$962.00

The following items are included with each product.

● Combination Type with a Parallel Shaft Gearhead

Motor, Gearhead, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Installation Screws, Parallel Key, Operating Manual

● Combination Type with a Hollow Shaft Flat Gearhead

Motor, Gearhead, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Installation Screws, Parallel Key, Safety Cover (screws included), Operating Manual

● Round Shaft Type

Motor, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Operating Manual

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

● With Electromagnetic Brake

◇ Combination Type, Parallel Shaft Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230AM-□S-3	5, 10, 15, 20	\$1,058.00
		30, 50, 100	\$1,067.00
		200	\$1,076.00
60 W (1/12 HP)	BXS460AM-□S-3	5, 10, 15, 20	\$1,107.00
		30, 50, 100	\$1,115.00
		200	\$1,125.00
120 W (1/6 HP)	BXS5120AM-□S-3	5, 10, 15, 20	\$1,196.00
		30, 50, 100	\$1,207.00
		200	\$1,217.00
200 W (1/4 HP)	BXS6200AM-□S-3	5, 10, 15, 20	\$1,191.00
		30, 50	\$1,201.00
		100, 200	\$1,217.00

◇ Combination Type, Hollow Shaft Flat Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230AM-□FR-3	5, 10, 15, 20	\$1,116.00
		30, 50, 100	\$1,128.00
		200	\$1,140.00
60 W (1/12 HP)	BXS460AM-□FR-3	5, 10, 15, 20	\$1,199.00
		30, 50, 100	\$1,211.00
		200	\$1,223.00
120 W (1/6 HP)	BXS5120AM-□FR-3	5, 10, 15, 20	\$1,294.00
		30, 50, 100	\$1,305.00
		200	\$1,317.00
200 W (1/4 HP)	BXS6200AM-□FR-3	10, 15, 20	\$1,274.00
		30, 50, 100	\$1,285.00

◇ Round Shaft Type

● Single-Phase 100-120 VAC

Output Power	Product Name	List Price
30 W (1/25 HP)	BXS230AM-A-3	\$932.00
60 W (1/12 HP)	BXS460AM-A-3	\$966.00
120 W (1/6 HP)	BXS5120AM-A-3	\$1,026.00
200 W (1/4 HP)	BXS6200AM-A-3	\$993.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230CM-□S-3	5, 10, 15, 20	\$1,083.00
		30, 50, 100	\$1,092.00
		200	\$1,101.00
60 W (1/12 HP)	BXS460CM-□S-3	5, 10, 15, 20	\$1,132.00
		30, 50, 100	\$1,140.00
		200	\$1,150.00
120 W (1/6 HP)	BXS5120CM-□S-3	5, 10, 15, 20	\$1,216.00
		30, 50, 100	\$1,227.00
		200	\$1,237.00
200 W (1/4 HP)	BXS6200CM-□S-3	5, 10, 15, 20	\$1,211.00
		30, 50	\$1,221.00
		100, 200	\$1,237.00
400 W (1/2 HP)	BXS6400CM-□S-3	5, 10, 15, 20	\$1,363.00
		30, 50	\$1,373.00
		100, 200	\$1,389.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	Gear Ratio	List Price
30 W (1/25 HP)	BXS230CM-□FR-3	5, 10, 15, 20	\$1,141.00
		30, 50, 100	\$1,153.00
		200	\$1,165.00
60 W (1/12 HP)	BXS460CM-□FR-3	5, 10, 15, 20	\$1,224.00
		30, 50, 100	\$1,236.00
		200	\$1,248.00
120 W (1/6 HP)	BXS5120CM-□FR-3	5, 10, 15, 20	\$1,314.00
		30, 50, 100	\$1,325.00
		200	\$1,337.00
200 W (1/4 HP)	BXS6200CM-□FR-3	10, 15, 20	\$1,294.00
		30, 50, 100	\$1,305.00
		30, 50, 100	\$1,446.00
400 W (1/2 HP)	BXS6400CM-□FR-3	5, 10, 15, 20	\$1,457.00
		30, 50, 100	\$1,457.00

● Single-Phase, Three-Phase 200-240 VAC

Output Power	Product Name	List Price
30 W (1/25 HP)	BXS230CM-A-3	\$957.00
60 W (1/12 HP)	BXS460CM-A-3	\$991.00
120 W (1/6 HP)	BXS5120CM-A-3	\$1,046.00
200 W (1/4 HP)	BXS6200CM-A-3	\$1,013.00
400 W (1/2 HP)	BXS6400CM-A-3	\$1,165.00

The following items are included with each product.

● Combination Type with a Parallel Shaft Gearhead

Motor, Gearhead, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Installation Screws, Parallel Key, Operating Manual

● Combination Type with a Hollow Shaft Flat Gearhead

Motor, Gearhead, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Installation Screws, Parallel Key, Safety Cover (screws included), Operating Manual

● Round Shaft Type

Motor, Gearhead, Driver, Conversion Cable, Connection Cable, CN1 Connector, CN5 Connector, CN7 Connector, Mounting Brackets for Driver (screws included), Operating Manual

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

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

Specifications

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

Product Name	Standard	Single-phase 100-120 VAC	Combination Type	BXS230A-□□-3	BXS460A-□□-3	BXS5120A-□□-3
		Single-Phase/Three-Phase 200-240 VAC	Round Shaft Type	BXS230A-A-3	BXS460A-A-3	BXS5120A-A-3
			Combination Type	BXS230C-□□-3	BXS460C-□□-3	BXS5120C-□□-3
	Electromagnetic Brake Type	Single-phase 100-120 VAC	Round Shaft Type	BXS230C-A-3	BXS460C-A-3	BXS5120C-A-3
			Combination Type	BXS230AM-□□-3	BXS460AM-□□-3	BXS5120AM-□□-3
		Single-Phase/Three-Phase 200-240 VAC	Round Shaft Type	BXS230AM-A-3	BXS460AM-A-3	BXS5120AM-A-3
	Combination Type	BXS230CM-□□-3	BXS460CM-□□-3	BXS5120CM-□□-3		
	Round Shaft Type	BXS230CM-A-3	BXS460CM-A-3	BXS5120CM-A-3		
Rated Output Power (Continuous)			W (HP)	30 (1/25)	60 (1/12)	120 (1/6)
Rated Speed			r/min	3000		
Rated Torque			N·m (oz·in)	0.1 (14.2)	0.2 (28)	0.4 (56)
Maximum Instantaneous Torque			N·m (oz·in)	0.2 (28)	0.4 (56)	0.8 (113)
Rotor Inertia			J: ×10 ⁻⁴ kg·m ² (oz·in ²)	0.087 (0.48)	0.24 (1.31)	0.63 (3.4)
Round Shaft Type Permissible Inertia			J: ×10 ⁻⁴ kg·m ² (oz·in ²)	1.5 (8.2)	3 (16.4)	6 (33)
Speed Control Mode		Speed Control Range		Digital setting: 2~4000 r/min (2000:1) Analog setting: 30~4000 r/min (133:1)		
		Speed Regulation	Load	±0.05% or less: Conditions 0~rated torque, rated speed, rated voltage, normal temperature		
			Voltage	±0.05% or less: Conditions Rated voltage −15~+10%, rated speed, no load, normal temperature		
			Temperature	±0.05% (±0.5%)*1 or less: Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage		
Position Control Mode		Torque Limiting Setting Range		0~250%		
		Traveling Amount Setting Range		−8,388,608~+8,388,607 step		
		Resolution		0.72° (1 rotation: 500 pulses)		
		Speed Setting Range		Digital setting: 2~4000 r/min (2000:1)		
Power-Supply Input		Torque Limiting Setting Range		0~250%		
		Rated Voltage		Single-phase 100-120 VAC −15~+10% Single-phase 200-240 VAC −15~+10% Three-phase 200-240 VAC −15~+10%		
		Frequency		50/60 Hz ±5%		
		Rated Input Current A	Single-Phase 100-120 VAC	1.4	2.2	3.7
			Single-Phase 200-240 VAC	0.8	1.4	2.3
			Three-Phase 200-240 VAC	0.5	0.7	1.1
		Max. Input Current A	Single-Phase 100-120 VAC	4.0	5.5	9.8
			Single-Phase 200-240 VAC	2.2	3.0	5.5
Three-Phase 200-240 VAC	1.3		1.9	3.4		
For Electromagnetic Brake*2		Type		Power off activated type, automatically controlled by the driver		
		Static Friction Torque N·m (oz·in)		0.1 (14.2)	0.2 (28)	0.4 (56)
		Gravitational Operation Capability*3	Continuous Regenerative Power W (HP)	100 (1/8)		
			Instantaneous Regenerative Power W (HP)	240 (1/3)		
			Applicable Regeneration Unit	EPRC-400P (Accessories)		

*1 Specification for analog setting.

*2 Specification for electromagnetic brake type only.

Do not start or stop the motor by turning ON/OFF the power supply, as it will cause abnormal wear of the electromagnetic brake.

*3 Values when regeneration unit is used.

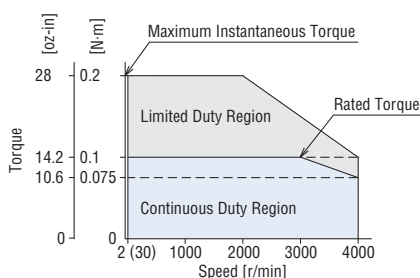
Install the regeneration unit in a place that has the same heat radiation capability as the heat sink (material: aluminum, 350×350 mm (13.8×13.8 in.), 3 mm (0.12 in.) thick).

Speed – Torque Characteristics

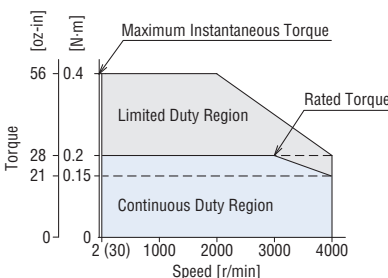
Continuous Duty Region : Continuous operation is possible in this region.

Limited Duty Region : This region is used primarily when accelerating. Please note that when a load that exceeds the rated torque is applied continuously for approximately 5 seconds, the overload protective function is activated and the motor coasts to a stop.

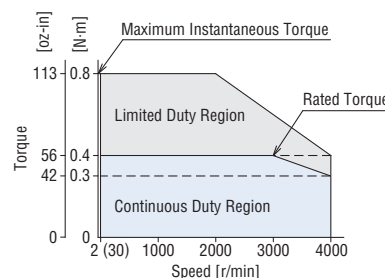
● 30 W (1/25 HP)



● 60 W (1/12 HP)



● 120 W (1/6 HP)



● If in speed control mode, the speed control range changes depending on the speed setting method. If in position control mode, digital settings are used.

Digital Setting: 2~4000 r/min

Analog Setting: 30~4000 r/min

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

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

Either **S** (parallel shaft gearhead) or **FR** (hollow shaft flat gearhead) indicating a type of the combination type is entered where the box □ is located within the product name.

● 200 W (1/4 HP), 400 W (1/2 HP)



Product Name	Standard	Single-Phase 100-120 VAC	Combination Type	BXS6200A-□□-3		—	
			Round Shaft Type	BXS6200A-A-3		—	
	Electromagnetic Brake Type	Single-Phase/Three-Phase 200-240 VAC	Combination Type	BXS6200C-□□-3		BXS6400C-□□-3	
			Round Shaft Type	BXS6200C-A-3		BXS6400C-A-3	
		Single-Phase 100-120 VAC	Combination Type	BXS6200AM-□□-3		—	
			Round Shaft Type	BXS6200AM-A-3		—	
	Single-Phase/Three-Phase 200-240 VAC	Combination Type	BXS6200CM-□□-3		BXS6400CM-□□-3		
			Round Shaft Type	BXS6200CM-A-3		BXS6400CM-A-3	
Rated Output Power (Continuous)			W (HP)	200 (1/4)		400 (1/2)	
Rated Speed			r/min	3000			
Rated Torque			N·m (oz·in)	0.65 (92)		1.3 (184)	
Maximum Instantaneous Torque			N·m (oz·in)	1.3 (184)		2.6 (360)	
Rotor Inertia			J: ×10 ⁻⁴ kg·m ² (oz·in ²)	0.66 (3.6)		0.66 (3.6)	
Round Shaft Type Permissible Inertia			J: ×10 ⁻⁴ kg·m ² (oz·in ²)	10 (55)		17.5 (96)	
Speed Control Mode		Speed Control Range		Digital setting: 2~4000 r/min (2000:1) Analog setting: 30~4000 r/min (133:1)			
		Speed Regulation	Load	±0.05% or less: Conditions 0~rated torque, rated speed, rated voltage, normal temperature			
			Voltage	±0.05% or less: Conditions Rated voltage −15~+10%, rated speed, no load, normal temperature			
			Temperature	±0.05% (±0.5%)*1 or less: Conditions Operating ambient temperature 0~+50°C (+32~+122°F), rated speed, no load, rated voltage			
Position Control Mode		Torque Limiting Setting Range		0~250%			
		Traveling Amount Setting Range		−8,388,608~+8,388,607 step			
		Resolution		0.72° (1 rotation: 500 pulses)			
		Speed Setting Range		Digital Setting: 2~4000 r/min (2000:1)			
		Torque Limiting Setting Range		0~250%			
Power Supply Input		Rated Voltage		Single-Phase 100-120 VAC −15~+10% Single-Phase 200-240 VAC −15~+10% Three-Phase 200-240 VAC −15~+10%	Single-Phase 200-240 VAC −15~+10% Three-Phase 200-240 VAC −15~+10%		
		Frequency		50/60 Hz ±5%			
		Rated Input Current A	Single-Phase 100-120 VAC	4.7		—	
			Single-Phase 200-240 VAC	2.8		4.7	
			Three-Phase 200-240 VAC	1.7		2.8	
		Max. Input Current A	Single-Phase 100-120 VAC	11.3		—	
			Single-Phase 200-240 VAC	7.1		9.8	
			Three-Phase 200-240 VAC	4.5		6.4	
For Electromagnetic Brake*2		Type		Power off activated type, automatically controlled by the driver			
		Static Friction Torque N·m (oz·in)		0.65 (92)		1.3 (184)	
		Gravitational Operation Capability*3	Continuous Regenerative Power W (HP)	100 (1/8)			
			Instantaneous Regenerative Power W (HP)	800 (1)			
			Applicable Regeneration Unit	RGB100 (Accessory)			

*1 Specification for analog setting.

*2 Specification for electromagnetic brake type only.

Do not start or stop the motor by turning ON/OFF the power supply, as it will cause abnormal wear of the electromagnetic brake.

*3 Values when regeneration unit is used.

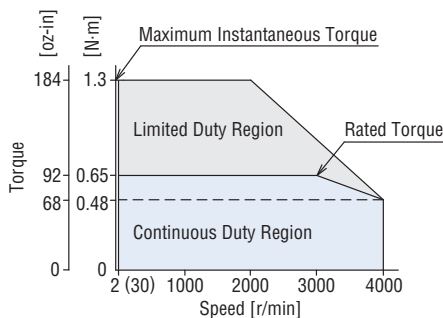
Install the regeneration unit in a place that has the same heat radiation capability as the heat sink (material: aluminum, 350×350 mm (13.8×13.8 in.), 3 mm (0.12 in.) thick).

■ Speed – Torque Characteristics

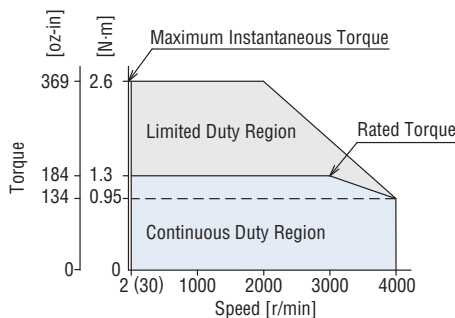
Continuous Duty Region : Continuous operation is possible in this region.

Limited Duty Region : This region is used primarily when accelerating. When a load that exceeds the rated torque is applied continuously for approximately 5 seconds, the overload protective function is activated and the motor coasts to a stop.

● 200 W (1/4 HP)



● 400 W (1/2 HP)



● If in speed control mode, the speed control range changes depending on the speed setting method. If in position control mode, digital settings are used.

Digital Setting: 2~4000 r/min

Analog Setting: 30~4000 r/min

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

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

Either **S** (parallel shaft gearhead) or **FR** (hollow shaft flat gearhead) indicating a type of the combination type is entered where the box □ is located within the product name.

Vertical Operation (Gravitational Operation)

The **BXII** Series provides stable speed control during gravitational operation.

During vertical operation shown in the figure to the right, normally an external force causes the motor to rotate and function as a power generator. If this energy is applied to the driver, an error will occur. The accessory regeneration unit (sold separately) can convert regenerative energy into thermal energy for dissipation. Use the accessory regeneration unit when using the motor for vertical applications or when braking a large inertial load quickly.

Regeneration Unit Product Name	BXII Product Name	Rated Output Power W (HP)	Continuous Regenerative Power W (HP)	Instantaneous Regenerative Power W (HP)
EPRC-400P	BXS230	30 (1/25)	100 (1/8)	240 (1/3)
	BXS460	60 (1/12)		
	BXS5120	120 (1/6)		
RGB100	BXS6200	200 (1/4)	100 (1/8)	800 (1)
	BXS6400	400 (1/2)		

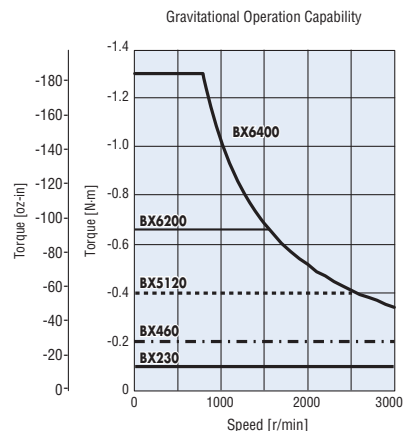
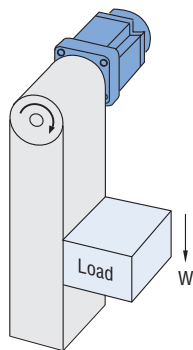
● Install the regeneration unit in the place which has the same heat radiation capability as heat radiation plate [material: aluminum 350×350 mm (13.8×13.8 in.), 3 mm (0.12 in.) thick].

Regenerative Power

The regenerative power can be estimated using the formula below. Use the calculated value as a guideline.

$$\text{Regenerative Power (W)} = 0.1047 \times T_L \text{ [N} \cdot \text{m]} \times N \text{ [r/min]}$$

T_L : Load torque N : Speed



- Gravitational operation exceeding the range of continuous regeneration capability will trigger the built-in thermal protector [150°C (302°F)].
- Use the electromagnetic brake type for gravitational operation.

Common Specifications

Item	Speed Control Mode	Position Control Mode
Input Signals	Photocoupler input Input resistance: 6.6 kΩ Operated by internal power supply: 5 VDC Connectable external power supply: 24 VDC -15~+20% 100 mA min. Sink input/source input Supplied through external wiring	
	Arbitrary signal assignment to IN0~IN8 input (9 points) is possible. []: Initial setting [FWD], [RVS], [M0], [M1], [M2], M3, [FREE], [STOP], [ALM-RST], TH, TL, S-ON, HMI, [Not used]	Arbitrary signal assignment to IN0~IN8 input (9 points) is possible. []: Initial setting [START], [M0], [M1], [M2], M3, [FREE], [STOP], [ALM-RST], [HOME], [HOMES], TH, SSTART, MS0, MS1, MS2, MS3, MS4, MS5, FWD, RVS, +JOG, -JOG, S-ON, P-PRESET, TL, HMI, Not used
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 OUT0~OUT2 output (3 points) is possible. []: Initial setting [ALM], [WNG], [MOVE], END, TLC, VA, ZSG	Arbitrary signal assignment to OUT0~OUT2 output (3 points) is possible. []: Initial setting [ALM], WNG, MOVE, [READY], [HOME-P], END, TLC, VA, ZSG
	Transistor and open-collector output External power supply: 4.5~30 VDC 20 mA max. ASG, BSG 500 pulses/rotation	
Protective Function	When the following protective functions are activated, the ALM output turns OFF and the motor will stop. The alarm code will be displayed on the control panel at the same time. Overflow, overcurrent, overvoltage, undervoltage, overload, overspeed, EEPROM error, initial sensor error, initial operation inhibition, regeneration unit overheat, software overtravel (Only in position control mode), operating data error	
Max. Extension Length	Motor and driver distance: 30.4 m (99.7 ft.) (when an accessory connection cable is used)	
Time Rating	Continuous	

Speed Control Mode Specifications

Item	Digital Setting	Analog Setting
Speed Control Range	2~4000 r/min (Set in 1 r/min increments)	30~4000 r/min
Speed Setting Method	Select one of the following methods: • Control panel • MEXE02 *1 • OPX-2A (accessory)	Select one of the following setting methods: (Operating data No. 2~15 are digital settings only) • Operating data No. 0: Internal speed potentiometer (SPEED) • Operating data No. 1: PAVR-20KZ (accessory) or external DC voltage External analog setting with 0~10 VDC*2 (1 mA min.)
Acceleration/Deceleration Time	0.000~30.00 s (rated speed, no load)	0.1~30 s (rated speed, no load)
Acceleration/Deceleration Time Setting Method	Select one of the following methods: (Individual settings) • Control panel • MEXE02 *1 • OPX-2A (accessory)	Acceleration time/deceleration time are common to operating data No. 0 and No. 1 • Acceleration time potentiometer (ACC) • Deceleration time potentiometer (DEC)
Torque Limiting Setting Range	0~250%	
Torque Limiting Setting Methods	Select one of the following methods: • Control panel • MEXE02 *1 • OPX-2A (accessory)	Torque limiting is common to all operating data • PAVR-20KZ (accessory) or external DC voltage External analog setting with 0~10 VDC*2 (1 mA min.)
Operation Data Setting Number	16 Points	
Operation during Motor Standstill	Operations can be selected when the motor is at standstill. • Motor non-excitation (initial setting) / • Position holding by servo control (motor excitation)	
Other Operations	JOG operation, test operation, teaching (excluding MEXE02 *1)	

*1 The data setting software **MEXE02** can be downloaded from the website. When using **MEXE02**, the data setting software communication cable **CC05IF-USB** (accessory) is needed.

*2 The max. voltage can be arbitrarily changed with the parameters. Example: 0~5 VDC

Position Control Mode Specifications

Item		Digital Setting
Positioning Operation	Traveling Amount Setting Range	−8,388,608~+8,388,607 step
	Resolution	0.72° (500 steps/rotation)
	Speed Setting Range	2~4000 r/min (Set in 1 r/min increments)
	Operating Modes	Incremental or absolute
	Operation Functions	Independent, linked, linked 2, sequential, direct
	Acceleration/Deceleration Time	0.000~30.00 s (Rated speed, no load)
	Torque Limiting Setting Range	0~250%
	Operation Data Setting Number	16 Points
How to Set Operating Data		Select one of the following methods: • Control panel • MEXE02 * • OPX-2A (accessory) (Torque limiting alone can be done with external analog settings as well)
Other Operations		Continuous operation, JOG operation, return-to-home operation, test operation, teaching

*The data setting software **MEXE02** can be downloaded from the website. When using **MEXE02**, the data setting software communication cable **CC05IF-USB** (accessory) is needed.

Torque Limiting Function

The motor's output torque can be limited in speed control mode and position control mode.

Item	Specifications
Torque Limiting Setting Command	Select one of the following methods: • Digital independent setting: Torque limiting values can be set separately for 16 data sets. • External analog common setting: A torque limiting value can be set arbitrarily via PAVR-20KZ (accessory) or with external DC voltage (0~10 VDC* ¹). The same torque limiting value applies to all operation data.
Torque Limiting Setting Range* ²	Assuming that the rated torque of the motor is 100%, torque limiting values can be set in one of the following ranges: • Digital Setting: 0~250% (set in 1% increments) • External Analog Setting: 0~250% with PAVR-20KZ (accessory) or external DC voltage (0~10 VDC* ¹)

*¹ The max. voltage can be arbitrarily changed with the parameters. Example: 0~5 VDC

*² Do not add a load that exceeds the max. instantaneous torque.

Note

● An error up to a maximum of approximately $\pm 10\%$ (at rated torque and rated speed) may occur between the setting value and generated torque due to the setting speed, power supply voltage and motor cable extension length.

General Specifications

Item		Motor	Driver
Insulation Resistance		100 M Ω or more when 500 VDC megger is applied between the windings and the case after continuous operation under normal ambient temperature and humidity. (Except for the encoder)	100 M Ω 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. (Except for the encoder)	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		Temperature rise of the windings is 50°C (90°F) max. and that of the case surface is 40°C (72°F) max.* ¹ , measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity.	Temperature rise of the heat sink is 50°C (90°F) max. measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity. [60°C (108°F) max. when 200 W (1/4 HP) and 400 W (1/2 HP) types are installed in contact with each other]
Operating Environment* ²	Ambient Temperature	0~50°C (+32~+122°F) (non-freezing)	0~+50°C (+32~+122°F) (non-freezing)* ² 0~+40°C (+32~+72°F) when 200 W (1/4 HP) and 400 W (1/2 HP) types are installed in contact with each other
	Ambient Humidity	85% max. (non-condensing)	
	Altitude	Max. of 1000 m (3300 ft.) above sea level	
	Atmosphere	No corrosive gases or dust. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.	
	Vibration	Must not be subjected to continuous vibration or excessive shock Frequency range: 10~55 Hz Half amplitude: 0.15 mm (0.006 in.)	Conforms to JIS C 60068-2-6, "Sine-wave vibration test method" Sweep direction: 3 directions (X, Y, Z) Number of sweeps: 20 times
Storage Condition* ³	Ambient Temperature	−20~+60°C (−4~+140°F) (non-freezing)	−25~+70°C (−13~+158°F) (non-freezing)
	Ambient Humidity	85% max. (non-condensing)	
	Altitude	Max. of 3000 m (10000 ft.) above sea level	
Heat-Resistant Class		UL/CSA Standards: 105 (A), EN Standards: 120 (E)	—
Degree of Protection		IP54 (Excluding the installation surface of the round shaft type and connectors)	IP20

*¹ For round shaft types, please attach to the heat radiation plate (material: aluminum) of the following sizes to maintain a maximum motor case temperature of 90°C (194°F).

30W (1/25 HP): 115×115 mm (4.53×4.53 in.), 5 mm (0.20 in.) thick 60W (1/12 HP): 135×135 mm (5.31×5.31 in.), 5 mm (0.20 in.) thick
120W (1/6 HP): 165×165 mm (6.50×6.50 in.), 5 mm (0.20 in.) thick 200W (1/4 HP): 200×200 mm (7.87×7.87 in.), 5 mm (0.20 in.) thick
400W (1/2 HP): 250×250 mm (9.84×9.84 in.), 6 mm (0.24 in.) thick

*² Attach the driver to a location that has the same heat radiation capability as an aluminum metal plate.

Single installed 200×200 mm (7.87×7.87 in.), 2 mm (0.079 in.) thick
Installed in contact 350×350 mm (13.8×13.8 in.), 2 mm (0.079 in.) thick
200 W (1/4 HP) and 400 W (1/2 HP) types: When using driver mounting brackets and DIN rail mounting brackets (accessory), the load factor must be 90% or less.

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

Note

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

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

■ Permissible Torque on Combination Types

● Combination Type with a Parallel Shaft Gearhead

Unit: N·m (lb-in)

Product Name	Gear Ratio Motor Shaft Speed	5	10	15	20	30	50	100	200
BXS230	At 2~3000 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 4000 r/min	0.34 (3)	0.68 (6)	1 (8.8)	1.4 (12.3)	1.9 (16.8)	3.2 (28)	5.4 (47)	5.4 (47)
BXS460	At 2~3000 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 4000 r/min	0.68 (6)	1.4 (12.3)	2 (17.7)	2.7 (23)	3.9 (34)	6.5 (57)	12.9 (114)	14 (123)
BXS5120	At 2~3000 r/min	1.8 (15.9)	3.6 (31)	5.4 (47)	7.2 (63)	10.3 (91)	17.2 (152)	30 (260)	30 (260)
	At 4000 r/min	1.4 (12.3)	2.7 (23)	4.1 (36)	5.4 (47)	7.7 (68)	12.9 (114)	25.8 (220)	27 (230)
BXS6200	At 2~3000 r/min	2.9 (25)	5.9 (52)	8.8 (77)	11.7 (103)	16.8 (148)	28 (240)	52.7 (460)	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)
BXS6400	At 2~3000 r/min	5.9 (52)	11.7 (103)	17.6 (155)	23.4 (200)	33.5 (290)	55.9 (490)	70 (610)	70 (610)
	At 4000 r/min	4.3 (38)	8.6 (76)	12.8 (113)	17.1 (151)	24.5 (210)	40.9 (360)	63 (550)	63 (550)

● A colored background indicates gear shaft rotation in the same direction as the motor shaft. Others rotate in the opposite direction.

● Combination Type with a Hollow Shaft Flat Gearhead

Unit: N·m (lb-in)

Product Name	Gear Ratio Motor Shaft Speed	5	10	15	20	30	50	100	200
BXS230	At 2~3000 r/min	0.4 (3.5)	0.85 (7.5)	1.3 (11.5)	1.7 (15)	2.6 (23)	4.3 (38)	8.5 (75)	17 (150)
	At 4000 r/min	0.3 (2.6)	0.64 (5.6)	0.96 (8.4)	1.3 (11.5)	1.9 (16.8)	3.2 (28)	6.4 (56)	12.8 (113)
BXS460	At 2~3000 r/min	0.85 (7.5)	1.7 (15)	2.6 (23)	3.4 (30)	5.1 (45)	8.5 (75)	17 (150)	34 (300)
	At 4000 r/min	0.64 (5.6)	1.3 (11.5)	1.9 (16.8)	2.6 (23)	3.8 (33)	6.4 (56)	12.8 (113)	25.5 (220)
BXS5120	At 2~3000 r/min	1.7 (15)	3.4 (30)	5.1 (45)	6.8 (60)	10.2 (90)	17 (150)	34 (300)	68 (600)
	At 4000 r/min	1.3 (11.5)	2.6 (23)	3.8 (33)	5.1 (45)	7.7 (68)	12.8 (113)	25.5 (220)	51 (450)
BXS6200	At 2~3000 r/min	— (48)	5.5 (48)	8.3 (73)	11.1 (98)	16.6 (146)	27.6 (240)	55.3 (480)	— (—)
	At 4000 r/min	— (—)	4.1 (36)	6.1 (53)	8.2 (72)	12.2 (107)	20.4 (180)	40.8 (360)	— (—)
BXS6400	At 2~3000 r/min	5.5 (48)	11.1 (98)	16.6 (146)	22.1 (195)	33.2 (290)	55.3 (480)	110 (970)	— (—)
	At 4000 r/min	4 (35)	8.1 (71)	12.1 (107)	16.2 (143)	24.2 (210)	40.4 (350)	80.8 (710)	— (—)

● The flat gearhead rotates in the opposite direction to the motor when viewed from the front face of the gearhead. It rotates in the same direction as the motor when viewed from the rear (motor installation surface) of the gearhead.

Rotation direction of hollow shaft flat gearhead → Page D-195

■ Output Shaft Speed of Combination Types

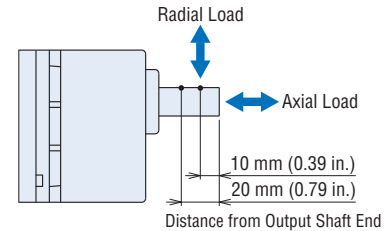
Unit: r/min

Gear Ratio Motor Shaft Speed	5	10	15	20	30	50	100	200
2 r/min	0.4	0.2	0.13	0.1	0.07	0.04	0.02	0.01
30 r/min	6	3	2	1.5	1	0.6	0.3	0.15
3000 r/min	600	300	200	150	100	60	30	15
4000 r/min	800	400	267	200	133	80	40	20

■ Permissible Radial Load and Permissible Axial Load

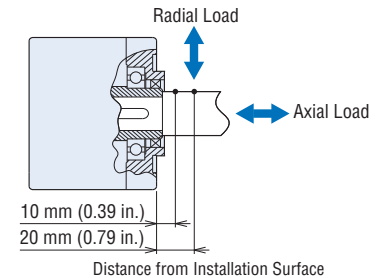
● Combination Type with a Parallel Shaft Gearhead

Product Name	Gear Ratio		Permissible Radial Load				Permissible Axial Load	
			Distance from Output Shaft End					
			10 mm (0.39 in.)		20 mm (0.79 in.)		N	lb.
BX5230	5	At 2~3000 r/min	100	22	150	33	40	9
		At 4000 r/min	90	20	110	24		
	10, 15, 20	At 2~3000 r/min	150	33	200	45		
		At 4000 r/min	130	29	170	38		
	30, 50, 100, 200	At 2~3000 r/min	200	45	300	67		
		At 4000 r/min	180	40	230	51		
BX5460	5	At 2~3000 r/min	200	45	250	56	100	22
		At 4000 r/min	180	40	220	49		
	10, 15, 20	At 2~3000 r/min	300	67	350	78		
		At 4000 r/min	270	60	330	74		
	30, 50, 100, 200	At 2~3000 r/min	450	101	550	123		
		At 4000 r/min	420	94	500	112		
BX55120	5	At 2~3000 r/min	300	67	400	90	150	33
		At 4000 r/min	230	51	300	67		
	10, 15, 20	At 2~3000 r/min	400	90	500	112		
		At 4000 r/min	370	83	430	96		
	30, 50, 100, 200	At 2~3000 r/min	500	112	650	146		
		At 4000 r/min	450	101	550	123		
BX56200 BX56400	5, 10, 15, 20	At 2~3000 r/min	550	123	800	180	200	45
		At 4000 r/min	500	112	700	157		
	30, 50	At 2~3000 r/min	1000	220	1250	280	300	67
		At 4000 r/min	900	200	1100	240		
	100, 200	At 2~3000 r/min	1400	310	1700	380	400	90
		At 4000 r/min	1200	270	1400	310		



■ Combination Type with a Hollow Shaft Flat Gearhead

Product Name	Gear Ratio		Permissible Radial Load				Permissible Axial Load	
			Distance from Installation Surface of Gearhead					
			10 mm (0.39 in.)		20 mm (0.79 in.)		N	lb.
			N	lb.	N	lb.	N	lb.
BXS230	5, 10	At 2~3000 r/min	450	101	370	83	200	45
		At 4000 r/min	410	92	330	74		
	15, 20, 30, 50, 100, 200	At 2~3000 r/min	500	112	400	90		
		At 4000 r/min	460	103	370	83		
BXS460	5, 10	At 2~3000 r/min	800	180	660	148	400	90
		At 4000 r/min	730	164	600	135		
	15, 20, 30, 50, 100, 200	At 2~3000 r/min	1200	270	1000	220		
		At 4000 r/min	1100	240	910	200		
BXS5120	5, 10	At 2~3000 r/min	900	200	770	173	500	112
		At 4000 r/min	820	184	700	157		
	15, 20	At 2~3000 r/min	1300	290	1110	240		
		At 4000 r/min	1200	270	1020	220		
	30, 50, 100, 200	At 2~3000 r/min	1500	330	1280	280		
		At 4000 r/min	1400	310	1200	270		
BXS6200 BXS6400	5*, 10	At 2~3000 r/min	1230	270	1070	240	800	180
		At 4000 r/min	1130	250	990	220		
	15, 20	At 2~3000 r/min	1680	370	1470	330		
		At 4000 r/min	1550	340	1360	300		
	30, 50, 100	At 2~3000 r/min	2040	450	1780	400		
		At 4000 r/min	1900	420	1660	370		



*Limited to 400W (1/2 HP) type.

● The permissible radial load can also be calculated with a formula. Calculation of permissible radial load → Page D-194

● Round Shaft Type

Product Name	Permissible Radial Load Distance from Output Shaft End				Permissible Axial Load
	10 mm (0.39 in.)		20 mm (0.79 in.)		
	N	lb.	N	lb.	
BXS230	87.2	19	107	24	Half of motor mass or less
BXS460	117	26	137	30	
BXS5120	156	35	176	39	
BXS6200	197	44	221	49	
BXS6400					

Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

■ Permissible Inertia J of Combination Types

● Combination Type with a Parallel Shaft Gearhead

Unit: $\times 10^{-4} \text{kg}\cdot\text{m}^2$ (oz-in²)

Product Name \ Gear Ratio		5	10	15	20	30	50	100	200
BXS230		12 (66)	50 (270)	110 (600)	200 (1090)	370 (2000)	920 (5000)	2500 (13700)	5000 (27000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	1.55 (8.5)	6.2 (34)	14 (77)	24.8 (136)	55.8 (310)	155 (850)	155 (850)	155 (850)
BXS460		22 (120)	95 (520)	220 (1200)	350 (1910)	800 (4400)	2200 (12000)	6200 (34000)	12000 (66000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	5.5 (30)	22 (120)	49.5 (270)	88 (480)	198 (1080)	550 (3000)	550 (3000)	550 (3000)
BXS5120		45 (250)	190 (1040)	420 (2300)	700 (3800)	1600 (8800)	4500 (25000)	12000 (66000)	25000 (137000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	25 (137)	100 (550)	225 (1230)	400 (2200)	900 (4900)	2500 (13700)	2500 (13700)	2500 (13700)
BXS6200 BXS6400		100 (550)	460 (2500)	1000 (5500)	1700 (9300)	3900 (21000)	9300 (51000)	18000 (98000)	37000 (200000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	50 (270)	200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)	5000 (27000)	5000 (27000)

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

● Combination Type with a Hollow Shaft Flat Gearhead

Unit: $\times 10^{-4} \text{kg}\cdot\text{m}^2$ (oz-in²)

Product Name \ Gear Ratio		5	10	15	20	30	50	100	200
BXS230		12 (66)	50 (270)	110 (600)	200 (1090)	370 (2000)	920 (5000)	2500 (13700)	5000 (27000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	1.55 (8.5)	6.2 (34)	14 (77)	24.8 (136)	55.8 (310)	155 (850)	155 (850)	155 (850)
BXS460		22 (120)	95 (520)	220 (1200)	350 (1910)	800 (4400)	2200 (12000)	6200 (34000)	12000 (66000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	5.5 (30)	22 (120)	49.5 (270)	88 (480)	198 (1080)	550 (3000)	550 (3000)	550 (3000)
BXS5120		45 (250)	190 (1040)	420 (2300)	700 (3800)	1600 (8800)	4500 (25000)	12000 (66000)	25000 (137000)
	When instantaneous stop or instantaneous bi-directional operation is performed*	25 (137)	100 (550)	225 (1230)	400 (2200)	900 (4900)	2500 (13700)	2500 (13700)	2500 (13700)
BXS6200		—	460 (2500)	1000 (5500)	1700 (9300)	3900 (21000)	9300 (51000)	18000 (98000)	—
	When instantaneous stop or instantaneous bi-directional operation is performed*	—	200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)	5000 (27000)	—
BXS6400		100 (550)	460 (2500)	1000 (5500)	1700 (9300)	3900 (21000)	9300 (51000)	18000 (98000)	—
	When instantaneous stop or instantaneous bi-directional operation is performed*	50 (270)	200 (1090)	450 (2500)	800 (4400)	1800 (9800)	5000 (27000)	5000 (27000)	—

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

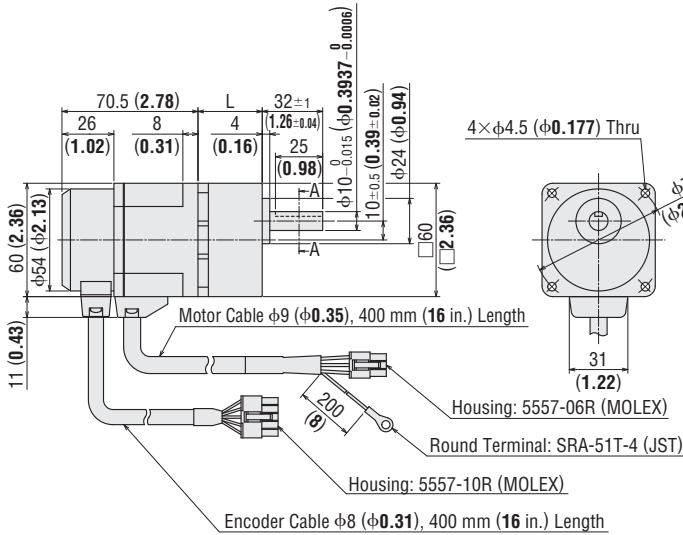
■ Dimensions (Unit = mm (in.))

- Installation screws are included with the combination type. Dimensions for installation screws → Page D-194
- A number indicating the gear ratio is entered where the box is located within the product name.

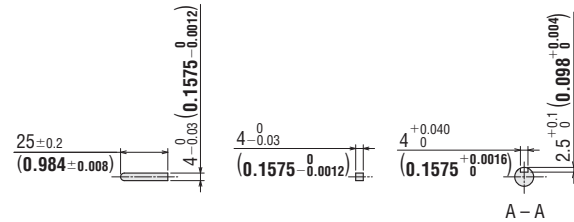
● Standard Type 30 W (1/25 HP)

◆ Motor/Parallel Shaft Gearhead

◇ Motor/Parallel Shaft Gearhead					2D & 3D CAD	
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BX5230A □ S-3 BX5230C □ S-3	BXM230-GFS	GFS2G□	5~20	34 (1.34)	1.2 (2.6)	C147A
			30~100	38 (1.50)		C147B
			200	43 (1.69)		C147C



◆Key and Key Slot (Included)



◆ Motor/Hollow Shaft Flat Gearhead

BXS230A-□FR-3, BXS230C-□FR-3

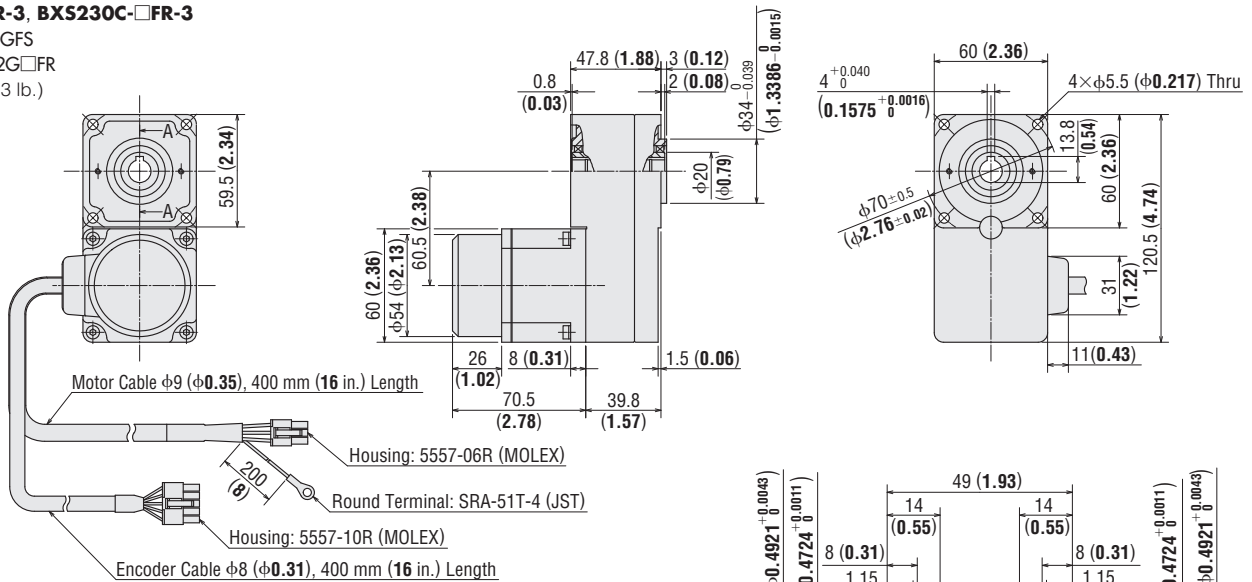
Motor: **BXM230-GFS**

Gearhead: GFS2G□FR

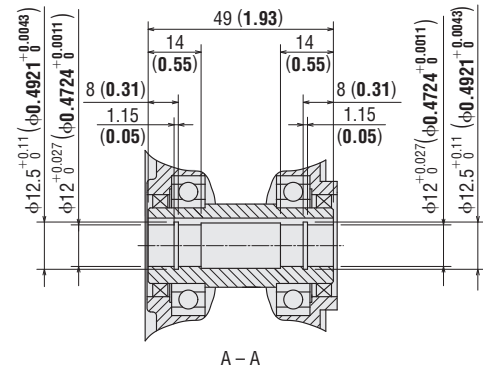
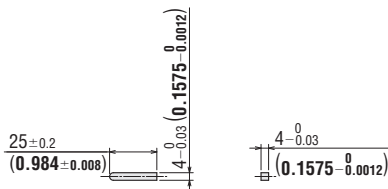
Mass: 1.5 kg (3.3 lb.)

2D CAD C195

3D CAD



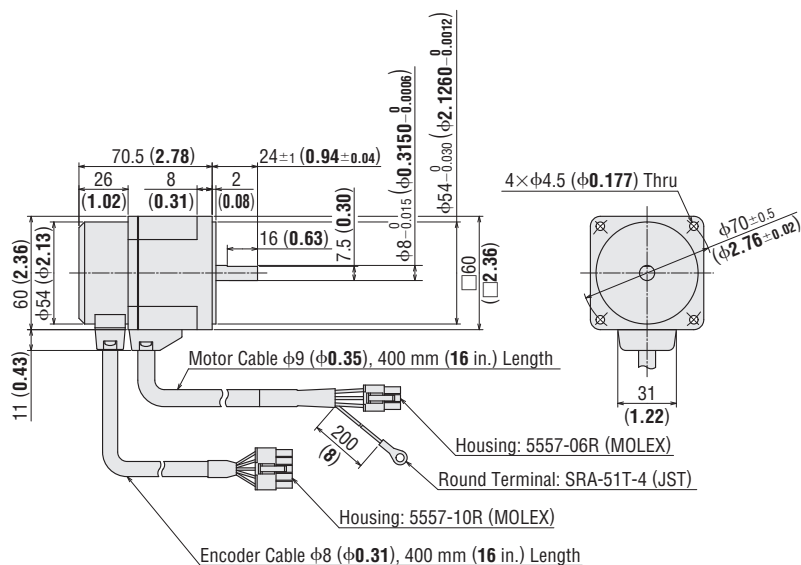
◆Key (Included)



BXS230A-A-3, BXS230C-A-3

Mass: 0.7 kg (1.5 lb.)

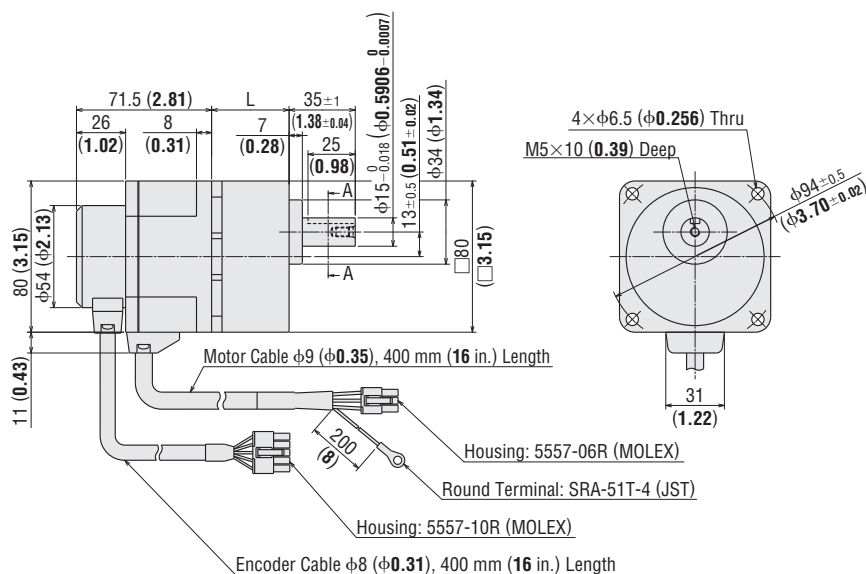
3D CAD



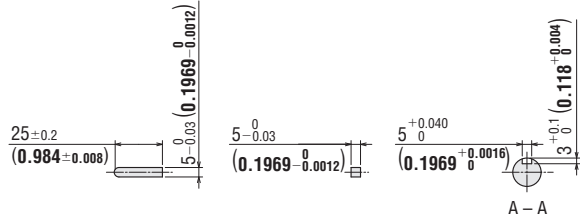
◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BXS460A-□S-3 BXS460C-□S-3	BXM460-GFS	GFS4G□	5~20	41 (1.61)	2.0 (4.4)	C148A
			30~100	46 (1.81)		C148B
			200	51 (2.01)		C148C



12



◇ Motor/Hollow Shaft Flat Gearhead

BXS460A-□FR-3, BXS460C-□FR-3

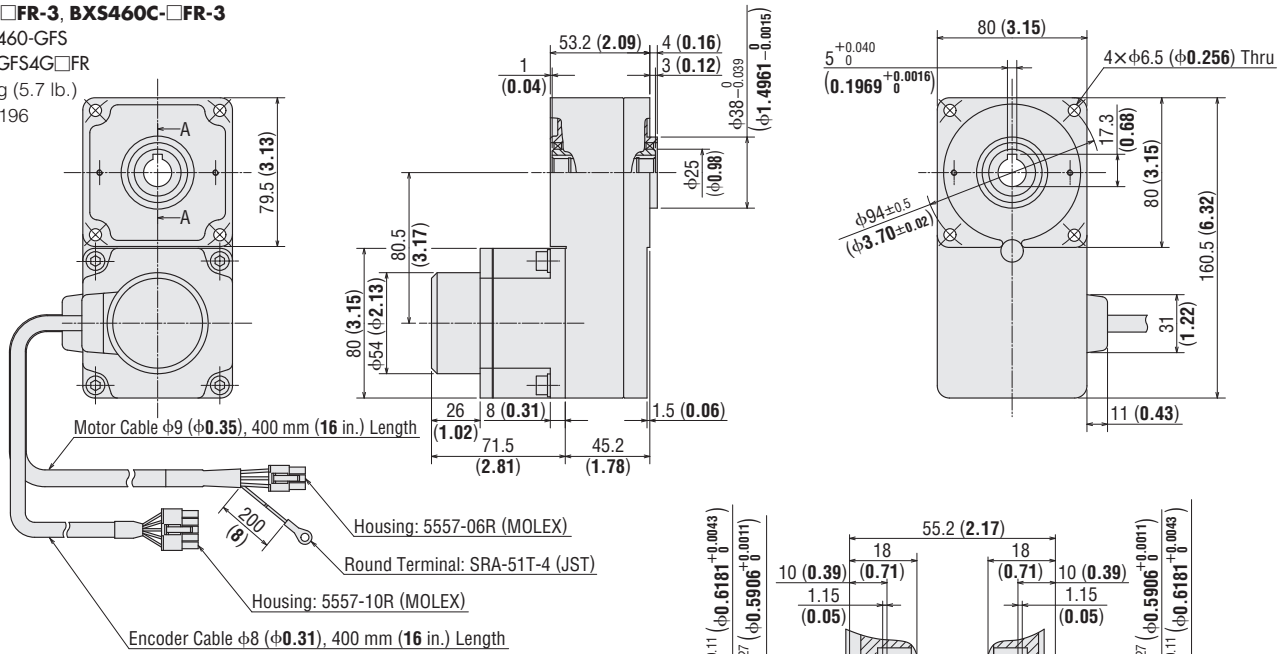
Motor: BXM460-GFS

Gearhead: GFS4G□FR

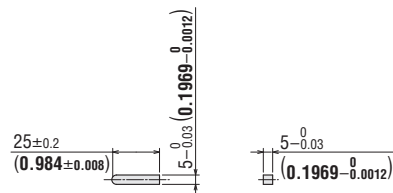
Mass: 2.6 kg (5.7 lb.)

2D CAD C196

3D CAD



◇ Key (Included)



◇ Round Shaft Type

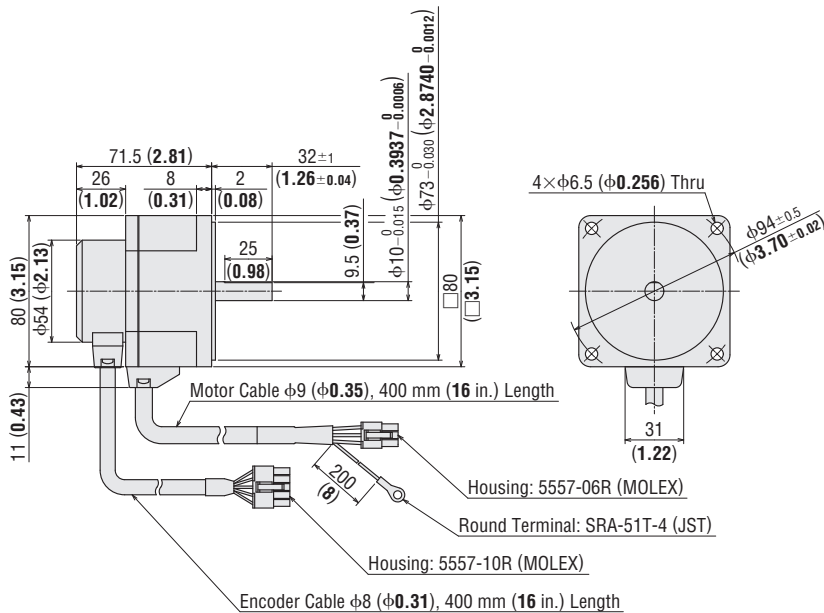
BXS460A-A-3, BXS460C-A-3

Motor: BXM460-A2

Mass: 1.0 kg (2.2 lb.)

2D CAD C115

3D CAD



Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

BHF

Accessories

Installation

◇ Round Shaft Type

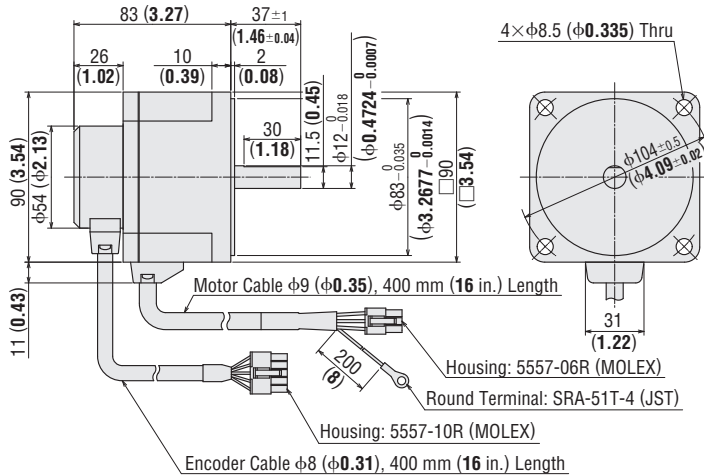
BX55120A-A-3, BX55120C-A-3

Motor: BXM5120-A2

Mass: 1.6 kg (3.5 lb.)

2D CAD C152

3D CAD

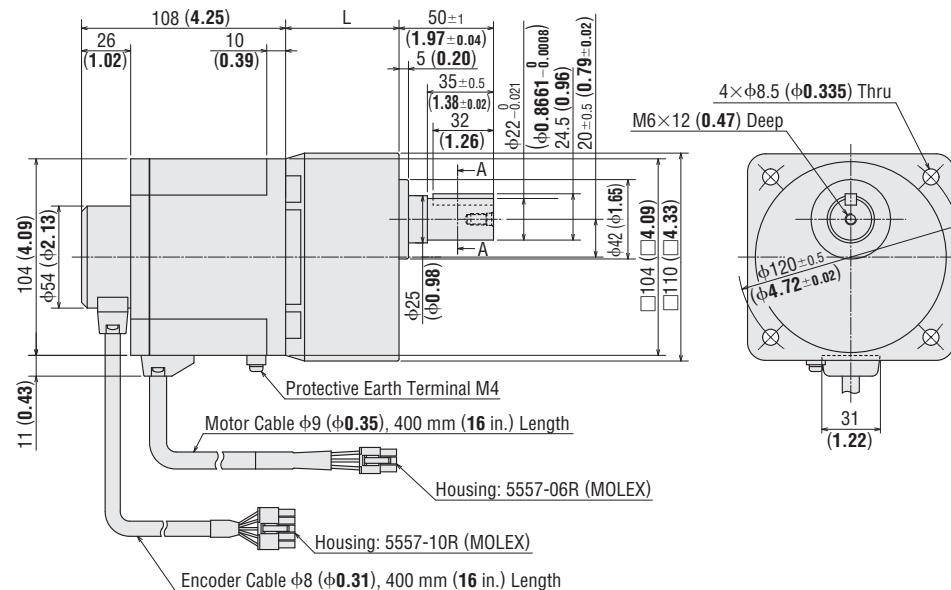


● Standard Type 200 W (1/4 HP), 400 W (1/2 HP)

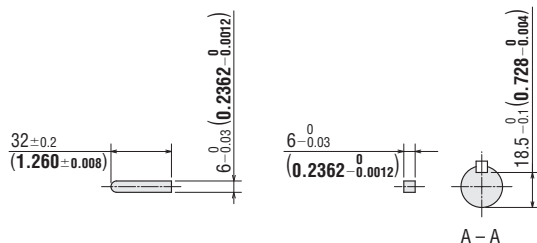
◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	2D CAD
BXS6200A-□S-3, BXS6200C-□S-3	BXM6200-GFS	GFS6G□	5~20	60 (2.36)	5.5 (12.1)	C198A
			30, 50	72 (2.83)		C198B
BXS6400C-□S-3	BXM6400-GFS		100, 200	86 (3.39)		C198C



◇ Key and Key Slot (Included)



● At the time of shipment, a key is inserted on the gearhead's shaft.

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

BHF

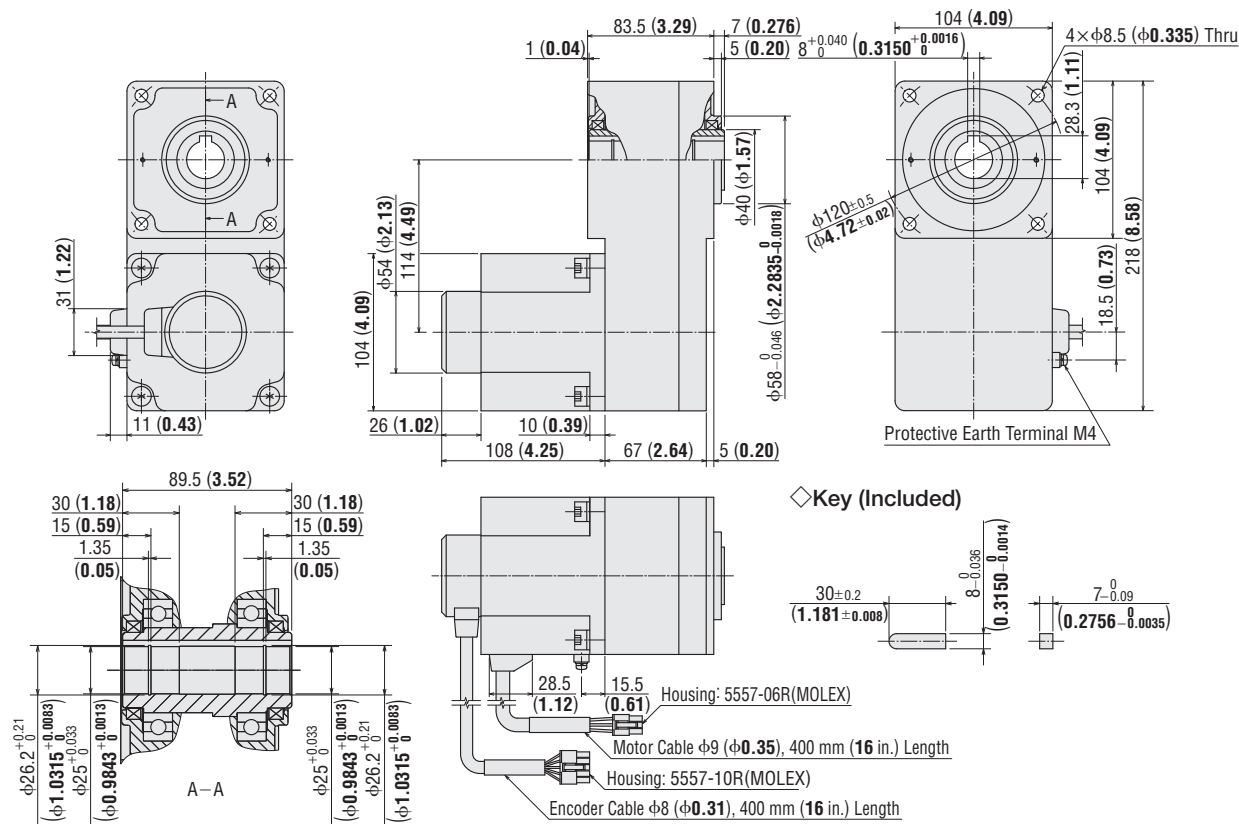
Accessories

Installation

Motor/Hollow Shaft Flat Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Mass kg (lb.)	2D CAD
BXS6200A-□FR-3, BXS6200C-□FR-3	BXM6200-GFS	GFS6G□FR	7.3 (16.1)	C257
BXS6400C-□FR-3	BXM6400-GFS			



Round Shaft Type

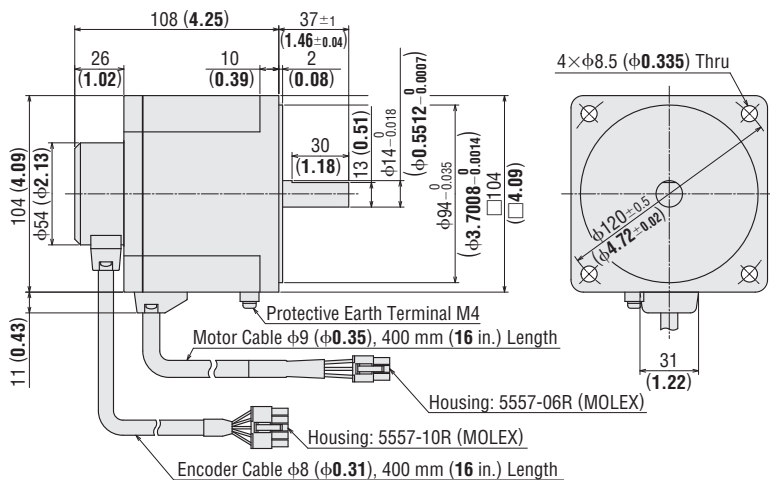
BXS6200A-A-3, BXS6200C-A-3, BXS6400C-A-3

Motor: BXM6200-A, BXM6400-A

Mass: 2.5 kg (5.5 lb.)

2D CAD C182

3D CAD

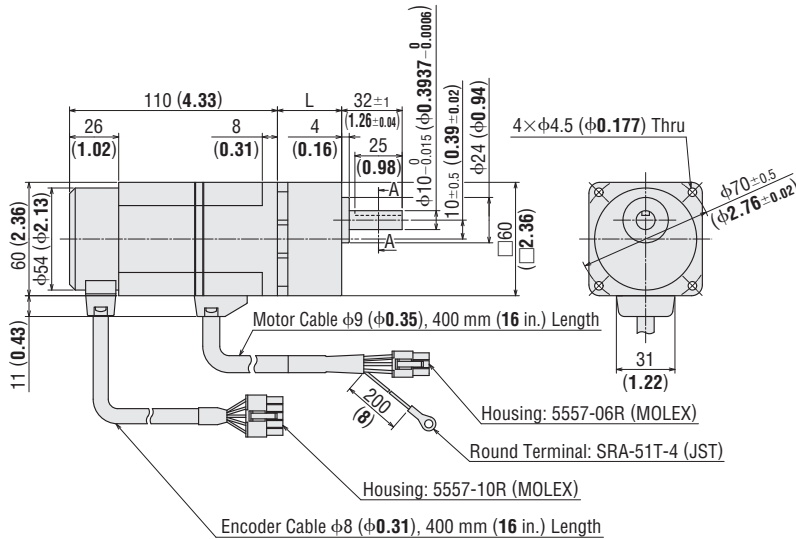


● Electromagnetic Brake Type 30 W (1/25 HP)

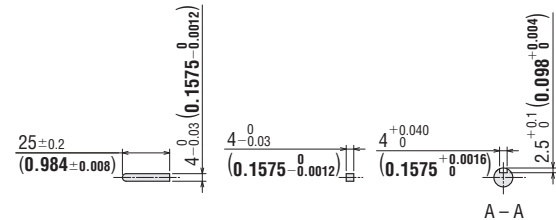
◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BXS230AM-□S-3	BXM230M-GFS	GFS2G□	5~20	34 (1.34)	1.5 (3.3)	C153A
BXS230CM-□S-3			30~100	38 (1.50)		C153B
			200	43 (1.69)		C153C



◇ Key and Key Slot (Included)



◇ Motor/Hollow Shaft Flat Gearhead

BXS230AM-□FR-3, BXS230CM-□FR-3

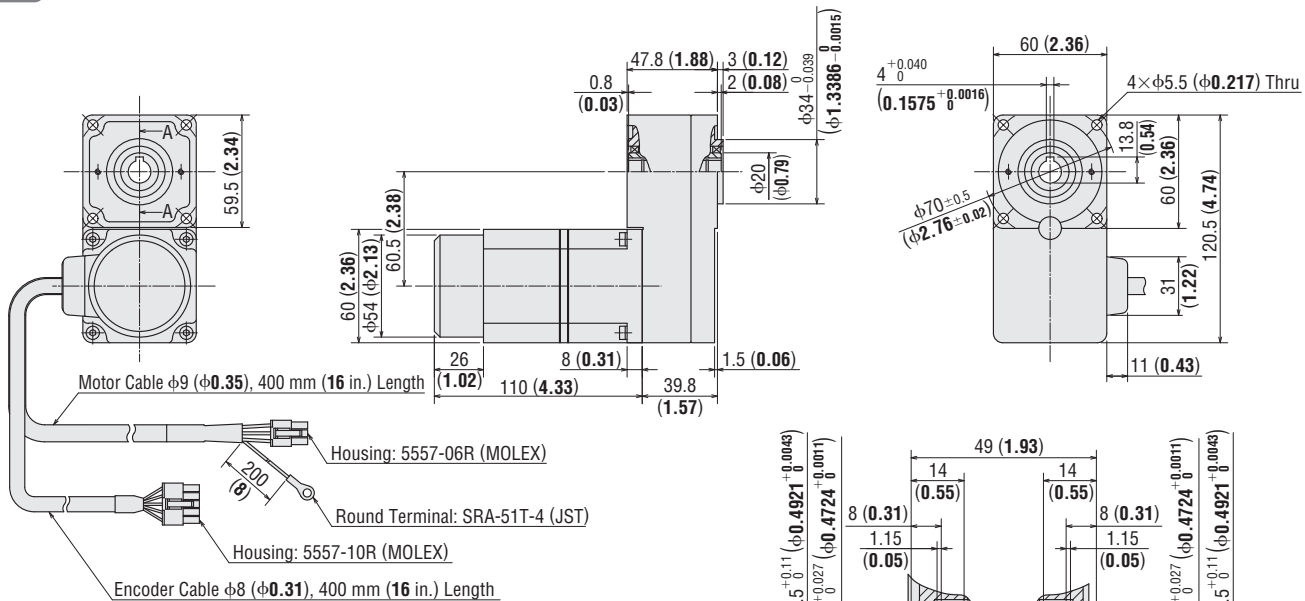
Motor: BXM230M-GFS

Gearhead: GFS2G□FR

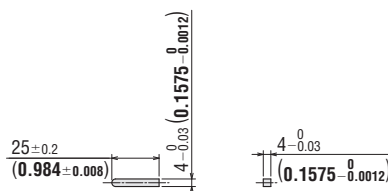
Mass: 1.8 kg (4.0 lb.)

2D CAD C199

3D CAD



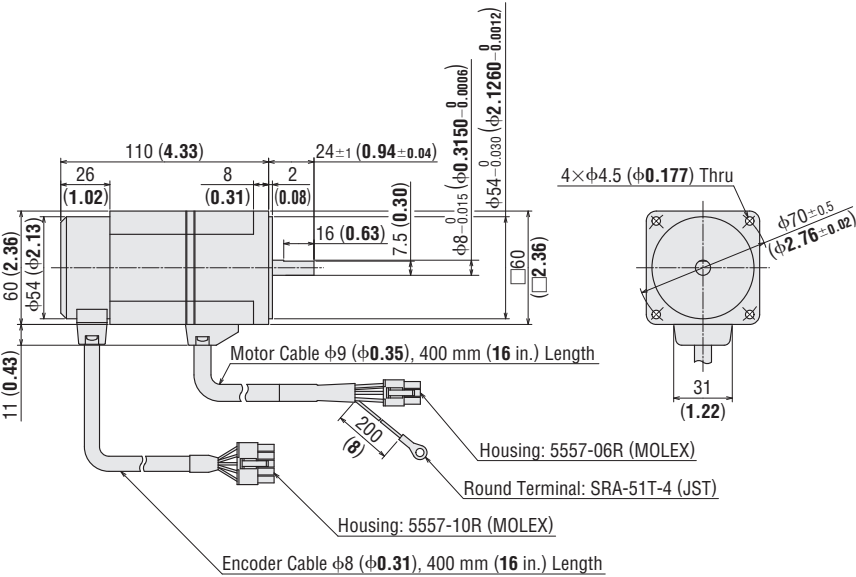
◇ Key (Included)



◇ Round Shaft Type
BX5230AM-A-3, BX5230CM-A-3

Motor: BXM230M-A2
Mass: 1.0 kg (2.2 lb.)

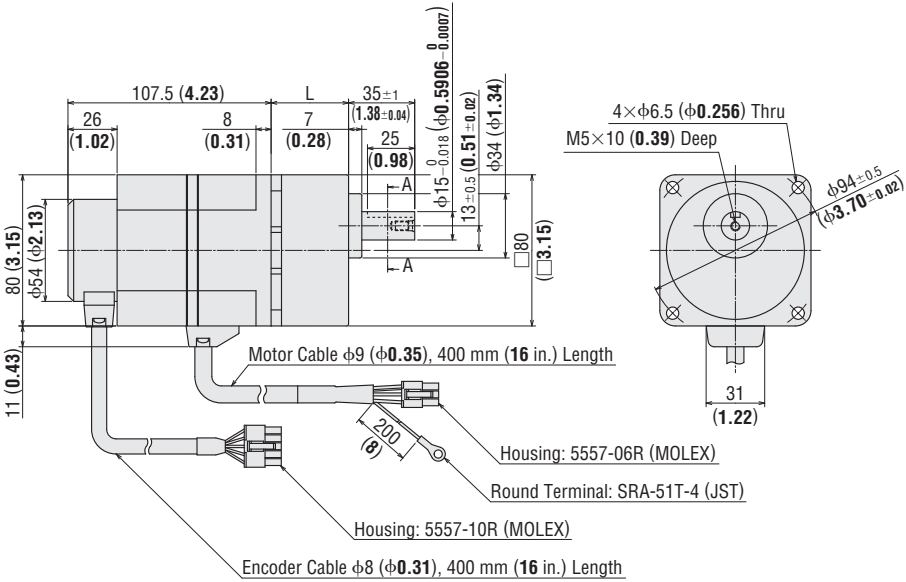
2D CAD C156
3D CAD



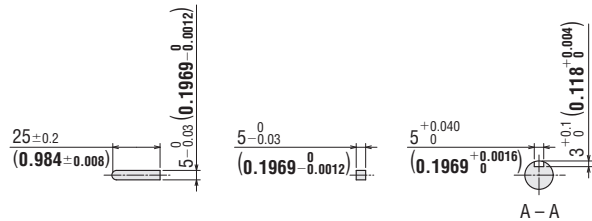
● Electromagnetic Brake Type 60 W (1/12 HP)

◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD						
Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BX5460AM-□S-3 BX5460CM-□S-3	BXM460M-GFS	GFS4G□	5~20	41 (1.61)	2.5 (5.5)	C154A
			30~100	46 (1.81)		C154B
			200	51 (2.01)		C154C



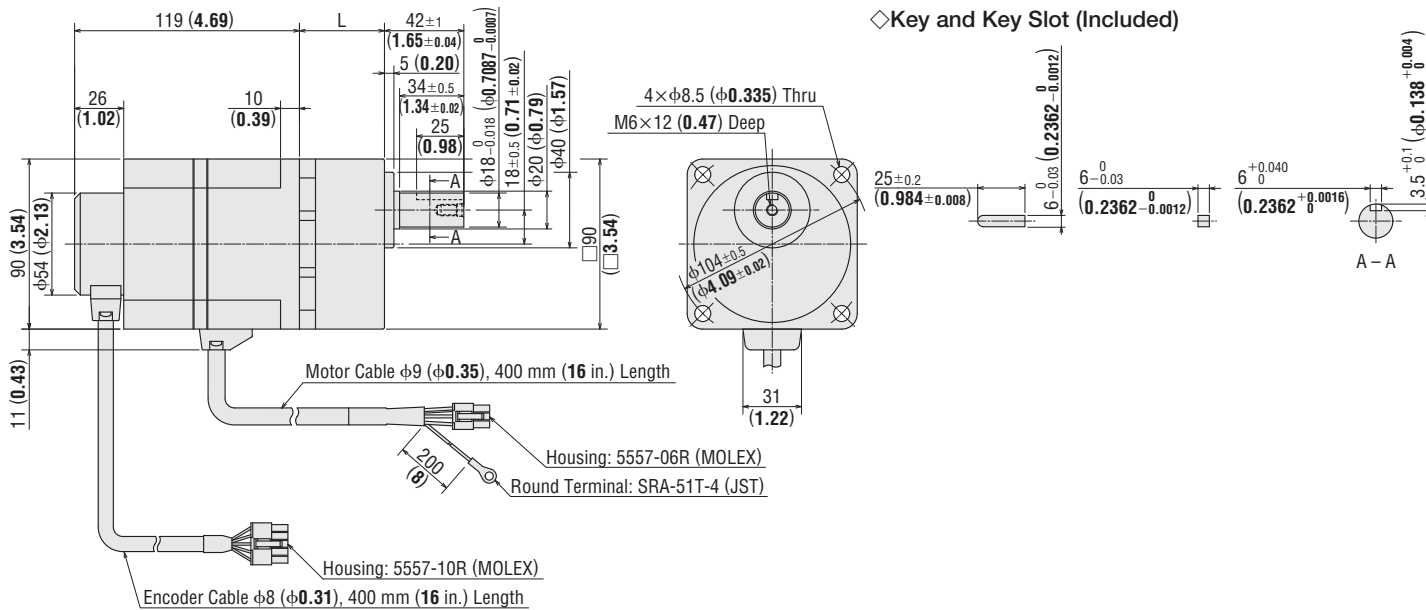
◇ Key and Key Slot (Included)



◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BX5S120AM-□S-3 BX5S120CM-□S-3	BXM5120M-GFS	GF55G□	5~20	45 (1.77)	3.7 (8.1)	C155A
			30~100	58 (2.28)		C155B
			200	64 (2.52)		C155C



◆ Motor/Hollow Shaft Flat Gearhead

BXS5120AM-□FR-3, BXS5120CM-□FR-3

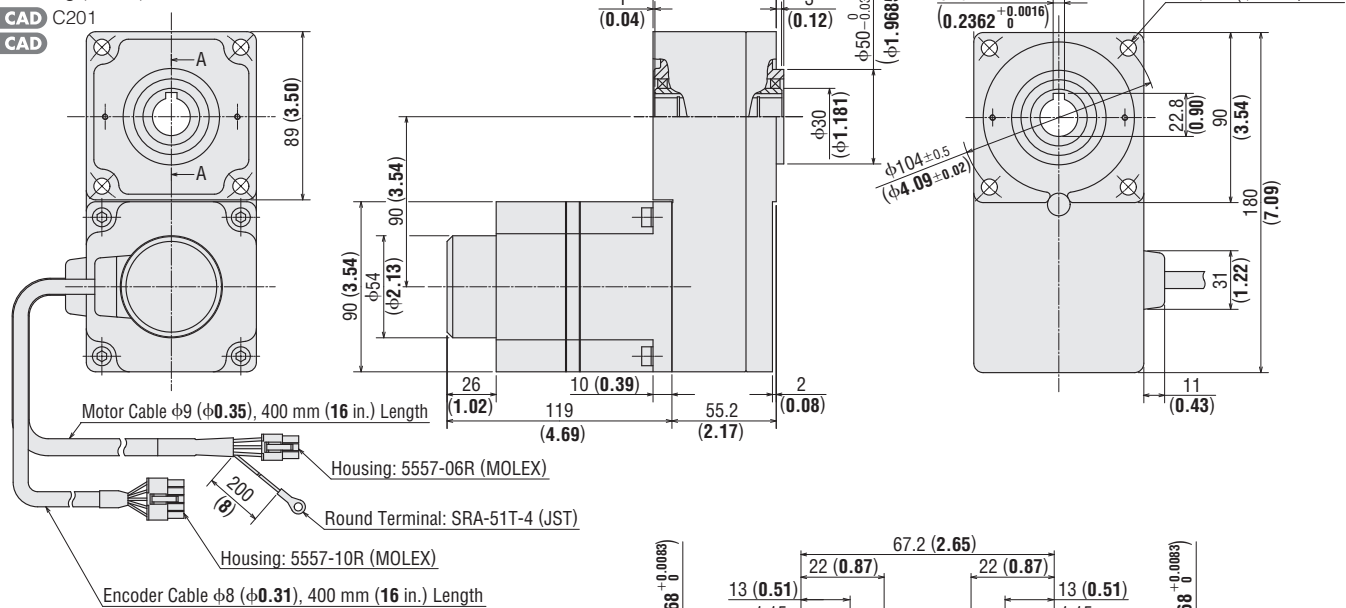
Motor: **BXM51 20M-GFS**

Gearhead: GFS5G□FR

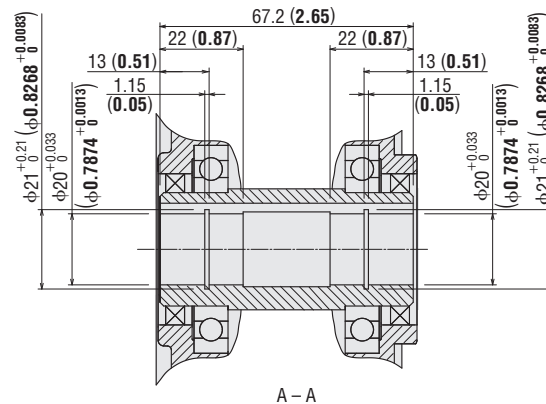
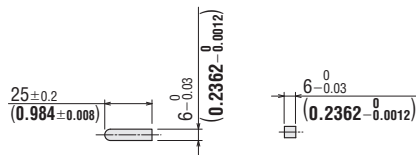
Mass: 4.4 kg (9.7 lb.)

2D CAD C201

3D CAD



◆Key (Included)

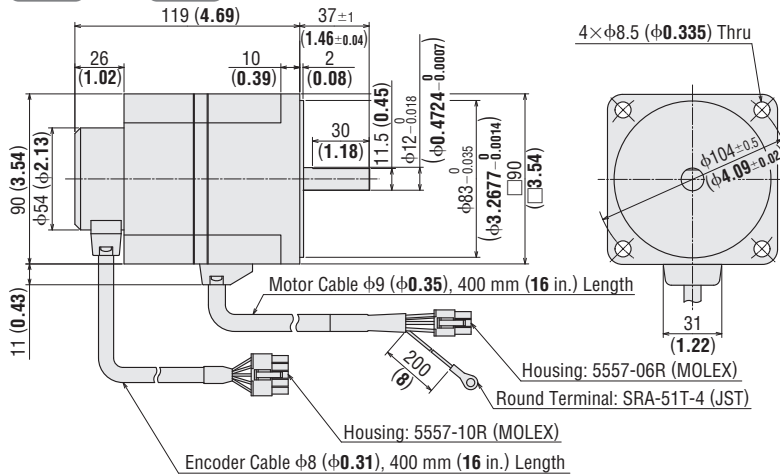


◇ Round Shaft Type

BXS5120AM-A-3, BXS5120CM-A-3

Motor: BXM5120M-A2

Mass: 2.2 kg (4.8 lb.)

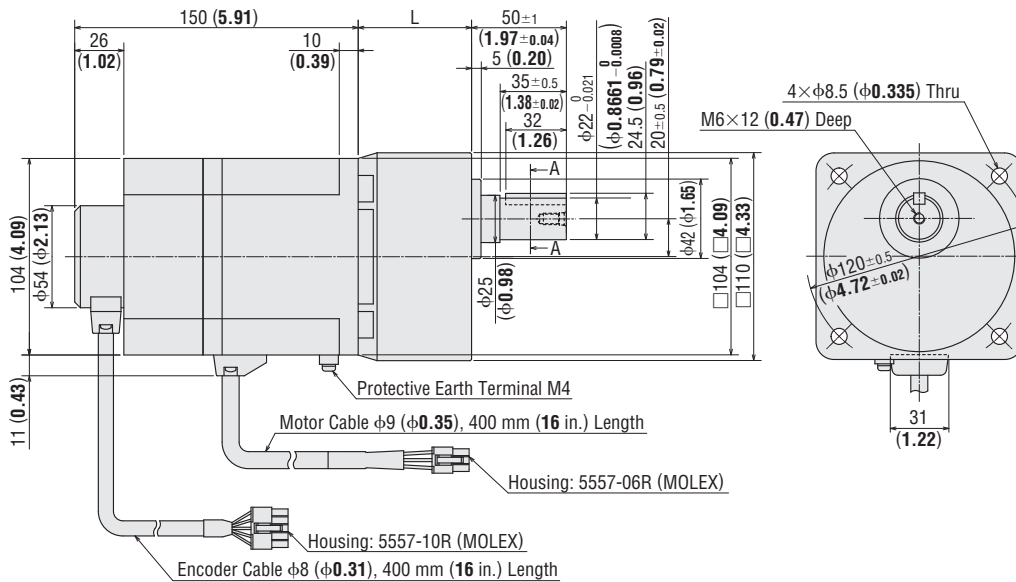
2D CAD C158 **3D CAD**

● Electromagnetic Brake Type 200 W (1/4 HP), 400 W (1/2 HP)

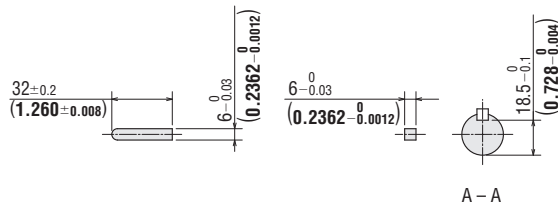
◇ Motor/Parallel Shaft Gearhead

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg (lb.)	2D CAD
BXS6200AM-□S-3, BXS6200CM-□S-3	BXM6200M-GFS	GFS6G□	5~20	60 (2.36)	6.5 (14)	C202A
			30, 50	72 (2.83)		C202B
BXS6400CM-□S-3	BXM6400M-GFS		100, 200	86 (3.39)		C202C



◇ Key and Key Slot (Included)



● At the time of shipment, a key is inserted on the gearhead's shaft.

Overview,
Product
SeriesBrushless
MotorsAC Input
BMUAC Input
BLEAC Input
BLFAC Input
BXIIDC Input
BLHAC Speed
Control
Motors

DSC

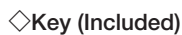
BHF

Accessories

Installation

2D & 3D CAD

Product Name	Motor Product Name	Gearhead Product Name	Mass kg (lb.)	2D CAD
BXS6200AM-□FR-3, BXS6200CM-□FR-3	BXM6200M-GFS	GFS6G□FR	8.3 (18.3)	C258
BXS6400CM-□FR-3	BXM6400M-GFS			



BXS6200AM-A-3, BXS6200CM-A-3, BXS6400CM-A-3

Mass: 3.5 kg (7.7 lb.)

2D CAD C184 3D CAD

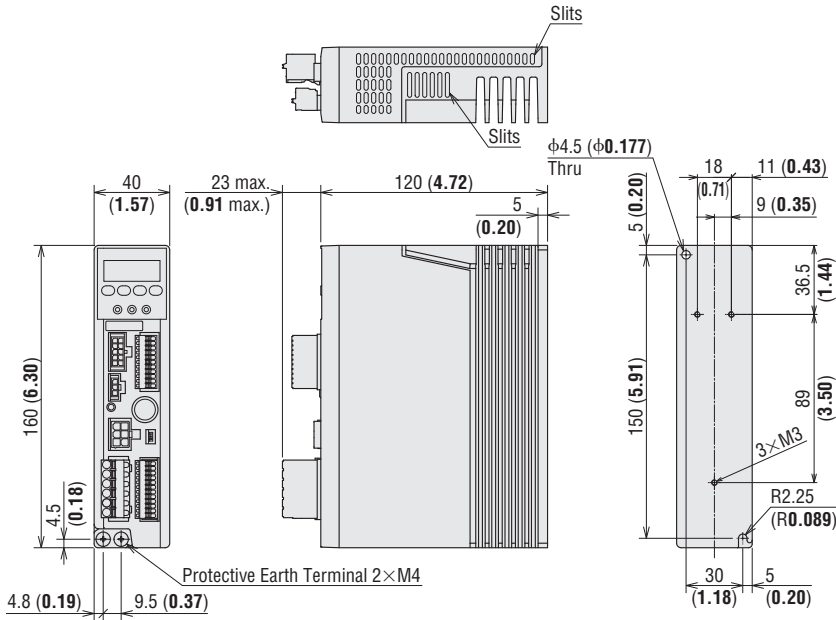


● Driver (Common to all types)

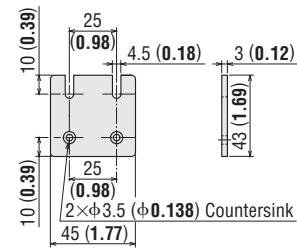
BXSD30-A, BXSD30-C, BXSD60-A, BXSD60-C, BXSD120-A, BXSD120-C, BXSD200-A, BXSD200-C, BXSD400-C

Mass: 0.8 kg (1.76 lb.)

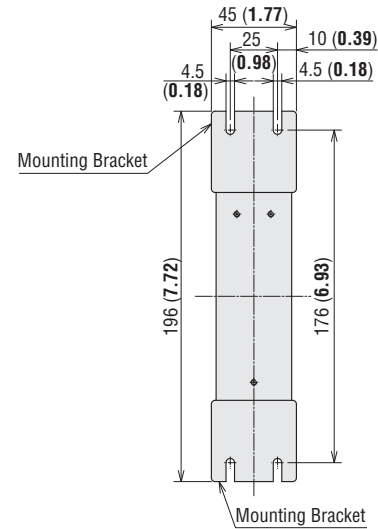
2D CAD C259 3D CAD



◇ Driver Mounting Bracket (A set of 2 pieces)



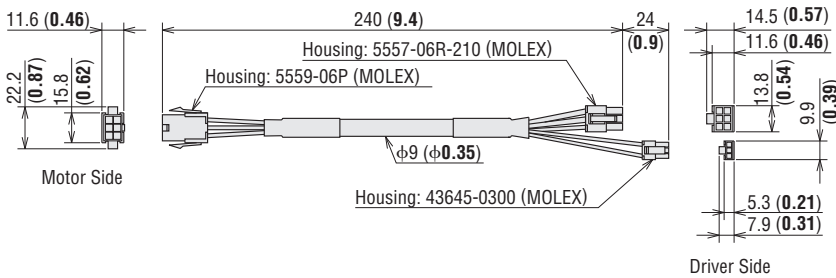
● When the driver mounting brackets are attached



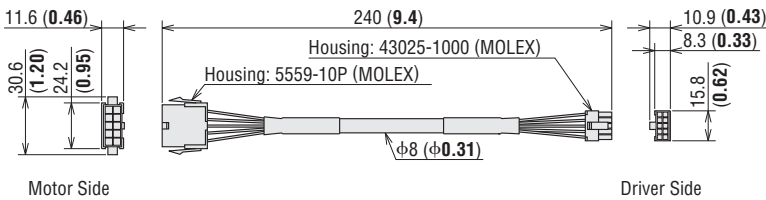
◇ Conversion Cables (Included)

2 cables, one for the motor and one for the encoder, come as a set.

● For Motor

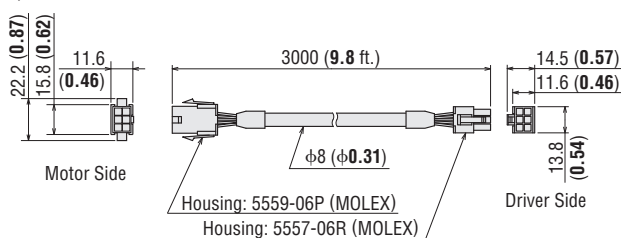


● For Encoder

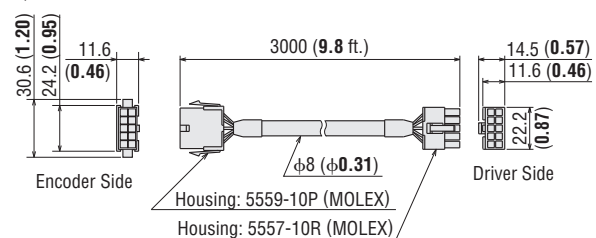


● Connection Cable (Included)

◇ For Motor



◇ For Encoder



Overview,
Product
Series

Brushless
Motors

AC Input
BMU

AC Input
BLE

AC Input
BLF

AC Input
BXII

DC Input
BLH

AC Speed
Control
Motors

DSC

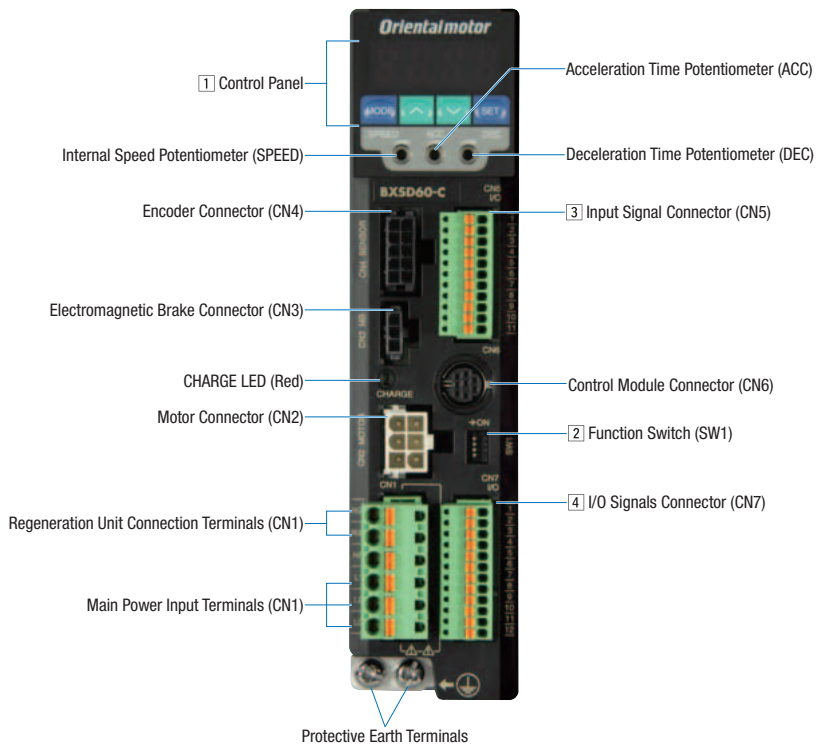
BHF

Accessories

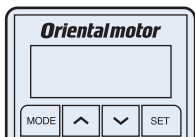
Installation

Connection and Operation

Names and Functions of Driver Parts



1 Control Panel



MODE Key: Changes the operating mode

↑ ↓ Key: Changes the setting value

SET Key: Sets the data

Operating Mode	Details	
	Speed Control	Position Control
Monitoring	Speed, Load Factor, Operation Number, Alarm Code, Warning Code, I/O Monitor, Control Mode	Speed, Position, Load Factor, Operation Number, Selection Number, Alarm Code, Warning Code, I/O Monitor, Control Mode
Data	Data No. 0~15 (16 points) Operating Speed, Torque Limit, Acceleration Time, Deceleration Time, Data Clear	Data No. 0~15 (16 points) Operating Mode, Position, Operating Speed, Operation Function, Sequential Positioning, Torque Limiting, Acceleration Time, Deceleration Time, Data Clear
Parameters	Sets various parameters	
Tests	I/O test, JOG Operation, Data No. Selection Operation, Teaching	I/O test, JOG Operation, Data No. Selection Operation, Return-to-Home Operation, Position Preset, Teaching

2 Function Switch (SW1)

No.	Function	
1	Switching between speed control mode and position control mode ON: Position control mode OFF: Speed control mode	Factory setting: OFF
2	Setting the BX compatibility mode When ON, the BX Series' I/O signal and contents can be combined.	Factory setting: OFF
3	Not used	
4	Selecting the power supply for input signals (built-in or external)	Factory setting: OFF (external)



3 Input Signals Connector (CN5, 11 pins)

•For Speed Control Mode

Pin No.	Signal Name	Function
1	IN-COM0	Input signal common
2	IN0	FWD Rotation in FWD direction/deceleration stop
3	IN1	RVS Rotation in RVS direction/deceleration stop
4	IN2	M0
5	IN3	M1
6	IN4	M2
7	IN5	FREE Motor excitation cancellation, electromagnetic brake release
8	IN6	STOP Instantaneous stop when input during motor operation
9	IN7	ALM-RST Alarm cancellation
10	IN8	Not used (functions can be extended)
11	IN-COM1	Input signal common (0 V)

•For Position Control Mode

Pin No.	Signal Name	Function
1	IN-COM0	Input signal common
2	IN0	HOME Return-to-home operation start
3	IN1	START Positioning operation start
4	IN2	M0
5	IN3	M1
6	IN4	M2
7	IN5	FREE Motor excitation cancellation, electromagnetic brake release
8	IN6	STOP Instantaneous stop when input during motor operation
9	IN7	ALM-RST Alarm cancellation
10	IN8	HOMES Mechanical home sensor
11	IN-COM1	Input signal common (0 V)

● The functions allocated to IN0~IN8 are the initial values. The contents can be changed with the parameters.

4 I/O Signals Connector (CN7, 12 pins)

•For Speed Control Mode

Pin No.	Signal Name	Function	
1	VH	External analog setting input Connect when controlling with PAVR-20KZ or external DC voltage.	
2	VM		
3	VL		
4	OUT0+	ALM	Output when an alarm is generated
5	OUT0—		
6	OUT1+	MOVE	Output when the motor is operating
7	OUT1—		
8	OUT2+	WNG	Output when a warning is generated
9	OUT2—		
10	ASG	A-phase output	
11	BSG	B-phase output	
12	OUT-COM	Common for ASG/BSG	

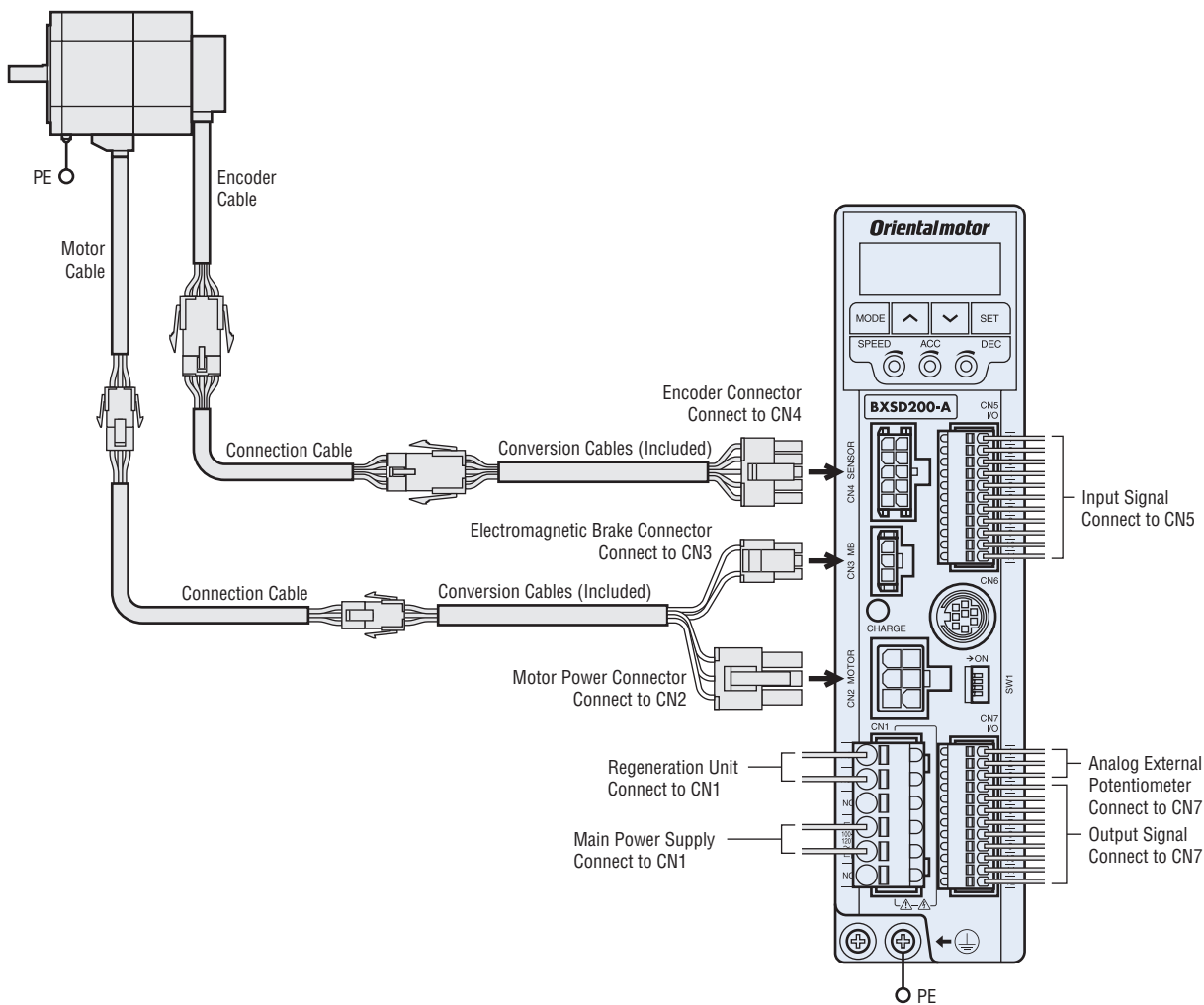
● The functions allocated to OUT0~OUT2 are the initial values. The contents can be changed with the parameters.

•For Position Control Mode

Pin No.	Signal Name	Function	
1	VH	External analog setting input Connect when controlling with PAVR-20KZ or external DC voltage.	
2	VM		
3	VL		
4	OUT0+	ALM	Output when an alarm is generated
5	OUT0—		
6	OUT1+	READY	Output when operation preparations are completed
7	OUT1—		
8	OUT2+	HOME-P	Output during home detection
9	OUT2—		
10	ASG	A-phase output	
11	BSG	B-phase output	
12	OUT-COM	Common for ASG/BSG	

● Connection Diagram

◇ Connection Example



Note

- Always use the included conversion cable when connecting the motor.
- Always connect the electromagnetic brake connector to CN3 regardless of whether or not there is an electromagnetic brake.

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AC Speed
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Motors

DSC

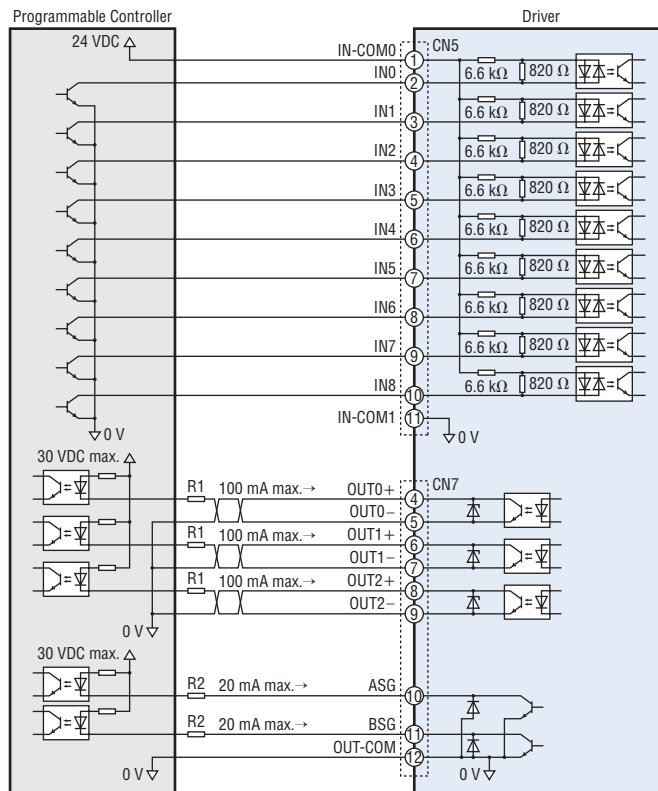
BHF

Accessories

Installation

◇ Connection to Programmable Controller

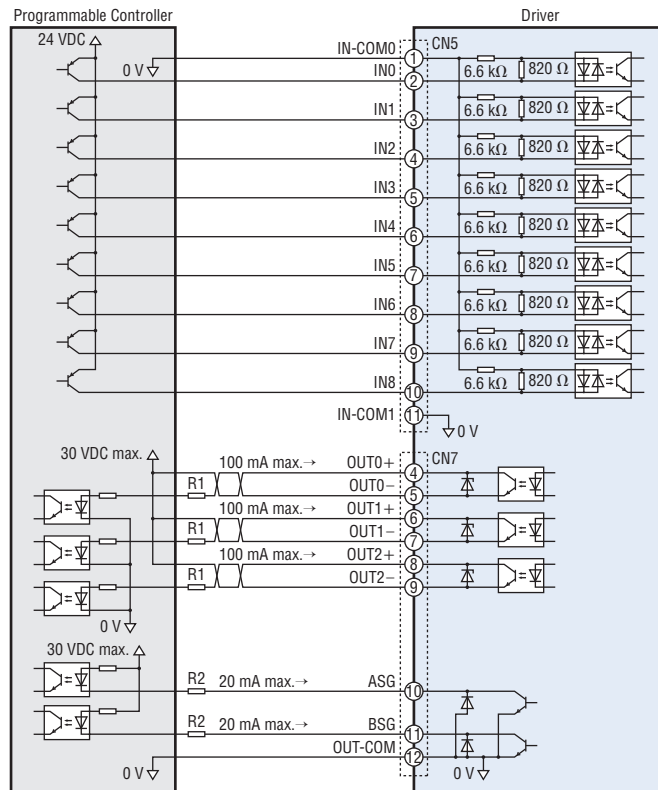
● Sink Logic



Note

- Use output signals 30 VDC or less.
- Always connect a current limiting resistor R1 to OUT0~OUT2 and keep the current at 100 mA or less.
- Always connect a current limiting resistor R2 to ASG and BSG and keep the current at 20 mA or less.

● Source Logic



Note

- Use output signals 30 VDC or less.
- Always connect a current limiting resistor R1 to OUT0~OUT2 and keep the current at 100 mA or less.
- Always connect a current limiting resistor R2 to ASG and BSG and keep the current at 20 mA or less. ASG and BSG are not compatible with source logic.

Motor and Driver Combinations

● Standard Type

◇ Combination Type with a Parallel Shaft Gearhead

The combination type comes with the motor and parallel shaft gearhead pre-assembled.

Output Power	Product Name	Motor Product Name	Gearhead Product Name	Driver Product Name
30 W (1/25 HP)	BXS230A-□S-3	BXM230-GFS	GFS2G□	BXSD30-A
	BXS230C-□S-3			BXSD30-C
60 W (1/12 HP)	BXS460A-□S-3	BXM460-GFS	GFS4G□	BXSD60-A
	BXS460C-□S-3			BXSD60-C
120 W (1/6 HP)	BXS5120A-□S-3	BXM5120-GFS	GFS5G□	BXSD120-A
	BXS5120C-□S-3			BXSD120-C
200 W (1/4 HP)	BXS6200A-□S-3	BXM6200-GFS	GFS6G□	BXSD200-A
	BXS6200C-□S-3			BXSD200-C
400 W (1/2 HP)	BXS6400C-□S-3	BXM6400-GFS		BXSD400-C

◇ Combination Type with a Hollow Shaft Flat Gearhead

The combination type comes with the motor and hollow shaft flat gearhead pre-assembled.

Output Power	Product Name	Motor Product Name	Gearhead Product Name	Driver Product Name
30 W (1/25 HP)	BXS230A-□FR-3	BXM230-GFS	GFS2G□FR	BXSD30-A
	BXS230C-□FR-3			BXSD30-C
60 W (1/12 HP)	BXS460A-□FR-3	BXM460-GFS	GFS4G□FR	BXSD60-A
	BXS460C-□FR-3			BXSD60-C
120 W (1/6 HP)	BXS5120A-□FR-3	BXM5120-GFS	GFS5G□FR	BXSD120-A
	BXS5120C-□FR-3			BXSD120-C
200 W (1/4 HP)	BXS6200A-□FR-3	BXM6200-GFS	GFS6G□FR	BXSD200-A
	BXS6200C-□FR-3			BXSD200-C
400 W (1/2 HP)	BXS6400C-□FR-3	BXM6400-GFS		BXSD400-C

● Electromagnetic Brake Type

◇ Combination Type with a Parallel Shaft Gearhead

The combination type comes with the motor and parallel shaft gearhead pre-assembled.

Output Power	Product Name	Motor Product Name	Gearhead Product Name	Driver Product Name
30 W (1/25 HP)	BXS230AM-□S-3	BXM230M-GFS	GFS2G□	BXSD30-A
	BXS230CM-□S-3			BXSD30-C
60 W (1/12 HP)	BXS460AM-□S-3	BXM460M-GFS	GFS4G□	BXSD60-A
	BXS460CM-□S-3			BXSD60-C
120 W (1/6 HP)	BXS5120AM-□S-3	BXM5120M-GFS	GFS5G□	BXSD120-A
	BXS5120CM-□S-3			BXSD120-C
200 W (1/4 HP)	BXS6200AM-□S-3	BXM6200M-GFS	GFS6G□	BXSD200-A
	BXS6200CM-□S-3			BXSD200-C
400 W (1/2 HP)	BXS6400CM-□S-3	BXM6400M-GFS		BXSD400-C

◇ Combination Type with a Hollow Shaft Flat Gearhead

The combination type comes with the motor and hollow shaft flat gearhead pre-assembled.

Output Power	Product Name	Motor Product Name	Gearhead Product Name	Driver Product Name
30 W (1/25 HP)	BXS230AM-□FR-3	BXM230M-GFS	GFS2G□FR	BXSD30-A
	BXS230CM-□FR-3			BXSD30-C
60 W (1/12 HP)	BXS460AM-□FR-3	BXM460M-GFS	GFS4G□FR	BXSD60-A
	BXS460CM-□FR-3			BXSD60-C
120 W (1/6 HP)	BXS5120AM-□FR-3	BXM5120M-GFS	GFS5G□FR	BXSD120-A
	BXS5120CM-□FR-3			BXSD120-C
200 W (1/4 HP)	BXS6200AM-□FR-3	BXM6200M-GFS	GFS6G□FR	BXSD200-A
	BXS6200CM-□FR-3			BXSD200-C
400 W (1/2 HP)	BXS6400CM-□FR-3	BXM6400M-GFS		BXSD400-C

◇ Round Shaft Type

Output Power	Product Name	Motor Product Name	Driver Product Name
30 W (1/25 HP)	BXS230A-A-3	BXM230-A2	BXSD30-A
	BXS230C-A-3		BXSD30-C
60 W (1/12 HP)	BXS460A-A-3	BXM460-A2	BXSD60-A
	BXS460C-A-3		BXSD60-C
120 W (1/6 HP)	BXS5120A-A-3	BXM5120-A2	BXSD120-A
	BXS5120C-A-3		BXSD120-C
200 W (1/4 HP)	BXS6200A-A-3	BXM6200-A	BXSD200-A
	BXS6200C-A-3		BXSD200-C
400 W (1/2 HP)	BXS6400C-A-3	BXM6400-A	BXSD400-C

◇ Round Shaft Type

Output Power	Product Name	Motor Product Name	Driver Product Name
30 W (1/25 HP)	BXS230AM-A-3	BXM230M-A2	BXSD30-A
	BXS230CM-A-3		BXSD30-C
60 W (1/12 HP)	BXS460AM-A-3	BXM460M-A2	BXSD60-A
	BXS460CM-A-3		BXSD60-C
120 W (1/6 HP)	BXS5120AM-A-3	BXM5120M-A2	BXSD120-A
	BXS5120CM-A-3		BXSD120-C
200 W (1/4 HP)	BXS6200AM-A-3	BXM6200M-A	BXSD200-A
	BXS6200CM-A-3		BXSD200-C
400 W (1/2 HP)	BXS6400CM-A-3	BXM6400M-A	BXSD400-C

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

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