

Orientalmotor

Brushless Motor and Driver Packages

BXII Series

Capable of Speed Control, Position Control and Torque Limiting
World-Class Brushless Motors



The highest standard speed control motors – **BXII** Series.

It provides the speed control, position control, torque limiting and other extended functions.

High performance and ease of use at an affordable price.



BXII Series

Speed control, position control and torque limiting work exactly as a servo motor.

- Speed Range 2~4000 r/min
- Speed Regulation $\pm 0.05\%$
- Built-in position function
- 16 position data
- Torque limiting

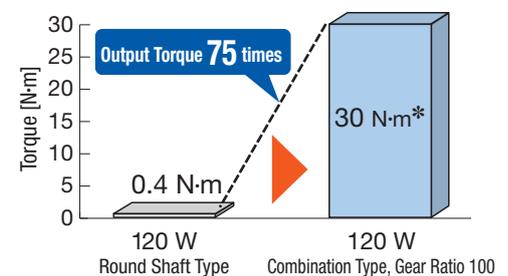
Ease of use and high reliability realized at an affordable price

- Digital setting and operation
- Alarm function
- Lineup 30~400 W

Benefits of Brushless Motors

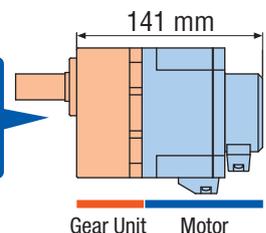
Torque increased when gear head is attached

By combining with the parallel shaft gearhead, the torque can be increased easily as an AC motor. It is still slim and compact, even if gears are equipped. Being a combination type with preassembled motor and gear, installation to the equipment is simple and no worries of damaging the shaft.



● For 120 W motors

Slim and Compact
Even if gears are equipped
Overall Length **141 mm**



Capable of Driving Large Inertial Loads

Since the motor is constructed to accommodate large rotor inertia, therefore no adjustment is needed even when load inertia is large.

● 200 W, 400 W motor parallel shaft gearhead
Gear ratio 200

Maximum Permissible Load Inertia $37000^* \times 10^{-4} \text{ kg}\cdot\text{m}^2$



* The value changes at instantaneous stop and instantaneous bi-directional operation.

Stable Motor Operation

Flutter characteristics showing the speed fluctuation of the motor*, actual power equivalent to the servo motor.

Effective value: Approx. 0.1%

(Reference value at rated speed)

* Flutter Characteristics

Even if the motor is set to operate at a certain constant speed, the actual speed has little fluctuations against the set speed. The fluctuation in speed is called flutter.

Speed control, position control and torque limiting work exactly as a servo motor.
Improved function and performance achieved at an affordable price.

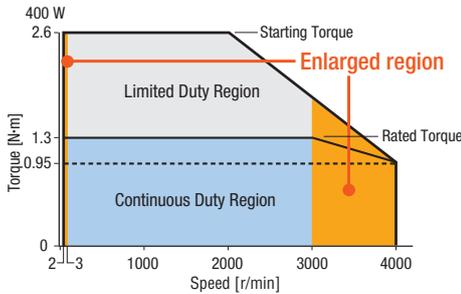
Speed Control

Highest standard of speed control contributing to improved tact time

Maximum speed 4000 r/min,
Speed ratio 1:2000
(Twice the conventional model)

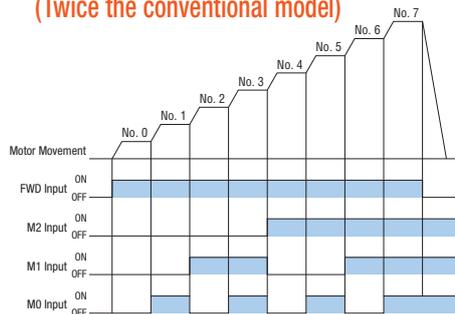
BXII Series achieves 2~4000 r/min
(For digital setting*) The speed range has been substantially expanded.

*30~4000 r/min for analog setting.



Speed selection according to the load and tact time

Speed can be set in up to 16 different speeds.
(Twice the conventional model)



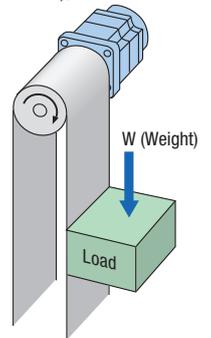
Minimal influence from external environment enabling smooth operations

Speed regulation: $\pm 0.05\%$
(Load, voltage, temperature)

Simple speed control for vertical operation

The electromagnetic brake type motor enables stable speed control during vertical operation (hoisting operation). The electromagnetic brake is automatically controlled via the driver in accordance with ON/OFF of the operation command signal. When the power supply is turned off (or when a power failure occurs), the motor stops instantly to hold the load in place.

- During vertical operation, regenerative energy is produced, therefore a separately-sold regeneration unit is necessary.



Position Control

With built-in positioning function

Positioning operation is possible using the driver alone. No need for a control module.

Conventional Model
BX Series

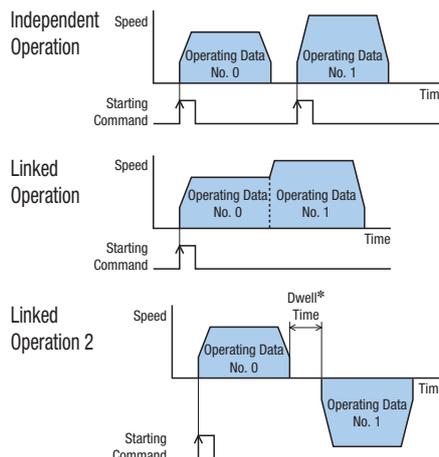


BXII Series



Wide variety of positioning operations

- Operating data can be set in up to 16 points (10 points more than the conventional model.)
- There are 3 types of operation functions: independent operation, linked operation, and linked operation 2.

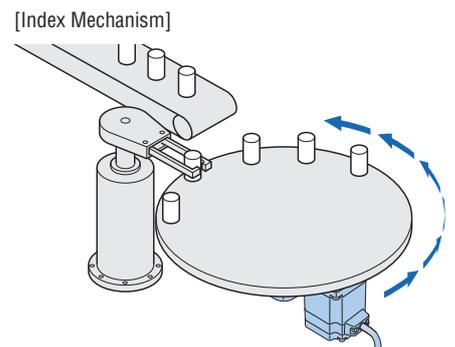


*Dwell time is the waiting time for the next positioning operation to start.

Continuous rotational operation can be in the same direction

If the command position exceeds the "round setting range" parameters, the command position and various rotation data can be returned to 0. Since various rotation data also return to 0, continuous rotational operation in the same direction is possible.

Applications with continuous operation in the same direction



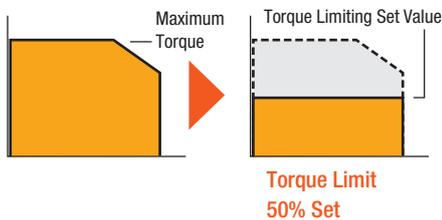
BXII Series



Torque Limiting

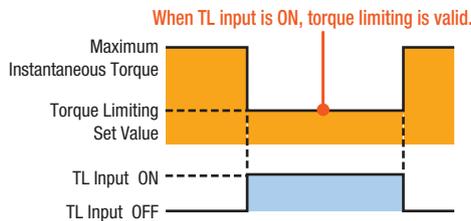
What is torque limiting function?

The setting range for the motor maximum torque at 0~250% can be limited in 1% increments. Depending on the conditions, motor torque can be controlled for safety, and the product can be used according to your desired application.



Moreover, with BXII Series...

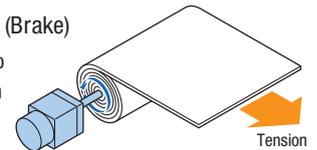
- Improved torque limiting accuracy
BXII Approx. $\pm 10\%$ (At rated torque)
- Torque Limiting ON/OFF can be switched over via external signals (TL input)



Applications using torque limiting

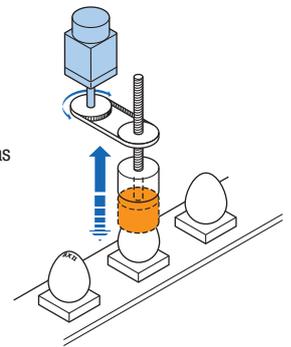
● Tensioning (Brake)

Used as Brake to Produce Tension



● Pushing

Used for press applications such as for printing



Price

Even with improved functions and performance, the price is similar to conventional models.

Oriental Motor conventional model
BX Series
60 W motor
Combination type,
Parallel-shaft
gearhead
Gear ratio 30



Oriental Motor Conventional Model **BX Series**

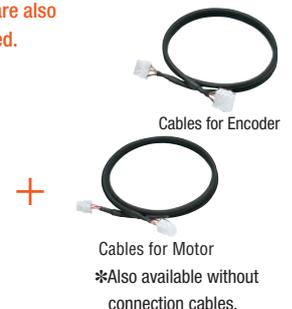
BXII Series
60 W motor
Combination type,
Parallel-shaft
gearhead
Gear ratio 30



BXII Series

Digital setting is possible with the driver alone
The functions are also largely improved.

Connection cable not included*



● For price and lead time please contact the nearest Oriental Motor office, or visit our website.

New Functions

Teaching Function

Teaching can be done using control module **OPX-2A** (Sold separately) at the driver panel or data setting software **MEXE02***. Move the load to the target position, and the position data can be stored as the positioning data.



Control Module
OPX-2A
(Sold separately)

*You may download the Data Setting Software from website, or send a CD-ROM request to us. For details, please contact the nearest Oriental Motor sales office.

Test Operation Function (JOG operation)

The connection can be confirmed by simply connecting the motor and the driver, and turning the power on.

Return-To-Home Operation

A function where P-PRESET is input at the desired position to confirm the home position. The home position can be set with any value and an external sensor is not required.

With the enhanced of slim and compact driver, digital setting and operation are available. Improvement to user-friendly and reliability performance is now available in full lineup.

User Friendly

Simple Data Setting

Digital setting and operation using the operating panel of the driver. Speed, load factor, current position, operation number and other information are displayed.

The control module **OPX-2A** (Sold separately) can also be used for remote setting.



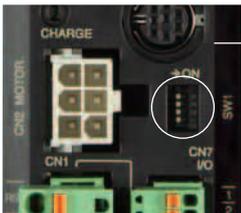
Indication at a load factor of 50%

With a simple operation of the switch the control mode is changed

Speed control, positioning control,

BX-compatible* (Speed control),

BX-compatible* (Positioning control) can be changed easily.



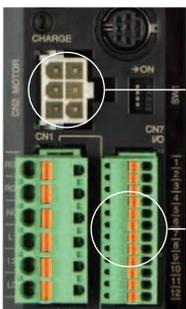
Can be switched over easily

*Usable at almost the same environments as the **BX** Series conventional model

Simple Wiring

● Since the I/O connector has become screwless, welding and special crimp tools are not necessary.

● Motor connectors and encoder connectors can be connected easily.



Motor Connector Easy Connection

I/O Connector
Insert the lead wire while pushing the orange button with a screwdriver.

Effective Utilization of Installation Space

With an optimal positioning of the built-in components in the driver, compactness and slimness are achieved. Close contact installation of multiple units, reducing the installation space and enabling more shafts at the same space are available.

Slim and compact driver

Installation area
6400 mm²

Volume ratio to conventional model
Approx. **5%** decreased



Multiple units are installed in close contact with each other

BXII Series Driver

40 mm



200 mm

Installation width
38% decrease

Conventional Model

BX Series Driver

45 mm 25 mm



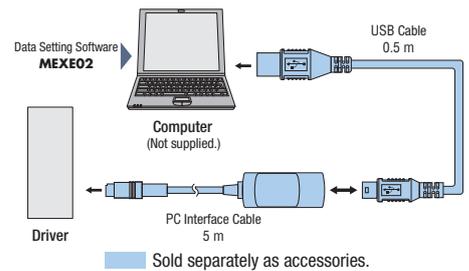
325 mm

Easy data editing and monitoring

The data setting software (**MEXEO2**) is downloadable from the Oriental Motor website and is also available in CD-ROM (for free). This software is compatible with Windows 7, Vista, XP, 2000, and can perform I/O and speed waveform monitoring, as well as data editing.

● The data setting software can be downloaded from the following URL.

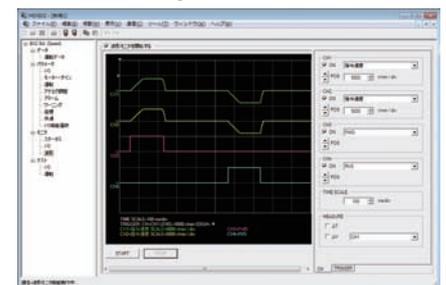
<https://www.orientalmotor.com.sg/service/software/d/mexe02/>



■ Sold separately as accessories.

* To connect to a computer, you need to install a dedicated device driver.

Waveform Monitoring



BXII Series



Reliability

Alarm Warning Function

The alarm (protective function) and the warning (warning function) preceding the alarm quickly respond if a problem occurs.

Display Example	Alarm	Warning
· Overflow	10	10
· Overvoltage	22	22
· Overload	30	30



Alarm Code
10 Indication



Warning code
10 Indication

Highly accurate return-to-home

ZSG signals are output for every rotation of the motor. By synchronizing with the external sensor, a more accurate return-to-home is possible.

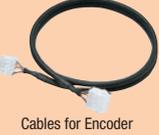
Sink/Source logic selectable

With the external controller matched, sink/source logic can be changed via the switch in the driver.

Lineup

These products support the voltage specifications used around the world.

- Expanded range of voltage specifications 115 VAC (Conventional model) → 120 VAC, 230 VAC (Conventional model) → 240 VAC
- Single-Phase 200 VAC specification added for 400 W Output Power

Motor Type	Package				
	Frame Size	Output Power	Driver	Power Supply Voltage	Connection Cable
 Round Shaft Type	60 mm	30 W		Single-Phase 100-120 VAC Single-Phase 200-240 VAC Three-Phase 200-240 VAC	 Cables for Motor
	80 mm	60 W			
 Combination Type (Parallel shaft gear)	90 mm	120 W			
	104 mm	200 W			
		400 W			
 Combination Type (Hollow Shaft Flat Gear)				 Cables for Encoder 1 m, 2 m, 3 m or not included	

● For each type, models with electromagnetic brakes are also available.

- Extendable up to 30 m by using together with the accessory cable.

Hollow Shaft Flat Gear

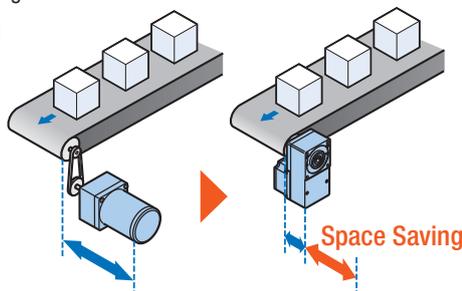
High Permissible Torque, Long Life

High permissible torque and long life are achieved through improved gear case rigidity and larger diameters for gears and bearings. A rated life of 10000 hours* is achieved.

* 5000 hours for 200 W and 400 W

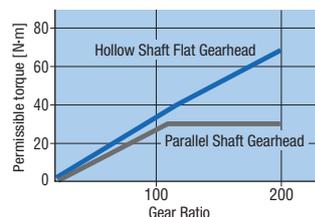
Space Saving

Direct connection to the drive shaft is possible without using a connecting part, resulting in space savings for equipment.



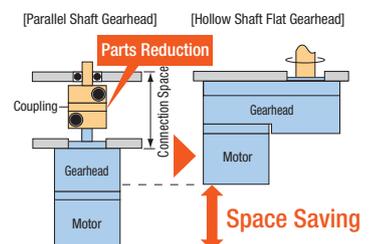
Permissible Torque without Saturation

The hollow shaft flat gearhead enables permissible torque without saturation even at high gear ratios. The motor torque can be fully utilized.



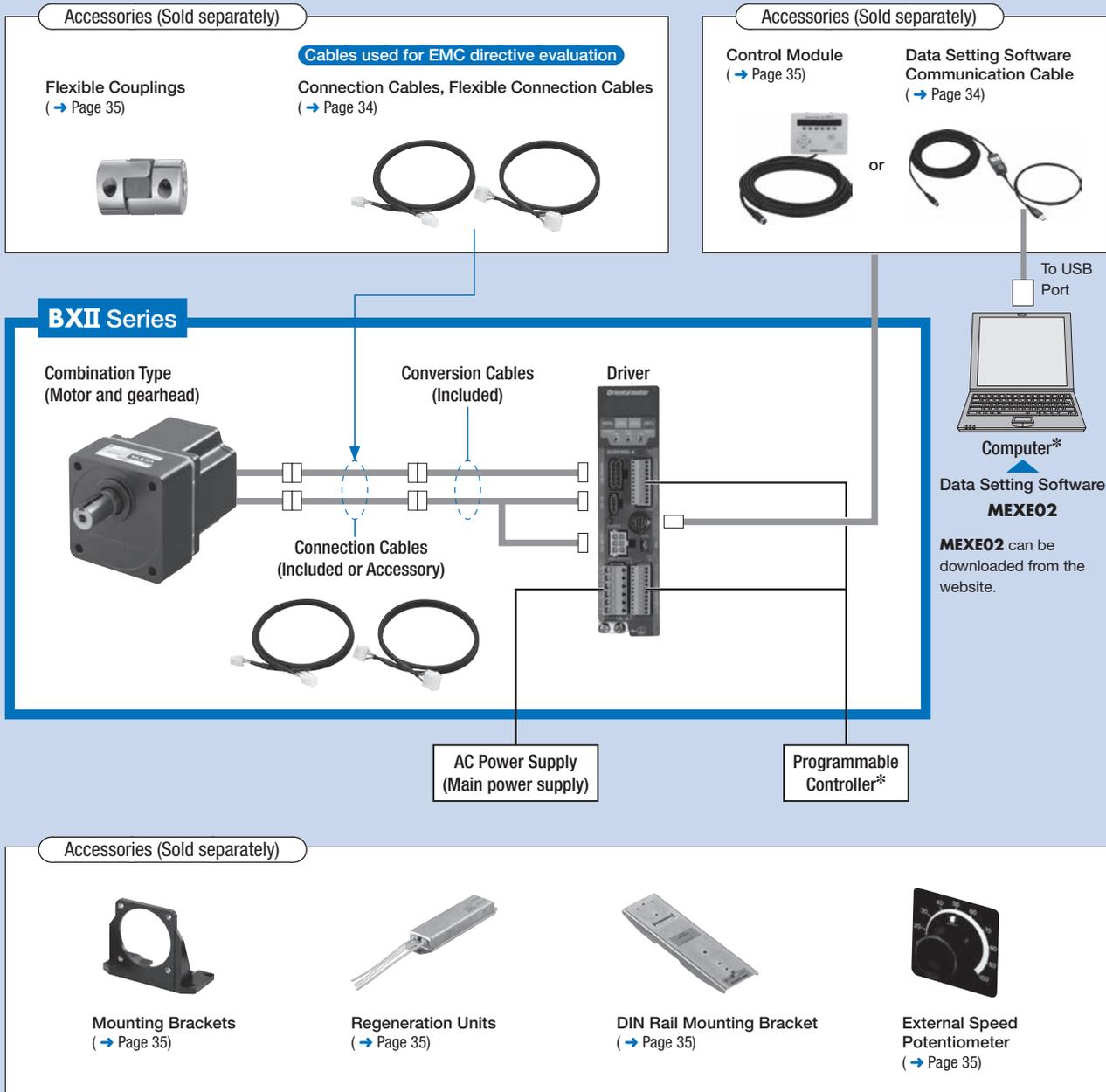
Low Cost

Eliminating parts like the coupling or the belt-and-pulley also decreases parts cost and labor.



System Configuration

*Not supplied.



● User's Manuals that describe the operating methods for these products are available. For details, please contact the nearest Oriental Motor sales office, or download from the Oriental Motor website. <http://www.orientalmotor.com.sg/>

System Configuration Example

BXII Series Combination Type – Parallel Shaft BXS6200A-50S-3	+	Sold Separately		
		Connection Cable (7 m) CC07SBF	Mounting Bracket SOL6M8	Flexible Coupling MCL652222

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

Product Number Code

BXS 6 200 A M - 10 S - 1

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series Name	BXS: BXII Series
②	Motor Frame Size	2: 60 mm 4: 80 mm 5: 90 mm 6: 104 mm (110 mm for gearhead)
③	Output Power (W)	30: 30 W 60: 60 W 120: 120 W 200: 200 W 400: 400 W
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/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 Length (Included)	-1: 1 m -2: 2 m -3: 3 m None: Connection cable not included

● Examples of product names that indicate connection cable availability and length
 3 m connection cable included → **BXS6200AM-10S-3**
 Connection cable not included → **BXS6200AM-10S**

Product Line

Combination Type

The combination type comes with the motor and its dedicated gearhead pre-assembled. This simplifies mounting in the equipment. Motors and gearheads are also available separately to facilitate changes in motor and gearhead combinations and if spare gearheads are required.

Standard Type

◇ Combination Type – Parallel Shaft Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio
30 W	BXS230A-□S◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460A-□S◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120A-□S◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200A-□S◇	5, 10, 15, 20 30, 50 100, 200

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

Output Power	Product Name	Gear Ratio
30 W	BXS230C-□S◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460C-□S◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120C-□S◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200C-□S◇	5, 10, 15, 20 30, 50 100, 200
400 W	BXS6400C-□S◇	5, 10, 15, 20 30, 50 100, 200

The following items are included in each product.

● Combination Type – Parallel Shaft Gearhead

Motor, gearhead, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), installation screws, parallel key, operating manual

*Only with types supplied with a connection cable

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

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

◇ Combination Type – Hollow Shaft Flat Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio
30 W	BXS230A-□FR ◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460A-□FR ◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120A-□FR ◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200A-□FR ◇	10, 15, 20 30, 50, 100

◇ Round Shaft Type

● Single-Phase 100-120 VAC

Output Power	Product Name
30 W	BXS230A-A ◇
60 W	BXS460A-A ◇
120 W	BXS5120A-A ◇
200 W	BXS6200A-A ◇

● Electromagnetic Brake Type

◇ Combination Type – Parallel Shaft Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio
30 W	BXS230AM-□S ◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460AM-□S ◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120AM-□S ◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200AM-□S ◇	5, 10, 15, 20 30, 50 100, 200

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

Output Power	Product Name	Gear Ratio
30 W	BXS230C-□FR ◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460C-□FR ◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120C-□FR ◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200C-□FR ◇	10, 15, 20 30, 50, 100
400 W	BXS6400C-□FR ◇	5, 10, 15, 20 30, 50, 100

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

Output Power	Product Name
30 W	BXS230C-A ◇
60 W	BXS460C-A ◇
120 W	BXS5120C-A ◇
200 W	BXS6200C-A ◇
400 W	BXS6400C-A ◇

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

Output Power	Product Name	Gear Ratio
30 W	BXS230CM-□S ◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460CM-□S ◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120CM-□S ◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200CM-□S ◇	5, 10, 15, 20 30, 50 100, 200
400 W	BXS6400CM-□S ◇	5, 10, 15, 20 30, 50 100, 200

The following items are included in each product.

● Combination Type – Parallel Shaft Gearhead

Motor, gearhead, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), installation screws, parallel key, operating manual

● Combination Type – Hollow Shaft Flat Gearhead

Motor, gearhead, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), installation screws, parallel key, safety cover (with screws), operating manual

● Round Shaft Type

Motor, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), operating manual

*Only with types supplied with a connection cable

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

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

◇ Combination Type – Hollow Shaft Flat Gearhead

● Single-Phase 100-120 VAC

Output Power	Product Name	Gear Ratio
30 W	BXS230AM-□FR◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460AM-□FR◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120AM-□FR◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200AM-□FR◇	10, 15, 20 30, 50, 100

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

Output Power	Product Name	Gear Ratio
30 W	BXS230CM-□FR◇	5, 10, 15, 20 30, 50, 100 200
60 W	BXS460CM-□FR◇	5, 10, 15, 20 30, 50, 100 200
120 W	BXS5120CM-□FR◇	5, 10, 15, 20 30, 50, 100 200
200 W	BXS6200CM-□FR◇	10, 15, 20 30, 50, 100
400 W	BXS6400CM-□FR◇	5, 10, 15, 20 30, 50, 100

◇ Round Shaft Type

● Single-Phase 100-120 VAC

Output Power	Product Name
30 W	BXS230AM-A◇
60 W	BXS460AM-A◇
120 W	BXS5120AM-A◇
200 W	BXS6200AM-A◇

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

Output Power	Product Name
30 W	BXS230CM-A◇
60 W	BXS460CM-A◇
120 W	BXS5120CM-A◇
200 W	BXS6200CM-A◇
400 W	BXS6400CM-A◇

The following items are included in each product.

● Combination Type – Hollow Shaft Flat Gearhead

Motor, gearhead, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), installation screws, parallel key, safety cover (with screws), operating manual

● Round Shaft Type

Motor, driver, conversion cable, connection cable*, CN1 connector, CN5 connector, CN7 connector, driver mounting bracket (with screws), operating manual

*Only with types supplied with a connection cable

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

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

Product Name	Standard	Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
		Combination Type	Round Shaft Type	Combination Type	Round Shaft Type
With Electromagnetic Brake	Single-Phase 100-120 VAC	Combination Type	BXS230A -□□◇	BXS460A -□□◇	BXS5120A -□□◇
		Round Shaft Type	BXS230A -A◇	BXS460A -A◇	BXS5120A -A◇
	Single-Phase/Three-Phase 200-240 VAC	Combination Type	BXS230C -□□◇	BXS460C -□□◇	BXS5120C -□□◇
		Round Shaft Type	BXS230C -A◇	BXS460C -A◇	BXS5120C -A◇
	Single-Phase 100-120 VAC	Combination Type	BXS230AM -□□◇	BXS460AM -□□◇	BXS5120AM -□□◇
		Round Shaft Type	BXS230AM -A◇	BXS460AM -A◇	BXS5120AM -A◇
Single-Phase/Three-Phase 200-240 VAC	Combination Type	BXS230CM -□□◇	BXS460CM -□□◇	BXS5120CM -□□◇	
	Round Shaft Type	BXS230CM -A◇	BXS460CM -A◇	BXS5120CM -A◇	
Rated Output Power (Continuous)		W	30	60	120
Rated Speed		r/min	3000		
Rated Torque		N·m	0.1	0.2	0.4
Maximum Instantaneous Torque		N·m	0.2	0.4	0.8
Rotor Inertia		J: ×10 ⁻⁴ kg·m ²	0.087	0.24	0.63
Round Shaft Type Permissible Inertia		J: ×10 ⁻⁴ kg·m ²	1.5	3	6
Speed Control Mode	Speed Control Range		Digital setting: 2~4000 r/min (1:2000) Analog setting: 30~4000 r/min (1:133)		
	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 Ambient temperature 0~+50°C, at rated speed, with no load, at rated voltage		
Torque Limiting Value Setting Range		0~250%			
Position Control Mode	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 (1:2000)		
	Torque Limiting Value 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%		
	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
	Maximum 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	
Electromagnetic Brake*2	Type		Active when the power is off, automatically controlled by the driver		
	Static Friction Torque N·m		0.1	0.2	0.4
	Gravitational Operation Capability*3	Continuous Regenerative Power W	100		
		Instantaneous Regenerative Power W	240		
		Applicable Regeneration Unit	EPRC-400P (Accessory)		

*1 Specification for analog setting

*2 Specification for products with electromagnetic brake

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

*3 Value when a regeneration unit is used.

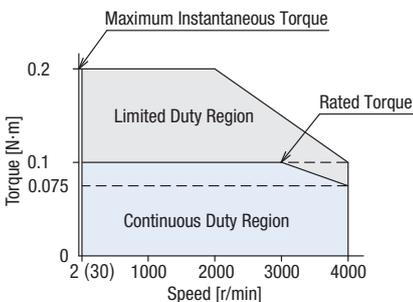
Install the regeneration unit at a location that has the same heat radiation capability as an aluminum heat sink that is 350×350 mm and 3 mm thick.

Speed – Torque Characteristics

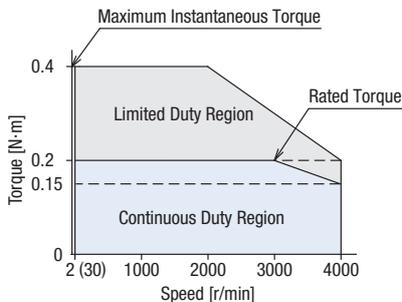
Continuous Duty Region : Continuous operation is possible in this region.

Limited Duty Region : Region mainly used during acceleration. 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.

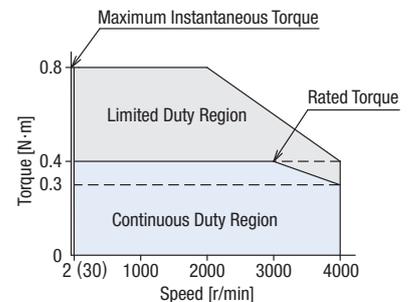
30 W



60 W



120 W



● For the Speed Control Mode, the speed setting method can change the speed control range. For the Position Control Mode, the setting is done digitally.

Digital setting: 2~4000 r/min

Analog setting: 30~4000 r/min

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

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

To indicate the combination type, either **S** (for parallel shaft gearhead) or **FR** (for hollow shaft flat gearheads) is entered in the box □ within the product name.

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

Product Name	Standard	Single-Phase 100-120 VAC		Single-Phase/Three-Phase 200-240 VAC	
		Combination Type	Round Shaft Type	Combination Type	Round Shaft Type
With Electromagnetic Brake		Combination Type	BXS6200A-□□◇	-	
		Round Shaft Type	BXS6200A-A◇	-	
		Combination Type	BXS6200C-□□◇	BXS6400C-□□◇	
		Round Shaft Type	BXS6200C-A◇	BXS6400C-A◇	
		Combination Type	BXS6200AM-□□◇	-	
		Round Shaft Type	BXS6200AM-A◇	-	
	Combination Type	BXS6200CM-□□◇	BXS6400CM-□□◇		
	Round Shaft Type	BXS6200CM-A◇	BXS6400CM-A◇		
Rated Output Power (Continuous)		W	200	400	
Rated Speed		r/min	200		3000
Rated Torque		N·m	0.65	1.3	
Maximum Instantaneous Torque		N·m	1.3	2.6	
Rotor Inertia		J: $\times 10^{-4}$ kg·m ²	0.66		
Round Shaft Type Permissible Inertia		J: $\times 10^{-4}$ kg·m ²	10	17.5	
Speed Control Mode	Speed Control Range		Digital setting: 2~4000 r/min (1:2000) Analog setting: 30~4000 r/min (1:133)		
	Speed Regulation	Load	$\pm 0.05\%$ or less: Conditions 0 ~ rated torque, rated speed, rated voltage, normal temperature		
		Voltage	$\pm 0.05\%$ or less: Conditions Rated voltage $-15\sim+10\%$, rated speed, no load, normal temperature		
		Temperature	$\pm 0.05\%$ ($\pm 0.5\%$)*1 or less: Conditions Ambient temperature $0\sim+50^{\circ}\text{C}$, at rated speed, with no load, at rated voltage		
Torque Limiting Value Setting Range		0~250%			
Position Control Mode	Traveling Amount Setting Range		$-8,388,608\sim+8,388,607$ step		
	Resolution		0.72° (1 rotation: 500 pulses)		
	Speed Setting Range		Digital setting: 2~4000 r/min (1:2000)		
	Torque Limiting Value Setting Range		0~250%		
Power Supply Input	Rated Voltage		Single-Phase 100-120 VAC $-15\sim+10\%$ Single-Phase 200-240 VAC $-15\sim+10\%$ Three-Phase 200-240 VAC $-15\sim+10\%$	Single-Phase 200-240 VAC $-15\sim+10\%$ Three-Phase 200-240 VAC $-15\sim+10\%$	
	Frequency		50/60 Hz $\pm 5\%$		
	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	
	Maximum 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		
Electromagnetic Brake*2	Type		Active when the power is off, automatically controlled by the driver		
	Static Friction Torque N·m		0.65	1.3	
	Gravitational Operation Capability*3	Continuous Regenerative Power W	100		
		Instantaneous Regenerative Power W	800		
		Applicable Regeneration Unit	RGB100 (Accessory)		

*1 Specification for analog setting

*2 Specification for products with electromagnetic brake

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

*3 Value when a regeneration unit is used.

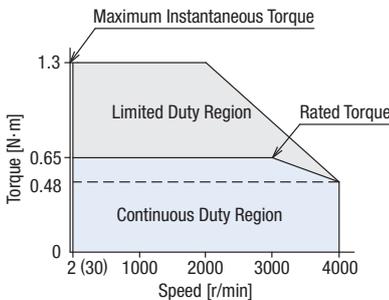
Install the regeneration unit at a location that has the same heat radiation capability as an aluminum heat sink that is 350×350 mm and 3 mm thick.

Speed – Torque Characteristics

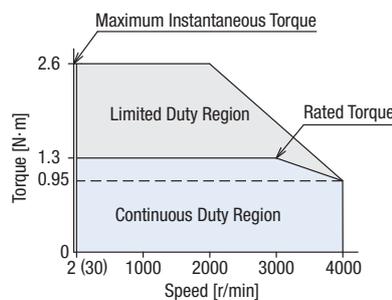
Continuous Duty Region : Continuous operation is possible in this region.

Limited Duty Region : Region mainly used during acceleration. 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



400 W



● For the Speed Control Mode, the speed setting method can change the speed control range. For the Position Control Mode, the setting is done digitally.

Digital setting: 2~4000 r/min

Analog setting: 30~4000 r/min

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

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

To indicate the combination type, either **S** (for parallel shaft gearhead) or **FR** (for hollow shaft flat gearheads) is entered in the box □ within the product name.

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

Vertical Operation (Gravitational operation)

The **BXII** Series achieves stable speed control during gravitational operation. During vertical drive (gravitational 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	Applicable Product	Continuous Regenerative Power	Instantaneous Regenerative Power
EPRC-400P	BXS230 (Rated output power 30 W)	100 W	240 W
	BXS460 (Rated output power 60 W)		
	BXS5120 (Rated output power 120 W)		
RGB100	BXS6200 (Rated output power 200 W)	100 W	800 W
	BXS6400 (Rated output power 400 W)		

● Attach the regeneration unit to a location that has the same heat radiation capability as an aluminum heat radiation plate that is 350×350 mm and 3 mm thick.

● Regenerative Power

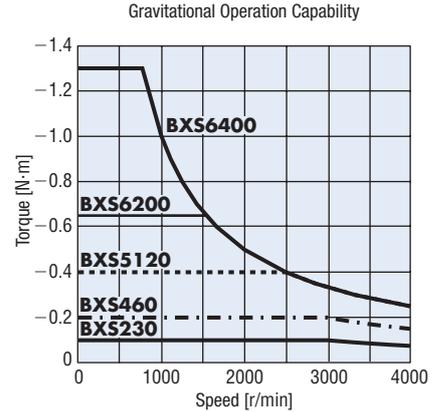
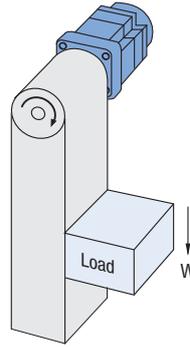
The regenerative power can be estimated using the formula below. Use the calculated value as a guideline.

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

T_L : Load torque N : Speed

● Use the electromagnetic brake type for gravitational operation.

● Gravitational Operation Capability



● Gravitational operation exceeding the range of continuous regeneration capability will trigger the built-in thermal protector (150°C) of the regeneration unit.

Common Specifications

Item	Speed Control Mode	Position Control Mode
Input Signals	Photocoupler Input Mode Input resistance: 6.6 kΩ Operation due to internal power supply: 5 VDC Connectable External DC Power Supply: 24 VDC -15~+20% Current 100 mA or more Sink input/Source input Supplied through external wiring	
	Signals can be assigned randomly to IN0~IN8 Input (9 points) []: Initial Setting [FWD], [RVS], [MO], [M1], [M2], M3, [FREE], [STOP], [ALM-RST], TH, TL, S-ON, HMI, [Not used]	Signals can be assigned randomly to IN0~IN8 Input (9 points) []: Initial Setting [START], [MO], [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 Current 100 mA or less Sink output/Source output Supplied through external wiring	
	Signals can be assigned randomly to OUT0~OUT2 Input (3 points) []: Initial Setting [ALM], [WNG], [MOVE], END, TLC, VA, ZSG	Signals can be assigned randomly to OUT0~OUT2 Input (3 points) []: Initial Setting [ALM], WNG, MOVE, [READY], [HOME-P], END, TLC, VA, ZSG
	Transistor/Open Collector Output Power External Power Supply: 4.5~30 VDC Current 20 mA or less ASG, BSG 500 pulses/1 rotation	
Protective Functions	When the following protective functions operate, the ALM output is turned off, and the motor is stopped. At the same time, the alarm code is indicated in the operating panel. Overflow, overcurrent, overvoltage, undervoltage, overload, overspeed, EEPROM failure, initial sensor failure, initial operation inhibited, overheating of regeneration unit, software overtravel, operating data problem	
Maximum Extension Distance	Motor and Driver Distance: 30 m (Accessory connection cable 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	Set in either of the following methods. • Operating Panel • MEXE02* • OPX-2A (Accessory)	Set in either of the following methods. (Digital settings only for Operating data No.2~15) • Operating data No.0: Internal Speed Potentiometer (SPEED) • Operating data No.1: PAVR-20KZ (Accessory) or External analog setting with 0~10 VDC external DC voltage
Acceleration/deceleration time	0.000~30.00 s (Rated speed, no load running)	0.1~30 s (Rated speed, no load running)
Setting method for acceleration/deceleration time	Set in either of the following methods. (Individual settings) • Operating Panel • MEXE02* • OPX-2A (Accessory)	Once set, the specified acceleration and deceleration time applies to operating data No. 0 and No. 1. • Acceleration time potentiometer (ACC) • Deceleration time potentiometer (DEC)
Torque Limiting Value Setting Range	0~250%	
Torque Limiting Setting Methods	Set in either of the following methods. • Operating Panel • MEXE02* • OPX-2A (Accessory)	Torque limiting applies to all operating data. • PAVR-20KZ (Accessory) or External analog setting with 0~10 VDC external DC voltage
Number of Operating Data Settings	16 Points	
The Operation When Motor is Stopped	Operations can be selected when the motor is stopped. • Motor Non-excitation (Initial setting)/• Position Holding by Servo Control stopped (Motor excitation)	
Other Operations	JOG operation, test operation, teaching (Excluding MEXE02*)	

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

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/1 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, Sending in order, Direct
	Acceleration/deceleration time	0.000~30.00 s (Rated speed, no load running)
	Torque Limiting Value Setting Range	0~250%
	Number of Operating Data Settings	16 Points
Operating data setting method	Set in either of the following settings. <ul style="list-style-type: none"> Operating Panel · MEXE02* · OPX-2A (Accessory) (External analog settings can also be done for torque limiting only.)	
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 **CC051F-USB** (accessory) is required.

Torque Limiting Function

Setting the limit for the motor output torque is possible during the Speed Control Mode and Position Control Mode.

Item	Specifications
Torque Limiting Setting Methods	Select one of the following methods. <ul style="list-style-type: none"> Digital Independent Torque Setting: A torque limiting value can be set independently for each of the 16 data sets. External Analog One-time Setting: Arbitrary setting on PAVR-20KZ (accessory) or by external DC voltage (0~10 VDC) This torque limiting value applies to all operation data.
Torque Limiting Value Setting Range*	Assuming that the rated torque of the motor is 100%, torque limiting values can be set by one of the following: <ul style="list-style-type: none"> Digital Setting: 0~250% (set in 1% increments) External analog setting: 0~250% settings using PAVR-20KZ (Accessory) or 0~10 VDC external DC voltage

*Do not apply a load that exceeds the instantaneous maximum torque.

Note

- An error up to approximately ±10% (at rated torque and rated speed) may occur between the set 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 MΩ 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 MΩ or more when 500 VDC megger is applied between the power supply terminal and the protective earth terminal, and between the power supply terminal and the I/O signal terminal after continuous operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz applied between the windings and the case for 1 minute after continuous operation under normal ambient temperature and humidity. (Except for the encoder)	No abnormality is judged even with application of 1.5 kVAC at 50 Hz between the power supply terminal and the protective earth terminal, and with application of 1.5 kVAC at 50 Hz between the power supply terminal and the I/O signal terminal, for 1 minute after continuous operation under normal ambient temperature and humidity.
Temperature Rise	The maximum temperature rise of the windings is 50°C and that of the case is 40°C*1 when measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity.	Temperature rise of the heat sink is 50°C or less measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity. (60°C or less for close-contact installation for 200 W and 400 W types)
Operating Environment*2	Ambient Temperature	0~+50°C (non-freezing)
	Ambient Humidity	85% or less (non-condensing)
	Altitude	Maximum of 1,000 m above sea level
	Atmosphere	No corrosive gases or dust. Cannot be used in a radioactive area, magnetic field, vacuum, or other special environments.
Storage Conditions*3	Ambient Temperature	-20~+60°C (non-freezing)
	Ambient Humidity	85% or less (non-condensing)
	Altitude	3,000 m or less 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, attach to a heat sink (material: aluminum) of one of the following sizes to keep the motor case surface temperature from exceeding 90°C.

30 W Type: 115×115 mm and 5 mm thick, 60 W Type: 135×135 mm and 5 mm thick, 120 W Type: 165×165 mm and 5 mm thick,
 200 W Type: 200×200 mm and 5 mm thick, 400 W Type: 250×250 mm and 6 mm thick

*2 Install the driver at a location with a heat-releasing capacity equivalent or greater than an aluminum metal plate.

Single installation 200×200 mm and 2 mm thick
 Close-contact installation 350×350 mm and 2 mm thick

200 W, 400 W Type: When using a driver mounting bracket and DIN rail mounting bracket (Accessory), the load factor is 90% or less.

*3 The storage condition applies to a short period such as a period during transportation.

Note

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

Permissible Torque of Combination Type

Combination Type – Parallel Shaft Gearhead

Unit: N·m

Product Name	Gear Ratio		5	10	15	20	30	50	100	200
	Motor shaft speed									
BXS230	2~3000 r/min		0.45	0.9	1.4	1.8	2.6	4.3	6	6
	4000 r/min		0.34	0.68	1	1.4	1.9	3.2	5.4	5.4
BXS460	2~3000 r/min		0.9	1.8	2.7	3.6	5.2	8.6	16	16
	4000 r/min		0.68	1.4	2	2.7	3.9	6.5	12.9	14
BXS5120	2~3000 r/min		1.8	3.6	5.4	7.2	10.3	17.2	30	30
	4000 r/min		1.4	2.7	4.1	5.4	7.7	12.9	25.8	27
BXS6200	2~3000 r/min		2.9	5.9	8.8	11.7	16.8	28	52.7	70
	4000 r/min		2.2	4.3	6.5	8.6	12.4	20.6	38.9	63
BXS6400	2~3000 r/min		5.9	11.7	17.6	23.4	33.5	55.9	70	70
	4000 r/min		4.3	8.6	12.8	17.1	24.5	40.9	63	63

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

Combination type – Hollow Shaft Flat Gearhead

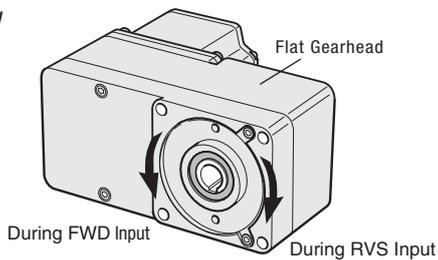
Unit: N·m

Product Name	Gear Ratio		5	10	15	20	30	50	100	200
	Motor shaft speed									
BXS230	2~3000 r/min		0.4	0.85	1.3	1.7	2.6	4.3	8.5	17
	4000 r/min		0.3	0.64	0.96	1.3	1.9	3.2	6.4	12.8
BXS460	2~3000 r/min		0.85	1.7	2.6	3.4	5.1	8.5	17	34
	4000 r/min		0.64	1.3	1.9	2.6	3.8	6.4	12.8	25.5
BXS5120	2~3000 r/min		1.7	3.4	5.1	6.8	10.2	17	34	68
	4000 r/min		1.3	2.6	3.8	5.1	7.7	12.8	25.5	51
BXS6200	2~3000 r/min		–	5.5	8.3	11.1	16.6	27.6	55.3	–
	4000 r/min		–	4.1	6.1	8.2	12.2	20.4	40.8	–
BXS6400	2~3000 r/min		5.5	11.1	16.6	22.1	33.2	55.3	110	–
	4000 r/min		4	8.1	12.1	16.2	24.2	40.4	80.8	–

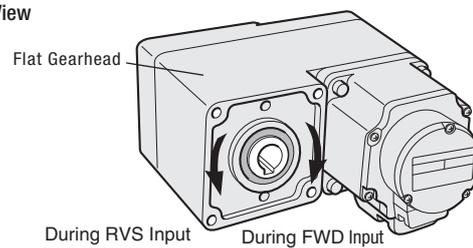
◇ Rotation Direction of Hollow Shaft Flat Gearhead

The combination type – hollow shaft flat gearhead output shaft rotates in the direction as shown below in relation to the rotation direction input from the driver.

Front View



Rear View



Output shaft speed of the combination type

Unit: r/min

Gear Ratio		5	10	15	20	30	50	100	200
Motor shaft speed									
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 Load Inertia J of Combination Types

Combination Type – Parallel Shaft Gearhead

Unit: $\times 10^{-4}$ kg·m²

Product Name \ Gear Ratio		5	10	15	20	30	50	100	200
BXS230		12	50	110	200	370	920	2500	5000
	When instantaneous stop or instantaneous bi-directional operation is performed*	1.55	6.2	14	24.8	55.8	155	155	155
BXS460		22	95	220	350	800	2200	6200	12000
	When instantaneous stop or instantaneous bi-directional operation is performed*	5.5	22	49.5	88	198	550	550	550
BXS5120		45	190	420	700	1600	4500	12000	25000
	When instantaneous stop or instantaneous bi-directional operation is performed*	25	100	225	400	900	2500	2500	2500
BXS6200 BXS6400		100	460	1000	1700	3900	9300	18000	37000
	When instantaneous stop or instantaneous bi-directional operation is performed*	50	200	450	800	1800	5000	5000	5000

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

Combination Type – Hollow Shaft Flat Gearhead

Unit: $\times 10^{-4}$ kg·m²

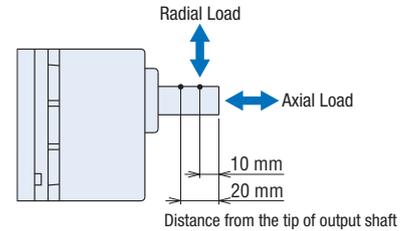
Product Name \ Gear Ratio		5	10	15	20	30	50	100	200
BXS230		12	50	110	200	370	920	2500	5000
	When instantaneous stop or instantaneous bi-directional operation is performed*	1.55	6.2	14	24.8	55.8	155	155	155
BXS460		22	95	220	350	800	2200	6200	12000
	When instantaneous stop or instantaneous bi-directional operation is performed*	5.5	22	49.5	88	198	550	550	550
BXS5120		45	190	420	700	1600	4500	12000	25000
	When instantaneous stop or instantaneous bi-directional operation is performed*	25	100	225	400	900	2500	2500	2500
BXS6200		–	460	1000	1700	3900	9300	18000	–
	When instantaneous stop or instantaneous bi-directional operation is performed*	–	200	450	800	1800	5000	5000	–
BXS6400		100	460	1000	1700	3900	9300	18000	–
	When instantaneous stop or instantaneous bi-directional operation is performed*	50	200	450	800	1800	5000	5000	–

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

■ Permissible Radial Load/Permissible Axial Load

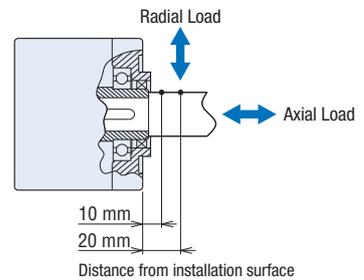
● Combination Type – Parallel Shaft Gearhead

Product Name	Gear Ratio		Permissible Radial Load N		Permissible Axial Load N
			Distance from the tip of output shaft		
			10 mm	20 mm	
BXS230	5	2~3000 r/min	100	150	40
		4000 r/min	90	110	
	10, 15, 20	2~3000 r/min	150	200	
		4000 r/min	130	170	
	30, 50, 100, 200	2~3000 r/min	200	300	
		4000 r/min	180	230	
BXS460	5	2~3000 r/min	200	250	100
		4000 r/min	180	220	
	10, 15, 20	2~3000 r/min	300	350	
		4000 r/min	270	330	
	30, 50, 100, 200	2~3000 r/min	450	550	
		4000 r/min	420	500	
BXS5120	5	2~3000 r/min	300	400	150
		4000 r/min	230	300	
	10, 15, 20	2~3000 r/min	400	500	
		4000 r/min	370	430	
	30, 50, 100, 200	2~3000 r/min	500	650	
		4000 r/min	450	550	
BXS6200 BXS6400	5, 10, 15, 20	2~3000 r/min	550	800	200
		4000 r/min	500	700	
	30, 50	2~3000 r/min	1000	1250	300
		4000 r/min	900	1100	
	100, 200	2~3000 r/min	1400	1700	400
		4000 r/min	1200	1400	



● Combination Type – Hollow Shaft Flat Gearhead

Product Name	Gear Ratio		Permissible Radial Load N		Permissible Axial Load N
			Distance from the gearhead installation surface		
			10 mm	20 mm	
BXS230	5, 10	2~3000 r/min	450	370	200
		4000 r/min	410	330	
	15, 20, 30, 50, 100, 200	2~3000 r/min	500	400	
		4000 r/min	460	370	
BXS460	5, 10	2~3000 r/min	800	660	400
		4000 r/min	730	600	
	15, 20, 30, 50, 100, 200	2~3000 r/min	1200	1000	
		4000 r/min	1100	910	
BXS5120	5, 10	2~3000 r/min	900	770	500
		4000 r/min	820	700	
	15, 20	2~3000 r/min	1300	1110	
		4000 r/min	1200	1020	
	30, 50, 100, 200	2~3000 r/min	1500	1280	
		4000 r/min	1400	1200	
BXS6200 BXS6400	5*, 10	2~3000 r/min	1230	1070	800
		4000 r/min	1130	990	
	15, 20	2~3000 r/min	1680	1470	
		4000 r/min	1550	1360	
	30, 50, 100	2~3000 r/min	2040	1780	
		4000 r/min	1900	1660	



*For 400 W Type only

● Round Shaft Type

Product Name	Permissible Radial Load N		Permissible Axial Load
	Distance from the tip of output shaft		
	10 mm	20 mm	
BXS230	87.2	107	Half of motor mass or less
BXS460	117	137	
BXS5120	156	176	
BXS6200	197	221	
BXS6400			

Dimensions (Unit mm)

● Mounting screws are included with the combination type.

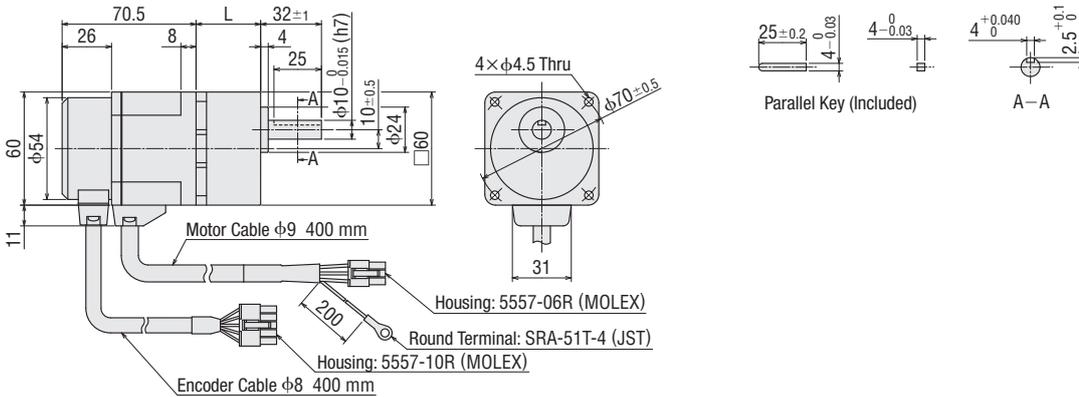
● A number indicating the gear ratio is specified in the box □ in the product name.

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

Standard Type 30 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS230A -□S◇ BXS230C -□S◇	BXM230-GFS	GFS2G□	5, 10, 15, 20	34	1.2	C147A
			30, 50, 100	38		C147B
			200	43		C147C



◇ Motor/Hollow Shaft Flat Gearhead

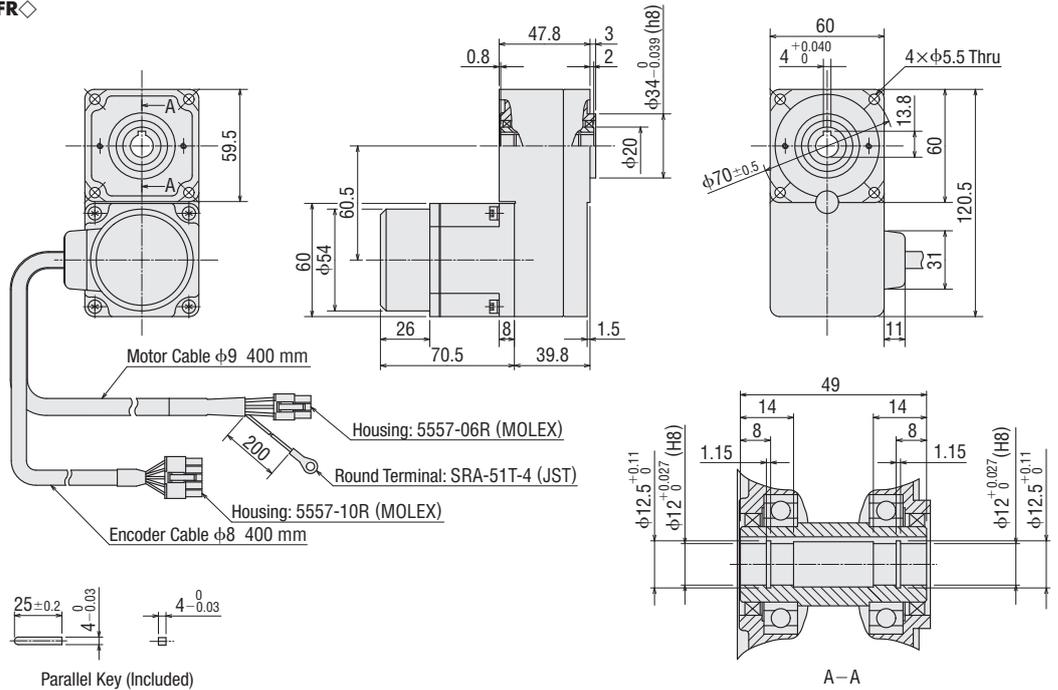
BXS230A-□FR◇, **BXS230C**-□FR◇

Motor: BXM230-GFS

Gearhead: GFS2G□FR

Mass: 1.5 kg

CAD C195



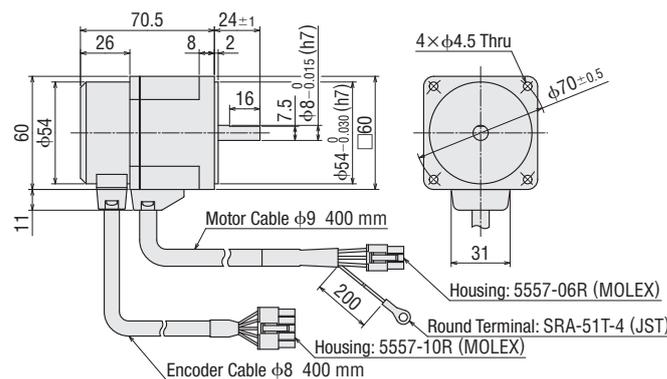
◇ Round Shaft Type

BXS230A-A◇, **BXS230C**-A◇

Motor: BXM230-A2

Mass: 0.7 kg

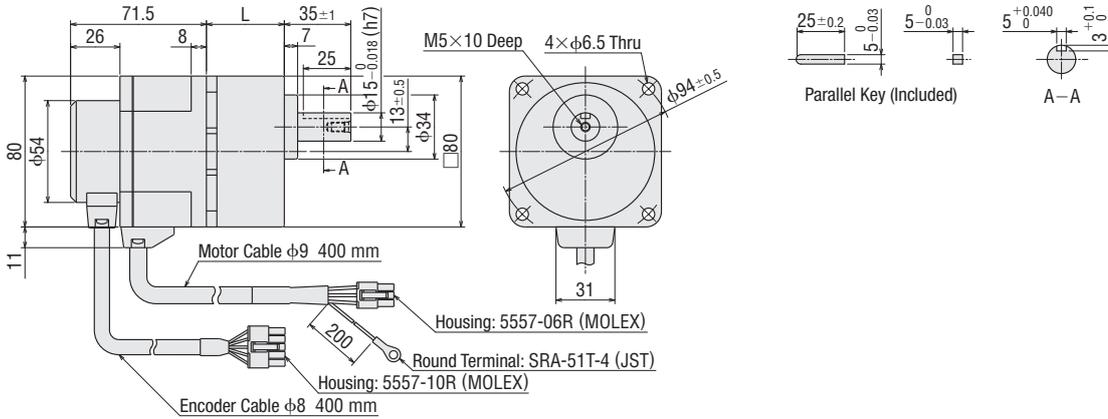
CAD C150



● Standard Type 60 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS460A -□S◇ BXS460C -□S◇	BXM460-GFS	GFS4G□	5, 10, 15, 20	41	2.0	C148A
			30, 50, 100	46		C148B
			200	51		C148C



◇ Motor/Hollow Shaft Flat Gearhead

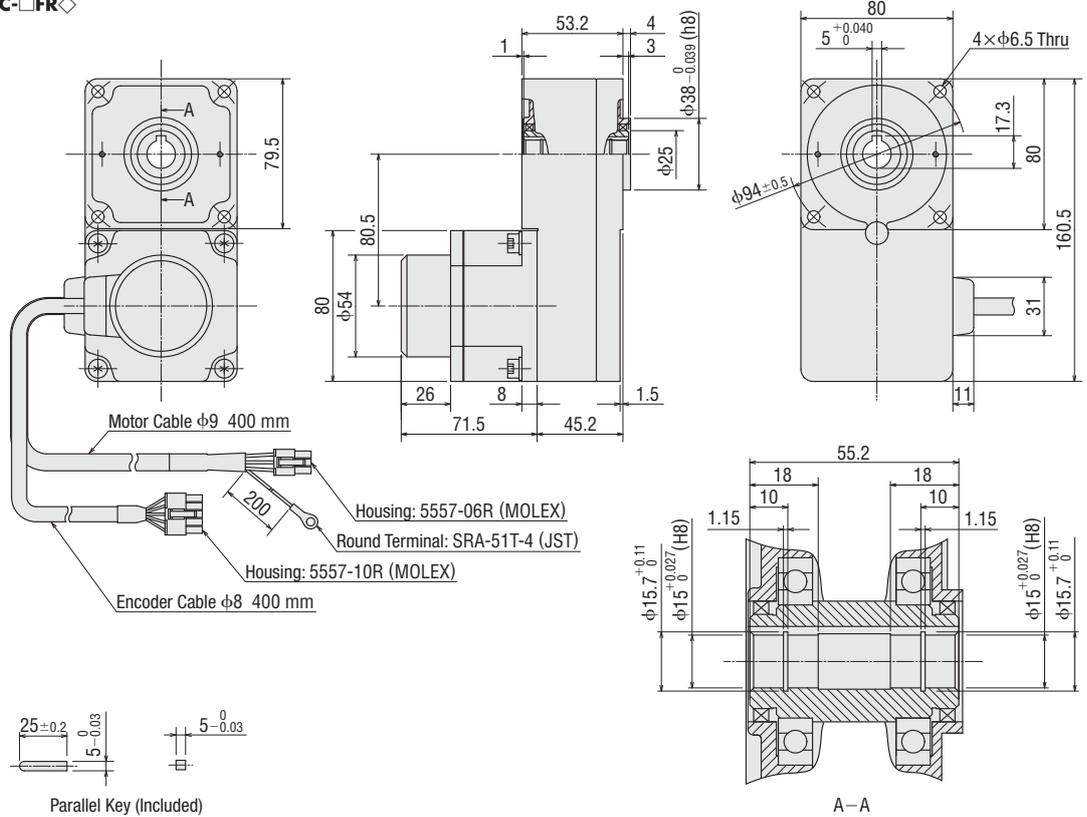
BXS460A-□FR◇, **BXS460C**-□FR◇

Motor: BXM460-GFS

Gearhead: GFS4G□FR

Mass: 2.6 kg

CAD C196



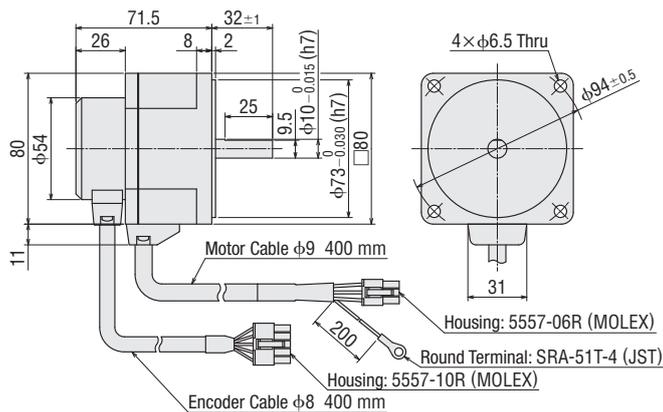
◇ Round Shaft Type

BXS460A-A◇, **BXS460C**-A◇

Motor: BXM460-A2

Mass: 1.0 kg

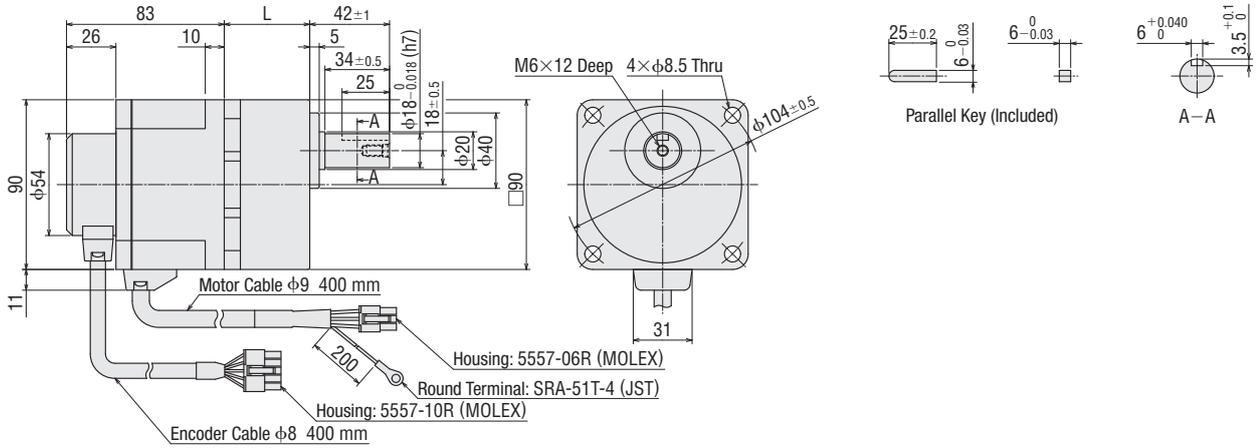
CAD C151



● Standard Type 120 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS5120A-□S ◇ BXS5120C-□S ◇	BXM5120-GFS	GFS5G□	5, 10, 15, 20	45	3.1	C149A
			30, 50, 100	58		C149B
			200	64		C149C

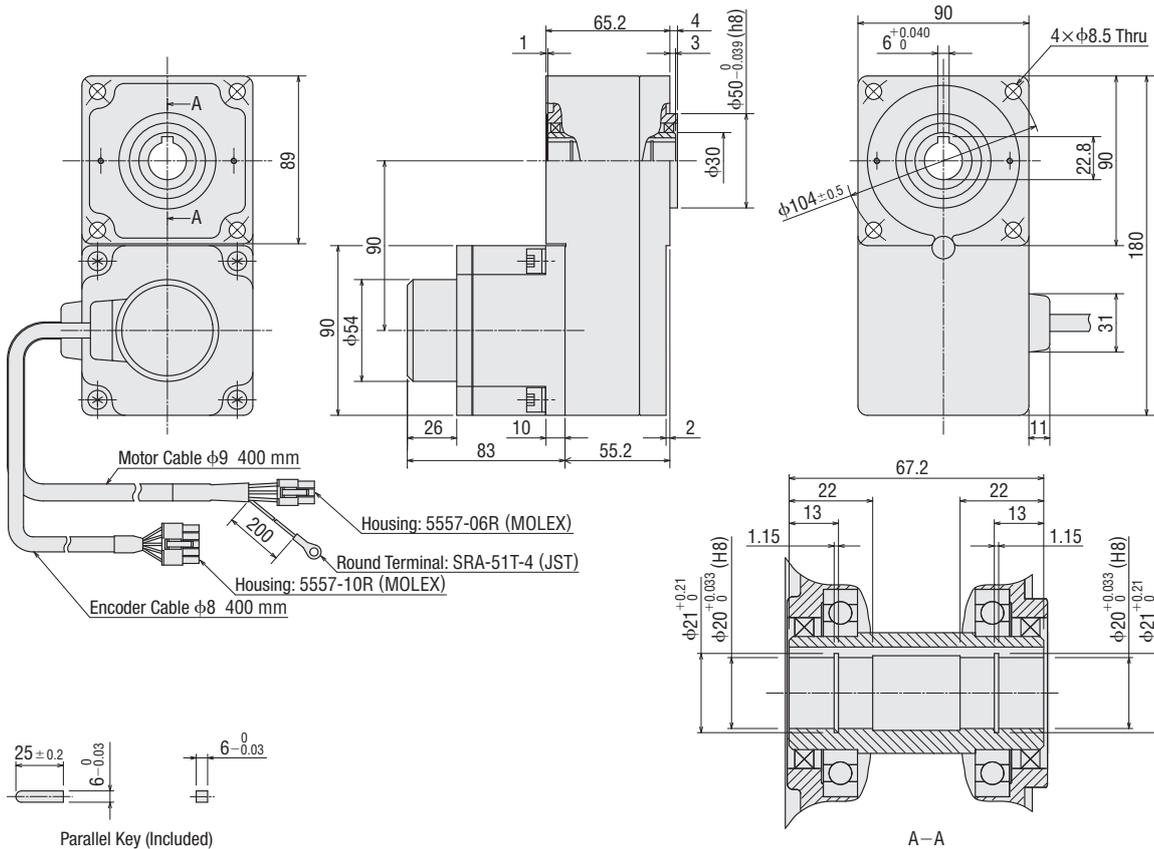


◇ Motor/Hollow Shaft Flat Gearhead

BXS5120A-□FR◇, **BXS5120C-□FR**◇

Motor: BXM5120-GFS
Gearhead: GFS5G□FR
Mass: 3.8 kg

CAD C197



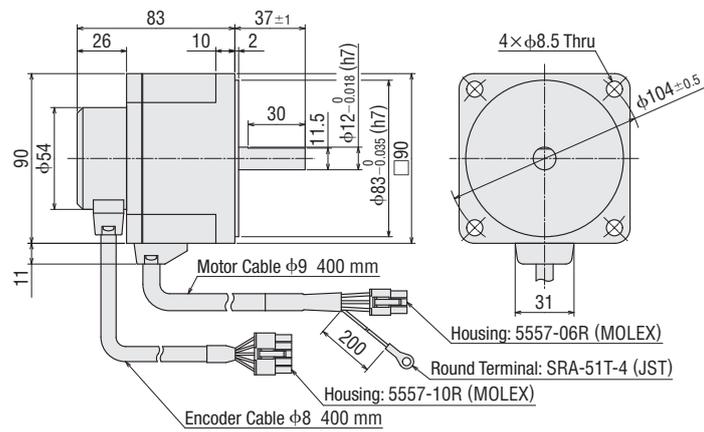
◇ Round Shaft Type

BXS5120A-A ◇, **BXS5120C-A** ◇

Motor: BXM5120-A2

Mass: 1.6 kg

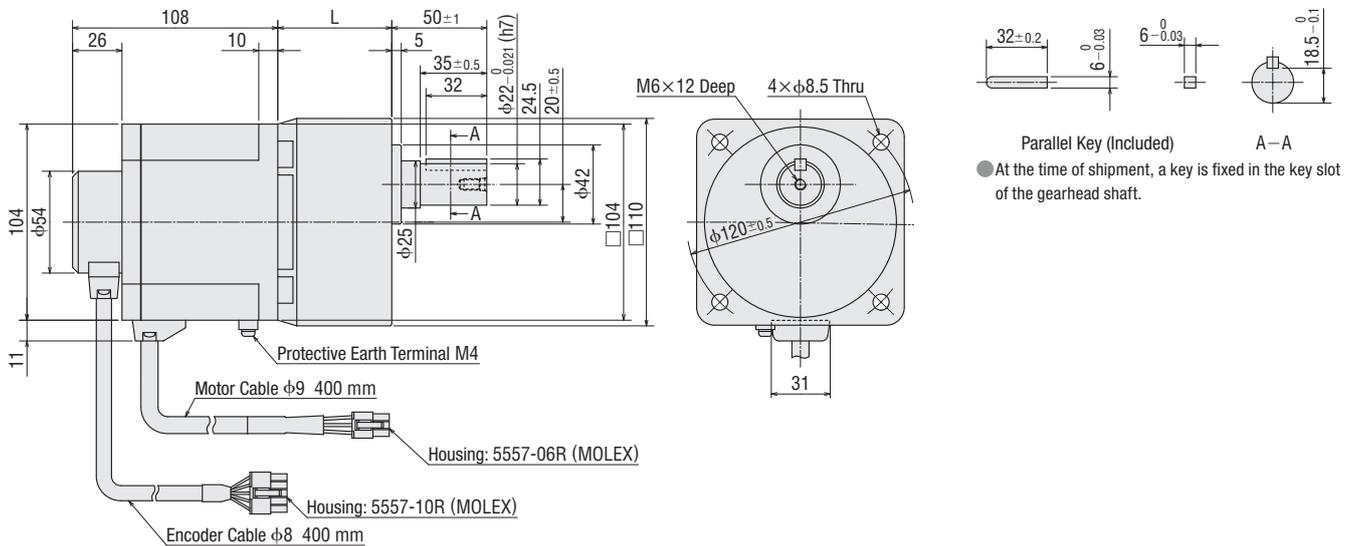
CAD C152



● Standard Type 200 W and 400 W

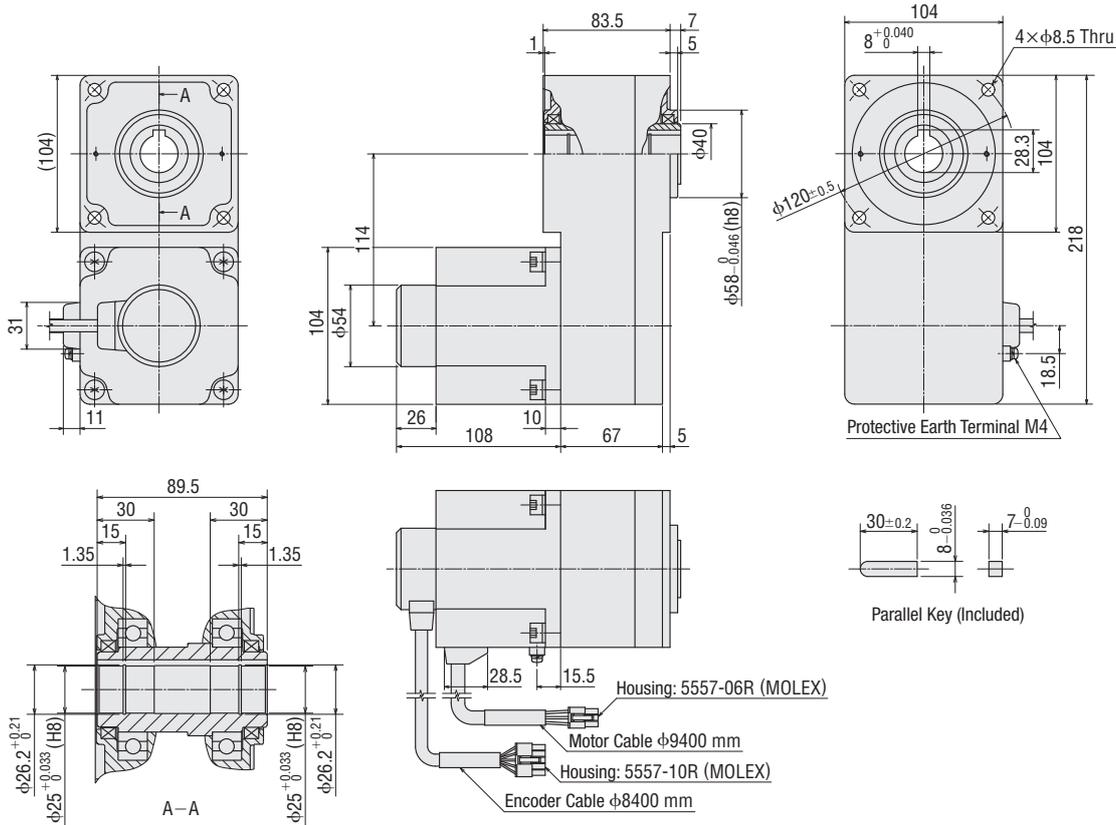
◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS6200A-□S ◇, BXS6200C-□S ◇	BXM6200-GFS	GFS6G□	5, 10, 15, 20	60	5.5	C198A
			30, 50	72		C198B
BXS6400C-□S ◇	BXM6400-GFS		100, 200	86		C198C



◇ Motor/Hollow Shaft Flat Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Mass kg	CAD
BXS6200A-□FR ◇ BXS6200C-□FR ◇	BXM6200-GFS	GFS6G□FR	7.3	C257
BXS6400C-□FR ◇	BXM6400-GFS			



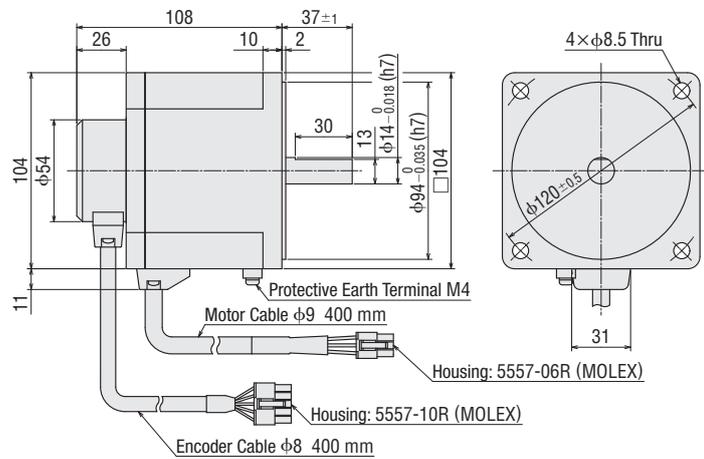
◇ Round Shaft Type

BXS6200A-A◇, **BXS6200C-A**◇, **BXS6400C-A**◇

Motor: BXM6200-A, BXM6400-A

Mass: 2.5 kg

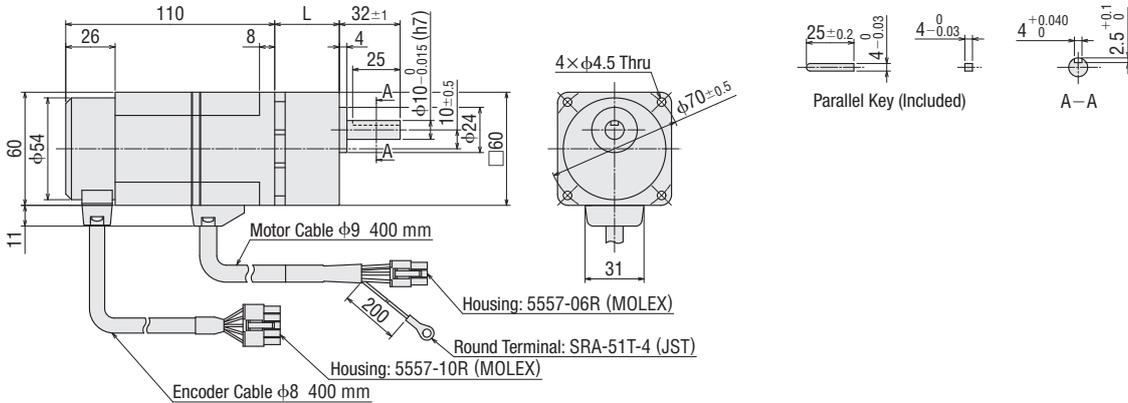
CAD C182



● Electromagnetic Brake Type 30 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS230AM -□S◇	BXM230M-GFS	GFS2G□	5, 10, 15, 20	34	1.5	C153A
BXS230CM -□S◇			30, 50, 100	38		C153B
			200	43		C153C



◇ Motor/Hollow Shaft Flat Gearhead

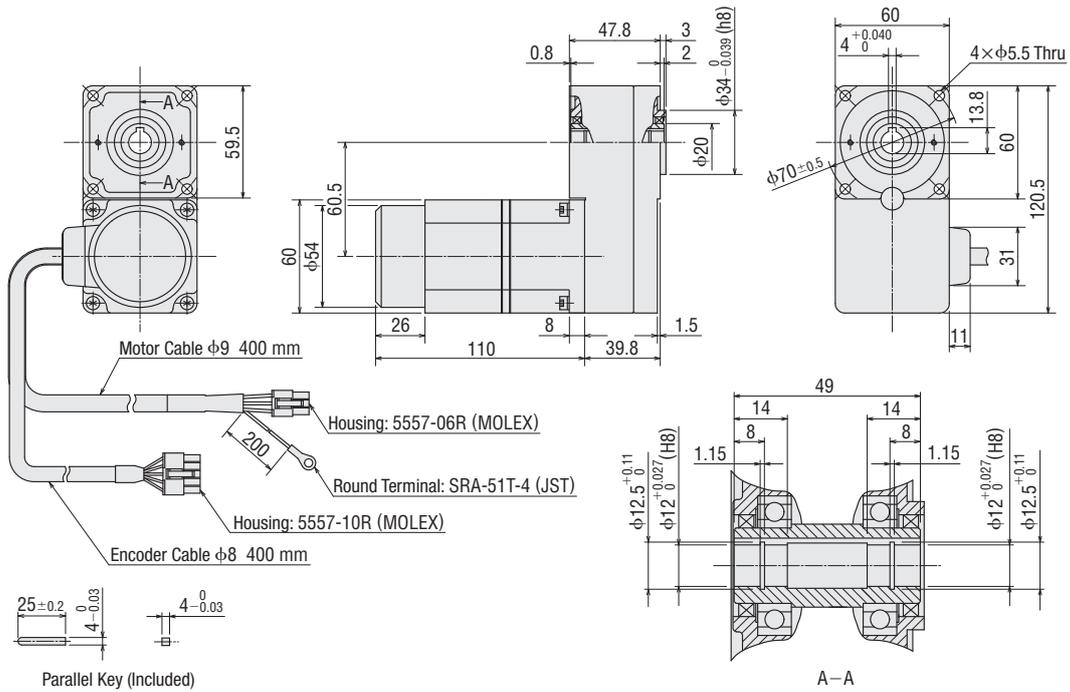
BXS230AM-□FR◇, **BXS230CM**-□FR◇

Motor: BXM230M-GFS

Gearhead: GFS2G□FR

Mass: 1.8 kg

CAD C199



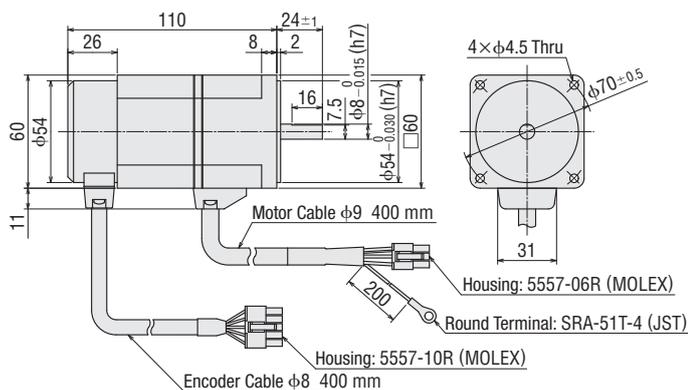
◇ Round Shaft Type

BXS230AM-A◇, **BXS230CM**-A◇

Motor: BXM230M-A2

Mass: 1.0 kg

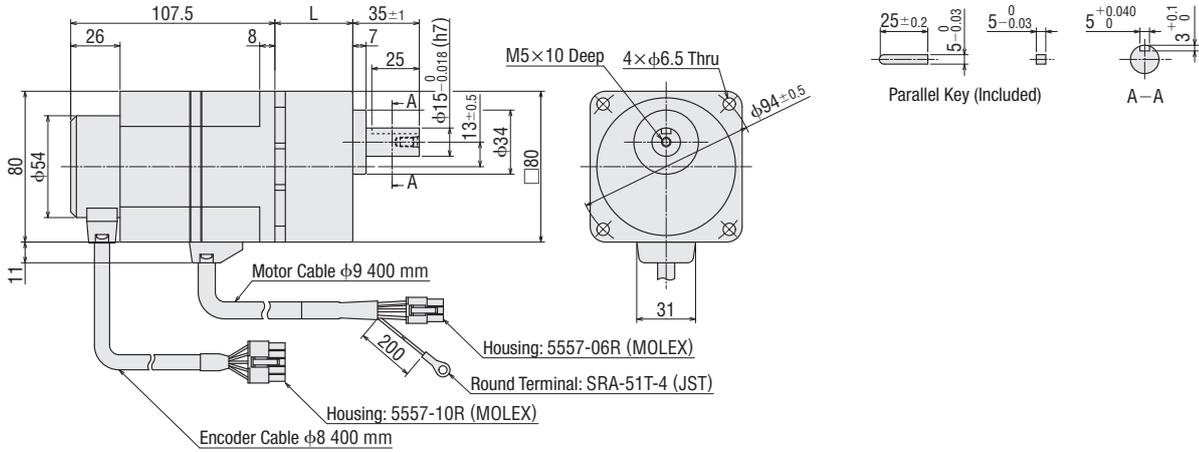
CAD C156



● Electromagnetic Brake Type 60 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS460AM -□S◇ BXS460CM -□S◇	BXM460M-GFS	GFS4G□	5, 10, 15, 20	41	2.5	C154A
			30, 50, 100	46		C154B
			200	51		C154C



◇ Motor/Hollow Shaft Flat Gearhead

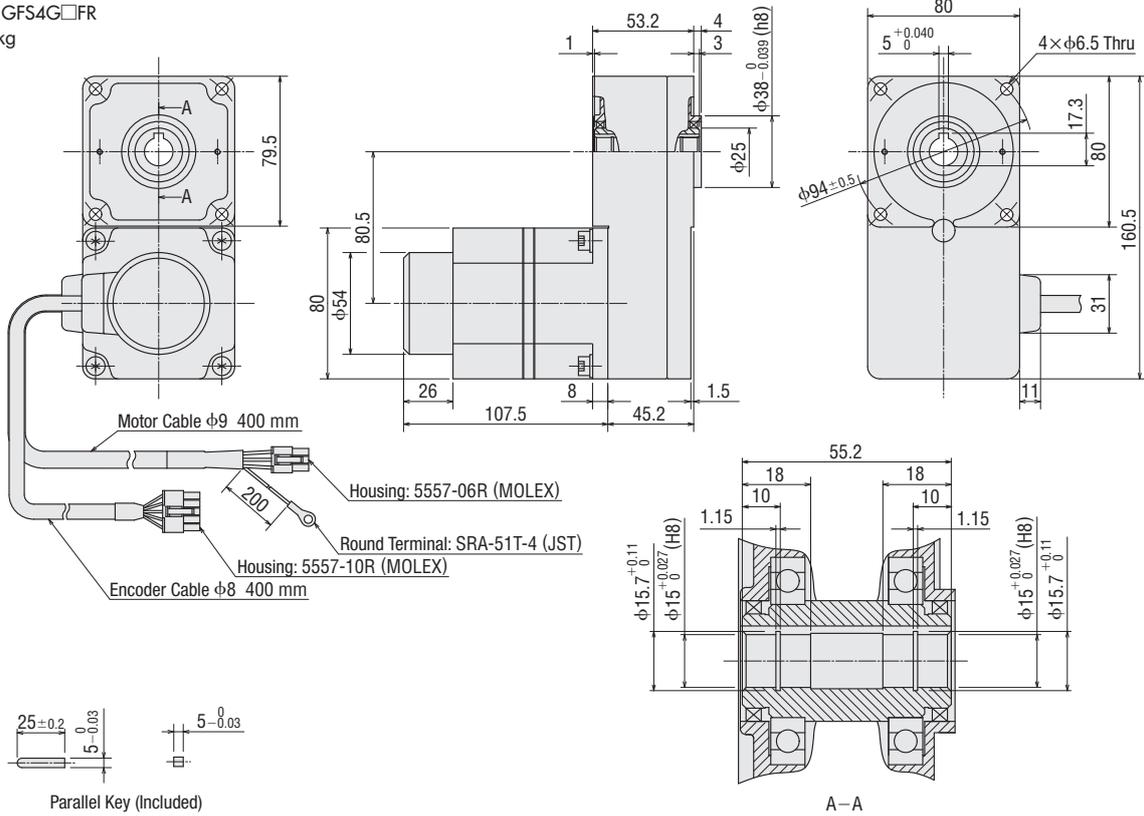
BXS460AM-□FR◇, **BXS460CM**-□FR◇

Motor: BXM460M-GFS

Gearhead: GFS4G□FR

Mass: 3.1 kg

CAD C200



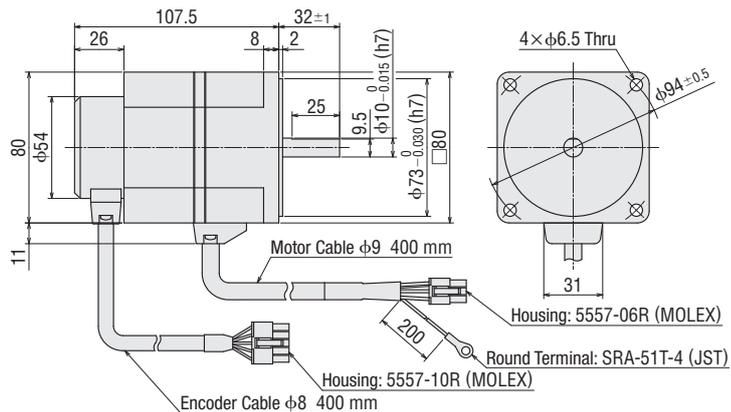
◇ Round Shaft Type

BXS460AM-A◇, **BXS460CM**-A◇

Motor: BXM460M-A2

Mass: 1.5 kg

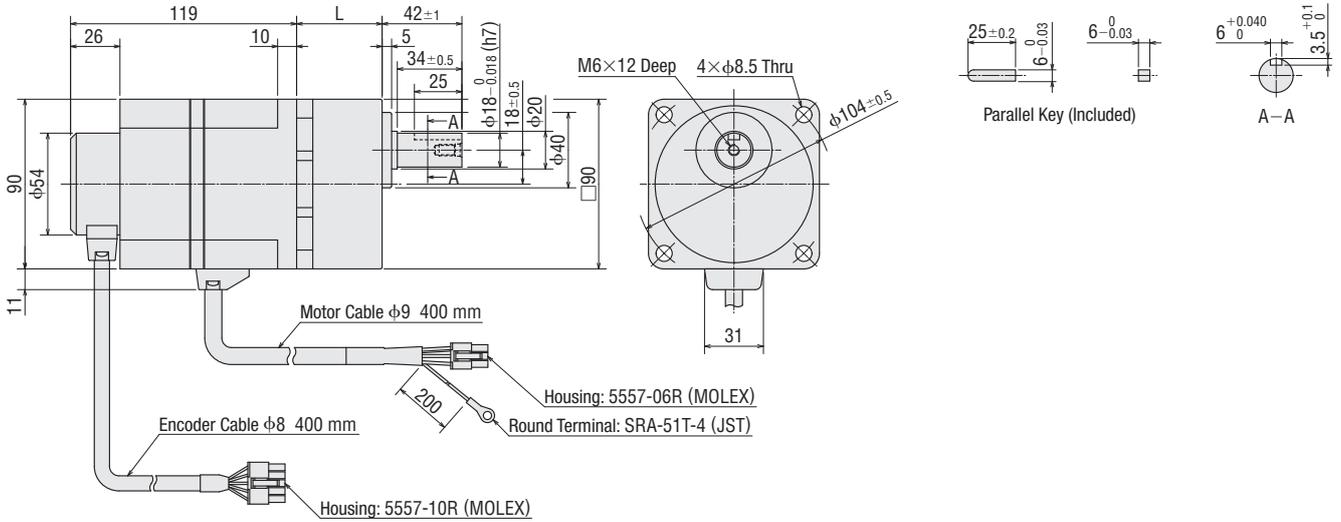
CAD C157



● Electromagnetic Brake Type 120 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS5120AM-□S ◇ BXS5120CM-□S ◇	BXM5120M-GFS	GFS5G□	5, 10, 15, 20	45	3.7	C155A
			30, 50, 100	58		C155B
			200	64		C155C



◇ Motor/Hollow Shaft Flat Gearhead

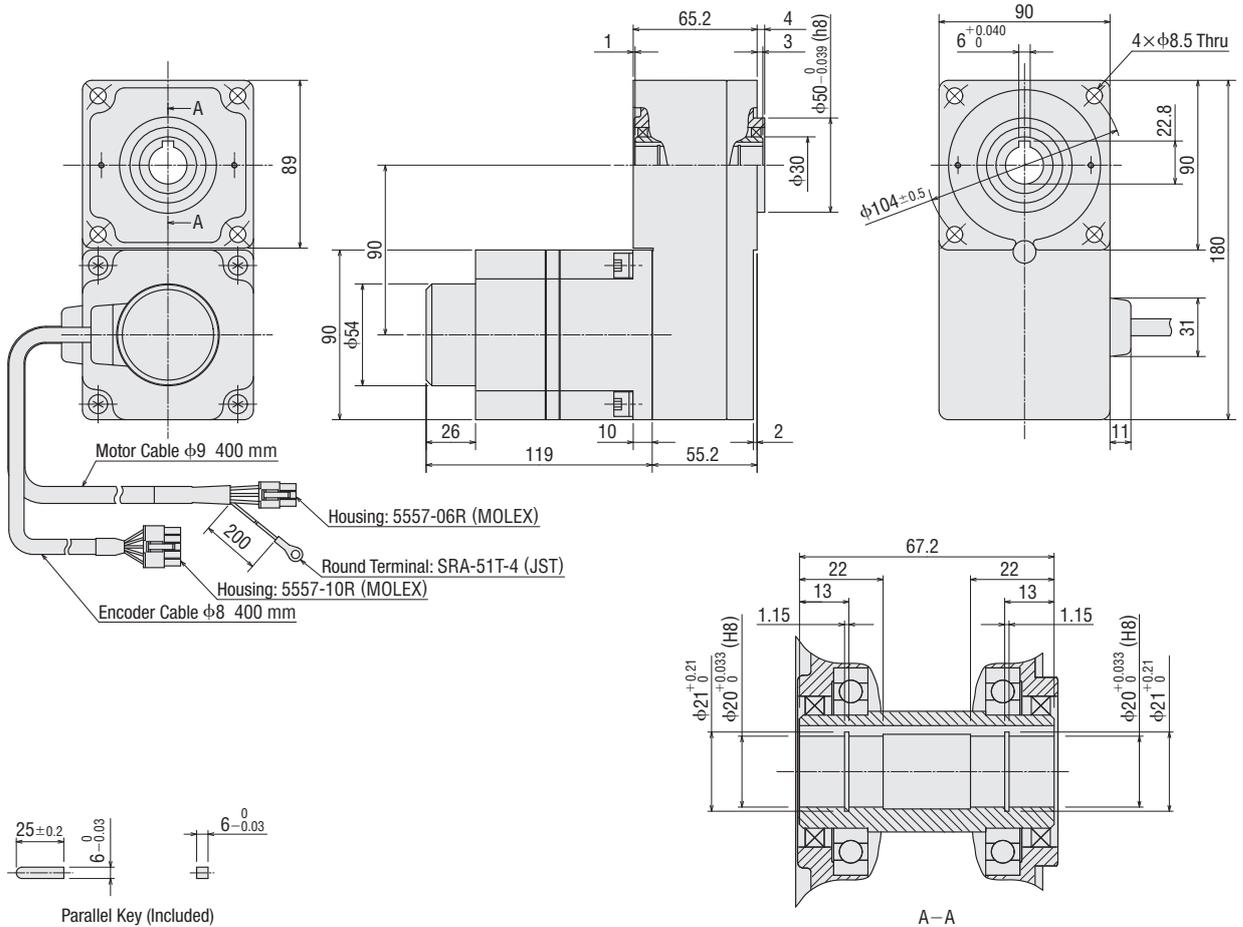
BXS5120AM-□FR◇, **BXS5120CM-□FR**◇

Motor: BXM5120M-GFS

Gearhead: GFS5G□FR

Mass: 4.4 kg

CAD C201



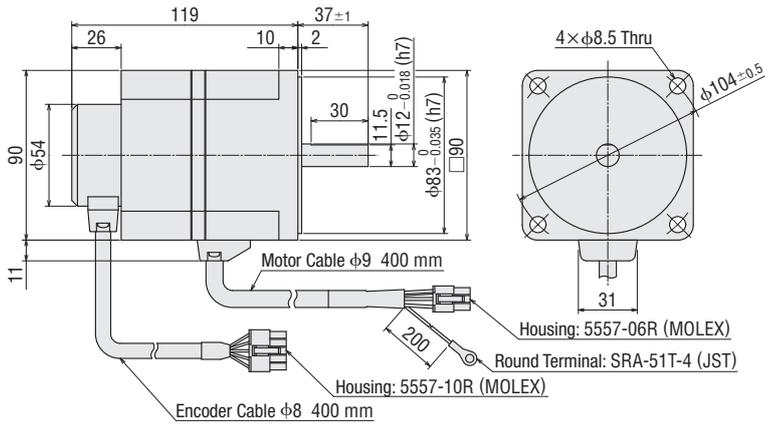
◇ Round Shaft Type

BXS5120AM-A ◇ **BXS5120CM-A** ◇

Motor: BXM5120M-A2

Mass: 2.2 kg

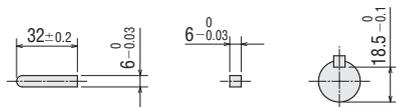
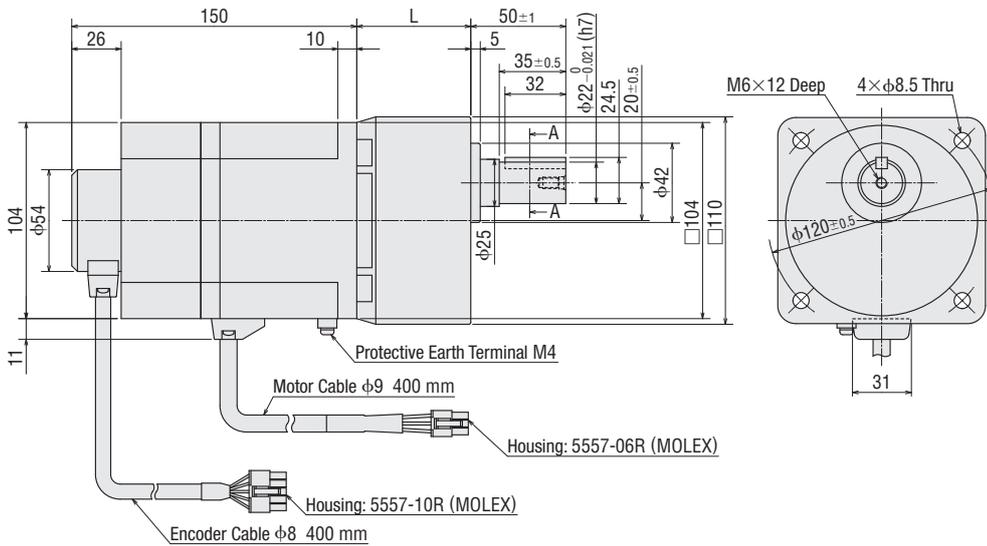
CAD C158



● Electromagnetic Brake Type 200 W and 400 W

◇ Motor/Parallel Shaft Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Gear Ratio	L	Mass kg	CAD
BXS6200AM-□S ◇ BXS6200CM-□S ◇	BXM6200M-GFS	GFS6G□	5, 10, 15, 20	60	6.5	C202A
			30, 50	72		C202B
BXS6400CM-□S ◇	BXM6400M-GFS		100, 200	86		C202C



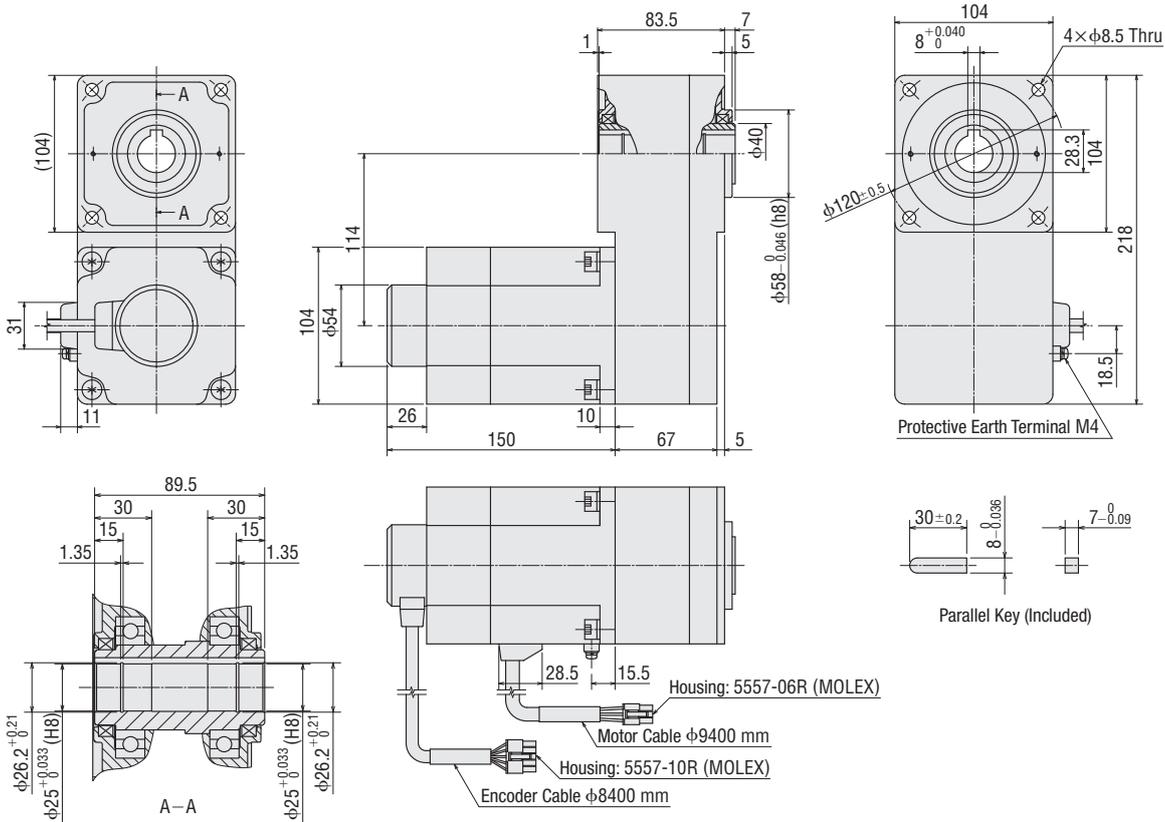
Parallel Key (Included)

A-A

● At the time of shipment, a key is fixed in the key slot of the gearhead shaft.

◇ Motor/Hollow Shaft Flat Gearhead

Product Name	Motor Product Name	Gearhead Product Name	Mass kg	CAD
BXS6200AM-□FR ◇	BXM6200M-GFS	GFS6G□FR	8.3	C258
BXS6200CM-□FR ◇				
BXS6400CM-□FR ◇	BXM6400M-GFS			



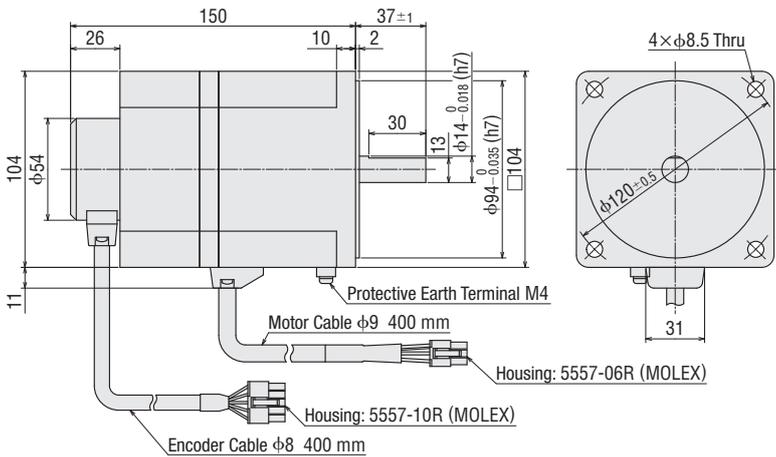
◇ Round Shaft Type

BXS6200AM-A◇, **BXS6200CM-A**◇, **BXS6400CM-A**◇

Motor: BXM6200M-A, BXM6400M-A

Mass: 3.5 kg

CAD C184

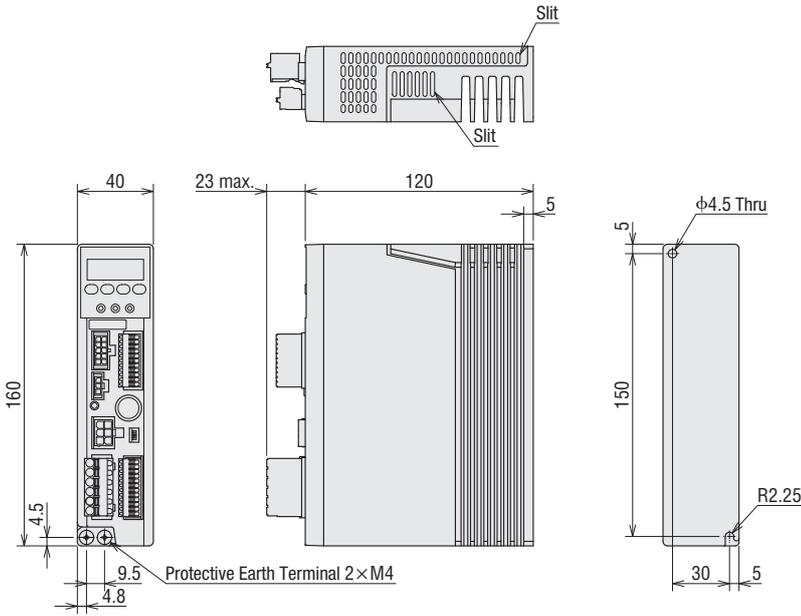


Driver (Common to all drivers)

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

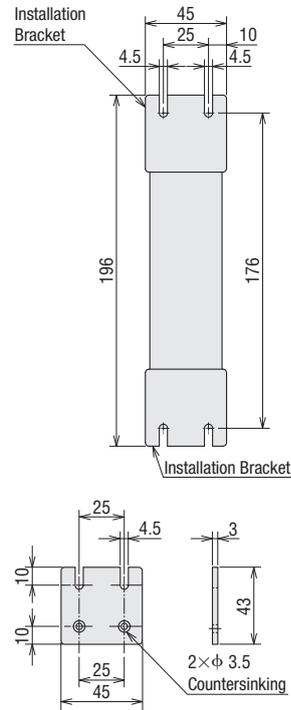
Mass: 0.8 kg

CAD C259



Driver Installation Bracket (2 pieces per set)

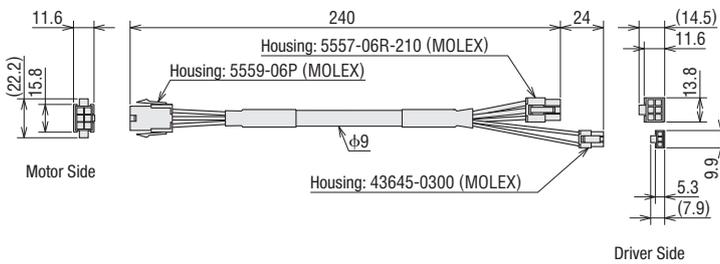
When driver mounting bracket is installed



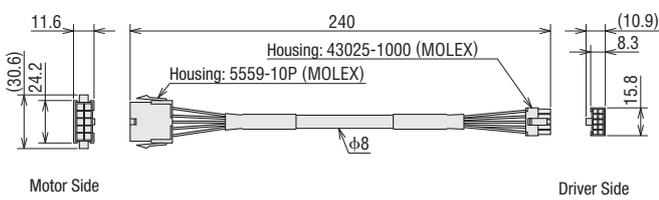
Conversion Cables (Included)

Comes in a set of 2 cables, one each for the motor and the encoder.

For Motor



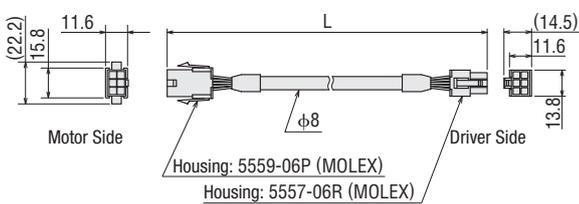
For Encoder



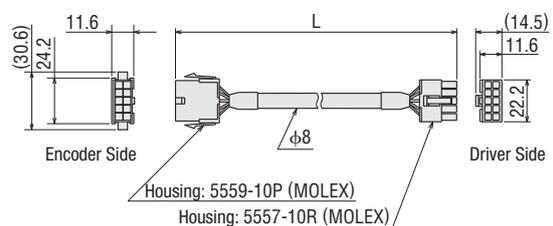
Connection Cable (Included)

Type of Cables	Length L (m)
1 m	1
2 m	2
3 m	3

For Motor

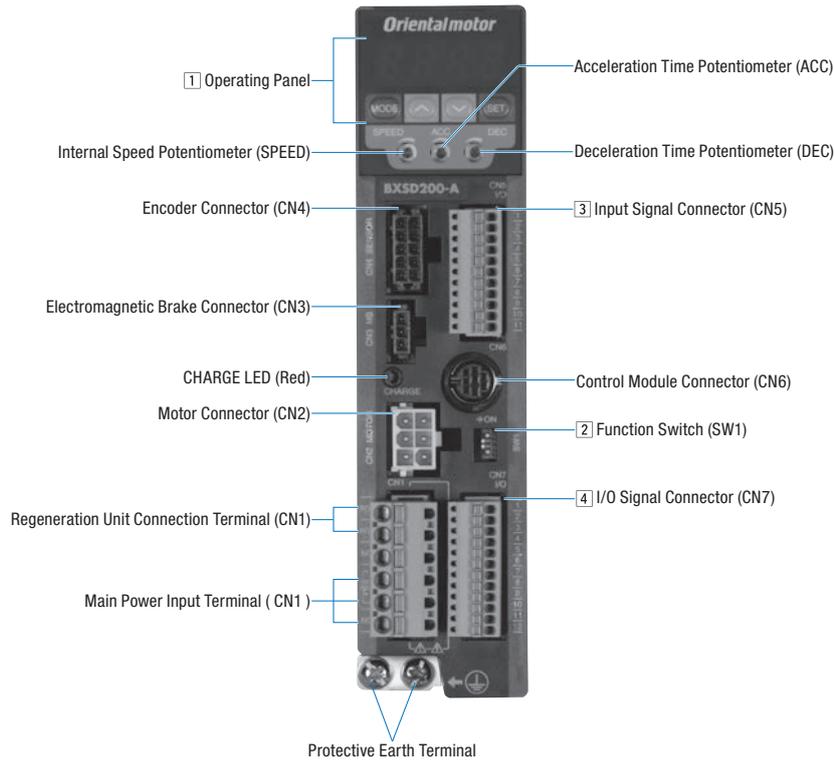


For Encoder

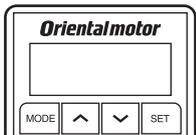


Connection and Operation

Names and Functions of Driver Parts



1 Operating Panel

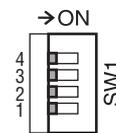


- Key: Changes the operating mode.
- Key: Changes the setting value
- Key: Confirming the data

Operating mode	Details	
	Speed Control	Position Control
Monitoring	Speed, load rate, operation number, alarm code, warning code, I/O monitor, control mode	Speed, position, load rate, operation number, selection number, alarm code, warning code, I/O monitor, control mode
Data	Data No. 0~15 (16 points) Operating speed, torque limiting, deceleration time, delete data	Data No. 0~15 (16 points) Operating method, position, operating speed, operating function, sequenced positioning, torque limiting, acceleration time, deceleration time, delete data
Parameter	Set various parameters	
Test	I/O test, JOG operation, Data No. select operation, teaching	I/O test, JOG operation, Data No. select operation, return-to-home operation, position preset, teaching

2 Function Switch (SW1)

No.	Function	Factory Setting
1	Switchover between Speed Control Mode and Positioning Control Mode ON: Positioning Control Mode OFF: Speed control Mode	Factory Setting: OFF
2	BX Compatibility mode setting When turned ON, the I/O signal can be matched with the content for the BX Series.	Factory Setting: OFF
3	Not used	
4	Select the power supply for input signal (Built-in or external)	Factory Setting: OFF (External)



3 Input Signal Connector (CN5, 11 pins)

•For Speed Control Mode

Pin No.	Signal Name	Function
1	IN-COM0	Input signal common
2	IN0	FWD Rotate in FWD direction/Deceleration stop.
3	IN1	RVS Rotate 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 occurs when input during motor operation
9	IN7	ALM-RST Alarm cancellation
10	IN8	Not used (Functions can be expanded)
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 occurs 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 assigned to IN0~IN8 are initial values. The content can be changed with the parameters.

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

•For Speed Control Mode

Pin No.	Signal Name	Function	
1	VH	External analog setting input	
2	VM	Connect when controlling with PAVR-20KZ or external DC voltage	
3	VL		
4	OUT0+	ALM	Output when an alarm is generated
5	OUT0-		
6	OUT1+	MOVE	Output during motor operation
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 and BSG	

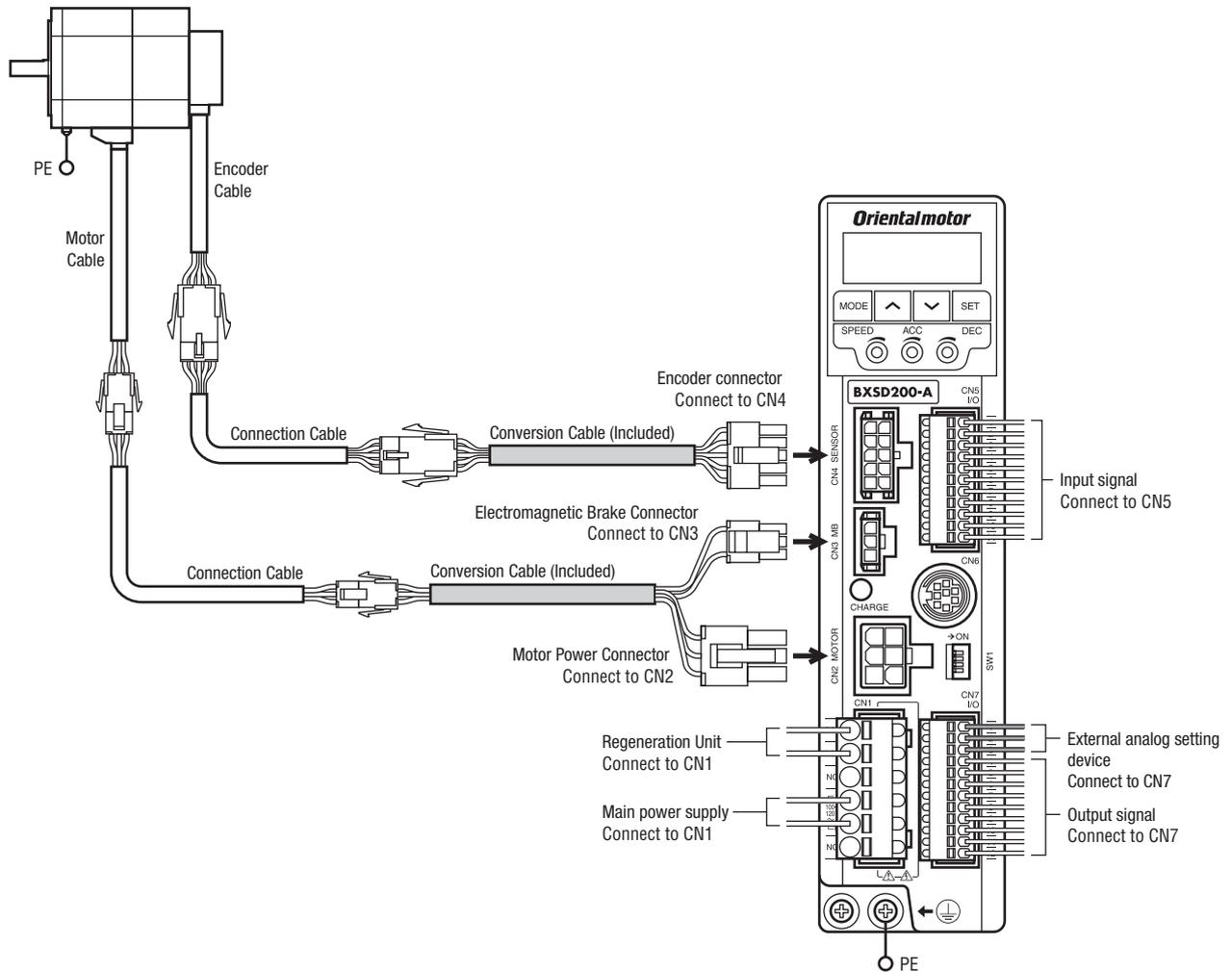
● The functions assigned to OUT0~OUT2 are initial values. The content can be changed with the parameters.

•For Position Control Mode

Pin No.	Signal Name	Function	
1	VH	External analog setting input	
2	VM	Connect when controlling with PAVR-20KZ or external DC voltage	
3	VL		
4	OUT0+	ALM	Output when an alarm is generated
5	OUT0-		
6	OUT1+	READY	Output when the preparation for the operation is 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 and BSG	

● Connection

◇ Connection Example

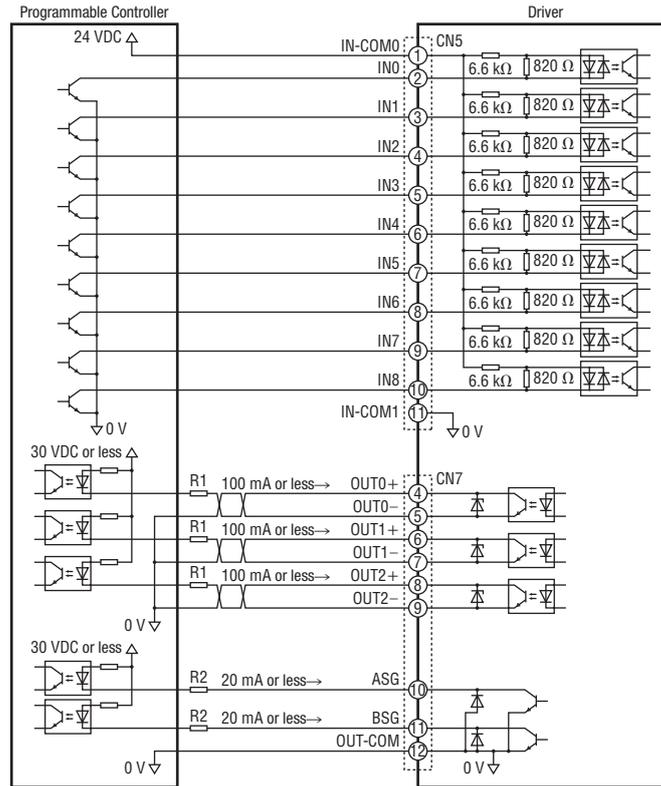


Note

- When connecting a motor, be sure to use the accessory conversion cable. If the motor is connected directly, a malfunction may occur.
- Regardless of the presence of electromagnetic brakes, be sure to connect the electromagnetic brake connector to CN3.

◇ Connection to Programmable Controller

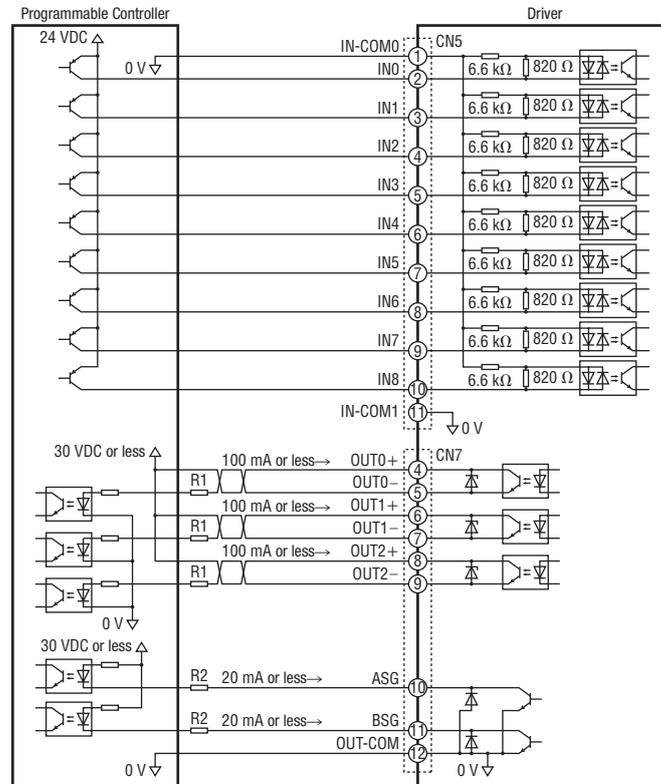
● For Sink Logic



Note

- Use an output power signal of 30 VDC or less.
- Connect a current limiting resistor R1 to OUT0~OUT2, and keep the current at 100 mA or less.
- Connect a current limiting resistor R2 to ASG and BSG, and keep the current at 20 mA or less.

● For Source Logic



Note

- Use an output power signal of 30 VDC or less.
- Connect a current limiting resistor R1 to OUT0~OUT2, and keep the current at 100 mA or less.
- 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 the source logic.

For detailed information and handling precautions of this product, see the User's Manual. To obtain the User's Manual, download it from the Oriental Motor website or contact the Oriental Motor sales office. <http://www.orientalmotor.com.sg/>

Motor and Driver Combinations

Standard Type

◇ Combination Type – 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	BXS230A-□S ◇	BXM230-GFS	GFS2G□	BXSD30-A
	BXS230C-□S ◇			BXSD30-C
60 W	BXS460A-□S ◇	BXM460-GFS	GFS4G□	BXSD60-A
	BXS460C-□S ◇			BXSD60-C
120 W	BXS5120A-□S ◇	BXM5120-GFS	GFS5G□	BXSD120-A
	BXS5120C-□S ◇			BXSD120-C
200 W	BXS6200A-□S ◇	BXM6200-GFS	GFS6G□	BXSD200-A
	BXS6200C-□S ◇			BXSD200-C
400 W	BXS6400C-□S ◇	BXM6400-GFS		BXSD400-C

◇ Combination Type – 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	BXS230A-□FR ◇	BXM230-GFS	GFS2G□FR	BXSD30-A
	BXS230C-□FR ◇			BXSD30-C
60 W	BXS460A-□FR ◇	BXM460-GFS	GFS4G□FR	BXSD60-A
	BXS460C-□FR ◇			BXSD60-C
120 W	BXS5120A-□FR ◇	BXM5120-GFS	GFS5G□FR	BXSD120-A
	BXS5120C-□FR ◇			BXSD120-C
200 W	BXS6200A-□FR ◇	BXM6200-GFS	GFS6G□FR	BXSD200-A
	BXS6200C-□FR ◇			BXSD200-C
400 W	BXS6400C-□FR ◇	BXM6400-GFS		BXSD400-C

Electromagnetic Brake Type

◇ Combination Type – 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	BXS230AM-□S ◇	BXM230M-GFS	GFS2G□	BXSD30-A
	BXS230CM-□S ◇			BXSD30-C
60 W	BXS460AM-□S ◇	BXM460M-GFS	GFS4G□	BXSD60-A
	BXS460CM-□S ◇			BXSD60-C
120 W	BXS5120AM-□S ◇	BXM5120M-GFS	GFS5G□	BXSD120-A
	BXS5120CM-□S ◇			BXSD120-C
200 W	BXS6200AM-□S ◇	BXM6200M-GFS	GFS6G□	BXSD200-A
	BXS6200CM-□S ◇			BXSD200-C
400 W	BXS6400CM-□S ◇	BXM6400M-GFS		BXSD400-C

◇ Combination Type – 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	BXS230AM-□FR ◇	BXM230M-GFS	GFS2G□FR	BXSD30-A
	BXS230CM-□FR ◇			BXSD30-C
60 W	BXS460AM-□FR ◇	BXM460M-GFS	GFS4G□FR	BXSD60-A
	BXS460CM-□FR ◇			BXSD60-C
120 W	BXS5120AM-□FR ◇	BXM5120M-GFS	GFS5G□FR	BXSD120-A
	BXS5120CM-□FR ◇			BXSD120-C
200 W	BXS6200AM-□FR ◇	BXM6200M-GFS	GFS6G□FR	BXSD200-A
	BXS6200CM-□FR ◇			BXSD200-C
400 W	BXS6400CM-□FR ◇	BXM6400M-GFS		BXSD400-C

◇ Round Shaft Type

Output Power	Product Name	Motor Product Name	Driver Product Name
30 W	BXS230A-A ◇	BXM230-A2	BXSD30-A
	BXS230C-A ◇		BXSD30-C
60 W	BXS460A-A ◇	BXM460-A2	BXSD60-A
	BXS460C-A ◇		BXSD60-C
120 W	BXS5120A-A ◇	BXM5120-A2	BXSD120-A
	BXS5120C-A ◇		BXSD120-C
200 W	BXS6200A-A ◇	BXM6200-A	BXSD200-A
	BXS6200C-A ◇		BXSD200-C
400 W	BXS6400C-A ◇	BXM6400-A	BXSD400-C

◇ Round Shaft Type

Output Power	Product Name	Motor Product Name	Driver Product Name
30 W	BXS230AM-A ◇	BXM230M-A2	BXSD30-A
	BXS230CM-A ◇		BXSD30-C
60 W	BXS460AM-A ◇	BXM460M-A2	BXSD60-A
	BXS460CM-A ◇		BXSD60-C
120 W	BXS5120AM-A ◇	BXM5120M-A2	BXSD120-A
	BXS5120CM-A ◇		BXSD120-C
200 W	BXS6200AM-A ◇	BXM6200M-A	BXSD200-A
	BXS6200CM-A ◇		BXSD200-C
400 W	BXS6400CM-A ◇	BXM6400M-A	BXSD400-C

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

When the accessory connection cable is supplied, a number indicating the length of the cable, **-1** (1 m), **-2** (2 m), or **-3** (3 m), is specified in the box ◇ in the product name.

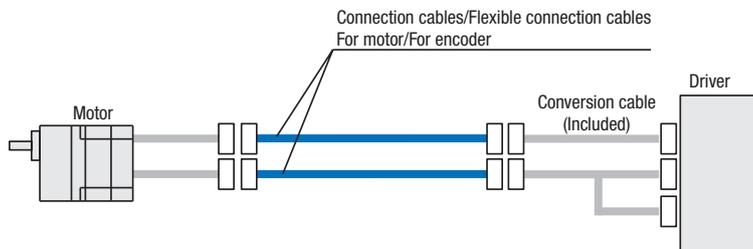
Accessories (Sold separately) RoHS

■ Connection Cables, Flexible Connection Cables

This is a connection cable for connecting the motor and the driver. The maximum extension length of the connectable cable is 30 m. Use the flexible connection cable in applications where the cable is bent and flexed. Connection cables and flexible connection cables come as a set of motor and encoder cables.



● Cable System Configuration



● Product Line

◇ Connection Cable

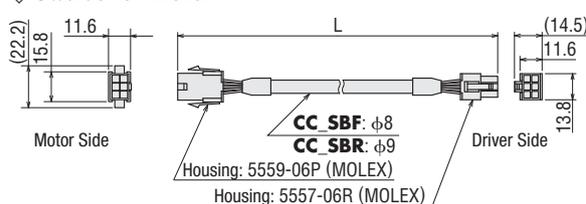
Product Name	Length L (m)
CC01SBF	1
CC02SBF	2
CC03SBF	3
CC05SBF	5
CC07SBF	7
CC10SBF	10
CC15SBF	15
CC20SBF	20
CC30SBF	30

◇ Flexible Connection Cables

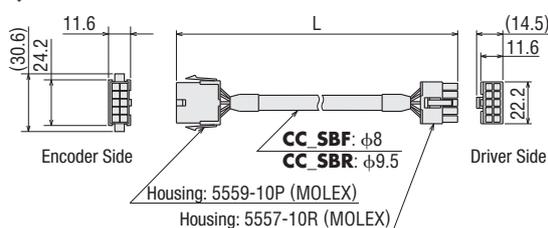
Product Name	Length L (m)
CC01SBR	1
CC02SBR	2
CC03SBR	3
CC05SBR	5
CC07SBR	7
CC10SBR	10
CC15SBR	15
CC20SBR	20
CC30SBR	30

● Dimensions (Unit mm)

◇ Cables for Motor



◇ Cables for Encoder



■ Data Setting Software Communication Cable

This communication cable is required for connecting to the computer on which the data setting software is installed.



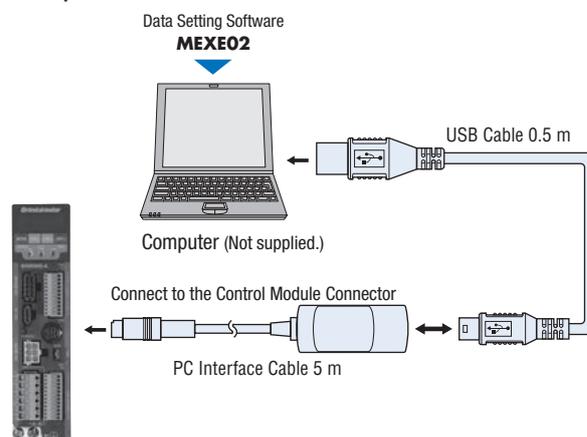
● Product Line

Product Name
CC05IF-USB

◇ Data Setting Software MEXE02

Data Setting Software can be downloaded from our website. CD-ROMs are also available. For the operating environment and other details, please check the website. <http://www.orientalmotor.com.sg/>

● Computer and Driver Connection



Note

● To connect to a computer, you must install a dedicated device driver.

Control Module

You can use the Control Module to set and check various parameters. It is connected to the driver's communication connector (CN6).

Product Line

Product Name
OPX-2A



External Speed Potentiometer

Set and adjust the motor speed.

Product Line

Product Name
PAVR-20KZ

(20 k Ω -1/4 W and with a linear resistance vs. angle curve)



Regeneration Units

Use this to perform vertical operation or drive a large inertial load with an electromagnetic brake type motor.

Product Line

Applicable Product	Product Name
BXS230 BXS460 BXS5120	EPRC-400P
BXS6200 BXS6400	RGB100



DIN Rail Mounting Bracket

Use this mounting plate when mounting the driver to a DIN rail.

Product Line

Product Name
MADPO2



Flexible Couplings

Clamp-type coupling connects the motor/gearhead shaft to another part.



Product Line

◇ **MCL Couplings** (For combination type – parallel shaft gearhead)

Applicable Product	Load Type	Coupling Type
BXS230	Uniform load	MCL30
	Impact Load	
BXS460	Uniform load	MCL40
	Impact Load	MCL55
BXS5120	Uniform load	MCL55
	Impact Load	
BXS6200 BXS6400	Uniform load	MCL65
	Impact Load	

◇ **MCS Couplings** (For round shaft type)

Applicable Product	Load Type	Coupling Type
BXS230 BXS460	Uniform load	MCS20
	Impact Load	
BXS5120 BXS6200 BXS6400	Uniform load	MCS30
	Impact Load	

Motor and Gearhead Mounting Brackets

These dedicated mounting brackets are for mounting motors and gearheads.



Product Line

Applicable Product	Product Name
BXS230	SOL2M4
BXS460	SOL4M6
BXS5120	SOL5M8
BXS6200 BXS6400	SOL6M8

Note

● These cannot be used with combination type hollow shaft flat gearheads.

For details, check the Oriental Motors website or contact the Oriental Motor sales office.

<http://www.orientalmotor.com.sg/>



Safety Precautions

- To ensure correct operation, carefully read the Operating Manual before using it.
- The products listed in this catalogue are for industrial use and for built-in component. Do not use for any other applications.

- The factories which manufacture the products listed in this catalogue have obtained Quality Management Systems ISO9001 and Environment Management Systems ISO14001.
- The content listed in this catalogue such as performance and specifications of the products are subject to change without notice for improvements.
- The price of all products listed in this catalogue does not include the consumption tax etc.
- For details of the products, please contact the nearest dealer, sales office or the following "Order Support Center" or "Customer Support Center".
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