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.

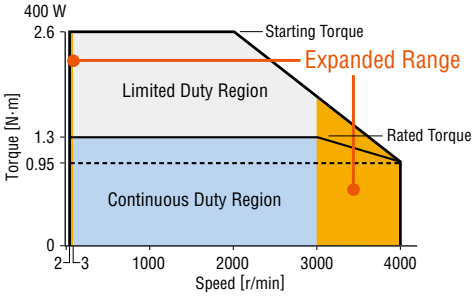
- These brushless motors can easily be used for a wide range of applications, with characteristics similar to those offered by servo motors.
- In addition to speed control, they are equipped with position control and torque limiting functions.
- Highly accurate speed control and positioning can be easily 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 1:2000 (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.

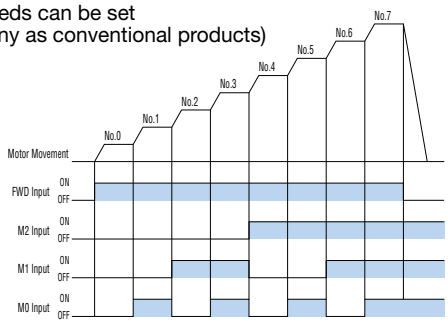


●Smooth Operation with Minimum Impact from the External Environment

Speed regulation: ±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-153

Position Control

●Built-in Positioning Function

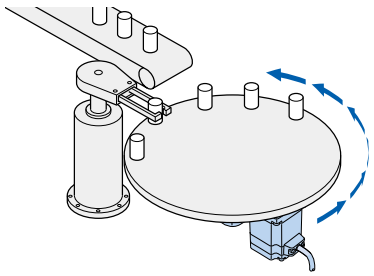
Positioning operations are possible with the driver on its own. A control module is not required.

●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

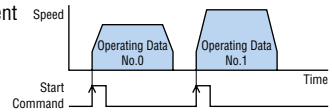
[Index Mechanism]



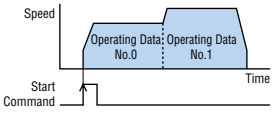
●Various Positioning Operations are Possible

- 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

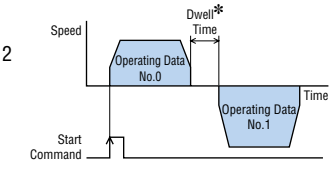
Independent Operation



Linked Operation



Linked Operation 2

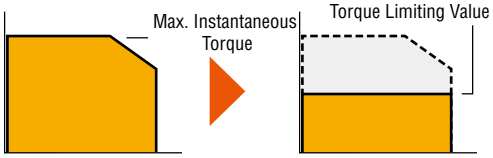


* Dwell time is the wait time until the next positioning operation starts.

Torque Limiting

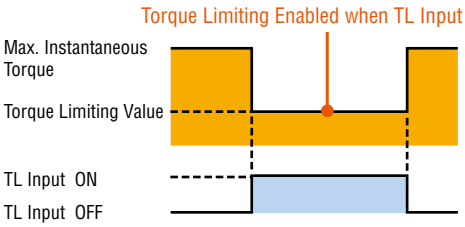
What is the Torque Limiting Function?

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.



When the Torque Limiting Value is Set at 50%

- 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

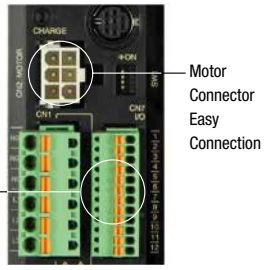
Data Setting is Easy

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.

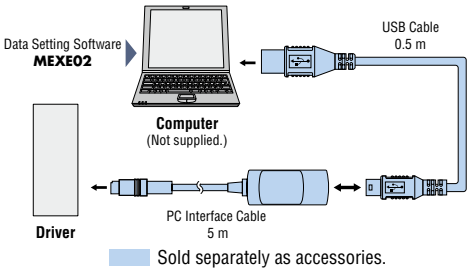


Just insert a lead wire while pressing down the orange button with a screwdriver or a pointed object.

Easy Data Editing and Monitoring

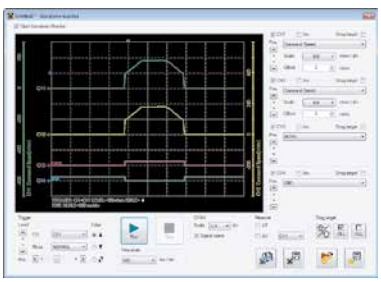
The data setting software (**MEXE02**) can be downloaded for free from the Oriental Motor website.
It is compatible with Windows 7, 8, Vista and XP. Besides data editing, I/O and operating speed waveform monitoring are also possible.

● The data setting software can be downloaded from www.orientalmotor.eu



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

Waveform Monitoring



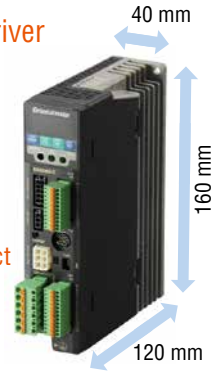
Effective Utilization of Installation Space

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

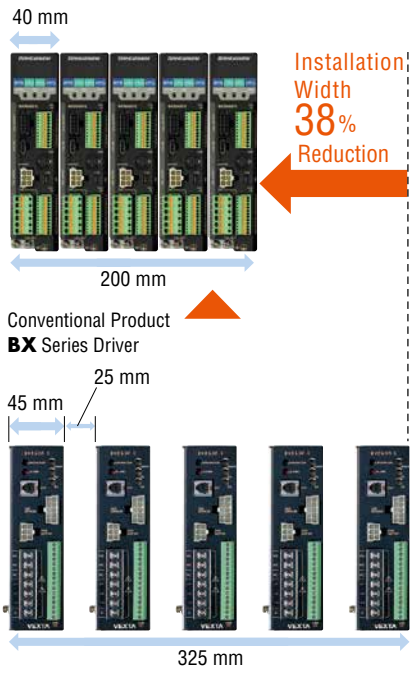
Installation Area
6400 mm²

Volume Comparison with Conventional Product
Approx. 5% Reduction



Multiple Units can be Installed in Contact with Each Other

BXII Series Driver



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

●Source/Sink Logic can be Selected

It is possible to switch between source/sink logic according to the external controller by changing the wiring .

Value Priced

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

BXII Series
60 W 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

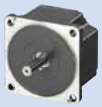
Cable for Encoder

€713.00

BXII Series

■Product Line

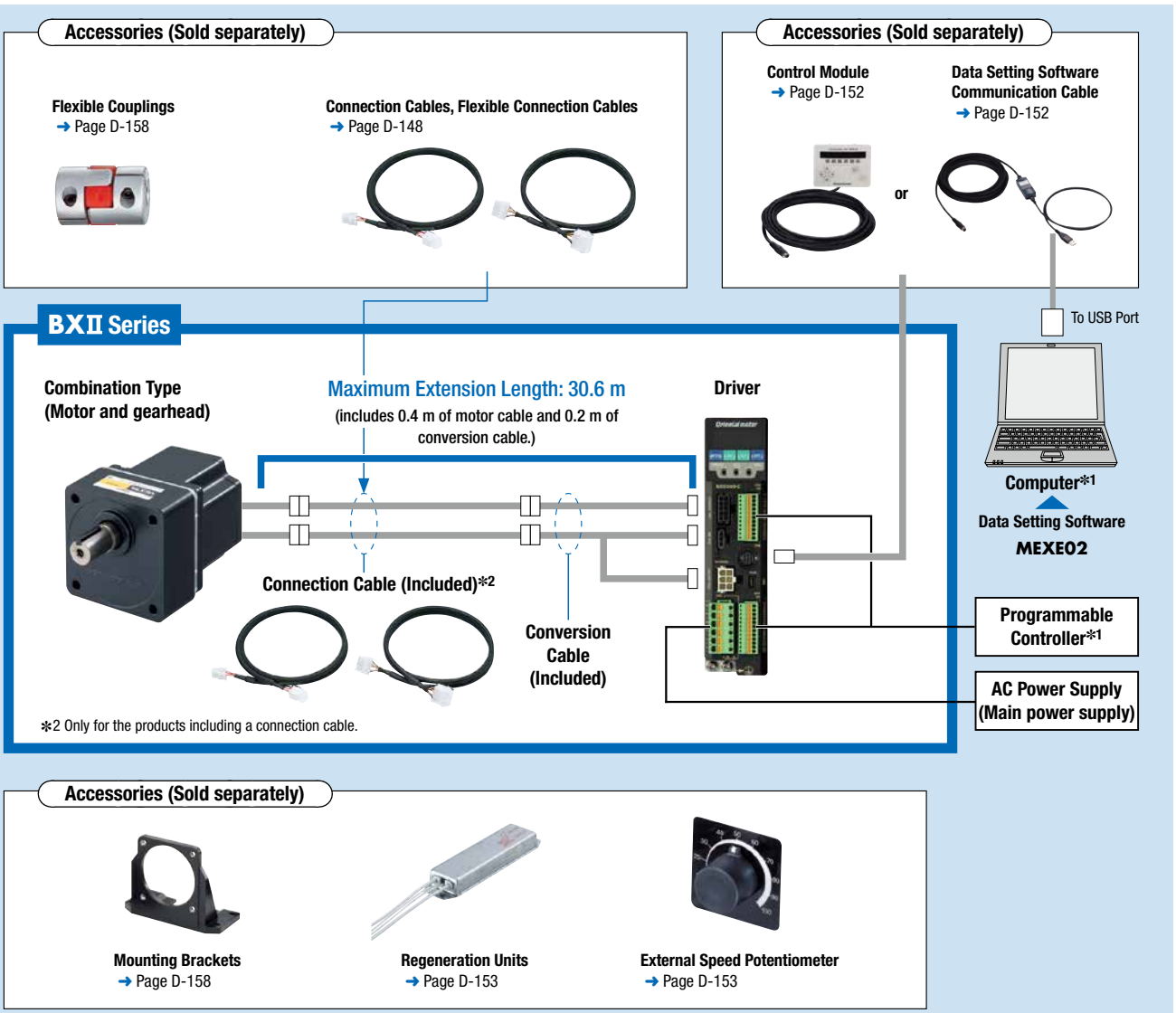
Conform to the voltage specifications of many countries around the world.

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	30 W		Single-phase 200-240 VAC Three-phase 200-240 VAC	 Cable for Motor  Cable for Encoder 1 m, 2 m, 3 m or not included	€525.00～€862.00
	80 mm	60 W				€550.00～€924.00
	90 mm	120 W				€585.00～€1,041.00
	104 mm	200 W				€640.00～€1,125.00
		400 W				€715.00～€1,200.00

●Can be extended to a maximum of 30.6 m with an accessory cable.

System Configuration

*1 Not supplied



● **MEXE02** can be downloaded from the Oriental Motor website.
The User's Manual, which describes how to operate the product, is available. For details, please contact the nearest Oriental Motor sales office, or download from the Oriental Motor website. www.orientalmotor.eu

●Example of System Configuration

BXII Series Combination Type – Parallel Shaft	+	Sold Separately		
		Connection Cable (7 m)	Mounting Bracket	Flexible Coupling
BXS6200C-50S-3		CC07SBF	SOL6M8	MCL652222
€875.00		€122.00	€32.00	€115.00

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

Product Number

BXS 6 200 C 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 **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	**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	Number: Included Connection Cable Length **-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 ➜ **BXS6200CM-10S-3**
Connection cable not included ➜ **BXS6200CM-10S**

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.

- Connection cable included: The list price is including a motor, a gearhead, a driver and a connection cable (1 m, 2 m or 3 m).
- Connection cable not included: The list price is including a motor, a gearhead and a driver.

For the single-phase 100-120 VAC models, please contact the nearest Oriental Motor sales office.

Standard Type

◇Combination Type, Parallel Shaft Gearhead

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

Output Power	Product Name	Gear Ratio	List Price	
			Connection Cable Included	Connection Cable Not Included
30 W	**BXS230C-□S-◇**	**5**, **10**, **15**, **20**	€671.00	€621.00
		30, **50**, **100**	€677.00	€627.00
		200	€684.00	€634.00
60 W	**BXS460C-□S-◇**	**5**, **10**, **15**, **20**	€707.00	€657.00
		30, **50**, **100**	€713.00	€663.00
		200	€720.00	€670.00
120 W	**BXS5120C-□S-◇**	**5**, **10**, **15**, **20**	€770.00	€720.00
		30, **50**, **100**	€779.00	€729.00
		200	€787.00	€737.00
200 W	**BXS6200C-□S-◇**	**5**, **10**, **15**, **20**	€866.00	€816.00
		30, **50**	€875.00	€825.00
		100, **200**	€889.00	€839.00
400 W	**BXS6400C-□S-◇**	**5**, **10**, **15**, **20**	€941.00	€891.00
		30, **50**	€950.00	€900.00
		100, **200**	€964.00	€914.00

◇Combination Type, Hollow Shaft Flat Gearhead

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

Output Power	Product Name	Gear Ratio	List Price	
			Connection Cable Included	Connection Cable Not Included
30 W	**BXS230C-□FR-◇**	**5**, **10**, **15**, **20**	€714.00	€664.00
		30, **50**, **100**	€723.00	€673.00
		200	€732.00	€682.00
60 W	**BXS460C-□FR-◇**	**5**, **10**, **15**, **20**	€776.00	€726.00
		30, **50**, **100**	€785.00	€735.00
		200	€794.00	€744.00
120 W	**BXS5120C-□FR-◇**	**5**, **10**, **15**, **20**	€848.00	€798.00
		30, **50**, **100**	€857.00	€807.00
		200	€866.00	€816.00
200 W	**BXS6200C-□FR-◇**	**10**, **15**, **20**	€940.00	€890.00
		30, **50**, **100**	€950.00	€900.00
400 W	**BXS6400C-□FR-◇**	**5**, **10**, **15**, **20**	€1,015.00	€965.00
		30, **50**, **100**	€1,025.00	€975.00

◇Round Shaft Type

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

Output Power	Product Name	List Price	
		Connection Cable Included	Connection Cable Not Included
30 W	**BXS230C-A-◇**	€575.00	€525.00
60 W	**BXS460C-A-◇**	€600.00	€550.00
120 W	**BXS5120C-A-◇**	€635.00	€585.00
200 W	**BXS6200C-A-◇**	€690.00	€640.00
400 W	**BXS6400C-A-◇**	€765.00	€715.00

Electromagnetic Brake Type

◇Combination Type, Parallel Shaft Gearhead

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

Output Power	Product Name	Gear Ratio	List Price	
			Connection Cable Included	Connection Cable Not Included
30 W	**BXS230CM-□S-◇**	**5**, **10**, **15**, **20**	€801.00	€751.00
		30, **50**, **100**	€807.00	€757.00
		200	€814.00	€764.00
60 W	**BXS460CM-□S-◇**	**5**, **10**, **15**, **20**	€837.00	€787.00
		30, **50**, **100**	€843.00	€793.00
		200	€850.00	€800.00
120 W	**BXS5120CM-□S-◇**	**5**, **10**, **15**, **20**	€945.00	€895.00
		30, **50**, **100**	€954.00	€904.00
		200	€962.00	€912.00
200 W	**BXS6200CM-□S-◇**	**5**, **10**, **15**, **20**	€1,041.00	€991.00
		30, **50**	€1,050.00	€1,000.00
		100, **200**	€1,064.00	€1,014.00
400 W	**BXS6400CM-□S-◇**	**5**, **10**, **15**, **20**	€1,116.00	€1,066.00
		30, **50**	€1,125.00	€1,075.00
		100, **200**	€1,139.00	€1,089.00

◇Combination Type, Hollow Shaft Flat Gearhead

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

Output Power	Product Name	Gear Ratio	List Price	
			Connection Cable Included	Connection Cable Not Included
30 W	**BXS230CM-□FR-◇**	**5**, **10**, **15**, **20**	€844.00	€794.00
		30, **50**, **100**	€853.00	€803.00
		200	€862.00	€812.00
60 W	**BXS460CM-□FR-◇**	**5**, **10**, **15**, **20**	€906.00	€856.00
		30, **50**, **100**	€915.00	€865.00
		200	€924.00	€874.00
120 W	**BXS5120CM-□FR-◇**	**5**, **10**, **15**, **20**	€1,023.00	€973.00
		30, **50**, **100**	€1,032.00	€982.00
		200	€1,041.00	€991.00
200 W	**BXS6200CM-□FR-◇**	**10**, **15**, **20**	€1,115.00	€1,065.00
		30, **50**, **100**	€1,125.00	€1,075.00
400 W	**BXS6400CM-□FR-◇**	**5**, **10**, **15**, **20**	€1,190.00	€1,140.00
		30, **50**, **100**	€1,200.00	€1,150.00

◇Round Shaft Type

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

Output Power	Product Name	List Price	
		Connection Cable Included	Connection Cable Not Included
30 W	**BXS230CM-A-◇**	€705.00	€655.00
60 W	**BXS460CM-A-◇**	€730.00	€680.00
120 W	**BXS5120CM-A-◇**	€810.00	€760.00
200 W	**BXS6200CM-A-◇**	€865.00	€815.00
400 W	**BXS6400CM-A-◇**	€940.00	€890.00

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.
  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.

Specifications

30 W, 60 W, 120 W

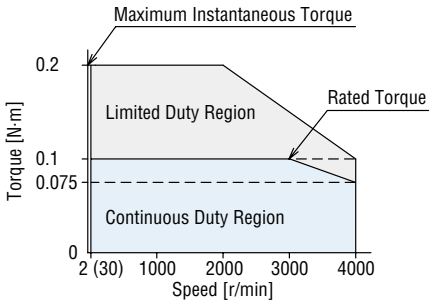
Product Name						
Standard Type	Single-Phase/Three-Phase 200-240 VAC	Combination Type		**BXS230C-□□-◇**	**BXS460C-□□-◇**	**BXS5120C-□□-◇**
		Round Shaft Type		**BXS230C-A-◇**	**BXS460C-A-◇**	**BXS5120C-A-◇**
Electromagnetic Brake Type	Single-Phase/Three-Phase 200-240 VAC	Combination Type		**BXS230CM-□□-◇**	**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: $\times 10^{-4}$kg·m^2	0.087	0.24	0.63
Round Shaft Type Permissible Inertia			J: $\times 10^{-4}$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 Operating ambient temperature 0～+50°C, rated speed, no load, rated voltage		
	Torque Limiting 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 Setting Range			0～250%		
Power-Supply Input	Rated Voltage			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 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 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	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** (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, 3 mm thick).

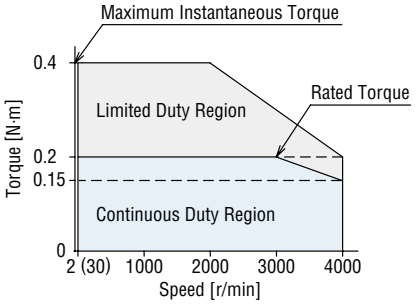
Speed – Torque Characteristics

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.

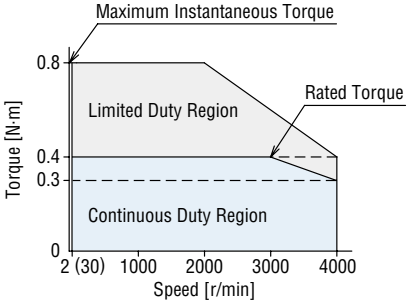
30 W



60 W



120 W



● 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.
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.

●200 W, 400 W

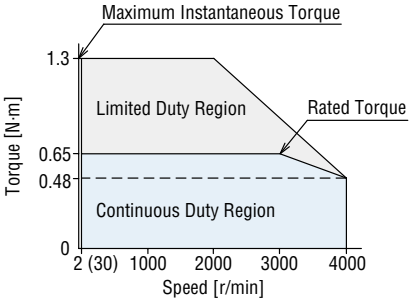
Product Name	Standard Type	Single-Phase/Three-Phase 200-240 VAC	Combination Type	**BXS6200C-□□-◇**	**BXS6400C-□□-◇**
			Round Shaft Type	**BXS6200C-A-◇**	**BXS6400C-A-◇**
	Electromagnetic Brake Type	Single-Phase/Three-Phase 200-240 VAC	Combination Type	**BXS6200CM-□□-◇**	**BXS6400CM-□□-◇**
			Round Shaft Type	**BXS6200CM-A-◇**	**BXS6400CM-A-◇**
Rated Output Power (Continuous) W				200	400
Rated Speed r/min				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		±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, rated speed, no load, rated voltage	
	Torque Limiting 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 Setting Range			0～250%	
Power Supply Input	Rated Voltage			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 200-240 VAC		2.8	4.7
		Three-Phase 200-240 VAC		1.7	2.8
	Max. Input Current A	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			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 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, 3 mm thick).

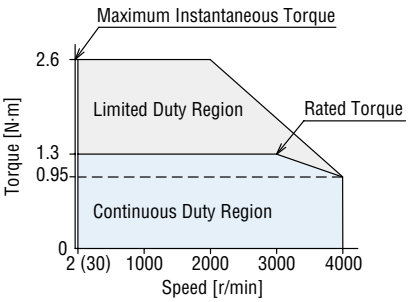
Speed – Torque Characteristics

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



●400 W



● 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.
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 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	Continuous Regenerative Power W	Instantaneous Regenerative Power W
EPRC-400P	**BXS230**	30	100	240
	BXS460	60		
	BXS5120	120		
RGB100	**BXS6200**	200	100	800
	BXS6400	400		

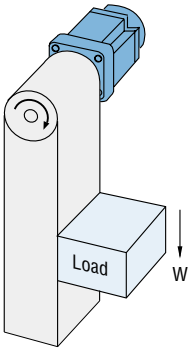
- Install the regeneration unit in the place which has the same heat radiation capability as heat radiation plate (material: aluminum 350×350 mm, 3 mm thick).

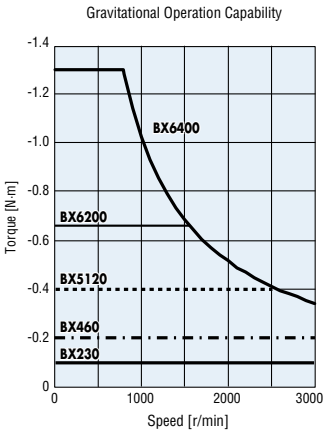
Regenerative Power

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

Regenerative Power (W) = $0.1047 \times T_L$ [N·m] $\times N$ [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).
- 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 Connectible external power supply: 24 VDC −15～+20% 100 mA min. Source input/sink 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. Source output/sink 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, sensor error, main circuit output error, overload, overspeed, EEPROM error, Initial sensor error, initial operation inhibition, regeneration unit overheat, software overtravel (Only in position control mode), operating data error	
Maximum Extension Length	Motor and driver distance: 30.6 m (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 ±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 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)	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 max. and that of the case surface is 40°C 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 max. measured by the thermocouple method after rated continuous operation under normal ambient temperature and humidity. (60°C max. when 200 W and 400 W types are installed in contact with each other)
Operating Environment✻2	Ambient Temperature	0～50°C (non-freezing)	0～+50°C (non-freezing)✻2 0～+40°C when 200 W and 400 W types are installed in contact with each other
	Ambient Humidity	85% max. (non-condensing)	
	Altitude	Max. of 1000 m 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 Conforms to JIS C 60068-2-6, "Sine-wave vibration test method" Frequency range: 10～55 Hz Half amplitude: 0.15 mm Sweep direction: 3 directions (X, Y, Z) Number of sweeps: 20 times	
Storage Condition✻3	Ambient Temperature	−20～+60°C (non-freezing)	−25～+70°C (non-freezing)
	Ambient Humidity	85% max. (non-condensing)	
	Altitude	Max. of 3000 m above sea level	
Thermal 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.
30W: 115×115 mm, 5 mm thick 60W: 135×135 mm, 5 mm thick
120W: 165×165 mm, 5 mm thick 200W: 200×200 mm, 5 mm thick
400W: 250×250 mm, 6 mm 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, 2 mm thick
Installed in contact 350×350 mm, 2 mm thick
200 W and 400 W 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.

Permissible Torque on Combination Types

Combination Type with a Parallel Shaft Gearhead

Unit: N•m

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

Unit: N•m

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

● 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-163

Output Shaft Speed of Combination Types

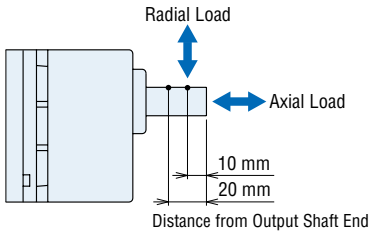
Unit: r/min

Motor Shaft Speed \ Gear Ratio	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

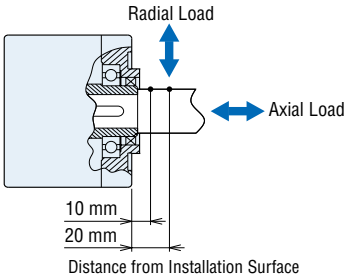
Combination Type with a Parallel Shaft Gearhead

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



Combination Type with a Hollow Shaft Flat Gearhead

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



*Limited to 400W type.

● The permissible radial load can also be calculated with a formula. Calculation of permissible radial load → Page D-162

Round Shaft Type

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

Permissible Inertia J of Combination Types

Combination Type with a Parallel Shaft Gearhead

Unit: $\times 10^{-4}$kg·m^2

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 with a Hollow Shaft Flat Gearhead

Unit: $\times 10^{-4}$kg·m^2

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.

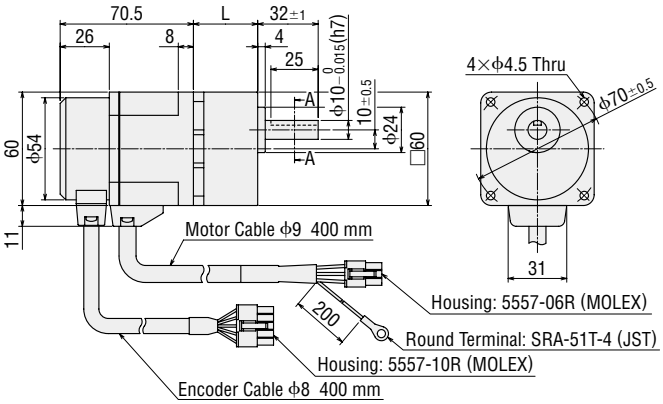
Dimensions Unit: mm

- Installation screws are included with the combination type. Dimensions for installation screws → Page D-162
- A number indicating the gear ratio is specified where the box □ is located 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.

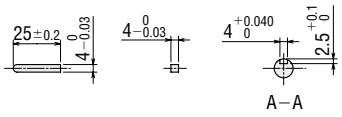
●Standard Type 30 W

◇Motor/Parallel Shaft Gearhead

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

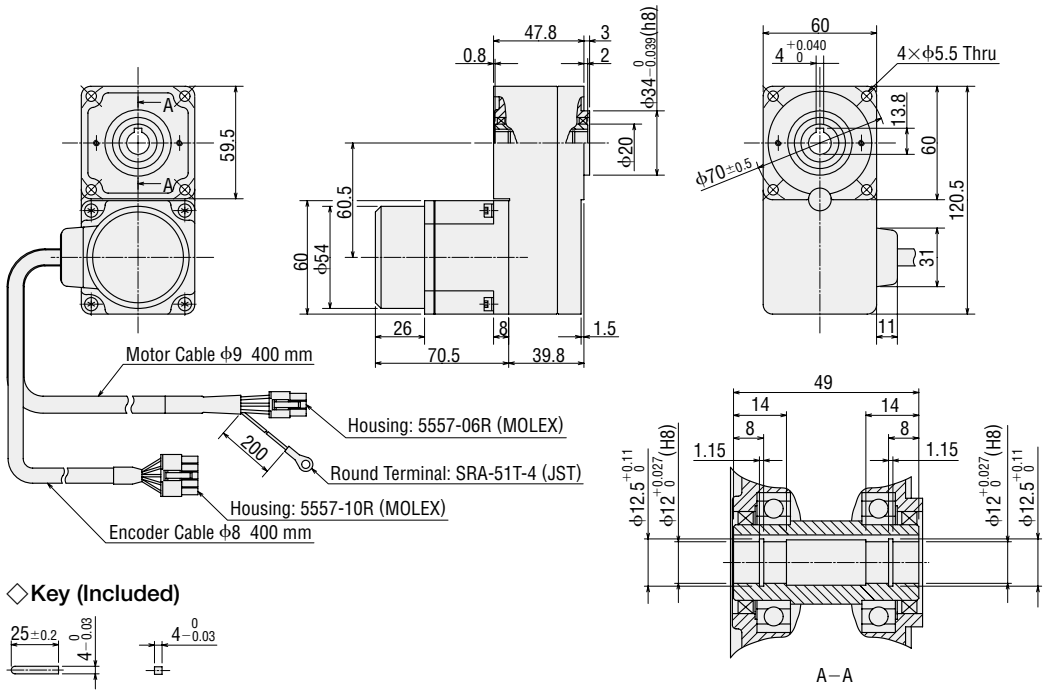


◇Key and Key Slot (Included)



◇Motor/Hollow Shaft Flat Gearhead

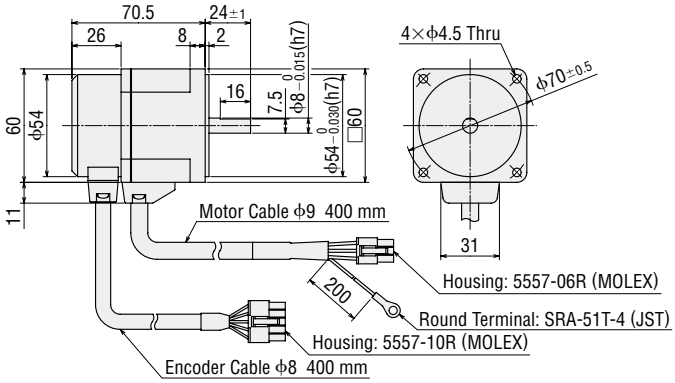
BXS230C-□FR◇
Motor: BXM230-GFS
Gearhead: GFS2G□FR
Mass: 1.5 kg



◇Key (Included)

◇Round Shaft Type

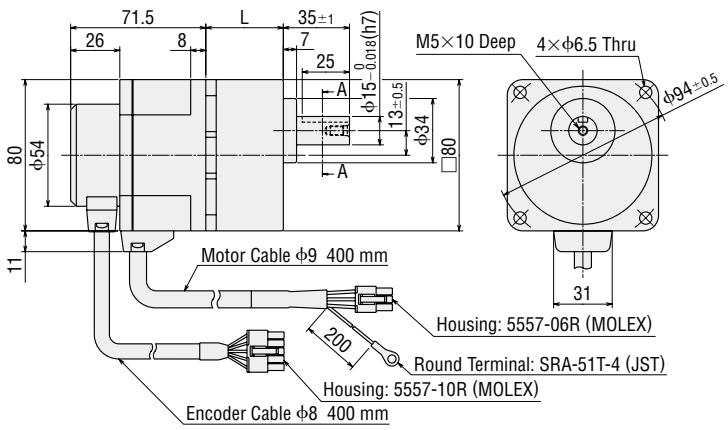
BXS230C-A◇
Motor: BXM230-A2
Mass: 0.7 kg



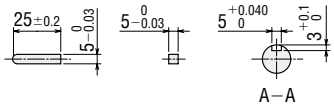
●Standard Type 60 W

◇Motor/Parallel Shaft Gearhead

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

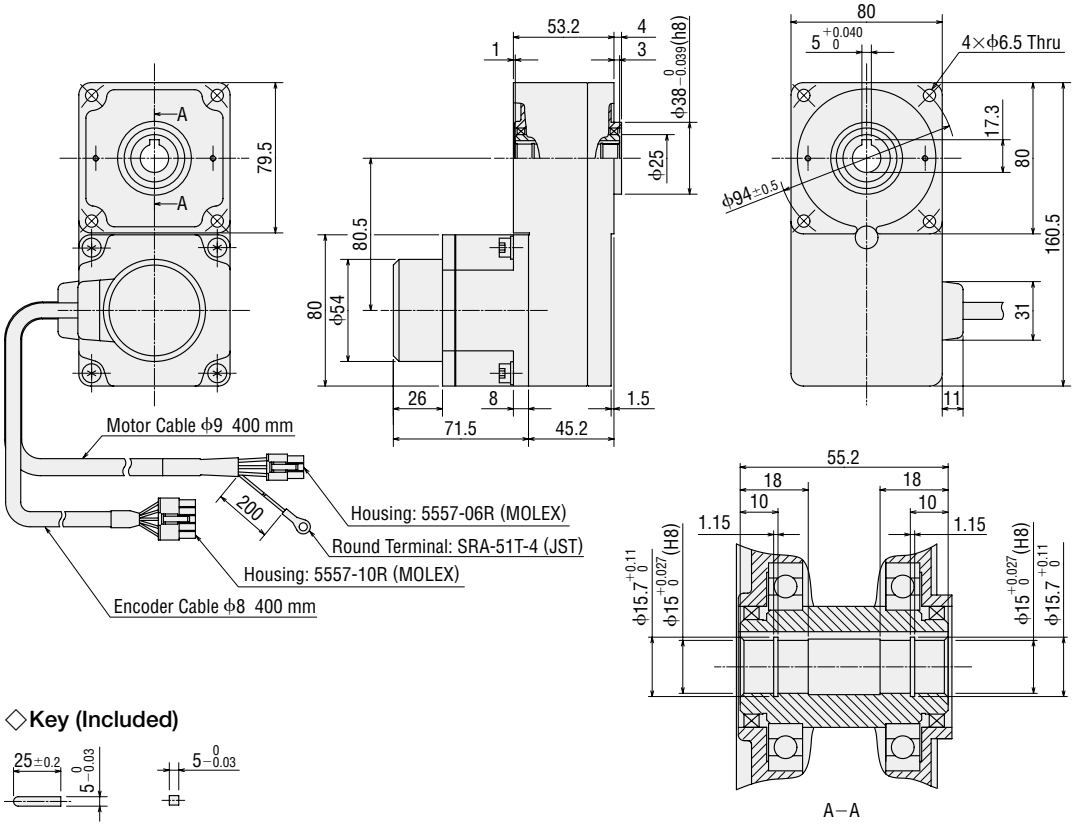


◇Key and Key Slot (Included)



◇Motor/Hollow Shaft Flat Gearhead

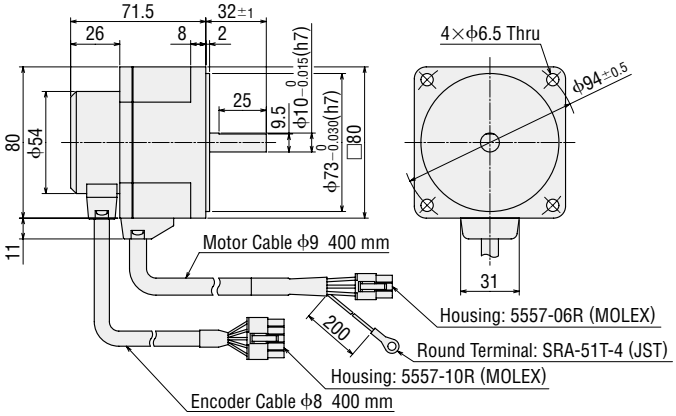
BXS460C-□FR◇
Motor: BXM460-GFS
Gearhead: GFS4G□FR
Mass: 2.6 kg



◇Key (Included)

◇Round Shaft Type

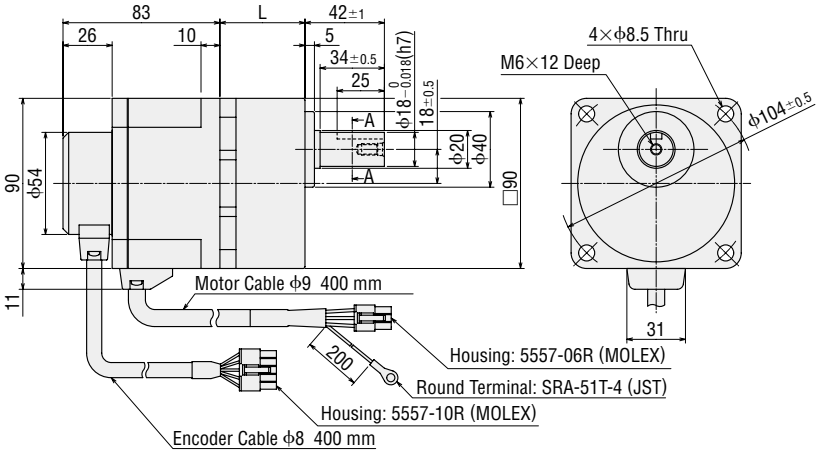
BXS460C-A◇
Motor: BXM460-A2
Mass: 1.0 kg



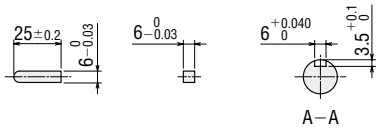
●Standard Type 120 W

◇Motor/Parallel Shaft Gearhead

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



◇Key and Key Slot (Included)



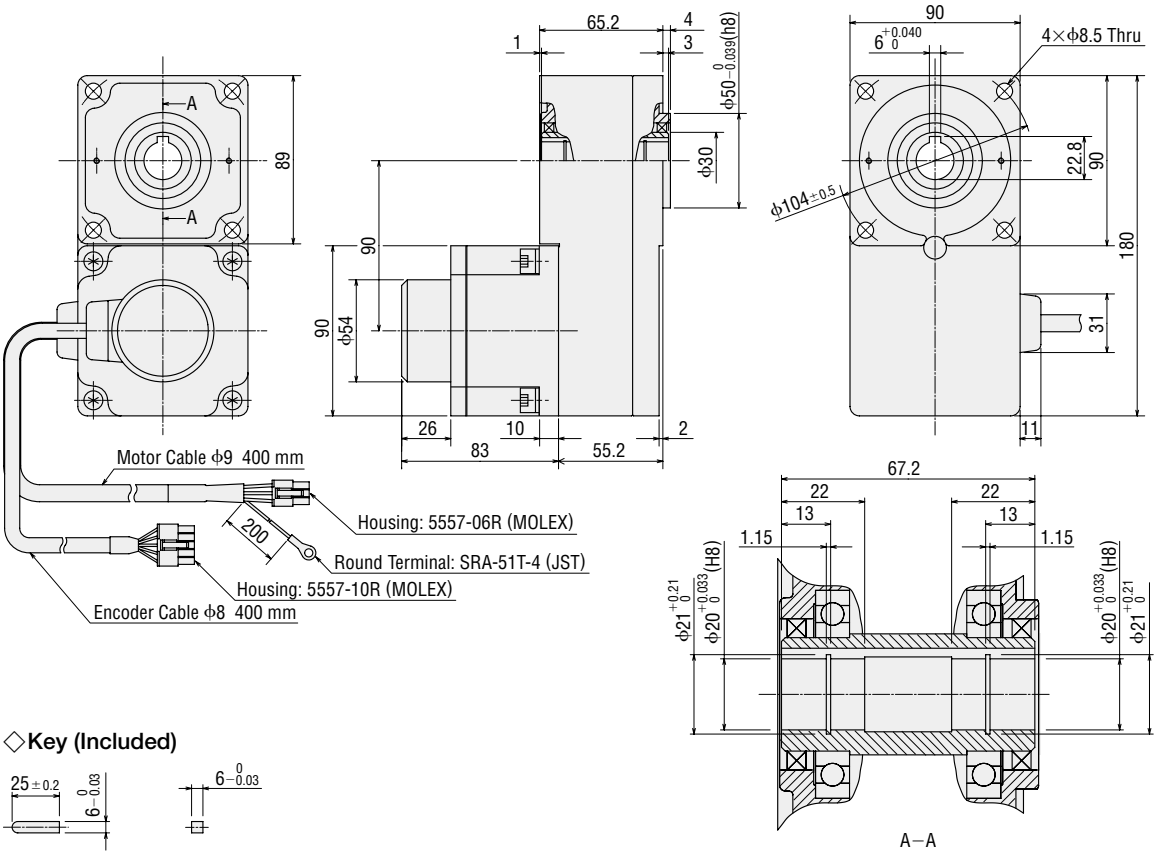
◇Motor/Hollow Shaft Flat Gearhead

BXS5120C-□FR◇

Motor: BXM5120-GFS

Gearhead: GFS5G□FR

Mass: 3.8 kg



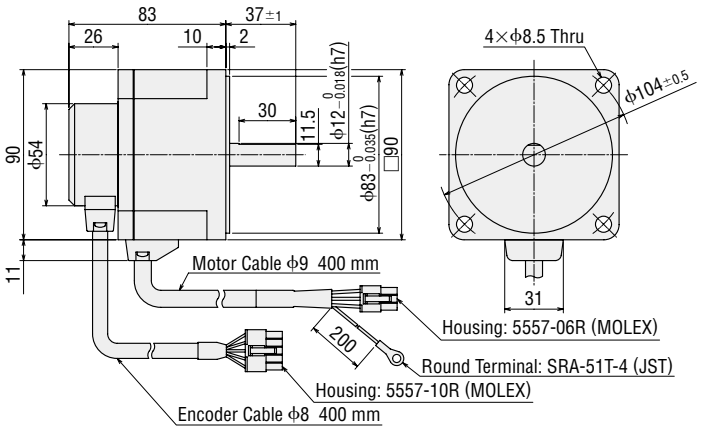
◇Key (Included)

◇Round Shaft Type

BXS5120C-A◇

Motor: BXM5120-A2

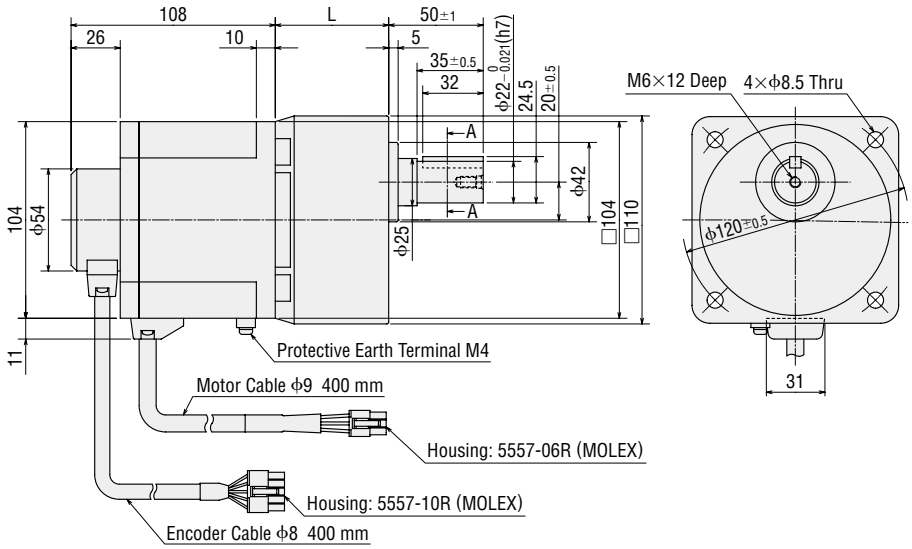
Mass: 1.6 kg



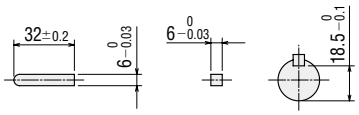
●Standard Type 200 W, 400 W

◇Motor/Parallel Shaft Gearhead

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



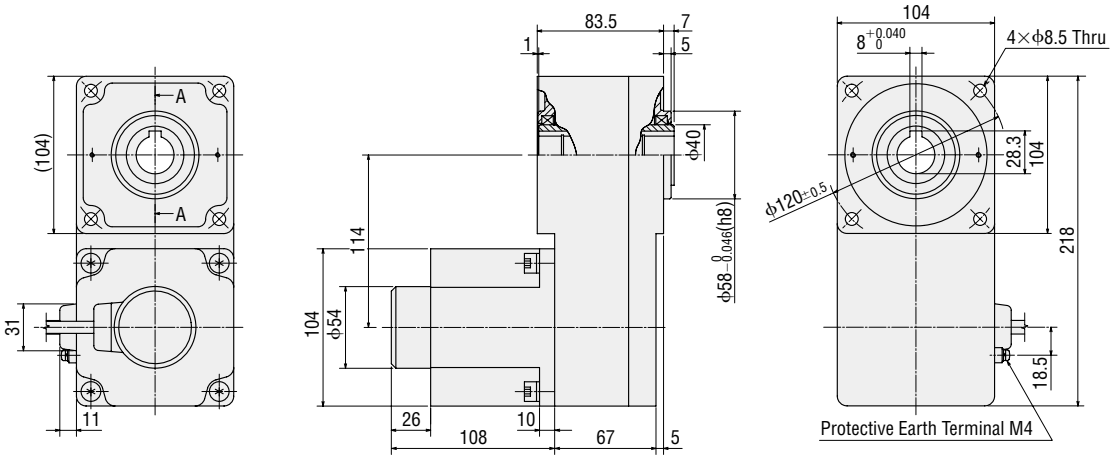
◇Key and Key Slot (Included)

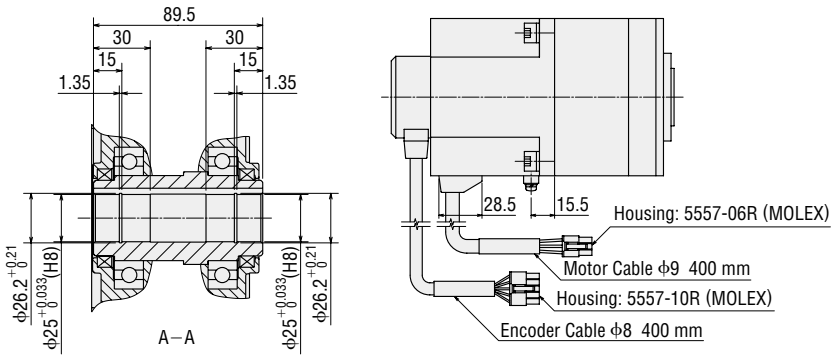


●At the time of shipment, a key is fixed in the key slot of the gearhead shaft.

◇Motor/Hollow Shaft Flat Gearhead

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





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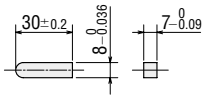
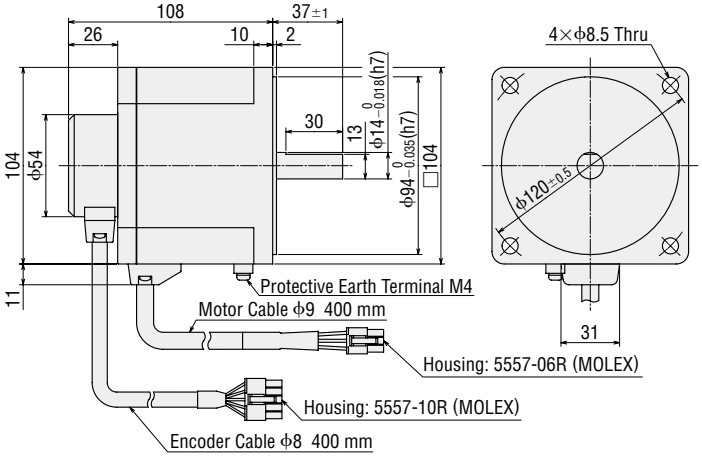


◇Round Shaft Type

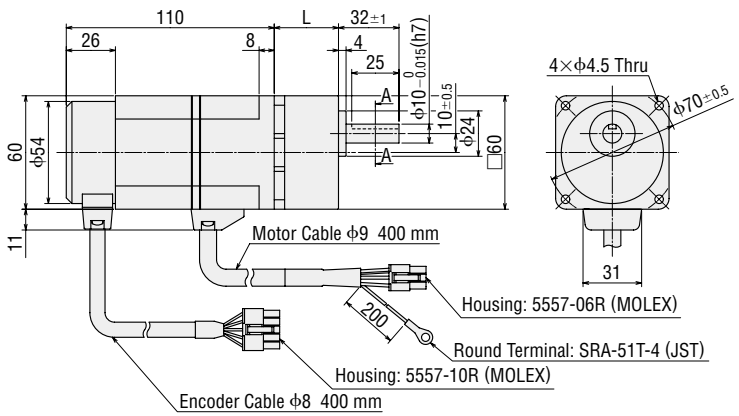
BXS6200C-A◇, BXS6400C-A◇
Motor: BXM6200-A, BXM6400-A
Mass: 2.5 kg



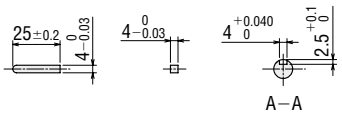
●Electromagnetic Brake Type 30 W

◇Motor/Parallel Shaft Gearhead

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



◇Key and Key Slot (Included)



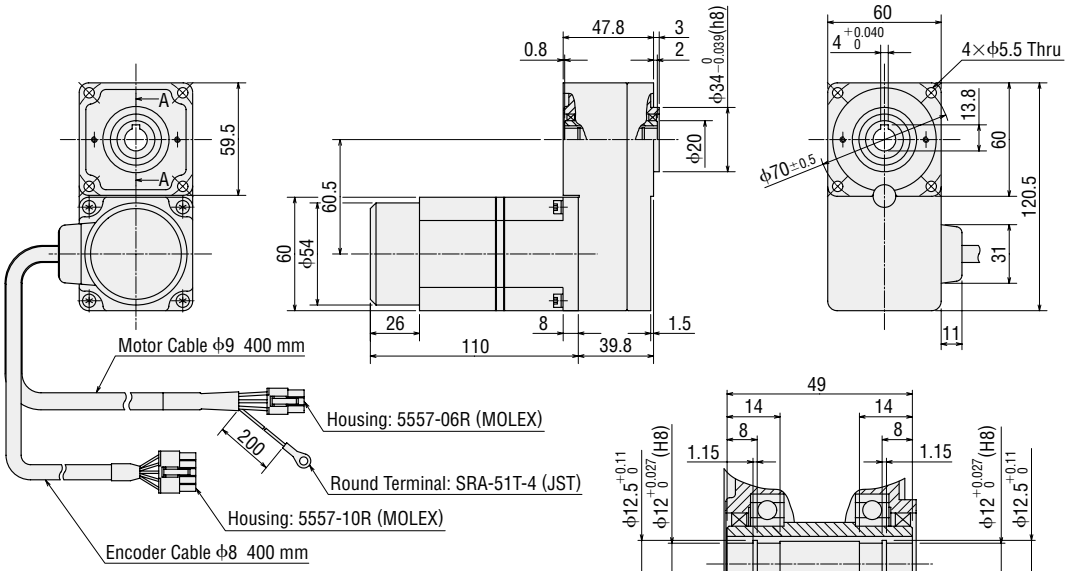
◇Motor/Hollow Shaft Flat Gearhead

BXS230CM-□FR◇

Motor: BXM230M-GFS

Gearhead: GFS2G□FR

Mass: 1.8 kg



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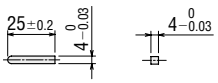
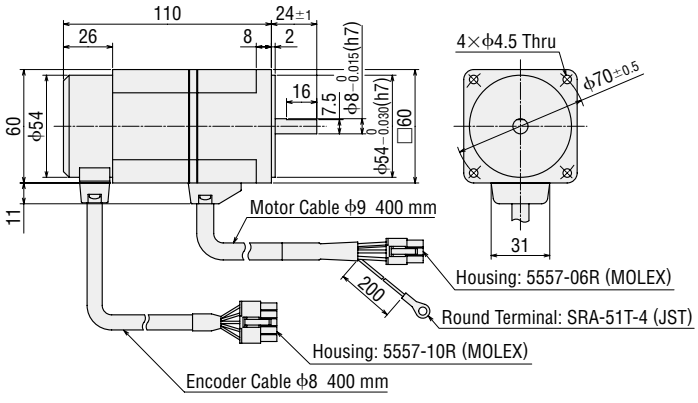


◇Round Shaft Type

BXS230CM-A◇

Motor: BXM230M-A2

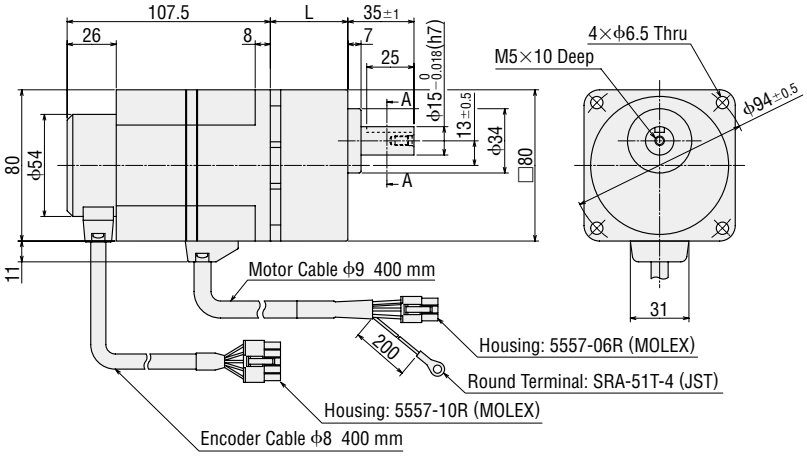
Mass: 1.0 kg



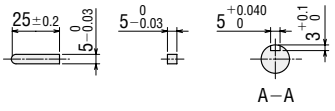
●Electromagnetic Brake Type 60 W

◇Motor/Parallel Shaft Gearhead

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



◇Key and Key Slot (Included)



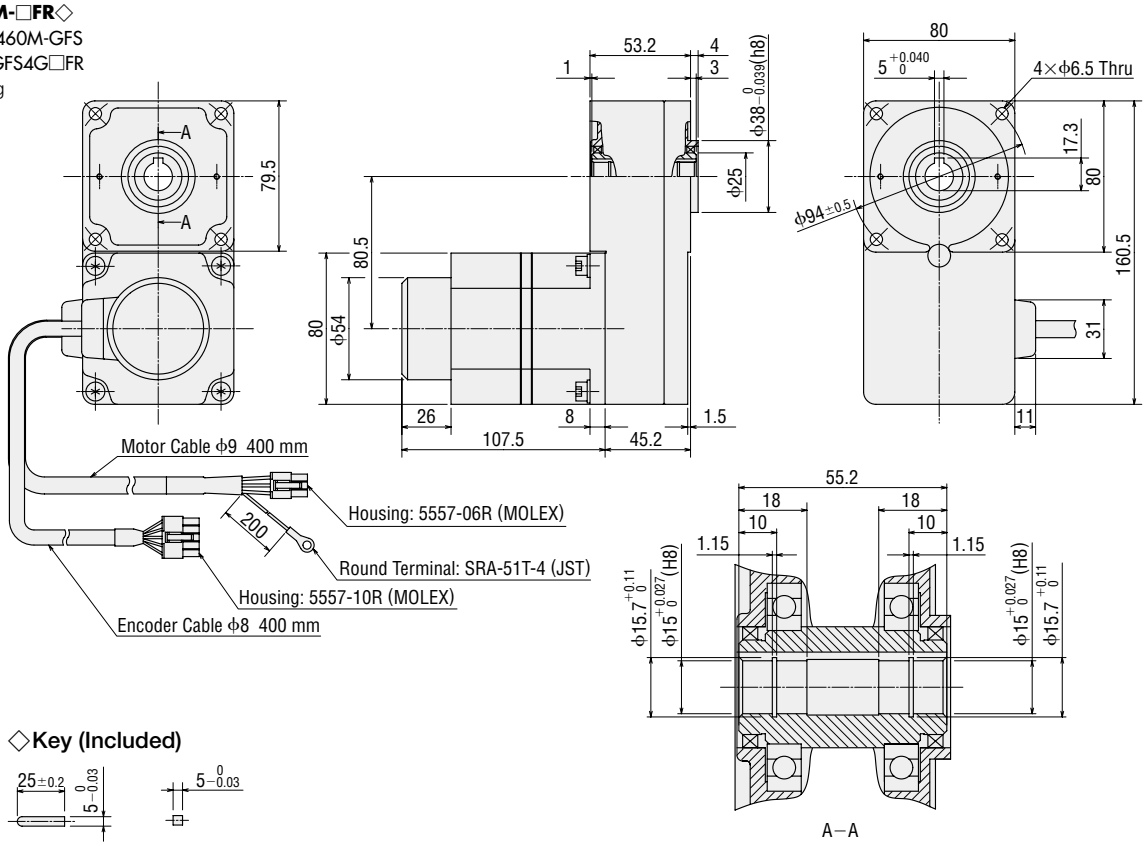
◇Motor/Hollow Shaft Flat Gearhead

BXS460CM-□FR◇

Motor: BXM460M-GFS

Gearhead: GFS4G□FR

Mass: 3.1 kg



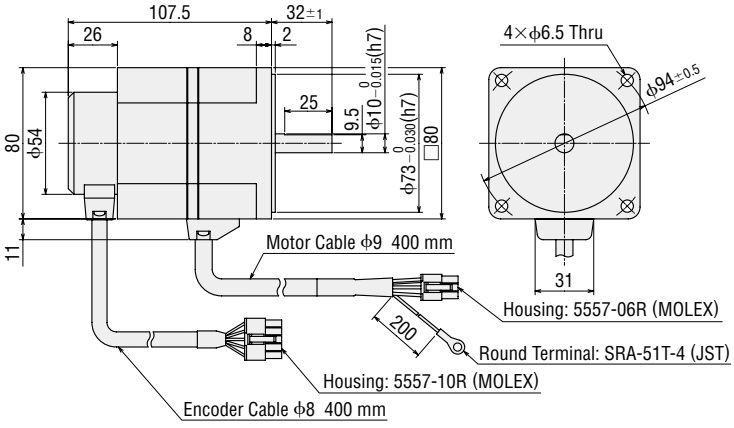
◇Key (Included)

◇Round Shaft Type

BXS460CM-A◇

Motor: BXM460M-A2

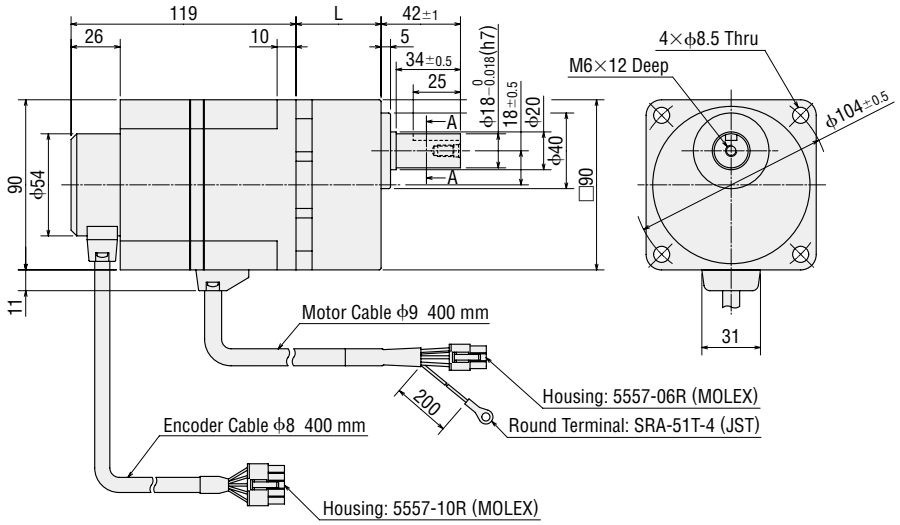
Mass: 1.5 kg



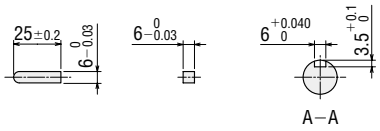
●Electromagnetic Brake Type 120 W

◇Motor/Parallel Shaft Gearhead

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



◇Key and Key Slot (Included)



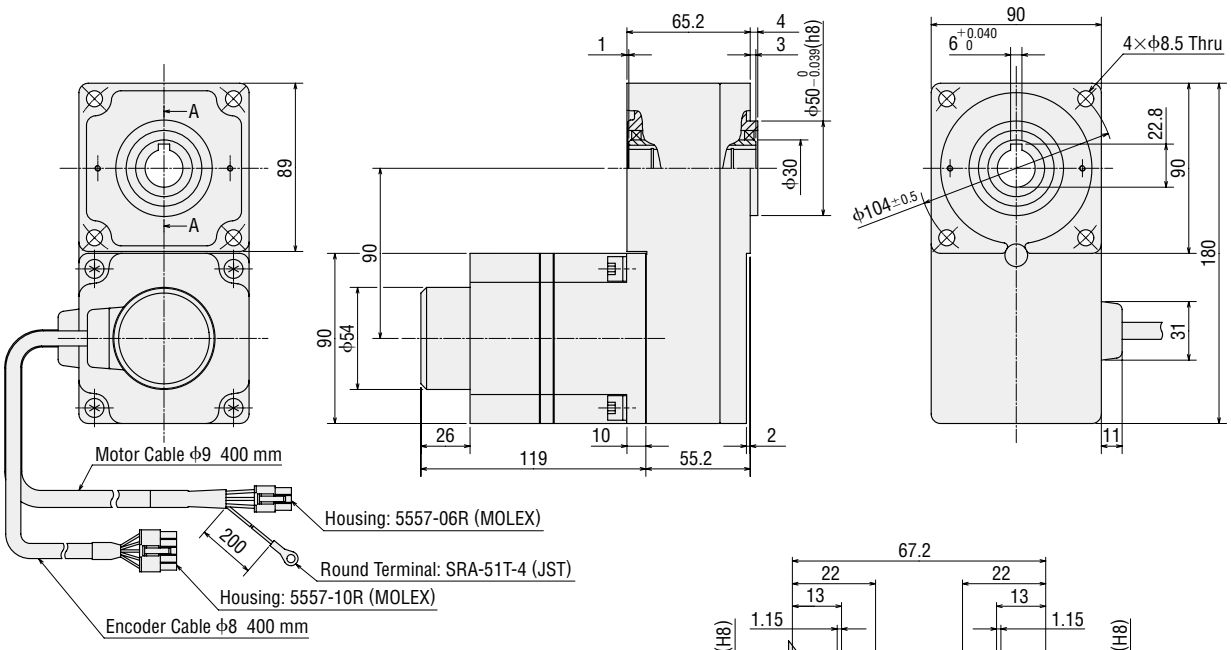
◇Motor/Hollow Shaft Flat Gearhead

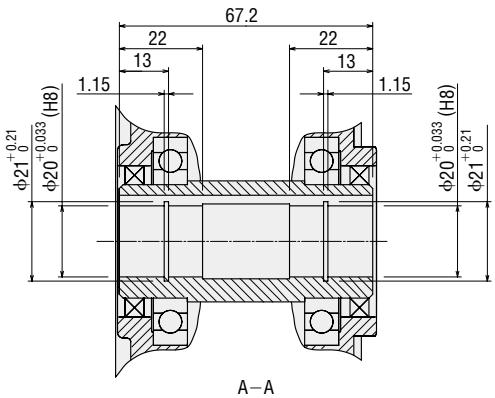
BXS5120CM-□FR◇

Motor: BXM5120M-GFS

Gearhead: GFS5G□FR

Mass: 4.4 kg





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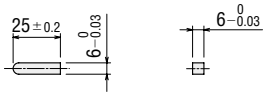
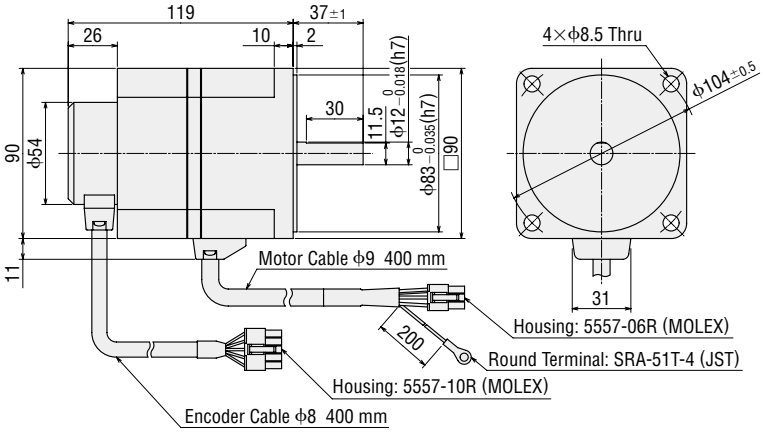


◇Round Shaft Type

BXS5120CM-A◇

Motor: BXM5120M-A2

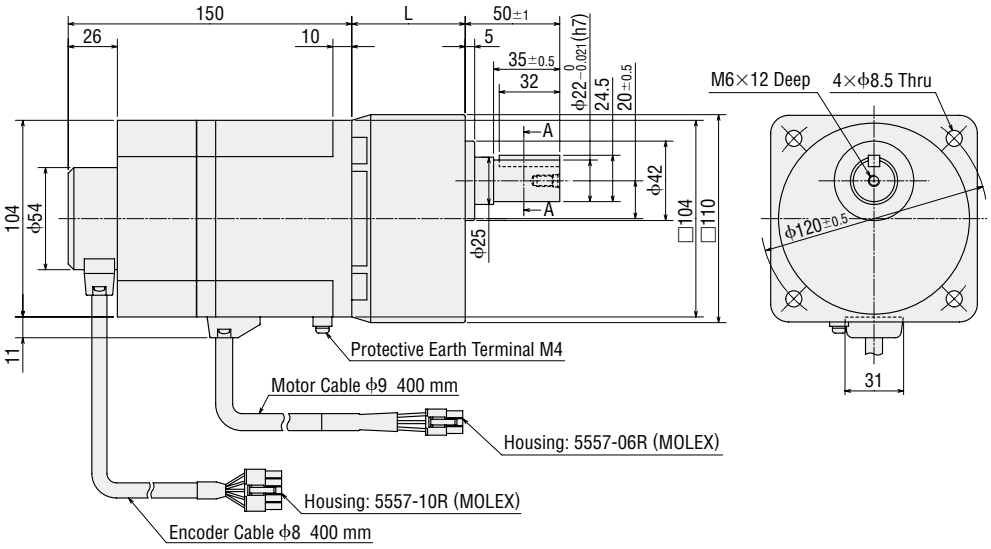
Mass: 2.2 kg



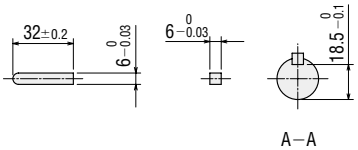
●Electromagnetic Brake Type 200 W, 400 W

◇Motor/Parallel Shaft Gearhead

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



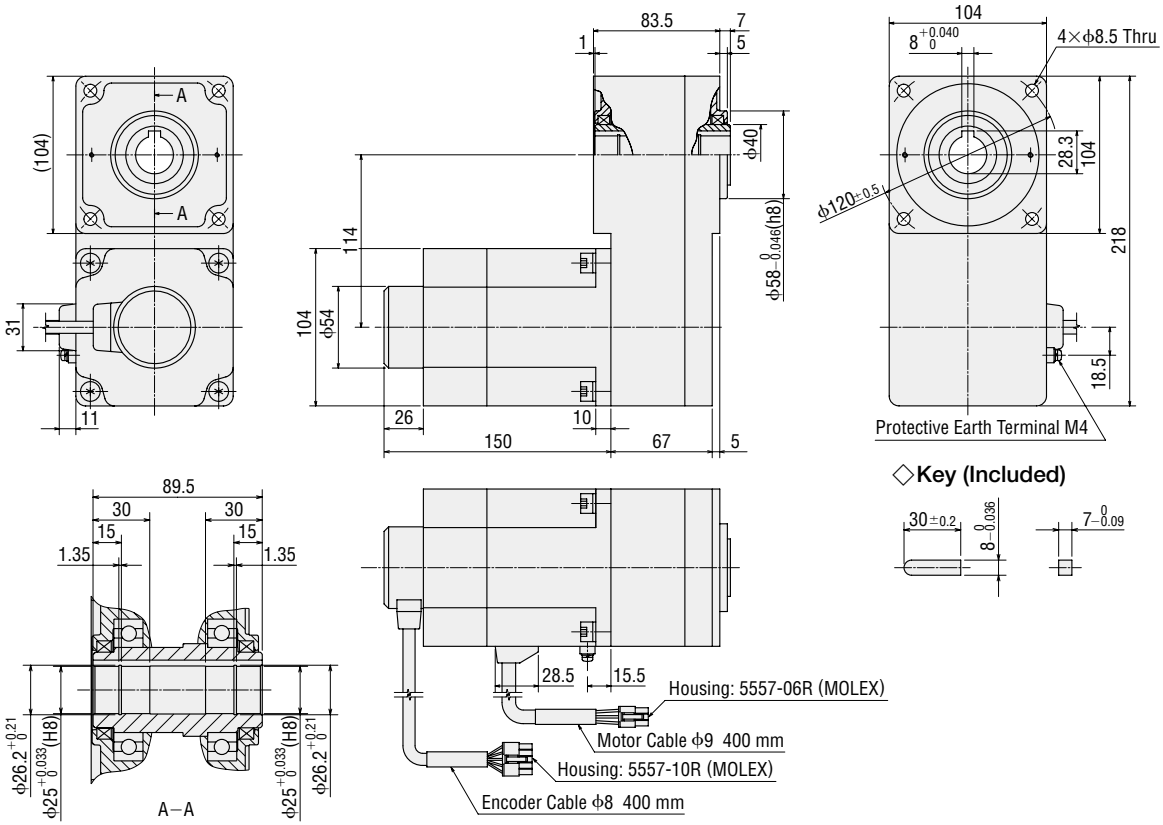
◇Key and Key Slot (Included)



●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
BXS6200CM-□FR◇	BXM6200M-GFS	GFS6G□FR	8.3
BXS6400CM-□FR◇	BXM6400M-GFS		



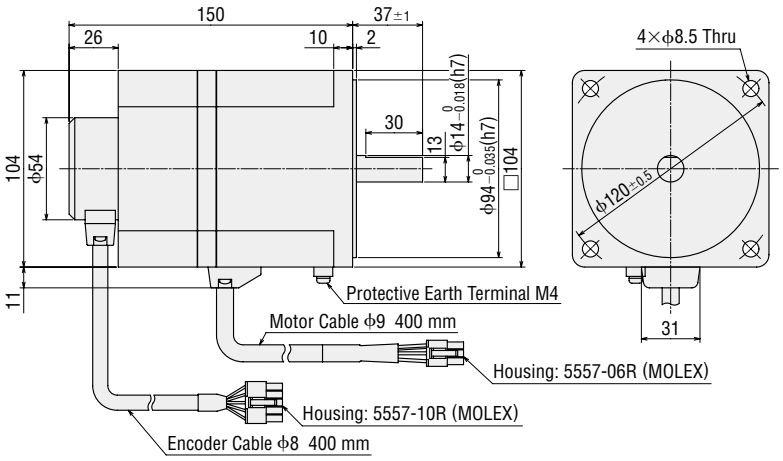
◇Key (Included)

◇Round Shaft Type

BXS6200CM-A◇, BXS6400CM-A◇

Motor: BXM6200M-A, BXM6400M-A

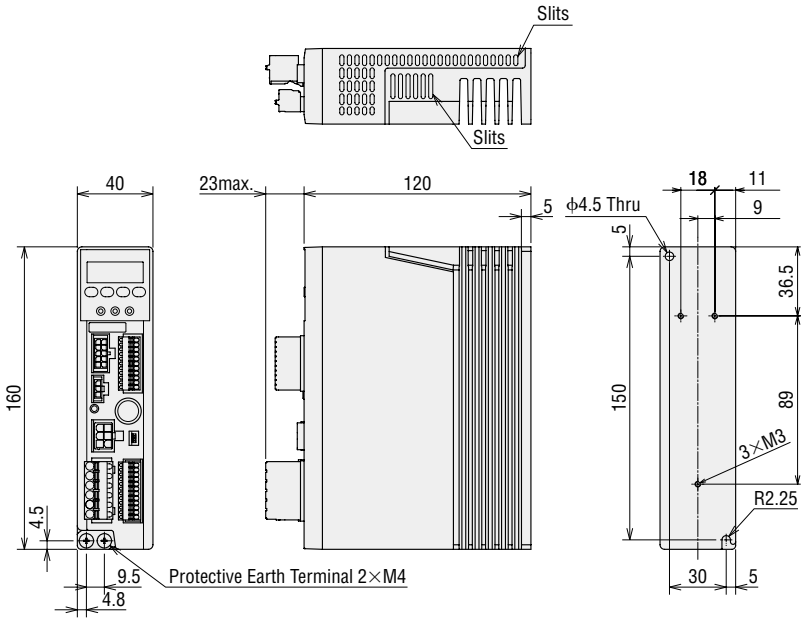
Mass: 3.5 kg



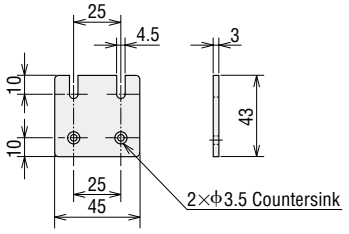
●Driver (Common to all types)

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

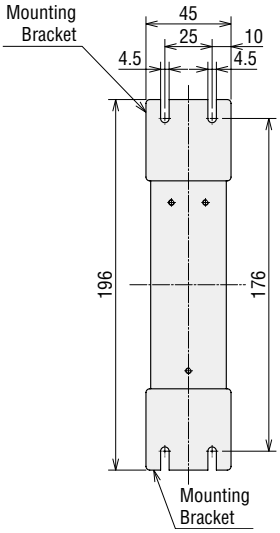
Mass: 0.8 kg



◇Driver Mounting Bracket (A set of 2 pieces)



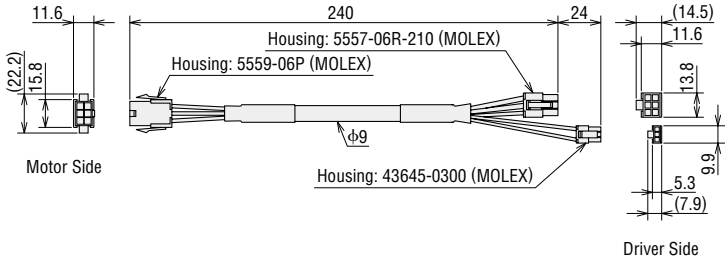
●When the driver mounting brackets are attached



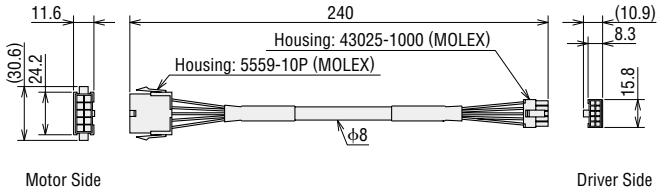
◇Conversion Cables (Included)

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

•For Motor



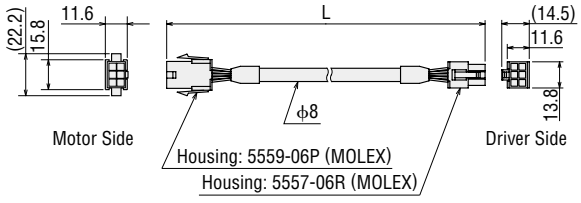
•For Encoder



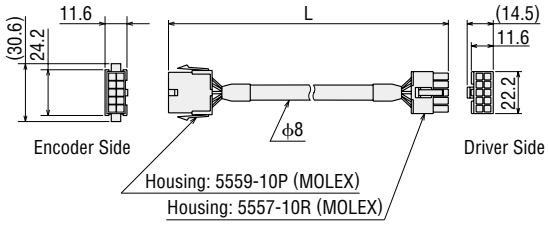
●Connection Cable (Included)

Cable Length	Length L (m)
1 m	1
2 m	2
3 m	3

◇For Motor

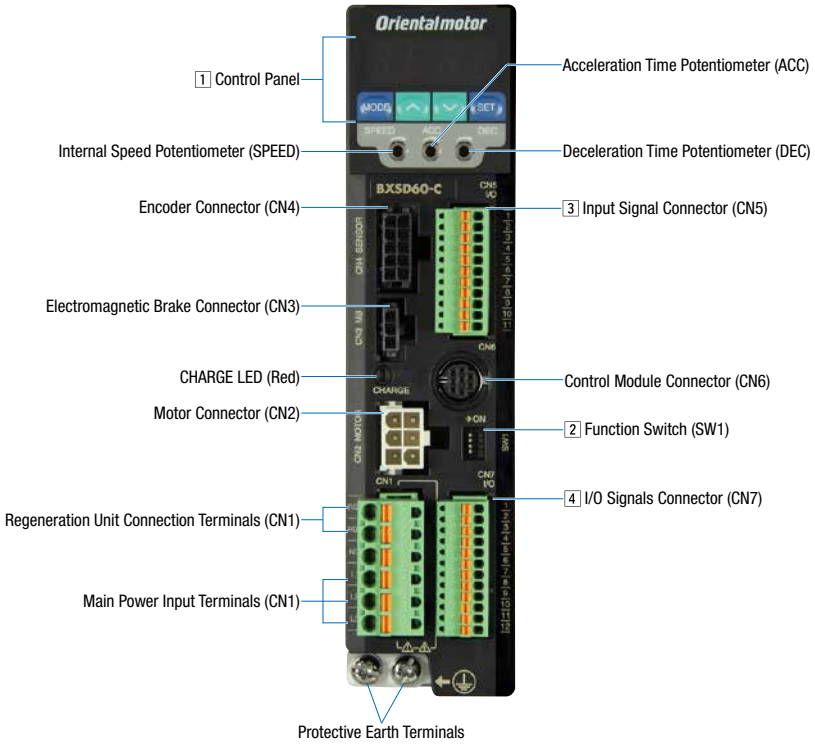


◇For Encoder

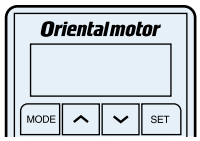


Connection and Operation

Names and Functions of Driver Parts



1 Control Panel



MODE Key: Changes the operating mode

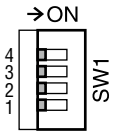
Key: Changes the setting value

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	Operating data No. selection
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	Operating data No. selection
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	

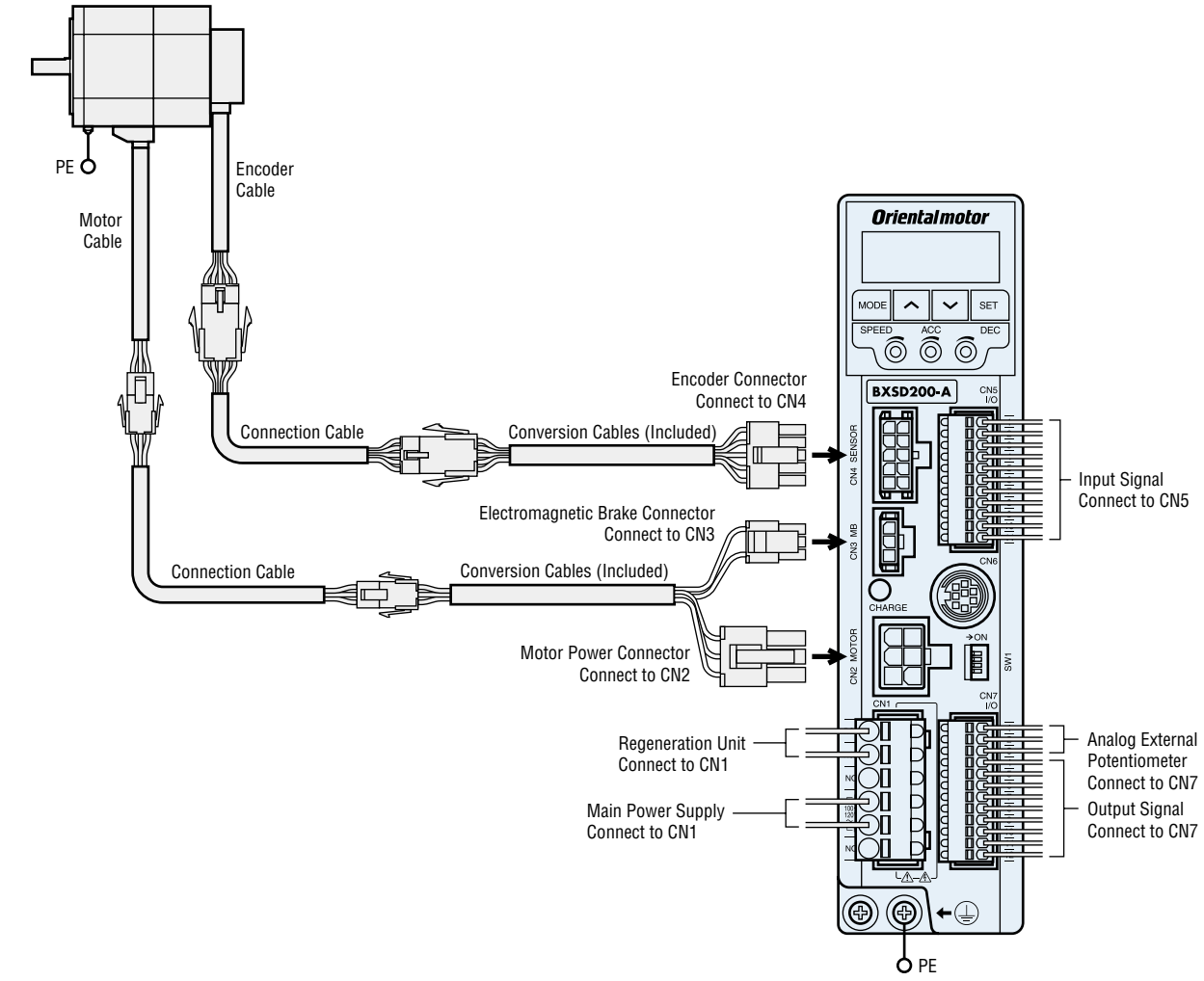
•For Position Control Mode

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	

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

●Connection Diagram

◇Connection Example



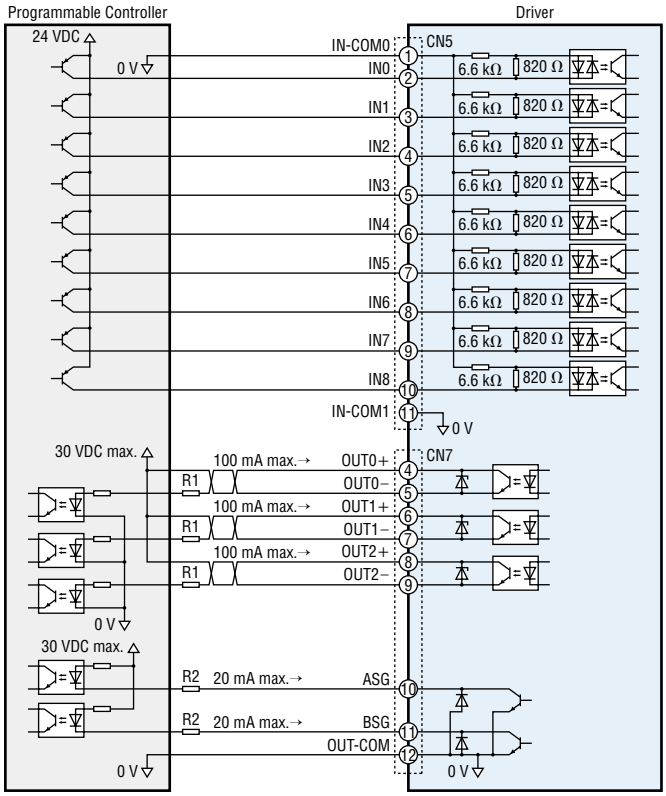
Note

● 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.

◇Connection to Programmable Controller

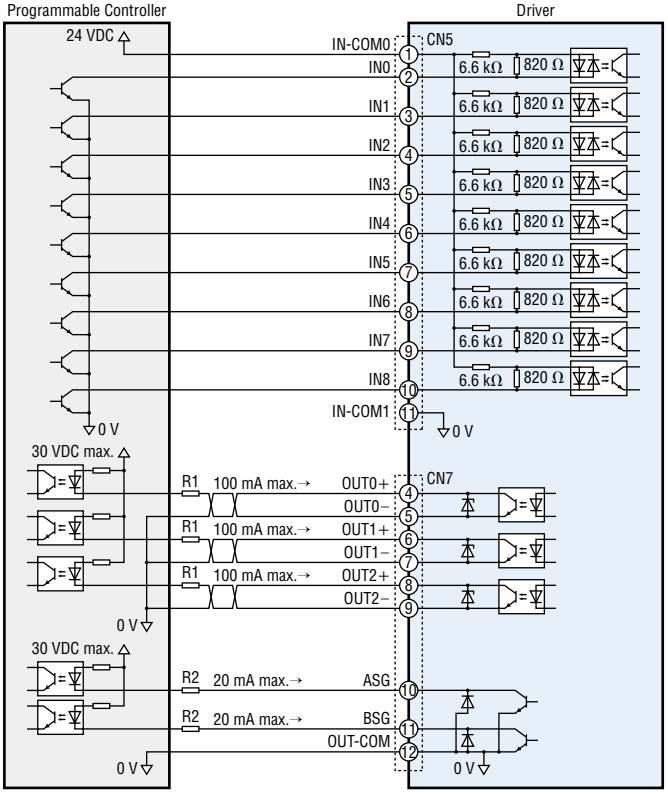
•Source Logic



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.

•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.

For details and precautions for use on these products please refer to the User's Manual. The User's Manual can be downloaded from the ORIENTAL MOTOR website.

www.orientalmotor.eu

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	**BXS230C-□S-◇**	BXM230-GFS	GFS2G□	BXSD30-C
60 W	**BXS460C-□S-◇**	BXM460-GFS	GFS4G□	BXSD60-C
120 W	**BXS5120C-□S-◇**	BXM5120-GFS	GFS5G□	BXSD120-C
200 W	**BXS6200C-□S-◇**	BXM6200-GFS	GFS6G□	BXSD200-C
400 W	**BXS6400C-□S-◇**	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	**BXS230C-□FR-◇**	BXM230-GFS	GFS2G□FR	BXSD30-C
60 W	**BXS460C-□FR-◇**	BXM460-GFS	GFS4G□FR	BXSD60-C
120 W	**BXS5120C-□FR-◇**	BXM5120-GFS	GFS5G□FR	BXSD120-C
200 W	**BXS6200C-□FR-◇**	BXM6200-GFS	GFS6G□FR	BXSD200-C
400 W	**BXS6400C-□FR-◇**	BXM6400-GFS		BXSD400-C

◇Round Shaft Type

Output Power	Product Name	Motor Product Name	Driver Product Name
30 W	**BXS230C-A-◇**	BXM230-A2	BXSD30-C
60 W	**BXS460C-A-◇**	BXM460-A2	BXSD60-C
120 W	**BXS5120C-A-◇**	BXM5120-A2	BXSD120-C
200 W	**BXS6200C-A-◇**	BXM6200-A	BXSD200-C
400 W	**BXS6400C-A-◇**	BXM6400-A	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	**BXS230CM-□S-◇**	BXM230M-GFS	GFS2G□	BXSD30-C
60 W	**BXS460CM-□S-◇**	BXM460M-GFS	GFS4G□	BXSD60-C
120 W	**BXS5120CM-□S-◇**	BXM5120M-GFS	GFS5G□	BXSD120-C
200 W	**BXS6200CM-□S-◇**	BXM6200M-GFS	GFS6G□	BXSD200-C
400 W	**BXS6400CM-□S-◇**	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	**BXS230CM-□FR-◇**	BXM230M-GFS	GFS2G□FR	BXSD30-C
60 W	**BXS460CM-□FR-◇**	BXM460M-GFS	GFS4G□FR	BXSD60-C
120 W	**BXS5120CM-□FR-◇**	BXM5120M-GFS	GFS5G□FR	BXSD120-C
200 W	**BXS6200CM-□FR-◇**	BXM6200M-GFS	GFS6G□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	**BXS230CM-A-◇**	BXM230M-A2	BXSD30-C
60 W	**BXS460CM-A-◇**	BXM460M-A2	BXSD60-C
120 W	**BXS5120CM-A-◇**	BXM5120M-A2	BXSD120-C
200 W	**BXS6200CM-A-◇**	BXM6200M-A	BXSD200-C
400 W	**BXS6400CM-A-◇**	BXM6400M-A	BXSD400-C

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