

① Spin and push. Easy speed control.



Turn the dial, and set the speed to your desired speed.

Turning the settings dial has a similar feeling as with clicking. Turning the dial clockwise increases the speed, while turning it counterclockwise reduces the speed.



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

While observing the indication, turn the dial slowly to the right, and notice that speed increases by 1 r/min. While turning it slowly to the left, notice that the speed decreases by 1 r/min.



Pushing the dial sets the speed.

Once the desired value for speed is set. When power is re-supplied after setting the speed, the motor operates according to the set speed.



The dial operation can be locked.

After the speed has been set, it can be changed by operating the dial. The dial can be locked to prevent changes in speed with the dial operation. →Page 9

② Easy wiring. Quick start.



The motor and driver can be easily connected.

The motor connector is compact, and it easily passes through the flexible conduit and the cable gland.



The power and I/O connectors are of the screwless type.

There is no need for welding or special crimp tools when connecting the power connector and the I/O connector. While pushing the orange button, just insert the lead wire.



With only one switch, the motor can be started immediately.

The motor starts when the switch is set to the "RUN" position.

If set to the "STAND-BY" position, the motor decelerates to a stop.

The motor can be easily operated with the operating switch on the front side.



The rotation direction of the motor can be changed with easy operation.

Switching the rotation direction is possible with the rotation direction switch. It is possible even when the motor is in operation.

③ Opening the panel reveals the extensive functions.

Various functions can be set on the driver.

(Typical functions that can be set while the front panel is opened)

- Motor Startup/Stop*
- Adjustment of operating speed*
- Setting the operating speed*
- Selecting the rotation direction*
- Changing the indication
- Operating speed indication when the speed reduction/speed increasing ratio is set
- Setting the acceleration/deceleration time
- Dial operation lock
- Speed Setting for the 4-Speed Operation
- Speed limits setting.
- Validating the external operating signals
- External input/output signal allocation
- Setting the overload alarm detection time, except during axial lock
- Easy holding function for Output shaft.

*Setting is possible even if the front panel is attached.



Load factor can be shown.

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



Indication at a load factor of 50%

Lock the dial operation.

This prevents the undesired changes in the speed and the changes or deletion of data with the operation of the dial.

- **Setting the Lock Function**
At the main screen for each operating mode, press the "MODE" key for 5 seconds or more. When "Lk" appears, the lock function is activated.



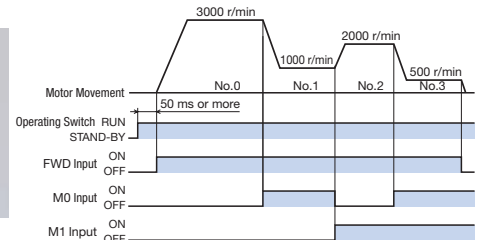
- **Cancelling the lock function**
Return to the main screen, and press the "MODE" key for 5 seconds or more. When "UnLk" is indicated, the lock function has been cancelled.



Acceleration/deceleration time potentiometer

4-Speed Setting.

Operation in 4 speeds is possible by setting the data to operating data No.0, No.1, No.2, or No.3, and switching the input of the M0 terminal.



Indicates the transport speed of the conveyor.

The conveyor gear ratio is computed and set into the "gear ratio" parameters, and the conveyor transport speed can be indicated. As the conveyor transport speed can be checked directly, it is convenient for frequent changing of setup and other processes involved in the manufacturing process.

Sets the acceleration time and deceleration time.

The acceleration time and deceleration time can be digitally set, in addition to adjusting them with an acceleration/deceleration time potentiometer.

- **Setting Range: 0.0~15.0 sec (Initial value: 0.5 sec)**
For the digital setting, the acceleration time and deceleration time are each set independently. Therefore, the time can be freely set according to the desired tact time of the equipment.

Set the upper and lower rotation speed limits.

The upper and lower limits for the speed control range can be set. The speed limits can be set with the monitor mode or data mode.

Output shaft is held when stopped.

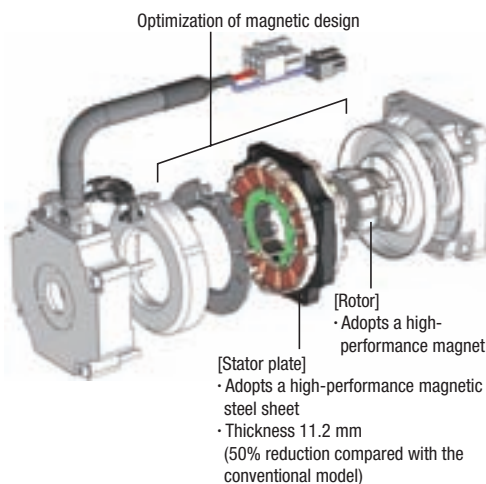
When the motor is stopped, the load can be electrically held. (Holding force is up to 50% of the rated torque.)

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

④ New Brushless Motor NexBL

NexBL designed for compactness, high power and high efficiency

An optimal magnetic design and high-performance material enable a NexBL stator plate thickness of just 11.2 mm. This slimness realizes a highly efficient power unit that outputs 120 W. Compared with the conventional brushless motor of the same output power, the stator plate thickness is only half of the conventional one (For motors with a frame size of 90 mm). Moreover, the use of high-performance material reduces the amount of material used, therefore reducing costs.

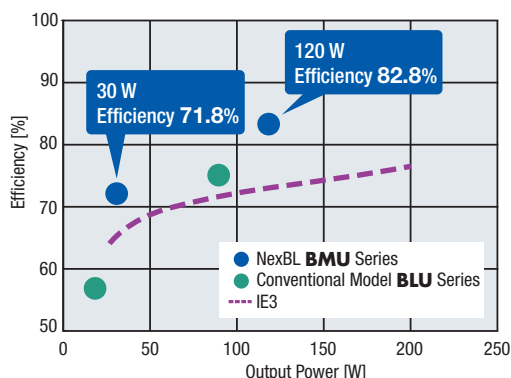


Substantial improvement in the efficiency of the motor and driver package

NexBL **BMU** Series enabled a substantial improvement in the efficiency of the motor and driver package.

- A maximum of 15% improvement of the efficiency of the package*1
- Exceeds global standards IE3*2

*1 NexBL **BMU** Type 30 W and **BLU** Series 20 W Comparison
 *2 Established highest efficiency level for the International Standards IEC60034-30.

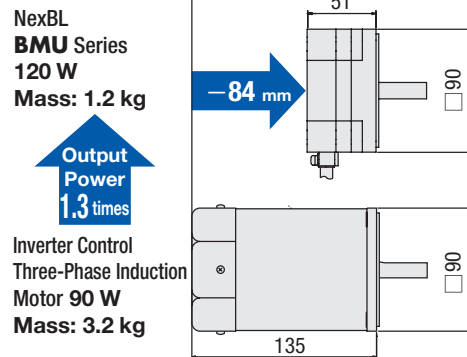


NexBL and Three-Phase Motor Comparison

Weight reduction and slim body are realized with the high-power NexBL. For example, compared with the three-phase induction motor of frame size 90 mm, NexBL has the following advantages:

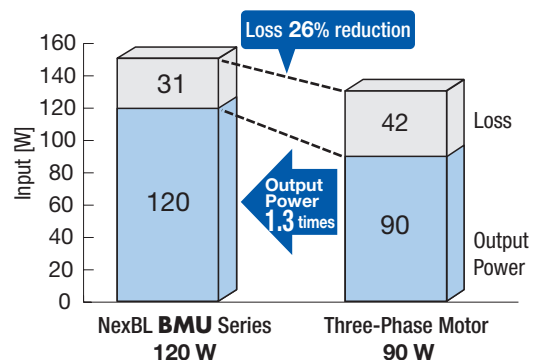
● Downsizing of the Equipment

Motor mass of 2.0 kg (Approx. 63%) reduction, and overall length is 84.6 mm (Approx. 63%) shorter. On the other hand, motor output power increases by 1.3 times. A lightweight, slim, high-power motor enables downsizing of the equipment.



● Energy Savings of the Equipment

Motor output power is increased by 1.3 times, while motor loss is reduced by 26%. This motor is effective for energy savings of the equipment.



The highest standards of speed control now available at an affordable price.

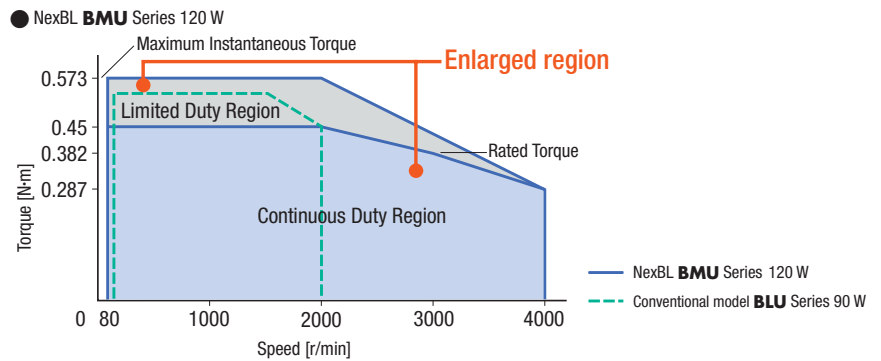
Highest standards of speed control.

Maximum Speed of 4000 r/min

Speed ratio 1:50 (2.5 times of the conventional ratio)

NexBL **BMU** Series has a maximum speed of 4000 r/min.

Speed ratio of 1:50 (80 to 4000 r/min) is realized. Speed regulation has been greatly improved from $\pm 0.5\%$ to $\pm 0.2\%$. With the highest standards of speed control, we respond to our customers' demands.



User-friendly features and extensive functions, all available at an affordable price.

For example, the set price for NexBL **BMU** Series of frame size 60 mm is much cheaper compared with an equivalent conventional model.



Conventional Model **BLU** Series

- Output Power: 20 W
- Gearhead gear ratio: 5
- Permissible torque: 0.45 N·m
- Speed range: 20~400 r/min



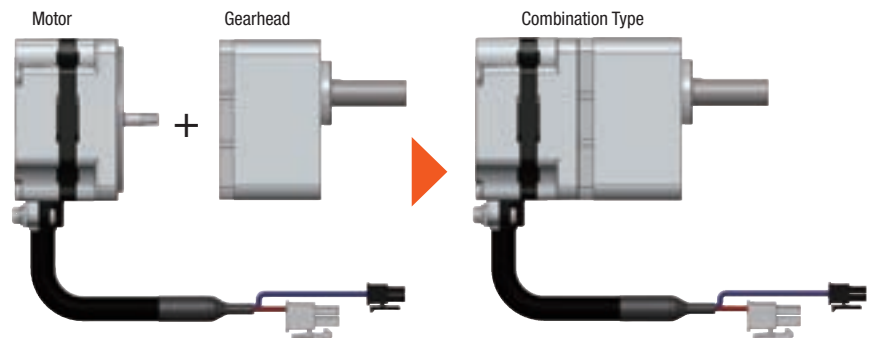
NexBL **BMU** Series

- Output Power: 30 W
- Gearhead gear ratio: 5
- Permissible torque: 0.45 N·m
- Speed range: 16~800 r/min





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

New gearhead combination type.

With the gearhead's boss section and cut on the installation surface, the installation accuracy with the equipment has been improved. It also achieved lower noise, compared with the conventional model. Since the motor and gearhead comes in a preassembled combination type, it can easily be attached to the equipment. The motor, driver, and gearhead comes together, saving time and effort for procurement.



Lineup

Motor	Frame Size	Output Power	Package			
			Type	Driver	Power Supply Voltage	Connection Cable
 Combination Type	60 mm	30 W	Standard (IP20) or IP65		Single-Phase 100-120 VAC Single-Phase 200-240 VAC Three-Phase 200-240 VAC	 1 m, 2 m, 3 m or not included
	Combination Type 80 mm Round Shaft Type 60 mm	60 W				
 Round Shaft Type*	90 mm	120 W				

* For some round shaft types, the shaft is processed with a shaft flat.

Brushless motors, which are suitable for speed control, have the following features:

In a brushless motor, there are no brushes, and thus no physical contact that could lead to frictional energy losses. While DC motors use a brush and commutator to rotate and require regular maintenance, brushless motors rotate by the ON/OFF operation of the drive circuit transistor, based on the signals detected by the hall effect IC (magnetic sensor). Brushless motors are more expensive to design and manufacture, but they are typically more efficient than brushed motors.

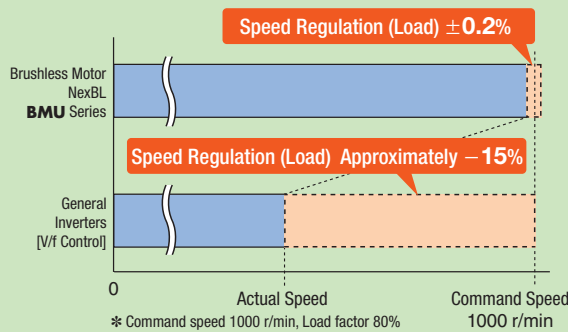
This leads to:

- Less maintenance and longer life
- More power
- Longer runtime

Stable speed control

Brushless motors compare the setting speed with the speed feedback signals from the motor at all times, and adjusts the motor's applied voltage. For this reason, even if the load changes, stable rotation is performed from low speed to high speed. Inverter-controlled (V/f control) three-phase induction motors do not perform, so the speed will drop significantly when the load increases. Brushless motors are recommended for applications that require speed stability.

● Speed change comparison at a load factor of 80% (Reference values)*



Compact and Powerful

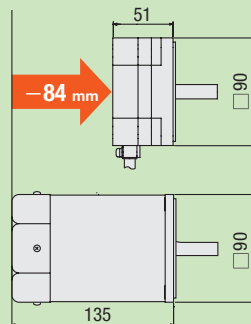
Brushless motors have slim body and provide high power due to permanent magnets being used in the rotor. For example, the overall length is 84 mm shorter and the output power is 1.3 times higher than that of three-phase induction motors with a frame size of 90 mm. Using brushless motors can contribute to downsizing of equipment.



Brushless Motor NexBL BMU Series 120 W

Output Power 1.3 times

Inverter-Controlled Three-Phase Induction Motor 90 W



Wide Speed Control Range

The brushless motor has a broader speed control range compared to AC speed control motors and inverters. Unlike AC speed control motors, the torque at low speed is not limited, so brushless motors are suited to applications that require a constant torque from low speed to high speed.

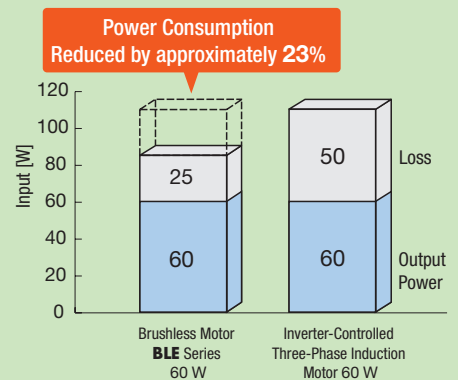
Product Group	Speed Control Range*	Speed Ratio
Brushless Motor NexBL BMU Series	80~4000 r/min	1:50
Inverter-Controlled Three-Phase Induction Motor	200~2400 r/min	1:12
AC Speed Control Motor	50 Hz : 90~1400 r/min	1:15
	60 Hz : 90~1600 r/min	1:17

* The speed control range varies depending on the model.

Contributes to Energy Savings

Brushless motors, which incorporate permanent magnets in the rotor, generate little secondary loss from the rotor. This allows for power consumption to be reduced by approximately 23% compared with inverter-controlled three-phase induction motors.* This contributes to energy savings with the equipment.

* When output power is 60 W



Equipped with protective functions that output an alarm

Various protective functions such as overload protective function and overvoltage protective function are equipped. An alarm is output when a protective function activates.