

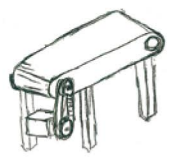
Key differences Stories about the introduction of speed control motors

Case Comparison

Mission


Their job is to create two conveyor work axes (belt conveyors) for the following purposes:

1. For the transportation of parts
2. For product inspection



“Maybe, the three-phase motor can do it because the jobs are simple.”

If speed needs to be changed, the inverter is what we want. The circuit can be added later to the usual motor. It's easy!




Ian Inverter

Joined the company this year. He is quick to take action, but tends to charge ahead without much thought.

“I want to minimize the number of things I have to think about.”

It says that the motor and the circuit come together and the unit is designed “for speed control,” so I will consider a brushless motor.



Bill Brushless

Joined the company this year. He seems to have a knack for dealing with things.

Ian Inverter chose Company A for the motor and decided on Company B, which his experienced colleague was using, for the inverter.

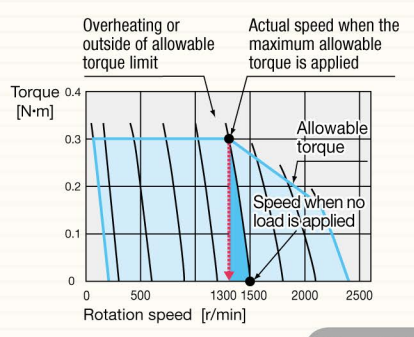
Bill Brushless selected the NexBL BMU Series motor, which looks easy to operate.

“I have to select both a motor and an inverter – it's a little inconvenient.”

I thought speed change was possible from 3 to 120 Hz, but is it true that the speed setup range in the specifications is one thing and whether the motor actually works is another? I have to check its characteristics carefully.

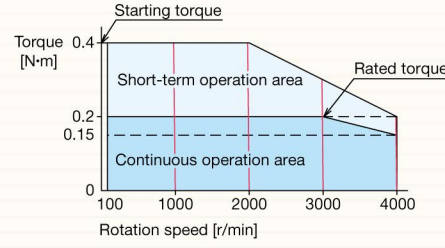
The motor and the inverter are made by different companies. The specification document for the motor doesn't mention torque or current value when they are combined. It just says, “Different depending on the models of the inverter and setup.”

Because I cannot get accurate torque and speed characteristics when the motor and inverter are combined, it would be better to select a combination that would leave plenty of extra power.



“I'm very glad that I don't have to do too much research to choose a motor.”

The torque is constant at any speed. That's easy to understand.



A dedicated motor is combined with a dedicated circuit, so I don't have to choose capacity. Also characteristics and specifications are clearly shown and guaranteed by the maker.

The maker quickly did the calculation for free in the process of choosing the motor and circuit. When I got an answer from the maker's engineer, I could also ask questions.

“Because makers are different, the delivery times are different, too. It's very difficult to place an order.”

The makers of the motor and the inverter are different. The lead time for the inverter seems long, so I have to place an order well in advance. What? The motor will be delivered in a week but the inverter is out of stock?!

Bad timing! I wonder if I can get it through another channel.

“About 0.2 kW? That's too high. Can I go with 0.1 kW?”

Since the makers are different, delivery will be different, too.

“I can order it all at the same time and the maker says they will deliver quickly.”

I can place the order by one part number from the same maker. When they require different numbers for motor, circuit, and gear, making a purchase becomes complicated. If the delivery is made quickly, maybe I can place the order later.

The Purchasing Department will be happy with quick delivery and one product name for all. This makes their job easier.

“It is necessary to set parameters, but this task is a bit of a bother.”

To set up, first, connect the inverter to the motor and perform auto-tuning according to capacity. I want to set overload protection in place, so electronic thermal setup is necessary.

“I can connect them right away without setting parameters. It allows intuitive operation and it starts quickly.”

I can connect the motor with the circuit by fixing the connectors with one easy step. How about setup for conveyor operation? It is designed solely for speed control, so parameter setting is unnecessary, I see. Now, I can operate it intuitively.

Turn and push. Easy!

Click! 3000

“You have further requirements for the conveyor? You should have told me that much earlier!”

A new product will be transported by the conveyor? You want to increase load to be conveyed from 10 kg to 15 kg? I selected a motor with plenty of extra power but after it is actually used, operation speed slows down. My experienced colleague said that the inverter offers open-loop speed control and speed changes according to the load.

I have created several conveyor lines. Isn't it possible to make all the axes operate at the speed I want? When load is applied, speed slows depending on weight. Shall I try again to synchronize the speed?

“You have further requirements for the conveyor? That's fine. There's no adjustment required.”

A new product will be transported by the conveyor? You want to increase load to be conveyed from 10 kg to 15 kg? My calculation shows that the torque is sufficient with this unit. Even if load becomes heavy, the speed is sure to remain unchanged.

I have created several conveyor lines. Even if load is applied, all lines seem to operate at the speed I have set.

Let's keep it that way.

“This is terrible, I can hardly leave the conveyors.”

The speed of only one conveyor is slower. But I have not changed the setup. Why? I have to adjust it on-site.

The display shows the setup speed. The actual speed is unknown.

“I can leave the motor to operate on its own, so it's hassle-free.”

I can monitor the actual speed as well as the load factor applied to the motor. One line shows a high load factor but it seems to have been caused by erroneous assembly of the equipment. The digital indicator works well and it performs as I have adjusted even after the products were delivered.

The actual speed and the load factor of the conveyor are displayed in a digital display.

Conclusion

I am glad that I did not make a choice based on assumption. The difference in specifications and labor hours required leads to total cost reduction.

Do you setup a system based solely on what has been done before? Do you just rely on instinct? We recommend you thoroughly review prices and usages before choosing a motor based on old habits.

