

# On Combination of Gearmotor and Inverter

## 1. Range of Frequency to be Effective

In general, frequency of 5 ~ 120Hz is recommended.

\* For gearmotors with clutch/brake, frequency of 5 ~ 60Hz is recommended.

(1) Cautions for high speed operations of more than 60Hz.:

In the high speed operations of more than 60Hz, vibration and noise will increase. Also, circumferential velocity increased, which may result in shortening of oil seal life.

(2) Cautions for low speed operations:

In the low speed operation, the cooling effect may decrease, which may result in abnormal temperature rise in motor. Therefore, care should be given to the low speed operations. ( Be sure to maintain the temperature of the motor surface below 80 °C .)

## 2. Torque Characteristics of the motor (Operation Limit)

The torque characteristics of the motor (operation limit) differ according to the inverter to be combined with and/or controlling method. We have ready made inverter set (set with the inverter "J1000" produced by Yasukawa Denki) The employment of this set provides you continuous low speed operation. For more details, refer to the "Range of continuous rated operation" on page E86.

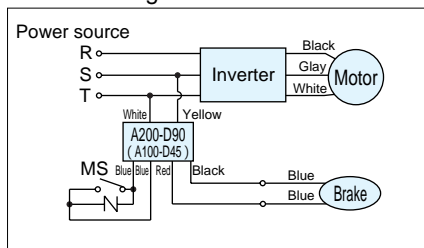
## 3. In case of gearmotors with brake:

For wiring the brake, be sure to bypass the inverter. (Power supply should be from the primary side of the inverter)

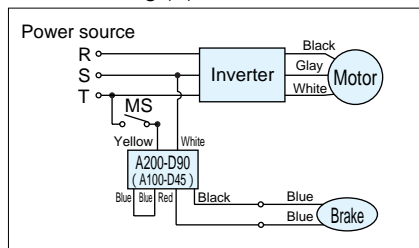
Fluctuations of the voltage may result in braking failure.

Refer to the wiring diagram below:

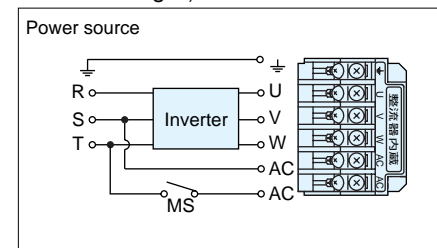
DC Switching



AC Switching (A)



Z-Type Terminal Box (Rectifier built-in) AC Switching (A)



## 4. Correction of the Allowable Value (selection)

At high-speed operation, correction of the allowable value is necessary. To determine the value, multiply the correction coefficient referring to the "Allowable Torque Coefficient by reducer's input rotation speed".

## 5. In case of driving 400V class motor with inverter

Surge voltage may arise between the terminals of the motor, which may weaken the insulation effect of the motor. In general, there are two ways to suppress the surge voltage, namely, one for suppressing the voltage at the initial stage(output reactor) and the other for suppressing the crest value (output filter).

(1) Output Reactor

If the wiring length is relatively short, install the AC reactor in the inverter output side and suppress the crest value. This enables the surge voltage reduced. Suppression of the crest value of the surge voltage may be difficult if the wiring is long.

(2) Output filter

Install the filter in the inverter output side and suppress the crest value of the terminal voltage of the motor.

Since the explanations stated above are the general handling methods, we recommend you to consult with the inverter manufacturer for more details.

Parallel Shaft (Performance Table/Dimension)

Gearmotor with Brake

Water-resistant, Outdoor Gearmotor with Brake

Gearmotor with Clutch/Brake

Reducer (Double Shaft)

S-Type Reducer

Right Angle Shaft (Performance Table/Dimension)

Gearmotor with Brake

Water-resistant, Outdoor Gearmotor with Brake

Gearmotor with Clutch/Brake

Reduce (Double Shaft)

S-Type Reducer

Hollow Shaft Solid Shaft Performance Table/Dimension

Gearmotor with Brake

Water-resistant, Outdoor Gearmotor with Brake

Reduce (Double Shaft)

S-Type Reducer

Concentric Hollow Shaft Concentric Solid Shaft Performance Table/Dimension

Gearmotor with Brake

Water-Resistant, Outdoor Gearmotor with Brake

Reducer (Parallel Shaft)

S-Type Reducer

Technical Information

Standard Motors

Cautions for Safety

Option

GT-STEP Index Gearmotor

KOMPASS Gearbox