

## 10kVA 3-Phase 480v 60Hz/380v 50Hz Frequency Converter

10 kVA AC power frequency converter, three phase input, 1-phase or 3-phase output, change 60Hz to 50Hz for household appliances, 400Hz for military facilities, also convert 220 Volt to 380V/400V in one step.

Tips: Can a motor with frequency of 60 Hz be connected to a 50 Hz power supply?

When the power supply voltage is constant, the power supply frequency is low, which is unfavorable for the operation of the motor. First, the increase in the magnetic flux density of the motor causes the core flux to saturate. At this time, the excitation current of the magnetic flux increases, so the increase of the total current of the stator of the motor increases, and the iron loss of the motor increases. The motor efficiency is reduced, the heat generation is increased, and the temperature rise is increased. According to the formula of the rotation speed  $n_1=60f/p$ ,  $n_1$  decreases, and the rotor rotation speed also decreases, so that the air volume is reduced, the heat dissipation is poor, and the motor temperature rises.

In order to use a 60 Hz motor for a 50 Hz power supply and not to generate heat, a method of lowering the power supply voltage can be used. Take a 380 volt motor as an example. In order to make the motor not overcurrent, it is necessary to maintain the magnetic flux density unchanged. Under the 50 Hertz power supply, the voltage at which the magnetic flux density is constant is  $(50/60) \times 380 = 317$  volts. That is to say, as long as the power supply voltage drops to 317 volts, 60 Hz, the 380v motor will not generate heat on the 50Hz, 380v power supply. But pay attention to the following two issues. First, the motor speed will be reduced by about 17%. Second, since the voltage is 83% of the rated voltage, the power used after the step-down is only 83% of the original motor power.

In this case, ATO recommends using frequency converter as a standard power supply. AC power supply can step-up & step-down frequency and voltage, output pure sine wave, convert fixed frequency to the required frequency and voltage.