How Low Voltage Affects Firing Time

Plug the kiln into the correct circuit.

Low voltage can double the firing time. If your kiln is firing too slowly, make sure the voltage listed on the kiln's electrical data plate matches the voltage of the electric circuit. (The electrical data plate is usually located on the side of the kiln or the switch box.) Firing a 240 volt kiln on 208 volts reduces the kiln's power by 25%.

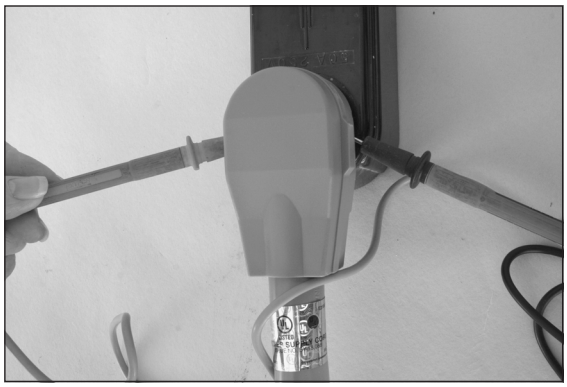
The kiln's electrical data plate.

Even a small drop in voltage can affect the firing speed.

Low voltage has the same effect as firing with worn out elements. Even a small drop in voltage can slow down your kiln. For example, we test-fired a 120 volt kiln that took 5 hours and 3 minutes to reach 2331°F (1277°C). On a separate electric circuit, the same test kiln took only 2 hours and 30 minutes to reach 2350°F (1287°C). The difference in voltage between the two circuits? Only 7 volts.

Fire the kiln when voltage is highest. Turn off other large appliances.

If your kiln ever slows down temporarily, do not assume that it is due to worn elements. The voltage to your building may have dropped due to peak demand. Have an electrician check the voltage under load (while the kiln is firing). Until you know the voltage, an amp reading of the kiln won't tell you much, because low voltage also causes low amperage.


Checking the voltage under load (while the kiln is firing).

If the voltage is low during a period of peak demand, fire your kiln when the electrical demand is lower and the voltage is higher. Fire at night or early morning. Also, turn off other large electrical appliances such as a clothes dryer while the kiln is firing.

Use the correct circuit wire gauge.

For the recommended circuit wire size, consult your local electric codes and the kiln's electrical specs at www.paragonweb.com. (Enter the kiln model number at the website search line.) Install the kiln within 25' (7.62 m) of the breaker or fuse panel. For every additional 50' (15.24 m) from the panel, increase the circuit wire size by one gauge. This helps to reduce voltage drop.

Program a slower rate.

A digital controller will show error messages when it has been programmed at a faster rate than the kiln is capable of firing. This can happen even when voltage is normal and the kiln is new. You may be using a firing schedule that is designed for a faster kiln. In this case, program a slower rate.

Moist clay can slow down the kiln.

Another reason your kiln may be firing slowly is that the firing chamber has too much moisture. Firing moist ceramic greenware or moist glass molds can slow down the kiln. Dry these materials before firing them.

Reduce the load density.

Overloading a kiln with a dense load of ceramics and kiln furniture can also slow down the firing.

Have the power company check the transformer.

If the kiln still fires too slowly after following the suggestions above, have the power company check your voltage and readjust the transformer for your area if necessary. You can also request that your power company put a voltage recording unit at your location to check the voltage over an extended period.

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