The Importance of Voltage

FIRED UP KILNS

The voltage available to your kiln can have a significant effect on its ability to reach temperature.

1 Kilns need the correct voltage to produce their rated heating power

Electric kilns rely on the correct voltage to produce their rated heating power. If the voltage is lower than expected, the kiln produces less heat.



2 A small drop in voltage can cause a large drop in heating power

For a kiln designed for 230V:

Supply voltage	Heating power (approximate)
230 V	100%
220 V	92%
210 V	84%

So, a kiln receiving 220V instead of 230V has around 8% less heating power.

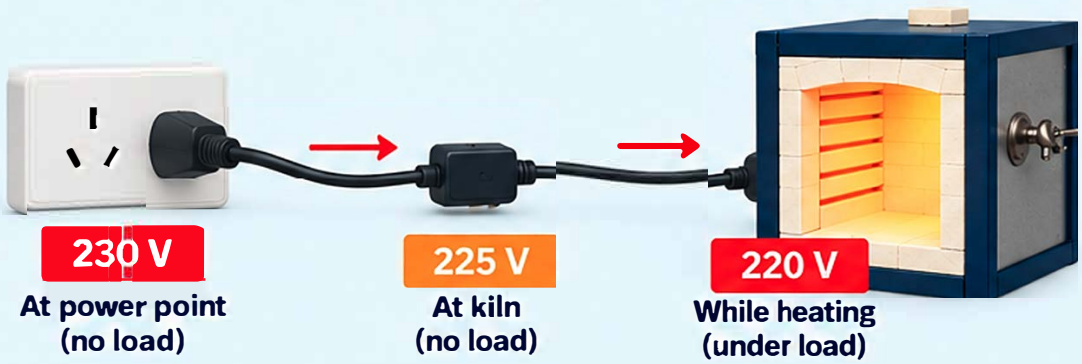
3 Lower voltage can cause firing problems

With less heating power, your kiln may:

- Heat more slowly
- Struggle towards the end of the firing
- Take much longer to reach temperature
- Fail to reach the programmed temperature

4 Voltage can drop between the power point and the kiln

Voltage can drop as electricity travels through your property's wiring, particularly with long cable runs, undersized wiring, connections, or extension leads. The voltage can also drop further when the kiln switches its elements on and begins drawing a large amount of power.



5 Voltage at the kiln while operating is what matters

The voltage measured at a power point with the kiln switched off may not be the voltage the kiln receives while firing. For example, you might measure 230V at the power point with no load, but only 225V at the kiln, and this could fall to 220V while the elements are heating. This is why voltage should be checked at the kiln while it is operating under load when investigating firing problems.

6 Key takeaways

- A kiln **struggling** to reach temperature **does not necessarily** mean there is a fault with the kiln or its elements.
- **Voltage** is determined by the electrical **supply** to your property and **is not** something the kiln itself can control.
- Your kiln may fire perfectly during the day, but struggle at other times when there is high **local electricity demand**, as the voltage available drops.
- As your elements wear, they require **more voltage** to achieve the same results, making a low voltage issue become apparent over time.
- **Checking the actual voltage while the kiln is operating** can be an important part of diagnosing the problem.

Important: Voltage testing should **only** be carried out by a suitably qualified person.