



Clayworks

## Kiln Element Wear

Elements wear out in time. After many firings the kiln elements will become so worn they are unable to reach the desired temperature. Keep a kiln firing log to record how long each firing took. We have multiple kilns firing every day and have seen firing times with new elements completed in 5 hours and then after many firings slow down to needing 15 hours for the same firing.

### Factors that determine firing time.

**Load mass.** The more material in the kiln, the longer it takes to heat up, so the more work for the elements.

**Load distribution.** Evenly distributed kiln loads will distribute heat more evenly. Unevenly distributed loads force the elements to work harder. Evenly distributed kiln loads also reduce the likelihood of overfiring caused by extra heatwork being applied before the load cools.

**Load spacing.** Allowing spaces between the items in the kiln encourages more even heat distribution. Uneven heat distribution forces the elements to work harder. The same as evenly distributed kiln loads, evenly spaced kiln loads reduce the likelihood of overfiring caused by extra heatwork being applied before the load cools.

**Ramp speed.** Slower ramps turn the kiln on and off more often than faster ramps so make the elements work harder.

**Temperature.** The higher the temperature the kiln is heated to the harder the elements must work. Glaze firings wear the elements more than bisque firings.

**Element age.** Element wear is progressive. Like a ball picking up speed rolling down a hill, older elements wear at a faster rate than newer elements.

**Reduced power supply.** If the incoming electricity is less than the load the elements need the elements are forced to work harder to allow for the power shortage. This happens during peak demand periods like dinner time when there increased demand on the grid or when there are multiple users drawing from your electrical supply. It's not uncommon for the 240 volt incoming power to drop to as low as 200 volt.

**Estimating element failure.** All the above factors contribute to the elements failing so there is no predictable number of firings before the elements fail but if you keep a kiln log recording firing times you will see a clear pattern of increasingly longer times needed to complete the firing. After about 100 firings you will notice the increased time. Now is the time to order replacement elements to be ready when needed. By 150 firings you're at very high risk of one or more elements no longer able to reach desired temperature.