

KILN FIRING COSTS



As business owners, we need to know the cost of providing our products and services to make sure we price our products properly. One cost contemporary studio owners need to know is the cost of firing their kiln. This article will give you the information needed to calculate the costs of firing a kiln. The information provided is for kilns that are about 10 cubic feet or about 28" diameter and 27" to 29" deep. The tests were conducted using digital kilns with about 100 pounds of ware in them.

To calculate the costs per firing, we need to understand the formula behind the calculation.

The formula is: (cost per kilowatt hour charged by electric company) x (kilowatt hour rating on kiln) x (the number of hours the kiln takes to complete a firing) x (the duty cycle of the kiln)

The electric company charges for power in kilowatt hours. Electric costs range from \$.07 to \$.18 per kilowatt hour, depending on your location. The cost can be found on the bill from the power company.

The kilowatt rating of the kiln is located on the electrical data plate of the control box on the kiln. The data plate has the volts, phase, amps, and watts. Most of the kilns that are around 10 cubic feet have 9,600 to 11,000 watts, but check the watts on the particular kiln you use. For our purposes, the kiln tested is rated at 10,800 watts. 10,800 watts is the equivalent of 10.8 kilowatts.

The number of hours the kiln fires is shown on the digital controllers at the end of the firing. The average firing time for a Cone 06 medium speed is around 8 hours.

The duty cycle for the kiln is the amount of time the elements have electricity going through them. Electricity is only going through the elements when the relays are on, this is the clicking or humming sound heard when the kiln is operating. The kiln is only using electricity when the relays are on. The general duty cycle for the kilns used in contemporary studios is 50%. Meaning, during the eight-hour firing time, the relays are only "ON" for about four of the eight hour firing time.

Putting this information together and the formula looks like this:

$$$.08/\text{KwHr} \times 10.8 \text{ Kw} \times 8 \text{ hours} \times .5 = \$3.45.$$

Therefore, the cost of firing a 10 cubic foot kiln to cone 06 medium speed is about \$3.50 when the cost per kilowatt hour is \$.07. I have put in a table below to see the cost of firing the kiln at different costs per kilowatt hour.

FIRING COSTS FOR A 10.8 KILOWATT KILN, CONE 06 MEDIUM SPEED

COST PER KW HOUR:

\$0.06	\$0.07	\$0.09	\$0.11	\$0.13	\$0.15	\$0.17	\$0.19	\$2.59	\$3.02	\$3.89	\$4.75	\$5.62	\$6.48
\$7.34	\$8.21												

The costs are generally less than most people expect. There is no change to the cost per firing if the kiln uses three-phase power; the kilowatt hours remain the same. Firing to Cone 04 or adding more ware when loading the kiln has only a marginal impact on the cost of firing.