

Budget Casting Supply LLc

#7101

120 Vac Kanthal Heating Element

Wiring Examples

DANGER:

- These heating elements are NOT insulated. Contacting an energized heating element can cause burns, electrocution and death. Always turn off the power to the unit when there is any chance of contacting the exposed element.
- Equipment using these elements should be operated on circuits protected by a Ground Fault Interrupter (G.F.I.)
- All circuitry and equipment should be checked prior to use by a licensed electrician.
- Check with Federal, State and Local building and wiring codes prior to use.

OPERATING:

- A single element requires a circuit of **120 Vac at 15 Amps** capacity.
- Two elements in series need to operate on a circuit capable of providing **240 Vac at 15 Amps**.
- Two elements in parallel require a circuit of **120 Vac at 30 Amps** capacity.
- Make the connections to the heating element pig tails **OUTSIDE** of the hot chamber of the furnace. Repeated heating and cooling of the connection can cause loosening of the connection and burn out of the heating element at the connection.

Kanthal Heating Element Problems and Solutions

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If the element is burning out in the coiled region it could be caused by a hot spot. The hot spots can be caused by not having enough space between the turns of the coils. It is best to stretch EACH element to a minimum of 60 inches and a maximum of 140 inches. When stretching the element watch the ends carefully as sometimes the end coils don't spread as much as the rest.

Hot spots can also be caused by anything getting on the coils and preventing the heat from getting transferred out. This can include refractory cement splatters or oil.

Make the connections to the pig tails of the heating element OUTSIDE of the furnace hot zone.

Repeated heating and cooling of the connection can cause loosening of the connection and creation of a hot spot leading to element burn out at that point.

Fire a new element and furnace very slowly. As the refractory cement from a newly made furnace is drying it out gases a lot of steam. This steam can corrode the element or cause hot spots.

The manufacturer suggests for kiln use at elevated temperature or under reducing or corrosive conditions that the elements be pre-oxidized by firing the empty furnace to 1922 F and holding that temperature for 8 hours with peep holes wide open and the lid raised slightly to ensure thorough oxidation of the elements.

Don't stretch an element that has been heated. The element should be stretched before applying power because once it has heated for the first time it hardens and becomes more brittle.

Protect the heating element from movement or from contact with objects. Previously fired elements are brittle.

Elements tend to shrink after heating and cooling. This can cause an element to "shrink" out of its groove. When installing the element stretch it for a tight fit against the groove.

When connecting the heater controller to the feed thrus in the furnace wall it is best to use high temperature appliance wire. There should be at least 24 inches of high temperature insulated wire between the pig tails and the controller connections. This allows heat to dissipate from the wire before reaching the controller so the controller body is not overheated.

Don't let the heater run above the 2300 F operating temperature. Continuously applying power for a long period can cause the furnace to rise to a temperature that melts the element.

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REVISIONS

REV	DESCRIPTION	CHKD	DATE	APPR
	SEE SHEET 1			

WIRING FOR A SINGLE 120 Vac KANTHAL HEATING ELEMENT ACROSS A 120 Vac 15 AMP (MINIMUM) LINE

120 Vac
 15 Amp Source

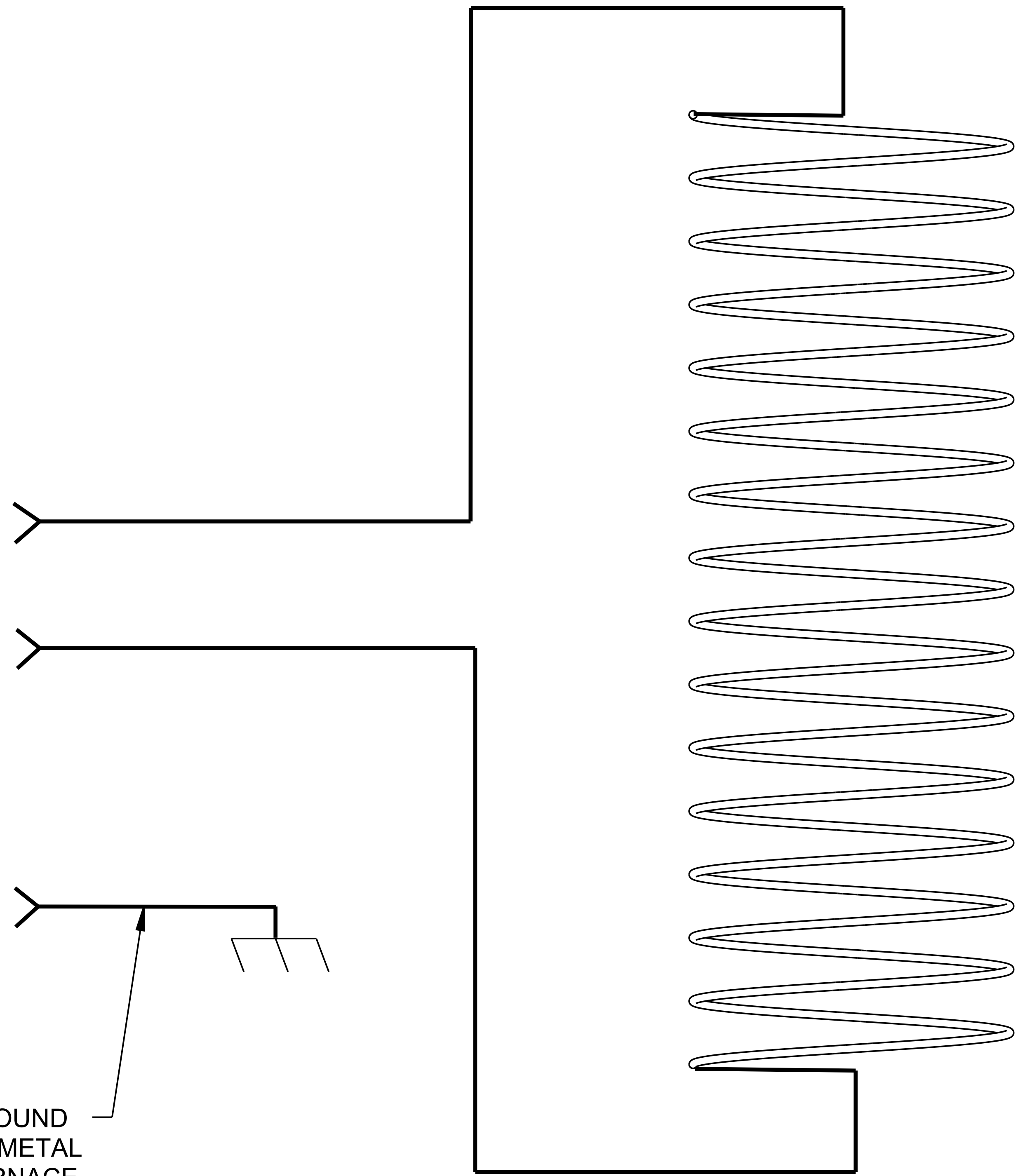
LINE

NEUTRAL

GROUND

GROUND
 TO METAL
 FURNACE
 BODY

#7101
 120 Vac
 Heating Element

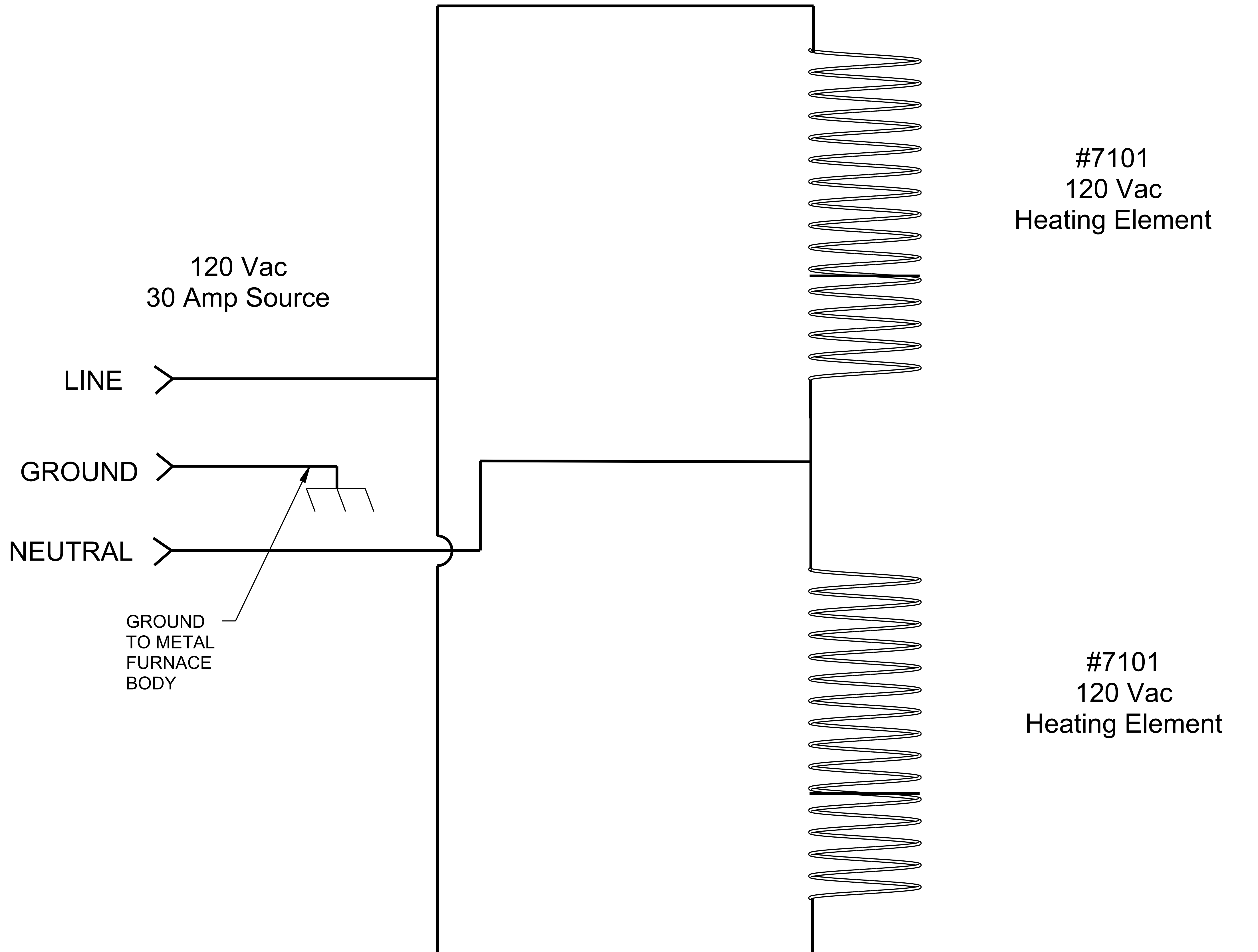


SIZE D	DRAWING NO. 7002 WIRING	REV 2
SCALE: SCALE	ProE File	SHEET 1 OF 3

WIRING FOR TWO 120 Vac KANTHAL HEATING ELEMENTS ACROSS A 120 Vac 30 AMP (MINIMUM) LINE

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REV	DESCRIPTION	CHKD	DATE	APPR
	SEE SHEET 1			



SIZE	DRAWING NO.	REV
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SCALE: SCALE	ProE File	SHEET 2 OF 3

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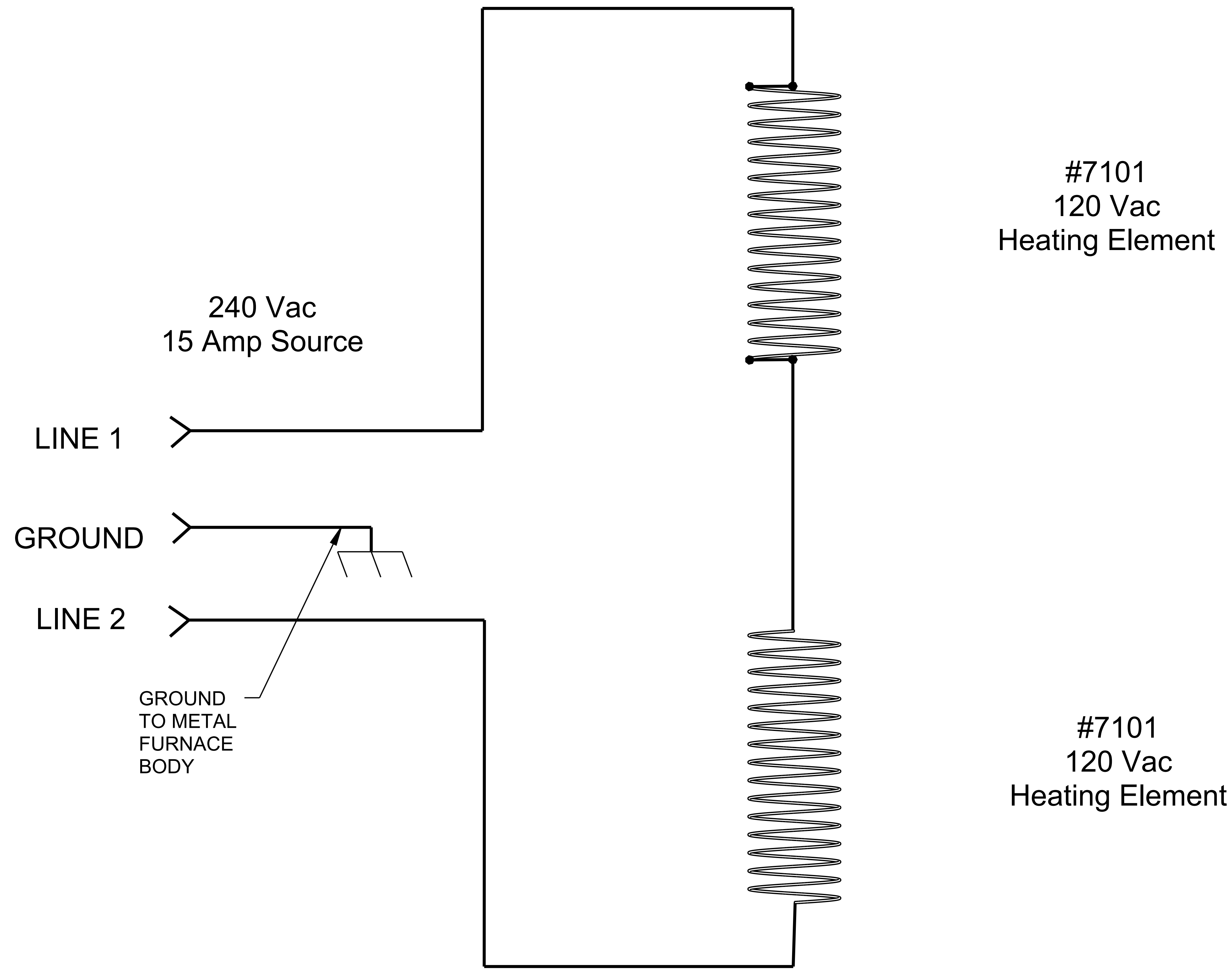
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WIRING FOR TWO 120 Vac KANTHAL HEATING ELEMENTS ACROSS A 240 Vac 15 AMP (MINIMUM) LINE

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	SEE SHEET 1			



SIZE	DRAWING NO.	REV
D	7002 WIRING	2
SCALE: SCALE	ProE File	SHEET 3 OF 3

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