

AccuTemp

“**AccuTemp**” control reduces the variability of the recorded temperature to within $\pm 1^{\circ}\text{C}$ of the actual temperature, which results in the following advantages:

- Uniform temperature within the retort of the furnace
- Negligible variations in size and density anywhere inside the retort
- Ability to attain uniform temperature a few degree below the solidus
- Ability to obtain density of parts as high as 99.8% or better

| ACCU-Temp Setup | | | |
|------------------------|---------------|---------------|--------|
| | Parameter "A" | Parameter "B" | Cutoff |
| Top Front Zone | -0.0023 | 0.3298 | 427.00 |
| Top Middle Zone | 0.0004 | 2.4300 | 427.00 |
| Top Rear Zone | 0.0430 | -1.510 | 427.00 |
| Bottom Front Zone | -0.0009 | 2.8810 | 427.00 |
| Bottom Middle Zone | 0.0004 | -3.451 | 427.00 |
| Bottom Rear Zone | 0.0039 | 1.7890 | 427.00 |
| Center Survey | -0.0072 | 3.2100 | 427.00 |
| CLOSE | | | |

“How is it done?”

Elnik's MIM 3000 furnaces use seven certified thermocouples to control and monitor the temperatures within the work zone (retort) of the furnace. The data from each certified thermocouple is entered into a data base and a special “**proprietary**” program converts the indicated temperature of the thermocouple into the “**actual**” temperature. The result is that the “**recorded and control**” temperature is within $\pm 1^{\circ}\text{C}$ of the “**actual**” temperature.

A typical thermocouple is accurate to $\pm 1\%$ of the temperature reading. This means that when the thermocouple reading is $1,300^{\circ}\text{C}$ the “**actual**” temperature could be anywhere between $1,287^{\circ}\text{C}$ to $1,313^{\circ}\text{C}$. If you are working with a MIM part and you want to get as close to the solidus of the material phase system and yet avoid the solidus at $1,305^{\circ}\text{C}$ for example, you would set the sintering temperature to below $1,292^{\circ}\text{C}$ or typically at $1,290^{\circ}\text{C}$ or even $1,285^{\circ}\text{C}$ to ensure no liquid phase is formed within the parts.

With “**AccuTemp**” you can set the sintering temperature to $1,300^{\circ}\text{C}$ or even $1,302^{\circ}\text{C}$ and not experience melting within the parts, this is extremely helpful to sinter alloys like 316L stainless steel to 99.8% density or better.

ELNIK SYSTEMS

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