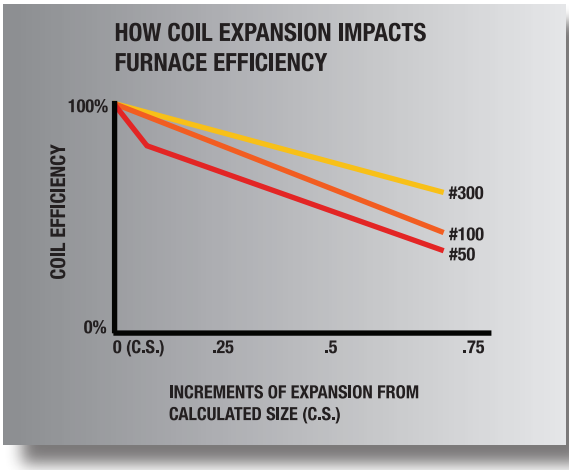
Mel+ Care

Presented by: EMSCO
An Inductotherm Group Company

A Technical Review of Common Induction Furnace Maintenance Issues

Expanding Coil Diameters & Improper Coil Sizing

This is a common problem, often revealed by increased melt times (your power supply isn't always the culprit when melt times increase!) and/or visible change in the coil diameter ("barrel shape").



When Your Coil Expands – Your Production Contracts.

Your cost of labor, energy, and refractory all increase and your bottom line decreases. In some cases, an oversized induction coil will reduce refractory life by 30 percent!

The wooden straight edge highlights the degree of expansion that has occurred in this coil. Notice the wood steadily moves further away from the coil surface.

Here the same wooden straight edge is placed on a coil that has been professionally resized. Notice the wood is flush with the coil surface.

What are the Tell-Tale Signs of Coil Growth?

Improper coil grout or coat is a key indicator. Most refractory is predisposed to expansion, as a result, proper grout application plays an important role in preventing expansion from impacting areas where it will damage your furnace. Variance in coil dimensions is detected by stripping your coil and measuring it in different locations. Those measurements are compared against the dimensions specified on the OEM's furnace cross section drawings.

EMSCO Recommends Routine Inspections.

Visual inspection of the coil is one of the easiest ways to detect early symptoms of coil expansion. Broken coil supports, misalignment of coil terminations, broken castables or composite furnace components, and change in refractory lining quantities are all indicators of potential coil expansion. Monitor these areas regularly, record any changes you observe, and contact us to discuss corrective measures.

A Tip From The Melting Industry's First Responder:

Check to see if your shunt bolts are tight on a monthly basis. Keeping the shunt bolts tight ensures the shunts are delivering proper support and can help reduce the risk of coil expansion.

What Solutions are Available if Your Coil has Expanded?

Once EMSCO has calculated the degree of expansion and projected the overall impact the problem is having on your production, we provide you with a detailed analysis of your coil assembly along with coil resizing options. After EMSCO has resized and restored your coil to its original OEM specifications, it is subjected to comprehensive helium pressure and electrical testing to detect any potential problems and ensure proper performance before delivery.

For more information, or to schedule a consultation and service, call us today at 877.77.EMSCO.