



APPLICATION NOTE

Bayonets & Radiant Tubes: Installation, Proper Use, and Maintenance

Introduction:

Proper installation and usage of Bayonets can prevent early failures and extend the life of the elements. In addition, the use of bayonets inside radiant tubes also creates a few potential causes for early element failure.

Proper Handling:

Bayonet elements are very fragile due to the ceramics throughout the elements, and the insulating materials at the terminal end. Extreme care should be taken when handling bayonets.

Avoid contamination of the element material with any type of oils or chemicals which may cause early failure due to reaction between contaminant and element material.

Be sure all terminal connections are tight and terminal lugs are locked on tightly with double nuts to prevent overheating at the connections.

Radiant Tube Preparation & Usage:

It is recommended that the bayonet elements be removed from the radiant tubes at least yearly to clean the inside of the tubes.

The elements at the terminal end should be allowed to breathe some air as oxidation of the heating elements is the best prevention to early failure due to contamination.

Element Replacement Strategy:

Element resistivity changes over the life of a heating element. The combination of old & new elements in a phase will likely cause failure due to resistance mismatch.

To prevent resistance mismatch, elements should be replaced in groups of “series phases”. For example, if an element fails, and it is in series with one or more other elements in the same phase, all elements in the same phase should be replaced at the same time. Any remaining functional elements can be saved to be used with other old elements in the same phase.



Industrial Furnace Interiors, Inc.

Horizontal Bayonets

Where possible, horizontal Bayonets are designed to prevent failure by including fewer paths for electrical shorting at the bottom of the element. Potential failures could be a result of oxidation build up in the radiant tube. Therefore, it is important to ensure bayonets are installed with the proper side down.

About IFI...

IFI is a manufacturer of electric heating elements for the heat treat industry. IFI has been designing and supplying bayonet type heating elements and radiant tubes for over 28 years with almost 50 years of experience in the heat treating industry.

Other products include Ribbon elements, Rod elements, Coiled elements, Plug heaters, Bulk heating element wire, Ceramics, and Hooks & Hangers. Typical alloys include Ni-Cr, Fe-Cr-Al, and Molybdenum.

Material selection, design, and the manufacturing process come together with every heating element made by IFI. We will work with you to design, replace, or rebuild your heating elements to meet or exceed your requirements.

Contact us to help you with your next requirement.

IFI – Engineered for Heat

www.IFI-Inc.com