

Is the production of UHV feedthroughs a mystery?

Indeed, sometimes it is the case. Ultra-high vacuum leak-tight electrical coaxial feedthroughs are used for various diagnostic devices in particle accelerators. In principle, these feedthroughs are currently manufactured using two different production processes because of different materials. Coaxial feedthroughs have always an inner conductor and an outer housing. Both are connected by an isolator to provide the vacuum tightness. This non-conductive material is either a type of glass or of ceramic. In the first case, both components will be interconnected by heating the glass in a continuous furnace up to the melting temperature, and the glass will be pressed using a specialized tool. In the second case, a metallized ceramic is brazed to the inner conductor and the housing at high temperatures in a vacuum furnace by using a filler material. Key challenges are the different expansion coefficients of the required materials. In my presentation I will give an overview of more than 30 years of experience in manufacturing UHV feedthroughs for various accelerators at DESY. I will report about good and bad examples.

Primary author: VILCINS, Silke (Deutsches Elektronen Synchrotron (DESY))

Presenter: VILCINS, Silke (Deutsches Elektronen Synchrotron (DESY))

Track Classification: Button BPMs for Synchrotron Light Sources