

Rare Ion Beam Project

High Power Actinide Target Module

Rare ion beam is produced by bombarding electron beam on the target module. A large amount of heat is generated in the target module in the process of stopping the electron beam. Removal of high density heat requires understanding of the complete process of heat generation and a proper thermal design for its removal. The target degrades and in order to produce rare ion beam it has to be replaced at regular intervals. The degraded target contains radioactive decay products and it needs to be handled by a master slave manipulator.

Thermal modeling of the target module has been carried out and the model of the target module is planned to be fabricated for demonstration of this complex technology.

Model of High Power Actinide Target

A model of high power actinide target (Fig. 1 and Fig. 2) is being fabricated to understand the critical areas of the fabrication and the assembly of the target module.

Source tray will be sliding on the support table guided by the rails and guide pin to get the alignment. The optics tray will be sliding on the source tray in the same manner. Three independent assemblies viz. target oven, extraction electrode and optics elements form the ion source. The assemblies have to be accurately aligned within 0.1 mm accuracy.



Fig. 1: Target Oven

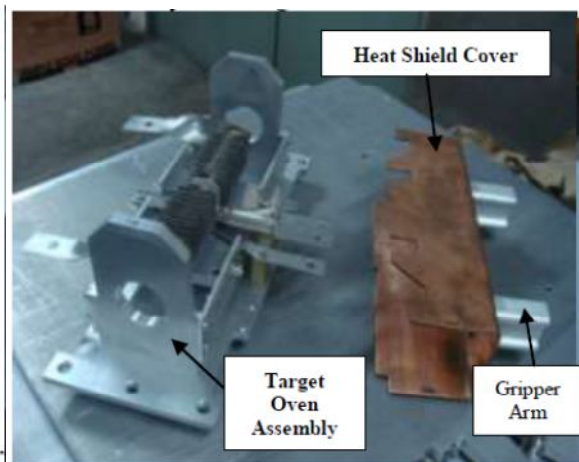


Fig. 2: Components of Target Assembly