

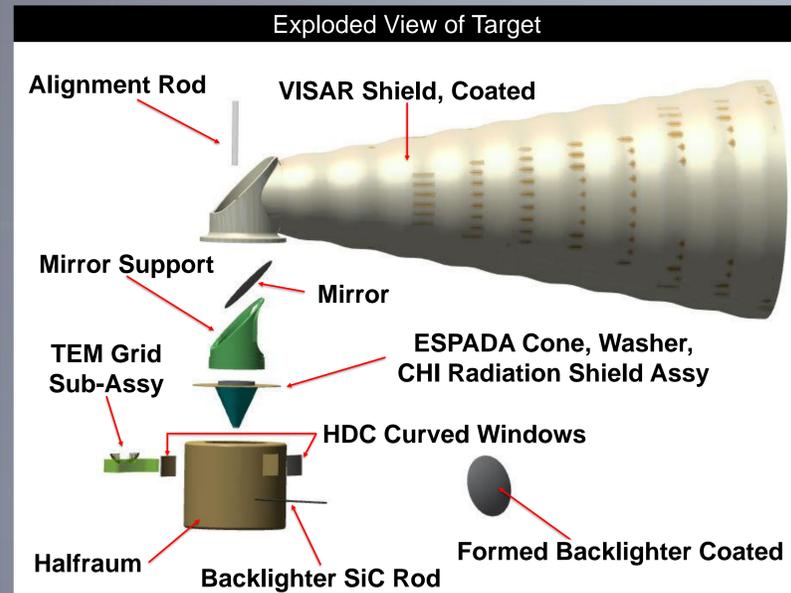
# Assembly of Visar and 1DConA ESPADA targets for the HED ESPADA Campaign

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## INTRODUCTION & BACKGROUND

In 2023 the target fabrication assembly team began fielding target requests for a new high energy density (HED) campaign, delivering precisely built target assemblies for demonstrating and measuring confined plasma jets to validate code predictions.

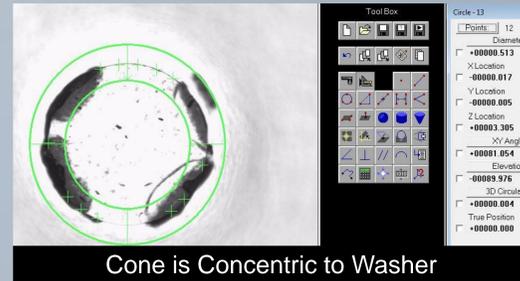


## CONE SUB-ASSEMBLY

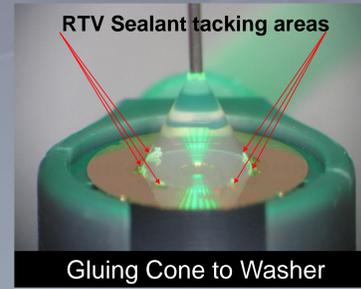


### Assembly Challenges:

- SiO2 Aerogel Cone is fragile and can't be handled directly.
- The SiO2 Aerogel Cone must be transferred by using a vacuum tip and held by the CHI shield.
- SiO2 Aerogel Cone must be leveled carefully to avoid damage to the cone.
- The SiO2 Aerogel Cone must be precisely centered to the washer O.D.
- RTV Sealant when tacked should not run up the cone
- The SiO2 Aerogel Cones used have ranged from 60-100 mg/cc.



Cone is Concentric to Washer

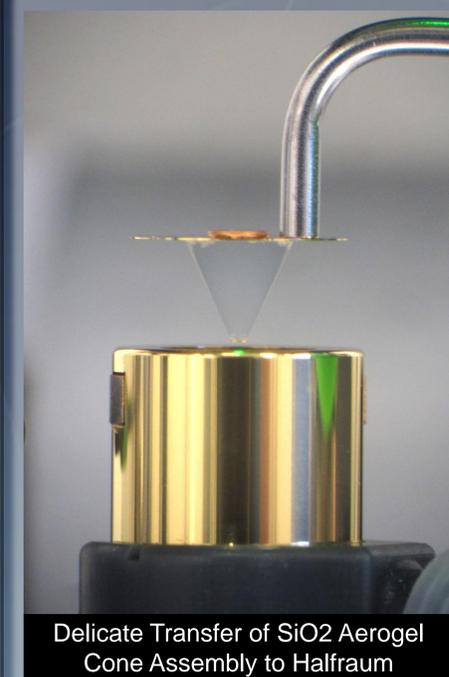


Gluing Cone to Washer



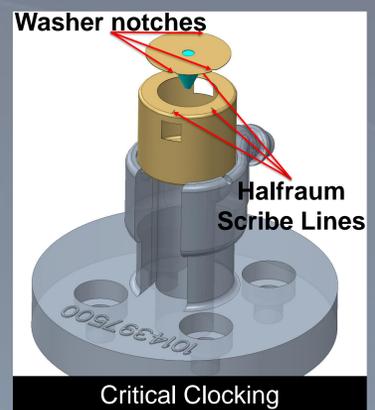
The first Espada SiO2 Aerogel Cone Assembly, was glued directly to the Halfraum.

## CONE TO HALFRAUM SUB-ASSEMBLY

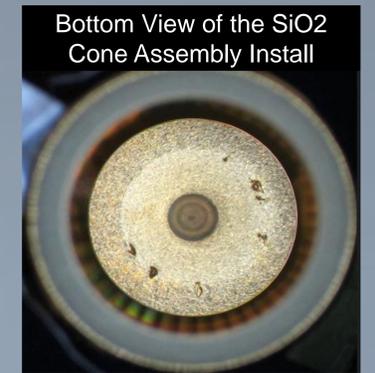


Delicate Transfer of SiO2 Aerogel Cone Assembly to Halfraum

- The Au Washer Notches on the SiO2 Aerogel Cone assembly must be lined up with the scribe lines on the Halfraum.



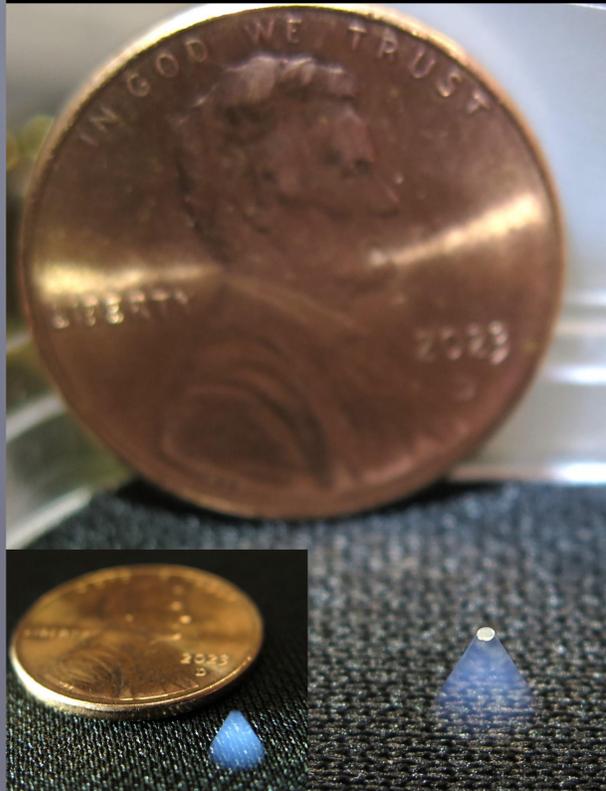
Critical Clocking



Bottom View of the SiO2 Cone Assembly Install

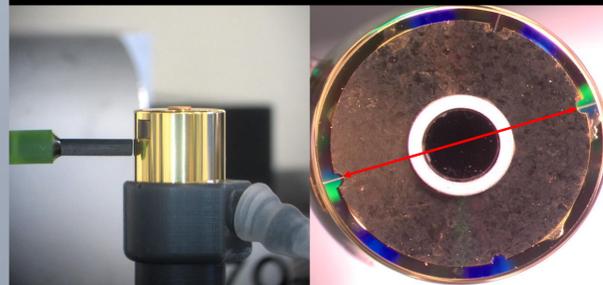
## CONE SIZE COMPARISON

### SiO2 Aerogel Cone Close-up & Profile



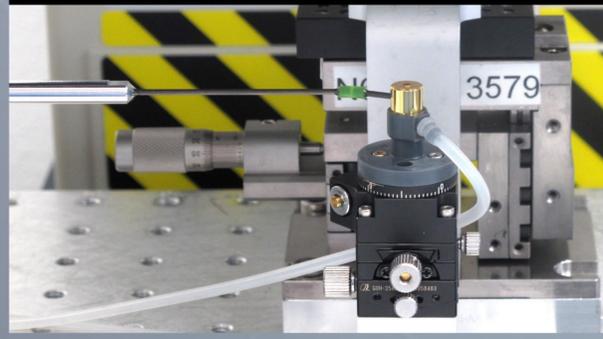
## HALFRAUM TO BASE INSTALL

### Halfraum Positioned for Base Install



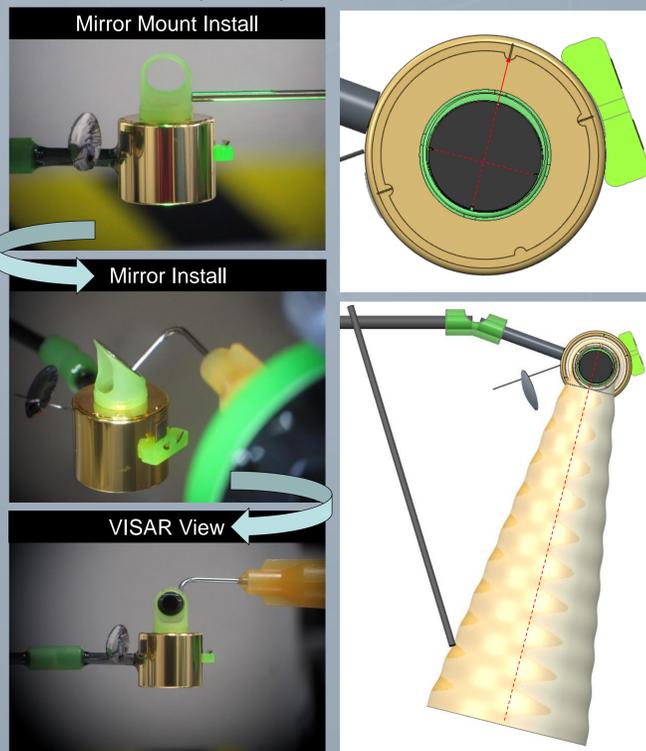
- Halfraum Scribe Lines clocked with respect to the Target Base.

### Goniometer Utilized to Clock Halfraum



## VISAR COMPONENTS

- Component install accuracy is critical to retain Velocity Interferometer System for Any Reflector (VISAR) data.



## COMPLETED TARGET

### Target Front View



- Strict assembly requirements met for all shields installed

### Target Top View



### Target Bottom View



### Target View 90-78.75



### Target View 90-258.75

