
EUV Mask Standards Task Force

**EUV Reticle Carrier ~
Joint Proposal and Current Status of
Canon and Nikon**

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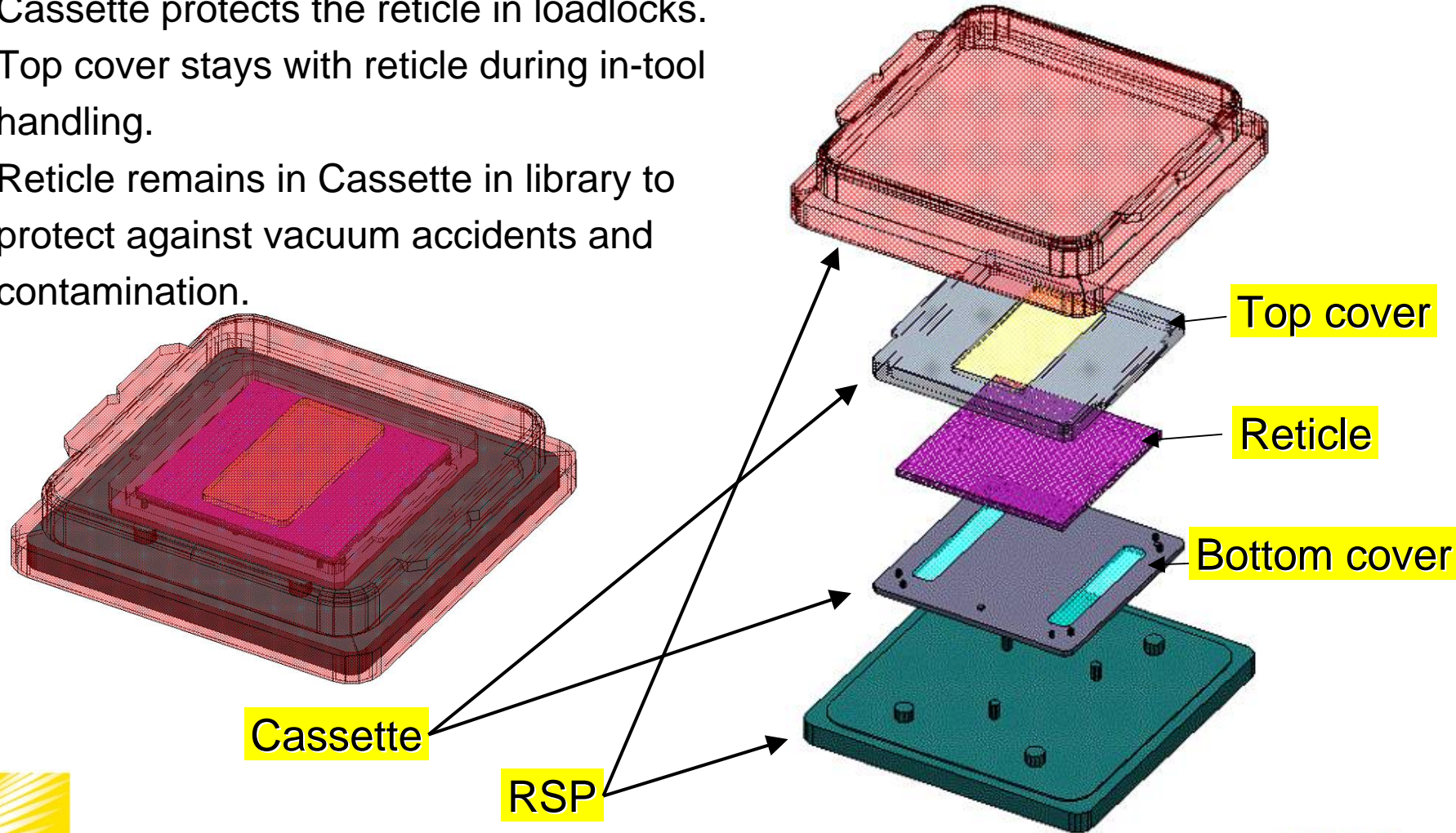
July 13, 2005 @ Semicon West Workshop



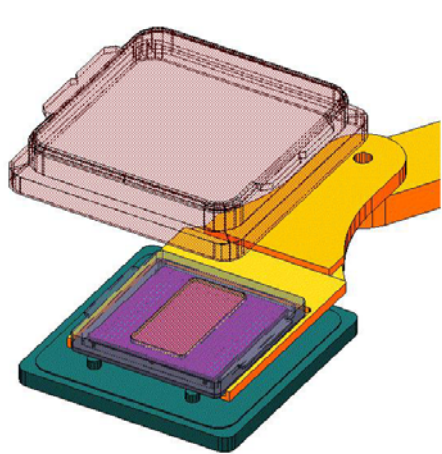
Dual Pod Concept by Canon and Nikon

(introduced at 2004 EUV Symposium, Miyazaki, Japan)

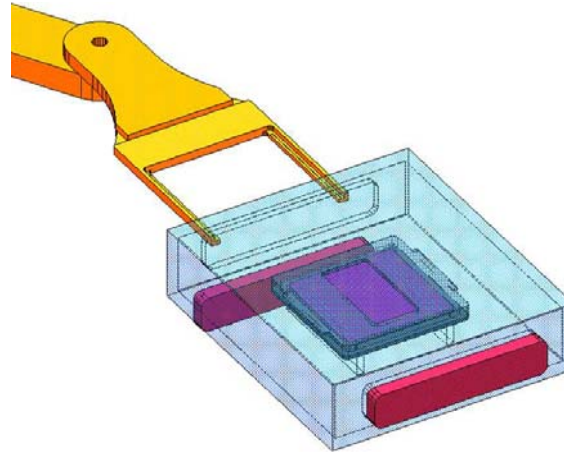
1. Reticle in Cassette in Carrier (reticle SMIF pod - RSP).
2. Cassette protects the reticle in loadlocks.
3. Top cover stays with reticle during in-tool handling.
4. Reticle remains in Cassette in library to protect against vacuum accidents and contamination.



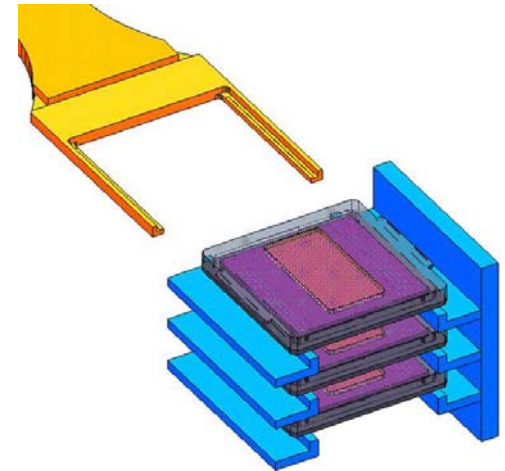
Schematic Diagram of Reticle Handling



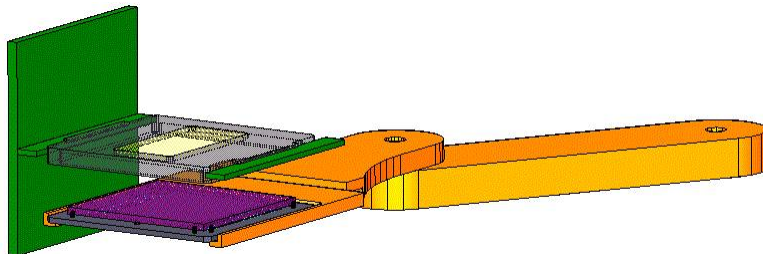
(1) Open the Carrier and take out the Cassette



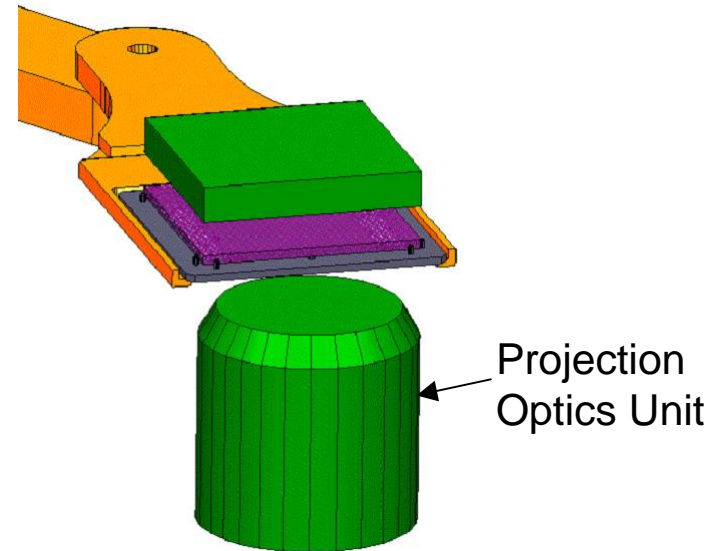
(2) In a loadlock



(3) Library in vacuum



(4) Prior to loading, remove the top cover



(5) Chuck the reticle

Features of Dual Pod Concept

- The reticle is protected by the inner pod during shipping, storage in the atmosphere, pumping down, venting and storage in vacuum. Filters equalize inner and outer pressure.
- The lower part of the inner pod functions as a removal frame to prevent end-effectors directly contacting the reticle.
- Dimension of the outer pod will be the same as the RSP200 in XY(Z) directions.



Preliminary outgassing specifications

- The mirrors of the EUV optics are very sensitive to contamination from hydrocarbons and water vapor.
- The total outgassing from the cassette, measured 10 minutes after initiation of pump down in the load lock, must be $< 10^{-3}$ Torr-l/sec.

Summary

- A candidate for EUV reticle carrier, Dual Pod Concept by Canon and Nikon, was shown.
 - Reticle in Cassette in RSP.
 - Cassette protects the reticle in loadlocks and within the tool prior to chucking.
- Preliminary outgassing specifications have been given.
- Canon and Nikon recognize that data demonstration is needed as soon as possible.
 - Under planning.