



66 -- Ultra High Vacuum Thin Film Deposition System

- [Combine Synopsis/Solicitation](#) - Posted on Jan 04, 2008

General Information

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Contracting Office Address

Department of the Navy, Office of Naval Research, Naval Research Laboratory, 4555 Overlook Ave. S.W., Washington, DC, 20375, UNITED STATES

Description

The purpose of this amendment is to answer questions from potential offerors. The questions and answers are as follows:

1. We would anticipate that the lead time for an ultra high vacuum chamber would be 18

weeks. In addition, we would anticipate needing 4 weeks for an engineering design package and 6 weeks for component integration and testing. This would be a total of 28 weeks, which exceeds the delivery date in the solicitation of 120 days. Is NRL willing to extend the delivery date in the solicitation?

No. A delivery schedule of 120 days is required.

2. The specification refers to several chambers: the multi-wafer loadlock chamber (Specifications, paragraph 12.0), the Sputtering chamber (Specifications, paragraph 1.2), the E beam chamber (Specifications, paragraph 1.1) and the Appendage chamber (Specifications, paragraph 16.0). The following questions are asked regarding these chambers:

a. I assume that the wafer/masks must transfer to all chambers. Please clarify.

The wafer/masks must be transferable between the load-lock chamber, the sputtering chamber and the appendage chamber.

b. NRL's Specification 3.0 requires a UHV design for magnetrons. Our magnetic heads are fully UHV compatible. However, NRL's Specification also requires a base pressure of 5×10^{-8} torr and an elastomer seal on the chamber. Can we use an elastomer seal for the feed through on the magnetrons?

NRL's Specification states that the magnetrons must be a UHV design with no elastomers. The only place that can have an elastomer seal for the sputtering system is between the top lid of the sputtering chamber and the chamber body.

c. NRL's Specification requires that the substrate heater allow heating up to 850 C in a pure oxygen environment. Is this in all chambers? Please specify which chambers require heating to this level.

The 850C requirement is for the substrate holder located in the sputtering chamber.

d. NRL's Specification 1.1 requires that the evaporation chamber be mounted to two steel frames. I assume one frame is to support the chamber and the other frame is to support the electronics. Please clarify.

The sputtering chamber, evaporation chamber, and the electronics should be mounted to one L shape steel frame.

e. Does NRL require a pump for the sputter chamber?

NRL's requirements for a pump are detailed in paragraph 2.0 of the Specifications.

f. NRL's Specification 1.2 requires that the main substrate chamber be mounted ?on top? of the main evaporation chamber to allow for the proper distance that is necessary for evaporation to take place. Is NRL requesting that the transfer heights be compatible with evaporation?

No. The transfer height must be compatible between the load-lock chamber, the sputtering chamber and the appendage chamber. The evaporation chamber is mounted below the sputtering chamber.

3. The following questions refer to NRL's Specification 8.0 for the substrate holder:

a. Is this for both the sputtering chamber and the evaporation chamber?

The sputtering chamber and the evaporation chamber must share one substrate holder which is located in the sputtering chamber.

b. Please define the "wagon wheel" style transferable substrate carrier.

The "wagon wheel" style is one design to allow in-situ mask exchange and to allow the target surface and the substrate to be parallel. Other designs will also be considered. Therefore, the requirement for a "wagon wheel" style is deleted from the Specification.

4. NRL's Specification 9.0 requires an Inconel "propeller" to replace the "wagon wheel" susceptor for high temperature applications. Please define "propeller".

It is a substrate holder kit to allow the substrate to go to 850C.

5. Does NRL require that the evaporation and sputter system have an isolation valve?

Yes.

6. NRL's Specification 12.0 requires that aluminum be used for the loadlock chamber body. Does the loadlock need to be made from aluminum or can stainless steel be used?

Yes, stainless steel can be used. The requirement for aluminum is deleted from the Specification.

7. Does NRL require a gate valve between the turbo pump and the loadlock?

No.

Point of Contact

Roger Fordahl, Contract Specialist, Phone 202-767-7620, Fax 202-767-5896, Email roger.fordahl@nrl.navy.mil - F. Janilea Bays, Contracting Officer, Phone 202-767-2974, Fax 202-767-0430, Email jan.bays@nrl.navy.mil

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