Metal Deposition System
Solicitation NNG15556637Q
Questions and Responses

Question: It is mentioned that Titanium, Nickel and Gold targets are to be quoted.
But then it says below that for either Titanium/Gold coatings OR Nickel/Gold Coatings.

Do I need to quote all three materials or will the end user be selecting the least expensive of the nickel and titanium targets?

Response: Please quote all three as separate line, then we can choose which to purchase.

Question: Please send pictures of the existing chamber? Or provide more details on the chamber?

Answer: See attached drawing of left side of chamber with ports. The interior of the chamber is a 3 foot square box (3'x3'x3'). Ports for feeding electrical, water, etc. into the chamber are on the left side. There are two 2.75" ConFlat flanges on top and two 6" Conflat flanges in the middle. Bottom two flanges on drawing are occupied by other feedthroughs.

Question: Delivered system shall fit inside vacuum system" Is this refer to guns (deposition sources) with flanges and accessories only or complete vacuum chamber including sputtering guns, flanges, and accessories?

Response: It is expected that the cost to purchase a complete deposition "system" with chamber, pumps, sources, motion, etc. will be cost prohibitive for this project. Therefore, to reduce the cost, an existing vacuum chamber can be utilized. The existing chamber is 3 foot square inside (3'x3'x3'). All ports feeding into the chamber are on the left side and shown in the attached drawng. There are two 2.75" Conflat flanges on top and two 6" Conflat flanges in the middle (the lower two ports are already occupied). In this configuration, the vendor will be supplying sputtering sources for inside the chamber, attached to one or more of the available flanges, going to power supplies, chilled water, etc. located outside of the vacuum chamber. In the case where the available vacuum chamber in our group does not accommodate the vendors system, a complete deposition system can be quoted for consideration.

Question: Is NASA expecting only installation of guns with flanges and power supply etc. on their existing NASA chamber, if vacuum chamber is not expected from the vendor?

Response: See answer to 1. Above.

Question: Is NASA expecting TWO independent sputtering guns/deposition sources?

Response: Since only one metal will be deposited at a time, a shared power supply can be used. However, the metals will need to be deposited one after the other without breaking

vacuum, so two separate sputtering sources will be needed since targets can not be swapped.

Question: Are 2" sputtering guns okay?

Response: We specified the coating length and left the number, size, location, etc. of sputtering sources up to the vendor.

Question: What type of sputtering system needed? (RF or DC) and what is the power requirement? Is DC sputtering guns and Power supply enough?

Response: Again this was left up to the vendor. Desired metals were given, along with coating length, and the need for uniform coatings. During initial solicitation, we received feedback that the requirements were too restrictive and the same desired results could be accomplished in many different ways. So, we listed only those items that were critical and will compare the various responses to make an informed decision.

Four part question:
Question (a): How about Substrate heater option (heater size if needed)

Response: Coating fiber optic cables, so no heaters needed initially

Question (b): MFCs (inert gases Ar, N2) and their flow if needed

Response: We will evaluate based on responses. If using our existing chamber, gas control will need to be worked out, but this will be taken into account when evaluating responses. If quoting a stand-alone system this cost shoud be line itemed separately if possible.

Question (c): Is only one sputtering gun expected?

Response: See answers above

Question (d): Does existing chamber's port adequate for sputtering deposition geometry such as angle between two guns, distance between guns to substrate etc.

Response: see answers above

Question: If we use NASA's existing chamber then provide drawing and substrate location to determine length of the gun and angle if any needed.
Response: See answers above

Question: If vendor provides complete system then specify expected chamber size.

Response: Based on vendor quoted system, but something around 16-24" square is expected