
Fwd: FW: PI - Tech Support - Q-Motion UHV materials for Stephen Alpert @ Cal Tech - LIGO

10:57 18 בינואר 2017 בשעה 10:57

<donns@pi-usa.us> **Silberman, Donn**
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<jeffg@pi-usa.us> "Gabriel, Jeff" :עותק:

Hi John,

Our factory engineers have provided the following in answers to your questions.

Please let me know if you have additional questions or if these answers and details meets your needs.

Kind Regards,

Donn Silberman

Sr. Applications and Sales Engineer
PI (Physik Instrumente) L.P.

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Below you can find our answers in black.

Attached to this email are all datasheets of adhesives used for assembling the Q-521.

Hope this is what your customer wanted to know. If there are any more questions, feel free to contact us!

1. Are all stages in the Q-521 series manufactured in a similar fashion? For example, does the open loop version look like the closed loop version except for the removal of the Numerik Jena parts? Do the shorter travel version simply look like smaller versions of the longer travel models (I only disassembled a Q-521.34U)?

Yes, all stages of the Q-521 series are manufactured in a similar fashion. Open loop is closed loop without the encoder and shorter travel version look like longer travel models with shorter guiding rails and base bodies.

2. Which epoxies are used in which locations (Locking the set screws, strips on the bottom of the moving part, plate on top of the PZT `spring')? It looks like the PZT is coated with the PolyTEC adhesive. Is this correct?

a. White plate onto the PZT Spring: Araldite AV 138M with hardener HV 998

- b. Around the PZT (only for electrical isolation): Polytec EP 653-T
- c. PZT into the spring: Araldite AV 138M with hardener HV 998 with glass pearls
- d. White plate to the moving platform: Delo AD840
- e. On the white plate on the moving platform for better friction: Apiezon PFPE 501 Grease
- f. Locking the set screws: Dymax OP-4-20632
- g. Scale on the moving platform: Dymax OP-4-20632
- h. Encoder into the base plate: Dymax OP-4-20632

3. Does opting for the open-loop version change the list of materials? Are fewer adhesives used?

Yes, no Dymax is required for open loop versions. (for the locking the set screws, another glue could be used)

4. The PTFE cables used are a troublesome material for vacuum applications. Could PI substitute cables with kapton insulation (e.g. <https://accuglassproducts.com/home.php?cat=300>)? Another alternative would be Cooner Wire CZ series wire e.g. CZ 1104. I would be happy to supply such cable to the factory.

In principle it is possible to use cables with kapton insulation.

An issue to think about, is the space for the cable and the strain relief of the cable. Maybe it will become necessary to modify the baseplate. Especially for a closed loop stage.

From: jmiller.edu@gmail.com [<mailto:jmiller.edu@gmail.com>] **On Behalf Of** John Miller
Sent: Friday, January 13, 2017 12:51 PM
To: Silberman, Donn
Cc: Stephen Appert; Gabriel, Jeff
Subject: Re: FW: PI - Tech Support - Q-Motion UHV materials for Stephen Alpert @ Cal Tech - LIGO

Dear Donn,

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Q-521 Datasheets of used adhesives.zip 
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