



Al Conrad &lt;aconrad@lbto.org&gt;

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**LINC NIRVANA (provision of helium bundles)**

8 messages

**Ralph Hofferbert** <hoffer@mpia.de>

Fri, Mar 6, 2015 at 9:21 AM

To: LINC NIRVANA &lt;LN@lbto.org&gt;, Werner Laun &lt;laun@mpia-hd.mpg.de&gt;

Dear Al,

since quite some time there is the issue that we require LBTO support for the provision of the helium bottle bundles for the LN Stirling cooler.

Mainly due to safety regulations this is a piece of hardware which we cannot purchase in Germany and just ship to the US. John Little is involved and tried to organize something together with Werner, so far without a clear result.

Could you please readdress the issue and check how a total geometrical volume of 1200l which allows for a pressure of up to 200bar can be organized? In Germany this would result in 2 bundles of 12 helium bottles with 50l each, which could accept compressed gas up to 200 or even 300bar.

MPIA would certainly pay for the purchase, or rent or whatever kind of contract we would have here for the bottles and the helium itself, but as said we need your help to organize this. Ideally the bundles should be there, when we arrive in early October this year.

Thanks a lot!

Cheers,  
Ralph...

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Dr. Ralph Hofferbert  
LBT LINC NIRVANA - Project Control ManagerMax-Planck-Institute for Astronomy (MPIA)  
Koenigstuhl 17, D-69117 Heidelberg, GermanyPhone [++49 \(0\)6221 528209](tel:+4906221528209)  
Fax [++49 \(0\)6221 528246](tel:+4906221528246)  
Email [hofferbert@mpia.de](mailto:hofferbert@mpia.de)

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**Al Conrad** <aconrad@lbto.org>

Sun, Mar 8, 2015 at 2:31 PM

To: Robert Reynolds &lt;rreynolds@lbto.org&gt;

Cc: Ralph Hofferbert <hoffer@mpia.de>

Hi Robert -

Can you help me out with this request from Ralph? Or if not point me to someone who has this knowledge regarding cryo storage vendors?

Thanks!

Al

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**Robert Reynolds** <rreynolds@lbto.org>

Mon, Mar 9, 2015 at 4:09 AM

To: Al Conrad <aconrad@lbto.org>

Cc: Ralph Hofferbert <hoffer@mpia.de>, Robert Reynolds <rreynolds@lbto.org>

Al;

Yes. Tell you what, point me to the best document(s) describing their cooling system and I'll see what I can do about outlining a specification and procurement information. Pardon me if I should already be familiar with the system.

Thanks;

Robert

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Robert Reynolds

Large Binocular Telescope Observatory

University Of Arizona

933 N. Cherry Ave. Room 566

Tucson, AZ 85721

(520) 621-1833 office

(520) 429-9360 cell

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**Al Conrad** <aconrad@lbto.org>

Mon, Mar 9, 2015 at 4:11 AM

To: Robert Reynolds <rreynolds@lbto.org>

Cc: Ralph Hofferbert <hoffer@mpia.de>

Thanks Robert.

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**Ralph Hofferbert** <hoffer@mpia.de>

Mon, Mar 9, 2015 at 9:05 AM

To: Al Conrad <aconrad@lbto.org>, Robert Reynolds <rreynolds@lbto.org>, Werner Laun <laun@mpia-hd.mpg.de>

Hi Al,

Hi Robert,

thanks a lot for your help.

Here is once more the input for your procurement spec:

- In total 1200 liters (geometrical size of the volume)
- Possible are 2 bundles with 12 bottles each carrying 50l each
- Each helium bottle shall allow for 200bar at least
- The space allocation is shown in 307s001d of the CAN archive

That's it.

Please let me know if you need more.

Cheers,  
Ralph...

Am 09.03.2015 um 04:11 schrieb Al Conrad:

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**Werner Laun** <laun@mpia.de>  
To: Robert Reynolds <rreynolds@lbto.org>  
Cc: Ralph Hofferbert <hoffer@mpia.de>, Al Conrad <aconrad@lbto.org>

Mon, Mar 9, 2015 at 9:32 AM

Hello Robert,

find attached a picture of such a bundle of bottles as we use it right now here in Heidelberg. It is a frame with 12 bottles connected together for a complete volume of 600 liters. We will use it as a buffer volume for our helium gas. We will need 2 of those bundles. The maximum filling will be Helium with 40 bars. The bottles we use here in Germany have no certificat for use in Arizona. Thats why we had quite early the agreement that LBTO will care for the bundles. Now coming close to shipment we have to pick up this point again. If you have any questions please feel free to contact me.

Thanks for your help

Werner

Am 09.03.2015 um 09:05 schrieb Ralph Hofferbert:

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Werner Laun  
Max-Planck-Institut für Astronomie  
Königstuhl 17  
D-69117 Heidelberg

Tel.: +49 (0)6221 528 279

Fax.: +49 (0)6221 528 246

mail: [laun@mpia.de](mailto:laun@mpia.de)

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**2 attachments**



**Flaschenbuendel-1.jpg**  
67K



**CIMG0314a.JPG**  
370K

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**Robert Reynolds** <rreynolds@lbto.org>

Sat, Mar 14, 2015 at 12:47 AM

To: Werner Laun <laun@mpia.de>, Ralph Hofferbert <hoffer@mpia.de>

Cc: Al Conrad <aconrad@lbto.org>, Robert Reynolds <rreynolds@lbto.org>, Dave Ashby <dashby@lbto.org>

Ralph and Werner;

Okay I see the floor space on Level 4 shown on 307s401d, and the frame(s) you now use. To make sure I'm starting off correctly, we need to provide both new frames and bottles for use at LBTO, not just bottles, right? And from the floor plan and photos it looks like the footprint of the frames will be totally different for use on Level 4, right?

I see reference to a pressure of 200 bar in one email but 40 bar in another. What is the maximum pressure the bottles need to be designed for? Thanks.

Best regards;

Robert

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**Werner Laun** <laun@mpia.de>

Mon, Mar 16, 2015 at 12:23 PM

To: Robert Reynolds <rreynolds@lbto.org>

Cc: Al Conrad <aconrad@lbto.org>, dashby@lbto.org, Ralph Hofferbert <hoffer@mpia.de>

Hello Robert,

the frame with the bottles is one unit supplied by Linde. This type is of common use in Europe. I am pretty sure there is something similar in the states. You should ask your gas supplier.

On level 4 we would like to use two bundles. Each should have a volume of about 0.6 m3. When we will use the cooler in the high bay we need only one of these bundles down there.

The standard bottles are certified for a pressure of 200 or 300 bars. As we use them as a buffer only we will fill them with a maximum of 40 bars Helium and not more.

We could also use two 600 liter vessels as buffer. But this is much more expensive and inconvenient to move on the telescope.

If you have any further question please feel free to contact me.

regards

Werner

Am 14.03.2015 um 00:47 schrieb Robert Reynolds:

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