

Vacuum group meeting 3.3.14

Attendees: Alex, Lucy, Linda, Kevin, Dave A, James, Ron

Alex showed DOE lab vacuum guidelines paper from Sept 9, 2008. BNL, ANL, FNAL, ORNL, SLAC co-authors. "Vacuum Systems Consensus Guideline for Department of Energy Accelerator Laboratories"

Discrepancy with vacuum vessels. We have our limit set at 35 cubic feet, paper has it at 7.

This document was mostly written by and for BNL.

Lucy has outline based on SLAC document. Updated the outline and gave some starting points for some sections. Passed out paper copies. Each of us will choose sections to write about and send it to Lucy. Lucy will compile it, then eventually send whole document to group for editing/proofreading.

Ron has info on 5,6,7,9,10.

Someone will have to add some details on H-seals, QD flanges, etc.
torque specs for clamps - Dave A
flange assembly section is 7.2 - sub-section for conflate, QD, H-seal, etc.

Keep document reasonable length (less than 10 pages). If further details needed, include those details in an appendix. If separate document exists, just reference that document and do not include it to ensure the appendix does not include outdated information. Ron argued for keeping the details in these appendices and eliminating external documents.

Rather than appendices, make it all online, with hyperlinks.

Will make comprehensive document with hyperlinks to further details. Will include photos as needed.

Perhaps use some powerpoint documents as hyperlinks. Some movies also.

perhaps rather than making this an approved specification, make this a living document that can constantly be updated.

Assignment of sections:

1-Introduction - Linda

Design

2.1-Documents control - Lucy
2.2-Vacuum loading considerations - Alex
2.3-Thermal Requirements - Alex

Procurement

3.1 - material types - (guidelines for metals, plastics, ceramics, etc. discuss corrosion, magnetic properties, outgassing, etc.) - Alex & Linda
3.2 - flanges - Lucy (conflats), Dave (QD clamps), Linda/James (H-seals - some already written)
3.3 - pumps - Lucy
3.4 - valves - Dave A
3.5 - bellows - should specify that RF fingers/sleeves preferred for ALL circulating machines (often skipped in large round bellows in past). - must be collaboration - Lucy will start, then needs more input from group. Will include something about cleaning of bellows with further reference to cleaning section (5) - James. For example, welded bellows too difficult to clean for particle-free vacuum systems.
3.6 - electrical feedthroughs - (ion pumps, instrumentation) - Dave, James, Ron. Specialty feedthroughs are challenging.
3.X - new section - mechanical actuators - Lucy
3.X - view ports - Alex
3.7 gauges - (IG/PG/CCG) - Ron will start, will ask for input from group.
3.8 fasteners - Lucy

Fabrication

4.1 - material certification - Lucy
4.2 - surface preparation - (polishing, o-rings, prep for welding/brazing) - Alex
4.3 - machining lubricants - Dave & Alex (will also ask Jim Wilson/Gary M)
4.X - inspection - IB4 inspection lab should be used more often - encouraged to catch problems before getting to far. Costs time and labor, but often worth it. - James.
4.X - suggested notes for drawings - Lucy
4.4 - welding - Alex, Dave (Jim Wilson/Gary M)
1-SS
2-aluminum
3-joint design
4-filler metal

5 - chemical cleaning - Ron

6 - cleanroom practices & maintenance- Ron, James

7 - vacuum assembly and storage - James, Ron

8 - helium leak test -James (will start by posting manufacturer's info, plus some)

9 - RGA test - Ron & Lucy

10 - bakeout - James, Lucy (reference 2003/2004 RR document as starting point)

11 - venting & pump down - Kevin & Dave (2009 RR procedure good starting point)

Everyone pick one section to have ready for next month's meeting. Group will focus on getting document completed by focusing on those sections before moving on to more next month.

Next meeting would be 4/7, but Alex may still at OLAV. Move meeting to 4/14. The focus will be continuation of the vacuum document.

Ron to invite gas vendor to a special meeting, separate from monthly meeting, date TBD.