

LAWRENCE BERKLEY NATIONAL LAB CASE STUDY

How Technetics Assisted with the Advanced Light Source Upgrade



The Advanced Light Source is a research facility at Lawrence Berkeley National Laboratory (Berkeley Lab) working to advance science through its synchrotron light source capabilities. As a part of its Advanced Light Source Upgrade, Berkeley Lab needed a sealing solution for its accumulator ring. The upgrade called for a UHV sealing solution appropriate for a synchrotron, with a seal location at the Beam Position Monitor (BPM) housing. The specifications for the application included a leak rate of 1×10^{-9} cc/sec He atm and temperatures of 25°C operating and 180°C bake-out for 1 hour each startup. Furthermore, Berkeley Lab required 4 seals for each of the 72 assemblies of the seal, for a total of 288 seals needed for the initial startup of this application.

Due to the existing relationship between Berkeley Lab and Technetics Group as well as Technetics' involvement for several years in the Advanced Light Source "Kicker Box" assembly, the expertise and industry experience of Technetics was trusted for this application. After being invited to conduct a metal seal educational presentation, Technetics received the Accumulator Ring BPM application from Berkeley Lab.

The HELICOFLEX® DELTA seal was identified as an optimal solution for this application. It incorporates two small ridges, or "Deltas," on the face of the seal. The high-contact stress in the seal track makes the HELICOFLEX® DELTA seal an excellent choice for ultra-high vacuum applications that require ultra-low Helium leak rates. After the prototype order was received and pump down testing successfully completed, Technetics received additional prototype orders with the expectation of MRO demands every 2 years.

To learn more about how our HELICOFLEX® DELTA seals can advance your next project, visit our website and contact a specialist today.

References:

Roberts, G. (2020, January 8). Milestone in Synchrotron Upgrade Project Will Bring New Ring. Berkeley Lab. <https://newscenter.lbl.gov/2020/01/08/milestone-in-advanced-light-source-upgrade-project-will-bring-in-a-new-ring/>.

Advanced Light Source. ALS. <https://als.lbl.gov>

