



Images from the event

Cryogenic Thermal Insulation on LN₂ Lines of Cryopump Integrated with SST-1

IPR has developed cryo sorption cryo pump using liquid Nitrogen (LN₂). Recently, this cryo pump has been installed at the radial port of SST-1 Vacuum Vessel (VV) as part of evacuation of huge gas load during baking operation in SST-1.

To feed the liquid nitrogen into the cryopump, SST-1 cryo division has designed and installed cryo lines distribution along with valves. To prevent the condensation and frosting on bare LN₂ lines, cryogenic grade flexible elastomer thermal insulation was used to overcome the issues of frosting on these lines.

The thermal performance and validation test of installed insulation has been validated by operating the cryopump in operational condition, no ice frosting and leakage of LN₂ fluid was observed over the cold lines.

Flexible Elastomer Thermal Insulation on Cryo Pump LN₂ Lines



Successful Testing of 100kW Plasma Torch System for 120 Hours

IPR is developing a 5 Tons/day plasma-pyrolysis based biomedical waste disposal plant for deployment at the Homi Bhabha Cancer Hospital, Varanasi. This fully-indigenous, environment-friendly plant, making use of three 100 kilowatt graphite-electrode based plasma arcs, is a contribution to *Atmanirbhar Bharat*. This is the first time that such high-power arcs have been developed in the country for 24 x 7 operation. In a major milestone, these arcs and associated power supplies have been tested continuously for 120 hours. In this testing, the refractory lining were also tested which could maintain the inner wall refractory temperature at 1100 degree C and outer wall temperature of the chamber remains at less than 80 degree C. The plasma arc system was operated using voltage-controlled feedback and current-controlled feedback. This plasma arc system does not require water cooling for electrodes and hence, it has very high electro-thermal efficiency. Demonstration of long duration operation of the plasma arc system with high electro-thermal efficiency (>90% observed during this testing) is very important for its application in high capacity plasma pyrolysis/gasification for environment friendly disposal of organic waste.



(L) The plasma arc as seen through the viewport (R) Plasma arc using graphite electrodes



As part of the Azadi Ka Amrut Mahotsav, IPR and the L. D. College of Engineering, Ahmedabad jointly organized a 2-day event during 5-6 May, 2022 to celebrate the National Technology Day. The event was organized by the "Prakalpa" Science Club of LDCE, at the EC Department, LDCE Ahmedabad and had the following competitive events;

- ◆ Poster Competition
 - ◆ Skit Competition
 - ◆ Circuit design
- Technology Quiz
Science/Technology models by UG students of engineering colleges
Circuit debugging competition

Apart from the above mentioned competitions, the event also has two popular talks, "Technologies from Plasma Science: Present day and Future" delivered by Dr. Shashank Chaturvedi and "Immersive and interactive visualization" delivered by Shri. Kandrap Pandya, SAC-ISRO, Ahmedabad on 5th and 6th May respectively.

IPR Outreach also organized an exhibition on plasma, its applications and nuclear fusion which was organized by Outreach Division. Selected members of Prakalpa Science Club were trained by IPR Outreach staff to explain all the exhibits to the visitors during the event. Over 67 UG engineering students from 9 engineering colleges across Gujarat participated in the various competitive events and over 2000 students from LDEC and other engineering colleges in Ahmedabad visited the IPR exhibition over the two days. Click [here](#) for a detailed report.



Images from the NTD-2022 event