

## Discuss Group P11: Cryogenic Fluid Pumping Applications

- Discussion Group Leaders:
  - Dag Calafell (Techincal Opus Soltions, LLC)
  - Vinod Patel (KBR)
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  - Bill Bailey (Nikkiso Cryo Inc.)
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- Suggested Topics:
  - Calculating efficiency, power & considerations
  - Condition monitoring
  - Cryogenic pump system components
  - Accessories to cryogenic pump systems
  - Shaft supports: bushings, bearings
  - Rotordynamics
  - Balance requirements for rotating components
  - Bearing life and how to extend it
  - Materials of construction & specifications
  - Preventative maintenance (PM) requirements
  - Vibration standards & monitoring
  - Pump testing requirements & applicable test tolerances
  - Troubleshooting
  - Pump installation – steps and challenges
  - Pump sizing for various cryogenic applications
  - Motor sizing for cryogenic pumps
  - Different kinds of cryogenic pumps and where they should be applied
  - Cryogenic pump specific speed
  - Marine & floating applications for cryogenic pumps
  - Submerged motor design and its benefits
  - Hazardous area classification for cryogenic pumps & systems
  - Preservation and long-term storage of cryogenic pumps
  - System design requirements
  - Pressure vessel design
  - Cryogenic pumping applications
  - Pros and cons of conventional pump design versus Cryogenic submerged pump
  - Pump columns/column diameters determination and benefits