TELEDYNE HASTINGS INSTRUMENTS

APPLICATION NOTES

Goal: Integrated Solution for Helium Delivery for Superconducting Accelerator

Solution: Teledyne Hastings HFC-303 Flow Controller

At the nation's leading nuclear accelerator national laboratory, the Teledyne Hastings HFC-303 is used in a state-of-the-art photocathode gun system delivering beams of high polarization and current.

The beams are longitudinally compressed, to provide a two picoseconds bunch. The beam polarization, optics and energy are verified at the injector matching region prior to insertion into the main machine. The beams from the injector are accelerated through a unique recalculating beam line that looks something like a "racetrack", with two linear accelerators joined by two 180° arcs.

Liquid Helium, produced at the lab's Central Helium Liquefier keeps the accelerating cavities superconducting at a temperature of 2 degree Kelvin. The Teledyne Hastings HFC-303 flow controllers with both reliability and fast response features are used to feed the cooling chambers at a monitored rate and purge the cavities with Helium.