Hall C Expert Howto

Experiment: HKS

HKS Vacuum System

Liguang Tang

March 22, 2005

Abstract

This Howto outlines the purpose and feature of the vacuum system of the HKS experimental setup and the procedure to establish the vacuum.

1 Purpose and feature

he HKS vacuum system contains three parts, the HKS spectrometer, Enge spectrometer, and target chamber /dump lines. Each part has its own pumping station. The vacuum level of 10^{-5} is required for these parts. In order to avoid multiple scattering inside of the optics, all these parts are connected together then to beam line.

The only vacuum break is at the exit of the beam pipe. This is to protect the beam line vacuum against some possible work on the experimental parts.

2 Procedure to establish vacuum

The beam line valve should remain close to isolate the beam line vacuum to the HKS system when the later parts are not in vacuum. To establish the vacuum,

1. Beam line valve should remain close (controlled by MCC).
2. The target ladder should remain retrieved inside the driver and vacuum isolation valve closed.
3. Start pumping vacuum for the three parts in the HKS system until the vacuum level reaches about 2×10^{-5}.
4. Slowly or in small steps open the target ladder vacuum isolation valve until vacuum recovers to 2×10^{-5} while the valve fully opened.
5. Finally, call MCC to open the beam line valve. With a higher pumping speed from beam line, the entire system may reach 10^{-5} or better quickly.