

Experimental investigation of a dual flow transfer system for liquid helium

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In transfer stations for liquid helium, single-flow transfer lines are often used to transfer the liquid into a smaller mobile dewar. During this process, a considerable amount of the liquid evaporates due to heat leak and especially pressure losses in the transfer line. Regardless of the liquefier's efficiency, this evaporation loss contributes to a significantly higher running time of the condenser and a higher primary energy input to generate the net liquid volume. To overcome this, a laboratory setup was realized as a combination of a flexible double-flow transfer line and a cold liquid pump, which can reduce these losses drastically. In this article, the authors report on their current test results on filling performance, operating losses and practicability.

Submitters Country

Germany

Authors: HABERSTROH, Christoph; DOLL, Johannes (TU Dresden)

Presenter: DOLL, Johannes (TU Dresden)

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