

Development of 1.5 K GM-JT System for Superconducting Wire Performance Test

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For study of superconducting equipment and physical properties of superconducting coil, various researches of low temperature are accomplished with activity. In general, a generation method of low temperature is using liquid helium, but it was restricted that liquid helium is expensive, not easily available, a structural complex of pre-cooling with liquid nitrogen and cooling time using liquid helium. To generate very low temperature easily, we are developing 1.5 K Joule-Thomson (JT) refrigeration system which is consisted of a two-stage Gifford-McMahon(GM) cooler, heat exchangers and JT valve with helium as working fluid. This paper introduces the set-up of the GM-JT refrigeration system for superconducting wire performance test and discusses the experimental results of this system.

Keywords: Joule-Thomson refrigerator, heat exchanger, Gifford-McMahon cooler