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## **C3Or3A-01: Commissioning of the DALs Test Facility Cryogenic System**

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Dalian Advanced Light Source (DALs), located at Dalian, China, aims to construct a new light source that can generate high brightness X-Ray pulses. The DALs, which consists of 12 cryomodules, based on the Superconducting Radio Frequency (SRF) technology for the linear accelerator operating in continuous wave. Before the construction of the DALs, a series of test facilities, including vertical test cryostats (VTC), horizontal test bench (HTB) and injector test bench (ITB), have been built to test the key SRF components. A Test Facility Cryo-Plant (TFCP) with an equivalent cooling capacity of 370 W@2 K has been built to provide the cryogens for the test facilities. The cold box of TFCP was designed to provide 2500 W cooling capacity at the temperature range 40-80 K, and a total mass flow of 29 g/s helium at a pressure of 3.5 bara and a temperature of 4.6 K. The cryogens from the cold box are distributed to each test bench, where liquid helium (LHe) is converted to saturated 2 K He-II through a Joule-Thomson (J-T) valve, a 2 K heat exchanger (JTHX), and a process vacuum pump system (PVPS). After three years of development, the entire cryogenic system has been constructed and thoroughly tested. This paper gives an overview of the cooling requirements, the process design and the commissioning results of the installed cryo-plant.

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