

## ***Thermodynamic Process and Optimization of Dilution Refrigerator***

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The dilution unit which directly determines the performance of dilution refrigerator is the most important part of the whole dilution refrigerator system. In order to improve the performance (lower temperature and more cooling power) of dilution refrigerator, separate thermodynamic models of the components in dilution unit and a integrated thermodynamic model were developed considering thermodynamic balance and the Kapitza boundary resistance. And an optimization calculation based on that model was carried out to obtain some meaningful results on the dilution unit design. The route and scope of optimization and theoretical optimal working condition were carefully presented. A concept called “saturated flow rate” was introduced.