Cryostat Dilution Refrigerator

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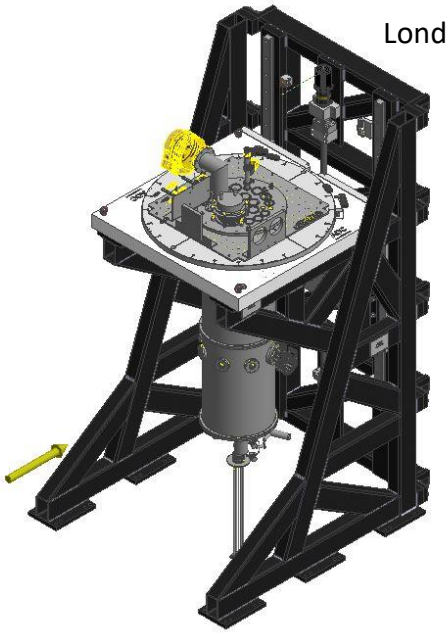

A system was custom designed for the Free Electron Laser for Infrared eXperiments (FELIX) in Netherlands http://www.ru.nl/felix/ that provides both vertical (z) axis positioning and rotation about the z-axis of a Cryo-Free dilution refrigerator from Oxford Instruments (Kelvinox). http://www.oxford-instruments.com/ The refrigerator has a vertical travel of 950mm using linear bearings and a 40mm ball screw driven by a triple stack NEMA 34 stepper motor and a planetary inline gearbox. With a 10:1 gear ratio on the 200 steps/rev motor the resolution is approximately 5µm. 180 degrees of rotation is achieved through the use of a large bearing driven by a double stack NEMA 34 stepper motor and a planetary inline gearbox. With a 3:1 gear ratio on the 200 steps/rev motor the rotation has a resolution of approximately 0.07 degrees. The Aluminum frame (Non-Magnetic) is bolted to the floor using M16 Screws to provide ultimate stability.