For Energy Saving Operation of 4KGM Cryocoolers Inverter-mounted

Compressor E-77A

R&D | FS/Demo | **Product/ Service**

Advanced Technologies SBU

- The E-77A compressor is equipped with a **dual inverter, enabling energy-saving operation** of the 4KGM cryocooler RDE-412 while maintaining its high cooling capacity.
- In cryostats (low-temperature vacuum vessels) with liquid helium tanks, such as those used for MRI superconducting magnets, 4KGM cryocoolers are operated steadily. To prevent the internal pressure of the liquid helium tank from becoming negative due to excessive helium gas re-condensation, a heater was conventionally used to control and maintain a positive internal pressure.
  (*If the helium tank's pressure becomes negative, the tank may inhale external air, causing the safety valve to freeze and clog. This could lead to a severe accident.)
- Using the E-77A compressor enables the operation of cryocoolers and compressors at reduced speeds, allowing for control and maintenance of a positive internal pressure without using a heater. As a result, it **becomes possible to save energy compared to steady operation**.

Carbon Neutral Contribution points

- ✓ Can save more energy than conventional compressors. **(Electricity consumption can be reduced by more than 40-50%)**
- ✓ Downtime for various equipment can be reduced with the boosted cooling function

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