

ULVAC CRYOGENICS to Enter Cryogenic Cooler Business

ULVAC CRYOGENICS INC.

ULVAC CRYOGENICS INC. (President: Hidetoshi Morimoto; headquarters: Chigasaki, Kanagawa, Japan), a manufacturer and sales company of cryopumps, will enter the business of cryocoolers used in the fields of superconductivity, medical equipment, measuring instruments and laboratory cryostats.

ULVAC, Inc. developed a 4 K (-269°C) closed-cycle refrigerator, UR4K03, mainly for studies in universities. The Unit 1 (prototype) has already been integrated into a portable superconducting millimeter-wave atmospheric molecule measuring system at Nagoya University and it continues operating stably.

The newly developed cryocooler system, UR4K03, will be manufactured and sold by ULVAC CRYOGENICS, a member of the ULVAC Group. Following UR4K03, ULVAC CRYOGENICS will add new models to its lineup of cryocoolers to reinforce the business.

ULVAC CRYOGENICS is a specialized manufacturer of cryopumps used for semiconductor manufacturing equipment, liquid crystal display manufacturing equipment, optical film deposition equipment and other vacuum devices and equipment. The company has strong sales records in Japan and Asia. Cryopumps are capture-type vacuum pumps used in high-vacuum fields. Utilizing its experience, ULVAC CRYOGENICS will actively enter the market for cryogenic coolers.

[Background]

Cryogenic coolers (Cryocoolers) are used for superconductive applications, medical equipment, measuring instruments, cyostats and other products. In particular, the global market size for cryocoolers used in the superconductivity field is estimated to be in the order of 20 billion yen in 2009, 60 billion yen in 2015, and 100 billion yen in 2020.

[Features]

The newly developed 4 K cryocooler, UR4K03, utilizes a closed-cycle helium gas circulating GM (Gifford McMahon) refrigerator, which uses no liquid helium.

The UR4K03 cryocooler is equipped with a temperature fluctuation suppression mechanism (patent pending) and is capable of keeping the temperature amplitude to 20 mK (millikelvin). Temperature amplitude affects micro-signal measurements using superconductors, and there have been demands for a technology that minimizes this amplitude. There are similar demands for millimeter-wave measuring instruments. Further technical progress is required to meet these very demanding needs.

The new cryocooler system has the following specifications:

- (1) Stage 1 refrigeration capacity : 5 W / 60 K
- (2) Stage 2 refrigeration capacity : 0.3 W / 4.2 K
- (3) Stage 2 ultimate temperature: 2.8 K

[Product configuration]

The system consists of a main unit, a compressor for helium gas circulation, flexible hoses and a power cable.

[Future development]

In addition to the 2-stage 10 K cryocoolers R10R/R20R/R50R/R80RT, 1-stage cryocoolers RS10/RS50/RS80T/RS150T (with an ultimate temperature of 50 K or lower) and URSP20 (pulse tube cryocooler), ULVAC CRYOGENICS will enhance its lineup of large-scale cryocooler and environmentally friendly products.

[Time of release]

July 2009

[Sales estimate]

ULVAC CRYOGENICS estimates it will ship 100 units of the 4 K cryocooler UR4K03 in the first year, and predicts sales of 300 million yen for all models of cryocoolers in 2010.

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For further information

<http://www.ulvac-cryo.com/english/>