

Solutions for Innovation

Room Temperature Control

- Radiant Cooling Panel
- Air Conditioner System



Room
Temperature

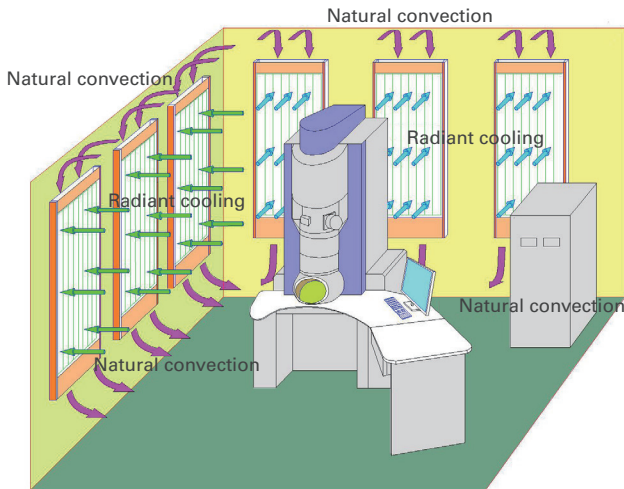


Room Temperature Control Radiant Cooling P

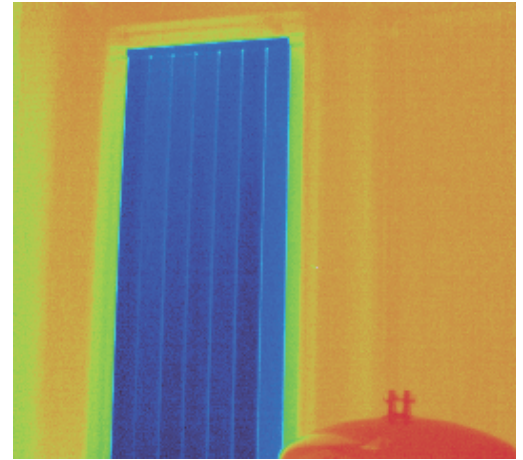
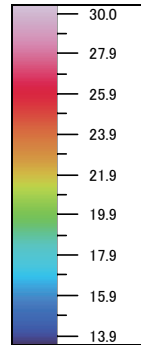
In order to realize the full potential of high-performance scientific instruments, such as atomic-resolution electron microscopes, a high level of stability of the operation environment, including room temperature variation, is required. This document describes a room temperature control system for atomic-resolution electron microscopes, which has been developed.



Principles of Hydro radiant panel temperature control systems



Schematic figure of system



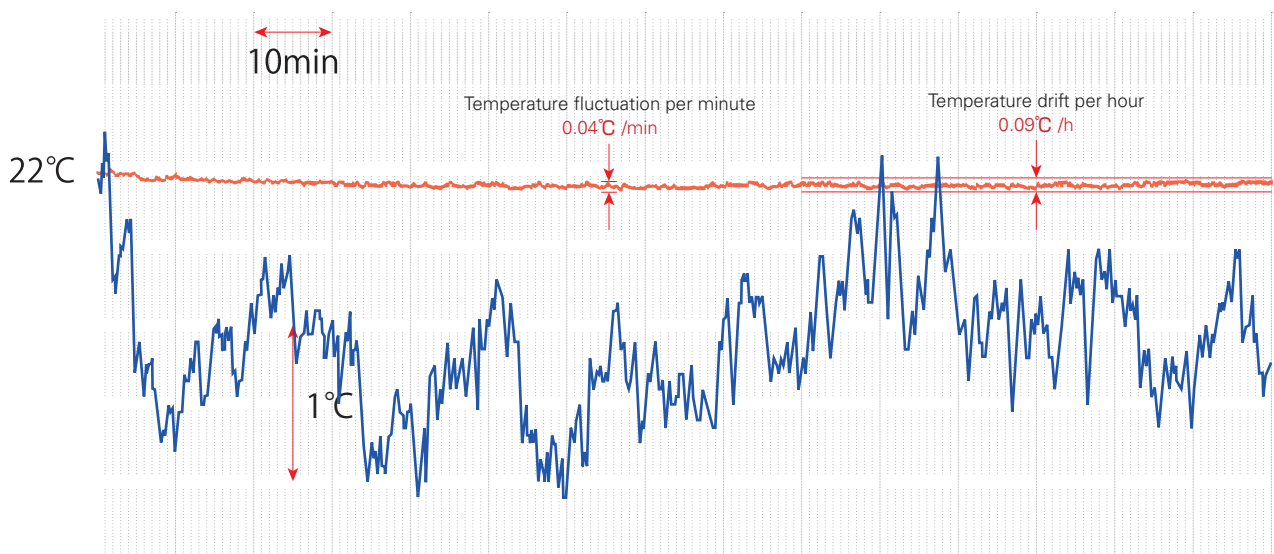
Surface temperature distribution on the panel

Cooling water from a dedicated, high-precision chiller flows within the several radiant cooling panels that are installed on the walls of the instrument installation room. The natural convection flow and the radiant cooling eliminate the heat generated by the instrument. Compared to an ordinary air conditioning system, the temperature stability is surprisingly better, with almost no air drafts or noise, creating the ideal environment for the operation of an atomic-resolution electron microscope.

Temperature change/ airflow specifications for JEM-ARM series

Room temperature	15 to 25°C
Drift	0.2 °C/h or less
Fluctuation	0.05 °C/min or less
Air flow	100 mm/s or less

Sample temperature variation data



Temperature change comparison Blue : Ordinary air conditioning Red : Radiant cooling

As atomic-resolution electron microscopes, it is necessary to maintain a stable environment, air flow and noise. JEOL has developed a unique and optimal room environment, which is highly praised by many users.



Example of installation

Case of actual installation



JEM-ARM200F Demo unit at JEOL R&D building



Hydro radiant cooling panel



Installation room consulting and preparation

JEOL Advanced Environmental Engineering Center can handle all the preparation work for the installation room, including construction, interior finishing, electrical, air conditioning, facilities, and seismic resistance, in order to satisfy the environment requirements for the instrument. We offer solutions to take full advantage of the instrument performance, proposing the optimal construction matched to the customer requirements.



Installation room for JEM-1400Plus



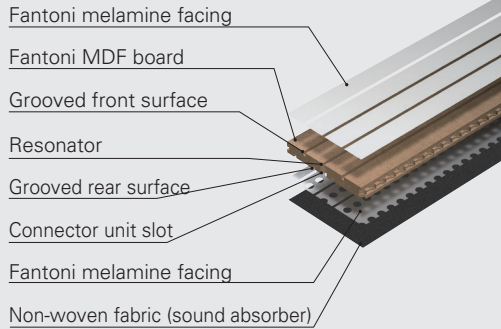
200kV TEM installation room

Hydro radiant panel cooling system with 「TOPAK Q-ON」

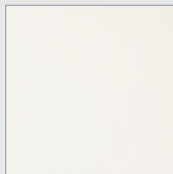
Now available, sophisticated design combined with high performance using wood sound-absorbing panels with Italian charm



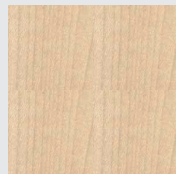
Details



Color options



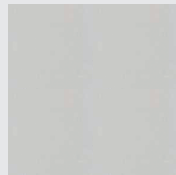
White



Maple



Beech



Aluminum



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