

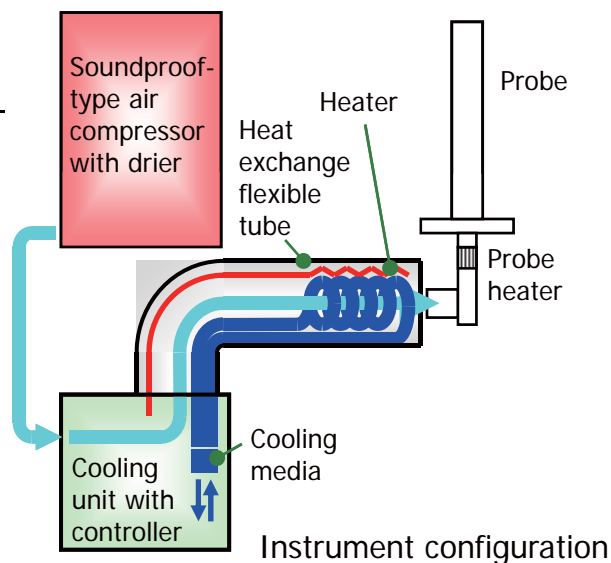
Cooling unit with controller

The cooling unit with controller supplies cold dried air (lowest temp. -80°C) to NMR probes with easy operation and is useful for low-temperature NMR measurements.*1 It requires no cooling media such as liquid nitrogen, achieving long-time stability in the measurements. Also, an AC100V power source can be used without additional installation work.*2



< Working principle >

The cooling unit contains a compressor, which compresses and circulates cooling media in the heat exchange flexible tube part consisting of capillary tubes. Based on the principle of adiabatic expansion, cooling media take heat from compressed air separately supplied by an air compressor. Temperature is controlled by an internal heater and a PID controller.*3



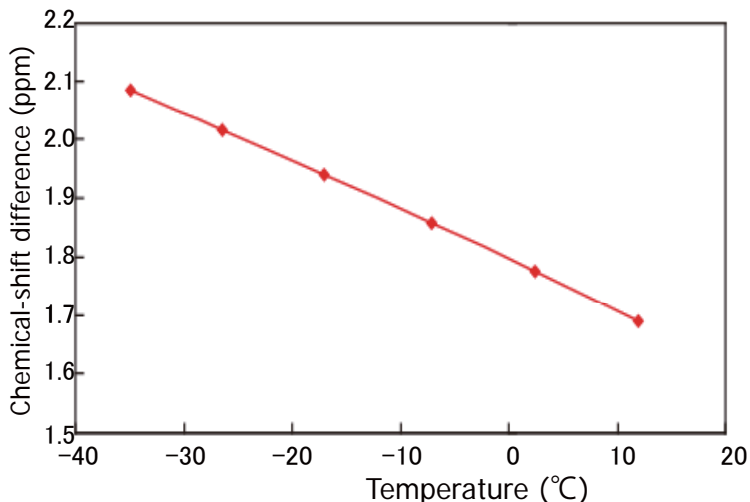
Installation View

< Features >

- No need for cooling media such as liquid nitrogen.
- Supply dried cold air (-80°C) to a probe.*1
- Use an AC100V (50/60Hz) power source.*2
- Movable with lockable casters.
- Monitor flow rate.

< Usage example >

Figure shows the chemical-shift difference of methyl and hydroxyl peaks of methanol at various temperatures using a cooling unit with controller. The linearity of the chemical-shift difference and temperature manifests applicability of the cooling unit with controller to stable variable temperature NMR measurements.



*1: Temperature at the probe detection part is generally higher than that of supplied air.
 *2: Additional installation work may be required depending on the air compressor in use.
 *3: PID signifies Proportional, Integral, and Derivative used in the general control scheme.