MCK Models

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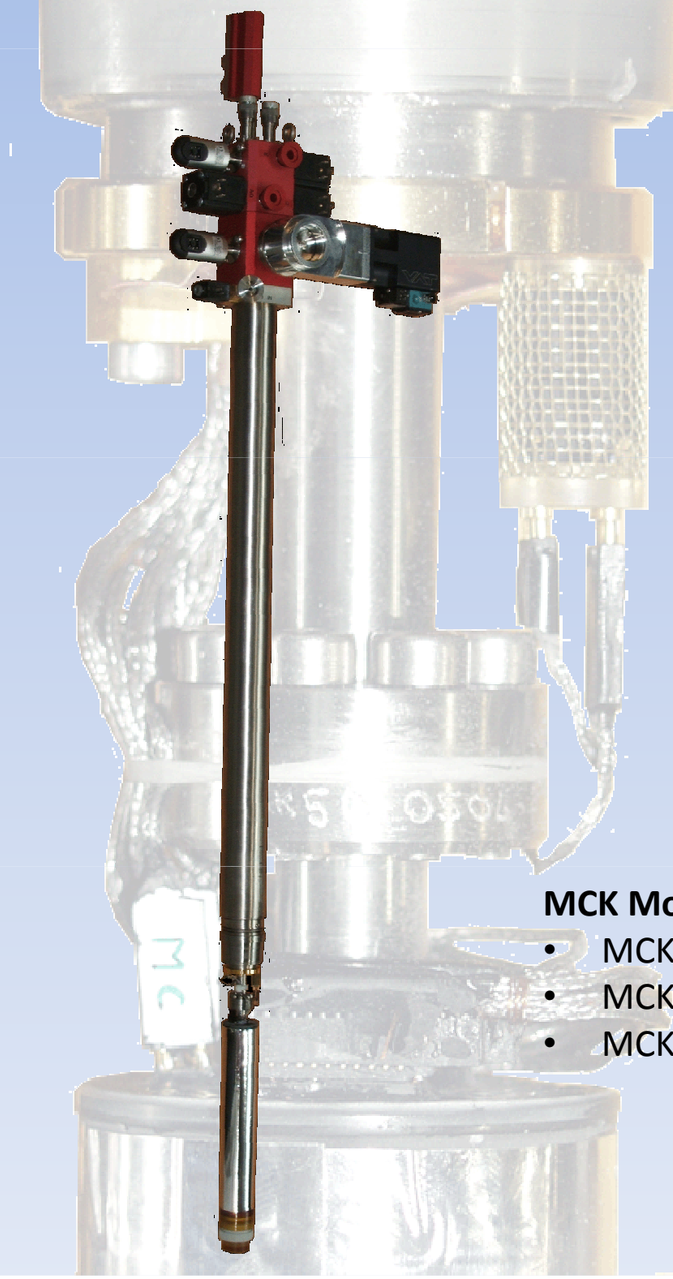

MCK Models:

- MCK50-100
- MCK50-400
- MCK76-400

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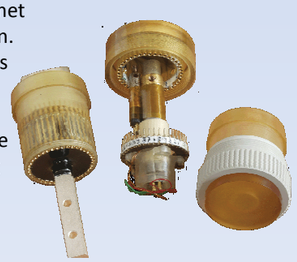
MCK Models	Tmin (mK)	Q @120mK (μW)
MCK50-100	<25	100
MCK50-400	<25	400
MCK76-400	<25	400

Insert:

- Dilution refrigerator insert outer ϕ =50/76 mm with 50 /76mm o.d. IVC including 1K pot.
- Plastic D.R. unit with ϕ24 mm x 40 mm length useful internal space. Minimum temperature inside M.C. < 25/18 mK
Cooling power inside M.C. 100/400 μW @ 120 mK (± 10%).
Greased conical plug for access to the liquid inside the mixing chamber. For measurements outside the mixing chamber see optional conical plug with cold finger
- Three ϕ 10mm clear-shot tubes to IVC. One is used for the wires
- 1 K pot and still resistance thermometers (with typical calibration).
- MC calibrated thermometer
- 2 coax cables for still capacitance level gauge
- 6 wires in twisted pairs for mixing chamber, sorb and still heater
- 48 twisted and shielded phosphor bronze wires thermally anchored at the 1 K pot, and inside the dilution refrigerator unit. 8 wires are used for the 1K pot still and MC thermometers

Oil-free 3He-4He gas handling system:

- Turbo pump with molecular drag stage
- Dry backing pump
- Pirani gauge for still and IVC
- Flowmeter
- Sorb pump
- One charcoal trap including liquid nitrogen dewar mounted inside pumping cabinet
- Microprocessor controlled electrical valves with manual and automatic operation. Drivers for automatization under Labview are included (PC with 4 RS232 interfaces and Labview 6 or higher required.
- 4He gas handling system for 1 K pot (oil-free)
- Stainless steel pumping cabinet on wheels with mixture dump and containing the pumps and valves, necessary to operate the refrigerator. Gate valve for insulating insert from GHS included.
- Triple power supply with LabView driver



Performance

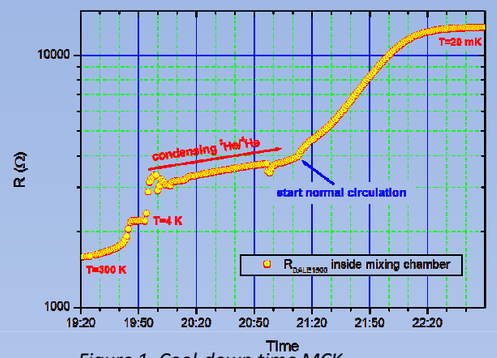


Figure 1. Cool-down time MCK

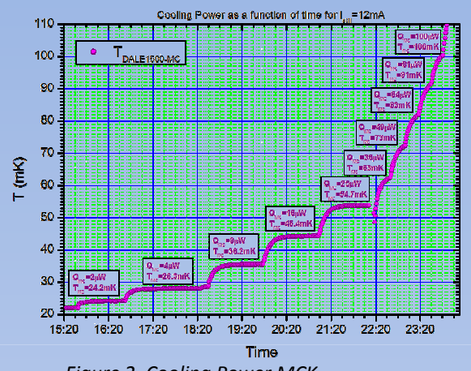


Figure 2. Cooling Power MCK

Special Options

MCK50-100 Muon Scattering
The MCK can be adjusted for muon scattering experiments. The insert is integrated with the dewar and the aluminum tail is equiped with windows.

MCK50-500-HMF (High Magnetic Field)
Plastic D.R. unit with 18 mm plastic tail extension for high field magnet to fit into 21.5 mm i.d. IVC tail.
sample space 14 mm i.d. inside mixing chamber extension, above pin connector, and 15.2 mm o.d.
Minimum temperature inside M.C. <30 mK at the sample space. T<20 mK at the top of the MC (without tail). Conical plug to fit samples on top of the mixing chamber when tail is not used, and smaller conical plug for inserting samples at the bottom of the tail.
Cooling power inside M.C. ~550 μW @ 120 mK ±10% at the top. More than 100 microW at the bottom of the tail, at sample space.