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C2Po3D-07: An integrated tool for helium recovery and evaporative cooling

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We present the design of an automated tool that can be used to extract a small amount of left-over liquid helium in an MRI magnet and push it into a helium recovery bag. The main design goals are to minimize the process time and overall footprint of the tool, and not to contaminate helium with hydrocarbons during the process. Also discussed in the paper is another potential application where the same tool is used as an expansion engine for evaporative cooling of an MRI magnet in a warehouse or hospital in much less time compared to a cryocooler based cooldown tool and consume less liquid helium compared to not using the tool.

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