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DESIGNING VAPOUR-COOLED AND FORCED-FLOW COOLED CURRENT LEADS FOR A NEW SEPARATING DEVICE

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We are designing a new separating device and among several other components we had designed vapour-cooled current leads. This current leads are based on a classical design (for proper stability and robustness of the full device that does not allow many degrees of freedom) and therefore made of Low-Tc material connected with copper wires and some parts of High-Tc material. Its design is calculated keeping in mind the heat transfer by diffusion to a vapour-cooled stream that surrounds the conductive materials. We have also designed forced-flow cooled current leads, for comparison purposes. The actual current lead heat influx is best determined in the vapor cooled mode.

The design and the calculations performed, and also the background theory of the heat diffusion applied in this part of the device will be described.

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