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C1Po1F-05: Design of a new 12x150A helium-cooled current lead for EIC

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Following the failure that ended the RHIC run 23, a review of the original 12x150A RHIC current leads has uncovered a series of design issues that granted a replacement of these leads before the EIC operation begins. Taking advantage of the lesson learned from 24 years of operation, significant design improvement to the old design have been studied. Going back to thermal and electrical conductivity measurement, we have derived suitable materials and conductor geometry. The new current lead design was optimized with its operational lifecycle in mind.
This paper will describe the lesson learned from the original lead operation, the principles driving this new current lead design, the lifecycle design optimization and the expected operational performances of the proposed design.

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