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C3Or2C-01: Conceptual cryodistribution system layout and modeling for Infinity One

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The Infinity One Fusion machine is an HTS-based stellarator currently being designed by Type One Energy Group Inc. Several components of this machine such as its superconducting magnets, current leads, thermal shields, vacuum pumping system, and fuel injection system require cooling at cryogenic temperatures. The cryogenic distribution system is responsible for delivering helium at the appropriate temperatures, pressures and flow rates to some of these interfacing systems. This work presents the design of such a cryodistribution system working across many sub-systems and operational modes. The initial modeling results are presented to demonstrate how the various challenges are addressed.

*Affiliations are based on people's employment at Type One Energy at the time the work was performed.

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