

Title (en)

HIGH TEMPERATURE SUPERCONDUCTOR REFRIGERATION SYSTEM

Title (de)

HOCHTEMPERATURSUPRALEITERKÜHLSYSTEM

Title (fr)

SYSTÈME DE RÉFRIGÉRATION DE SUPERCONDUCTEUR À HAUTE TEMPÉRATURE

Publication

EP 3830498 A1 20210609 (EN)

Application

EP 19745564 A 20190724

Priority

- GB 201812376 A 20180730
- EP 2019025246 W 20190724

Abstract (en)

[origin: GB2575980A] A cryogenic refrigeration system 1 and method for cooling a thermally coupled load comprises a cryogenic refrigerant supply 2, a compressor 3 coupled to the supply to compress the refrigerant and a cold box 10 coupled to the compressor. The cold box comprises a first expansion device 4 receiving compressed refrigerant to expand and provide it to a first heat exchanger 5 thermally coupled to the load 7. The cold box further comprises a second heat exchanger 6 having at least first and second heat exchanging sections 6A, 6B, the first of which, 6A, receives expanded refrigerant from the expansion device and provides it to the first heat exchanger. The second heat exchanging section 6B receives the expanded refrigerant 24 from the first heat exchanger 5 and returns it to the first heat exchanger, wherein the first and second heat exchanger sections are thermally coupled. The first heat exchanger then returns the refrigerant to the supply and/or the compressor. The second heat exchanger allows initial warming of the expanded refrigerant and increase in isentropic efficiency. Further expanders, second heat exchanger sections and return loops may be added.

IPC 8 full level

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CPC (source: EP GB KR US)

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Designated contracting state (EPC)

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