

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)

**F25B 7/00** (2013.01 - US); **F25B 9/00** (2013.01 - GB); **F25B 9/002** (2013.01 - EP KR US); **F25B 9/02** (2013.01 - EP KR); **F25B 9/06** (2013.01 - EP GB KR US); **F25B 25/00** (2013.01 - EP); **F25B 40/00** (2013.01 - EP KR); **F25J 1/005** (2013.01 - EP KR); **F25J 1/0062** (2013.01 - EP); **F25J 1/0065** (2013.01 - EP KR); **F25J 1/0244** (2013.01 - EP KR); **F25J 1/0276** (2013.01 - EP); **F25B 7/00** (2013.01 - EP); **F25B 19/005** (2013.01 - EP); **F25B 2309/004** (2013.01 - EP KR US); **F25B 2309/005** (2013.01 - EP KR US); **F25B 2309/023** (2013.01 - EP KR); **F25B 2400/0411** (2013.01 - EP); **F25B 2400/05** (2013.01 - GB KR); **F25J 2245/02** (2013.01 - EP); **F25J 2270/16** (2013.01 - EP KR); **F25J 2270/912** (2013.01 - EP KR)

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