

Title (en)

METHOD FOR OPERATING CRYOCOOLER AND CRYOCOOLER

Title (de)

VERFAHREN ZUM BETRIEB EINES KRYOKÜHLERS UND KRYOKÜHLER

Title (fr)

PROCÉDÉ DE FONCTIONNEMENT D'UN CRYORÉFRIGÉRATEUR ET CRYORÉFRIGÉRATEUR

Publication

**EP 4350249 A3 20240612 (EN)**

Application

**EP 23196704 A 20230912**

Priority

JP 2022161835 A 20221006

Abstract (en)

An initial cooling time of a cryocooler (10) is shortened. A method for operating a cryocooler 10 includes: connecting a second compressor 80 in series with a first compressor 12 on a high pressure line 63 or a low pressure line 64; connecting a buffer volume 70 to the low pressure line 64 via a supply valve 72; executing initial cooling for cooling an expander 14 from an initial temperature to a cryogenic temperature in a state where the second compressor 80 and the buffer volume 70 are connected to the cryocooler 10; and executing a steady operation of maintaining the expander 14 at the cryogenic temperature after the initial cooling. The execution of the initial cooling includes supplying a working gas to the expander 14 by using the first compressor 12 and the second compressor 80, and controlling the supply valve 72 to keep a pressure of the high pressure line 63 within a preset appropriate pressure range based on the measured pressure of the high pressure line 63.

IPC 8 full level

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CPC (source: CN EP US)

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Citation (search report)

- [A] EP 3913300 A1 20211124 - SUMITOMO HEAVY INDUSTRIES [JP]
- [A] US 2022163030 A1 20220526 - TAKAHASHI KAKERU [JP]
- [A] US 2013232999 A1 20130912 - MATSUI TAKAAKI [JP]

Designated contracting state (EPC)

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Designated extension state (EPC)

BA

Designated validation state (EPC)

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**EP 4350249 A2 20240410**; **EP 4350249 A3 20240612**; CN 117847815 A 20240409; JP 2024055145 A 20240418; US 2024118007 A1 20240411

DOCDB simple family (application)

**EP 23196704 A 20230912**; CN 202311163465 A 20230911; JP 2022161835 A 20221006; US 202318475195 A 20230926