

Title (en)
CRYOGENIC SYSTEM

Title (de)
KRYOGENES SYSTEM

Title (fr)
SYSTÈME CRYOGÉNIQUE

Publication
EP 3477223 A1 20190501 (EN)

Application
EP 18200885 A 20181017

Priority
JP 2017207999 A 20171027

Abstract (en)
The continuity of the cooling operation of a cryogenic system is improved. A cryogenic system (10) includes a cryogenic cooling unit (20), a plurality of refrigerant circulation loops (12) which cool the cryogenic cooling unit (20) by heat exchange between the cryogenic cooling unit (20) and a refrigerant and each of which includes a circulation pump (26) circulating the refrigerant and a refrigerator (28) cooling the refrigerant, and a connection line (14) that connects the plurality of refrigerant circulation loops (12) to allow the refrigerant to be circulated. The connection line (14) is adapted to be switchable to a connected state from an unconnected state, isolates the plurality of refrigerant circulation loops (12) from each other in the unconnected state so that the circulation pump (26) of each refrigerant circulation loop (12) circulates the refrigerant in the refrigerant circulation loop (12), and connects the plurality of refrigerant circulation loops (12) in the connected state so that the circulation pump (26) of at least one refrigerant circulation loop (12) circulates the refrigerant in at least one of the other refrigerant circulation loops (12) as well.

IPC 8 full level
F25B 9/02 (2006.01); **F25B 9/10** (2006.01); **F25B 9/14** (2006.01); **F25D 19/00** (2006.01)

CPC (source: EP)
F25B 9/02 (2013.01); **F25B 9/10** (2013.01); **F25B 9/14** (2013.01); **F25D 19/006** (2013.01); **F25B 2309/1428** (2013.01); **F25B 2400/06** (2013.01)

Citation (applicant)
JP 2016211795 A 20161215 - TOSHIBA CORP

Citation (search report)
• [A] US 5889456 A 19990330 - TRIEBE RENE [CH], et al
• [AD] JP 2016211795 A 20161215 - TOSHIBA CORP
• [A] US 6679066 B1 20040120 - FUNAYAMA SHIN [JP], et al
• [A] EP 1643197 A2 20060405 - BOC GROUP INC [US]

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EP4350250A1; IT202100003458A1; EP3865789A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3477223 A1 20190501; **EP 3477223 B1 20200722**; JP 2019078511 A 20190523; JP 6975019 B2 20211201

DOCDB simple family (application)
EP 18200885 A 20181017; JP 2017207999 A 20171027