

Title (en)

MULTI-STAGE COMPRESSOR AND REFRIGERATION SYSTEM EQUIPPED WITH SAME

Title (de)

MEHRSTUFIGER VERDICHTER UND KÜHLSYSTEM DAMIT

Title (fr)

COMPRESSEUR À PLUSIEURS ÉTAGES ET SYSTÈME DE RÉFRIGÉRATION ÉQUIPÉ DE CE DERNIER

Publication

**EP 3346134 A4 20181107 (EN)**

Application

**EP 16853322 A 20160804**

Priority

- JP 2015200271 A 20151008
- JP 2016072994 W 20160804

Abstract (en)

[origin: EP3346134A1] It is an object of the present invention to prevent liquid compression in a high-stage side compression mechanism of a multi-stage compressor, and to effectively cool an electric motor at all times by means of an injection refrigerant thus expanding an operable range. A multi-stage compressor (2) according to the present invention includes: a housing (11) having a sealed container shape; a low-stage side compression mechanism (13) and a high-stage side compression mechanism (14) which are installed in the housing (11); an electric motor (12) which drives the low-stage side compression mechanism (13) and the high-stage side compression mechanism (14), the electric motor (12) being installed in an intermediate pressure zone in the housing (11); an injection nozzle (37) installed into the housing (11) in a penetrating manner so as to face the electric motor (12); and a refrigerant supply part (50) which extracts a gas phase portion and a liquid phase portion of a compressed refrigerant discharged from the high-stage side compression mechanism (14), and selectively supplies the gas phase portion and the liquid phase portion to the injection nozzle (37) as an injection refrigerant.

IPC 8 full level

**F04C 23/00** (2006.01); **F04B 39/06** (2006.01); **F04C 28/02** (2006.01); **F04C 29/04** (2006.01); **F25B 1/00** (2006.01); **F25B 1/10** (2006.01)

CPC (source: EP)

**F04B 39/06** (2013.01); **F04C 23/001** (2013.01); **F04C 23/005** (2013.01); **F04C 23/008** (2013.01); **F04C 29/042** (2013.01); **F04C 29/045** (2013.01); **F25B 1/00** (2013.01); **F25B 1/10** (2013.01); **F04C 18/0215** (2013.01); **F04C 18/356** (2013.01); **F04C 2270/195** (2013.01)

Citation (search report)

- [A] JP 2008286037 A 20081127 - FUJITSU GENERAL LTD
- [A] EP 2172653 A1 20100407 - MITSUBISHI HEAVY IND LTD [JP]
- [A] EP 1953388 A1 20080806 - MITSUBISHI HEAVY IND LTD [JP]
- [A] US 6615598 B1 20030909 - WANG SIMON Y [HK], et al
- See references of WO 2017061167A1

Cited by

US2022136509A1; US11867181B2; US12055322B2; EP4197834B1

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 3346134 A1 20180711**; **EP 3346134 A4 20181107**; **EP 3346134 B1 20191009**; CN 108138777 A 20180608; JP 2017072099 A 20170413; WO 2017061167 A1 20170413

DOCDB simple family (application)

**EP 16853322 A 20160804**; CN 201680057317 A 20160804; JP 2015200271 A 20151008; JP 2016072994 W 20160804