

Title (en)

COOLANT PUMP FOR AN INTERNAL COMBUSTION ENGINE

Title (de)

KÜHLMITTELPUMPE FÜR EINE VERBRENNUNGSKRAFTMASCHINE

Title (fr)

POMPE À LIQUIDE DE REFROIDISSEMENT POUR UN MOTEUR À COMBUSTION INTERNE

Publication

EP 3371465 A1 20180912 (DE)

Application

EP 16787374 A 20161019

Priority

- DE 102015119095 A 20151106
- EP 2016075082 W 20161019

Abstract (en)

[origin: WO2017076649A1] Coolant pumps for internal combustion engines are known, comprising a drive shaft (18), a coolant pump impeller (20) which is securely arranged on the drive shaft (18) at least in a rotationally fixed manner and via which coolant can be conveyed, an adjustable control slider (58) via which a flow cross-section of a ring gap (62) between the outlet (64) of the coolant pump impeller (20) and the surrounding conveying channel (12) can be controlled, a control pump (32) having a control pump impeller (22) which is arranged on the drive shaft (18) at least in a rotationally fixed manner, a flow channel (24) of the control pump (32) in which a pressure can be generated by rotating the control pump impeller (22), a pressure channel (92) via which an outlet (30) of the flow channel (24) can be fluidically connected to a first pressure chamber (80) of the control slider (58), which is formed on the axial side of the control slider (58) facing away from the coolant pump impeller (20), and a valve (84) via which a flow cross-section (90) of the pressure channel (92) can be closed and released. According to the invention, in order to be able to guarantee an emergency operation with maximum coolant supply of the coolant circuit, without the use of a return spring, the flow channel (24) is fluidically connected to a second pressure chamber (82) of the control slider (58) via a connection channel (94), which is formed on the axial side of the control slider (58) directed towards the coolant pump impeller (20).

IPC 8 full level

F04D 15/00 (2006.01)

CPC (source: EP US)

F01P 5/10 (2013.01 - US); **F04D 13/12** (2013.01 - US); **F04D 15/0038** (2013.01 - EP US); **F01P 2005/105** (2013.01 - US); **F05D 2270/64** (2013.01 - US)

Citation (search report)

See references of WO 2017076649A1

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)

WO 2017076649 A1 20170511; CN 108350889 A 20180731; CN 108350889 B 20201013; DE 102015119095 A1 20170511; DE 102015119095 B4 20190321; EP 3371465 A1 20180912; EP 3371465 B1 20191127; JP 2018532944 A 20181108; JP 6632721 B2 20200122; US 10731654 B2 20200804; US 2018320693 A1 20181108

DOCDB simple family (application)

EP 2016075082 W 20161019; CN 201680063446 A 20161019; DE 102015119095 A 20151106; EP 16787374 A 20161019; JP 2018522776 A 20161019; US 201615772814 A 20161019