

Title (en)
Engine cooling apparatus

Title (de)
Motorkühlvorrichtung

Title (fr)
Appareil pour refroidissement de moteur

Publication
EP 2412949 A3 20130306 (EN)

Application
EP 11175881 A 20110728

Priority
JP 2010172971 A 20100730

Abstract (en)
[origin: EP2412949A2] An engine cooling apparatus that is capable of suppressing cavitation in a high rotation region while achieving an increase in a circulation flow rate of cooling water in a low/medium rotation region. The engine cooling apparatus includes: a main cooling water circuit that circulates the cooling water between an engine and a radiator; a branch portion provided between the engine and the radiator; a thermostat; temperature detecting means; a first bypass flow passage; a second bypass flow passage that connects the engine to the branch portion; a control valve; a bypass convergence portion; a water pump; valve opening control means; and engine rotation speed detecting means. predetermined rotation speed, the opening of the control valve is controlled in a fully closed direction from the fully open state.

IPC 8 full level
F01P 7/14 (2006.01); **F01P 7/16** (2006.01)

CPC (source: EP US)
F01P 7/165 (2013.01 - EP US); **F01P 7/167** (2013.01 - EP US); **F01P 2025/64** (2013.01 - EP US); **F01P 2060/08** (2013.01 - EP US)

Citation (search report)

- [AD] JP 2007100659 A 20070419 - CALSONIC KANSEI CORP
- [A] EP 1211398 A1 20020605 - BORGWARNER INC [US]
- [A] JP 2005083225 A 20050331 - CALSONIC KANSEI CORP

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 2412949 A2 20120201; **EP 2412949 A3 20130306**; CN 102345502 A 20120208; JP 2012031800 A 20120216; US 2012024243 A1 20120202

DOCDB simple family (application)
EP 11175881 A 20110728; CN 201110215563 A 20110729; JP 2010172971 A 20100730; US 201113137175 A 20110725