

Title (en)
COOLING DEVICE FOR ENGINE

Title (de)
KÜHLVORRICHTUNG FÜR EINEN MOTOR

Title (fr)
DISPOSITIF DE REFROIDISSEMENT POUR MOTEUR

Publication
EP 2644860 A4 20140507 (EN)

Application
EP 10859898 A 20101126

Priority
JP 2010071139 W 20101126

Abstract (en)
[origin: EP2644860A1] A cooling device 1A includes an engine 50A provided with W/Js 501, 502, and 503A, and a first control valve 31. The W/J 501 is provided at an intake side in a cylinder block 51A. The W/J 502 is provided at an exhaust side in the cylinder block 51A. The W/J 503A diverges from a given position of the W/J 501. Also, the W/J 503A is provided toward the exhaust side through the intake side of the cylinder head 52A. The first control valve 31 makes the coolant flowing state changeable between a state where the coolant is caused to flow in the W/J 501 and a state where the coolant is caused to flow in the W/Js 501 and 503A.

IPC 8 full level
F01P 3/02 (2006.01)

CPC (source: EP US)
F01P 3/02 (2013.01 - EP US); **F01P 3/18** (2013.01 - EP US); **F01P 7/165** (2013.01 - EP US); **F02F 1/40** (2013.01 - EP US);
F01P 7/162 (2013.01 - EP US); **F01P 2003/028** (2013.01 - EP US); **F01P 2005/105** (2013.01 - EP US); **F01P 2011/205** (2013.01 - EP US);
F01P 2025/62 (2013.01 - EP US); **F01P 2025/64** (2013.01 - EP US); **F01P 2037/02** (2013.01 - EP US)

Citation (search report)
• [XAI] DE 19803885 A1 19990805 - BAYERISCHE MOTOREN WERKE AG [DE]
• [A] US 2006213460 A1 20060928 - AOKI AKINOBU [JP], et al
• See references of WO 2012070149A1

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

DOCDB simple family (publication)
EP 2644860 A1 20131002; EP 2644860 A4 20140507; CN 103282617 A 20130904; JP 5527427 B2 20140618; JP WO2012070149 A1 20140519;
US 2013247847 A1 20130926; WO 2012070149 A1 20120531

DOCDB simple family (application)
EP 10859898 A 20101126; CN 201080070273 A 20101126; JP 2010071139 W 20101126; JP 2012545583 A 20101126;
US 201013988541 A 20101126