Title (en)

INTERNAL COMBUSTION ENGINE AND TRANSPORTATION DEVICE

Title (de)

VERBRENNUNGSMOTOR UND TRANSPORTVORRICHTUNG

Title (fr)

MOTEUR À COMBUSTION INTERNE ET DISPOSITIF DE TRANSPORT

Publication

EP 4219928 A4 20231129 (EN)

Application

EP 21957736 A 20211214

Priority

JP 2021045975 W 20211214

Abstract (en)

[origin: EP4219928A1] An internal combustion engine (100) includes a piston (40) formed of an aluminum alloy, the piston including a piston head (43) and a piston skirt (44) extending from an outer circumferential portion of the piston head; and a cylinder block (10) formed of an aluminum alloy, the cylinder block including a cylinder wall (12) including a sliding surface (12a), along which the piston is slidable. The aluminum alloy is exposed to the sliding surface of the cylinder wall. The piston skirt includes a skirt substrate (b1) formed of an aluminum alloy, the skirt substrate including a plurality of streak grooves (sg) formed in an outer circumferential surface thereof, the piston skirt further including a resin layer (rl) formed on at least a part of the outer circumferential surface of the skirt substrate. The outer circumferential surface of the skirt substrate has a ten-point average surface roughness Rz_{JIS} of 20 μm or larger.

IPC 8 full level

F02F 1/00 (2006.01)

CPC (source: EP)

F02F 3/105 (2013.01)

Citation (search report)

- [Y] JP H0797517 A 19950411 - TOYOTA MOTOR CORP, et al
- [Y] JP H01253553 A 19891009 - HONDA MOTOR CO LTD
- [A] JP 2004144014 A 20040520 - NTN TOYO BEARING CO LTD
- [A] JP S59108850 A 19840623 - MAZDA MOTOR
- [A] KR 20210144258 A 20211130
- See also references of WO 2023112124A1

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

Designated validation state (EPC)

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DOCDB simple family (publication)

EP 4219928 A1 20230802; **EP 4219928 A4 20231129**; WO 2023112124 A1 20230622

DOCDB simple family (application)

EP 21957736 A 20211214; JP 2021045975 W 20211214