

Title (en)

An internal combustion engine including variable compression ratio and a method of operating the engine

Title (de)

Verbrennungsmotor mit variablem Verdichtungsverhältnis und Betriebsverfahren des Motors

Title (fr)

Moteur à combustion interne comprenant un rapport de compression variable et procédé de fonctionnement du moteur

Publication

EP 2905448 A1 20150812 (EN)

Application

EP 14154720 A 20140211

Priority

EP 14154720 A 20140211

Abstract (en)

An internal combustion engine (1) including variable compression ratio comprises a crankcase, a crankshaft (3) including a crankshaft axis (4), wherein the crankshaft (3) has at least a central main portion (5), a crankpin (6) and a crankshaft web (7) located between the central main portion (5) and the crankpin (6). The crankshaft (3) is supported by the crankcase and rotatable with respect thereto about the crankshaft axis (4). The engine comprises at least a connecting rod including a big end and a small end, a piston being rotatably connected to the small end, and a crank member (8) which is rotatably mounted on the crankpin (6), and comprises at least a bearing portion which is eccentrically disposed with respect to the crankpin (6), and has an outer circumferential wall which bears the big end of the connecting rod such that the connecting rod is rotatably mounted on the bearing portion of the crank member (8) via the big end. The engine also comprises a driving mechanism (2) for rotating the crank member (8) with respect to the crankshaft (3), which comprises a drive shaft (9) that extends concentrically through the central main portion (5). The drive shaft (9) is drivably coupled to the crank member (8) via a transmission (10) at a side of the crankshaft web (7) where the crankpin (6) is located. At the opposite side of the crankshaft web (7) the drive shaft (9) is drivably coupled to the crankshaft (3) via an external satellite gear (13) that is rotatably mounted to the crankshaft (3) and rotatable with respect to the crankshaft (3) about a satellite axis extending parallel to the crankshaft axis (4). The satellite gear (13) meshes with an internal ring gear (14) having a centre line that coincides with the crankshaft axis (4) and with an external sun gear (15) that is fixed to the drive shaft (9). The driving mechanism (2) is adapted such that under operating conditions the crank member (8) rotates at a rotation frequency with respect to the crankcase which is half of that of the crankshaft (3).

IPC 8 full level

F02B 75/04 (2006.01); **F16H 1/28** (2006.01)

CPC (source: EP)

F02B 75/048 (2013.01)

Citation (applicant)

WO 2009018863 A1 20090212 - GOMECSYS BV [NL], et al

Citation (search report)

- [X] DE 3936649 A1 19910508 - INGELHEIM PETER GRAF VON [DE]
- [I] WO 2013160501 A1 20131031 - GARCIA SANCHEZ EDUARDO [ES]
- [AD] WO 2009018863 A1 20090212 - GOMECSYS BV [NL], et al
- [A] DE 102008032665 A1 20100121 - AUDI AG [DE]
- [A] WO 2007039103 A1 20070412 - DAIMLER CHRYSLER AG [DE], et al

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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 2905448 A1 20150812

DOCDB simple family (application)

EP 14154720 A 20140211