

Title (en)

Internal combustion engine with hydraulic camshaft phasing device

Title (de)

Brennkraftmaschine mit einer hydraulischen Vorrichtung zur Drehwinkelverstellung einer Nockenwelle gegenüber einer Kurbelwelle

Title (fr)

Moteur à combustion interne muni d'un déphaseur hydraulique d'arbre à cames

Publication

EP 1544420 A3 20080827 (DE)

Application

EP 04026407 A 20041106

Priority

DE 10358888 A 20031216

Abstract (en)

[origin: EP1544420A2] The device has a rotor (6) with blades (10) fastened to the camshaft (2), and a stator (4) with end wall (5) fastened to a drive pulley (3) driven by the crankshaft. The stator, esp. its web walls, and its inner and outer peripheral walls, is a metal plate or band part, formed by a non-cutting process. The stator has local reinforcements of profiles, beads, etc. extending along direction of special loads. Stator, outer stator housing (13), and drive pulley are fastened to each other by e.g. forming technology. Pressure chambers between stator and rotor are closed at one end by a metal sealing plate (14). Hollows or cutouts in stator walls are filled with metal foam or injected plastic.

IPC 8 full level

F01L 1/34 (2006.01); **F01L 1/344** (2006.01); **F01L 1/46** (2006.01)

CPC (source: EP KR US)

F01L 1/34 (2013.01 - KR); **F01L 1/3442** (2013.01 - EP US); **F01L 1/46** (2013.01 - EP US); **F01L 2301/00** (2020.05 - EP US)

Citation (search report)

- [Y] DE 19951390 A1 20010503 - SCHAEFFLER WAE LZLAGER OHG [DE]
- [Y] EP 1113153 A2 20010704 - BORGWARNER INC [US]
- [A] DE 19813642 A1 19990930 - SCHAEFFLER WAE LZLAGER OHG [DE]
- [A] DE 19546103 A1 19970612 - SCHAEFFLER WAE LZLAGER KG [DE]
- [A] WO 0198684 A1 20011227 - HASSE & WREDE GMBH [DE], et al
- [A] EP 1108860 A1 20010620 - MITSUBISHI ELECTRIC CORP [JP]

Cited by

CN102052114A; DE102005024241B4; CN102089501A; US9200542B2; US7581316B2; US8434438B2; WO2008015062A3; WO2009065731A1; WO2012084283A1; WO2014146627A3; WO2006024416A1; WO2006125541A1; WO2010003745A1; US7707981B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LU MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL HR LT LV MK YU

DOCDB simple family (publication)

EP 1544420 A2 20050622; EP 1544420 A3 20080827; EP 1544420 B1 20100728; AT E475783 T1 20100815; BR PI0406256 A 20050906; BR PI0406256 B1 20170404; CN 100439663 C 20081203; CN 1629453 A 20050622; DE 10358888 A1 20050721; DE 10358888 B4 20181227; DE 502004011438 D1 20100909; JP 2005180434 A 20050707; JP 4608300 B2 20110112; KR 101119457 B1 20120315; KR 20050061354 A 20050622; RU 2004136796 A 20060527; RU 2353782 C2 20090427; US 2005155567 A1 20050721; US 7284516 B2 20071023

DOCDB simple family (application)

EP 04026407 A 20041106; AT 04026407 T 20041106; BR PI0406256 A 20041215; CN 200410101168 A 20041216; DE 10358888 A 20031216; DE 502004011438 T 20041106; JP 2004360456 A 20041213; KR 20040106808 A 20041216; RU 2004136796 A 20041215; US 1288304 A 20041215