

Title (en)

PISTON FOR AN INTERNAL COMBUSTION ENGINE

Title (de)

KOLBEN FÜR EINEN VERBRENNUNGSMOTOR

Title (fr)

PISTON POUR UN MOTEUR À COMBUSTION INTERNE

Publication

EP 2321513 B2 20161221 (DE)

Application

EP 09776111 A 20090826

Priority

- DE 2009001189 W 20090826
- DE 102008045456 A 20080902

Abstract (en)

[origin: US2010050862A1] A piston for an internal combustion engine has a lower piston part and an upper piston part that are connected with one another by friction welding and form an outer circumferential cooling channel. The upper piston part has a circumferential ring belt provided with ring grooves, the inner wall of which delimits the circumferential outer cooling channel. An outer circumferential friction-weld seam is provided below the ring belt, the width of which seam is less than or equal to the wall thickness between the groove root of the ring grooves and the inner wall of the ring belt.

IPC 8 full level

F02F 3/00 (2006.01); **F02F 3/22** (2006.01)

CPC (source: EP US)

F02F 3/003 (2013.01 - EP US); **F02F 3/22** (2013.01 - EP US)

Citation (opposition)

Opponent :

- JP 2003025076 A 20030128 - RIKEN TANZOU KK
- WO 2007031107 A1 20070322 - KS KOLBENSCHMIDT GMBH [DE], et al
- US 2003051694 A1 20030320 - GAISER RANDALL R [US], et al
- US 6557514 B1 20030506 - GAISER RANDALL R [US]

Designated contracting state (EPC)

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DOCDB simple family (publication)

US 2010050862 A1 20100304; US 8434400 B2 20130507; AT E543996 T1 20120215; BR PI0918059 A2 20151201; CN 202165174 U 20120314; DE 102008045456 A1 20100304; EP 2321513 A1 20110518; EP 2321513 B1 20120201; EP 2321513 B2 20161221; JP 2012501408 A 20120119; JP 5631314 B2 20141126; WO 2010025703 A1 20100311

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