

Title (en)  
Automotive internal combustion engine.

Title (de)  
Flüssigkeitsgekühlte Fahrzeugbrennkraftmaschine.

Title (fr)  
Moteur à combustion interne de véhicule avec un système de refroidissement liquide.

Publication  
**EP 0560402 A1 19930915**

Application  
**EP 93105961 A 19900627**

Priority  

- EP 90112308 A 19900627
- JP 17467589 A 19890706
- JP 17467689 A 19890706
- JP 18661489 A 19890719
- JP 18661689 A 19890719

Abstract (en)  
The present invention relates to an internal combustion engine for automotive vehicle comprising a cylinder block (7) and a cylinder head (11), said engine being disposed transversely in an engine compartment with the crankshaft (6) extending perpendicularly to the traveling direction of the vehicle, wherein a coolant water passage (131) for connecting a delivery port (129) of the water pump (120) to an inlet (132a) of said cylinder head water (135) jacket is disposed independently of said cylinder block water jacket (134) and the cylinder head (11) is cooled by coolant water prior to circulating the coolant water through the cylinder block water jacket (134) of the cylinder block (7). <IMAGE>

IPC 1-7  
**F01P 3/02; F01P 5/10; F01P 5/12**

IPC 8 full level  
**F01L 1/02** (2006.01); **F01L 1/053** (2006.01); **F01P 3/02** (2006.01); **F01P 5/12** (2006.01); **F02B 67/06** (2006.01); **F02F 1/10** (2006.01); **F02F 1/40** (2006.01); **F02F 1/42** (2006.01); **F01M 1/12** (2006.01); **F02B 1/04** (2006.01); **F02B 75/18** (2006.01); **F02B 75/20** (2006.01); **F02F 1/24** (2006.01)

CPC (source: EP)  
**F01L 1/02** (2013.01); **F01L 1/022** (2013.01); **F01L 1/024** (2013.01); **F01L 1/026** (2013.01); **F01L 1/0532** (2013.01); **F01P 3/02** (2013.01); **F01P 5/12** (2013.01); **F02B 67/06** (2013.01); **F02F 1/108** (2013.01); **F02F 1/40** (2013.01); **F02F 1/4221** (2013.01); **F01L 2001/0537** (2013.01); **F01L 2003/251** (2013.01); **F01M 2001/126** (2013.01); **F02B 1/04** (2013.01); **F02B 75/20** (2013.01); **F02B 2075/1824** (2013.01); **F02B 2275/08** (2013.01); **F02B 2275/18** (2013.01); **F02F 2001/245** (2013.01); **F05C 2201/021** (2013.01)

Citation (search report)  

- [Y] DE 803449 C 19510402 - BUESSING NUTZKRAFTWAGEN G M B
- [Y] GB 2060772 A 19810507 - BAYERISCHE MOTOREN WERKE AG
- [A] GB 2134594 A 19840815 - AUSTIN ROVER GROUP

Cited by  
DE4402233A1; DE4402233B4

Designated contracting state (EPC)  
DE ES FR GB IT

DOCDB simple family (publication)  
**EP 0415022 A1 19910306; EP 0415022 B1 19940323**; DE 69007576 D1 19940428; DE 69007576 T2 19940630; DE 69030111 D1 19970410; DE 69030111 T2 19970612; DE 69032625 D1 19981008; DE 69032625 T2 19990128; EP 0560402 A1 19930915; EP 0560402 B1 19970305; EP 0653553 A2 19950517; EP 0653553 A3 19950628; EP 0653553 B1 19980902; ES 2054159 T3 19940801

DOCDB simple family (application)  
**EP 90112308 A 19900627**; DE 69007576 T 19900627; DE 69030111 T 19900627; DE 69032625 T 19900627; EP 93105961 A 19900627; EP 95101307 A 19900627; ES 90112308 T 19900627