

Title (en)  
METHOD FOR OPERATING AN INTERNAL COMBUSTION ENGINE

Title (de)  
VERFAHREN ZUM BETREIBEN EINER BRENNKRAFTMASCHINE

Title (fr)  
PROCEDE DE FONCTIONNEMENT D'UN MOTEUR A COMBUSTION INTERNE

Publication  
**EP 1003960 B1 20030702 (DE)**

Application  
**EP 99919115 A 19990324**

Priority  
• DE 9900873 W 19990324  
• DE 19813377 A 19980326

Abstract (en)  
[origin: DE19813377A1] The invention relates to an internal combustion engine (1), especially for a motor vehicle. The internal combustion engine (1) is provided with an injection valve (8) by means of which fuel can be injected directly into a combustion chamber (4) either in a first operating mode during a compression stage or in a second operating mode during a suction stage. The invention also provides for a control device (16) for switching between the two operating modes and for carrying out a control and/or adjustment, differently for each operating mode, of the operating variables influencing the actual torque of the internal combustion engine (1) in accordance with a set-point torque. A change in the actual torque occurring during switching from mode into another is detected by the control device (16) and at least one of the operating parameters is influenced by the control device (16) in accordance with said change.

IPC 1-7  
**F02D 35/00**

IPC 8 full level  
**F02D 35/00** (2006.01); **F02D 41/02** (2006.01); **F02D 41/04** (2006.01); **F02D 41/14** (2006.01); **F02D 41/30** (2006.01); **F02D 41/38** (2006.01); **F02D 31/00** (2006.01)

CPC (source: EP US)  
**F02D 41/1402** (2013.01 - EP US); **F02D 41/1497** (2013.01 - EP US); **F02D 41/307** (2013.01 - EP US); **F02D 41/3818** (2013.01 - EP US); **F02D 31/007** (2013.01 - EP US); **F02D 41/3029** (2013.01 - EP US); **F02D 2250/18** (2013.01 - EP US)

Citation (examination)  
• WO 9851920 A1 19981119 - BOSCH GMBH ROBERT [DE], et al  
• WO 9901654 A1 19990114 - BOSCH GMBH ROBERT [DE], et al

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**DE 19813377 A1 19991007**; DE 59906175 D1 20030807; EP 1003960 A2 20000531; EP 1003960 B1 20030702; JP 2002500726 A 20020108; US 6539914 B1 20030401; WO 9949194 A2 19990930; WO 9949194 A3 20000406

DOCDB simple family (application)  
**DE 19813377 A 19980326**; DE 59906175 T 19990324; DE 9900873 W 19990324; EP 99919115 A 19990324; JP 54759799 A 19990324; US 42460200 A 20000207