

Title (en)  
FUEL INJECTION DEVICE FOR INTERNAL COMBUSTION ENGINES

Title (de)  
KRAFTSTOFFEINSPRITZVORRICHTUNG FÜR BRENNKRAFTMASCHINEN

Title (fr)  
SYSTEME D'INJECTION DE CARBURANT POUR MOTEURS A COMBUSTION INTERNE

Publication  
**EP 1313944 A1 20030528 (DE)**

Application  
**EP 01956392 A 20010727**

Priority  
• DE 0102846 W 20010727  
• DE 10041024 A 20000822

Abstract (en)  
[origin: WO0216760A1] The invention relates to a fuel injection device for internal combustion engines, comprising two control valves (15, 34) controlling the injection process whose valve bodies comprise respective magnetically attractable armatures (41, 45). The valve bodies have a common magnet coil (40) for the armatures (41, 45). At a first current level of the common magnet coil (40) only one armature (41) and at a higher second current level both armatures (41, 45) are attracted against the effect of a closing force. The inventive device makes it thereby possible to switch two valve functions via two different inducer currents using only one magnet drive.

IPC 1-7  
**F02M 63/00**; **F02M 61/16**; **F02M 61/20**; **F02M 59/46**

IPC 8 full level  
**F02M 51/00** (2006.01); **F02M 47/00** (2006.01); **F02M 47/02** (2006.01); **F02M 59/46** (2006.01); **F02M 61/16** (2006.01); **F02M 61/20** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP US)  
**F02M 61/161** (2013.01 - EP US); **F02M 61/205** (2013.01 - EP US); **F02M 63/0007** (2013.01 - EP US); **F02M 63/0017** (2013.01 - EP US)

Citation (search report)  
See references of WO 0216760A1

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**WO 0216760 A1 20020228**; DE 10041024 A1 20020314; EP 1313944 A1 20030528; JP 2004507647 A 20040311; US 2003019959 A1 20030130

DOCDB simple family (application)  
**DE 0102846 W 20010727**; DE 10041024 A 20000822; EP 01956392 A 20010727; JP 2002522420 A 20010727; US 11128802 A 20020801