

Title (en)

Fuel injection device for internal combustion engines

Title (de)

Kraftstoffeinspritzvorrichtung für Brennkraftmaschinen

Title (fr)

Dispositif d'injection de carburant pour moteurs à combustion

Publication

**EP 1016783 A3 20021023 (DE)**

Application

**EP 99124452 A 19991208**

Priority

DE 19860397 A 19981228

Abstract (en)

[origin: EP1016783A2] The device incorporates a control chamber (24) with drainage channel having a section (29), which contains an intermediate valve with valve member (57). A connection channel (69) with a first connection profile (70) is provided between valve chamber and control chamber. The intermediate valve member is moved from its closed position towards the control chamber and against a closing force, by the head of the closing valve member (34). This creates a second connection profile between valve chamber (30) and control chamber, which is larger than the first one.

IPC 1-7

**F02M 47/02**; **F02M 59/46**; **F02M 45/08**

IPC 8 full level

**F02M 47/00** (2006.01); **F02M 45/08** (2006.01); **F02M 47/02** (2006.01); **F02M 51/00** (2006.01); **F02M 51/06** (2006.01); **F02M 59/46** (2006.01)

CPC (source: EP US)

**F02M 45/08** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 63/0035** (2013.01 - EP US); **F02M 63/0056** (2013.01 - EP US)

Citation (search report)

- [E] DE 19940290 A1 20010301 - BOSCH GMBH ROBERT [DE]
- [PA] EP 0949415 A2 19991013 - BOSCH GMBH ROBERT [DE]
- [A] US 5429154 A 19950704 - KATO NOBUYUKI [JP]
- [A] US 4603671 A 19860805 - YOSHINAGA TORU [JP], et al

Cited by

EP1795738A1; US7240859B2; WO03004856A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

**DE 19860397 A1 20000629**; DE 59908876 D1 20040422; EP 1016783 A2 20000705; EP 1016783 A3 20021023; EP 1016783 B1 20040317; JP 2000192870 A 20000711; US 6168096 B1 20010102

DOCDB simple family (application)

**DE 19860397 A 19981228**; DE 59908876 T 19991208; EP 99124452 A 19991208; JP 36759099 A 19991224; US 46584499 A 19991217