

Title (en)
FUEL INJECTION VALVE

Title (de)
BRENNSTOFFEINSPRITZVENTIL

Title (fr)
SOUPAPE D'INJECTION DE CARBURANT

Publication
EP 0988447 B1 20030910 (DE)

Application
EP 98958204 A 19981021

Priority
• DE 9803076 W 19981021
• DE 19756103 A 19971217

Abstract (en)
[origin: DE19756103A1] A fuel injection valve for fuel injection systems of internal combustion engines, in particular for injecting fuel directly into the combustion chamber of an internal combustion engine, has a magnet coil (1), an armature (19) that can be pushed through the magnet coil (1) in a first lift direction (58) against a first restoring spring (33) and a valve needle (20) linked to a valve closing element (28). The armature (19) form-fittingly engages the valve needle (20) in the lift direction (58). In the opposite direction, the armature (19) can move freely, independently of the valve needle (20), against a second restoring spring (50). According to the invention, the armature (19) is mounted on the valve needle (20) by means of a slide bearing (56, 57) with several balls (59, 70).

IPC 1-7
F02M 51/06

IPC 8 full level
F02M 51/06 (2006.01); **F02M 61/20** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP KR US)
F02M 51/0685 (2013.01 - EP KR US); **F02M 2200/306** (2013.01 - EP KR US)

Designated contracting state (EPC)
CH DE FR GB IT LI

DOCDB simple family (publication)
DE 19756103 A1 19990624; DE 59809577 D1 20031016; EP 0988447 A1 20000329; EP 0988447 B1 20030910; JP 2001511868 A 20010814; KR 20000071121 A 20001125; US 6170767 B1 20010109; WO 9931379 A1 19990624

DOCDB simple family (application)
DE 19756103 A 19971217; DE 59809577 T 19981021; DE 9803076 W 19981021; EP 98958204 A 19981021; JP 53186599 A 19981021; KR 19997007409 A 19990816; US 36762199 A 19991103