

Title (en)

Fuel injection system for internal combustion engine

Title (de)

Kraftstoffeinspritzsystem für Brennkraftmaschinen

Title (fr)

Système d'injection de combustible pour moteurs à combustion interne

Publication

**EP 1176306 A3 20030305 (DE)**

Application

**EP 01117509 A 20010720**

Priority

DE 10036578 A 20000727

Abstract (en)

[origin: EP1176306A2] The fuel injection unit for an internal combustion engine includes a piston-type valve element (42) installed in a bore (43) in the control valve body (41), forming a first valve to connect two pressure chambers (60,62). A second valve is constructed as a slide valve formed by a cylindrical end section of the valve element constructed as a throttling section and protruding into a first overflow oil chamber (59). The throttling section dips into the bore in the control valve body during an opening movement of the valve element after a part of the overall stroke.

IPC 1-7

**F02M 63/00**

IPC 8 full level

**F02M 45/04** (2006.01); **F02M 47/00** (2006.01); **F02M 55/02** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP)

**F02M 63/0005** (2013.01); **F02M 63/0007** (2013.01)

Citation (search report)

- [X] DE 19701879 A1 19980723 - BOSCH GMBH ROBERT [DE]
- [X] WO 9915783 A1 19990401 - BOSCH GMBH ROBERT [DE], et al
- [A] EP 0657643 A2 19950614 - BOSCH GMBH ROBERT [DE]

Cited by

US6915785B2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

**EP 1176306 A2 20020130; EP 1176306 A3 20030305; DE 10036578 A1 20020207; JP 2002054523 A 20020220**

DOCDB simple family (application)

**EP 01117509 A 20010720; DE 10036578 A 20000727; JP 2001228494 A 20010727**