

Title (en)

Fuel injection valve for internal combustion engines

Title (de)

Kraftstoffeinspritzventil für Brennkraftmaschinen

Title (fr)

Soupape d'injection de combustible pour moteurs à combustion interne

Publication

EP 1321661 A3 20050713 (DE)

Application

EP 02017114 A 20020730

Priority

DE 10163908 A 20011222

Abstract (en)

[origin: EP1321661A2] Fuel injection valve comprises a valve body (1) having a valve seat (9) with a first annular groove (36) running in a radial plane of a bore (3), and a parallel second annular groove (38) arranged downstream of the first annular groove. <??>Preferred Features: An annular edge (34) lies within the second annular groove when the valve needle is in the closed position. The angle (d2) between a second conical surface (32) and the conical valve seat is greater than the angle (d1) between a first conical surface (30) and the valve seat.

IPC 1-7

F02M 61/18

IPC 8 full level

F02M 51/06 (2006.01); **F02M 61/10** (2006.01); **F02M 61/18** (2006.01)

CPC (source: EP US)

F02M 61/18 (2013.01 - EP US); **F02M 61/1866** (2013.01 - EP US); **F02M 61/1873** (2013.01 - EP US)

Citation (search report)

- [X] DE 19820513 A1 19991111 - MTU FRIEDRICHSHAFEN GMBH [DE]
- [X] DE 10109345 A1 20010830 - DENSO CORP [JP]
- [A] DE 10020148 A1 20001116 - TOYOTA MOTOR CO LTD [JP]
- [A] DE 19931891 A1 20010118 - SIEMENS AG [DE]

Cited by

EP3156641A1; CN105298706A; EP1857668A1; EP1700030A1

Designated contracting state (EPC)

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

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EP 1321661 A2 20030625; **EP 1321661 A3 20050713**; **EP 1321661 B1 20090916**; DE 10163908 A1 20030703; DE 50213847 D1 20091029; JP 2003201938 A 20030718; US 2003132413 A1 20030717; US 6789783 B2 20040914

DOCDB simple family (application)

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