

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 B1 20090916 (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 8 full level

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

Cited by

EP1857668A1; EP3156641A1; CN105298706A; EP1700030A1

Designated contracting state (EPC)

DE FR GB SK

DOCDB simple family (publication)

**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)

**EP 02017114 A 20020730**; DE 10163908 A 20011222; DE 50213847 T 20020730; JP 2002368205 A 20021219; US 32379702 A 20021220