

Title (en)

Fuel injection nozzle and method of producing a fuel injection nozzle

Title (de)

Brennstoffeinspritzdüse und Verfahren zum Herstellen einer Brennstoffeinspritzdüse

Title (fr)

Injecteur de combustible et procédé de fabrication d'un injecteur de combustible

Publication

EP 1645749 A1 20060412 (EN)

Application

EP 04255676 A 20040917

Priority

EP 04255676 A 20040917

Abstract (en)

An injection nozzle (10) for use in a fuel injector for an internal combustion engine having a combustion space, the injection nozzle (10) includes a first valve needle (16) which is engageable with a first valve needle seating (34) to control fuel delivery through one or more first outlets (36) provided in a nozzle body (12). The or each first outlet (36) defines a first cross sectional flow area for fuel. The nozzle further comprises a second valve needle (22), coaxial with the first valve needle and engageable with a second valve needle seating (40) to control fuel delivery through a plurality of second outlets (38) provided in the nozzle body (10). The plurality of second outlets are arranged in one or more localised groups (38) of second outlets (38a,38b,38c), with each of the second outlets (38) having a cross sectional flow area equal to the first cross sectional flow area of the first outlet (36). The nozzle is of the two-stage lift type to provide a variable fuel injection rate depending on whether one of the valve needles (16,22) is moved alone to open one of the outlets or localised groups of outlets only to provide a relatively low injection rate, or whether the other of the valve needles is moved also to provide an increased injection rate.

IPC 8 full level

F02M 45/08 (2006.01); **F02M 61/04** (2006.01); **F02M 61/16** (2006.01); **F02M 61/18** (2006.01)

CPC (source: EP)

F02M 45/086 (2013.01); **F02M 61/182** (2013.01); **F02M 61/042** (2013.01); **F02M 2200/46** (2013.01)

Citation (applicant)

- EP 0967382 A2 19991229 - LUCAS IND PLC [GB]
- US 2004055562 A1 20040325 - STEWART CHRIS [US], et al
- US 5899389 A 19990504 - PATAKI ARPAD M [US], et al

Citation (search report)

- [XY] US 2004055562 A1 20040325 - STEWART CHRIS [US], et al
- [Y] US 4857696 A 19890815 - TAEUSCH DAVID R [US], et al
- [A] WO 03018991 A1 20030306 - BOSCH GMBH ROBERT [DE], et al

Citation (examination)

US 5899389 A 19990504 - PATAKI ARPAD M [US], et al

Cited by

DE102011003927A1; EP3255269A1; US10202930B2; US10590899B2; US10202931B2; WO2014022640A1

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 1645749 A1 20060412

DOCDB simple family (application)

EP 04255676 A 20040917