

Title (en)  
Injection nozzle

Title (de)  
Einspritzdüse

Title (fr)  
Buse d'injection

Publication  
**EP 1496246 A1 20050112 (EN)**

Application  
**EP 04251360 A 20040310**

Priority  
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Abstract (en)  
An injection nozzle (8) for an internal combustion engine is described. The injection nozzle (8) comprises: a nozzle body (9) provided with a blind bore (14) within which a valve needle (10) is moveable, the valve needle (10) being engageable with a seating surface (12) to control fuel flow between a supply chamber (29) and at least one injection nozzle outlet (16), the valve needle being provided with an annular groove (24) having an upstream edge defining an upper valve seating line (28a) and a downstream edge wherein, following wear in use, the lower edge becomes a lower valve seating line (28b) and the upper valve seating line (28a) and the lower valve seating line (28b) define an annular groove volume (38) therebetween, and wherein a surface of the bore (14) and the outer surface of the valve needle (10) define a first flow path through which fuel flows from the supply chamber (29) to the outlet(s) (16) when the valve needle is lifted from the seating surface (12), the nozzle (8) further including an additional flow path for said flow such that when, in use, the upper valve seating line (28a) and the lower valve seating line (28b) are in engagement with the seating surface (12), fuel is permitted to flow from the annular groove volume (38) to the at least one injection nozzle outlet via the additional flow path. The additional flow path may be defined by a fuel passageway (36) formed in the valve needle (10), and/or by one or more grooves (48) formed in the inner surface (50) of the nozzle body (9). <IMAGE> <IMAGE>

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IPC 8 full level  
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**F02M 61/042** (2013.01); **F02M 61/1873** (2013.01)

Citation (applicant)  
• GB 2186632 A 19870819 - BOSCH GMBH ROBERT  
• EP 1546547 A1 20050629 - BOSCH GMBH ROBERT [DE]  
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• [A] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 12 3 January 2001 (2001-01-03)  
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Citation (examination)  
EP 1546547 A1 20050629 - BOSCH GMBH ROBERT [DE]

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