

Title (en)  
FUEL INJECTION NOZZLE

Title (de)  
KRAFTSTOFFEINSPRITZDÜSE

Title (fr)  
INJECTEUR DE CARBURANT

Publication  
**EP 1825137 B1 20080319 (DE)**

Application  
**EP 05808077 A 20051031**

Priority  
• EP 2005055653 W 20051031  
• DE 102004057245 A 20041126

Abstract (en)  
[origin: WO2006056521A1] Disclosed is a fuel injection nozzle (1) for internal combustion engines, comprising a nozzle member (2) with injection ports (11, 17), an outer valve needle (4) which is axially directed in a guiding bore (3) of the nozzle member (2), is embodied as a hollow needle, and controls injection of pressurized fuel through at least one first injection port (11), and an inner valve needle (5) that is coaxially guided within the outer valve needle (4) and controls injection of pressurized fuel through at least one second injection port (17). The inventive fuel injection nozzle (1) further comprises a plunger (18) which is guided in an axially movable manner and is provided with a first protrusion (23) that entrains the inner valve needle (5) in the opening direction thereof and a second protrusion (24) that entrains the outer valve needle (4) in the opening direction thereof following a preliminary lift (h<SUB>1</SUB>). The fuel injection nozzle (1) also comprises an actuator (20) for displacing the plunger (18), a first and a second rear nozzle chamber (26, 31), each of which is delimited by a control surface (25, 30) of the inner and outer valve needle (4, 5), respectively, said control surface (25, 30) being effective in the closing direction, a first control chamber (28) that is filled with fuel, is delimited by the plunger (18) or an actuating member (19) of the actuator (20) in the opening direction, and is connected to the first rear nozzle chamber (26) via a throttle (27), as well as a second control chamber (33) which is filled with fuel, is delimited by the plunger (18) in the opening direction, and is connected to the second rear nozzle chamber (31) via a throttle (32). The two valve needles (4, 5) can be displaced relative to the plunger (18) in the opening direction, counter to the effect of a closing spring (8, 12).

IPC 8 full level  
**F02M 61/20** (2006.01); **F02M 45/08** (2006.01)

CPC (source: EP)  
**F02M 45/086** (2013.01); **F02M 61/205** (2013.01); **F02M 2200/46** (2013.01)

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**DE 102004057245 A1 20060601**; DE 502005003396 D1 20080430; EP 1825137 A1 20070829; EP 1825137 B1 20080319; WO 2006056521 A1 20060601

DOCDB simple family (application)  
**DE 102004057245 A 20041126**; DE 502005003396 T 20051031; EP 05808077 A 20051031; EP 2005055653 W 20051031