

Title (en)  
FUEL INJECTION VALVE

Title (de)  
BRENNSTOFFEINSPRITZVENTIL

Title (fr)  
SOUPAPE D'INJECTION DE CARBURANT

Publication  
**EP 1454056 B1 20051012 (DE)**

Application  
**EP 02805246 A 20021125**

Priority  
• DE 0204317 W 20021125  
• DE 10159750 A 20011205

Abstract (en)  
[origin: US2004124274A1] A fuel injector (1) for the direct injection of fuel into the combustion chamber of an internal combustion engine encompasses a piezoelectric or magnetostrictive actuator (3), a valve needle (10) actuable by the actuator (3), the valve needle (10) cooperating with a valve-closure member (17) to form a sealing seat (25) together with a valve-seat member (18), and a restoring spring (20) by which the valve needle (10) is acted on in a closing direction. The valve needle (10) is pressure-equalized in that the force exerted by the fuel pressure on the valve needle (10) in the opening direction is approximately equal to the force exerted by the fuel pressure on the valve needle (10) in the closing direction.

IPC 1-7  
**F02M 61/08**; **F02M 51/06**

IPC 8 full level  
**F02M 51/06** (2006.01); **F02M 61/08** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP KR US)  
**F02M 51/0603** (2013.01 - EP US); **F02M 61/08** (2013.01 - EP KR US); **F02M 2200/315** (2013.01 - EP US)

Citation (examination)  
• WO 03048559 A1 20030612 - BOSCH GMBH ROBERT [DE], et al  
• WO 03031799 A1 20030417 - BOSCH GMBH ROBERT [DE], et al

Designated contracting state (EPC)  
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