

Title (en)  
INJECTION UNIT AND INJECTION METHOD FOR AN INTERNAL COMBUSTION ENGINE

Title (de)  
EINSPRITZANLAGE UND EINSPRITZVERFAHREN F R EINE BRENNKRAFTMA SCHINE

Title (fr)  
SYSTEME D'INJECTION ET PROCEDE D'INJECTION POUR UN MOTEUR A COMBUSTION INTERNE

Publication  
**EP 1687523 B1 20090121 (DE)**

Application  
**EP 04819234 A 20041103**

Priority  
• EP 2004052775 W 20041103  
• DE 10355411 A 20031127

Abstract (en)  
[origin: WO2005052355A1] The invention relates to an injection unit (10), for an internal combustion engine, comprising a pressure reservoir (12), for storing fuel pumped from a fuel tank (16) and an injector arrangement (20), connected to the pressure reservoir, by means of a pressure line arrangement (18), whereby the injector arrangement (20) has at least one servo injection valve, provided with a control valve, for the release of fuel from a control chamber into a fuel return line (22), leading to the fuel tank (16) and which may be operated by means of a piezoelectric actuator to cause a displacement of a nozzle body in the direction of an injection passage opening, for initiating an injection process by pressure reduction in the control chamber. According to the invention, the fuel return line (22) is provided with a controllable valve (40), which restricts the fuel flow in the fuel return line in the actuated state. It is thus possible to reduce the effects of a change of length of the piezoelectric actuator, which exceeds the so-called tolerance gap in the servo injection valve, which are detrimental to the operation of the injection unit.

IPC 8 full level  
**F02M 47/02** (2006.01); **F02M 55/00** (2006.01); **F02M 59/46** (2006.01); **F02M 61/16** (2006.01); **F02M 63/02** (2006.01)

CPC (source: EP US)  
**F02M 37/0052** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 55/002** (2013.01 - EP US); **F02M 61/167** (2013.01 - EP US); **F02M 63/0015** (2013.01 - EP US); **F02M 63/0026** (2013.01 - EP US); **F02M 63/0225** (2013.01 - EP US)

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**WO 2005052355 A1 20050609**; CN 100443713 C 20081217; CN 1886589 A 20061227; DE 10355411 B3 20050714; DE 502004008927 D1 20090312; EP 1687523 A1 20060809; EP 1687523 B1 20090121; JP 2007512463 A 20070517; JP 4404906 B2 20100127; US 2007095329 A1 20070503; US 7318417 B2 20080115

DOCDB simple family (application)  
**EP 2004052775 W 20041103**; CN 200480035329 A 20041103; DE 10355411 A 20031127; DE 502004008927 T 20041103; EP 04819234 A 20041103; JP 2006540426 A 20041103; US 59600104 A 20041103