

Title (en)  
FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

Title (de)  
KRAFTSTOFFEINSPRITZVENTIL FÜR BRENNKRAFTMASCHINEN

Title (fr)  
INJECTEUR DE CARBURANT POUR MOTEURS A COMBUSTION INTERNE

Publication  
**EP 2283226 A1 20110216 (DE)**

Application  
**EP 09733848 A 20090204**

Priority

- EP 2009051244 W 20090204
- DE 102008001330 A 20080423

Abstract (en)  
[origin: WO2009130065A1] The invention relates to a fuel injection valve for internal combustion engines for injecting fuel under high pressure utilizing a nozzle needle (10) interacting with a valve seat (13) by means of longitudinal movements thereof, thus opening and closing at least one injection opening (12), wherein the nozzle needle (10) is subjected to a locking force directed toward the direction of the valve seat (13) by means of the pressure in a control space (20). A control valve (30; 30'; 30'') is configured in a valve body (4), by means of which the pressure in the control space (20) can be adjusted, wherein the control valve (30; 30'; 30'') comprises a control valve space (21) connected to the control space (20), in which a control valve member (34; 34'; 34'') is disposed in a longitudinally movable manner, and opens and closes a connection of the control valve space (21) to a leakage oil space (23) by means of the longitudinal movement thereof. The control valve member (34; 34'; 34'') is surrounded by pressure in the control valve space (21) and configured such that no or very little resulting hydraulic force acts upon the control valve member (34; 34'; 34'') in the longitudinal movement direction by means of the pressure in the control space (21), if the control valve member (34; 34'; 34'') closes the connection of the control valve space (21) to the leakage oil space (23).

IPC 8 full level  
**F02M 47/02** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP US)  
**F02M 47/027** (2013.01 - EP US); **F02M 63/0031** (2013.01 - EP US); **F02M 63/0035** (2013.01 - EP US); **F02M 63/0073** (2013.01 - EP US)

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA RS

DOCDB simple family (publication)  
**DE 102008001330 A1 20091029**; CN 102016285 A 20110413; CN 102016285 B 20150617; EP 2283226 A1 20110216; EP 2283226 B1 20160608; JP 2011518979 A 20110630; JP 5238070 B2 20130717; US 2011088660 A1 20110421; US 8662411 B2 20140304; WO 2009130065 A1 20091029

DOCDB simple family (application)  
**DE 102008001330 A 20080423**; CN 200980114373 A 20090204; EP 09733848 A 20090204; EP 2009051244 W 20090204; JP 2011505438 A 20090204; US 73663509 A 20090204