

Title (en)
FUEL INJECTION DEVICE FOR INTERNAL COMBUSTION ENGINE

Title (de)
KRAFTSTOFFEINSPRITZEINRICHTUNG FÜR EINE BRENNKRAFTMASCHINE

Title (fr)
DISPOSITIF D'INJECTION DE CARBURANT DESTINE A UN MOTEUR A COMBUSTION INTERNE

Publication
EP 1430208 A1 20040623 (DE)

Application
EP 02764515 A 20020713

Priority
• DE 0202574 W 20020713
• DE 10146747 A 20010922

Abstract (en)
[origin: WO03027468A1] The invention concerns a fuel injection device comprising a fuel injection valve (12) having at least an injection valve element (34) for controlling at least an injection opening (36). Said injection valve element (34) is actuated against a closing force in the opening direction (35) by pressure exerted in the pressure chamber (44) of the fuel injection valve (12). Said pressure exerted in the pressure chamber (44) is produced by a plunger piston (18) of a high-pressure fuel pump (10), driven in a lifting movement by a cam (22). The inventive device further comprises a control valve (54) actuated by a piezoelectric actuator (58), and controlled by an electrical control unit (53) for controlling at least indirectly a connection (71) of the pressure chamber (44) with the balancing chamber. When the control valve (54) is closed, the pressure chamber (44) is separated from the balancing chamber, said control valve (54) including a control valve element (56) coupled with the actuator (58) via a fluid coupling (57). The actuator (58) is connected to a corresponding voltage measuring unit (72) after a turbocharging phase, the voltage between the electric terminals (61) of the actuator (58) being controlled in such a way as to detect the operating condition of the control valve (54).

IPC 1-7
F02D 41/20; **F02M 51/06**; **H01L 41/04**

IPC 8 full level
F02D 41/20 (2006.01); **F02D 41/22** (2006.01); **F02D 45/00** (2006.01); **F02M 51/06** (2006.01); **F02M 57/02** (2006.01); **F02M 59/36** (2006.01); **F02M 59/46** (2006.01); **F02M 63/00** (2006.01); **F02M 65/00** (2006.01); **H01L 41/04** (2006.01)

CPC (source: EP US)
F02D 41/2096 (2013.01 - EP US); **F02M 57/023** (2013.01 - EP US); **F02M 59/366** (2013.01 - EP US); **F02M 59/468** (2013.01 - EP US); **F02M 65/00** (2013.01 - EP US); **F02D 2041/2055** (2013.01 - EP US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

DOCDB simple family (publication)
WO 03027468 A1 20030403; AT E288031 T1 20050215; DE 10146747 A1 20030410; DE 50202146 D1 20050303; EP 1430208 A1 20040623; EP 1430208 B1 20050126; HU P0301402 A2 20071128; JP 2005504211 A 20050210; JP 4116552 B2 20080709; PL 360659 A1 20040920; US 2004065301 A1 20040408; US 6807950 B2 20041026

DOCDB simple family (application)
DE 0202574 W 20020713; AT 02764515 T 20020713; DE 10146747 A 20010922; DE 50202146 T 20020713; EP 02764515 A 20020713; HU P0301402 A 20020713; JP 2003531005 A 20020713; PL 36065902 A 20020713; US 43237403 A 20031119