

Title (en)

Hydraulically-actuated fuel injector with direct control needle valve

Title (de)

Elektro-hydraulisch betätigtes Kraftstoffeinspritzventil mit einer Düsennadel, die direkt angesteuert wird

Title (fr)

Injecteur de carburant à actionnement hydraulique avec une soupape à pointeau à commande directe

Publication

EP 0826877 B1 20030326 (EN)

Application

EP 97306118 A 19970812

Priority

- US 70780496 A 19960830
- US 76801496 A 19961213
- US 86460697 A 19970528

Abstract (en)

[origin: EP0826877A2] A hydraulically actuated fuel injector (14') includes an injector body (105) having an actuation fluid inlet (106) and a needle control chamber (118). A hydraulic means within the injector pressurizes fuel in the injector body (105). The hydraulic means includes an actuation fluid control valve (140) having a solenoid (130) and is moveable to open and close the actuation fluid inlet (106). A needle valve member (160) includes a closing hydraulic surface (167) exposed to pressure in the needle control chamber (118). A needle control valve (136), which utilizes the same solenoid (130), is mounted in the injector body (105) and moveable to open and close the needle control chamber (118) to a source of high pressure fluid (106). The slower response time of the actuation fluid control valve (140) allows for direct control of the fast responding needle valve (160) by a single fast acting two-way solenoid (130). <IMAGE>

IPC 1-7

F02M 57/02; **F02M 47/02**; **F02M 59/10**; **F02M 59/46**

IPC 8 full level

F02M 45/04 (2006.01); **F02M 47/00** (2006.01); **F02M 47/02** (2006.01); **F02M 51/06** (2006.01); **F02M 57/02** (2006.01); **F02M 59/10** (2006.01); **F02M 59/46** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP)

F02M 45/04 (2013.01); **F02M 47/027** (2013.01); **F02M 57/025** (2013.01); **F02M 57/026** (2013.01); **F02M 59/105** (2013.01); **F02M 59/466** (2013.01); **F02M 63/0017** (2013.01); **F02M 63/0029** (2013.01); **F02M 63/0036** (2013.01); **F02M 63/0042** (2013.01); **F02M 63/0045** (2013.01); **F02M 63/0049** (2013.01); **F02M 2200/21** (2013.01); **F02M 2200/502** (2013.01)

Cited by

DE19937713C1; US2012180761A1; CN109695511A; GB2348679A; GB2348679B; US6494383B2; WO02099268A1; WO2023280866A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 0826877 A2 19980304; **EP 0826877 A3 19980506**; **EP 0826877 B1 20030326**; DE 69720123 D1 20030430; DE 69720123 T2 20040129; DE 69727713 D1 20040325; DE 69727713 T2 20041125; DE 69729333 D1 20040701; DE 69729333 T2 20040923; JP H10110658 A 19980428

DOCDB simple family (application)

EP 97306118 A 19970812; DE 69720123 T 19970812; DE 69727713 T 19970812; DE 69729333 T 19970812; JP 23580397 A 19970901