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 1152144 A3 20021218 (EN)

Application

EP 01117613 A 19970812

Priority

- EP 97306118 A 19970812
- US 70780496 A 19960830
- US 76801496 A 19961213
- US 86460697 A 19970528

Abstract (en)

[origin: EP1152145A2] 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 movable 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 movable 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).

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 47/02** (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 63/0029** (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)

Citation (search report)

- [A] US 5522545 A 19960604 - CAMPLIN FREDERICK A [US], et al
- [A] US 3837324 A 19740924 - LINKS H
- [DA] US 5271371 A 19931221 - MEINTS EDWARD G [US], et al

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EP1491757A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 1152145 A2 20011107; **EP 1152145 A3 20021218**; **EP 1152145 B1 20040526**; EP 1152144 A2 20011107; EP 1152144 A3 20021218; EP 1152144 B1 20040218

DOCDB simple family (application)

EP 01117614 A 19970812; EP 01117613 A 19970812