

Title (en)

FUEL INJECTION DEVICE FOR INTERNAL COMBUSTION ENGINES

Title (de)

KRAFTSTOFFEINSPRITZVORRICHTUNG FÜR BRENNKRAFTMASCHINEN

Title (fr)

SYSTEME D'INJECTION DE CARBURANT POUR MOTEURS A COMBUSTION INTERNE

Publication

EP 1421274 A1 20040526 (DE)

Application

EP 02758074 A 20020705

Priority

- DE 0202462 W 20020705
- DE 10141111 A 20010822

Abstract (en)

[origin: WO03019000A1] The invention relates to a fuel injection device (1) for internal combustion engines, comprising several injection valves (5) arranged respectively in a fuel injection line (4). Each injection valve (5) comprises an injection chamber (12) and a control chamber which are connected to the injection line (4), a valve member (7) which controls the injection inlets (11) of the injection chamber (12) and which can be actuated by a first control surface (13) disposed in the injection chamber (12) and operating in the direction of the valve opening, and by means of a second control surface (14) in the control chamber (15) operating in the closing direction of the valve; also comprising a switch valve (29) for alternating between a low and a high injection pressure and a valve arrangement (18) for controlling the pressure prevailing in the control chamber (15). According to the invention, a common actuating drive (30) is provided for the valve arrangement (18) and the switch valve (29). The actuating path (S2) of the common actuating drive (30) necessary for opening the switch valve (29) is greater than the actuating path (S1) necessary for opening the valve arrangement.

IPC 1-7

F02M 63/02; **F02M 59/10**; **F02M 47/02**; **F02M 59/46**; **F02M 57/02**

IPC 8 full level

F02M 45/02 (2006.01); **F02M 45/12** (2006.01); **F02M 47/00** (2006.01); **F02M 47/02** (2006.01); **F02M 57/02** (2006.01); **F02M 59/10** (2006.01); **F02M 59/46** (2006.01); **F02M 63/02** (2006.01)

CPC (source: EP US)

F02M 45/02 (2013.01 - EP US); **F02M 45/12** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 57/025** (2013.01 - EP US); **F02M 59/105** (2013.01 - EP US); **F02M 63/0026** (2013.01 - EP US); **F02M 63/0049** (2013.01 - EP US); **F02M 63/0061** (2013.01 - EP US); **F02M 61/205** (2013.01 - EP US); **F02M 63/0225** (2013.01 - EP US)

Citation (search report)

See references of WO 03019000A1

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 03019000 A1 20030306; DE 10141111 A1 20030320; DE 10141111 B4 20051013; EP 1421274 A1 20040526; JP 2005500475 A 20050106; US 2006042596 A1 20060302; US 7096854 B2 20060829

DOCDB simple family (application)

DE 0202462 W 20020705; DE 10141111 A 20010822; EP 02758074 A 20020705; JP 2003523828 A 20020705; US 39966003 A 20030926