

Title (en)

Fuel injection pump

Title (de)

Kraftstoffeinspritzpumpe

Title (fr)

Pompe d'injection de combustible

Publication

EP 0665373 B1 20000510 (EN)

Application

EP 94120704 A 19941227

Priority

- JP 34917093 A 19931228
- JP 34917693 A 19931228
- JP 34918193 A 19931228

Abstract (en)

[origin: EP0665373A1] A fuel injection pump comprising a plunger (15) and a plunger barrel formed with a main port (41) and a sub-port (42) whose upper edge (42A) is no higher than the upper edge (42A) of the sub-port (42), the plunger head is provided with an upper sub-lead groove (47) capable of communicating with the sub-port (42) and of maintaining communication therewith even when the main port (41) is closed by an upper end (15A) of the plunger (15), with a lower sub-lead groove (48) capable of communicating with the sub-port (42) and with an inclined lower main lead groove (44) capable of communicating with the main port (41). In a second aspect of the invention, the plunger (15) is further formed with an upper main lead groove (46) and a positional relationship is established such that in the rotational position of the plunger (15) at engine starting the main port (41) can be closed by a portion of the upper end (15A) of the plunger (15) not formed with the upper main lead groove (46) and the sub-port (42) can be closed by a portion of the upper end (5A) of the plunger (15) not formed with the upper sub-lead groove (47). These configurations enable both utilization of preflow effect and control of the start and cutoff of fuel injection. In a third aspect of the invention, the fuel injection pump is used in combination with a throttling type fuel injection nozzle provided in an auxiliary combustion chamber of a divided-chamber combustion system diesel engine in order to control fuel injection cutoff and reduce maximum fuel injection rate during low-speed, high-load operation thereby reducing generation of black smoke and particulate. During high-load operation the main port (41) does not communicate with the lower main lead groove (44) even when the sub-port (42) communicates with the lower sub-lead groove (48) and during low-load operation the sub-port (42) does not communicate with the lower sub-lead groove (48) even when the main port (41) communicates with the lower main lead groove (44). <IMAGE> <IMAGE>

IPC 1-7

F02M 59/26

IPC 8 full level

F02M 59/26 (2006.01); **F02B 3/06** (2006.01)

CPC (source: EP KR)

F02M 45/00 (2013.01 - KR); **F02M 59/26** (2013.01 - KR); **F02M 59/265** (2013.01 - EP); **F02B 3/06** (2013.01 - EP)

Cited by

DE102010007137A1; WO2010127613A1; WO0248537A1; WO2011095350A1; US8752806B2

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

EP 0665373 A1 19950802; **EP 0665373 B1 20000510**; DE 69424400 D1 20000615; DE 69424400 T2 20000831; KR 950019165 A 19950722; KR 960010290 B1 19960727

DOCDB simple family (application)

EP 94120704 A 19941227; DE 69424400 T 19941227; KR 19940038135 A 19941228