

Title (en)
High pressure pump

Title (de)
Hochdruckpumpe

Title (fr)
Pompe à haute pression

Publication
EP 0840009 A3 19991201 (DE)

Application
EP 97110986 A 19970702

Priority
DE 19644915 A 19961029

Abstract (en)
[origin: EP0840009A2] The pump has a cam-operated pump piston (3), reciprocating within a pump cylinder (4) and an electromagnetic valve (9), controlling the flow of fuel between the low pressure circuit and the working chamber (5) of the pump cylinder, in both directions. The high pressure line between the pump and the common rail of the fuel injection system contains a non-return valve (7). The magnetic valve has a spring-loaded valve closure (10), cooperating with a valve seat (12) to provide a non-return valve, with a valve rod lifting it from its valve seat when the valve magnet is operated at the beginning of the high pressure feed.

IPC 1-7
F04B 49/22; **F02M 59/36**; **F02M 63/02**

IPC 8 full level
F02M 59/20 (2006.01); **F02M 59/26** (2006.01); **F02M 59/36** (2006.01); **F02M 59/46** (2006.01); **F02M 63/02** (2006.01); **F04B 7/00** (2006.01); **F04B 11/00** (2006.01); **F04B 49/22** (2006.01); **F04B 49/24** (2006.01); **F16K 31/06** (2006.01)

CPC (source: EP KR US)
F02M 45/06 (2013.01 - KR); **F02M 59/367** (2013.01 - EP US); **F02M 59/464** (2013.01 - EP US); **F02M 59/466** (2013.01 - EP US); **F02M 63/0225** (2013.01 - EP US); **F04B 7/0076** (2013.01 - EP US); **F04B 49/243** (2013.01 - EP US)

Citation (search report)
• [Y] US 3709639 A 19730109 - SUDA T, et al
• [Y] DE 3140933 A1 19830505 - BOSCH GMBH ROBERT [DE]
• [DA] EP 0481964 A2 19920422 - NIPPON DENSO CO [JP]
• [A] EP 0279529 A1 19880824 - LUCAS IND PLC [GB]
• [A] US 5230613 A 19930727 - HILSBOS RICHARD L [US], et al

Cited by
WO2012038196A1; CN106555745A; KR100514275B1; EP1306553A3; EP1701031A1; EP1898085A3; EP1657432A1; EP1477665A3; FR2793283A1; EP4093971A4; WO2021150342A1; WO2013127545A1; DE102013225390A1; US7540274B2; DE102010041031A1; DE102013225418A1; EP1898085A2; US7398768B2; US7757663B2

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DOCDB simple family (application)
DE 19644915 A 19961029; DE 59710857 T 19970702; EP 97110986 A 19970702; JP 29538197 A 19971028; KR 19970042568 A 19970829; US 96057597 A 19971029