

Title (en)

Fuel injection device for internal combustion engines

Title (de)

Kraftstoffeinspritzeinrichtung für Brennkraftmaschinen

Title (fr)

Dispositif d'injection de combustible pour moteurs à combustion interne

Publication

**EP 1236884 A3 20040107 (DE)**

Application

**EP 02002233 A 20020130**

Priority

DE 10109610 A 20010228

Abstract (en)

[origin: EP1236884A2] Fuel injection device for an internal combustion engine comprises a first electrically operated control valve (60) controlling at least indirectly a connection of the pump working chamber (22) with a discharge chamber (24), and a second electrically operated control valve (70) controlling the pressure in a pressure chamber (52) of the fuel injection valve (12) which impinges on the injection valve element (28) at least indirectly in the closing direction. The two control valves are arranged on the fuel injection valve. Preferred Features: The lead (14) leads into a valve body (26) of the fuel injection valve and branches into a line (54) leading into a pressure chamber (40) surrounding the injection valve element and into a line (55) leading to the control valves.

IPC 1-7

**F02M 59/46**; **F02M 59/36**; **F02M 47/02**; **F02M 45/04**; **F02M 45/08**; **F02M 45/12**

IPC 8 full level

**F02M 45/04** (2006.01); **F02M 45/08** (2006.01); **F02M 45/12** (2006.01); **F02M 47/02** (2006.01); **F02M 59/36** (2006.01); **F02M 59/46** (2006.01)

CPC (source: EP US)

**F02M 45/04** (2013.01 - EP US); **F02M 45/08** (2013.01 - EP US); **F02M 45/12** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 59/366** (2013.01 - EP US); **F02M 59/466** (2013.01 - EP US); **F02M 59/468** (2013.01 - EP US); **F02M 63/0017** (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 2200/703** (2013.01 - EP US)

Citation (search report)

- [DA] EP 0957261 A2 19991117 - LUCAS IND PLC [GB]
- [A] EP 0823550 A1 19980211 - LUCAS IND PLC [GB]

Cited by

EP1243785A3; EP1310666A3; EP1312792A3; US7025284B2; WO03069154A1

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**EP 1236884 A2 20020904**; **EP 1236884 A3 20040107**; **EP 1236884 B1 20050406**; DE 10109610 A1 20020905; DE 50202677 D1 20050512; US 2002152992 A1 20021024; US 6688289 B2 20040210

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