

Title (en)
Injection nozzle

Title (de)
Einspritzdüse

Title (fr)
Buse d'injection

Publication
EP 1717435 A1 20061102 (EN)

Application
EP 06251635 A 20060327

Priority
• EP 05252669 A 20050428
• EP 06251635 A 20060327

Abstract (en)
An injection nozzle for use in delivering fuel to an internal combustion engine includes an outer valve (24) which is engageable with an outer valve seat (38) so as to control fuel delivery into the engine through a first nozzle outlet (26) and an inner valve (32) which is slidable within a bore (30; 130) provided in the outer valve (24) and engageable with an inner valve seat (40) so as to control fuel delivery into the engine through a second nozzle outlet (28). The injection nozzle is provided with a switching valve arrangement (62, 64, 66), for controlling whether fuel is delivered through only one of the first and second outlets (26, 28) or through both of the first and second outlets (26, 28) together, wherein the switching valve arrangement (62, 64, 66) is arranged within the supply passage (22) and defines an inlet side (22b), an outlet side (22a) and flow passage means (64) to permit fuel to flow past the switching valve arrangement (62, 64, 66) to the first and second nozzle outlets (26, 28), whereby the switching valve arrangement (62, 64, 66) is operable in response to the pressure drop between the inlet side (22b) and the outlet side (22a) caused by the flow of fuel past the switching valve arrangement (62, 64, 66).

IPC 8 full level
F02M 45/08 (2006.01); **F02M 47/02** (2006.01); **F02M 61/18** (2006.01); **F02M 61/20** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP)
F02M 45/086 (2013.01); **F02M 47/027** (2013.01); **F02M 61/182** (2013.01); **F02M 61/205** (2013.01); **F02M 63/0028** (2013.01); **F02M 57/02** (2013.01); **F02M 59/466** (2013.01); **F02M 59/468** (2013.01); **F02M 63/0015** (2013.01); **F02M 63/0026** (2013.01); **F02M 2200/46** (2013.01)

Citation (search report)
• [X] WO 2004033891 A1 20040422 - BOSCH GMBH ROBERT [DE], et al
• [X] US 2004134465 A1 20040715 - BOLTZ JOACHIM [DE]
• [X] US 2004055559 A1 20040325 - BEST CHRISTOPHER HOWARD [GB]
• [A] EP 0967382 A2 19991229 - LUCAS IND PLC [GB]
• [A] US 2002073968 A1 20020620 - DESAI CHETAN J [US], et al
• [A] US 2004129804 A1 20040708 - POTZ DETLEV [DE], et al

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)
AL BA HR MK YU

DOCDB simple family (publication)
EP 1717435 A1 20061102; EP 1717435 B1 20090812

DOCDB simple family (application)
EP 06251635 A 20060327