

Title (en)
FUEL INJECTOR

Title (de)
KRAFTSTOFFEINSPRITZER

Title (fr)
INJECTEUR DE CARBURANT

Publication
EP 3399177 A1 20181107 (EN)

Application
EP 18173371 A 20170316

Priority
• GB 201604455 A 20160316
• EP 17161355 A 20170316

Abstract (en)
The present invention provides a fuel injector (100) for use in an internal combustion engine, the fuel injector comprising: a nozzle body (3) having a bore (2) for receiving fuel from a supply line (5) for pressurised fuel, an outlet (8) from the bore (2) for delivering fuel to the combustion cylinder, in use, a valve needle (1) slidable within the bore (2) between a closed position in which fuel flow through the outlet (8) into the combustion chamber is prevented, and an open position in which fuel flow through the outlet (8) into the combustion chamber is enabled, wherein the valve needle (100) carries a restrictive element (20) providing at least one restriction (21) for restricting the flow of fuel through the bore (2) such that, during opening movement of the valve needle (1), fuel pressure downstream of the restrictive element (20) is less than a pressure of fuel supplied to the bore (2) from the supply line (5); and at least one valve (30) device which is operable in response to a pressure difference across the restrictive element (20) so as to allow a flow of fuel through the at least one restriction (21) during opening movement of the valve needle (1) but to further restrict the flow of fuel through the at least one restriction (21) during a final phase of closing movement of the valve needle (1), thereby to damp said final phase of closing movement as the valve needle is seated.

IPC 8 full level
F02M 47/02 (2006.01); **F02M 61/12** (2006.01)

CPC (source: EP GB)
F02M 47/027 (2013.01 - EP); **F02M 51/06** (2013.01 - GB); **F02M 51/0603** (2013.01 - GB); **F02M 61/08** (2013.01 - GB); **F02M 61/12** (2013.01 - EP); **F02M 2200/28** (2013.01 - EP); **F02M 2200/304** (2013.01 - EP)

Citation (search report)
• [XY] EP 1990532 A1 20081112 - BOSCH GMBH ROBERT [DE]
• [Y] US 6318646 B1 20011120 - MATTIOLI MASSIMO [IT], et al
• [A] EP 1369579 A1 20031210 - MAGNETI MARELLI POWERTRAIN SPA [IT]
• [A] US 6499467 B1 20021231 - MORRIS C EDWARD [US], et al
• [A] WO 2013034543 A1 20130314 - DELPHI TECH HOLDING SARL [LU], et al

Cited by
EP4230860A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3219974 A1 20170920; EP 3399177 A1 20181107; EP 3399177 B1 20200108; GB 201604455 D0 20160427; GB 2548375 A 20170920

DOCDB simple family (application)
EP 17161355 A 20170316; EP 18173371 A 20170316; GB 201604455 A 20160316