

## Title (en)

Electrically-controlled fuel injector for large diesel engines

## Title (de)

Elektrisch gesteuerter Kraftstoffeinspritzer für große Dieselmotoren

## Title (fr)

Injecteur de carburant commandé électriquement pour grands moteurs diesel

## Publication

**EP 2503138 A1 20120926 (EN)**

## Application

**EP 11159584 A 20110324**

## Priority

EP 11159584 A 20110324

## Abstract (en)

An electrically controlled fuel injector for large diesel engines, comprising: - a body (22) having a delivery chamber (24) connected to a fuel supply line (26) and provided with a conical valve seat (28); - a needle (30) extending through said delivery chamber (24) and having a conical sealing surface (32) cooperating with said valve seat (28), the needle (30) being movable along a longitudinal axis (A) between a closed position wherein said conical sealing surface (32) abuts against said conical valve seat (28) and an open position wherein said conical sealing surface (32) is spaced apart from said conical valve seat (28), wherein the hydraulic pressure into said delivery chamber (24) generates a first hydraulic force pushing the needle (30) towards its open position; - a control chamber (44) connected to said fuel supply line (26) through an inlet flow restrictor (48) and connected to a discharge line (50) through an outlet flow restrictor (52), wherein the hydraulic pressure into said control chamber (44) generates a second hydraulic force pushing the needle (30) towards its closed position; - an electrically-operated control valve (54) for selectively opening and closing hydraulic communication between said control chamber (44) and a low pressure volume (14); wherein said inlet flow restrictor (48) includes a variable choking section (60), movable between a choked position corresponding to a fully closed position of the needle (30) an un-choked position corresponding to an initial opening of the needle (30).

## IPC 8 full level

**F02M 47/02** (2006.01); **F02M 61/04** (2006.01); **F02M 61/10** (2006.01); **F02M 63/00** (2006.01)

## CPC (source: EP KR)

**F02M 47/027** (2013.01 - EP KR); **F02M 61/042** (2013.01 - EP KR); **F02M 61/10** (2013.01 - EP KR); **F02M 2200/28** (2013.01 - EP KR)

## Citation (search report)

- [A] WO 03054384 A1 20030703 - BOSCH GMBH ROBERT [DE], et al
- [A] EP 2295784 A1 20110316 - DELPHI TECHNOLOGIES HOLDING [LU]
- [A] EP 2239451 A1 20101013 - WAERTSILAE SWITZERLAND LTD [CH]
- [A] EP 1318294 A1 20030611 - BOSCH GMBH ROBERT [DE]

## Cited by

EP3181889A1; EP3486475A1; EP3085947A1; US2018298859A1; US10550811B2; WO2016169568A1

## 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 2503138 A1 20120926**; **EP 2503138 B1 20130508**; CN 102691605 A 20120926; CN 102691605 B 20141217; DK 2503138 T3 20130603; JP 2012202408 A 20121022; JP 5890714 B2 20160322; KR 101557521 B1 20151006; KR 20120109296 A 20121008; PL 2503138 T3 20131031

## DOCDB simple family (application)

**EP 11159584 A 20110324**; CN 201210078775 A 20120323; DK 11159584 T 20110324; JP 2012067071 A 20120323; KR 20120020238 A 20120228; PL 11159584 T 20110324