

Title (en)

Method and apparatus for operating an injection valve

Title (de)

Verfahren und Vorrichtung zum Betreiben eines Einspritzventils

Title (fr)

Procédé et dispositif de commande d'une soupape d'injection

Publication

EP 2455600 A1 20120523 (EN)

Application

EP 10191465 A 20101117

Priority

EP 10191465 A 20101117

Abstract (en)

The injection valve (100) comprises a valve needle (20) preventing a fluid flow out of an injection nozzle in a closing position and enabling the fluid flow of the injection nozzle apart from the closing position, wherein in the closing position the valve needle (20) rests on a seat. Furthermore the injection valve (100) comprises an electro-magnetic actuator unit (36) being designed to actuate the valve needle (20). The actuator unit (36) is activated according to a predetermined activation signal with a given activation period (Ti) for effecting a fluid flow out of the injection nozzle. An actuator unit voltage characteristic (Uc) is captured at least over a period of time during which the valve needle (20) could reach the closing position. Depending on the actuator unit voltage characteristic (Uc) a closing time (t_close) is determined representing a time when the valve needle (20) reaches the closing position.

IPC 8 full level

F02D 41/20 (2006.01)

CPC (source: EP)

F02D 41/20 (2013.01); **F02D 2041/1432** (2013.01); **F02D 2041/2055** (2013.01)

Citation (search report)

- [X] DE 102008041528 A1 20100304 - BOSCH GMBH ROBERT [DE]
- [X] US 2002130192 A1 20020919 - MCCOY JOHN CURTIS [US], et al
- [X] DE 102009002483 A1 20101021 - BOSCH GMBH ROBERT [DE]
- [X] WO 9413991 A1 19940623 - PI RESEARCH LTD [GB], et al
- [E] WO 2010133414 A1 20101125 - BOSCH GMBH ROBERT [DE], et al

Cited by

DE102013211926B4; EP2990705A4; US2014000564A1; CN103511105A; US9074552B2; CN107076047A; JP2018500508A; WO2016091848A1; WO2016062494A1; US10808640B2; US10240551B2; US11300070B2

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 2455600 A1 20120523

DOCDB simple family (application)

EP 10191465 A 20101117