

## Title (en)

INJECTOR AND METHOD FOR INJECTING FUEL AND AN ADDITIONAL FLUID, AND USE OF THE INJECTOR

## Title (de)

INJEKTOR UND VERFAHREN ZUR EINSPRITZUNG VON KRAFTSTOFF UND EINER ZUSATZFLÜSSIGKEIT SOWIE VERWENDUNG DES INJEKTORS

## Title (fr)

INJECTEUR ET PROCÉDÉ D'INJECTION DE CARBURANT ET D'UN LIQUIDE SUPPLÉMENTAIRE ET UTILISATION DE L'INJECTEUR

## Publication

**EP 3857046 A1 20210804 (DE)**

## Application

**EP 19816195 A 20190921**

## Priority

- DE 102018007614 A 20180925
- DE 2019000247 W 20190921

## Abstract (en)

[origin: WO2020064038A1] The problem addressed by the the invention, which relates to an injector (1), to a method for injecting fuel and an additional fluid, and to a use of the injector (1), is that of providing an injector (1) that has a space-saving simple construction, and by means of which a precise injection of a fuel and an additional fluid into the combustion chamber of an internal combustion engine can take place. This problem is solved by the arrangement in that a second solenoid valve (3) having a second nozzle needle (9) is arranged in the injector (1), and in that the first nozzle needle (7) of the first solenoid valve (2) and the second nozzle needle (9) of the second solenoid valve (3) are arranged one behind the other on a longitudinal axis (10) of the injector (1). The problem is solved by the method in that a second solenoid valve (3) having a second nozzle needle (9) is provided in the injector (1), in that the first nozzle needle (7) of the first solenoid valve (2) and the second nozzle needle (9) of the second solenoid valve (3) are provided one behind the other on a longitudinal axis (10) of the injector (1), and in that the nozzle needles (7, 9) can be controlled independently of one another.

## IPC 8 full level

**F02M 51/06** (2006.01); **F02B 17/00** (2006.01); **F02B 47/02** (2006.01); **F02B 47/04** (2006.01); **F02D 19/12** (2006.01); **F02D 41/00** (2006.01); **F02M 25/03** (2006.01); **F02M 43/04** (2006.01); **F02M 61/16** (2006.01); **F02M 63/00** (2006.01)

## CPC (source: EP US)

**F02B 17/005** (2013.01 - EP); **F02B 47/02** (2013.01 - EP); **F02D 41/0025** (2013.01 - EP); **F02M 25/03** (2013.01 - EP US); **F02M 43/04** (2013.01 - EP); **F02M 51/0617** (2013.01 - EP US); **F02M 61/10** (2013.01 - US); **F02M 61/168** (2013.01 - EP); **F02M 63/0017** (2013.01 - US); **F02M 63/0064** (2013.01 - EP US); **F02D 19/12** (2013.01 - EP)

## Citation (search report)

See references of WO 2020064038A1

## Designated contracting state (EPC)

AL AT BE BG CH CY CZ 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)

**DE 102018007614 A1 20200326**; **DE 102018007614 B4 20230427**; CN 112752902 A 20210504; EP 3857046 A1 20210804; US 11300089 B2 20220412; US 2021254589 A1 20210819; WO 2020064038 A1 20200402

## DOCDB simple family (application)

**DE 102018007614 A 20180925**; CN 201980063154 A 20190921; DE 2019000247 W 20190921; EP 19816195 A 20190921; US 201917275097 A 20190921