Title (en)

SPARK PLUG WITH DOUBLE ELECTRICAL DISCHARGE

Title (de)

ZÜNDKERZE MIT DOPPELTER ELEKTRISCHER ENTLADUNG

Title (fr)

BOUGIE D'ALLUMAGE À DOUBLE DÉCHARGE ÉLECTRIQUE

Publication

EP 3955400 A1 20220216 (EN)

Application

EP 20465577 A 20201030

Priority

RO 202000507 A 20200810

Abstract (en)

The present invention refers to a spark plug with double electrical discharge comprising: a central electrode (3) having a discharge surface (3a), a ground electrode (4) having a discharge surface (4a), an insulator (2) located concentrically on a longitudinal central axis (y) of the spark plug, between electrodes (3) and (4) on whose exterior circumference there is a groove accommodating an intermediate electrode (1) having two opposing superior (1.3) and inferior (1.4) discharge surfaces, wherein the electrode (1) has a shape of a flat washer with a central hole and protrusions (8) allowing the placement on the electrode (1) of at least two superior mini electrodes (5) on the surface (1.3) of the electrode (1), of at least two inferior mini electrodes (6) on surface (1.4) of electrode (1), at a distance between these mini electrodes (5, 6), on the surface (4a) of electrode (4) are placed at least two ground mini electrodes (7), at a distance from the mini electrodes (5, 6), and the total number of mini electrodes (5, 6, 7) is at least 6 and at most 54, while the number of mini electrodes (6) equals the number of mini electrodes (7), such that a simultaneous ignition of an electrical discharge between electrode (3) and electrode (1) and of an electrical discharge between electrode (1) and electrode (4) upon initiation of combustion is generated.

IPC 8 full level

H01T 13/20 (2006.01); **H01T 13/46** (2006.01)

CPC (source: EP)

H01T 13/20 (2013.01); **H01T 13/467** (2013.01); H01T 13/32 (2013.01)

Citation (applicant)

- DE 602004006220 T2 20070830 - NGK SPARK PLUG CO [JP]
- DE 102005036949 A1 20060420 - DENSO CORP [JP], et al
- WO 2016026597 A1 20160225 - BOSCH GMBH ROBERT [DE]
- DE 102009036732 A1 20110210 - DAIMLER AG [DE]
- DE 602005001573 T2 20080313 - RENAULT SA [FR]
- US 2011163654 A1 20110707 - MALEK NADIM [FR], et al
- B. HNATIUCS. PELLERINE. HNATIUCR. BURLICAN. CERQUEIRAD. ASTANEI: "Spectroscopic diagnostic of transient plasma produced by a spark plug", ROMANIAN JOURNAL OF PHYSICS, vol. 56S, 2011, pages 109 - 113
- D. ASTANEIF. FAUBERTS. PELLERINB. HNATIUCM. WARTEL: "A New Spark Plug to Improve the Performances of Combustion Engines: Study and Analysis of Unburned Exhaust Gases", PLASMA CHEMISTRY AND PLASMA PROCESSING, vol. 38, 2018, pages 1115 - 1132, XP036554902, DOI: 10.1007/s11090-018-9903-5
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- A. MARIANIF. FOUCHER: "Radio frequency spark plug: An ignition system for modern internal combustion engines", APPLIED ENERGY, vol. 122, 2014, pages 151 - 161, XP028841559, DOI: 10.1016/j.apenergy.2014.02.009

Citation (search report)

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- [AD] ASTANEI DRAGOS ET AL: "A New Spark Plug to Improve the Performances of Combustion Engines: Study and Analysis of Unburned Exhaust Gases", PLASMA CHEMISTRY AND PLASMA PROCESSING, PLENUM PRESS. NEW YORK, US, vol. 38, no. 5, 8 May 2018 (2018-05-08), pages 1115 - 1132, XP036554902, ISSN: 0272-4324, [retrieved on 20180508], DOI: 10.1007/S11090-018-9903-5
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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 3955400 A1 20220216; **EP 3955400 B1 20221221**; RO 135550 A2 20220228

DOCDB simple family (application)

EP 20465577 A 20201030; RO 202000507 A 20200810