

Title (en)
Injection device for an internal combustion engine.

Title (de)
Einspritzgerät für einen Verbrennungsmotor.

Title (fr)
Dispositif d'injection pour moteur à combustion interne.

Publication
EP 0460572 A1 19911211 (FR)

Application
EP 91109031 A 19910603

Priority
FR 9007097 A 19900607

Abstract (en)
Fuel injection device for an internal combustion engine, particularly for a diesel engine, comprising two injection nozzles, one serving for the pre-injection of fuel, the other for the main injection of fuel, the said injection nozzles being located close to one another in the vicinity of the centre of the cylinder head, characterised in that the pre-injection nozzle comprises a series of holes, the axes (8a, 9a) of which are based on a first cone, and the main injection nozzle (2) comprises a series of holes, the number of which is double that of the pre-injection nozzle and the axes (5a, 6a, 7a) of which are based on a second cone, the relative position of the cones, the angle of each of the cones and the alignment of the axes of the holes on the cones being chosen in such a way that in an area located essentially half way along the main injection jets the distances between each of the pre-injection jets and the associated two main injection jets are minimal and essentially equal. <IMAGE>

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F02M 45/08; **F02M 61/18**

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Citation (search report)
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• [A] PATENT ABSTRACTS OF JAPAN vol. 9, no. 313 (M-437)(2036) 10 décembre 1985, & JP-A-60 147525 (MITSUBISHI JUKOGYO) 03 août 1985,

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EP 0460572 A1 19911211; **EP 0460572 B1 19940420**; CN 1023827 C 19940216; CN 1057094 A 19911218; DE 69101739 D1 19940526; DE 69101739 T2 19940804; DK 0460572 T3 19940725; FI 104204 B1 19991130; FI 104204 B 19991130; FI 912706 A0 19910605; FI 912706 A 19911208; FR 2663084 A1 19911213; FR 2663084 B1 19920731; JP 3084091 B2 20000904; JP H04279757 A 19921005; NO 178981 B 19960401; NO 178981 C 19960710; NO 912148 D0 19910605; NO 912148 L 19911209; RU 2059864 C1 19960510; US 5167210 A 19921201

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