

Title (en)
Fuel injection apparatus

Title (de)
Kraftstoffeinspritzvorrichtung

Title (fr)
Dispositif d'injection de combustible

Publication
EP 1162364 A1 20011212 (EN)

Application
EP 01113920 A 20010607

Priority
JP 2000177171 A 20000608

Abstract (en)
Orifice pieces (100) are disposed in connecting portions between a common rail (3) and high-pressure fuel pipes (11) that supply high-pressure fuel to fuel injection valves (10a-10d). Each orifice piece (100) has, in its interior, a fuel passage that is formed by an inlet-side taper portion (111), a small-diameter constricted portion (113), and an outlet-side taper portion (115). The inclination angle of a wall surface of the outlet-side taper portion (115) is set smaller than the inclination angle of a wall surface of the inlet-side portion (111). The provision of the outlet-side taper portion (115) with a small inclination angle prevents an increase in the resistance of flow of fuel in the direction from the common rail (3) toward a corresponding one of the fuel injection valves (10a-10d). The provision of the inlet-side taper portion (111) with a great inclination angle increases the fuel flow resistance due to pressure pulsation from the corresponding one of the fuel injection valves (10a-10d) toward the common rail. <IMAGE>

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IPC 8 full level
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CPC (source: EP)
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Citation (applicant)
JP H09112380 A 19970428 - DENSO CORP

Citation (search report)
• [A] US 4356091 A 19821026 - NILES ALBERT B
• [A] US 5903964 A 19990518 - UEMATSU TADAHIRO [JP], et al
• [DA] PATENT ABSTRACTS OF JAPAN vol. 1997, no. 08 29 August 1997 (1997-08-29)
• [A] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 03 27 February 1998 (1998-02-27)

Cited by
FR2845129A1; WO2006000484A1; KR101015482B1; EP2072799A1; EP1378658A1; US7735473B2; EP1793119A1; US6925989B2; WO03089782A3; WO2006021470A1; WO2006131420A1; US6886537B2; US8569477B2; US9464316B2

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