

Title (en)

METHOD FOR CALCULATING PRESSURE FLUCTUATIONS IN A FUEL SUPPLY SYSTEM OF AN INTERNAL COMBUSTION ENGINE OPERATING WITH DIRECT INJECTION OF FUEL AND FOR CONTROLLING THE INJECTION VALVES THEREOF

Title (de)

VERFAHREN ZUR BERECHNUNG VON DRUCKSCHWANKUNGEN IN EINEM KRAFTSTOFFVERSORGUNGSSYSTEM EINER MIT KRAFTSTOFF-DIREKTEINSPRITZUNG ARBEITENDEN BRENNKRAFTMASCHINE UND ZUR STEUERUNG DERER EINSPRITZVENTILE

Title (fr)

PROCEDE POUR CALCULER DES VARIATIONS DE PRESSION DANS UN SYSTEME D'ALIMENTATION EN CARBURANT D'UN MOTEUR A COMBUSTION INTERNE ET A INJECTION DIRECTE DE CARBURANT ET POUR COMMANDER ET REGULER LE FONCTIONNEMENT DES SOUPAPES D'INJECTION

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Application

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Abstract (en)

[origin: WO2004065775A1] Pressure fluctuations can occur in internal combustion engines provided with direct fuel injection systems. This increases fuel consumption inter alia and has a negative effect upon exhaust gas properties. The invention provides a method for calculating pressure fluctuations in the fuel supply system, which is used as a basis for controlling the injection valves of the fuel injection system such that the above-mentioned disadvantages do not occur. The invention is based on the perception that the fuel injection system can be described as a closed high-pressure system which is exposed to injection-valve actuation as an external excitation source of fluctuation. Fourier analysis is used to analyse the thus excited liquid pressure fluctuation and correction values are calculated in order to enable the time of injection, duration of injection and/or the injection volume to be modified. The temporal dependency of the liquid pressure and/or liquid volume flow is calculated by means of a separate equation

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