

Title (en)

VARIABLE DELIVERY PUMP AND COMMON RAIL FUEL SYSTEM USING THE SAME

Title (de)

PUMPE MIT VARIABLER FÖRDERMENGE UND IHRE VERWENDUNG IN EINEM COMMON-RAIL-KRAFTSTOFFEINSPRITZSYSTEM

Title (fr)

POMPE D'ALIMENTATION VARIABLE ET SYSTEME DE RAMPE D'INJECTION A CARBURANT UTILISANT CELLE-CI

Publication

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Application

EP 00923379 A 20000414

Priority

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Abstract (en)

[origin: WO0063551A1] Pressurized injector actuation fluid is supplied to high pressure common rail (28) by a fixed displacement fluid pump (26). Variable delivery from the pump (26) is achieved by selectively spilling pumped fluid through a digital-acting by-pass or spill valve (90). The by-pass valve (90) is actuated by a momentary electric signal, which causes internal fluid pressure in the valve (90) to latch it in a closed condition, thus permitting high precision variations in the pump delivery with rapid response times. Unit pump (26), radial pump (400), and axial pump (500) configurations are disclosed. Variable delivery is achieved in another embodiment by an improved sleeve metering approach. The sleeve (692) surrounds the reciprocating piston (672) and is manipulated to control venting of pumped fluid through vent ports (686) in the piston (672). The sleeve (692) is moved by preferably being the armature of a solenoid assembly (698). The varying of current to the solenoid coil (696) alters the axial position of the sleeve (692) relative to the piston (672) to vary its effective pumping stroke.

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