

Title (en)  
NEEDLE-VALVE INJECTION NOZZLE

Publication  
**EP 0090296 B1 19860813 (DE)**

Application  
**EP 83102731 A 19830319**

Priority  
US 36281582 A 19820329

Abstract (en)  
[origin: ES8403571A1] A control device and method for opening and closing the nozzle of a fuel injector. The control device includes first and second cavities which are formed in the body of the fuel injector, with the second cavity being located close to the nozzle. First and second variable pressure supply chambers are connected to the nozzle and to the two cavities by several fluid passages. A spool valve and a needle valve are positioned in the first and second cavities, respectively, with the spool valve abutting a stem which projects into and terminating in the second cavity. Also situated in the second cavity between the stem and the needle valve is a spring which forms a link therebetween. The spool valve is pressure-actuated by a difference of pressure in the first and second pressure chambers to move between an open and a closed position. In the open position, fluid flow from one of the pressure chambers is permitted through the spool valve and to the second cavity. As the fluid pressure in the second cavity increases to a value greater than the compressive force of the spring, the needle valve will open and allow fluid flow through the nozzle of the fuel injector. As the spool valve moves to its closed position, it compresses the spring further and then urges the needle valve to close. The needle valve closes prior to a drop in fluid pressure in the second cavity.

IPC 1-7  
**F02M 61/20**

IPC 8 full level  
**F02M 61/00** (2006.01); **F02M 61/04** (2006.01); **F02M 61/16** (2006.01); **F02M 61/20** (2006.01)

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Cited by  
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AT BE CH DE FR GB IT LI SE

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**EP 0090296 A1 19831005; EP 0090296 B1 19860813**; AT E21437 T1 19860815; AU 1141783 A 19831006; AU 551978 B2 19860515; BR 8301565 A 19831206; CA 1198022 A 19851217; DE 3365234 D1 19860918; ES 521040 A0 19840316; ES 8403571 A1 19840316; JP S58185971 A 19831029; US 4465231 A 19840814; ZA 832191 B 19841128

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**EP 83102731 A 19830319**; AT 83102731 T 19830319; AU 1141783 A 19830215; BR 8301565 A 19830325; CA 423622 A 19830315; DE 3365234 T 19830319; ES 521040 A 19830328; JP 5344183 A 19830329; US 36281582 A 19820329; ZA 832191 A 19830328