

Title (en)  
INJECTION VALVE

Title (de)  
EINSPRITZVENTIL

Title (fr)  
SOUPAPE D'INJECTION

Publication  
**EP 0966602 B1 20021218 (DE)**

Application  
**EP 98928146 A 19980407**

Priority  
• DE 9800971 W 19980407  
• DE 19741850 A 19970923

Abstract (en)  
[origin: DE19741850A1] It has control valve whose pressure determines position of metering valve shaft with valve push rod subjected to spring pressure. An injection valve for a fuel injection system for an IC engine has devices for multistage control of the effective cross- section of at least one injection opening (42). A valve pushrod allows a first axial stroke that is limited by a primary shoulder (37) on an axially moving intermediate piece (30). Its axial movability allows the valve push rod an additional second stroke against the pressure of a spring (31) which is limited by an end shoulder fixed in the housing. The valve is a control valve (4) for a control chamber (12) whose pressure determines the position of the valve shaft of a metering valve(1). The push rod is subjected to a first pressure spring tensioned against the housing of the injection valve in the closing direction of the control valve. The spring is constructed as a second pressure spring. In the closed state of the control valve, the spring force of the first pressure spring is much smaller than that of the second.

IPC 1-7  
**F02M 47/02**; **F02M 45/04**

IPC 8 full level  
**F02M 47/00** (2006.01); **F02M 45/04** (2006.01); **F02M 45/08** (2006.01); **F02M 47/02** (2006.01); **F02M 51/00** (2006.01); **F02M 59/46** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP US)  
**F02M 45/04** (2013.01 - EP US); **F02M 47/027** (2013.01 - EP US); **F02M 63/0026** (2013.01 - EP US); **F02M 63/0075** (2013.01 - EP US)

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**DE 19741850 A1 19990325**; DE 59806720 D1 20030130; EP 0966602 A1 19991229; EP 0966602 B1 20021218; JP 2001505977 A 20010508; US 6296197 B1 20011002; WO 9915779 A1 19990401

DOCDB simple family (application)  
**DE 19741850 A 19970923**; DE 59806720 T 19980407; DE 9800971 W 19980407; EP 98928146 A 19980407; JP 51839499 A 19980407; US 30871599 A 19990630