

Title (en)  
FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

Title (de)  
BRENNSTOFFEINSPRITZVENTIL FÜR VERBRENNUNGSKRAFTMASCHINEN

Title (fr)  
SOUPAPE D'INJECTION DE CARBURANT DESTINEE A DES MOTEURS A COMBUSTION INTERNE

Publication  
**EP 1131552 B1 20021127 (DE)**

Application  
**EP 99947182 A 19991021**

Priority  
• CH 9900499 W 19991021  
• CH 225198 A 19981110

Abstract (en)  
[origin: WO0028205A1] A fuel injection valve (2) for intermittent fuel injection in internal combustion engines can be used in common rail injection systems for diesel engines. The control piston (130) of the fuel injection valve (2) has a land (124) at its top end which together with the underside (120) of a control body (132), forms the stroke limit of the control piston (130). A leak gap (128) between the control piston (130) and a middle part (18) which guides the control piston (130) in a guide bore (40) in close sliding contact, connects the high-pressure supply line (44, 46) to a relief chamber (122). During the injection process, when the nozzle needle (32) is open, the land (124), together with the underside (120), forms a restriction considerably reducing the flow of fuel from the leak gap (128) into the relief chamber (122) and from the relief chamber (122) into a control chamber (140). This prevents undesirable oscillations of the top end of the control piston (130) and ensures that the closing movement of the control piston (130) and the nozzle needle (32) occurs without uncontrolled fluctuations.

IPC 1-7  
**F02M 47/02**

IPC 8 full level  
**F02M 47/00** (2006.01); **F02M 47/02** (2006.01); **F02M 61/10** (2006.01); **F02M 61/12** (2006.01); **F02M 61/16** (2006.01); **F02M 61/20** (2006.01)

CPC (source: EP US)  
**F02M 47/027** (2013.01 - EP US)

Cited by  
CN104989573A

Designated contracting state (EPC)  
AT CH DE FR GB IT LI

DOCDB simple family (publication)  
**WO 0028205 A1 20000518**; AT E228614 T1 20021215; DE 59903599 D1 20030109; EP 1131552 A1 20010912; EP 1131552 B1 20021127; JP 2002529654 A 20020910; US 2002008156 A1 20020124; US 6405941 B2 20020618

DOCDB simple family (application)  
**CH 9900499 W 19991021**; AT 99947182 T 19991021; DE 59903599 T 19991021; EP 99947182 A 19991021; JP 2000581357 A 19991021; US 85234401 A 20010510