

Title (en)  
FUEL INJECTION VALVE

Title (de)  
KRAFTSTOFFEINSPRITZVENTIL FÜR BRENNKRAFTMASCHINEN

Title (fr)  
SOUPAPE D'INJECTION DE CARBURANT

Publication  
**EP 1062423 B1 20040811 (DE)**

Application  
**EP 99964369 A 19991124**

Priority  
• DE 9903723 W 19991124  
• DE 19901057 A 19990114

Abstract (en)  
[origin: DE19901057A1] The invention relates to a fuel injection valve for internal combustion engines, comprising a valve member (5) displaceable axially in a bore (3) of a valve body (1). The end of said member facing the combustion chamber of the internal combustion engine has a conical sealed surface (7) that cooperates with a conical seat surface (9) located on the end that is closed on the combustion chamber side of the bore (3) of the valve body (1), wherein the conical sealed surface (7) on the valve member (5) is subdivided into two areas (71, 72) having different cone angles, in the transition of which a transition area (73) defined by sealed edges (73a, 73b) on the upstream and downstream sides is formed. The difference between the cone angles in the transition area (73) and the seat surface (9) is smaller than the difference of the cone angles in the area (72) on the downstream side of the seat surface (9) (inverse seat angle difference). The invention is characterized in that a radial recess (74) is formed in the valve member (5) that is connected to the upstream transition area (74), said recess being defined by the sealed edge (73a) of the transition area (73) on the upstream side and by an edge (75) formed on the valve body (1).

IPC 1-7  
**F02M 61/18**

IPC 8 full level  
**F02M 61/10** (2006.01); **F02M 61/16** (2006.01); **F02M 61/18** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP KR US)  
**F02M 59/46** (2013.01 - KR); **F02M 61/18** (2013.01 - EP US); **F02M 61/1873** (2013.01 - EP US); **F02M 2200/304** (2013.01 - EP US)

Designated contracting state (EPC)  
DE ES FR GB IT

DOCDB simple family (publication)  
**DE 19901057 A1 20000727**; DE 59910205 D1 20040916; EP 1062423 A1 20001227; EP 1062423 B1 20040811; JP 2002535537 A 20021022; JP 4587248 B2 20101124; KR 100631298 B1 20061009; KR 20010041733 A 20010525; US 6502554 B1 20030107; WO 0042316 A1 20000720

DOCDB simple family (application)  
**DE 19901057 A 19990114**; DE 59910205 T 19991124; DE 9903723 W 19991124; EP 99964369 A 19991124; JP 2000593859 A 19991124; KR 20007009967 A 20000908; US 64618900 A 20001103