

Title (en)  
FUEL-INJECTION VALVE COMPRISING A SWIRL ELEMENT

Title (de)  
BRENNSTOFFEINSPRITZVENTIL MIT DRALLELEMENT

Title (fr)  
SOUPAPE D'INJECTION DE CARBURANT AVEC ELEMENT TOURBILLONNAIRE

Publication  
**EP 1228306 B1 20060315 (DE)**

Application  
**EP 01982155 A 20010927**

Priority  
• DE 0103711 W 20010927  
• DE 10048935 A 20001004

Abstract (en)  
[origin: WO0229244A1] The invention relates to a fuel-injection valve for fuel-injection systems of internal combustion engines, which among other things comprises an actuator (10, 11, 12) and a displaceable valve part (5, 7) that co-operates with a fixed valve seat (22) configured on a valve seat body (16) to open and close the valve. A disc-shaped swirl element (25), which has both at least one inlet zone (27) and at least one outlet opening (29), is located downstream of the valve seat (22). Said swirl element has at least one swirl channel (28), positioned upstream of the outlet opening (29). The incoming flow is received centrally by the inlet zone (27) in the swirl element (25). Several swirl channels (28) run from said inlet zone, which permits a swirling characteristic to be imposed on the fuel that traverses the swirl channels (28) exclusively in a radial direction from the interior towards the exterior. The fuel-injection valve is particularly suitable for use as a high-pressure injection valve for directly injecting fuel into the combustion chamber of compressed-mixture, spark-ignition internal combustion engines.

IPC 8 full level  
**F02M 61/18** (2006.01); **F02M 51/06** (2006.01); **F02M 51/08** (2006.01); **F02M 61/16** (2006.01)

CPC (source: EP US)  
**F02M 51/0671** (2013.01 - EP US); **F02M 61/162** (2013.01 - EP US); **F02M 61/18** (2013.01 - EP US); **F02M 61/1806** (2013.01 - EP US);  
**F02M 61/1853** (2013.01 - EP US)

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**WO 0229244 A1 20020411**; DE 10048935 A1 20020411; DE 50109233 D1 20060511; EP 1228306 A1 20020807; EP 1228306 B1 20060315;  
JP 2004510915 A 20040408; US 2003116650 A1 20030626

DOCDB simple family (application)  
**DE 0103711 W 20010927**; DE 10048935 A 20001004; DE 50109233 T 20010927; EP 01982155 A 20010927; JP 2002532793 A 20010927;  
US 14877402 A 20021114