

Title (en)  
FUEL INJECTION NOZZLE FOR INTERNAL COMBUSTION ENGINES

Publication  
**EP 0233190 B1 19891220 (DE)**

Application  
**EP 86902328 A 19860411**

Priority  
• DE 3528792 A 19850810  
• DE 3536452 A 19861012

Abstract (en)  
[origin: WO8700889A1] Fuel injection nozzle for internal combustion engines with a tapered valve seat surface (16 or 16a) located in an end-cup (20 or 20a) of the nozzle body (10), in which at least one spray orifice (22) is provided. The outer wall region (30 or 44) of the end-cup (20 or 20a) which lies opposite the valve seating surface (16 or 16a) is of a lesser hardness than that of the inner wall region (18 or 18a) which forms the valve seating surface (16 or 16a). If the spray orifice (22) emerges from a blind hole (32), the outer wall region (40) of the end cup (20a) which surrounds the blind hole (32) should preferably also have a lesser hardness than that of the opposed inner wall region (42). The central wall region (28 or 28a) which lies between these should preferably have an even lesser hardness than that of the outer wall region (30 or 40, 44). In this way it is ensured that the end cup (20 or 20a) of the nozzle body (10 or 10a) can be provided altogether with a greater strength than with a known design, without the valve seat surface losing any of its hardness and without any marked decrease in the protection afforded to the outer wall region (30 or 40, 44) of the end cup (20 or 20a) against abrasive wear and tear.

IPC 1-7  
**F02M 61/16; F02M 61/18**

IPC 8 full level  
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CPC (source: EP US)  
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Cited by  
WO9906692A1; WO2009000698A1; DE102007029305A1; US8595933B2

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**WO 8700889 A1 19870212**; DE 3536452 A1 19870219; DE 3667704 D1 19900125; EP 0233190 A1 19870826; EP 0233190 B1 19891220; JP 2545520 B2 19961023; JP S63500669 A 19880310; US 4801095 A 19890131

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