

Title (en)

Cylinder head structure of internal combustion engines for mitigating thermal stress

Title (de)

Zylinderkopfvorrichtung einer Brennkraftmaschine zur thermischen Spannungsverminderung

Title (fr)

Dispositif de culasse de moteur à explosion pour diminuer les contraintes thermiques

Publication

EP 1004765 A1 20000531 (EN)

Application

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Priority

JP 33381898 A 19981125

Abstract (en)

A cylinder head (2) of an internal combustion engine is connected to a cylinder block (11) that has a cylinder bore (13). A bottom surface (2a) faces the cylinder block (11). The bottom surface (2a) has two ceiling surfaces (6). The ceiling surfaces (6) and the cylinder bore (13) define a combustion chamber (15). A slit (16) is formed on the bottom surface (2a) adjacent the ceiling surface (6) to mitigate thermal stress in the cylinder head (2). The slit (16) has a deepest part (16a) located near a center of the ceiling surfaces (6). The depth of the slit (16) decreases as the distance from the maximum depth part (16a) increases. The slit (16) is separated from other spaces in the cylinder head (2). This cylinder head structure sufficiently mitigates thermal stress and maintains the strength of the cylinder head (2). <IMAGE>

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IPC 8 full level

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CPC (source: EP)

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Citation (search report)

- [X] US 4436066 A 19840313 - FORMIA ANTONIO [IT], et al
- [A] EP 0785352 A1 19970723 - TOYOTA MOTOR CO LTD [JP]
- [A] GB 1339226 A 19731128 - DAIMLER BENZ AG
- [A] FR 2654775 A1 19910524 - PEUGEOT [FR], et al
- [A] GB 456289 A 19361106 - ASS EQUIPMENT CO LTD, et al

Cited by

EP1519028A1; AT501025B1; CN104131908A; US2009320775A1; WO2007051217A3

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