Amorphous Carbon Layer for Heat Exchangers

Abstract: Process for deposition an amorphous carbon layer on substrates, such as heat exchangers, and the coated substrates so formed, such as an aluminum fined heat exchanger. The heat exchanger comprises a heat sink having deposited on its extended surface a layer of an amorphous carbon coating (DLC) having a hardness of at least 2000 Kg/mm², a specific resistivity of at least 10⁸ ohm cm, and a dielectric strength of at least 10⁸ V/cm.

Published:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : H05H 1/24; H01L 23/36
   US CL. : 165/185; 427/577
   According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
   U.S. : 165/185; 427/577; 361/705

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See enclosed EAST search history

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 5,786,633 A (WOLFGANG et al.) 28 July 1998 (28.07.1998), Figs. 2-4, lines 1-25 of</td>
<td>1, 4-8</td>
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<tr>
<td></td>
<td>column 3, 36-47 of column 4.</td>
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<td>Y</td>
<td>JP 2002-228391 A (KASAI) 14 August 2002 (14.8.2002), See English abstract, Fig. 2.</td>
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<tr>
<td>X</td>
<td>US 6,131,533 A (SUGIYAMA et al.) 17 October 2000 (17.10.2000), See in particular</td>
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<td></td>
<td>lines 1-14 of column 13.</td>
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<td>column 2, lines 3-7 of column 3.</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search: 05 October 2004 (05.10.2004)

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