

Title (en)

Amorphous metallic alloy electrical heater system

Title (de)

Elektrische Heizvorrichtung mit amorphe Metallegierung

Title (fr)

Système de chauffage électrique comportant un alliage métallique amorphe

Publication

EP 0808078 A1 19971119 (EN)

Application

EP 96107892 A 19960517

Priority

EP 96107892 A 19960517

Abstract (en)

An electrical heating system uses heating elements made of ribbons of amorphous metallic alloys. The heating elements have a large area using long and wide ribbons, to achieve good heat transfer to the surroundings, that is low thermal resistance. The area of the heating elements and thus the thermal resistance is determined according to the desired thermal power, under the constraint of a low operating temperature, that is a temperature well below the embrittlement temperature of the amorphous alloy used in the heating elements. The operating temperature is preferably kept low enough so as not to generate benzopyrene or other unhealthy or ecologically unfavorable fumes or gases. The thin ribbons with low thermal resistance also have a fast heating constant, that is the heater reaches its steady state temperature in a short time. The electrical heating system uses low cost insulation and support materials, that is materials intended for use at low temperatures only. Further cost reduction is achieved by making the heating elements of lower cost alloys, that is alloys capable of withstanding oxidation only at low temperatures. The heating elements undergo treatment using the Manov process of overheating the melted alloy to a precise temperature prior to rapid quenching, to achieve more reliable ribbons with more reproducible characteristics. <IMAGE>

IPC 1-7

H05B 3/10; **H05B 3/36**

IPC 8 full level

H05B 3/10 (2006.01); **H05B 3/36** (2006.01)

CPC (source: EP)

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Citation (search report)

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