

Title (en)

COATING SYSTEM WITH STRUCTURED SUBSTRATE SURFACE AND METHOD FOR MANUFACTURE

Title (de)

SCHICHTSYSTEM MIT STRUKTURIERTER SUBSTRATOBERFLÄCHE UND VERFAHREN ZUR HERSTELLUNG

Title (fr)

SYSTÈME DE COUCHE DOTÉ D'UNE SURFACE DE SUBSTRAT STRUCTURÉE ET SON PROCÉDÉ DE FABRICATION

Publication

**EP 2761057 A1 20140806 (DE)**

Application

**EP 12761600 A 20120914**

Priority

- EP 11188983 A 20111114
- EP 2012068055 W 20120914
- EP 12761600 A 20120914

Abstract (en)

[origin: EP2592174A1] The layer system comprises two layers (7), where an inner layer is directly placed on a boundary surface of a metallic substrate (4) and has a certain roughness, in a region of a surface to an outer ceramic layer (13), due to known coating method such as plasma spraying and/or high velocity oxy-fuel coating spraying. The roughness of the boundary surface of the substrate is adjusted, or is increased after casting. A layer thickness-centerline of the layer is periodically bent in places. The substrate has a periodicity on its boundary surface. The layer system comprises two layers (7), where an inner layer is directly placed on a boundary surface of a metallic substrate (4) and has a certain roughness, in a region of a surface to an outer ceramic layer (13), due to known coating method such as plasma spraying and/or high velocity oxy-fuel coating spraying. The roughness of the boundary surface of the substrate is adjusted, or is increased after casting. A layer thickness-centerline of the layer is periodically bent in places. The substrate has a periodicity on its boundary surface. The boundary surface of the substrate with a high mountain (20) and a deep valley (23) comprises a ripple with the periodicity, where the surface has no periodicity if the mountain and the valley are not present. The periodicity of the ripple of the boundary surface is 30% larger than the periodicity of surface of the layer when the mountain and the valley are not present. The roughness is an average roughness and a quadratic roughness. The roughness of the boundary surface of the substrate with the mountain and the valley is 30% larger than the roughness of the boundary surface when the mountain and the valley are not present. A difference between the high mountain and the deep valley of the layer is 30% in comparison to the maximum difference between the inner layer and the deep valley of the inner layer. A maximum distance lies between the two neighboring elevations of the boundary surfaces to the outer layer. A small distance between two mountains of the boundary surface of the layer is greater than 30%. A small difference present between the mountain and the valley of the worked boundary surface of the substrate is greater than 30%. The inner layer is a metallic adhesive layer, on which the outer ceramic layer is applied. The substrate is provided with a turbine blade and a shovel blade. An independent claim is included for a method for preparing a layer system.

IPC 8 full level

**C23C 28/00** (2006.01); **C23C 4/00** (2006.01)

CPC (source: EP US)

**C23C 4/00** (2013.01 - EP US); **C23C 28/3215** (2013.01 - EP US); **C23C 28/345** (2013.01 - EP US); **C23C 28/3455** (2013.01 - EP US); **F01D 5/282** (2013.01 - US); **F01D 25/005** (2013.01 - US); **Y10T 428/24355** (2015.01 - EP US)

Citation (search report)

See references of WO 2013072092A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

**EP 2592174 A1 20130515**; EP 2761057 A1 20140806; EP 2761057 B1 20200325; US 10371004 B2 20190806; US 2014302282 A1 20141009; WO 2013072092 A1 20130523

DOCDB simple family (application)

**EP 11188983 A 20111114**; EP 12761600 A 20120914; EP 2012068055 W 20120914; US 201214354571 A 20120914