

Title (en)
Surface treatment method, vessel and machine implementing the method

Title (de)
Oberflächenbehandlungsverfahren, entsprechender Kessel und entsprechende Maschine zur Umsetzung dieses Verfahrens

Title (fr)
Procédé de traitement de surface, cuve et machine mettant en oeuvre le procédé

Publication
EP 2733238 A1 20140521 (FR)

Application
EP 12193002 A 20121116

Priority
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Abstract (en)
The method comprises introducing the metal parts on a rotary structure (3) provided with a receiving unit (15) and rotatably mounted about a horizontal shaft (5) inside a treatment tank (1); establishing potential differences between the parts and a set of electrodes arranged in the tank, where the parts are supplied with current of polarity opposite to that of the electrode via the receiving unit and the rotary structure; and submerging the parts completely in treatment liquid in the tank by rotational movement of the structure bringing the parts successively to face the electrodes. The method comprises introducing the metal parts on a rotary structure (3) provided with a receiving unit (15) and rotatably mounted about a horizontal shaft (5) inside a treatment tank (1); establishing potential differences between the parts and a set of electrodes arranged in the treatment tank, where the parts are supplied with current of polarity opposite to that of the electrode via the receiving unit and the rotary structure; and submerging the parts completely in treatment liquid in the tank by rotational movement of the rotary structure bringing the parts successively to face the electrodes. The electrodes are arranged in respective compartments (6, 7) of the tank. The method further comprises: determining number of metal parts previously placed on a support including a holding member for immobilizing each of the parts relative to the support; introducing the support into an immersion area arranged in an upper part of a tank for processing, where the support is housed on the rotary structure; driving the support to a rotational movement of 360[deg] C; introducing the support to an exit zone arranged in the upper portion of the tank; removing the support from the tank; continuously carrying out the process by rhythmic displacement; and marking downtime of the rotary structure when the support is placed opposite to the electrode. The method is carried by controlling spatial distribution of the electric field between the electrodes and the metal parts. Independent claims are included for: (1) a method for liquid surface treatment of parts; and (2) a machine for surface treatment of metal parts.

Abstract (fr)
Procédé de traitement électrochimique de surface de pièces métalliques par immersion dans au moins un liquide de traitement contenu dans au moins une cuve (1) de traitement, ainsi que cuve et machine pour effectuer ce procédé, comprenant au moins une étape électrolytique dans laquelle on loge lesdites pièces sur une structure rotative (3) munie de moyens de logement (15) et montée en rotation autour d'un axe horizontal (5) à l'intérieur de ladite cuve (1) de traitement, on établit des différences de potentiel (V1, V2, V3) entre lesdites pièces et au moins une électrode (C1, C'1 ; C2, C'2 ; C3, C'3) agencée dans la dite cuve (1) de traitement, lesdites pièces étant alimentées en courant de polarité opposée à celle de l'électrode via les dits moyens de logement (15) et ladite structure rotative (3), et l'on immerge complètement lesdites pièces dans ledit liquide de traitement par un mouvement de rotation de ladite structure rotative (3) les amenant en regard de la ou des électrodes (C1, C'1 ; C2, C'2 ; C3, C'3), dans lesquels on opère un contrôle des valeurs des différences de potentiel (V1, V2, V3) et/ou de la distribution spatiale des champs électriques entre lesdites pièces et lesdites électrodes en mettant en oeuvre un nombre d'électrodes au moins égal à deux, alimentées sous des tensions électriques différentes, agencées dans plusieurs cuves (1) de traitement ou plusieurs compartiments d'une cuve avec des moyens de cloisonnement (6, 7) et/ou des moyens de masquage (16, 17, 18, 19, 20, 21, 22, 23, 29) disposés à l'intérieur d'une dite cuve (1) de traitement.

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Citation (applicant)
• DE 2119401 A1 19721102
• WO 2006084973 A1 20060817 - VACHERON FREDERIC [FR]
• EP 1433537 A1 20040630 - VACHERON FREDERIC [FR]
• WO 2008035199 A2 20080327 - GOLDEN EAGLE TRADING LTD [MU], et al
• WO 2010125515 A1 20101104 - GOLDEN EAGLE TRADING LTD [MU], et al

Citation (search report)
• [IDA] WO 2010125515 A1 20101104 - GOLDEN EAGLE TRADING LTD [MU], et al
• [AD] WO 2008035199 A2 20080327 - GOLDEN EAGLE TRADING LTD [MU], et al
• [A] US 2011186438 A1 20110804 - SON CHI HO [KR]
• [XAYI] US 2093484 A 19370921 - MAX SCHLOTTER
• [Y] JP H0243399 A 19900213 - NEC CORP
• [Y] GB 191216475 A 19130710 - LEE GEORGE PHILIP MALCOLM, et al
• [A] US 4964965 A 19901023 - NAKATSUGAWA HIROSHI [JP]

Cited by
ES2719260A1

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