

Title (en)
STEEL COMPONENT PRODUCED BY HOT-SHAPING A STEEL FLAT PRODUCT, STEEL FLAT PRODUCT AND METHOD FOR PRODUCING A STEEL COMPONENT

Title (de)
DURCH WARMUMFORMEN EINES STAHLFLACHPRODUKTS HERGESTELLTES STAHLBAUTEIL, STAHLFLACHPRODUKT UND VERFAHREN ZUR HERSTELLUNG EINES STAHLBAUTEILS

Title (fr)
PIÈCE EN ACIER FABRIQUÉE PAR FORMAGE À CHAUD D'UN PRODUIT PLAT EN ACIER, PRODUIT PLAT EN ACIER ET PROCÉDÉ DE FABRICATION D'UNE PIÈCE EN ACIER

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Abstract (en)
[origin: WO2022048990A1] The invention provides a steel component which is optimally protected against corrosion and produced by hot-shaping a steel flat product, and also provides a method and a steel flat product which permit the practical production of a steel component of this nature. The steel component comprises a steel substrate which consists of 0.10 – 0.4 % C, 0.05 – 0.5 % Si, 0.5 – 3.0 % Mn, 0.01 – 0.2 % Al, optionally up to 1.0 % Cr, - optionally up to 0.2 % V, < 0.1 % P, < 0.05 % S, < 0.021 % N and optionally in each case one or more elements from the group "B, Ti, Nb, Ni, Cu, Mo, W" where B: 0.0005 – 0.01 %, Ti: 0.001 – 0.1 %, Nb: 0.001 – 0.1 %, Ni: 0.01 – 0.4 %, Cu: 0.01 – 0.8 %, Mo: 0.002 – 1.0 %, W: 0.001 – 1.0 %, and as the remainder Fe and in total < 3 % impurities, and a metal protective coating formed on the steel substrate, which coating is made up of Si, Fe, optionally < 0.6 % Mg and as the remainder Al and < 2 % other constituents and of an alloy layer lying on the steel substrate, which alloy layer contains 35 - 90 % Fe and 5 - 3 % Si, an Al base layer lying on the alloy layer, which base layer contains 35 - 55 % Fe and < 3 % Si, and an oxide coating lying on the Al base layer and forming the external finish of the metal protective coating, which oxide layer consists of > 80 % oxides, the main portion of the oxides being aluminium oxide and there being present, in the oxide layer, additionally optionally hydroxides and/or magnesium oxide alone or as a mixture, and the remainder of the oxide layer not taken up by the oxides and optionally present hydroxides consisting of Si, Al and/or Mg in metal form (all % values are mass %).

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