Title (en)

COPPER-NICKEL-TIN-ALLOY, METHOD FOR THE PRODUCTION AND USE THEREOF

Title (de)

KUPFER-NICKEL-ZINN-LEGIERUNG, VERFAHREN ZU DEREN HERSTELLUNG SOWIE DEREN VERWENDUNG

Title (fr)

ALLIAGE CUIVRE-NICKEL-ÉTAIN, PROCÉDÉ DE PRÉPARATION ET UTILISATION DE CELUI-CI

Publication

EP 3485048 B1 20220817 (DE)

Application

EP 17736566 A 20170627

Priority

- DE 102016008745 A 20160718
- EP 2017000755 W 20170627

Abstract (en)

[origin: WO2018014990A1] The invention relates to a high-strength copper-nickel-tin alloy with excellent castability, hot workability and cold workability, high resistance to abrasive wear, adhesive wear and fretting wear and improved resistance to corrosion and stress relaxation stability, consisting of (in weight %): 2.0 - 10.0 % Ni, 2.0 - 10.0 % Sn, 0. 01 - 0.8 % Mg, 0.01 - 1.5 % Si, 0.002 - 0.45 % B, 0.004 - 0.3 % P, selectively up to a maximum of 2.0 % Co, optionally also up to a maximum 2.5 % Zn, selectively up to a maximum of 0.25 % Pb, the residue being copper and unavoidable impurities, characterised in that - the ratio Si/B of the element contents in wt.% of the elements silicon and boron is a minimum 0.4 and a maximum 8; such that the copper-nickel-tin alloy has Si-containing and B-containing phases and phases of the systems Ni-Si-B, Ni-B, Ni-P, Mg-P, Ni-Si, Mg-Si and other Mg-containing phases which significantly improve the processing properties and use properties of the alloy. The invention also relates to a casting variant and a further-processed variant of the high-strength copper-nickel-tin alloy, to a production method, and to the use of the alloy.

IPC 8 full level

C22C 9/02 (2006.01); **C22C 9/06** (2006.01); **C22F 1/08** (2006.01)

CPC (source: EP US)

C22C 9/02 (2013.01 - EP US); **C22C 9/06** (2013.01 - EP US); **C22F 1/08** (2013.01 - EP US)

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)

DE 102016008745 A1 20180118; **DE 102016008745 B4 20190912**; EP 3485048 A1 20190522; EP 3485048 B1 20220817; US 11035025 B2 20210615; US 2019153564 A1 20190523; US 2020208240 A9 20200702; WO 2018014990 A1 20180125

DOCDB simple family (application)

DE 102016008745 A 20160718; EP 17736566 A 20170627; EP 2017000755 W 20170627; US 201716308893 A 20170627