

Title (en)

HOT WORK TOOL STEEL HAVING EXCELLENT TOUGHNESS, AND PROCESS OF PRODUCING SAME

Title (de)

WARMARBEITSSTAHL MIT AUSGEZEICHNETER ZÄHIGKEIT UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)

ACIER POUR OUTIL DE TRAVAIL À CHAUD DOTÉ D'UNE EXCELLENTE TÉNACITÉ ET SON PROCÉDÉ DE PRODUCTION

Publication

**EP 2682491 A1 20140108 (EN)**

Application

**EP 12752790 A 20120228**

Priority

- JP 2011046103 A 20110303
- JP 2011148203 A 20110704
- JP 2012054868 W 20120228

Abstract (en)

Provided are a hot work tool steel having improved toughness and a process of producing the hot work tool steel. A hot work tool steel comprising, in mass%, 0.3% or more and less than 0.6% of C, 1.5% or less of Si, 1.5% or less of Mn and 3.0% or more and less than 6.0% of Cr, wherein more than 0.0025% and 0.025% or less of Zn and 0.005% or more of P are contained and the Zn/P ratio is more than 0.5; and a process of producing a hot work tool steel, comprising a first step of preparing a molten steel having a chemical composition of a hot work tool steel containing 0.005 mass % or more of P, a second step of adding Zn to the molten steel having the chemical composition of the hot work tool steel, and a third step of casting the Zn-added molten steel to produce a steel ingot, wherein the second step is a step of adding Zn in such a manner that more than 0.0025 mass% and 0.025 mass% or less of Zn and 0.005 mass% or more of P can be contained in the chemical composition of the steel ingot after the casting in the third step and the hot work tool steel can have a Zn/P ratio of more than 0.5.

IPC 8 full level

**C22C 38/00** (2006.01); **C21C 7/00** (2006.01); **C21D 6/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/18** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/44** (2006.01); **C22C 38/46** (2006.01); **C22C 38/52** (2006.01)

CPC (source: EP)

**C21C 7/0006** (2013.01); **C21D 6/002** (2013.01); **C22C 38/002** (2013.01); **C22C 38/02** (2013.01); **C22C 38/04** (2013.01); **C22C 38/22** (2013.01); **C22C 38/24** (2013.01); **C22C 38/44** (2013.01); **C22C 38/46** (2013.01)

Cited by

EP4230759A1; US10119174B2

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 2682491 A1 20140108**; **EP 2682491 A4 20150408**; **EP 2682491 B1 20180704**; CN 103403209 A 20131120; CN 103403209 B 20160113; TW 201250011 A 20121216; TW I447237 B 20140801; WO 2012118053 A1 20120907

DOCDB simple family (application)

**EP 12752790 A 20120228**; CN 201280011470 A 20120228; JP 2012054868 W 20120228; TW 101106849 A 20120302