

Title (en)
STEEL FOR EXTRUSION TOOLS

Title (de)
STAHL FÜR EXTRUSIONSWERKZEUGE

Title (fr)
ACIER POUR OUTILS D'EXTRUSION

Publication
EP 2546374 A1 20130116 (EN)

Application
EP 11752761 A 20110304

Priority
• BR PI1003185 A 20100308
• BR 2011000059 W 20110304

Abstract (en)
The present invention relates to a steel for extrusion tools characterized for lower cost and tempering resistance higher than that of conventional steel H13, whose chemical composition, in percentage by mass, comprises the following: Carbon between 0.40 and 0.60, Silicon below 1.0, Phosphorus below 0.030; Chromium between 2.5 and 4.5; Molybdenum between 0.5 and 0.7, considering that molybdenum can be replaced by tungsten in a ratio = 2W/1Mo; Vanadium between 0.10 and 1.0; Manganese below 1.0; the remainder consisting essentially of Fe and inevitable deleterious substances. As an option to provide high hardness after nitriding, the Al content of the steel of the present invention can be 1.0; for high toughness purposes, however, this Al content should be kept below 0.10.

IPC 8 full level
C22C 38/00 (2006.01); **C22C 38/22** (2006.01)

CPC (source: EP KR US)
C21D 9/00 (2013.01 - EP US); **C22C 21/00** (2013.01 - KR); **C22C 33/02** (2013.01 - KR); **C22C 38/02** (2013.01 - EP KR US); **C22C 38/04** (2013.01 - EP KR US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/22** (2013.01 - EP KR US); **C22C 38/24** (2013.01 - EP KR US); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/44** (2013.01 - EP KR US); **C22C 38/46** (2013.01 - EP KR US); **C22C 38/52** (2013.01 - EP KR US); **C22C 21/00** (2013.01 - EP US); **C22C 33/02** (2013.01 - EP US)

Cited by
US10407763B2

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 2546374 A1 20130116; **EP 2546374 A4 20150218**; BR PI1003185 A2 20120207; CA 2792615 A1 20110915; CN 103097562 A 20130508; JP 2013521411 A 20130610; KR 20130004591 A 20130111; MX 2012010394 A 20121005; RU 2012142660 A 20140420; US 2013243639 A1 20130919; WO 2011109881 A1 20110915; ZA 201207378 B 20130626

DOCDB simple family (application)
EP 11752761 A 20110304; BR 2011000059 W 20110304; BR PI1003185 A 20100308; CA 2792615 A 20110304; CN 201180020085 A 20110304; JP 2012556347 A 20110304; KR 20127026298 A 20110304; MX 2012010394 A 20110304; RU 2012142660 A 20110304; US 201113583288 A 20110304; ZA 201207378 A 20121002