

Title (en)

PROCESS FOR PRODUCTION OF SEAMLESS METAL PIPE BY COLD ROLLING

Title (de)

VERFAHREN ZUR HERSTELLUNG EINES NAHTLOSEN METALLROHRS DURCH KALTWALZEN

Title (fr)

PROCÉDÉ DE PRODUCTION DE TUYAU MÉTALLIQUE SANS SOUDURE PAR LAMINAGE À FROID

Publication

**EP 2390016 A1 20111130 (EN)**

Application

**EP 09834667 A 20091125**

Priority

- JP 2009069823 W 20091125
- JP 2008327763 A 20081224

Abstract (en)

In cold rolling of a seamless metallic tube with a cold pilger mill, when a reduction ratio of an outside diameter becomes excessive in comparison to a reduction ratio of a wall thickness, strain in a circumferential direction on flange regions becomes excessive. As a result, compressive stress in a circumferential direction becomes excessive, so that wrinkle imperfections are generated inside a tube and folded on groove bottom regions to become folded defects. This process is repeated to be developed into inside defects. When a hollow shell is produced by the Mannesmann-mandrel process instead of the extrusion process, inside wrinkle imperfections are generated with a sizing mill (a stretch reducer or a sizer) at a stage of hollow shell. Since the inside wrinkle imperfections further grow in cold rolling, it is necessary to pay attention thereto. In consideration of these, (a reduction ratio of an outside diameter/a reduction ratio of a wall thickness both in a cold pilger mill) is set to not more than 1/2. It is, thereby, possible to obtain a high-quality seamless metallic tube, inside defects thereof being suppressed, produced by cold rolling.

IPC 8 full level

**B21B 21/00** (2006.01); **B21B 23/00** (2006.01)

CPC (source: EP KR US)

**B21B 21/00** (2013.01 - EP KR US); **B21B 23/00** (2013.01 - KR); **B21B 3/00** (2013.01 - EP US); **B21B 3/02** (2013.01 - EP US); **B21B 17/14** (2013.01 - EP US); **B21B 19/10** (2013.01 - EP US); **B21B 21/005** (2013.01 - EP US); **B21B 21/02** (2013.01 - EP US); **B21B 23/00** (2013.01 - EP US); **B21B 2261/04** (2013.01 - EP US); **B21B 2261/08** (2013.01 - EP US); **B21B 2265/14** (2013.01 - EP US)

Designated contracting state (EPC)

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 SE SI SK SM TR

DOCDB simple family (publication)

**EP 2390016 A1 20111130**; **EP 2390016 A4 20131016**; **EP 2390016 B1 20150107**; CA 2743165 A1 20100701; CA 2743165 C 20130716; CN 102245320 A 20111116; CN 102245320 B 20150902; ES 2533620 T3 20150413; JP 4893858 B2 20120307; JP WO2010073863 A1 20120614; KR 101311598 B1 20130926; KR 20110071026 A 20110627; US 2011271731 A1 20111110; WO 2010073863 A1 20100701

DOCDB simple family (application)

**EP 09834667 A 20091125**; CA 2743165 A 20091125; CN 200980149550 A 20091125; ES 09834667 T 20091125; JP 2009069823 W 20091125; JP 2010543983 A 20091125; KR 20117012333 A 20091125; US 201113162840 A 20110617