

Title (en)
PROCESS FOR PRODUCING STEEL PIPE FOR AIR BAG

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES STAHLROHRS FÜR AIRBAGS

Title (fr)
PROCÉDÉ DE PRODUCTION D'UN TUYAU EN ACIER POUR COUSSIN DE SÉCURITÉ GONFLABLE

Publication
EP 2578705 B1 20180808 (EN)

Application
EP 11789849 A 20110601

Priority
• JP 2010127713 A 20100603
• JP 2011062583 W 20110601

Abstract (en)
[origin: EP2578705A1] In a process for manufacturing a steel tube for air bags having a high strength and high toughness which can simplify cold drawing and reduce the alloy cost, a seamless steel tube is formed from a steel comprising, in mass percent, C: 0.04 - 0.20%, Si: 0.10 - 0.50%, Mn: 0.10 - 1.00%, P: at most 0.025%, S: at most 0.005%, Al: at most 0.10%, Cr: 0.01 - 0.50%, Cu: 0.01 - 0.50%, Ni: 0.01 - 0.50%, and a remainder of Fe and unavoidable impurities, and the seamless steel tube is subjected to cold drawing at least one time with a working ratio such that the reduction in area is greater than 40% to obtain predetermined dimensions, then to quench hardening by heating to a temperature of at least the Ac 3 point at a rate of temperature increase of at least 50° C per second followed by cooling at a cooling rate of at least 50° C per second at least in a temperature range of 850 - 500° C, and to tempering at a temperature of at most the Ac 1 point.

IPC 8 full level
C21D 8/10 (2006.01); **B21C 29/00** (2006.01); **C21D 1/25** (2006.01); **C21D 9/08** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/42** (2006.01); **C22C 38/48** (2006.01); **C22C 38/50** (2006.01); **C22C 38/54** (2006.01)

CPC (source: EP KR US)
B21C 29/003 (2013.01 - KR US); **C21D 1/25** (2013.01 - EP KR US); **C21D 8/10** (2013.01 - EP KR US); **C21D 8/105** (2013.01 - EP KR US); **C21D 9/08** (2013.01 - EP KR US); **C22C 38/002** (2013.01 - EP KR US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP KR US); **C22C 38/42** (2013.01 - EP KR US); **C22C 38/48** (2013.01 - EP KR US); **C22C 38/50** (2013.01 - EP KR US); **C22C 38/54** (2013.01 - EP KR US)

Cited by
CN103639233A; EP3719149A1; WO2020201437A1

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 2578705 A1 20130410; **EP 2578705 A4 20170614**; **EP 2578705 B1 20180808**; CA 2800991 A1 20111208; CA 2800991 C 20160802; CN 103261451 A 20130821; CN 103261451 B 20150624; ES 2691209 T3 20181126; JP 5234226 B2 20130710; JP WO2011152447 A1 20130801; KR 20130020811 A 20130228; MX 2012013939 A 20130506; PL 2578705 T3 20190329; TR 201815837 T4 20181121; TW 201217199 A 20120501; TW I436912 B 20140511; US 2013086965 A1 20130411; WO 2011152447 A1 20111208

DOCDB simple family (application)
EP 11789849 A 20110601; CA 2800991 A 20110601; CN 201180037798 A 20110601; ES 11789849 T 20110601; JP 2011062583 W 20110601; JP 2012518424 A 20110601; KR 20127033709 A 20110601; MX 2012013939 A 20110601; PL 11789849 T 20110601; TR 201815837 T 20110601; TW 100119615 A 20110603; US 201213690818 A 20121130