

Title (en)
LOW CARBON ALLOY STEEL TUBE HAVING ULTRA HIGH STRENGTH AND EXCELLENT TOUGHNESS AT LOW TEMPERATURE AND METHOD OF MANUFACTURING THE SAME

Title (de)
ROHR AUS KOHLENSTOFFARMEM LEGIERUNGSSTAHL MIT ULTRAHOHER FESTIGKEIT UND HERVORRAGENDER ZÄHIGKEIT BEI NIEDRIGER TEMPERATUR UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
TUBE D'ACIER À BASE D'ALLIAGE À BASSE TENEUR EN CARBONE PRÉSENTANT UNE RÉSISTANCE MÉCANIQUE EXTRÊMEMENT ÉLEVÉE ET UNE EXCELLENTE TÉNACITÉ À BASSE TEMPÉRATURE ET SON PROCÉDÉ DE PRODUCTION

Publication
EP 2007914 A2 20081231 (EN)

Application
EP 07734171 A 20070402

Priority
• IB 2007000850 W 20070402
• US 39532206 A 20060403

Abstract (en)
[origin: US2006169368A1] A low carbon alloy steel tube and a method of manufacturing the same, especially for a stored gas inflator pressure vessel, in which the steel tube consists essentially of, by weight: about 0.06% to about 0.18% carbon, about 0.3% to about 1.5% manganese, about 0.05% to about 0.5% silicon, up to about 0.015% sulfur, up to about 0.025% phosphorous, and at least one of the following elements: up to about 0.30% vanadium, up to about 0.10% aluminum, up to about 0.06% niobium, up to about 1% chromium, up to about 0.70% nickel, up to about 0.70% molybdenum, up to about 0.35% copper, up to about 0.15% residual elements, and the balance iron and incidental impurities. After a high heating rate of about 100° C. per second; rapidly and fully quenching the steel tubing in a water-based quenching solution at a cooling rate of about 100° C. per second. The steel has a tensile strength of at least about 145 ksi and as high as 220 ksi and exhibits ductile behavior at temperatures as low as -100° C.

IPC 8 full level
C22C 38/00 (2006.01)

CPC (source: EP KR US)
C21D 8/00 (2013.01 - EP KR US); **C21D 8/10** (2013.01 - EP KR US); **C21D 9/08** (2013.01 - EP KR US); **C21D 9/50** (2013.01 - EP KR US); **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 38/20** (2013.01 - EP KR US); **C22C 38/22** (2013.01 - EP KR US); **C22C 38/24** (2013.01 - EP KR US); **C22C 38/28** (2013.01 - EP KR US); **C22C 38/44** (2013.01 - EP KR US)

Citation (search report)
See references of WO 2007113642A2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
US 2006169368 A1 20060803; AR 060286 A1 20080604; BR PI0709458 A2 20110712; BR PI0709458 B1 20140909; CA 2650452 A1 20071011; CN 101448966 A 20090603; EP 2007914 A2 20081231; EP 2007914 B1 20171004; JP 2009532584 A 20090910; KR 20090013769 A 20090205; MX 2008012810 A 20090316; US 2009101242 A1 20090423; WO 2007113642 A2 20071011; WO 2007113642 A3 20080131

DOCDB simple family (application)
US 39532206 A 20060403; AR P070101416 A 20070403; BR PI0709458 A 20070402; CA 2650452 A 20070402; CN 200780018206 A 20070402; EP 07734171 A 20070402; IB 2007000850 W 20070402; JP 2009503677 A 20070402; KR 20087026381 A 20081028; MX 2008012810 A 20070402; US 33683208 A 20081217