

Title (en)
Process for manufacturing cylinder liners

Title (de)
Verfahren zur Herstellung von Laufbuchsen

Title (fr)
Procédé de fabrication de chemises de cylindre

Publication
EP 0871791 B1 20001129 (DE)

Application
EP 96930115 A 19960828

Priority
• DE 19532252 A 19950901
• EP 9603780 W 19960828

Abstract (en)
[origin: US6136106A] PCT No. PCT/EP96/03780 Sec. 371 Date Feb. 27, 1998 Sec. 102(e) Date Feb. 27, 1998 PCT Filed Aug. 28, 1996 PCT Pub. No. WO97/09459 PCT Pub. Date Mar. 13, 1997The invention relates to a method for manufacturing thin-walled pipes, which are made of a heat-resistant and wear-resistant aluminum-based material. The method comprises the spray-compacting of a thick-walled pipe made of a hypereutectic aluminum-silicon AlSi material, possibly a subsequent overaging annealing, and the hot deformation to a thin-walled pipe. Such a method is in particular united for the production of cylinder liners of internal combustion engines, since the produced liners exhibit the required properties in regard to wear resistance, heat resistance and reduction of pollutant emission.

IPC 1-7
C22F 1/043; **B22F 3/115**; **C22C 1/04**

IPC 8 full level
B22D 23/00 (2006.01); **B22F 3/115** (2006.01); **C22C 1/04** (2006.01); **C22C 21/02** (2006.01); **C22F 1/00** (2006.01); **C22F 1/043** (2006.01); **C23C 4/123** (2016.01)

CPC (source: EP KR US)
B22F 3/115 (2013.01 - EP KR US); **C22C 1/04** (2013.01 - KR); **C22C 1/0416** (2013.01 - EP US); **C22F 1/043** (2013.01 - EP KR US); **C23C 4/123** (2016.01 - EP US)

Designated contracting state (EPC)
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)
US 6136106 A 20001024; AT E197821 T1 20001215; BR 9610546 A 19990706; CN 1066493 C 20010530; CN 1194014 A 19980923; DE 19532252 A1 19970306; DE 19532252 C2 19991202; DE 59606173 D1 20010104; DK 0871791 T3 20001227; EP 0871791 A1 19981021; EP 0871791 B1 20001129; ES 2152560 T3 20010201; GR 3035368 T3 20010531; JP 3664315 B2 20050622; JP H11501991 A 19990216; KR 100258754 B1 20000615; KR 19990043982 A 19990625; PT 871791 E 20010330; US 6485681 B1 20021126; WO 9709459 A1 19970313

DOCDB simple family (application)
US 2976798 A 19980227; AT 96930115 T 19960828; BR 9610546 A 19960828; CN 96196545 A 19960828; DE 19532252 A 19950901; DE 59606173 T 19960828; DK 96930115 T 19960828; EP 9603780 W 19960828; EP 96930115 A 19960828; ES 96930115 T 19960828; GR 20010400195 T 20010206; JP 51082697 A 19960828; KR 19980701213 A 19980219; PT 96930115 T 19960828; US 51680400 A 20000301