

Title (en)
LOW PRESSURE CARBONITRIDING METHOD

Title (de)
NIEDERDRUCKCARBONITRIERVERFAHREN

Title (fr)
PROCEDE DE CARBONITRURATION A BASSE PRESSION

Publication
EP 1885904 B2 20170201 (FR)

Application
EP 06743815 A 20060419

Priority
• FR 2006050357 W 20060419
• FR 0550996 A 20050419

Abstract (en)
[origin: US8784575B2] A method for carbonitriding a steel part arranged in an enclosure maintained at a reduced internal pressure, the part being maintained at a temperature level, comprising an alternation of first and second steps, a carburizing gas being injected into the enclosure during the first steps only and a nitriding gas being injected into the enclosure only during at least part of at least two second steps.

IPC 8 full level
C23C 8/34 (2006.01)

CPC (source: EP KR US)
C23C 8/30 (2013.01 - KR); **C23C 8/32** (2013.01 - EP KR US); **C23C 8/34** (2013.01 - EP US)

Citation (opposition)
Opponent :
• EP 1080243 B1 20020717 - AUBERT & DUVAL SA [FR]
• DE 69902169 T2 20030227 - AUBERT & DUVAL NEUILLY SUR SEI [FR]
• FR 2271295 A1 19751212 - AIR LIQUIDE [FR]
• DE 19909694 A1 20000914 - STIFTUNG INST FUER WERKSTOFFTE [DE]
• DE 10322255 A1 20041202 - ALD VACUUM TECHN AG [DE]
• BAUSCH T. ET AL: "Innovative Zahnradfertigung", vol. 3, 2006, EXPERT VERLAG, RENNINGEN, pages: 392 - 393

Cited by
WO2013064336A1; WO2013064335A1; WO2013064337A1; FR2981949A1; CN108893705A; FR2981947A1; FR2981948A1; CN103946412A; US9708704B2; US10156006B2; US10934611B2; US9765422B2; US9617632B2; US9938615B2; US10246766B2; US11035032B2

Designated contracting state (EPC)
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DOCDB simple family (publication)
FR 2884523 A1 20061020; FR 2884523 B1 20080111; AT E451484 T1 20091215; BR PI0608493 A2 20100105; CA 2604785 A1 20061026; CA 2604785 C 20140415; CN 100569992 C 20091216; CN 101180416 A 20080514; DE 602006010997 D1 20100121; EP 1885904 A1 20080213; EP 1885904 B1 20091209; EP 1885904 B2 20170201; JP 2008538386 A 20081023; JP 5046245 B2 20121010; KR 101328110 B1 20131108; KR 20080005281 A 20080110; MX 2007012964 A 20071210; US 2011036462 A1 20110217; US 2013042947 A1 20130221; US 8303731 B2 20121106; US 8784575 B2 20140722; WO 2006111683 A1 20061026

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