

## Title (en)

HIGH-STRENGTH COLD-ROLLED STEEL SHEET HAVING EXCELLENT WORKABILITY AND COLLISION CHARACTERISTICS AND HAVING TENSILE STRENGTH OF 980 MPa OR MORE, AND METHOD FOR PRODUCING SAME

## Title (de)

HOCHFESTES KALTGEWALZTES STAHLBLECH MIT HERVORRAGENDEN BEARBEITBARKEITS- UND KOLLISIONSEIGENSCHAFTEN UND EINER ZUGFESTIGKEIT VON 980 MPa ODER MEHR SOWIE VERFAHREN ZUR HERSTELLUNG DAVON

## Title (fr)

TÔLE D'ACIER LAMINÉE À FROID HAUTE RÉSISTANCE, AYANT UNE EXCELLENTE APTITUDE AU FAÇONNAGE, DE TRÈS BONNES CARACTÉRISTIQUES DE COLLISION ET UNE RÉSISTANCE À LA TRACTION DE 980 MPa OU PLUS, ET PROCÉDÉ DE PRODUCTION

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## Application

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## Abstract (en)

[origin: EP3279362A1] Provided are: a high-strength cold-rolled steel sheet having a tensile strength of 980 MPa or more, having good formability as evaluated by ductility and stretch-flangeability, and having excellent crashworthiness; and a method for producing the steel sheet. In this high-strength cold-rolled steel sheet, the metal structure at a position of 1/4 of the sheet thickness satisfies (1) to (4) below. (1) The area ratio of ferrite is 0% or more and 10% or less, with the balance being a hard phase including quenched martensite and retained austenite and including at least one selected from the group consisting of bainitic ferrite, bainite, and tempered martensite. (2) The volume ratio  $V^3$  of retained austenite is 5% or more to 30% or less. (3) The area ratio  $V_{MA}$  of an MA structure in which quenched martensite and retained austenite are combined is 3% or more to 25% or less, and the average circle-equivalent diameter of the MA structure is 2.0  $\mu\text{m}$  or less. (4) The ratio  $V_{MA} / V^3$  of the area ratio  $V_{MA}$  of the MA structure to the volume ratio  $V^3$  of the retained austenite is 0.50 to 1.50.

## IPC 8 full level

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- [XI] US 2012312433 A1 20121213 - MIZUTA SAE [JP], et al
- [X] JP 2011202207 A 20111013 - KOBE STEEL LTD
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- [XI] WO 2014092025 A1 20140619 - KOBE STEEL LTD [JP]
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