

Title (en)  
STEEL FOR MACHINE STRUCTURES

Title (de)  
STAHL FÜR MASCHINENSTRUKTUREN

Title (fr)  
ACIER POUR STRUCTURES DE MACHINES

Publication  
**EP 3492615 A4 20191225 (EN)**

Application  
**EP 17834454 A 20170727**

Priority  
• JP 2016147194 A 20160727  
• JP 2017027154 W 20170727

Abstract (en)  
[origin: EP3492615A1] A steel for machine structural use is provided which is excellent in machinability, rusting characteristics, and hot ductility, and with which carburized components that are excellent in rolling contact fatigue properties are obtained. The steel for machine structural use according to the present embodiment has a chemical composition which consists of, in mass%, C: 0.15 to less than 0.30%, Si: 0.01 to 0.80%, Mn: 0.20 to 2.00%, P: 0.030% or less, S: 0.010 to 0.100%, Pb: 0.010 to 0.100%, Al: 0.010 to 0.050%, N: 0.015% or less, O: 0.0005 to 0.0030% and Cr: 0.50 to 2.00%, with the balance being Fe and impurities, the chemical composition satisfying Formula (1). The total number of specific inclusions included in the steel which are any of MnS inclusions, Pb inclusions and composite inclusions containing MnS and Pb and which have an equivalent circular diameter of 5  $\mu$ m or more is 40 per mmor more. Where, a content (mass%) of a corresponding element is substituted for each symbol of an element in Formula (1).

IPC 8 full level  
**B22D 11/124** (2006.01); **B22D 11/22** (2006.01); **C21C 7/00** (2006.01); **C21C 7/04** (2006.01); **C22C 38/00** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/20** (2006.01); **C22C 38/22** (2006.01); **C22C 38/24** (2006.01); **C22C 38/26** (2006.01); **C22C 38/28** (2006.01); **C22C 38/32** (2006.01); **C22C 38/44** (2006.01); **C22C 38/60** (2006.01)

CPC (source: EP KR US)  
**B22D 11/001** (2013.01 - EP); **B22D 11/124** (2013.01 - KR US); **C21C 7/00** (2013.01 - US); **C21C 7/04** (2013.01 - KR US); **C22C 38/00** (2013.01 - US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US); **C22C 38/20** (2013.01 - EP US); **C22C 38/22** (2013.01 - EP US); **C22C 38/24** (2013.01 - EP US); **C22C 38/26** (2013.01 - EP US); **C22C 38/28** (2013.01 - EP US); **C22C 38/32** (2013.01 - EP US); **C22C 38/44** (2013.01 - EP US); **C22C 38/58** (2013.01 - KR); **C22C 38/60** (2013.01 - EP KR US); **C21C 7/0006** (2013.01 - EP); **C21C 7/06** (2013.01 - EP); **C21C 7/10** (2013.01 - EP); **C21D 2211/004** (2013.01 - EP)

Citation (search report)  
• [Y] EP 2418296 A1 20120215 - NIPPON STEEL CORP [JP]  
• [YD] JP 2000282172 A 20001010 - SUMITOMO METAL IND  
• [A] WO 2015125915 A1 20150827 - NIPPON STEEL & SUMITOMO METAL CORP [JP] & EP 3112487 A1 20170104 - NIPPON STEEL & SUMITOMO METAL CORP [JP]  
• [A] WO 2014125770 A1 20140821 - NIPPON STEEL & SUMITOMO METAL CORP [JP]  
• See references of WO 2018021452A1

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