Hunan shi zu yuan liu.

Yue Lu shu she - Scarlet Heart


Key Engineering Materials
ISSN: 1662-9795, Vol. 815, pp 99-106
doi:10.4028/www.scientific.net/KEM.815.99
© 2019 Trans Tech Publications Ltd, Switzerland

Submitted: 2019-04-30
Revised: 2019-05-28
Accepted: 2019-05-30
Online: 2019-08-02

High Temperature Plastic Deformation Behavior of As-Cast 300M Steel Based on Friction Correction

Xiaowei Xue[1,2], Chunxu Wang[2], Yong Li[2], Shun Han[2], Shaozun Liu[2], Wuhua Yuan[1,a,*]

[1]College of Materials Science and Engineering, Hunan University, Changsha 410082, China

[2]Institute for Special Steel, Central Iron and Steel Research Institute, Beijing 100081, China

[a]yuan46302@163.com

Keywords: Temperature, As-cast 300M Steel, Friction Correction.

Abstract. Hot deformation behavior of as-cast 300M steel was investigated in the temperature range of 850-1200°C and strain rate range of 0.01-10 s^{-1} using Gleeble-3800 thermo-mechanical simulator. Based on the true stress-strain curves corrected for friction, flow stress behavior and deformation mechanism were analyzed, and the constitutive model of as-cast 300M steel was established based on the Arrhenius model and Zener-Hollomon parameter (Z). The microstructure after deformation was observed by Olympus GX51 microscope. The experimental results show that the flow stress of as-cast 300M steel decrease with the increase of deformation temperature and the decline of strain rate. The dynamic recrystallization is more likely to occur at higher temperatures and lower strain rates. By regression analysis, the hot deformation activation energy (Q) of the as-cast 300M steel was calculated to be 360.332 kJ/mol. Microstructure evolution is greatly affected by deformation temperature and strain rate. The dynamic recrystallized grain size increases with the enhancement of deformation temperature and the decrease of strain rate.

Introduction

300M steel as a medium carbon low-alloy ultra-high strength steel was modified by adding the alloying elements of 1.6%Si and 0.1% V in 4340 steel [1], widely used in key bearing structural parts such as aircraft landing gear owing to its high strength, high fracture toughness and excellent fatigue properties [2] Many aircraft landing gears are made of 300M steel, such as Boeing 787, Airbus A380, C919 and C929. Since enlargement of the size of aircraft has become the trend of development, it is crucial to put forward higher requirements for the performance and size of landing gear to bear the overall weight of aircraft and repeated impact loading. Many researchers have focused on coarse-grained caused by insufficient dynamic recrystallization during forging process of 300M steel. J. Luo et al. [2-4] investigated the deformation behavior in isothermal compression of 300M steel. Y. G. Liu et al. [5] studied the dynamic recrystallization of 300M steel under isothermal compression. However, there are few reports on the hot deformation behavior of as-cast 300M steel, and many scholars have revealed that the original microstructure has great influences on the hot deformation behavior in other alloy systems [6-8]. Therefore, the hot deformation behavior and dynamic recrystallization of as-cast 300M steel were investigated in this paper, which would provide technical guidance for the cogging process of 300M steel ingot.

Experimental Details

The chemical composition (wt%) of as-cast 300M steel in the present study is shown in Table 1. The isothermal axial compression tests were conducted on cylindrical compression specimens with diameter of 10 mm and height of 15 mm using Gleeble-3800 thermo-mechanical simulator. Figure 1 reveals the macrostructure of as-cast 300M ingot, consisting of fine grain region, columnar grain region and central equiaxed grain region. The sampling location of the experimental steel is indicated by the black frame as shown in Figure 1(③). The specimens were subjected to 60% height reduction in temperatures range from 850-1200℃(in step of 50℃) at strain rates of 0.01, 0.1, 1, 10 s^{-1}. The

Description: -
-Hunan shi zu yuan liu.
-Hunan shi zu yuan liu.
Notes: dso12 - VC
This edition was published in -

Filesize: 39.110 MB

Tags: #Mongol #Yuan #Dynasty

Hunan Journal of Traditional Chinese Medicine 2016 Issue 12 bian zhang xue shu li zu ji cheng kao jing yuan liu zhi li chuang xin zai shi jie zhong yi yao xue hui lian he hui zhong yi yao wen xian yu liu pai yan jiu zhuan ye wei yuan hui cheng li zuo shou jie guo ji xue shu da hui shang de zhuan ti bao gao (jie xuan)

The first volume, published in 1843-49, set the tone for all time in the broad scope of subject matter and the solidity of its scholarship. Haidu sought reconciliation with Mengke-timur, and Mengke-timur defeated Ba-la.

Mongol Yuan Dynasty

A Chinese era was declared, namely, the First Year of the Zhongtong Era, AD 1259.

Hunan Journal of Traditional Chinese Medicine 2016 Issue 12 bian zhang xue shu li zu ji cheng kao jing yuan liu zhi li chuang xin zai shi jie zhong yi yao xue hui lian he hui zhong yi yao wen xian yu liu pai yan jiu zhuan ye wei yuan hui cheng li zuo shou jie guo ji xue shu da hui shang de zhuan ti bao gao (jie xuan)

Khubilai Khan sent an embassy, comprising of scholar officials Hao Jing, He Yuan and Liu Renjie, to Southern Soong.

Mongol Yuan Dynasty

Yang Gongyi resigned after finishing his work, and he died in the same year as Liu Mingyin, in AD 1293. What you said can't be achieved.

Chinese Avant

Secondly, before the in late 208, he was the first person to persuade Sun Quan to ally with against. Monk Zu-yuan was said to have prayed days and nights in wishing his words to transform into the devine soldiers against the Mongol invaders.

Little

Robbers and bandits are rampant. Before the Jurchen conquest of North China in AD 1126, we had 20+ million households or 46.

Related Books

- Architecture of Japan
- How to build fences and gates.
- Schema for constraint relaxation with instantiations for partial constraints partial constraint sati
- Tārīkh-i da'vat va jihād - barr-i ṣaghīr ke tanāzur men
- Issues and challenges for national development - selected papers presented during the 21st anniversa