

低炭素熱間壓延鋼板의 反復冷却에 따르는
低溫脆性에 關한 研究

李 孝 福

朝鮮大學校 金屬工學科

A Study on the Low Temperature Brittleness by Cyclic
Cooling-Heating of Low Carbon Hot Rolled Steel Plate

Hyo Bok Lee

Dept. of Metallurgical Eng., Chosun University

Abstract

The ductile-brittle transition phenomenon of low carbon steel has been investigated using the standard Charpy V-notch specimen. Dry ice and acetone were used as refrigerants. Notched specimens were cut from the hot rolled plate produced at POSCO for the Olsen impact test. The effect of cyclic cooling and heating of 0.14% carbon steel on the embrittlement was extensively examined. The ductile-brittle transition temperature was found to be approximately -30°C . The transition temperature was gradually increased as the number of cooling-heating cycles increased. On a typical Charpy V-notch fracture it was found that the ductile fracture surface showed a thick and fibrous structure, while the brittle fracture surface a small and light grain with irregular disposition. As expected, the transition temperature was also increased as the carbon content of steel increased. Compared with the case of 0.14% carbon steel, the transition temperature of 0.17% carbon steel was found to be increased about 12°C .