

Front End Bending Analysis of Duplex Stainless Steel in Plate Rolling

KIM Kyung Seok

Stainless Steel Process Research Group,
Technical Research Laboratories, POSCO, Pohang,
Korea

The significant increase in nickel (Ni) price has recently drawn more attention to duplex stainless steels as a viable substitute for expensive austenitic stainless steels. The advantages of using duplex stainless steel are well proven and its cost efficiency is undisputable. For that reason, many stainless steel manufacturers have tried to produce a variety of duplex grades and sizes; however, due to upward and downward bending on the front end of slabs during the plate rolling process, most manufacturers encounter problems progressing to the next rolling pass. In this study, we performed a Finite Element Method (FEM) analysis to calculate the amount of slab bending by changing rolling reduction and initial thickness of the slab. And finally, we proposed a better rolling pass schedule for reducing the upward bending of slabs.