عنوان مقاله:

Investigating the Effect of Geometric Parameters on the Twist Angle in Roll-Forming of Non-Symmetric Channel Section, Using Finite Element Simulation

محل انتشار:

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نویسندگان:

Mehdi SalmaniTehrani

Mehdi Nikforouz

خلاصه مقاله:

Cold roll-forming is a process in which the roll of sheet is formed by passing continuously through the set of rotary rollers without changing thickness in a cool way until it is formed to the desired profile. In this paper a parametric study on the section twist angle in roll-forming the non-symmetric channel is presented, using finite element simulation. At first finite element simulation results are validated by comparing the computed longitudinal strain, near the flange edge, with previously published experimental strains, for a special symmetric channel section. Here symmetric channel section was considered for verifying the finite element results, because of the lack of previous researches on non-symmetric channel section. Then by repeating the finite element simulation for similar section but with different flange width and changing the geometrical parameters such as flange width difference, sheet thickness and profile angle the effect of these parameters on twist angle is investigated. Investigating the results show that section twist angle is increased by decreasing the profile angle and sheet thickness and by increasing the flange width difference. .All simulations were carried out using the commercial software ABAQUS ۶.۷

کلمات کلیدی: