

Article Abstract

Title:	Effect of entry bending moment on exit curvature in asymmetrical rolling
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Abstract:	This paper investigates the asymmetrical rolling process using the Modified Slab Method. Elastic-plastic and linear work hardening material was assumed. In solving the equilibrium equations, the difference in roll pressure distribution was assumed linear. Using this model rolling parameters such rolling force, torque and the developed curvature were easily calculated. Simulation results indicated that for decreasing warping in an asymmetrical rolling, bending moment can be applied in suitable direction. In addition, employing a bending moment at entry of the roll gap in a symmetrical rolling process causes pressure difference on the rolls and warping at the outlet, as happens in an asymmetrical rolling process. Similarly, increasing the roll diameter ratio increases the pressure differences, but the average pressure between the sheet and the rolls is decreased while by increasing the reduction in thickness the average pressure is increased.
Keywords:	Asymmetrical Rolling; Modified Slab Method; Pressure Difference; Rolling Force; Bending Moment.