

A Comparison of Single Point Incremental Forming Formability between Carbon Steel and Stainless Steel

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Abstract : The sheet metal forming process, the raw material mechanical properties are important parameters. This paper is to compare the wall's incline angle or formability of SS 400 steel and SUS 304 stainless steel in single point incremental forming. The two materials are ferrous base alloy, which have the different cell unit, mechanical property and chemical composition. They were forming into cone shape specimens 100 mm diameter with different wall's incline angle: 90o, 75o, and 60o. The investigation, the specimens were forming until the surface fracture was occurred. The experimental result showed that both materials with the smaller wall's incline angle, the higher formability. The formability limited of the ferrous base alloy was approx. 60o wall's incline angle. By nature, SS 400 was higher formability than SUS 304. This result could be used as the initial utilized data in designing the single point incremental forming parts.

Keywords : NC incremental forming, single point incremental forming, wall incline angle, formability

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