

Thesis Title	A Study on the Influence of Blank Holder Slope on the Deep Drawing Process of Stainless Steel Sheet.
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Abstract

Deep drawing die for flat bottom cylindrical cup of 65.0 mm.in diameter and 0.5 mm. in thickness was designed for the research work. Die, punch and blank holder were made out of Al-bronze AlBC-3. The parameters of blank holder slope, lubricant type, stainless steel type and blank size were investigated on their effect to maximum drawing force and drawability. This study was emphasis on influence of blank holder slope. The slopes of 0.000, 0.005 and 0.010 mm./mm. were employed. The assumption was that blank holder slope would reduce contact between work-piece and die, thus would reduce cold-welding and assist lubricant to flow easily with the movement of the cup flange. Drawing force, then reduces. The mathematical relation was made between blank holder slope and the thickness of cup flange in order to select the suitable blank holder slope.

Experimental procedure was divided into 3 section as follows. First section, studied the influence of various factor using variation analysis on maximum drawing force and drawability. It was found that stainless steel type, lubricant type, blank holder slope, blank size, interaction between blank size and stainless steel type and interaction between blank size and lubricant type significantly affected maximum drawing force and drawability. From the result, the maximum force for deep drawing for stainless steel AISI 304 was higher than AISI 430 but was lower in drawability. In all the experiment, polyethylene sheet reduced the maximum force and increase the drawability at higher degree than coconut oil. Blank holder slope was found to reduce the maximum force and increase the drawability. Second section, the thickness variation of flange were investigate. Comparison between the experiment result and the I.E.Odell equation was make.

Good agreement was found. Mathematical model was then set up on the relation of slope and thickness variation of flange. Last section the slope calculated from the model was use in the experiment to verify the result.

Keywords. : Blank Holder Slope / Deep Drawing / Stainless Steel