

ABSTRACT

Friction Activated Blank-Holding in Deep Drawing

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A new method of blank-holding has been developed by Dr. Sinnathamby Thiruvarudchelvan in which a specially designed blank-holder is used to apply a force which is approximately proportional to the drawing force. This proportional blank-holding in the deep drawing process is investigated experimentally in detail for some metals. A theoretical analysis for this type of blank-holding in deep-drawing is also studied.

A drawing rig which uses the friction of rubber pads to apply the blank-holder pressure has been designed, and tests were conducted to obtain optimum conditions of drawing. Possible advantages regarding limiting drawing ratio and thickness strain distributions were investigated.

The experimental work was carried out using industrially pure aluminium, copper and brass. Limiting drawing ratios for these three materials were obtained using optimum conditions of blank-holding, material preparation, and lubrication.

Finally, the experimental drawing rig was modified to obtain results using the conventional method of applying a

constant blank-holding force, in order to compare the new method with an existing method.

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