

A Review of Methods Aimed at Improving the Draw Ratio in the Deep Drawing Process

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Abstract

A new deep drawing process for the manufacture of very deep cups from sheet metal is being investigated and developed by the authors. A drawing rig (**Figure 1**) which uses the friction activated blank holding, an adjustable die and hydraulic pressure has been designed and manufactured. Possible advantages regarding limiting drawing ratio and thickness strain distributions were investigated. Other methods of improving the draw ratio were also studied. For example, new methods of hydraulic counter pressure drawing and hydraulic augmented drawing have been developed by **Nakamura et al** and **Thirumarudchelvan et al**, in which hydraulic pressure is used to apply a force in the radial direction to assist in the drawing of sheet metal. These processes along with others are reviewed in detail.