NT03
Numerical analysis of hydroforming process control using variable blankholder force

V. Paunoiu[1]**, C. Maier**[1]**, I. Iacob**[1]** and V. Marinescu**[1]
[1]Dunarea de Jos University of Galati, Faculty of Engineering, 111 Domneasca Street, 800201, Galati, Romania
E-mail: catalina.maier@ugal.ro

Abstract. Hydroforming was developed to provide a cost effective means to produce relatively small quantities of drawn parts or parts with asymmetrical or irregular contours that are difficult to obtain by conventional stamping. This paper presents a study of hydroforming process with variable blankholder force in order to assure the parts quality. The main idea is to decompose the blankholder function of the elementary zone of the part contour corresponding to the linear and curvilinear zone. For each zone different blankholder force is applied in correlation with the hydrostatic pressure. A numerical analysis using finite element modelisation is performed considering different sets of blankholder forces and hydrostatic pressures, as process parameters. An optimum is determined in order to avoid parts defects (thickness reduction, wrinkles, fracture) for such types of parts.