



## **Springback Compansation with Using Two Different Radius in Bending U Form Shape Sheet Metal Parts**

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### **ABSTRACT**

Springback is the major problem in U –shaped part forming. Prediction and compensation of springback at the design stage is very important from industrial perspectives. Achieving the required geometries for companies in the desired accuracy and in a short time increases their competitive direction. The compensation for springback in U-form parts requires a large number of analyzes and workshops. In U-form parts, shaping the vertical walls at the desired angle in one-form operation is impossible due to the spring-back of the sheet metal. For this reason, using 2 form operations, the first form operation is reached to a certain value and the second form operation tries to close the aperture which is more than the desired value in U form. In the project, it is aimed to determine the parameters affecting the formation of U-shaped and 90-degree vertical wall by applying 2 shear bending operations to flat sheet metal. For this purpose, 5 different sheet thicknesses (1,2-1,8-2-2,5-3mm), 2 different sheet metal grades (HR340LA, DP600), 4 different radius values (4-8-16-32mm) and 3 different reduction rate (5-10-15%) was used. In order to reduce the time and costs in the design phase, a total of 192 tests were performed and the effect of parameters on the springback was investigated.

**Keywords:** die; dual phase; forming; sheet-metal; stamping