

Table 2. Variation of the springback with different thickness for (aluminum and steel)

Thickness mm	Springback for aluminum(mm)	Springback for steel (mm)
1	146.13	134.92
1.5	127.16	121.31
2	120.78	110.23

5. RESULTS AND DISCUSSIONS

The results from the FEA by ANSYS and experimental values of springback are listed and compared below.

Table 3. Comparison of experimental and FEA values of springback for low carbon steel (1020)

Thickness mm	Experiment spring back effect (mm)	FEA springback effect (mm)	Error %
1	136	134.92	0.8
1.5	126	121.31	3.8
2	115	110.23	4.3

Table 4. Comparison of experimental and FEA values of springback for aluminum alloy (AA3105)

Thickness mm	Experiment spring back effect (mm)	FEA springback effect (mm)	Error %
1	149	146.13	2.26
1.5	132	127.16	3.80
2	125	120.78	3.49

Table 3 and Table 4 shows the variation in the numerical and experimental values of springback with the different thickness. As the thickness of the sheet metal (AA3105, LCS) increases the springback decreases.

6. CONCLUSIONS

In this study, springback effect is evaluated under different type of metal and thickness sheets. Also FEA study has conjointly been carried out the assistance of ANSYS. Experimental study on springback has been done by considering low carbon steel (1020) and AA3105 of different thicknesses like 1 mm, 1.5 mm, 2 mm. It has been observed that as the effect of springback of aluminum alloy (3105) in the different thickness is greater than steel (1020) sheet. Springback is affected by thickness change, when the thickness of sheet metal is increased the spring back is decreased. The von-mises stresses are observed to increase with an increase in sheet thickness. Springback is affected by a yield stress and modulus elasticity of the metal.

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