A DEFINITIVE GUIDE TO
DESIGN FOR MANUFACTURING SUCCESS
Sheet Metal Design Guidelines

Form Feature Design Guidelines

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Welcome to another issue of the DFM Guidebook. We highly appreciate your feedback for our previous issues. Please continue sending us your comments, suggestions and ideas for subsequent issues.

This week, our DFM experts provide you an interesting summary of important design guidelines for Sheet Metal.

Effective design principles in sheet metal process can save material and improve the manufacturability of designs. If sheet metal component features such as slots or holes are placed too close to each other they pose several problem during manufacturing leading to rejection or delay in delivery to customer.

In this edition, we focus on manufacturability guidelines for dimples and close with a best practice related to embossments.

If you have missed the previous issues of DFM Guidebook, please visit our website, www.dfmpro.com

Happy reading!

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Contents

Minimum Distance from Dimple to Bend ................................................................. 6
Minimum Distance from Dimple to Cutout ......................................................... 7
Minimum Distance between Dimples ................................................................. 8
Minimum Distance from Dimple to Hole ............................................................. 9
Minimum Distance from Dimple to Part Edge ................................................... 10
Maximum Embossment Depth ........................................................................... 11
Minimum Distance from Dimple to Bend

A certain minimum distance must be maintained between dimple and the bend feature to avoid deformation and fracture of the metal.

It is recommended that the minimum distance between dimple to bend should be two times sheet thickness plus the inside radius of the dimple plus radius of the bend.

\[ t = \text{Sheet metal thickness} \]
Minimum Distance from Dimple to Cutout

A minimum distance must be maintained between dimple and cutout edge to avoid deformation and fracture of the metal.

It is recommended that a minimum distance of four times the sheet thickness plus the inside radius of each dimple must be maintained between a dimple and cutout edge.

\[ t = \text{Sheet metal thickness} \]
**Minimum Distance between Dimples**

Care need to be taken when placing formed features close to each other. If a station does not clear a form already placed in a part, the form will get flattened out.

It is recommended that the minimum distance between dimples should be four times sheet thickness plus radius of the dimple.

\[ t = \text{Sheet metal thickness} \]
Minimum Distance from Dimple to Hole

To avoid deformation and fracture of the metal a certain minimum distance should be maintained between dimple and adjacent holes.

It is commonly recommended that the minimum distance between dimple and hole should be three times sheet thickness.

\[ t = \text{Sheet metal thickness} \]
Minimum Distance from Dimple to Part Edge

It is recommended that the minimum distance between dimples to part edge should be four times material thickness plus radius of the dimple to avoid deformation and fracture of the metal.

\[ t = \text{Sheet metal thickness} \]
**Maximum Embossment Depth**

Embosses are small, shallow formed projections on the surface of stamped parts. During this operation, stretching is the main deformation mode resulting in high tension. Thereby the metal is subject to excessive thinning or fracturing. Consequently, the depth of the embossed feature is restricted by the material’s thickness and ability to stretch in addition to the emboss geometry.

It is recommended that the maximum depth of embossment be less than or equal to three times material thickness.

\[ t = \text{Sheet metal thickness} \]