Sheet Metal Forming

The various sheet metal forming operations are:

1. Blanking: It is an operation of cutting a flat shape from a sheet metal. The part punched out is called the blank and the remaining sheet is the scrap. In the blanking operation, the blank size is equal to the die size and the clearance is added to the punch.

2. Piercing: It is a cutting operation by which various shaped holes are made in the sheet metal. In this operation, the hole is the required operation and the material punched out is the scrap. In the piercing operation, the hole size is equal to the punch size and the clearance is added to the die.

3. Notching: This is the cutting operation by which metal pieces are cut from the edge of a sheet, strip or blank.

4. Trimming: Trimming operation is done to remove the flash or unwanted excess material from the previously formed components. Special dies called trimming dies are used for this operation.

5. Shaving: This operation is done to cut the edges of the blanked part accurately and in maintain close and accurate dimensions. The shaving operation removes the rough and uneven edges of the blanked part

6. Perforating: This is an operation of producing number of holes evenly spaced in regular pattern on a sheet metal.

7. Bending: Bending is the creation of a formed feature by angular displacement of a sheet metal work piece. In this operation, the material in the form of flat sheet or strip is uniformly strained around a linear axis which lies in the neutral place and perpendicular to the lengthwise direction of the sheet or metal.

8. Curling: Curling is the operation of forming the edges of a component into a roll or curl by bending the sheet metal in order to strengthen the edges and to provide smoothness to the surface.

9. Drawing: This is a process of forming a flat work piece into a hollow shape by means of a punch which causes the blank to flow into a die cavity.

10. Lancing: Lancing is a combination of cutting and bending. It is the operation of cutting a sheet metal through part of its length and then bending the cut portion. There is no scrap in this operation.

11. Squeezing: In this operation, the metal is squeezed within the cavity of the die and the punch to attain the desired shape.