

SHEET METAL COMPONENTS



Sheet metal is available in flat pieces or coiled strips. The coils are formed by running a continuous sheet of metal through a roll slitter. Sheet metal is one of the fundamental forms used in metalworking, and it can be cut, bent and formed into a variety of shapes. At Wirecom we manufacture a wide range of Sheet Metal components for Electrical, Switchgear & Engineering Industries.

How to Design Sheet Metal Components

- Parts should maintain a uniform wall thickness throughout their entirety, but this should be easy because parts are formed from a single sheet of metal.
- Sheet-metal brakes bend sheets into a part's desired geometry. Bends in the same plane should be designed in the same direction to avoid having to reorient the part during manufacturing. To prevent parts from fracturing or distorting, make sure to keep the inside bend radius at least equal to the sheet's thickness.
- Holes should be placed away from the curl at least a distance equal to the radius of the curl plus the material's thickness. Bends should be at least six times the material's thickness plus the radius of the curl. Outside radius of curls must be at least twice the sheet's thickness.
- Countersinks must be separated from each other by a distance of at least 8 times the material thickness, from an edge by at least 4 times the material's thickness, and from a bend by at least 3 times the material's thickness. The maximum depth for a countersink is 3.5 times the material's thickness.
- Hems are folds to the edge of a part that create rounded, safe edges. Hems may be open, flat, or tear-dropped, and tolerances depend on the hem's radius, material thickness, and features near the hem. For open hems, the inside diameter should at least equal to the material thickness.
- Holes and slots may become deformed if positioned near a bend. The minimum distance that holes should be placed from a bend is a function of the material thickness, bend radius, and the hole's diameter. Keep hole and slot diameters at least as large as the material's thickness. Higher-strength materials require larger diameters.
- Notches must be at least one-eighth of an inch away from each other. For bends, notches must be at least 3 times the material's thickness plus the bend radius.
- Sheet-metal parts may have sharp corners, but designing a fillet of $\frac{1}{2}$ the material's thickness will make parts more cost-effective. Relief cuts for bends must be at least one sheet's thickness in width, and be longer than the bend radius.

Key Parameters

- Key parameters of sheet metal components process are mechanical properties of the sheet metal, tooling geometry, tooling faces, tooling clearances and lubrication of tooling surface.

Material

The form in which sheet metal is found in the market is either in coiled strips or in flat pieces. The coils are made with continuous running of sheet metal into a roll slitter.

- Steel sheet from hot rolled coils – pickled and oiled

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Finish

Sheet Metal components are offered in Nickel, Yellow & white zinc plating, Black Oxidizing, Green & trivalent passivation

Manufacturing Process

Sheet Metal Components are manufactured on imported CNC multiforming Machines.

Testing & Certification Process

Each spring manufactured goes through a series of rigorous tests conducted on in house testing facilities such as Computerized UTS Testing, Profile Projector amongst others. All parts are supplied with ROHS raw material compliant report. We also provide PPAP documents for automobiles and electrical industries as per requirement.

Common Applications

Sheet metal components are used in various products like clamps, clips, car interior parts, two wheeler parts, auto electrical parts, etc.

Reference Standards

- **EN 10111:2008** – Steel sheet from hot rolled coils to grade DD 11

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