

Metal Stamping Die Making

Introduction

The best online resources for stamping are found here.

What you will learn is as follows:

- What is Metal Stamping Die Making?
- Metal Stamping Dies Making Process
- Types of Metal Stamping Dies
- Advantages of Die & Tool Manufacturing
- How do the dies actually work?

Chapter One- What is Metal Stamping Die Making

An exclusive, specialized precision tool called a [metal stamping die](#) is used to cut and shape sheet metal into the appropriate shape or profile. Tool steel, a unique kind of hardenable steel, is generally used to create the cutting and forming portions of dies. Additionally, dies may have cutting and shaping components composed of carbide or other tough, durable materials.

Since stamping is a cold-forming process, neither the sheet material nor the die purposefully get any heat. But because of the friction that occurs throughout the cutting and forming process, stamped components frequently come out of the dies very hot. Dies can be as small as the palm of your hand, used to produce microelectronics, or as large as 20 feet square and 10 feet.



Precision stamping die is a special tool for batch processing of materials into required stamping parts. It is very important in metalwork and stamping. Generally, mold can be divided into:

(1) Single die: Simple structure, short manufacturing cycle, low cost, but low stamping accuracy and efficiency. It is suitable for metal stamping parts with low precision, simple shape, and small output.

(2) Progressive die: More complex structure, difficult manufacturing and adjustment, high cost, but high stamping accuracy, exponentially improved production efficiency. It is suitable for metal stamping parts with high precision and large output.

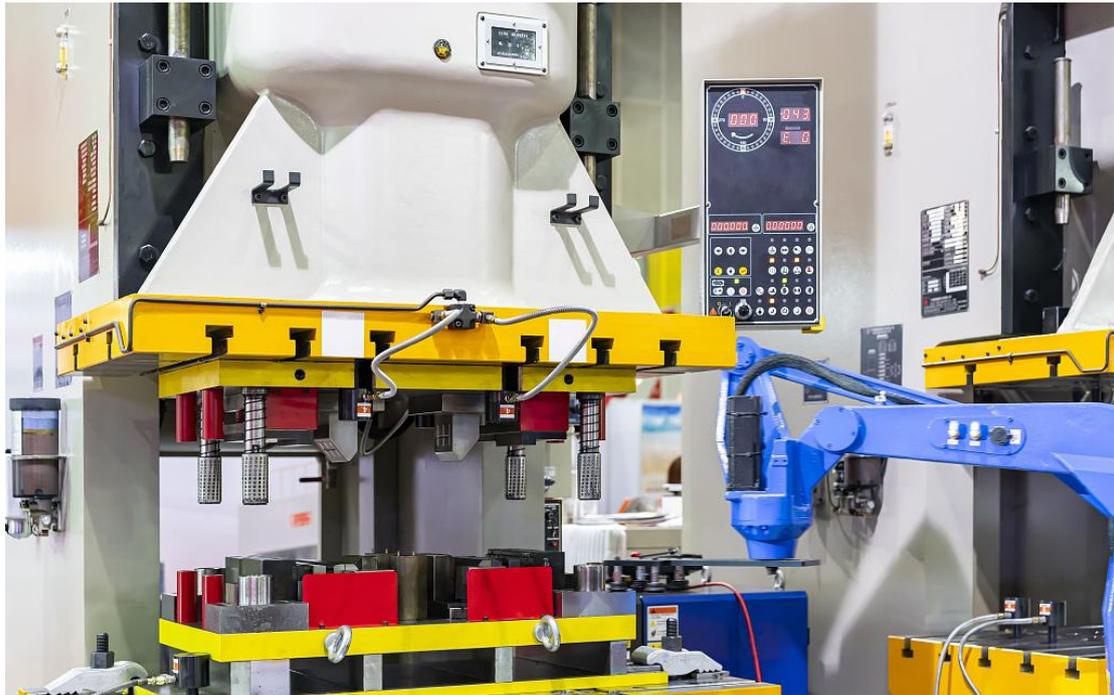
Chapter Two- Metal Stamping Dies Making Process

Making the stamp is the first step. This first step might be carried out by you or a member of the company you work for. By hand is possible. Make a simple sketch or drawing of the mechanism's size and shape.

It is generally better to leave this step to the maker of your stamp dies. They will use computer-aided design software, sometimes known as CAD, to create your idea. Always work with a company that employs SME-certified experts.

Finding a company with experience in your field can be the key to hiring the best one. If you are a jewelry producer, seek out a die maker with experience in the industry. Choose a company with a lot of experience if you're looking for one that produces appliances or products for the automobile industry.

The dies can be cast once the specific design has been approved. Any number of die machines are used to create them. Some manufacture the products utilizing stamping, line, progressive, or hand-transfer dies. People with certification in sheet metal manufacturing operate the machines. Modern technology should be used by machines.



Your chosen thickness and parameters will be followed while stamping the dies. Understanding the term "clearance" is crucial since it describes the distance between the operation and the edge of the component being manufactured. Due to the enormous power required to cut the metal you need, they should be manufactured of the best materials available.

Look to Metric Tooling & Stamping, Inc. for manufacturing services of the highest caliber and accuracy. We have been providing specialized solutions for big and small assignments for almost 50 years. In order to guarantee your happiness, we can do nano- or micro-stamping and we always bring our knowledge to each project.

Mold is very extensive application in all walks of life, so for the mould manufacturing becomes more concern topic among people, Orienson, as a metal stamping factory, has a wealth of production experience, can produce high precision and long life mould, following simple mould manufacture process may help people have a more detailed understanding towards mould manufacturing.

- 1) ESI(Earlier Supplier Involvement).
- 2) Quotation.
- 3) Purchase Order.
- 4) Production Planning and Schedule Arrangement.
- 5) Mold Design.
- 6) Purchasing materials.
- 7) Machining (Machining).
- 8) Mold Assembly.
- 9) Mold Trial Run.
- 10) Sample Evaluation Report (SER).

Chapter Three- Types of Metal Stamping Dies

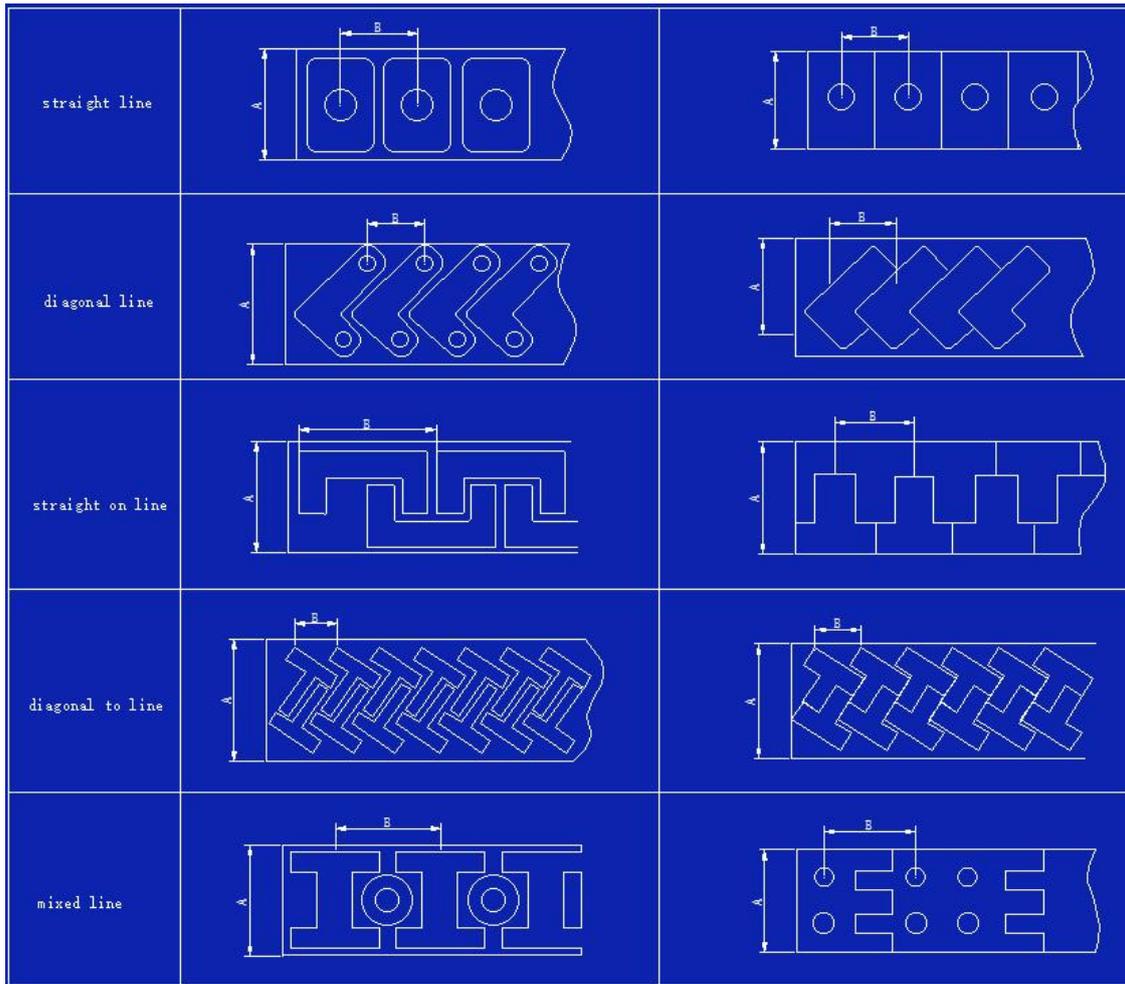
Progressive Die

Stamping parts in the [progressive stamping die](#) are gradually formed, continuous forming is the technique of work stage concentration, which can make cutting, grooving, punching, plastic deformation, blanking, and other processes completed in a pair of old. According to the actual needs of stamping parts, a number of stamping processes are arranged in a certain order (called the station in the progressive die) for continuous stamping. It can not only complete the blanking process but also can complete the forming process, even the assembly process, many complex stamping parts that need multi-process stamping can be fully formed on a die, which provides favorable conditions for high-speed automatic stamping. It can be seen that the progressive die is a kind of high-efficiency punching die with multi-stations.

Progressive Die Design

The cost of stamping production is mainly the cost of raw materials, so reasonable use of materials is a very important issue in stamping production. The arrangement of stamping parts on the steel strip or plate is called the stamping layout. If the layout design is not reasonable, it will cause material waste. To determine whether the layout is reasonable is mainly the utilization rate of reference materials, that is, the percentage of the actual area of the workpiece to the material area. The less the area of waste produced, the higher utilization of materials will be.

The discharging of stamping parts can be divided into three kinds of discharging methods: waste discharge, less waste discharge, and no waste discharge. It is significant to adopt the less or even no waste layout method to reduce the cost of stamping parts and is conducive to producing more products at the same time to improve production efficiency. Meanwhile, because of the reduction of stamping perimeter, the stamping die structure can simplify and pressure reduced. The material utilization rate can reach 95% with no waste discharge, and 70% to 90% with little waste discharge.



Single Die

A single die can be divided into punching die, bending die, drawing die, plunging die, and integral die. Single die structure is simple with low cost, short processing cycle, easy to adjust. It is suitable for the simple structure product with small order amounts.

Single Die Design

Single die structure is simple, easy to manufacture. To those metal stamping parts that need high accuracy and blanking quality requirements, manufacturing precision and service life of the single die become bottlenecks to affect the yield and quality.

In our production practice, [Orienson](http://www.orienson.com) has rich experience in reducing tooling costs, shortening the mold production cycle, and improving the production efficiency of stamping parts. We can help customers solve these bottlenecks.

What is The difference between Single Die and Progressive Die?

- Simple speaking, a single die also known as [in compound dies](#) refers to taking out the material and then repeating the operation.
- A progressive die stroke can punch out a finished product, which means putting several processes integrated into a mold, progressive die is mechanical automatic feeding and continuous stamping.

Chapter Four- Advantages of Die & Tool Manufacturing

Additive manufacturing can dramatically shorten the lead time of tooling set-up — some experts claim as much as 90 percent!

Standard stamping dies manufacturing processes assume a considerable factor of waste. Additive manufacturing reduces this loss of material during tooling fabrication because it utilizes a digital layering technique.

There is no arguing that using additive manufacturing in tooling set-up has a hand in increasing the likelihood of receiving a quality end-product. The Tool and Die Maker will cut, shape, finish, and maintain precision stamping tools made of metal and will forge die casts to create molds.

Chapter Five- How do the dies actually work?

Blanking, drawing, shearing, and bending are the fundamental uses of die. The metal chamber on which the metal sheet is inserted in the precision die and stamping or tool has been specifically created, and this provides the sheet its preferred shape and design. In this configuration, the press slide and press bed are joined by the upper portion of the sheet metal stamping dies. One specialized part, called a punch, accomplishes the actual shaping operation by forcing the metal sheet through the die. The pattern on the dies can also be used to emboss the name of the finished product or add three-dimensional letters to it. The metal stamping dies transform into the brain and heart of the metal stamping machinery in this way.