SELECTION OF THE MANUFACTURING PROCESS OF THE PART

Tokhirov Islombek Khakimjon ugli
The Department of Descriptive Geometry and Engineering Graphics Fergana Polytechnic Institute, Republic of Uzbekistan
Islom.toxirov1993@gmail.com

ABSTRACT

We will justify the choice of this process, we will list some of its advantages and disadvantages with respect to other processes and later we will describe it.

Keywords. *Casting process, forming process, welding process.*

DETALNI ISHLAB CHIQARISH JARAYONINI TANLASH

Tohirov Islombek Hakimjon o'g'li
Farg'ona politexnika instituti "Chizma geometriya va muhandislik grafikasi" kafedrasi, O'zbekiston Respublikasi
Islom.toxirov1993@gmail.com

ANNOTATSIYA

Biz ushbu jarayonni tanlashni asoslab beramiz, boshqa jarayonlarga nisbatan uning afzalliklari va kamchiliklarini sanab o'tamiz va keyinroq uni tasvirlab beramiz.

Kalit so'zlar. *Quyma jarayoni, shakllantirish jarayoni, payvandlash jarayoni.*

ВЫБОР ПРОЦЕССА ИЗГОТОВЛЕНИЯ ДЕТАЛИ

Тохиров Исломбек Хакимжон углы
Кафедра начертательной геометрии и инженерной графики Ферганского политехнического института, Республика Узбекистан
Islom.toxirov1993@gmail.com

АННОТАЦИЯ

Обоснуем выбор этого процесса, перечислим некоторые его преимущества и недостатки по сравнению с другими процессами, а позже опишем.

Ключевые слова. *Процесс литья, процесс формовки, процесс сварки.*

INTRODUCTION

Comparisons of methods: Advantages and disadvantages of tooling. The first decision we face is to choose the most suitable manufacturing process with respect to our objectives. We will choose to employ the stamping process.

Unlike other procedures, such as machining by chip removal or welding, tooling is a technology that is not viable in manufacturing processes of a single piece. Due to the use of very expensive tools, elaborate design, high precision and only valid for one shape or design of parts, die-making is recommended as a manufacturing process for large quantities of parts. Only in these cases does the depreciation of the tools have a minimal effect on the final cost of the die-cast product.

Die production is fast, the number of parts produced ranges from 12-13 to 1200 parts manufactured per minute. In the first case we are talking about stamping operations of large parts for the automotive sector or in transferred press lines; in the second, of the manufacture of small flat pieces made in high-speed presses.

The deformation processes without chip removal guarantee the processing of the sheet under geometric and dimensional tolerances whose values are minimal. In addition, the die operations practically do not alter the surface finish of the pieces obtained with this technique.

DISCUSSION AND RESULTS

Considering that the laminated sheet for tooling work has roughness values, it can be said that the surface quality of the die-cast products is, at the very least, excellent. The mechanical resistance of sheet metal parts compared to their lightness, together with the factors mentioned above, constitutes another advantage to take into account when choosing this manufacturing method as the most appropriate.

As if that were not enough, the production of parts by tooling generates a minimum volume of scrap or waste material, considering optimal average values of material utilization those that are around 75 and 80% of the initial volume of the sheet.

Fig.1. Application range of manufacturing processes according to melting temperature of the material and batch size.

With some exceptions, the tooling is consolidated as an irreplaceable manufacturing method and whose results far exceed those obtained by other procedures.

Description and justification of the decision taken on the manufacturing process.

In conclusion, we choose this process as our manufacturing process over other processes such as machining with chip removal or welding, since like most sheet metal products, if the number of parts to be made is very high, it method is the most profitable.

Faced with the disadvantage of the high price of the tooling, we have the disadvantages of achieving rapid production, guaranteeing the geometric and dimensional tolerances of our part, its surface quality, its mechanical resistance and it allows us to minimize the volume of scrap or waste material by taking advantage of our material. between 75 and 80% on average.

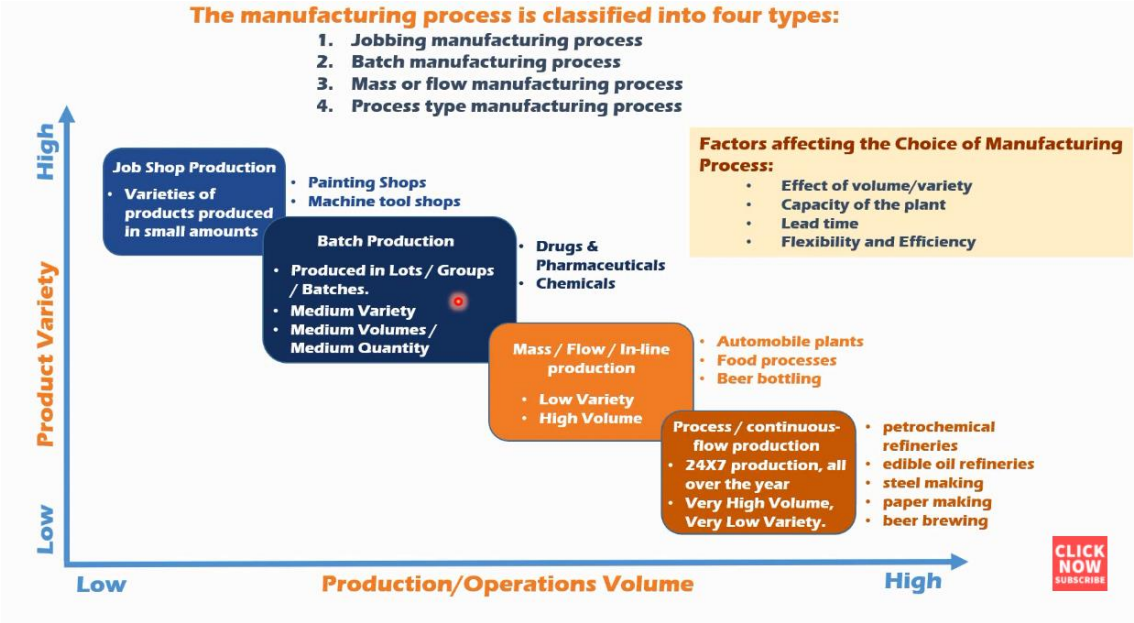

Fig.2. the manufacturing process is classified into four types.

Tooling is the branch of mechanics that deals with studying and developing the manufacture of tools for obtaining serial parts, generally sheet metal, without chip removal.

By extension, die-cutting processes are called the processes of cutting or forming the sheet without chip removal, which are carried out by means of a tool called matrix or die.

A die is a non-autonomous mechanical tool capable of cutting and shaping a sheet according to a geometry defined by the elements that compose it. In the workshop, the terms die or stamp are also used to refer to this type of tool. The tools used in heavy tooling are given the generic name of dies. We refer to them from now on as dies.

The die, although it is the main component of a tooling process, does not function as an autonomous mechanical element, but rather is mounted on a machine called a press. After manually or automatically placing a sheet on the die, the press prints a reciprocating or reciprocating vertical movement, during which the tool cuts and deforms the sheet according to its own geometry. Once the sheet has been cut or shaped, it is evacuated to an appropriate container. The repetition of this cycle determines the work rate of the process.

Generally, a die is made up of two main parts. One fixed, which is attached to the table of the press, and another mobile, integral with the head of the machine.

The dies used in the cutting processes are known as "cutters" and like the dies, they are mounted on large hydraulic or combination drive presses. The way these presses work is similar to that of the machines that operate on the smaller dies.

CONCLUSION

The person who intervenes among many other tasks in the manufacture and assembly of both dies and other mechanical assemblies, of the specific tools to develop these processes, as well as their control and verification, is called a die setter, or simply a die maker.

The toolmaker is responsible for the determination, organization and coordination of mechanical processes, as well as preparations and fine-tuning of machine tools, the construction of tools, tools and dies.

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