Research Article Impact Factor: 0.621 ISSN: 2319-507X
AV Nichat, IJPRET, 2014; Volume 2 (9): 288-296 IJPRET

INTERNATIONAL JOURNAL OF PURE AND APPLIED RESEARCH IN ENGINEERING AND TECHNOLOGY

A PATH FOR HORIZING YOUR INNOVATIVE WORK

DESIGN AND FABRICATION OF ALPHA NUMERIC EMBOSSING MACHINE

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Accepted Date: 27/02/2014 ; Published Date: 01/05/2014

Abstract: In today world, due to advance manufacturing process and advance machining process the time of production is reduces. Thus the productivity increases which effect on mass production and batch production. So it is essentially to products name plate parts to be the manufacture. There are a variety of crafts for an embossing machine that allow you to create unusual, signature pieces of artwork. Embossing machines come in several varieties. There are multi-tasking embossers available at craft and scrapbooking stores that allow you to embellish and cut card stock and paper pieces into a variety of different designs in a single motion. You can also use embossing machines that feature custom-made thick rubber dyes secured with hand-held or desk-mounted metal handles. These machines allow you to create personal monogrammed or logoed designs with a raised surface, and they can be ordered through office and business supply stores.

Keywords: Fabrication, Manufacturing Process

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PAPER-QR CODE

Access Online On:

www.ijpret.com

How to Cite This Article:

AV Nichat, IJPRET, 2014; Volume 2 (9): 288-296

INTRODUCTION

A batch production is most common form of productions and constituted more than 50% of the total manufacturing activity. Therefore,

1. The process of growing need to make batch production more efficient and productivity.

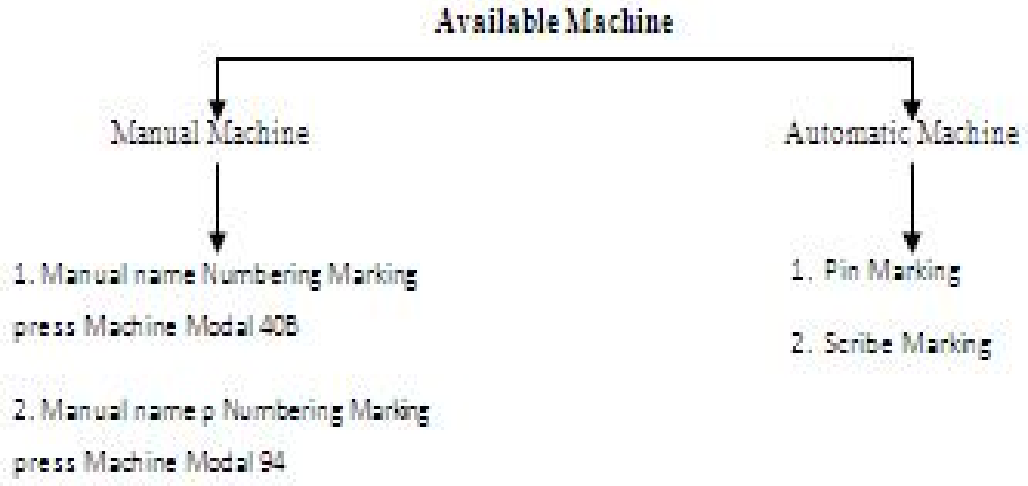
2. In addition process in increasing trend towards achieving and higher level of integration between the design and manufacturing activities of the companies the above manufacturing using with the help of emboss name plate.

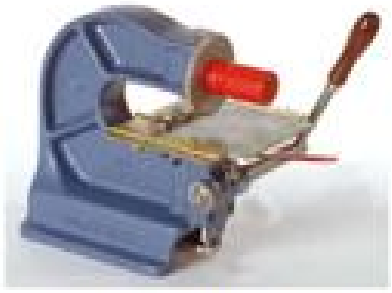
In market wide range of metal marking machine are available, which is performing in nature, these machine are the manufactured using superior quality raw material. There is no metal deformation or stress development during the marking process along with the advance rang of metal marking machine. Today engraving and embossing offer a variety of services. You can use the metal and leather as well as paper. Engraving and embossing services education and training involve the following options:

1. Learn which type of machine is best for your purposes.
2. Understand maintenance and safety issues for engraving machines and embossing equipment, many of which use laser technology.
3. And get trained to use software such as Adobe Photoshop to create and edit the images that you will emboss or engrave.

MARKET STUDY:-

The survey of market ,there is two different types of machine available. The available machine description are as follows:-





The Model 40B can be used for part identification, and stamping a variety of tags or flat parts. Due to the Model 40B's simple, quiet, manual operation, it can used in an office environment. Weighing only 40 pounds, it is portable enough so that it can be used anywhere.

- Ideal for stamping Plates (Name, Motor, Social Security, Letter Box, House Bell, Dog Collar), Tags, & Keys. Can stamp aluminum, brass, and steel parts

EXPERIMENTAL STUDIES:-

For the **design of fabrication of alpha numeric embossing machine** the pressure is required for punching of letter and numbers, so the universal testing machine (UTM) is used to determine the different type of pressure on work piece. The different pressure on different metal piece is as follows:-

SR. NO.	MATERIAL	CHARACTER	PRESSURE IN BAR
1)	MILD STEEL		10 bar
2)	ALUMINIUM		7 bar
3)	WOOD		5 bar

DESIGN:-

For designing the embossing machine there is a need of letter and number punch to punch character on work piece. The punch is made of hard metal.

For designing this model in actual 1st make it on a AUTO-CAD computer software. This machine is made on software is in following figure:-

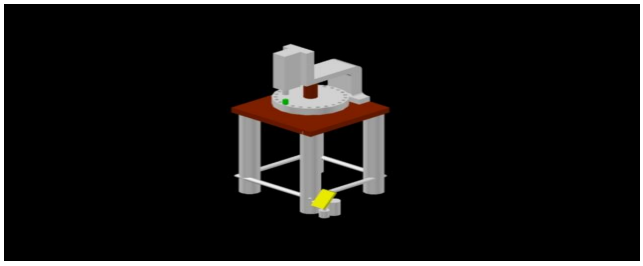


Fig: Model of fabrication of alpha numeric embossing machine

(AUTO-CAD)

PARTS:-

PUNCHES:-

Specification:-

a) LENGTH :- 70mm

b) WIDTH :- 10mm

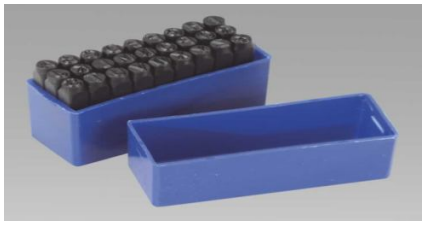


Fig : Number punch

We offer number punches, which are manufactured from quality carbon steel hardened, tempered and chemically black finished. Specifically designed to cut clean holes in leather, paper, plastic, wood, etc. They are supplied in tool roll and are available in display packed. Some of the features are: Made from high quality Carbon Steel.

Gear:-

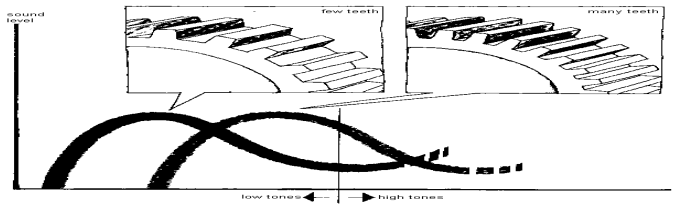


Fig no 1.3 Square gear

A gear is a rotating machine part having cut teeth, or cogs, which mesh with another toothed part in order to transmit torque. Geared devices can change the speed, torque, and direction of a power source. The gears in a transmission are analogous to the wheels in a pulley. An advantage of gears is that the teeth of a gear prevent slipping.

When two gears of unequal number of teeth are combined a mechanical advantage is produced, with both the rotational speeds and the torques of the two gears differing in a simple relationship.

Shaft:-

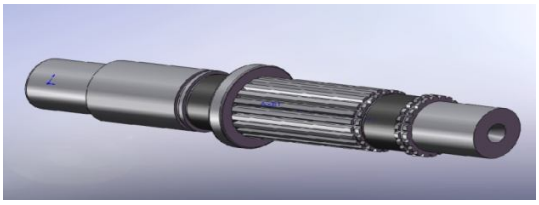


Figure: Arbor (Shaft)

The shafts were first conceptualized by determining the method of a attachment of the gears. In our design, keys/splines with retaining rings, bolted connections, or interference fits engine bay shown. It Keeping the transmission compact and strong.

Spring:-

Fig : Spring

Circlip:-

Fig: Circlip

A circlip (a combination of 'circle' and 'clip', and pronounced thus), also known as a C-Clip, snap ring or Jesus clip, is a type of fastener consisting of a semi-flexible metal ring with open ends which can be snapped into place, into a machined groove on a dowel pin or other part to permit rotation but to prevent lateral movement.

Pneumatic cylinders:-

Fig: Pneumatic cylinder

Pneumatic systems are designed to move loads by controlling pressurized air in distribution lines and pistons with mechanical or electronic valves. Air under pressure possesses energy which can be released to do useful work.

CONSTRUCTION:-

Taking a gear and make it square gear on milling machine to adjust number punch in each teeth of gear.

In that number punch spring & circlip is fitted as shown in fig. Adjust on aluminum strip to avoid the dispositioning of number punch. This plate is fitted strongly on base plate. After that this all assembly is fitted on stand.

After all that, take a pneumatic cylinder of pressure 10 bar fitted on plate of body. To punch a latter on metal.

WORKING:-

The compressor is used to operate the punching machine.

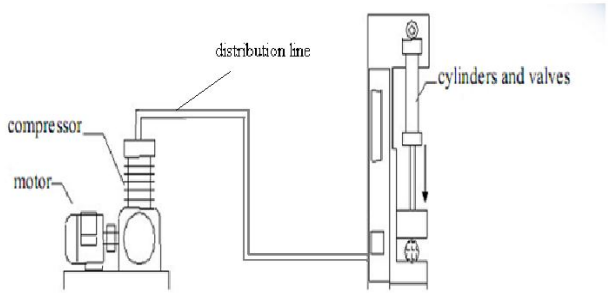


Fig: line dig. of alpha numeric embossing machine.

When we want to punch any number or alphabet, we put the job below to punching alphabet/number. As we press pedal, the air released and goes to cylinder through PU tube. Due to which piston pushes downward to punch the tool on job. This mechanism is also adjustable with the help of bolt and nut. The pneumatic cylinder is fixed to the frame stand by right angles to the frame stand.

SR. NO.	MODEL 40 B	MODEL 94	ALPHA NUMERIC EMBOSSING MACHINE
1)	This machine is fully manually operated.	This machine is also fully manually operated.	This machine is semi-automatic operated.
2)	More effort is required.	More effort is required.	Less effort is required.
3)	It can punch on only stamping plates, tags and keys.	It can punch on only stamping codes.	It can punch on any type of materials.
4)	This is manually operated by handle	This is manually operated by handle.	Pneumatic cylinder is used.
5)	Initial cost is low.	Initial cost is lower than the other two.	Initial cost is high.
6)	The weight of machine is less.	The weight of machine is less.	The weight of machine is high.
7)	Less in accuracy.	Less in accuracy.	More in accuracy.

Application :

1. Column mounted head for bench Stop marking system.

2. Use in military tag.

3. Ideal for stamping plates (names, motor, social security), tags and keys.

4. Various strip holder can be manufacture for use of this machine.

Advantages :-

1. It is to easy mark name on both production is very small time.

2. High accuracy.

3. Simple in construction & easy to operate.

4. The marking can be done on any material.

5. Less stress develop which reduces the breaking of instrument.

6. It is suitable for batch production

Disadvantages :-

1. It is costly machine.

2. This is a heavy in weight.

Conclusion:-

In era of batch mass production are required in instrument which provides a in easy way of embossing a large quantity and this machine provides a way to do it which high accuracy and less material a having additions future. Thus to cope up with today industrial requirement we need to use this machine.

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