

360 Degree Flexible Drilling Machine

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ABSTRACT:- Drilling machine is important part of mechanical engineering. It is used in regular industry work. In many places due to low space between drill bit & drill & due to fixed drill some parts would not drill accurately, drill which quite costing, as well as time consuming. So here, we purpose a horizontally,vertically or even up side or down drill machine which drills materials like wood, plastic and light metal very easily.

I. INTRODUCTION:-

Drilling is a cutting process that uses a drill bit to cut a hole of circular cross section in solid materials. In which produced or originated by men of multipoint end cutting tool. The drill is rotated and advanced into the work pieces. The material is removed in the form of chips, chips is removed by flowing along grooves or fluted in drill. Adjustment of feed rate can result in chips with a range of shape and sizes. The bit is pressed against the workpiece rotated at rates from 100- 1000 revolution per minute. This forces the cutting edge against the workpiece. In rare cases specially shaped bits are used to cut holes of non- circular cross section square cross section is possible.

Project methods:-

Drilling is the operation of producing

circular hole in the w/p by using rotating cutter is also known as drill. My project is to rotate the drill easily at any direction. The machine used for drilling is known as drill machine. The drill is commonly used in twist drill.

There are two main type of drilling.

- a) Fixed drilling machine
- b) Hand drilling machine

Working of drilling machine:-

This work piece of this flexible drilling machine is initially started from the D.C motor through full wave rectifier. There is one power sources received the rectifier. Then the arm rotates at 360 degree and moves anywhere, when drilling is required up to maximum arm length. This helps the driller to drill complicated parts accurately. Switch on the main supply which is A.C. Then A.C flow through rectifier and convert into D.C power sources.

Component:-

Motor: - Motor is an electrical device, which converts electrical energy to mechanical energy. It rotate shaft which is supported by bush, when power supply pass through the rectifier. The shaft connects with drill bit through a chuck to rotate drill bit and make hole in the work piece.



Connecting rod: - It connects the two frames to each other for support between them to help to move as desired. It consist of metal stripes of two series one of 12 inch and other is of 15 inch, both are of four pieces of equal length.



Bearing: - Bearings are machine elements that allow components to move with respect to each other.



Screws: - Single degree of moment & kinematic pair is used in mechanism of screw joints.



Drill bit: - Drill bit are cutting tool used to remove material in the workpiece to create holes. Drill bit come in many size and shape and can create different hole in non different materials.

- a) Brad point drill bit
- b) Twist drill bit



Brad point drill bit

It is drill bit offers precise drilling in soft and hard wood. It can be used for drill holes and pocket holes. This drill bit has a cylindrical shank system. It is a

high quality shoulder cutters with precise edge that produce tear free.

Twist drill bit

Twist drill bits are the foremost widely used in all types of drilling bit. This drilling bit can drill or cut any form of wood and plastic to steel and concrete.

II. CONCLUSION:-

This project is an efficient operation and competitive cost. It is efficient and economical. In 360 degree flexible drilling machine drill can be done at any desired orientation and angle without using of any kind of clamping or using different machine for drilling. This machine also reduces clamping time and increase productivity.

Advantages:-

- 360 degree rotation
- Flexible
- Easy to use
- Low cost
- Reduce time
- Increase productivity

Future scope:-

- It is used in industries
- In future it is used in every field where, drilling is required
- It will be more flexible and easy to adjust
- The complete automation can be achieve
- The portability of rotation of arm and drill can be used in

Machining operation.

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