BURR REMOVAL FROM DRILLED HOLES

MR. KAPIL HANDE[1], MR. RAHUL KAMBLE[2], MR. AJINKYA KARVE[3], MR. ANIL KOLGIRE[4]

[1] *BE, Mechanical Engineering Department , Dr. D Y Patil College Of Engineering Ambi , Pune ,India*
[2] *BE, Mechanical Engineering Department , Dr. D Y Patil College Of Engineering Ambi , Pune ,India*
[3] *BE, Mechanical Engineering Department , Dr. D Y Patil College Of Engineering Ambi , Pune ,India*
[4] *BE, Mechanical Engineering Department , Dr. D Y Patil College Of Engineering Ambi , Pune ,India*

ABSTRACT

One of the most significant problems encountered machining particularly drilling is that of burr formation at the bottom edge of the holes of workpiece. Currently there is a focus on reducing burr formation through optimization of process control parameter and reduces the time consume also reduces manpower to remove the burr from drilled holes .Suppression or elimination of burr formation at the exit fringe of the work throughout drilling is important to createquality merchandise. The burr, which is a plastically deformed material, generated during drilling is unnecessary output and often lowers the surface quality, reduces the product life and acceptability of the product.
One of the foremost considerations in deburring technology is targeted on the way to predict the dimensions and form of burrs to insure uniform removal and, if this is possible, how to style the method or product before to attenuate or management the burr size. This paper reviews a number of the analysis done over the past many years on this necessary topic. The paper includes a discussion of burrs in typical machining, method designing for burr step-down likewise as micro machining applications. Now-a-days precision manufacturing has gained it importance in all manufacturing industries.

Keyword: - *Grinding, Finishing, Deburring*

1. INTRODUCTION

Edge finishing like deburring, blending during manufacturing is important because of the following reason. Despite this requirement, even in today's most fully automated factories it is still a common sight to see dozens of worker manually chamfered parts produced by CNC machines. Edge finishing is typically performed manually using two methods- Hand held power tools with brushes, abrasive tips, or rotary files. And manual files and knives. The technique employed with these tools is not well documented and inspection of this deburred edge is not quantitatively defined, typically the worker runs the finger over the edge to inspect the work.Improving each the potency and quality of deburring may be a major concern. Deburring is labour intensive and might represent a big additionally, deburring is often a grimy, noisy, and undesirable job and high turnover in terms of personnel.Training personnel in proper deburring technique is costly and this, coupled with high turnover rate adds to the overall expense of the deburring. Variation in talent level of deburring personnel causes variation within the quality of the half. Errors encountered within the deburring operation that causes the half to be scrapped square measure expensive, as the part is near the end of its manufacturing cycle. Automatic deburring operation has been investigated for range of years as an answer to the current downside. Deburring is performed at the ultimate stage of producing, wherever components have their highest superimposed price, thus examination is absolute necessity.

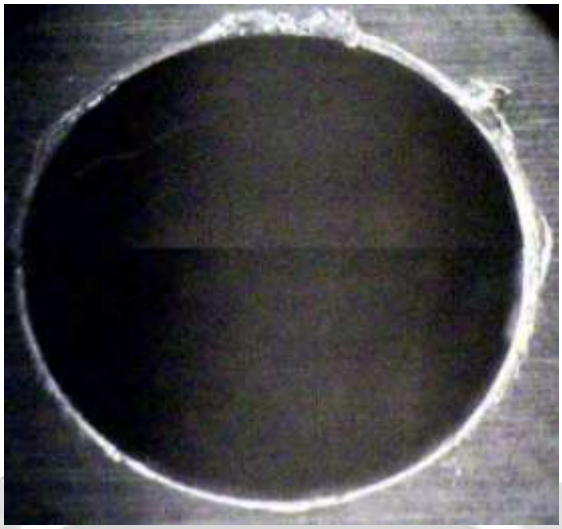

Fig.1.Burr formed by drilling on Aluminum plate

2. LITERATURE SURVEY

In paper [1] Pande and Releker carried out experimental investigation on reduction of burr formation in drilling of through-holes in metals and it was observed that the larger diameter of drill bit yields maximum burr height.

In paper [2] Stein and Dornfeld reported that in drilling of 0.91 mm hole in stainless steel, the burr height and the undeformed chip thickness ratio was constant in different level of feed rate and spindle speed.

In paper [3] they do experimental study on the burr formation in drilling of aluminum channels of rectangular section 831-2 carried out a cost estimation of drilling operation based on drilling burr control chart and Bayesian statistics.

In paper [4] Gaitonde carried out a study on the optimization of burr formation based on the cutting speed, feed, point angle and lip clearance angle.

In paper [5] Aurich carried out an extensive review on the burr formation and control. In the bird eye review of the research carried out for the period of 1965 to 2009, the authors indicated that the research findings have not yet been applied to industries. More focus to the drilling of small holes, micro products and products with high demands need must be given.

3. METHODOLOGY

The basic aim of this project is to develop for remove the burr by using special chuck type arrangement at the bottom side of the vertical drilling machine The base frame is clamp on the workpiece table and up and down movement of grinding/chamfer tool which is mount on pneumatic rotor by using hand lever. The compressor is used for providing high pressure air to give rpm to pneumatic rotor.

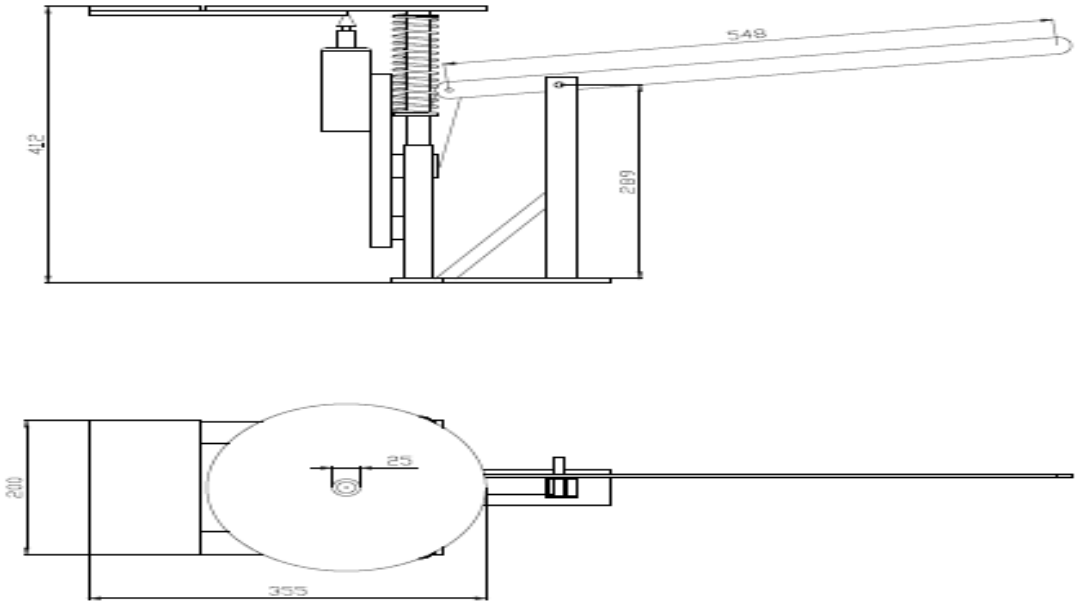

Fig.2.Burr removal set up

4. FUTURE SCOPE

Use for any conventional machining operations for deburring in future. It is most elaborative concept for manufacturing industries by considering manpower and production rate. In future also used for VMC by adding proper automation. This project is useful in manufacturing companies. We are looking this project as revolution in manufacturing industries to increase the production and save the time. This is an indirect approach, which aims at reducing the cost of deburring process without affecting the part precision. However, this technique requires a careful selection of a deburring process depending on the burr formation mechanism. The cost of deburring is decided by the dimensions of the burr.

5. CONCLUSIONS

The current study was aimed at improving capability for minimize burr formation in order to reduce post drilling deburring operations. The thickness of the channels also effect the burr formation i.e. the higher thickness channel wants additional force throughout drilling. There an optimum spindle speed exists for a selected channel thickness for burr height is lowest. The Proper clamping force can also produce better Quality hole on flat surface. To overcome this problem we are doing this project we are designing the system for removing the burr from the drilled holes at the bottom side. To reducing manpower and time consume during mass production. To reduce manpower for removing the burr from drilled hole during mass production. To perform both operations (drilling and burr removing) at a time, hence increases production and saves time.

6. REFERENCES

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[5] Aurich 2009,CIRP,AMT.vol.5 Aurich (2009) carried out an extensive review on the burr formation and control.