A REVIEW OVER SINGLE POINT CUTTING TOOL OF A LATHE MACHINE

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ABSTRACT: The Machining process is the most important manufacturing industry and is an important factor in today's modern and modern industry. The importance of the repair process is to note that almost all units used by people in everyday life are at least partly or in part. From the conceptual standpoint, using quick tools is family appearance because different materials are used in different ways to ensure the performance of the equipment. Due to this difference, and because of the launch of the template determining whether the object is to develop or launch a chip, one way to easily show that the submission is to integrate with the upgrade design. The purpose of this paper is to deliver a review of efforts linked to single-point cutting instrument and finite element exploration. The review is done to proposal insight to in what way the cutting tool behaves when it is acted upon by various loads.

Keywords-Torsion machine**, C**utting tool**,** Cutting fluid**,** PVD technologies, Independent variable, Dependent variable

I. INTRODUCTION

Machining is one of the oldest processes for shaping the components in the manufacturing industry. When machining metals and alloys peak of the energy needed to form the chips is transformed into heat. the temperature in the cutting area is an important consideration. This factor is very important for the execution of the cutting tool and the quality of the piece. The temperature in the cutting area depends on the length of the connector between the tool and the chip, the cutting force and the friction between the tool and the material on the piece. The large amount of heat generated during the process is transferred to cutting tools and workpieces. The remaining heat is eliminated with the chip. The highest temperature is produced in the flow zone. Therefore, the contact length between the instrument and the chip influences the cutting conditions, tool life and tool life. In order to improve cutting performance, the precise knowledge of temperature in the tool interface is crucial. Due to the nature of the metal cutting, it is very difficult to determine the cutting tool temperature. Various methods have been developed to measure the temperature generated in the cutting.

Some of them are calorimetry, thermocouples, infrared photography, heat-sensitive coatings and PVD technologies. It is estimated that 15% of the value of all mechanical parts in the world comes from processing operations. Despite the apparent economic and technical significance of the process model, processing remains one of the least known production activities due to the low predictability of the process model.

The evacuation of chips during the metal cutting can be done by cutting tools with different edges of cutting or abrasives used in abrasive discs, abrasives sticks, abrasives cloths and the like. A cutting tool for a point with a wedge effect on the machine and the torsion machine.

The two basic metal cutting methods that use a single point cutting tool are orthogonal or two-dimensional as well as oblique or three-dimensional. The orthogonal cut occurs when the cutting edge of the instrument is 90 ° in relation to the action line or toolbar. However, if the cutting surface makes an angle of less than 90 degrees to the path of the tool, the cutting effect is called slope.

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- Arrangement for two actuators, one is horizontal and other is vertical
- Use of arrangement on which hitch yoke is placed for assembly and worker can access it in straight comfortable position
- For achieving positional accuracy some sliding arrangement should provided so that yoke can easily placed or lift with the help of hoists and then slide at proper position for pressing
- Yoke should place on the machining surface to achieve dimensional accuracy

II. RELATED WORK

It will outline a variety of concepts have been defined in the basic research work to provide a term used in this study, the early development of packaged drinking water in this chapter. In addition, helping researchers, such an attempt to collect relevant information, is the subject of interpretation of the statistical analysis to compare the results of previous studies and results. In addition, it has been attempted to identify relevant concepts and consider previous studies related to the study.

Al-Habaibeh and Gindy [1] They found that during processing, vibration is a common problem affecting processability, especially surface and tool life. Due to the dynamic motion between the tool and the object, severe vibrations can occur in the processing environment. In all cutting operations such as turning, boring, and milling, vibrations are caused due to deformation of parts, machine structures, and cutting tools. A new system approach, ASPS, was also introduced to optimize the state control system. The system uses O as a method to minimize the required experimental work and to perform a good evaluation of the designed monitoring system. The average additivity of the proposed system and the ability of the subsequently propagated neural network to recognize patterns and diffuse logic classifiers.

Ahmed SyedAdnan and Sathyan Subbiah [2] observed a decrease in shear and input forces when transverse vibrations were applied. When vibration is applied, the thickness of the chip is also reduced and the surface is improved. This study examines the vibration applied along the cutting direction and the vibration perpendicular to the cutting speed. This activity is expected to provide a slight cutting action to improve the ductile fracture that occurs before the cutting tool separates the chip from the bulk job.

S. S. Abuthakeeret al.[4] They use a neoprene cleaning pad to handle the vibration of the cutting tool and the control of the vibration of the cutting tool. Experiments were performed on CNC lathes where tool support is compatible and incompatible with tampon. The vibration signal of

the cutting tool is collected by a data collection system compatible with the LabView software. In order to improve the buoyancy and reliability of the experiment, the experimental design used all the factors. Experimental studies and data analysis were conducted to verify the proposed attenuation system. On-line testing shows that the proposed system is less and less vibrating in cutting tools. Vibration analysis is performed without any attenuation under actual operating conditions.

III. INDEPENDENT INPUT VARIABLES

It is predetermined or well-known chemical chemistry and chemistry. Often, materials are used for specific applications, especially because they are good. For example, iron and aluminum. It's easy to know the machine. Additional metals, such as stainless steel or titanium, are problematic to implement. They tend to have high shear strength or poor surface finish, which can lead to shorter life, but these metals are designated to meet extra functional design criteria.

The size and shape of the tool can be determined by controlling, creating, installing, and so on. In general, the simple design of this selected process or process, the deep cut. The controlled operating system needed to change the content of the web site to specified products depends on the size and size of the image, rotation or modification, and the required skill. The three most widely used materials for cutting tools currently used in production operations are HSS, forging and powder metallurgy, and carbide and coated tools. Also used for large scale vermiculite, ceramic and cubic diamonds. The choice of tool materials to provide reliable services while meeting functional requirements remains an art. The harder the tool, The better the support for cutting is higher. The faster the cutting speed is, the advanced the cutting temperature and the less the tool life. Hardness at high temperatures and tool life are ideal for cutting tools. For each operation, select the cutting speed, power supply and cutting depth. There are many factors that influence these decisions because it affects all dependent variables. The correct choice of variables also be contingent on the extra selected input variables, that is, the entire amount of material to be eliminated.

The workpiece and material of the tool and the machining process or process. These must be selected before the initial selection of speed, channel and depth. Cutting tools are typically designed to perform specific operations, so the geometry of the tool is selected to perform specific machining functions. In general, larger cracks and separation angles are preferred, but they can only be used with HS tools. Tools used for hard alloys, ceramics, and additional very hard materials should have a small tool angle to keep the tool in compression during machining to prevent any traction and brittle fracture on the tool. The higher the precision required for this process, the better the road surface geometry must be.

Choosing a cutting fluid suitable for a specific combination of working materials and tool materials may mean the difference between the success and failure of almost all production processes. Cutting fluid is used to cool chips, tools and chips, reduce friction through lubrication, remove chips from the cutting area to improve the surface and give the part surface protection.

IV. DEPENDENT VARIABLES

The process determined by the variable is based on the previously selected entry or the independent variable. Therefore, control over production engineers is typically indirect. The

significant dependent variables are power and power saving, end product dimensions and performance, surface finish and tool wear and error.

With certain lubricants, cutting materials and geometries, at a certain speed, power supply and cutting depth, machining of metal cutting forces can generate and consume energy. A Changes in one of the variables will change the size of the strength, but this change does not matter because the engineer does not show strength and only the strengths of this strength are presenting. These forces are important as they affect the exchange of equipment, parts, and workers as well as the impact of the upper part. These forces play an important role in events and Christians and what happens during work. In other words, the purpose of the project is to meet the required requirements and the list of tools made of the desired materials. Since the use of it is a deterioration mechanism for domestic plastics, any clean type will be worried, that is, worry. These challenges are also related to stress and they can interact with the harmful effects of the body, causing a lack of fatigue or causing damage. Additionally, each system has a different system of configuration that differs from almost all the changes in the entry. Therefore, engineers have to select appropriate steps to make changes to the production of compatible products and tips and have good features.
The finished surface on the machined surface is the geometry of the tool, tool material, piece material, machining process, speed, feeding, cutting depth and function of liquid of the cut fluid.
Medicinal systems are associated with changes in the process. The sweet system has more and more cleaner changes. Usually there is a need to determine area requirements, such as fixing and ending to get the full limit, or you may need to submit the steps. After rotating with the cylindrical tape, the desired building is completed.

The lack of plastic and baking in the machine can generate a lot of heat, create a working temperature and reduce the resistance. The problem is tactical, but it is important. All sizes and sizes are changed by installing the tool. Damage and rotating paths in calculations can lead to increased zone intensity, which increases activity and can lead to interruptions. Low energy consumption will cause more heat during use, which will improve the damage. The device changes the size of the function. In addition, the project can only control these variables.

V. EXPERIMENTAL SETUP

The bar for the lathe tool has been eliminated and the energy meter has been installed. Then fit the cutting tool on the dynamometer. Then use the probe to connect the dynamometer to the digital indicator. The force, the force and the radial force are recorded at different speeds of cutting, feeding and depth of the track. Tool post of the lathe is removed and the dynamometer is mounted. The cutting tool is then mounted on the dynamometer. Dynamometer is then connected to the digital indicator by using probes. The above experimentation is carried when the mild steel work piece is machined at different cutting speed and maintaining constant feed rate 0.18 mm/rev then depth of cut 0.5 mm. It is observed that, as the cutting speed increases the temperature of tool increases up to certain speed and then approximately remains constant. But the temperature of chip and work piece increases as cutting speed increases.
Important results found in ansys solution as shown in table 1 and figure 1.

Table 1: Ansys Solution

Tools Material Used:	**HSS (High Speed Steel)**
Density:	7972 Kg/M3
E=	3400 Mpa
v=	0.3
Fs=	**2000n**
Fc=	**5000n**

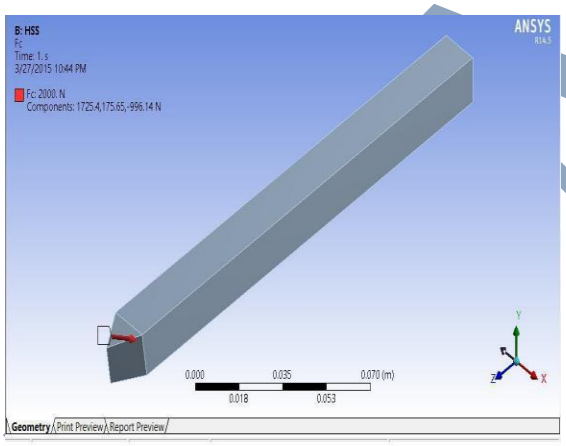

Figure 1:- Anysys Solution

VI. CONCLUSION

In the paper the performance of coated tools in machining hardening steel under dry conditions is studied. The results shows that the Tin coated tool perform better as compared to uncoated cutting tool. The effect of cutting is to reduce wear and tear of tool tip point as well as more heat dissipation to surrounding hence the increase in tool life and surface polish of the product to be machine. With increase in depth of cut the surface roughness is increased.

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