

DUAL RAM SHAPING MACHINE

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ABSTRACT

A shaping machine (usually called shaper) is mainly used for producing flat surfaces, which may be horizontal, vertical or inclined. Sometimes irregular or curved surfaces are also produced by shapers. In this project while first Ram moves forward direction, second ram will move in opposite direction to that of the first one simultaneously. when first ram moves forward direction material will be removed from the work piece, at the same time Material will not remove while second ram move reverse direction, this dual ram shaping machines the stroke length can be varied depends upon the changing the distance between centre of the bull gear and pivot pin. It means the pivot pin will move away or towards the centre of the bull gear. The both slots can be used to move horizontally. It makes us easy to change the bull gear position. When the bull gear is move Upwards the pivot pin, stroke length can be increased or vice versa. This dual ram shaper used to make or produce the two slots at one operation and also reduce the operation time.

Key words: *Dual Ram, Pivot pin, bull gear.*

1. INTRODUCTION

Producing a flat or plane surface which may be in a horizontal, a vertical or an angular plane. Making slots, grooves and keyways. Producing contour of concave/convex or a combination of these Shaper machine is used for generating flat surfaces. Single Point Tool reciprocates on the job. Job is fed across the tool. Tool is moved downward after completion of cross feed. The length of stroke and position of stroke can be changed. A shaping machine is used to machine surfaces. It can cut curves, angles and many other shapes. It is a popular machine in a workshop because its movement is very simple although it can produce a variety of work. Shaping machines come in a range of sizes but the most common size is seen below.



Fig.1 Dual Ram Shaper

The tool feed handle can be turned to slowly feed the cutting tool into the material as the 'ram' moves forwards and backwards. The strong machine vice holds the material securely. A small vice would not be suitable as the work could quite easily be pulled out of position and be damaged. The vice rests on a steel table which can be adjusted so that it can be moved up

and down and then locked in position. Pulling back on the clutch handle starts the 'ram' moving forwards and backwards.

2. LITERATURE REVIEW

R. K. Tyagi, M.Verma, and Sukanya Borah, JECET; September-November, 2012; Vol.1.No.3, 372-380. Dynamic analysis of shaper machine mechanism by software is one of the prominent techniques for force, torque, velocity, acceleration with a variety of time vital for industrial applications i.e failure and life analysis. In this article, stab has been made to assess dynamic analysis for shaper machine components and cutting tool which would work on the principle of quick return mechanism, and suitable for a wide range of materials for metal cutting. Statistical exploration with the help of MSC ADAM software on machine components is systemically investigated by means of time variation.

Drain Hroncová, Ingrid Delyová, Peter Frankovský, Anna Puzderová This paper considers the problem of dynamic analysis of a shaping machine mechanism. Mathematical model for the mechanism was compiled and computer simulation was done in the program MSC Adams/View. The results of the computer simulation are kinematical parameters of individual members of the mechanism.

M. Anil Prakash, Nalla Japhia Sudarsan, K. Pavan Kumar and K.Ch.Sekhar, ional Monthly Refereed Journal of Research In

Management & Technology ISSN –2320-0073 Volume II, July'13. A shaping machine (usually called shaper) is mainly used for producing flat surfaces, which may be horizontal, vertical or inclined. Sometimes irregular or curved surfaces are also produced by shapers. In existing shaping machines the stroke length can be varied depends upon the changing the distance between centre of the bull gear and pivot pin. It means the pivot pin will move away or towards the centre of the bull gear. In advanced shaping machine the vertical slots are provide on one side of the shaping machine. The slots can be used to move vertically (either upwards or downwards) the bull gear position. It makes us easy to change the bull gear position, it means centre of the bull gear position can be moved away or towards the pivot pin. When the bull gear is move downwards or towards the pivot pin, stroke length can be increased or vice versa. In advanced shaping machine the stroke length can be varied in two types, one is to change the distance between centre of the bull gear and crank pin and another is to change the vertical distance between centre of the bull gear and pivot pin. So in an advanced shaping machine, without changing the diameter of the bull gear and height of shaping machine, we can increase the stroke length greatly.

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Volume II, July'13 .we can consider the figure “B” shows the existing shaping machine values and figures “A” and “C” shows the advanced shaping machine values. In existing shaping machine: Minimum stroke length is 55.49 mm Maximum stroke length is 143.96 mm In advanced shaping machine: Minimum stroke length is 51.42 mm Maximum stroke length is 170 mm .In “Advanced shaping machine”, if the bull gear can be moved vertically (up and down) with the help of screw jacks. So in this shaping machine the bull gear can be moved upwards or away from the pivot pin, we can cut the smaller materials as compared to existing shaping machine and if the bull gear can moved downwards or towards the pivot pin, we can cut the longer materials as compared to existing shaping machine. So in advanced shaping machine we can able to cut minimum and maximum length of work pieces as compared to existing shaping machine.

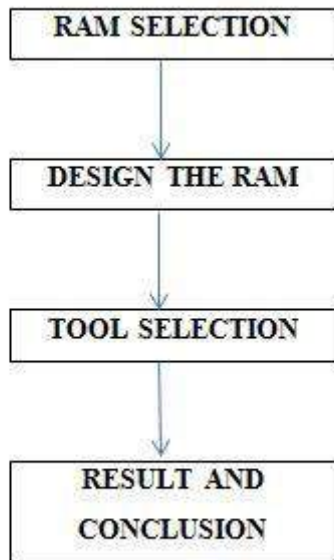
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International Journal of Innovative Research in Science, Engineering and Technology (An ISO 3297: 2007 Certified Organization) Vol. 4, Issue 10, October 2015 Copyright to IJRSET DOI:10.15680/IJRSET.2015.04100109 557. A special type of a tool is designed and made to have two cutting points for turning long workpieces and it may be termed as the double point cutting tool. The double point cutting tool has two cutting points which has the height difference of 0.5 mm and the distance between

them is 6 mm. So that when the first cutting point takes 0.5 mm depth of cut and next to that the second cutting point also takes 0.5 mm depth of cut as the tool proceeds for turning. Hence the total machining time is reduced considerably. Investigation on main cutting force during turning of Mild Steel bar by using HSS Double Point Cutting Tool for different cutting conditions is presented in this Research article. Double point cutting tool, main cutting force, cutting conditions.

Jadhav J.S. Avdi Slight(13) et al.
International Journal of Innovative Research in Science, Engineering and Technology (Engineers' work is to improve the existing system by way of Research. Here this work is an innovative one to reduce the total machining time for turning long workpiece. Steps : 1. Design and make an innovative tool for turning long workpiece i.e., Double point cutting tool. 2. Decide the cutting parameters such as speed, feed and depth of cut during turning. 3. Concentrate on the parameter to be investigated i.e., the main cutting force. 4. Choose the right instrument for conducting the experiment i.e., The Kistler type 9257B Piezo-electric Dynamometer. 5. Analyse experiment results and conclude the investigated data. IV . MATERIALS AND METHOD Mild Steel Rod of 50 mm diameter and 300 mm long is used as Work piece for turning. HSS Double Point Cutting tool which has two cutting points of the height difference of 0.5 mm and the distance between them is 6 mm is used as Cutting tool for

turning. The purchased HSS tool bit has been ground to the required tool geometry by using Tool and Cutter grinding machine. Time between used for carrying out the simplest mechanical tasks in more recent times has played a more important role in the development of pneumatic technology for automation. Pneumatic systems operate on a supply of compressed air which must be made available in sufficient quantity and at a pressure to suit the capacity of the system.

3. METHODOLOGY



4. CONCLUSION

A shaping machine (usually called shaper) is mainly used for producing flat surfaces, which may be horizontal, vertical or inclined. Sometimes irregular or curved surfaces are also produced by shapers. In this project while first Ram moves forward direction, second ram will

move in opposite direction to that of the first one simultaneously. when first ram moves forward direction material will be removed from the work piece, at the same time Material will not remove while second ram move reverse direction, this dual ram shaping machines the stroke length can be varied depends upon the changing the distance between center of the bull gear and pivot pin. It means the pivot pin will move away or towards the center of the bull gear. The both slots can be used to move horizontally. It makes us easy to change the bull gear position. When the bull gear is move Upwards the pivot pin, stroke length can be increased or vice versa. This dual ram shaper used to make or produce the two slots at one operation and also used to reduce the operation time.

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