



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJIRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 5, May 2023

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 8.423

9940 572 462

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# Portable Pipe Chamfering Machine

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**ABSTRACT:** Generally, for welding operations in maintenance and manufacturing we use chamfering machines but still we are using manually operated chamfering machines and for every operation we must do all the setups by human interference. This manual interference is more time consuming and have more chances of physical injuries to the human working nearby to it. The main aim of this project to study all the possible solutions for converting manual operated chamfering machines to portable chamfering machine, increase productivity of them and reduces human interference while operating of the machines. In this project various previously used method of operation of chamfering machine are discussed. find out one new method that will helpful for the operation of chamfering machine by using portable systems. In this project we are going to manufacture the portable chamfering machine which can go in variable pipe diameter, the project will consist of mainly two parts, first part is the mounting of machine which will be spring loaded and should be able to set itself in variable pipe diameter and second part is mounting and developing the rotating mechanism for surface grinder so that chamfering in various angle should be possible.

**KEYWORDS:** chamfering, productivity, assembly, conventional, portable, grinding

## I. INTRODUCTION

The industrialization is moving towards automation and in this era of automation where it is broadly defined as replacement of manual effort by mechanical power in all applications of manufacturing. Chamfering is one of the major operations in manufacturing of pipes. In manufacturing industry there are many small scale and medium scale industries are there who performs this operation and as per the requirement or customer. For many industrial applications round pipe welding is required to be chamfered using different machines. This operation for mass production consumes time and manpower of the industry. To reduce the time consumption and energy consumption of worker we have designed and developed round pipe chamfer machine.

## II. BACKGROUND

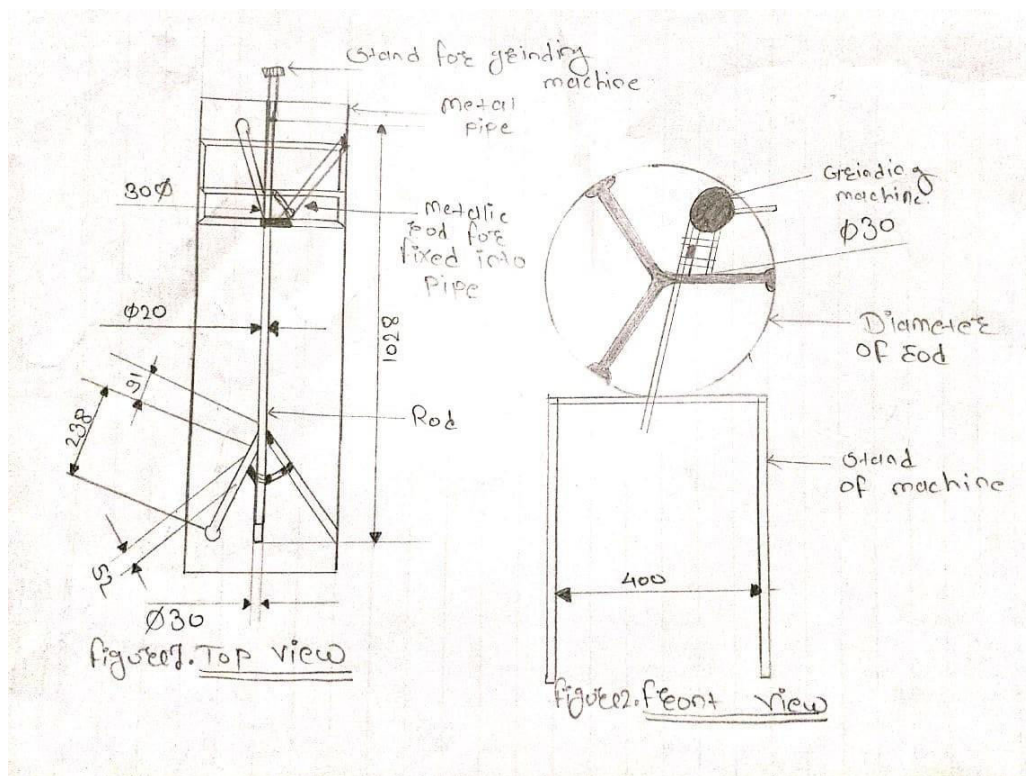
Modern day manufacturing is a demanding environment with a constant need for process improvement. As automation becomes more advanced, there are fewer jobs that must be completed by a human. The workforce is highly skilled, so replacing mundane tasks with automation allow the skilled workers to focus on the difficult jobs. One such task is grinding a chamfer onto every leading edge of different diameter pipe. The purpose of this project was to design an automatic chamfer grinding system. To ensure maximum design potential, an entire semester was spent planning and designing the system. This has carried over into the current semester, and a number of techniques are being used, the largest of which is 3D computer aided design using Solid works. Once a design is finalized, and company approval obtained, the building process will begin. Concurrent with assembly will be component testing, to confirm that the chosen components will perform as required. By the completion of this semester, a finished device will be given to Company to be put into their everyday operations.

## III. METHODOLOGY

The machine which we are making will be suitable for the pipe range from 300mm to 600mm diameter, further the size of pipe diameter can be increased by using extra attachment in the machine link legs. The main part of machine is the central shaft which can be rotated by using handle given on the one end of the machine. When the main shaft is rotated the linkage mechanism will be tightly fitted inside pipe by using screw mechanism as the middle pipe is rotated the leg of machine will go out word and will apply the pressure inside pipe and machine will get fixed inside pipe. When the

machine is rigidly fixed inside pipe, on the handle side onemore mechanism is installed on which grinder can be fitted. The surface grinder will apply theforce by using spring mechanism the grinder can be tilted at various angle required for chamfering operation.

#### IV. CONSTRUCTION DIAGRAM



#### V. WORKING

The operator just needs to lift the machine by hand and put inside the pipe after putting machine inside pipe operator will rotate the handle and machine will be rigidly fitted inside pipe, after fitting the machine the spring pressure will be applied on grinder wheel and grinding operation can be done once the surface of pipe is uniformly. The grinder will be tilted on various angle so that chamfering at different angle can be achieved when the chamfering is successfully done the operator will lose the main shaft and take out the complete assembly from the pipe and welding will be done on the pipe edges.

#### VI. RESULT

From this project the result obtained as portable chamfering machine chamfer the rod of 28 mm or up to any required diameter of rod get chamfered by this machine.

This machine is portable so it can be used at any workplace such as on industrial sites, in production industries, welding workshops. To reduce the time consumption and energy consumption of worker designed and developed round pipe chamfer machine.



## VII. CONCLUSION

In conclusion the portable pipe chamfering machine developed in this project has demonstrate the feasibility of using different operation or mechanism to accurately working of machine. This machine can chamfer pipes with high accuracy and it is suitable for wide range of applications.

This Project model conclude that the operations performing on this machine will overcome the disadvantage of conventional machine and will provide us high-rate manufacturing with less time consumption and less consumption of manpower. After completion of document for this same it is concluded that manufacturing of the machine will be done for various pipe diameter and can be successfully used in many constructions site repairing work and pipe manufacturing industries.

Various construction projects required longest pipelines than usual in this much cutting and welding operation will be done that application need more portable equipment's for easy and economical purpose that time the ratings of our machine will be increase and effectiveness of our machine is more than conventional lathe machine for chamfering.

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Impact Factor: 8.423



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