We had attached the Internship/project certificate as per requirements of NAAC- DVV.

List of students are given below: -

S.N	NAME OF STUDENTS	INTERNSHIP/PROJECT
1	AKASH KUMAR (CSE 8TH SEM)	VOCATIONAL TRAINING CERTIFICATE
2	AKASH KUMAR (EEE 8TH SEM.)	PROJECT COMPLETION CERTIFICATE
3	AKASH KUMAR (MBA)	INTERNSHIP CERTIFICATE
4	ALTAF AHMED (CSE 6TH SEM)	VOCATIONAL TRAINING CERTIFICATE
5	RAJA MODAK (ME 8TH SEM)	PROJECT COMPLETION CERTIFICATE
6	MRITYUNJAY KUMAR (ME 8TH SEM)	PROJECT COMPLETION CERTIFICATE
7	WASIM AKRAM (CIVIL 8TH SEM)	PROJECT COMPLETION CERTIFICATE

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

Date of Achievement: 2023-07-03

INDUSTRIAL INTERNSHIP CERTIFICATE

ARDENT COMPUTECH PVT. LTD.
High-End Technology Training and Project

This certificate is awarded to

AKASH KUMAR

of

GURU GOVIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS BOKARO

for successfully completing the Industrial Internship on

DATA SCIENCE ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING USING PYTHON

from 17/Feb/2023 to 03/Jul/2023

and implementing the project titled

SIGN LANGUAGE DETECTION

Ardent Computech Pvt. Ltd. Verified

GURU GOVIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS * Kandra Chas Bokaro *

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

Microsoft Technology Associate

UDYOG AADHAR MSME

N·E·A·T National Educational Alliance for Technology

Director
Technology Services

Director
Operations

"AUTOMATIC GAS LEAKAGE DETECTION SYSTEM"

A project synopsis in partial fulfilment of the requirements for the degree of

Bachelor of Technology

IN

Electrical and Electronics Engineering

BY

Name	Univ.RollNO
ABHISHEK GUPTA	19031470001
AKASH KUMAR	19031470002
KRISHNA KUMAR	19031470005
MD. SAIFAKHTAR	19031470007
NIKHIL SAWAN	19031470008

2019-2023

G.G.S.E.S.T.C, BOKARO JHARKHAND

Under the Guidance of

Prof. **MISS JAYANTI,** Dept of **EEE**

G.G.S.E.S.T.C,KANDRA (V), CHAS, BOKARO

JHARKHAND UNIVERSITY OF TECHNOLOGY

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

GURU GOBIND SINGH EDUCATIONAL SOCIETY'S TECHNICALCAMPUS

BOKARO, JHARKHAND

Affiliated to JUT, Ranchi, Jharkhand, Approved by AICTE & MOE, New Delhi

CERTIFICATE

This is certificate that the Project entitled "**AUTOMATIC GAS LEAKAGE DETECTION SYSTEM USING ARDUNIO**" Submitted to Guru Govind Singh Educational Society's Technical Campus Kandra, Jharkhand in the Department of Electrical and Electronics Engineering by **ABHISHEK GUPTA (19031470001), AKASH KUMAR(19031470002), KRISHNA KUMAR(19031470005), MD. SAIF (19031470007), NIKHIL SAWAN (19031470008)** in partial fulfilment of the requirement for **B. Tech 8th semester** for the award of the **Degree of Bachelor of Technology (B. Tech)** in Electrical **and Electronics Engineering** under the **Jharkhand University of Technology**, Ranchi

Prof. MISS JAYANTI
Project Guide
GGSESTC Bokaro

5/5/23

Prof. Uttam Kumar Das
Head of department (EEE)
GGSESTC Bokaro

6/5/23

External
EXAMINER

6/5/2023

Dr. Priyadarshi
Jaruhar Director

GGSESTC Kandra, Chas, Bokaro

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

AmitRealty

07/05/2023

To who so ever it may concern:

This is to be certified that Mr. Akash Kumar (3rd Semester) of Guru Gobind Singh Educational Society Technical Campus, C/o Ashok Kumar Sector-9D, Street-36, Qtr: 673 has completed Successfully 45 days summer internship project in Retail marketing form 24/03/2023 To 11/05/2023 from The Bokaro Mall, Sec 3c Bokaro Steel City, Pin: 827009.

Wishing you a successful future endeavour.

Regards,
Sandeep Mukherjee
Manager Operations
The Bokaro Mall

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

Amit Realty Pvt. Ltd.
20/1, Ashutosh Chowdhury Avenue, 1st Floor, Kolkata- 700 019. Tel: +91 33 4010 4010 Fax: + 91 33 4010 4020

PHN
Technology Pvt. Ltd.

Date: 2023-06-13

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **ALTAF AHMED (Intern ID- 105097)** has successfully completed the Internship in **Machine Learning & Data Science with Python** presented by **PHN Technology Pvt Ltd, Pune.**

This program was designed to provide valuable hands-on experience and practical knowledge in **Machine Learning & Data Science with Python**. Through active participation and dedication, he/she has demonstrated exceptional skills, commitment, and a strong work ethic.

During the internship, he/she actively contributed to **Machine Learning & Data Science with Python** and exhibited professionalism, adaptability, and a willingness to learn. Their enthusiasm and positive attitude have made a significant impact on the overall success of the program.

We extend our sincere appreciation to **ALTAF AHMED** for their valuable contributions and dedication throughout the duration of the virtual internship program.

Internship tenure was from **06/04/2023** to **06/06/2023.**

PNarayankar

Pradip Narayankar
Director
PHN Technology Pvt. Ltd.

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

PHN Technology Pvt Ltd Pune

Document ID- PHN_20230613578

Solitaire Business Hub E wing 5010,
Near Pheonix Mall, Viman Nagar,
Pune, Maharashtra, 411014.

1800 209 2288

www.phntechnology.com

FABRICATION & DESIGN OF PNEUMATIC SHEET METAL SHEARING MACHINE

A Thesis Submitted In Partial Fulfilment Of The Requirement For The Degree Of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

GGSESTC

SUBMITTED BY

SUMANT KUMAR	-	19031495017
RAJA MODAK	-	19031495011
RITESH SINGH	-	19031495013

UNDER THE GUIDENCE OF

MR. TEJ BAHADUR SINGH

(ASST. PROFESSOR)

DEPARTMENT OF MECHANICAL ENGINEERING

GURU GOBIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS

(JHARKHAND UNIVERSITY OF TECHNOLOGY, RANCHI)

(2019 – 2023)

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

CERTIFICATE OF APPROVAL

This is to certify that the Project entitled "Pneumatic Sheet Metal Shearing Machine" submitted to Guru Gobind Singh Education Society's Technical Campus Kandra Jharkhand in the Department of Mechanical Engineering by

RITESH SINGH	-	19031495013
RAJA MODAK	-	19031495011
SUMANT KUMAR	-	19031495017

win partial fulfilment of the requirement for B.Tech 8th semester for the award of the Degree of Bachelor of Technology (B. Tech) in Mechanical Engineering under the Jharkhand University of Technology, Ranchi.

Signature of the Guide
Prof. Tej Bahadur Singh

Signature of HOD
Prof. Kumar Ashish

Signature
External Examiner

Dr. Priyadarshi Jaruhar
Director, GGSESSTC

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

BUILDING A 3D PRINTER: MOTORS AND CONTROLS

A Thesis Submitted in Partial Fulfilment Of The Requirement For The Degree Of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

GGSESTC

SUBMITTED BY

RAHUL YADAV	-	19031490006
ROHIT KUMAR	-	19031490008
MRITUNJAY KUMAR	-	19031495008
RAHUL HEMBROM	-	19031495010

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CERTIFICATE OF APPROVAL

This is to certify that the Project entitled BUILDING A 3D PRINTER: MOTORS AND CONTROLS submitted to Guru Gobind Singh Education Society's Technical Campus Kandra Jharkhand in the Department of Mechanical Engineering by

RAHUL YADAV	-	19031490006
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MRITUNJAY KUMAR	-	19031495008
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in partial fulfilment of the requirement for B.Tech 8th semester for the award of the Degree of Bachelor of Technology (B. Tech) in Mechanical Engineering under the Jharkhand University of Technology, Ranchi.

Signature of the Guide
Prof. Mahmood Alam

Signature of HOD
Prof. Kumar Ashish

Signature
External Examiner

6/5/2023
Dr. Priyadarshi Jaruhar
Director, GGSESSTC

DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

STUDY OF STABILIZED MUD BLOCK AS AN ALTERNATIVE BUILDING MATERIAL

GURU GOBIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS
BOKARO JHARKHAND

Submitted in partial fulfilment of the requirement for the award of Degree of Bachelor of Technology in Civil Engineering

BY: FINAL YEAR (2019-2023) BATCH

Under the guidance of

PROFESSOR SIDLAL HEMBRAM

Submitted by:

NAME	UNIVERSITY ROLL
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ROSHAN RAJA	19031430010
MANISH KUMAR	19031435009
MD DANISH KOSAR	19031430005
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DIRECTOR
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GURU GOBIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS
KANDRA, CHAS , BOKARO

Affiliated to JUT, Ranchi, Jharkhand, Approved by AICTE & MOE, New Delhi

CERTIFICATE

This is to certify that the Project entitled "STUDY OF STABILIZED MUD BLOCK AS AN ALTERNATIVE BUILDING MATERIAL" Submitted to Guru Gobind Singh Educational Society's Technical Campus Kandra Chas Bokaro (Jharkhand) in the department of Civil Engineering by WASIM AKRAM, ROSHAN RAJA, MANISH KUMAR, MD DANISH KOSAR, SHARIB ANWAR in the partial fulfilment of the requirement for B.TECH 8TH Semester for the award of the Degree of Bachelor of Technology (B.TECH) in Guru Gobind Singh Educational Society's Technical Campus under the Jharkhand University Of Technology, Ranchi.

6/5/23

Signature of the Guide

Prop. Sidhlal Hembram

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Dr. Rajendra Prasad Verma

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6-5-23

Signature

External Examiner

Dr. Priyadarshi Jaruhar

Director of GGSESTC Bokaro

DIRECTOR

GGSESTC, Kandra, Chas

Bokaro, Jharkhand-827013

FABRICATION & DESIGN OF PNEUMATIC SHEET METAL SHEARING MACHINE

A Thesis Submitted In Partial Fulfilment Of The Requirement For The Degree Of

BACHELOR OF TECHNOLOGY

IN

MECHANICAL ENGINEERING

GGSESTC

SUBMITTED BY

SUMANT KUMAR	-	**19031495017**
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DEPARTMENT OF MECHANICAL ENGINEERING

GURU GOBIND SINGH EDUCATIONAL SOCIETY'S TECHNICAL CAMPUS

(JHARKHAND UNIVERSITY OF TECHNOLOGY, RANCHI)

(2019 – 2023)

DECLARATION OF CANDIDATE

We declare that this written submission represent our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that, we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/ data/ fact/ source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

SUMANT KUMAR	-	**19031495017**
RAJA MODAK	-	**19031495011**
RITESH SINGH	-	**19031495013**

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Bokaro, Jharkhand-827013

MR. TEJ BAHADUR SINGH
(ASST. PROFESSOR)
DEPARTMENT OF MECHANICAL
GGSESTC KANDRA, BOKARO

.....
(Signature)

MR. KUMAR ASHISH
(ASST. PROFESSOR)
H.O.D OF MECHANICAL
GGSESTC KANDRA, BOKARO

.....
(Signature)

CERTIFICATE OF APPROVAL

This is to certify that the Project entitled "Pneumatic Sheet Metal Shearing Machine" submitted to Guru Gobind Singh Education Society's Technical Campus Kandra Jharkhand in the Department of Mechanical Engineering by

RITESH SINGH	-	19031495013
RAJA MODAK	-	19031495011
SUMANT KUMAR	-	19031495017

win partial fulfilment of the requirement for B.Tech 8th semester for the award of the Degree of Bachelor of Technology (B. Tech) in Mechanical Engineering under the Jharkhand University of Technology, Ranchi.

Signature of the Guide
Prof. Tej Bahadur Singh.

Signature of HOD
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Signature
External Examiner

Dr. Priyadarshi Jaruhar
Director, GGSESSTC

DIRECTOR
GGSESSTC, Kandra, Chas
Bokaro, Jharkhand-827013

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to our project Supervisor **Prof. Tez Bahadur** who equipped us with his novel ideas and help us to complete this project entitle. We are highly grateful to him for being incredibly supportive towards the **"PNEUMATIC SHEET METAL SHEARING MACHINE"** project guidance and patience is really acknowledging.

We are greatly indebted to H.O.D. of Mechanical Engineering, **Prof. Kumar Ashish** for providing valuable guidance at every Stage of this Project work. We are thankful to our Dean Academic and Administration Dr. Rajendra Prasad Verma for academic support and learning in present trend. We are thankful to our Hon'ble Director Prof. (Dr.) Priyadarshi Jaruhar for providing necessary support, environment, necessary guidance and crucial assistance at our Dream Project work.

Its has been great honor and privilege to doing B. Tech degree under Jharkhand University of Technology, Ranchi.

We also like to express our gratitude to entire faculty, lab staff & Librarian for continuous support and help to complete this project.

We would like to express our deep sincere and earnest thanks giving to our dear parents for their moral support and heartfelt cooperation in doing the project.

Many people, especially our classmates and team members itself, have made valuable comment suggestions on this proposal which gave us an inspiration to improve our project. We thank all people for their help directly and indirectly to complete our project.

RITESH SINGH - **19031495013**

RAJA MODAK - **19031495011**

SUMANT KUMAR - **19031495017**

(2019-2023)

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CONTENTS

1. INTRODUCTION

The formation of any business begins with someone producing the initial idea for the project. The continued success of an established business depends upon the number and quality of the ideas fed into it. Without a continual flow of new ideas, a business cannot function profitably or expand successfully and must, therefore eventually fade into total obscurity. Ideas for a new business project, a new product, a means of reducing manufacturing costs or for solving industrial labour problems, begin in the human mind. Most people conceive their ideas unconsciously, and because they are unaware of the mental mechanics that caused the 'idea' to be produced, they cannot repeat the ideation process to produce further profitable ideas at will. Fortunately, there are available established creative techniques which, when used correctly, do enable a person to produce a large number of first-class ideas at will. One such creative technique, and probably the most widely used in American industry, is 'brainstorming'.

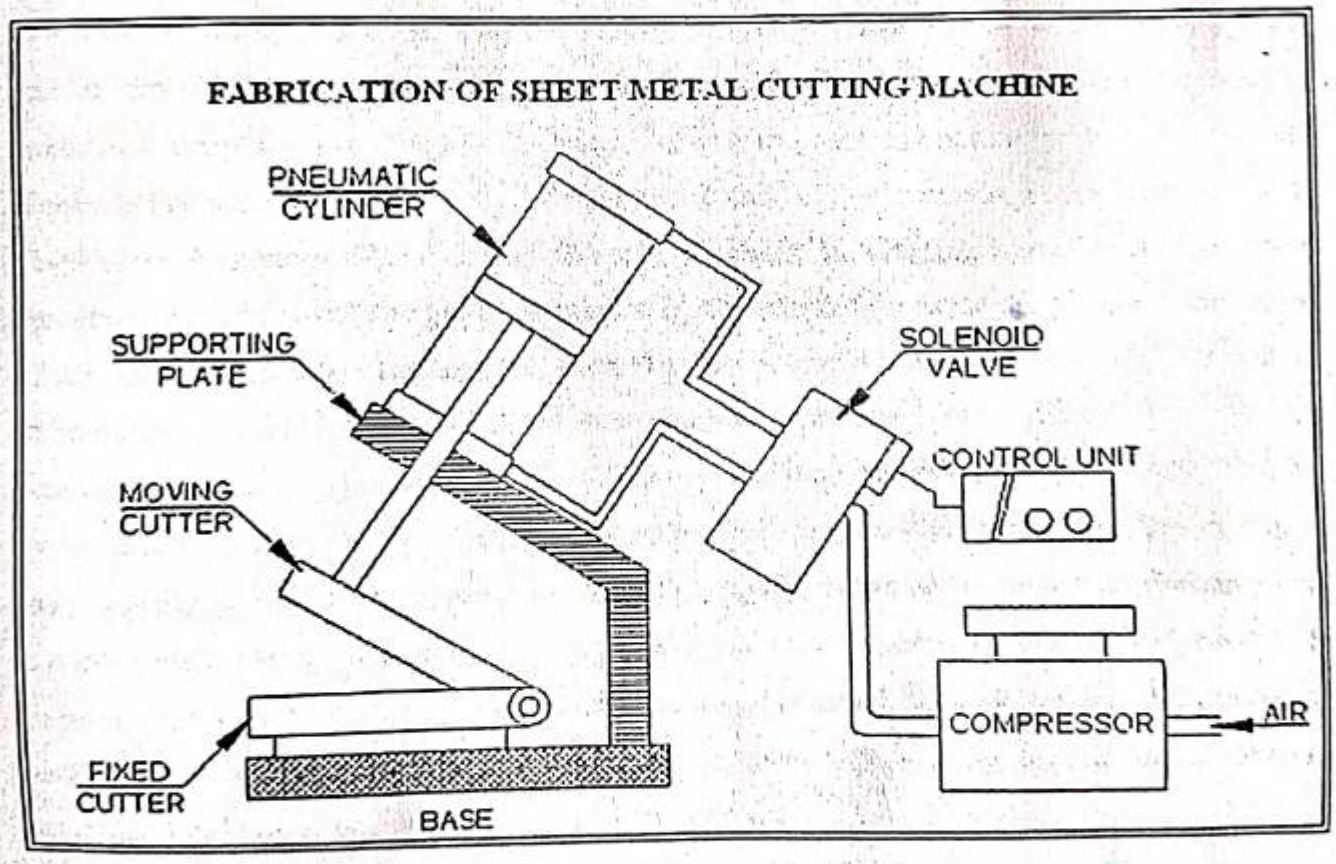

Figure: Concept Image for Project

Sheet metal is simply a metal formed into thin and flat pieces . It is one of the fundamental forms used in metal working and can be cut and bent into a variety of different shapes. Countless everyday objects are constructed of the material. Thicknesses can vary significantly, although extremely thin thicknesses are considered foil or leaf, and pieces thicker than 6 mm (0.25 in) are considered plate. Sheet metal is available in flat pieces or as a coiled strip. The coils are formed by running a continuous sheet of metal through a roll slitter. The thickness of the sheet metal is called its gauge. Commonly used steel sheet metal ranges from 30 gauge to about 8 gauge. The larger the gauge number, the thinner the metal. Gauge is measured in ferrous (iron based) metals while nonferrous metals such as aluminium or copper are designated differently;

i.e., Copper is measured in thickness by ounce. There are many different metals that can be made into sheet metal, such as aluminium , brass, copper, steel, tin, nickel and titanium. For decorative uses, important sheet metals include silver, gold and platinum (platinum sheet metal is also utilized as a catalyst). Sheet metal also has applications in car bodies, airplane wings, medical tables, roofs for buildings.

The shearing machine and bending machine is most important in sheet metal industry. This machine should be used for straight cutting machine with wide application. But in some industry hand sheet cutter and hand bender are used. For that machine to operate the human effort are required. The machine should be simple to operate and easy to maintain, hence we tried out to develop the Pneumatic Shearing and Bending Machine. In shearing operation as the punch descends upon the metal, the pressure exerted by the punch first cause the plastic deformation of the metal. Since the clearance between the punch and the die is very small, the plastic deformation takes place in a localized area and the metal adjacent to the cutting edges. In bending operation the bend has been made with the help of punch which exerts large force on the work clamped on the die. The bending machine is designed in such a way that, it works automatically. The machine is designed by observing the factors to improve the efficiency and to reduce the cycle time by producing quality output. Automation of machine is achieved with the help of pneumatic system. This involves the design of an efficient system which reduces the human effort and help to increase production output. It also includes pneumatic system, pneumatic component and shearing die and bending die

2 LITERATURE REVIEW

A. S. Aditya Polapragada ET. al. [1] developed a pneumatic and punching machine. The project helped reduce manufacturing cost for small scale industries.

R. M. Lathe ET. al. [2] converted a manually controlled press into an automatic machine using which they saved maximum operating time. Using this maximum output increase and human intervention decreased.

Pradeshi Ram ET. al. [3] converted a manually operated conventional sheet bending machine to an automatic machine and eliminated the problem of signal overlapping by using stepper module.

Indrajeet Chaudhary ET. al. [4] employed a stepper module, a component of advanced pneumatics for automation of conventional sheet metal bending machine operations thus converting a manually operated bending machine to an automatic machine.

Khagendra Barman ET. al. [5] developed a pneumatic sheet metal cutting machine which runs by means of pre- compressed air. It is an efficient way of increasing production for small scale industries.

Suleyman Yaldiz ET. al. [6] developed a pneumatic accelerator for high-speed punching which can be easily employed in conventional presses thus eliminating the use of high energy rate forming (HERF) machines to store energy. The accelerator when employed on mechanical presses converts low speed operation of hammer to high speed operation.

F. W. Travis ET. al. [7] experimented on the high speed perforation of mild steel plates for impact velocities up to 300 m/s analyzed the bulge height at perforation. They concluded with the result that bulge height increased with the increase of plate thickness but due to the development of thermo-plastic instability it dropped subsequently.

Karan Dutt ET. al. [8] studied various types of pneumatic machines and components along with their advantages and disadvantages. He concluded that pneumatic machines can provide power at a cheaper, safer and more reliable way than electric motors and actuators.

A. K. Murthy ET. al. [9] designed and fabricated mechanically operated paper shearing machine with the capacity to cut 25mm thick and 300mm wide paper. The machine could produce a variable force using screw press which made it useful to perform other operations like bending, punching and embossing.

Martin Feistle ET. al. [10] developed methods to measure the formation of edge cracks on shearing blades. It has been found that the forming strength of high strength steels is curtailed due to edge fractures and can be improved by varying process parameters like die clearance, geometry and cutting line.

Utkarsh Sharma ET. al. [11] designed and fabricated anautomatic pneumatic hole punching machine powered by solar energy. The machine has been designed on SolidWorks software. Since the machine uses solar energy as asource of energy it will eliminate/reduce the usage of electricity in running the machines in small scale industries.

Madhukumar V. ET. al. [12] developed a pneumatic machine that would perform cutting as well as bending operation to reduce the cost of operations performed on sheet metal. Further modifications in their design can also increase thecutting force.

T. Z. Quazi ET. al. [13] studied the influence of punch-die clearance in blanking process. Their investigation showed that by decreasing clearance the required blanking force increased. They found that 10% is the optimum clearanceis required for minimizing blanking force.

Viraj N. Suryawanshi ET. al. [14] fabricated a pneumatic punching machine to reduce punching cost on metallic sheet to the development of thermo-plastic instability it dropped subsequently.

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DIRECTOR
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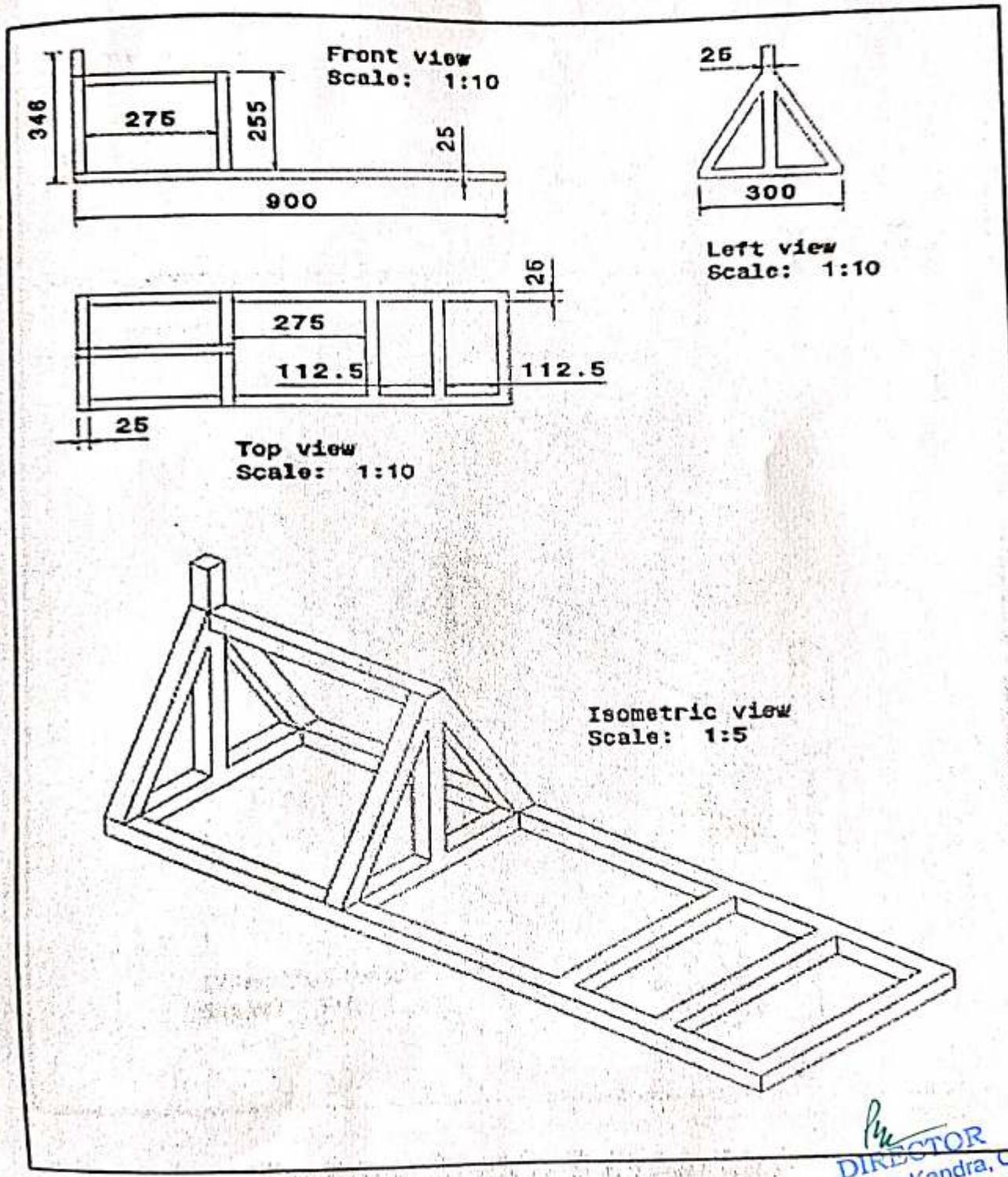
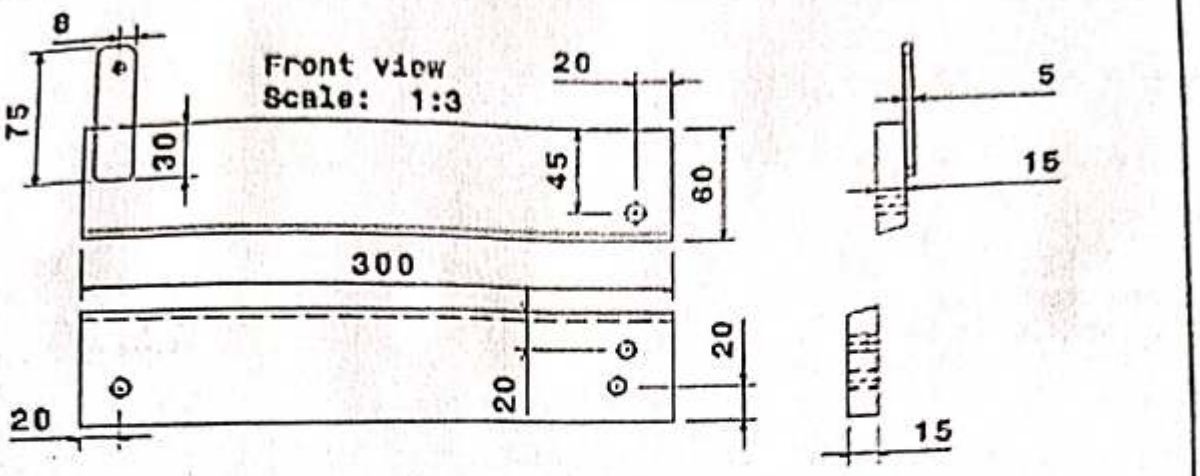
Bokaro, Jharkhand-827013

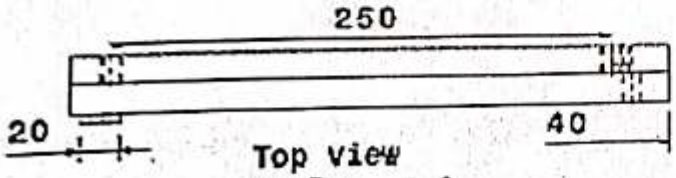
THEORY

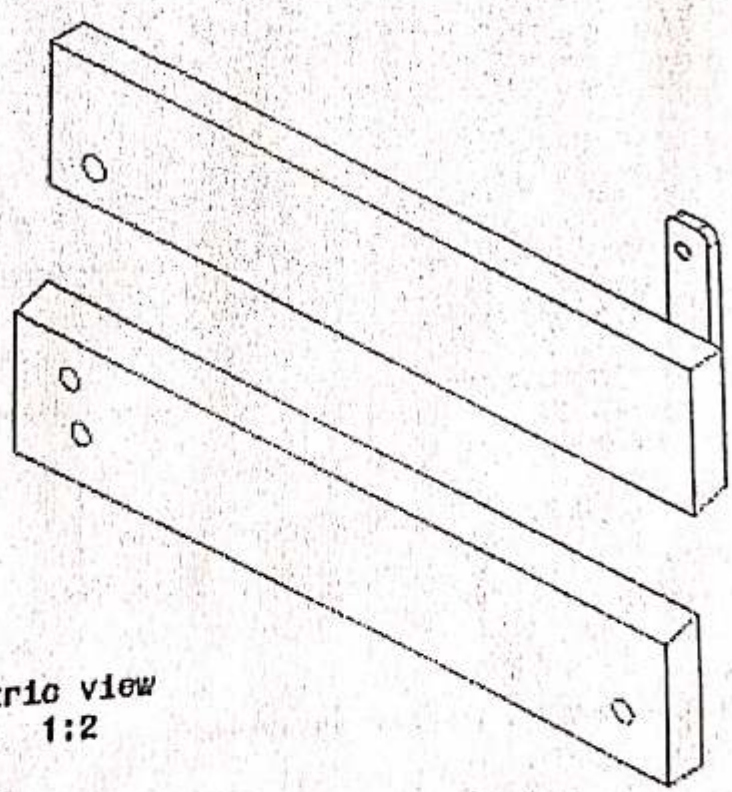
3.1. Drawings



BASE FRAME







Isometric view
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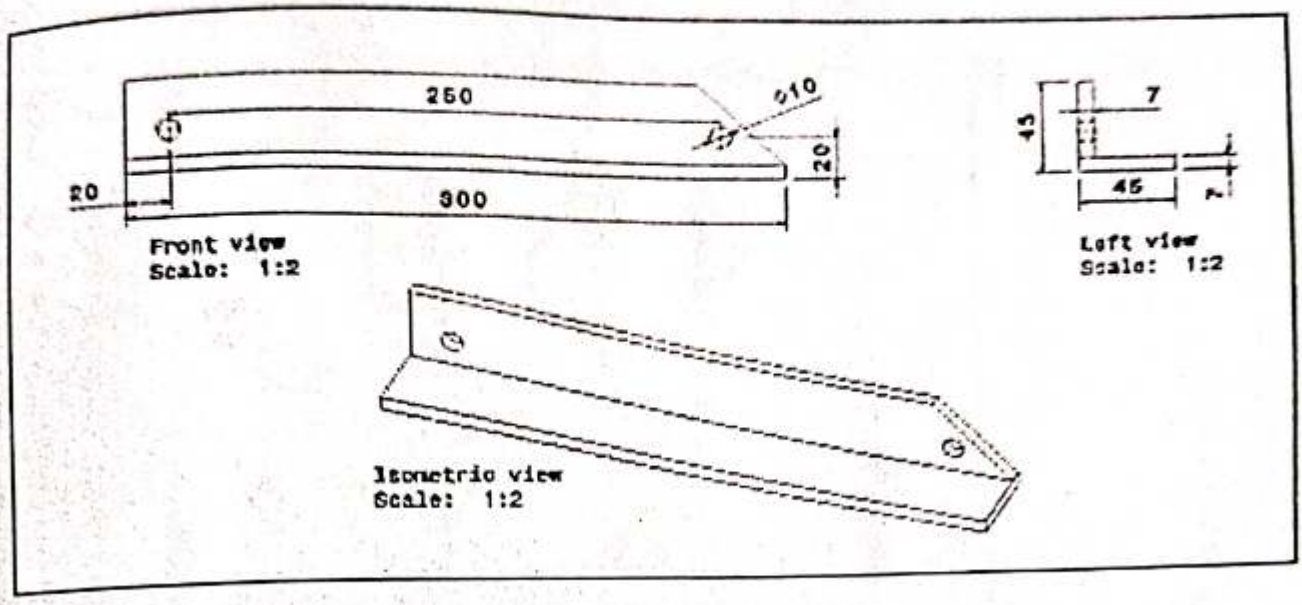
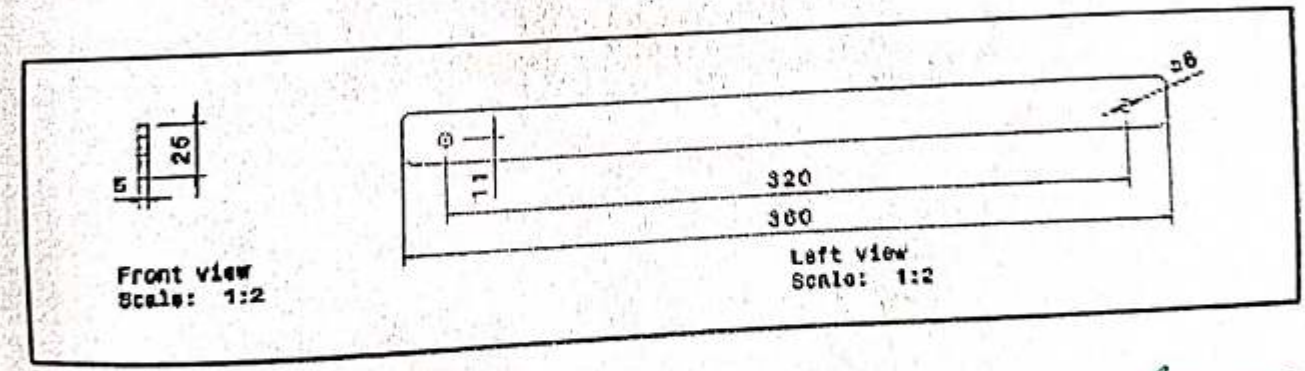
Shearing Blades & Blade Link



Angle Section



Connecting Link

DIRECTOR
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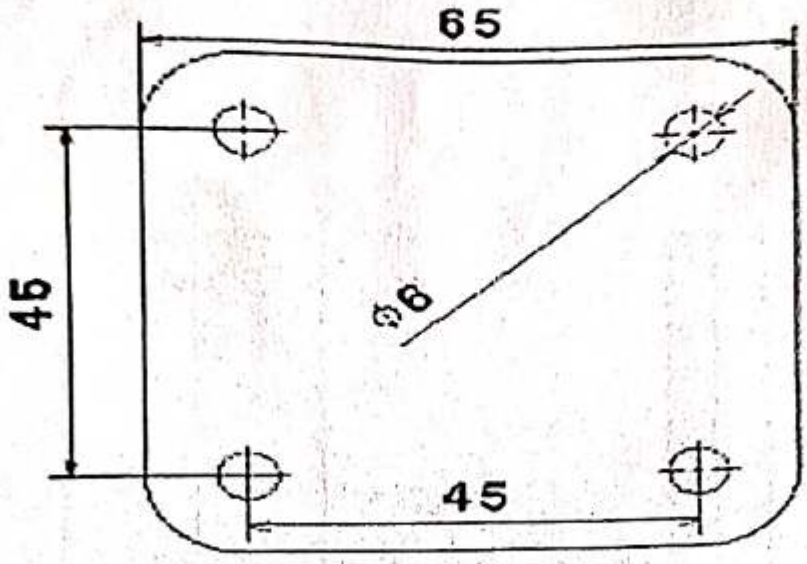
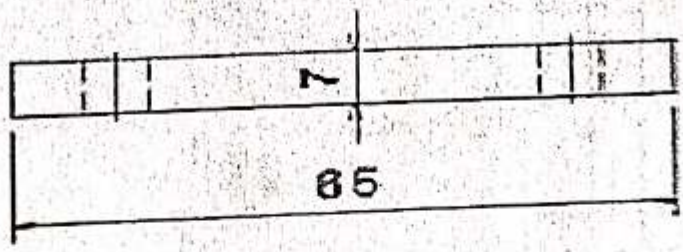


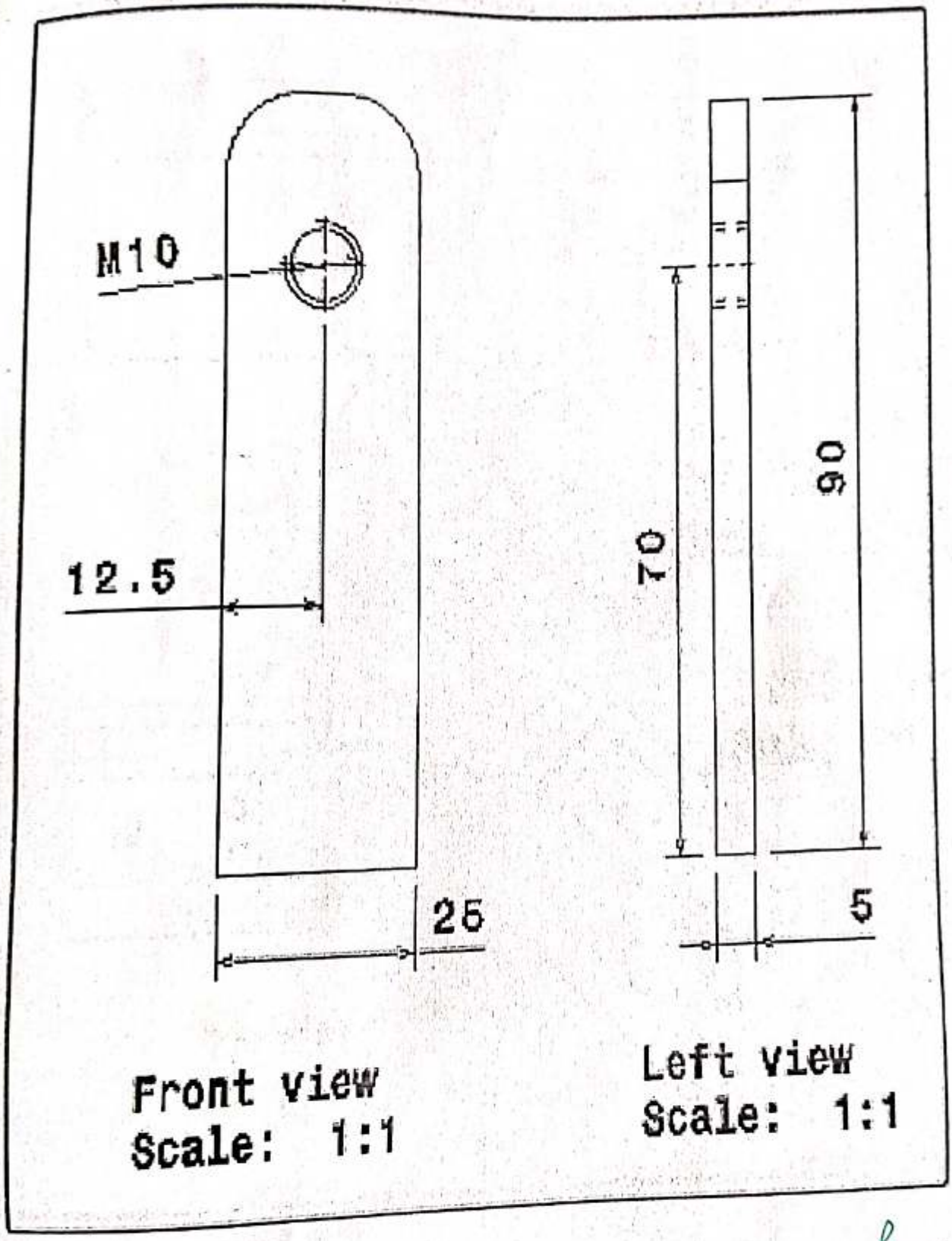
Front view
Scale: 1:1



Top view
Scale: 1:1

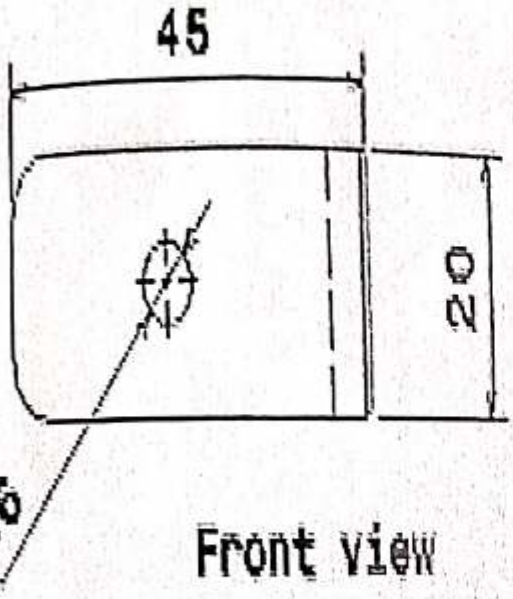
DIRECTOR
GGSESTC, Kandra, Chas
Bokaro, Jharkhand-827013

Base Plate



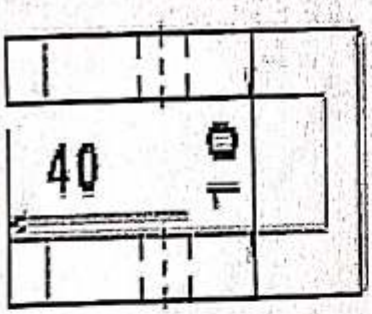
Support Links

3.2

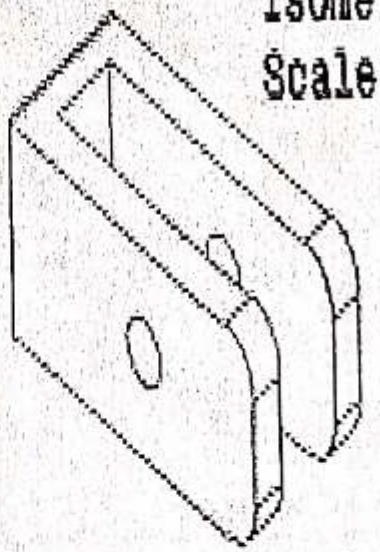


Front view
Scale: 1:1

Left view
Scale: 1:1

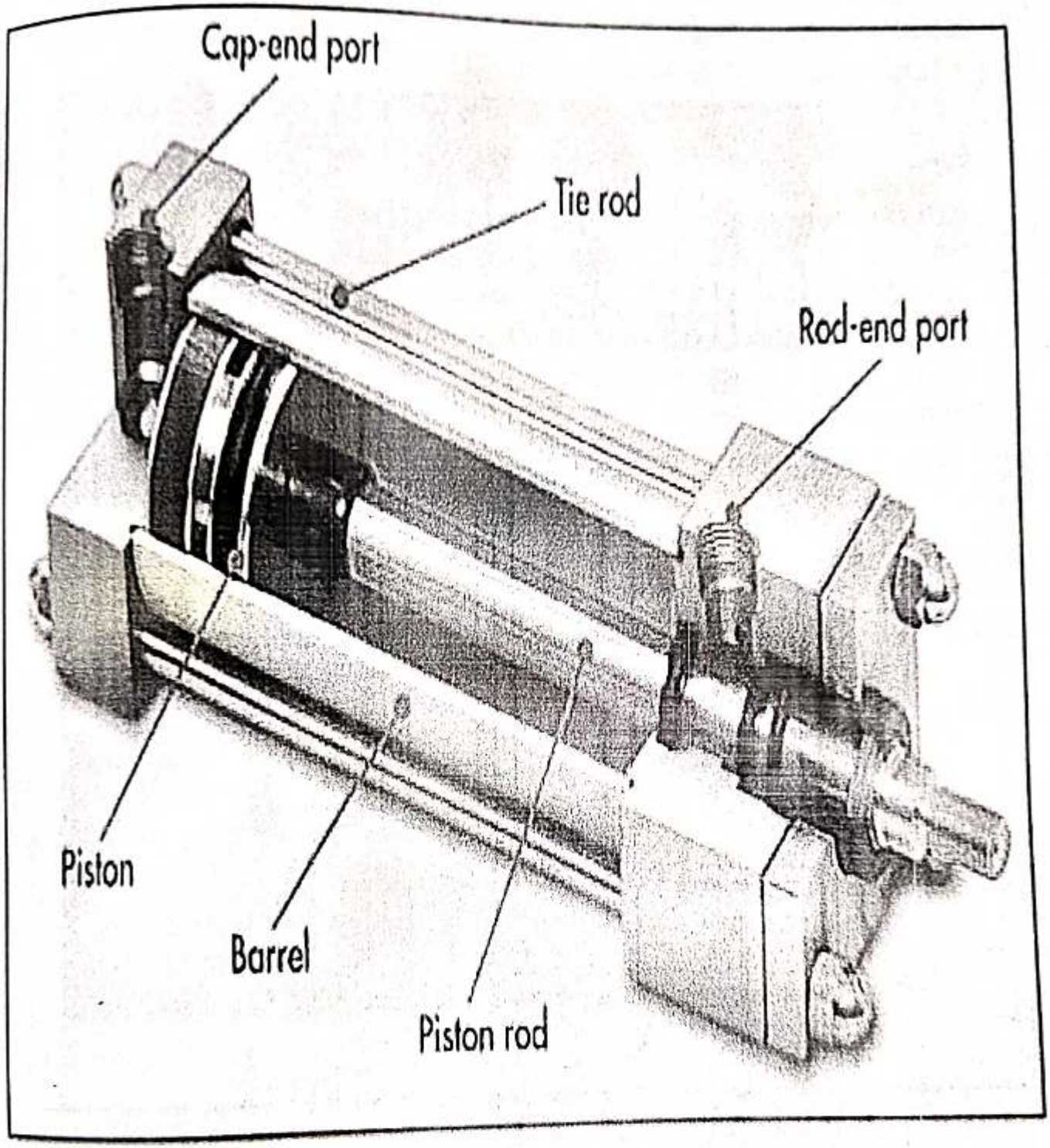


Top view
Scale: 1:1

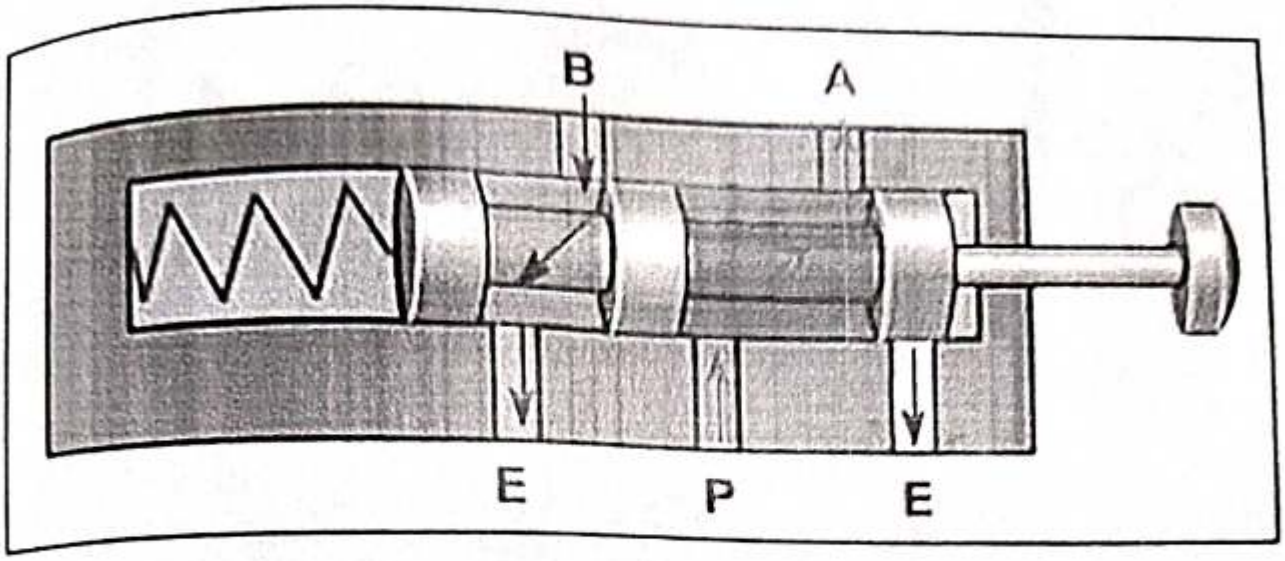


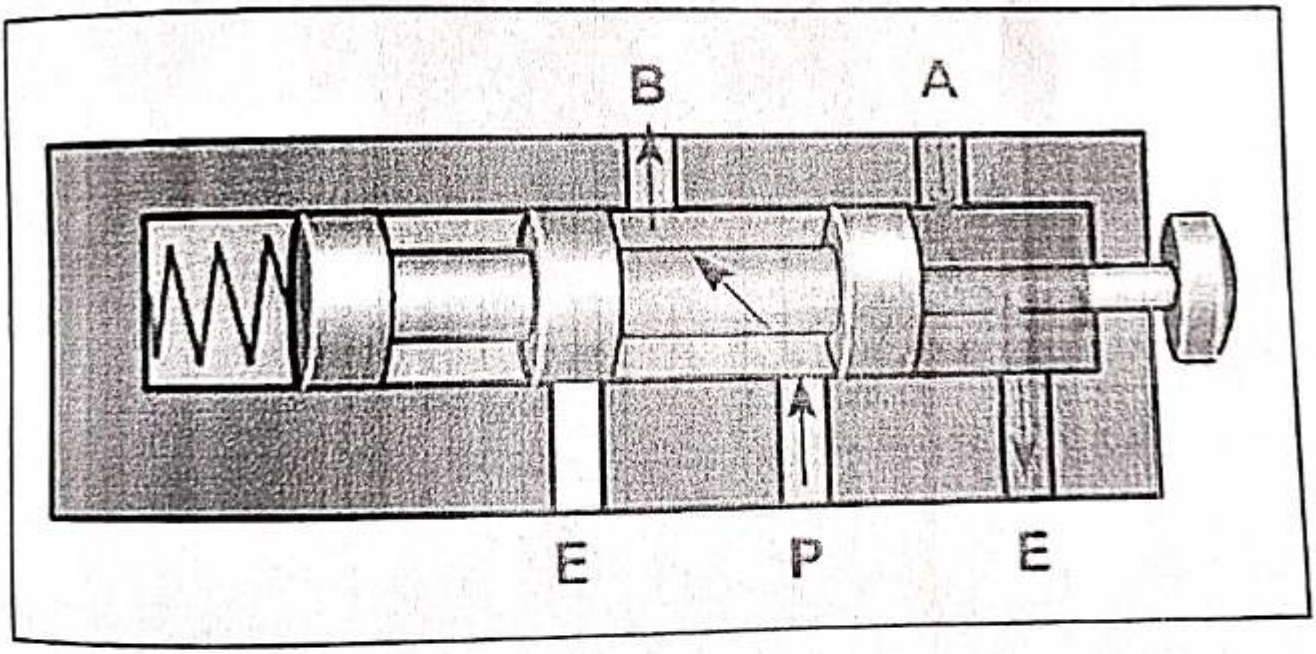
Isometric view
Scale: 1:1

Fork End

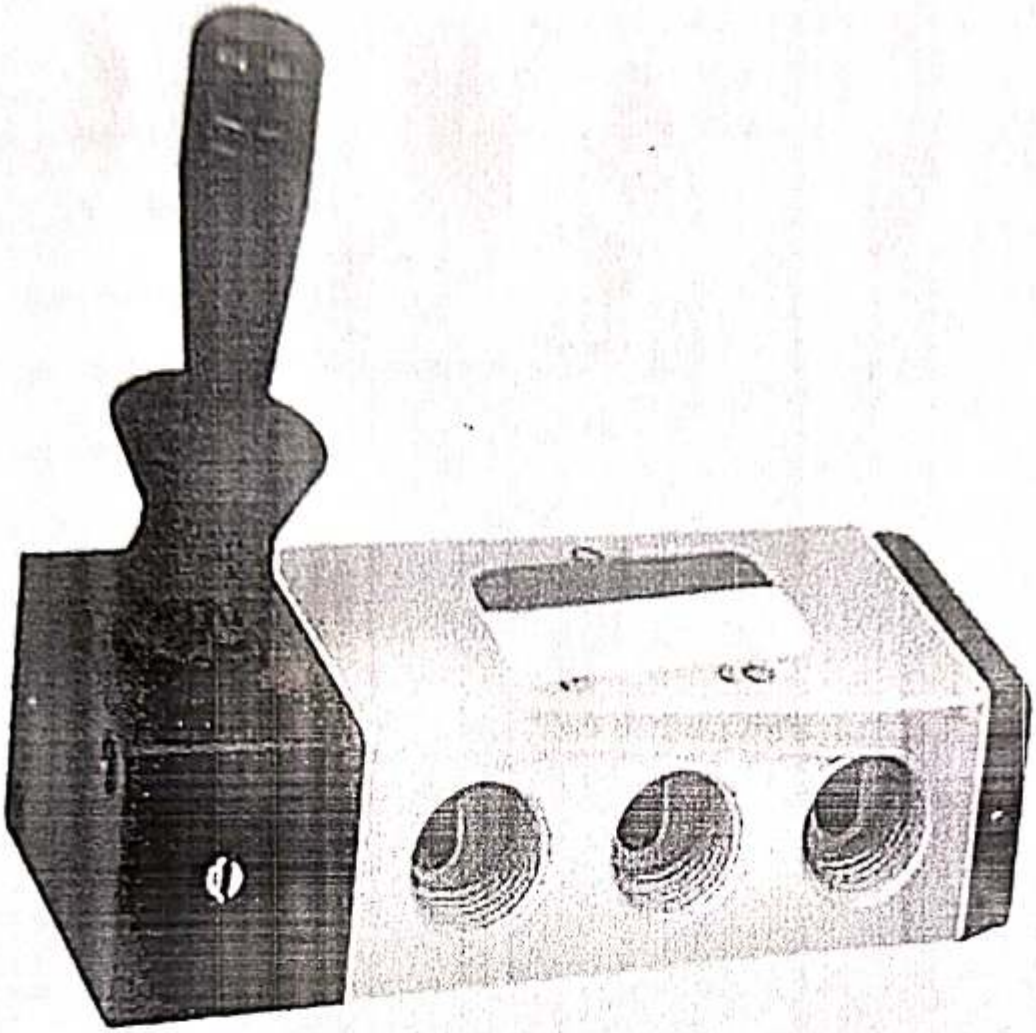


Pneumatic Cylinder





Direction Control Valve



Direction Control Valve

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3.2 Construction :

Raw Material to be used :

1. Mild Steel bars for base frame.
2. 35C8 material for shearing blades.
3. Cylinder fittings like fork end, base plates, support links.
4. Angle section for blade fitting.
5. Connecting link.
6. Blade link.

Ready Items Used

1. Pneumatic double acting cylinder.
2. Direction & flow control valves.
3. Pneumatic pipe & pipe fittings.
4. Bolts & nuts.
5. Antirust coat & paint.

Machines & Tools Used

1. Cutting Machine.
2. Hacksaw Cutting Machine.
3. Sensitive Drilling Machine.
4. Horizontal Milling Machine.
5. Electric Arc Welding Machine.
6. Table Grinder.

7. Hand Grinder.

8. Surface Grinding Machine.

3.3 Specification :

1. Pneumatic Cylinder

Quantity: 1 Total Length: 375mm

Bore: 40mm

Stroke: 200mm

Piston Rod Diameter: 20mm

Max Working Pressure: 8 bar

Weight: 3kg

2. DC Valve

Quantity: 1

Operation: Manual

Type: Hand Lever, Detent Type

Number of Ports: 5

Number of Positions: 3

Construction: Sliding spool type

3. Pneumatic Pipe

Quantity: 3000mm

Diameter: 8mm

Thickness: 1mm

4. Fork End Nut

Quantity: 2

Length: 16mm Size: M16

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4. METHODOLOGY

4.1 The Working Principle :

The following figure shows general layout for the machine.

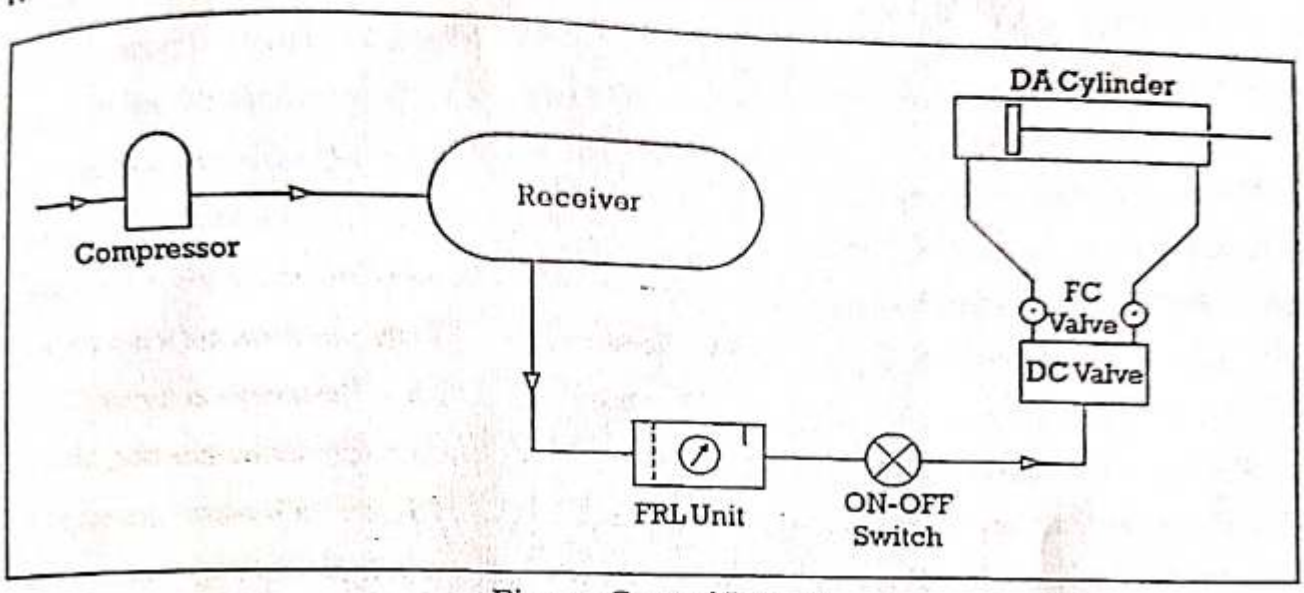

Figure: General Layout

The pneumatic machine includes a table with support arms to hold the sheet, stops or guides to secure the sheet, upper and lower straight - edge blades, a gauging device to precisely position the sheet. The table also includes the two way directional valve. The two way directional valve is connected to the compressor. The compressor has a piston for a movable member. The piston is connected to a crankshaft, which is in turn connected to a prime mover (electric motor, internal combustion engine). At inlet and outlet ports, valves allow air to enter and exit the chamber. When the compressor is switched ON, the compressed air is flow to inlet of the pneumatic cylinder. The sheet is placed between the upper and the lower blade. The lower blade remains stationary while the upper blade is forced downward. The upper blade is slightly offset from the lower blade, approximately 5–10% of the sheet thickness. Also the upper blade is usually angled so that the cut progresses from one end to the other, thus reducing the r equired force. After the material is cut, adjust the pneumatic hand lever to the mid position (i.e., normal position) and then the compressor is switched OFF. The following figure shows general layout for the machine. Fig 2 General Layout Of Sheet Metal Cutting Machine Through FRL unit air can be controlled. From the manifold a separate supply for the machine is taken out and given

to initially the air-compressor is started and allowed the receiver tank air pressure to reach up to 8 bars. The supply air is then passed to the manifold ONOFF switch; so as to operate the machine at will without interrupting the running of compressor. Then the pipe carries compressed air first to machine's Direction Control Valve. At position „A" shows the non-actuated circuit diagrams. At this position the piston is steady and locked. All ports are in closed condition. At position "B", the DC valve is at left hand position as shown in figure. The cap end port & pressure port get connected to each other and the rod end port gets connected to the exhaust port. The compressed air comes in the cap end of the cylinder and pushes the pistons outwards.The air already present in the rod end side is pushed out of the cylinder. When the piston moves outwards, the force is transmitted through the connecting link and the upper blade moves downwards. Before the actuating DC valve the sheet is inserted in between the upper & lower blades. As upper blade moves downwards, the stress is generated in the sheet metal and goes beyond ultimate shear stress of sheet metal. And thus the shearing action takes place. Now the DC valve is operated to come at position „C", as shown in figure. The rod end port & pressure port get connected to each other and the cap end port gets connected to the exhaust port. The compressed air comes in the rod end of the cylinder and pushes the pistons inwards. The air already present in the cap end side is pushed out of the cylinder. sheet metal is either again inserted for further cutting in case of large pieces; the small cut pieces are removed and the next sheet is inserted to cut. Shearing. As mentioned above, several cutting processes exist that utilize shearing force to cut sheet metal. However, the term "shearing" by itself refers to a specific cutting process that produces straight line cuts to separate a piece of sheet metal. Most commonly, shearing is used to cut a sheet parallel to an existing edge which is held square, but angled cuts can be made as well. For this reason, shearing is primarily used to cut sheet stock into smaller sizes in preparation for other processes. Shearing has the following capabilities. Sheet thickness: 0.005 – 0.25 inches Tolerance: 0.1 inches The shearing is performed on a shear machine, often called a squaring shear or power shear, that can be operated manually or by hydraulic, pneumatic, or electric power. A typical shear machine includes a table with support arms to hold the sheet, stops or guides to secure the sheet, upper and lower straight - edge blades, a gauging device to precisely position the sheet. The sheet is placed between the upper and the lower blade, which are then forced together against the sheet, cutting the material. In most devices, the lower blades remain stationary while the upper blade is forced downward. The upper blade is slightly offset from the lower blade, approximately 5 – 10% of the sheet thickness. Also the upper blade is usually angled so that the cut progresses from one end to the

other, thus reducing the required force. The knife edge and are available in different materials, such as low alloy steel and high carbon steel. Pneumatic Transmission of Energy: The reason for using pneumatics, or any other type of energy transmission on a machine, is to perform work. The accomplishment of work requires the application of kinetic energy to a resisting object resulting in the object moving through a distance. In a pneumatic system, energy is stored in a potential state under the form of compressed air. Working energy (kinetic energy and pressure) results in a pneumatic system when the compressed air is allowed to expand. For example, a tank is charged to 100 PSIA with compressed air. When the valve at the tank outlets opened, the air inside the tank expands until the pressure inside the tank equals to atmospheric pressure. Air expansion takes the form of airflow. To perform any applicable amount of work then, a device is needed which can supply an air tank with a sufficient amount of air at a desired pressure. This device is positive displacement compressor.

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Advantages :

1. Hydraulics present certain advantages over pneumatics, but in a given application, pneumatic powered equipment is more suitable, particularly in industries where the factory units are plumbed for compressed air.

2. Moreover, to avoid corrosive actions, oil or lubricants are added so that friction effects can be reduced.

3. Compressed air is used in most of the machines and in some cases compressed carbon dioxide, whereas cutting process is become easy.

4. Fast cutting action is carried out.

5. Cutting without bending is achieved.

6. Easy maintenance and repair

7. Air is available every wear can be stored easily

8. High speed operation performed

9. Continuous operation is possible without stopping

10. Technology can be easily learned

11. Simple in construction

12. No fire hazard problem due to over loading

5. FUTURE SCOPE

Since old age man is always trying to gain more and more luxurious. Man is always trying to develop more and more modified technique with increasing the aesthetic look and economic consideration. Hence there is always more and more scope. But being the Engineers and having the ability to think and plan. But due to some time constraints, and also due to lack of funds, we only have thought and put in the report the following future modifications

1. It can be made hydraulically power operated by installing the gear oil pump at the place of air compressor and pneumatic cylinder arrangement.

2. It can be made rack and pinion operated or spring and lever operated, by replacing the pneumatic circuit by rack and the pinion arrangement by the square threaded screw and nut arrangement.

3. The place where there is scarcity of the electricity the electric motor operate compressor is replaced by an I.C. Engine installed compressor. Thus in future there are so many modifications, which we can make to survive the huge global world of competition.

4. In this machine, compress air is use to move the cutting tool for carrying our cutting operation. After the completion of the cycle the air moves out through the outward of control valve, this air is release to the atmosphere. In future the mechanism can be develop to use this air again for the working of cylinder.

Thus in future there are many modifications, which we can make to survive the huge global work of computation.

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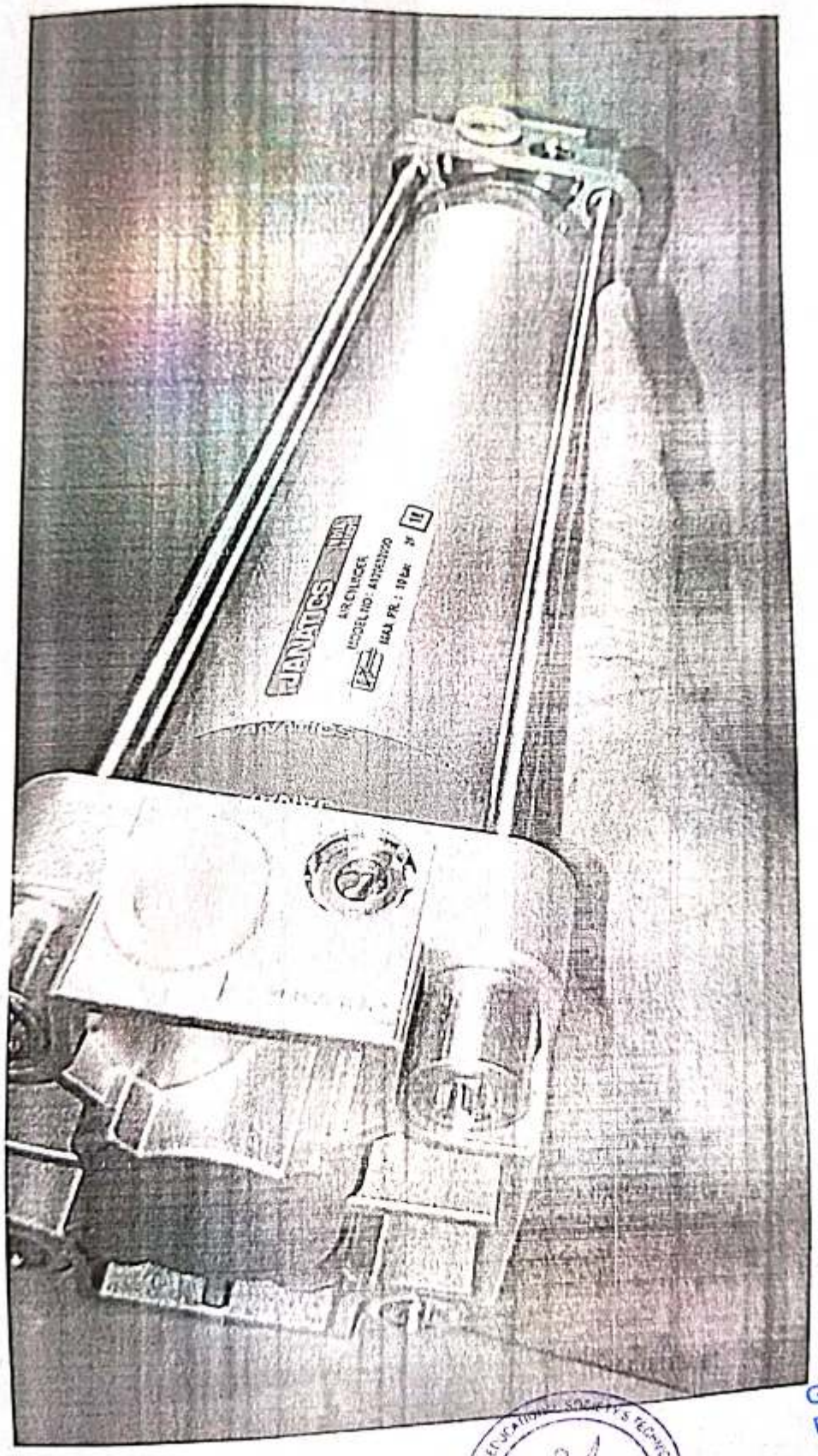
Glimpses of work



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