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Automatic Sheet Roller Handling Set-Up in Extrusion Machine

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Abstract: ***In extruder machine process to make the plastic roll sheet .The roll sheet rolled in 500times (100kg).It is man power used to pack the roll sheet and used to measure the weight. In extrusion machine lift the roll bar sheet by using two man power. so we find a solution to reduce the man power by using cylinder to lift automatically. Metal slider used to down the roll sheet bar with attach weighing machine in extrusion leather bed .the weighing machine is used to measure the weight of packed roll sheet***
Keywords: cylinder, metal slider, weighing machine

I. INTRODUCTION

Extrusion is a process used to create object of a fixed cross sectional profile. Material pushed through Adie of the desired cross-sectional. The extrusion process can be done with the material hot or cold commonly extruded materials polymers ceramics, concrete modeling and clay and food stuffs

Plastic extrusion is involves forcing melted plastic through a die into a shape with affixed cross section.it an efficient way to produce many shapes, and is essential in both industrial and domestic product application

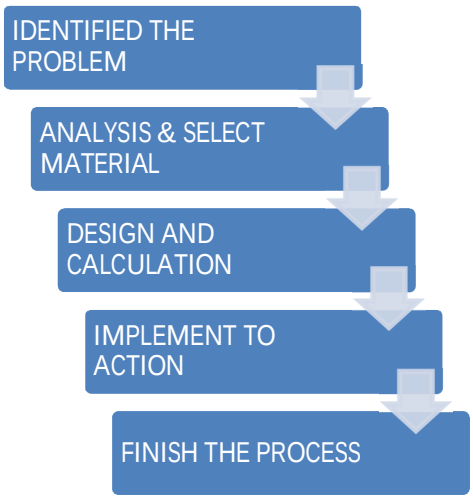
A. Solution

plastic extrusion is made up of plastic roller sheet .in this plastic extrusion bar lift down the ground by using two members, so we are used to find the solution automatically down the ground in roller bar in this method cylinder, slider metal used to down the bar (cylinder-double acting pneumatic) cylinder. Therool bar lift down weight will be measure, so weighing machine is used to find out the weight its fixed to ground leather bed.

B. Objectives

1) It is used to reduce the man power
2) It is used to reduce the time consumption
3) It's used to reduce the labour cost
4) Company profit will be increase

II. METHODOLGY AND MATERIALS



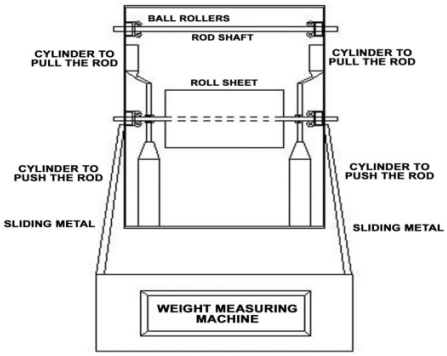
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In this method cylinder used to lift up the roller bar. cylinder -(double action pneumatic cylinder)motion push and pull direction in roller bar metal slider used to slide the roller bar, finally weight will be calculate by using weighing machine ,its fixed to ground leather bed.

Materials

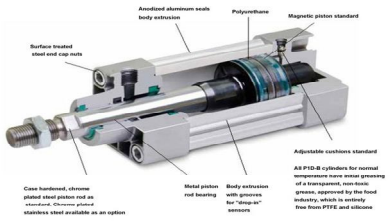
A. Cylinder
B. Metal slider
C. Weighing machine

Design Diagram



1) Cylinder

- Double acting pneumatic cylinder(high lift cylinder)



a) Cylinder it's a(double acting pneumatic cylinder)
b) It's a mechanical device which use the power of compressed to produce a force in reciprocating linear motio
c) In this process cylinder is used to air compressed the roller sheet in push and pull direction
d) In this process have four cylinder to be used
e) 2cylinder horizontally 2-vertical position
f) 2- cylinder used to push position (up ward)
g) 2- cylinder used to pull position(forward)

Calculation

ADN double acting pneumatic cylinder
Diameter=500mm
Max stroke=1000mm
Formula CFM= (2*A-R)*S*C

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A=Piston area(2*22/7*r*h+2*22/7*r*r)
R=rod area(base*height)
S=stroke
C=cycle per minute
A=2*22/7*2.5*10+2*22/7*2.5*2.5
=196.3mm
R=5*10=50mm
S=10mCFM=196.5m

2) Weighing Machine

WEIGHING MACHINE DIAGRAM



a) It's a mechanical device its used to measure the weight ofproduct(principle)
b) Its used to measure the measure the accurate weight ofplastic roller sheet
c) In this process the weighing machine is automatically fixed the ground leather bed
d) The plastic roller sheet down the leather bed automatically calculate the weight

Calculation
W=find out the weight of roller sheet
W=100 kg
C-STAINLESS STELL

3) Metal Slider



a) Metal slider is sliding moment to down the product(principle)
b) In this process metal slider used to roller sheet bar down to be ground
c) In this process have two metal slider used
d) Metal slider is fix to both end of the extrusion machine
e) *Slider* down the roller sheet bar in ground

CALCULATION:
Metal slider sliding moment to the leather bed ground
S=L*t
L=12m
t=53sec
s=12metre timing 53sec.

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Extruder Image 1



Extruder Image 2

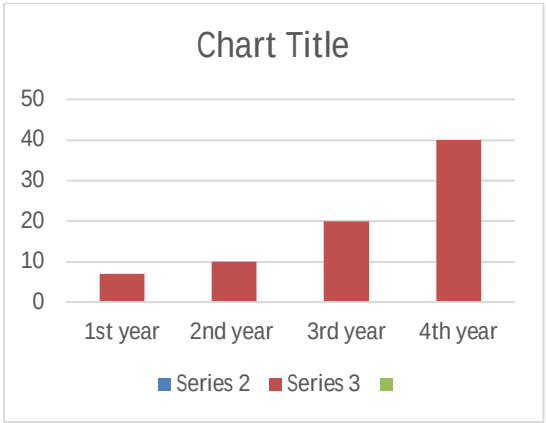


III. RESULT AND DISUSSION

Table 1

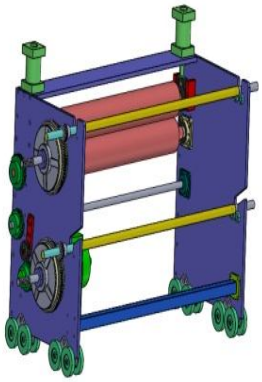
BACK PRESSURE	TEMP	SPEED rpm
15 bar	419°	1100
18 bar	419°	1400
20 bar	419°	1600
21 bar	419°	1700

A. Bar Chart –Profit Analysis

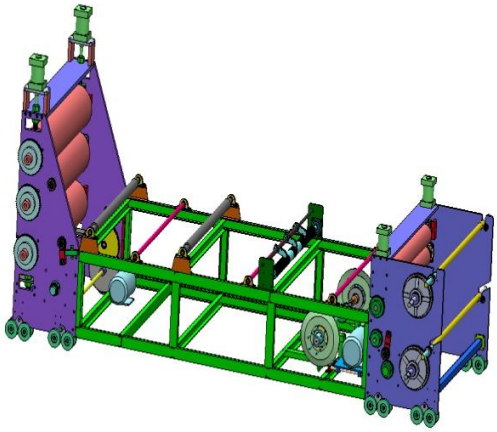


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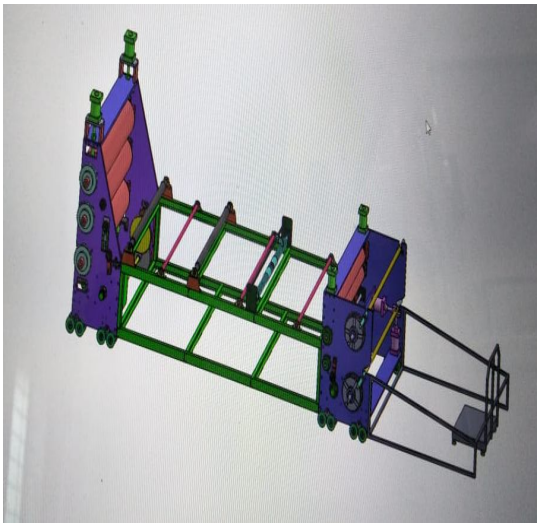
B. Model SET- UP



C. Previous SET -UP



D. Modificatied SET- UP



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E. Working

1) In this project is fixed above the roller and it is coupled with the In extruder machine process to make the plastic roll sheet .The roll sheet rolled in 500times(100kg).

2) It is man power used to packed the roll sheet and used to measure the weight. In extrusion machine lift the roll bar sheet by using two man power. so we find a solution to reduce the man power by using cyclinder to lift automatically. Metal slider used to down the roll sheet bar with attach weighing machine in extrusion leather bed .the weighing machine is used to measure the weight of packed roll sheet the roller is adjusted accordingly for the extruding process.

F. Advantages

1) It can save working time.
2) It can reduce the recycle process.
3) It will be in accurate dimensions.
4) It can be used for mass products.

IV. CONCLUSION

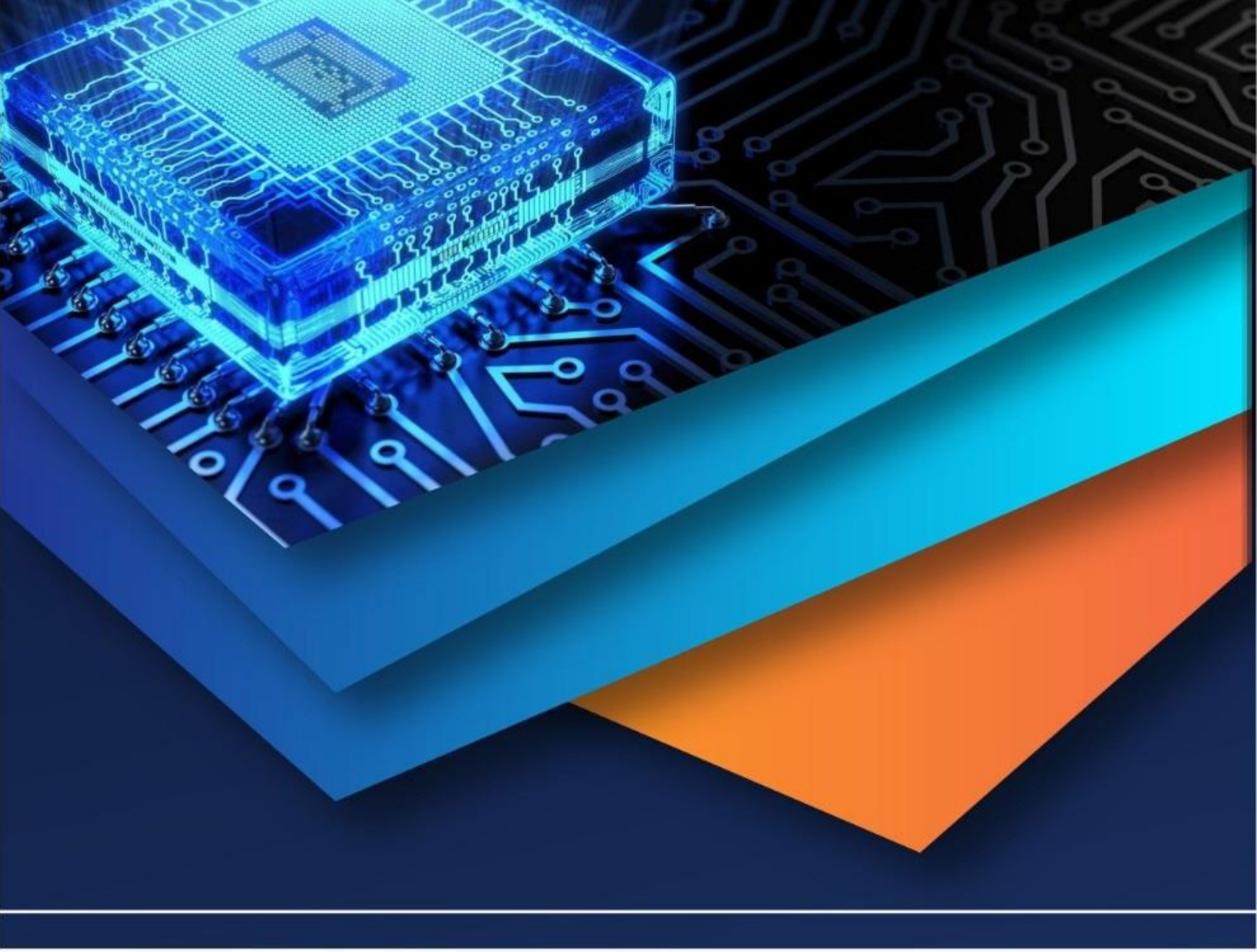
In the existing extruding process, the thickness of the plastic sheet are manually measured only after the process of the extrusion. As a result of this, the plastics are wasted. The reason for this plastic wastages is the inaccuracy in manual measurement.

A. In this method cylinder used to lift the roll sheet bar automatically to the ground leather bed
B. Metal slider used to sliding moment the roll sheet bar in ground
C. Weighing machine used to find the weight of the roller sheet
D. Finally this method used to reduce the man power and labour cost will be reduced company profit will be increases.

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