

# Design Modification in NRV & Hose Fitting Machine

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*Abstract- There is tremendous growth in automobile and automation in last few years so to increase the productivity and performance of automations. we have to make unique research and development works. Its implementation in one organisation can lead to another one elsewhere .the ability to modify NRV and hose fitting assembly to increase the work flow is yet another effective point.in this project we are making a design modification in the assembly design of NRV and hose fitting this is one of the project from NAYAN ELECTRONICS who included us in their company project and sponsored our ideas. By using the various techniques and data base along with the old methods there are certain issues like flexibility and current systems being in capable properly mapping the relationship. It could result in the origin of multiple query statements. There by decreasing the queries and stop wasting industrial material adding our new modified die design.*

*Hence the focus of the system is to facilitate use us to easily transfers the dies. In this project we are properly mapping of the system requirement and working on it.*

## I. INTRODUCTION

In this work the old fixed dies which was fixed they can be replaced by new adjustable dies. we perform various experiments on the basis of testing of different types of sensors, materials and we got various results Firstly we have tested the material is plastic, but it has lower strength than the steel and cast iron. The strength of both cast iron and steel is also controversial, as some think steel is stronger than cast iron and others think that iron and steel is same thing, but the truth is that cast iron has a more compressive strength, and steel is more tensile. Steel is an alloy or iron, and cast iron is a hard grey metal.so for increasing the life of the machine we are selected cast iron as a raw material for making machine. Cast iron is much harder and brittle than the steel.

It has more compression strength than steel so where the toughness is not required hence cast iron is suitable material to be used because of its high hardness value. You can see grey cast iron used in the machine belts due to its great ability to absorb vibrations The hardness of the strongest grades is double as that of the weakest grades all grey cast iron have high compressive strength three to four times of their tensile strength while all grey cast iron contain free carbon (Graphite) In flake form, they also contain combined carbon (Iron carbon) in almost every case. We can achieve comfortable assemblies for NRV AND HOSE by using this type of machine because of changeable dies we can reduce the effective assembly cost.

We can save lot of money which we are spending for changing directly the new machine for new sizes of NRV AND HOSE by achieving the new technique we can increase the productivity and quantity of our production.

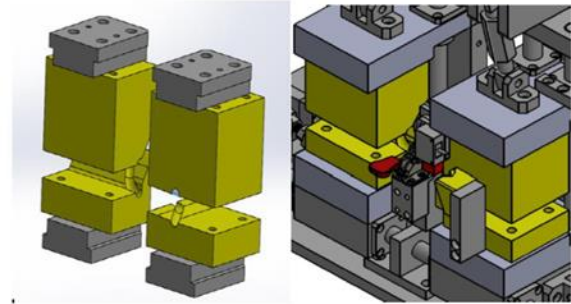
## II. MATH

- 1) Dimensions of upper block  
Length of upper block = 69.91 mm  
Width of upper block = 55.91 mm  
Height of upper block = 69.91 mm
- 2) Dimensions of lower block  
Length of lower block = 69.91 mm  
Width of lower block = 55.91 mm  
Height of lower block = 24.09 mm
- 3) Volume of upper block  
 $= l*b*h = 69.91*55.91*69.91=273.254*10^3 \text{ m}^3$
- 4) Volume of lower block  
 $= l*b*h = 69.91*55.91*24.09=94.159*10^3 \text{ m}^3$
- 5) Diameter of hose  
 $= Dh = 9 \text{ mm}$
- 6) Diameter of Large screw holes  
 $= D = 9 \text{ mm}$
- 7) Diameter of small screw holes  
 $= d = 5 \text{ mm}$

- 8) Max operating pressure = 10 bar
- 9) Current Operating Pressure = 5 bar.

III. UNITS

Bar  
MM  
M<sup>3</sup>

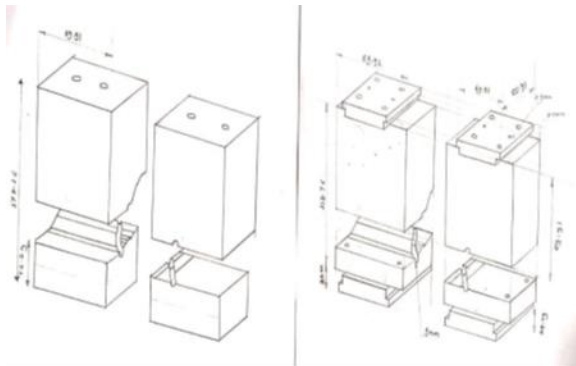
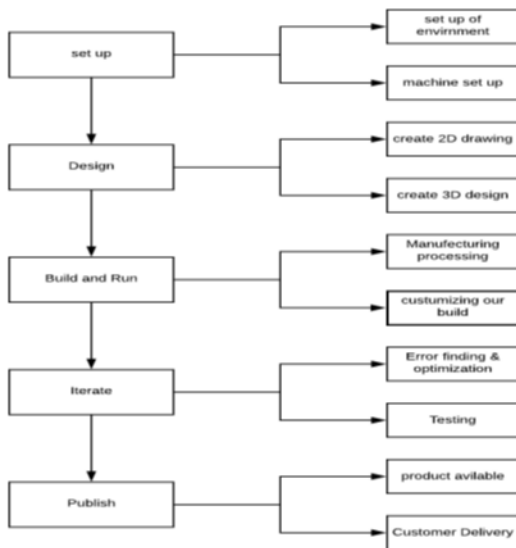


New Design

Old Design

Fig No. 1 Design Implementation in Part

IV. HELPFUL HINTS



CONCLUSION

After several design modifications we achieved an important chance which makes easy process of interchange ability of die. Now in future we are looking for other changes in machine design which can cut the cost as well as improve the performance characteristics of machine. Our aim is to achieve our best success by doing our best work. NAYAN ELECTRONICS is giving us a training about sensors used in that machine in next 1 month from 20-12-19 to 20-12-19. While getting the sensors training, we will also involve in the designing and modifying the assembly machine for nrv and hose fitting as well as will be further involved in manufacturing process of the machine. After passing all the processes and testing we are ready to use that machine for nrv and hose fitting of various four wheelers. Coolant hoses include the upper and lower radiator hoses plus heater hoses. Some cars include a bypass hose. Hoses provide a flexible connection for coolant flow between the engine, radiator, engine and heating block. After all the design, manufacturing & Testing procedures we will give that machine to the customers in automation industry. By doing changes in old designs we want to save money as well as we want to increase the flexibility, performance of the machine.

APPENDIX

Hoses that are lying on ground are installed in tricky locations are offend users find it difficult to identify to tell which hose is which as the outer wall is often black in color this can be dangerous situation to avoided this

situation hoses should be mark clearly according to standards

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