

# Structural Analysis of the Chassis

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Submitted: 25-05-2021

Revised: 01-06-2021

Accepted: 05-06-2021

**ABSTRACT:** Abstract we are building chassis design and doing design analysis on it our focus of concern is to build a chassis with light weight and have high strength of power for which we are doing analysis on various design of the chassis so that we can go come up with design which is more cost friendly and effective in nature.

In the new era technology is keep changing and improving resource are depleting day by day now the need of the hours is to build a design which is light weight effective and have high strength and it should be cost friendly now a days we are facing a problem in vehicle which is its strength hence to eliminate this problem we are doing analysis on the various chasis design to mitigate the problem therefore this analysis can help us to come up with a new design which can help in the automobile sector.

## I INTRODUCTION

## II REQUIREMENT

Table 1 Specification of the chassis

Parameter	Value
Material(chassis)	Steel52
Chemical Mixed	0.20%C,0.50%S,0.9%Mn 0.3%P and 0.25%S
Young Modulus(E)	2*10N/mm <sup>2</sup>
Poision Ratio	0.3
Radius of Gyration	50

Structural Analysis of the Chassis - A 3-D model of chassis is needed for the analysis

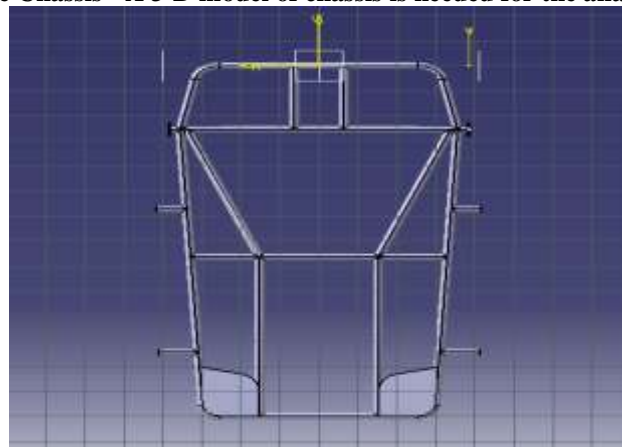


Figure 2.1

### III. RESULT AND DISCUSSION

Front crash:

Initial momentum at 70 kmph = 2916.6 kgms<sup>-1</sup>

Final momentum = 0 kgms<sup>-1</sup>

Time of impact = 0.5 s

Force = change in momentum/time = 5833.3 N

Side crash:

Initial momentum at 40 kmph = 1665 kgms<sup>-1</sup>

Final momentum = 0 kgms<sup>-1</sup>

Time of impact = 0.5 s

Force = change in momentum/time = 3310 N

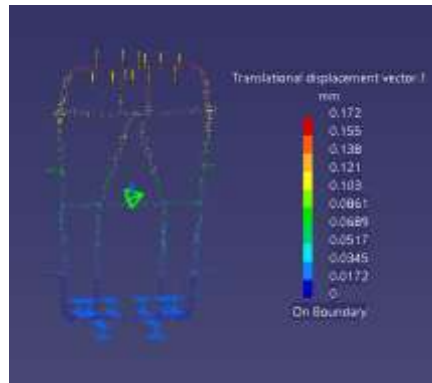


Figure 3.1

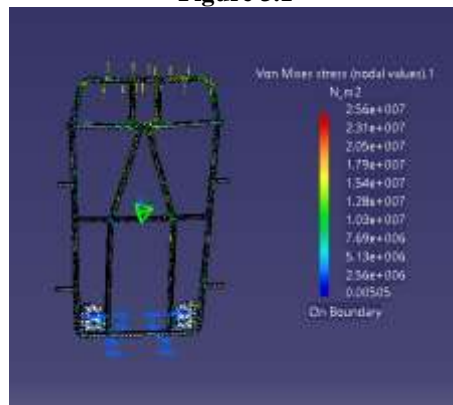


Figure 3.2

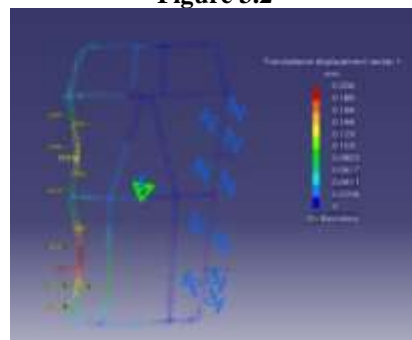


Figure 3.4

### IV. CONCLUSION

Chassis design analysis is a measure problem in now days in Automobile sector. In our project we have performed chassis analysis on composite steel material and to improve its impact capability and at the point we are able to come up

with the result with proper guidance of our guide & reference.

### REFERENCE

Kirpalsingh Voll, Automotive Chassis Engineering by Barton David Charles, Flld house, Jonh D

Figure 3.3

