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BOMB CART / TERMINAL TRAILER CHASSIS / LOAD ANALYSIS

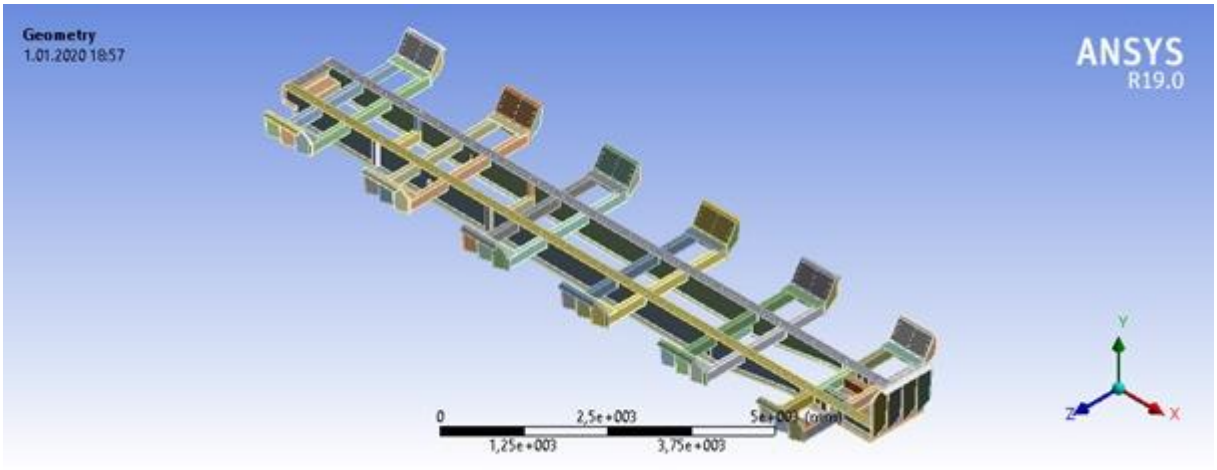

Figure 1: Main Chassis Analysis Image

Analysis is applied to our standard Bomb Cart / Terminal Trailer chassis model. The main material is determined as ST-52 quality steel. (Yield Strength 353 MPa, Tensile Strength 510MPa).
*** Tensile Strength 510 N/mm^2, Yield Strength 353 N/mm^2**

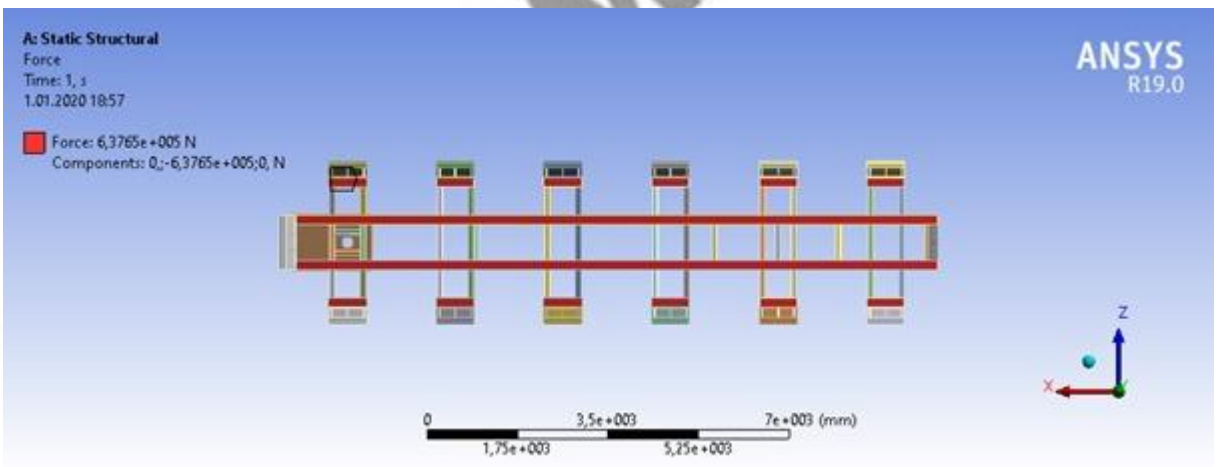

Figure 2: Applied Force Point

As seen in Figure 2, 637650 Newton (65 tons) force is applied to upper side of the chassis or container contact surface.

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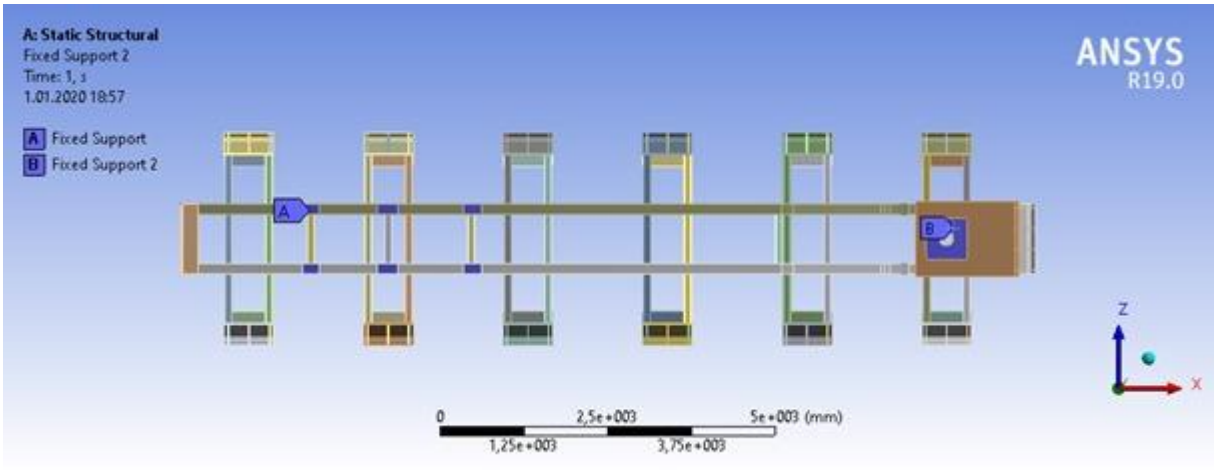

Figure 3: Bottom Fixed Point for Analysis

Chassis axle connection points and King Pin connection points are fixed (Plate surface details as reference 60x60cm). Load is supported by this bottom fixed point in reel and analysis environment like as fact scenario.

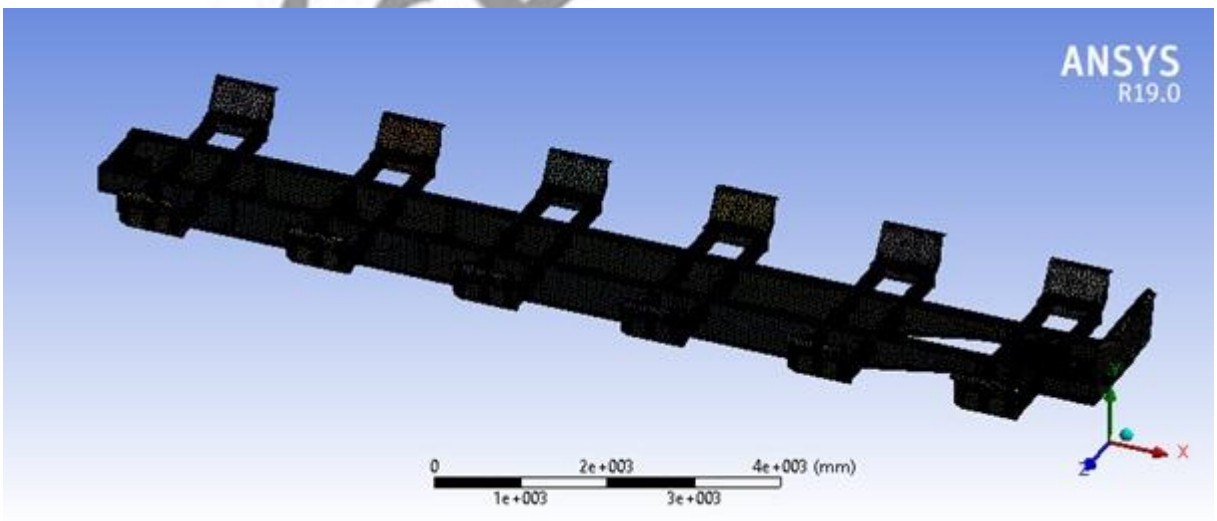

Figure 4: Mesh Process

As seen in Figure 4, it is divided into mesh elements using appropriate methods.

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EXAMINATION OF RESULTS ACCORDING TO THE APPLIED LOAD

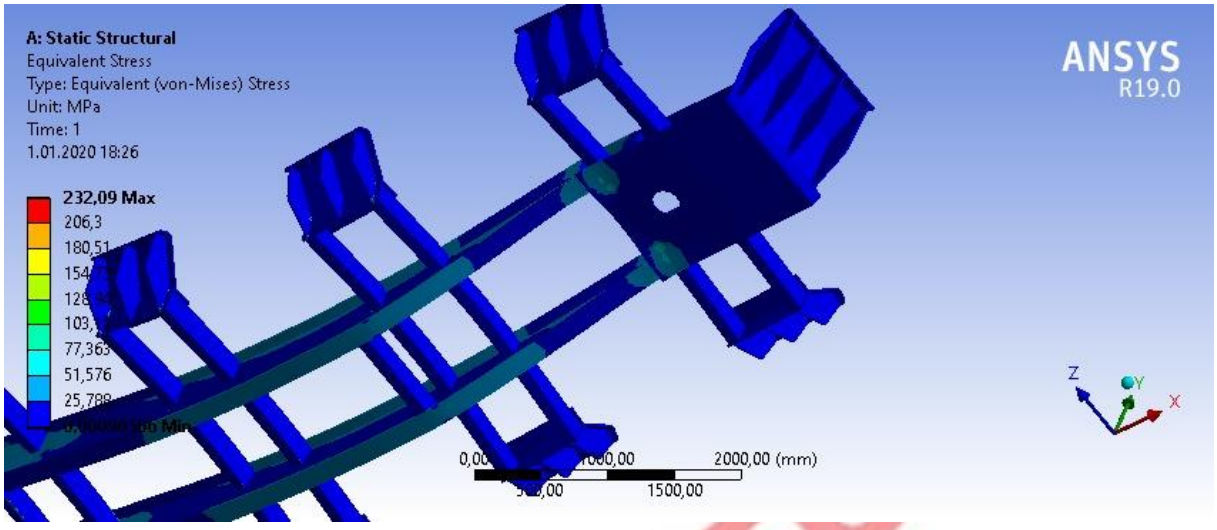

Figure 5: Stress Analysis Output 1

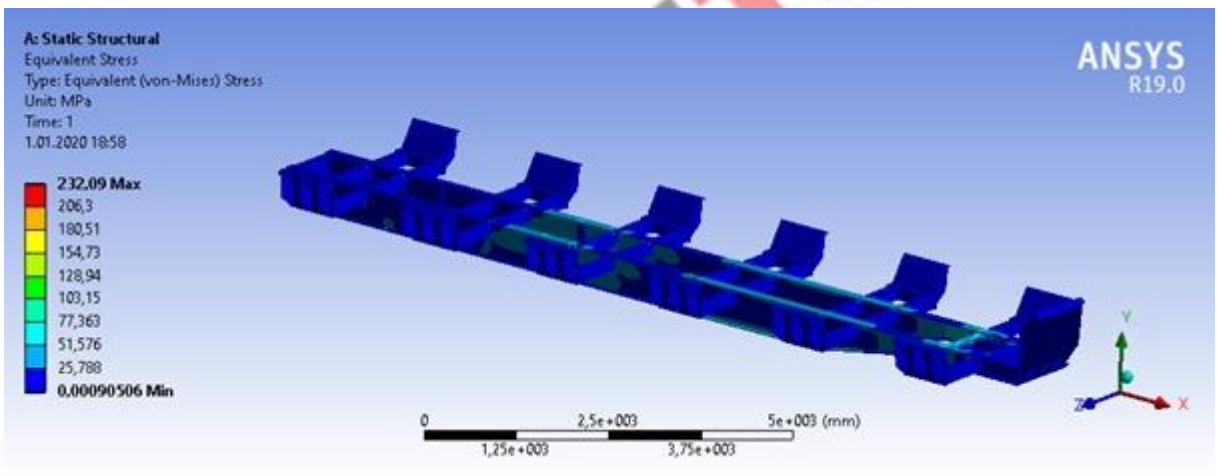

Figure 6: Stress Analysis Output 2

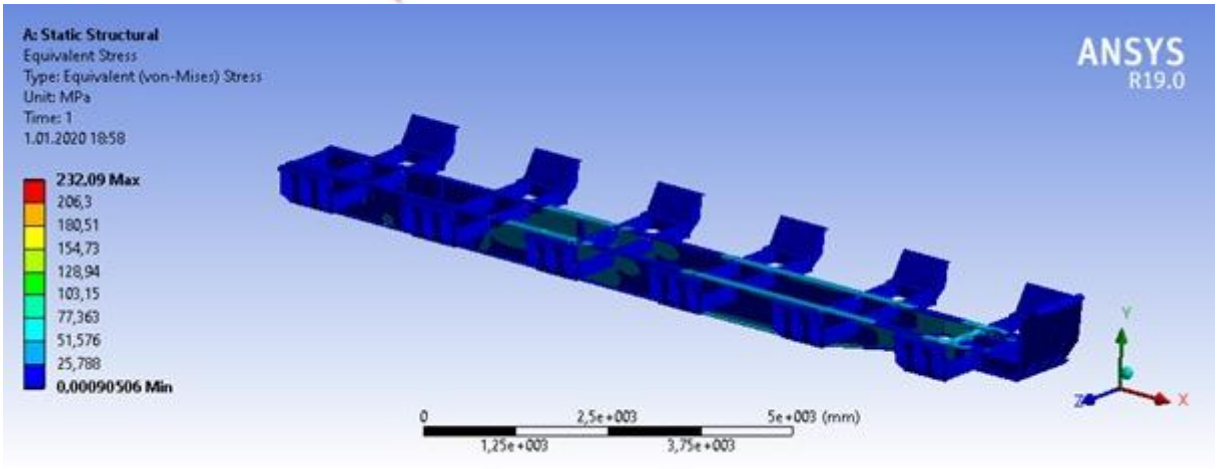

Figure 7: Stress Analysis Output 3

As the results in Figures 5, 6 and 7 are investigated, a maximum stress of 232,09 Mpa is observed when 637,650 Newton load is applied (At 65 Tons).

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The program gave the safety coefficient as 1.5084 in line with the reference values in the place where the maximum strain occurred. Considering the manual calculation considering the ST-52 material, the safety coefficient was calculated as 1.52 with the formula 353 / 232.09 * 100 when 637650 Newton force was applied. Maximum tensile output is seen as 232,09 MPa. * ST52 material tensile strength 510 N / mm ^ 2, Yield strength 353 N / mm ^ 2.

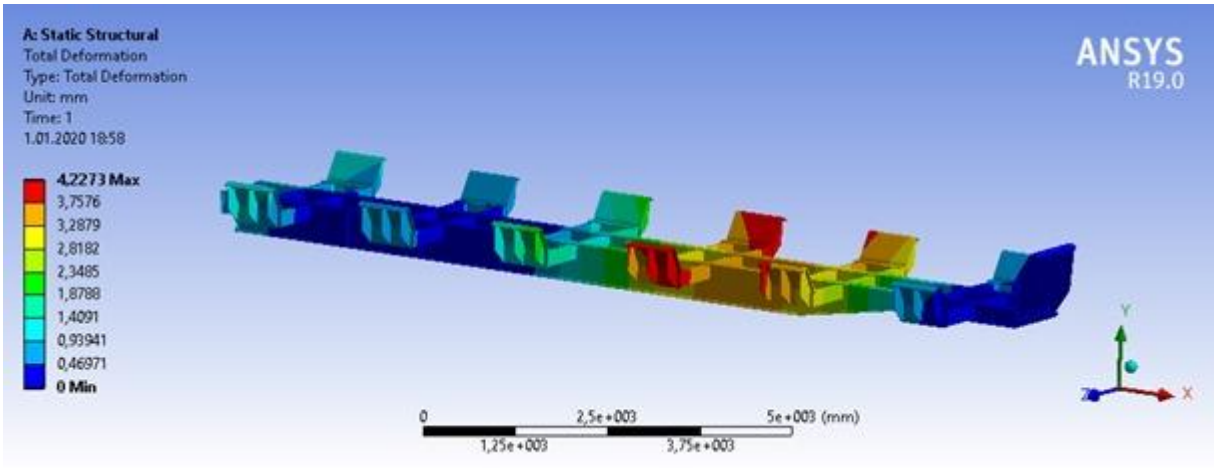

Figure 8: Deformation Output

Considering all references in the vehicle, it was observed that "elastic change" can occur with a maximum elastic bending of approximately 4,2273 mm with 637650 Newton load.

LOAD ANALYSIS RESULT

It has been observed that when a load of 65 tons (≈ 637650 Newton) is applied to the chassis, elastic change (tension) occurs and no breakage will occur on the chassis.

The factor of safety at the point where the maximum stress occurs is 1.5 turns. This means that the chassis will resist a linear load of up to 97.5 tons.

The recommended load for the semi-trailer is 65 tons and is a stable design with a safety factor of 1.5. Considering the other components of the semi-trailer, it offers a safe usage opportunity in harbors with a maximum speed of 25 km/h.

* Results are analyzed for semi-trailer chassis. Tire, axle and axle assembly parts or other components are not covered by this analysis.