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|  | |  | | --- | | **Simulation of Assem2**  **Date: 19 November 2020 Designer: Solidworks**  **Study name: Drop Test 3**  **Analysis type: Drop Test** | | Table of Contents  [Description 1](#_Toc56688678)  [Assumptions 2](#_Toc56688679)  [Model Information 2](#_Toc56688680)  [Study Properties 4](#_Toc56688681)  [Units 4](#_Toc56688682)  [Material Properties 5](#_Toc56688683)  [Contact Information 5](#_Toc56688684)  [Mesh information 6](#_Toc56688685)  [Study Results 8](#_Toc56688686)  [Conclusion 10](#_Toc56688687) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Assem2**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Chamfer1** | **Solid Body** | ****Mass:0.108974 kg****  ****Volume:0.000106837 m^3****  ****Density:1020 kg/m^3****  ****Weight:1.06795 N**** | ****C:\Users\hp\Desktop\Part2.SLDPRT****  **Nov 19 13:32:54 2020** | | **Cut-Extrude1** | **Solid Body** | ****Mass:0.00937294 kg****  ****Volume:9.18916e-06 m^3****  ****Density:1020 kg/m^3****  ****Weight:0.0918548 N**** | ****C:\Users\hp\Desktop\Part3.SLDPRT****  **Nov 18 20:24:30 2020** | | **Cut-Extrude1** | **Solid Body** | ****Mass:0.00937294 kg****  ****Volume:9.18916e-06 m^3****  ****Density:1020 kg/m^3****  ****Weight:0.0918548 N**** | ****C:\Users\hp\Desktop\Part3.SLDPRT****  **Nov 18 20:24:30 2020** | | **Cut-Extrude1** | **Solid Body** | ****Mass:0.00937294 kg****  ****Volume:9.18916e-06 m^3****  ****Density:1020 kg/m^3****  ****Weight:0.0918548 N**** | ****C:\Users\hp\Desktop\Part3.SLDPRT****  **Nov 18 20:24:30 2020** | | **Chamfer2** | **Solid Body** | ****Mass:0.044907 kg****  ****Volume:4.40265e-05 m^3****  ****Density:1020 kg/m^3****  ****Weight:0.440089 N**** | ****C:\Users\hp\Desktop\door finalll.SLDPRT****  **Nov 19 13:35:54 2020** | |

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| Study Properties  |  |  | | --- | --- | | Study name | Drop Test 3 | | Analysis type | Drop Test | | Mesh type | Solid Mesh | | Large displacement | On | | Result folder | SOLIDWORKS document (C:\Users\hp\Desktop) |  Setup Information  |  |  | | --- | --- | | Type | Drop height | | Drop height from lowest point | 10 m | | Gravity | 9.81 m/s^2 | | Gravity Reference | Face<1> | | Friction Coefficient | 0 | | Target Stiffness | Rigid target | | Critical Damping Ratio | 0 |  Result Options  |  |  | | --- | --- | | Solution Time After Impact | 96.61 microsec | | Save Results Starting From | 0 microsec | | No. of Plots | 25 | | No. of Graph Steps Per Plot | 20 | | Number of vertex | 0 | |

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| Units  |  |  | | --- | --- | | Unit system: | SI (MKS) | | Length/Displacement | mm | | Temperature | Kelvin | | Angular velocity | Rad/sec | | Pressure/Stress | N/m^2 | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **ABS** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Unknown** | | ****Tensile strength:**** | **3e+07 N/m^2** | | ****Elastic modulus:**** | **2e+09 N/m^2** | | ****Poisson's ratio:**** | **0.394** | | ****Mass density:**** | **1020 kg/m^3** | | ****Shear modulus:**** | **3.189e+08 N/m^2** | | **SolidBody 1(Chamfer1)(Part2-1),**  **SolidBody 1(Cut-Extrude1)(Part3-1),**  **SolidBody 1(Cut-Extrude1)(Part3-2),**  **SolidBody 1(Cut-Extrude1)(Part3-3),**  **SolidBody 1(Chamfer2)(door finalll-1)** | | **Curve Data:N/A** | | | |

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| Contact Information  | Contact | Contact Image | Contact Properties | | --- | --- | --- | | Global Contact |  | |  |  | | --- | --- | | Type: | **Bonded** | | Components: | **1 component(s)** | | Options: | **Compatible mesh** | | |

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| Mesh information  |  |  | | --- | --- | | Mesh type | Solid Mesh | | Mesher Used: | Standard mesh | | Automatic Transition: | Off | | Include Mesh Auto Loops: | Off | | Jacobian points | 4 Points | | Element Size | 5.91993 mm | | Tolerance | 0.295997 mm | | Mesh Quality Plot | High | | Remesh failed parts with incompatible mesh | Off |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 23714 | | Total Elements | 26827 | | Maximum Aspect Ratio | 64.446 | | % of elements with Aspect Ratio < 3 | 69.4 | | % of elements with Aspect Ratio > 10 | 1.83 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:11 | | Computer name: | 7AMDIII | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress1 | VON: von Mises Stress | 7.857e+05 N/m^2  Node: 15743 | 6.848e+07 N/m^2  Node: 16650 | | **Assem2-Drop Test 3-Stress-Stress1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement1 | URES: Resultant Displacement | 4.778e-03 mm  Node: 4549 | 1.948e+00 mm  Node: 17325 | | **Assem2-Drop Test 3-Displacement-Displacement1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Strain1 | ESTRN: Equivalent Strain | 1.622e-04  Element: 8474 | 2.985e-02  Element: 9370 | | **Assem2-Drop Test 3-Strain-Strain1** | | | | |

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| Conclusion |