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|  | |  | | --- | | **Simulation of Adapter Plate - 2017**  **Date: 04 October 2017 Designer: Duncan Hamill**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc494891515)  [Assumptions 2](#_Toc494891516)  [Model Information 2](#_Toc494891517)  [Material Properties 3](#_Toc494891518)  [Loads and Fixtures 4](#_Toc494891519)  [Mesh information 5](#_Toc494891520)  [Study Results 7](#_Toc494891521)  [Conclusion 10](#_Toc494891522) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Adapter Plate - 2017**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Split1[1]** | **Solid Body** | ****Mass:0.060946 kg****  ****Volume:2.25726e-005 m^3****  ****Density:2700 kg/m^3****  ****Weight:0.597271 N**** | ****C:\Users\dunca\Documents\Uni\LunarSolidworks\Leg Adapter Plate\Adapter Plate - 2017.SLDPRT****  **Oct 04 14:40:06 2017** | | **Split1[2]** | **Solid Body** | ****Mass:0.060207 kg****  ****Volume:2.22989e-005 m^3****  ****Density:2700 kg/m^3****  ****Weight:0.590029 N**** | ****C:\Users\dunca\Documents\Uni\LunarSolidworks\Leg Adapter Plate\Adapter Plate - 2017.SLDPRT****  **Oct 04 14:40:06 2017** | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **1060 Alloy** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Unknown** | | ****Yield strength:**** | **2.75742e+007 N/m^2** | | ****Tensile strength:**** | **6.89356e+007 N/m^2** | | **SolidBody 1(Split1[1])(Adapter Plate - 2017),**  **SolidBody 2(Split1[2])(Adapter Plate - 2017)** | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **6 face(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **10 face(s), 1 plane(s)** | | Reference: | **Front Plane** | | Type: | **Apply force** | | Values: | **---, ---, 274.68 N** | | |

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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 | 4.06905 mm | | Tolerance | 0.203452 mm | | Mesh Quality Plot | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 6104 | | Total Elements | 3123 | | Maximum Aspect Ratio | 9.2079 | | % of elements with Aspect Ratio < 3 | 98.4 | | % of elements with Aspect Ratio > 10 | 0 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:01 | | Computer name: | DRH-PC | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 1.574e+004N/m^2  Node: 5919 | 1.152e+007N/m^2  Node: 5452 | | **Adapter Plate - 2017-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0.000e+000mm  Node: 89 | 1.527e-002mm  Node: 5919 | | **Adapter Plate - 2017-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed shape | | **Adapter Plate - 2017-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 2.394e+000  Node: 5452 | 1.752e+003  Node: 5919 | | **Adapter Plate - 2017-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion Passed, FOS>2 |