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|  | |  | | --- | | **Simulation of Sony\_NEX7\_Top\_Mount**  **Date: Wednesday, October 14, 2015 Designer: Solidworks**  **Study name: Static 2**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc432608750)  [Assumptions 2](#_Toc432608751)  [Model Information 2](#_Toc432608752)  [Study Properties 3](#_Toc432608753)  [Units 3](#_Toc432608754)  [Material Properties 4](#_Toc432608755)  [Loads and Fixtures 4](#_Toc432608756)  [Connector Definitions 5](#_Toc432608757)  [Contact Information 5](#_Toc432608758)  [Mesh Information 6](#_Toc432608759)  [Sensor Details 7](#_Toc432608760)  [Resultant Forces 7](#_Toc432608761)  [Beams 8](#_Toc432608762)  [Study Results 9](#_Toc432608763)  [Conclusion 13](#_Toc432608764) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Sony\_NEX7\_Top\_Mount**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Fillet4** | **Solid Body** | ****Mass:0.150318 kg****  ****Volume:0.00014737 m^3****  ****Density:1020 kg/m^3****  ****Weight:1.47311 N**** | ****C:\Users\Jordan\Documents\GitHub\Aerial-Algal-Bloom-Monitoring\S1000 Solidworks\Sony NEX-7\Sony\_NEX7\_Top\_Mount.SLDPRT****  **Oct 14 17:45:28 2015** | |

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| Study Properties  |  |  | | --- | --- | | Study name | Static 2 | | Analysis type | Static | | Mesh type | Solid Mesh | | Thermal Effect: | On | | Thermal option | Include temperature loads | | Zero strain temperature | 298 Kelvin | | Include fluid pressure effects from SolidWorks Flow Simulation | Off | | Solver type | FFEPlus | | Inplane Effect: | Off | | Soft Spring: | Off | | Inertial Relief: | Off | | Incompatible bonding options | Automatic | | Large displacement | Off | | Compute free body forces | On | | Friction | Off | | Use Adaptive Method: | Off | | Result folder | SolidWorks document (C:\Users\Jordan\Documents\GitHub\Aerial-Algal-Bloom-Monitoring\S1000 Solidworks\Sony NEX-7) | |

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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+007 N/m^2** | | ****Elastic modulus:**** | **2e+009 N/m^2** | | ****Poisson's ratio:**** | **0.394** | | ****Mass density:**** | **1020 kg/m^3** | | ****Shear modulus:**** | **3.189e+008 N/m^2** | | **SolidBody 1(Fillet4)(Sony\_NEX7\_Top\_Mount)** | | **Curve Data:N/A** | | | |

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| **Loads and Fixtures**  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **2 face(s)** | | Type: | **Apply normal force** | | Value: | **-2 lbf** | | | **Gravity-1** |  | |  |  | | --- | --- | | Reference: | **Top Plane** | | Values: | **0 0 -9.81** | | Units: | **SI** | | |

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| Connector Definitions  | ****Connector name**** | ****Connector Details**** | ****Connector Image**** | | --- | --- | --- | | **Elastic Support-1** | |  |  | | --- | --- | | Entities: | **12 face(s)** | | Type: | **Elastic Support** | | Normal stiffness value: | **65** | | Shear stiffness value: | **20** | | Units: | **lbf/in** | | |  | | --- | |  | | **Elastic Support-1** | | |

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| Contact Information No Data |

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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 | 0.207928 in | | Tolerance | 0.0103964 in | | Mesh Quality | High |  Mesh Information - Details  |  |  | | --- | --- | | Total Nodes | 22474 | | Total Elements | 12232 | | Maximum Aspect Ratio | 8.0136 | | % of elements with Aspect Ratio < 3 | 88.7 | | % of elements with Aspect Ratio > 10 | 0 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:03 | | Computer name: | RCUE\_LENOVOPC | |  | | |

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| Sensor Details No Data |

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| Resultant ForcesReaction Forces  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N | -3.01371e-005 | 19.2691 | -0.000376543 | 19.2691 |  Reaction Moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 0 | 0 | 0 | 0 | |
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| Beams No Data |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress1 | VON: von Mises Stress | 345.02 N/m^2  Node: 17044 | 828874 N/m^2  Node: 19797 | | **Sony\_NEX7\_Top\_Mount-Static 2-Stress-Stress1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement1 | URES: Resultant Displacement | 1.56102 mm  Node: 1865 | 2.03689 mm  Node: 11724 | | **Sony\_NEX7\_Top\_Mount-Static 2-Displacement-Displacement1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Strain1 | ESTRN: Equivalent Strain | 9.82416e-008  Element: 9676 | 0.000298461  Element: 9060 | | **Sony\_NEX7\_Top\_Mount-Static 2-Strain-Strain1** | | | |  | Name | Type | | --- | --- | | Displacement1{1} | Deformed Shape | | **Sony\_NEX7\_Top\_Mount-Static 2-Displacement-Displacement1{1}** | |  |  | | --- | |  | | **Image-1** | |

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| Conclusion |