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|  | |  | | --- | | **Simulation of Part1**  **Date: Friday, August 16, 2024 Designer: Solidworks**  **Study name: Static 1**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc174726604)  [Assumptions 2](#_Toc174726605)  [Model Information 2](#_Toc174726606)  [Study Properties 3](#_Toc174726607)  [Units 3](#_Toc174726608)  [Material Properties 4](#_Toc174726609)  [Loads and Fixtures 4](#_Toc174726610)  [Connector Definitions 5](#_Toc174726611)  [Interaction Information 5](#_Toc174726612)  [Mesh information 5](#_Toc174726613)  [Sensor Details 6](#_Toc174726614)  [Resultant Forces 6](#_Toc174726615)  [Beams 6](#_Toc174726616)  [Study Results 7](#_Toc174726617)  [Conclusion 9](#_Toc174726618) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Part1**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Fillet2** | **Solid Body** | ****Mass:6.91483e-05 kg****  ****Volume:6.01289e-08 m^3****  ****Density:1,150 kg/m^3****  ****Weight:0.000677653 N**** |  | |

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| Study Properties  |  |  | | --- | --- | | Study name | Static 1 | | 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 | Automatic | | Inplane Effect: | Off | | Soft Spring: | Off | | Inertial Relief: | Off | | Incompatible bonding options | Automatic | | Large displacement | On | | Compute free body forces | On | | Friction | Off | | Use Adaptive Method: | Off | | Result folder | SOLIDWORKS document (c:\users\hp\appdata\local\temp) | |

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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:**** | **Nylon 101** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Max von Mises Stress** | | ****Yield strength:**** | **6e+07 N/m^2** | | ****Tensile strength:**** | **7.92897e+07 N/m^2** | | ****Elastic modulus:**** | **1e+09 N/m^2** | | ****Poisson's ratio:**** | **0.3** | | ****Mass density:**** | **1,150 kg/m^3** | | ****Thermal expansion coefficient:**** | **1e-06 /Kelvin** | | **SolidBody 1(Fillet2)(Part1)** | | **Curve Data:N/A** | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **2 face(s)** | | Type: | **Fixed Geometry** | | | ****Resultant Forces****   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Components** | **X** | **Y** | **Z** | **Resultant** | | **Reaction force(N)** | **-1.16415e-05** | **-95.0035** | **-0.0192581** | **95.0035** | | **Reaction Moment(N.m)** | **0** | **0** | **0** | **0** | | | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s), 1 plane(s)** | | Reference: | **Top Plane** | | Type: | **Apply force** | | Values: | **---, ---, 95 N** | | |

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| Connector Definitions No Data |

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| Interaction Information No Data |

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| Mesh information  |  |  | | --- | --- | | Mesh type | Solid Mesh | | Mesher Used: | Blended curvature-based mesh | | Jacobian points for High quality mesh | 16 Points | | Maximum element size | 0.391984 mm | | Minimum element size | 0.13066 mm | | Mesh Quality | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 13469 | | Total Elements | 8746 | | Maximum Aspect Ratio | 3.1697 | | % of elements with Aspect Ratio < 3 | 99.9 | | Percentage of elements with Aspect Ratio > 10 | 0 | | Percentage of distorted elements | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:02 | | Computer name: | CYCLOTRON | |

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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 | -1.16415e-05 | -95.0035 | -0.0192581 | 95.0035 |  Reaction Moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 0 | 0 | 0 | 0 | |
| Free body forces  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N | 0 | 0 | 0 | 0 |  Free body 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 | 3.371e+05N/m^2  Node: 2 | 1.031e+08N/m^2  Node: 13118 | | **Part1-Static 1-Stress-Stress1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement1 | URES: Resultant Displacement | 0.000e+00mm  Node: 8 | 4.308e-01mm  Node: 330 | | **Part1-Static 1-Displacement-Displacement1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Strain1 | ESTRN: Equivalent Strain | 1.003e-03  Element: 1747 | 7.432e-02  Element: 2109 | | **Part1-Static 1-Strain-Strain1** | | | |  | Name | Type | | --- | --- | | Design Insight1 | Design Insight | | **Part1-Static 1-Design Insight-Design Insight1** | | |

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| Conclusion |