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|  | |  | | --- | | **Simulation of Bracket**  **Date: Saturday, October 26, 2013 Designer: Solidworks**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc370509681)  [Assumptions 2](#_Toc370509682)  [Model Information 2](#_Toc370509683)  [Material Properties 3](#_Toc370509684)  [Loads and Fixtures 3](#_Toc370509685)  [Mesh Information 4](#_Toc370509686)  [Study Results 6](#_Toc370509687)  [Conclusion 9](#_Toc370509688) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Bracket**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Fillet1** | **Solid Body** | ****Mass:0.0202274 kg****  ****Volume:1.68562e-005 m^3****  ****Density:1200 kg/m^3****  ****Weight:0.198229 N**** | ****H:\ME\_450\Linear Book Scanner\Vacuum Tube\Bracket.SLDPRT****  **Oct 26 00:09:24 2013** | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **Acrylic (Medium-high impact)** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Unknown** | | ****Yield strength:**** | **4.5e+007 N/m^2** | | ****Tensile strength:**** | **7.3e+007 N/m^2** | | **SolidBody 1(Fillet1)(Bracket)** | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **4 face(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s), 1 plane(s)** | | Reference: | **Top Plane** | | Type: | **Apply force** | | Values: | **---, ---, -5 lbf** | | |

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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 | 0.100982 in | | Tolerance | 0.00504911 in | | Mesh Quality | High |  Mesh Information - Details  |  |  | | --- | --- | | Total Nodes | 13278 | | Total Elements | 7939 | | Maximum Aspect Ratio | 3.9285 | | % of elements with Aspect Ratio < 3 | 99.7 | | % of elements with Aspect Ratio > 10 | 0 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:01 | | Computer name: | DC3SWP37 | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 593.27 N/m^2  Node: 10457 | 6.96631e+006 N/m^2  Node: 7934 | | **Bracket-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0 mm  Node: 445 | 0.366235 mm  Node: 8214 | | **Bracket-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed Shape | | **Bracket-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 6.45966  Node: 7934 | 75850.8  Node: 10457 | | **Bracket-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion |