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| **Simulation of Bracket****Date: Saturday, October 26, 2013Designer: Solidworks****Study name: SimulationXpress Study****Analysis type: Static** |
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 |
| DescriptionNo Data |

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| Assumptions |

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| Model Information

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****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

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| ****Model Reference**** | ****Properties**** | ****Components**** |
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| ****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** |  |

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| --- | --- |
| Entities: | **4 face(s)** |
| Type: | **Fixed Geometry** |

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| ****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

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| 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

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| --- | --- |
| 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^2Node: 10457 | 6.96631e+006 N/m^2Node: 7934 |
| **Bracket-SimulationXpress Study-Stress-Stress** |

| Name | Type | Min | Max |
| --- | --- | --- | --- |
| Displacement | URES: Resultant Displacement | 0 mmNode: 445 | 0.366235 mmNode: 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 |