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|  | |  | | --- | | **Simulation of Across Mount**  **Date: Wednesday, June 18, 2014 Designer: Solidworks**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc390881008)  [Assumptions 2](#_Toc390881009)  [Model Information 2](#_Toc390881010)  [Material Properties 3](#_Toc390881011)  [Loads and Fixtures 4](#_Toc390881012)  [Mesh Information 5](#_Toc390881013)  [Study Results 7](#_Toc390881014)  [Conclusion 10](#_Toc390881015) | |
| Description June\_18\_2014  Panel Mount loaded from top on the two plates  shown with a steel bar across the top to represent the solar panel |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Across Mount**  ****Current Configuration:** Default<As Machined>** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Boss-Extrude5** | **Solid Body** | ****Mass:12.6283 kg****  ****Volume:0.00164004 m^3****  ****Density:7700 kg/m^3****  ****Weight:123.758 N**** | ****C:\Users\sfalcone\Desktop\GitHub\tinyPipes\mechanics\Panel Mount\sfalcone\Simple Mount\Across Mount.SLDPRT****  **Jun 18 18:34:20 2014** | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **Alloy Steel** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Max von Mises Stress** | | ****Yield strength:**** | **620.422 N/mm^2** | | ****Tensile strength:**** | **723.826 N/mm^2** | | **SolidBody 1(#8 (#8 (Boss-Extrude5)(Across Mount)** | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **2 face(s)** | | Type: | **Apply normal force** | | Value: | **2450 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 | 5.61877 mm | | Tolerance | 0.280939 mm | | Mesh Quality | High |  Mesh Information - Details  |  |  | | --- | --- | | Total Nodes | 99998 | | Total Elements | 61851 | | Maximum Aspect Ratio | 20.064 | | % of elements with Aspect Ratio < 3 | 99.4 | | % of elements with Aspect Ratio > 10 | 0.0905 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:19 | | Computer name: | SFALCONE-THINK | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 0.00217172 N/mm^2 (MPa)  Node: 38965 | 792.817 N/mm^2 (MPa)  Node: 3311 | | **Across Mount-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0 mm  Node: 59 | 5.27637 mm  Node: 86117 | | **Across Mount-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed Shape | | **Across Mount-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 0.782554  Node: 3311 | 285682  Node: 38965 | | **Across Mount-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion |