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|  | |  | | --- | | **Simulation of Swiss Cube**  **Date: Thursday, March 12, 2020 Designer: Arjun Singh**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc34930468)  [Assumptions 2](#_Toc34930469)  [Model Information 2](#_Toc34930470)  [Material Properties 3](#_Toc34930471)  [Loads and Fixtures 3](#_Toc34930472)  [Mesh information 4](#_Toc34930473)  [Study Results 6](#_Toc34930474)  [Conclusion 8](#_Toc34930475) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Swiss Cube**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **LPattern4** | **Solid Body** | ****Mass:0.119651 kg****  ****Volume:4.43152e-05 m^3****  ****Density:2,700 kg/m^3****  ****Weight:1.17258 N****  Density = 0.10 pounds per cubic inch  Mass = 0.26 pounds  Volume = 2.70 cubic inches (34.328)  Surface area = 81.64 square inches  (63.6750) | ****C:\Users\Acer\Documents\Swiss Cube.SLDPRT****  **Mar 12 13:44:58 2020** | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **6061 Alloy** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Unknown** | | ****Yield strength:**** | **5.51485e+07 N/m^2** | | ****Tensile strength:**** | **1.24084e+08 N/m^2** | | **SolidBody 1(LPattern4)(Swiss Cube)** | |

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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: | **1 face(s)** | | Type: | **Apply normal force** | | Value: | **250 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 | 0.180719 in | | Tolerance | 0.00903595 in | | Mesh Quality Plot | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 42650 | | Total Elements | 17775 | | Maximum Aspect Ratio | 30.835 | | % of elements with Aspect Ratio < 3 | 51.8 | | % of elements with Aspect Ratio > 10 | 4.27 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:30 | | Computer name: |  | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 5.505e+03 N/m^2  Node: 31260 | 1.474e+08 N/m^2  Node: 11215 | | **Swiss Cube-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0.000e+00 mm  Node: 3503 | 3.039e-02 mm  Node: 22608 | | **Swiss Cube-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed shape | | **Swiss Cube-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 3.742e-01  Node: 11215 | 1.002e+04  Node: 31260 | | **Swiss Cube-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion |