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|  | |  | | --- | | **Simulation of Part1\_2**  **Date: понедельник, 29 января 2024 г. Designer: Solidworks**  **Study name: Static 1**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc157436754)  [Assumptions 2](#_Toc157436755)  [Model Information 2](#_Toc157436756)  [Study Properties 3](#_Toc157436757)  [Units 3](#_Toc157436758)  [Material Properties 4](#_Toc157436759)  [Loads and Fixtures 4](#_Toc157436760)  [Connector Definitions 5](#_Toc157436761)  [Interaction Information 5](#_Toc157436762)  [Mesh information 5](#_Toc157436763)  [Sensor Details 5](#_Toc157436764)  [Resultant Forces 6](#_Toc157436765)  [Beams 6](#_Toc157436766)  [Study Results 7](#_Toc157436767)  [Conclusion 9](#_Toc157436768) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Part1\_2**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Cut-Extrude7** | **Solid Body** | ****Mass:0,115919 kg****  ****Volume:1,50544e-05 m^3****  ****Density:7 700 kg/m^3****  ****Weight:1,13601 N**** | ****D:\Download\Gmail\Part1\_2.SLDPRT****  **Jan 29 15:22:03 2024** | |

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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 | Off | | Compute free body forces | On | | Friction | Off | | Use Adaptive Method: | Off | | Result folder | SOLIDWORKS document (D:\Download\Gmail) | |

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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:**** | **Alloy Steel** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Max von Mises Stress** | | ****Yield strength:**** | **6,20422e+08 N/m^2** | | ****Tensile strength:**** | **7,23826e+08 N/m^2** | | ****Elastic modulus:**** | **2,1e+11 N/m^2** | | ****Poisson's ratio:**** | **0,28** | | ****Mass density:**** | **7 700 kg/m^3** | | ****Shear modulus:**** | **7,9e+10 N/m^2** | | ****Thermal expansion coefficient:**** | **1,3e-05 /Kelvin** | | **SolidBody 1(Cut-Extrude7)(Part1\_2)** | | **Curve Data:N/A** | | | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Fixed Geometry** | | | ****Resultant Forces****   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Components** | **X** | **Y** | **Z** | **Resultant** | | **Reaction force(N)** | **50,0005** | **-1,2707e-05** | **-1,82688e-05** | **50,0005** | | **Reaction Moment(N.m)** | **0** | **0** | **0** | **0** | | | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Apply normal force** | | Value: | **50 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 | 4,94019 mm | | Minimum element size | 0,765367 mm | | Mesh Quality | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 60053 | | Total Elements | 37463 | | Maximum Aspect Ratio | 4,3459 | | % of elements with Aspect Ratio < 3 | 99,7 | | Percentage of elements with Aspect Ratio > 10 | 0 | | Percentage of distorted elements | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:05 | | Computer name: | MISHAPC | |

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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 | 50,0005 | -1,2707e-05 | -1,82688e-05 | 50,0005 |  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 | -0,0357595 | -0,0181566 | 0,0655442 | 0,0768403 |  Free body moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 0 | 0 | 0 | 1e-33 | |

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| Beams No Data |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress1 | VON: von Mises Stress | 1,947e+03N/m^2  Node: 22599 | 3,066e+07N/m^2  Node: 48734 | | **Part1\_2-Static 1-Stress-Stress1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement1 | URES: Resultant Displacement | 0,000e+00mm  Node: 21 | 1,400e-01mm  Node: 59347 | | **Part1\_2-Static 1-Displacement-Displacement1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Strain1 | ESTRN: Equivalent Strain | 6,808e-09  Element: 18926 | 1,067e-04  Element: 5092 | | **Part1\_2-Static 1-Strain-Strain1** | | | |  | Name | Type | | --- | --- | | Displacement1{1} | Deformed shape | | **Part1\_2-Static 1-Displacement-Displacement1{1}** | | |

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| Conclusion |