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|  | |  | | --- | | **Simulation of xing ling**  **Date: May 28, 2016 Designer: Solidworks**  **Study name: Estudo 1**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc452221047)  [Assumptions 2](#_Toc452221048)  [Model Information 2](#_Toc452221049)  [Study Properties 3](#_Toc452221050)  [Units 3](#_Toc452221051)  [Material Properties 4](#_Toc452221052)  [Loads and Fixtures 5](#_Toc452221053)  [Connector Definitions 6](#_Toc452221054)  [Contact Information 6](#_Toc452221055)  [Mesh information 7](#_Toc452221056)  [Sensor Details 8](#_Toc452221057)  [Resultant Forces 8](#_Toc452221058)  [Beams 8](#_Toc452221059)  [Study Results 9](#_Toc452221060)  [Conclusion 11](#_Toc452221061) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** xing ling**  ****Current Configuration:** Valor predeterminado** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Ressalto-extrusão3** | **Solid Body** | ****Mass:0.129045 kg****  ****Volume:4.81512e-005 m^3****  ****Density:2680 kg/m^3****  ****Weight:1.26464 N**** | ****\\Mac\Home\Documents\GitHub\ufrgs-instrumentacao-lab5\Resources\Solid\Xing\xing ling.SLDPRT****  **May 26 18:14:34 2016** | |

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| Study Properties  |  |  | | --- | --- | | Study name | Estudo 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 | Direct sparse solver | | 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 (\\Mac\Home\Documents\GitHub\ufrgs-instrumentacao-lab5\Resources\Solid\Xing) | |

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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:**** | **5052-H32** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Max von Mises Stress** | | ****Yield strength:**** | **1.95e+008 N/m^2** | | ****Tensile strength:**** | **2.3e+008 N/m^2** | | ****Elastic modulus:**** | **7e+010 N/m^2** | | ****Poisson's ratio:**** | **0.33** | | ****Mass density:**** | **2680 kg/m^3** | | ****Shear modulus:**** | **2.59e+010 N/m^2** | | ****Thermal expansion coefficient:**** | **2.38e-005 /Kelvin** | | **Corpo sólido 1(Ressalto-extrusão3)(xing ling)** | | **Curve Data:N/A** | | | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixo-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Fixed Geometry** | | | ****Resultant Forces****   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Components** | **X** | **Y** | **Z** | **Resultant** | | **Reaction force(N)** | **-1.33514e-005** | **3.96873** | **5.96046e-007** | **3.96873** | | **Reaction Moment(N.m)** | **0** | **0** | **0** | **0** | | | | | **Fixo-2** |  | |  |  | | --- | --- | | Entities: | **1 edge(s)** | | Type: | **Fixed Geometry** | | | ****Resultant Forces****   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Components** | **X** | **Y** | **Z** | **Resultant** | | **Reaction force(N)** | **397.278** | **157.931** | **2.36515** | **427.526** | | **Reaction Moment(N.m)** | **0** | **0** | **0** | **0** | | | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Força-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Apply normal force** | | Value: | **4 N** | | |

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| Connector Definitions No Data |

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| Contact Information No Data |

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| Mesh information  |  |  | | --- | --- | | Mesh type | Solid Mesh | | Mesher Used: | Curvature-based mesh | | Jacobian points | 4 Points | | Maximum element size | 0 mm | | Minimum element size | 0 mm | | Mesh Quality | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 17133 | | Total Elements | 9307 | | Maximum Aspect Ratio | 6.17 | | % 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: |  | |  | | |

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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 | -1.33514e-005 | 3.96873 | 5.96046e-007 | 3.96873 |  Reaction Moments  | Selection set | Units | Sum X | Sum Y | Sum Z | Resultant | | --- | --- | --- | --- | --- | --- | | Entire Model | N.m | 0 | 0 | 0 | 0 | |
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| Beams No Data |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Tensão1 | VON: von Mises Stress | 1257.02 N/m^2  Node: 16213 | 1.96096e+007 N/m^2  Node: 8197 | | **xing ling-Estudo 1-Stress-Tensão1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Deslocamento1 | URES: Resultant Displacement | 0 mm  Node: 15 | 7.79613 mm  Node: 8547 | | **xing ling-Estudo 1-Displacement-Deslocamento1** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Deformação1 | ESTRN: Equivalent Strain | 1.79806e-008  Element: 2926 | 0.000192997  Element: 4161 | | **xing ling-Estudo 1-Strain-Deformação1** | | | |  | Name | Type | | --- | --- | | Deslocamento1{1} | Deformed shape | | **xing ling-Estudo 1-Displacement-Deslocamento1{1}** | | |

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| Conclusion |