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|  | |  | | --- | | **Simulation of Stand\_flange**  **Date: Friday, June 20, 2014 Designer: Solidworks**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc391038234)  [Assumptions 2](#_Toc391038235)  [Model Information 2](#_Toc391038236)  [Material Properties 3](#_Toc391038237)  [Loads and Fixtures 4](#_Toc391038238)  [Mesh Information 5](#_Toc391038239)  [Study Results 7](#_Toc391038240)  [Conclusion 10](#_Toc391038241) | |
| Description Flanged Stand top loaded |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** Stand\_flange**  ****Current Configuration:** Slot** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **#8 (0.199) Diameter Hole3** | **Solid Body** | ****Mass:2.98192 kg****  ****Volume:0.000387262 m^3****  ****Density:7700 kg/m^3****  ****Weight:29.2228 N**** | ****C:\Users\sfalcone\Desktop\TinyPipes\GitHub\tinyPipes\mechanics\Panel Mount\sfalcone\Flange Between Mount and Stand\Stand\_flange.SLDPRT****  **Jun 20 14:28:06 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 (0.199) Diameter Hole3)(Stand)** | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-3** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Force-4** |  | |  |  | | --- | --- | | Entities: | **1 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 | 7.86414 mm | | Tolerance | 0.393207 mm | | Mesh Quality | High |  Mesh Information - Details  |  |  | | --- | --- | | Total Nodes | 21958 | | Total Elements | 11152 | | Maximum Aspect Ratio | 9.6445 | | % of elements with Aspect Ratio < 3 | 28.3 | | % of elements with Aspect Ratio > 10 | 0 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:05 | | Computer name: | SFALCONE-THINK | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 0.181406 N/mm^2 (MPa)  Node: 21509 | 24.8666 N/mm^2 (MPa)  Node: 21777 | | **Stand\_flange-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0 mm  Node: 122 | 0.0467601 mm  Node: 89 | | **Stand\_flange-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed Shape | | **Stand\_flange-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 24.95  Node: 21777 | 3420.07  Node: 21509 | | **Stand\_flange-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion |