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|  | |  | | --- | | **Simulation of MatricePlate**  **Date: Monday, May 3, 2021 Designer: BAALI issam**  **Study name: SimulationXpress Study**  **Analysis type: Static** | | Table of Contents  [Description 1](#_Toc70905196)  [Assumptions 3](#_Toc70905197)  [Model Information 3](#_Toc70905198)  [Material Properties 4](#_Toc70905199)  [Loads and Fixtures 5](#_Toc70905200)  [Mesh information 6](#_Toc70905201)  [Study Results 8](#_Toc70905202)  [Conclusion 11](#_Toc70905203) | |
| Description No Data |

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| Assumptions |

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| Model Information  |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | |  |   ****Model name:** MatricePlate**  ****Current Configuration:** Default** | | | | | ****Solid Bodies**** | | | | | ****Document Name and Reference**** | ****Treated As**** | ****Volumetric Properties**** | ****Document Path/Date Modified**** | | **Chamfer1** | **Solid Body** | ****Mass:3.8434 kg****  ****Volume:0.000549058 m^3****  ****Density:7,000 kg/m^3****  ****Weight:37.6654 N**** | ****C:\Users\issam\OneDrive\Bureau\PFE\_ESTC\CAD\machine a granulat\SousEnsambleMatrice\MatricePlate.SLDPRT****  **May 3 02:21:03 2021** | |

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| Material Properties  |  |  |  | | --- | --- | --- | | ****Model Reference**** | ****Properties**** | ****Components**** | |  | |  |  | | --- | --- | | ****Name:**** | **41 cr 4** | | ****Model type:**** | **Linear Elastic Isotropic** | | ****Default failure criterion:**** | **Max von Mises Stress** | | ****Yield strength:**** | **600 N/mm^2** | | ****Tensile strength:**** | **900 N/mm^2** | | **SolidBody 1(Chamfer1)(MatricePlate)** | |

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| **Loads and Fixtures**  | ****Fixture name**** | ****Fixture Image**** | ****Fixture Details**** | | --- | --- | --- | | **Fixed-9** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Fixed Geometry** | |  | ****Load name**** | ****Load Image**** | ****Load Details**** | | --- | --- | --- | | **Pressure-1** |  | |  |  | | --- | --- | | Entities: | **1 face(s)** | | Type: | **Normal to selected face** | | Value: | **5e+06** | | Units: | **N/m^2** | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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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 | 17.937 mm | | Tolerance | 0.896851 mm | | Mesh Quality Plot | High |  Mesh information - Details  |  |  | | --- | --- | | Total Nodes | 78897 | | Total Elements | 43395 | | Maximum Aspect Ratio | 19.952 | | % of elements with Aspect Ratio < 3 | 49.1 | | % of elements with Aspect Ratio > 10 | 0.452 | | % of distorted elements(Jacobian) | 0 | | Time to complete mesh(hh;mm;ss): | 00:00:42 | | Computer name: | IBAALI | |  | | |

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| Study Results  | Name | Type | Min | Max | | --- | --- | --- | --- | | Stress | VON: von Mises Stress | 0.000e+00 N/mm^2 (MPa)  Node: 1165 | 1.005e+03 N/mm^2 (MPa)  Node: 127 | | **MatricePlate-SimulationXpress Study-Stress-Stress** | | | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Displacement | URES: Resultant Displacement | 0.000e+00 mm  Node: 1 | 4.170e-01 mm  Node: 78182 | | **MatricePlate-SimulationXpress Study-Displacement-Displacement** | | | |  | Name | Type | | --- | --- | | Deformation | Deformed shape | | **MatricePlate-SimulationXpress Study-Displacement-Deformation** | |  | Name | Type | Min | Max | | --- | --- | --- | --- | | Factor of Safety | Max von Mises Stress | 5.969e-01  Node: 127 | 3.376e+02  Node: 56638 | | **MatricePlate-SimulationXpress Study-Factor of Safety-Factor of Safety** | | | | |

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| Conclusion |