|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | | | | | |
|  | | | |  | |  | |  |
| **Report** | **Report** | **Report** | **Report** | | | | | |
|  |  |  |  | | | | | |
|  |  |  |  | | | | | |
| Prepared by: | | | |  | | Prepared for: | |  |
| SDC Verifier | SDC Verifier | | | | | company | company | |
| +31 15 30-10-310 | +31 15 30-10-310 | | | | | +31 15 555-55-55 | +31 15 555-55-55 | |
| sdcverifier.com | sdcverifier.com | | | | | company.com | company.com | |
| Zijlvest 25 2011 VB Haarlem The Netherlands | | | |  | | Zijlvest 25 2011 VB Haarlem The Netherlands | |  |
|  |  |  |  | | | | | |
|  |  |  |  | | | | | |
| **Engineer:** | | | | Support | Support | | |  |
| **Customer:** | | | | company | company | | |  |
| **Project Number:** | | | |  |  | | |  |
| **Version:** | | | | 1 | 1 | | |  |
| **Date:** | | | | 24-01-2018 | 24-01-2018 | | |  |

### Content

|  |  |  |
| --- | --- | --- |
| Individual Load | FemLoad / Result Case | Constraint |
| 1..gravity | Static Structural - step: 1 | - |
| 2..tip load | Static Structural - step: 2 | - |
| 3..middle\_bridge | Static Structural - step: 3 | - |
| 4..back side | Static Structural - step: 4 | - |
| 5..at\_forestay | Static Structural - step: 5 | - |
| 6..at\_hinge\_point | Static Structural - step: 6 | - |
| 7..Trolley\_ride | Static Structural - step: 7 | - |
| 8..tip side\_load | Static Structural - step: 8 | - |
| 9..middle\_bridge\_side\_load | Static Structural - step: 9 | - |
| 10..back side\_side\_load | Static Structural - step: 10 | - |
| 11..at\_forestay\_side\_load | Static Structural - step: 11 | - |
| 12..at\_hinge\_point\_side\_load | Static Structural - step: 12 | - |
| 13..Crane\_ride | Static Structural - step: 13 | - |

### Individual Load '5..at\_forestay'

|  |  |
| --- | --- |
|  | |
| Title | Value |
| Individual Load | 5..at\_forestay |
| Type | Imported from Result Case |
| Result Case | Static Structural - step: 5 |

Sum of Reaction Forces

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Load | Fx | Fy | Fz | Fsum | Mx | My | Mz | Msum |
| IL5..at\_forestay | 0.0 | 0.0 | 1220000.0 | 1220000.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Displacement (All Entities)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Individual Load | 5..at\_forestay | | | | Selection | | All Entities | | | |
| Type | Extreme | | | | Category | | Displacement | | | |
| Extreme | | Ux | Uy | Uz | | Usum | Rx | Ry | Rz | Rsum | |
| Minimum | | 0.000 | -0.004 | -0.113 | | 0.000 | -0.001 | 0.000 | 0.000 | 0.000 | |
| Maximum | | 0.031 | 0.004 | 0.015 | | 0.113 | 0.001 | 0.002 | 0.000 | 0.002 | |
| Absolute | | 0.031 | 0.004 | -0.113 | | 0.113 | -0.001 | 0.002 | 0.000 | 0.002 | |

Usum (All Entities, v1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Individual Load | IL5..at\_forestay | Parameter | Displacement Usum |
| Selection | All Entities | View | 1..Default View |

Seqv (All Entities, v1, Total)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Individual Load | IL5..at\_forestay | Parameter | Stress Equivalent |
| Selection | All Entities | View | 1..Default View |
| Point | Total (AbsMax) | Limits | None |

### Content

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Individual Load | LS1 | LS2 | LS3 | LS4 | LS5 | LS6 | LS7 | LS8 | LS9 | LS10 |
| IL1..gravity | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| IL2..tip load | 1.35 | 1.35 | 1.35 | 1.35 | - | - | - | - | - | - |
| IL3..middle\_bridge | - | - | - | - | 1.35 | 1.35 | 1.35 | 1.35 | - | - |
| IL4..back side | - | - | - | - | - | - | - | - | 1.35 | 1.35 |
| IL7..Trolley\_ride | 1.15 | 1.15 | -1.15 | -1.15 | 1.15 | 1.15 | -1.15 | -1.15 | 1.15 | 1.15 |
| IL8..tip side\_load | 1.15 | -1.15 | 1.15 | -1.15 | - | - | - | - | - | - |
| IL9..middle\_bridge\_side\_load | - | - | - | - | 1.15 | -1.15 | 1.15 | -1.15 | - | - |
| IL10..back side\_side\_load | - | - | - | - | - | - | - | - | 1.15 | -1.15 |
| IL13..Crane\_ride | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Individual Load | LS11 | LS12 | LS13 | LS14 | LS15 | LS16 | LS17 | LS18 | LS19 | LS20 |
| IL1..gravity | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| IL4..back side | 1.35 | 1.35 | - | - | - | - | - | - | - | - |
| IL5..at\_forestay | - | - | 1.35 | 1.35 | 1.35 | 1.35 | - | - | - | - |
| IL6..at\_hinge\_point | - | - | - | - | - | - | 1.35 | 1.35 | 1.35 | 1.35 |
| IL7..Trolley\_ride | -1.15 | -1.15 | 1.15 | 1.15 | -1.15 | -1.15 | 1.15 | 1.15 | -1.15 | -1.15 |
| IL10..back side\_side\_load | 1.15 | -1.15 | - | - | - | - | - | - | - | - |
| IL11..at\_forestay\_side\_load | - | - | 1.15 | -1.15 | 1.15 | -1.15 | - | - | - | - |
| IL12..at\_hinge\_point\_side\_load | - | - | - | - | - | - | 1.15 | -1.15 | 1.15 | -1.15 |
| IL13..Crane\_ride | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 | 1.15 | -1.15 |

(LS) AbsMax Overall Stress

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Loads Count | 20 | | | | Category | | Stress | | | |
| Selection | All Entities | | | | Type | | Extreme | | | |
| Parameter | Abs | | | |  | |  | | | |
| Load | | X | Y | Z | | XY | | YZ | ZX | Equivalent | |
| LS1..LC1s\_Tip load.1 | | 129.42e+6 |  |  | |  | |  |  | 129.42e+6 | |
| LS2..LC1s\_Tip load.2 | | 129.42e+6 |  |  | |  | |  |  | 129.42e+6 | |
| LS3..LC1s\_Tip load.3 | | 127.52e+6 |  |  | |  | |  |  | 127.52e+6 | |
| LS4..LC1s\_Tip load.4 | | 127.52e+6 |  |  | |  | |  |  | 127.52e+6 | |
| LS5..LC1s\_Middle Bridge.1 | | 116.18e+6 |  |  | |  | |  |  | 116.18e+6 | |
| LS6..LC1s\_Middle Bridge.2 | | 116.18e+6 |  |  | |  | |  |  | 116.18e+6 | |
| LS7..LC1s\_Middle Bridge.3 | | 114.28e+6 |  |  | |  | |  |  | 114.28e+6 | |
| LS8..LC1s\_Middle Bridge.4 | | 114.28e+6 |  |  | |  | |  |  | 114.28e+6 | |
| LS9..LC1s\_Backside.1 | | 110.59e+6 |  |  | |  | |  |  | 110.59e+6 | |
| LS10..LC1s\_Backside.2 | | 110.59e+6 |  |  | |  | |  |  | 110.59e+6 | |
| LS11..LC1s\_Backside.3 | | 108.70e+6 |  |  | |  | |  |  | 108.70e+6 | |
| LS12..LC1s\_Backside.4 | | 108.70e+6 |  |  | |  | |  |  | 108.70e+6 | |
| LS13..LC1s\_At\_forestay.1 | | 127.40e+6 |  |  | |  | |  |  | 127.40e+6 | |
| LS14..LC1s\_At\_forestay.2 | | 127.40e+6 |  |  | |  | |  |  | 127.40e+6 | |
| LS15..LC1s\_At\_forestay.3 | | 125.51e+6 |  |  | |  | |  |  | 125.51e+6 | |
| LS16..LC1s\_At\_forestay.4 | | 125.51e+6 |  |  | |  | |  |  | 125.51e+6 | |
| LS17..LC1s\_at\_hinge\_point.1 | | 119.70e+6 |  |  | |  | |  |  | 119.70e+6 | |
| LS18..LC1s\_at\_hinge\_point.2 | | 119.70e+6 |  |  | |  | |  |  | 119.70e+6 | |
| LS19..LC1s\_at\_hinge\_point.3 | | 117.81e+6 |  |  | |  | |  |  | 117.81e+6 | |
| LS20..LC1s\_at\_hinge\_point.4 | | 117.81e+6 |  |  | |  | |  |  | 117.81e+6 | |

(LS) AbsMax Overall Displacement

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Loads Count | 20 | | | | Category | | Displacement | | | |
| Selection | All Entities | | | | Type | | Extreme | | | |
| Parameter | Abs | | | |  | |  | | | |
| Load | | Ux | Uy | Uz | Usum | Rx | | Ry | Rz | Rsum | |
| LS1..LC1s\_Tip load.1 | | 0.149 | -0.156 | -0.338 | 0.341 | 0.009 | | 0.009 | 0.009 | 0.009 | |
| LS2..LC1s\_Tip load.2 | | 0.149 | 0.156 | -0.338 | 0.341 | -0.009 | | 0.009 | -0.009 | 0.009 | |
| LS3..LC1s\_Tip load.3 | | 0.137 | -0.156 | -0.337 | 0.339 | 0.009 | | 0.009 | 0.009 | 0.009 | |
| LS4..LC1s\_Tip load.4 | | 0.137 | 0.156 | -0.337 | 0.339 | -0.009 | | 0.009 | -0.009 | 0.009 | |
| LS5..LC1s\_Middle Bridge.1 | | 0.091 | -0.140 | 0.206 | 0.244 | 0.008 | | 0.004 | 0.008 | 0.008 | |
| LS6..LC1s\_Middle Bridge.2 | | 0.091 | 0.140 | 0.206 | 0.244 | -0.008 | | 0.004 | -0.008 | 0.008 | |
| LS7..LC1s\_Middle Bridge.3 | | 0.079 | -0.140 | 0.207 | 0.244 | 0.008 | | 0.004 | 0.008 | 0.008 | |
| LS8..LC1s\_Middle Bridge.4 | | 0.079 | 0.140 | 0.207 | 0.244 | -0.008 | | 0.004 | -0.008 | 0.008 | |
| LS9..LC1s\_Backside.1 | | 0.086 | -0.140 | 0.102 | 0.159 | 0.007 | | 0.004 | 0.008 | 0.009 | |
| LS10..LC1s\_Backside.2 | | 0.086 | 0.140 | 0.102 | 0.159 | -0.007 | | 0.004 | -0.008 | 0.009 | |
| LS11..LC1s\_Backside.3 | | 0.074 | -0.140 | 0.103 | 0.157 | 0.007 | | 0.004 | 0.008 | 0.009 | |
| LS12..LC1s\_Backside.4 | | 0.074 | 0.140 | 0.103 | 0.157 | -0.007 | | 0.004 | -0.008 | 0.009 | |
| LS13..LC1s\_At\_forestay.1 | | 0.136 | -0.153 | -0.243 | 0.261 | 0.009 | | 0.005 | 0.009 | 0.009 | |
| LS14..LC1s\_At\_forestay.2 | | 0.136 | 0.153 | -0.243 | 0.261 | -0.009 | | 0.005 | -0.009 | 0.009 | |
| LS15..LC1s\_At\_forestay.3 | | 0.124 | -0.154 | -0.243 | 0.260 | 0.009 | | 0.005 | 0.009 | 0.009 | |
| LS16..LC1s\_At\_forestay.4 | | 0.124 | 0.154 | -0.243 | 0.260 | -0.009 | | 0.005 | -0.009 | 0.009 | |
| LS17..LC1s\_at\_hinge\_point.1 | | 0.098 | -0.144 | 0.202 | 0.244 | 0.008 | | 0.004 | 0.008 | 0.008 | |
| LS18..LC1s\_at\_hinge\_point.2 | | 0.098 | 0.144 | 0.202 | 0.244 | -0.008 | | 0.004 | -0.008 | 0.008 | |
| LS19..LC1s\_at\_hinge\_point.3 | | 0.086 | -0.145 | 0.203 | 0.243 | 0.008 | | 0.004 | 0.008 | 0.008 | |
| LS20..LC1s\_at\_hinge\_point.4 | | 0.086 | 0.145 | 0.203 | 0.243 | -0.008 | | 0.004 | -0.008 | 0.008 | |

(LS) Reaction Forces Summation

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Loads Count | 20 | | | | Parameter | | | Reaction Force | | | |
| Selection | All Entities | | | | Type | | | Expand | | | |
| Load | | Fx | Fy | Fz | | Fsum | Mx | | My | Mz | Msum | |
| LS1..LC1s\_Tip load.1 | | -223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS2..LC1s\_Tip load.2 | | -223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS3..LC1s\_Tip load.3 | | 223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS4..LC1s\_Tip load.4 | | 223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS5..LC1s\_Middle Bridge.1 | | -223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS6..LC1s\_Middle Bridge.2 | | -223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS7..LC1s\_Middle Bridge.3 | | 223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS8..LC1s\_Middle Bridge.4 | | 223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS9..LC1s\_Backside.1 | | -223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS10..LC1s\_Backside.2 | | -223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS11..LC1s\_Backside.3 | | 223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS12..LC1s\_Backside.4 | | 223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS13..LC1s\_At\_forestay.1 | | -223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS14..LC1s\_At\_forestay.2 | | -223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS15..LC1s\_At\_forestay.3 | | 223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS16..LC1s\_At\_forestay.4 | | 223100 | -948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS17..LC1s\_at\_hinge\_point.1 | | -223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS18..LC1s\_at\_hinge\_point.2 | | -223100 | -948501 | -37760780 | | 37773350 | 0 | | 0 | 0 | 0 | |
| LS19..LC1s\_at\_hinge\_point.3 | | 223100 | 948501 | -37760780 | | 37773340 | 0 | | 0 | 0 | 0 | |
| LS20..LC1s\_at\_hinge\_point.4 | | 223100 | -948501 | -37760780 | | 37773350 | 0 | | 0 | 0 | 0 | |

### 1..Static Stress Check

|  |  |
| --- | --- |
| Property | Value |
| Category | Elemental Custom Check |
| Selection | All Entities |
| Parameters | 3 |

X (LG1, All Entities)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Standard | 1..Static Check | | | Check | [S1] 1..Static Stress Check | |
| Load Group | LG1..Overall | | | Selection | All Entities | |
| Extreme | | Stress | Allowable Stress | | | Utilization Factor | |
| Minimum | |  |  | | |  | |
| Value | | -52.18e+6 | 240.00e+6 | | | 0.00 | |
| Element ID | | 385 | 1 | | | 265 | |
| Maximum | |  |  | | |  | |
| Value | | 129.42e+6 | 240.00e+6 | | | 0.54 | |
| Element ID | | 2 | 1 | | | 2 | |
| Absolute | |  |  | | |  | |
| Value | | 129.42e+6 | 240.00e+6 | | | 0.54 | |
| Element ID | | 2 | 1 | | | 2 | |

Overall Utilization Factor (LG1, All Entities, v1, Total)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Check | [S1] 1..Static Stress Check | Point | Total |
| Load Group | LG1..Overall | Parameter | Overall Utilization Factor |
| Selection | All Entities | View | 1..Default View |

Overall Utilization Factor (LG1, All Entities, v3, Total)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Check | [S1] 1..Static Stress Check | Point | Total |
| Load Group | LG1..Overall | Parameter | Overall Utilization Factor |
| Selection | All Entities | View | 3..Front |

Overall Utilization Factor (LG1, All Entities, v4, Total)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| Check | [S1] 1..Static Stress Check | Point | Total |
| Load Group | LG1..Overall | Parameter | Overall Utilization Factor |
| Selection | All Entities | View | 4..Top |