## Appendix 3: Static loads summary

| | Description | Value | Unit | Comment |
|---|---|---|---|---|
| | **LC1 - Self-weight** | | | |
| | Sum of loads in X | 0.000 | kN | |
| | Sum of support forces in X | -0.485 | kN | |
| | Sum of loads in Y | 0.000 | kN | |
| | Sum of support forces in Y | 0.140 | kN | |
| | Sum of loads in Z | -8.26E+04 | kN | |
| | Sum of support forces in Z | -8.26E+04 | kN | Deviation: 0.00 % |
| | Resultant of reactions about X | -133.794 | kNm | At center of gravity of model (X: 4927.790, Y: -4292.740, Z: 20754.300 mm) |
| | Resultant of reactions about Y | 157.731 | kNm | At center of gravity of model |
| | Resultant of reactions about Z | -6.110 | kNm | At center of gravity of model |
| | Maximum displacement in X-direction | 4.6 | mm | FE Node No. 395 (X: -6570.9, Y: 0.0, Z: 20270.0 mm) |
| | Maximum displacement in Y-direction | 4.9 | mm | FE Node No. 400 (X: 10160.0, Y: -13500.0, Z: 20270.0 mm) |
| | Maximum displacement in Z-direction | -17.7 | mm | FE Node No. 22463 (X: 5520.3, Y: -4321.2, Z: 46145.8 mm) |
| | Maximum vectorial displacement | 18.2 | mm | FE Node No. 22462 (X: 5822.7, Y: -4321.2, Z: 46144.2 mm) |
| | Maximum rotation about X-axis | -0.29 | ° | FE Node No. 1406 (X: 129.1, Y: -13495.2, Z: 19400.0 mm) |
| | Maximum rotation about Y-axis | 0.18 | ° | FE Node No. 33834 (X: -1670.9, Y: -10561.9, Z: 19000.0 mm) |
| | Maximum rotation about Z-axis | -0.09 | ° | FE Node No. 34076 (X: -407.0, Y: -12244.7, Z: 18953.4 mm) |
| | Method of analysis | Large | | Large Deformation Analysis (Newton-Raphson) |
| | Consider favorable effects due to tension forces of members | + | | |
| | Divide results by LC Factor | - | | |
| | Reduction of stiffness | - | | |
| | Number of load increments | 5 | | |
| | Number of iterations | 3 | | |
| | Maximum value of element of stiffness matrix on diagonal | 4.804E+11 | | |
| | Minimum value of element of stiffness matrix on diagonal | 10000 | | |
| | Stiffness matrix determinant | 5.024E+2035255 | | |
| | Infinity Norm | 1.139E+12 | | |
| | Incrementally increasing loading | - | | |
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| LC4 - Bell | | | |
|---|---|---|---|
| Description | Value | Unit | Comment |
| Sum of loads in X | 0.000 | kN | |
| Sum of support forces in X | 0.000 | kN | |
| Sum of loads in Y | 0.000 | kN | |
| Sum of support forces in Y | 0.000 | kN | |
| Sum of loads in Z | -26.500 | kN | |
| Sum of support forces in Z | -26.500 | kN | Deviation: 0.00 % |
| Resultant of reactions about X | 4.843 | kNm | At center of gravity of model (X: 4927.790, Y: -4292.740, Z: 20754.300 mm) |
| Resultant of reactions about Y | 18.304 | kNm | At center of gravity of model |
| Resultant of reactions about Z | -0.002 | kNm | At center of gravity of model |
| Maximum displacement in X-direction | -0.3 | mm | Member No. 133,  x: 769.6 mm |
| Maximum displacement in Y-direction | 0.0 | mm | Member No. 161,  x: 3028.2 mm |
| Maximum displacement in Z-direction | -1.5 | mm | Member No. 157,  x: 1300.0 mm |
| Maximum vectorial displacement | 1.5 | mm | FE Node No. 425  (X: 5618.5,  Y: -4475.5,  Z: 41090.0 mm) |
| Maximum rotation about X-axis | 0.00 | ° | Member No. 164,  x: 1641.0 mm |
| Maximum rotation about Y-axis | -0.06 | ° | Member No. 157,  x: 433.3 mm |
| Maximum rotation about Z-axis | 0.00 | ° | FE Node No. 23204  (X: 8792.3,  Y: -4774.8,  Z: 35170.0 mm) |
| Method of analysis | Large | | Large Deformation Analysis (Newton-Raphson) |
| Consider favorable effects due to tension forces of members | + | | |
| Divide results by LC Factor | - | | |
| Reduction of stiffness | - | | |
| Number of load increments | 5 | | |
| Number of iterations | 2 | | |
| Maximum value of element of stiffness matrix on diagonal | 4.804E+11 | | |
| Minimum value of element of stiffness matrix on diagonal | 10000 | | |
| Stiffness matrix determinant | 1.293E+2035263 | | |
| Infinity Norm | 1.139E+12 | | |
| Incrementally increasing loading | - | | |
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| LC6 - SIDL | | | |
|---|---|---|---|
| Description | Value | Unit | Comment |
| Sum of loads in X | 0.000 | kN | |
| Sum of support forces in X | -0.002 | kN | |
| Sum of loads in Y | 0.000 | kN | |
| Sum of support forces in Y | 0.003 | kN | |
| Sum of loads in Z | -1584.440 | kN | |
| Sum of support forces in Z | -1584.440 | kN | Deviation: 0.00 % |
| Resultant of reactions about X | 349.124 | kNm | At center of gravity of model (X: 4927.790, Y: -4292.740, Z: 20754.300 mm) |
| Resultant of reactions about Y | 666.912 | kNm | At center of gravity of model |
| Resultant of reactions about Z | -0.050 | kNm | At center of gravity of model |
| Maximum displacement in X-direction | 0.1 | mm | Member No. 171, x: 3821.5 mm |
| Maximum displacement in Y-direction | 0.1 | mm | FE Node No. 12891 (X: 6394.0, Y: -8907.0, Z: 49290.0 mm) |
| Maximum displacement in Z-direction | -2.8 | mm | FE Node No. 26485 (X: 4952.3, Y: -4573.4, Z: 0.0 mm) |
| Maximum vectorial displacement | 2.8 | mm | FE Node No. 26485 (X: 4952.3, Y: -4573.4, Z: 0.0 mm) |
| Maximum rotation about X-axis | -0.05 | ° | FE Node No. 26781 (X: 4953.5, Y: -7326.9, Z: 0.0 mm) |
| Maximum rotation about Y-axis | 0.05 | ° | FE Node No. 26475 (X: 1898.1, Y: -4587.2, Z: 0.0 mm) |
| Maximum rotation about Z-axis | 0.00 | ° | FE Node No. 1429 (X: 129.1, Y: -10395.2, Z: 17500.0 mm) |
| Method of analysis | Large | | Large Deformation Analysis (Newton-Raphson) |
| Consider favorable effects due to tension forces of members | + | | |
| Divide results by LC Factor | - | | |
| Reduction of stiffness | - | | |
| Number of load increments | 5 | | |
| Number of iterations | 3 | | |
| Maximum value of element of stiffness matrix on diagonal | 4.804E+11 | | |
| Minimum value of element of stiffness matrix on diagonal | 10000 | | |
| Stiffness matrix determinant | 8.110E+2035262 | | |
| Infinity Norm | 1.139E+12 | | |
| Incrementally increasing loading | - | | |
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| LC7 - Live Load | | | |
|---|---|---|---|
| Description | Value | Unit | Comment |
| Sum of loads in X | 0.000 | kN | |
| Sum of support forces in X | -0.002 | kN | |
| Sum of loads in Y | 0.000 | kN | |
| Sum of support forces in Y | 0.003 | kN | |
| Sum of loads in Z | -1584.440 | kN | |
| Sum of support forces in Z | -1584.440 | kN | Deviation: 0.00 % |
| Resultant of reactions about X | 349.124 | kNm | At center of gravity of model (X: 4927.790, Y: -4292.740, Z: 20754.300 mm) |
| Resultant of reactions about Y | 666.912 | kNm | At center of gravity of model |
| Resultant of reactions about Z | -0.050 | kNm | At center of gravity of model |
| Maximum displacement in X-direction | 0.1 | mm | Member No. 171,  x: 3821.5 mm |
| Maximum displacement in Y-direction | 0.1 | mm | FE Node No. 12891  (X: 6394.0,  Y: -8907.0,  Z: 49290.0 mm) |
| Maximum displacement in Z-direction | -2.8 | mm | FE Node No. 26485  (X: 4952.3,  Y: -4573.4,  Z: 0.0 mm) |
| Maximum vectorial displacement | 2.8 | mm | FE Node No. 26485  (X: 4952.3,  Y: -4573.4,  Z: 0.0 mm) |
| Maximum rotation about X-axis | -0.05 | ° | FE Node No. 26781  (X: 4953.5,  Y: -7326.9,  Z: 0.0 mm) |
| Maximum rotation about Y-axis | 0.05 | ° | FE Node No. 26475  (X: 1898.1,  Y: -4587.2,  Z: 0.0 mm) |
| Maximum rotation about Z-axis | 0.00 | ° | FE Node No. 1429  (X: 129.1,  Y: -10395.2,  Z: 17500.0 mm) |
| Method of analysis | Large | | Large Deformation Analysis (Newton-Raphson) |
| Consider favorable effects due to tension forces of members | + | | |
| Divide results by LC Factor | - | | |
| Reduction of stiffness | - | | |
| Number of load increments | 5 | | |
| Number of iterations | 3 | | |
| Maximum value of element of stiffness matrix on diagonal | 4.804E+11 | | |
| Minimum value of element of stiffness matrix on diagonal | 10000 | | |
| Stiffness matrix determinant | 8.110E+2035262 | | |
| Infinity Norm | 1.139E+12 | | |
| Incrementally increasing loading | - | | |
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| **LC9 - Wind load** | | | |
|---|---|---|---|
| Description | Value | Unit | Comment |
| Sum of loads in X | 0.000 | kN | |
| Sum of support forces in X | 0.000 | kN | |
| Sum of loads in Y | -491.971 | kN | |
| Sum of support forces in Y | -491.971 | kN | Deviation: 0.00 % |
| Sum of loads in Z | 0.000 | kN | |
| Sum of support forces in Z | 0.000 | kN | |
| Resultant of reactions about X | 5367.430 | kNm | At center of gravity of model (X: 4927.790, Y: -4292.740, Z: 20754.300 mm) |
| Resultant of reactions about Y | 0.000 | kNm | At center of gravity of model |
| Resultant of reactions about Z | -247.499 | kNm | At center of gravity of model |
| Maximum displacement in X-direction | -0.9 | mm | FE Node No. 8545  (X: 1075.0,  Y: -2366.4,  Z: 57250.0 mm) |
| Maximum displacement in Y-direction | -4.9 | mm | FE Node No. 5002  (X: 5617.9,  Y: 0.0,  Z: 57250.0 mm) |
| Maximum displacement in Z-direction | 0.6 | mm | FE Node No. 4964  (X: 10363.8,  Y: 0.0,  Z: 50331.4 mm) |
| Maximum vectorial displacement | 5.0 | mm | FE Node No. 5002  (X: 5617.9,  Y: 0.0,  Z: 57250.0 mm) |
| Maximum rotation about X-axis | 0.01 | ° | FE Node No. 5327  (X: 5267.8,  Y: 0.0,  Z: 49008.8 mm) |
| Maximum rotation about Y-axis | 0.01 | ° | FE Node No. 33245  (X: -1670.9,  Y: -6071.4,  Z: 18600.0 mm) |
| Maximum rotation about Z-axis | -0.01 | ° | FE Node No. 35352  (X: -3952.2,  Y: -5064.2,  Z: 17808.0 mm) |
| Method of analysis | Linear | | Geometrically Linear Analysis |
| Reduction of stiffness | - | | |
| Number of load increments | 1 | | |
| Number of iterations | 1 | | |
| Maximum value of element of stiffness matrix on diagonal | 4.805E+11 | | |
| Minimum value of element of stiffness matrix on diagonal | 10000 | | |
| Stiffness matrix determinant | 4.421E+2039026 | | |
| Infinity Norm | 1.139E+12 | | |
| Incrementally increasing loading | - | | |

| Summary | | | |
|---|---|---|---|
| Description | Value | Unit | Comment |
| Calculation Status | OK | | |
| Maximum displacement in X-direction | 4.6 | mm | LC1, FE Node No. 395  (X: -6570.9,  Y: 0.0,  Z: 20270.0 mm) |
| Maximum displacement in Y-direction | -4.9 | mm | LC9, FE Node No. 5002  (X: 5617.9,  Y: 0.0,  Z: 57250.0 mm) |
| Maximum displacement in Z-direction | -17.7 | mm | LC1, FE Node No. 22463  (X: 5520.3,  Y: -4321.2,  Z: 46145.8 mm) |
| Maximum vectorial displacement | 18.2 | mm | LC1, FE Node No. 22462  (X: 5822.7,  Y: -4321.2,  Z: 46144.2 mm) |
| Maximum rotation about X-axis | -0.29 | ° | LC1, FE Node No. 1406  (X: 129.1,  Y: -13495.2,  Z: 19400.0 mm) |
| Maximum rotation about Y-axis | 0.18 | ° | LC1, FE Node No. 33834  (X: -1670.9,  Y: -10561.9,  Z: 19000.0 mm) |
| Maximum rotation about Z-axis | -0.09 | ° | LC1, FE Node No. 34076  (X: -407.0,  Y: -12244.7,  Z: 18953.4 mm) |
| Number of 1D finite elements (member elements) | 179 | | |
| Number of 2D finite elements (surface elements) | 41755 | | |
| Number of 3D finite elements (solid elements) | 0 | | |
| Number of FE nodes | 38687 | | |
| Number of equations | 232122 | | |
| Matrix solver method | Direct | | |
| Maximum number of iterations | 100 | | |
| Number of divisions for member results | 10 | | |
| Number of divisions of members with cable, elastic foundation, taper, | 10 | | |
| Activate shear stiffness of members (A-y, A-z) | + | | |
| Plate bending theory | Mindlin | | |
| Precision of convergence criteria of nonlinear calculation | 1.0 | | |