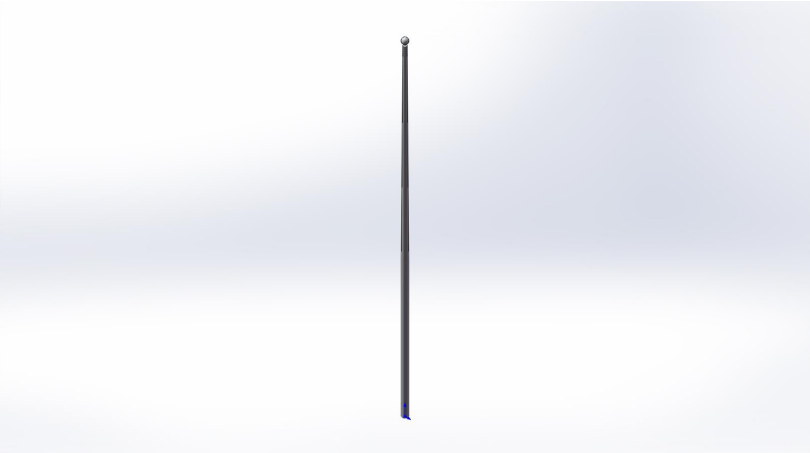
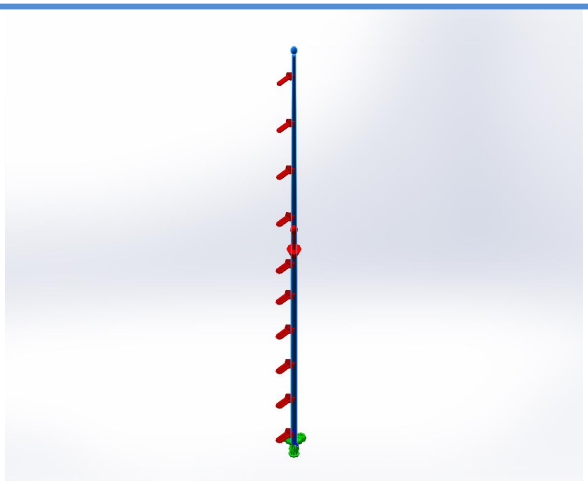


# The simulation object as 15m aluminum flagpole

**Date:** 10 June , 2024
**Designer:** Solidworks
**Example name:** Example 1
**Analysis:** static type

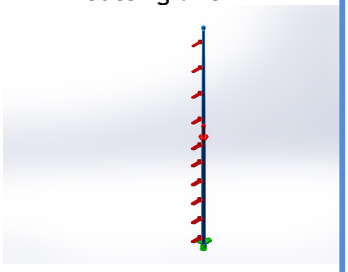
## Table of Contents

## Model Information



**Model name:** Example 1
**Current configuration:** default

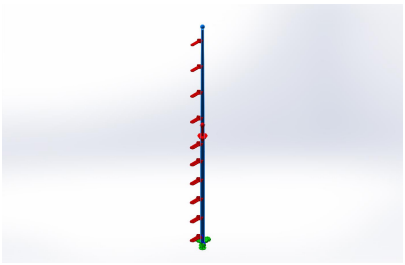
**Entity**

| The document name and reference | The document name and reference | The document name and reference | The document name and reference |
|---|---|---|---|
| Cutting line 1  | Entity | Weight:90Kgs<br>Volume:0.2208 m^3<br>Density:2700 kg/m^3<br>Pulling force:1534.98 N | example1.SLDPRT<br>10 June 15:22:32 2024 |

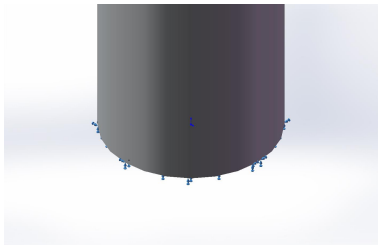
## Unit

| | |
|---|---|
| **Unit system:** | The metric system (MKS) |
| **Length /Displacement** | mm |
| **Temperature** | Kelvin |
| **Palstance** | Radian/section |
| **Pressure /Stress** | N/mm^2 (MPa) |

## Material Properties

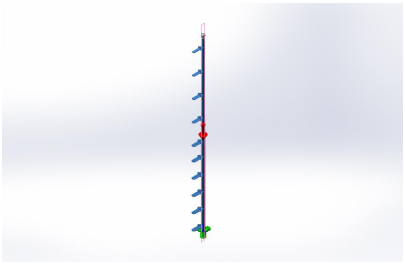
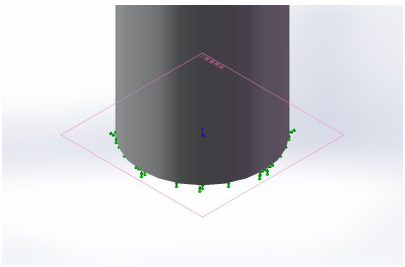
| Model reference | Properties | | Parts |
|---|---|---|---|
|  | Material: | 6063-T6 | SolidBody 1(Cutting line 1)(Example1) |
| | Model type: | Linear elastic isotropic | |
| | The default failure rule: | Max. von Mises stress | |
| | Yield strength: | 2.15e+008 N/m^2 | |
| | Tensile strength: | 2.4e+008 N/m^2 | |
| | Modulus of elasticity: | 6.9e+010 N/m^2 | |
| | Poisson ratio: | 0.33 | |
| | Mass density: | 2700 kg/m^3 | |
| | Shear modulus: | 2.58e+010 N/m^2 | |
| | Thermal expansion coefficient: | 2.3e-005 /Kelvin | |
| **Curve data:**N/A | | | |

## Load and fixture

| Fixture name | Fixture picture | Fixture details |
|---|---|---|
| Fixture-1 |  | **Entity:** Face 1<br>**Type:** Fixed geometry |

Resultant force

| Parts | X | Y | Z | Resultant Force |
|---|---|---|---|---|
| **Reaction(N)** | -0.291331 | 1537.22 | 1156.82 | 1923.87 |
| **Countermoment (N-m)** | 0 | 0 | 0 | 0 |

| Load name | Load picture | Load details |
|---|---|---|
| Pressure-1 |  | **Entity:** Face 3, datum plane 1<br>**Reference:** Right datum plane<br>**Type:** Perpendicular to the datum plane<br>**value:** 600<br>**Unit:** N/m^2 |
| Pressure-2 |  | **Reference:** Up datum plane<br>**Value:** 0 0 -9.81<br>**Unit:** SI |

## Resultant force

### Reaction

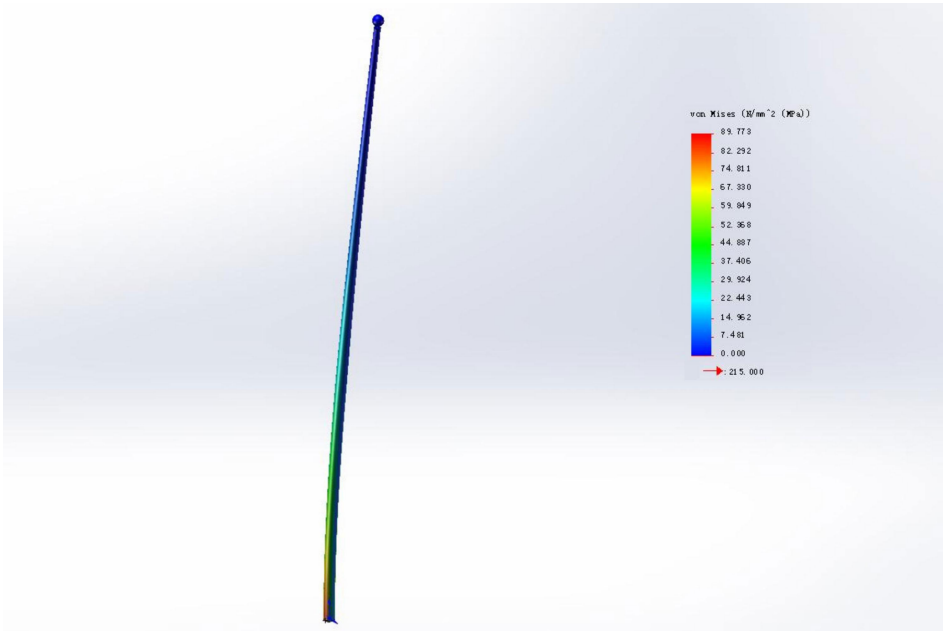
| Select group | Unit | Sum X | Sum Y | Sum Z | Resultant force |
|---|---|---|---|---|---|
| The whole model | N | -0.291331 | 1537.22 | 1156.82 | 1923.87 |

### Countermoment

| Select group | Unit | Sum X | Sum Y | Sum Z | Resultant force |
|---|---|---|---|---|---|
| The whole model | N-m | 0 | 0 | 0 | 0 |

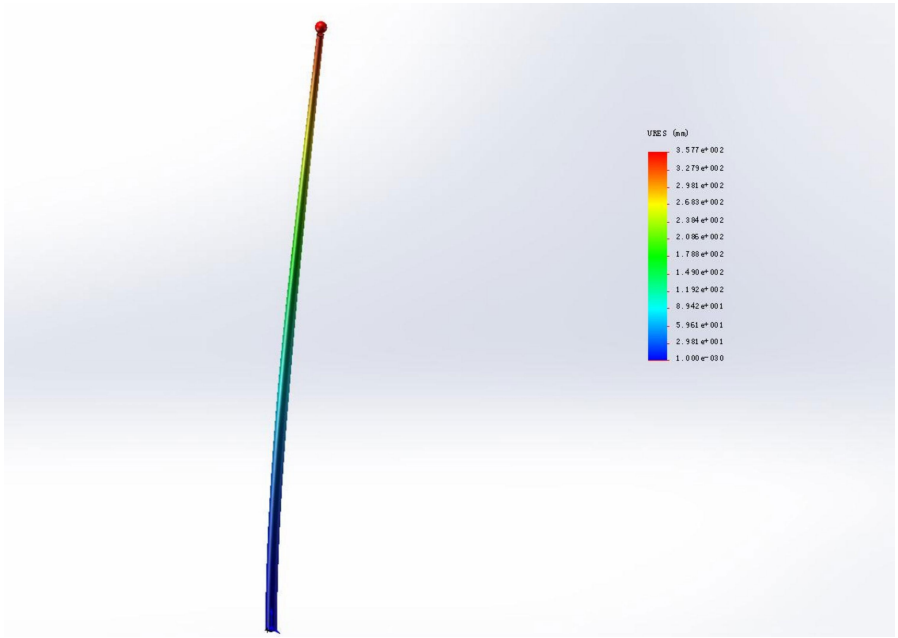
## The example results

| Name | Type | Minimum | Maximum |
|---|---|---|---|
| Stress 1 | VON:von Mises Stress | 5.3181e-005 N/mm^2 (MPa)<br>Section: 58338 | 162.461 N/mm^2 (MPa)<br>Section: 51 |



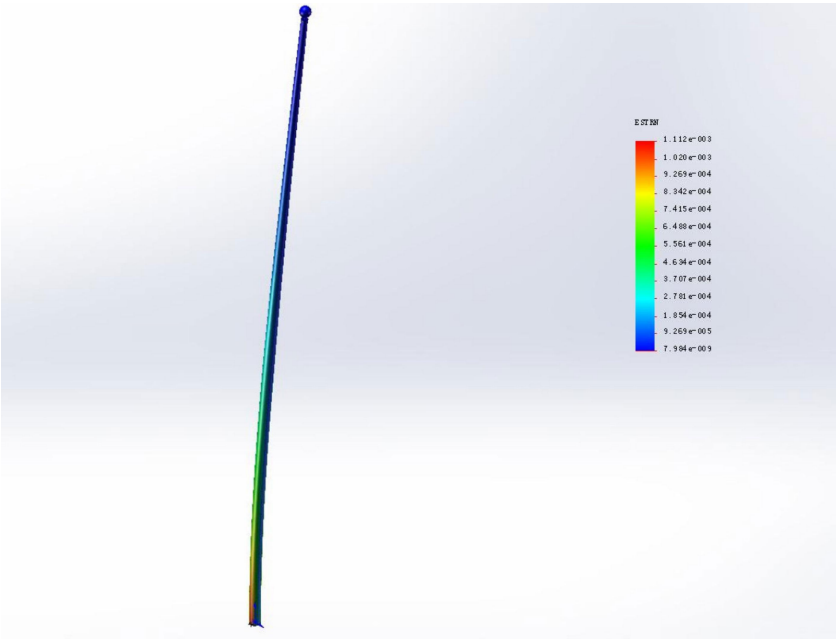

Part 1-Example 1-Stress-Stress 1

| Name | Type | Minimum | Maximum |
|---|---|---|---|
| Displacement 1 | URES: resultant displacement | 0 mm<br>Section: 23 | 377.962 mm<br>Section: 57 |



Part 1-Example 1-Displacement-Displacement 1

| Name | Type | Minimum | Maximum |
|---|---|---|---|
| strain 1 | ESTRN : Equivalent strain | 1.06216e-009<br>Unit: 109185 | 0.00185049<br>Unit: 80038 |

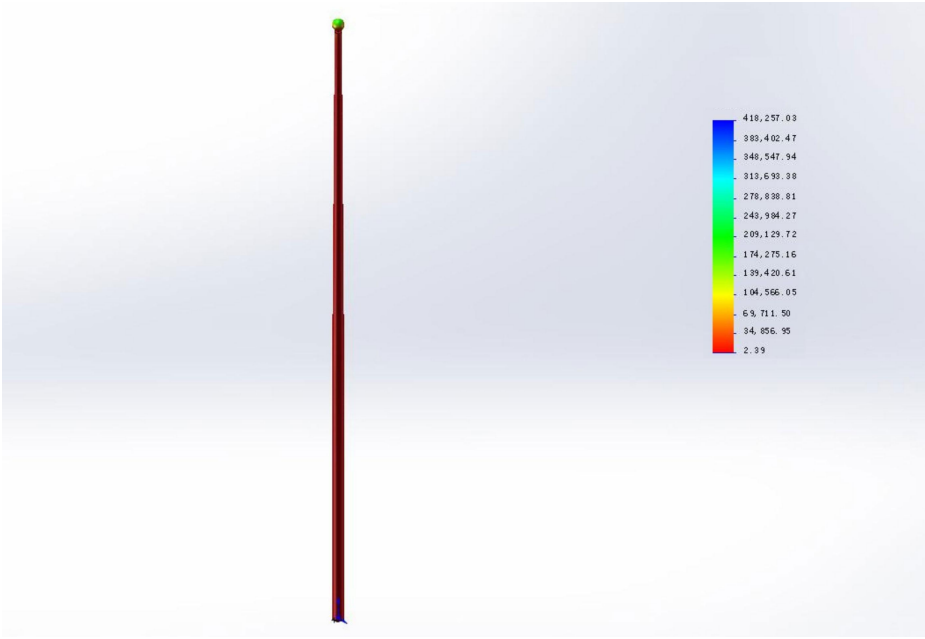



Part 1-Example 1- Strain - Strain 1

| Name | Type |
|---|---|
| Displacement1{1} | Deformed shape |

Part 1-Example 1-Displacement-Displacement 1{1}

| Name | Type | Minimum | Maximum |
|---|---|---|---|
| Safety factor 1 | Automatic | 1.32339<br>Section: 51 | 4.04279e+006<br>Section: 58338 |




Part 1-Example 1-Safety factor-Safety factor 1

## Conclusion

Load:850N/m2 （wind speed 162km/h）， safety factor 2.22＞1，so the pole is safe.