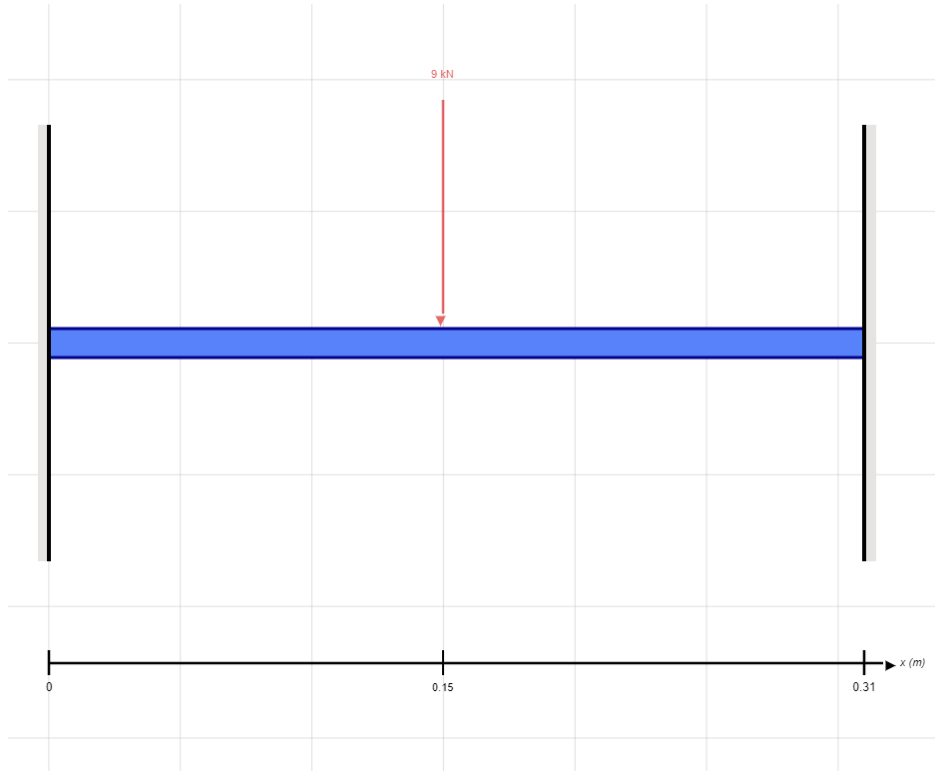


SKYCIV BEAM ANALYSIS REPORT

Load Combination: DL



Software: SkyCiv Beam v3.2.3
Tue Mar 19 2024 23:27:49 GMT+0000 (Greenwich Mean Time)

Project Info

Engineer: A Shoman (shomanlondonz@gmail.com)

Included in this Report:

- Input Summary
- Beam Section
- Free Body Diagram (FBD)
- Analysis Summary
- Analysis Results
- Points of Interest
- Bending Moment Diagram (BMD)
- Shear Force Diagram (SFD)
- Deflection Results
- Stress Results

INPUT SUMMARY

General Info

Beam Length:	0.31 m
Section Name:	76 x 76
Self Weight:	False

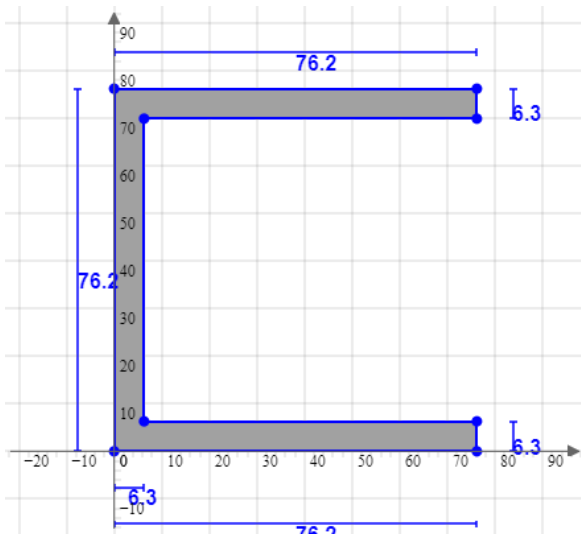
Supports

Support Type	Location
Fixed	0 m
Fixed	0.31 m

Loads

Load Type	Location	Magnitude	Load Case
Point Load	0.15 m	-9 kN	DL

Beam Section



Geometric Properties		
A	1360.8	mm ²
C _z	27.809	mm
C _y	38.1	mm

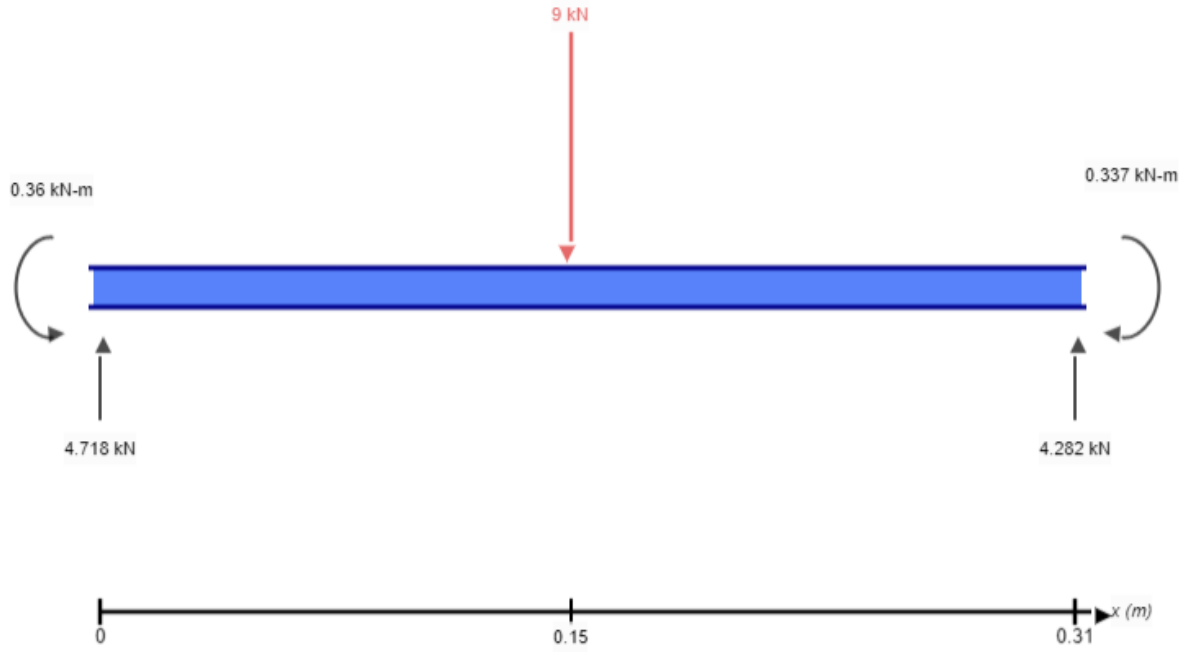
Bending Properties		
I _z	1311025.792	mm ⁴
I _y	811219.713	mm ⁴

Shear Properties		
A _z	744.394	mm ²
A _y	305.103	mm ²

Torsion Properties		
J	18019.566	mm ⁴
r	7.264	mm

Shape	Material	E (MPa)	ν	ρ (kg/m ³)
Channel	Aluminium	69000	0.32	2700

FREE BODY DIAGRAM



RESULT SUMMARY

Check	Status	Limit	Ratio	Max
Deflection	PASS	L/250	0.012	L/20144
Custom Stress Limit	PASS	250 MPa	0.051	12.67 MPa
Material Yield	PASS	100 MPa	0.127	12.67 MPa
Material Strength	PASS	150 MPa	0.084	12.67 MPa

ANALYSIS RESULTS

Reactions

Support at	X	Y	Mx
0	0 kN	4.718 kN	0.36 kN-m
0.31	0 kN	4.282 kN	-0.337 kN-m

Force Extremes

Result	Max	Min
Bending Moment	0.348 kN-m	-0.36 kN-m
Shear	4.718 kN	-4.282 kN
Displacement	0 mm	-0.015 mm

Stress Extremes

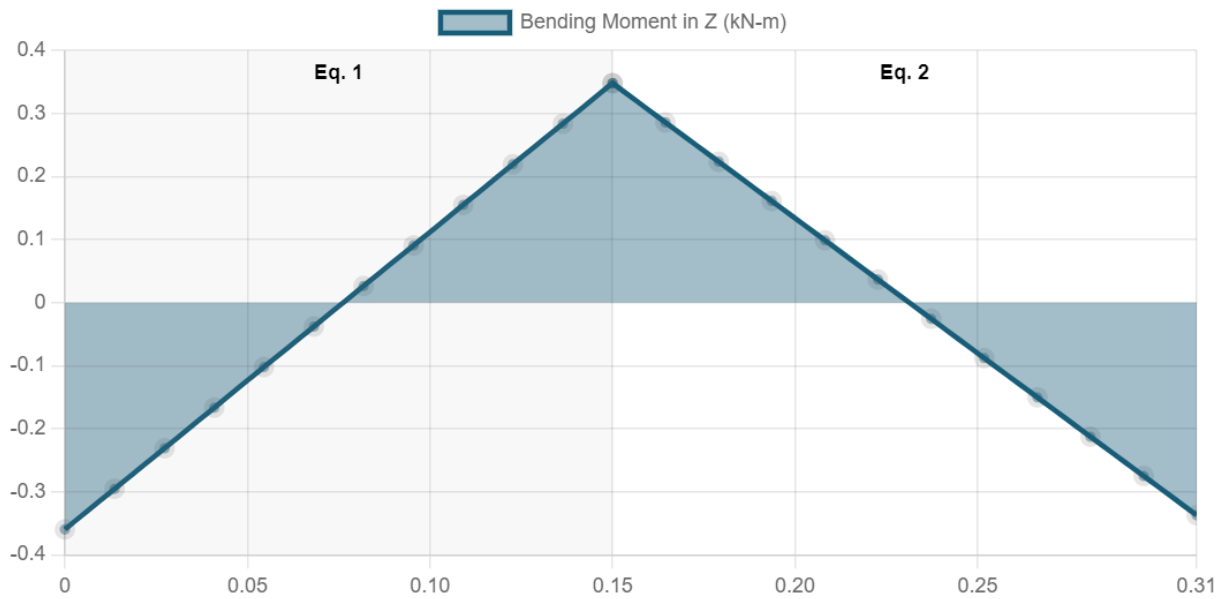
Result	Max	Min
Bending Stress	10.451 MPa	-10.451 MPa
Shear Stress Total	12.67 MPa	11.501 MPa
Max Combined Normal Stress	10.451 MPa	0.747 MPa
Min Combined Normal Stress	-0.747 MPa	-10.451 MPa

POINTS OF INTEREST

Name	Result	Position	Limit	Value	Utility
POI1	Mz	0.1		0.1119	

DIAGRAMS

Bending Moment Diagram

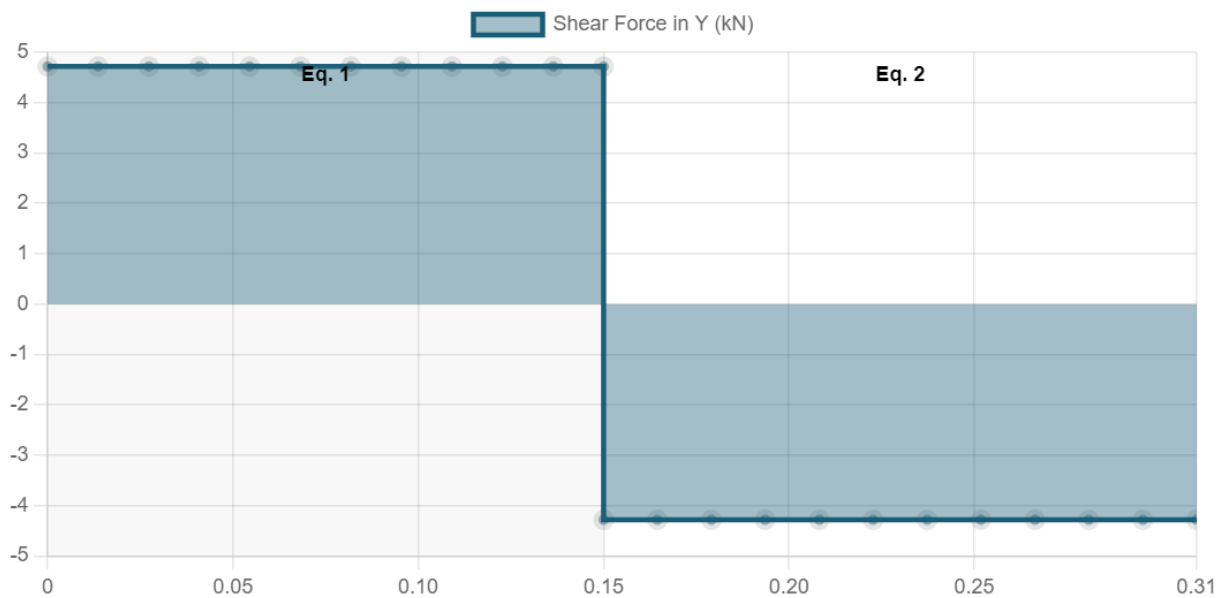


Bending Moment Equations

Eq. 1 $M_1(x) = 4.718x - 0.36$ for $0 \leq x \leq 0.15$

Eq. 2 $M_2(x) = -4.282x + 0.99$ for $0.15 \leq x \leq 0.31$

Shear Force Diagram

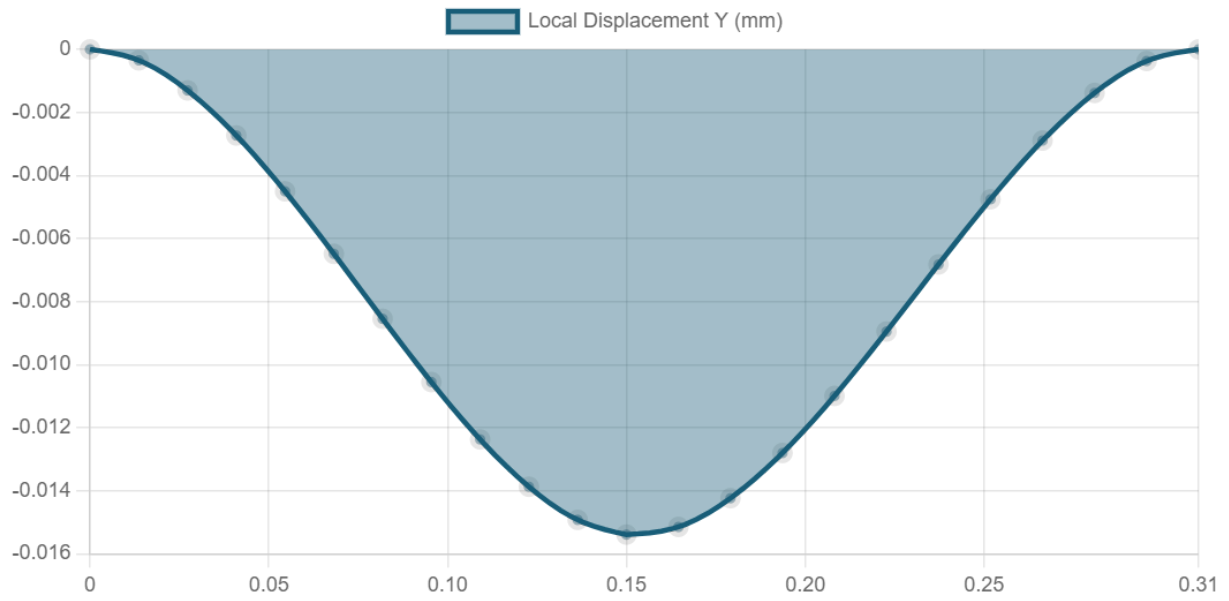


Shear Force Equations

Eq. 1 $V_1(x) = 4.718$ for $0 \leq x \leq 0.15$

Eq. 2 $V_2(x) = -4.282$ for $0.15 \leq x \leq 0.31$

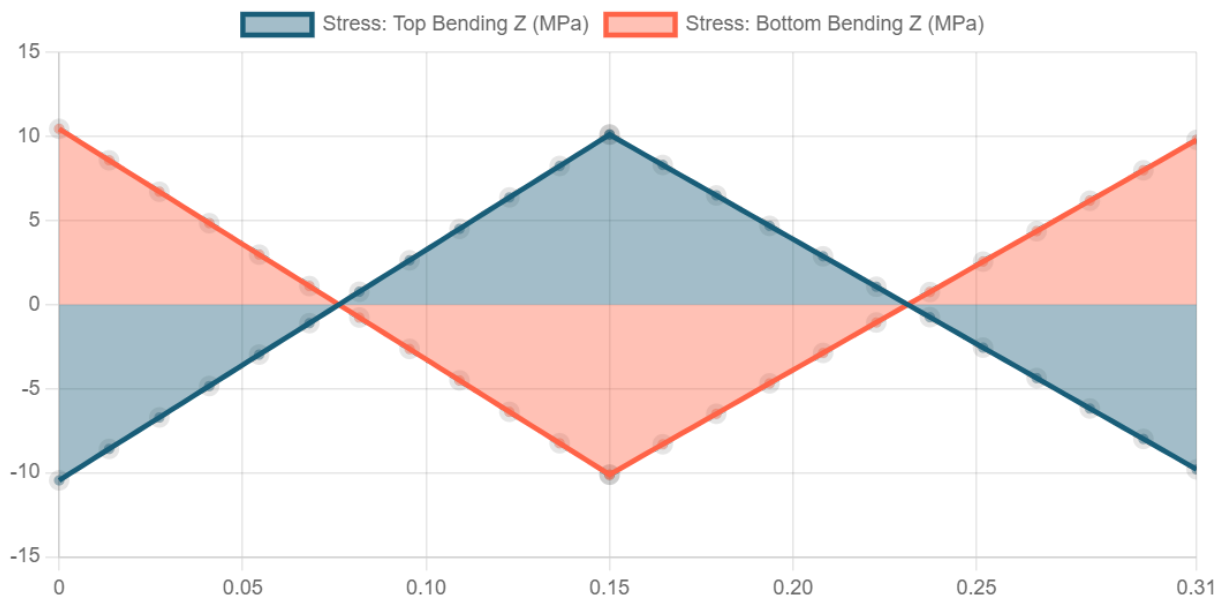
Displacement



Location (m)	Total Deflection (mm)	Span ⓘ
0	0 mm	-
0.15	0.015 mm	L/20144
0.31	0 mm	-

ⓘ The Deflection/Span results are calculated using the analysis results and the Deflection Limit of L/250 set in the model settings.

Bending Stress



Shear Stress

