

4.340625e-08

Ply orientation list

Orientation [degrees] :
[0, 0, 25, -25, 0, 0, 0, 0, -25, 25, 0, 0]

Number of plies

12

Material properties

Graphite/Thermoplastic

ID :	5	[-]
fiber/matrix :	AS4/PEEK	[-]
name :	Graphite/Thermoplastic	[-]
ex :	134.0000	[GPa]
ey :	8.9000	[GPa]
es :	5.1000	[GPa]
nux :	0.2800	[-]
xt :	2130.0000	[MPa]
xc :	1100.0000	[MPa]
yt :	80.0000	[MPa]
yc :	200.0000	[MPa]
sc :	160.0000	[MPa]
h0 :	0.1250	[mm]
nuy :	0.0186	[-]

Thickness

Total thickness : 0.011500 [m]
Ply thickness : 0.001500 [m]

On-axis Modulus and Compliance matrices -- [Q] and [S]

S_on [1/GPa] :

[[	0.0075	-0.0021	0.0000]
[	-0.0021	0.1124	0.0000]
[	0.0000	0.0000	0.1961]]

U's for S [1/GPa]

U1 : 0.0689
U2 : -0.0524
U3 : -0.0090
U4 : -0.0111
U5 : 0.1600

Q_on [GPa] :

[[	134.7014	2.5050	0.0000]
[	2.5050	8.9466	0.0000]
[	0.0000	0.0000	5.1000]]

U's for Q [GPa]

U1 : 57.0443
U2 : 62.8774
U3 : 14.7797
U4 : 17.2848
U5 : 19.8797

In-plane Modulus and Compliance -- [A] and [a]

A [GN/m] :

[[0.7526	0.1853	0.0000]
[0.1853	0.5864	0.0000]
[0.0000	0.0000	0.2151]]

a [m/GN] :

[[1.4408	-0.4552	-0.0000]
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```
[ -0.4552    1.8491   -0.0000]
[  0.0000    0.0000    4.6486]]
```

Flexural Modulus and Compliance -- [D] and [d]

```
D [kNm] :
[[  5.2718    0.3594    0.0130]
 [  0.3594    0.4622    0.0032]
 [  0.0130    0.0032    0.4720]]
d [1/MNm] :
[[ 200.3143 -155.6995  -4.4529]
 [-155.6995 2284.5488 -11.2113]
 [ -4.4529  -11.2113 2118.8941]]
```

Loads

```
M [N] :
[-28694.2500    0.0000    0.0000]

N [N/m] :
[0, 0, 0]
```

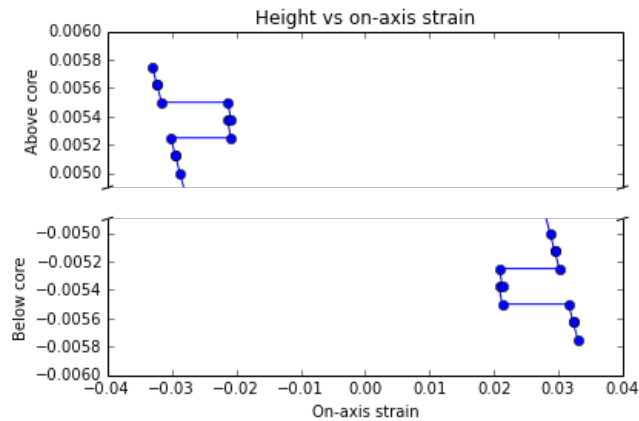
Curvature

```
K [m] :
[ -5.7479    4.4677    0.1278]
```

Results

See Appendix A

Strain distribution



Maximum strain and deflection

```
Maximum allowable deflection [cm] :
0.5
Maximum allowable strain [-] :
0.002
```

```
Maximum deflection [cm] : 12.9519
Too large!
Maximum strain [-]      : 0.0331
Too large!
```