

Enter case reference: tryout
Reading in parameter file: Parfiles/tryout.txt

Section identifier: naca4412_yt_v2
Number of panels: 400
Reynolds number: 20 million
Range of incidences (degrees): -10:1:10

Results for alpha = -10.000 degrees

Lift coefficient: -0.528
Drag coefficient: 0.00831
Lift-to-drag ratio: -63.502

Upper surface boundary layer:
Natural transition at x = 0.426

Lower surface boundary layer:
Natural transition at x = 0.004

Results for alpha = -9.000 degrees

Lift coefficient: -0.409
Drag coefficient: 0.00787
Lift-to-drag ratio: -51.968

Upper surface boundary layer:
Natural transition at x = 0.401

Lower surface boundary layer:
Natural transition at x = 0.004

Results for alpha = -8.000 degrees

Lift coefficient: -0.290
Drag coefficient: 0.00747
Lift-to-drag ratio: -38.794

Upper surface boundary layer:
Natural transition at x = 0.380

Lower surface boundary layer:
Natural transition at x = 0.004

Results for alpha = -7.000 degrees

Lift coefficient: -0.171
Drag coefficient: 0.00717
Lift-to-drag ratio: -23.797

Upper surface boundary layer:
Natural transition at $x = 0.360$

Lower surface boundary layer:
Laminar separation at $x = 0.004$
Turbulent reattachment at $x = 0.008$

Results for $\alpha = -6.000$ degrees

Lift coefficient: -0.051
Drag coefficient: 0.00695
Lift-to-drag ratio: -7.399

Upper surface boundary layer:
Natural transition at $x = 0.339$

Lower surface boundary layer:
Laminar separation at $x = 0.004$
Turbulent reattachment at $x = 0.008$

Results for $\alpha = -5.000$ degrees

Lift coefficient: 0.068
Drag coefficient: 0.00672
Lift-to-drag ratio: 10.087

Upper surface boundary layer:
Natural transition at $x = 0.319$

Lower surface boundary layer:
Natural transition at $x = 0.008$

Results for $\alpha = -4.000$ degrees

Lift coefficient: 0.187
Drag coefficient: 0.00662
Lift-to-drag ratio: 28.239

Upper surface boundary layer:
Natural transition at $x = 0.304$

Lower surface boundary layer:
Natural transition at $x = 0.008$

Results for $\alpha = -3.000$ degrees

Lift coefficient: 0.306
Drag coefficient: 0.00660
Lift-to-drag ratio: 46.419

Upper surface boundary layer:
Natural transition at $x = 0.283$

Lower surface boundary layer:
Laminar separation at $x = 0.008$
Turbulent reattachment at $x = 0.012$

Results for $\alpha = -2.000$ degrees

Lift coefficient: 0.425
Drag coefficient: 0.00658
Lift-to-drag ratio: 64.671

Upper surface boundary layer:
Natural transition at $x = 0.258$

Lower surface boundary layer:
Natural transition at $x = 0.022$

Results for $\alpha = -1.000$ degrees

Lift coefficient: 0.544
Drag coefficient: 0.00670
Lift-to-drag ratio: 81.178

Upper surface boundary layer:
Natural transition at $x = 0.232$

Lower surface boundary layer:
Laminar separation at $x = 0.022$
Turbulent reattachment at $x = 0.027$

Results for $\alpha = 0.000$ degrees

Lift coefficient: 0.663
Drag coefficient: 0.00686
Lift-to-drag ratio: 96.672

Upper surface boundary layer:
Natural transition at $x = 0.202$

Lower surface boundary layer:
Natural transition at $x = 0.047$

Results for $\alpha = 1.000$ degrees

Lift coefficient: 0.782
Drag coefficient: 0.00680

Lift-to-drag ratio: 114.976

Upper surface boundary layer:
Natural transition at $x = 0.177$

Lower surface boundary layer:
Natural transition at $x = 0.175$

Results for $\alpha = 2.000$ degrees

Lift coefficient: 0.900
Drag coefficient: 0.00714
Lift-to-drag ratio: 126.086

Upper surface boundary layer:
Natural transition at $x = 0.152$

Lower surface boundary layer:
Natural transition at $x = 0.180$

Results for $\alpha = 3.000$ degrees

Lift coefficient: 1.018
Drag coefficient: 0.00755
Lift-to-drag ratio: 134.909

Upper surface boundary layer:
Natural transition at $x = 0.127$

Lower surface boundary layer:
Natural transition at $x = 0.180$

Results for $\alpha = 4.000$ degrees

Lift coefficient: 1.136
Drag coefficient: 0.00820
Lift-to-drag ratio: 138.562

Upper surface boundary layer:
Natural transition at $x = 0.083$

Lower surface boundary layer:
Natural transition at $x = 0.185$

Results for $\alpha = 5.000$ degrees

Lift coefficient: 1.253
Drag coefficient: 0.00869
Lift-to-drag ratio: 144.269

Upper surface boundary layer:
Natural transition at $x = 0.064$

Lower surface boundary layer:
Natural transition at $x = 0.190$

Results for $\alpha = 6.000$ degrees

Lift coefficient: 1.370
Drag coefficient: 0.00946
Lift-to-drag ratio: 144.804

Upper surface boundary layer:
Natural transition at $x = 0.036$
Turbulent separation at $x = 1.000$

Lower surface boundary layer:
Natural transition at $x = 0.195$

Results for $\alpha = 7.000$ degrees

Lift coefficient: 1.487
Drag coefficient: 0.01059
Lift-to-drag ratio: 140.335

Upper surface boundary layer:
Natural transition at $x = 0.019$
Turbulent separation at $x = 1.000$

Lower surface boundary layer:
Natural transition at $x = 0.205$

Results for $\alpha = 8.000$ degrees

Lift coefficient: 1.603
Drag coefficient: 0.01168
Lift-to-drag ratio: 137.220

Upper surface boundary layer:
Natural transition at $x = 0.011$
Turbulent separation at $x = 0.995$

Lower surface boundary layer:
Natural transition at $x = 0.348$

Results for $\alpha = 9.000$ degrees

Lift coefficient: 1.718

Drag coefficient: 0.01303
Lift-to-drag ratio: 131.885

Upper surface boundary layer:
Natural transition at $x = 0.007$
Turbulent separation at $x = 0.990$

Lower surface boundary layer:
Natural transition at $x = 0.363$

Results for $\alpha = 10.000$ degrees

Lift coefficient: 1.834
Drag coefficient: 0.01436
Lift-to-drag ratio: 127.690

Upper surface boundary layer:
Natural transition at $x = 0.007$
Turbulent separation at $x = 0.985$

Lower surface boundary layer:
Natural transition at $x = 0.388$

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