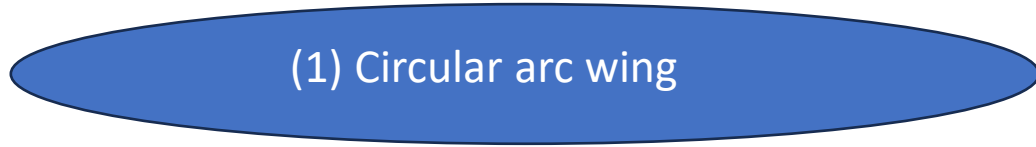
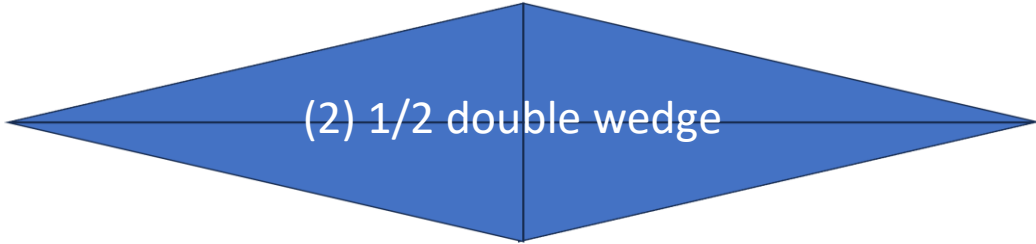


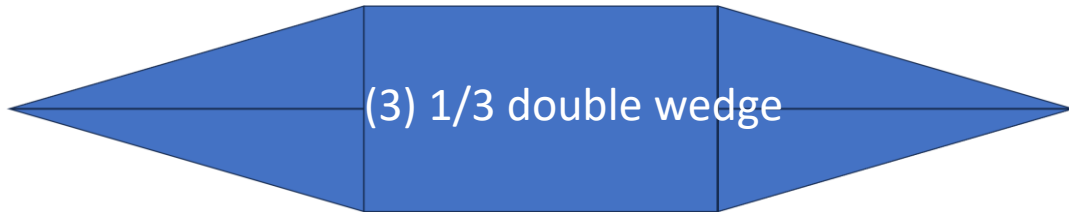
# Shapes of wing cross-section



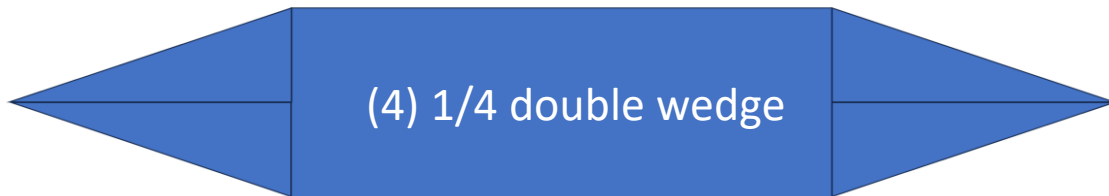
(1) Circular arc wing



(2) 1/2 double wedge



(3) 1/3 double wedge



(4) 1/4 double wedge

5. NACA 4 digit airfoil (xxxx, 0012 or 2412)

6. Ellipse wing

7. User inputs upper and lower profiles

\*\*\* Patch - FluSol Patch Mesh Generator: Version 1.0 \*\*\*

File

Patch Node Coordinates Initial & Boundary conditions

Patch Mesh Generation

Region Number: 4 View mesh Assembly blocks

Write Mesh Preview file Close

Part name:

Reset Variables:

Upper Curve (Side 3) Lower Curve (Side 1)

ityu 0 Straight line ityb 0 Straight line

slopu (line) 1.0 slopb (line) 0.0

radius (slopu) 1.0 radius (slopb) 0.0

Parabolic power (slopu): 1.0 Parabolic power (slopb): 0.0

X-Axis length (axu): 0.0 X-Axis length (axb): 0.3

Y-Axis length (ayu): 0.0 Y-Axis length (ayb): 0.1

strux 0 strlx 0

dxumin 0.1 dxlmin 0.1

residue 0.0001 stretch 0

factor 0.0 dymin: 0.0

☒ Create wings number of wings: 2

Cross section: 7 Inputs wing thick 0.05

wing location: 0 Total sweeping elements 120

NACA XXXX None

☒ Upper wing profile upper.txt

☒ lower wing profile lower.txt

upper , the x coordinate must start from zero to 1,  $x/c$  ,  $z/c$  where c is the cord length

0.0 0.0  
 0.0009 0.0070  
 0.0048 0.0140  
 0.0119 0.0211  
 0.0221 0.0282  
 0.0352 0.0351  
 0.0513 0.0418  
 0.0703 0.0483  
 0.0920 0.0543  
 0.1163 0.0599  
 0.1431 0.0649  
 0.1722 0.0693  
 0.2033 0.0729  
 0.2364 0.0758  
 0.2711 0.0778  
 0.3073 0.0789  
 0.3447 0.0792  
 0.3830 0.0786  
 0.4219 0.0771  
 0.4611 0.0750  
 0.5006 0.0724  
 0.5400 0.0692  
 0.5792 0.0656  
 0.6178 0.0616  
 0.6557 0.0573  
 0.6926 0.0527  
 0.7282 0.0480  
 0.7625 0.0431  
 0.7951 0.0383  
 0.8258 0.0334  
 0.8546 0.0287  
 0.8811 0.0241  
 0.9053 0.0198  
 0.9270 0.0157  
 0.9460 0.0121  
 0.9623 0.0089  
 0.9758 0.0062  
 0.9864 0.0041  
 0.9940 0.0025  
 0.9986 0.0016  
 1.0 0.0  
 upper

This is the contents of the upper.txt file.  
 Also the file upper.txt and lower.txt must exist in the current folder.

# Data Format For User input wing Cross-Sections

Set = 4

\*\* Canard

part =

Type = patch

elex = 20

eley = 20

tolerance = 0.0001

x1 = 0.2

y1 = 0.1

x2 = 0.6

y2 = 0.1

x3 = 0.6

y3 = 0.2

x4 = 0.6

y4 = 0.2

ipu = 1

ipb = 1

slopu = 1.0

slopb = 0.0

ityu = 0

ityb = 0

wing = 2

loca = 0

nwing = 7

upper , the x coordinate must start from zero to 1,  $x/c$  ,  $z/c$  where c is the cord length

0.0 0.0

0.0009 0.0070

0.0048 0.0140

0.0119 0.0211

0.0221 0.0282

0.0352 0.0351

0.0513 0.0418

0.0703 0.0483

0.0920 0.0543

0.1163 0.0599

0.1431 0.0649

0.1722 0.0693

0.2033 0.0729

0.2364 0.0758

0.2711 0.0778

0.3073 0.0789

0.3447 0.0792

0.3830 0.0786

0.4219 0.0771

0.4611 0.0750

|        |        |
|--------|--------|
| 0.5006 | 0.0724 |
| 0.5400 | 0.0692 |
| 0.5792 | 0.0656 |
| 0.6178 | 0.0616 |
| 0.6557 | 0.0573 |
| 0.6926 | 0.0527 |
| 0.7282 | 0.0480 |
| 0.7625 | 0.0431 |
| 0.7951 | 0.0383 |
| 0.8258 | 0.0334 |
| 0.8546 | 0.0287 |
| 0.8811 | 0.0241 |
| 0.9053 | 0.0198 |
| 0.9270 | 0.0157 |
| 0.9460 | 0.0121 |
| 0.9623 | 0.0089 |
| 0.9758 | 0.0062 |
| 0.9864 | 0.0041 |
| 0.9940 | 0.0025 |
| 0.9986 | 0.0016 |
| 1.0    | 0.0    |

upper

lower , the x coordinate must start from zero to 1,  $x/c$  ,  $z/c$  where c is the cord length

|          |           |
|----------|-----------|
| 0.000000 | 0.000000  |
| 0.002223 | -0.006689 |
| 0.007479 | -0.012828 |
| 0.015723 | -0.018404 |
| 0.026892 | -0.023408 |
| 0.040906 | -0.027826 |
| 0.057669 | -0.031651 |
| 0.077071 | -0.034878 |
| 0.098987 | -0.037507 |
| 0.123281 | -0.039546 |
| 0.149805 | -0.041013 |
| 0.178401 | -0.041934 |
| 0.208902 | -0.042346 |
| 0.241131 | -0.042294 |
| 0.274904 | -0.041834 |
| 0.310028 | -0.041027 |
| 0.346303 | -0.039941 |
| 0.383522 | -0.038644 |
| 0.421644 | -0.037174 |
| 0.460397 | -0.035444 |
| 0.499412 | -0.033493 |
| 0.538451 | -0.031373 |
| 0.577279 | -0.029138 |

0.615658 -0.026833  
0.653352 -0.024500  
0.690129 -0.022172  
0.725762 -0.019880  
0.760029 -0.017649  
0.792716 -0.015499  
0.823619 -0.013448  
0.852541 -0.011510  
0.879302 -0.009701  
0.903730 -0.008033  
0.925669 -0.006520  
0.944979 -0.005174  
0.961536 -0.004008  
0.975232 -0.003035  
0.985978 -0.002265  
0.993705 -0.001708  
0.998361 -0.001370  
0.999916 -0.001257

lower

wall = 1

end