

Bladed - Assigning Airfoils to Blade Sections

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Click 'Load' in the aerofoil screen below:

Aerofoil Database

Name

Comments

General data

Thickness to chord ratio

%

Reynolds Number

-

Pitching Moment Centre

%

Deployment Angle

deg

Include Pitching Moment

-

Yes

Load

New

Import...

Delete dataset

Save

View: All

From

deg

To

deg

View Data

α

C_L

C_D

C_M

Edit

Paste

Copy

Delete

Coefficients to add or edit

Angle of attack

α

deg

Lift Coefficient

C_L

-

Drag Coefficient

C_D

-

Pitch Coefficient

C_M

-

Add

Close

This shows all of the aerofoils available:

Load Aerodynamic Data

Available Files

Cylinder1
Cylinder2
demo_a
demo_cyl
DU21_A17
DU25_A17
DU30_A17
DU35_A17
DU40_A17
LS1m13r2
LS1m17r2
LS1m21r2
NACA64_A17

Filename

Comments

General

Thickness to chord ratio

%

Reynolds Number

-

Pitching Moment Centre

%

Deployment Angle

deg

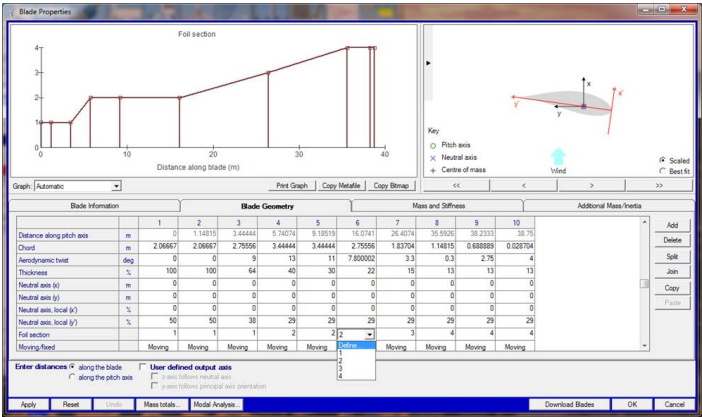
Pitching Moment

-

OK

Cancel

That's a total of 13 aerofoil sections available (although 3 of these appear to be just cylinders). The simplest way to use them is to go to 'define' at any blade station that you wish to change:



Then click 'New':

The Define Aerofoil Sections dialog box shows the following fields:

- Blade Station: 16.0741m
- Section Type: Normal
- Section Number: 2
- Aerofoil Datasets For Interpolation: Reynolds Number Interpolation
- Thickness/Chord Ratio Interpolation: LS1m21r2

Buttons: OK, Cancel

The Define Aerofoil Sections dialog box shows the following fields:

- Blade Station: 16.0741m
- Section Type: Normal
- Section Number: 5
- Aerofoil Datasets For Interpolation: Reynolds Number Interpolation
- Thickness/Chord Ratio Interpolation: (empty)

Buttons: OK, Cancel

Double click in the blank white rectangle:

Aerofoil Dataset Selection

Selection Criteria

	Minimum	Greater than	Less than	Maximum	Selected
Reynolds Number					
Thickness/Chord Ratio					
Aileron Angle					

(none)

demo_cyl

LS1m21r2

LS1m13r2

LS1m17r2

Cylinder1

Cylinder2

demo_a

DU21_A17

OKCancel

Select an aerofoil section:

Aerofoil Dataset Selection

Selection Criteria

Reynolds Number					999
Thickness/Chord Ratio					99
Aileron Angle					0

Cylinder1

Cylinder2

demo_a

DU21_A17

DU25_A17

DU30_A17

DU35_A17

DU40_A17

NACA64_A17

OKCancel

Click OK:

Define Aerofoil Sections

Blade Station:16.0741m

Section Type:Normal

Section Number:5

New

Aerofoil Datasets For Interpolation

Reynolds Number Interpolation

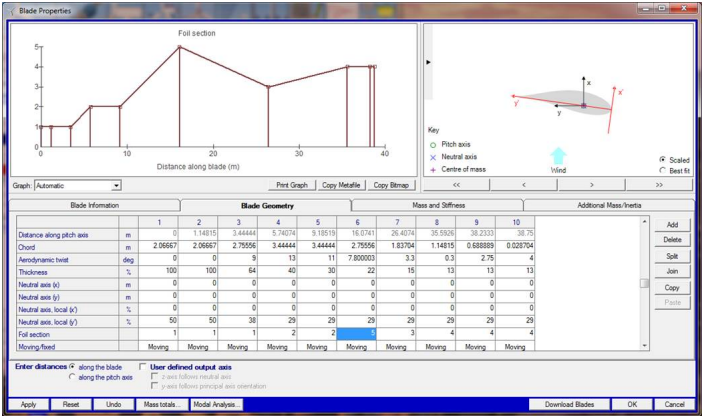
Thickness/Chord Ratio

Interpolation

DU35_A17

OKCancel

Click OK again.



You can see that that blade station has now been changed to the newly defined blade section number 5.

Acknowledgement: Instructions courtesy of Mr. Alec Beardsell, GL Garrad Hassan.