Xfoil_worker v1.52.0

Reference

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Xfoil_worker is a small command line tool to do various tasks around airfoil optimization. It is especially useful for automization of the optimization process.

Usage:

```
Xfoil_worker -w worker_action [Options]
```

Folllowing actions are supported

`-w polars`	Generate polars for an airfoil'
`-w smooth`	Repanel and smooth an airfoil

The options for the various actions are described in the following sections.

Generating polars (-w polars)

A defined polar for an airfoil will be generated in Xfoils polar format. The polar file is ready to be imported into xflr5 or flow5 via the menu function “Polars / Import Xfoil Polar(s).

The definition for the polar and Xfoils initial parameters are defined in an Xoptfoil input file. Please find the description of the parameters in the Xoptfoil(-JX) documentation.

Command line options used for polar generation:

`-i input_file`	Name of an Xoptfoil input file to read the settings for the polar generation. Only the following namelists are needed for polar generation: `&polar_generation` Settings for polar: polar type, based on cl oder alpha, value range `&xfoil_run_options` - optional Options for Xfoils aerodynamic calculations. Normally the default values are fine, so this namelist is optional `&xfoil_paneling_options` - optional Options for Xfoils repaneling which is done prior to the polar generation. Normally the default values are fine, so this namelist is optional
`-r xxxxxx`	The desired Reynolds number of the polar. If the Reynolds number is not defined in the input file, the value is taken from this command line option. This is useful to have a single input file for different Reynolds numbers
`-a airfoil_file`	The name of the airfoil file
`-o output_prefix`	The generated polar will be written to the subdirectory .*output_prefix*_polars

Example:

```
Xfoil_worker -i iPolars.txt -r 600000 -a RG15.dat -o RG15
```

Smoothing an airfoil (-w smooth)

An airfoil will be repaneled by Xfoils PANGEN routine and optionally smoothed by Xoptfoil-FX smoothing algorithm.

This action is useful either in preparing an airfoil for optimization or to improve the geometric quality of your airfoil collection.

In addition to the new airfoil .dat file the file *output_prefix*_design_coordinates.dat will be generated which allows to inspect the result of smoothing with Xoptfoil_visualizer-JX.

Command line options used for polar generation:

-i input_file	Name of an Xoptfoil input file to read the settings for repaneling and smoothing. Only the following namelists are needed for polar generation: &smoothing_options Switch on smoothing, define spike threshold. &xfoil_paneling_options - optional Options for Xfoils repaneling which is done prior to the polar generation. Normally the default values are fine, so this namelist is optional
-a airfoil_file	The name of the airfoil file
-o output_prefix	Name of the smoothed airfoil. Following files will be generated *output_prefix*.dat *output_prefix*_design_coordinates.dat

Example:

```
Xfoil_worker -i iSmooth.txt -a RG15.dat -o RG15_smoothed
```