

Aerodynamic Table Generator (ATG)



EWIS

Being one of the leading institutes on wind energy research, ECN established the EWIS (ECN Wind Industrial Support) group in 2009 to better bring the R&D results to the market. During the last three decades, ECN has developed expertise on aerodynamics, structural analyses, turbine control, offshore operation and maintenance, and grid connection. With the growing wind industry, ECN received more requests for assistance and EWIS has become the vehicle to support the wind energy industry in their product developments.

EWIS's focus is on the high end of the market which means that we will make use of tools and knowledge that have been developed in-house and include the latest R&D results!

The EWIS team is a mixture of young professionals and experienced researchers which ensures a fast response and high quality.

More information

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Product description

The Software

The Aerodynamic Table Generator (ATG) is a computer program for generating aerodynamic coefficients for wind turbine rotor blades.

ATG is developed at Energy Research Centre of the Netherlands (ECN). The measured aerodynamic coefficients in the database are provided by Delft University of Technology (TU Delft). The ATG software is especially useful in combination with the ECN Blade Optimisation Tool (SP-320 BOT) software.

The Model

The program uses a database, containing geometries of wind turbine blades (profiles of blade sections) and related files with measured aerodynamic coefficients at small angles of attack (about -8° to $+24^\circ$). For larger angles of attack the program uses an ECN-code to calculate coefficients based on empirical relations. ATG uses interpolation routines to generate data for adaptive thicknesses and Reynolds numbers.

The drag coefficients at large angles of attack can be corrected for finite aspect ratio. The lift coefficients can be corrected for 3D rotational effects with the method of Snel, Houwink and Bosschers.

Specifications

Description of Software:	Windows application (executable)
Designated sites:	Single user (company)
Licence fee:	€ 8 000
Licence term:	unlimited use
Services:	one day technical and software support (by telephone and/or e-mail, not on-site)
Maintenance services:	16 man-hours software support (by telephone and/or e-mail, not on-site) and, if available, an update of the software
Maintenance fee:	€ 2 500
Additional options:	one day training in aerodynamic wind turbine rotor design given by ECN experts

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The database

The database that is included in the ATG software contains the following airfoils:

- DU 00-W-212
- DU 00-W2-350
- DU 00-W2-401
- DU 91-W2-250
- DU 93-W-210
- DU 95-W-180
- DU 96-W-180
- DU 97-W-300
- FFA-W3-211
- FX 84-W-175
- FX 84-W-218
- LS1-0417
- LS1-0421
- NACA 4412
- NACA 4415
- NACA 4418
- NACA 64421
- NACA 4421
- NACA 4424
- NACA 63212
- NACA 63215
- NACA 63218
- NACA 63221
- NACA 63415
- NACA 63418
- NACA 63421
- NACA 63615
- NACA 63618
- NACA 64215
- NACA 64218
- NACA 64415
- NACA 64418
- NACA 64618