

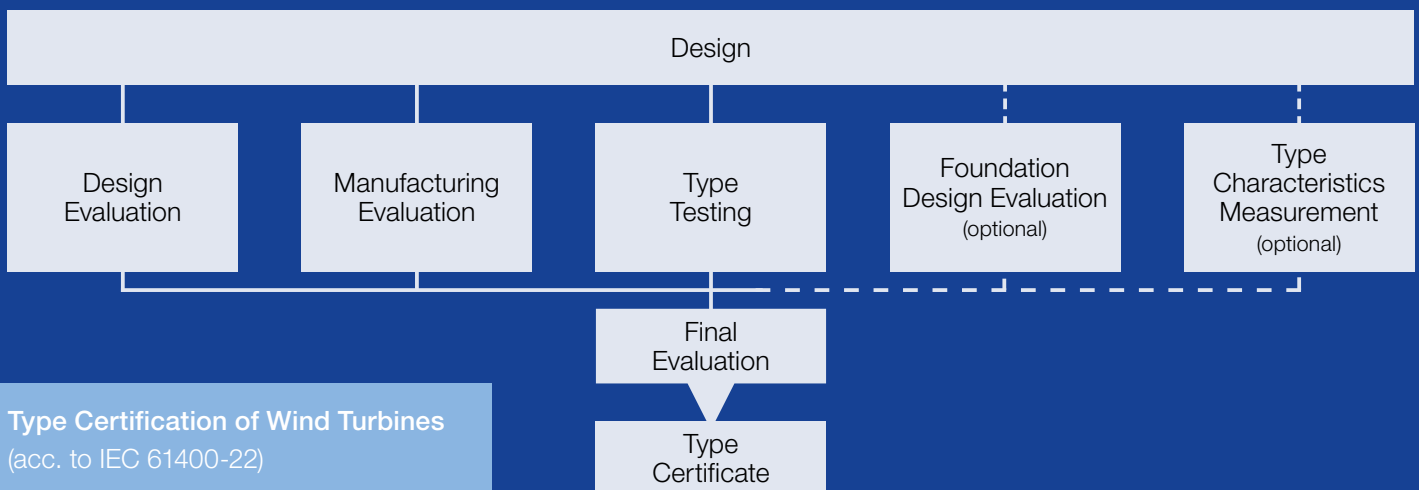
# Type Certification

For more than thirty years TÜV NORD has been accompanying turbine manufacturers and suppliers in implementing their products into the markets all over the world. By offering type, component and design certification services, we contribute to ensure safety, quality and efficiency of wind turbine and wind farm projects.

TÜV NORD is accredited for type and project certification according to all recognized schemes incl. IECRE, IEC 61400-22, DNVGL-SE 0441 IEC WT 01, Danish Type Certification, and Chinese GB standards (please see our specific flyer).

The scheme below presents the type certification process and its modules according to IECRE. Other certification schemes are similar or refer directly to IECRE.

Each of the modules can be independently evaluated and concluded with TÜV NORD conformity statements. These can also be used as individual and re-usable packages since mutual recognition agreements ensure acceptance of certificates between accredited bodies.



## Design Basis Evaluation

The design basis defines requirements, assumptions and methodologies which are essential for the design and documentation of the wind turbine.

## Design Evaluation

Design evaluation is carried out by independent expert assessment. It is based on design code requirements and documentation provided by customers. Our evaluation comprises load assumptions, safety concept/system, electrical, mechanical and structural components, rotor blade, tower and tower internals, as well as turbine manuals. Customized design solutions and the implementation of site specific conditions such as for cold/hot climate, extended lifetime or earthquake areas can be considered.

## Manufacturing Evaluation

For quality assurance and compliance with the certified design, the implementation of design related requirements is verified by TÜV NORD manufacturing evaluation. Besides, we can accompany you to establish and maintain a certified ISO 9001 quality management system.

## Type Testing

During type testing TÜV NORD accompanies you to verify that all relevant assumptions set during the turbine design process as well as the correct and safe functioning of the turbine in all operating conditions are ensured.

**Optional modules** are scheme-specific and can be included on customer request.