

## TYPE CERTIFICATE

The CIWI Holland Foundation has investigated the design of the wind turbine type mentioned below, including the manufacturer's quality system.

CIWI Holland has concluded that the wind turbine type meets:

The international standard IEC 1400-1:

'Wind Turbine Generator Systems, Part 1: Safety Requirements', 1995  
with wind conditions according to IEC 1400-1 class II:

- annual average wind speed at hub height,  $V_{ave} = 8.5$  m/s;
- annual average turbulence intensity at hub height,  $I_{ave} = 17$  %;
- extreme wind speed at hub height,  $V_{ext} = 59.5$  m/s.

CIWI Holland declares that the manufacturer mentioned below has the right to carry a Type Certificate for the wind turbine type concerned.

### MANUFACTURER

Turbowinds N.V. / S.A.  
Prins Bisschopssingel 50  
B - 3500 Hasselt, Belgium

### MAIN SPECIFICATIONS

- Rotor diameter: 48 m
- Hub height: 50 m, 55 m en 60 m
- Nominal power: 600 kW
- Generator type: induction, 50 Hz
- Number of blades: 3
- Rotor speed: 15.3 and 23 rpm
- Power control: active stall (ASC)
- Safety systems:
  - 1) full span pitch control
  - 2) mechanical brake on high speed shaft

### WIND TURBINE TYPE

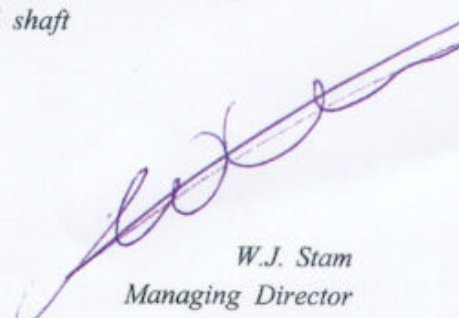
**T600 - 48**



Expiration date: December 1, 2004

Date of issue: October 27, 1999

Number of certificate: **TC-99-21**



W.J. Stam  
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