

Prototype declaration

Preliminary prototype declaration MOE 18-EZE-0042-08

Version: 2.0
PGU manufacturer: Vestas Wind Systems A/S
Hedeager 42
8200 Aarhus N.
Denmark

Scope


Type of product: PGU, wind turbine
PGU types: V162-6.8 MW 50 Hz
V172-6.8 MW 50 Hz
V162-7.2 MW 50 Hz
V172-7.2 MW 50 Hz


Standards and guidelines: VDE AR-N 4110:2018
VDE AR-N 4120:2018
VDE AR-N 4130:2018
FGW TG8 Rev.09
NELEV

Commissioning date of
the first prototype: No prototype commissioned yet.

Applicable documents: Evaluation report MOE 18-EZE-0042-07 Ver.
2.0
Annex 1 – 3

Itzehoe, 2023-03-01


01.03.2023
Nadine Welzel, M.Eng
Deputy Head of the certification body


01.03.2023
Dipl.-Ing.(FH) Daniel Lucht
Senior Expert of the certification body



Version history

Table 1: Version history

Report number	Date	Change	Prepared	Approved
18-EZE-0042-08 Ver. 1.0	2023-02-17	Preliminary Prototype declaration separation of the following PGU types: <ul style="list-style-type: none"> V162-6.8 MW 50 Hz V162-7.2 MW 50 Hz 	DL	NW
18-EZE-0042-08 Ver. 2.0	2023-03-01	The preliminary prototype declaration was extended by the following types: <ul style="list-style-type: none"> V172 6.8 MW V172 7.2 MW 	DL	NW

Please note, the report MOE 18-EZE-0042-05 Ver. 3.0 (covering initially the V150-5.0 MW / 5.4 MW / 5.6 MW / 6.0 MW, V162-5.4 MW / 5.6 MW / 6.0 MW / 6.2 MW / 6.8 MW / 7.2 MW) is withdrawn since 17.02.2023 and replaced by the following documents:

- The unit certificate MOE 22-EZE-0028-EZ1-ZE covers the turbine types V150 5.6 MW, V162 5.6 MW, V150 6.0 MW, V162 6.0 MW and V162 6.2 MW.
- The present preliminary prototype declaration MOE 18-EZE-0042-08 Ver. 2.0 together with the respective evaluation report MOE 18-EZE-0042-07 Ver. 2.0 covers the turbine type V162 6.8 MW, V172 6.8 MW, V162 7.2 MW and V172 7.2 MW.
- The turbine types V150 5.0 MW, V150 5.4 MW and V162 5.4 MW are no longer covered through a prototype declaration nor a unit certificate. The manufacturer confirms that these turbine types are not relevant for the German market anymore.



Annex 1: Specifications of main components

Type of product: PGU / wind turbine

PGU type: V162-6.8 MW 50 Hz
 V172-6.8 MW 50 Hz
 V162-7.2 MW 50 Hz
 V172-7.2 MW 50 Hz

The type designations correspond to the following operating modes:

Table 2: Operating modes

Type designation	Operating mode
V162-6.8 MW 50 Hz	Mode PO6800
V172-6.8 MW 50 Hz	Mode PO6800
V162-7.2 MW 50 Hz	Mode PO7200
V172-7.2 MW 50 Hz	Mode PO7200

Nominal power: 6.8 MW / 7.2 MW
 Electrical principle: Permanent magnet synchronous generator, full-scale converter

Rotor diameter: 162 m (V162) / 172 m (V172)
 Number of blades: 3
 Power control: pitch
 Orientation: upwind

Refer to the evaluation report MOE 18 EZE 0042 07 Ver. 2.0 chapter 3 for further and detailed main component specifications.

Annex 2: Identity of first prototype in Germany

Not applicable, no prototype commissioned yet.

Note: As soon as the first prototype is installed and a commissioning report/protocol is available, the declaration can be upgraded to a full prototype declaration, valid for the period of two years from the commissioning date of the prototype.

Planning commissioning date: Not scheduled yet



Annex 3: Declaration and further remarks

Please note, the report MOE 18-EZE-0042-05 Ver. 3.0 (covering initially the V150-5.0 MW / 5.4 MW / 5.6 MW / 6.0 MW, V162-5.4 MW / 5.6 MW / 6.0 MW / 6.2 MW / 6.8 MW / 7.2 MW) is withdrawn since 17.02.2023 and replaced by the following documents:

- The unit certificate MOE 22-EZE-0028-EZ1-ZE covers the turbine types V150 5.6 MW, V162 5.6 MW, V150 6.0 MW, V162 6.0 MW and V162 6.2 MW.
- The present preliminary prototype declaration MOE 18-EZE-0042-08 Ver. 2.0 together with the respective evaluation report MOE 18-EZE-0042-07 Ver. 2.0 covers the turbine type V162 6.8 MW, V172 6.8 MW, V162 7.2 MW and V172 7.2 MW.
- The turbine types V150 5.0 MW, V150 5.4 MW and V162 5.4 MW are no longer covered through a prototype declaration nor a unit certificate. The manufacturer confirmed that these turbine types are not relevant for the German market anymore.

The manufacturer provided following statement:

"The EnVentus turbine family is a new product family based upon 4 MW MK3E, which again is based on 3 MW MK3A. The main change to the product with respect to grid compliance are that the turbine has a higher power rating. To provide this, the converter features 4 machine and grid power stacks where MK3E only had 3. Where 4 MW MK3E features an induction generator, the EnVentus turbine family features a permanent magnet synchronous generator."

Furthermore, specifically for 6.8 MW and 7.2 MW PGU types the manufacturer stated the following:

"The unit certificate MOE 22-EZE-0028-EZE-EZ1 covers the turbine variants V150 5.6 MW, V162 5.6 MW, V150 6.0 MW, V162 6.0 MW and V162 6.2 MW. These turbine variants are part of the development release called "Mk0A".

The turbine variants V162 6.8 MW, V172 6.8 MW, V162 7.2 MW and V172 7.2 MW are based on the same EnVentus platform but are part of a new development release called "Mk1A". Beside the higher rated power, the converter and generator designs have been updated to accommodate the 6.8 MW and 7.2 MW power ratings and be prepared for future higher power modes."

It is hereby confirmed that the members of the Vestas V162 6.8 MW / V172 6.8 MW / V162 7.2 MW / V172 7.2 MW product family are prototypes as defined by VDE AR-N 4110:2018 / VDE AR-N 4120:2018 / VDE AR-N 4130:2018, chapter 12, for the duration of validity of this declaration.

It is also confirmed that the Vestas V162-6.8 MW / V172 6.8 MW / V162 7.2 MW / V172 7.2 MW turbines meet the requirements of VDE AR-N 4110:2018 / VDE AR-N 4120:2018 / VDE AR-N 4130:2018 based on detailed manufacturer declarations presented to M.O.E. by Vestas (see evaluation report MOE 18-EZE-0042-07 Ver 2.0).

References to source documents and further details (e.g. restrictions and conditions of validity) can be found in the evaluation report MOE 18-EZE-0042-07 Ver. 2.0.

This document may be submitted to fulfil the requirement of the NELEV (Elektrotechnische-Eigenschaften-Nachweis-Verordnung) to provide a verification of the electrical properties according to the application guidelines.

Excerpts from this document may only be reproduced with the written permission of M.O.E.