# Certificate: Strength & Ballast

Date: October 30st, 2026
Customer: Energencia BV
Project: 2401173-ENERGENCIA-3583

Indurium Engineering Services NV reviewed the strength and durability of the Amfisol ground mounting structure and developed a tool for ballast calculation based on:

- EN 1778:1999, Characteristic values for welded thermoplastics constructions – Determination of allowable stresses and moduli for design of thermoplastics equipment
- NBN EN 1990:2010, Eurocode – Basis of structural design
- NBN EN 1991-1-3, Eurocode 1 – Actions on structures – Part 1-3: General actions – Snow loads
- NBN EN 1991-1-4 , Eurocode 1 – Actions on structures – Part 1-4: General actions – Wind loads

Material: All components are to be made from glass fiber reinforced PP with following minimum specifications:

- Yield strength: 65 MPa
- Tensile strength: 90 MPa
- Modulus of elasticity: 5200 MPa
- Creep strength for 1 hour: 54 MPa
- Creep strength for 25 years: 22.5 MPa
- Creep modulus for 10 years: 1300 MPa

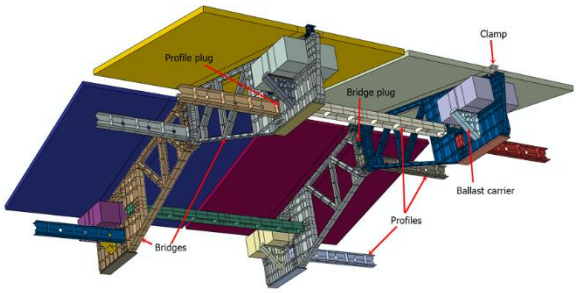


Figure 1 - Solar structure

Conclusions:

- Self-weight: conform
- Wind:
  - Upwards and downwards: conform
  - Drag: conform
- Snow: the structure is able to carry a snow load up to 1335 Pa (matching with a characteristic snow load on the ground of 1669 Pa).
- Thermal: conform

Ballast calculations:
Wind tunnel test results for the wind pressure coefficients provided by Peutz were processed according to the appropriate standards. A calculation tool in the form of an Excel spreadsheet was provided to determine the necessary weight and location of the ballast for the Amfisol structure.
For more detailed information is referred to the documents.

Released documents:

- Calculation report with reference 2401173-ENERGENCIA-3583-P1-FR-REV2
- Ballast tool implemented as Excel file with reference BALLAST-REV6.xlsx

Jan Schelstraete, Operations Manager
Ghent, October 30st, 2026