



energy for the future!
dual axis solar tracker

GALILEO

Eppur si muove!*

*And yet it moves!

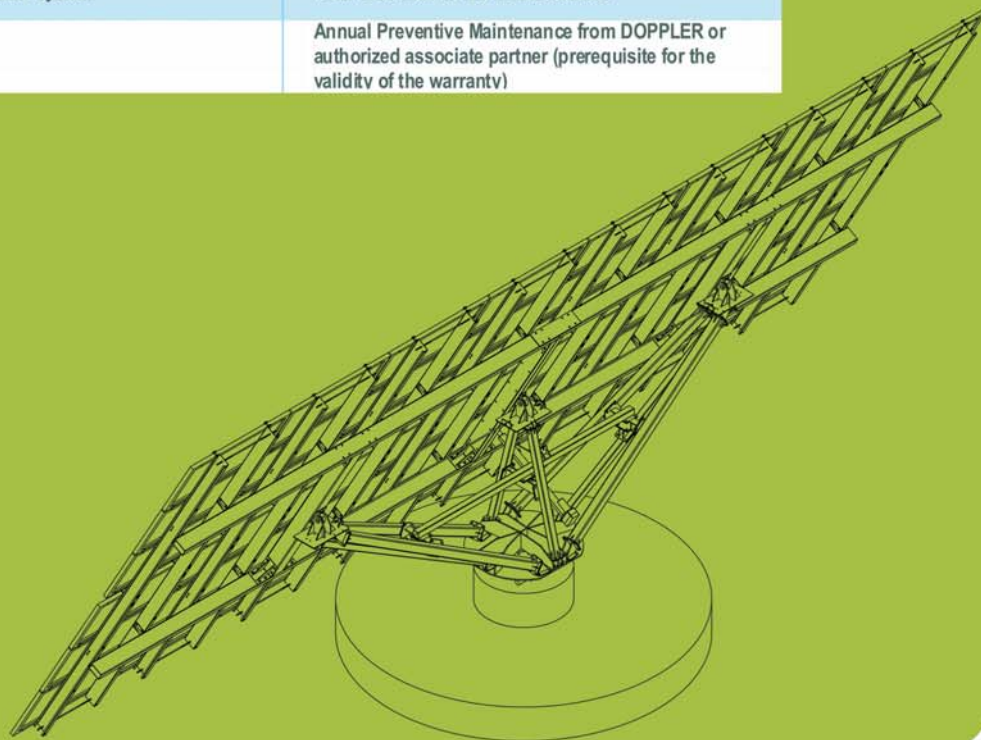


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DOPPLER SOLAR TRACKER'S DATA SHEET

TECHNICAL CHARACTERISTICS	
Sun tracking method	2 - axes
Maximum area for photovoltaic panels	Maximum area 6.2 m x 13.4 m (83 m ²) according to manufacturer's specifications
Nominal installed capacity *	11.00 kWp,nom
Azimuth angle	-130o to +130o. Movement is achieved via a DC wormscrew motor
Elevation angle	0o to 60o. Movement is achieved via a DC mechanical jack
Maximum height	6.1 m
Motor operating voltage	Single-phase 230 V through independent converters
Structure	Dipped galvanized steel weighting 2900 kg
Foundation base	Two level circular reinforced concrete base of total volume 9.3 m ³ with a diameter of 4.7 m
Control panel	Waterproof cabinets with support plate including the controller, all necessary cabling and protection
Tracker drive	Driving is achieved through an independent astronomical algorithm stored inside its PLC with the feedback provided by the digital encoders in the motors
Automatic emergency (horizontal) positioning system	Frame positions horizontal at speeds over 72km/hour (20m/sec), while in safety position it withstands wind speeds up to 144km/hour (40m/sec)
Protection system in case of power failure	Inside the cabinet there are energy accumulators (batteries) for bringing the frame into horizontal (safety) position
Lightning protection system	Four rods fixed to the frame corners
Maintenance	Annual Preventive Maintenance from DOPPLER or authorized associate partner (prerequisite for the validity of the warranty)



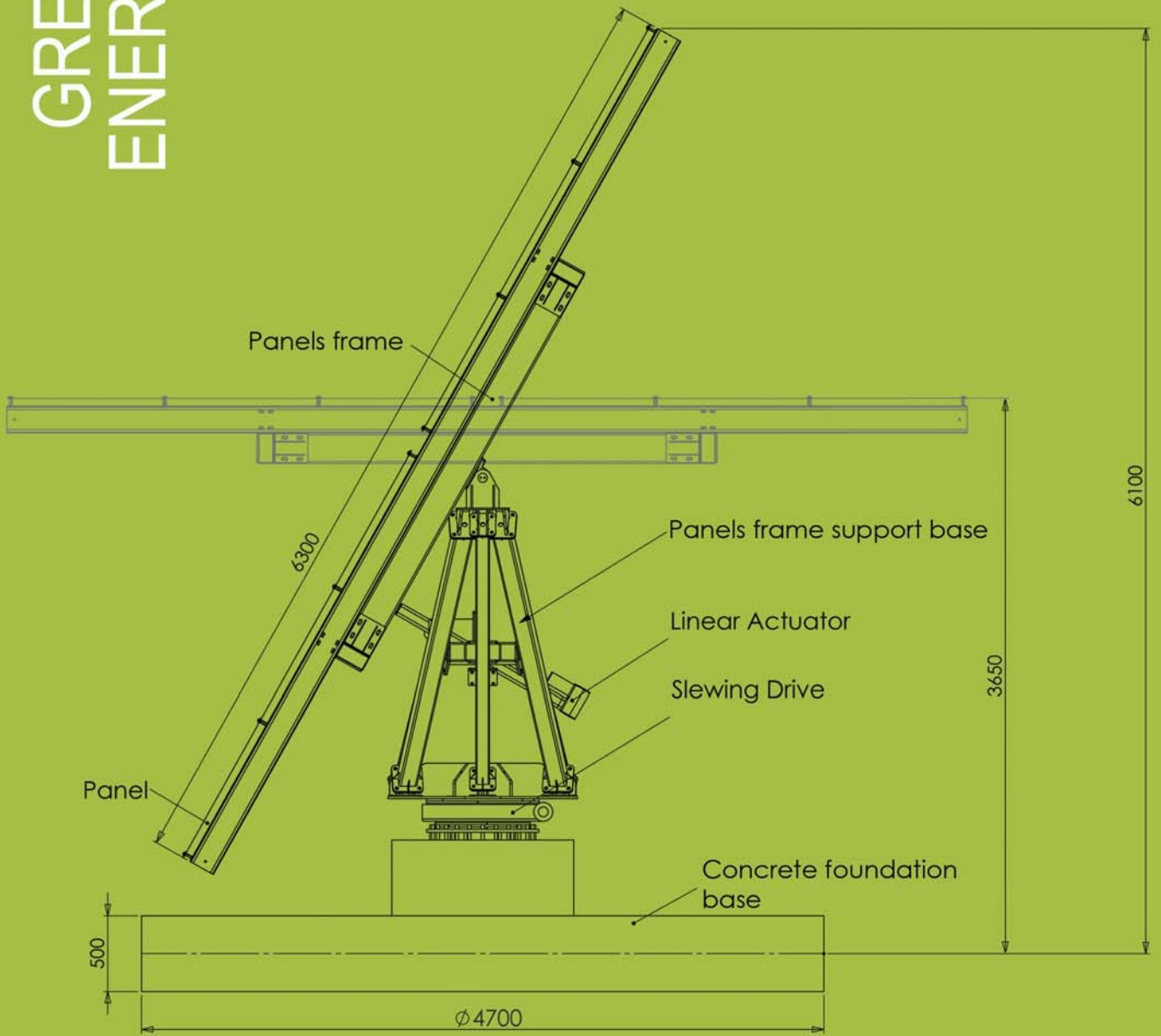


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DOPPLER SOLAR TRACKER'S ADVANTAGES

- **Robust construction**
 - Design of steel structure according to European standards and certified by **TÜV Hellas** (Member of TÜV Nord Group) for compliance to **Eurocodes 1, 2, 3, 8**. Doppler is certified according to **ISO 9001:2008**
 - 3 point Panels' frame support. The support is seated on a 20 mm metal plate for driving any vibration, due to strong wind uniformly, to the bottom of the structure
- **Ease of installation**
 - No need for big size crane for its installation. A small truck crane can be adequate for the complete installation
 - No underground foundation is needed
 - Free molds are provided for the concrete foundation base
- **Minimum maintenance requirements**
 - Absence of hydraulic systems (piston, pump, hoses etc.)
 - Use of closed type rolling bearings at the joints (of the horizontal and vertical axis movements).
Moreover, all transmission gears are well protected from weather conditions
- **Absence of galvanic corrosion phenomenon**
 - The frame which supports the photovoltaic panels is electrically isolated from the panels, prohibiting the galvanic corrosion phenomenon
- **Low power consumption and accurate sun tracking**
 - Use of DC motor with use of position encoder provides accurate position tracking with very low energy consumption
- **Emergency operation**
 - In case of power failure, the system turns to safety position (horizontal) protecting itself from strong winds
- **Telemetry system**
 - Real time information about tracker's status through GSM network (SMS)
 - Remote tracker programming
- **After Sales Support**
 - Doppler Green Energy provides immediate technical support through its authorized associates' network
- **For a 100 kWp system with conventional panels, the field area required is less than 4.200 sqm in order to keep shading minimum**
- **2 years warranty for workmanship and moving materials**
- **10 years warranty for structure components**

SOLAR TRACKER BASIC STRUCTURE



CERTIFICATE

This is to certify that
the static design of the metallic
solar tracker «Galileo DST-G11» of the
company:

DOPPLER ABEE
VIOPA POLYKASTROU
61200 POLYKASTRO KILKIS

Complies with the requirements of the Codes:

Eurocode 1, 2, 3 and 8

which define the requirements for the design of the constructions in Greece.

Certificate No: **TUV H - 767/11**
TUV HELLAS project No: **02.07.473**

The range of validity and details of the study approval referred to

Report No.: 767/11

(This certificate is valid in conjunction with the Reports mentioned)

Place, Date



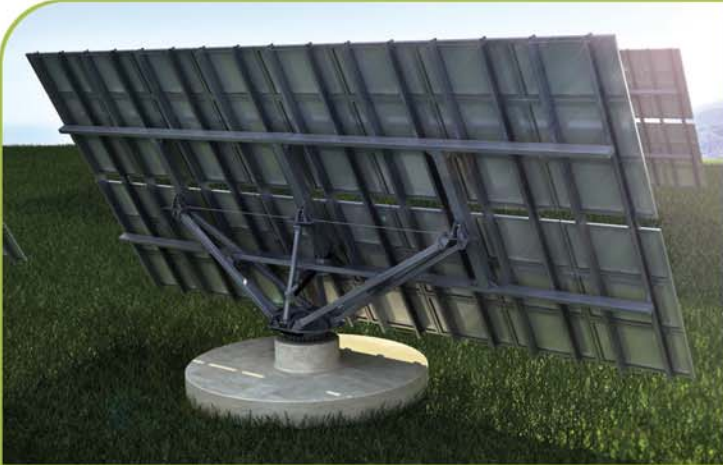
Athens, 20.05.2011



Responsible for Certification

I. Konstantaropoulos

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Doppler Green Energy constitutes Doppler S.A. "green" sector. A company which, since 2000, has linked its name with the consistency and technological innovation in Greece, and more than 46 countries around the world

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