

CERTIFICATE OF PRODUCT CONFORMITY

*Dubai Central Laboratory Department (DCLD) of Dubai Municipality,
hereby attests that the product(s)
THERMAL SOLAR SYSTEMS AND COMPONENTS – SOLAR COLLECTORS*

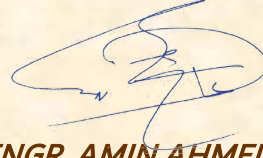
*(Details as per the attached Scope of Certification)
PAPAEMMANOUEL S.A.*

1st KM. Infyta St. Thomas, GR-32011 Infyta – Viota, Greece

have been assessed in accordance with DCLD Document Ref. No. RD-DP21-2001 (IC) "General Rules for DM third party product certification system through factory assessment" and the relevant Specific Rules, and were found in conformity with the standard specification:

BS EN 12975-1:2006+A1:2010

*Accordingly, DCLD hereby authorizes the above manufacturer
to affix the DCL Product Conformity Mark to the above-mentioned product(s).*



for / ENGR. AMIN AHMED AMIN

*Director, Dubai Central Laboratory Department
Dubai Municipality*

Verify:



Certificate No: CL16020380

Valid Until: 08 July 2018



Current Issue Date: 09 July 2017

Original Issue Date: 09 July 2016

*The attached Scope of Certification bearing the same Certificate No. forms an integral part of this Certificate.
This Certificate is an electronic document, subject to the Terms and Conditions of the Product Certification System and shall not be reproduced except in full.*

**DUBAI CENTRAL LABORATORY DEPARTMENT
DCL PRODUCT CONFORMITY CERTIFICATION SCHEME**

**SCOPE OF CERTIFICATION
FOR CERTIFICATE NO. CL16020380**

Certificate Issued To:	PAPAEMMANOUEL S.A. 1 st KM. Infyta St. Thomas, Gr-32011 Infyta-Viota, Greece
Applicable Standard Specification:	BS EN 12975-1:2006 +A1: 2010 – Thermal solar systems and components – Solar Collectors – Part 1: General requirements
Applicable Specific Rules:	RD-DP21-2178 (IC) – Specific Rules Certification of Solar Collectors as per BS EN 12975-1 through Factory Assessment RD-DP21-2084 (IC) – Guidelines for Factory Production control Plan for Solar Collector Manufacturers

S/N	PRODUCT DESCRIPTION	BRAND NAME(S) / MODEL(S)	PRODUCT DETAILS
1.	<p align="center">FLAT PLATE TYPE SOLAR COLLECTOR</p> <p>Absorber Materials: 0.5 mm Aluminum Absorber Sheet with high selective surface treatment and laser welded into copper tubes</p> <p>Rockwool thermal insulation of 50 kg/m³ density with thermal conductivity of 0.035 w/(m- ° K); 30 mm thickness for back insulation and 20 mm thickness for side insulation</p> <p>3.2 mm Low Iron Tempered Mistlite Glass Cover</p>	<p>“SOLAR FLAME & SOLAIR” Brands for VPLUS Models</p> <p align="center">&</p> <p>“ENVIRO ENERGY SOLUTIONS” Brand for EVP Models</p>	<p align="center">VPLUS / EVP 1.50:</p> <p>Gross dimensions of 1480 x 1010 x 86 mm; Gross Area – 1.50 m²; Aperture area – 1.38 m²; Total Absorber Area – 1.38 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 26.20 kg</p> <p align="center">VPLUS / EVP 1.82:</p> <p>Gross dimensions of 1480 x 1230 x 86 mm; Gross Area – 1.82 m²; Aperture area – 1.72 m²; Total Absorber Area – 1.72 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 31.50 kg</p>

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	<p>1 mm thickness Aluminum powder coated casing material with 0.4 mm thickness Aluzinc back cover material EPDM elastic rubber & silicone as sealing materials Use with anti-freeze thermal fluid (propylene glycol for solar system)</p>		<p>VPLUS / EVP 2.00V: Gross dimensions of 1980 x 1010 x 86 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 34.00 kg</p> <p>VPLUS / EVP 2.00H: Gross dimensions of 1010 x 1980 x 86 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 34.80 kg</p> <p>VPLUS / EVP 2.37V: Gross dimensions of 1930 x 1230 x 86 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 41.50 kg</p> <p>VPLUS / EVP 2.37H: Gross dimensions of 1230 x 1930 x 86 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 42.50 kg</p>
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			<p>VPLUS / EVP 2.72V: Gross dimensions of 2160 x 1260 x 86 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 47.50 kg</p> <p>VPLUS / EVP 2.72H: Gross dimensions of 1260 x 2160 x 86 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 153.2°C Empty Collector Weight – 48.50 kg</p>
2.	<p>FLAT PLATE TYPE SOLAR COLLECTOR</p> <p>Absorber Materials: 0.5 mm Aluminum Absorber Sheet with high selective surface treatment and laser welded into copper tubes;</p> <p>Rockwool thermal insulation of 70 kg/m³ density with thermal conductivity of 0.035 w/(m- ° K); 50 mm thickness for back insulation and 20 mm thickness for side insulation;</p> <p>3.2 mm Low Iron Tempered Mistlitz Glass Cover;</p>	<p>“SOLAR FLAME & SOLAIR” Brands for TERSOL Models</p>	<p>TERSOL 1.50: Gross dimensions of 1480 x 1010 x 100 mm; Gross Area – 1.50 m²; Aperture area – 1.38 m²; Total Absorber Area – 1.38 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 28.80 kg</p> <p>TERSOL 1.82: Gross dimensions of 1480 x 1230 x 100 mm; Gross Area – 1.82 m²; Aperture area – 1.72 m²; Total Absorber Area – 1.72 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 34.70 kg</p>

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	<p>1 mm thickness Aluminum powder coated casing material with 0.4 mm thickness Aluzinc back cover material; EPDM elastic rubber & silicone as sealing materials; Use with anti-freeze thermal fluid (propylene glycol for solar system)</p>		<p>TERSOL 2.00V: Gross dimensions of 1980 x 1010 x 100 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 38.50 kg</p> <p>TERSOL 2.00H: Gross dimensions of 1010 x 1980 x 100 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 39.30 kg</p> <p>TERSOL 2.37V: Gross dimensions of 1930 x 1230 x 100 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 45.50 kg</p> <p>TERSOL 2.37H: Gross dimensions of 1230 x 1930 x 100 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 46.50 kg</p>
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			<p>TERSOL 2.72V: Gross dimensions of 2160 x 1260 x 100 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 51.80 kg</p> <p>TERSOL 2.72H: Gross dimensions of 1260 x 2160 x 100 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter Risers –vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 171.5°C Empty Collector Weight – 53.00 kg</p>
3.	<p>FLAT PLATE TYPE SOLAR COLLECTOR</p> <p>Absorber Materials: 0.5 mm Aluminum Absorber Sheet with high selective surface treatment and laser welded into copper tubes (Serpentine Type) Rockwool thermal insulation of 70 kg/m³ density with thermal conductivity of 0.035 w/(m- ° K); 50 mm thickness for back insulation and 20 mm thickness for side insulation 3.2 mm Low Iron Tempered Mistlite Glass Cover</p>	<p>“SOLAR FLAME & SOLAIR” Brands for MSFC100 Models</p>	<p>MSFC100 - 1.50: Gross dimensions of 1480 x 1010 x 100 mm; Gross Area – 1.50 m²; Aperture area – 1.38 m²; Total Absorber Area – 1.38 m²; Headers – 2 horizontal copper tube of 22 mm diameter; 18 Meander loops of 8 mm diameter; Meander radius of 30 mm Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 200°C Empty Collector Weight – 29.50 kg</p> <p>MSFC100 - 1.82: Gross dimensions of 1480 x 1230 x 100 mm; Gross Area – 1.82 m²; Aperture area – 1.72 m²; Total Absorber Area – 1.72 m²; Headers – 2 horizontal copper tube of 22 mm diameter; 18 Meander loops of 8 mm diameter; Meander radius of 30 mm</p>

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	<p>1 mm thickness Aluminum powder coated casing material with 0.4 mm thickness Aluzinc back cover material EPDM elastic rubber & silicone as sealing materials Use with anti-freeze thermal fluid (propylene glycol for solar system)</p>		<p>Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 200°C Empty Collector Weight – 31.00 kg</p> <p>MSFC100 - 2.00: Gross dimensions of 1980 x 1010 x 100 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter; 24 Meander loops of 8 mm diameter; Meander radius of 30 mm Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 200°C Empty Collector Weight – 36.00 kg</p> <p>MSFC100 - 2.37: Gross dimensions of 1930 x 1230 x 100 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter; 24 Meander loops of 8 mm diameter; Meander radius of 30 mm Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 200°C Empty Collector Weight – 46.00 kg</p> <p>MSFC100 - 2.72: Gross dimensions of 1260 x 2160 x 100 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter; 26 Meander loops of 8 mm diameter; Meander radius of 30 mm Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 200°C Empty Collector Weight – 53.00 kg</p>
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4	<p>FLAT PLATE TYPE SOLAR COLLECTOR</p> <p>Absorber Materials: 0.5 mm Aluminum Absorber Sheet with high selective surface treatment and laser welded into copper tubes</p> <p>Rockwool thermal insulation of 50 kg/m³ density with thermal conductivity of 0.035 w/(m- ° K); 40 mm thickness for back insulation and 20 mm thickness for side insulation</p> <p>3.2 mm Low Iron Tempered Mistlite Glass Cover</p> <p>1 mm thickness Aluminum powder coated casing material with 0.4 mm thickness Aluzinc back cover material</p> <p>Polyurethane sealant + PVC Rubber, EPDM elastic rubber & silicone as sealing materials</p> <p>Use with anti-freeze thermal fluid (propylene glycol for solar system)</p>	*FMAX	<p>FMAX 1.50 V:</p> <p>Gross dimensions of 1480 x 1010 x 86 mm; Gross Area – 1.50 m²; Aperture area – 1.38 m²; Total Absorber Area – 1.38 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers – 9 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 27.80 kg</p> <p>FMAX 1.50 H:</p> <p>Gross dimensions of 1010 x1480 x 86 mm; Gross Area – 1.50 m²; Aperture area – 1.38 m²; Total Absorber Area – 1.38 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers – 14 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 28.20 kg</p> <p>FMAX 1.82 V:</p> <p>Gross dimensions of 1480 x 1230 x 86 mm; Gross Area – 1.82 m²; Aperture area – 1.72 m²; Total Absorber Area – 1.72 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers – 11 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 32.80 kg</p> <p>FMAX 1.82 H:</p> <p>Gross dimensions of 1230 x 1480 x 86 mm; Gross Area – 1.82 m²; Aperture area – 1.72 m²; Total Absorber Area – 1.72 m²; Headers – 2 horizontal copper tube of 22 mm diameter ; Risers – 14 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 33.20 kg</p>
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			<p>FMAX 2.00 V:</p> <p>Gross dimensions of 1980 x 1010 x 86 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 9 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 36.20 kg</p> <p>FMAX 2.00 H:</p> <p>Gross dimensions of 1010 x 1980 x 86 mm; Gross Area – 2.00 m²; Aperture area – 1.86 m²; Total Absorber Area – 1.86 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 18 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 36.60 kg</p> <p>FMAX 2.37 V:</p> <p>Gross dimensions of 1930 x 1230 x 86 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 11 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 43.00 kg</p> <p>FMAX 2.37H:</p> <p>Gross dimensions of 1230 x 1930 x 86 mm; Gross Area – 2.37 m²; Aperture area – 2.23 m²; Total Absorber Area – 2.23 m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 18 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 44.00 kg</p>
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			<p>FMAX 2.72V: Gross dimensions of 2160 x 1260 x 86 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 11 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 48.00 kg</p> <p>FMAX 2.72H: Gross dimensions of 2160 x 1260 x 86 mm; Gross Area – 2.72 m²; Aperture area – 2.57 m²; Total Absorber Area – 2.57m²; Headers – 2 horizontal copper tube of 22 mm diameter; Risers – 18 vertical copper tubes of 8 mm diameter; Maximum operational pressure – 10 bars; Maximum Stagnation Temperature – 163.8°C Empty Collector Weight – 49.60 kg</p>
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NOTE 1: The above products shall bear the DCL Conformity Mark applied on each individual product.

NOTE 2: This document forms part of the Certificate of Product Conformity bearing the same certificate number.

*NOTE 3: *Solar Collector Models included in the revision of this Scope of Certification*

NOTE 4: This supersedes the Scope of Certification issued on 10 May 2017

Original Issue Date : 09 July 2016

Current Issue Date : 09 July 2017

Valid Until : 08 July 2018

ARIF HUSAIN AL MARZOOQI

Head of Products Conformity Assessment Section

Dubai Central Laboratory Department