

# AENOR

## Keymark Certificate Solar thermal energy



078/000171

AENOR certifies that the organization

### TERMICOL ENERGIA SOLAR, S.L.

registered office	PI LA ISLA - CL RIO VIEJO, 39 41703 DOS HERMANAS (Sevilla - España)
supplies	Solar collectors
in compliance with	UNE-EN 12975-1:2006 (EN 12975-1:2006)
Trade Mark Technical information	T20MS, T20MSH, T25MS, T25MSH Specified in Annexes to the Certificate
Production site	PI LA ISLA - CL RIO VIEJO, 39 41703 DOS HERMANAS (Sevilla - España)
Certification scheme	In order to grant this Certificate, AENOR has tested the product and has verified the quality system implemented for its manufacture. AENOR performs these tasks periodically while the Certificate has not been cancelled, in accordance with Specific Rules RP 078.01.
First issued on	2013-02-12
Last issued	2018-02-12
Validity date	2023-02-12

Rafael GARCÍA MEIRO  
Chief Executive Officer

Original Electronic Certificate

AENOR INTERNACIONAL S.A.U.  
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Product certification body accredited by ENAC, number 01/C-PR002.078





Annual collector output based on EN 12975 Test Results, annex to Solar KEYMARK Certificate	Licence number	078/000171
	Issued	2018-02-12

Annual collector output kWh													
Collector name	Location and collector temperature (T <sub>m</sub> )												
	Athens			Davos			Stockholm			Würzburg			
	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	
T20MS	2.201	1.505	914	1.887	1.265	739	1.256	792	444	1.349	841	461	
T20MSH	2.201	1.505	914	1.887	1.265	739	1.256	792	444	1.349	841	461	
T25MSH	2.766	1.892	1.148	2.371	1.590	928	1.579	996	558	1.696	1.056	579	
T25MS	2.766	1.892	1.148	2.371	1.590	928	1.579	996	558	1.696	1.056	579	

Collector mounting: Fixed or tracking No tracking; Slope = latitude - 15° (rounded to nearest 5°)

Overview of locations				
Location	Latitude °	G <sub>tot</sub> kWh/m <sup>2</sup>	T <sub>a</sub> °C	Collector orientation or tracking mode
Athens	38	1.765	18,5	South, 25°
Davos	47	1.714	3,2	South, 30°
Stockholm	59	1.166	7,5	South, 45°
Würzburg	50	1.244	9,0	South, 35°

G <sub>tot</sub>	Annual total irradiation on collector plane	kWh/m <sup>2</sup>
T <sub>a</sub>	Mean annual ambient air temperature	°C
T <sub>m</sub>	Constant collector operating temperature (mean of in- and outlet temperatures)	°C

Calculation of the annual collector performance is done by the official Solar Keymark spreadsheet tool. Hour by hour the collector output is calculated according to the efficiency parameters from the Keymark test using constant collector operating temperature (T<sub>m</sub>). Detailed description with all equations used is available from the Solar Keymark web site (direct link: <http://www.estif.org/solarkeymark/annexb1.php>)

<b>AENOR INTERNACIONAL, S.A.U.</b> - Génova, 6.- 28004 - Madrid, España - Tel. 91 432 60 00- www.aenor.com  Product certification body accredited by ENAC, number 01/C-PR002.078	Datasheet version: VERSION 3.7, 2012.03.22
	Calculation program version: 3.07, October 2011 (SP)